DEPARTMENT OF BIOTECHNOLOGY
STAR COLLEGE SCHEME

CONSOLIDATED ANNUAL PROGRESS REPORT
(2023–2026)

Submitted to

सत्यमेव जयते
Department
of Biotechnology
Govt. of India

DEPARTMENT OF BIOTECHNOLOGY
Ministry of Science and Technology
Government of India
New Delhi

Sanction Order No: HRD-11011/16/2022-HRD-DBT

Submitted by

IN GOD WE TRUST
SINCE 1964

G.T.N. ARTS COLLEGE (AUTONOMOUS)
A Telugu Linguistic Minority Institution | Affiliated to Madurai Kamaraj University
Re-accredited (Cycle II) by NAAC with "A++" Grade | Indexed in NIRF 2025
Recognized under DBT Star College Scheme | Supported by DST-FIST Program
Skill Hub Initiative of PMKVY 4.0 by MSDE, New Delhi
Old Karur Road, Dindigul - 624 005, Tamil Nadu.
www.gtnartscollege.ac.in

Sl. No	PARTICULARS
1.	ANNUAL PROGRESS REPORT 2023 – 2024
2.	ANNUAL PROGRESS REPORT 2024 – 2025
3.	ANNUAL PROGRESS REPORT 2025 – 2026

DEPARTMENT OF BIOTECHNOLOGY

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Department of Biotechnology

Proforma for submission of Annual Progress Report
Supported under Star College Scheme

1. Name of the College : **G.T.N. Arts College (Autonomous), Dindigul, Tamil Nadu**

2. Name of Coordinator, Designation, Address, Phone nos. : **Dr. C. Subramani**
Assistant Professor, Dept. of Mathematics
G.T.N. Arts College (Autonomous)
Old Karur Road, Dindigul – 624 005
Tamil Nadu.
Mobile: 9894248495

3. Assessment duration: **09/01/2023 to 31/03/2023 and 01/04/2023 to 31.03.2024**
Duration in years: **1 Year and 3 Months**

4. Details of Departments Supported

Sl. No.	Name of Department	Courses (B.Sc./M.Sc./PG Diploma, certificate etc) offered	Regular Faculty members	
			Total = 65	
			With Ph.D.	Without Ph.D.
1	Chemistry	B.Sc., M.Sc., Ph.D	11	17
2	Mathematics	B.Sc., M.Sc., Ph.D	5	12
3	Physics	B.Sc., M.Sc.	10	5
4	Zoology	B.Sc.,	4	1

5. Number & Date of Advisory committee meeting: **Mentoring and Internal Advisory Committee meeting** held on **27.01.2024**

6. Qualitative improvements due to DBT support. Please highlight 5 salient points (within 500 words).

Qualitative improvements due to the support of DBT Star College Scheme

i) The participating departments are strengthened by the procurement of new scientific equipments with multiple numbers using the grant provided under the DBT Star College Scheme. More learning resources were made available for our students in the form of new books and journals in the library. It enables our students to get better exposure through effective hands-on training.

ii) In line with the objectives of the DBT Star College Scheme, the practical curricula for UG programmes (Chemistry, Mathematics, Physics and Zoology) are upgraded with the introduction of new experiments that involve the use of expensive consumables (chemicals, glassware, minor electronic components and software). This curriculum revision with more number of experiments helps for improving our students learning skills and brings the joy of learning.

iii) Laboratory manuals were prepared by the course teachers for all the experiments in the practical curriculum. These learning resources help the students for understanding experiments in a better way and also ensuring the smooth run of practical sessions.

iv) The DBT Star College Scheme supports conducting various activities periodically such as seminars, workshops, hands-on training and demonstration. These activities help the students stay updated with the trends in their domain, create avenues to interact with resource persons and improve the confidential level of the Undergraduate students when applying their knowledge through hands-on training.

v) This prestigious scheme provides an opportunity for school students and teachers to utilize the resources and motivates the students to opt for higher education in basic science.

vi) The scheme helps create a healthy academic environment among students and faculty members which leads in building an ecosystem of research, innovation and entrepreneurship.

vii) Visits to industry and academic institutions enabled the learners and faculty members in improving their knowledge and academic rapport for further collaborative activities.

viii) This premiere scheme facilitates student interaction with resource persons from reputed institutions like Bhabha Atomic Research Centre, Mumbai, Rajiv Gandhi Centre for Biotechnology, Kerala, Thermal Power Station, Kalpakkam, Shiksha Sanskruti Utthan Nyas, Tamil Nadu thereby creating an opportunity for exploring subject ideas and interact with industry veterans.

ix) The DBT supported laboratories and activities helped our institution attain the higher grade **"A++"** in the second cycle of **NAAC** Re-accreditation.

Interdisciplinary Minor projects and their impact or similar activities and their outcome

Sl. No.	Department	Title of the Project	Outcome
1	Chemistry	Phytochemical Screening Test for Holoptelea Integrifolia Leaf Extract and its Antibacterial Activities	Extraction of Phytochemical and its antibacterial activities
2	Mathematics	A Study on Vertex Domination Parameters of Graphs and their Applications	Computed and analyzed various vertex domination parameters for different graph families, explored applications in resource allocation and transportation networks.
3	Physics	Mathematical Approach and simulation study on Half Wave Rectifier Efficiency	Applications of Fourier series in the study of half-wave rectifier efficiency through mathematical simulation
		Measurement of optical bandgap of Cadmium Oxide thin film using UV-Visible spectroscopy	The project involves measuring the optical bandgap of Cadmium Oxide thin films using UV-Visible spectroscopy.
4	Zoology	A Study on antimicrobial activity of *Gloriosa superb* plant extract on *Escherichia coli*	Screening of phytochemicals present in the leaf extract of *Gloriosa superb*
		Effect of Treated Tannery Effluent on Morphometric Parameters of *Solanum Lycopersicum L*	The impact of heavy metals in the Morphometric Characters

7. **Any Novel aspect introduced or planning to introduce during the Scheme duration.**

- Introduced courses on Python, Sagemath, MATLAB, R-programming, Molecular biology, rDNA Technology, Experiments in Physical Chemistry, Volumetric Analysis, Analog Electronics and Digital Electronics. These courses helped the students widen their core subject knowledge.

- Mandatory interdisciplinary group project is introduced in all the participating departments

- Introduction of new experiments helps the students expand their knowledge

- Conducted workshops in the fields of Molecular Biology, Bio-medical Sciences, Agricultural Biotechnology, Bioinformatics, Nano-technology, Python programming, MATLAB, Sagemath, LaTeX and Drawing chemical structures using Chemdraw software by inviting domain experts to practice the learners through hands-on training and application oriented exercises.

- Industry and academic institution visits augment the industry-institution interface.

- Faculty members and students are skilling through practicing at Intercollegiate Meet, Hackathon and training programmes.

Future Plans

- Signing MoUs with research institutes and academic institution to strengthen research thrive

- Conducting the awakening training programmes for school students to bring interest in basis Science

- Conduct awareness programmes for the well-being of societal development

- Prepare and implement the skill enhancement training programmes for the students and community.

- Introducing a new course on SCILAB in Mathematics curriculum.

- Conducting programmes for students to explore career and higher education opportunities

8. **Lessons learnt / difficulties faced/suggestions if any, in implementation of the programme and utilization of DBT grant. (Max 3 points within 300 words).**

- Introduction of interdisciplinary group projects and compulsory internships for final-year students
- Improvement in the infrastructure facilities of all the participating departments using the DBT grant
- The image of the institution is elevating and popularizing through Star College Scheme activities
- Encouraging and supporting the knowledge of other department faculties for optimal use of equipment's
- Persuade the UG students to publish research papers, thereby inculcating a research interest in them.
- Encourage the students to participate and present papers at Conferences/Seminars/Symposia, etc.
- The Primary challenge in executing the program was delay in disbursing the DBT grant, causing setbacks in scheduling and resource acquisition.

9. **Key Performance Indicators**

Sl. No.	Indicator	Pre-support 2022-23								During/AfterSupport 2023-24								Remarks
		Department of Chemistry																
1	No. of students admitted	**Total = 23**								**Total= 38**								
		M= 12				**F= 11**				**M= 21**				**F=17**				
		SC	ST	OBC	G	SC	ST	OBC	G	SC	ST	OBC	G	SC	ST	OBC	G	
		3	0	9	0	4	0	7	0	4	0	17	0	3	0	14	0	
		Department of Mathematics																
		Total = 17								**Total= 22**								
		M= 4				**F= 13**				**M= 13**				**F= 9**				
		SC	ST	OBC	G	SC	ST	OBC	G	SC	ST	OBC	G	SC	ST	OBC	G	
		0	0	4	0	3	0	10	0	1	0	12	0	1	0	8	0	
		Department of Physics																
		Total = 16								**Total= 22**								
		M= 8				**F= 8**				**M= 11**				**F= 11**				
		SC	ST	OBC	G	SC	ST	OBC	G	SC	ST	OBC	G	SC	ST	OBC	G	
		4	0	4	0	2	0	6	0	4	0	7	0	2	0	9	0	

