

(2019 - 2024)



ST. MARY'S COLLEGE (AUTONOMOUS)
THOOTHUKUDI – 628 001



ST. MARY'S COLLEGE (Autonomous) THOOTHUKUDI
(Re-accredited with A⁺ Grade by NAAC)



Chairman

: Dr. Sr. Jessie Fernando

Overall Coordinator & Member Secretary : Dr. Sr. A. Arockia Jenecius Alphonse

We are pleased to submit the consolidated report on the 'Implementation of the Star College Scheme' for the year 2019 – 2024, supported by the Department of Biotechnology, Ministry of Science and Technology, Government of India, New Delhi. We bring to your kind notice that we have tried our level best to include all the relevant information and explanation to make the report informative and comprehensive. We are glad to clarify any discrepancy that may arise.

Physics Department Coordinators

Chemistry Department Coordinators

Botany Department Coordinators

Zoology Department Coordinators

Overall Coordinator & Member Secretary

Chairman

DBT Star College Scheme

DBT Star College Scheme

St. Mary's College (Autonomous)

St. Mary's College (Autonomous)

Thoothukudi

Thoothukudi

**CHAIRMAN AND COORDINATOR OF STAR COLLEGE SCHEME
ST. MARY'S COLLEGE (AUTONOMOUS), THOOTHUKUDI**



Chairman (Principal)
Dr. Sr. A. S. J. Lucia Rose
(2019 – 2022)



Chairman (Principal)
Dr. Sr. Jessie Fernando
(2022 – 2024)



Overall Coordinator & Member Secretary
Dr. Sr. A. Arockia Jenecius Alphonse, Head and Associate Professor of Botany
(2019 – 2024)

COORDINATORS OF STAR COLLEGE SCHEME
ST. MARY'S COLLEGE (AUTONOMOUS), THOOTHUKUDI



Dr. G. Flora
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(2019 – 2022)



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Ms. S. Pauline
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Dr. A. Lakshmi
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of Chemistry
(2022 – 2024)



Ms. P. Dhanalakshmi
Assistant Professor of
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(2022 – 2024)



Dr. R. Sri Priya
Assistant Professor
of Zoology
(2022 – 2024)

ACKNOWLEDGEMENT

“All labour that uplifts humanity has dignity and importance and should be undertaken with painstaking excellence” - Martin Luther King.

As we successfully complete the five years of DBT Star College Scheme, I would like to acknowledge the Sponsoring Agency and combined efforts of the Marian Team for ensuring success in executing this project. First and foremost, I submit my profound gratitude to God Almighty for His abundant blessings and guiding presence bestowed throughout this year in all our endeavours.

I am delighted to express my deep sense of gratitude to the Department of Biotechnology, Govt. of India, New Delhi for choosing our college and sanctioning the fund under Star College Scheme. It means a lot to a developing college like ours to explore new possibilities in academic and research with the financial assistance provided.

I place on record the support and efficient guidance offered by our Secretaries, Sr. Flora Mary and Dr. Sr. C. Shibana, Our Principals Dr. Sr. Alphonse Roseline Mary, Dr. Sr. A. S. J. Lucia Rose and Dr. Sr. Jessie Fernando throughout the tenure of this scheme. Their constant encouragement and enthusiasm helped me strive for the best in all the activities that we undertook during this period.

My heartfelt thanks to the Heads, Department Coordinators and Faculty members of the Department of Physics, Chemistry, Botany and Zoology for their committed teamwork and execution of duties. I am also indebted to thank the students of our own institution and from other institutions for their immediate response and active participation in all the activities organised. They have undoubtedly helped us make the programmes a grand success.

(DR. A. AROCKIA JENECEIUS ALPHONSE)

PREFACE

Founded by the Congregation of the Mother of Sorrows in the year 1948, **St. Mary's College** (Autonomous), Thoothukudi is a premier institution of higher education emphasizing undergraduate education, acknowledged for the impact its students, faculty, staff and graduates have in leading and serving the society. The College plays a significant role in shaping the destiny of young coastal women in and around Thoothukudi. The institution has established "Centers of Excellence" to promote co-curricular and extra-curricular activities inside and outside the college campus. There are eight Centers of Excellence. Each Centre embodies several clubs and forums that operate under the headship of the Director and the designated members of the faculty to create a sense of working entity that aids to nurture holistic growth. The college is reaccredited in the fourth cycle with 'A+' grade by NAAC.

St. Mary's College (Autonomous), Thoothukudi sent the proposal for Star College Scheme on 10th May 2018. The fund under Star College Scheme was sanctioned on 16th March 2019. Four departments of the college namely Physics, Chemistry, Botany and Zoology have been recommended by the Department of Biotechnology (DBT), Ministry of Science and Technology, Government of India, New Delhi, to receive financial assistance under the Star College Scheme. For implementation of the Star College Scheme, the DBT, New Delhi has sanctioned Rs 82, 00,000 for the academic year 2019 – 2022 and for the extension an amount of Rs 28,00, 000 for the academic year 2022 – 2024 and an initial release of a sum of Rs.40 lakhs (Rs.10 lakhs per dept) under non-recurring head and Rs.14 lakhs (Rs.3.5 lakhs per dept) under recurring head for the financial year 2019 – 2020 on 16.03.2019. The DBT also released second (02.03.2021), third (29.08.2023) and fourth installment

(30.07.2024) of a sum of Rs. 42 lakhs under recurring head for the financial year 2020 – 2021, 2021 – 2022 and 2022 – 2023. St. Mary's College is graded A⁺ by the Task Force for Colleges supported under the Star College Scheme in the 3rd Review Meeting held between 7th to 9th February 2024 at Coimbatore and the progress of the college is further remarked as "Very Good" by the Review Committee. We sincerely acknowledge the financial support rendered by the DBT.

OBJECTIVES

The objective of the Star College Scheme is to strengthen Life Science and Biotechnology education and training at the undergraduate level to encourage and attract students to pursue a career in Life Sciences. The scheme envisages:

- ❖ Strengthening the academic and physical infrastructure to enhance the teaching and learning process of the faculty and students and to stimulate critical thinking by providing 'hands on' exposure in experimental work.
- ❖ Increasing the core instrumentation resources by procuring new equipment and upgrading existing facilities.
- ❖ Providing students access and exposure to Research Laboratories and Industries in the country.
- ❖ Providing better library facility to students and faculty in the department.
- ❖ Organising workshops / seminars / Invited lecture for the benefit of the students.
- ❖ Conducting field trips / excursions / lab visits / industrial visits for students to optimise learning.
- ❖ Conducting faculty training programmes to update the knowledge and develop the skills.
- ❖ Organising outreach activities for school teachers and students.
- ❖ Mentoring the nearby colleges to apply for star college scheme.

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Under the Star College Scheme sponsored by the DBT, New Delhi, St. Mary's College (Autonomous), Thoothukudi organised **20** faculty training programmes, **29** workshops, **41** seminars and conferences, **81** invited lectures, **28** in-house trainings, **63** hands-on trainings and **5** awareness programmes. The students participated in **13** internship and **53** field trips outside the college. The college also organised **31** outreach activities for school teachers and students, college faculty and students. A total of **1180** experiments were conducted and **360** new experiments were introduced in the Departments of Botany, Chemistry, Physics and Zoology. Under the Star College Scheme, a total of **20** inter-departmental projects and **154** short term projects were undertaken by the undergraduate students from 2019 to 2024. The Departments of Physics, Chemistry, Botany and Zoology have successfully published **26** laboratory manuals **3** proceedings and **2** books with ISBN for the benefit of the undergraduate students. Under the Star College Scheme, a total of **87** equipments and **515** books were purchased to enhance the academic resources of four departments. Activities done under Star College Scheme attracted a remarkable number of **345** and **7804** faculty and students from various schools and colleges. The National Science Day was celebrated every year on 28th February. 'Marian Star Science Fest' was organised as a part of the National Science Day. Various competitions were conducted at Inter-School, Inter-Collegiate and Intra-Collegiate levels.

INAUGURAL AND ADVISORY COMMITTEE MEETING

1. On **20th May 2019**, the **Inaugural and Advisory Committee Meeting** of the DBT Star College Scheme was held at 10.00 a.m. in the Pearl Conference Hall at St. Mary's College (Autonomous), Thoothukudi. The Principal, Rev. Dr. Sr. A. S. J. Lucia Rose, welcomed the gathering and the Secretary, Rev. Sr. Flora Mary delivered the inaugural address. Dr. R. Rajendran, former Principal, PSG College of Arts and Science and Dr. K. Sahaya Raj, Head & Associate Professor, Department of Zoology, St. Xavier's College (Autonomous), Palayamkottai graced the occasion as the external expert and special invitee respectively. Dr. Mrs. S. Maria Victorial Rani, Former Head and Associate Professor of Botany, St. Mary's College was the Guest of Honour. Dr. Mrs. Thenmozhi, Dean, School of Language & Culture felicitated the gathering. Dr. Sr. Arockia Jenecius Alphonse, the Overall Coordinator and Member Secretary presented the activities of the Star College Scheme for the academic year 2019 - 2020, followed by the presentations of the Coordinators of the Departments of Physics, Chemistry, Botany and Zoology. The coordinators of the various Departments presented the list of projects to be undertaken by the students, industrial visits, summer training, exhibition, seminar and hands on training to be organised for the faculty and the students of the participating departments. They enumerated the instruments and books to be purchased. Dr. R. Rajendran, in his lecture, highlighted the origin, aims and objectives of the DBT, the role of the Chairperson, the Coordinator, the Department Coordinators and the institutional outcome to be achieved. He also insisted on some specific innovations to be introduced in the participatory departments. He motivated them to inspire other neighbouring institutions and help them upgrade to the first stage of the star status. The meeting came to an end with the National Anthem.

2. Internal Advisory Committee Meeting for the Star College Scheme activities of the academic year 2020 – 2021 was held on **17th October 2020** at 10 a.m. via online mode. Dr. R. Rajendran, Associate Professor, Department of Microbiology, PSG College of Arts and Science, Coimbatore and Dr. K. Sahayaraj, Associate Professor of Zoology, St. Xavier's College, Palayamkottai were the external experts. The programme commenced with a prayer song. Rev. Dr. Sr. A. S. J. Lucia Rose, Principal welcomed the gathering followed by felicitation by our Secretary Rev. Sr. Flora Mary. Dr. Sr. A. Arockia Jenecius Alphonse, Overall Coordinator and Member Secretary, DBT Star College Scheme thanked the funding agency, Management, Heads, Coordinators, Faculty and Students of St. Mary's College for their committed team work and presented the summary and the interdepartmental activities carried out under Star College Scheme during the academic year 2019 – 2020. She highlighted various programmes organised by the School of Biological Sciences and Physical Sciences like faculty training programme, seminar, international conference, bio expo, intercollegiate quiz, interdepartmental projects and mentioned the Marian Star Science Fest 2020 organised to create awareness about science for both school and college students. Following the presentation, the Department coordinators presented the activities done under Star College Scheme during the academic year 2019 - 2020 for their respective departments. They highlighted
- Instruments and books procured
 - Various programmes organised in the departments like guest lectures, faculty training programme, hands on experience, seminar, training in other institution, projects and lab / field / industrial visit tabulated with date, resource person details and beneficiaries.
 - List of new practicals included in the curriculum

- Action plan for the academic year 2020 - 2021

Appreciation from experts

- The programmes organised by the star departments are impressive
- Department of Physics has organised more interschool competitions
- Department of Chemistry highlighted the new practicals included in each semester
- Department of Botany and Zoology organised Bio quiz - invited schools and colleges
- Department of Botany has many motivated projects
- Department of Zoology has organised more training programmes
- Impressive feedback by students
- Department of Chemistry highlighted outreach programme and appreciated the resource persons
- Feedback given by the college students and school students was appreciable
- Interdepartmental projects are a very good initiative

Views

- Physics and zoology have not conducted seminars and conferences
- Any programme organised should be related to biotechnological aspects
- Chemistry should highlight the biotechnological aspects which the students have learnt from other departments
- Physics has minimised their programmes in new action plan
- Faculty participated from other colleges should be mentioned
- MoU mentioned with other colleges, research institutes should be highlighted
- In the proposed action plan include students from others departments and other colleges too

Recommendations

- Difficulties faced can be mentioned so that amicable solution can be brought about
- Prepare practical book

Clarifications

- None highlighted the new concepts introduced in the theory (in percentage) in various courses and semester
- Mention the programmes for which students and staff from other departments are invited
- Expenses managed for TA to Trivandrum by Chemistry and also botany
- Students presented papers at Malaysia – travel expenses?
- Is PG accommodated in this programme?
- Mention the use of new instruments for new practicals
- Virtual dissection – are they going to practice in the forthcoming year has to be mentioned
- SOP you developed
- How much percentage of the objective has been fulfilled in the first year?
Outcome of the projects and they going to be published?

3. The Advisory meeting for the DBT star college scheme for the academic year 2021 - 2022 was held on **29th November 2021** in the college conference hall at 10 a.m. The DBT representatives, external experts, Overall Coordinator and Member Secretary, Heads of the departments and Coordinators of Physics, Chemistry, Botany and Zoology were present. Dr. Garima Gupta, Programme officer, Star College Scheme, Department of Biotechnology, Ministry of Science and Technology, New Delhi, Dr. R. Rajendran Associate Professor, Department of

Microbiology PSG College of Arts and Science, Coimbatore and Dr. K. Sahaya Raj, Head of the department and Associate Professor of Zoology, St. Xavier's College (Autonomous), Palayamkottai along Overall Coordinator and Member Secretary Dr. Sr. A. Arockia Jenecius Alphonse, Assistant Professor of Botany, St. Mary's College (Autonomous). The meeting was headed by the chairman Dr. Sr. A. S. J. Lucia Rose, Principal. The meeting began with prayer song followed by welcome address. Dr. Sr. A. Arockia Jenecius Alphonse, Assistant Professor of Botany, St. Mary's College (Autonomous) first presented the overall activities held from 2019 - 2021 followed by the presentations of the department coordinators. All the department coordinators highlighted the new practical introduced, equipment purchased, short-term projects, interdepartmental projects, seminars / conference / webinar / faculty development programme / invited lectures organised, hands on training, field trip / industrial visit / lab visit, outreach activities and future activities.

1. On 7th August 2019, an invited lecture on “**Evolutionary Significance of Pteridophytes**” was organised by the **Department of Botany. Dr. V. Irudhayaraj (Retd.)**, Associate Professor of Botany, St. Xavier’s College (Autonomous), Palayamkottai was the resource person. He began the lecture by giving thanks to the pioneers in the field of Pteridophytes. The lecture included not only the evolutionary significance but also the modern techniques used in the respective field. Since 2018 was declared as “The year of Mathematical Biology”, special emphasis was given to the fractal fern technique and Fibonacci series in Pteridophytes. The students were motivated to explore Pteridophytes through their project work. They found the lecture quite interesting and informative.
Beneficiaries: 56

2. On 16th August 2019, an invited lecture on “**Development of Nanoparticles and its Applications**” was organised by the **Department of Chemistry. Dr. C. Vedhi**, Assistant Professor of Chemistry, V.O. Chidambaram College, Thoothukudi was the resource person. The students of III B.Sc. Chemistry and II B.Sc. Chemistry attended the lecture. The resource person in his lecture highlighted the basics of nano chemistry, preparation of nanoparticles by chemical and physical methods and its applications in the field of medicine, robotics, engineering, drug design and catalysis. **Beneficiaries: 79**

3. On 16th August 2019, an invited lecture on “**Fundamentals and Advances of Energy Sources**” was organised by the **Department of Physics. Dr. P. Sumithraj Premkumar**, Assistant Professor of Physics, St. John’s College, Palayamkottai

was the resource person. Dr. Sumithraj Premkumar in his lecture brought home the message that energy related activities have significant impact in our day-to-day life and that, it is indispensable to provide energy sources which satisfy the needs of the society and preserve the environment. **Beneficiaries: 92**

4. On **23rd September 2019**, an invited lecture on “**Growth of Device Quality Direction Controlled Signal Crystals**” was organised by the **Department of Physics**. **Dr. P. Rajesh**, Assistant Professor of Physics, SSN College of Engineering, Chennai was the resource person. Dr. P. Rajesh in his lecture highlighted the various processes involved in crystal growth like slow evaporation method, slow cooling method and Sankaranarayanan Ramasamy method. He also threw light on how large crystals can be grown using SR method. He concluded his lecture with a discussion on the growth of single crystal by using the steel preparation method. **Beneficiaries: 45**

5. On **9th December 2019**, an invited lecture on “**Nuclear Physics - Elementary Particles**” was organised by the **Department of Physics**. **Dr. P. Jebaraj Devadasan**, Head and Associate Professor of Physics, Pope’s College (Autonomous), Sawyerpuram was the resource person. The students gained knowledge about Nuclear Physics, its history of invention, the fundamentals of Nuclear Physics like Geiger Muller Counter, cloud chamber and also the size of the elementary particles. It was an interactive session. He ignited the minds of the students with the spark of motivation. **Beneficiaries: 39**

6. On **9th December 2019**, an invited lecture on “**Blue Biotechnology**” was conducted by the **Department of Zoology**. **Dr. S. Kalidass**, Associate Professor, Department of Animal Science, Manonmaniam Sundaranar University, Tirunelveli was the resource person. He explained the bioprospecting of marine micro-

organisms and gave an overview of the genetic diversity of marine microbes. The prospecting of the genetic resources of microbes for industrial application was explained in his lecture. **Beneficiaries: 125**

7. On **10th December 2019**, an invited lecture on **“Forest and Biodiversity”** was organised by the **Department of Zoology**. **Mr. S. Vimal Kumar**, Forest Range Officer, Srivaikundam spoke on the various “Biogeographic Realms of the World” and clearly explained about the ten geographic divisions or zones of Indian topography. He described the major hotspots, the wildlife sanctuaries, the zoos, the national parks and the protected areas in and around Tamil Nadu. He emphasized on the unknown biodiversity on the islands around Thoothukudi. The session ended with the clarifications given by the resource person to the various questions put forth by the students. **Beneficiaries: 134**

8. On **13th December 2019**, an invited lecture on **“Plant Microbe Interaction”** was organised by the **Department of Botany**. **Dr. A. Egbert Selvin Rose**, Associate Professor of Botany, St. Joseph’s College (Autonomous), Tiruchirappalli was the resource person. He spoke about the microorganisms that reside on intra and extra microbiome that contribute significantly to the nutrient supply of their host plant and help the plant to overcome a variety of biotic or abiotic stresses. **Beneficiaries: 79**

9. On **13th December 2019**, an invited lecture on **“Computational Physics – Numerical Methods”** was organised by the **Department of Physics**. **Dr. B. Selvaraj**, Dean of Research, Nehru Institute of Engineering and Technology, Coimbatore gave a concise note on the various numerical methods of solving problems like Bisection method, Newton Raphson method, Gauss elimination method etc. He taught Trapezoidal rule and Simpson 1/3 rule with its

derivations. He also explained the Taylor Series of solving differential equation and illustrated the fitting of a straight-line method with figures in an easy manner. The lecture was very useful, interesting and the methods taught were easy to grasp. It helped the students to expand their knowledge about numerical methods of solving problems. **Beneficiaries: 132**

10. On 16th December 2019 an invited lecture on **“Origin and Diversity of Bryophytes”** was organised by the **Department of Botany**. **Dr. A. E. Dulip Daniels**, Associate Professor and Head, Department of Botany, Scott Christian College (Autonomous), Nagercoil was the resource person. He gave a detailed talk on ontogeny of bryophytes and various theories associated with the help of images of model species. His lecture also focused on the rich bryophyte diversity of Indian subcontinent and different conservation issues in protecting them. **Beneficiaries: 43**

11. On 17th December 2019 an invited lecture on **“Photochemistry -Fundamentals and Applications”** was organised by the **Department of Chemistry**. **Dr. K. Swarnalatha**, Associate Professor of Chemistry, Manonmaniam Sundaranar University, Tirunelveli was the resource person. She gave a clear introduction on energy, how it is classified, explained various laws like Stark-Einstein law, Grotthus - Draper law and Beer-Lambert law and concepts like fluorescence, phosphorescence, chemiluminescence, thermoluminescence and bioluminescence. She also spoke about the wavelength and the frequency of light. The principle of photosynthesis was explained in terms of photochemistry. **Beneficiaries: 88**

12. On 18th December 2019, an invited lecture on **“Plant Systematics”** was organised by the **Department of Botany**. **Dr. C. Murugan**, Scientist C,

Botanical Survey of India, Coimbatore was the resource person. He categorised the major systems of classification, nomenclature and explained the modern principles of ICBN and the preparation of taxonomic key. **Beneficiaries: 36**

13. On 19th December 2019, an invited lecture on “**Microprocessor 8085**” was organised by the **Department of Physics**. **Dr. C. James**, Associate Professor of Physics, Scott Christian College (Autonomous), Nagercoil was the resource person. He explained the definition of microprocessor, block diagram of computer, pin configuration of microprocessor 8085, various parts of microprocessor and their uses. A **quiz programme** was conducted digitally by **Dr. D. Hudson Oliver**, Assistant Professor of Physics, Scott Christian College (Autonomous), Nagercoil and the students actively participated. **Beneficiaries: 39**

14. On 19th December 2019, an invited lecture on “**Concept of Spectroscopy and its Applications**” was organised by the **Department of Chemistry**. **Dr. N. Raman**, Associate Professor of Chemistry, VHNSN College (Autonomous), Virudhunagar was the resource person. He enumerated the advantages of spectroscopy followed by the principle, instrumentation, working and applications of UV, IR, NMR etc. He vividly explained the various terms associated with spectroscopy like chromophore, auxochrome, bathochromic shift, hyperchromic shift, hypochromic shift, finger print region, types of transitions, spin-spin coupling and Woodward- Fieser rule. **Beneficiaries: 78**

15. On 7th January 2020, an invited lecture on “**Development of Nanoparticles for Energy Applications**” was organised by the **Department of Physics**. **Dr. S. Karuppuchamy**, Professor and Head, Department of Energy Science, Alagappa University, Karaikudi explained the basic concepts of Nanotechnology and Renewable Energy sources. Later, he discoursed on the preparation of the third

generation of solar cells like the Dye Sensitized Solar Cells (DSSC) and perovskites solar cells, using nanoparticles and explained its applications and advantages. He also shared a note on the scope of hydrogen fuel as a part of his peroration. The lecture fostered an interest of research in energy science in the students. **Beneficiaries: 39**

16. On 10th January 2020, an invited lecture on **“Skin Care in Day-to-Day life”** was organised by the **Department of Zoology. Dr. J. Thadeus**, Professor and Head, Department of Dermatology, Thoothukudi Medical College, Thoothukudi was the resource person. He explained the different types of skin diseases and enumerated the various methods to take care of skin problems. He also created an awareness about the side effects of the usage of synthetic cosmetics among the students. **Beneficiaries: 117**

17. On 20th January 2020, an invited lecture on **“Gene Mutations – Molecular basis, Mutagens and their Mode of Action”** was organised by the **Department of Botany. Dr. Ayyavu Mahesh**, Director, Centre for Stem cell and Cancer Genomics, AMI Bioscience, Coimbatore was the resource person. His lecture centered on the intricacies of mutagens, gene mutation, various mutation driven phenomena that occur in the biological systems, its deleterious effects and evolutionary significances. **Beneficiaries: 41**

18. On 21st January 2020, an invited lecture on **“Fish Culture Technologies”** was organised by the **Department of Zoology. Dr. K. Veerabhadran**, Professor, Department of Fisheries Extension, Fisheries College and Research Institute, Thoothukudi explained the different methods of rearing ornamental fishes. The lecture was indeed an informative and a fruitful one. **Beneficiaries: 118**

19. On 28th January 2020, an invited lecture on “**High-Resolution Structure of the Human 80S Ribosome Visualizes Chemical Modifications in its Ribosomal RNA**” was organised by the **Department of Botany. Dr. Kundhavai Natchiar**, Research Associate, Institute of Genetics and Molecular and cellular Biology, France was the resource person. She drew the attention of the audience on the basic central dogma to the intricacies of X-ray crystallographic data analysis. The students were greatly motivated to pursue research through her ardent presentation and logical clarifications. **Beneficiaries: 42**
20. On 28th January 2020, an invited lecture on “**Population Ecology**” was organised by the **Department of Botany. Dr. M. Glory**, Head and Associate Professor of Botany, St. Mary’s College (Autonomous), Thoothukudi. was the resource person. All the I B.Sc. students from the Departments of Physics, Chemistry, Botany and Zoology benefitted from the lecture. **Beneficiaries: 160**
21. On 28th January 2020, an invited lecture on “**Career Opportunities for Physics Students**” was organised by the **Department of Physics. Dr. Lakshmi Shankar Iyer**, Head of Specialization, Business Analytics, Christ Institute of Management, Christ Deemed University, Bengaluru and **Dr. Kunthavai Nachiyar**, Research Associate, Institute of Genetics and Molecular and cellular Biology, France were the resource persons. They are also the alumnae of our college from the Department of Physics. Dr. Lakshmi Shankar Iyer gave a talk on emerging career opportunities that are suitable for Physics graduates. Dr. Kunthavai Nachiyar also shared her experience about life, various training programmes and studies with scholarship in renowned institutions such as IISE, IIT etc. She also presented a biological research paper wherein she gave a thrust on the application of Physics in her research. The session was highly beneficial to the students. **Beneficiaries: 132**

22. On 31st January 2020, an invited lecture on “**Biology of Mangroves and Coral Reefs**” was organised by the **Department of Botany. Dr. T. Ramanathan**, Associate Professor, CAS in Marine Biology, Annamalai University, Parangipettai was the resource person. He affirmed that the Mangrove Forest is one of the few pristine ecosystems in the world and it offers a large number of ecological, economic and protective functions and services such as positive effect on microclimate from wave erosion, enhancement of sediment deposition / land accretion, amelioration of the environment by acting as a carbon sink and combating natural calamities such as tsunamis, cyclones and tidal surges. He also gave an insight of the types of coral reefs and medicinal importance of mangroves and coral reefs. **Beneficiaries: 44**

23. On 4th February 2020, an invited lecture on “**Basic Concepts of Group Theory**” was organised by the **Department of Chemistry. Dr. P. Sami**, Associate Professor of Chemistry, VHNSN College (Autonomous), Virudhunagar was the resource person. He explained the basic concepts like symmetry elements and symmetry operations in group theory with 3D models. He also enumerated the easy ways of assigning point group to molecules and character table too. **Beneficiaries: 39**

24. On 5th February 2020, an invited lecture on “**Story of Some Interesting Crystals**” was organised by the **Department of Chemistry. Dr. J. Sidharthan**, Associate Professor, Department of Chemistry, V.O. Chidambaram College, Thoothukudi was the resource person. He gave an overview of the history and the scientists behind crystals. He insisted that science is more important than scientists. He explained about the symmetry in crystals and their structure with short stories and also differentiated between crystals and liquid crystals. **Beneficiaries: 43**

25. On 7th February 2020, an invited lecture on **“Polycystic Ovarian Diseases and Related Problems”** was arranged by the **Department of Zoology**. **Dr. U. Insuvai**, Assistant Professor, Department of Radiation Oncology, Government Medical College Hospital, Thoothukudi delivered a lecture on polycystic ovary syndrome, the most common hormone abnormality of reproductive-aged women. She clearly explained the causes of PCOD, its prevention and treatment. She reiterated that awareness will help the students understand symptoms like irregular periods and pelvic pain which are not to be ignored but to be treated. She advised the students to maintain healthy weight, to limit carbohydrates, to do regular exercise and to avoid junk food. The students interacted with the resource person and cleared their doubts. **Beneficiaries: 133**

26. On 18th February 2020, an invited lecture on **“Nanotechnology in Therapeutic Applications”** was arranged by the **Department of Zoology**. **Dr. R. M. Murugappan**, Head and Associate Professor, Department of Zoology, Thiagarajar College, Madurai clearly explained that the nanomaterials have unique physicochemical properties such as small size, large surface area to mass ratio and high reactivity that are different from the bulk materials of the same composition and hence they can be used as therapeutic and diagnostic agents. He also explicated his own research experience. The students interacted with the resource person and cleared all the doubts in nanotechnology and research. **Beneficiaries: 111.**

27. On 18th February 2020, an invited lecture on **“Laboratory Safety Measures”** was organised by the **Department of Chemistry**. **Mr. D. C. Sathyanarayanan**, Senior Executive, Safety Department, SPIC Private Limited, Thoothukudi was the resource person. He enumerated the safety precautions that have to be followed

inside the laboratory. He also gave an overview of the current environmental hazards due to various pollution effects and highlighted the permissible limit for various pollutants, associated health issues and the possible safety measures.

Beneficiaries: 139

28. On 2nd March 2020, an invited lecture on “**Laws of Thermodynamics and Bioenergetics**” was organised by the **Department of Botany**.

Dr. T. Peter Amaladhas, Associate Professor of Chemistry, V.O. Chidambaram College, Thoothukudi was the resource person. The lecture mainly focused on the Phosphorescence and Fluorescence nature of light. The three laws of thermodynamics were also explained during the lecture. The bioenergetics of the cell especially the energy currency of the cell - ATP was also clearly dealt with by the resource person during the course of the lecture. The students found it quite engaging and informative. **Beneficiaries: 39**

29. An invited lecture on “Invertebrates – An Overview” was organised by the **Department of Zoology**, on **12th October 2020** through online portal Google

Meet. **Dr. S. Mary Mettilda Bai**, Head and Assistant Professor of Zoology, Holy Cross College (Autonomous), Nagercoil was the resource person. The resource person, in her lecture, highlighted the classification of invertebrates and characteristic features of each Phylum with colourful images and videos. Students found the lecture informative and useful. **Beneficiaries: 44**

30. On 12th October 2020, an invited lecture was held on the topic “**Wonders of Acoustics and Ultrasonics**” organised by the **Department of Physics**.

Dr. J. Poongodi, Associate Professor of Physics, Kamaraj College, Thoothukudi was the resource person. The resource person highlighted the points on “frequency maintained in various medium”, “ultrasonic characteristics” and “acoustical

features”. The questioning session made the participants more interactive.

Beneficiaries: 135

- 31. On 13th October 2020**, a virtual invited lecture on **“Research Methodology in Scientific Research”** was organised by the **Department of Botany**. **Dr. M. Johnson**, Assistant Professor of Botany, St. Xavier’s College (Autonomous), Palayamkottai was the resource person. He clearly explained the students how to equip themselves with set of skills and potentiality to undertake the research very effectively and to turn completed research into publishable material of high quality in the form of articles, journals and books. His lecture offered insight into the importance and procedure of conducting quality doctoral research. **Beneficiaries: 58**

- 32. The Department of Botany** organised an invited lecture on **“General Characters and Multiplication of TMV”** on **15th October 2020**. **Dr. T. Jebasingh**, Assistant Professor, Department of Plant Sciences, School of Biological Sciences, Madurai Kamaraj University, Madurai was the resource person. He explained the general characters of virus, structure and multiplication of Tobacco Mosaic Virus. With the help of power point presentation, he showed the symptoms of viral disease and the diseased plants. **Beneficiaries: 44**

- 33. The Department of Chemistry** organised an invited lecture on **“Basics and Overview of Coordination Chemistry”** on **15th October 2020**. **Dr. A. Elangovan**, Associate Professor, PG and Research Department of Chemistry, Thiagarajar College, Madurai, was the resource person. The Resource Person in his lecture gave an overview of the basics of coordination chemistry right from terminology, types of ligands, nomenclature isomerism. He

also touched upon the reaction mechanism, metal carbonyls and role of metal ion in biological system. **Beneficiaries: 46**

- 34. The Department of Botany** organised an invited lecture on “**Recent Trends in Production of Spices**” on **19th October 2020**. **Dr. N. Richard Kennady**, Professor, Department of Horticulture, Agriculture College and Research Institute, Killikulam was the resource person. He gave an insight into the essential use of spices and their medicinal values, the methodology of planting, harvesting techniques and storage and marketing of 8 very widely available spices. He also identified the numerous institutes that produce new varieties of these spices. **Beneficiaries: 41**

- 35. An invited lecture on the topic “Exploring Knowledge, Attitudes and Practices for Covid – 19 Prevention”** was held on **21st October 2020** organised by the **Department of Zoology**. **Dr. A. Raja**, Dentist and Maxillo Facial Surgeon, Eshvar Dental Clinic, Coimbatore delivered a lecture on various aspects of the pandemic Covid -19. He deliberated the origin and structure of Corona virus. The talk inculcated deep insights into the diagnostic procedures of Covid – 19. His speech elaborated various domains of this current pandemic situation like social distancing and hand washing etc. He also expounded how to wear, take off and dispose masks. His speech explicated the age and gender variations observed in the Corona virus infection. He also elucidated the pivotal role of nutrition in the prevention of Corona virus. He finally instructed the various types of treatment involved in preventing Corona virus. **Beneficiaries: 238**

- 36. The Department of Chemistry** organised an invited lecture on “**Basic Quantum Chemistry**” on **22nd October 2020**. All the UG Chemistry students, III Physics students of St. Mary’s College (Autonomous), Thoothukudi and participants from

various colleges and universities participated in this online guest lecture.

Dr. S. Joseph Selvaraj, Head and Associate Professor, Department of Chemistry, St. Joseph's College (Autonomous), Tiruchirappalli was the Resource Person. He explained clearly the significance of quantum mechanics in spectroscopy, electrochemistry, organic reaction mechanism and chemical kinetics. He also pointed out the importance of the equation derived from harmonic oscillator in the selection rules for IR spectroscopy. The quantum mechanical approach in photoelectric effect and Heisenberg uncertainty principle was also highlighted. He also exemplified the color of inorganic compounds based on quantum chemistry and the importance of quantum chemistry in the field of drug discovery and space research. **Beneficiaries: 185**

37. On 23rd October 2020, an invited talk on “**Smart Materials**” was organised by the **Department of Physics**. **Dr. Krishna Kumar Pandey**, Assistant Professor of Physics, School of Basic Sciences and Research, Sharda University, Greater Noida, Uttar Pradesh provided a clear idea on smart materials and its types. He highlighted the properties and applications of smart materials. B.Sc. Physics, B.Sc. Chemistry, M.Sc. students from St. Mary's College (Autonomous), Thoothukudi and students from other colleges were the beneficiaries. **Beneficiaries: 230**

38. On 7th November 2020, the **Department of Physics** organised an invited lecture on “**Role of Physical Sciences in Criminal Justice System**”. The talk was rendered by **Shri. V. Lakshmi Narasimhan**, Assistant Director, Audio Video Unit, Forensic Science Laboratory, New Delhi, India. The speaker briefed on the following topics such as Importance of Physical sciences, role of forensic in investigations, role of science in forensic, methods of obtaining finger prints and other proofs from murdered spots, angles of making investigation, precautions to

be taken before obtaining proofs and Scope for science students in the area of forensic. The students found the session very interesting and made them look at things in a better way. **Beneficiaries: 157**

39. On 24th February 2021, an invited lecture on **“Remote Sensing and GIS in Biodiversity”** was organised by the **Department of Botany. Dr. John Prince Soundranayagam**, Associate Professor of Physics, V.O. Chidambaram College, Thoothukudi was the resource person. He spoke about the basic elements of a GIS and how integrating field surveys with remote sensing, biodiversity can be effectively mapped was also explained by him. **Beneficiaries: 112**

40. An invited lecture on **“Challenges for Gen-Next Scientists”** was organised on **1st March 2021** by the **Department of Physics. Dr. J. Daniel Chellappa**, Eminent Nuclear Scientist, Chennai was the resource person. In his talk, he threw light on importance of science and the struggles and contributions of various scientists towards it. Participants from St. Mary’s College and participants from Pune and Punjab participated actively and enthusiastically. **Beneficiaries: 375**

41. On 27th September 2021, **Department of Physics** conducted an online invited talk on **“Science behind the Nanotechnology in the Light of Quantum Mechanics”**. **Dr. M. Melvin David Kumar**, Assistant Professor, Department of Physics, St. Xavier’s College (Autonomous), Palayamkottai was the resource person. He gave the participants a clear idea on the types of materials and highlighted the properties and applications of nanomaterials. **Beneficiaries: 116**

42. An online invited talk on **“What is needed for Chemistry Graduates”** was organised by the **Department of Chemistry** on **28th September 2021**. **Dr. K. Arun Prasath Lingam**, Assistant Professor of Chemistry, Kamaraj College,

Thoothukudi was the resource person. The resource person in his lecture highlighted the basics of chemistry like classification of elements, periodic properties. He motivated the students to learn chemistry and gave a clear outline about the career opportunities of chemistry graduates especially the need for enrolling in higher research institutes. **Beneficiaries: 108**

- 43. The Department of Botany** organised an Invited Lecture on “**BSIP: The Home to Study Fossils and Allied Sciences**” on **4th December 2021**. **Dr. Anupam Sharma**, Scientist E, Birbal Sahni Institute of Paleobotany, Lucknow was the resource person. He explained the basic introduction about the Birbal Sahni Institute of Paleobotany, history and its infrastructure. The definition of geology, scope and the geological time scale were also clearly explained by him. He explained how the fossils were formed and how they were studied and its types. **Beneficiaries: 38**

- 44. The Department of Botany** organised an invited lecture on “**Human Wildlife Conflict Mitigation**” on **17th December 2021** for the II UG, II PG students of Botany and II PG students of Zoology. **Mr. Abishek Tomar**, District Forest Officer, Thoothukudi was the resource person. He gave the basic introduction about the wildlife. He threw insight about the conflict that wild animals were facing now a day. He shared some of the common methods that could be used to avoid the entry of wild animals in the rural areas and about the Wildlife Protection Act which was introduced in 1972. He also guided and motivated us on how to crack competitive examinations. At last, he bid a call for the students to join the wetland mission. **Beneficiaries: 45**

- 45. On 22nd January 2022** an invited talk on “**Application of Physics in Health Sciences**” was organised by the **Department of Physics**.

Mr. Pragadheeswaran Venkat, Entrepreneur and Founder, Aries Biomed Technology Private Limited, Coimbatore, was invited to educate us with his knowledge. The speaker gave an abbreviated talk on physics discoveries, innovation in Physics, tools for physics applied to medicine and gadgets for students to explore. He gave the participants a clear idea on the products used in medical science and its importance. The information about the medical equipment and its types using physics was the outstanding part of the session. **Beneficiaries: 176**

46. On **29th January 2022** an invited talk on **“Human Rights and Human Values”** was organised by the **Department of Physics. Prof. D. R. Meena** Associate Professor, Department of Chemistry, Bangalore Institute of Technology, Bengaluru was invited to enlighten us with her thoughts. The resource person enlightened the students on human values, need for UHR-Universal Human Rights, basic aspirations and concerns and life with charity of basic aspiration. **Beneficiaries: 103**

47. The **Department of Zoology** organised an invited talk on **30th August 2022**. **Ms. M. Kavitha**, Scientist, Shellfish Fisheries Division, Tuticorin Regional Station, ICAR - Central Marine Fisheries Research Institute, Thoothukudi served as the resource person. She delivered the lecture on **“Molluscan Fisheries and Aquaculture in India: Progress, Problems and Prospects”** The resource person outlined and described the features of phylum Mollusca and its classification representing about 586 families. She elaborated the region wise catch and production rate of cephalopods across India especially in the states of Gujarat, Kerala, Maharashtra and Tamil Nadu. Her lecture gave deep insight into the list of commercially exploited cephalopods from Indian seas. This lecture expanded and

enhanced the students' entrepreneurial skills in the field of culture of bivalves and oyster. **Beneficiaries: 128**

48. The Department of Zoology organised an invited lecture on **8th September 2022. Dr. L. Shakila**, Assistant Professor of Zoology, Ethiraj College for Women, Chennai served as the resource person. She delivered the lecture on **“Wonders of the Microbial World”**. Dr. N. Arokiya Mary, Head and Associate Professor, Department of Zoology introduced the resource person and welcomed the gathering. She explained the discovery, classification, size, shape, nature, role, infective microbes. She deliberated the pathogenicity, virulence and symptoms of infectious microbes. She highlighted the importance of prebiotics and probiotics in our diet. She enumerated the importance and applications of microorganisms in various fields viz., food production, energy, drug discovery, warfare and human gut microflora. The students gained knowledge on newly discovered microbes and their significance. **Beneficiaries: 62**

49. On 8th September 2022, Department of Chemistry organised an online invited talk on **“Nature Inspired Technology”**, **Dr. K. Jeyasubramanian**, Senior Professor and Head, Department of Chemistry, Mepco Schlenk Engineering College, Sivakasi was the resource person. Students from the Department of Chemistry attended the meeting actively and interacted with the resource person. **Beneficiaries: 95**

50. The Department of Botany organised an invited lecture on **“Plate Tectonics and Continental Drifts”** on **9th September 2022. Dr. S. Selvam**, Assistant Professor of Geology, V.O. Chidambaram College, Thoothukudi was the resource person. Students from the Department of Botany benefitted through this

invited lecture. In view, connecting the students to strengthen the opportunities and increasing competency across the institutions. **Beneficiaries: 90**

51. The Department of Physics organised an invited talk on the topic “**My Story - As a Successful Start – Up Founder**” on **10th November 2022**. **Mr. R. Meenakshi Sundaram**, Consultant and Director of Infotec, Thoothukudi was the resource person. During the first part of his speech, he shared his views, efforts, problems, struggles, stepping stones, hard work almost everything behind his professional growth. In the second half of his speech, he suggested many ways to the students to evaluate themselves during their growth. Additionally, he pointed out important characteristics to adapt in our life for career growth in the competitive world. **Beneficiaries: 100**

52. An invited talk on the topic “Greener Practices in Academic Science Laboratories to Reduce Chemical Wastage” was conducted by the **Department of Chemistry** on **17th November 2022**. **Prof. D. R. Meena**, Associate Professor of Chemistry, Bangalore Institute of Technology, Bengaluru was the resource person. She clearly explained the need to reduce the chemical waste in laboratories and also, she suggested some methods to reduce and recycle the organic and inorganic waste formed during chemistry practical. **Beneficiaries: 120**

53. An invited lecture on “Metals in Biology” was organised by **Department of Chemistry** on **30th January 2023**. **Dr. S. Jemima Balaselvi Juliana**, Associate Professor, Department of Chemistry, The American College, Madurai was the resource person. The resource person in her lecture highlighted the importance of periodic table. She explained briefly the importance of structure of compounds and its uses in biological systems. Madam clearly picturised the importance of metals

in macrocyclic ligands and its functions. Students were enlightened about the role of coordination chemistry and significance of Na-K pump. **Beneficiaries: 35**

54. The Department of Zoology organised an invited talk on **30th January 2023**.

Dr. T. Umamaheswari, Assistant Professor, Department of Fisheries Extension, Economics and Statistics, Fisheries College and Research Institute, Thoothukudi served as the resource person. She delivered the lecture on **“Fisheries Sector: An Overview”**. The resource person gave an outline on the fisheries sector and its resources, export, fisheries institutions, foreign exchange, food production, employment, flagship programme and entrepreneurship opportunities for women. Her lecture gave deep insight into the global consumption of aquatic foods, rising incomes and urbanization, improvements in post-harvest practices and changes in dietary trends. The students gained knowledge on aquatic food systems, blue transformation and revolution in fisheries. She explained the role of fishermen population in India, ornamental fish culture and various government schemes viz., PMMSY, MSME and NFDB. This lecture instigated the entrepreneurial skills in the field of fisheries, online trading and women entrepreneurship in fish processing and seafood industries among students. **Beneficiaries: 134**

55. The Department of Botany organised the invited lecture on **“Language Skill Enhancement”** on **3rd February 2023** in the Botany Lecture Hall.

Dr. S. Sudha Rani, Assistant Professor of English, St. Mary's College (Autonomous), Thoothukudi was the resource person. **Beneficiaries: 36**

56. An invited lecture on “Chemical Equilibrium” was organised by the **Department of Chemistry** on **3rd February 2023**. **Dr. P. Sami**, Associate Professor of Chemistry, VHNSN College (Autonomous), Virudhunagar was the resource person. The resource person in his lecture highlighted the types of

chemical reactions, characteristics of chemical equilibrium. He derived the relationship between K_p and K_c . He motivated the students to learn chemistry and gave a clear outline about the career opportunities of chemistry graduates especially the need for enrolling in higher research institutes. **Beneficiaries: 37**

57. An invited lecture was organised by the **Department of Zoology** on **14th February 2023**. **Dr. S. Viswanathan**, Associate Professor and Head, PG and Research Department of Microbiology, Sri Paramakalyani College, Alwarkurichi was the resource person. Dr. Viswanathan addressed the gathering on the topic **“Climate Change – Are Microbes a Friend or Foe?”** in which he discussed the causes, effects of climate change and the ways to prevent it. He mentioned the beneficial role of microbes in food industry as well as their part in causing food spoilage and food poisoning. The resource person also expounds the contribution of photosynthetic microbes in carbon fixation and how cyanobacteria, *Prochlorococcus* and *Synechococcus* contribute to control carbon-di-oxide level in the atmosphere. **Beneficiaries: 110**

58. An invited lecture on **“Plant Systematics”** was organised for the II B.Sc. Botany students, by the **Department of Botany** on **15th February 2023**. **Dr. Jeya Jothi George**, Associate Professor, Department of Plant Biology and Biotechnology, Loyola College, Chennai was the resource person. **Beneficiaries: 33**

59. An invited lecture on **“Plant Physiology”** was organised by the **Department of Botany** on **17th February 2023**. **Dr. S. Beschi Antony Rayan**, Associate Professor, Department of Botany, St. Xavier’s College (Autonomous), Palayamkottai was the resource person. **Beneficiaries: 36**

- 60.** An invited lecture was organised by the **Department of Botany** on **13th July 2023**. **Dr. G. Sahaya Anthony Xavier**, Associate Professor of Botany, St. Xavier's College (Autonomous), Palayamkottai delivered a lecture on **“Biodiversity and its Conservation”**. He gave an introduction about biodiversity and also explained why the conservation of biodiversity is an urgent need for the society. **Beneficiaries: 69**
- 61.** The **Department of Botany** organised an invited talk on **“Ethnobotanical Documentation”** on **9th August 2023**. **Dr. R. Gnanavel**, Assistant Professor of Botany, School of Life Sciences, Arignar Anna College (Arts and Science), Polupalli, Krishnagiri was the resource person. He gave a basic introduction about ethnobotany and how it was used in day-to-day life. He presented his data about the Irular tribes and their medication for snake bite. He explained the serum present in the venom, collection and production of serum venom. Then, he also explained that this venom can create side effects as it is made of chemicals. Thus, he briefed the usage of medicinal plants as antivenom by Irular tribes. He listed about 10 medicinal plants, its formulation and how it was stored in bottle gourd plant. **Beneficiaries: 41**
- 62.** The **Department of Botany** organised an invited lecture on **“Job Opportunities for Botany Students”** on **9th August 2023**. **Dr. R. Gnanavel**, Assistant Professor of Botany, School of Life Sciences, Arignar Anna College (Arts and Science), Polupalli, Krishnagiri was the resource person. He highlighted the different fields in which students of Botany could seek a career. He enlightened the students about various Government examinations conducted by State and Central Governments where students of Botany have a better scope to get through. **Beneficiaries: 25**

63. The Department of Zoology organised an invited talk on “**Behavioural Ecology of Bats**” on **25th August 2023**. **Dr. S. Baskaran**, Assistant Professor of Zoology, V.O. Chidambaram College, Thoothukudi was the resource person. The resource person explained that the bats spend over half their lives subjected to the selective pressures of their roost environment and the conditions associated with roosting have played a prominent role in their ecology. He also described that roosts provide sites for mating, hibernation, and rearing young; they promote social interactions and the digestion of food; and they offer protection from adverse weather and predators. The roosting ecology of bats can be viewed as a complex interaction of physiological, behavioural, and morphological adaptations and demographic response. He clarified the differences between **microbats** (Microchiroptera) and **megabats** (Megachiroptera). **Beneficiaries: 122**

64. The Department of Botany organised an invited talk on “**Where am I now? Where do I want to go?**” on **9th September 2023**. **Dr. X. Rosary Mary** (Alumna, 1971 – 1976 Batch), Associate Professor of Botany (Retd.), St. Mary’s College (Autonomous), Thoothukudi and Former Director of the Department of Youth Welfare, Manonmaniam Sundaranar University, Tirunelveli was the resource person. She motivated the students by sharing her own life experiences, to develop interest on their studies and explained the importance and scope of Botany. She also offered guidance regarding career. **Beneficiaries: 54**

65. On 22nd September 2023, Dr. M. Xavier James Raj, Scientist (Retd.), ISRO, Thiruvananthapuram, gave a lecture on the topic “**Application of Science in Space Research**”. He established the significant reasoning that engineering is inferior to physics, chemistry, and mathematics. This lecture was organised by the **Department of Physics**. **Beneficiaries: 122**

- 66.** The **Department of Botany** organised an invited talk on “**Algae – An Amazing Organism**” on **29th September 2023**. **Dr. B. Babu**, Assistant Professor of Botany, Madras Christian College (Autonomous), Chennai was the resource person. The resource person addressed on how these simple algae existed through the period of evolution and the habitats. Students actively participated during the session and the researches clarified with all their queries. **Beneficiaries: 60**
- 67.** An invited lecture on the topic “**Wonders of Wild life**” in commemoration of National Wildlife Week was organised by the **Department of Zoology** on **6th October 2023**. **Dr. A. Ezhilmathi Sophia**, Assistant Professor of Zoology, St. John’s College, Palayamkottai was the resource person. Dr. A. Ezhilmathi Sophia enlightened the students about the IUCN and emphasised the importance of wildlife conservation, by citing examples of vulnerable and extinct Indian animal species. Here presentation was overwhelmed with colourful portray of Indian fauna. She explained the habitat, habits and the significance of major faunal species of India. She also discussed about the role of biosphere reserves like national parks and wildlife sanctuaries in conservation of wild life. As a gesture of appreciation, students of Department of Zoology, who had won various competitions held on the eve of ‘National Wild Life Week Celebration’ were honoured. **Beneficiaries: 140**
- 68.** The **Department of Botany** organised a Lecture Series on “**Biotechnology**” from **11th December 2023 to 15th December 2023**. **Dr. Antony Rose Immaculate** (Alumna, 1995 – 1998 Batch), Head and Associate Professor of Botany, Stella Maris College (Autonomous), Chennai, gave lecture on “**Bioterrorism**” on **11th December 2023**. **Dr. V. Kalpanadevi** (Alumna, 2004 – 2007 Batch), Assistant Professor of Botany, Ayya Nadar Janaki Ammal College (Autonomous), Sivakasi,

presented a talk on **“*In vitro* Callus Regeneration of *Andrographis paniculata* - An Important Medicinal plant”** on **12th December 2023**. **Dr. M. Shunmuga Sundari** (Alumna, 2014 Batch), Former Young Scientist, DBT Young Scientist Project, Pune, gave lecture on **“Conservation of Plant Diversity”** on **13th December 2023**. On **14th December 2023**, **Dr. S. Sudha** (Alumna, 1987 – 1990 Batch), Associate Professor of Botany, Department of Medicinal Botany, Government Siddha Medical College, Palayamkottai, Tirunelveli gave a lecture on **“Medicinal Plants in Siddha Medicine”**. **Dr. K. Jeba Ananthi**, (Alumna, 1995 – 1998 Batch), Assistant Professor of Botany, Sarah Tucker College (Autonomous), Tirunelveli was the resource person on **15th December 2023**. Her lecture explored the realm of **“Genetically Modified Crops”**, discussing the principles, methodologies, and applications of genetic engineering in agriculture.