<table>
<tr><td rowspan="5"></td><td rowspan="5"></td><td colspan="16">Department of Zoology</td><td rowspan="5"></td></tr>
<tr><td colspan="8">Total =33</td><td colspan="8">Total= 36</td></tr>
<tr><td colspan="4">M= 18</td><td colspan="4">F= 15</td><td colspan="4">M= 19</td><td colspan="4">F= 17</td></tr>
<tr><td>SC</td><td>ST</td><td>OBC</td><td>G</td><td>SC</td><td>ST</td><td>OBC</td><td>G</td><td>SC</td><td>ST</td><td>OBC</td><td>G</td><td>SC</td><td>ST</td><td>OBC</td><td>G</td></tr>
<tr><td>3</td><td>0</td><td>15</td><td>0</td><td>3</td><td>0</td><td>12</td><td>0</td><td>6</td><td>0</td><td>13</td><td>0</td><td>4</td><td>0</td><td>12</td><td>1</td></tr>
<tr><td>2</td><td>No. of students passing out (%)Students Admitted/passing out(pass%)</td><td colspan="8">Chemistry – 100%
Mathematics – 90.47%
Physics – 92.30%
Zoology –100%
(Data is from 2020-23 batch)</td><td colspan="8">The end semester examinations of 2023-24 are yet to be conducted.</td><td></td></tr>
<tr><td>3</td><td>Drop-out rates</td><td colspan="8">Chemistry – 2.85%
Mathematics – 9.5%
Physics – 18.75%
Zoology – 32%
(Data is from2020-23 batch)</td><td colspan="8">Chemistry – 4.5%
Mathematics – 9%
Physics – 25%
Zoology – 29%
(Data is from 2021-24 batch)</td><td></td></tr>
<tr><td>4</td><td>No. of students opting for M.Sc.</td><td colspan="8">Chemistry – 14
Mathematics – 3
Physics – 3
Zoology – 2</td><td colspan="8">Not applicable</td><td>The end semester examinations of 2023-24 are yet to be conducted</td></tr>
<tr><td>5</td><td>Average marks</td><td colspan="8">Chemistry – 64
Mathematics – 65
Physics – 78.29
Zoology – 65</td><td colspan="8">Not applicable</td><td>The end semester examinations of 2023-24 are yet to be conducted</td></tr>
<tr><td>6</td><td>No. of hands-on experiments being conducted</td><td colspan="8">Chemistry – 42
Mathematics – 60
Physics – 60
Zoology – 12</td><td colspan="8">Chemistry –42
Mathematics – 49
Physics – 60
Zoology – 48</td><td rowspan="2">Practicals were conducted as prescribed in the proposal</td></tr>
<tr><td>7</td><td>No. of new experiments introduced</td><td colspan="8">NIL</td><td colspan="8">Chemistry – 7
Mathematics – 60
Physics – 11
Zoology – 21</td></tr>
<tr><td>8</td><td>Publications (scopus indexed)/patents, if any.</td><td colspan="4">Publications
Chemistry – 3
Mathematics – 1
Physics – 4
Zoology – 2</td><td colspan="4">Books
Chemistry – 3
Chapter - 1</td><td colspan="4">Publications
Chemistry – 2
Mathematics – 3
Physics – 11
Zoology – 1</td><td colspan="4">Books
Mathematics - 2</td><td>.</td></tr>
<tr><td>9</td><td>Training received by faculty</td><td colspan="8">Chemistry – 1
Mathematics – 4
Physics – 3
Zoology – 1</td><td colspan="8">Chemistry – 2
Mathematics – 4
Physics – 4
Zoology – 2</td><td>-</td></tr>
</table>

10	Exhibitions/seminars /training courses conducted	Chemistry – 1 Mathematics – 4 Physics – 2 Zoology – 1	Chemistry – 26 Mathematics – 8 Physics – 16 Zoology – 13		Training programme conducted for Students, Faculty and Laboratory Staff as prescribed in the Proposal
11	Books/journals subscribed from grants	**Journals Subscribed** Chemistry – 3 Mathematics – 3 Physics – 1 Zoology –1	**Books Purchased** Chemistry – 66 Mathematics – 20 Physics – 58 Zoology – 16	**Journals Subscribed** Chemistry – 5 Mathematics – 7 Physics – 0 Zoology – 1	Books and Journals were purchased from recurring grants.
12	Outreach activities (Popular lectures)	Chemistry – 1 Mathematics – 1 Physics – 0 Zoology – 1	Chemistry – 3 Mathematics – 1 Physics – 6 Zoology – 1		Outreach activities were conducted for High School Students and Teachers as detailed in the proposal.
13	Colleges mentored to apply for DBT Star College grants	Nil	M.V.Muthiah Government Arts College For Women, Dindigul, Tamil Nadu.		
14	Invited lectures	Chemistry – 02 Mathematics – 1 Physics – 0 Zoology – 1	Chemistry – 2 Mathematics – 2 Physics – 2 Zoology – 1		

10. **Self Evaluation**

Department	*Objective (as stated in proposal)	% achieved	Reasons for under achievement / If achieved, state in quantitative metrics
Chemistry	To strengthen the existing curriculum practical courses are enriched by introducing new application-oriented practicals in the respective discipline	100	**02** We have incorporated the necessary changes in the practical curriculum based on DBT proposal
	Drive the learners and faculty to progress technically expertise through Hands-on Training, seminars and projects	50	**01** Six projects are completed out of 15 projects.
	Conduct hands on training to the students in handling modern instruments	50	**01** One interdepartmental activity was completed. Many other collaborative activities will be carried out in the upcoming years
	Consenting the students to attend workshops, internships, summer training and industrial visits	50	**01** One Industrial visit was completed for first-year students and we planned to arrange two industrial visits for second and third-year students in the months of Feb – March 2024
	Encourage team work and social responsibility	50	**01** Two outreach activities have been completed and two more outreach activities are still in the planning stage.
Mathematics	To strengthen the existing academic and physical infrastructure for achieving	100	**02**

	excellence in teaching and training the undergraduate students		
	To devise a more standard curricula and standard operating procedure/ kits for practicals.	100	**02**
	To impart advanced knowledge to the teachers of Government schools in rural area in their discipline to manage academic and societal issues for the betterment of the region.	50	**01** The activities will be conducted in the upcoming year
	To provide access and exposure to the students to research laboratories and industries	50	**01** Faculty and students visited academic institution and industry for their exposures and the remaining proposed activities will proceed as planned.
Physics	To strengthen the existing curriculum, practical courses are enriched by introducing new application-oriented practicals in Physics	100	**02**
	Implementation of an inter-disciplinary-based learning experience helps to understand applications of science and technology and to select varying carrier options in different scientific fields	50	01 One interdisciplinary group project is completed.
	It will also support to impart advanced to the teachers of Government schools of rural	50	01 Exposure visits were arranged for Government school students and

	area in their discipline to manage the academic and social issues for the betterment of the region.		teachers to understand the equipment's available and various new experiments.
Zoology	1. To empower teaching and learning process by excelling the academic and physical infrastructure.	100	02
	2. To enrich the curriculum by introducing advanced courses related to applied biotechnology in the syllabus and increasing more number of practical courses.	100	**02**
	3. To create collaborations with reputed institutions, industries and other research laboratories.	50	01 Students and faculty visited the Madurai Kamaraj University laboratory and also the Ayurvedic unit to understand the process.
	4. To offer associated seminars, workshops, FDP/FIP, etc., supported by eminent experts where appropriate.	50	01 Conferences, Seminar and Hands-on training were given on Agriculture Biotechnology, Cell and Molecular Biology, Genetics.
	5. Students will have updated knowledge of recent trends in life sciences	50	01 Students underwent internship to diagnostic laboratory for learning IVF technique.

Course Coordinator

Dr.C. SUBRAMANI, M.Sc., M.Phil., Ph.D.,
Course Coordinator
DBT Star College Scheme
G.T.N. Arts College (Autonomous)
DINDIGUL - 624 005.
Tamilnadu, India

Head of the Institution

PRINCIPAL
G.T.N. ARTS COLLEGE
(AUTONOMOUS)
DINDIGUL - 624 005.

Proofs (S.No.6-14) of Key performance Indicators

6. No. of hands-on experiments being conducted (Newly introduced)

Department of Chemistry

1. Complexometric Titration - Estimation of Hardness of water using EDTA
2. Water Quality parameter Analysis
3. Instrumental method of analysis – Spectrophotometrically, Colorimetrically
4. To analyse Micronutrients of Soil sample of our college campus.
5. Chromatographic Techniques - Identification of Amino Acids by TLC, Separation of Leaf Pigments by Column Chromatography
6. Electrochemistry - pH metric (HCl Vs NaOH)
7. Adsorption: Adsorption of acetic acid on activated carbon charcoal

Department of Mathematics

1. PYTHON Programming
2. SAGEMATH
3. NUMERICAL METHODS WITH C
4. MATLAB
5. R-PROGRAMMING
6. LATEX

Department of Physics

1. Potentiometer – Calibration of high range voltmeter.
2. Conversion of Galvanometer into Voltmeter
3. Conversion of Galvanometer into Ammeter
4. Dielectric constant measurement
5. Clipper and Clamper
6. Active Filters
7. Shift Registers

8. BCD Adder and Subtractor
9. Counters
10. Encoder and Decoder
11. Flip-Flops

Department of Zoology

1. Identify the morphology of the insects present in the college campus
2. Squash preparation of salivary gland of Chironomous larvae for visualizing Polytene Chromosome
3. Tissue Preparation for microscopic observation
4. Developmental Stages in Chick embryo
5. Genomic DNA extraction and estimation of Nucleic acids Protein Extraction and quantitative estimation using UV-Visible Spectrophotometer
6. Protein extraction and quantitative estimation using UV-Visible Spectrophotometer
7. Estimation of Hemoglobin by Hemoglobinometer
8. Estimation of Carbohydrates, protein and Lipids in the give samples
9. Estimation of pH
10. Estimation of O_2 Saturation in Blood
11. Effect of insulin level on human blood glucose
12. Study of Soil microbial diversity inside the college campus
13. Study of Soil microbial diversity n and around Chinnalapatti
14. Study of Soil microbial diversity in Dindigul Tannery effluent samples
15. Microbial Culture Techniques – Sterilization

16. Isolation of DNA from Microbes

17. Isolation of DNA from animal tissues

18. Isolation of Protein from animal tissues

19. Separation Nucleic acids using Agarose Gel Electrophoresis

20. Separation Protein fragments using Polyacrylamide Gel Electrophoresis

21. Western Blotting Techniques

7. Number of New experiments introduced:

In line with the objective of the DBT Star College Scheme, the practical curriculum is revised by: a) adding new experiments b) converting demonstrated practicals into hands-on-experiments and c) removing redundant experiments. The curriculum revisions in all the four participating departments were approved by the Board of Studies and academic council meeting.

Programme	Date of approval by BOS	Link to Minutes of Meetings
Chemistry	**28.04.2022**	**https://drive.google.com/file/d/10qNPp9Yk_Fy5Lk2RsDEYA_yG3hld5Bid/view?usp=sharing**
Mathematics	**28.04.2022**	**https://drive.google.com/file/d/1uAZv956bfhfCOsKXZxM9Mpa4nt9-Nn-V/view?usp=sharing**
Physics	**28.04.2022**	**https://drive.google.com/file/d/1dmo9D2scuNA7UACX0sSJjM_uX-yaZFLX/view?usp=sharing**
Zoology	**28.04.2022**	**https://drive.google.com/file/d/1xUC0j-r9p2pakC46mlAHRuRy6rxbTzMw/view?usp=sharing**

8. Publications (Scopus indexed) /patents, if any.

List of publications:

Department of Chemistry				
Sl. No.	**Name**	**Title of the article**	**Month, year of publication/ journal**	**DOI/ Link**
1	Dr.G.N.Kousalya and Dr.M.Pandeeswaran	*Ziziphus mauritiana*-derived nitrogen-doped biogenic carbon dots: Eco-friendly catalysts for dye degradation and antibacterial applications, Chemosphere 338 (2023) 139584.	Chemosphere, 338 (2023) 139584	doi.org/10.1016/j.chemosphere.2023.139584
2	Dr.A.Sahaya Raja	Trimetallic ZIF-Derived Ni–Cu/NC Rhombic Dodecahedron Nanostructures on Butter Sheet Paper as a Flexible Electrochemical Probe for Nonenzymatic Glucose Sensors	**ACS Appl. Nano Mater.** 2023, 6, 16, 14628–14644	doi/abs/10.1021/acsanm.3c01489

Department of Mathematics				
S.No	**Name**	**Title of the article**	**Month, year of publication/ journal**	**DOI/ Link**
1	Dr. S. Ramachandran	On αwg closed set in topological spaces	04 September 2023	http://tnsroindia.org.in/journals.html
2	Dr. P. Pandiammal	PCM with Linguistic Contradiction Degree Representations in Decision making on Academic Stress causing Factors	Vol. 21, No. 03, 2023, International Journal of Neutrosophic Science	https://doi.org/10.54216/IJNS.210312

3	Dr. P. Pandiammal	Plithogenic Sociogram based Plithogenic Cognitive Maps Approach in Sustainable Industries	Vol. 24, No. 02, 2024, International Journal of Neutrosophic Science	https://www.americaspg.com/article/download/2718

Department of Physics				
S.No	**Name**	**Title of the article**	**Month, year of publication/ journal**	**DOI/ Link**
1	S Lavanya, T Rajesh Kumar, B Prakash, RS Rimal Isaac, IM Ashraf, Mohd Shkir, Lavish Kansal, Himanshu Payal, Satbir S Sehgal	Effect of Bi doping on the opto-electronic properties of ZnO nanoparticles for photodetector applications	2024 Journal of Photochemistry and Photobiology A: Chemistry	https://www.sciencedirect.com/science/article/pii/S1010603023005841
2	X Vasanth Winston, M Vimalan, R Jayaraman, T Rajesh Kumar	Effect of gamma irradiation on the mechanical and electrical properties of the MMTC single crystal	2023 AIP Conference Proceedings	https://doi.org/10.1063/5.0140586
3	S Lavanya, T Rajesh Kumar, I Loyola Poul Raj, S Vinoth, RS Rimal Isaac, V Ganesh, IS Yahia, TH AlAbdulaal	Enhanced structural, optical, and photo sensing properties of Ni-doped Co3O4 thin films prepared by nebulizer spray pyrolysis method	Physica B: Condensed Matter	https://doi.org/10.1016/j.physb.2022.414492
4	T Rajesh Kumar, R Premkumar, K Langeswaran, K Ramavenkateswari, S Anitha, P Sangavi, R Sangeetha	Virtual screening, molecular docking, molecular dynamics and quantum chemical studies on (2-methoxy-4-prop-2-enylphenyl) N-(2-methoxy-4-nitrophenyl) carbamate: a novel inhibitor of hepatocellular carcinoma	2023 Journal of Biomolecular Structure and Dynamics	https://www.tandfonline.com/doi/abs/10.1080/07391102.2023.2192795

5	Anju Thomas, Logu Thirumalaisamy, Sridharan Madanagurusamy, Kalainathan Sivaperuman	Switching the selectivity of ZnO thin films for ultra-sensitive acetaldehyde gas sensors through Co doping	2024 Sensors and Actuators B: Chemical	https://doi.org/10.1016/j.snb.2023.135043
6	Roshini Xavier, Logu Thirumalaisamy, Sridharan Madhanagurusamy, Kalainathan Sivaperuman	Spray deposited pristine and Mo doped WO3 thin films for acetaldehyde gas sensing at room temperature	2024 Ceramics International	https://doi.org/10.1016/j.ceramint.2023.10.187
7	Kalainathan Sivaperuman, Anju Thomas, Ravikumar Thangavel, Logu Thirumalaisamy, Soundarrajan Palanivel, Sudhagar Pitchaimuthu, Nazmul Ahsan, Yoshitaka Okada	Binary and Ternary Metal Oxide Semiconductor Thin Films for Effective Gas Sensing Applications: A Comprehensive Review and Future Prospects	2024 Progress in Materials Science	https://doi.org/10.1016/j.pmatsci.2023.101222
8	Anju Thomas, Logu Thirumalaisamy, Sridharan Madanagurusamy, Kalaianathan Sivaperuman	Tuning the electrical and room-temperature gas sensing properties of transparent ZnO thin films through Mo doping	2023 Journal of Materials Science: Materials in Electronics	https://link.springer.com/article/10.1007/s10854-023-11707-w
9	M Balachandran, C Thiyakarajan, R Hari Ramprasath, T Logu, K Sethuraman	Investigation on visible spectral response of spray coated Ni doped CuGaS2 thin films for photodetector application	2023 Optical Materials	https://doi.org/10.1016/j.optmat.2023.114559

10	Karthikeyan Vijayan, Logu Thirumalaisamy, Srikarumbur Pandurangan Vijayachamundeeswari, Kalainathan Sivaperuman, Nazmul Ahsan, Yoshitaka Okada	A Novel Approach for Designing a Sub-Bandgap in CuGa(S,Te)2 Thin Films Assisted with Numerical Simulation of Solar Cell Devices for Photovoltaic Application	2023 ACS Omega	https://pubs.acs.org/doi/full/10.1021/acsomega.2c08196
11	Karthikeyan Vijayan, Logu Thirumalaisamy, SP Vijayachamundeeswari, Kalainathan Sivaperuman, Nazmul Ahsan, Yoshitaka Okada	Hierarchically structured sub-bands in chalcopyrite thin-film solar cell devices	2023 New Journal of Chemistry	https://pubs.rsc.org/en/content/articlelanding/2023/nj/d3nj03894g/unauth

Department of Zoology				
Sl. No.	**Name**	**Title of the article**	**Month, year of publication/ journal**	**DOI/ Link**
1	N. Renuga Devi	A Review on Plants Derived Carbon Quantum Dots for Bio-Imaging	August 2023 Materials Advances 4(18)	DOI:10.1039/D3MA00254C

9. Training received by faculty:

a) Faculty training (Online FDP/ webinars/ Orientation programme/ refresher courses , Minimum 3 days duration)

Department of Chemistry				
S.No.	**Date**	**Name of the faculty**	**Title of the programme**	**Nature of the programme/ organiser**
1	22.04.2023 to 06.05.2023	Dr. A. Sahaya Raja	Advanced Research Methodology	Ramanujan College, University of Delhi
2	22.04.2023 to 06.05.2023	Dr. M. Pandeeswaran	Advanced Research Methodology	Ramanujan College, University of Delhi

Department of Mathematics				
Sl. No.	**Date**	**Name of the faculty**	**Title of the programme**	**Nature of the programme/ organiser**
1.	21.07.2023-04.08.2023	Dr. C. Subramani	Advanced Research Methodology	Online Inter-Disciplinary Two-Week Refresher Course, TLC, Ramanujan College University of Delhi, in collaboration with Shri Guru Ram Rai University Dehradun, Uttarakhand, under the aegis of Ministry of Education, PMMMNMTT
2.	29.09.2023	Dr. P. Pandiammal	National Workshop on Computational Techniques in Mathematics	National Workshop, Arul Anandar College (Autonomous), Karumathur, Madurai
3	26.04.2024 & 27.04.2024	Dr. P. Pandiammal	International Conference on Recent trends in Management and Commerce	REST Labs & REST Society for Research International, Kaveripattinam, Krishnagiri.
4	04.03.2024	Dr. P. Pandiammal	UGC sponsored National Conference on Recent Advances of Pure and Applied Mathematics	Arul Anandar College, Karumathur
5	15.12.2023-16.12.2023	Dr. P. Pandiammal	International Conference on Applied Physics and Mathematical Analytics	Nadar Saraswathi College of Arts and Science, Theni
6	27.04.2023 & 28.04.2023	Dr. P. Pandiammal	IEEE International Conference on Nano electronics, Nanophotonics, Nanomaterials, Nanobioscience and Nanotechnology	VISAT Engineering College, Ernakulam