Beneficiaries: 216

69. The **Department of Zoology** organised an invited talk on the topic **“Is the Best Good Enough: Lessons from Animals”** on **19th January 2024**. **Dr. J. Ronald**, Assistant Professor, Department of Zoology, St. Xavier's College (Autonomous), Palayamkottai was the resource person. The resource person explained that we can learn a lot of things from every animal. He emphasized that human beings can learn good qualities like teamwork, courage, and focus on goals, honesty, and survival in tough conditions from ants, lions, eagles, dogs and camels respectively. Dr. J. Ronald highlighted the good qualities of animals like unity, selflessness by quoting interesting examples. The lecture focused on the fascinating world of animal behaviour and drew insightful parallels to human life. **Beneficiaries: 122**

70. The **Department of Botany** organised the invited lecture on **18th March 2024**. **Dr. S. Sahaya Sathish**, Associate Professor of Botany, St. Joseph's College

(Autonomous), Tiruchirappalli was the chief guest. Dr. Sahaya Sathish delivered a talk on **“Green Nanotechnology: Advancement in Phyto Formulation in Research”**. **Beneficiaries: 88**

71. On **18th March 2024**, the **Department of Botany in association with Department of Mathematics** organised an invited lecture on the topic **“Application of Mathematics in Science”**. **Dr. M. P. Jeyaraman**, Associate Professor of Mathematics, Presidency College, Chennai was the resource person. The lecture emphasised the interdisciplinary role of Mathematics in various scientific domains, elucidating complex concepts with practical examples. Dr. Jayaraman’s presentation fostered an interactive session, receiving positive feedback from attendees, highlighting the importance of integrating Mathematics with scientific research. **Beneficiaries: 158**

72. An invited lecture on **“Organic Polymers”** was organised by the **Department of Chemistry** on **25th March 2024**. **Dr. M. Kathiresan**, Scientist, Electro Organic Division, Central Electrochemical Research Institute, Karaikudi. He gave a brief overview on the usage of polymers as energy storage device, lighter vehicles and insulated buildings, package for consumable goods, reduce land use and fertilisers, synthetic fibres, coatings and medical applications. **Beneficiaries: 39**

73. The **Department of Physics** organised an invited talk on **“Modern Materials for Future World”** on **16th August 2024**. **Dr. K. Sakthipandi**, Professor of Physics and Research Coordinator, SRM TRP Engineering College, Tiruchirappalli was the resource person. His talk focused on the key role of advanced materials in shaping the future of technology and industry. He elaborated on the latest developments in nanomaterials, smart materials, and sustainable materials, highlighting their potential applications in various fields such as energy, electronics

and medicine. He emphasised the need for innovative approaches to material design and the importance of interdisciplinary research in driving advancements in this area. The enthusiastic participation from the audience was testimony to the success of the event. **Beneficiaries: 74**

74. The Department of Zoology organised an invited talk on “**Eco-Friendly Pest Control Using Microbes and Botanicals**” on **16th August 2024**. The session was graced by the esteemed presence of **Dr. S. Senthil Nathan**, Professor and Head, Sri Paramakalyani Centre for Excellence in Environmental Sciences, Manonmaniam Sundaranar University, Alwarkurichi. Dr. S. Senthil Nathan delivered an insightful lecture that covered various aspects of using microbial and botanical agents as eco-friendly alternatives to chemical pesticides. The talk emphasized the importance of adopting eco-friendly pest control methods in agriculture to minimize the adverse effects of chemical pesticides on the environment and human health. He shared his extensive research findings on the efficacy of various microbial and botanical agents in controlling pests and highlighted the potential benefits of these methods for sustainable agriculture. **Beneficiaries: 53**

75. The Department of Zoology in commemoration of the world photography day celebrated the Campus Fauna by organizing an invited talk on the topic “**Towards Sustainable Development: India’s Role in Marine Biodiversity and Conservation**” on **19th August 2024**. **Dr. L. Ranjith**, Senior Scientist, ICAR - Central Marine Fisheries Research Institute, Tuticorin Regional Station, Thoothukudi was the resource person. The talk was focused on the various conservation strategies for sustainable development of the marine resources. The resource person explained the rich and varied heritage of Indian marine resources.

He emphasised the importance of the marine ecosystem in conservation of biodiversity. He expressed the concerns about the anthropogenic activities that lead to overexploitation of these marine resources. **Beneficiaries: 120**

- 76. The Department of Botany** organised an invited lecture on “**Life of Red Algae: A Closer Look**” on **30th August 2024**. **Dr. V. Sornalakshmi**, Alumna (1995-2002 Batch), Assistant Professor of Botany, A.P.C. Mahalaxmi College for Women, Thoothukudi was the resource person. Dr. Sornalakshmi began by providing an overview of red algae, explaining that they belong to one of the oldest groups of eukaryotic algae. She elaborated on their distinctive reddish color due to the presence of phycoerythrin, which allows them to thrive in deeper waters by absorbing blue light. The lecture was highly informative and provided the audience with a comprehensive understanding of red algae, both from a biological and an ecological standpoint. Dr. Sornalakshmi extensive knowledge and ability to explain complex topics in an accessible manner were greatly appreciated by all attendees. **Beneficiaries: 22**

- 77. On the 31st August 2024**, the **Department of Physics** organised an invited talk titled “**Indian Space Endeavours**” to commemorate the National Space Day. The event was graced by the distinguished presence of **Dr. N. Sivasubramanian**, Former Senior Scientist and Chief General Manager, Indian Space Research Organisation, Thiruvananthapuram. Dr. N. Sivasubramanian, with his extensive experience and profound knowledge in the field of space science, captivated the audience with his insightful discourse on India's journey in space exploration. He traced the evolution of ISRO, highlighting key milestones, the scientific rigor involved, and the socio-economic impacts of space missions like Chandrayaan,

Mangalyaan, and their cent lunar and interplanetary explorations. **Beneficiaries:**

75

78. The Department of Botany organised an invited lecture on the “**Theories of Organic Evolution**” on the **9th September 2024**. **Dr. P. Arockia Mary Fernandez**, Associate Professor of Zoology, Aditanar College of Arts and Science, Thiruchendur, was the resource person. She delivered a comprehensive lecture on evolutionary theories, providing valuable insights into the processes and mechanisms that have shaped life on Earth. **Beneficiaries: 33**

79. The Department of Botany organised an invited lecture on “**The Blueprint of Life: Unlocking the Secrets of Protein Structure**” on **12th September 2024**. **Dr. P. Tresina Soris**, Alumna (2004 – 2009 Batch), Assistant Professor of Botany, V.O. Chidambaram College, Thoothukudi was the resource person. The speaker began by outlining the different levels of protein structure and explaining how the sequence of amino acids determines the three-dimensional conformation of a protein, which in turn dictates its function. **Beneficiaries: 35**

80. The Department of Zoology organised an invited talk on “**Diversity and Conservation of Indian Reptiles**” on **12th September 2024**. The session was graced by the esteemed presence of **Dr. A. Thanigaivel**, Consultant in Ashoka Trust for Research in Ecology and Environment, Agasthyamalai Community Conservation Centre, Manimuthar. Dr. A. Thanigaivel clearly explained the characteristics of reptiles, particularly focusing on how to identify venomous snakes. He likely highlighted key traits such as head shape, fangs, pupil shape, behaviour, and coloration, helping the audience distinguish between venomous and non-venomous species. This type of guidance is crucial for both safety and promoting the conservation of these important animals. **Beneficiaries: 67**

81. On 18th September 2024, the **Department of Botany** hosted an enlightening invited lecture focused on sustainable agricultural practice. **Ms. E. Deepa**, Nan Mudhalvan Scheme (Trainer), Affiliated to Manonmaniam Sundaranar University, Tirunelveli, served as resource person delivered the lecture on **“Pest Control using Biopesticides”**. The lecture was informative and inspiring session that equipped students with valuable knowledge on sustainable pest management practices. Ms. E. Deepa insights not only enhanced the students’ understanding of biopesticides but also motivated them to explore practical applications in their future careers in Botany and Agriculture. **Beneficiaries: 21**

FACULTY TRAINING PROGRAMME

1. From 18th to 20th July 2019, a three day **Faculty Training Programme** on **“Biostatistics and Bioinformatics”** was organised by the **Department of Botany and Zoology**. **Dr. K. Kishore**, Assistant Professor of Commerce, Voorhees College, Vellore delivered the inaugural address on Biostatistics and conducted the subsequent hands-on training programme on **“SPSS package”** for two days. The participants were able to gain basic knowledge on various biostatistics problems and methods to solve the problems using SPSS package. On the third day of the workshop, **Dr. Gopinath Krishnasamy**, Post-Doctoral Researcher, Department of Chemical Engineering, Konkuk University, Republic of Korea addressed the gathering on Bioinformatics. He covered the basic tools of **“Bioinformatics”** and gave a clear insight on its practical usage. The three-day programme was very useful from both theoretical and practical point of view. Also, it clearly showcased the thrust areas of paper publication and research work management. **Beneficiaries: 35**
2. From 20th to 22nd August 2019, a three day **Faculty Training Programme** on **“Basic Techniques in Molecular Biology”** was conducted by the **Department of Zoology and Botany**. The programme was specially meant for the school teachers and college faculty to acquire knowledge on the basic techniques required for success in scientific research. After the inaugural session, the first technical session was chaired by **Dr. S. Karutha Pandian**, Professor and Head, Department of Biotechnology, Alagappa University, Karaikudi. He focused on **“DNA Based Molecular Diagnostic techniques”**. The hands-on training session commenced in the afternoon. **Dr. Jasmine M. Shah**, Assistant Professor, Department of Plant Science, School of Biological Sciences, Central University of Kerala, Kasaragod,

Kerala and **Dr. R. Sri Priya**, Assistant Professor, Department of Zoology, St. Mary's College (Autonomous), Thoothukudi were the resource persons. They demonstrated and trained the participants on how to **“Isolate the plasmid from *E. coli*”**. On the second day the resource persons carried out the laboratory sessions on Genome DNA isolation from bacteria and amplification of a bacterial gene by PCR. On the third day, demonstration on **“Restriction digestion of plasmid DNA”** was done. The second technical session was handled by **Dr. H. Abdul Jaffar Ali**, Assistant Professor, Department of Biotechnology, Islamiah College, Vaniyampadi. He delivered a lecture on **“DNA bar coding as a molecular tool for species identification”**. **PG Biology teachers and college faculty of Thoothukudi District participated in the programme.** The programme provided a platform for competency-based training and emphasized on the required practical skills.

Beneficiaries: 41

3. On **12th December 2019**, a one day **Faculty Training Programme** on **“Soil Analysis”** was organised by the **Department of Chemistry**. In the first session, **Dr. S. Jothimani**, Professor, Agricultural College and Research Institute, Killikulam, Vallanadu delivered a lecture on **“Soil Analysis.”** In his lecture, he explained clearly the soil components such as physical, chemical and biological properties of the soil. He also enumerated the techniques to test soil in the lab like gravimetric, volumetric, titrimetric, complexometric and instrumental methods. In the second session, hands on training on **“Soil Analysis”** was given to the faculty members by **Mr. T. S. R. Murthy**, Senior Research Fellow of Soil Science, Nagarjuna Agrochemicals Private Limited, Hyderabad. He explained the methods involved in handling the instrument, the soil sampling procedures and estimation procedures for measuring pH, conductivity, organic carbon, available nitrogen,

phosphorous, potassium, sulphur, boron, zinc, iron, manganese, copper, lime requirement and gypsum requirement. **Beneficiaries: 9**

4. On **2nd to 4th January 2020**, a three day **Faculty Training programme** on “**Natural Product Research**” was conducted by the **School of Biological Sciences**. **Dr. Aneesh Nair**, Scientist and Head of Operations, Biozone Research Technologies Private Limited, Chennai **Mr. Shanmuga Sundaram**, Senior Researcher, Biozone Research Technologies Private Limited, Chennai and **Ms. Chandralekha**, Junior Researcher of Biozone Research Technologies Private Limited, Chennai were the resource persons. Dr. Aneesh Nair gave a hands-on training on various “**Softwares for drug designing and docking**”. Mr. Shanmuga Sundaram and Ms. Chandralekha demonstrated experiments to “**Extract bioactive compounds from natural products**”. They also taught various assays to validate the bioactive compounds of the extract. It included assays for antioxidant, antidiabetic and anti-inflammatory activity. The three-day FDP was very helpful for faculty whose research area was identifying and prospecting bioactive compounds from natural products. **Beneficiaries: 28**
5. On **7th January 2020**, a one day **Faculty Training Programme** on “**Solar Cell Instrument - Training**” was organised by the **Department of Physics**. **Dr. S. Karuppuchamy**, Professor and Head, Department of Energy Science Alagappa University, Karaikudi gave a lecture on “**Development of Nanoparticles for energy applications**”. **Mr. G. Rajaganesan**, Director - Technical operation, VAITO Energy India Private Limited, Chennai was the resource person. In the technical session, he clearly explained the “**Relationship between the access to energy through renewable energy base systems**” with the sustainability and also the basic construction and fabrication of solar cell and the applications. He taught

the five important parameters like V_{oc} , V_{mp} , I_{sc} , I_{mp} and power which are required in calculating the efficiency of the PV cell. In the activity sessions, he practically explained the circuit connections and guided the participants to construct the circuit individually. He explained the various system configurations, technical specifications of each component and various applications of off-grid PV system.

Beneficiaries: 15.

6. A six day **Faculty Training Programme** on “**Computational Biology**” was organized by the **Department of Zoology, St. Mary’s College** (Autonomous), Thoothukudi in **collaboration with the Department of Zoology and Botany, Rani Anna Government College for Women, Tirunelveli** from **6th May 2021 to 11th May 2021**. The FTP included invited lecture sessions and the lecture sessions were followed by hands on training sessions on Computational Biology. **Dr. A. Mahalakshmi**, Assistant Professor of Zoology, Lady Doak College, Madurai was the trainer for the whole programme. On the first day of the programme (**06th May 2021**), **Dr. K. Sujatha**, Assistant Professor of Zoology, Lady Doak College, Madurai, gave a lecture on “**Effective Usage of *in silico* Tools in Experimental Research**”. She listed the available computational tools and their effective use in the field of research. She explained how to minimize the conventional methods and use API, 7digit code and Polyphasic taxonomy in identification of bacterial species. The lecture session was followed by hands-on training session on “**Computational Biology-An overview and Introduction to databases**”. Dr. Mahalakshmi introduced the basics of Computational Biology – Public Biological databases, Nucleotide sequence databases, Genbank, Sequence submission, Uniprot, Derived databases, Sequence Retrieval tools, Protein databases. At the end of the session assignments were given to the participants. On

the second day **07th May 2021**, **Dr. A. Mahalakshmi** delivered a lecture on **“Current Trends and Application of Bioinformatics in Life Science Research”**. Her lecture expounded the role of bioinformatics centers in making the data available to the scientific community. The participants got deep insight into the various databases and resources available in the field of Bioinformatics. She deliberated the role of Bioinformatics in taxonomical classification and gene ontology. She added the importance of ZAP-70, a critical T cell signaling molecule and insisted that it's deficiency in humans causes a profound combined immunodeficiency (CID) in which CD8 T cells are absent and CD4 T cells are defective. She introduced the Gene Expression Omnibus, a database for gene expression profiling and RNA methylation profiling managed by the NCBI. The participants were imparted hands-on training on **“Database Similarity Search”**. They gained more knowledge and confidence in handling the database similarity search tools, NCBI, BLASTn and BLASTp. **On 8th May 2021**, the third day of the FTP programme, **Dr. Babylakshmi Muthusamy**, Research Scientist, Institute of Bioinformatics, Bengaluru was the invited speaker. The guest of honour delivered a lecture on **“Computational Approaches for Microbial Diagnostics”**. She introduced the next generation sequencing technology to the participants and explained the various platforms of NGS - PacBio, Nanopore, etc. She also explained the Sequential chronology and application of next generation Sequencing for identification of microbial strains. The lecture gave the participants a deep insight into the area of microbial diagnostics with computational approach. In the hands-on training session, **Dr. A. Mahalakshmi** trained the participants in **“Database Search and Sequence Comparison”**. She demonstrated the method of running a check for vector contamination, interpret a BLAST search, Frameshifts/ SNP identification, Genomic

Megablast and the purpose of doing Multiple sequence alignment, construction and explanation of Phylogenetic tree. **Dr. D. Ilakkiam**, Assistant Professor of Biotechnology, Mother Teresa Women's University, Kodaikanal was the resource person on the fourth day – **9th May 2021** and she delivered a lecture on **“Whole Genome Sequencing – Assembly and Annotation of Microbial Genomes”**. She deliberated whole genome sequencing, characteristic features and graphical circular map of *P. aeruginosa* PGPR2 and explained the whole genome-based phylogeny of *P. aeruginosa* PGPR2. She highlighted the advantages of CV TREE tool, CRISPR FINDER, Panseq, Genscan and MIRA Assembler. She expounded the comparison of sequencing Technologies. Hands on Training Session was conducted by Dr. A. Mahalakshmi on the topic **“An Introduction to Protein Sequences and Modeling”**. She explained about the protein data bank and the target protein. She delineated the ligand, H – bond distance and the score values. The fifth day FTP on **10th May 2021**, **Dr. J. Sridhar**, Assistant Professor and Head i/c, Department of Biotechnology (DDE), Madurai Kamaraj University, Madurai was the resource person and he delivered a talk on **“High Throughput Data Analysis Using Bioinformatics Tools”**. He highlighted the importance of computational representation of biological data, traditional applications of Bioinformatics, High throughput Biology and Data, Files and formats used in data processing and computational tools for data analysis in OMICS era. He described the various next generation platforms for small RNA sequencing and its significance. Dr. A. Mahalakshmi gave a hands-on training on **“Molecular Docking – AutoDock Tools, PDB and RCSB PDB”**. She clarified the doubts raised by the participants and offered to help the faculty in this field in future. **Beneficiaries: 85**

7. The **National Level Short Term Course for Teachers / Faculty** on “**Graphics Design**” was organized by the Department of Botany, Zoology, Chemistry and Physics from **26th May to 31st May 2021** through zoom platform. On **26th May 2021**, **Course Trainer Dr. A. Vimal Gerald**, Assistant Professor of Computer Science, St. Joseph’s College, Tiruchirappalli briefed the Course outcomes, Course Objectives and the special features of the Short-Term Course. He introduced some of the “**Photoshop tools and background setting**” such as rectangle and elliptical marquee tool. At the end of the session, he gave an assignment to the faculty to develop their creativity. The session came to an end with the discussion. The technical session of day two **27th May 2021**, the Course Trainer started the session by giving a review of previous session. He enriched the faculty by giving virtual active preparing on the theme **Business card and ID card design**. He clarified unmistakably and wonderfully about the size of card, duplicate the layer, usage of magic wand tool, changing layer colour, eliminating undesirable segment from downloaded picture. Finally, he disclosed how to import the business card in printable format. One next to the other, he responded to the inquiries posed in chat box. Towards the end of the meeting, he gave a task to prepare their own business card creatively. On the third day of the program **28th May 2021**, a hands-on training on “**Invitation design and Flyer design**” was given to the participants by Dr. Vimal Jerald. The resource person gave a brief training on setting a background for power point presentations using photoshop. He explicated the steps to be followed for designing invitation of various dimensions. He explained the different short cut keys for various functions in the photoshop. He also gave a hands-on training on designing Flyers and Brochures. The session was very useful for the teachers. **On 29th May 2021**, the fourth day session started by the invocation of God’s blessings

through zoom platform. Dr. A. Vimal Jerald explained the making of a book mark, **“Certificate design and linking data set in Photoshop”**. He completed the above tasks using some of the tools of Photoshop. At the end of the session, he gave an assignment to the faculty to develop their creativity. The session came to an end with the discussion. **On 31st May 2021**, the Course Trainer Dr. Vimal Jerald introduced the learners with assignment cover and **“Book Cover Designing”**. Due to the enthusiastic interest of participants, he also added the topic of creating animation. **Beneficiaries: 457**

8. The **Department of Chemistry** organized a five day National Level **Faculty Development Programme** on **“Nuances in Chemistry Teaching”** from **June 21st to 25th 2021**. **Dr. P. Sami**, Associate Professor, Department of Chemistry, V. H. N. Senthikumara Nadar College (Autonomous), Virudhunagar delivered a lecture on the topic **“Solid State and Electrochemistry”** in which he highlighted the basic unit cell, their parameters and explained virtually the phases and corners. He also gave a clear idea about Bravais lattice and its calculations. On the second day **Dr. P. Sami**, addressed the virtual gathering on the topic **“Electrochemistry”**. He started with the basics of electrochemistry, discussed the importance of electrode potential and the electrochemical reactions through various examples. He explained the types of batteries and the role of batteries in future. On the third day, **Dr. S. Jemima Balaselvi Juliana**, Associate Professor of Chemistry, The American College, Madurai was the resource person. The resource person discussed on the topic **“Coordination Chemistry”**. She explained how to teach coordination concepts in an easy and understandable way and discussed how coordination chemistry is useful in understanding metal behavior, medicine, metal extraction, electroplating and water hardness. On the fourth day, **Dr. K. Muruga Poopathi Raja**, Assistant

Professor, Department of Physical Chemistry, School of Chemistry, Madurai Kamaraj University, Madurai delivered a lecture on the topic **“Biomolecules Part I”**. He focused on topics like amino acids, proteins, their basic structure and functions, DNA, RNA and information transfer in biological systems. On the fifth day, **Dr. K. Muruga Poopathi Raja** delivered a lecture on the topic on **“Biomolecules Part II”**. He explained the classification of carbohydrates, confirmation, reactions and the structural elucidation. He also explained Fischer Projection, Sawhorse diagrams of the molecule and explained the symmetry of the elements, its manipulation. He also dealt with the vitamins their sources, functions and deficiency caused, lipids, hormones and its physiological role. Faculty from various schools and colleges actively participated. Apart from different parts of Tamilnadu, there were participants from Maharashtra, Rajasthan, Uttar Pradesh, Bihar, Kerala, Puducherry, Punjab, Telangana, West Bengal and Karnataka.

Beneficiaries: 180

9. A six day **National Level Faculty Development Programme** was organised by the **Department of Physics** from **12th July to 17th July 2021** on the topic, **“Advance Topics in Physics”**. On **12th July, 2021**, the inaugural address was delivered by **Dr. R. Srinivasan**, Member Secretary, Tamil Nadu State Council for Science and Technology, Chennai. The session on the first day of FDP covered the topic **“Magnetic Materials”**. **Dr. N. Ponpandian**, Professor and Head, Department of Nanoscience and Technology, Bharathiar University, Coimbatore was the resource person. He highlighted the origin of magnetic materials, basic definitions in magnetism, types of magnetism, introduction to magnetic nanoparticles and biomedical applications of magnetic nanoparticles. On **13th July 2021**, **Dr. K. Thenmozhi**, Assistant Professor, Department of Chemistry, School of

Advanced Sciences, Vellore Institute of Technology (VIT), Vellore spoke on the topic **“Electrochemical and Optical Sensors”**. She started with the definition of sensors and elaborated the uses of chemosensors. She explained in detail, how transformation of chemical information into analytically useful signals take place. She discussed the significance of Electrochemical Sensors, Ferrocyanide containing Redox Active Ionic Liquids in Non-enzymatic Hydrogen Peroxide Sensors, Synthesis of Ferrocyanide ILs, their Electrode modification and electrocatalytic behavior. She also talked about water soluble compounds for fluorescent sensing, fluorescent sensors, their mechanism and advantages. On **14th July 2021**, the speaker of the day, **Dr. R. Nagalakshmi**, Associate Professor, Department of Physics, National Institute of Technology, Tiruchirapalli, addressed the participants on the topic, **“f-Electron Magnetism”**. She started her presentation by pointing out the objective on rare-earth intermetallic and rare-earth magnets. She also explained about strongly correlated electrons system. On **15th July 2021**, **Dr. M. Balasubramaniam**, Professor, Department of Physics, Bharathiar University, Coimbatore delivered the talk on the topic, **“Heavy Charged Particle Accompanied Fission of Heavy and Super Heavy Nuclei”**. He explained the historical overview of fission. He also discussed the energetics of fission, cluster radioactivity, ternary fission overview, collinear vs equatorial and true ternary fissions. He sharply explained the statistical theory of mass distribution theory. On **16th July 2021**, **Dr. M. Balaji**, Researcher, Department of Applied Physics, KTH-Royal Institute of Technology, Stockholm, Sweden spoke on the topic, **“Semiconductor Devices”**. He elaborated on semiconductors, various synthesis techniques of semiconductors and their applications. He discussed in detail the Epitaxial Growth using MOCVD, Sputtering metal contact deposition, Epitaxial

growth techniques, Heteroepitaxial Growth modes. He discussed the loading of the substrates into the reactor. On the same day **Dr. G. Gnanakumar**, Professor and Head, Department of Physical chemistry, Madurai Kamaraj University, Madurai addressed the participants on the topic, **“High Performance Fuel Cells”**. The speaker started his presentation by pointing out the objectives of nano materials used in fuel cells, their characterization and synthesis. He explained the current research in fuel cells and how their efficiency is increased using those materials. On **17th July 2021** the expert speaker **Dr. P. Vengadesh Periasamy**, Professor, Department of Physics, University of Malaya, Malaysia addressed the participants on the topic, **“Solid-State Sensors for Biomolecules”**. He started his presentation by pointing out the objective of DNA electronic (DNAe). He also explained nano fabrication, fundamentals of DNAe, hydrogen binding, types of DNA, charge transfers in DNA, nucleic acid templated nanowires, Schottky diode, organic semiconductors, Central Dogma Theory, nucleic acid-specific Schottky diodes. The valedictory address was given by **Dr. B. Sundarakannan**, Professor and Head, Manonmaniam Sundaranar University. **Beneficiaries: 175**

10. A six day National Level **Faculty Development Programme** on **“Biotechnology for 21st Century”** organised by the **Department of Botany** from **19th July 2021 to 24th July 2021**. **Dr. P. Gopal**, Assistant Professor, Department of Plant Biotechnology, Madurai Kamaraj University, Madurai, delivered a talk on a **“New approaches for the detection and characterisation of circular RNAs”**. In his address, he explained slicing mechanisms, CircRNA Visualization Multiple Displacement Amplification. In addition, he presented his own research in Circular DNA isolation and sequencing in *Oryza sativa* and *Nicotina benthamiana*. On the second day **20th July 2021**, the speaker of the day **Dr. Jibu Thomas**, Head and

Associate Professor, Department of Biotechnology, Karunya Institute of Technology and Sciences (Deemed to be University) Coimbatore delivered a lecture on **“Expectations and Innovations through Biotechnological Interventions”**. He highlighted the challenges, where biotechnological intervention to innovation is needed. On the third day, **21st July 2021, Dr. Ginny Antony**, Assistant Professor, Department of Plant Sciences, Central University of Kerala, Kasaragod, Kerala, introduced the participants to the history of gene editing; explained the theory behind it and various techniques used for gene editing. Her talk on the topic **“Targeted genome editing platforms and applications in plants”** focused on Zn finger and CRISPR/cas9 based gene editing systems. The meeting witnessed an active participation and interaction of the participants with the resource person. On the fourth day, **22nd July 2021, Dr. S. Madhavan**, Professor Emeritus, Department of Biochemistry, University of Nebraska Lincoln, USA delivered a lecture on **“Interdependence of Biochemistry and Biotechnology as revealed by Omics”**. He threw light on the concept of omics and how it could be utilized in the field of Biotechnology. On the fifth day **23rd July 2021, Dr. Jasmine M. Shah**, Assistant Professor, Department of Plant Sciences, Central University of Kerala, Kasaragod, Kerala gave the expert talk on **“Epigenetics: Opportunity and Challenges in Crop Breeding”**. The resource person explicitly explained the principle, mechanism, and role of epigenetics in gene regulation along with other aspects such as epialleles, epibreeding and epigenome editing. Together, she shared her own research in epigenetics changes in plants due to stress and resultant phenotypic manifestations. In the first session of the sixth day **24th July 2021, Dr. Veeramuthu Ashokkumar**, Research Professor, Department of Chemical Technology, Chulalongkorn University, Thailand was the resource person and he delivered a talk on the topic

“Recent Advances in Microbial Biotechnology”. He started his lecture by focusing on some major global problems that is: waste water issue, fossil fuel depletion and industrial fuel gas. Furthermore, he addressed microalgae, as a potential source of solution. He explained the microalgae biomass as renewable source of energy for present scenario and to solve the many global problems. **Dr. Remya Mohanraj**, Professor of Biology, Houston Community College, Houston Tx delivered the lecture on **“Cell Suspension culture for Biodiversity Conservation of Medicinal Plants”**. **Beneficiaries: 120**

11. A five day **Faculty Development Programme** on **“Nanomaterials”** was organized by the **Department of Physics** from **23rd to 27th November 2021**. The First day session on **“Difference Between Nanoscience and Nanotechnology”** was held on **23rd November, 2021**. The resource person **Dr. P. Gopinath**, Head of Centre of Nanotechnology, Indian Institute of Technology, Uttarakhand threw light on difference between nanoscience and nanotechnology. The second day is commenced with the lecture on **“Palmyra culture: An insight into the role of Asian Palmyra palm in Nanoscience and Nano technology”** was held on **24th November 2021**. **Dr. P. Mosae Selvakumar**, Assistant Professor, Asian University of Women, Bangladesh shares his ideas on objectives of Palmyra and Science for society, Palmyra in Nano science and Nanotechnology and applications of green synthesis on nanomaterials. The third day session on **“Nanomaterials and its industrial Applications”** was held on **25th November, 2021**. **Dr. S. Senthil Velan**, Associate Professor of Chemistry, Annamalai University, Chidambaram explained the extraordinary properties of carbon nanotubes, difference between transport industry and textile industry and overview of sol-gel process and he also gave his highlights on nano materials and its industrial application. The Fourth day session on **“UV-Vis**

Spectroscopy of Nanomaterials” was held on **26th November 2021**. **Dr. Israel VMN Enoch**, Professor and Head, Centre for Nanoscience and Genomics, Karunya Institute of Technology and Sciences, Coimbatore shared the importance on the basics of nanostructures, specific objectives of UV-Visible spectroscopy on metal and graph and shape of UV-Visible spectra using different compounds. The Fifth day session on **“Micro - Nano fabrication techniques and its application in sensors”** was held on **27th November 2021**. The resource person **Dr. P. Dinesh R. Rotake**, Research Associate, Department of Electrical Engineering, Indian Institute of Technology, Hyderabad provided his experience on How to design nanomaterials through nano fabrication, specific objectives of micro-nano fabrication techniques and applications of micro nano fabrication used in sensors. The Valedictory speech was given by **Dr. G. Gnanakumar**, Professor and Head, Department of Physical chemistry, Madurai Kamaraj University, Madurai. **Beneficiaries: 338**

12. A six day National Level **Faculty Development Programme** on **“Exploring New frontiers in chemical and biological sciences”** was organized by the **Department of Chemistry** from **31st January to 5th February 2022** through online mode. On the first day, **Dr. Desigan Kumaran**, Structural Biologist, Department of Biology, Brookhaven National Laboratory, USA delivered a lecture on **“A New Structural Paradigm in Heme Binding Proteins”**. He explained the three new heme binding protein families and in detail highlighted DUF2470 domain containing protein family, protein production, heme binding studies, structure of DUF2470 and its complex with heme. On the second day FDP program, the resource person, **Dr. Suguna Perumal**, International Research Professor, School of Chemical Engineering, Yeungnam University, South Korea addressed the participants on **“Hydrogels for Multiple Heavy Metal Adsorption”** She explained the synthesis

of different types of hydrogels and removal of heavy metals using hydrogels in a excellent way. On the third day, **Dr. P. Yuvaraj**, Senior Scientist, CSIR- North East Institute of Science and Technology Branch Laboratory, Manipur addressed the virtual gathering on the topic **“Synthesis of Biologically Active Small Molecules Using Sustainable C-H Activation Approach and Their Medicinal Applications”**. He gave an introduction about drug repurposing research and also an overall view about the metal catalyzed organic reactions using homogenous catalyst and the importance of homogenous catalysis. On the fourth day, **Dr. P. Pon Sathiesh Kumar**, Senior Post Doc. Researcher, Institute of Basic Science, POSTECH, South Korea delivered a lecture on **“Gene Delivery - Challenges, Advancement and Applications”**. He briefed different non-viral vectors and their transfection. He also discussed the mechanism and its biological function. On the fifth day, **Dr. Parthiban Marimuthu**, Institute of Organic Bio Hospitals, New Delhi delivered a lecture on **“Fundamentals of Oxygen Biochemistry with special Reference to Body Immunity”**. He briefed the importance of oxygen in the body and how the level of oxygen be increased. He also discussed the mechanism and its biological function. On the sixth day, **Dr. Kathiresan V. Sathasivam**, Senior Associate Professor, Department of Biotechnology, Asian Institute of Medicine, Science and Technology University, Malaysia delivered a lecture on **“Conversion of Waste into Wealth Research to Commercialization”**. Through his lecture he has created an awareness about waste and how it can be used properly. He also discussed how a simple waste can also be considered and recycled. Participants from various parts of Tamil Nadu as well as from different states of India like Andhra Pradesh, Maharashtra, Puducherry, Bihar, Chhattisgarh, Karnataka, Kerala and Telangana participated in this programme. **Beneficiaries: 330**

13. A one week **International Faculty Development Programme** was organized on “**Smart Materials for New Technology**” by the **Department of Physics** from **18th February to 23rd February 2022**. **Dr. K. R. Jayappriyan**, Assistant Professor, Centre for Advanced Studies in Botany, University of Madras, Chennai was the resource person. The speaker gave a talk on the topic “**Commercial of Nanoproducts**”. He deeply summarized the history and introduction of growth of nanotechnology, hair care treatment, nanomaterial behaviour, morphology of nanomaterials, nanotechnology in ice-creams, size of the particles, chemical Vs physical sunscreen and radiations (UVA Vs UVB). On the second day of the FDP, **Mr. Velmurugan N. Ramachandra**, Vice President of Engineering, AMP Med Tech, Massachusetts, USA was invited to grace the session and share his expertise on “**Sensing Technologies in Medical Diagnostic Applications**”. The speaker gave a talk on wireless devices and implantable devices, commercial viability, pulse oximeter evolution, neural dust, wireless brain sensors for neurological disorders, diagnostic sensor implementation and *in-vivo* capsules. On the third day of the FDP, **Dr. Delhi Babu Prabhu**, Scientist-D, Centre for Automotive Energy Materials, International Advanced Research Centre for Powder Metallurgy and New materials, IITM Research Park, Chennai gave top notch ideas on the topic “**Nano Engineered Magnets**”, historical background of magnetism, classification of ordered magnetic materials, important magnetic properties, soft and hard magnetic materials, magnetism thy name is equality, 3DAP tomography and third generation permanent magnets. On the fourth day session of the FDP, **Dr. Jitendra Satija**, Associate Professor, Centre for Nano Biotechnology, Vellore Institute of Technology, Vellore was the speaker. The speaker gave a talk on “**Nanomaterials for Optical Biosensor: An Insight into Fiber Optic Sensors**”. The speaker shed light on the

following: nanotechnology and biosensor, types of nanomaterials, issues with conventional biosensor and QDs: properties. The fifth day session of the FDP, **Dr. K. R. Ravi**, Associate Professor, Department of Metallurgical Materials Engineering, Indian Institute of Technology, Jodhpur was invited to experience his concentration in the session. The guest gave a brief note on the topic “**Lotus leaf effect**” by wettability studies, liquid Infused endoscopes, transparent scalable superhydrophobic self-cleaning coating and super hydrophilic to superhydrophobic coating. The speaker, **Dr. T. Prakash**, Assistant Professor, National Centre for Nanoscience and Nanotechnology, University of Madras, Chennai gave a detailed talk on “**Nano Enabled Sensors**”. The resource person gave a transparent idea about the Nano enabled Sensors. **Beneficiaries: 121**

14. The **Department of Botany** organized a five day **Faculty Development Programme** on “**Intellectual Property Rights**” from **21st February to 25th February 2022**, through virtual mode. **Dr. M. Sakthivel**, Assistant Professor, Guru Gobind Singh Indraprastha University, New Delhi, gave the speech on “**Introduction to IPR - National and International Perspective**”. The speaker shared his knowledge of IPR and its concepts, Copyright Act, Patents Act, Trademarks, etc., with the participants, helping them understand the broad concept of the FDP. On the second day, **Dr. B. Deepa**, Registered Patent Agent, Chennai, gave the speech on “**Introduction to Patent System and Filling Procedure**”. The speaker shared her knowledge of Patent, Indian Patent Act, not patentable inventions and how to file the patent application with the participants. This session helped the participants to understand the process of filing the Patent and gave a great insight into how to overcome the difficulties of filing the patent. On the third day, **Mr. A. K. Rajaraman**, Advocate, High Court of Madras, Chennai gave the speech

on **“Trademarks and Geographical Indications”**. The speaker shared his knowledge of Trademarks, geographical indications and its benefits with the participants. This session helped the participants to understand the process of registration of both trademarks and geographical indications. On the fourth day, **Dr. P. R. L. Rajavenkatesan**, Associate Professor and Head, VIT School of Law, Vellore Institute of Technology, Chennai gave the speech on **“Copyright”**. The speaker shared his extensive knowledge of Copyright and its law. On the fifth day, **Dr. Narendran Thiruthy**, Assistant Professor, Rajiv Gandhi School of Intellectual Property Law, Indian Institute of Technology, Kharagpur gave the speech on **“Biodiversity and Traditional Knowledge”**. The speaker shared his knowledge of law which regulates biological resources with the participants. **Beneficiaries: 125**

15. A five day **International Faculty Development Programme** on **“Biotechnological Innovations in Health Care”** was organized by the **Department of Zoology** from **14th March to 18th March 2022** through virtual platform. **Dr. Gowri Priya Chidambaram**, Scientist, Department of Immunology and Stem Cell Biology, Aravind Medical Research Foundation, Madurai was the resource person. She delivered a lecture on **"Stem Cell Therapy for Ocular Surface Reconstruction"**. The talk was focused on stem cell therapy for treatment of limbal stem cell deficiency. **Dr. J. Nallathambi**, Senior Scientist, Molecular Signaling and Gene Therapy, GROW Laboratory, Narayana Nethralaya Foundation, Narayana Health City, Bengaluru was the resource person for the second day. He delivered an informative lecture on **“Molecular diagnostic methods and its applications in hereditary eye diseases”**. Studying the molecular causes of the eye diseases from a genetic perspective provides patients with comprehensive diagnosis, improved prognosis and identification of potential therapeutic targets. He focused on the

molecular and genetic diagnostic methods which support and confirm clinical diagnosis in hereditary eye diseases. On the third day, **Ms. S. Hemalakshmi**, Project Manager, Gulf International Cancer Centre, Abu Dhabi, spoke on the topic “**We perceive what we conceive - Biotechnology in health care**”. The session focused on the impact of biotechnology in health care, especially diagnostic techniques and therapeutics. She emphasised the medical care process adopted in multispecialty hospitals and clinics. **Dr. Kousalya Nathan**, Anti-aging consultant, Apollo Hospitals, Chennai was the resource person for the fourth day. She gave a lecture on the topic ‘**Healthy aging**’. She emphasised the life style modifications that has to be followed for a healthy being. She explained the various factors that induce senescence and ageing. The importance of a balanced diet for a healthy body and the effect psychological stress on health was stressed in the lecture. On the fifth day of the programme, **Dr. James Premdoss Clement**, Associate Professor, Jawaharlal Nehru Centre for Advanced Scientific Research, Bengaluru was the resource person. He delivered a lecture on “**Overview of autism spectrum disorder using syngap1 as a model**”. He highlighted the fact that intellectual disability / autism spectrum disorder is due to mutations in genes encoding proteins that are important neuronal functions. He emphasised heterozygous mutations in syngap are one of the causes of ID/ASD and affect less than 1 % of the population. **Beneficiaries: 77**

16. A five day **Faculty Development Programme** on “**Biotechnology Today and Tomorrow: Innovations and Implications**” was organized by the **Department of Zoology and Botany** from **1st September to 5th September 2022** through virtual platform. On the first day, **Dr. M. Bavanilatha**, Associate Professor, Department of Biotechnology, Sathyabama Institute of Science and Technology, Chennai chaired the programme. Dr. M. Bavanilatha addressed the audience on “**Biotechnological**

innovations in controlling diseases". She emphasized on the importance of Biotechnology in fulfilling the urgent needs of the society, specially, in reducing the burden of diseases. On the 2nd day, **Dr. S. Umamaheswari**, Professor, Department of Biotechnology, Manonmaniam Sundaranar University, Tirunelveli, delivered a talk on **"Earthworms in Biotechnology"**. She explained how to identify the commercially important earthworms, their cocoons as well as about the layout of vermibed / vermipit and indoor composting in pits. She addressed on metagenomics and its applications in understanding host interactions, discovery of DNA variation, drug/ vaccine development, genetic engineering, etc. **Dr. M. Kirupa Sankar**, Assistant Professor, Department of Biotechnology, Bannari Amman Institute of Technology, Erode, was the resource person for the third day. He delivered a talk on the **"Role of Biotechnology in Addressing Future Energy Demand and Creating Circular Sustainable Bioeconomy"**. He emphasised the application of artificial intelligence in the medical field and agriculture. He also highlighted the importance of artificial intelligence incorporating systems to diagnose cancer and cardiac arrest within a fraction of a second. **Dr. Karthika Pushparaj**, Assistant professor of Zoology, Institute for Home Science and Higher Education for Women, Coimbatore was the resource person for the fourth day (**4th September 2022**) of the Faculty Development Program. She gave a lecture on **"Rationale of Interdisciplinary Sciences-Tangible Cues of Sustainable Development in the field of Biotechnology"**. Dr. Karthika Pushparaj addressed the various interdisciplinary avenues in biotechnology and its scope for career development. **Dr. S. Sudhakar**, Professor, Department of Biotechnology, Manonmaniam Sundaranar University, Tirunelveli served as the resource person on the fifth day. He delivered the lecture on **"Mechanism of Ageing"**. His lecture intricated the ageing process, cells from

aged and young individuals, secret of ageing and life span of cells. **Beneficiaries:**

47

17. **The Department of Zoology and Botany** organized a three day **Faculty Training Programme** on “**Techniques in Genome Biology**” from **8th February 2023 to 10th February 2023**. **Dr. T. Jeba Singh**, Assistant Professor of Plant Sciences, Madurai Kamaraj University, Madurai gave a talk on “**Identification and screening of plant viral genome**”. **Dr. Sujatha Kabilan**, Assistant Professor of Zoology, Lady Doak College, Madurai was the resource person. In the morning session Dr. Sujatha Kabilan delivered a lecture on “**Molecular Characterization of Microbial Genome**”. She gave a short introduction on PCR, types of PCR, protocol for PCR, preparation and loading of Agarose gel. She encouraged the participants to operate the PCR and to load the gel. She also explained about the Biopolymers and its advantages. In the afternoon session, **Dr. M. Jeyalakshmi**, Associate Professor, Department of Immunology, Madurai Kamaraj University, Madurai was the resource person. She gave a talk on “**Isolation and quantification of Human Genome DNA**”. The session focused on the BLAST, sequence alignment, submission of gene sequence and construction and interpretation of phylogenetic tree. This faculty development programme enriched the knowledge of faculties and developed skills on various techniques in biotechnology. Identification and screening of plant viral genome. **Beneficiaries: 12**

18. A three day **Faculty Training Programme** on “**Molecular Modelling and Dynamics**” was organized by the **Department of Chemistry, Botany and Chemistry** from **13th February to 15th February 2023**. **Dr. M. Murali Krishnan**, Assistant Professor of Chemistry, Bannari Amman Institute of Technology, Erode gave a lecture on “**Molecular Modelling**”. He explored various databases to

investigate the structure, dynamics, surface properties, and thermodynamics of protein molecules and the biological activity was studied using protein folding, enzyme catalysis, protein stability, conformational changes associated with biomolecular function, and molecular recognition of proteins, DNA and membrane complexes. The resource person clearly explained the procedure to find out the secondary structure of protein by using software such as SOPM, Predict Protein, Sosui, BLAST. He also introduced SWISS Model to generate three-dimensional protein structure. **Beneficiaries: 16**

19. A three day **Faculty Development Programme** on the topic **“Exploring Biotechnology: Innovative Applications and Advancements”** was conducted by the **PG and Research Department of Zoology, Botany and Microbiology** from **14th February 2024 to 16th February, 2024**. The FDP was aimed at knowledge enhancement of faculty and research scholars through lectures and training sessions on the various fields of biotechnology from the experts in the respective fields. **Dr. S. Kalidas**, Associate Professor and Head, Department of Animal Science, Manonmaniam Sundaranar University, Tirunelveli was the resource person on **14th February 2024**. He gave a lecture on the topic **“Bio-prospecting of Marine Microbes from Gulf of Mannar for Human Therapeutics”**. He gave an insight on the therapeutic importance of marine microbes. The training session included various microbial techniques including isolation of pure cultures of microbes from the marine sources, antibiotic sensitivity assays. **Dr. K. Murugan**, Professor, Department of Biotechnology, Manonmaniam Sundaranar University, Tirunelveli was the resource person for the first session of the second day. He gave a lecture on the topic **“Bionanoemulsion: Vehicle for Exploring Synergistic Phytochemicals and Healthy Life”**. He elaborately discussed the preparation and application of

bionanoemulsions. The training session was on biofilm control and HET - CAM Assay. The second session was handled by **Dr. Ramasamy Subbiah**, Professor and Head, Department of Biochemistry, Madurai Kamaraj University, Madurai. He discussed on the topic **“Chemicals and Diabetes inextricably linked: Tox-Point Research enters a new Era?”** The talk focused on the impact of organophosphorus molecules. He explained the role of these chemicals in inducing cardiomyopathy and diabetes. The training session included a hands-on training on Omics Approach: Small non coding RNA data based downstream analysis. **Dr. D. Illakkiam**, Assistant Professor, Department of Biotechnology, Mother Teresa Women’s University, Kodaikanal was the resource person for the last day of the FDP. She gave a lecture on the topic **“In silico approach for characterisation of gene and its expression studies”**. During her lecture Dr. Ilakkiam explained the various DNA and protein databases and bioinformatic tools to analyse the gene structure, their expression. **Beneficiaries: 27**

20. A three day **Faculty Development Programme on “In silico modelling approach for pharmaceutical sciences”** was organised by the Department of Chemistry and Botany from **27th August 2024 to 29th August 2024**. **Dr. T. S. Gnanendra**, Head, Department of Biotechnology, Vivekanandha College of Arts and Sciences for Women, Namakkal gave a training on the topic **“Use of computational tools in drug discovery modelling and simulations”**. This training programme provided the faculty members with a platform to integrate various tools, software, and *in silico* modelling into their research projects and collaborations. The techniques are applied in areas such as computational chemistry, drug design, and the use of computational software to analyse molecular systems. **Beneficiaries: 21**

1. On **13th December 2019**, a one day seminar on **“Electrochemical Technology”** was organised by the **Department of Chemistry**. **Dr. G. Paruthimal Kalaignan**, Senior Professor and Head, Department of Industrial Chemistry, School of Chemical Sciences, Alagappa University, Karaikudi was the resource person. In the first session, he delivered a lecture on **“Batteries and Fuel Cells”**, in which he gave a few ideas about the fields related to electrochemistry followed by the basic principle behind batteries, requirements of a battery, its components and about the electrodes as well. He also explained the fuel cells, their types and uses. In the second session, he gave a lecture on the topic **“Corrosion and Electroplating”**. He explained clearly about corrosion, its types, techniques involved in electroplating and its advantages. He then gave a brief talk about batteries, their types and their applications. In the afternoon, **Dr. S. Senthil Kumar**, Senior Scientist, Central Electrochemical Research Institute, Karaikudi delivered a lecture on the topic **“Fundamentals of Electrochemistry at Electrode - Electrolyte Interface”**. He started with the fundamentals of electrochemistry and then discussed the electrical double layer, types of electrochemical cells, types of electrodes. He also gave a lecture entitled **“Overview of Electroanalytical Techniques towards Advanced Analytical Applications”** in which he highlighted the importance and the need of electroanalytical techniques in various analytical applications. He facilitated the understanding through innovative presentation methods. **Beneficiaries: 142**
2. On **20th December 2019**, a one day seminar on **“Marine Biology”** was organised by the School of Biological Sciences. The first session on **“Cnidarian Taxonomy and its Biological Importance in the Coastal and Marine Ecosystems”** was led by

Dr. L. Ranjith, Scientist, Marine Biodiversity Division, ICAR - Central Marine Fisheries Research Institute, Thoothukudi. He talked on the various classification systems, their evolutionary and ecological significance in supporting marine ecosystem. The second session was steered by **Dr. R. Arthur James**, Associate Professor and Head, Department of Marine Science, Bharathidasan University, Tiruchirappalli on **“Coastal Ecology”**. The speaker provided an overview of the diversity of marine life, the organisation of various forms of habitats, impact of deleterious human interference on marine environment and various impact measuring methodologies. The final session on **“Marine Microalgae”** was led by **Dr. C. P. Suja**, Senior Scientist, Marine Biotechnology Division, ICAR - Central Marine Fisheries Research Institute, Thoothukudi. The resource person enumerated the various methods of microalgae culturing, harvesting, contamination chances, protective measures and their industrial uses. **Beneficiaries: 198**

3. On **23rd January 2020**, a one day National seminar on **“Nano-world”** was organised by the School of Physical Sciences for the III B.Sc. Physics and Chemistry. An eminent person **Dr. Anushree Roy**, Professor of Physics, Indian Institute of Technology, Kharagpur was the resource person. The session started with the introductory note on ‘colour’ in terms of Physics. The first session titled **“The Colourful Nanoworld”** dealt with the origin of the word ‘Nano’ and its evolution. The second session dealt with the colours on Nanomaterials. The resource person clearly explained how to get the required colour using Laplace and Schrodinger formula applying boundary condition, to arrive at the value of absorption. The principle behind Atomic Force Microscopy and Transmission Electron Microscopy were explained in the session. The final part of the session focused on the future research prospects on Nano Technology. Finally, the session came to an end with an

interactive quiz. The noon session was chaired by **Dr. V. Vasu**, Head and Associate Professor of Computational Physics, Madurai Kamaraj University, Madurai. He spoke on the topic “Carbon nanotubes as future energy source”. He explained the preparation of carbon nano tubes, various properties of nano tubes, methods of hydrogen storage in CNT and density functional theory. The session was very useful to understand how carbon nano tubes are used for hydrogen storage. **Beneficiaries: 101.**

4. On **30th and 31st January 2020**, a two day International conference on “**Advanced Materials**” (**ICAM 2020**) was organised by the **School of Physical Sciences**. The key note address was delivered by **Dr. M. Umadevi**, Associate Professor of Physics, Mother Teresa Women’s University, Kodaikanal. She addressed the audience on the topic, “**Green Synthesis of Nanoparticles**”. The first session was handled by **Dr. C. Vedhi**, Assistant Professor of Chemistry, V.O. Chidambaram College, Thoothukudi on the topic, “**Nanomaterials Modified Electrodes for Sensors of Chemicals.**” In the second session, **Dr. K. Krishnamoorthy**, Senior Principal Scientist in Polymers and Advanced Materials Laboratory, National Chemical Laboratory, Pune addressed the students on the topic, “**Glasses and Polymers**”. **Dr. R. Ramesh Babu**, Associate Professor of Physics, Bharathidasan University, Tiruchirappalli addressed the students in the third session on the topic, “**Transparent Conducting Oxide Thin Films by Spray Pyrolysis Technique**”. On the second day of the conference, the first session was handled by **Dr. P. Rajesh**, Assistant Professor of Physics, SSN College of Engineering, Chennai on the topic, “**Growth of 1,3,5 Triphenylbenzene for Radiation Detection Application**”. The second session was handled by **Dr. Suguna Perumal**, Research Professor of Applied Chemistry, Kyungpook National University, South Korea on the topic, “**Polymer / Graphene Composites Hydrogel Particles for Heavy Metal Ion Adsorption**”.