7	25.04.2023 & 26.04.2023	Dr. P. Pandiammal	IEEE International Conference on Nano electronics, Nanophotonics, Nanomaterials, Nanobioscience and Nanotechnology	VISAT Engineering College, Ernakulam
8	July-August, 2023	Dr. J. Kaliga rani	Pattern drafting for beginners	NPTEL SWAYAM
9	January – February 2024	Dr. J. Kaliga rani	Introduction to Probability and statistics	NPTEL SWAYAM

Department of Physics				
Sl. No.	**Date**	**Name of the faculty**	**Title of the programme**	**Nature of the programme/ organiser**
1	15-12-2023 to 16-12-2023	Dr. T. Rajesh Kumar	Two days workshop hands on training programme on synthesis on Crystalline materials and their structure and optical characteristics	Department of Physics, SSN College of Engineering under SSR Scheme

Department of Zoology				
Sl. No.	**Date**	**Name of the faculty**	**Title of the programme**	**Nature of the programme/ organiser**
1.	22.05.23 – 05.06. 23	Dr. S. Dharaneedharan	Advanced Research Methodology	Online two-week Interdisciplinary Refresher Course
2.	15.12.2023 – 29.12.2023	Dr. A. Jeevalatha	Zoology	Online two-week Zoology Refresher Course

Department of Chemistry			
Sl. No.	**Title of the Program**	**Nature of the program**	**Participants**
1	Drawing Chemical Structures Using Chemdraw Software	Workshop	I, II, III Year Chemistry Students (103)
2	Dairy Chemistry	Seminar	I, II, III Year Chemistry Students (103)
3	Leather Technology	Seminar	III Year Chemistry Students (42)
4	Symmetry Elements and Symmetry Operations	Seminar	III Year Chemistry Students (42)
5	Water Treatment and Pollution	Seminar	I Year Chemistry (38)
6	Recent Advancements in Chemical Sciences (RACS) Recent Developments of Metal – Organic Frame Works (MOF) in Water Treatment	Seminar	UG Students from Maths, Physics, Chemistry & Zoology (120) and 35 Students from M.V.M, GRI, Parvathys, and Palaniandavar Colleges.
7	Experiential learning of Science using Innovative Working Models	Workshop	All UG students from science departments
8	Innovation and Intellectual Property rights	Workshop	All UG students from science departments
9	Inter Collegiate Hands on Training for the Plant Extraction and Phytochemical Analysis	Hands on Training	20 Students from M.V.Muthiah Govt. Arts college for Women, Sacred Heart Arts and Science College and III year Chemistry Students
10	Operating Procedure for Basic Essential Instruments	Hands on Training	III year Chemistry Students (42)
11	Preparation of Chemical Solutions	Workshop	III year Chemistry Students (42)
12	Laboratory Techniques in Gravimetric Analysis	Hands on Training	III year Chemistry Students (42)

13	Electrochemical Experiments	Hands on Training	III year Chemistry Students (42)
14	Detection of Adulteration by Rapid Test (DART)	Hands on Training	III year Chemistry Students (42)
15	IPR Awareness towards Patent Rights	FDP	Faculty from Science Departments (60)
16	Preparation of Chemical Solutions	FIP	12 Non Teaching Staffs
17	Summer training (4 days) - Theme: Chemistry in Everyday Life	Summer Training	II year Chemistry Students

Lab Visit / Industrial Visit

Sl. No.	Date of visit	Place of Visit	Beneficiaries
1.	26.09.2023	CECRI, Karaikudi	40
2.	01.03.2023	Rajshree Sugars and Chemicals Limited, Theni	23
3.	25.03.2024	Talco DINTEC CETP, Dindigul	42

Internships

Sl. No.	Date	Industry/ institution etc.	Beneficiaries
1.	18.01.2024 to 27.01.2024	Naga Consumer Division Unit -II, Puthupatty, Padiyur (Post), Dindigul, Tamilnadu - 624005	3
2.	29.01.2024 to 07.02.2024	New Fresh Company,(Manufactures of Cool Drinks),Munnilaikottai(Post),N.Panjampatti (Via),Dindigul-624303	12
3.	24.1.2024 to 4.2.2024	Aavin, 40/4a, SIDCO Industrial Estate, Dindigul, Tamil Nadu - 624003	5
4.	29.01.2024 to 07.02.2024	New Fresh Company,(Manufactures of Cool Drinks),Munnilaikottai(Post),N.Panjampatti (Via),Dindigul-624303	6
5.	29.01.2024 to 09.02.2024	TANFED Fertilizer Plant, Eriyidou Fertilizer Unit Thaneerpanthampatty , E.Chittur [Po], Vedsandur [Tk], Dindigul – 624702	10
6.	29.01.2024 to 09.02.2024	Mahidarshan Dairy Farm, 4/636-A Christian College Road, Ambilikkai, Oddanchatram(TK), Dindigul Dist. 624612	5

(b) NPTEL certification:

Department of Mathematics			
Sl. No.	**Date**	**Name of the faculty**	**Title of the programme**
1.	July-August, 2023	Dr. J. Kaliga Rani	Pattern drafting for beginners
2.	January – February 2024	Dr. J. Kaliga Rani	Introduction to Probability and statistics
3.	January – March 2024	Mr. K. Muthkumar	Speaking Effectively
4.	January – April 2024	Mr. B. Ayyapparajan	Scientific Computing using MATAB

Department of Physics			
Sl. No.	**Date**	**Name of the faculty**	**Title of the programme**
1	August – September 2023	Dr. K. Ramavenkateswari	NPTEL - Faculty Development Programme - Adolescent health and Well being
2	August – September 2023	Dr. K. Jayabala	NPTEL - Faculty Development Programme - Adolescent health and Well being
3	August – September 2023	Dr. P. Uma Mageshwari	NPTEL - Faculty Development Programme - Adolescent health and Well being

10. Exhibitions/seminars/training courses conducted:

(a) Workshop, Hands on Training, FDP , Conference etc.

Department of Mathematics				
S.No	**Department**	**Title of the Program**	**Nature of the program**	**Participants**
1.	Mathematics	One Day State Level Workshop on Vedic Mathematics For Competitive Examinations	Workshop	I,II,III B.Sc Mathematics, Students from M.V.M, GRI, Parvathys, and Palaniandavar Colleges -30 (59)
2.	Mathematics	One Day Hands On Training Program In PYTHON	Hands on Training	I,II,III B.Sc Mathematics (75)
3.	Mathematics	One Day Hands On Training Program In LATEX	Hands on Training	III B.Sc Mathematics (34)
4.	Mathematics	One Day Hands On Training Program In R Programming	Hands on Training	III B.Sc Mathematics (38)
5.	Mathematics	One Day Hands On Training Program In MATLAB	Hands on Training	III B.Sc Mathematics (38)
6.	Mathematics	One Day Hands On Training Program In SAGEMATH	Hands on Training	II B.Sc Mathematics (21)
7.	Mathematics	One Day Hands On Training Program In PYTHON	Hands on Training	I B.Sc Mathematics (27)
8.	Mathematics	One Day Workshop on LATEX (National Science day celebration)	FDP	All Science Faculties (20)
9.	Mathematics	One Day FDP on Intellectual Property Rights, Royalty and patterns	FDP	All Science Faculties (25)
10.	Mathematics	Training on Standard Operation Procedure (SOP) in Mathematics Lab	Workshop	All Lab Technician (20)

11.	Mathematics	One Day State Level Seminar in Real Life Applications Of Fuzzy Sets	Seminar	I,II,III B.Sc Mathematics, I,II M.Sc Mathematics (78)
12.	Mathematics	One Day State Level Seminar Future Perspectives In Mathematics	Seminar	I,II,III B.Sc Mathematics, I,II M.Sc Mathematics (78)
13.	Mathematics	Five day Summer training on Mathematical Modeling and Applications 1. Linear Algebra and its Applications. 2. Linear Algebraic Techniques of Graph Theory 3. Applications of fuzzy Mathematics 4. Markov Process and its Applications 5. Operations Research and its Application	Summer training	II & III B.Sc Mathematics (22)
14.	Mathematics	Five Day Internship Programme 1. Developing Employability Skills on Green Energy 2. Make Your Bright Fortune In Stock Market 3. Entrepreneur Development & Opportunities	Internship Programme	II & III B.Sc Mathematics (34)

Lab Visit / Industrial Visit

Sl. No.	Date of visit	Place of Visit	Beneficiaries
1.	05.01.2024	Mathematics Laboratory and Museum ,The Gandhigram Rural Institute-Deemed University, Gandhigram	II Year students (21)
2.	24.01.2024	NAGA Limited	III year and PG students (54)
3.	29.01.2024-01.03.2024	Education Tour to Cochin University of Science and Technology	48

Department of Physics			
Date	**Title**	**Name of the Resource person(s) with designation**	**Number of participants**
01.11.2023 Forenoon	Hands on Training on Crystal Growth Techniques	Dr. P. Rajesh, Assistant Professor at SSN Engineering College in Chennai,	14 I year, 8 III year and 7 Faculty
01.11.2023 Afternoon	Hands on training on Nanotechnology	Dr. P. Rajammal Associate Professor and Head Department of Physics M.V.M. Govt. Arts College for Women, Dindigul.	24 III Year students and 7 Faculty
12.02.2024 Forenoon	Guest Lecture and Hands on Training programme on "IoT with Physics"	Dr. Jeya Ruby Assistant Professor, Department of Physics, Periyar Maniammai Institute of Science and Technology, (Deemed to be University) Vallam, Thanjavur.	21 I Year, 13 II Year, 24 III Year and 4 Faculty
01.03.2024 Forenoon	Guest Lecture on Quantum Mechanics	Dr. A. Basherrudin Mahmud Ahmed Assistant Professor, School of Physics School of Physics, Madurai Kamaraj university, Madurai.	21 I Year, 13 II Year, 27 III Year and 7 Faculty
04.03.2024 Forenoon	Workshop on testing and calibration of electronic instruments	Mr.A.Saravanan. Junior Mechanic (Special Grade), Department of Physics & Research Centre, Lady Doak College, Madurai.	15 I Year, 13 II Year, 22 III Year Students and (5 Faculty from M.V.M college, 4 Faculty from our department and 12 Non Teaching staff from M.V.M College.
05.03.2024 Forenoon	Guest Lecture on Synthesis of Nanomaterials	Dr. P. Sundara Venkatesh Assistant Professor, Head & Dean - Research & Development Sri.S.Ramasamy Naidu Memorial College , Sattur.	18 I Year, 9 II Year and 23 III Year and 6 Faculty

05.03.2024 Afternoon	Hands on Training on New Practicals	Dr.R.Jeyasekaran Assistant Professor, Department of Physics Virudhunagar Hindu Nadars' Senthikumara Nadar College, Virudhunagar	16 I Year, 13 II year and 21 III Year and 6 Faculty
06.03.2024 Forenoon	IPR Related Faculty Development Program	Mr. J.Moshe Dayan Faculty in EEE Department and Coordinator PSNA IPR Cell PSNA College of Engineering and Technology , Dindigul	44 Faculty from Science Department of our college.
06.03.2024 Afternoon	Awareness of the need for Ambulatory Care Faculty Development Program	Dr.M.S.Ishwariya Assistant Professor Cum Medical Officer G.T.N.Medical College of Naturopathy and Yogic Science, Dindigul	6 Physics, 3 Chemistry, 1 Mathematics, 3 Zoology,2 Botany
07.03.2024 Forenoon	Workshop on Solar PV technologies	S.Sunil Gowthamraj Managing Director, Solar Engineer , DINDIGUL	13 I year, 5 II Year, 13 III Year and 5 Faculty
07.03.2024 Afternoon	Workshop on Solar PV technologies	Name: Er.D.Kalai selvi, Managing Director Selka Energy , DINDIGUL	15 I year, 9 II year, 18 III Year and 5 Faculty
13.3.2024	Outreach Program to School Students and Teachers "Experimental learning of Science using Innovative Working Models"	Dr.K.Giridharan Former Scientist and Joint Director DRDO Ministry of Defense, Govt of India	XII students - 46, X Students - 29 and 12 PG Faculty
15.03.2024 Forenoon	Seeing the Invisible Universe Through Cosmic Rays	Dr.S. Pethuraj Assistant Professor of Physics, PSNA College of Engineering of Technology Dindigul	14 I Year, 10 II Year and 26 III Year and 7 Faculty

18.03.2024 Forenoon	Summer Training on "Fabrication of LM317 Variable Power Supply"	Mr. A. Saravanan. Junior Mechanic (Special Grade), Department of Physics & Research Centre, Lady Doak College,Madurai	9 I Year, 4 II Year and 9 III Year and 7 Faculty
18.03.2024 Afternoon	Summer Training on "Fabrication of 7812, 7912, 7805 Dual and Fixed Power Supplies"	Mr. P. Pandi Ganesh, Senior Engineer, Hem Equipment, Madurai	17 III Year, 13 II Year and 16 III Year
21.03.2024	Inter Departmental programme on "Trouble Shooting of Electronic Gadgets"	Mr. P. Pandi Ganesh, Senior Engineer, Hem Equipment, Madurai	14 I Year Physics, 7 III Year Physics and 20 III Year Chemistry and 7 Faculty
26.03.2024 Forenoon	Inter Departmental programme -Trouble Shooting of Electronic Gadgets	Dr. R. Sangeetha, Assistant Professor PG and Research Department of Physics, Mannar Thirumalai Naicker College Pasumalai, Madurai-625004	12 I year Physics, 18 I year Maths and 16 III Year Chemistry and 6 Faculty members
26.03.2024 Afternoon	Inter Departmental programme -Trouble Shooting of Electronic Gadgets	Dr. N. R. Senthil Kumar, Assistant Professor of Physics, Sourashtra College Madurai.	10 III Physics, 7 I Physics, 11 II Physics and 19 II Mathematics

Lab Visit / Industrial Visit			
Sl. No.	**Date of visit**	**Place of Visit**	**Beneficiaries**
1.	13.10.2023	Periyar Maniammai Institute of Science & Technology in Thanjavur	27 III Year, 13 II Year, 21 I Year and 7 Faculty and 3 Non Teaching Staff
2.	19.03.2024	Indian Astro Physics Institute, Kodaikanal	27 III Year, 13 II Year, 21 I Year and 7 Faculty + 3 Non Teaching Staff
3.	22.03.2024	Regional Science Centre, Coambatore	27 III Year, 13 II Year, 21 I Year and 7 Faculty + 3 Non Teaching Staff
Internships			
Sl.No.	**Date**	**Industry/ institution etc.**	**Beneficiaries**
1	04.01.2024 - 13.01.2024	Sarayu Engineering	16 – II Year Physics

Department of Zoology				
S.No	**Date**	**Title of the Program**	**Nature of the program**	**Participants**
1	20.10.2023	Hands on Training on Designing and Characterization of Green Nano Silver Drug	Hands on Training	I, II & III Year Zoology Students
2	03.11.2023	Workshop on "Exploring the Key Role of DNA, RNA, and Protein in Biological Research"	Hands on Training	I, II & III Year Zoology Students
3	03.11.2023	Workshop on "Exploring Bioinformatics tools and their applications in Biological Research"	Workshop	I, II & III Year Zoology Students
4	04.11.2023	Interdisciplinary Approach towards DBT Star college Scheme	SIP & FDP	150 Students & 25 Faculties from the four DBT Star College Scheme supported Department
5	30.01.2024	Intracollegiate Meet – Birds Day Celebration	Competition	Students from various departments of G.T.N. Arts College

6	31.01.2024	Histopathology Techniques and applications	Hands on Training	I, II & III Year Zoology Students
7	01.02.2024 to 03.02.2024	Emerging Trends in Biosciences – 2024 1. Computational Drug Discovery Approaches in the Frontiers of the Fight against SARS – COV 2. 2. Molecular Genetics of Eye Diseases. 3. Lateral flow devices in Clinical Diagnostics 4. Point of Core Testing of Viral Diseases COVID 19, HIV and HBV	Conference (Three days)	I, II & III Year Zoology, G.T.N. Arts College, Students, Students from M.V.M. Govt. College for Women and St. Antony's College, Dindigul
8	14.03.2024 to 15.03.2024	New Horizons in Bio-medical Research 1. Unveiling Algal Metabolites for Health and Environment 2. Uncovering the burden of Rare Genetic Diseases among Indians	Conference (Two days)	I, II & III Year Zoology Students
9	27.03.2024	Microbial Culture Techniques	Hands on Training	III Year Zoology Students
10	27.03.2024	Lab Management and Bio safety Measures	FDP	Lab attenders from G.T.N. Arts College.
Lab Visit / Industrial Visit				
1	13.10.2023	Madurai Kamaraj University, Biotechnology and Genomics Lab Visit	University Lab Visit	III Year Zoology Students
2	11.01.2024	AVN Ayurvedic Formulations, Pvt. Ltd. Madurai	Industrial Lab Visit	III Year Zoology Students

Internship			
S.No.	**Date**	**Industry/ institution etc.**	**Beneficiaries**
1	18.12.2023 to 29.12.2023	Ramakrishna Medical Centre, Tiruchirapalli" in association with "Rudraash Diagnostics Labs & Pvt Ltd, Dindigul	33
2	18.12.2023 to 29.12.2023	Rudraash Diagnostics Labs & Pvt Ltd, Dindigul	05

(b) Add- on Courses/ Value added courses:

Department of Chemistry					
S.No.	**Name of the Course**	**Title of the Course**	**Date and Duration**	**Class**	**Total number of beneficiaries**
1	Value added courses	Sugar Technology	30 Hours (Odd Semester)	II Year	23
2		Perfume Chemistry	30 Hours (Even Semester)		
3		Paper and Pulp Technology	30 Hours (Odd Semester)	III year	44
4		Leather Technology	30 Hours (Even Semester)		

Department of Mathematics					
S.No.	**Name of the Course**	**Title of the Course**	**Date and Duration**	**Class**	**Total number of beneficiaries**
1	Value added course	PYTHON	28.12.2023-on wards	I Mathematics	22
2	Value added course	PYTHON	16.08.2023-10.10.2023	II Mathematics	17
3	Value added course	SAGEMATH	27.12.2023-on wards	II Mathematics	17
4	Value added course	OFFICE AUTOMATION	26.07.2023-05.10.2023	III Mathematics	32
5	Value added course	LATEX	20.12.2023-on wards	III Mathematics	32

Department of Physics					
S.No.	**Name of the Course**	**Title of the Course**	**Date and Duration**	**Class**	**Total number of beneficiaries**
1	Value Added Course	Physics for All	III Semester	II Physics	27
2	Value Added Course	Source of Energy	IV Semester	II Physics	27
3	Value Added Course	Optical Sensors	V Semester	III Physics	13
4	Value Added Course	Electrical Appliances	VI Semester	III Physics	13

Department of Zoology					
S.No.	**Name of the Course**	**Title of the Course**	**Date and Duration**	**Class**	**Total number of beneficiaries**
1	B.Sc., Zoology	Sericulture	30 hours	II Year Zoology	29
2	B.Sc., Zoology	Vermitechnology	30 hours	III Year Zoology	34
3	B.Sc., Zoology	Bee Keeping	30 hours	III Year Zoology	34
4	B.Sc., Zoology	Nutrition and Dietetics	30 hours	II Year Zoology	29
5	B.Sc., Zoology	Zoological Museum Specimen Preparation	19.12.2023 onwards – 30 hours	I Year Zoology	29