Dr. A. Chandra Bose, Head and Associate Professor of Physics, National Institute of Technology, Tiruchirappalli on “**Nanomaterials for Energy and Environmental Application**” addressed the gathering the third session. The fourth and the final sessions of the day were handled by **Dr. A. Samson Nesaraj**, Professor of Applied Chemistry, Karunya Institute of Technology and Sciences, Coimbatore on the topic, “**Soft Chemical Synthesis of Nanocrystalline Materials: Application in Electrochemical Energy Conversion Systems**”. The conference successfully ended with the valedictory session and certificates were distributed. **Beneficiaries: 370.**

5. On **25th February 2020**, a National seminar on “**Artificial Intelligence in Agriculture**” was organised by the **Department of Botany** for the all the B.Sc. Botany students. The keynote address was delivered by **Mr. Naveen K. Prathapaneni**, Solution Architect, Watson and IBM Cloud, Hyderabad. He spoke on “**Artificial Intelligence in Agriculture – Role of IT Industry**”. The core area of his deliberation was on the basic concepts of artificial intelligence, its various implications in crop management, the application of sensors, GPS, robots and drones in serving invaluable data sources in the domain of agriculture. The second session was steered by **Dr. P. Prema**, Assistant Professor, Department of Agriculture Economics, Agriculture College and Research Institute, Madurai on “**Artificial Intelligence in Weed and Pest Management for Crop Improvement**”. The speaker explained the Gray-Level Co-Occurrence Matrix (GLCM) technique imagery system and Artificial Neural Networks (ANN) applications for Artificial Intelligence (AI) systems in agriculture. She explained the crop, weed and pest infected plant identification systems and significance of precision agriculture with real data generated at the Agriculture University. The final session on “**Remote Sensing and GIS in Agriculture**” was led by **Dr. P. Kannan**, Assistant Professor, Department of

Soils and Environment, Agriculture College and Research Institute, Madurai. The resource person gave a clear idea of various remote sensing platforms, satellite types and various applications used in the processing of remote sensed data. He explained the processing and real-life uses of remote sensed data with reference to the data generated from the fields of the Cauvery Delta region. **Dr. Achuthsankar S. Nair**, Professor, Department of Computational Biology and Bioinformatics, University of Kerala, Karyavattom gave a speech on “**Machine / Deep Learning and Applications in Agriculture**”. The programme concluded with the valedictory session.

Beneficiaries: 112

6. A webinar on “**Intellectual Property Rights**” was organised by the **Department of Zoology** on **18th February 2021** through virtual platform. **Dr. D. Balaji Devarajan**, Head, Center for IPR, KPR Institute of Engineering and Technology, Coimbatore was the resource person. He also gave a deeper insight on the various inclusions of “**Intellectual Property Rights**”. He cited simple examples such as that of the discovery of sticky notes by Arthur Fry which is a very simple yet creative innovation. He also shared his own innovation on aero engines where he created a turbo jet for fuel consumption. The webinar proved to be resourceful to the students as it inspired them that greater things could be achieved through simple observation. **Beneficiaries: 331**

7. A one day National webinar on “**Environmental Biotechnology**” was organised by the Marian Star Centre, **Department of Botany**, St. Mary’s College (Autonomous), Thoothukudi in collaboration with **Department of Botany, Holy Cross College (Autonomous), Nagercoil** on **12th April 2021** through Zoom platform. The programme was sponsored by DBT, Star College programme, New Delhi. The program was presided by **Dr. G. Sahaya Dennish Babu**, Assistant Professor of

Physics, Chettinad College of Engineering and Technology, Karur and **Dr. M. Jerold**, Assistant Professor, Department of Biotechnology, National Institute of Technology, Warangal, Telangana. The inaugural address was given by **Dr. G. Sahaya Dennish Babu** on the topic “**Nanomaterials for Environmental and Biological Applications**”. He addressed on nanoparticles, how it can be generated and its uses, as to how this can be utilised in the process of treatment of various diseases and how it can be utilised for the production of drug discovery. The next session was conducted by **Dr. M. Jerold**. He addressed on “**Biorefinery: A Clean and Green Route for Sustainable Biological Waste Management**”. In his lecture, he gave a clear insight on what is biological waste management, how microbes can be utilised in the process of bio refinery process. The students of the UG departments got clear knowledge about the topic and got enhanced through this process.

Beneficiaries: 313

8. The Marian Star Centre in association with **Department of Tamil**, St. Mary’s College (Autonomous), Thoothukudi and **Raja Publications, Tiruchirappalli** organised an International Conference on “**Science in Tamil Literature**” on **16th April 2021**. In the first Session, **Dr. G. Mariappan**, Assistant Professor of Tamil, Dravidian University, Andhra Pradesh delivered a lecture on “**Science and Science Related Issues in Tamil Literature**”. In the second session, **Dr. A. Hepsy Rose Mary**, Assistant Professor, Department of Tamil, University of Kerala, Thiruvananthapuram, Kerala, delivered a lecture on “**Medicinal Thoughts in Tamil Literature**”. In the third session **Mr. T. Thirukumaran**, Tamil Poet and Journalist, Ireland delivered a talk on “**Science in Tamil Literature**”. 491 participants from St. Mary’s College, 106 participants from Mentee Colleges participated actively and enthusiastically. **Beneficiaries: 597**

9. St. Mary's College (Autonomous) Thoothukudi in collaboration with Kamaraj College, Thoothukudi organised a National Webinar on **“Technological Advancements in Science”** on **16th and 17th April 2021**. All the B. Sc. students from the Departments of Physics and Chemistry and III UG students from the Departments of Mathematics, Computer Science, Botany, Zoology, Microbiology and Psychology participated in the webinar along with participants from various mentee institutions. **Dr. V. Nirupama**, Assistant Professor of Physics, Sree Vidyanikethan Engineering College, Tirupathi, Andhra Pradesh was invited to share her views in the first session on the topic **“Role of Engineering Materials in Advanced Technology”**. The speaker addressed on the basics of material engineering, types of biomaterials, uses of biomaterials, Nano materials and its properties, metallic glasses, applications of meta material and claytronics, shape memory alloys and different shape memory effects. 11 III UG Physics students presented papers in the session were chaired by the resource persons. **Mr. S. Joel Raj**, Senior Scientist, Indian Space Research Organisation, Thiruvananthapuram, Kerala addressed on **“Polymers as Smart Materials for Self-Healing Technology”**. He highlighted the invention of self - healing materials and their types, Self-healing concept using embedded microcapsules, design of self-healing materials, working of Lamborghini terzo, composition of self-healing concrete, Pros and cons of self-healing concrete, smart materials and their technical applications and polymerization mechanism of DCPD (Dicyclopentadiene) with Grubbs catalyst. **On 17th April 2021**, **Dr. P. K. Satheesh Kumar**, Professor, Centre of Advanced Study in Botany, Banaras Hindu University, Varanasi delivered a lecture on the topic **“Tailor Made Organisms: Genome Editing tools in Biology”**. He focused his topic on the nucleus present in the cell and its nature, the pattern similarity present in the prokaryotic cell

and gene editing tools. He also explained the changes that DNA will have in the cell due to different radiations. In addition, he discussed in detail about CRISPR the clustered regularly interspaced short Palindromic repeats-associated protein which is used in Genome editing. He gave a clear vision on editing tools in biology which was highly helpful for the Undergraduate students. **Dr. P. James Clement**, Associate Professor of Neuroscience Unit, Jawaharlal Nehru Centre for Advanced Scientific Research, Bengaluru delivered the lecture on the topic **“Understanding Autism Spectrum Disorder using Syngap 1 Heterozygous Mutation”**. The resource person explained the importance of brain, its function and disorder, how it gets signals through neurons and how messages are transferred. He also explained about synapses, neuronal connections and the brain functions, about the drugs that are given according to the symptoms diagnosed, how the symptom-based therapy detects the behaviour in each stage of life-like childhood and adulthood and finally about the study of neurons that lead to disorder and how the social changes occur helps to cure the disorder. **Beneficiaries: 312**

10. A two day Webinar on **“Health Care Analytics”** was organised by the **Marian Star Centre** in association with **Department of Computer Science**, St. Mary’s College, (Autonomous), Thoothukudi and the **Department of Computer Science, Aditanar College of Arts and Science**, Virapandianpattanam, Tiruchendur on **19th and 20th April 2021**. On 19th April 2021 in the morning session, **Dr. D. Shanthi**, Associate Professor, Department of Electronics and Instrumentation Engineering, National Engineering College, Kovilpatti, explained the **“Diagnosis of Diabetic Retinopathy from Retinal Images”** were used to capture retinal images and helped the ophthalmologist to find out the diseases. She concluded the session by insisting annual screening as essential to prevent vision loss and to identify the diabetic

retinopathy. In the afternoon session, **Dr. Josephine Selle Jeyanathan**, Assistant Professor, Department of Electronics and Communication Engineering, Kalasalingam Academy of Research and Education, Krishnankoil delivered a lecture on **“Identification of Abnormalities on Breast Thermograms using Pattern Classifiers”**. She gave a general awareness on Breast Cancer and showcased the rise of breast cancer by comparing Indian statistics, global statistics. She also explained the idea of existing screening such as X Ray Mammography, MRI, and Ultra sonography. She also explained thermography and how it detects the breast cancer so easily and the process of thermography and protocol followed in her research for image acquisition. The entire session was very informative and created awareness to the participants. On **20th April 2021**, **Dr. G. Kumaravelan**, Assistant Professor and Head, Department of Computer Science, Pondicherry University, Pondicherry delivered a lecture on **“Plant Disease Identification and Classification using Machine Learning Algorithms”**. Dr. Kumaravelan gave an idea about machine learning and how to identify plant disease and classification of diseases. He explained the concept in a simple way and skills required to excel in this domain. The afternoon session was chaired by **Dr. A. Shenbagavalli**, Professor and Head, Department of Electronics and Communication Engineering, National Engineering College, Kovilpatti. The resource person explained – **“Thermal Imaging and its Application”** Basic concepts of thermal images, advantages and disadvantages of thermal imaging and its medical application. She also discussed the different types of coloured thermal cameras in identifying the objects at different temperatures. A total of 885 members participated in the webinar and it was an eye opener to the participants. **Beneficiaries: 885**

11. The **Marian Star Centre** in collaboration with **Department of Microbiology**,

St. Mary's college (Autonomous), Thoothukudi and Department of Microbiology, Sadakathullah Appa College, Tirunelveli organised an International webinar on **“Advanced Techniques in Microbiology”** on **21st April 2021** through online mode, sponsored by Department of Biotechnology, Government of India, New Delhi. **Dr. K. Anand**, Medical Scientist, Department of Chemical Pathology, School of Pathology, University of the Free State, South Africa were the resource person for the first session. He delivered a lecture on **“Nanotechnology – The Master of All”**. In this session the resource person enlightened the students about the basics and the recent advancements of Nanotechnology in medical field. **Mr. Velayutham Rajangam**, Research and Development Project Manager, Reckitt Benckiser India Limited, Guragon, New Delhi was the resource person for the second session. He delivered a lecture on **“Career Focus”**. In this session the resource person talked about how focused students should be in this current scenario. Students, academicians and research scholars totally about **307 members** from St. Mary's College and **159** from Mentee Colleges participated in this international webinar.

Beneficiaries: 466

12. The **Marian Star Centre and the Department of Mathematics, St. Mary's College (Autonomous), Thoothukudi** in association with **Department of Mathematics, Pope's College, Sawyerpuram** organised a webinar on **“Applications of Mathematics in Science”** sponsored by the Department of Biotechnology, Government of India, New Delhi on **21st April 2021** through online mode. There were three sessions in the Webinar. **Dr. P. Shanmugavadivu**, Professor and Head, Department of Computer Science and Applications, Gandhigram Rural Institute, (Deemed to be University), Gandhigram delivered a lecture on **“Machine Learning Applications in Biology”**. She highlighted the birth of Artificial Intelligence; the

significance of Machine Learning; the three parts of Machine Learning namely Artificial Intelligence, Machine Learning and Deep Learning and types of Machine Learning. Finally, she gave the applications of Machine Learning in Biology. **Dr. A. Amali Asha**, Assistant Professor, Department of Computer Science, Loyola College (Autonomous), Chennai delivered a lecture on “**Swarm Intelligence**” which is the study of social behaviour of insects such as ants, bees, wasps, etc. **Dr. U. Mary**, Head and Associate Professor, Department of Mathematics, Nirmala College, Coimbatore delivered a lecture on “**Application of Graph Theory in Drug Discovery through Nanoparticles**”. She explained the origin of Graph Theory, Konigsberg Bridge Problem, the basic concepts of Graph Theory and the Molecular Topology. She elucidated the applications of Topological indices in Molecular Biology and Pharmaceutical Industries, Bridge Molecular Graph, how to calculate the Wiener index for the Bridge Molecular Graph and the applications of Topological indices in the day-to-day life. **443 participants** from St. Mary’s College, **87 participants** from Mentee Colleges participated enthusiastically and benefitted largely from the three sessions. **Beneficiaries: 530**

13. **School of Biological Sciences** in collaboration with **Department of Commerce, St. Mary’s College (Autonomous)**, Thoothukudi, along with **Department of Commerce, Rani Anna Government College for Women**, Tirunelveli organised an **I”nternational Virtual Conference on Inter-Disciplinary Research Perspectives: Integration of Science and Humanities in Biodiversity Conservation** on **24th April 2021**. In the first session, Eminent Scientist **Fr. Dr. Ignacimuthu S. J.**, Scientist, Director, Xavier Research Foundation, St. Xavier’s College (Autonomous), Palayamkottai discussed about the “**Role of Agriculture on Biodiversity**”. In the second session, **Dr. Ramasamy Rajesh Kumar**, Research Scientist, Institute of

Nuclear-Agricultural Sciences, College of Agriculture and Biotechnology, Zhejiang University, People Republic of China delivered a talk on **“Role of Biodiversity on Human Health, Economy and Wellbeing”**. The sessions were statistically informative and of high international standards. The webinar was organised in Zoom platform and streamed in YouTube. Around **411 participants** from St. Mary’s College and **44 participants** from Mentee Colleges participated and benefitted from throughout India. **Beneficiaries: 455**

14. An International Webinar on **“Entrepreneurship – An Ubiquitous Impact on Science Graduates”** was held on **24th April 2021** organised by **Marian Star Centre and Department of Economics, School of Management and Economics** in association with **NFED Business Facilitators Forum (NBFF), National Foundation for Entrepreneurship Development, Coimbatore**. **Ms. D. Susmitha**, Founder and Managing Director, Suntowa Technologies Private Limited, Chennai addressed the students on **“Women Entrepreneurial Vistas and Promotional Prospects”**. Her lecture motivated the students to become a successful women entrepreneur. She instilled the spirit among young minds that the women entrepreneurs have more social mobility power than men. **Mr. Owaiz Khan**, Founder, Cynaris Solutions Private Limited, Bengaluru served as the resource person and deliberated the lecture on **“Design Thinking – A gateway for entrepreneurship”**. He also inculcated that employing design thinking process will make the business more innovative and creative. **Mr. Nanda Kumar**, Founder and Director, Kovaion, London, United Kingdom delivered a lecture on **“Business Canvas for Global Entrepreneurs”**. He highlighted how Business model canvas is a strategic management template used for developing new business models and documenting existing ones. **Ms. Rani Wemel**, Co-Founder and Chief Operating

Officer, LTT Global Communications, Sendirian Berhad, Selangor Darul Ehsan, Malaysia instilled the “**Global Women Entrepreneurship and Gig Economy**” in her lecture. She also added that gigging helps women to earn well and gain job satisfaction by being able to use their experience for the most relevant opportunities. She showcased how the gig economy has greatly bridged the pay gap and boosted pay parity between men and women, a concept which still evades traditional employment models. Around 279 participants from St. Mary’s College and 20 participants from Mentee Colleges benefitted through this webinar. **Beneficiaries: 299**

15. The **Department of Botany** organised an International E-conference on “**Recent Trends in Science and Technology**” on 29th and 30th April 2021 through online mode. **Dr. Martha Rengasami**, Dean, Biosciences and CSR, Vinayaka Missions Research Foundation, Chennai gave the inaugural address. **Dr. Sukrudee Sukchai**, Professor, School of Renewable Energy and Smart Grid Technology, Naresuan University, Phitsanulok, Thailand delivered the lecture on “**Renewable Energy – Current Trends and Future Prospect**”. She addressed on current energy scenario by fuels with both non-renewable and renewable sources, the current market and industry trends of renewable sources, the future targets for using renewable energy country wise and the use of the smart grid technology in renewable sources. She ended her lecture by showing the animation about the smart grid technology installed in Naresuan University and its benefits. **Dr. Kaushik Pal**, Professor, Laboratório de Biopolímeros and Nanotecnologias, Universidade Federal do Rio de Janeiro, Brazil delivered a lecture on “**Liquid Crystals-grafted Nanocomposite Matrix and Green Nanomaterials: Novel Switchable Device Implementations**”. He discussed the importance of nano materials and its application in multi-disciplinary fields, the

innovative researches undertaken and the liquid crystals and their characterizations by spectroscopic and laboratory analysis. In spectroscopic investigation, he explained his studies about the analysis the morphological structures of synthesized liquid crystallized nano materials. **Mr. Naveen K. Prathapaneni**, Solution Architect, Watson and IBM Cloud, Hyderabad delivered the lecture on **“Industry Imperatives in the Age of AI and Automation”**. He spoke on industrial AI development from 2000 till now. He explained about the evolution of business with a help of developed technology of artificial intelligence, machine knowledge and deep learning by automation, cognitive computing and data gatherings. **Prof. Anand Narayanan**, Department of Earth Sciences and Space Sciences, Indian Institute of Space Science and Technology, Thiruvananthapuram delivered the lecture on **“Search for Planets beyond the Solar System”**. He spoke on the solar system planets and the study of the exoplanets existing far away from the solar planet system. He shared various methods like photographic method, and indirect method that helps to identify the exoplanets by some star’s behaviours like radial velocity method and transit method. He motivated the biology students to get job in Department space sciences, because there is an opportunity of collaboration between Biology and Astrophysics for the study of the aliens. **Prof. Jennifer Ann Harikrishna**, Professor of Genetics and Molecular Biology, Institute of Biological Sciences, University of Malaya, Malaysia delivered the lecture on **“Applications of RNA Silencing Technology for Orchids”**. She explained d-RNA technology and its applications, how the specific gene silencing has been shown to be related to two ancient processes, co-suppression in plants and quelling in fungi, and how it has also been associated with regulatory processes such as transposon silencing, antiviral defence mechanisms, gene regulation and chromosomal modification. She also stated that

RNA silenced plants are accepted by many countries as pest resistant plants and is not included under GMO. **Beneficiaries: 221**

16. The **two day National webinar on “Microprocessor and Microcontroller for College Students”** organised by the **Department of Physics** under Star College Scheme on **8th and 9th December, 2021** through zoom platform. **Dr. G. Kumar Sathian, Former Professor and Head, Department of Physics, Madras Christian College, Tambaram, Chennai** was the resource person on both days. On the first day, the resource person spoke on the topic **“8085 Microprocessor Addressing Modes and Programming Techniques”**. He explained the microprocessor and its programming. On **9th December, 2021**, he spoke on the topic **“Embedded System with Microcontroller ATmega 328 and its applications leading to Robotics and IOT”**. He also pointed out the importance and application of embedded microcontroller, DC motor driver, RT controlled robot car, social environmental pollution control with IOT, IOT the wireless technology and the protocol. **Beneficiaries: 220**

17. A one day **National webinar on “Aquatic Insects”** was organised by the **Department of Zoology** on **10th December 2021**. **Dr. T. Kubendran**, Scientist-C, Zoological Survey of India, Solan, Himachal Pradesh was the resource person. He delivered an informative lecture with alluring images on insect diversity spectrum, systematics, life history, role in community structure, ecosystem processes and utility of aquatic insects in biomonitoring studies. He motivated the students to explore the unexplored and underexplored assemblages of aquatic insects and conserve our mother Earth. **Beneficiaries: 117**

18. A one day **National webinar on “Helminth Parasite”** was organised by the **Department of Zoology** on **11th December 2021** through virtual platform under Star

College Scheme. **Dr. Damanbha Lyngdoh**, Assistant Professor, Department of Zoology, St. Anthony's College, Shillong, Meghalaya served as the resource person. He focused on the distribution, pathogenesis, clinical manifestations, diagnosis and treatment of clonorchiasis, opisthorchiasis, paragonimiasis and fascioliasis. He sketched on the complex life cycle pattern, a hallmark of parasitic trematodes involving intermediate hosts. He pointed out the different stages in the life cycle and compared infective stage with diagnostic stage. **Beneficiaries: 106**

19. Two day **International webinar on “Impact of Nanobiotechnology in the Field of Medicine”** was organised under Star College Scheme by the **Department of Chemistry**, in association with the **Department of Microbiology**, St. Mary's College (Autonomous), Thoothukudi on **16th and 17th December 2021**. **Dr. P. Pachamuthu**, Assistant Professor of Chemistry, Bannari Amman Institute of Technology, Sathyamangalam, Erode shared his expertise on the topic **“Emerging trends in microbial synthesis of nanomaterials and their applications”**. He explained clearly the various classification of nanomaterials based on their size and shape. Further he gave an overview on the top down and bottom-up nanomaterial fabrication methods and microbial synthesis of nanomaterials using bacteria, fungi, algae yeast and virus. On the second day, **Dr. M. Gover Antonyraj**, Post Doctoral Fellow, Department of Clinical Biochemistry and Pharmacology, Ben – Gurion, University of Negiv, Israel, was the resource person and he started the session with an introduction to **“Advances in Drug Delivery”**, and gave a detailed explanation on types of nano particles used in pharmacology and gave complete insight over the production and analysis of nanoparticles. **Beneficiaries: 208**
20. **National webinar on “Chemical Pesticides versus Natural Pesticides for Safe Storage of Food Grains from Insect Pests”** was organised by the **Department of**

Zoology on 28th January 2022. **Dr. S. Ezhil Vendan**, Scientist, Food Protectants and Infection Control Department, CSIR-Central Food Technological Research Institute, Mysore, Karnataka was the resource person. The talk was focused on various insect pests that affect stored food grains. The resource person explained the adaptive features of the different classes of insects that render them to be effective pests. He also emphasised the importance of the natural pesticides and discussed the negative impact of chemical pesticides. **Beneficiaries: 113**

21. Two day **International webinar on “Climate Change and Future Challenges”** was organised by the **Department of Botany** on **3rd March and 4th March 2022** under Star College Scheme. The **Keynote Address** on the topic **“Climate Change and Warming Planet”** was delivered by **Dr. Jayshree Vencatesan**, Managing Trustee, Care Earth Trust, Chennai. She urged the younger generation to take initiatives on managing climate change. On the first day, session I was chaired by **Prof. Dr. Azwinndini Muronga**, Executive Dean of Science, Nelson Mandela University, South Africa on **“The Harsh Realities of Climate Change”**. Session II on **“Climate Change and Energy Options for Sustainable Future”** was delivered by **Dr. Desigan Kumaran Srivastava**, Homi Bhabha Chair Professor, National Institute of Advanced Studies, Bengaluru. On the second day, Session III on the topic **“Climate Change and Food Security Solution”** was delivered by **Dr. Desigan Kumaran**, Structural Biologist, Biology Department, Brookhaven National Laboratory, Upton, New York, USA. His lecture made us realize how the basic requirements of human beings are also one among responsible for pollution. **Dr. Sanjeet Mehariya**, Professor of Chemistry, Kemiskt Biologiskt Centrum -huset (KBC), Umeå University, Umeå, Sweeden shared his knowledge on the topic **“Algal Bio-refinery: Promising Approach for Minimizing Carbon Footprint”**. His

lecture gave deep insights of reducing atmospheric CO₂ into value added products. The Valedictory address was delivered by **Dr. A. Nambi Appadurai**, Director, Climate Resilience Practice, World Resources Institute, Bengaluru. His address on climate change urged the participants to take initiatives from home itself.

Beneficiaries: 347

22. A one day **national webinar** on “**Recent Trends in Microbial Technology**” was organised by the **Department of Botany**, St. Mary’s College (Autonomous), Thoothukudi on **8th September 2022**. The webinar started with the prayer song and felicitated by Rev. Sr. Dr. A. S. J. Lucia Rose, Principal, St. Mary’s college (Autonomous), Thoothukudi. The keynote address was given by **Dr. P. Ravichandran**, Professor and Head, Department of Plant Science, Manonmaniam Sundaranar University, Tirunelveli on the topic “**Interaction of Endophytic mycorrhizae among grass roots**”. The first session of the webinar started with the introduction of the resource person. **Dr. T. C. K. Sugitha**, Assistant Professor, School of Agriculture and Biosciences, Karunya Institute of Technology and Sciences, Coimbatore delivered lecture on “**Recent Trends in Microbial Fermentation Technologies**”. The second session was handled by **Dr. T. Jebasingh**, Assistant Professor, School of Biological Sciences, Madurai Kamaraj University, Madurai and he spoke on “**Success stories of Cardamom mosaic viruses**”.

Beneficiaries: 93

23. The **Department of Zoology**, St. Mary’s College (Autonomous) Thoothukudi organised a two day **National conference** on “**Recent Trends in Life Sciences**” from **17th March to 18th March 2023**. On 17th morning conference was commenced with invocation to God. Dr. N. Arokiya Mary Head and Associate Professor of Zoology welcomed the gathering. Dr. Sr. A. S. J. Lucia Rose, Principal, gave the presidential

Address. Dr. Sr. S. Kulandai Therese Deputy Principal, offered the felicitation. **Dr. G. Guruvayoorappan**, Associate Professor, Division of Cancer Research, Regional Cancer Centre, Thiruvananthapuram, inaugurated the programme and delivered the inaugural address. Dr. G. Guruvayoorappan, chaired the first session. He addressed the audience on **“Targeting Tumour Metastasis using Natural Products”**. He explained the process of metastasis, types of cancer and the treatment of cancer. He highlighted the uses of natural products extracted from mangrove plants in inhibiting metastasis thereby enhancing the quality of life. The session was informative and useful. **Dr. S. Dinakaran**, Associate Professor and Head, Department of Zoology, Madura College, Madurai was the resource person for the afternoon session. He delivered a lecture on **“Aquatic Insect Vectors”**. He emphasised the importance of aquatic insects and their importance in maintaining aquatic health. He described the new species of blackflies found in the foothills of Himalayas and in Kodaikanal and causes of river blindness. He gave a lecture on taxonomy of aquatic vectors, biodiversity hotspots and the diseases caused by vectors. On 18th March, **Dr. M. Isai**, Assistant Professor, Department of Zoology, Seethalakshmi Ramaswamy College (Autonomous) Tiruchirappalli was the resource person. She delivered a lecture on **“In vitro Differentiation of Human Bone Marrow and Neural Progenitor Stem Cells (ReNcell CX) towards Retinogenic Fate”**. She highlighted the critical role played by the stem cells in the regenerative medicine. She focused on the potential uses of stem cells in the cell-based therapies for traumatic degenerative eye diseases such as diabetic retinopathy, retinis pigmentosa, age related macular degeneration and glaucoma. **Dr. P. Padmavathy**, Professor and Head, Department of Aquatic Environment Management, Fisheries College and Research Institute, Thoothukudi was the resource person for the afternoon session. She made an

impressive presentation on **“Restoration and Conservation of Seagrass Ecosystem”**. Seagrasses are the vital part of marine ecosystem in the Gulf of Mannar.

Beneficiaries: 113

24. The **Department of Chemistry** organised the **International Symposium on “Smart Materials”** on **18th March 2023**. Ms. S. Rani Jeyamary, Head and Associate Professor of Chemistry welcomed the gathering. **Dr. S. Veerapandian**, Assistant Professor, Department of Material Science and Engineering, Pohang University of Science and Technology, Korea delivered the Keynote Address and lecture on the topic **“The Role of Stretchable Metal Particles for Next Generation Electronic Devices”**. **Dr. M. Mahendran**, Professor and Head, Department of Physics, Thiagarajar College of Engineering, Madurai delivered the lecture on the topic **“Magnetic Shape Memory Alloys”** and **Dr. R. Antony**, Assistant Professor of Chemistry, Mepco Schlenk Engineering College, Sivakasi delivered the lecture on the topic **“Catalytic Materials for Oxidative Desulfurisation”**. **Beneficiaries: 148**

25. The **Department of Botany** organised an **International Conference on “Applied Biosciences – A Sustainable Developmental Goal”** in hybrid mode on **28th and 29th March 2023**. Inaugural Address was delivered by **Dr. G. Sugumar**, Vice-Chancellor, **Dr. J. Jayalalithaa** Fisheries University, Nagapattinam, Tamil Nadu. Session I was on the topic **“3D printing technology with biopolymers as feedstock materials”** delivered by **Dr. Arish Dasan**, Researcher, FunGlass – Centre for Functional and Surface, Functionalised Glass, Alexander Dubcek University of Trencín Študentská, Slovakia. His session imparted knowledge with the **advances in 3D printing technology**. **Dr. P. Gobal**, Assistant Professor, Department of Plant Biotechnology, Madurai Kamaraj University, Madurai, shared his expertise during session II entitled **“Modern approaches for sustainable agriculture production”**. The session helped

in gaining knowledge on technologies for sustainable agricultural production. Day 2, on 29th the events were held as follow session III was on the topic **“Emerging trends in the functional genomics of the stress responses in plants”** delivered by **Dr. K. K. Sabu**, Principal Scientist, Jawaharlal Nehru Tropical Botanical Garden and Research Institute, Palode, Thiruvananthapuram. The session was very interesting with the changes developed in plant due to stress. **Dr. P. Ravichandran**, Professor and Head, Department of Plant Science, Manonmaniam Sundaranar University, Tirunelveli, shared the session IV entitled as **“Millets the Forgotten Boost of Life”**. Students actively participated in the session, their questions showed their interest on the boost of life. Session IV was shared by **Dr. Manikandan Mohan**, Post-Doctoral Fellow, Department of Vaccine Biology, Emory University, Atlanta and Georgia, United States of America, on the topic **“Strategy to Development of Epitope based Vaccines against Infectious Diseases”** helped in understanding the technology behind development of vaccines. **Beneficiaries: 250**

26. The **Department of Botany** organised a **State Level Seminar** on **“Exploring the Horizons for Enthralling Career for Science Enthusiasts”** on **19th October 2023**. **Dr. R. Gnanavel**, Assistant Professor, Department of Botany, School of Life Sciences, Arignar Anna College (Arts and Science), Polupalli, Krishnagiri addressed the students on **“Botanical Horizons: Navigating Diverse Career for Botany Graduates”**. **Dr. S. Mugendhiren**, Senior Research Fellow, Center of Medicinal Plants Research in Homeopathy (CMPRH), Nilgiris addressed on **“A Comprehensive and Overarching Theme for Higher Studies in Botany”**. **Dr. X. Rosary Mary**, Former Retired Associate Professor of Botany, St. Mary’s College (Autonomous), Thoothukudi lectured on **“Plants and human beings are inseparable parts of nature – What’s my role in preserving this precious globe?”**

123 students and 10 staff from 10 schools of Thoothukudi district, 9 students and 1 faculty from Holy Cross College (Autonomous), Nagercoil and 80 students and 10 faculty from the Department of Botany, St. Mary's College (Autonomous), Thoothukudi benefitted through this seminar. **Beneficiaries: 233**

27. The **Department of Botany** organised a two day **International conference** on **“Microalgae: Biodiversity and Bioprospecting”** on **20th and 21st February 2024**. **Dr. N. Thajuddin**, Pro - Vice Chancellor of BSA Crescent Institute of Science and Technology, Chennai delivered a talk on **“Classify, Consume and Celebrate the Competence of Microalgae”**. **Dr. Lewis Oscar**, Post-Doctoral Fellow from the Division of Medicine, Houston Methodist Hospital, Houston, United States of America, gave a talk on **“Antipathogenic potentials of cyanobacteria against gram negative and gram positive bacteria”**. **Dr. S. Nagaraj**, Assistant Professor, Centre for Advanced Studies in Botany, University of Madras, Chennai, delved into the intricate world of microalgae, discussing on the **“Taxonomy, Biodiversity and Biotechnological of Microalgae”**. On the second day, **Dr. M. Muthukumaran**, Assistant Professor of Botany, Ramakrishna Mission Vivekananda College (Autonomous), Chennai, lectured on **“Potential of Microalgae for Phycoremediation of Industrial Effluents and its Applications”**. **Dr. Praveen Kumar Ramasamy**, Leader of the Microalgae Section at the Bioresources Center, Food and Production Division, Danish Technological Institute, Taastrup, Denmark, discussed the **“Microalgal Bioprocess for Food and Feed Production”**. **Dr. P. Hanumantha Rao**, Associate Professor of Microbiology, Madras Christian College (Autonomous), Chennai shed light on **“Open Immobilized Polyculture Microalgae Systems for Phycoremediation - A Sustainable Approach for the Future”**. **Beneficiaries: 100**

28. A **National seminar** on the topic **“Marine Resources: Conservation and Sustainable Utilization Strategies”** was organised by the **Department of Zoology** on **6th March 2024**. **Dr. P. S. Asha**, Principal scientist and Scientist in charge, Central Marine Fisheries Research Institute, Thoothukudi, delivered the key note address. She explained the various conservation strategies to preserve the marine resources and exploit it in a sustainable manner. **Dr. A. Riyas**, Assistant Professor, Department of Aquaculture and Fishery Microbiology, Muslim Educational Society, Ponnani College, Ponnani, Kerala was the resource person for the first session. The topic of his talk was **“Jellyfish of India: Unveiling the Mysteries and Facts”**. His talk was focussed on the Jelly fish diversity in India. He discussed about the jelly fish venom and its proteome analysis. **Dr. U. Ramesh**, Assistant Professor and Head, Department of Molecular biology, School of Biological Sciences, Madurai Kamaraj University, Madurai was the resource person for the second session. The topic of his talk was **“Waste into Value Added Product: Chitosan from Marine Sources and its Application”**. He delivered a lecture on the marine sources of chitosan and its applications. He illustrated the various methods for preparation of chitosan nanoparticles. The third session was handled by **Dr. K. Jeyakumar**, Associate Professor and Head, Department of Animal Behaviour and Physiology, School of Biological Sciences, Madurai Kamaraj University, Madurai. The topic of his lecture was on **“Climate Change Impacts on Coral Reefs”**. He interpreted the importance of coral reefs to the marine ecosystem. He discussed the impact of climate change that causes bleaching of the corals. He also illustrated the conservation strategies of coral reefs. **Dr. R. Durai Raj**, Assistant professor, Department of Fisheries Biology and Resource management, Fisheries College and Research Institute, Thoothukudi delivered the **valedictory address**. During his talk he elaborated the opportunities

from marine resources. **Beneficiaries: 137**

29. The **Department of Chemistry** organised an **International seminar on “Recent Trends and Advance in Chemical Sciences”** on **7th March 2024**. **Dr. Krishnapandi Alagumalai**, Research Assistant Professor of Chemical Engineering, Yeungnam University, South Korea, on the topic **“Metal Sulfide, Polymer and Carbon Composites: Innovations for Health and Environmental Applications”**. Second session by **Dr. Mani Sivakumar**, Assistant Professor, Department of General Pathology, Saveetha Institute of Medical and Technical Sciences, Saveetha University, Chennai on the topic **“Sustainable wastewater treatment and energy application: green synthesized materials”**. Third session by **Dr. Y. Manoj Kumar**, Assistant Professor, PG and Research Department of chemistry, Bishop Heber college, Tiruchirappalli on the topic **“Beyond cisplatin: The untapped potential of metal complexes in cancer therapy”**. **Beneficiaries: 156**
30. The **Department of Physics** conducted a one day **National conference** on **“Exploring the Frontiers of Smart materials”** on **15th March 2024** in collaboration with **Pope’s College (Autonomous), Sawyerpuram**. **Dr. N. Arunai Nambiraj**, Professor and Dean, Department of Physics, Vellore Institute of Technology, Vellore with the topic **“The Nexus of Innovation - Navigating the Frontier of Smart Materials in Reshaping the Healthcare”**. He delivered a thought-provoking presentation on the transformative potential of smart materials in reshaping health care. Session II of the national conference commenced with the presentation of **Dr. Devaraj Singh**, Professor, Department of Physics, Veer Bahadur Singh, Purvanchal University, Jaunpur, Uttar Pradesh with the topic **“Tailoring of Elastic, Mechanical, Thermophysical and Ultrasonics of Condensed Materials”**. This session delved into the intricate domain of tailoring the elastic, mechanical thermo

physical and ultrasonic properties of condensed materials. Session III of the national conference began with the presentation of **Dr. Sasikala Ganapathy**, Associate Professor of Physics, Crystal growth Centre, Anna University, Chennai on the topic **“Quantum Crystals for Societal Applications”**. The session addressed the societal implications and ethical considerations associated with the widespread adoption of quantum crystal technologies. **Beneficiaries: 169**

31. **Department of Botany** in association with **Department of English** conducted a one-day **National seminar** on **“Intersecting Vistas: The Fusion of Landscape Aesthetics and Literature of the Human Ecology”** on **25th March 2024**. The erudite sessions started with the special lecture by **Dr. Dian V. Prakash**, Assistant Professor of English, All Saints College, Thiruvananthapuram. She addressed the students on the topic **“Shattering the Hubris: The Rise of Eco literature”**. The next session was handled by **Dr. M. Sheeba**, Assistant Professor of English, Ayyankali Memorial Arts and Science College, Punnalur, Thiruvananthapuram. She delivered her lecture on the topic **“Is Nature Whispering or Warning? Rethink... Reconnect... Restore...”**. Two hundred and fifty-four students and sixteen members of faculty attended the conference. **Beneficiaries: 254**

32. **Department of Botany and Zoology** in collaboration with the **Department of Commerce** organised an International conference on **“Biotechnology to Entrepreneurship”** on **25th and 26th March 2024** in Hybrid mode. **Dr. Suresh Govindan**, Research Head, Ayurveda Formulation Private Limited, Madurai, **Dr. S. Murugan**, Associate Professor, Department of Biotechnology, Karunya Institute of Technology and Science, Coimbatore, **Dr. Sharan Kumar Shetty**, Deputy Vice Chancellor, Texila University, Zambia, Southern Africa and **Mr. P. Austin**, Founder and Managing Director, Athmic Biotech Solutions Private

Limited, Thiruvananthapuram, Kerala gave insights into how biotechnology offers immense opportunities for businesses to innovate, differentiate, and create value across diverse sectors, driving economic growth, and societal impact. They also insisted that integrating biotechnological advancements into business strategies enables organizations to stay at the forefront of technological innovation and address global challenges in healthcare, agriculture, environment, and beyond. **Beneficiaries:**

271

33. **Department of Botany** in association with the **Department of History**, St. Mary's College (Autonomous) Thoothukudi hosted a **National seminar** on “**Farming and Floral Foot Prints -Tracing Interwoven Historical and Botanical Heritage**” on **27th March 2024**. The distinguished resource persons **Dr. Sebastian Joseph**, Former Associate Professor of History, Union Christian College, Aluva, Kerala delivered the lecture on “**The Lab and the Empire: Botanical Foundations of the British Empire**”. **Prof. S. Rajavelu**, Chief Advisor, Archaeology, Hindu Religious and Charitable Endowments, Government of Tamil Nadu, Chennai gave the lecture on “**Exploring the Intersection of Archaeology and Botany through History**” and **Dr. D. Ruckmani**, Assistant Professor of History, Muthurangam Government Arts College, Vellore addressed on intricate relationship between History and Botany shedding light on **Floral Prints Interwoven in History**. **Beneficiaries: 121**

34. The **Department of Zoology** in association with the **Departments of MHRM and Psychology** organised an **International seminar** titled “**HR with a Heart**” The power of Psychology in workforce Management on **21st August 2024**. The technical session 1 was proceeded by **Ms. Aradhana Nair**, Health Care Assistant, Techno Consulting Firm, Chicago, USA focused on the integration of psychological principles into workforce management, discussing “**Innovative ways to improve**

employee well-being and productivity". Dr. T. Yuvaraj, Head and Assistant Professor, Department of Psychology, Manonmaniam Sundaranar University, Tirunelveli, led the second technical session. He addressed "Mental health and psychological resilience, stressing their significance" in creating a harmonious workforce. Beneficiaries: 213

35. The **Department of Botany** in association with **Department of Microbiology**, St. Mary's College (Autonomous), Thoothukudi conducted International conference on **3rd September 2024** on the topic **"Exploring the Intersection of Stem Cells Research and Career Skills - A Global Perspective"**. In the first session, **Dr. Biju Dharmapalan**, Dean - Academic Affairs, Garden City University, Bengaluru and Adjunct Faculty, National Institute of Advanced Studies explained about **"Pre - eminent skills for building a career in Science"**. In the second session, **Dr. Nagarajan Maharajan**, Post - Doctoral Fellow, Prof. Zalzman Laboratory Department of Otorhinolaryngology, Head and Neck Surgery, University of Maryland School of Medicine, Baltimore, USA gave complete insight over the **"Stem cells and Ageing"** in an academic setting through online mode. **Dr. Sudhakar Sivasubramaniam**, Professor and Head, Department of Biotechnology, Manonmaniam Sundaranar University, Tirunelveli, Tamil Nadu handled the third session and discussed about **"Biology of Stem cell and Regeneration in the earthworm, *Eudrilus eugeniae*"**. Beneficiaries: 240

36. The **International seminar** on **"Perception of Zoological Research Through Tamil Literature"** was jointly organised by the **Department of Zoology** and the **Department of Tamil** at St. Mary's College (Autonomous), Thoothukudi, on **6th September 2024**. The seminar aimed to explore the intersections between zoology and Tamil literature, focusing on how scientific understanding of animals is reflected

in and influenced by cultural and literary expressions in Tamil literature. The seminar commenced with an **inaugural address** by **Dr. K. Subbulakshmi**, Principal of APC Mahalaxmi College for Women, Thoothukudi. **Dr. K. Raguvaran**, Post Doctoral Research Fellow, Research Center for Pharmaceutical Ingredients and Traditional Medicine, National Research and Innovation Agency (BRIN), Indonesia, delivered a talk on **“Integrated Pest Management”**. **Dr. G. Mariappan**, Assistant Professor, Department of Tamil Language and Translation Studies, Dravidian University, Kuppam, Andhra Pradesh, discussed **“Animal Environments in Tamil Literature”**. **Dr. B. Ravikumar**, Associate Professor, Subramania Bharathi School of Tamil Language and Literature, Pondicherry University, Pondicherry presented a lecture on **“Animals in Tamil Literature”**. The seminar explored the intersection of zoology and Tamil literature, revealing the fascinating connections between scientific studies of animals and their cultural and symbolic representations in Tamil literary works.