12. Books/journals subscribed from grants :

Department of Chemistry			
S.No.	**Author**	**Title**	**Quantity**
1	Puri, Sharma & Pathania	Principles of Physical Chemistry	02
2	Puri, Sharma & Pathania	Principles of Inorganic Chemistry	02
3	Bahl and ArunBahl	Advanced Organic Chemistry	02
4	L.Veerakumari	Biochemistry	01
5	G.Vijayalakshmi	Research Methods Tips and Techniques	02
6	Chas F Heebner	Manual of Pharmacy and Pharmaceutical Chemistry	01
7	Elias Hudson Bartley	Text Book of Medical and Pharmaceutical Chemistry	01
8	Clerk Ranken	Industrial Chemistry	05
9	P.L.Soni&H.M.Chawla	Textbook of Organic Chemistry	05
10	P.L.Soni& Mohan Katyal	Textbook of Inorganic Chemistry	05
11	V.venkateswaran, R.Veerasamy& A.R Kulandaivelu	Basic Principals of Practical Chemistry	06
12	R.gopalan, P.S.Subramani&K.Rangarajan	Elements of Analytical Chemistry	05
13	P.L.Soni& O.P Dharmarha&U.N.Dash	Textbook of Physical Chemistry	05
14	U.N.Dash	Nuclear Chemistry	05
15	R.N.Sarin	Numerical Problems in Chemistry	05
16	U.N.Dash	Analytical Chemistry	05
17	V.S.Parmar&H.M.Chawla	Principals of Reaction Mechanism in Organic Chemistry	05
18	Dr.H.R.Modi	Hand book of Chemistry	02
19	Dr.H.R.Modi	Glossary Chemistry	02
Journals			**Issues**
1	Asian Journal of Chemistry		Monthly
2	Indian journal of Chemistry		Monthly
3	Indian journal of Chemical Technology		Bi- Monthly
4	IOSR of Applied Chemistry		Bi-Monthly
5	Journal of Chemical Science		3 Issues/Yr

Department of Mathematics			
Sl. No.	**Author**	**Title**	**Number of Copies**
1.	Christoper Heil	Thomas Calculus	1
2.	Goldberg	Methods of Real analysis	2
3.	Delores M. Etter, David C. Kuncicky, Holly moore (2012)	Introduction to MATLAB 7	2
4.	Artin	Algebra	1
5.	I.N.Herstein	Topics in Algebra	2
6.	Robert G. Bartle	Introduction to Real Analysis	1
7.	Yashwant kanetkar	Let us C	1
8.	Walter Rudin	Principles of Mathematical Analysis	1
9.	Tom M. Apostol	Mathematical Analysis	2
10.	Durai Pandian	Allied Mathematics Vol I	2
11.	Durai Pandian	Allied Mathematics Vol II	2
12.	Joseph Gallian	Contemporary abstract algebra	2
13.	ReemaThareja	PYTHON PROGRAMMING using problem solving Approach	1
Journals			
Advances in Fuzzy Mathematics (AFM)			
Advances in Applied Mathematical Analysis (AAMA)			
Advances in Applied Mathematical Biosciences (AAMB)			
Mathematics Applied in Science and Technology (MAST)			

Department of Physics			
S.No	**Name of the Author**	**Title of the Books**	**Number of Copies**
1	Johnfardon	Science	1
2	Dr.P.Kandasamy, Dr.K.Thilagavathy, & Dr.K.Gunavathi.	Numerical Methods	1
3	R.Murugesan	Thermal Physics	1
4	Joanne Baker	50 Physics Ideas	1
5	Charles Kittel	Kittel's Introduction to Solid state Physics	1
6	Robin Kerred & Dr.Sharon Ann Holgate	The Way Science Works	1
7	Brijlal & N.Subramaniam	Waves and Oscillations	2
8	R.Murugesan	Optics and Spectroscopy	2
9	R.Murugesan	Thermal Physics	2

10	Brijlal & N.Subramaniam	Atomic and Nuclear Physics	2
11	R.Murugesan	Properties of Matter	2
12	Brijlal & N.Subramaniam	Heat Thermodynamics and Statistical Physics	2
13	Ajoy Ghatak	Optics	1
14	Thomas L.F. Loyd	Digital fundamentals Floyds	1
15	Brijlal & N.Subramaniam	A text book of optics	1
16	Y.R.Sharma	Elementary Organic Spectroscopy	1
17	Pallav Bhattacharya	Semiconductor Optoelectronics Devices	1
18	P.K. Palanichamy	Solid State Physics	1
19	Colin N Banwell, Elaine M Mocash	Fundamental of Molecular Spectroscopy	2
20	R.Murugesan	Modern Physics	2
21	R.Murugesan	Electricity and Magnetism	2
22	James W. Nilsson	Electric Circuits	2
23	Mathew NO Sadiku	Principles of Electromagnetics	1
24	Michael Shur	Physics of Semiconductor Devices	1
25	K.A.Gangadhrar, P.M.Ramanathan	Electromagnetic Field Theory	1
26	P.Duraipandiyan	Mechanics	1
27	S.Salivahanan, S.Karthic	Electromagnetic Field Theory - 2nd Edition	1
28	Jayanthy, Manikandan, Arun	Electromagnetic Field	1
29	Dr. T. Rajesh Kumar	Nano Physics	5
30	M.D.Books International, Delhi	Encyclopedia of Science Projects	1
31	Arihant Expert Team	AFCAT(15 Practise sets and solved papers)	1
32	Arihant Expert Team	Indian Airforce Agniveer Vayu Phase - I	2
33	Devandra Kumar & Pragya Choudhary	Glossary Physics	1
34	R.Murugesan	Mechanics, Properties of Matter & Sound	3
35	R.Murugesan	Electricity & Electromagnetism	3
36	Brijlal & N.Subramaniam	Heat and Thermodynamics & Statistical Mechanics	1
37	Brijlal & N.Subramaniam	Text Book of Optics	1
38	C.C.Ouseph, U.J.Rao & V.Vijayendran	Practical Physics & Electronics	1
39	Donald A.Neaman Dhrubes Biswass	Semiconductor Physics and Devices	1

Department of Zoology			
S.No	**NAME OF THE BOOK**	**AUTHOR NAME/Edition**	**Number of Copies**
1	Genetics	Verma	1
2	Intellectual Property Rights	Thomas	1
3	Fundamental of Entomology	Chundawat	1
4	Textbook Of Microbiology	SAXENA	1
5	Comparative Anatomy of Vertebrates	Raghunandan	1
6	Textbook Of Basic Biotechnology	Singh	1
7	Study of Animal Behaviour (PB)	Huntingford	1
8	Invertebrate Zoology	Jordan	3
9	Advanced Lab Practices in Biochemistry & Molecular Biology	Agarwal Swati	1
10	Textbook of Immunology	Kaur Hardeep	2
11	Practical Zoology Invertebrate	Rashmi	1
12	Fundamentals of Biochemistry	Nitin	1
13	A Manual of Practical Zoology: Chordates	Verma	1

13. Outreach activities:

Department of Chemistry		
Date	**Name of the Activity**	**Beneficiaries**
11.10.2023	DBT Chemistry Lab Visit From Other College (SRS Intuition of Agriculture and Technology, Vedasandure, Dindigul)	100 Students and 4 Faculties SRS Intuition of Agriculture and Technology Vedasandure, Dindigul
09.01.2024	Lab Visit from School	300 students from Government Higher Secondary Schools from Ramanathapuram and Narasingapuram, Dindigul and Govt. Aided School from M.S.P.Solai Nadar Higher Secondary School and St. Mary's Higher Secondary School , Dindigul
20.03.2024	Food Adulterations and their Detection	100 Students and 10 Teachers (Govt. Higher Secondary School, Nallama Nayakan Patti, Dindigul)
22.03.2024	Entrepreneurships skill development – Preparation of Phenyl and Soap oil	20 publics from Seelapadi Village Panchayat /Community Service (Social Activity, Seelapadi, Dindigul
23.03.2024	Testing and Analysis method of Contamination water	70 Students of 9^{th} std & 11^{th} std and 15 Teachers of Prasiddhi Vidyothaya School, Dindigul.

Date	Department of Mathematics	Beneficiaries
26.03.2024	Hands on Training on LATEX Tool for School Teachers	20

Date	Department of Physics	Beneficiaries
13.10.2023	Field visit to Periyar Maniammai Institute of Science & Technology in Thanjavur	65
13.03.2024	Outreach Program to School Students "Experimental learning of Science using Innovative Working Models"	75
13.03.2024	Outreach Program to School Teachers "Experimental learning of Science using Innovative Working Models"	12
19.03.2024	Field visit to Indian Astro Physics Institute, Kodaikanal	65
22.03.2024	Field visit to Regional Science Centre, Coimbatore	65
30.03.2024	Women Student Empowerment Program, M.V.M Govt. College for Women, Dindigul.	27

Date	Department of Zoology	Beneficiaries
20.03.2024	Awareness Programme on Biological Sciences	35 Govt. High School students, Mettupatti, Dindigul

14. Invited Lectures:

Department of Chemistry			
Date	**Title**	**Name of the Resource person(s) with designation**	**Number of participants**
20.09.2023	Awareness Lecture on IIT JAM 2024 Examinations	Dr. V. Kesavan, Professor, Department of Biotechnology, Indian Institute of Technology, Chennai. vkesavan@iitm.ac.in	200

21.09.2023	Career Opportunities for Chemistry Graduates In Central and State Government Jobs	Mr. R. Jegan, Chemical and Metallurgical Superintendent, Ponmalai Workshop, Southern Railway, Trichy.	250

Department of Mathematics			
Date	**Title**	**Name of the Resource person(s) with designation**	**Number of participants**
29.01.2024	Real Life Applications Of Fuzzy Sets (One Day State Level Seminar in Real Life Applications Of Fuzzy Sets)	Dr. S. Vimala, Assistant Professor , Department of Mathematics, Mother Teresa Women's University, Kodaikanal-624101	78
31.01.2024	Future Perspectives In Mathematics in (One Day State Level Seminar Future Perspectives In Mathematics)	Dr. R. Uthayakumar, Professor and Head, Department of Mathematics, Gandhigram Rural Institute (Deemed to be University), Gandhigram	78

Department of Physics			
Date	**Title**	**Name of the Resource person(s) with designation**	**Number of participants**
07.02.2024 Forenoon	"The journey of intense light pulse : Noble Theme"	Dr. Sabari Girisun, Assistant Professor, Department of Physics, Bharathidasan University Tiruchirapalli	24 III year, 10 II year and 15 I year and 3 Faculty
04.03.2024 Afternoon	Awareness Program on Electronic waste management and life cycle Assessment	Dr.C.Raja Mohan., Assistant Professor, Department of Physics Gandhigram Rural Institute (Deemed to be University), Gandhigram.	20 I year, 13 II Year, 24 III Year, 5 Faculty and 3 Non Teaching staff.

Department of Zoology			
Date	**Title**	**Name of the Resource person(s) with designation**	**Number of participants**
21.09.2023	Awareness on Environmental Protection, Ozone Depletion and Human Health	Dr. P. Senthil Elango, Assistant Professor, Department of Zoology, M.V.M. College for Women, Dindigul	84

PRINCIPAL
G.T.N. ARTS COLLEGE
(AUTONOMOUS)
DINDIGUL - 624 005.

Dr.C. SUBRAMANI, M.Sc., M.Phil., Ph.D.,
Course Coordinator
DBT Star College Scheme
G.T.N. Arts College (Autonomous)
DINDIGUL - 624 005.
Tamilnadu, India

DEPARTMENT OF BIOTECHNOLOGY

STAR COLLEGE SCHEME

ANNUAL PROGRESS REPORT 2024-2025

Sanction Order No: HRD-11011/16/2022-HRD-DBT

Submitted by

SINCE 1964

G.T.N. ARTS COLLEGE (AUTONOMOUS)

A Telugu Linguistic Minority Institution | Affiliated to Madurai Kamaraj University
Re-accredited (Cycle II) by NAAC with "A++" Grade | Indexed in NIRF 2025
Recognized under DBT Star College Scheme | Supported by DST-FIST Program
Skill Hub Initiative of PMKVY 4.0 by MSDE, New Delhi

Old Karur Road, Dindigul - 624 005, Tamil Nadu.

www.gtnartscollege.ac.in

Department of Biotechnology

Proforma for submission of Annual Progress Report
Supported under Star College Scheme

1. Name of the College : **G.T.N. Arts College (Autonomous), Dindigul, Tamil Nadu**

2. Name of Coordinator, Designation, Address, Phone nos. : **Dr. C. Subramani**
Assistant Professor and Head,
Department of Mathematics,
G.T.N. Arts College (Autonomous)
Old Karur Road, Dindigul – 624 005
Tamil Nadu.
Mobile: 9894248495

3. Assessment duration: **01.04.2024 to 31.03.2025**
Duration in years: **1 Year**

4. Details of Departments Supported

S. No.	Name of Department	Courses (B.Sc./M.Sc./PG Diploma, certificate etc) offered	Regular Faculty members	
			Total = 65	
			With Ph.D.	With Ph.D.
1	Chemistry	B.Sc., M.Sc., Ph.D.	12	11
2	Mathematics	B.Sc., M.Sc., Ph.D.	5	11
3	Physics	B.Sc., M.Sc.	10	2
4	Zoology	B.Sc.	4	1

5. Number & Date of Advisory committee meeting: The Internal Advisory Committee Meeting is scheduled to be held in the second week of June 2025.

6. Qualitative improvements due to DBT support. Please highlight 5 salient points (within 500 words).

- The participating departments were strengthened by purchasing new scientific equipment (in multiple units) using the grant from the DBT Star College Scheme.
- New books and journals were also added to the library, giving students better access to learning resources and improving hands-on training.
- As per the objectives of the DBT Star College Scheme, the practical syllabus for UG programmes in Chemistry, Mathematics, Physics, and Zoology were upgraded.
- New experiments using costly consumables like chemicals, glassware, electronics, and software were introduced. This update has improved student learning and made practical sessions more engaging.
- Faculty members prepared laboratory manuals for all practical experiments. These manuals help students understand the procedures clearly and ensure smooth conduct of lab sessions.
- The scheme supported regular organization of seminars, workshops, hands-on training sessions, and demonstrations. These activities help students stay updated with current trends, interact with experts, and build confidence in applying their knowledge.
- Students improved teamwork, presentation skills, report writing, lab ethics, and equipment handling through project work.
- The scheme also benefits school students and teachers by giving them access to our facilities. This motivates school students to pursue higher education in basic sciences.
- The scheme promotes a positive academic environment among students and faculty, encouraging research, innovation, and entrepreneurship.
- Visits to industries and academic institutions helped students and faculty gain knowledge and build academic connections for future collaborations.
- The scheme enabled students to interact with experts from reputed institutions such as Bhabha Atomic Research Centre (Mumbai), Rajiv Gandhi Centre for Biotechnology (Kerala), NIOT (Goa), CECRI (Karaikudi), Thermal Power Station (Kalpakkam), and Shiksha Sanskruti Nyas (Tamil Nadu). These interactions helped them explore subject-related ideas and gain exposure to industry practices.
- The DBT-supported laboratories and activities contributed significantly to our institution achieving the highest grade CCA++" in the second cycle of NAAC Re-accreditation.

Interdisciplinary Minor projects and their impact or similar activities and their outcome

S.No.	Department	Title of the Project	Outcome
1	Chemistry	Inhibition of Plectranthus Amboinicus for the Corrosion on Carbon Steel in Well Water	The plant extract showed effective corrosion inhibition of carbon steel in well water.
2		Phytochemical Screening Test for Tribulus Terretris Root, Stem, Leaf, Seed Extract and its Anti-Microbiol Activities	Prepared plant extracts and evaluated their biological activities, including antimicrobial effects.
3		Comparative Study of Sodium Chloride Content Iodine Level and Anti-bacterial activity in different types of Salt and Brands	Identified differences in iodine levels and antibacterial activity among different salt types and brands.
4	Mathematics	Evaluating Junk Food Habits: An Anova Approach at G.T.N. Arts College	Helped students understand the health impacts of junk food, linking it to obesity, diabetes, and heart disease
5	Physics	Applications of *Cathranthus roseus* medicated green synthesis of ZnO nanoparticles using Photo catalytic activities	Studied the photocatalytic activity of ZnO nanoparticles synthesized using extracts of *Catharanthus roseus*.
6		Measurement of Optical Band Gap of CuO thin films using UV-Visible Spectroscopy	Analyzed the optical properties of CuO thin films; the band gap was estimated to be 2.9 eV.

7	Zoology	Extraction of Natural Essential oil from five different tropical flowers and In vitro screening for its antimicrobial activity against Human Bacterial Pathogens.	Extracted essential oils from five tropical flowers and tested their antimicrobial activity against human pathogens.
8		Haematological Studies in Selected Fish of Zebra *(Danio rerio)* Exposed to Herbicide Glyphosate	Investigated the hematological changes in zebra fish and assessed the suitability of raw materials for vermicomposting.

7. Any Novel aspect introduced or planning to introduce during the Scheme duration.

- New courses were introduced in various disciplines, including Python, SageMath, MATLAB, R Programming, SciLab, Molecular Biology, rDNA Technology, Animal Behavior, Parasitology, Experiments in Physical Chemistry, Volumetric Analysis, Analog Electronics, and Digital Electronics. These courses helped students gain deeper knowledge in their core subjects.

- A mandatory interdisciplinary group project has been introduced for all students in the participating departments, encouraging collaboration and integrated learning.

- New experiments were introduced in the practical curriculum, allowing students to expand their practical knowledge and skills.

- Workshops were conducted in diverse areas such as Molecular Biology, Biomedical Sciences, Agricultural Biotechnology, Bioinformatics, Organic Farming, Nanotechnology, Computational Physics, R Programming, SageMath, GeoGebra, and drawing chemical structures using ChemDraw. Experts from these fields were invited to provide hands-on training and application-based exercises.

- Industry and academic institution visits were organized to strengthen the link between academic learning and industry expectations.

- Faculty members and students enhanced their skills by participating in internships, intercollegiate meets, conferences, and training programs.

Future Plans

The institution has planned several initiatives to enhance academic quality and student development under the DBT Star College Scheme. We aim to sign Memorandums of Understanding (MoUs) with research institutes and academic institutions to strengthen research collaborations. Awareness and training programmes will be organized for school students to develop their interest in basic sciences at an early stage. We also plan to conduct community-focused awareness programmes that promote societal well-being and responsible citizenship. Skill enhancement training programmes will be designed and implemented for both students and the local community to improve employability and self-reliance. To promote entrepreneurship, the curriculum will be updated to include components that align with current job market trends and industry needs. Additionally, special programmes will be held to guide students in exploring various career paths and higher education opportunities. These efforts aim to create a well-rounded learning environment that supports academic growth, social responsibility, and future readiness.

8. Lessons learnt / difficulties faced/suggestions if any, in implementation of the programme and utilization of DBT grant. (Max 3 points within 300 words).