Beneficiaries: 131

37. On 9th September 2024, the **Department of English**, in collaboration with the **Department of Botany** of St. Mary’s College (Autonomous), Thoothukudi, organised a **National seminar on “Narratives of Nature: Exploring the Indigenous Ecology and Environmental Ethics”**. The seminar aimed to bring to the forefront the importance of indigenous ecological knowledge and environmental ethics. **Dr. B. Hariharan**, Professor, Institute of English, University of Kerala, Kerala delivered the keynote address on the topic **“The Perspiring Capillaries of Life”**. He elaborated on mankind’s inherent ecophobic consciousness and his consequent preference to artificiality. He emphasised on the need for an ethical approach to nature. **Dr. Amutha Pandian**, Principal (Rtd.), Government Arts and Science College (Autonomous), Nandanam, Chennai, addressed on **“Indigenous Elements of**

Meaning in English and Tamil". She pointed out the cultural elements of nature from the narratives of English Literature and how the understanding of their meanings varies in different societies. **Dr. S. J. Kala**, Dean of Research and Associate Professor of English, Fatima College, Madurai, delivered an insightful valedictory address on **"Ecotones and Ecological Narratives"**. She explained the significance of ecotones and their impact on ecofiction and econarratives. **Beneficiaries: 197**

38. The **International seminar** titled **"Tamilum Thavaramum"** was jointly organised by the **Department of Botany** and the **Department of Tamil** at St. Mary's College (Autonomous), Thoothukudi, on the **10th September 2024**. The seminar focused on the intricate connection between Tamil culture, language, and plant life. The seminar highlighted the representation of plants in Tamil literature, spirituality, and traditional medicine, emphasizing the cultural and environmental importance of flora in Tamil society. **Dr. Muthusamy Ramakrishnan**, Professor, Bamboo Research Institute, Nanjing Forestry University, Nanjing, China, opened with a session on **"Transposable Elements: Engines of Evolution and Drivers of Genetic Innovation"**, focusing on the evolutionary significance of genetic mechanisms. The second session was delivered by **Dr. K. Murugan**, Professor, Department of Biotechnology, Manonmaniam Sundaranar University, Tirunelveli exploring **"Bionanotechnological Exploration of Herbals for Achieving BioE3 Goals"**, which delved into the potential of herbal plants in achieving ecological and environmental sustainability. The final session, presented by **Dr. A. Hepsy Rose Mary**, Associate Professor of Tamil, University of Kerala, Thiruvananthapuram discussed the **"Role of plants in the daily life of Tamils"**, under the title "Thamilar Valvil Thavaram". **Beneficiaries: 153**

39. The **two day Colloquium** on **"The Intersection of Intelligence: AI and Technology**

in the Digital Age” on 10th September 2024 and 11th September 2024. This seminar is a joint collaboration between **Department of Botany, St. Mary’s College (Autonomous),** Thoothukudi and the Xavier Institute of Business Administration (XIBA) at **St. Xavier’s College, (Autonomous),** Palayamkottai. **Ms. D. Beryl Nisha,** Senior Software Engineer, IP Infusion Software Private Limited, Bengaluru and **Mr. R. Ramkumar,** Assistant Professor at Xavier Institute of Business Administration (XIBA), St. Xavier’s College, (Autonomous), Palayamkottai led the technical session I and II respectively. The esteemed resource persons discussed about **“AI and Enhanced Decision-Making”, “AI Automation and Productivity, Ethical and Societal Implication”.** The colloquium continued next day (11.09.2024) in Louis Xavier Hall, Xavier Institute of Business Administration, Tirunelveli. Rev. Fr. Dr. Michael John S. J., the Director of Xavier Institute of Business Administration presided the session. **Mr. John Frank** - Senior Software Engineer, Accenture, Bengaluru and **Mr. M. Prabakaran** - Assistant Professor at Xavier Institute of Business Administration led the technical session III and IV. The esteemed resource persons discussed about **“Personalisation in the Digital Era”, “Smart Technologies and IoT”, “Healthcare Innovations”, “Future of Work”, “Security and Cybersecurity”.** The colloquium ended with the vote of thanks from Dr. T. Rita Rebekah, Dean and Associate Professor of Xavier Institute of Business Administration. The event provided a platform for Botany and MHRM students, professionals, and academics to explore the transformative impact of artificial intelligence (AI) and cutting-edge technologies in various sectors. **Beneficiaries: 154**

40. The **Department of Botany** in collaboration with the **Department of Commerce** organised a one day **National seminar** on **“Integrating Environmental Social Governance Strategies for Business Success”** on **11th September 2024.** The

seminar brought together experts from various fields to discuss the importance of Environmental, Social and Governance (ESG) strategies in business. The resource persons included **Dr. A. Selvin Samuel**, Former Associate Professor and Head, Department of Botany, St. John's College, Palayamkottai who spoke on the broad concept of **“Environmental, Social and Governance (ESG) in Business Practice”** and how these principles can be incorporated into business practices for better long-term success. **Dr. S. Kumar Chandar**, Professor School of Business and Management, CHRIST (Deemed to be University), Bengaluru provided an in-depth understanding of **“Sustainable Digital Transformation, focusing how digital solutions can contribute to sustainability goals”**. **Dr. M. Julias Ceasar**, Dean, School of Management Studies, St. Joseph's College (Autonomous), Tiruchirappalli, presented on **“Environmental Sustainability and Governance”**, highlighted best practices for businesses to align their operations with environmental sustainability targets. **Dr. G. Maheswari**, Assistant Professor of Commerce, Madras Christian College, Chennai gave a talk on **“ESG: A New Paradigm in Investment Decision - Making”**, exploring how ESG factors are increasingly becoming central to investment strategies. **Beneficiaries: 148**

41. The **Department of Zoology** organised a **National Seminar** on **“Interdisciplinary Research”** on **18th September 2024**. **Dr. K. Muruga Poopathi Raja**, Professor, Department of Chemistry, Central University of Kerala, Kasaragod, Kerala, **Dr. K. Veluraja**, Senior Professor, School of Science and Humanities, PSN College of Engineering and Technology, Tirunelveli and **Dr. G. Kumaresan**, Head and Chairperson, Department of Genetics School of Biological Sciences, Madurai Kamaraj University, Madurai were the resource persons. The focus of the seminar was to make a perfect blend of research experiences of the experts of from the

fraternity of Physics, Chemistry and Biology. Prof. Veluraja gave a lecture on the basics of biophysics and the interlink between the fields of biology and physics. He explained to the participants about the involvement of physical parameters that were the key features for the elucidation of structure of DNA. He explained the origin and application of Ramachandran plot. Dr. G. Kumaresan, gave an insight of the holistic approach for gene expression studies and their implication in prognosis of cancer. The participants were given an idea about genome wide expression patterns of genes involved in oncogenesis. Dr. K. Muruga Poopathi Raja's lecture focused on small peptide structures and their application in fabrication of nano biomaterials for biomedical applications. **Beneficiaries: 114**

1. On **10th July 2019**, a one day workshop on **“Biosolid Waste Management - Vermicompost Technology”** was organised by the **Department of Botany**. **Mr. S. Rajamony**, Research Assistant in Vivekananda Kendra Natural Resources Development Project, Kanyakumari was the resource person. The inaugural function was held in the Botany Lecture Hall, followed by the hands-on training programme in the college garden. **39 students** from II B. Sc. Botany, **3 students** from II B. Sc. Zoology and **8 members** from the Self-Help group, Thoothukudi were the beneficiaries of the workshop. The workshop was very helpful in understanding the usage of earthworms and their utilisation in the process of composting. Two vermicompost pits were constructed in the garden and would be maintained as an outreach programme by the Marian Star students. **Beneficiaries: 50**
2. On **18th July 2019**, a one day workshop on **“Chemist as Entrepreneur”** cum Hands on Training on **“House Hold Articles”** was organised by the **Department of Chemistry**. **Mr. K. C. Gurusamy**, Managing Director, Segal Plastics Exports, Virudhunagar was the resource person. The resource person in his motivational address highlighted the ways in which students can become successful as an entrepreneur and how a chemist could be equipped to become a successful industrialist. Following that, in-house hands-on training was held for the students on various house-hold items like washing powder, cleaning powder, dish wash liquid, phenyl and shampoo. **Beneficiaries: 97**
3. On **8th August 2019**, a one day workshop on **“Value Added Fishery Products”** was organised by the **Department of Zoology**. **Dr. D. Sukumar**, Professor and Head, DFPT, FCRI, Thoothukudi, **Mr. P. Ganesan**, Assistant Professor, **Mr. F. Parthiban**,

Assistant Professor, **Mr. V. Vijayaraghavan**, Assistant Professor and **Ms. A. Sarojini**, Teaching Assistant, Department of Fish Processing Technology, Fisheries College and Research Institute, Thoothukudi were the resource persons. The workshop was helpful in understanding the need and scope for value addition in fish products, the importance of hygienic handling in the preparation of fish product and the health benefits of value-added fishery products. The fact that knowledge on value added and diversified fish products contributes to the promotion of employment and entrepreneurship was considered as the main outcome of the workshop.

Beneficiaries: 138

4. On **9th August 2019**, a one day lecture cum workshop on “**Miracles of Seaweeds**” was organised by the **Department of Botany. Dr. P. Anantharaman**, Professor, CAS in Marine Biology, Annamalai University, Parangipettai was the resource person. He delivered a lecture on the topic “**Importance of Seaweeds**” and highlighted the nutraceutical and pharmaceutical values of seaweeds. Following that, hands on training was held for the students on the preparation of various recipes like briyani, payasam, fish curry, ice-cream and kesari using seaweeds and the prepared delicacies were kept for display and the visitors were supplied with samples. **Beneficiaries: 89**
5. On **12th September 2019**, a one day workshop on “**Edible Fungi Culture**” was organised by the **Department of Botany. Mr. M. M. Shahul Hameed**, Managing Director, Trainer and Certified Mushroom Seed Dealer (Tamil Nadu Agriculture College, Killikulam), MSM Mushroom Corner, Tirunelveli and **Ms. M. Ayisha Jameela**, Director, MSM Mushroom Corner, Tirunelveli were the resource persons. The workshop began with the lecture by Mr. M. M. Shahul Hameed. He offered a deep insight on the “**Methodology of Mushroom Cultivation**” and how it would promote the economy of India. He also encouraged the students to start their own

business using mushroom cultivation. His session was followed by Mrs. Ayisha Jameela. Her talk emphasized the “**Nutraceutical Values of Mushroom**”. More knowledge was shared by her through research papers and she also explained how it could be utilised in the field of Medicine. The technical session included the preparation of mushroom bed and spawn production. The students actively participated in the workshop and prepared some mushroom bags. They prepared bags were hung in the mushroom cultivation room in the garden. **Beneficiaries: 54**

6. On **24th September 2019**, a one day workshop on “**Microscale Techniques in Chemistry**” was organised by the **Department of Chemistry** for the B.Sc. Chemistry students to acquire knowledge on Microscale Techniques in Chemistry experiments. **Dr. S. Murugan**, Retired Professor of Chemistry, S. T. Hindu College, Nagercoil trained the participants of the workshop on Microscale Techniques such as quantitative estimation by double burette method, separation of organic mixture with minimum or no ether, organic and inorganic qualitative analysis and boiling point determination. **Beneficiaries: 142**

7. On **17th December 2019**, a one day lecture cum workshop on “**Bottom-Up Approaches**” was organised by the **Department of Physics**. **Dr. T. Prakash**, Associate Professor, National Centre for Nanoscience and Nanotechnology, University of Madras, Chennai and **Dr. P. Chandra Sekar**, Assistant Professor of Physics, Geetha Jeevan Arts and Science College, Kurukkusalai, Thoothukudi delivered a lecture on various methods of synthesis of nanoparticles, its properties and some characterisation techniques. The students were divided into five groups and demonstration was given in a cyclic manner. Four Ph.D. research scholars of Dr. Prakash assisted the students in their training. The methods of preparation of Nanoparticles like the precipitation method, sol-gel method and combustion method

were experimentally demonstrated. The students were trained to measure the size of the nanoparticles in TEM image using the “Origin Pro” software. They were also taught to study the ‘XRD’ pattern using “Image J” software. The demonstration of a reversible colour change process on heating, thermochromism and the metal transformation process were the spectacular part of the session. The training provided an opportunity to know and understand about nanoscience from the core and to pursue research in nanotechnology. **Beneficiaries: 39**

8. On **16th March 2020**, a one day workshop on “**Virtual Dissection**” was organised by the **Department of Zoology**. **Dr. M. A. Akbarsha**, Professor and Research Coordinator, National College, Tiruchirappalli and **Dr. B. Kadalmani**, Assistant Professor, Department of Animal Science, Bharathidasan University, Tiruchirappalli were the resource persons. Dr. M. A. Akbarsha explained gave an insight on the various virtual dissection software like Biolab Frog, Physio Ex 9.0 Physiology – LUPRAFISM, Dissection works V 4.0, Prodissector Frog and the Digital Frog 2 etc. that can be used as an alternative for live specimens. Dr. Kadalmani gave hands-on training on the various softwares and the students were given practice on virtual dissection. They were allowed to take up test exercises on the virtual lab course.

Beneficiaries: 83

9. The Department of Botany and Zoology organised a one day online workshop on “**Exploring Online Tools for Enhanced Learning**” on **12th September 2020**, for the B.Sc. students of the **School of Biological Sciences**. **Mr. A. Vimal Jerald**, Assistant Professor of Computer Science, St. Joseph’s College (Autonomous), Tiruchirappalli was the resource person. The resource person emphasised the need for learning online tools during this pandemic situation. He gave the students a general introduction about the online study platform. Students received proper training on joining the Google

classroom, submitting assignments and quiz, uploading scanned images, converting them into pdf and downloading materials from the Google classroom. Students took an active interest in the events of this class space. The resource person answered the questions raised by the students. The workshop remained insightful and engaging.

Beneficiaries: 225

10. The Department of Physics and Chemistry organised a one day online workshop on **“Exploring Online Tools for Enhanced Learning” 19th September 2020**, for the B. Sc. students of the **School of Physical Sciences**. **Mr. A. Vimal Jerald**, Assistant Professor of Computer Science, St. Joseph’s College (Autonomous), Tiruchirappalli was the Resource Person. The Resource Person emphasised the need for learning online tools during this pandemic situation. He gave the students a general introduction about the online study platform. Students received proper training on joining the Google classroom, submitting assignments and quiz, uploading scanned images, converting them into pdf and downloading materials from the Google classroom. Students took an active interest in the events of this class space. The resource person answered the questions raised by the students. The workshop remained insightful and engaging **Beneficiaries: 245**

11. A workshop on **“Basic Techniques in Biological Sciences”** was organised by the **Department of Zoology** via Google Meet on **17th October 2020**. The workshop was organised for undergraduate students of Botany, Zoology, Physics and Chemistry who have the course entitled “Biotechnology” in their syllabus. The workshop was conducted by **Dr. T. Jebasingh**, Assistant Professor, Department of Plant Sciences, School of Biological Sciences and Madurai Kamaraj University, Madurai. Dr. T. Jebasingh explained and gave a lecture on the principles behind the basic techniques of Biotechnology. The students were given training on the basic

techniques of biotechnology – Plasmid isolation, Agarose Gel Electrophoresis and PCR. Live demonstration of the techniques was given to the students by the resource person and his team members through Google Meet. The students were also taken on a virtual tour to the laboratory in School of Biological Sciences, Madurai Kamaraj University. **Beneficiaries: 99**

12. On **29th October 2020**, a workshop was held on the concept, **“Virtual Lab”**. The session was organised by the **Department of Physics. Dr. M. Meena**, Assistant Professor of Physics, S. T. Hindu College, Nagercoil gave a detailed explanation on how to work on virtual lab for physics experiments. A demo was given on the experiments like spectrometer, Wheatstone’s bridge and a few electronic and non-electronic experiments. **Beneficiaries: 179**

13. The **Department of Chemistry** organised a one day virtual workshop on **“Instrumental Analysis of Biochemical Constituents in Food” on 29th October 2020. Dr. R. Jeya Shakila**, Head and Associate Professor, Department of Fish Quality Assurance and Management, Fisheries College and Research Institute, Thoothukudi was the resource person. The resource person presented a virtual tour of the various labs in their department like biochemistry lab, instrumentation room, hot equipment room and explained the method of calculating the moisture content, ash content and protein content in fish samples. She also showed how the freshness of fish can be analysed using a torimeter. Students had an opportunity to see HPLC, UPLC and Gas Chromatography and the resource person explained the method of analysis of fatty acids using HPLC. **Beneficiaries: 83**

14. The **Department of Chemistry** organised a workshop on **“Laboratory Safety Measures for Supportive Staff” on 27th January 2021. Supportive staff (19)** from the Department of Physics, Chemistry, Botany, Zoology, Computer Science, History,

Library and Microbiology actively participated in the workshop. **Dr. B. Divya**, Assistant Professor of Chemistry, St. Mary's College (Autonomous), Thoothukudi was the resource person. She clearly highlighted the need and importance of safety inside the laboratory, precautions to be taken while handling chemicals and instruments, safe handling and calibration of glassware, checking valves for gas leakage and first aid measures to be adopted in case of minor injury and mild chemical attack. **Beneficiaries: 19**

15. A one day workshop on “**Urban and Peri – Urban Farming**” was organised by the **Department of Botany** in collaboration with Green Campus, St. Mary's College (Autonomous), Thoothukudi on **25th February 2021**. **Dr. Y. Rajakumar** Former Deputy Director of Horticulture, Government of Tamil Nadu, Thoothukudi was the resource person. Session I started with prayer song and proceeded with a lecture on “Urban and Peri – Urban Farming”. Dr. Y. Rajakumar explained the importance of gardening and how it can be done at low cost. During Session II the participants in offline mode were given the task of identifying green leafy vegetable plants and gardening implements. Certificates and prizes were distributed to the winners at the end of the session. Session III included the preparation of *panchakavya* and the mode of application to plants. **Beneficiaries: 212**

16. The **Departments of Chemistry and Zoology** jointly organised a workshop on “**Clinical Laboratory Equipments**” on **3rd March 2021**. **Mr. T. Kombiah**, Proprietor, Thanshri Diagnostics, Tirunelveli was the resource person. In the first session, he explained clearly the method of determination of blood parameters like sugar, cholesterol, protein, albumin, urea and creatine using semi autoanalyzer in the Chemistry department. The next session took place in Zoology department laboratory where he explained the determination of pH, nitrite, specific gravity, ascorbic acid,

glucose, bilirubin, urobilinogen, ketone, leucocyte, protein, creatinine, calcium and microalbumin using urine analyser, then counting blood cells using hemocytometer, haemoglobin content in the blood using hemoglobinometer and blood pressure using sphygmomanometer **Beneficiaries: 141**

17. The **Department of Botany** organised three day International workshop on **“Microalgal Technology”** under Star College Scheme from **16th February 2022 to 18th February 2022**. On the first day of the workshop, **Dr. O. Parthiba Karthikeyan**, Research Scientist and Lecturer, Department of Civil and Environmental Engineering, South Dakota School of Mines and Technology, USA, gave the lecture on the topic **“Microalgae: A Bio Factory for Valuable Products.”** He gave a brief introduction about the microalgae culture and identification. He also threw light on how this can be used to generate valuable products. On the second day, **Dr. P. Santhanam**, Associate Professor, Department of Marine Science, School of Marine Sciences, Bharathidasan University, Tiruchirappalli was the resource person. He delivered a talk on **“Harmful Algal Blooms: Causes, Impacts and Mitigation Strategies”** He started his lecture by focusing on marine ecosystem and food chain. He clearly defined the harmful algal blooms and its effect on the ecosystem. In the second session **Dr. P. Anantharaman**, Professor and Dean, Centre of Advanced Study in Marine Biology, Faculty of Marine Sciences, Annamalai University, Paragipettai, Tamil Nadu, addressed the participants on the topic **“Microalgal Culture Techniques”**. He clearly explained the structure, importance and cultural techniques of microalgae. On the third day, **Dr. R. Rajaram**, Associate Professor, Department of Marine Science, Bharathidasan University, Tiruchirappalli delivered a talk on **“Marine Microplastic Pollution – Threat to Marine Environment”**. He

explained, microplastics and their types and how it is hazards to the biodiversity.

Beneficiaries: 78

18. A one day workshop on **“Green Synthesis of Metal Nanoparticles and Evaluation of Catalytic and Antioxidant Properties”** was organised by the **Department of Chemistry**, St. Mary’s College (Autonomous), Thoothukudi on **16th February 2024**.

Ms. Swetha of III B.Sc. Chemistry hosted the session. The session began with the prayer song. Ms. Aswarniha of III B.Sc. Chemistry, welcomed the gathering and introduced the resource person, **Dr. K. Muthu**, Assistant Professor of Chemistry, Manonmaniam Sundaranar University, Tirunelveli. He shared his expertise on the green synthesis of metal nanoparticles using plant extracts. He gave a lecture on the characterization of nanoparticles using UV-Vis, FTIR, SEM EDAX and TGA-DTA studies. **Beneficiaries: 41**

19. The **Department of Botany** in collaboration with the **Department of Economics**, St. Mary’s College (Autonomous), Thoothukudi organised a one day National workshop on **“Steering the Entrepreneurs: Strategies for Start-up Success”** on **16th March 2024**. **Dr. R. Karuppasamy**, Dean, Department of P.G. Commerce, School of Management, Hindustan Institute of Technology and Science, Bay Range Campus, Padur, Chennai, kicked off the event with a lecture titled **“Government Schemes and Incubator Facility”**, shedding light on various government initiatives and support available for budding entrepreneurs. **Dr. R. Mohan Kumar**, a distinguished Professor from the Department of P. G. Commerce at Kristu Jayanti College (Autonomous), Bengaluru, took the stage to deliver a talk on **“Innovate, Adapt, Thrive: Crafting Success in the Digital Entrepreneurial Landscape”**. **Dr. Leena Jeneffa**, Associate Professor, School of Management, Hindustan Institute of Technology and Science, Bay Range Campus, Padur, Chennai concluded the

workshop with her session entitled “**Entrepreneurship Skills, Attitude and Behaviour Development**”. Students from the Departments of Botany and Economics benefitted from this programme. **Beneficiaries: 131**

20. On **9th July 2024**, the **Department of Botany** organised a **Skill Development Programme** focused on “**Developing Communication Skills in English**”. **Dr. Sam Raj Nesamony**, Professor and Head, Department of Arts and Humanities, SGT University, Gurugram, Delhi, was the resource person. The event took place in the Star Hall and was attended by students and faculty from the Department of Botany. Dr. Sam Raj emphasized the vital role of effective communication in personal and professional success. He discussed the importance of strong communication skills and started how it enhances relationships, facilitate collaboration and open doors to new opportunities. **Beneficiaries:83**
21. The **Department of Botany**, St. Mary’s College (Autonomous), Thoothukudi, hosted the inauguration of the “**Career Oriented Course on TNPSC Mastery: Comprehensive Coaching for Success**” on **16th July 2024**. This comprehensive coaching program aims to equip students with the necessary skills and knowledge to succeed in the Tamil Nadu Public Service Commission (TNPSC) examinations. This initiative underscores the commitment to enhancing career guidance and employment opportunities for students. The inauguration event was graced by esteemed resource persons, including **Ms. Petchiamal**, Assistant Director, District Employment and Career Guidance Centre, Thoothukudi, and **Mr. S. Syed Mohammed**, District Employment Officer, District Employment and Career Guidance Centre, Thoothukudi from the same centre. TNPSC trainers **Mr. M. Periaraj** and **Mr. A. Vetrivel** also played a crucial role in the event. This career-oriented course benefits 48 students, providing them with in-depth coaching and strategic preparation

for TNPSC exams, fostering a conducive learning environment and paving the way for their future success in public service roles. **Beneficiaries: 56**

22. The **Marian Research Forum and Science Departments** of St. Mary's College (Autonomous) convened a **State-Level Workshop** on “**Elevate Your Research: Author and Editor Insights for Publishing in a Reputed Journal**” on **20th August 2024** with a view to facilitate the Professors and Research Scholars to understand the intricacies involved in the publication of research articles. **Dr. K. Mathiyazhagan**, Chair Person, Research Centre, Thiagarajar school of Management, Madurai was invited as the Resource Person. The workshop was organised with an aim to promote quality research work in today's rapidly evolving academic landscape. Dr. K. Mathiyazhagan offered insights into the steps involved in successfully publishing articles in reputed journals. He discussed the ways to overcome the complexities of scholarly publishing, understand the expectations of journals, meet strenuous peer review standards and effectively communicate the findings. He added that only through rigorous and innovative research, a researcher could up-skill the knowledge, improve the methodologies, indulge in qualitative research work and eventually contribute to the progress of our society. **Beneficiaries: 106**

23. On **23rd August 2024**, the **Department of Botany** in association with the **Department of Economics** organised a **National Workshop** on “**Intersection of Intangible Asset and Intellectual Property in Emerging Technologies**” in St. Mary's College (Autonomous) Thoothukudi. **Dr. N. S. Shibu**, Associate Professor, Management Studies, Bharathidasan University, Tiruchirappalli, **Dr. Leena Jenefa**, Associate Professor, School of Management, Hindustan Institute of Technology and Science, Padur, Chennai and **Dr. K. Kavitha**, Associate Professor of Mathematics, BVRIT Hyderabad College of Engineering for Women, Hyderabad were the resource

persons. Dr. N. S. Shibu delivered a speech on **“What, Why, and How Intellectual Property”**. In his address he pointed out that intellectual property rights in India are territorial rights that are registrable with a legal body in a physical or visible form that may be purchased, sold or licensed. Additionally, he shared his belief that intellectual property rights (IPR) gives artists and inventors a competitive edge by restricting others from duplicating and reproducing their work, enabling them to recover their costs and reap the rewards of their labor. Dr. Leena Jenefa delivered a speech on **“Trade Marks and Trade Secret.”** She focused on the importance of trade secrets in today's globalised economy. She also talked on how trade secrets are a form of intellectual property that help businesses generate revenue and popularity by selling products while concealing their recipes. Dr. K. Kavitha delivered a speech on **“Navigating the Future of Innovation: Utilizing IPR in Emerging Technologies”**. In her address, she pointed out that innovative technologies have a better chance of making it to market if the three main IP protection tools—patents, designs and trademarks—are used strategically. In the end, she suggested that an organization can achieve a higher return on investment by maintaining a premium market position. **Beneficiaries: 136**

24. A two-day workshop titled **“Nadaga Kalayin Vazhi Arivial Kattralum Karpithalum”** (நாடக கலையின் வழி அறிவியல் கற்றலும் கற்பித்தலும்) was held at St. Mary's College, Thoothukudi, from **29th August 2024 to 30th August 2024**. The workshop, organised by the **Marian Star Centre** in collaboration with the **Tamil Department**. The event aimed to explore the intersection of drama and science education, demonstrating how drama can be used as an innovative tool for learning and teaching scientific concepts. The workshop featured expert facilitators, including **Mr. R. Karthick**, a drama teacher from Aagam

Kalaiyagam, Conservatory of Arts, Thoothukudi, **Mr. D. Anthony Janaki**, a drama actor from the National Drama School, New Delhi, **Dr. C. Jackson**, Assistant Professor, V.O. Chidambaram College, Thoothukudi, **Mr. Mime Umesh**, founder of Madurai School of Drama, Madurai and **Mr. V. Yogesh Babu**, a modern drama artist, Erode. Over the course of two days, participants engaged in various sessions that combined theoretical insights with practical hands-on training in drama techniques such as mime, improvisation, and modern drama. These sessions allowed students to express complex scientific ideas creatively through performance. The workshop provided a unique interdisciplinary experience, enriching students' understanding of both drama and science, while enhancing their communication and presentation skills. The participants appreciated the interactive nature of the sessions and the opportunity to learn from professionals in the field. The event concluded successfully, leaving a lasting impact on the students, who expressed their enthusiasm for more such creative learning opportunities. **Beneficiaries: 54**

25. The **Department of Zoology** organised a **workshop** on the topic “**Experimental Techniques in Animal Physiology**” on **03.09.2024** in the Zoology Lab. **Dr. J. Shifa Vanmathi**, Assistant Professor of Zoology, Sadakathullah Appa College, Sawyerpuram was the resource person. The workshop began with an introductory session where the resource person provided an overview of key physiological concepts and the significance of experimental techniques in advancing our knowledge of animal systems. This was followed by detailed demonstrations of various methods, including estimation of erythrocyte sedimentation rate, detection of haemin crystals in blood and demonstration of hemocytometer. Participants had the opportunity to engage in practical sessions where they could apply these techniques in a controlled laboratory setting. **Beneficiaries: 39**

26. The **Department of Botany and Zoology**, in collaboration with the **Department of Computer Science**, hosted a one-day **national workshop** on “**Harnessing AI and Cloud Computing for Breakthroughs in Biological Science**” on **9th September 2024**. The workshop's focus was to understand swarm intelligence and leverage cloud platforms for genomic data analysis. **Dr. A. Amali Asha**, Assistant Professor of Computer Science, Loyola College (Autonomous), Chennai during the session I delivered a compelling presentation on swarm intelligence, discussing its principles and biological inspirations. She illustrated how these concepts can be applied to solve complex biological challenges, making the session both informative and engaging. **Dr. A. Cecil Donald**, Assistant Professor of Computer Science, CHRIST (Deemed To Be University), Bengaluru conducted an insightful session II on leveraging Google Cloud Platform for AI-driven genomic data analysis. He provided examples of real-world applications in healthcare, demonstrating how cloud technologies can enhance data processing and analysis. During session III the participants were engaged in a hands-on training session, where they learned to utilize cloud tools for data analysis and application of AI algorithms in biological research. This practical experience was crucial in solidifying the concepts discussed earlier. The workshop concluded with a group discussion, allowing participants to exchange ideas and explore potential collaborations. **Beneficiaries: 160**

27. The **Department of Zoology** organised a **workshop** on “**Aquarium Fish Culture Essentials – From Tank to Treasure**” on **11th September 2024**. **Mr. G. Saravanan** Ornamental Fish Expert in Cichlid Breeding Hybridization and Aquarium Consultant, Thoothukudi was the resource person. The speaker outlined the workshop's objectives, focusing on equipping participants with the skills and knowledge needed to succeed in this promising field. Attendees were encouraged to actively participate,

share their experiences, and make the most of the interactive learning opportunities. The resource person, Mr. G. Saravanan, delivered an insightful and comprehensive lecture covering a wide range of topics, including tank setup, water quality management, breeding techniques, and disease prevention. The lecture was accompanied by practical demonstrations that allowed participants to gain hands-on experience. The facilitator's expertise and engaging teaching style helped participants grasp the technical aspects of ornamental fish farming, making the learning process both informative and enjoyable. **Beneficiaries: 36**

28. The **National Workshop on IPR Procedures and Awareness** was held at St. Mary's College (Autonomous), Thoothukudi, on the **13th and 14th of September 2024** by the **Department of Botany**, this workshop aimed to raise awareness on intellectual property rights (IPR) procedures and provide practical insights into various aspects of intellectual property. Organised by the Department of Botany, the event featured a series of expert-led sessions covering topics like patent systems, filing procedures, geographical indications, and practical training in prior art search and IP drafting. The first day of the workshop commenced with an inauguration ceremony followed by two significant sessions. The first session, titled **“Patent and Design System in India”** was conducted by **Shri A. Raja**, Deputy Controller of Patents and Designs, Patent Office, Chennai. This session provided an overview of the patent and design framework in India. The second session focused on the **“IP Filing Procedure and Case Study”** and was led by **Mr. T. Srinivasan**, a Joint Partner and Patent Attorney at Lakshmikumaran and Sridharan, Chennai. His session detailed the process of filing intellectual property rights and offered practical insights through a case study. The second day of the workshop included three more sessions. **Dr. A. Usha Raja Nanthini**, Professor and Head, Department of Biotechnology at Mother Teresa

Women's University, Kodaikanal, led the third session, which focused on the **“Procedure for Geographical Indication Facilitation”**. This was followed by a hands-on training session on prior art search, conducted by **Ms. Hema Panneerselvam**, a Project Associate at the Patent Information Centre, Chennai. The final session of the workshop, **“IP Drafting Procedure”** was led by **Ms. Gomathi Padma Thilaga**, Manager of the Cell for IPR Promotion and Management, Department for Promotion of Industry and Internal Trade, Government of India, New Delhi. **Beneficiaries: 123**

29. A three day **National Workshop cum Lecture on “Genetic Algorithm and Graph Theoretic Algorithm (Hybrid Mode)”** was held at St. Mary's College (Autonomous), Thoothukudi from **17th September 2024 to 19th September 2024**. The workshop was jointly organised by the **PG and Research Department of Mathematics and Botany** of St. Mary's College (Autonomous), Thoothukudi under the Star College Scheme sponsored by the Department of Biotechnology, Ministry of Science and Technology, New Delhi. **Dr. Xavier Chelladurai**, Professor, Department of Computer Science and Engineering, CHRIST (Deemed to be University), Bangalore was invited as the resource person for sharing his rich knowledge on the topics **“Lecture on Genetic algorithm”, Advanced python programming” and Introduction to graph algorithm”**. Students and Research Scholars from the Department of Mathematics, Botany and Computer Science were the key participants. On day one, some fundamental concepts of Genetic Algorithms were introduced and participants learned the core components. A hands-on session allowed participants to implement basic genetic algorithms in python to solve sample problems. Day two covered some advanced concepts in python programming. Additionally, the concept of graph theory was introduced, covering some essential graphical notations like

nodes, edges, and adjacency matrices. On day three, participants learned about graph theoretic algorithms, with practical implementation in python. The session also highlighted some graph-based algorithms for solving complex problems. The workshop concluded with question-and-answer session and discussions. Overall, the workshop was a success, providing valuable insights and practical experience in advanced algorithmic techniques. **Beneficiaries: 120**

1. From **19th to 26th August 2019**, a one week Internship on “**Value Added Fishery Products**” was organised by the **Department of Zoology** for the B.Sc. students in the **Department of Fish Processing Technology, Fisheries College and Research Institute, Thoothukudi**. **Dr. D. Sukumar**, Professor and Head, Department of Fish Processing Technology (DFPT), Fisheries College and Research Institute, Thoothukudi. Eleven students of II B.Sc. Zoology and four students of III B.Sc. Zoology attended the programme. The students were taught how fish and shellfish are protein rich foods that require value addition to cater to the needs of the consumers of recent times. Value added fishery products not only minimise the preparation steps and time but also utilize low-value fishes and by-catches. They received hands on training in the preparation of fish biscuits, fish cutlet, fish samosa, fish buns, maasi meen etc. The skill and technology gained by the students would hopefully promote their employment opportunities and entrepreneurship.

Beneficiaries: 15

2. On **27th & 28th September 2019**, Dr. G. Flora, Assistant Professor of Botany, along with Ms. J. Emelda Agnes Fernando, Ms. P. Santhana Thiyaga Lakshmi and Ms. X. Agustina of III B.Sc. Physics, Ms. K. Sherine of III B.Sc. Zoology, Ms. C. Muthu Valliammal and Ms. K. Ebina of III B.Sc. Botany, Ms. A. Infy Shiny, Ms. S. Mareewari and Ms. S. Dhishani Athiba of III B.Sc. Chemistry attended a two day hands-on training on **Bacterial Isolation, Identification and Biofilm Formation** organised by the **Department of Botany** in the **Centre for Bioscience Nanoscience Research (CBNR)**, Coimbatore. **Dr. R. Ragunathan**, Director, and Research Supervisor, Centre for Bioscience Nanoscience Research, Coimbatore,

Dr. K. Kabesh, Biotechnologist, Centre for Bioscience Nanoscience Research, Coimbatore conducted the hands-on training for the same. The training helped the students to do their interdepartmental project on "Bacterial Degradation of Microplastics". **Beneficiaries: 09**

3. On **30th November 2019**, Dr. T. Sudha, Assistant Professor of Botany and 10 students of II B.Sc. Botany attended a one day hands-on training on **Panchagavya and Pootchivirati preparation and its usage** at **ICAR- SCAD KRISHI VIGYAN KENDRA, Vagaikulam, Thoothukudi**. **Mr. A. Murugan**, Specialist in Agronomy, ICAR - SCAD KRISHI VIGYAN KENDRA, Vagaikulam, Thoothukudi gave a lecture on the importance of organic farming and how to prepare Panchagavya from cow dung, ghee, cow urine, water, milk, curd, tender coconut, sugarcane juice or jaggery and yeast. He also explained its applications in organic farming. It was followed by the lecture by **Mr. P. K. Muthukumar**, Specialist in Plant Protection, ICAR - SCAD KRISHI VIGYAN KENDRA, Vagaikulam, Thoothukudi on the topic, **"Integrated Pest Management"** and he explained the organic liquid insect repellent and its applications. The plants used for *Pootchi Virati* preparation are *Calotropis*, *Pongamia*, *Adathoda*, *Azadirachta*, *Vitex*. The bio-pesticides are prepared based on the piercing, chewing, sucking and biting types of the insects. Both of them gave the advantages of organic Panchagavya and insect repellent over the chemical applications on plants. In the afternoon session, both the specialists demonstrated the manual preparation of Panchagavya and insect repellent.

Beneficiaries: 11

4. From **2nd to 4th December 2019**, Dr. A. Jacintha Tamil Malar, Assistant Professor of Botany and fourteen students (5 from III B.Sc. Botany and 9 from III B.Sc. Zoology) attended a three day hands-on training on **"Basic Research Techniques"** at Centre

for Marine Science and Technology (CMST), Rajakamangalam, Kanyakumari organised by the **Department of Botany. Dr. Samuvel Gnana Prakash Vincent**, Head and Associate professor, Centre for Marine Science and Technology (CMST), Rajakamangalam, Kanyakumari shared the basic guidelines and the purpose of the training. A team of research scholars explained and demonstrated the techniques.

Beneficiaries: 15

5. On **3rd December 2019**, 6 students of III B.Sc. Botany attended a one day hands-on training programme on **“Nursery Establishment and Management Practices”** organised by the **Department of Botany at ICAR- SCAD KRISHI VIGYAN KENDRA**, Vagaikulam, Mudivaithanandal, Thoothukudi. **Mr. A. Murugan**, Specialist in Agronomy, ICAR- SCAD KRISHI VIGYAN KENDRA, Vagaikulam, Thoothukudi. In his lecture encouraged the students to start their own business in tree nursery. The technical session included the seed quality assessment, nursery facilities and cultural management practices such as proper hardening techniques using effective yet non-expensive hardening beds and soil sterilization to improve the quality of the seedlings in the region. The students actively participated in the workshop.

Beneficiaries: 06

6. On **4th December 2019**, 10 students of II B.Sc. Zoology attended a one day hands – on training on **“Bee Keeping”** at **ICAR- SCAD KRISHI VIGYAN KENDRA, Vagaikulam** by the **Department of Zoology**. The resource person **Mr. A. Murugan**, Specialist in Agronomy, ICAR - SCAD KRISHI VIGYAN KENDRA, Vagaikulam, Thoothukudi and **Dr. V. Srinivasan**, Senior Scientist and Head of Animal Science, ICAR - SCAD KRISHI VIGYAN KENDRA, Vagaikulam, Thoothukudi explained about Apiculture, different species of honey bee and their caste. In the afternoon, he threw light on the comb architecture by showing the combs. The students gained a lot

of inputs from the training and were given guidelines to understand the way of earning money through bee keeping. **Beneficiaries: 10**

7. On **5th December 2019**, 10 students of III B.Sc. Zoology attended a one day hands - on training on **“Backyard Poultry Rearing”** organised by the **Department of Zoology** at **ICAR- SCAD KRISHI VIGYAN KENDRA**, Vagaikulam, Thoothukudi. **Dr. V. Srinivasan**, Senior Scientist and Head of Animal Science, ICAR - SCAD KRISHI VIGYAN KENDRA, Vagaikulam, Thoothukudi explained the ways of building a poultry shed, basic structures of poultry shed and their principles, commercially important poultry breeds, essentials of rank increased country breeds, breed preparation and protection through an interesting and interactive session. In the practical session, the students learnt about the *Azolla* culture, the feeding structures and cages. The third session was about commercially important breeds and marketing. The training imparted a fruitful experience of real-world poultry farming to the students. **Beneficiaries: 10**
8. On **6th December 2019**, 10 Students of II B.Sc. Zoology attended a one day hands – on training on **“Dairy Management”** at **ICAR- SCAD KRISHI VIGYAN KENDRA**, Vagaikulam. The resource person **Dr. V. Srinivasan**, Senior Scientist and Head of Animal Science, ICAR- SCAD KRISHI VIGYAN KENDRA, Vagaikulam, Thoothukudi explained the motto of dairy management, identification of cow, calculating the age, height and weight of the cows, characteristics of dairy farm, varieties of dairy breeds, construction of cow shed, diseases and vaccination of cow. In the afternoon, **Mr. A. Murugan**, Specialist in Agronomy, ICAR - SCAD KRISHI VIGYAN KENDRA, Vagaikulam, Thoothukudi described the different types of fodder consumed by the cows. It helped the students to understand the profitable dairy management tactics. **Beneficiaries: 10**

9. On **6th December 2019**, a one day lecture cum hands-on training on “**Crystal Growth**” was organised by the **Department of Physics** in the Star Hall. The III B.Sc. Physics students attended the programme and were benefited a lot. The initial session was adorned by **Dr. P. Rajesh**, Assistant Professor of Physics, SSN College of Engineering, Chennai. His lecture cantered around the basic concepts about crystals and the different methods of preparation of crystals. In the training session, students were taught how to prepare a solution for crystal growth, in appropriate ratio and in proper concentration by the research scholars of Dr. P. Rajesh. They demonstrated how to prepare saturated and supersaturated solutions, using salts like KDP, Lithium Sulphate, etc. The Sankaranarayanan Ramasamy method of crystal growth by maintaining temperature gradient across the solution was experimentally demonstrated using model apparatus setup. The various conditions that influence the crystal growth were also discussed. The training imparted a great deal of knowledge on crystal growth. **Beneficiaries: 39**
10. On **7th December 2019**, 10 students of II B.Sc. Botany attended a one day hands-on training programme on “**Terrace / Home Garden Establishment**” at **ICAR - SCAD KRISHI VIGYAN KENDRA**, Vagaikulam, Thoothukudi organised by the **Department of Botany**. **Mr. A. Murugan**, Specialist in Agronomy, ICAR - SCAD KRISHI VIGYAN KENDRA, Vagaikulam, Thoothukudi gave a deep insight on the Terrace / Home Garden Establishment. He also encouraged the students to start their own business on making terrace garden. The students enthusiastically participated in the training. **Beneficiaries: 10**
11. From **16th December 2019 to 20th December 2019**, 5 students each from the **Departments of Zoology, Botany and Chemistry** went to the **Fisheries College** (Thoothukudi) and attended the five day training programme on “**Biochemical**

Composition Analysis of Food". On 16th December 2019. Dr. Jeya Shakila, Professor and Head, Fisheries College and Research Institute, Thoothukudi and **Ms. Shalini,** Assistant Professor, Fisheries College and Research Institute, Thoothukudi gave an introduction about the Biochemical composition analysis of food. A manual was provided to the students for the better understanding of the entire analysis. Mr. Udhayakumar conducted the practical sessions. On 16th December 2019, they learnt the estimation of moisture and ash from Sardine, Shrimp, *Sargassum* and *Gracilaria*. On 17th December 2019, they learnt the estimation of protein from the same samples. The students learnt the estimation of carbohydrate from the same samples on 18th December 2019. The estimation of lipid and dietary fibre was taught on 19th December 2019. On 20th December 2019, salt estimation was taught and Dr. Jeya Shakila taught the various types of Chromatography. The students learnt about the instruments such as DCP-MS, GC-MS, LC-MS, Digestion unit, Distillation, Hot air oven, Muffle furnace, Socsplus and Fibroplus. **Beneficiaries: 15**

12. From 16th to 19th December 2019, four students of II B.Sc. Chemistry attended an in-plant training programme on **Water Treatment at Dhrangadhra Chemical Works Limited, Sahupuram, Thoothukudi** organised by the **Department of Chemistry**. The students were permitted to have their training in RO plant in DCW. The RO plant is known as Captivity Power Plant. **Mr. Sivraj**, Senior Scientist (RO Plant), DCW was the trainer. On the first day they were given safety induction, the procedure and the safety measures to enter into DCW. They had their training in the Captivity Power Plant (CPP) Department. The plant manager explained all the processes and functioning in the Reverse Osmosis plant, the clarifiers, tank, filters and also showed how they operate it. The students were also trained to check the quality of water using

the instruments in their lab. An overview of the working of the other units in DCW was also given to them. **Beneficiaries: 04**

13. From **23rd to 31st December 2019**, four students of II B.Sc. Chemistry attended an **in-plant training programme on Chemical analysis of activated carbon at Kalpaka Chemicals Private Limited Thoothukudi** organised by the **Department of Chemistry. Mr. M. Augustin Vanish**, Hr - Manager, Kalpaka Chemicals Pvt. Ltd. Thoothukudi. On the first day, students were given an outline of the vision, mission and motto of the firm and were allowed to visit various plants like water treatment, acid wash, screening and special process. The students had first hand input on the product of the company like activated carbon from wood, coconut shell and charcoal and the various methods to determine the pH, turbidity, density, CTC, MBV and iodine test of the activated carbon in their laboratory. **Beneficiaries: 04**

14. From **23rd to 28th December 2019**, Dr. G. Flora, Assistant Professor of Botany and 10 students (2 from II B.Sc. Botany and 8 from III B.Sc. Botany) attended a one week training programme on **“Identification of Marine Flora with Special Reference to Commercially Important Seaweeds”** at **Central Marine Fisheries Research Institute (CMFRI), Thoothukudi** organised by the **Department of Botany. Dr. I. Jagadis**, Principal Scientist, Central Marine Fisheries and Research Institute, Thoothukudi, inaugurated the training programme. On 23rd December, training was given to develop and promote qualified expertise in seaweed identification and preserving process, both dry and wet preservation. On 24th December, **Dr. C. Kalidas**, Scientist, Central Marine Fisheries Research Institute, Thoothukudi and **Dr. L. Ranjith**, Scientist, Marine Biodiversity Division, Central Marine Fisheries and Research Institute, Thoothukudi, students team and the faculty of St. Mary’s College (Autonomous) went to the Hare Island to collect the seaweeds and on the remaining

days they explained and demonstrated how to use manuals and books to identify the seaweeds. Dr. L. Ranjith demonstrated the importance of understanding the anatomical character and the morphological character to identify the seaweed. The students prepared 20 herbarium sheets by using the collected seaweeds. They were motivated to pursue their higher studies and research work, in CMFRI campus, Thoothukudi.

Beneficiaries: 11

15. From 23rd to 28th December 2019, the students of II B.Sc. Zoology attended one week training programme on **“Compounded Feed Formulation for Commercially Important Marine Food Fishes”** in the **Marine Biotechnology Division, Central Marine Fisheries Research Institute, Thoothukudi** organised by the **Department of Zoology. Dr. I. Jegadis**, Principal Scientist, Central Marine Fisheries and Research Institute, Thoothukudi delivered the inaugural address and Dr. G. Flora, Assistant Professor of Botany, St. Mary’s College (Autonomous), Thoothukudi served as the chief guest. **Mr. D. Linga Prabhu**, Scientist, Central Marine Fisheries and Research Institute, Thoothukudi, addressed the students on the various perspectives concerned with feed ingredients like nutritional composition and their importance in fish feed formulation. He deliberated the vital role of protein ingredients in fish feed preparation. On the second day, the resource person explained the various domains of the Pearson’s square, ingredients for the feed, preparation of feed formulation, checking the quality of formulated feed, feed formulation for different age groups of fishes such as fry, fingerlings, adult and brood stock. They were also imparted knowledge on the working principle of the instruments used in fish feed formulation. On 26th December 2019, **Dr. C. Kalidas**, Scientist, Central Marine Fisheries and Research Institute, Thoothukudi, delivered a lecture on the topic, **“Larval Feeds of Marine Fishes and Larval Feed Enrichment Media”**. Mr. D. Linga Prabhu,

Scientist and **Mr. B. Ramar**, Research Associate, Central Marine Fisheries and Research Institute, Thoothukudi demonstrated the preparation of formulated feed with ingredients of 40% protein and 6% fat. Hands on training were given to the students on the identification of feed ingredients and analysis of physical organoleptic characters of feed for the last two days. It enhanced the students' knowledge on feed preparation that inculcated entrepreneurship skill development among the students. In addition to that, students fed fishes in the hatchery using the feed formulated and prepared by them. **Beneficiaries: 05**

16. One week training programme on “**Identification of Marine Fauna with Special reference to Commercially Important Molluscs**” was arranged for five III B.Sc. Zoology students from **23rd to 28th December 2019** in Molluscan Fisheries Division of CMFRI, Thoothukudi organised by the **Department of Zoology. Dr. I. Jagadis**, Principal Scientist, Central Marine Fisheries and Research Institute, Thoothukudi and **Ms. M. Kavitha**, Scientist, Central Marine Fisheries and Research Institute, Thoothukudi served as the trainers. The five days training programme started with an introduction and an outline classification for the phylum mollusca. The training mainly focused on the importance of commercially available molluscs and their present status of its distribution. On 24th December, Dr. I. Jagadis and Ms. M. Kavitha explained the systematics of classes bivalvia, cephalopoda and gastropoda elaborately. The students were taught to identify the commercially important molluscs with special reference to the classes gastropoda, bivalvia and cephalopoda with the help of their shape, colour and pattern (26.12.2019). The students were taken for a field visit to Karapad Bay on 27th December for the collection of various species of molluscs and brought the samples to the laboratory, identified based on the key characters. The training aided the students to acquire knowledge on the commercially important molluscs along with

the perspective of developing research attitude and taxonomical skill enhancement.

Beneficiaries: 05

17. On **28th February 2020**, a one day workshop on “**Foldscope Training and Explorer the Microworld - 2020**” was organised by the **Department of Botany** in collaboration with the Tamil Nadu Science Forum, Thoothukudi, in the Botany Lab. Foldscope is an origami paper microscope invented by a scientist of Indian origin Manu Prakash of Prakash Laboratory, Stanford University, along with Jim Cybulski, a Ph.D. student. **Mr. Mo. Pandiarajan**, National Trainer of Foldscope, Director of EDEN Educational Resource Centre, Madurai explained the ways to apply frugal technology to facilitate students love science, enjoy science and ultimately develop a scientific temperament. The vision of the workshop was to carry a Foldscope like a pencil or a pen by each student in the world. The hands-on workshop covered different modules such as visualisation of unicellular and multi-cellular cells like bacteria, fungus and pollen grains. **Beneficiaries: 25**

18. On **7th March 2020**, a one day training programme on “**Trash to Treasure: Sea Shell Crafts**” was organised by the **Department of Zoology** for the III B.Sc. Zoology students. The students were trained on the process of making decorative items and jewellery from waste sea shells. As Thoothukudi lies in the Gulf of Mannar coastal region, it encompasses variety of clams, bivalves, cowries, bubble shells and limpets. Large number of whole seashells, arranged to form patterns have been used to decorate mirror frames, furniture and man-made grottos. **Ms. X. Rajathi**, Managing Director, Morning Star Social and Educational Trust, Thoothukudi and her team imparted hands-on training and shared their skills and expertise. Ms. M. Sajitha Begam explained how to handle and process the shells collected from sea shore. Ms. B. Arul Vincy designed and created small home décor items like peacock, owl, sparrow and

jewellery items like ear rings, necklace, hair clips etc. Mrs. X. Rajathi gave training on wall hanging, clock, pencil stand and mirror. The students were encouraged to do showcase decorative items and fancy items individually. The students were really fascinated by molluscan shells and discovered multiple uses of sea shells.

Beneficiaries: 40

19. The internship programme on **Mechatronics** was conducted at **DIGISAILOR Company, Thoothukudi** (Software development, Digital marketing and Graphic designing) organised by the **Department of Physics**. Ms. B. Delphine, Ms. D. Dhivya Dharshini, Ms. A. Muthulakshmi of II B.Sc. Physics and Ms. N. Varsha and Ms. A. Sheela Varsha of I B.Sc. Physics actively participated from **01st April 2021 to 07th April 2021**. Students gained thorough knowledge on the theoretical and practical application of drones. They had an opportunity to get a very good experience that can be remembered for their lifetime. They learnt a lot of new information on the work of drone. N. Varsha and A. Sheela Varsha of I B.Sc. Physics were also selected to continue their project cum internship on “Aviation” **Beneficiaries: 05**

20. From **15th to 20th April 2021** one week hands-on training on “**MATLAB and its Applications in Physical Sciences**” was organised by the **School of Physical Sciences** under the Star Scheme sponsored by the DBT. **Dr. S. Kulandai Therese**, Assistant Professor, Department of Mathematics, St. Mary’s College (Autonomous), Thoothukudi was invited as the MATLAB Instructor who, on the first day gave a brief talk on introduction to MATLAB and its applications. She highlighted the applications during the practical session. On the second day of the session, the following topics were covered: Basics of MATLAB, introduction to arrays and vectors, options in MATLAB, creating scripts, arrays and plots, introduction to figure window, working with vector operators and creating matrix and extracting sub

matrix. On the third day of the session, the resource person spoke on solving mathematical equations, usage of parenthesis, entering multiple statements, introduction to miscellaneous commands, solving linear equations, computing higher order derivatives, Performing task of differentiation. On the fourth day of the session, the address was on the headings - Curve fitting tool, plotting complex function, introduction to physics application, calculating requirements of simple pendulum, Jacobian transformation, canonical momentum in spherical co-ordinates and coding for potentiometer. On the fifth day of the session, the following topics were covered programming with 3D plot, introduction to MATHLAB semilog, working with pie, compass and stairs, introduction to stem, surf, pcolour and waterfall, Coding using comet, slice, ellipsoid and quiver, finding hydrogen molecular orbital cross section and finding the level of liquid in a tank. 110 participants from St. Mary's College, 29 participants from Mentee Colleges and an Infotech programmer participated actively and enthusiastically. **Beneficiaries: 129**

21. The **Department of Physics** arranged an internship on **“Instrumentation”** at **AVM Hospital, Thoothukudi** from the **1st November 2021 to 10th November 2021** organised by the Department of Physics. **Five students** attended the internship. They had a very good exposure to the principle and working of the following imaging techniques like X- ray, MRI, Ultrasonogram, CT, EEG and ECG. The students had an opportunity to work with expert radiographers and had a phenomenal updating of skills. The internship helped them to enhance their knowledge about physics in medical field. **Beneficiaries: 05**
22. An internship was organised by the **Department of Chemistry**, St. Mary's College (Autonomous), Thoothukudi and **Southern Petrochemical Industries Corporation Limited** on **“Training in Quality Control Laboratory”** under Star

College Scheme sponsored by Department of Biotechnology, Government of India, New Delhi from **5th November 2021 to 17th November 2021**. Mr. T. Balachandar, Manager QCL, Southern Petrochemical Industries Corporation Limited was the training officer. **Beneficiaries: 05**

23. An internship was organised by the **Department of Chemistry**, St. Mary's College (Autonomous), Thoothukudi and **SDR Home Care Products, Thoothukudi** on **“Preparation of House-hold products”** under Star College Scheme sponsored by Department of Biotechnology, Government of India, New Delhi from **11th November 2021 to 19th November 2021**. Students were given hands on experience in the preparation of Hand Sanitizer, Hand Wash, Dish Wash Powder, Liquid Detergent, Floor Cleaner, Toilet Cleaner, Glass Cleaner, Soap Oil, Phenyl, Dish Wash Liquid, Detergent Powder, Sodium Hypochlorite. **Beneficiaries: 05**

24. The **Department of Physics** organised ten day **“Training on e-mapping”** in our college premises from **13th December to 22nd December, 2021**. The training was headed by a proficient guide from Digisailor company, Thoothukudi. **Eleven students of III B.Sc. Physics attended the training and gained knowledge** on the following GIS, digitization etc., Various types of data, digitize maps using the software QGIS, creating layers and adding layers, exporting a file and uploading it in the web page created by them. It was such a prodigious experience for the students to create a map by themselves and uploading it in web. **Beneficiaries: 11**

25. **The Department of Physics** arranged ten days training on **‘Solar Based Projects’ at Core Techno Solutions Thoothukudi** from **13th December to 23rd December, 2021** under Star College Scheme. The training was headed by a proficient guide from Core Techno Solutions. Twelve students of III B.Sc. Physics attended the training and carried out the following activities Solar radiation readings were recorded,

Various applications of solar energy and types of solar panel were discussed, Basics of the project were explained, Various components required for the project was searched, A detailed study of the components were done, Circuit was sketched and checked for stimulation, The PCB layout and 3D view were arranged, Soldering work was carried out. Project was documented. **Beneficiaries: 12**

26. The three day intercollegiate lecture cum hands-on training in “**Practical Physics**” was organised by **Department of Physics** under Star College Scheme from **15th December to 17th December, 2021**. The resource person was **Mr. K. Balasubramanian**, Industrialist, Rethan Machining Solutions, Tirunelveli. The participants for this programme were physics students from Kamaraj college, Thoothukudi and St. Mary’s college (autonomous), Thoothukudi. The lecture session was about simple working with electricity components. In this session, the resource person discussed about electrical components and proximity. He explained about voltage type, diodes, capacitors, resistances, relay and transformers. He also explained about its types such as inductive, capacitive, optical and ultrasonic. In the second session, students practically worked with those components which students learnt in the first session. On the second day, the session was about Wireless Electricity, Home Electrical System and Home Surveillance Electrical System. Mr. Balasubramanian gave a clear idea about possibilities of wireless electricity and its advancements in future and briefly about electrical components like MCB, GFCI, Switches, Incoming power lines, Lights, Serve panel, Wiring, Sub panel, and ELCP. And also, about CCTV, Fire alarm and Burglar alarm. In the second session, the Resource person guided the participants to work with these components practically. On the third of “Intercollegiate Lecture cum Hands on Training in Practical Physics” the lecture was given by the resource person, Mr. K. Subramanian, Industrialist,

Rethan Machining Solutions, Tirunelveli District. The session was about Control Panel wiring circuit. The resource person threw light on the three-phase circuit, single phase circuit, applications of relay and proximity sensors, DC voltage and AC voltage supply in control line and power line and also about the use of various circuit breakers like MCB, MPCB etc. **Beneficiaries: 120**

27. The **Department of Zoology** arranged a training programme on “**Breeding and Culture of Ornamental Fishes**” for III B.Sc. students at **Rajan Aquafarm, Sakkammalpuram** on **18th December 2021**. Students from the Department of Zoology visited the Aquafarm and observed a total of 150 species of African cichlids cultured in different types of ponds depending on their size and age. All fishes available in this farm are only mouth breeders. **Arun Sundar**, Proprietor, Rajan Aquafarm, Sakkammalpuram, Thoothukudi, has demonstrated the harvesting method of fries from the mouth of female fishes. The students learnt the different culture methods of mouth breeders. The students also observed the collection of fishes of different stages from the pond, transfer of fishes to different ponds and feeding methods. **Beneficiaries: 33**

28. The **Department of Botany** organised the two day training on “**Baking for Beginners**” under Star College Scheme on **21st and 22nd December, 2021** in the Botany Laboratory for the II UG students of Physics and Chemistry Departments. **Ms. A. Karolin**, Assistant Professor of Food Science and Nutrition, Holy Cross Home Science College, Thoothukudi and **Ms. A. Marithangam**, Assistant Professor of Food Science and Nutrition, Holy Cross Home Science College, Thoothukudi were the resource persons. Ms. A. Karolin gave hands on training for fish pickle, pineapple squace, tomato sauce, mixed fruit jam, green chili pickle, tomato pickle and garlic pickle. Ms. A. Marithangam gave a talk on “**Baking and Bakery**

Products” and gave hands on training for cake and cookie making on the second day. They ignited the entrepreneur skills of the students and created a path to face this competitive world. **Beneficiaries: 33**

29. A one day hands-on training on **“Crystal Growth”** was organised by the **Department of Physics** on **14th February, 2022** in the Physics lab under Star College Scheme. **Dr. P. Sumithraj Premkumar**, Assistant Professor, Department of Physics, St. John’s College, Palayamkottai was the resource person. Students of III B.Sc. Physics, 6 students of III B.Sc. Chemistry and II. M.Sc. Chemistry students participated in the training. In the first session, the resource person clearly instructed the theory behind crystals and different methods of crystal growth especially slow evaporation method. During the hands-on session students prepared saturated solution of nickel sulphate, aluminium nitrate and urea by weighing appropriate quantities of the substance and shaking them uniformly using a magnetic stirrer. The solutions were then left to crystallise by slow evaporation method.

Beneficiaries: 11

30. One day hands-on training on **“Fundamentals of Computational Chemistry and Molecular Simulation”** was organised by the **Department of Chemistry**, on **16th February 2022**. **Dr. M. Murali Krishnan**, Assistant Professor of Chemistry, Bannari Amman Institute of Technology, Sathyamangalam, Erode was the resource person. He gave an introduction about Gaussian 0.9 and spartan software to draw 3D structure of the molecules. Using spartan software he clearly instructed the students to draw 3D structure of molecules molecule like methane, cyclohexane.

Beneficiaries: 24

31. A one day training on **“Sparrow Conservation”** was organised by the **Department of Zoology** on **12th March 2022** in the Auditorium. **Er. N. Dhanasekar**, Founder,

Chittukuruvigal Arakkattalai, Coimbatore was the resource person. He delivered an informative awareness lecture on the biology, social behaviour, population status and conservation need of tiny-chirpy house sparrows. He focused on how our traditions fostered co-existence with birds and encouraged the students to provide some space for the sparrows to nest at homes. Simple and effective tips were suggested for the revival of the population of sparrows. Hands-on training on the fabrication of nest boxes and feeders was given by the resource person in an interactive and interesting way. He demonstrated how to create nest boxes from recyclable materials such as discarded shoe boxes and cardboard boxes. **Beneficiaries: 196**

32. The **Department of Physics** organised a three day lecture cum training on the topic, **“Physics Based Computer Literacy”** from **7th September 2022 to 09th September 2022**. **Mr. B. Veerabahu**, the managing director of Veera computer Education, Thoothukudi threw light on the following Basics of Ms word & Ms excel and Practical exercise on Ms word and Ms excel. The second day session was held on **08th September, 2022**. The resource person highlighted the following software installation, OS update and Billing in Ms excel. The third day session was held on **09th September, 2022**. A detailed training on the following were given Tally exercise and Basics of database. **Beneficiaries: 33**

33. The **Department of Physics** organised a three day hands-on training on the topic, **“Advanced topics in C++”** from **7th November, 2022 to 09th November, 2022**. **Mr. B. Veerabahu**, the managing director of Veera computer Education, Thoothukudi. He threw light on the following Algorithm and check method and Arithmetic condition and loop method. The second day session was held on **08th November 2022**. The resource person highlighted the following Practicals using C++ language and Programme explanation. The third day session was held on

09th November 2022. A detailed training on the following were given Algorithm of various programmes and Practice on check method. The topics were new and interesting to the students. The queries were effectively clarified by the resource person. **Beneficiaries: 33**

34. A one day lecture cum workshop on “**Cost Effective Methods for Thin Film Preparation**” was organised by the **Department of Physics** on **30th January 2023**. The students of II and III UG Physics attended the programme and were benefited. **Dr. M. Karunagaran**, Assistant Professor of Physics, Alagappa Government Arts College, Karaikudi Taluk, Sivagangai graced the session. He delivered a lecture on various methods of preparation of thin film and some characterisation techniques. The methods of preparation of thin films like the Silar coating method, Spray coating and spin coating methods were experimentally demonstrated. **Beneficiaries: 68**
35. The **Department of Botany** organised the hands-on training on “**Microtome**” on **1st and 2nd February 2023** in the Botany Laboratory for the I B.Sc. students of Botany Department. **Mr. R. Vasanthakumar**, Research Scholar, Department of Biotechnology, Manonmaniam Sundaranar University, Tirunelveli was the resource person. **33** students were benefitted through this programme. **Beneficiaries: 33**
36. On **02nd February 2023**, a lecture cum hands-on training on the topic, “**Learn to Engineer the Growth of Crystalline and Nanoscale Materials**” was organised by the **Department of Physics**. **Dr. P. Rajesh**, Assistant Professor, Department of Physics, SSN College of Engineering, Chennai graced the session. **Beneficiaries: 100**
37. The **Department of Botany** organised the hands-on training programme on “**Baking**” on **6th February 2023** in the Botany Laboratory for the II UG NME students of Botany. **Ms. A. Karolin**, Head and Assistant professor, Department of Food Science and Nutrition, Holy Cross Home Science College, Thoothukudi was the resource person.

Beneficiaries: 36

38. The **Department of Botany** organised the hands-on training on “**Preparation of Organic Weedicides, Fungicides and Plant Growing Structures**” on **7th February 2023** in the Botany Lab for the II B.Sc. students of Botany. **Dr. Y. Rajakumar**, Former Deputy Director of Horticulture, Government of Tamil Nadu, Thoothukudi was the resource person. **Beneficiaries: 15**

39. An invited lecture cum hands-on training on “**16s rRNA based Characterisation of Microbes from Environment and its Taxonomical Authentication using *in-silico* Analysis**” was organised by the **Department of Zoology** on **09th February 2023** in the computer lab. **Dr. A. Mahalakshmi**, Assistant Professor, Department of Zoology, Lady Doak College (Autonomous), Madurai delivered the lecture cum hands on training on various bioinformatic computational tools in the recent trend for sequence analysis. The resource person demonstrated the different ways to retrieve molecular sequence data from various databases. She trained the students to interpret the retrieved data using blast, phylogenetic analysis and multiple sequence alignment. The students gained knowledge on the importance of bioinformatics in research.

Beneficiaries: 60

40. Hands-on training on “**Molecular Modelling and Dynamics**” was organised by the **Department of Chemistry** on **13th February 2023 to 15th February 2023**. **Dr. M. Murali Krishnan**, Assistant Professor of Chemistry, Bannari Amman Institute of Technology, Sathyamangalam, Erode was the resource person. in the DST computer lab. First, he gave an introduction about Gaussian 0.9 and spartan software to draw 3D structure of the molecules. Using spartan software he clearly instructed the students to draw 3D structure of molecules like methane, cyclohexane (boat and chair form) and highlighted the advantage of using Gaussian view software for calculation of energy

and bond length. Students of II B.Sc., III B.Sc., Chemistry, Physics, Botany, Zoology and I M. Sc, II M.Sc. Chemistry and II PG Students of Kamaraj College attended the training programme. **Beneficiaries: 71**

41. On 15th February 2023, Fisheries College and Research Institute & St. Mary's College (Autonomous), Thoothukudi conducted a one day training programme on **"Compost Preparation Using Fish Solid Wastes"**. The programme had three lecture sessions and one demo session. **Dr. D. Padmavathy**, Department of Aquatic Environment Management, Fisheries College and Research Institute, Thoothukudi gave us a lecture on the topic **"Compost Preparation Using Fish Solid Waste"**. In this session, she gave a detailed note on fermentation types and the steps in preparing compost using fish solid waste. She gave a clear and detailed protocol for rapid compost preparation and the windrow method. The method of preparing fish liquid fertilizer using jaggery was also mentioned by her. Session II was conducted by **Dr. V. Rani**, Department of Aquatic Environment Management, Fisheries College & Research Institute, Thoothukudi on the topic **"Seaweed Liquid Fertilizer"**. In this session students got to know more about how to prepare liquid fertilizer from seaweeds and the importance of cellulase enzyme in its preparation. **Dr. D. Manimekalai**, Department of Aquatic Environment Management, Fisheries College and Research Institute, Thoothukudi took over this session and gave us a lecture on **"Microbes in fish composting and enhancement of composting process"**. In this session, students clearly understood the phases of composting and the dominance of mesophilic bacteria, thermophilic bacteria and actinomycetes in this process. She gave insight on how to obtain prolonged and sustaining compost with the help of microbes. In the afternoon session, Dr. D. Padmavathy gave a demo on how to prepare compost from fish solid waste using the Windrow method. **Beneficiaries: 10**

42. Ms. S. Muthamilselvi and Ms. R. Renitta Bency of II M.Sc. Botany from St. Mary's College (Autonomous), Thoothukudi, underwent a comprehensive hands-on training programme focusing on the **“Basics and applied aspects of Cyanobacteria and instrumentation techniques”**. This training was conducted from **May 17th to June 17th 2023**, at the National Repository for Microalgae and Cyanobacteria - Freshwater and Marine, sponsored by the Department of Biotechnology (DBT), Government of India, and organized by Bharathidasan University, Tiruchirappalli, Tamil Nadu. **Beneficiaries: 02**

43. Ms. R. Abinayasri, Ms. T. Anne Pushpa, Ms. P. Madhuniha of II M.Sc. Botany and Ms. R. Malar Nivedhitha of III B.Sc. Botany attended a 15 day. Internship programme on Research Techniques and its application in Life Sciences organized by **Ayya Nadar Janaki Ammal College, Sivakasi** from 15 days from 1st June 2023 to 15th June 2023. The internship focused on hands on training in the various aspects of Life Science techniques which can be used in the research process. **Beneficiaries: 04**

44. The **Department of Botany** organised an entrepreneurial training programme on the topic **“Preparation of Herbal Cosmetics”** on **17th July 2023**. **Dr. M. Packia Lincy**, an alumna (2007 – 2012) Batch of St. Mary's College and Assistant Professor of Botany, Lady Doak College, Madurai was the resource person. She explained the preparation of herbal cosmetics and gave hands on training for the preparation of kajal, herbal soap, kumkum and lip balm. 36 students and 2 faculty benefitted from this programme. **Beneficiaries: 38**

45. The **Department of Botany** conducted a skill development programme on **“From Sample to Insights: Nucleic Acid Extraction and PCR Analysis”** on **11th August 2023**. **Dr. M. Senthil @ Shankar**, Research fellow, ICAR – Central Tuber Crops Research Institute, Thiruvananthapuram, Kerala was the resource person. The resource

person presented an overview of ICAR-Central Tuber Crops Research Institute and conducted hands-on training on nucleic acid extraction from bacterial cultures and young leaves, as well as confirming the quality of DNA extracted with Agarose gel electrophoresis. Additionally, he provided hands-on working experience with PCR.

Beneficiaries: 21

46. The **Department of Botany** organised the skill development programme on “**Seed Priming: A Sustainable Tool for Organic Farming**” on **25th August 2023** in the Botany lecture hall for the I UG Botany students. **Dr. B. Kamatchi Kala**, an alumna (1997 – 2003) Batch of St. Mary’s College and Assistant Professor, PG & Research Department of Botany, Sri Parasakthi College for Women, Courtallam, Tenkasi, was the resource person. She explained seed priming and its mechanism, importance of seed priming and demonstrated various methods of seed priming. **Beneficiaries: 32**

47. The **Department of Zoology** organised a skill enhancement programme on “**Statistical Analysis and Interpretation of Biological Data Using SPSS**” on **23rd September 2023**. **Dr. S. Julian Daniel**, Assistant Professor, Department of BBA Maritime Logistics, St. Xavier’s College (Autonomous), Palayamkottai served as the resource person and gave deep insight into different perspectives of the statistical package SPSS. In his lecture he elaborated the various measures of central tendency, measures of dispersion, correlation, regression and ANOVA. The types of measures of central tendency, mathematical and positional average like mean, median, mode and the problems pertaining to central tendency were explained by him. He expounded the types of dispersion like absolute, relative measure, the statement of hypothesis and selection of appropriate statistical tool for testing hypothesis. He insisted on the difference between groups, variables and parametric tests adopted. His lecture deliberated the casual relationship dependency in correlation and prediction using the

established causal relationship in regression. The resource person explained entering data into SPSS and important descriptive statistics. The students gained knowledge on inferential statistics like framing hypothesis, fixing the level of significance, construction of test statistics. He inculcated the criteria of null hypothesis, Chi square test, independent sample t test, paired t test, ANOVA and notable values.

Beneficiaries: 45

48. A two day lecture cum hands-on training on **“A Step By Step Guide for Preparing and Characterising Recent Research Materials”**, was organised by the **Department of Physics**, on **7th and 8th December 2023**. **Dr. P. Sumithraj Premkumar**, Assistant Professor of Physics, St. John’s College, Palayamkottai was the resource person. On **7th December, 2023** Dr. Sumithraj discussed on choosing research topics for project work. He gave simple tips on doing research in the fields of crystal growth and Nanomaterials. He emphasised the students to undertake research projects with the resources available to them in the laboratory. Hands-on training was given to the students to find out the solubility of different salts and preparation of solutions for their research work. On **8th December 2023** Dr. Sumithraj focused on the different characterisation techniques based on the materials studied like XRD, SEM, TEM, AFM, UV, FTIR etc. Hands on training was given to the students with regard to the preparation of nanomaterials. The students were benefitted through the knowledge imparted to them on preparing and characterizing crystals and nanomaterials.

Beneficiaries: 62

49. A one day lecture cum hands-on training on **“Polymer Synthesis and Characterisation”**, was organised by the **Department of Physics**, on **18th January 2024**. **Dr. M. Meena**, Assistant Professor of Physics, S. T. Hindu College, Nagercoil. Then Dr. M. Meena discussed about types of polymers, synthesis of polymers and

applications of polymers. She gave simple tips on doing project in the field of polymers. She explained about the presence of polymers in our day today life and their applications. She emphasised the students to undertake projects with the resources available to them in the laboratory. Hands-on training was given to the students on how to prepare polymers in our laboratory for their research work. **Beneficiaries: 35**

50. A one day lecture cum hands on training on “**Analog Modulation**”, was organised by the **Department of Physics**, on **19th January 2024**. **Dr. K. Jasmine**, Assistant Professor, Department of Electronics and Communication Engineering, Kumaraguru College of Technology, Coimbatore. He explained about the communication system, types of communication, modulation and usage of diodes, transistors, resistors and capacitors. Hands-on training was given to the students on Amplitude modulation, High and Low pass filters, Schmitt triggers and Integrators were constructed in the laboratory. **Beneficiaries: 27**

51. The **Department of Botany** organised a two day hands-on training on “**Plant Tissue Culture Techniques**” from **22nd January and 23rd January 2024**. **Dr. G. Prem Kumar**, Associate Professor of Botany, VHNSN College (Autonomous), Virudhunagar served as the resource person for the programme. The resource person explained different steps of tissue culture technique such as sterilization of glassware and explant, preparation of culture medium, inoculation of explant and incubation of culture. 16 participants benefitted out of it. **Beneficiaries: 16**

52. The **Department of Botany** organised a two day National lecture cum training on “**Taxonomic Tale of the Plant Kingdom**” on the **8th and 9th of February 2024**. **Dr. Shreekar Pant**, Coordinator of the Centre for Biodiversity Studies at Baba Ghulam Shah Badshah University, Rajouri, Jammu and Kashmir, delivered an enlightening lecture on “**Taxonomy, Biodiversity and Nature-Based Solutions for a Better**

Tomorrow". **Dr. R. Murugan**, Assistant Professor at the Centre for Research and Postgraduate Studies in Botany, Ayya Nadar Janaki Ammal College, Sivakasi, elucidated on "**Plant Identification and Botanical Nomenclature**", followed by a hands-on training session on "Preparation of Taxonomic Keys and Herbarium," providing participants with practical insights into the methodologies employed in taxonomy and **Dr. D. Narasimhan**, Former Head and Associate Professor of Botany, Madras Christian College, Chennai, addressed the audience on the topic "**Why Are We Afraid of Teaching and Learning Taxonomy?**" shedding light on the challenges associated with teaching and learning taxonomy. **Beneficiaries: 147**

53. On the **12th February 2024**, six students from I M.Sc. Botany and 5 students from B.Sc. Botany attended a one day training session on "**Mushroom Cultivation and Biocontrol Agent Production**" at the **VOC Agricultural College and Research Institute in Killikulam, Vallanadu** organised by the **Department of Botany**. Dr. G. Flora, Assistant Professor of Botany, St. Mary's College (Autonomous), Thoothukudi accompanied the students. **Dr. J. Sheela**, Professor and Head, Department of Plant Pathology, VOC Agricultural College and Research Institute, Killikulam, Vallanadu provided an insightful introduction to biocontrol agents, emphasizing their significance in modern agriculture. She elaborated on the role of biocontrol agents in combating plant diseases and pests while maintaining ecological balance. Following the introduction, Dr. Sheela, led demonstrations on the mass production techniques of various biocontrol agents. Furthermore, Dr. Sheela showcased mushroom cultivation techniques, highlighting the importance of mushrooms as a nutritious food source and a lucrative agricultural commodity. **Beneficiaries: 12**

54. A one day lecture cum hands on training on "**Getting touch with home appliances**",

was organised by the **Department of Physics** on **15th February 2024**. **Mr. G. Samuel Muthuraj**, Lecturer, Bharatiyar Centenary Memorial Government Women's Polytechnic College, Ettayapuram explained about the Coloumb's law, Faraday law, Principle of DC motor, transformer and its working, real model of transformer and generator, Ohm's law and Lenz's law. Followed by that hands-on training was given to the students on transformer parts, distribution of wires from transformer to household applications in the laboratory. **Beneficiaries: 35**

55. Hands-on training programme on '**Gene Analysis by *In-Silico* Tools**' was organised by **Department of Zoology** on **16th February, 2024**. **Dr. D. Illakkiam**, Assistant Professor, Department of Biotechnology, Mother Teresa Women's University, Kodaikanal, delivered a hands-on training programme on various bioinformatic computational tools in the recent trend for sequence analysis. The resource person demonstrated the different ways to retrieve molecular sequence data from various databases. She trained the students how to interpret the retrieved data using blast, phylogenetic analysis and multiple sequence alignment. The students gained knowledge on the importance of bioinformatics in research. **Beneficiaries: 60**

56. An entrepreneurial skill development programme on "**Bee Keeping Practices**" was organised on **19th February, 2024** organised by the **Department of Zoology**. **Dr. J. Shifa Vanmathi**, Assistant Professor, Department of Zoology, Sadakathullah Appa College, Tirunelveli, delivered the lecture on various advantages of bee-keeping practices. After the lecture, technical demonstration was given by **Mr. S. Essakimuthu**, Trainer, Kamala Natural Honey Farm, Malayadiputhoor, (Kalakadu), Tirunelveli. Hands-on training was imparted on various essential aspects of bee-keeping by the trainer which included: identification of bee species and social organization of bees, rearing Indian bees in boxes, general and seasonal management,

bee forage, yield increase of crops through cross pollination, honey extraction and enemies and diseases of bees and their management. **Beneficiaries: 30**

57. **Department of Botany** in collaboration with **ICAR-SCAD-Krishi Vigyan Kendra, Vagaikulam** organised 30 hours Internship on “**Organic farming technology and Biofertilizer**” for II B.Sc. Botany students from **19th February 2024 to 24th February 2024**. During this internship, students were trained to prepare organic fertilizer, vermicomposting, weedicide, pot mixture, panchagavya and meen amilam. **Beneficiaries: 34**

58. Lecture cum training programme on “**Introduction of Organic Sciences and Synthetic Methods**” was organised by the **Department of Chemistry**, on **20th February 2024**. **Dr. R. Imran Khan**, National Postdoctoral Fellow, Department of Organic Chemistry, Indian Institute of Science, Bangalore, Karnataka shared his expertise on the topic “Introduction of Organic Sciences and Synthetic Methods”. He gave an overview about the science behind every chemical reaction. He also outlined the mechanism of formation of supramolecular structures such as crown ethers, cyclodextrin. **Beneficiaries: 78**

59. An entrepreneurship training programme on “**Vermicomposting Technology**” was organised for the I B.Sc. Zoology students by the **Department of Zoology, St. Mary’s College, (Autonomous), Thoothukudi** in collaboration with **ICAR – SCAD Krishi Vigyan Kendra Vagaikulam, Thoothukudi** from on **22nd February 2024**. The students were accompanied by **Dr. N. Arokiya Mary**, Head and Associate Professor of Zoology and **Dr. M. Paripooranaselvi**, Assistant Professor of Zoology. **Dr. V. Palanichamy**, Senior Scientist and Head, ICAR SCAD Krishi Vigyan Kendra, Vagaikulam, Thoothukudi served as resource person and **Mr. Murugan SMS (Ag)** was the master trainer. Krishi Vigyan Kendra have been functioning as a knowledge and

resource centre for agricultural technology supporting initiatives of the public, private and voluntary sectors for improving the agricultural economy of the district. Students were provided entrepreneurship training programme on Vermicomposting Technology to make them self- employed. Dr. Vel Murugan and Mr. Murugan clearly explained the vermicomposting technology for harvesting the Indian earthworms. Vermicomposting is a source of self-employment and revenue generation. This is an easier and faster process of converting organic matter into compost than other conventional methods. In this training, a total of 40 students of I B.Sc. Zoology participated. They were given complete theory and practical training on how to prepare vermicompost. Information was given about goat rearing, beekeeping, poultry farming, hanging garden and preparation of panchakavya, etc. **Beneficiaries: 42**

60. On **26th February 2024**, entrepreneurial skill development programme on “**Budding Chemist as Cosmetic Entrepreneurs**” was organised in the star Hall by the **Department of Chemistry**. **Ms. X. Bridgitta Vinnarasi**, RB Make Over, Thoothukudi is the resource person. Training on Facial, hair straightening, Eyebrow shaping, Pedicure, manicure was given by the resource person. A knowledge on advantages and disadvantages of facial, pedicure and manicure were clearly explained by the resource person. She also recommended to use naturally available cosmetics than chemical cosmetics. **Beneficiaries: 42**

61. The **Department of Botany** organised a lecture cum hands-on training on “**Histochemical Techniques**” on the **11th March 2024**. The event was conducted for the I B.Sc., II B.Sc., and I M.Sc. students of the Botany Department. **Dr. V. Nandagopalan**, Associate Professor from the Department of Botany at National College (Autonomous), Tiruchirappalli, was the resource person. He conducted hands-on training, guiding the students through the practical aspects of histochemical

analysis. A total of 42 students and 5 faculty members benefited from this informative session. **Beneficiaries: 47**

62. **The Department of Botany** in association with **Department of Library** organised a hands-on training entitled **“OER and overview on N- List”** on **14th March 2024** for I M.Sc. Students. **Dr. K. Vinitha**, Librarian, St. Mary’s College (Autonomous) Thoothukudi, was the resource person. The event aimed to promote innovative ways of utilising library resources beyond the physical space of the library. **Beneficiaries: 08**

63. A hands-on training programme in **“Clinical Chemistry”** was organised by the **Department of Chemistry**, on **27th March 2024**. **Ms. V. Muthulakshmi**, Emmanuel Institute of Health and Science, Tirunelveli, conducted this training programme. The parameters such as blood sugar, bilirubin, haemoglobin, lipid profile, urea, and creatinine were analysed using Semi Autoanalyzer. **Beneficiaries: 26**

64. Ms. N. Abinaya, Ms. D. Emima Varshini, Ms. M.K. Habeep Jahira, Ms. S. Mariammal Priyadharshini, Ms. J. Maridevi, Ms. T. Misba, Ms. J. Padmavathy, Ms. S. Palani, Ms. V. Salomi, Ms. A. Selvi Aberna and Ms. A. Vennila of II B.Sc. Botany attended a one-month summer internship on **“Applied Siddha Medicine: Clinical Training and Research Internship”** in **Government Siddha Medical College, Palayamkottai** from **06.05.2024 to 05.06.2024**. **Beneficiaries: 10**

65. Ms. V. Anikka, Ms. D. Emibai, Ms. A. Pathiram, Ms. M. Raja Rohini and Ms. N. Violet Sarojini of I M.Sc. Botany attended a one-month summer internship on **“Analysis of physical and chemical properties of seawater, Identification of phytoplankton in coastal water samples and Isolation of bacterial and fungal species from water and sediment samples”** in **Suganthi Devadasan Marine Research Institute, Thoothukudi** from **17.05.2024 to 12.06.2024**. **Beneficiaries: 05**

66. The **Department of Botany**, St. Mary's College (Autonomous), Thoothukudi along with **ICAR SCAD Krishi Vigyan Kendra, Thoothukudi and Fisheries College and Research Institute, Thoothukudi** jointly organised five day **Skill Development Training Programme** on **"Ornamental Fish Breeding and Culture"** from **6th August 2024 to 10th August 2024**. Students from St. Mary's College and Kamaraj College benefitted through this programme. **Dr. S. Athithan**, Professor and Head, Fisheries College and Research Institute, Thoothukudi, **Dr. Umamaheshweri**, Assistant Professor, DFEES, Fisheries College and Research Institute, Thoothukudi, **Mr. P. K. Muthukumar** SMS (Plant Protection) ICAR SCAD KVK, Thoothukudi, **Mr. Saravanan**, Sidha Aqua Farm, Sakkammalpuram and **Dr. Masanaselvam**, ICAR SCAD KVK, Thoothukudi, acted as the resource persons on five days. The training mainly focused on culture of ornamental fishes, making fish foods from home, making of aquarium and how to promote the sales of the same. The participants were taken to Sawyerpuram as a one day field trip to visit the farming setup there. During the valedictory function each participant were presented with compost and vermifuge packets. A separate session on how to use fertilizers was organised for the participants. The participants gave positive feedback about the training. It was a highly knowledge sharing programme. **Beneficiaries: 29**

67. The **Department of Botany** at St. Mary's College (Autonomous), Thoothukudi, in collaboration with **ICAR-SCAD KVK, Vagaikulam, Thoothukudi**, successfully completed a 40-hour **training programme on "Plant Propagation Techniques"** held from **19th August 2024 to 24th August 2024** at ICAR-SCAD KVK, Vagaikulam. This entrepreneurial training was aimed at enhancing participants' skills in plant propagation and related agricultural technologies. The programme featured a comprehensive six-day curriculum, each day dedicated to a different facet of agricultural science. On the

first day, **Mr. P. Velmurugan**, Scientist at ICAR-SCAD KVK, Vagaikulam, delivered an insightful session on Plant Propagation Techniques in Horticulture. On the second day, a hands on training led by **Dr. J. Anand**, Scientist at ICAR-SCAD KVK, Vagaikulam was organised. He provided practical experience in advanced plant propagation methods. On the third day **Dr. T. Murugan**, Scientist at ICAR-SCAD KVK, Vagaikulam, introduced Vermicompost Technology, focusing on sustainable composting practices. On the fourth day, **Dr. T. Masanselvam**, Scientist at ICAR-SCAD KVK, Vagaikulam, presented Integrated Fish Culture Technology, exploring the integration of aquaculture with agricultural practices. The fifth day featured the session by **Mrs. S. Sumathi**, Scientist at ICAR-SCAD KVK, Vagaikulam, who provided training on Value Addition to Agricultural and Horticultural Products, offering strategies to enhance product value and market appeal. The programme concluded on the sixth day with a session by Mr. P. K. Muthu Kumar, Scientist at ICAR-SCAD KVK, Vagaikulam, on Pest and Disease Management for Agricultural and Horticultural Crops, equipping participants with essential knowledge to manage and mitigate crop challenges. The training programme proved to be highly beneficial for the 27 participants, significantly enhancing their expertise in various aspects of plant propagation, agricultural technology and pest management. The collaboration between St. Mary's College (Autonomous) and ICAR-KVK SCAD highlights their commitment to promoting innovation and sustainable practices in agriculture.

Beneficiaries: 27

68. The **Department of Botany** organised a skill development programme on “**The Art of Herbal Care: Towards a Sustainable and Effective Use of Natural Health and Beauty Care Products**” for the NME (Non-Major Elective) students and I B. Sc. Botany students on **22nd August 2024**. **Dr. T. Ponrathy**, Alumna (2001-2005) Batch

Assistant Professor and Head, Department of Botany at Kamaraj College, Thoothukudi acted as the resource person. She is a proud alumna of our department. The programme started with the general talk on herbal products and their uses. She enlightened the students about the harmful chemical cosmetics and how they can be replaced with herbal products. She also shared the method of preparation of various herbal products. After the brief session, the students were taken for hands on training. Students were divided into groups and were given training in the preparation of herbal shampoo, kajal, serum, hair oil, soap and bathing powder. Students enthusiastically participated in this training process. **Beneficiaries: 56**

69. The hands-on training programme on “**Cheminformatics**” was organised by the **Department of Chemistry** from **27th August 2024 to 29th August 2024**. **Dr. T. S. Gnanendra**, Head, Department of Biotechnology, Vivekanandha College of Arts and Sciences for Women, Namakkal was the resource person. The hands-on training programme inculcates the participants with practical skills and knowledge in cheminformatics. The programme improved the understanding of cheminformatics tools and their applications in drug discovery, chemical analysis, and molecular modelling. This training makes the students proficient in using cheminformatics software for tasks such as molecular docking, virtual screening, QSAR modelling and data analysis. **Beneficiaries: 18**

70. The **Department of Botany** organised a two day hands-on training on “**Plant Genetic Engineering**” from **29th to 30th August 2024**. The training featured **Dr. D. Rex Arunaraj**, Associate Professor of Genetic Engineering at SRM Institute of Science and Technology, Chennai, as the resource person. Participants gained an in-depth understanding of the latest techniques and applications in plant genetic engineering, with students actively engaging in practical sessions and acquiring hands-

on experience in various genetic modification methods. The programme concluded successfully, with participants expressing high satisfaction and enthusiasm for the knowledge gained. **Beneficiaries: 31**

71. **Department of Botany** organised hands-on training on “**Techniques in Genetics and Plant breeding**” on **2nd September 2024**. **Dr. M. T. Andrew Peter Leon**, Assistant Professor, Department of Crop Improvement, **S. Thangapazham** Agricultural Vasudevanallur, Tirunelveli was the resource person. The resource person discussed the importance of genetics in plant breeding. He emphasis the important techniques involved in the production of new hybrid varieties. He demonstrated the techniques of emasculation and pollination. **Beneficiaries: 52**

72. On the **3rd September 2024**, the **Department of Physics** conducted a hands-on training on “**Microprocessor: Hands on Innovation**”. The programme, aimed at equipping the students of the department of Physics with practical skills in microprocessor technology, was led by the esteemed **Dr. S. R. Balaji**, Assistant Professor of Physics at Kamaraj College, Thoothukudi. Dr. Balaji, a distinguished educator and expert in the field, brought a wealth of knowledge and experience to the session. His methodical approach to teaching complex concepts was highly effective, ensuring that students could grasp both the theoretical underpinnings and practical applications of microprocessors. Throughout the day-long programme, Dr. Balaji engaged the students in a series of interactive sessions that covered a wide range of topics, from the basics of microprocessor architecture to advanced techniques in innovation and problem-solving. The hands-on exercises provided the students with a unique opportunity to apply what they had learnt in real-time, nurturing a deeper understanding of the subject matter. The collaborative atmosphere in the lab enhanced the learning experience, as students exchanged ideas and worked together to overcome

challenges. **Beneficiaries: 21**

73. Hands-on training on **“Experiential Learning in Divergent Approach for the Synthesis of Plasmonic Nanoparticles, Metal Oxide Nanoparticles, Nanocomposites and their Characterisation”** was organised by Marian Star Centre, **Department of Chemistry**, St. Mary’s College (Autonomous), Thoothukudi, on **3rd September 2024**. **Dr. S. Priya Velammal**, Associate Professor of Chemistry, V.O. Chidambaram College, Thoothukudi was the resource person. The programme provides a practical experience in synthesis and analysis of nanoparticles that are essential for advancements in medicine, electronics, and materials science. The event featured a series of interactive modules covering both theoretical concepts and practical skills. The students were engaged in various synthesis methods, including chemical reduction and sol-gel processes and coprecipitation methods. 31 students were benefited out of this training programme. **Beneficiaries: 31**

74. The **Department of Zoology** organised a hands-on training on **“Worms at Work for a Greener Planet”** on **11th September 2024**. **Mr. T. Vijay**, Organic Plantation Trainer and a Landscape Designer, Thoothukudi was the resource person for the session. Mr. Vijay gave a lecture on the basics of Vermitechnology. He introduced the practical aspects and protocol for setting vermicompost unit. In a simple and legible language, he taught the students about the different species of Earth worm, their habitat and their physiological and morphological characters. He gave a hands-on training for the students. The students were taken to the Vermicompost pit in the college campus and demonstrated the methodology of compost making-bed making, watering, turning, bedding materials, bioaugmentation protocols and precautions to prevent pathogens and predators of earth worms. The students were asked to inoculate the worms in the bed. He also assigned responsibilities for the students to take turn to water the compost

daily. The students followed the protocol and schedule with much enthusiasm.

Beneficiaries: 32

75. Hands on training on “**Food Analysis**” was organised by the **Department of Chemistry** on **12th September 2024** in Food Analysis Laboratory, Palayamkottai. **Mr. S. Alex**, Food Analyst, Food Analysis Laboratory, Palayamkottai, Tamil Nadu was resource person. The students were trained to determine the basic composition of food, including moisture, ash, fat, protein, and carbohydrate content using standard procedures. They were also given training on detecting adulterants in various food items such as milk, oil, spices, tea, coffee honey and beverages. 38 students were benefitted out of this training programme. **Beneficiaries: 38**

76. The **Department of Zoology** organised a hands-on training on ‘**Taxidermy**’ on **13th September 2024** in the Zoology lab. **Mr. C. Ayyasamy**, Taxidermist, Government Museum, Tiruchirappalli was the resource person. The workshop was conducted in the aim of training the students and research scholars for preservation of museum specimens. The resource person explained the principle and methodology for preservation of specimens. He gave a hands-on training on the methodology for preserving specimens like crab and fish. **Beneficiaries: 20**

1. On 4th July 2019, the **Department of Botany** arranged a one day **field trip** to the **Hare Island, Thoothukudi**. The curriculum of I B.Sc. and M.Sc. Botany students includes the course entitled Algae and Bryophytes and in order to study the characteristics of algae under natural habitat, the educational trip was arranged. Four faculty (Dr. M. Glory, Dr. F. Dayana Lobo, Dr. B. Maria Sumathi and Dr. Mary Santhi) and 54 students were the beneficiaries. The Hare Island, a part of Gulf of Mannar, National Marine Reserve Park is a rich repository of diversified marine flora and fauna 20 kms away from Thoothukudi city with a variety of substrata - rocky, silty, muddy and sandy. Different algae were collected from the Hare Island and photographs of the same were taken. The students identified algae belonging to the Chlorophyceae, Phaeophyceae and Rhodophyceae. Some of the species like *Caulerpa racemosa*, *C. scalpelliformis* (Chlorophyceae) and *Hypnea musciformis*, *Acanthophora spicifera* (Rhodophyceae) were found in abundance. In the Hare Island, red seaweeds like *Gracilaria corticata*, *G. Verrucosa* and *G. pygmaea* and brown seaweeds such as *Padina tetrastrum* and *P. pavonia* are available in all the seasons that exhibit good adaptability and reproducibility in the prevailing environmental conditions.

Beneficiaries: 58

2. On 6th September 2019, an educational trip was organised by the **Department of Physics**, to the **District Science Centre, Tirunelveli** for the III B.Sc. students. A group of 39 students got an opportunity to learn the basic concepts of science accompanied by the faculty members, Ms. S. Lucas Rexline and Ms. Sharmila Paul Pandian. The visit was helpful to develop and enhance the practical knowledge of the students. The students took a tour of the following galleries – Music in air (blocking

invisible infrared), Air cannon, order and chaos, Lazy coins (Eddy currents), Probability curve, Parabola (Liquid spinning make parabola automatic), Rising ball (Static pressure), Floating balls (drop in static pressure Bernoulli's principle). The galleries showcased a plethora of exhibits that covered various topics. The science center provided a whole world of wonder and amazement with so many interactive 'hands on' exhibits. The students were excited to observe certain exhibits that had similarity to their science projects during the science fest. Infinity well (optical illusion) 2 parallel mirrors, Liquid painting (overlapping of colours), Energy band, walking through the mirror maze and many others caught the attention of the students instantly and they thoroughly enjoyed being a part of those fun filled activities.

Beneficiaries: 41

3. On **10th September 2019**, three faculty and 45 III B.Sc. students of the **Department of Zoology** visited **Central Marine Fisheries Research Institute, Mandapam, Ramanathapuram**. The students were given an introduction about the institute, its history, development, culture techniques, species cultured and social activities performed were explained by the head of the institution. They entered the museum and observed the collection of different species of invertebrate and chordate specimens including shellfish and fish. Then they visited the lab and learnt the techniques to be followed in the culture and harvesting of cobia and pompano. The students visited the marine aquarium in CMFRI where some species of marine organisms are grown in a well-maintained condition. They observed the cage culture from a distance and were able to spot some of the cages that were kept for culturing the fishes. They interacted with the diver who checks the status and quality of fishes cultured and enquired about the size of the cages and the methods employed for the

culturing process. The students visited the memorial of Dr. A.P.J. Abdul Kalam and his house and were inspired by his credentials. **Beneficiaries: 48**

4. On **12th September 2019**, 48 students of II B.Sc. Chemistry accompanied by two faculty (Dr. Irudaya Antonat Sophia and Dr. A. Lakshmi) visited **Tamil Nadu Water Supply and Drainage Board, Manjaneerkayal, Thoothukudi district**. The students were given a clear interpretation of the methods of purifying water using alum, followed by the addition of chlorine, settling of the sludge in the sedimentation tank and rapid filtration bed. The filtered water was then collected in a ground reservoir and pumped to various industries. In the lab, the analyst explained the methods of testing the physical and chemical water quality parameters such as colour, odour, turbidity, electrical conductivity, total dissolved solids, suspended solids, pH, alkalinity and hardness present in the samples. **Beneficiaries: 50**
5. On **17th September 2019**, a one day field trip to **Kothaiyar, Kanniyakumari District** was arranged by the **Department of Botany** for the II B.Sc. Botany students. Three faculty Dr. M. Glory, Dr. G. Flora and Ms. Pauline Jenifer, one non-teaching staff and 42 students were the beneficiaries of the visit. The students gained a lot of information about the bonsai at the **Niki Bonsai Garden, Thuckalay** and enjoyed the scenic beauty. They visited the forest area with the help of a forest guide who helped them to explore the forest. With his guidance, the students learnt about the Pteridophytic and Angiospermic plants over there and collected some specimens of Pteridophytes and Bryophytes for the practical purpose as well. The next spot was the nearby water falls for recreational purpose. The students enjoyed the canopy of trees and the bird's eye view of the lake at Mathur Thotti Palam. The trip not only helped them gain knowledge but also helped the students to unwind and enjoy nature. **Beneficiaries: 46**

6. On **6th December 2019**, a field trip was arranged by the **Department of Zoology** for the III B.Sc. Zoology students (45) accompanied by two faculty Dr. S.R.T. Sherly Cross and Dr. M. Paripooranaselvi to the **Tamil Nadu Sericulture Unit, Nannagaram, Tenkasi**. During the visit, one of the faculty from the Sericulture Unit explained the nature of the cocoons, the defective cocoons and the double cocoons clearly. The team visited the reeling unit and the mulberry garden. Mr. Muthupandi, an inspector of the department explained the students about the different types of eggs, their preservation and the life cycle of silkworm and the difference between the male and female pupa and moth. The field visit offered a lot of knowledge about sericulture.

Beneficiaries: 47

7. On **10th December 2019**, a study trip to **Aathmanilayam, Parassala, Kanniyakumari District** was organised by the **Department of Botany** for the III B.Sc. Botany students to learn the Horticulture techniques. 37 students of III B.Sc. Botany were accompanied by Dr. M. Glory, Dr. S. Beulah Jerlin and Dr. B. Maria Sumathi. In the medicinal garden and in the fruit orchard, the students learnt air layering and grafting techniques. **Beneficiaries: 40**

8. On **10th December 2019**, the students of the **Department of Physics** went on an industrial visit to the **NTPL Thermal Power Station, Thoothukudi**. 46 students of II B. Sc. Physics students and two faculty Dr. M. Sheeba and Ms. P. Dhanalakshmi visited the plant to know about the Thermal Power Energy. The executive officer of the power plant gave them a clear orientation of the principles and the working of the entire power plant through a power point presentation. His presentation gave the students a practical outlook on applied Thermal Physics. The students were also shown, the miniature model of the plant before reaching the control building. The students learnt about the safety measures for all those entering the site, with protective

helmets and shoes. They were given an explanation of the various machineries like the generator with a close-up view of various other machines. Finally, the Head of the Control Section gave a talk on the computerised monitoring of the power plant. Through such an industrial visit, the students were able to learn the complex mechanism of producing chemistry from coal. **Beneficiaries: 48**

9. On **11th December 2019**, an industrial visit to **Southern Petrochemical Industrial Corporation (SPIC), Thoothukudi** was arranged by the **Department of Chemistry** for the II B.Sc. Chemistry students (48) and three faculty Dr. J. Martin Rathi, Mrs. B. Divya and Dr. G. Amala Jothi Grace accompanied the students. In the SPIC information centre, details of SPIC production such as Aluminium fluoride, Diammonium Phosphate, NPK Fertilizer, Gypsum, Urea, Single super phosphate, its various plants and model of the overall SPIC were explained by Mr. Sivakumar. Various job opportunities in SPIC, waste water management, Pollution Control awareness was also explained in detail. They had an enriching experience of the tour to the plant. **Beneficiaries: 51**

10. On **11th December 2019**, the **Department of Physics** arranged for a visit to **AVM Hospital, Thoothukudi** for 39 III B.Sc. Physics students and one faculty escorted them. The students were divided into four groups. The working mechanism of the instruments such as X-ray machine, MRI and CT scan machines, ECG and EEG machines were clearly demonstrated. The various physiotherapy methods were also explained in detail. The students came to know about the importance of blood donation in the blood bank. The visit helped the students develop their knowledge of Instrumentation Physics. **Beneficiaries: 40**

11. On **16th December 2019**, the **Department of Physics** organised a visit to **Thoothukudi Railway Station** for the III B.Sc. Physics students by one faculty. A

total number of **39 students** were first divided into 4 groups and then were given detailed information about the control room, the maximum speed, weight and maintenance of a single coach by the station master. He also clearly explained that it is not just the transportation department makes The Indian Railways but also it is the combined effort of mechanical, electrical and commercial department that makes the Indian Railways. During the interactive session, the principles behind the air brake, piston, engine systems etc. were explained to the students. Later, the students visited the various coaches of an express train and got to know the facilities available. Finally, the visit came to an end with a motivation to get into IRPS. **Beneficiaries: 40**

12. On **28th January 2020**, the **Department of Zoology** organised a visit to **AVM Hospital, Thoothukudi** for II B.Sc. Zoology. A group of 40 students along with two faculty members visited the hospital. The students visited the hospital in connection with the Clinical Laboratory Technology course, as a part of STAR College Scheme. The students were divided into 4 groups with each group containing 10 members. The students visited the various departments of the hospital including microbiology, haematology and biochemical laboratories. The laboratory technicians deliberated the working principle of the various instruments like blood cell analyzer, coagulation analyzer, centrifuges, homogenizers, urine analyzer, glucometer, laminar flow hood, flow cytometer, X-ray Unit, CT and MRI Unit, Blood Bank, Sonogram, Echocardiogram, EEG and ECG. The students gained deep insights into the usage of haematology instruments and their vital role in the measurement of red blood, white blood, platelet cell count, haematocrit red blood cell volume, haemoglobin concentration and red blood cell indices. They were also imparted a deep knowledge on the collection and storage of blood, how to detect proteins or enzymes in the blood and to diagnose illnesses or genetic defects in the patients. The students were also

explained about the biochemical profile that was used to evaluate the functional capacity of several critical organs and systems, such as the liver and kidneys. The hospital visit motivated the students to learn more about the clinical laboratory instruments practically and the students acquired more expertise in the particular field. At the end of the visit, the students interacted with Dr. Lakshmanan, Chief Doctor and expressed their views about the hospital visit. **Beneficiaries: 33**

13. On **28th February 2020**, the students of **III B.Sc. Chemistry** (43 students) accompanied by Dr. Irudaya Antonat Sophia, Dr. A. Lakshmi and Dr. G. Amala Jothi Grace visited the **National Institute for Interdisciplinary Science and Technology (NIIST), Thiruvananthapuram**. An introductory session was arranged in the auditorium, where the students were given an overview of the research going on in the institute. The students were divided into two groups each accompanied by a scholar. They visited the Dioxin Research Block where they were shown biofilters, recycling water from work place and also explained the harmful pesticide that has to be avoided. Then they visited Agro-Processing Technology and Detection Block followed by Sir. C. V. Raman Block where the instrumentation, sampling, working, application of UV-Visible NMR, AAS, AFM, Electrochemical work station, HRMS, MALDI and Raman spectroscopies were explained. They also visited Cryo-ESEM lab, thermogravimetric analysis lab, XRD lab, computational chemistry lab, wet lab, materials lab and bio fuel plant. Finally, they visited the Environmental Technology Division where they were shown self-cleaning titanium dioxide coated tile. **Beneficiaries: 46**

14. The department of Zoology organised a visit to **AVM Hospital, Thoothukudi** for the **students of III B.Sc. Zoology on 16th December 2021**. A batch of 32 students accompanied by Dr. M. Paripooranaselvi, Assistant Professor of Zoology visited the hospital. Since the students are learning Clinical Laboratory Technology as Core skill-based subject, a field visit to the hospital was arranged to learn the utility and the

applications of various clinical instruments. The students were divided into 4 groups of 8 students each and were demonstrated the various instrumentation facility in the hospital. They visited X-ray Unit, CT and MRI unit and the principle and the working mechanism of these instruments as well as ECG, EEG were explained clearly. In the clinical lab, the protocol for blood tests, Rapid Antigen test, Tuberculin skin test, Normal saline test and Urine test were demonstrated. They learnt to use the Glucometer, Automated analyzer, Semiautomated analyzer, Urine analyzer, Haematology analyzer and Electrolyte analyzer in the Bio-chemical lab. In the Physiotherapy unit, they learnt about Intermittent cervical traction (ICT), Intermittent Pelvic Traction (IPT), Short Wave Diathermy (SWD), Ultrasound diathermy, Neuromuscular electrical stimulation, Wax therapy, Continuous passive motion (CPM) and Interferential therapy (IFT). A detailed explanation regarding the instruments and tests were given during the visit. **Beneficiaries: 33**

15. The **Department of Botany** organized a two day field trip to Long Wood Shola, Kothagiri and Government Botanical Garden, Ooty for the II UG students (53) as a part of their curricular activity on **1st and 2nd April 2022** accompanied by three faculty. Mr. Raju, Friends of the Shola Forest and a forest ranger accompanied the students into visiting the forest. Mr. Raju explained about the microclimate condition prevailed in the Shola. The student had a great experience inside the Shola and went for trekking as well. The students observed and identified some rare plants too. The next day students went to the Government Botanical Garden, Ooty. The students filled their field note book by observing various plants available there. The students went to the Government Tea factory too to get to understand the processing of tea preparation. **Beneficiaries: 56.**

16. On **19th and 20th April 2022**, 39 students and 3 faculty of the **Department of**

Botany (Dr. A. Jacintha Tamil Malar, Dr. G. Flora, Dr. F. Dayana Lobo) went for a trip to **Annamalai University and Pichavaram, Chithambaram** with an aim to visit the Labs. The objective of the trip was to learn about Mangroves and Marine plants. Dr. P. Anantharaman, Professor and Dean explained about “Marine Microalgae Culture”. Then, Dr. S. Jayalakshmi explained about “Marine Microbiology” and the instruments available in their lab for research. Dr. K. Ramamoorthy explained about “Marine Ornamental Fish Culture”. Dr. K. Sivakumar explained about “Marine Environment Ecosystem”. Dr. M. Arumugam explained about “Marine Biotechnology”. After that students went to Mangrove Forest in “Pichavaram”. The students interacted with the guide who explained the different types of mangroves plants. Then the Next day students went to Annamalai University Faculty of Agriculture there students met Dr. Parthasarathy, Department of Microbiology, who briefly explained the importance of microorganisms, bacteria and viruses and how they can be both beneficial and harmful for the plants as well as animals. The students visited the microbiology lab and observed the instruments which is needful for the microbiology research. Then the students went to Department of Plant Pathology and studied about many diseases in plants caused by bacteria and fungi. Then the students visited their orchard. The students learnt the methods of grafting, cutting and air layering. **Beneficiaries: 42.**

17. The students of **III B.Sc. Zoology (37)** went on an educational trip to Chennai along with four faculty on **19th April and 20th April 2022** and visited the places like **Vedanthangal Bird Sanctuary, Indian Sea Shell Museum, Mahabalipuram, Guindy Snake Park, Arignar Anna Zoological Park, Chennai. Beneficiaries: 41.**

18. The **Department of Chemistry** arranged a one day educational trip to **District Science Centre, Tirunelveli and Aavin Milk Factory, Tirunelveli** for the **Students** of III B.Sc. Chemistry (42) and II B.Sc. Chemistry (39) along with four faculty Dr. Irudaya Antonat Sophia, Dr. A. Lakshmi, Dr. B. Divya and Dr. G. Amala Jothi Grace visited Aavin, Tirunelveli on **7th May 2022**. Inside the plant students were divided into two groups. Before entering the plant, they were clearly instructed about the processing of milk. Milk from various sources nearby were collected, at first chilled to 5°C and then steam boiled to around 80°C. Chilling process is done by ammonia plant. Then it is homogenized, cooled and then sent to automatic packaging unit. Processing of ghee was also done in the nearby unit. **Beneficiaries: 85**
19. The **Department of Physics** organized an educational tour to **Vikram Sarabhai Space Museum, Thiruvananthapuram** on **30th September 2022**. 52 students of II and III B.Sc. Physics along with two faculty visited the museum. The students gained in depth knowledge on the following: Sounding Rockets, Satellite Launching Rockets such as, SLV (Satellite Launching Vehicle), ASLV (Augmented Satellite Launching Vehicle), PSLV (Polar Satellite Launching Vehicle), GSLV (Geo Satellite Launching Vehicle), Propellants (Solid Propellant and Liquid Propellant), Types of Satellites, Space Suit, Aims of NASA, Achievements and Developments. The students had a wonderful and useful time in knowing many information about the above-mentioned headings. **Beneficiaries: 54**
20. The **Department of Botany** organised a field trip to **Idinthakarai Coast** by 36 students from I B.Sc. Botany and 6 students from I M.Sc. Botany were accompanied by three faculty Dr. M. Glory, Dr. J. Jacintha Tamil Malar, Dr. G. Flora for the collection of algal samples on **3rd September 2022**. Reached

the collection site (Idinthakarai Coast) early morning during low tide and students collected various algal samples belonging to Chlorophyceae, Phaeophyceae and Rhodophyceae. **Beneficiaries: 42**

21. Students of **Department of Physics** visited **Tuticorin Airport, Vagaikulam** on **10th September 2022** with 21 students and 3 faculty. Students entered into the airport at 10.30 A.M. The Indigo aircraft from Chennai landed at 10.53 A.M, at that time students took some photograph of it. Then the students visited Airport fire service department. They explained about the fire service work on the airport. In case of fire, they are having three imported vehicle which is automate computer setup. Probably around 6 crores each. If fire accident happens, the vehicle will reach the aircraft within 30 seconds and secure the passengers from danger. The officers also explained about the communication system and also the frequency range. In that fire service, the frequency range is about 122.400 MHZ. The job offers and recruitment in the field of airlines are also explained by the officers. At the end, students watched the take off the Indigo aircraft at 11.20 A.M. Then the students windup from the airport by 11.45 A.M. This field visit on Tuticorin Airport was really more informative new experience for us. **Beneficiaries: 24**

22. The students of II B.Sc. **Chemistry** (44 students) accompanied by two staff members Dr. Irudaya Antonat Sophia and Dr. B. Divya visited **V.O.C. Agricultural College and Research Institute, Killikulam** on **11th November 2022**. Students were given an exposure about the “Working Mechanism and Application of UV-Visible Spectrophotometer, AAS and the estimation of soil quality parameters such as organic carbon, nitrogen, phosphorous and potassium”. **Beneficiaries: 46**

23. The **Department of Botany** organized a one day field trip to **Coastline Ecology**

(Punnaikayal, Amalinagar, Manapad, Sokkan Kudierappu and Uvari Coast)

for the III UG students as a part of their curricular activity on **04th February 2023**.

The trip started on 4th February 2023 and we reached Punnaikayal estuary and witnessed mangroves and salt marshes. Then we reached Amalainagar to observe sandy shore and then we went to Manapad to see rocky and muddy shore. We took lunch in Manapad and proceeded to Sokkan Kudierappu to have a glance at sandy shore. Finally, we visited Uvari there we observed the muddy shore and sea weeds like *Caulerpa* spp, *Padina* spp. *Sargassum* sp. 36 students and 2 staff members (Dr. S. Beulah Jerlin and Dr. F. Dayana Lobo) were benefitted through this field trip.

Beneficiaries: 38

24. The **Department of Botany** organized a one day field trip to the **Aavin milk Factory, Tirunelveli** for the II UG NME students as a part of their curricular activity on **09th February 2023**. Students reached the Aavin milk factory at 9.30 am. On the way, students visited the district science centre. Students saw four galleries on the topics 'Fun Science', 'Popular Science', 'Electronics' and a 'New Wing of Electronics'. The Centre also has a 3D Theatre, Television Studio and Pre-historic Park. The Mirror Magic Corner is an added attraction of the Centre. 35 students and 2 faculty (Dr. B. Maria Sumathi and Ms. Pauline Jenifer) benefitted through this field trip. **Beneficiaries: 37**

25. The **Department of Zoology** organised a field trip to visit **Mulberry plantation, Silkworm Rearing and Reeling Unit** on **21st February 2023** as part of student centered learning. Students reached the Tamil Nadu State Government Demonstration cum Training Centre located in V. M. Chathram at 9 a.m. Ms. Dyana M.Sc. (Agri) gave a warm welcome to the students and explained the variety, method of cultivation of mulberry plant and biological control of pests of

mulberry. The students could see the eggs and the brushed young larvae of silkworm. After that the students stepped into mulberry garden and saw the different types of planting system. Then the students visited the silkworm rearing house at Nagercoil. Dr. Noble Morrison, the owner of the unit addressed the students about the chawki rearing and mounting of silkworm. The students enjoyed the ripe silkworm larvae which are about to spin the cocoons. The students were excited and took the larvae in their hands and enjoyed. They discussed and raised questions and interacted with Dr. Morrison. It was really an enriching session. Then the students visited Government multi end silk reeling unit at Konam, Nagercoil. There, the students were able to see hot air stifling, cocoon boiling and silk extraction process. Finally, while returning back, the students enjoyed the serene environment in the rocky shore of Kanyakumari where they could observe the barnacles attached to the rocks and the grey crabs among the rocks. The field visit was really a wonderful experience for the students when they could witness all that have current in sericulture including reeling of silk. **Beneficiaries: 38**

26. **A. V. M Hospital, Thoothukudi** visit was arranged to the students of **II B.Sc. Zoology** on **11th April 2023** since they were studying Clinical laboratory technology as one of the skill based elective paper. A batch of 36 students accompanied by Dr. M. Paripooranaselvi, Assistant professor of Zoology visited the hospital to learn the utility and the applications of various clinical instruments. The students were divided into 3 groups, with 12 students of each. The students visited almost all the medical and laboratory instruments and the blood bank. The students were informed about the protocol on how to derive blood samples for different tests in different coloured citrate tubes. The nurse explained the working mechanism of various medical devices such as Glucometer,

Electroencephalogram, Electrocardiogram, Defibrillator, Sphygmomanometer, CT scans, Ultrasonogram and Pulse Oximeter. At last, the students were provided the opportunity to visit the biochemistry laboratory where the lab technicians performed tests both manually and digitally. The students visited the blood bank and were informed about information regarding those who are able to donate blood and the correct conditions for blood storage. Finally, the students expressed their gratitude to the director of A.V. M hospital Dr. Lakshmanan and returned to our college. 36 students were benefited through this hospital visit. The students were grateful to our institution and our staff for this rare opportunity. **Beneficiaries: 37**

27. The Department of Botany organised an educational trip to **Ooty** was arranged by the faculty for the Botany students, for experiential learning about Plant diversity and Ecology. On **13th July and 14th July 2023**, students from I M.Sc. III B.Sc. and II B.Sc. went to **Ooty**. The “**Karnataka Siri Horticulture Garden, Ooty**” was first visited on the first day where different plant species and their scenic beauty were studied and admired. There was a separate glass house for pteridophytes which helped the students to identify certain species present in the syllabus. Students also visited **Medicinal Plant Development Area, Cinchona Village, Doddapetta**. Mosses along the path of trekking were collected for the purpose of practical classes and students observed some pteridophytes. On **14th July 2023**, students visited **Center of Medicinal Plants Research in Homoeopathy, Ministry of Ayush, Government of India, Nilgiris**. Dr. Mugendran welcomed and introduced the basic concept of Homeopathy and usage of medicinal plants. The faculty members Dr. G. Flora, Dr. B. Maria Sumathi and Ms. S. Pauline Jenifer escorted the students. 53 students and 3 faculty benefitted out of it. **Beneficiaries: 56**

28. The **Department of Botany** arranged a one-day field trip to **Uvari, Manapad, Alanthalai and Tiruchendur Coast** for the I B.Sc. Botany and Chemistry students on **23rd August 2023** as a part of their curriculum. The purpose of the visit was to study and collect the samples of algae for educational purposes. 51 students and 2 faculty Dr. S. Beulah Jerlin and Dr. F. Dayana Lobo were benefitted through this field trip. **Beneficiaries: 53**
29. The **Department of Botany** arranged a one-day visit to **CSIR-CSMCRI - Marine Algal Research Station, Mandapam camp, Rameshwaram** on **5th September 2023** for the I PG students as a part of their curriculum to learn the cultivation of seaweed. In CSIR-CSMCRI- Marine Algal Research Station, Dr. Dinesh Kumar, Scientist delivered a lecture on “Overview of Seaweed Cultivation in India”. Ms. Avanthika elucidated the “Cultivation Process of Chlorophycean and Rhodophycean Algae”. A total of **6 students and 2 faculty** Dr. G. Flora and Dr. B. Maria Sumathi were benefitted out of it. **Beneficiaries: 08**
30. The **Department of Botany** arranged a one day industrial visit to **Antenna Trust, Madurai** on **12th September 2023**. II B.Sc. students attended a one-day training on “Horticulture Techniques” and I B.Sc. students attended a one-day training on “Spirulina Production” at Antenna Resource Centre campus, Madurai. 64 students benefitted out of it. Dr. S. Beulah Jerlin, Dr. E. Daffodil D Almeida and Dr. R. Mary Santhi escorted the students. **Beneficiaries: 67**
31. The Department of Botany organised an educational trip to **Central Coastal Agricultural Research Institute, Ela, Old Goa** was arranged for II M.Sc. Botany students from **22nd September 2023 to 24th September 2023**. Dr. A. Jacintha Tamil Malar and Dr. S. Beulah Jerlin escorted the students. On 22nd September 2024, students and faculty visited ICARI, Ela, Old Goa. Dr. Shaki Viswakarma,

Senior technical officer of soil science explained the importance of natural farming and showed the nursery garden of spices. He explained the principles of Flame photometry, atomic absorption spectrophotometer and Nitrogen digestion unit. Students visited Casuarina plantation nearby Miramar beach and enjoyed the scenery. On 23rd September 2024, students and faculty members visited Pondla Wild Life sanctuary and collected Angiospermic specimens for herbarium nearby forest area. Students visited Sahakari spice plantation and acquired knowledge about the different varieties of spices and its uses. Finally, students noticed mangrove vegetation. **Beneficiary - 06**

32. On the **27th September 2023**, the students of II M.Sc. and III B.Sc. Zoology were accompanied by **two faculty** for an industrial visit to **CMFRI, Mandapam Regional Centre, and Karankadu Mangrove Forest, Ramanathapuram District**. This visit was organised by **Department of Zoology** to complement the students' field visit focusing on ecological concepts, which is a part of their practicals. CMFRI, Mandapam Regional Centre: In the morning of the 27th, the students explored the Mandapam Regional Center of CMFRI. The visit commenced with a tour of the museum housing a diverse collection of specimens, including sponges, coelenterates, marine arthropods, bony fishes, and cartilaginous fishes. Additionally, the students gained insight into the culture and spawning techniques of ornamental species like clown fish, Damsel fish, as well as microorganisms such as zooplankton and phytoplankton. Furthermore, they were introduced to the rearing practices of Pearl Oysters. The Marine Reef Aquarium was another highlight of the visit, featuring an array of marine life including hermit crabs, eels, lobsters, lionfish, and other ornamental fishes. Karankadu Mangrove Forest: Situated in Ramanathapuram district, Tamil Nadu, the Karankadu

mangrove forest proved to be a paradise for bird enthusiasts. The forest is home to a diverse avian population, including migratory species, making it a crucial feeding ground. Additionally, the mangroves support a rich variety of marine life, encompassing crabs, bivalves, fishes, birds, and snakes. Dominant mangrove species like *Avicennia marina*, along with *Ceriops tagal*, *Rhizophora apiculata* and *Rhizophora mucronata*, play a pivotal role in sustaining the ecosystem's vitality. Collaborative efforts between the government of Tamil Nadu and the local community have given rise to an ecotourism initiative, offering activities such as boating, kayaking, and snorkeling. These initiatives not only promote conservation but also enhance the overall ecotourism experience. The journey through the mangrove colonies and estuary, encompassing a two to three-kilometer boat ride, was a truly mesmerizing experience. The students witnessed firsthand the delicate balance of life within this unique ecosystem. Overall, the industrial visit was an invaluable learning experience that deepened our appreciation for marine biodiversity and underscored the significance of a sustainable mangrove ecosystem. The students (42) thoroughly enjoyed the scenic beauty of the mangrove forest and estuary during the boat ride. **Beneficiaries: 44**

33. The students of I B.Sc. Zoology and II B.Sc. Zoology were taken for a field visit to **Rajan Aquafarms, Sawyerpuram** organised by the **Department of Zoology** on **29th September 2023**. The students were taken to the lobster and cichlid breeding farms. The students saw the breeding facilities. They took note of the optimal conditions needed for artificial breeding of these species. They had an exposure to the feeding protocol of the fishes. The students interacted with the people of the farm and they learnt about the importance of various biotic and abiotic factors that influence the breeding behaviour of the fish. They understood

the importance of maintaining the proper pH of the water by regular cleaning up of the tanks. They also were given an insight of various diseases that may attack fish and cause great damage to aquaculture. They were given a training on various quarantine measures to breed healthy fish. Mr. Rajan, Proprietor of the farm took a tour of the aquafarm with the students, explaining the various strategies of maintaining the fish cultures. He gave a lecture on the varieties of cichlids, bred in their farms. He lectured on ornamental fish marketing and the various government subsidies that can be availed for a startup fish marketing business. 70 students participated in the field visit. Dr. R. Sri Priya and Dr. M. Paripooranaselvi, of Department of Zoology, accompanied the students. **Beneficiaries: 70**

34. The UG **Department of Physics** organized an industrial visit for the III B. Sc. students as part of their curriculum activity. **Kodaikanal Solar Observatory, Kodaikanal** was chosen for the visit and a group of 31 students visited along with 2 faculty members on **16th October 2023 & 17th October 2023**. The objective of the trip is to provide the practical exposure to the students on the course paper Astrophysics and Communication Electronics. The students visited Kodaikanal Solar observatory to gain the practical exposure on the course paper Astrophysics and Communication Electronics. The environment of the observatory was so beautiful. It is actually located at the highest peak (2343 km) of those surroundings. Dr. Ebenazar, Residential Scientist delivered a lecture on the topic “History of the observatory”. He gave the introduction about the initiation of solar observatory started by the British in the year 1786. He explained about different types of telescopes available with their specific function. Details were collected on regular basis and stored to predict any changes in the Solar System. He stressed about the importance of research and encouraged the students to carry out research work.

The observatory had a astronomy museum with many pictorial presentation and some models which were helpful for understanding the lecture given. There was a library which holds records and information about the past period. The trip on the whole was very informative and useful for effective learning. Students obtained better knowledge and understanding of the basic principles of telescope and their working and also came to know the facts of solar system. It also paved the way for the better understanding amidst the students and improved their practical skills.

Beneficiaries: 33

35. An **industrial visit** was arranged for the III B.Sc. students of **Chemistry Department**. 44 III B.Sc. students with Dr. B. Divya, Assistant Professor from Department of Chemistry went to **Central Electrochemical Research Institute, Karaikudi** on **1st December 2023**. Students visited many departments like corrosion, electroplating, 3D printing, 3D metal printing etc. Students learned many new concepts in electrochemistry. Handling instruments like particle analyser and Infrared spectrometer were also explained. **Beneficiaries: 44**

36. On **09th February 2024**, III B.Sc. and II M.Sc. students of the **Department of Zoology** went on a field trip to **Government Sericulture Unit at Nannagaram, Tenkasi**. They were accompanied by two faculty Dr. S. Mary Baptista Janet, Associate Professor of Zoology and Dr. P. Subavathy, Assistant Professor of Zoology. The students visited the cocoons ready for marketing and the reeling units where they could witness the reeling and re-reeling processes. They also visited the mulberry garden where they could see different varieties of mulberry. The Inspector of Sericulture unit explained the whole process of silk yield through the agro-based industry and motivated the students to become entrepreneurs in this field. She emphasized the importance of Indian silks that are exported to more than

50 countries. She also added that India is the only country in the world producing all the four commercially important varieties of silk – Mulberry, Tasar, Eri and Muga silk. This field visit was of great use for students to gain more insight about silkworm rearing, cocoon production and reeling process. Students enjoyed having cocoons in their hands and excitedly discussed about the formation of cocoons with their classmates. This visit enabled the students to understand the concept and application lying behind the field of Sericulture. It was a wonderful experience. Totally 41 students were benefitted out through this field visit. **Beneficiaries: 43**

37. On **13th February 2024** students of **I B. Sc. Chemistry (43)** along with two faculty, Dr. A. Parveen Sulthana and Dr. G. Amala Jothi Grace visited **Aavin Milk Industry, Tirunelveli**. Milk is collected from nearby locations. It was first chilled to 5°C and then steam boiled to around 80°C. Chilling process is done by ammonia plant. Then it is homogenized, cooled and sent to automatic packaging unit. Processing of ghee was also done in the nearby unit. After Visiting AAVIN Milk, students came to understand the physical observation, Fat test, Purity test, bacteriological Quality test, Pasteurisation, Homogenisation and milk storage. On **13th February 2024** students of I B.Sc., Chemistry (43) along with two staff members Dr. A. Parveen Sulthana and Dr. G. Amala Jothi Grace visited **Apple Cookers Private Limited, Kangaikondan, Tirunelveli**. Students acquired a clear picture about the collections of aluminium from the waste and fabrication of export grade aluminium foil. **Beneficiaries: 45**

38. **The Department of Physics** organized an industrial visit for the I and II B.Sc. students as part of their curriculum activity, **Priyatharshini Planetarium, Thiruvananthapuram, Kerala** was chosen for the visit and a group of 44 students visited along with 3 faculty on **16th February, 2024**. The objective of the trip is to

provide the practical exposure to the students on the Skill Enhancement Course Astrophysics. The students visited Priyatharshini Planetarium, Thiruvananthapuram/ Trivandrum to gain the practical exposure on the Skill Enhancement Course Astrophysics. It's a wonderful place to introduce young minds to space and beyond. The students can be learnt lot of exciting science stuff there like infinite images, Musical air pipes, Rising bubbles, Maxwell's Wheel and so on. Then students enjoyed the 3D show, that was excellent. Then we entered into the Science on Space, it's really inspiring and informative short documentary regarding the Astronomy in the roof screen was really good. The Priyatharshini Planetarium, Thiruvananthapuram/ Trivandrum, building has several exhibits outliving the history of space travel. Students can enhance their knowledge through live demonstrations, exhibitions, shows etc., This Industrial Visit was very informative and useful for effective learning. Students obtained better Knowledge and get clear explanation on Astrophysics. **Beneficiaries: 47**

39. An industrial visit was arranged for the II B.Sc. students of **Chemistry Department**. 34 students accompanied by Dr. B. Divya and Dr. Zozimus Divya Lobo went to **Zirconium complex, Pazhayakayal** on **20th February 2024**. Students visited the industry where zirconium metal is extracted from its ore. They also visited the laboratory in which the quality of the raw material and product is checked. A slogan writing competition was also conducted by Zirconium complex and prizes were distributed to the students. **Beneficiaries: 36**

40. The students of III B.Sc. Chemistry (42 students) accompanied by two faculty Dr. Irudaya Antonat Sophia and Dr. A. Lakshmi visited **National Institute for Interdisciplinary Science and Technology, Thiruvananthapuram** organised by **Department of Chemistry** on **28th February 2024** as part of the Star College

Scheme, sponsored by DBT, New Delhi. Students visited the Organic Chemistry lab, Photochemistry lab, Material Science lab, agro-processing and value addition lab. They were given an exposure about the Working Mechanism and Application of UV-Visible Spectrophotometer, NMR, AAS, AFM, Electrochemical Work Station, HRMS, MALDI and Raman Spectroscopy. **Beneficiaries: 44**

41. On **2nd March 2024**, the students of Zoology accompanied by two faculty Dr. Jemma Hermelin Jesy Diaz and Dr. P. Subavathy, Assistant Professor of Zoology went on a field trip to **Manakudy Estuary, Kanniyakumari** as a part of curriculum organised by **Department of Zoology**. Kanyakumari is the strategic southern tip of India in the bio-hot spot of the Western Ghats, UNESCO Heritage Site and part of the Agasthiarmalai Reserve, which has a rich repository of coastal and fresh water wetlands. The Manakudy estuary is one of the major estuaries in the Kanyakumari district and it naturally connects the Arabian Sea and the Pazhayar river. It is the second-largest estuary in the Kanyakumari district where geochemical, biological and sedimentological processes are highly variable. A lot of aquatic communities such as fish, birds, etc., depend on this estuary. Many ecologically and economical services are rendered by the wetlands. Mangrove forests are recognized by their dense tangle of prop roots that make the trees appear to be standing on stilts above the water. This tangle of roots allows the trees to handle the daily rise and fall of tides. The roots also slow the movement of tidal waters, causing sediments to settle out of the water and build up the muddy bottom. The mangrove forest encompasses *Avicennia sp.* in Manakudy provides a fertile area of fish including crabs, prawns, other inland fish and the fresh water wetlands provide livelihood to many people who earn their living with freshwater inland fish. The faunal diversity and abundance of bird species provides immense

potentialities for eco-tourism, bird watching and potential areas for researchers for avifaunal study. The estuary is connected to the sea during the rainy season and remains land locked for the rest of the year by a sand bar. We visited the Mangrove Forest in the Manakudy estuary and got deep insight into the marine fauna and flora of the estuary. We got a wonderful experience and excited to see the mangrove forest in the Kanyakumari district. **Beneficiaries: 14**

42. On **5th March 2024**, the **Department of Botany** arranged a one day field trip to **Manjulai Forest in Tirunelveli** for the students as an integral aspect of their academic courses like **Plant Taxonomy and Ecology**. Dr. Jacintha Tamil Malar and Dr. G. Flora accompanied the students. With meticulous precision, specimens were carefully curated from notable families including Malvaceae, Tiliaceae, Meliaceae, Rhamnaceae, Sapindaceae, Papilionaceae, Mimosaceae, Combretaceae, Myrtaceae, Passifloraceae, Rubiaceae, Sapotaceae, Solanaceae, and Boraginaceae etc. Parallel to our botanical pursuits, students engaged in a profound exploration of deciduous forest ecology, delving into the intricate dynamics of this ecosystem. Six students and two faculty were benefitted. **Beneficiaries: 08**

43. The **Department of Botany** organized a laboratory visit to **Madurai Kamaraj University, Madurai** on **6th March 2024** for III B.Sc. and II M.Sc. students as an integral aspect of their academic courses like Microbiology, Molecular Biology and Biotechnology. Dr. F. Dayana Lobo and Ms. S. Pauline Jenifer accompanied the students. The research scholars of the laboratory gave hands on training to the students on PCR techniques and agarose gel preparation. Students visited the Central Instrumentation Laboratory in the Genomics department and got to know about the working principle and methodology of biological instruments. The

students were given training in the plasmid isolation technique. Later the students visited Dr. Murugan's Microbiology laboratory to learn certain technique used in microbiology. 17 students and 2 faculty benefitted out of it. **Beneficiaries: 19**

44. Dr. G. Flora, Dr. B. Maria Sumathi and 31 Botany NME students of St. Mary's College (Autonomous), Thoothukudi, underwent an **Industrial Visit to Naga Food Industry, Dindigul**, organised by the **Department of Botany** on **27th March 2024**. During the visit, the students attended lectures, learned the working principles of instruments, and toured the manufacturing, processing, and packaging areas. They gained insights into the production techniques of processed and pre-processed foods such as Vermicelli, Pasta, Sooji, Resulten atta, Samba rava, etc., and actively participated in learning alongside the workers. **Beneficiaries: 33**

45. On **27th March 2024**, the **Department of Botany** organized a **field trip to Agasthiyar Hills in Tirunelveli** for the 58 undergraduate students of I and II year. The primary objective of the trip was to study the diversity of angiosperms in the natural habitat. This field excursion aimed to provide hands-on experience and practical knowledge to the students regarding plant identification and ecosystem dynamics. Dr. S. Beulah Jerlin and Dr. E. Daffodil D Almeida escorted the students. **Beneficiaries: 60**

46. On **12th June 2024**, Department of Zoology organised a visit to **Muthu Nagar Beach**, Thoothukudi, for II B.Sc. Zoology. It is located in the southern state of Tamil Nadu, India. It is known for its serene environment and the abundance of beautiful sea shells. The purpose of this visit was to explore the beach and collect various types of sea shells. The beach is relatively less crowded compared to other popular beaches, providing a peaceful atmosphere perfect for shell collection. The beach was rich with a variety of sea shells scattered along the shore. Some shells

were fragile and required careful handling to avoid damage. The visit to Muthu Nagar Beach for sea shell collection was a highly rewarding experience. The beach's natural beauty and the diversity of shells available made it an ideal spot for this activity. The peaceful environment and the thrill of discovering unique shells contributed to a memorable day. Different types of Sea Shells such as Conch Shells, Cowrie Shells, Clam Shells, Scallop Shells were collected by hand picking method. The tide schedule was also noted to ensure the best times for collection, as high tide can wash away or bury the shells. Thirty-six students were accompanied by Dr. M. Paripooranaselvi and were provided with the valuable insights into the ecological importance of sea shells and their role in marine biodiversity.

Beneficiaries: 37

47. On **3rd July 2024**, the **Department of Zoology** organised a field visit for the II B.Sc. Zoology students to the **coastal regions of Manapad, Kulasai and Uvari Coast** with the primary objective of collecting sea shells for educational purpose. 38 students joined in the field visit. This visit was guided by Dr. R. Sri Priya and Dr. M. Paripooranaselvi who provided invaluable insights into the diverse marine ecosystem and its inhabitants. Manapad's coastline is known for its rocky formations and sandy stretches, which provide a unique habitat for various marine species. A variety of gastropods and bivalves were collected. Kulasai's shores are characterised by their fine sand and gentle waves, making it an ideal spot for collecting smaller and more delicate shells. The students also noted the presence of several juvenile shells, indicating a healthy and thriving ecosystem. The coastal environment of Uvari offers a mix of sandy beaches and shallow waters. Biodiversity is evident in the wide range of shells found here. This diverse shell population highlights the ecological richness of this region. Shells were carefully

collected by hand to minimise environmental impact. The students ensured that live specimens were not disturbed and that only empty shells were taken. The field visit to Manapad, Kulasai, and Uvari was a resounding success, yielding a diverse array of sea shells. This visit not only enriched our understanding of the coastal ecosystems but also highlighted the importance of preserving these natural habitats for future generations. A diverse collection of sea shells was obtained from the three locations, enriching the educational materials for future studies. Students gained practical knowledge about coastal ecosystems and the methodology of biological fieldwork. **Beneficiaries: 40**

48. An algal collection trip for the students of I B.Sc. Botany (23) and I M.Sc. (3) was organized by the **Department of Botany** on **02nd August 2024** to the **Hare Island, Thoothukudi**. The primary objective of the trip was to study the diversity of algae in the natural marine habitat. This field excursion aimed to provide hands-on experience and practical knowledge to the students regarding identification of algae and marine ecosystem dynamics. The trip started from St. Mary's college (Autonomous) at 6.45 a.m. and reached the Hare Island at 7.30 a.m. Due to the low tide timing, we could able to see and collect large number of algal species belonging to the family of Chlorophyceae, Phaeophyceae and Rhodophyceae. The students could learn and enjoy the marine environment. Dr. G. Flora, Department of Botany taught the students how to identify and preserve the collected algal specimens. It was a good learning experience both for the students as well as the teachers. Such experiential learning opportunities are invaluable in nurturing the next generation of botanists and environmental stewards. we reached back to the college at 9.45 a.m. The students were accompanied by Dr. G. Flora and Dr. B. Maria Sumathi. **Beneficiaries: 26**

49. On **13th August 2024**, the **Department of Zoology** organised an educational visit to the **YMCA Bee-Keeping Farm in Marthandam** for the III B.Sc. Zoology students. The visit was designed to give students practical exposure to bee-keeping, an important component of their zoological studies. Upon arrival, the students were welcomed by the farm manager, an apiculture expert, who provided an insightful overview of the farm's history and mission. They were then introduced to the fundamental aspects of bee-keeping, including colony management, honey extraction, and the role of bees in the ecosystem. This visit to the YMCA Bee-Keeping Farm proved to be a valuable and enriching experience. It broadened the students' theoretical understanding of apiculture while giving them hands-on experience in bee-keeping techniques. **Beneficiaries: 35**

50. A one day educational field trip was arranged on **21st August 2024**, with the purpose of studying and collecting seaweeds from the coastal areas of **Amali Nagar, Alanthalai, Manapad, Sokkan Kudieruppu and Uvari coast** by the **Department of Botany**. The aim of this trip was to investigate the growth and diversity of marine algae in their natural habitats. In Amali Nagar, the students observed the coastline, which was marked by sandy and rocky patches, and discovered early-stage luxuriant growth of green alga *Enteromorpha* along the rocks. In Alanthalai, green alga *Enteromorpha* was observed along the rocky shores. In addition, red algae species like *Jania*, *Acanthophora*, and *Gracilaria* were collected. The Manapad area showcased high diversity in algae due to its rocky shores. Various algae were collected, including green algae (*Valoniopsis pachynema*, *Halimeda*), brown algae (*Sargassum* spp., *Padina tetrastromatica*, *Turbinaria conoides*), and red algae (*Jania* spp., *Gracilaria corticata*, *Hypnea musciformis*). A notable observation made was the presence of green algae growing

on the shell of moving crabs. In Sokkan Kudieruppu the sandy shores were found devoid of visible algae. In Uvari, the students collected some species, including *Gracilaria corticata* (with cystocarps), numerous *Sargassum* species, and green algae, such as *Caulerpa scalpelliformis* and *Caulerpa taxifolia*, despite difficulties resulting from continuing construction. The field visit enriched the understanding of the rich biodiversity of marine algae, particularly in rocky shore environments. However, a decline in algal diversity was noted in areas affected by human activities. This highlights the pressing need for conservation efforts to protect these fragile marine ecosystems and maintain their biodiversity. **Beneficiaries: 52**

51. The **Department of Botany** organized a two day field visit to **Mother Teresa Women's University and Horticulture Research Station, Kodaikanal** on **23rd and 24th August 2024** for the III B.Sc., I M.Sc. and II M.Sc. students. This field visit was an integral part of their curriculum, designed to provide hands on experience and deepen their understanding of various botanical disciplines, including Bryophytes, Pteridophytes, Gymnosperms, Ecology, Phytogeography, Horticulture, Genetics, Plant Breeding, Biostatistics, and Evolution. A total of **41 students** accompanied by **2 faculty** participated in the trip. The trip commenced on early morning of **23rd August 2024** and we reached the destination by 8.00 a.m. The students were taken to Mother Teresa University Kodaikanal for the lecture on Gene Editing Technologies (CRISPR-Cas9) and Geographical Index. Dr. Usha Raja Nanthini, Professor and Head, Department of Biotechnology addressed the students about her work on getting geographical index for Kodaikanal Malai Poondu and Udangudi, Panangkarupatti. Following the lecture, the students had the opportunity to visit the university's biotechnology, microbiology, and pathology laboratories, as well as the instrumentation room. These visits provided a

comprehensive overview of the ongoing research projects, offering the students valuable insights into the practical applications of their theoretical knowledge. On **24th August 2024**, the students were taken to Horticultural Research Station, Kodaikanal. The students were given a lecture and hands-on training on horticultural techniques. They also explored the aromatic garden, where they had the opportunity to purchase plants, further enriching their learning experience. Along the path to the Horticultural Research Station, the students were taken to “Fairy Falls” to enjoy its scenic beauty. The students were taken trekking for the study of mosses, pteridophytes and gymnosperms in their natural habitat. The students collected some specimens for their practical purposes. The last place visited was Shenbaganur Museum Kodaikanal where students enjoyed the collection of various plants, seeds, birds, reptiles and many more. Students and faculty returned on 24th August around 11.00 p.m. Overall, the field visit was a well-rounded experience, combining educational enrichment with recreational enjoyment, leaving the students with a deeper appreciation and understanding of their field of study. **Beneficiaries: 44**

52. The III B.Sc. students of Physics went on an industrial visit to **Central Electrochemical Research Institute, Karaikudi** arranged by the **Department of Physics** on **23rd August 2024**. They reached the institute by 9:30 am and were made to assemble in the institute’s auditorium. An officer addressed the students and then were separated into four groups in order to visit the various divisions of the institute. The agenda of the visit were: Organic division: This division was more of Chemistry exhibiting the solubility of substances, explained about vapour pressure, atmospheric pressure and also types of chromatography. There was a device named Sonicator, which is used for solving the insoluble substances by means of sound waves. Corrosion and Materials Protection Division: In this

division, they illustrated to the students the various methods of preventing metals from corrosion. Some of them are coating paints, cathodic protection and inhibition. Electrochemical power sources division: They demonstrated about batteries, its types and components. An equipment called glove box caught the attraction of students. Coin cells are made in glove boxes. Super capacitors division: They explained to students about its employment in everyday life and its importance in recent times. In the afternoon session, the students were given the opportunity to witness various instruments such as SEM, FESEM, XRD, Scanning Probe Microscope by which the students were very much benefitted. On the whole, the students had an enriching and wonderful experience of knowledge and learning.

Beneficiaries: 23

53. Industrial visit to **Arasu Rubber Corporation Limited, Keeriparai, Kanniyakumari district** was organised by the **Department of Chemistry** on **11th September 2024**. Dr. Mrs. Irudaya Antonat Sophia and Dr. B. Divya Assistant Professor of Chemistry along with 34 III B.Sc. Chemistry Students visited the factory. Students were given presentation about the process of collection and processing of rubber. Then they visited the factory and witnessed all the steps that take place in the processing of rubber. **Beneficiaries: 36**

1. An in-house training on **“Basic Clinical Analysis using Centrifuge, Stethoscope and Sphygmomanometer”** was conducted by the **Department of Zoology** from **13th to 17th December 2021** for II B.Sc. Zoology, III B.Sc. Zoology and III B.Sc. Chemistry students. The main objective of this programme was to give the students experiential learning based on their knowledge obtained through the theoretical learning. The students were able to enhance their practical skills with the aid of clinical laboratory equipments purchased under Star College Scheme. They were given training on sterilization technique, analysis of urine, various lab instruments like centrifuge, stethoscope and sphygmomanometer and identification of blood groups A, B, AB, O and Rh factor. With the aid of urine analyzer qualitative components such as leukocyte, urobilinogen, ketones, nitrites, bilirubin, protein, pH and specific gravity of sample were analyzed. They were given training on laminar flow chamber, preparation of culture medium, aseptic transfer of bacteria, incubation. They were also trained on counting RBC and WBC. The students developed their experiential skills by preparing the culture media for bacteria. They were also given training on biochemical tests on assay of enzyme alkaline phosphatase, estimation of haemoglobin and observation of bacterial colony. The students were inculcated knowledge on BOD analysis. The main outcome of this in-house training programme was that, the students were able to enhance their mastery in practical skills and developed skills in collecting and analyzing biological specimens and other substances. The instructors of the programme **Dr. N. Arokiya Mary**, Associate Professor of Zoology, **Dr. Jemma Hermelin Jesy Diaz**, **Dr. S. R. T. Sherly Cross**, **Dr. M. Paripooranaselvi** and **Dr. P. Subavathy**,

Assistant Professors of Zoology, St. Mary's College (Autonomous), Thoothukudi gave training to the students. **Beneficiaries: 115**

2. A two day **in-house training** was organised by the **Department of Chemistry** on **“Analysis of Carbon, Nitrogen, Phosphorus, Zinc and Calcium in Soil using the Equipment Mini Lab for Soil Analysis”** purchased under Star College Scheme on **14th & 15th December 2021** for the students of III B.Sc. and II B.Sc. Chemistry. **Dr. A. Lakshmi and Dr. G. Amala Jothi Grace**, Assistant Professors of Chemistry, St. Mary's College (Autonomous), Thoothukudi gave hands on training. Soil samples were collected from different areas of Thoothukudi and amount of C, N, P, K and Ca were estimated. **Beneficiaries: 115**
3. A three day **in-house training** on **“Estimation of Glucose, Cholesterol, Hemoglobin and Protein in Blood Sample using Semi Auto Analyzer”** purchased under Star College Scheme was organised by the **Department of Chemistry** on **14th, 16th and 17th December, 2021**. **Dr. B. Divya and Dr. A. Parveen Sulthana**, Assistant Professors of Chemistry, St. Mary's College (Autonomous), Thoothukudi gave hands on training. Blood samples were collected and the amount of Glucose, cholesterol, hemoglobin and protein in blood sample using semi autoanalyzer were estimated. Students of III B.Sc. Chemistry, II B.Sc. Chemistry and III B.Sc. Zoology participated actively. **Beneficiaries: 98**
4. The **Department of Botany** organised an in-house training on **“Digitalization of Campus Flora using Flat Bed Scanner”** purchased under Star College Scheme from **14th to 18th December 2021** for the II B. Sc. students of Botany. **Dr. F. Dayana Lobo and Ms. S. Pauline Jenifer**, Assistant Professors of Botany, St. Mary's College (Autonomous), Thoothukudi conducted the programme. Students from II B. Sc Botany collected 89 different plants from the College campus, scanned the plants and kept the

same for herbarium. The plants were identified and documented using Flora of Presidency of Madras by Gamble. **Beneficiaries: 10**

5. The **Department of Botany** organised an in-house training on “**Horticultural Techniques using Garden Tools**” from **14th to 18th December 2021**. **Dr. S. Beulah Jerlin** and **Dr. B. Maria Sumathi**, Assistant Professors of Botany, St. Mary’s College (Autonomous), Thoothukudi gave the training on plant propagation techniques like seeding, cutting, layering. Along with that they oriented the students on various techniques like hanging basket, vertical garden and kitchen garden. **Beneficiaries: 10**
6. The **Department of Botany** organised the in-house training on “**Extraction and Analysis of Oil using Oil extractor and Clevenger Apparatus**” purchased under Star College Scheme from **14th to 18th December 2021** for the II B. Sc. students of Physics and Chemistry Departments. **Ms. A. Lucas Rexline**, Assistant Professor of Physics and **Dr. G. Flora**, St. Mary’s College (Autonomous), Thoothukudi were the trainers. Dr. G. Flora gave hands on training for extraction of groundnut, coconut and sunflower oils by oil extractor and clove and eucalyptus oils by Clevenger apparatus. Ms. A. Lucas Rexline conducted a hands-on training on analysis of oil in finding refractive index, co-efficient of viscosity of different oils and she explained the principle behind procedure too. **Beneficiaries: 45**
7. The **Department of Botany** organised an in-house training on “**Histological Techniques using Trinocular Microscope**” purchased under Star College Scheme from **14th to 18th December 2021** in the Botany Laboratory for the 20 students of II B.Sc. Botany and Zoology Departments. **Ms. S. Pauline Jenifer** and **Dr. R. Mary Santhi**, Assistant Professors of Botany, St. Mary’s College (Autonomous), Thoothukudi guided the students throughout this training. The students were given with various specimens from their syllabus for this training. At first the students were asked

to take simple hand sections and were trained to stain and mount them on the slides using glycerin. The slides were observed under Trinocular microscope and microphotographs were taken. Students were taught how to handle the microscope, how to take microphotographs and how to mark the parts using the software. They were also given training about how to measure the cells using ocular micrometer. Students actively participated and benefitted through this programme since they have Pteridophytes, Gymnosperms and Paleobotany and Plant Diversity as a part of their curriculum. **Beneficiaries: 20**

8. The **Department of Botany** organised an in-house training on “**Metal Analysis using Flame Photometer and Muffle Furnace**” purchased under Star College Scheme from **14th to 18th December 2021** in the Botany Research Laboratory for the III B.Sc. students of Botany Department. Principle, theories, methodologies and experimental requirements involved in metal analysis were explained by **Ms. A. Selvaananthi**, Assistant professor of Botany, St. Mary’s College (Autonomous), Thoothukudi. Students were separated into groups and allowed to carry out the experiments to get the hands-on experience. Students collected water samples from various locations of Thoothukudi district, Tamil Nadu, India to estimate the mineral content. Plants available in the campus were collected and minerals were quantified. **Beneficiaries: 43**
9. An in-house training on “**Isolation and Separation of DNA using Electrophoresis Apparatus**” purchased under Star College Scheme was organised by the **Department of Zoology** from **15th December to 18th December 2021**. Hands on training on various Biotechnology experiments that are included in the syllabus were taught to the students by **Dr. R. Sri Priya**, Assistant Professor of Zoology, St. Mary’s college (Autonomous), Thoothukudi. The students of II B.Sc. Physics and Chemistry, III B.Sc. Botany and III B.Sc. Zoology were benefitted. They were divided into groups and were allowed to

perform the experiments. Each student was given an opportunity to handle the instruments. The students were given training on DNA isolation, Agarose gel electrophoresis and SDS PAGE. They were allowed to prepare the cultures for the experiments. They learnt to process the samples and load the gel. The experiments were performed under standard conditions and the students observed the results of each experiment and were able to interpret the results. **Beneficiaries: 42**

10. A two day in-house training on **“Teaching and Learning Mathematics through Error Analysis”** was organised by the **Department of Chemistry** on **4th and 5th January 2022**. **Dr. V. L. Stella Arputha Mary**, Head and Assistant Professor of Mathematics, St. Mary’s College (Autonomous), Thoothukudi was the resource person. Students of I B.Sc. Chemistry were the participants. The resource person explained the terms mean, median, mode and taught the students to work out problems based on it. On 5th January, 2022 the session was held in the DST-Computer lab, students worked out problems in MS word also. **Beneficiaries: 31**

11. An in-house training on **“Basic Skills in Biological Sciences using Urine Analyzer, Stethoscope and Sphygmomanometer”** was organised by the **Department of Zoology** between **19th December 2022**. The training was focused on giving practical exposure to the theoretical aspects included in the syllabus, that are not included in the practicals. The students were divided into groups and were allowed to perform the experiments. Each student was given an opportunity to handle the experiments. During the training session for I B.Sc. Botany students, were imparted hands-on training on various laboratory techniques and equipments. They were given training on analysis of urine, and usage of various lab instruments like stethoscope and sphygmomanometer. They were trained to identify blood groups A, B, AB, O and Rh factor. With the aid of urine analyzer qualitative components such as leukocyte, urobilinogen, ketones,

nitrites, bilirubin, protein, pH and specific gravity of sample were analyzed. They were also trained on counting RBC and WBC. The main outcome of this in house training programme was that, the students were able to enhance their mastery in practical skills in collecting and analysing biological specimens and other substances. The instructors of the programme **Dr. Jemma Hermelin Jesy Diaz, Dr. M. Paripooranaselvi, Dr. R. Sripriya and Dr. P. Subavathy**, Assistant Professors of Zoology, St. Mary's College (Autonomous), Thoothukudi imparted training to the students.

Beneficiaries: 33

12. The **Department of Botany** organised the in-house training programme on “**Essential Step in Plant Microtechnique: From Preparation to Observation using Trinocular microscope**” on **19th and 20th December 2022** in the Botany Laboratory for the I B.Sc. students of Botany Department. **Dr. E. Daffodil D Almeida and Dr. F. Dayana Lobo**, Assistant Professors of Botany, St. Mary's College (Autonomous), Thoothukudi were the resource persons. **Beneficiaries: 34**

13. An in-house training programme on the “**Determination of BOD, COD and Soil Quality Parameters using BOD Incubator, BOD Analyzer and COD Digester**” purchased under Star College Scheme was organised by the **Department of Chemistry** on **19th December 2022**. **Dr. Irudaya Antonat Sophia and Dr. G. Amala Jothi Grace**, Assistant Professors of Chemistry, St. Mary's College (Autonomous), Thoothukudi were the resource persons of this training programme. The students were given training on the determination of BOD and COD in water samples and analysis of Organic Carbon, Potassium and Sulphur in soil samples. 45 students of II B.Sc. Chemistry were benefitted through this training programme. **Beneficiaries: 45**

14. The **Department of Botany** organised the in-house training programme on “**Preparation of Biofertilizer using Electronic Balance and Magnetic Stirrer**” from

19th to 21st December 2022 in the Botany Laboratory for the II B.Sc. students of Botany. **Dr. S. Beulah Jerlin** and **Dr. R. Mary Santhi**, Assistant Professors of Botany, St. Mary's College (Autonomous), Thoothukudi were the resource persons.

Beneficiaries: 15

15. The **Department of Physics** organised a three day **in-house training** on “**Absolute Determination of M and BH and BG – Figure of Merit for Charge using Deflection Magnetometer, Spot Galvanometer**” from **19th December 2022 to 22nd December 2022** for all UG physics students. This training was held as three-day session for I, II- and III-year students. The first day session on **19th December, 2022** was held for II-year students on the topics: “Absolute determination of M and BH and BG- figure of merit for charge.” **Dr. M. Sheeba** and **Ms. P. Dhanalakshmi**, Assistant Professors of Physics, St. Mary's College (Autonomous), Thoothukudi were the resource persons. The second day session on **20th December, 2022** was held for I year students on the topics: “**Newton's Ring Method and Rigidity Modulus – Torsional Pendulum using Travelling Microscope and Torsional Pendulum**”. **Dr. Euchrista Immaculate Sylvia** and **Ms. Lucas Rexcelline**, Associate Professors of Physics, St. Mary's College (Autonomous), Thoothukudi were the resource persons. The third day session on **21st December, 2022** was held for III B.Sc. students on the topics: “**Uniform bending using Scale and Telescope, Construct the Basic Gates using NOR and NAND using Telescope**”. **Dr. Sr. Jessie Fernando** and **Ms. Lucas Rexiline**, Associate Professors of Physics, St. Mary's College (Autonomous), Thoothukudi were the resource persons. “**Multiplexer and Demultiplexer and Serial in Parallel out Shift Register using Integrated Chip**”. **Dr. M. Sheeba** and **Ms. Valentina**, Assistant Professors of Physics, St. Mary's College (Autonomous), Thoothukudi were the resource persons. In every

session the students were divided into two groups to work on the training session.

Beneficiaries: 154

16. An in-house training programme on the “**Preparation of Nanoparticles using Muffle Furnace, Centrifuge and Magnetic Stirrer**” was organised under star college scheme by the **Department of Chemistry**, St. Mary’s College (Autonomous), Thoothukudi on **20th December 2022**. **Dr. Irudaya Antonat Sophia** and **Dr. G. Amala Jothi Grace**, Assistant Professors of Chemistry, St. Mary’s College (Autonomous), Thoothukudi were the resource persons of this training programme. The students were given training on the synthesis of iron nanoparticles using mixed flower extracts, starch nanoparticles by chemical method, Biogenic preparation of copper nanoparticles using Fenugreek extract, Chemical reduction method for the synthesis of Nickel nanoparticles. 39 students of III B.Sc. Chemistry were benefitted through this training programme.

Beneficiaries: 39

17. An in-house training Programme on various “**Biotechnology experiments using Gel Electrophoresis Unit**” that are included in the syllabus of II B.Sc. Zoology students of the Non-Major Elective, was taught to the students by **Dr. R. Sri Priya**, Assistant Professor of Zoology, St. Mary’s College (Autonomous), Thoothukudi on **20th December 2022**. The students were explained about the principle and protocol of the experiments. They were divided into groups and were allowed to perform the experiments. Each student was given an opportunity to handle the experiments. The students were given training on DNA isolation, Agarose gel electrophoresis and SDS PAGE. They were allowed to prepare the cultures for the experiments. They were made to process the samples and load the gel. The experiments were performed under the standard conditions and the students observed the results of each experiment and were made to interpret the results. **Beneficiaries: 40**

18. A three day in-house training programme on “**Extraction and Estimation of DNA, Bioinformatics Tools – BLAST, FASTA and RASMOL using Electrophoresis apparatus**” was organised for the III UG Botany students by the **Department of Botany**, St. Mary’s college (Autonomous) Thoothukudi, from **20th to 22nd December, 2022** in the Botany Lab. **Ms. S. Pauline Jenifer** and **Dr. P. Hermalin**, Assistant Professors of Botany, St. Mary’s College (Autonomous), Thoothukudi were the resource persons. **Beneficiaries: 35**
19. An in-house training programme on “**Herbarium Techniques using Flat Bed Scanner and Herbarium Cabinet**” purchased under star college scheme offered by the **Department of Botany** on **21st December 2022**, in the Botany Laboratory. This programme was directed by **Dr. F. Dayana Lobo**, Assistant Professor of Botany, St. Mary's College (Autonomous), Thoothukudi. In her introductory speech, Dr. F. Dayana Lobo discussed about plant taxonomy. 38 students from the II B. Sc. Zoology department collected 108 different plants from the college campus, scanned them, and then preserved them for the herbarium. Using Gamble's Flora of Presidency of Madras, the plants were identified. **Beneficiaries: 38**
20. The in-house training programme on “**Preparation of Household Articles using Centrifuge**” was organised by the **Department of Chemistry** on **21st December 2022**. **Dr. A. Lakshmi**, and **Dr. A. Parveen Sulthana**, Assistant Professors of Chemistry, St. Mary's College (Autonomous), Thoothukudi were the resource persons. Students were given hands-on training on the preparation of washing powder, washing liquid and phenoyl. **Beneficiaries: 16**
21. The in-house training programme on the “**Argentometric Titration using Conductivity Meter**” was organised by the **Department of Chemistry** on **21st December 2022**. **Dr. G. Amala Jothi Grace**, Assistant Professor of Chemistry,

St. Mary's College (Autonomous), Thoothukudi was the resource person of this training programme. The students were given training on the estimation of Potassium Chloride, Sodium Chloride and Barium Chloride argentometrically. **Beneficiaries: 34**

22. An in-house training programme was conducted by the **Department of Zoology** for the III B.Sc. Zoology on **21st December 2022**. Students were trained to observe and “**Measure the diameter of the cell through ultra microscope**”. They were explained about the principle and applications of the phase contrast microscope. Students visualized the movement of live cell with the help of the phase contrast microscope. Students were also given training on counting the bacterial colonies using colony counter. The objective of this in house training programme was to enhance the practical skills of the students by giving additional training and convert theoretical learning into practical experience. **Dr. Jemma Hermelin Jesy Diaz, Dr. M. Paripooranaselvi and Dr. P. Subavathy**, Assistant Professors of Zoology, St. Mary’s College (Autonomous), Thoothukudi gave training to the students. **Beneficiaries: 36**

23. **The Department of Botany** organised the in-house training programme on “**Bakery Products Preparation using Electronic Balance**” from **21st to 22nd December 2022** in the Botany Laboratory for the II UG NME students of Botany. **Dr. G. Flora and Dr. B. Maria Sumathi**, Assistant Professors of Botany, St. Mary's College (Autonomous), Thoothukudi were the resource persons. **Beneficiaries: 38**

24. A one day in-house training programme on “**Separate Blood Cells, Measure the Heart Beat and Measure the Blood Pressure using Stethoscope, Sphygmomanometer and Haemoglobinometer**” for II B.Sc. Zoology students was conducted on **22nd December 2022**. The students were trained on using Stethoscope, Sphygmomanometer and haemoglobinometer. Their practical skills were improved. the students learnt to analyze their urine sample and to identify their blood groups A, B,

AB, O and Rh factor. Qualitative components such as leukocyte, urobilinogen, ketones, nitrites, bilirubin, protein, pH and specific gravity of sample were analyzed with the support of urine analyzer. Haemoglobin was estimated using Haemoglobinometer. The instructors of this programme were **Dr. Jemma Hermelin Jesy Diaz, Dr. M. Paripooranaselvi and Dr. P. Subavathy**, Assistant Professors of Zoology, St. Mary's College (Autonomous), Thoothukudi who helped the students to enhance their skills. **Beneficiaries: 37**

25. An in-house training programme on “**Conductometric titration using Conductivity Meter**” was organised by the **Department of Chemistry** on **22nd December 2022**. **Dr. B. Divya**, and **Dr. A. Parveen Sulthana**, Assistant Professors of Chemistry, St. Mary's College (Autonomous), Thoothukudi were the resource person. The students were given hands on training on the conductometric estimation of oxalic acid, HCl and MgSO₄ and BaCl₂. **Beneficiaries: 25**
26. An in-house training programme on “**Chromatographic Techniques using TLC Apparatus**” was organised by the **Department of Chemistry** on **22nd December 2022**. **Dr. A. Lakshmi**, and **Dr. B. Divya**, Assistant Professors of Chemistry, St. Mary's College (Autonomous), Thoothukudi were the resource person. The students were given hands on training on the separation of chlorophyll a and b, isolation of different pigments and separation of amino acids using TLC and paper chromatography. **Beneficiaries: 50**
27. The **Department of Botany** along with IQAC celebrated the international year of millets on **28th July 2023** with the aim of promoting the utilization of millets in diverse culinary applications. As a part of it, the department conducted an Entrepreneurial Training Programme on “**Millet-based Tiffin Recipes using Electronic Balance**”. Dr. Sr. Jessie Fernando, the Principal, St. Mary's College (Autonomous), Thoothukudi

tasted the millet-based food items prepared by the faculty and students of Botany department. **Dr. S. Beulah Jerlin**, Assistant Professor of Botany, St. Mary's College (Autonomous), Thoothukudi was the resource person. Participants learnt the preparation of various millet-based dishes including laddu, pakoda, murukku, idiyappam and puttu. The objective of the training was to raise awareness on the nutritional benefits of millets and encourage their integration into daily diet.

Beneficiaries: 72

28. The **Department of Zoology** and the Marian Star Centre organised a hands-on training session titled “**Unveiling the Economic Potential of Molluscs: From Tide to Trade using Microscopes**” on **27th August 2024**. The hands-on training programme aimed at imparting entrepreneurial skills in shell craft for college students. **Dr. M. Paripooranaselvi**, Assistant Professor of Zoology, St. Mary's College (Autonomous), Thoothukudi was the resource person. She gave an introductory lecture on the economic importance of molluscs' shells to the participants of the workshop. She gave hands on training to students in preparing aesthetic craft pieces using shells. She helped the students to transform waste molluscan shells into marketable crafts. Participants from A. P. C. Mahalaxmi College for Women, Thoothukudi, Popes College (Autonomous), Sawyerpuram and Sadakathullah Appa College (Autonomous), Tirunelveli enthusiastically participated in this hands-on training programme and got benefited. **Beneficiaries: 34**

OUTREACH ACTIVITIES

1. On **14th August 2019**, the **PhysChem Quizzle'2019** was organised by the **School of Physical Sciences**, in the college auditorium. The students from eight neighbouring colleges enthusiastically participated. Online preliminary test was held. **Ms. B. Divya**, Assistant Professor of Chemistry and **Ms. P. Dhanalakshmi**, Assistant Professor of Physics, St. Mary's College (Autonomous), Thoothukudi were the **quiz mistresses**. The students of **Sadakathullah Appa College, Palayamkottai, Pope's College of Arts and Science, Sawyerpuram and Scott Christian College, Nagercoil** secured the first, second and third places respectively. The prize winners were announced and the cash awards (Rs.1000 for I Prize, Rs.700 for II Prize and Rs. 500 for III Prize) were distributed by the management of St. Mary's College (Autonomous), Thoothukudi.
Beneficiaries: 08 teams
2. On **14th August 2019**, the **Bio Quizzle'2019** was organised by the **School of Biological Sciences**, in the Star Hall for the undergraduate students. Ten colleges registered for the quiz competition. A preliminary online test was conducted and five teams qualified the same. **Dr. R. Sri Priya**, Assistant Professor of Zoology, **Ms. Pauline Jenifer**, Assistant Professor of Botany, St. Mary's College (Autonomous), Thoothukudi **conducted the quiz**. The quiz instigated the students to look beyond their textual knowledge. The students of **Holy Cross College, Nagercoil** bagged the first prize. The students of **Sadakathullah Appa College, Palayamkottai** and the students of **V.O. Chidambaram College, Thoothukudi** won the second and the third prizes respectively. The prize winners were announced and the cash awards (Rs.1000 for I Prize, Rs.700 for II Prize and Rs. 500 for III Prize) were given by the management of St. Mary's College (Autonomous), Thoothukudi. **Beneficiaries: 10 teams.**

3. On **22nd January 2020, Marian Star Bio Expo 2020** was organised by the **School of Biological Sciences**. Medicinal plants, ornamental plants, fossils and marine plants were displayed in the Exhibition for the school children. The Expo was inaugurated by **Rev. Sr. Dr. A. S. J. Lucia Rose**, Principal and Associate Professor of Physics, St. Mary's College (Autonomous), Thoothukudi. The Expo showcased more than 250 medicinal and ornamental plants along with their botanical nomenclature and uses. The practical demonstration session imparted the skill of learning by doing. Fossils which are the preserved vestiges of the past era plants that lived more than 400 million years ago attracted the audience. The students from the Department of Zoology deliberated the structure of DNA, RNA, homologous, analogous organs, wildlife sanctuary, national parks with the aid of charts. Various patterns of fingerprints were exemplified to the students. The students showcased the slides of various organisms in entire view, LS and CS view of reproductive organs, tissues and muscles. They also displayed the various stages of chick embryo in microscopes. The students also demonstrated the working principles of various instruments like autoclave, centrifuge, glucometer, haemocytometer, sphygmomanometer, incubator, laminar flow chamber, Soxhlet apparatus and live motility of bacteria was observed under microscope. The visitors were encouraged to measure their height, weight, blood sugar level and blood pressure. The virtual laboratory was a unique one that focused on the dissection of various systems concerned with frog. It creates enthusiasm among the students to conduct experiments virtually by arousing their curiosity. Various organisms belonging to the phyla invertebrates, chordates and fossils were also displayed in the museum which added one more feather to the crown of Bio Expo. Live specimens like gastropods, bivalves and star fish were also showcased. The Bio Expo encouraged the students to develop a scientific fervor and an attitude of research mindedness so that they can

develop the qualities of analytical and critical thinking. More than **20 schools** with **2331 school students** and the faculty of the respective schools of Thoothukudi District participated and benefited a lot from it.

4. On **20th February 2020**, an **Interschool Science Quiz** Competition was organised for the school children of Thoothukudi district by the **Science Departments** of **St. Mary's College (Autonomous), Thoothukudi** in the Star Hall. Ten schools registered and five of them were qualified for the finals. **Ms. S. Pauline Jenifer**, Assistant Professor, Department of Botany and **Ms. P. Dhanalakshmi**, Assistant Professor, Department of Physics, St. Mary's College (Autonomous), Thoothukudi **organised the quiz**. The quiz instilled in the students a curiosity to look beyond their textual knowledge. The students of **Holy Cross Anglo-Indian School, Thoothukudi** bagged the first prize. The team from the **Spic School, Spic Nagar** and the team from the **Alagar Public School, Thoothukudi** won the second and the third prizes respectively. **Beneficiaries: 10 teams**.
5. On **20th February 2020**, an **Interschool Working Model Exhibition** was arranged by the Marian Star Centre. Sixteen teams from various schools actively participated in the competition. The working models prepared for science exhibition reflected their innovative ideas, creativity and talents. Excellent working models on various concepts of science and technology were displayed. Their explanation and justification for the questions posed by the judges were highly appreciated. The students and faculty members of St. Mary's College also visited the exhibition. **Sr. Dr. A. S. J. Lucia Rose**, Principal and Associate Professor of Physics, St. Mary's College (Autonomous), Thoothukudi appreciated the school students for their active participation and declared the prize winners. The team from the **Alagar Public School** won the first place. The Second place was bagged by the **Spic School** and the third prize was won by

St. Thomas Matric Hr. Sec. School. Consolation prizes were also given to four teams.

Beneficiaries: 16 teams.

6. On **21st February 2020**, **Marian Star Science Fest 2020 Inter-Collegiate Competitions** were organised by the **Marian Star Centre**. It was inaugurated by **Rev. Sr. Dr. A. S. J. Lucia Rose**, Principal and Associate Professor of Physics, St. Mary's College (Autonomous), Thoothukudi. Nine off stage events like **collage, logo making, slogan writing, poetry, photography, clay modeling, vegetable carving, poster making and art from waste** were arranged in various halls. **Twenty teams** from various colleges in and around Thoothukudi participated actively in the competitions and won prizes.
7. On **27th February 2020**, A **National Level Short Film Making Competition on "Scientific Concepts"** was organised by **Department of Physics, Chemistry, Botany and Zoology**, St. Mary's College (Autonomous), Thoothukudi. Six teams from various institutions participated. Among the six teams, 2 participants were from Uttar Pradesh. Short films on different scientific concepts like Time Travel, Importance of Plants, Newton's Law, Detrimental Effects of Cell phones, Superstitions Beliefs were displayed. **Dr. M. Glory**, Head and Associate Professor of Botany, **Dr. Hermin Pasangha**, Head and Associate Professor of Zoology, **Ms. S. Gnanathangam**, Head and Associate Professor of Computer Science and **Sr. K. Reetha**, Assistant Professor of Computer science, St. Mary's College (Autonomous), Thoothukudi served as the judges of the competition. As per the given rules, the short films were judged based on the creative approach, technical quality, clarity and communication of the scientific concepts. The first prize was bagged by the team from **Kamaraj College (Regular)**. The II and III prizes were secured by the team from **Dr. Sivanthi Aditanar College of Engineering and Kamaraj College (SF)** respectively. **Beneficiaries: 06 teams**

8. **National Science Conclave for School Students** was organised from **10th May 2021 to 16 May 2021** by the **Department of Physics, Chemistry, Botany and Zoology**, St. Mary's College (Autonomous), Thoothukudi. This National Science Conclave 2021 was organised to instill interest in science education at the school level and to explain the scope for science to the school students. More than 1000 students registered from different States and Union Territories of India. Renowned personalities were invited to interact with the participants. On **10th May 2021, Dr. Mylswamy Annadurai**, Indian Aerospace Engineer, Eminent scientist, ISRO Project Director, Chandrayan I Mission, delivered the **inaugural address**. He encouraged the students to think differently and become young scientists. He made the session interesting by telling short stories and anecdotes from his own life and also made the students interactive by asking questions through poll. He gave an insight to the young minds to inculcate interest in joining ISRO. Students enthusiastically raised questions and gained knowledge through the answers given by Dr. Mylswamy Annadurai.

On **11th May 2021**, the expert speaker of the day **Dr. V. Alex Ramani**, Deputy Principal, Former Head, Department of Chemistry, St. Joseph's College Tiruchirappalli, addressed the school students on the topic **"Exploring Some Interesting Facts in Chemistry"**. He highlighted in a very simple way about the five giant forces namely earth, water, air, space and fire and chemistry behind them. He also insisted about the impact of chemistry in day-to-day life, chemistry of greenhouse effect, ozone layer depletion and finally chemistry in human need. To sum up, he discussed some interesting aspects of chemistry in the following branches namely geochemistry, ocean chemistry, environmental chemistry, nuclear chemistry, food chemistry, dye chemistry, polymer chemistry, petroleum chemistry, electrochemistry

and pharmaceutical chemistry. Students enthusiastically participated in the program and interacted with the chief guest actively.

On **12th May 2021**, **Dr. A. Patrick Prabhu**, Associate Professor of Physics, St. Joseph's College, Tiruchirappalli, was the resource person. The expert speaker addressed the students on the topic **"Everyday Physics"**. He started his talk with 50 relevant questions on how physics plays an important role in every aspect of our life on earth and in the whole universe. His explanations were crystal clear and his simple language and clarity in thought expressed his wide exposure of teaching in various disciplines among school students. The expert shared his valuable insights in the field of properties of matter, heat, sound, optics, dynamics and big bang theory and enriched the knowledge of the students by clearing their doubts. The session was quite interactive.

On **13th May 2021**, **Dr. Debabrata Sircar**, Associate Professor, Department of Biotechnology, Indian Institute of Technology, Roorkee, enlightened the school children on the topic **"Application of smart-sensors in precision agriculture"**. In his address, he highlighted the importance of precision agriculture in disease management, determining optimum harvest time and high yield plant-based drugs. He also compared the conventional and precision agriculture. He expounded the use of plant natural products as herbal drugs. He also added the quantification of bioactive metabolites and problems associated with quality assessment of large sample size. He deliberated the use of volatiles in precision agriculture and SMART fruit nose sensor developed by IIT Roorkee. Students enthusiastically participated in the discussion session and interacted with the speaker. On **14th May 2021**, **Dr. S. Catherine Sara**, Associate Professor, Department of Botany, Holy Cross College, Tiruchirappalli, the resource person of the day gave a **Bird's eye view on general Botany, drug discovery, DNA finger printing**

and various career opportunities available in different domains for the students of Botany. In addition, she vividly presented her own research works on tissue culture of certain Pteridophytes. The meeting witnessed active participation and interaction of the students with the resource person.

On **15th May 2021**, **Dr. A. Vimal Jerald**, Assistant Professor of Computer Science, St. Joseph's College (Autonomous), Tiruchirappalli, the subject expert of the day addressed the students on the topic **“Let's Go Digital and Let's Live Smart”**. Understanding the heterogeneous presence of the students, Dr. Vimal Jerald, started his talk with explaining the Basics of Computer in a simpler way. His explanations on topics like Artificial Intelligence, Big Data Analytics, Cloud Computing, Virtual Reality, IoT, attracted the students very much. He also trained the students in various topics like, Art of Googling, Web Designing, Graphics and Multimedia. His methodology of teaching was crystal clear, simple language and his clarity in thought expressed his wide exposure of teaching in the field of computer science among school students. He also enhanced the outcome of the session by his enriched knowledge during the interactive session by clearing the doubts of the students. Around **500 students** from various schools all over the country attended this one-week programme. Assignments in the respective subjects were given to the students and also posted in the google classroom every day. Assignments were evaluated by the experts of the respective subjects based on the originality, novelty, concept generation and social relevance. One **Best Performer award** in each subject in all the three categories were given. Another interesting fact of this National Science Conclave was that there was an intellectual interaction between students and respective subject experts every day from 6 p.m. to 7 p.m. through WhatsApp. Many students interacted with the experts and got clear idea about the interesting facts of science. **Beneficiaries: 500**

9. The **Short-Term Course on Graphics Design for College Students** organised by the Marian Star Centre, St. Mary's college (Autonomous), Thoothukudi, began on **24th May 2021 to 29th May 2021** by the Invocation of God's blessings. Dr. A. Lakshmi, Assistant Professor of Chemistry, St. Mary's College (Autonomous), Thoothukudi, introduced and welcomed the **Course Trainer Dr. A. Vimal Gerald**, Assistant Professor of Computer Science, St. Joseph's College (Autonomous), Tiruchirappalli. Dr. A. Vimal Jerald briefed the Course outcomes, Course Objectives and the special features of the Short-Term Course. He encouraged the students to be more creative, act as a designer and to be esthetic. He threw light on the use of Photoshop. At the end of the session, he gave the students an assignment to imbibe their creativity. Mr. Ajay James demonstrated how to download the Photoshop software to the students. The session came to an end with the clarification of doubts by the course trainer Dr. A Vimal Gerald to the questions raised by the students. Assignments on cropping using marquee tools were posted in the google classroom for the students. On **25th May 2021**, Dr. A. Vimal Jerald instructed the students about the method of doing **free hand cropping** and also the short cut keys that can be used for it. He downloaded a scenery picture from internet and explained clearly how to insert another image inside the scenery. Then he also clearly explained the method of **designing visiting card and ID card** and also the short cut keys to be used. Assignments on the same topics were posted in the google classroom for the students. On **26th May 2021**, Dr. A. Vimal Jerald, trained the students on the topic **"Invitation Design and Greeting Card Making"**. He imparted training to the students on designing invitation and greeting cards with brush tools. He explained the designing methods and various aspects of design making. He made a demonstration to the students on fixing the background for an invitation and deliberated the short cut keys and tools needed for designing. He also depicted an invitation model

for college day and greeting card for teacher's day. This short-term course instilled the creative thinking among students. Students enthusiastically participated, raised questions and interacted with the course trainer. Assignments on designing an invitation and greeting card for birthday were posted in the google classroom for students. On **27th May 2021**, the course trainer shared some of the best invitation cards and birthday cards prepared and submitted as assignments by the students and appreciated them. He threw light on some of the tools of Photoshop used for **Certificate designing** and **Poster designing**. He demonstrated how to design posters and certificates creatively. At the end of the session, he gave the students an assignment to imbibe their creativity on designing posters. The session came to an end with the clarification of doubts by the course trainer Dr. A. Vimal Gerald to the questions raised by the students. Assignments on designing an invitation and greeting card for birthday were posted in the google classroom for the students. The fifth-day session was held on **28th May 2021**. The course trainer Dr. A. Vimal Gerald, explained how to design the **front page of the Assignment book** technically using Adobe Photoshop. He also insisted the students to follow the same for the Record / Practical book and he briefed the procedure for designing the cover page of the book. He demonstrated incredibly the width, height, pixels, etc. He explained different types of tools for designing borders, corners, colours and so on. Finally, assignments were given to students to practice and improve their knowledge in designing the cover page of the books. He concluded the session with a group discussion. The sixth day session on **Graphic Design** was held on **29th May 2021**. The Course trainer Dr. A. Vimal Jerald, explained how to design a face mask using Photoshop, personalized face mask with face print customization and he revealed its cost effectiveness which is affordable. A sense of creativity and interest was provoked among the students. The queries were effectively clarified by the trainer. The

concluding note was given by Ms. Jothimani, Assistant Professor, Department of Computer Science. Finally, Dr. Sr. A. Arockia Jenecius Alphonse, Assistant Professor of Botany, expressed her words of gratitude and the session came to an end. More than 300 students from different colleges benefited. **On 29th May 2021**, final test both objective type and practical were conducted. **160 students** attended all the internal and external assignments and received their course completion certificates and **80 students** only attended the course and received their participation certificates. **Beneficiaries: 240**

10. Apart from these input sessions, different competitions were conducted to create interest and engage students and faculty during pandemic. **Short Film Competition on Day-To-Day Science for School Students and Scientific Gift to Pandemic for College Students** was conducted on **30th May 2021** and totally **67 short films were received and evaluated** by five experts. **Dr. A. Vimal Jerald**, Assistant Professor of Computer Science, St. Joseph's College (Autonomous), Tiruchirappalli was a chief guest. **Poster Competition** was conducted on **Covid 19 awareness** for both college students and teachers. **175 posters** were received and evaluated by 6 different experts. **Project competition on Science Content Creation** was conducted for **School Students**. **80 video contents** from school students were received and evaluated. **(Beneficiaries: 301 School and 180 College)**

11. The **National Level Five Day Online Workshop on Science Content Creation for School Students** organized by the **Department of Physics, Chemistry, Botany and Zoology**, St. Mary's College (Autonomous) Thoothukudi and sponsored by the DBT, Govt. of India, New Delhi commenced on **3rd June 2021 to 7th June 2021**. Dr. S. Beulah Jerlin, Assistant Professor, Department of Botany, introduced and welcomed the resource person **Dr. A. Vimal Jerald**, Assistant Professor of Computer Science, St. Joseph's College (Autonomous), Tiruchirappalli. Chairperson Rev. Dr. Sr.

A. S. J. Lucia Rose, Principal, St. Mary's College (Autonomous), Thoothukudi delivered the felicitation. Dr. A. Vimal Jerald trained the school children on the topic **“Creating PPT based Interactive Science Content”**. The students were imparted training on how to create an interactive PPT and on the basic features of PPT which are particularly valuable in both teaching and learning environment. He demonstrated the students on creating an electrical circuit with flow of electrons and an animated Indian geographical map. Animated map showed the description and special features concerned with the states of India. He also created an interactive and animated PPT for human anatomy and it included the animation for the parts of body brain and heart. He expounded that a slide does not have to be even a picture; it can also be text or an outline of ideas. The school children were encouraged and assigned to create different models. This online workshop instilled the creative thinking among students. Students enthusiastically participated, raised questions and interacted with the course trainer. On the second day of the workshop **4th June 2021**, the course trainer Dr. A. Vimal Jerald trained the students in **PPT Video Making and GIF Animation Creation**. He explicated step by step how to convert the animated power point into video with voice over. He demonstrated video making by creating model video for the students and assigned them to create and submit a similar video in google classroom. On **5th June 2021**, Dr. A. Vimal Jerald explained two tools such as **GIF animation and Render Forest**. He animated the growth of plant and flower using the animated GIF maker. He also animated and removed the background of sequence of tigers walking by using “Remove Bg tool”. He then created the videos with music using render forest tool. He illustrated the milky way galaxy by this tool and igniting logo reveal with 3D explainer video tool kit. On the fourth day – **6th June 2021** of the National Workshop on Science Content Creation, Dr. A. Vimal Jerald explained the **Screen Capturing Techniques**

using free cam, Screencast-O-Matic and creation of effective e-content using Powtoon tool. He guided the students to download the free software available in the internet. Students were taught to add music to their PowerPoint presentation and render as video file. He instructed the students to create powerful contents using templates available in Powtoon tool. On the **5th day – 7th June 2021** of the online national level workshop on ‘Science Content Creation’ for school students the expert speaker Dr. Vimal Jerald, addresses the students on the topic **Video Making using Ice cream Tool**. He clearly explained how to make a video using ice cream video maker. Students enthusiastically raised questions and gained knowledge to the answers given by Dr. Vimal Jerald. He kindled the interest and knowledge of the students by clearing their doubts. The session was quite interactive. At the end, most of the students eagerly shared their feedback of the online national level workshop on ‘Science Content Creation’. Dr. A. Lakshmi, Assistant Professor, Department of Chemistry, St. Mary’s College (Autonomous), Thoothukudi. expressed her words of gratitude. Around **524 students** from all over India benefitted through this online workshop. Assignments were given to the students every day through Google Classroom and were evaluated by faculty.

Beneficiaries: 524

12. The **National Online Summer School on “Biotechnology” for College Students** commenced on **1st July 2021 to 28th July 2021** sponsored by the DBT, Government of India, New Delhi and organized by the Marian Star Centre, St. Mary’s College (Autonomous), Thoothukudi. Dr. Sr. A. Arockia Jenecius Alphonse, Overall Coordinator, Star college scheme, St. Mary’s College (Autonomous), Thoothukudi introduced and welcomed the chief guest of the day, **Dr. H. Shakila**, Chairperson, School of Biotechnology, Madurai Kamaraj University, Madurai. Rev. Sr. Dr. A. S. J. Lucia Rose, Principal, St. Mary’s College (Autonomous), Thoothukudi gave the

felicitation. Dr. H. Shakila delivered the Inaugural and Key note Address on the topic **“Biotechnology in the 21st Century”**. She clearly explained the importance of various fields of biotechnology like food, fermentation, pharmaceutical, agricultural and environmental Biotechnology. She encouraged the students and made the session interesting. She enriched the knowledge of the students by clearing their doubts. The session was quite interactive. Finally, Rev. Sr. Dr. Jessie Fernando, Head of the Department of Physics, St. Mary’s College (Autonomous), Thoothukudi, expressed her words of gratitude. The first week of National Online Summer School on Biotechnology focused on the theme **“Basic Biotechnology”**. On **2nd July 2021**, the resource person **Dr T. Jebasingh**, Assistant Professor, Department of Plant Sciences, Madurai Kamaraj University, Madurai was the resource person. He gave a talk on **“Recombinant DNA Techniques - Vectors for Gene Transfer”**. He explained the different types of vectors, characteristics of vector and their cloning techniques.

On **3rd July 2021**, the speaker of the day **Dr. A. Mahalakshmi**, Assistant Professor of Zoology, Lady Doak College, Madurai delivered a lecture on the topic **“Gene Transfer Techniques”**. She gave an elaborate lecture on the different methods of gene transfer to living organisms, citing examples for each method. The talk focused on biological, physical and chemical methods of gene transfer. She also explicated the risks and benefits of each gene transfer methodology. The student participants enthusiastically participated in the interaction session of the lecture. The fourth day session on **“*E. coli* – It’s Role in Biotechnology”** was held on **5th July 2021**. The resource person **Dr. B. Singaravelan**, Assistant Professor of Zoology and Biotechnology, Thiagarajar College, Madurai explained the main reason why *E. coli* is the organism of choice, how *E. coli* plays a main role in gene cloning and the

unexhausted potential of *E. coli*. The queries were effectively clarified by the resource person.

On **6th July 2021**, the resource person **Dr. R. Sri Priya**, Assistant Professor of Zoology, St. Mary's College (Autonomous), Thoothukudi, delivered a lecture on the topic **“Screening of Recombinant Organisms”**. In her lecture she explained clearly about recombinant organisms, importance and of screening of recombinant organism, need for screening, screening methodologies and various hybridization techniques. On **7th July 2021**, the speaker of the day **Dr. K. Sujatha**, Assistant Professor, Department of Zoology, Lady Doak College, Madurai delivered a lecture on the topic **“Transgenics”**. She clearly explained the need for producing transgenic plants and animals, history of cloning, pros and cons of transgenics. Therapeutic cloning and ethical issues were also well explained by the resource person. Dr. K. Sujatha described the ways of modifying genetic makeup of plants and animals and even to transfer genes from one species to other. The students eagerly participated in the interaction session of the lecture. They raised questions which was well explained by the resource person. The second week of Summer School focused on the theme **“Recent Trends in Biotechnology”**.

On **8th July 2021**, the speaker of the day **Dr. S. Arokiyaraj**, Assistant Professor, Department of Food Science and Biotechnology, Sejong University, Seoul, South Korea gave a talk on the topic **“Medicinal plants and Covid 19 Disease Management”**. He explained the ways through which South Korea and China use traditional herbal medicine to overcome and prevent Covid 19 and explained importance of herbal medicine in our daily life to prevent ailments and diseases. In addition, he vividly presented her own research works on Major mechanism of kabha Jwara kudineer to cure Covid 19. During his speech he inspired the students by some

quotes regarding diseases and treatments from Tamil literature. The meeting gave a good insight in sight of coronavirus infection mechanisms, the treatment strategies by using herbal medicines and the risks of using herbal medicines. Finally, he mentioned the higher study and job opportunities for the Under Graduate and Post Graduate students. On **9th July 2021**, the speaker of the day **Dr. Paul David**, Post-Doctoral Researcher, Friedrich – Alexander University, Germany addressed the students on the Topic “**Role of Inhibitory Molecules in the Activation of CD8 T Cells During Retrovirus Infection**”. He discussed how the virus infects the cells and the role of inhibitory molecules. The participants gained a good knowledge on virus infection and the way to control virus.

On **10th July 2021**, the resource person **Dr. B. Balamurali Krishnan**, Assistant Professor, Department of Food Science and Biotechnology, Sejong University, Seoul, South Korea, gave a talk on the topic “**Livestock Science (Animal Nutrition and Husbandry): Influences of Feed Additives in livestock Industry**”. On which he explained, what is Livestock, ruminant and non-ruminant (Monogastric) animals and Animal husbandry animals. In addition, he presented meat consumption in world, livestock revolution, nutritive value of meat, mycotoxin effect on livestock industries. Major classes of nutrients, antibiotic use in livestock as growth promoters with the help of colorful PowerPoint slides. During his speech he gave a detailed lecture on utilization of feed additives in livestock industries and pig management strategies. The meeting gave a good insight of research ideas in livestock industry and criteria needed to publish research articles in science indexed journals. On **12th July 2021**, the speaker of the day **Dr. Padmanaban Mohanan**, Post-Doctoral Researcher, Plant Genomics and Breeding Institute, Seoul National University, Seoul, Republic of Korea addressed the participants on “**Secondary metabolites in plants and their benefits**”. His

explanations on the basic elements of plants, potential of plant phenolics, alkaloids, terpenoids and the ways to improve secondary metabolites in plants were excellent and very informative.

On **13th July 2021**, the resource person **Dr. Kumaravel Marimuthu**, Post-Doctoral Fellow, Northern Research and Development, Migal Galilee Research Institute, Kiryat Shemona, Israel was the resource person and delivered a lecture on **“Genome Editing in Crop Improvement”**. He deliberated on Recent Challenges in agriculture, approaches for crop improvement, genetic modification vs genome editing and types of genomes editing tools. He also explained the advantages of CRISPR (Clustered Regularly Interspaced Short Palindromic Report)/Cas 9. He highlighted the selection of target gene through proteomic analysis, delivery of plasmid into plant cell via transformation and co- cultivation of *Acrobacterium tubifaciens* with ECS of Banana. On **14th July 2021**, the speaker of the day **Mr. J. Antony Prabhu**, Associate General Manager, Life Sciences and Healthcare, HCL Technologies, Bengaluru enlightened the students on the topic **“Digital Disruption in Life Sciences and Healthcare”**. In his lecture, he deliberated the role of digital disruption and disrupted sectors viz., drug discovery, digital health, robotic assisted surgery and artificial intelligence in life sciences. He highlighted the importance of imaging diagnostics in digital twin, 3D printing and smart mirror. He expounded the use of personalized medicine in the medical treatment to the individual characteristics of each patient. This session gave deep insight into the field of Education 4.0, emerging technology in teaching which focuses on innovation-based education. In addition, he presented the top skills rising into prominence by 2025 according to the World Economic Forum. His lecture instilled in the minds of the life science students an interest to pursue their career in the arena of R&D Pharma and Biotech companies. Students enthusiastically

participated in the discussion session and interacted with the speaker. The third week of Summer School on Biotechnology focused on the **theme “Techniques in Biotechnology”**.

On **15th July 2021**, the speaker of the day **Dr. T. Parimelazhagan**, Professor, Department of Botany, Bharathiar University, Coimbatore explained on the importance of medicinal plants, phytomedicine, indigenous vegetables, the health benefits of phytochemicals, bioprospecting. The resource person, along with his supportive team in his lab virtually demonstrated and explained the extraction methods, phytochemical assays and various equipment use in phytochemical screening such as soxhlet, shaker macerator, automatic extractor, vacuum rotor evaporator, column chromatography, flash chromatography, HPLC etc. In addition, he presented a bird’s eye view of his own research work in Phytochemistry. On **16th July 2021**, the speaker of the day **Dr. Chinnarajan Ravindran**, Principal Scientist, CSIR-National Institute of Oceanography Division in Dona Paula, Goa, India discussed the **operating principle of PCR as well as its application**. He also discussed the functions of DNA, how to identify and detect a certain sequence in a genome, and the challenges of identification and detection in his discussion. PCR applications in forensics, criminal forensics, and paternity testing Detection of GMO foods Disease Diagnosis and Treatment in Archaeology. Followed by his lecture, the students barraged him with questions, resulted in a lively question-and-answer session. Dr. Chinnarajan explained their doubts patiently. On **17th July 2021**, the resource person **Dr. M. Anantha Subramanian**, Professor and Head, Department of Biotechnology, PSG College of Technology, Coimbatore was the resource person. He gave a lecture on **“Microbiome and Metagenomics”**. He explained about the human microbiome, number of microbes present in the mammalian cell, different species of microbes in our body and how they

are inherited from mother to baby. He discussed the mass of microbial flora associated with various body sites such as skin, eyes nose mouth, upper respiratory tract, gastrointestinal tract, stomach, duodenum, ileum and colon. He also explained the culturable and unculturable microorganisms and the factors responsible for the cultivation of bacteria. He gave an overview of the difficulties in quantifying microbial diversity by traditional method and the different types of tools of metagenomics, to construct metagenomic library, choice of vector, cloning and transformation, functional screening, function driven approaches and the outcome of metanalytic study.

On **19th July 2021**, the speaker of the day **Dr. M. Jayalakshmi**, Head and Assistant Professor, Department of Immunology, School of Biological Sciences, Madurai Kamaraj University, Madurai, delivered a lecture on the topic **“Genomic DNA extraction and Quantification”**. In her talk she explained very clearly the stepwise method of DNA extraction along with the safety procedure to be adopted while handling blood samples, reagent preparation and blood sample collection. On **20th July 2021**, **Dr. M. Jayalakshmi**, Head and Assistant Professor, Department of Immunology, School of Biological Sciences, Madurai Kamaraj University, Madurai the expert speaker addressed the participants on the topic **“Evaluation of Vitamin D Receptor Polymorphism”**. The resource person started her presentation by sharing the importance of vitamin intake, hygiene for a healthier life style. She explained it in a layman language. She also explained Vitamin D Receptor (VDR), single nucleotide polymorphism, vitamin D/VDR and its role in immune system, VDR DNA polymorphism, meta-analysis, role of VDR, components and temperature profile for VDR FokI (rs2228570) single ARMS PCR. She illustrated the results of frequency of the VDR FokI (rs2228570) genotyping of HIV patients and the results of frequency of the VDR FokI (rs2228570) genotyping of HIV patient co-infected with TB. About 155

members participated in the session. Participants enthusiastically took part in the session and raised their questions; the resource person was kind enough to clear the queries.

On **21st July 2021**, the resource person, **Ms. R. Princess**, Assistant Professor, Department of Biotechnology, Mepco Sclenck Engineering College, Sivakasi, delivered a lecture on the topic **“Drug Discovery and Development”**. In her talk she explained very clearly the various classes of therapeutics, drug discovery timeline, drug development stages and target identification strategies. Furthermore, she gave an overview of the techniques used in target validation, hit identification strategies, fragment-based drug discovery approach (FBDD), Lipinski’s rule of five, lead selection criteria, preclinical trials and limitations, steps involved in approval, four phases of clinical trials, NDA review timeline and finally repurposing drugs using high throughput screening (HTS). Videos of Virtual Hands-on Sessions such as Extraction, Identification and Quantification of DNA, Isolation of Plasmids and Drug Designing prepared by the research scholars were uploaded in the Google Classroom. The fourth week of Summer School on Biotechnology focused on the **theme “Environmental Biotechnology”**.

On **22nd July 2021**, the resource person **Dr. S. Dayakar**, Professor and Head, Department of Entomology, Archarya NG Ranga Agricultural University, Andhra Pradesh threw light on the following: Meaning of environmental Biotechnology; Specific objectives of environmental Biotechnology and Applications of environmental Biotechnology. The topic was interesting and it was on trend. A sense of creativity was provoked among the students. The queries were effectively clarified by the resource person. On **23rd July 2021**, **Dr. Sr. C. Shibana**, Assistant Professor of Zoology, St. Mary’s College (Autonomous), Thoothukudi was the resource person.

Dr. Sr. Shibana gave a presentation on Current Perspectives of Stem cell and its application. She lectured on “What are stem cells?” the origin of different types of cells from the stem cells, characteristics, types of stem cells and its application in the field of medicine. She discussed the current research on stem cells for transplantation, treating cancer and cell-based therapy by replacing the damaged tissue from the diseased persons. She emphasized the importance of stem cells for the innovative medicine and therapeutic drug designing.

On **24th July 2021**, **Dr. K. Jeyasubramanian**, Senior Professor and Head, Department of Chemistry, Mepco Schlenk Engineering College, Sivakasi, Tamil Nadu was the speaker of the day. Resource person addressed the participants on the topic **“Eco Friendly Energy Storage Technology”**. His explanations on the types of energy sources and batteries, advantages and disadvantages of energy storage system, microalgae cultivation, biomass extraction and super capacitors were simple wonderful and informative. On **26th July 2021**, **Mr. R. Vishnu**, Director of SG Envirotech, Hyderabad A complete solution for environmental pollution, Hyderabad was the resource person and gave a presentation on **“Design Approach on Treatment Types and Technologies of Industrial Waste water”**. He talked about effluent, sewage, water stress and its causes and water treatment plants. He compared the ASP-A20, MBBR (Moving Bed Bioreactor) and SBR (Sequential Batch Reactor) in detail.

On **27th July 2021**, the resource person **Dr. M. Umadevi**, Associate Professor, Department of Physics, Mother Teresa Women’s University, Kodaikanal, shared her expertise on the topic **“Surface Enhanced Raman Spectroscopy for Environmental Analysis”**. The session was very informative on spectroscopy types, their wavelength of working and applications. On **28th July 2021** the speaker of the day **Mr. C. Gopinathan**, Associate Professor, Department of Biotechnology, University of

Calicut, Kerala, delivered a talk on the topic “**Biomethanation – Solution for Global Energy Crisis**”. On which he explained, methanogenic pathway, anaerobic digester and fermentation process. In addition, he demonstrated how agrowaste, poultry feathers, poultry farm wastes, and fish wastes may be used to generate bioenergy. Use of *Pleurotus florida* and *Trichoderma* for degrading cellulose and lignin. During his speech, he gave a detailed lecture on utilization of disintegrator, conveyor belt, homogenization tanks, biodigesters, biogas generators in biomethanation. The meeting gave a good insight of research ideas in solution for future energy needs. The valedictory ceremony of this summer school on Biotechnology began with some of the participants' feedback videos, which was followed by C. Gopinathan talk.

Shri. V. Ponraj, Former Scientist-G in Aeronautical Development Agency, Ministry of Defence, Bangalore gave the valedictory address. He praised the organisers' efforts to bring in experts from many fields of biotechnology, as well as a strong understanding of contemporary biotechnology research. He insisted the importance of biotechnology research in current Covid 19 pandemic situation. He also emphasised to the participants the importance of their participation in future bio-warfare. MCQ test was given every day to the students based on the lecture topic at the end of the session. Assignments were given to the students once in a week and evaluated by the subject experts. The students attended the quiz and submitted the assignments actively. More than 350 college students all over India, from various discipline participated in this program. Participants enthusiastically interacted with the speaker and cleared their doubts and queries. **Beneficiaries: 350**

13. An **Interschool Quiz '21** was **organized by the Marian Star Centre** under Star College Scheme on **18th December 2021**. The quiz competition was organized for the **School Students of Grades 6 to 8**. Five teams were selected through a preliminary

written quiz from among the 49 teams who registered for the quiz. Questions were from the basic and advanced fields of Botany, Zoology, Physics and Chemistry. The quiz mistress, **Ms. S. Pauline Jenifer**, Assistant Professor, Department of Botany, St. Mary's College (Autonomous), Thoothukudi instigated the students to look beyond their textual knowledge. It was a five-stage competition that included a 'quest' round, 'who am I' round, 'picture connect' round, 'buzzer' round and the 'classic rapid-fire' round. The students enthusiastically participated and showcased their brilliance by rapidly answering the questions. Subiksha and Dhananjay Singh of **Spic Nagar Higher Secondary School** secured the first place, Kavya Shree and Jeyasree Abinaya Swetha of **Subbiah Vidhyalayam** secured the second place and Muthu Palaneyappan and Naveen Pious of **Spic Nagar Higher Secondary School** secured the third place. The winners were honoured by the Principal, Dr. Sr A.S.J. Lucia Rose with cash prizes given by management and certificates. **Beneficiaries: 96**

14. An **Interschool Science Quiz '22 for the School Students of Grades 9 and 10** was conducted by **Science Departments** on **28th February 2022**. The objective of the quiz was to develop the spirit of participation and cooperation, to inculcate scientific temper among the young students and to build up the sense of searching and inquiry. Five teams were selected through a preliminary written quiz from among the 29 teams who registered for the quiz. Questions were from the basic and advanced fields of Botany, Zoology, Physics and Chemistry. The quiz was instigated with a prayer song. More readily, the stage was taken over by the Quiz mistress of the day, **Dr. G. Amala Jothi Grace**, Assistant Professor, Department of Chemistry, St. Mary's College (Autonomous), Thoothukudi. It was a five-stage competition that included a quest round, who am I round, interesting picture connect round, buzzer round and a classic rapid-fire round. The students enthusiastically participated and showcased their

brilliance by rapidly answering the questions. **Vikasa School secured the first and second places and Spic Nagar Higher Secondary School secured the third place respectively. Beneficiaries: 100**

15. Science Departments, St. Mary's College (Autonomous), Thoothukudi, organized **"Marian Star Science Expo'22 for School Students"** under Star College Scheme for all the School Students on **10th March and 11th March 2022**. The Expo was inaugurated by **Rev. Sr. Dr. A. S. J. Lucia Rose**, Principal and Associate Professor of Physics, St. Mary's College (Autonomous), Thoothukudi. School of Biological Sciences, Physical Sciences and Computing Sciences displayed and exhibited the scientific innovations. **Two thousand six hundred and eighty-six students from two twenty-two schools visited and benefited**. This expo inculcated interest in science among younger generation. Students visited the museum in the Zoology Department with enthusiasm. To create an interest in science, various experiments such as counting of WBC and RBC, estimation of haemoglobin, analysis of urine, identification of blood groups and Mitosis in onion root tip were demonstrated to the school students. Working mechanism of all the laboratory instruments such as colorimeter, stethoscope, sphygmomanometer, centrifuge, laminar flow chamber, phase contrast microscope and trinocular microscope were also explained to the students. Interesting facts about birds and animals were displayed in the video. Students visited the virtual dissection lab and learned the interactive computer simulation modelling of the inner animal and the ability to view various parts of the animals. The students of Botany Department exhibited live specimens of marine and terrestrial plants and their products which had commercial and medicinal values. The plants displayed were mainly focused based on school curriculum. So, students were able to learn the plant classification, morphological features and various adaptive features to their respective environments.

Students were well known of marine resources and their utilization. The fossil slides displayed gave an insight on evolutionary history of plants to the students. The college students showcased a plethora of exhibits that covered various topics in Physics. The Expo provided a whole world of wonder and amazement with so many interactive ‘hands on’ exhibits. The school students were excited to observe certain exhibits which had similarity to their science concepts. Every exhibit caught the attention of the school students instantly and they thoroughly enjoyed being a part of those fun filled activities of the expo. Students from the Department of Chemistry displayed their experiments like making foam, snake tablet, colloids, types of plastics, chemical chameleon, natural and artificial food dyes, alloys, blood without knife, rainbow sugar and chocolate quiz, mirroring of glass, invisible ink, secret message, density experiments, food additives, food colours, flame test, underwater fireworks, hydrophobic surface, fire sparkles, traffic light, golden spangles, soap making, fire without matches, reversible colour change, food adulteration, chemical snow house, blue cloud, blue bottle experiment, friction pen and models like salt pans, acid rain model, pollution model, chemistry behind air bags, working model of electroplating. The expo proved to be a great way to arouse curiosity in the minds of school students and was a thrilling and motivating experience. The expo was helpful to develop and enhance the practical knowledge of the students. **Beneficiaries: 2686**

16. The **Science Departments** organized three day **“In-service Training Programme for School Teachers”** from **23rd March to 25th March, 2022**. In-service Training for School Teachers on **“Chemistry Experiments”** was organized by the **Department of Chemistry** on **23rd March, 2022**. **Twenty seven chemistry teachers from schools in and around Thoothukudi participated in the training.** Hands on training on qualitative organic analysis, preparation of inorganic complexes like potash alum and

tetramminecopper (II) sulphate, preparation of organic compounds like picric acid and 2,4,6-tribromoaniline and preparation buffer solution and determination of pH using pH meter was carried out in chemistry lab. Teachers actively involved themselves and performed all the experiments. As a part of this programme, the **Department of Botany** gave the training on **24th March 2022** on “**Techniques in Botany**” in the Botany Laboratory. **15 school teachers participated in the session held at the Botany Laboratory.** The training programme was inaugurated by **Rev. Sr. Dr. A. S. J. Lucia Rose**, Principal and Associate Professor of Physics, St. Mary’s College (Autonomous), Thoothukudi. The morning session comprised of Biochemistry experiments. The school teachers were divided into four groups and the various experiments were conducted. It commenced with the separation of photosynthetic pigments using paper chromatography. The teachers were excited to see the separation of photosynthetic pigments and preserved the paper to show to their students. This is followed by the estimation of sugar, amino acid, protein and starch. The students met again in the afternoon after lunch where the training on pollen tube germination, mitosis and meiosis hands on training and floral dissection were carried out. Each teacher was provided with the In-service training manual. An **in-service training on practicals in Zoology** for Higher Secondary School teachers by the Department of Zoology was conducted on **24th March 2022** under Star College Scheme. 15 School teachers, teaching Zoology for Higher Secondary, from various Schools in and around Thoothukudi participated in the training. The principle and protocol of experiments like Plasmid DNA isolation, restriction digestion of DNA, estimation of haemoglobin, counting of RBC and WBC and ABO blood grouping which are included in the higher secondary syllabus were taught to the participants. Practical manual was given to the participants and they were trained to handle the instruments and perform the experiments individually. The

Department of Physics gave in-service training on “**Practical Physics**” for the school teachers on **25th March, 2022** under Star College Scheme. Around **25 Physics teachers enthusiastically participated**. Hands-on training on the following topics were given to the teachers such as Stoke’s method, Spectrometer, Sonometer, Young’s Modulus, Logic Gates, Demorgan’s Theorem, Zener Diode Characteristics. The session was interesting and it provided a good knowledge experience on practical Physics. All the participants enthusiastically participated in the training, observed and interpreted the results. They were given participation certificates. **Beneficiaries: 27**

17. **Integrated Educational Partnership** between **St. Mary’s College (Autonomous), Thoothukudi** and **St. Francis Xavier Higher Secondary School, Thoothukudi** commenced with the **Inauguration Ceremony of Caussanel Science Club** organized by the Department of Botany on **11th April 2022** at Popes Hall, St. Francis Xavier Hr. Sec. School. Students from Department of Botany performed cultural events imparting the importance of conservation. Resource Person **Dr. S. Beulah Jerlin**, Assistant Professor of Botany, St. Mary’s College (Autonomous), Thoothukudi reflected her profound knowledge on the topic “**Biodiversity and its Conservation**” and highlighted the importance and the steps to be undertaken at personal level towards conservation. It was followed by another session on competition for student audience. The immense enthusiasm and zeal in the students to learn is the main driving factor which made them participate in the competitions like Thirukuralil ariviyal, twin partner and bagged their prizes. The winners were distributed with prizes by Dr. Glory, Head and Associate Professor of Botany and Rev. Bro. Arockiadoss, Principal, St. Francis Xavier Hr. Sec. School. It was followed by a science song. The talents of future scientists were evident with display models that was exhibited by students. The office bearers for the academic year 2021-2022 were elected. **Beneficiaries: 100**

18. As a part of outreach programme, St. Mary's College inaugurated the **Initiation of science club in St. Joseph Girls Higher Secondary School, Cruzpuram** on **23rd April 2022** and organized an **awareness programme on "Food Adulteration and its detection"**. The science club was inaugurated by **Rev. Sr. Kaspar**, Headmistress, St. Joseph Girls Higher Secondary School, Cruzpuram. Ms. Daisy Vimala, Secondary Grade Teacher welcomed the gathering. II B.Sc. Chemistry students enlightened the young minds about the harmful effects of adulteration and methods to detect it. Flip charts were displayed to the students. Adulteration presents in coconut oil, turmeric, iodine salt, green chili, tomato sauce, jaggery, milk, ice cream, ghee, peas, honey, pepper were demonstrated to the school children. Ms. Grimolin Gomez, Secondary Grade Teacher proposed the vote of thanks. Around **180 school** children were benefitted through this awareness programme. All the arrangements for this programme were organized by the staff in-charge Dr. A. Lakshmi, Dr. A. Parveen Sulthana and II B.Sc. Chemistry students. **Beneficiaries: 180**
19. **World Food Day Celebration** between St. Mary's College (Autonomous), Thoothukudi and St. Francis Xavier Higher Secondary School, Thoothukudi commemorated World Food Day on **17th October 2022** under Caussanel Science Club organized by the Department of Botany, St. Mary's College (Autonomous), Thoothukudi. It was inaugurated by **Dr. M. Glory**, Head and Associate Professor of Botany, St. Mary's College (Autonomous), Thoothukudi. **Beneficiaries: 123**
20. A **PHYSCOM 2022** was organized by the **Department of Physics** on the **19th October 2022**. The quiz competition was organized for the higher secondary school students from various schools in and around Thoothukudi. Dr. Sr. Jessie Fernandez, Head of the Department of Physics welcomed the gathering with her warm words. Five teams were selected from among the schools that registered for the quiz, by a preliminary written

test. Questions were from the basic and advanced fields of Physics. There were six rounds of quiz, that included a normal question and answer round. Interesting picture connect rounds were also included in the quiz. **Dr. M. Sheeba** and **Ms. P. Dhanalakshmi**, Assistant Professors of Physics, St. Mary's College (Autonomous), Thoothukudi conducted the quiz. The quiz instigated the students to look beyond their textual knowledge. The students enthusiastically participated in the quiz program. The students of the Alagar Public School bagged the first prize, the students of Sakthi Vinayagar School won the second prize and the students of Star Matriculation School won the third prize. The College Principal, Dr. Sr. A. S. J. Lucia Rose distributed the trophies and certificates to the winners. Dr. Sylvia, Associate Professor, department of Physics proposed the vote of thanks. **Beneficiaries: 15 teams**

21. **School of physical sciences** organised **Public Outreach Training Programme** on “**Job Opportunities in Atomic Energy Sector**” in collaboration with Department of Atomic Energy Heavy Water Board, Thoothukudi on **16th February 2023**. Chief Guest **Dr. V. Ganesh Prabhu**, Scientist Scientific officer 'E', Process Control and Analytical Laboratory, Heavy Water Plant, Thoothukudi and **Mr. P. John Bensam**, Technical In-charge, Heavy Water Plant, Thoothukudi gave an informative talk on the importance of atomic energy for future energy needs. The programme was conducted to bring awareness about the process in HWP unit and job opportunity with reference to the official websites. Students of III B.Sc. Chemistry, Physics and II M.Sc. Chemistry and Physics were benefitted out of this training programme. The session ended with quiz programme. Students were rewarded with prize and appreciation. **Beneficiaries: 75**

22. **Science Department of St. Mary's College (Autonomous)** in collaboration with **Tamil Nadu Science Forum (TNSF)** celebrates “**Techno Fest – 2023**” and conducted **Working Model Intercollegiate competition** on **28th February 2023** for students of

Arts and Science Colleges, Diploma and Engineering College to bring out their creativity and innovative ideas in commemoration of National Science Day.

Dr. P. Suresh Pandi, Head and Assistant Professor, Department of economics, Government Arts and Science College, Nagalapuram, Thoothukudi District Secretary Tamil Nadu Science Forum and **Mr. R. Resington**, Industrial Automation Consultant Can Do Automation, Thoothukudi was the Chief guest of the day. Rev. Sr. Josephine Jeyarani, Director SSC, St. Mary's College (Autonomous), Thoothukudi felicitated the Inaugural session. The presidential address was delivered by Mr. R. Resington and Dr. S. Suresh Pandi spoke few words about the importance of science. Rev. Dr. Sr. A. S. J. Lucia Rose inaugurated the Working Model Intercollegiate Competition. Students from various colleges displayed and explained their models. Dr. Sr. C. Shibana, Secretary, St. Mary's College (Autonomous), addressed the valedictory session and announced the prize winners. Vegneshrraj, G. Velmurugan, M and P. Ajith Kumar of Kamaraj College of Engineering and Technology (Autonomous), Madurai took first place and won the cash prize of Rs. 5000. A. Paraloga Mary and M. Jensi of Kamaraj College of Engineering and Technology (Autonomous) took second place and won the cash prize of Rs. 3000 and A. Mathumitha and A. Muthuganesh of Francis Xavier Engineering College (Autonomous), Tirunelveli took third place and won the cash prize of Rs. 2000. The cash awards were given by the management of St. Mary's College (Autonomous), Thoothukudi. **Beneficiaries: 38**

23. A **PHYSCOM 2023** was organized by the **Department of Physics** on the **23rd August 2023**. The quiz competition was organized for the higher secondary school students from various schools in and around Thoothukudi. Mrs. P. Padmavathi, Assistant Professor, Department of Physics welcomed the gathering with her warm words. Five teams were selected from among the schools that registered for the quiz, by a

preliminary written test. Questions were from the basic and advanced fields of Physics. There were six rounds of quiz, that included a normal question and answer round. Interesting picture connect rounds were also included in the quiz. **Dr. M. Sheeba** and **Dr. A. Nirmala Shirley**, Assistant Professors of Physics, St. Mary's College (Autonomous), Thoothukudi conducted the quiz. The quiz instigated the students to look beyond their textual knowledge. The students enthusiastically participated in the quiz program. The students of the St. Thomas Matriculation Higher Secondary School bagged the first prize, the students of The Vikasa School won the second prize and the students of Spic Nagar Higher Secondary School won the third prize. Dr. Sr. Kulandai Therese, Deputy Principal distributed the trophies and certificates to the winners. Mrs. A. Lucas Rexline, Head and Associate Professor, Department of Physics proposed the vote of thanks. **Beneficiaries: 14 teams**

24. **Theen Tamil Arts Foundation**, Tirunelveli and the **Department of Botany**, St. Mary's College (Autonomous), Thoothukudi jointly organized **Inter-School and Inter-Collegiate Art Festival** on **10th September 2023**. **Rev. Sr. Dr. Jessie Fernando**, Principal, St. Mary's College, (autonomous), Thoothukudi served as the resource person. The **participants** from 23 different schools and 13 different colleges from rural areas of Thoothukudi, Tirunelveli, Tiruchendur and Ramanathapuram districts participated in various competitions like drawing, kavithai, elocution and dance. Students actively participated in the events and the winners of the respective events were awarded prizes. Certificates were issued to all the participants. **Beneficiaries: 227**
25. The **Department of Botany** conducted an online **Intercollegiate Online Quiz Series** on "**Plant Science**" from **25th September 2023 to 30th September 2023**. It was inaugurated by **Rev. Sr. Dr. A. Arockia Jenecius Alphonse**, Head and Associate Professor of Botany, St. Mary's College (Autonomous), Thoothukudi The event aimed

to enhance the knowledge and interest in the field of Botany among the students. Different subjects of botany like Plant Diversity I & II (Algae, Bryophytes, Fungi, Lichens, Pteridophytes and Gymnosperms), Taxonomy of Angiosperms and Economic Botany, Plant Physiology and Biochemistry, Molecular Biology and Bioinformatics, Plant Biotechnology and Microbiology, Ecology and Biodiversity Conservation were given as theme for each day respectively. B.Sc. and M.Sc. students, research scholars and faculty of different institution from all over India registered and participated in the quiz. 192 participants benefitted out of it. Ms. R. Devi Priya of M. M. E. S. Women's Arts and Science College and Ms. Deepthi of Lady Doak College, Madurai secured the first and second places respectively. Cash awards were given to the winners.

Beneficiaries: 192

26. **Dr. R. Mary Santhi and Dr. P. Hermalin**, Assistant Professors of Botany, St. Mary's College (Autonomous), Thoothukudi and students of II B.Sc. Botany conducted a **Training Programme on "Preparation of Herbal Remedies and Tuition" for School Students in Servaikaranmadam on 26th January 2024** to facilitate their academic progress and also demonstrated the preparation of homemade herbal remedies for cold and gastric problems to the village people. **Beneficiaries: 67**

27. The **Science Departments** of St. Mary's College (Autonomous), Thoothukudi organised one day **Science Expo 2024** on **28th February 2024** for school students. It was inaugurated by **Rev. Sr. Dr. Jessie Fernando**, Principal, St. Mary's College (Autonomous), Thoothukudi. The Department of Botany exhibited medicinal plants, physiological set ups, seaweeds, fossils, plant diversity and modification of plants. **1418** school students from the Districts of Thoothukudi, Tirunelveli and Tiruchendur benefitted out of it.

28. The **Interschool Science Quiz '24 for 6th to 8th standard students** of the schools of Thoothukudi district was organised by all the **Science Departments** of St. Mary's College (Autonomous), Thoothukudi on **28th February 2024** in view of Science Day celebration. The event witnessed the participation of 21 teams from 13 different schools from Thoothukudi district. **Ms. S. Pauline Jenifer**, Assistant Professor, Department of Botany and **Dr. Zozimus Divya**, Assistant Professor, Department of Chemistry, St. Mary's College (Autonomous), Thoothukudi acted as the quiz mistresses. The winning teams were awarded with prestigious prizes, including cash prizes, trophies, and certificates. **Beneficiaries: 21 teams**

29. On **7th August 2024**, the **Department of Physics** organised an **interschool quiz** competition **PHYSCOM 2024**. The competition commenced with a preliminary written test designed to assess the knowledge and skills of the participating teams. **Ms. P. Dhanalakshmi**, Assistant Professor of Physics and **Dr. A. Nirmala Shirley**, Assistant Professor of Physics, St. Mary's College (Autonomous), Thoothukudi acted as the quiz mistresses. Out of numerous teams, the top five teams were selected based on their performance in the written test. These teams advanced to the onstage quiz competition. The onstage quiz competition comprised of five rounds, each designed to challenge different aspects of the participants knowledge and abilities: the quest round, visual round, who am I round, dumb charade round, and rapid-fire round. The students participated with great zeal and enthusiasm. The competition was fierce and Alagar Public School, Spic Nagar Higher Secondary School, and Sakthi Vinayagar Hindu Vidyalaya Higher Secondary School emerged victorious, bagging the first, second, and third places respectively. The valedictory address was delivered by Dr. Sr. C. Shibana, the Secretary of St. Mary's College (Autonomous), Thoothukudi. She commended the participants for their enthusiasm and knowledge, and she

emphasised the importance of such events in promoting scientific curiosity and learning among students. Trophies, and certificates were awarded to the winners, acknowledging their hard work and excellence. PHYSCOM 2024 was a resounding success, fostering a spirit of competition and learning among the participating schools.

Beneficiaries: 26

30. The **Department of Zoology** organised an **Intercollegiate competition ZOOTOPIA' 24** on **10th September 2024**. Competitions that invoke the scientific interest in students like Quiz, Spell Bee, Power point presentation, Scientific Sketching, Poster making, Memory tests, Specimen identification, Mobile Photography and Just a minute were conducted. The topics of the competitions were relevant to themes in zoology. Competitions for B.Sc. and M.Sc. students were conducted separately. Total of 112 students from eight colleges enthusiastically participated in the competitions and bagged the prizes. The winners of the first three places for each competition were awarded with prizes and certificates. **Dr. R. Banumathi**, Associate Professor and Head, Department of Zoology, Kamaraj College (Autonomous), Thoothukudi was the Chief guest for the valedictory session of ZOOTOPIA'24 and she delivered the valedictory address. Rev. Sr. Dr. Jessi Fernando, Principal and Rev. Sr. Dr. C. Shibana, Secretary of St. Mary's College (Autonomous) gave away the prizes to the winners of the various competition. The overall winners of the competition were the students of Sri Parasakthi College for Women (Autonomous), Courtallam, Tamil Nadu.

Beneficiaries: 112.

31. The **Department of Zoology** conducted a **“Photography Contest on Adore Admire and Click - Celebrating our Campus Fauna”** for the students of St. Mary's College (Autonomous), Thoothukudi on **19th August 2024**. The aim of the competition was to create an awareness about the biodiversity of the college campus among the students.

This competition instilled a spirit of celebration of fauna in the students to appreciate and capture the faunal diversity of the campus. The photographs of the student competitors were judged by the photographers Dr. L. Ranjith, Senior Scientist, ICAR – Central Marine Fisheries Research Institute, Tuticorin Regional Station, Thoothukudi. Ms. George Sweetly of III B.Sc. Physics, Ms. S. Shimona of III B.Sc. Zoology and Ms. Jeffina Gomez of II M.Sc. Zoology won the first prize. Ms. M. Balasowmya of II M.Sc. Zoology and G. Amala Harini of II B.Sc. Psychology bagged the second prize, while and Ms. G. Prithiyanka Devi of I B.Sc. Botany and K. Kala Archana of I B.Sc. Zoology bagged the third prize. The winners of the competition were honored with mementos during the program. The importance of biodiversity in conservation of nature was depicted by a meme performance by the students of II B.Sc. Zoology.

Beneficiaries: 120

1. Science Departments of St. Mary's College (Autonomous), Thoothukudi in association with the **Parent Teachers Association** organised **five days webinar for parents** from **17th May 2021 to 21th May 2021** on the topic "**Valarum Thalai Muraiyum Valamana Vaalkaiyum**" sponsored by the DBT, Government of India, New Delhi. On **17th May 2021**, the Speaker of the day **Dr. Soundara Mahadevan**, Head, Department of Tamil, Sadakathullah Appa College, Tirunelveli delivered a motivational talk on "**Illya Bharathathai Uruvakkum Pettorkal**". In his talk he explained the expectations of the children, guidelines for the parents to handle their children, created awareness on writing public service exams and encouraged the students to become administrative officers.
2. The **Department of Botany**, St. Mary's College (Autonomous), Thoothukudi, hosted the inauguration of the **Career Oriented Course on TNPSC Mastery** on **16th July 2024**. This comprehensive coaching program aims to equip students with the necessary skills and knowledge to succeed in the Tamil Nadu Public Service Commission (TNPSC) examinations. Sponsored by the Department of Biotechnology (DBT), New Delhi, under the Star College Scheme, this initiative underscores the commitment to enhancing career guidance and employment opportunities for students. The inauguration event was graced by esteemed resource persons, including Mrs. Petchiamal, Assistant Director, District Employment and Career Guidance Centre, Thoothukudi, and Mr. S. Syed Mohammed, District Employment Officer from the same centre. TNPSC trainers Mr. Periaraj and Mr. Vetrivel also played a crucial role in the event. This career-oriented course benefits 55 students, providing them with in-depth coaching and strategic preparation for

- TNPSC exams, fostering a conducive learning environment and paving the way for their future success in public service roles.
3. Science Departments of organised a **two-day orientation programme** for under graduates on the topic “**Enhancing Attitude and Behaviour for success: Strategic Study Planning, Aptitude Test Mastery and Exam Preparation Techniques** on **20th August 2024 and 21st August 2024**. The resource person of program was Er. Nedunchezian, Rt. Senior Engineer of Railway, Chennai. The student was 297 III UG and 265 II UG students participated in the programme. The resource person began his session with motivational quotes and explained the guidelines for the preparation of exams. He suggested tips to study strategically, emphasized the importance of reading by conducting aptitude test. He opens the platform for mock interview and participants become well conversant with the same. Participants gave the feedback that, this orientation program was very useful as they were enlightened with ideas for success in their life.
 4. Parthenium is an invasive species posing significant threats to agriculture, biodiversity, and human health. Its rapid spread in India has led to reduced crop yields. Addressing these challenges, ICAR SCAD Krishi Vigyan Kendra, Thoothukudi, in collaboration with St. Mary's College (Autonomous), Thoothukudi, organized the "**Parthenium Awareness Week**," on **20th and 21st August 2024**. This initiative aims to educate students and the public on effective eradication methods for Parthenium and to promote sustainable practices. On 20th August, Mr. P. Velmurugan, Scientist, Horticulture Department, ICAR SCAD Krishi Vigyan Kendra, Thoothukudi acted as the resource person. This session provided participants with detailed knowledge of various methods used for Parthenium removal. Topics covered included manual uprooting, herbicide spraying techniques,

and the safe disposal of the uprooted biomass. A special focus was given to composting methods, where participants learned how to convert the uprooted Parthenium plants into compost. This sustainable practice reduces the environmental impact and converts the harmful weed into a resource that can benefit soil fertility. On the second day, Dr. Ananth, Scientist, Animal Science: ICAR - SCAD Krishi Vigyan Kendra, Thoothukudi acted as the resource person. He focused on diseases and allergies caused by Parthenium and how that can be treated with the help of medicinal plants. Also, he talked about the removal of Parthenium plants. The participants were greatly benefitted through this programme. **No of beneficiaries:**

110

5. A Science **awareness programme** was organised in the RC Middle School, Anthoniyarpuram, Thoothukudi on **5th September 2024**. The programme began with an inaugural session, Ms. M. Anitha of II B.Sc., Chemistry delivered a motivational speech on the role of science in shaping the future. She also explains the importance of space science. Ms. Pooja and Ms. Jeffrina of II B.Sc., Chemistry demonstrated the practical experiments in areas like physics and chemistry. Students got an opportunity to work on simple science experiments and participated in the quiz. Prizes were awarded to the winners to motivate and recognize their knowledge. Fr. Stephen Mariadas, Correspondent, RC Middle School, Anthoniyarpuram made the arrangements for smooth conduct of the program. All the arrangements for this programme were organized by the staff in-charge Dr. A. Lakshmi, Dr. B. Divya and II B. Sc. Chemistry students. Around 150 School students got benefitted through this awareness programme.

Project Based Learning – Student Based Pedagogy

Multidisciplinary and interdisciplinary learning are the needs of the hour. Accordingly, the interdisciplinary projects assigned to the students have helped them function as a collective, outside their chosen subjects. The collaborative works of students from different disciplines helped them to exhibit collective ideas, thereby, enhancing both the discussion work and the processing of knowledge sharing across multidisciplinary barriers. The DBT Star College Scheme provided our students with the wonderful opportunity to carry out interdepartmental projects. In doing so, our students have developed key skills and abilities that would serve in the future. It has instilled intrinsic motivation to our students as it centers student learning as an essential question or problem and a meaningful outcome. This type of project-based learning benefitted every student in terms of critical thinking, problem solving, teamwork, communication and leadership.

2019 – 2020

1. Assessment of water quality parameters along the selected coastal areas of Thoothukudi.
2. Isolation and screening of microalgae from natural habitats in Thoothukudi coast for antibacterial sources.
3. Preliminary phytochemical screening and pharmacognostic studies on leaves of selected weeds.
4. Macroscopic and microscopic studies on selected species of Lamiaceae family.
5. Characterization of seaweeds and effect of seaweed liquid fertilizer on seed germination of leguminous plants and growth parameters of *Brassica juncea*.

6. Phytochemical screening and antioxidant activity of *Tecoma stans*.
7. A study on the extraction of natural dye and its application on selected fabrics.
8. Comparative study of effect of different substrates on yield of oyster mushroom and its nutritional value.
9. A survey on the soil quality parameters in the Anthonyarpuram region.
10. An analysis of Biological Oxygen Demand of fresh water samples collected from Thoothukudi district.
11. Green synthesis of copper nanoparticles using sea weeds.
12. Algae mediated synthesis of copper nanoparticles.
13. Biogenic synthesis of copper nanoparticles using *Sargassum* spp.
14. A study of acoustical parameters of fruit extracts.
15. Measurement of thermal conductivity using Lee's Disc and Forbe's method.
16. Synthesis and characterisation of SnO nanoparticles via Co-precipitation method.
17. Synthesis and characterisation of nickel oxide nanoparticles by chemical precipitation method.
18. Comparative study of antireflection coating on fluorides.
19. Designing of optical minus filter in visible spectrum.
20. Growth, structural and optical properties of pure KDP single crystals by slow evaporation method.
21. Antibacterial activity of *Phallusia nigra* and *Didemnum psammatores* against human pathogens.
22. Isolation and genetic characterization of heavy metal tolerant bacteria from industrial area.

23. In-vitro antiinflammatory activity of ethanolic extract of *Didemnum psammatoedes*.
24. Evaluation of calcium content and XRD studies in the shells of some species of Gastropods.
25. Effect of ethanolic extract of *Phallusia nigra* and *Didemnum psammatoedes* on *Artemia salina*.
26. Analysis of bioactive constituents from the marine gastropod *Lambis lambis*.
27. Characterization of bioactive compounds in methanolic extract of *Lagocephalus inermis* from Thoothukudi coast.
28. Assessment of Biological Oxygen Demand as an indicator of threat to species in Gulf of Mannar, Tamil Nadu.
29. Isolation and characterization of polyhydroxy butyrate producing bacteria from contaminated soil of Thoothukudi region

INTER-DEPARTMENTAL PROJECTS

1. An investigation on the biogenic synthesis of copper, silver and gold nanoparticles using a mixture of *Azadirachta indica* and *Solanum trilobatum* extracts.
2. Corrosive inhibitive effect of *Triticum aestivum*, *Brassica nigra*, *Trigonella foenum - graecum* extracts on acid corrosion of mild steel.
3. Isolation of bacteria for degradation of microplastics extracted from Thoothukudi sewage.
4. Documentation of flora in St. Mary's College campus.
5. An evaluation of biodegradability of polythene by soil bacteria.

2020 -- 2021

1. Study on antioxidant potential, FTIR and GC-MS analysis of *Jatropha integerrima*.
2. Role of *Colocasia esculenta* in phytoremediation of detergents under laboratory conditions.
3. Phytochemical analysis of *Syringodium isoetifolium* and *Cymodocea serrulata*.
4. Analysis of soil quality using physicochemical parameters from selected sites of Thoothukudi.
5. A comparative study of phytochemical attributes, antibacterial and antihelminthic activity of *Solanum xanthocarpum* and *Datura metel* leaves.
6. A study on the morphology and seed coat anatomy of selected economically important seeds of Brassicaceae family.
7. Synthesis and characterisation of poly (aniline-co-ortho nitroaniline) - FeCl_3 composites and its application in electrocoagulation of malachite green.
8. *Brassica oleracea* var. *botrytis* stem extract mediated green synthesis of platinum and platinum-silver nanoparticles and its antibacterial applications.
9. Synthesis and characterization of Poly (p-aminobenzoic acid-co-p-anisidine).
10. Phytogetic generation of cobalt oxide nanoparticle using *Phyllanthus niruri* extract and evaluation of its antibacterial and antioxidant properties.
11. Structural and surface morphological study of synthesized Poly-N, N-dimethylaniline /graphite composite.
12. A study on colour removal efficiency of acid orange 52 solution by electrocoagulation.

13. A study on synthesis methods of silver nanoparticles and its bioapplication.
14. Synthesis and characterisation of poly (aniline-co-ortho nitroaniline) - TiO₂ composites and its application in photodegradation of methylene blue.
15. Structural and optical characterization of cuprous oxide nanoparticles.
16. A study of classification of lands of Thoothukudi.
17. Microstructural characterization and anti-bacterial activity of Cu₂O nanostructures.
18. A study of acoustical parameters of selected edible oil.
19. Solar inverter.
20. Solving Newton's equations using Microprocessor 8085.
21. Detection of object distance using Arduino UNO.
22. Green synthesis of zinc oxide nanoparticles: An eco-friendly approach.
23. Analysis of nutritional components and accumulation of heavy metals in selected bioindicators in Therespuram and Vembar coast, Thoothukudi.
24. In-vitro antioxidant activity of *Phallusia nigra* and *Didemnum psammatoedes*.
25. An analysis of the nutritive values of marine bivalve *Donax faba* from Thoothukudi coast.
26. A comparative study on the physicochemical parameters of soil samples collected from Thoothukudi district.
27. Evaluation of antimutagenic activity of *Donax variabilis* on the root tip of *Allium cepa*.
28. An analysis of bioaccumulation of heavy metals in the selected shell and finfishes of Thoothukudi coast.

29. In silico characterization of *Allium cepa* lectin - A potent antiviral protein.
30. Antioxidant activity of methanolic extract of puffer fish *Lagocephalus inermis* from Thoothukudi coast.

INTER-DEPARTMENTAL PROJECTS

1. Comparative study on parameters of soil collected from Thoothukudi district.
2. Impact of freezing process on the nutritive content of the flesh of white shrimp.
3. Phytoplankton diversity in St. Mary's campus.
4. Analysis of selected branded commercially available tea and tea dust from Thoothukudi.
5. Synthesis of zinc oxide and silver nanoparticles from colonial ascidian *Didemnum psammatoedes*.

2021 -- 2022

1. Study on antioxidant potential, FTIR and GC-MS analysis of *Cryptostegia grandiflora*.
2. A comparative study on phytochemical attributes and antibacterial activity of banana peels.
3. Study on isolation and identification of micro algae from Mullakadu marine ecosystem
4. Pollen viability and pollen germination tests in selected plants of Thoothukudi district.
5. Phytochemical analysis and antibacterial activity of *Ricinus communis*.
6. Isolation and identification of phytoplankton and water quality of pond water

7. A study on the growth of *Jasminum auriculatum* callus cultures in MS Media with various concentration of growth regulators.
8. Study on the metabolites of selected *Amaranthus* species and its response against salt stress.
9. Impact of mixtures of copper and ammonia on chosen biochemical parameters in a water hyacinth
10. Synthesis and characterisation of L-arginine and L-cysteine doped nickel sulphate single crystals
11. Assessment of soil quality parameters of agricultural farmlands in Thoothukudi and Ramnad districts using digital mini soil lab.
12. Investigation of colour intensity of henna extract with natural and chemical substances by colourimetry.
13. Phytochemical analysis and study of rate of extraction of Lawsone from *Lawsonia inermis*.
14. Biosynthesis of nanoparticles using *Moringa oleifera*.
15. A study on synthesis of different nanoparticles using extracts of *Terminalia bellirica*.
16. Ecofriendly synthesis of tellurium nanoparticles from *Conus betulinus* and its applications.
17. Study on acoustical parameters of ethyl propionate with curcumin.
18. Methodology of grid solar systems.
19. Programming and execution of thermodynamic laws using C++ and 8085 Microprocessor.

20. Synthesis and characterization of silver nanoparticles.
21. Structural and optical properties of CuO thin films synthesized using SILAR Method.
22. Soil moisture sensor using Arduino UNO.
23. Growth and characterization of copper sulphate doped urea and magnesium sulphate single crystals
24. Terrain analysis, 3D DEM visualization and creation of COVID-19 Map
25. Biomonitoring by assessing Biological Oxygen Demand in and around Thoothukudi water bodies
26. A comparative study on bioactive substances, antibacterial and antioxidant activities of *Penaeus monodon*, *Palaemon adspersus* and *Azadirachta indica* from Punnaikayal coast
27. An investigation of rhizospheric actinobacterial species.
28. A study of actinomycetes from the salt pan soil.
29. Synthesis and characterization of silver nanoparticles from ascidians and evaluation of its antioxidant activities.
30. Silver nanoparticles from ascidians: Synthesis, characterization and corrosion inhibitory action.
31. An ecofriendly synthesis of tellurium nanoparticles from the marine bivalve shell *Cucullaea petita*

2022 – 2023

1. Study on phytochemical, antioxidant potential, FTIR and GC-MS analysis of *Cordia myxa*.

2. Phytochemical screening, nutritive values and antibacterial activity of selected Amaranthaceae members
3. Assessment of pteridophyte diversity in and around Kamamkuli pond, Killiyoor Taluk, Kanniyakumari district.
4. Comparative study on phytochemical screening, antioxidant and antibacterial activities of different fruit samples.
5. Exploration of floristic diversity in Vagaikulam village, Thoothukudi district
6. Phytochemical screening, FTIR, antibacterial and anthelmintic activities of leaf and flower extracts of *Catharanthus roseus*.
7. Synthesis and characterisation of Poly (p-aminobenzoic acid) palladium - graphene oxide composite.
8. Synthesis and characterization of novel poly (p-aminobenzoic acid) iron - graphene oxide composite.
9. Synthesis and characterisation of poly (p-aminobenzoic acid) Ruthenium – graphene oxide composite
10. A facile one pot synthesis of Au-Ru-Pt nanoparticle and evaluation of their antibacterial and antioxidant activities.
11. Synthesis and characterization of Ruthenium / polyaniline core–shell nanocomposite.
12. Chemical polymerization of poly (aniline-co-3-anisidine) / chitosan composite and its characterization.
13. Removal of lead and zinc ions from solution using novel polyindole / starch composite

14. Study of absorption of zinc and lead ions by aberrant polyindole / agar-agar composite.
15. Synthesis and characterization of polyindole bovine serum albumin composite.
16. A study on chemical polymerization of indole chitosan composite and its characterization.
17. Silver nanoparticles loaded on sea shell using *Alkanna tinctoria* bark extract and its applications.
18. A comparative study on efficient inhibition of green inhibitors for mild steel in acidic medium: A sustainable and green approach
19. *Alkanna tinctoria* bark extract mediated green synthesis of gold nanoparticles: Characterization and applications.
20. Structural and optical characterization of CuI nanoparticles using co-precipitation method.
21. Study of acoustical parameters of ethyl propionate with n-propanol using ultrasonic technique.
22. A systematic study of designing minus filter using TiO₂ and SiO₂.
23. ARNIM – Delta wing light weight flyer using portable Wi-Fi.
24. Effect of cadmium doping concentration on the structural and morphological properties of ZnO nanoparticles.
25. Effect of annealing temperature on the structural and morphological properties of NiO nanoparticles.
26. A study of macrobenthos with reference to quality of water to assess the intensity of pollution along the Thoothukudi coast

27. Comparative profiling of sensory, physical, chemical and microbial characteristics of raw milk samples of cow and goat.
28. Isolation of bioactive compounds and pharmacological properties of marine Gastropod *Lambis truncata*.
29. Distribution and accumulation of heavy metals in molluscs from Thoothukudi coastal regions.
30. A study on formulation and evaluation of herbal hand sanitizer.
31. Bioactive potential of marine puffer fish *Arothron immaculatus* from Thoothukudi coast.
32. Larvicidal, antibacterial and antifungal activity of chosen tunicate.
33. Antioxidant and GC-MS analysis of marine puffer fish *Lagocephalus sceleratus* from Thoothukudi coast.
34. Biogenic synthesis, characterization and application of calcium nanoparticles from *Harpulina lapponica*.
35. Identification of bioactive compounds and antibacterial activity of marine echinoderm *Salmacis virgulata* from Gulf of Mannar.
36. Bioadsorption kinetics of cuttle fish and starfish shells.
37. A study of efficacy of bioadsorption of algal biochars.
38. Antidiabetic and antioxidant activity of chosen tunicates.

Inter Departmental Project

1. Phytochemical, antioxidant potential, GC-MS and antibacterial activity of *Jatropha tanjorensis*.

2. Phytochemical screening, antioxidant, GC-MS and antibacterial activity of leaf extract of *Avicennia officinalis*
3. Bioremediation by adsorption using carbonaceous materials
4. Molecular docking studies of bioactive compounds from skin extract of marine puffer fish *Lagocephalus sceleratus*
5. Removal of metal ions from solution using polypyrrole-protein composites

2023 - 2024

1. Phytochemical screening and antibacterial activity of *Physalis angulata*.
2. Diversity of pteridophytes in and around Malaikovil, Chitharal, Vilavancode Taluk, Kanniyakumari district.
3. Physico-chemical analysis of soil samples from various localities of Thoothukudi district.
4. Green synthesis of Ag, Cu and Zn nanoparticles of *Avicennia officinalis* leaf extract and evaluation of its antibacterial activity.
5. Phytochemical screening, antioxidant and antibacterial activities of different parts of *Moringa oleifera*.
6. Phytochemical analysis, antibacterial activity, FTIR and GC- MS analysis of stem and leaf of *Biophytum poterioides*.
7. Synthesis and characterisation of egg shell infused poly (p-aminobenzoic acid) - Cu - Co oxide composite
8. A facile synthesis of poly (aniline-co-anisidine) / sodium alginate composite, characterisation and its application

9. Synthesis, characterization and adsorption studies of novel polyindole-agar-agar composite
10. Adsorptive chitosan grafted polyindole composite: Synthesis and characterization.
11. An investigation of synthesis, characterization and adsorptive behaviour of polyindole-bovine serum albumin composite.
12. Quantification of microplastics and identification of soil constituents in Thoothukudi soil samples after 2023 flood.
13. Formulation and physico-chemical characterisation of skin care powder containing active herbal ingredients.
14. The diversity of caffeine in tea and exploring molecular interactions of caffeine with biological target.
15. An innovative method for synthesizing ZrO_2 nanoparticles using Punica granatum peel extract and their characterization.
16. Effect of solvents on the synthesis and characterisation of ZnO nanoparticles.
17. Synthesis and characterisation of tin oxide nanoparticles by chemical precipitation method
18. Synthesis, characterisation and antimicrobial activity of silver oxide nanoparticles using *Mentha spicata* leaf extract.
19. Study of acoustical parameters of ethyl propionate with n-butyl alcohol using ultrasonic technique
20. Fabrication and characterization of Cu-doped- ZnO , thin films prepared by SILAR method.
21. Analysis of marine conch resources of Therespuram coast, Thoothukudi.

22. Evaluation of in-vitro free radical scavenging activity of *Phallusia nigra*.
23. A study of diversity of commercially important fishes from the selected coasts of Thoothukudi
24. Effect of lowcost artificial feed with varying protein concentrations on growth parameters of *Tilapia*
25. Organic transformation: Exploring biocomposting vs vermicomposting
26. Evaluation of proximate composition and GC-MS analysis of marine grouper fish *Fusco marginatus* from Thoothukudi coast.

Inter Departmental Project

1. Study on the extraction of natural dyes and its effect on insects behaviour.
2. Virtual drug discovery for hypertension: Computational strategies and applications.
3. Thermodynamic analysis of excess parameters in binary mixtures of n - propyl acetate and DMSO at various temperatures for industrial applications.
4. A study on heavy metal accumulation in giant tiger prawn (*Penaeus monodon*)
5. A survey of freshwater microalgae in Thoothukudi: Diversity and ecological significance

NATIONAL SCIENCE DAY CELEBRATION

1. On **28th February 2020**, **Marian Star Science Fest 2020** was organised by the Marian Star Centre, St. Mary's College (Autonomous), Thoothukudi. The celebration began with welcome address by Dr. Sr. A. Arockia Jenecius Alphonse, the overall coordinator and Member secretary of the Marian Star Centre, DBT, Star College Scheme. Rev. Dr. Sr. A. S. J. Lucia Rose, Principal, St. Mary's College (Autonomous) delivered the presidential address and Rev. Sr. Flora Mary, Secretary offered her felicitation. **Dr. S. Booma Devi**, Women Scientist - DST, Department of Physics, National Institute of Technology, Tiruchirappalli graced the occasion as the chief guest. In her address, she emphasised on the theme of the year 2020, "Women in Science". Four students from various Departments threw light on the importance of women in science in the panel discussion. The winners of the various competitions for the college and school students were honoured with certificates, trophies and cash awards during the celebration. The function came to an end with vote of thanks delivered by Dr. G. Flora, Assistant Professor of Botany, St. Mary's College (Autonomous), Thoothukudi. **Beneficiaries: 526**
2. On **30th May 2021**, **Marian Star Science Fest 2021** was organised by the Marian Star Centre, St. Mary's College (Autonomous), Thoothukudi. **Ms. Archana**, Veteran Video Jockey, who started her career as a news reader, hosted several popular shows in SUN, VIJAY and ZEE TAMIL Television Networks, followed by the entry as a wildcard contestant in the BIG BOSS SEASON 4 Show in Star Vijay Television Network Chennai was the guest speaker. In her special address Ms. Archana appreciated the initiatives taken by Marian Star Centre, St. Mary's

College (Autonomous), Thoothukudi, in conducting a number of events which were very useful for both the students and the faculty. She also emphasized the importance of the SMS rule to be followed during the pandemic, i.e. to Stay Safe, to Wear Mask and to maintain Social Distancing. **Beneficiaries: 481**

3. The **Marian Star Science Fest 2022** was organised by the Marian Star Centre, St. Mary's College (Autonomous), Thoothukudi on **1st March, 2022**. Dr. S. Mary Baptista Janet, Dean of the School of Biological Sciences and Associate Professor of Zoology, delivered the welcome address, extending warm greetings to the dignitaries, faculty members, and students. Rev. Dr. Sr. A. S. J. Lucia Rose, Chairman of the STAR College Scheme at St. Mary's College, delivered the presidential address. She emphasized the role of institutions in fostering scientific curiosity and research among young minds. The highlight of the event was the address by the Chief Guest, **Rev. Fr. Dr. S. Ignacimuthu, S. J.**, Scientist, Director of Xavier's Research Foundation, St. Xavier's College, (Autonomous), Palayamkottai. His speech on **"Pursuing Science"** provided valuable insights into the evolving landscape of scientific research and the significance of perseverance in scientific endeavors. He also shared his experiences in research and development, motivating students to explore various fields of science with passion and dedication. Ms. M. Jothimani, Dean of the School of Physical and Computing Sciences and Associate Professor of Computer Science, delivered the vote of thanks. **Beneficiaries: 513**

4. The **Marian Star Science Fest'23** and Alumnae Science Rendezvous by the Marian Star Centre, were organised by the Marian Star Centre, St. Mary's college to commemorate the international science day on **March 1st 2023**. The events of the programme focused on the main theme for Science Day 'Global Science for Global

Wellbeing’. The programme started with the presidential address of Rev. Sr. Dr. A. S. J. Lucia Rose, Principal, St. Mary’s College. She addressed the gathering and infused the scientific zeal to the students. Reputed Alumnae of St. Mary’s College, who excel in the various fields of science were felicitated in the program. **Ms. S. Subbulakshmi**, Alumna (2007 – 2010 Batch), Senior Officer, Quality Control Maintenance and Technical Services Department, Southern Petrochemical Industries Corporation Limited, Thoothukudi. **Ms. R. K. Deepalakshmi**, Alumna (2013 – 2018 Batch), Research Scholar, Hindusthan College of Arts and Sciences, Coimbatore, **Rev. Sr. Dr. P. Leema Rose**, Alumna (2006 – 2008 Batch), Assistant Professor of Botany, Holy Cross College (Autonomous), Nagercoil, **Dr. A. Panimaya Valan Rakkini**, Alumna, (1992 – 1995 Batch), Assistant Professor of Physics, Department of Science and Humanities, National Engineering College, Kovilpatti, **Dr. P. Arockia Mary Fernandez**, Alumna (1988 – 1991 & 2002 – 2004 Batch), Assistant Professor of Zoology, Aditanar College of Arts and Science, Tiruchendur, **Dr. N. Safina Devi**, Alumna, (2003 – 2006 Batch), Assistant Professor of Mathematics and V.O. Chidambaram College, Thoothukudi. The experts shared their expertise and experiences. They expressed their gratitude to the college for have given them the right platform to excel in their scientific career. The stage was an arena for the young scientists of St. Mary’s College to discuss and put up their points in the panel discussion on ‘Science in Day-to-Day life which was moderated by Dr. P. Mary Baptista Janet, Dean of Biological Sciences and Associate Professor of Zoology, St. Mary’s College. The panel included A. Spinolar Romy of III B.Sc. Chemistry, J. Adlin, II B.Sc. Mathematics, P. Kaviya, II B.Sc. Psychology and P. Sai Akshaya, I B.Sc. Botany. They emphasised the importance of science which has engrossed our day-to-day life

from food to finance and genes to cell phones. The discussion was an enlightening session for the students to understand the importance of scientific innovations and their applications in our daily life. The programme was adorned by the awesome cultural performance of the students that reverberated the scientific aura. During the programme the winners of various scientific competitions conducted by the Science Departments in commemoration of the Science Day were felicitated with cash awards. **Beneficiaries: 520**

5. The **Marian Star Fest'24** was celebrated at St. Mary's College (Autonomous), Thoothukudi on **28th February 2024**. **Rev. Sr. Dr. Jessie Fernando**, Principal, St. Mary's College (Autonomous), Thoothukudi acted as the resource person. She has addressed the school students and motivated them to take up science in their higher studies. She appreciated the participants and gave away the prizes for the winners of Inter School Science Quiz'24. **Beneficiaries: 530**

1. On **26th February 2020**, an **Interdepartmental Science Quiz'20** was conducted in the Star Hall. The UG students of the Science Departments (Botany, Zoology, Physics, Chemistry, Maths and Computer Science) of the College were the participants. One UG student from each department represented the team. Six teams participated in the quiz competition. **Ms. B. Divya, Assistant Professor of Chemistry and Dr. R. Sri Priya, Assistant Professor of Zoology were the quiz mistresses.** The students enthusiastically participated in the quiz competition. Cash awards and shields were given to the prize winners. **Beneficiaries: 30**
2. **Science Departments** organised an **Interdepartmental Science Quiz'22** for third year science students on **24th February 2022**. Participants were the students from Physics, Chemistry, Botany, Zoology, Microbiology and Computer science. Ms. Dhanalakshmi, Assistant Professor, Department of Physics was the quiz mistress. The objective of this Quiz was to inculcate scientific temper among the young students. Questions were framed from UG curriculum and scientific concepts. Quiz includes four rounds: a quest round, who am I round, visual round and a rapid-fire round. The students participated enthusiastically with confidence. They found this competition very useful. **Beneficiaries: 35**
3. A **“Quiz on Everyday Chemistry”** was organised by the **Department of Chemistry**, St. Mary's College (Autonomous), Thoothukudi under Star College Scheme sponsored by Department of Biotechnology, Government of India, New Delhi on **07th February 2023**. The quiz comprised of multiple-choice questions covering topics such as common household chemicals, Environmental Chemistry and Food Chemistry. 35 students participated in the quiz. Ms. A. Spinola Romy

and Ms. S. S. Shruthi of III B.Sc. Chemistry secured I prize and Ms. P. Johnney of I M.Sc. Chemistry secured II Prize. **Beneficiaries: 35**

4. The **Department of Computer Science** conducted a quiz competition on the topic "**Creators of Social Media and Computer Languages**" on **10th February 2023**. Students from III B.Sc. Computer Science and II M.Sc. Computer Science enthusiastically participated in this competition. The objective of this competition was to motivate the students to delve into the history and impact of the technological advancements in the field of Computer Science and to recognise the minds behind them. Ms. E. Petchiammal and Ms. S. Sethumalini of III B.Sc. Computer Science were declared as winners. **Beneficiaries: 38**
5. The **Department of Psychology** organised memory test on "**Psychologists and their contributions**" for all the microbiology students on **24th February 2023** in the Department of Psychology. The students were instructed to recall on the spot all the renowned Psychologists and their prominent contribution to the field of Psychology. The prize winners were Ms. J. Lilliann Deva Prasana from I B.Sc. Psychology and Ms. P. Grace Sheebha Rani from I M.Sc. Psychology. **Beneficiaries: 17**
6. The **Department of Microbiology** organised rapid fire round on "**Microbiology**" for the Microbiology students on **27th February 2023** in the department of Microbiology. All the students participated in the competition. Ms. A. Meshila of III B.Sc. Microbiology and Ms. M. Saranya of I M.Sc. Microbiology were the prize winners. The prize winners were congratulated and cash prize was given to the prize winners as a token of appreciation. **Beneficiaries: 27**
7. A quiz competition on "**Memory Test on Know Your Lab**" for UG physics students and "**Phenomena in Physics**" for PG students was conducted by the

Department of Physics on 24th February 2023. A total of 26 students participated in the event, showcasing their knowledge and quick recall abilities. After an engaging and competitive session, Ms. D. Simona emerged as the winner in the UG category, while Ms. R. Anjutha secured the top position in the PG category. Both the winners were rewarded with a cash prize of Rs. 500 each. The event successfully enhanced students' understanding of physics concepts in an interactive manner. **Beneficiaries: 26**

8. The competition ‘Zoowiz’, a “**Memory Test on Zoological Specimens**” was conducted by the **Department of Zoology on 28th February 2023** in commemoration of the Science Day for the UG and PG students of the Zoology department. The competition was conducted to test the observational power of students and to create awareness on zoological specimens. The students who could remember and recall the maximum number of specimens with the correct genus and species name were given cash awards. Ms. S. Rijola of II B. Sc. and Ms. R. Swarna of I M. Sc. Zoology won the first and the second prizes respectively. The prize winners were given cash awards during the Marian Star Science Fest’23.

Beneficiaries: 38

9. The **Department of Mathematics, St. Mary’s College (Autonomous), Thoothukudi**, organised an **Extempore Quiz Competition on 28th February 2023**, for Maths students. The “**Quiz on Mathematics**” was the highlight, testing participants’ skills in algebra, calculus, statistics, and logical reasoning. The competition featured multiple rounds, including a preliminary written test and a rapid-fire session. After intense competition, the winners were P. Kamaladarshni of III B.Sc. Maths and J. Charlet Jenisha of II M.Sc. Maths. Their achievements were applauded and the event successfully encouraged students to enhance their

mathematical and analytical skills. The competition was a great success, fostering academic excellence and a spirit of healthy competition among students.

Beneficiaries: 48

10. In commemoration of National Science Day, memory test on “**Plant’s Scientific Epithet**” was organised by the **Department of Botany** for UG and PG Botany students on **28th February 2023**. Twenty-five plants were selected from the list of 110 plants to be kept for learning binomial everyday as “Thinamum Oru Plant”. A total of 103 students participated, Ms. G. Lavanya of II M.Sc. Botany and Ms. P. Satheeswari of III B.Sc. Botany won the prizes. **Beneficiaries: 103.**

CONCLUSION

The Star College Scheme emphasized holistic improvement of science education at undergraduate level with special emphasis on practical training to students.

The initiative provided support for

- Improving knowledge and skills of teachers in basic Sciences and specialized techniques,
- Access to specialized infrastructure to students,
- Assurance of consumables, reagents and chemicals for students,
- Substantial hands-on experience in designing and conducting practicals to ensure critical thinking and
- Access to books and journals including e-journal facilities.

Significant improvements in the mission of imparting quality education and training to the students have been achieved upon receiving support from the Star College Scheme. Some improvements may be listed as follows:

1. The scheme has made it possible for the departments to organize seminars at different levels - local, national and international- that widened the students' scope of learning and evoked in them an interest to explore the practical aspects of the theoretical knowledge gained in classroom.
2. Trips to research laboratories, scientific institutes and industrial visits have proved to be highly beneficial to the students.
3. The undergraduate students were able to take up small in- house projects that helped them to gain an insight into research methodology.
4. A series of guest lectures were organized for the benefit of the students.
5. The funds offered under the Star College Scheme have lent a shoulder to bag on the financial status of the departments too.