The implementation of the DBT Star College Scheme has brought valuable learning experiences and opportunities for growth. A major accomplishment was the successful introduction of interdisciplinary group projects and compulsory internships for final-year students. These initiatives promoted collaborative learning, strengthened practical skills, and helped students connect theoretical knowledge with real-world applications. This, in turn, boosted their confidence and increased their interest in research and innovation.

Another notable achievement was the improvement of infrastructure across all participating departments. With the support of the DBT grant, new equipment and learning resources were added, significantly enhancing the quality of hands-on training. Faculty members from different departments were also encouraged to collaborate and make optimal use of the shared resources. This interdisciplinary engagement enriched the learning environment and led to better integration of teaching, learning, and research.

However, a key difficulty encountered was the delay in the release of DBT funds, which affected the timely execution of some planned activities and resource procurement. Despite this, the scheme has positively impacted the institution's reputation and academic output. Going forward, timely fund disbursement is essential. Continued focus on motivating students to publish research papers and participate in conferences and seminars will help strengthen the institution's research culture and academic excellence.

9. Key Performance Indicators

<table>
<tr><th>S. No.</th><th>Indicator</th><th colspan="10">During Support 2023-24</th><th colspan="8">During/After Support 2024-25</th><th>Remarks</th></tr>
<tr><td rowspan="20">1</td><td rowspan="20">No. of students admitted</td><td colspan="10">Department of Chemistry</td><td colspan="8"></td><td></td></tr>
<tr><td colspan="10">Total= 38</td><td colspan="8">Total = 33</td><td></td></tr>
<tr><td colspan="5">M = 21</td><td colspan="5">F = 17</td><td colspan="4">M = 22</td><td colspan="4">F = 11</td><td></td></tr>
<tr><td>SC</td><td>ST</td><td>OBC</td><td>G</td><td>SC</td><td>ST</td><td>OBC</td><td>G</td><td>SC</td><td>ST</td><td>OBC</td><td>G</td><td>SC</td><td>ST</td><td>OBC</td><td>G</td><td></td></tr>
<tr><td>4</td><td>-</td><td>17</td><td>-</td><td>3</td><td>-</td><td>14</td><td>-</td><td>4</td><td>-</td><td>18</td><td>-</td><td>4</td><td>-</td><td>7</td><td>-</td><td></td></tr>
<tr><td colspan="10">Department of Mathematics</td><td colspan="8"></td><td></td></tr>
<tr><td colspan="10">Total= 22</td><td colspan="8">Total= 24</td><td></td></tr>
<tr><td colspan="5">M = 13</td><td colspan="5">F = 9</td><td colspan="4">M = 18</td><td colspan="4">F = 6</td><td></td></tr>
<tr><td>SC</td><td>ST</td><td>OBC</td><td>G</td><td>SC</td><td>ST</td><td>OBC</td><td>G</td><td>SC</td><td>ST</td><td>OBC</td><td>G</td><td>SC</td><td>ST</td><td>OBC</td><td>G</td><td></td></tr>
<tr><td>1</td><td>0</td><td>12</td><td>0</td><td>1</td><td>0</td><td>8</td><td>0</td><td>5</td><td>0</td><td>13</td><td>0</td><td>3</td><td>0</td><td>3</td><td>0</td><td></td></tr>
<tr><td colspan="10">Department of Physics</td><td colspan="8"></td><td></td></tr>
<tr><td colspan="10">Total= 22</td><td colspan="8">Total = 21</td><td></td></tr>
<tr><td colspan="5">M = 11</td><td colspan="5">F = 11</td><td colspan="4">M = 16</td><td colspan="4">F = 5</td><td></td></tr>
<tr><td>SC</td><td>ST</td><td>OBC</td><td>G</td><td>SC</td><td>ST</td><td>OBC</td><td>G</td><td>SC</td><td>ST</td><td>OBC</td><td>G</td><td>SC</td><td>ST</td><td>OBC</td><td>G</td><td></td></tr>
<tr><td>4</td><td>0</td><td>7</td><td>0</td><td>2</td><td>0</td><td>9</td><td>0</td><td>8</td><td>0</td><td>8</td><td>0</td><td>1</td><td>0</td><td>4</td><td>0</td><td></td></tr>
<tr><td colspan="10">Department of Zoology</td><td colspan="8"></td><td></td></tr>
<tr><td colspan="10">Total=36</td><td colspan="8">Total= 33</td><td></td></tr>
<tr><td colspan="5">M = 19</td><td colspan="5">F = 17</td><td colspan="4">M = 14</td><td colspan="4">F = 19</td><td></td></tr>
<tr><td>SC</td><td>ST</td><td>OBC</td><td>G</td><td>SC</td><td>ST</td><td>OBC</td><td>G</td><td>SC</td><td>ST</td><td>OBC</td><td>G</td><td>SC</td><td>ST</td><td>OBC</td><td>G</td><td></td></tr>
<tr><td>6</td><td>0</td><td>13</td><td>0</td><td>4</td><td>0</td><td>12</td><td>1</td><td>3</td><td>0</td><td>11</td><td>0</td><td>2</td><td>0</td><td>17</td><td>0</td><td></td></tr>
<tr><td>2</td><td>No. of students passing out (%) Students Admitted/passing out (pass%)</td><td colspan="10">Chemistry – 94.73%
Mathematics – 93.55%
Physics – 100%
Zoology – 78%
(Data is from 2021 – 24 batch)</td><td colspan="8">End Semester examinations for 2024-25 are yet to be conducted.</td><td></td></tr>
<tr><td>3</td><td>Drop-out rates</td><td colspan="10">Chemistry – 4.5%
Mathematics – 9%
Physics – 18.18%
Zoology – 29%
(Data is from 2021 – 24 batch)</td><td colspan="8">Chemistry – 12.12%
Mathematics – 0%
Physics – 0%
Zoology – 22%
(Data is from 2022 – 25 batch)</td><td></td></tr>
<tr><td>4</td><td>No. of students opting for M.Sc.</td><td colspan="10">Chemistry – 10
Mathematics – 4
Physics – 11
Zoology – 12</td><td colspan="8">Not applicable</td><td>End semester examinations of 2024-25 are yet to be conducted</td></tr>
</table>

5	Average marks	Chemistry – 66.15 Mathematics – 65.4 Physics – 75 Zoology – 68		Not applicable		End semester examinations of 2024-25 are yet to be conducted
6	No. of hands-on experiments being conducted	Chemistry – 42 Mathematics – 71 Physics – 60 Zoology – 80		Chemistry – 42 Mathematics – 81 Physics – 60 Zoology – 77		Practicals conducted as prescribed in the proposal
7	No. of new experiments introduced	Chemistry – 7 Mathematics – 60 Physics – 11 Zoology – 21		Chemistry – 7 Mathematics – 10 Physics – 13 Zoology – 03		
8	Publications (scopus indexed)/patents, if any.	**Publications** Chemistry – 2 Mathematics – 3 Physics – 11 Zoology – 1	**Books** Mathematics – 2	**Publications** Chemistry – 3 Mathematics – 3 Physics – 8	**Books –** Nil	.
9	Training received by faculty	Chemistry – 2 Mathematics – 4 Physics – 4 Zoology – 2	Chemistry – 3 Mathematics – 2 Physics – 7 Zoology – 1	Nil	9	Training received by faculty
10	Exhibitions / seminars /training courses conducted	Chemistry – 26 Mathematics – 12 Physics – 16 Zoology – 13	Chemistry – 28 Mathematics – 13 Physics – 19 Zoology – 24	Training programmes conducted for Students, Faculty and Laboratory Staff as proposed.	10	Exhibitions / seminars /training courses conducted
11	Books/journals subscribed from grants	**Books Purchased** Chemistry – 18 Mathematics – 20 Physics – 58	**Journals Subscribed** Chemistry – 5 Mathematics – 7 Physics – 5 Zoology – 1	**Books Purchased** Physics – 14	**Journals Subscribed** - Nil	Books purchased using recurring grants.
12	Outreach activities (Popular lectures)	Chemistry – 3 Mathematics – 1 Physics – 6 Zoology – 1	Chemistry – 2 Mathematics – 4 Physics – 3 Zoology – 1	Outreach activities conducted for High School Students and Teachers as per proposal.	12	Outreach activities (Popular lectures)

13	Colleges mentored to apply for DBT Star College grants	M.V. Muthiah Government Arts College for Women, Dindigul, Tamil Nadu	Cardamom Planters Association College, Pankajam Nagar, Bodinayakanur, Theni, Tamil Nadu	-
14	Invited lectures	Chemistry – 2 Mathematics – 2 Physics – 2 Zoology – 1	Chemistry – 3 Mathematics – 4 Physics – 6 Zoology – 2	-

9. Self Evaluation

Department	***Objective (as stated in proposal)**	**% achieved**	**Reasons for under achievement / If achieved, state in quantitative metrics**
Chemistry	To strengthen the existing curriculum practical courses are enriched by introducing new application-oriented practical in the respective discipline	100 %	**2.0** Necessary changes were incorporated as per DBT proposal.
	To drive the learners and faculty to progress technically expertise through Hands-on Training, seminars and projects	60 %	**1.5** 18 out of 30 projects completed; the remaining will continue in the upcoming year.
	Conduct hands on training to the students in handling modern instruments	75%	**1.5** Eight interdepartmental activities completed; more are planned in the upcoming year.
	Consenting the students to attend workshops, internships, summer training and industrial visits	75%	**1.5** Six industrial visits conducted; students interned at Naga Food Ltd, Sunshine International Agritech, New Fresh Juice Company, Naga Mineral Ltd, and National Detergents.
	Encourage team work and social responsibility	75%	**1.5** Seven outreach activities completed; more are planned.
Mathematics	To strengthen the existing academic and physical infrastructure for achieving excellence in teaching and training the undergraduate students	100%	**2.0** DBT Mathematics laboratory and Mathematics Park are established and used effectively by all UG students.

	To devise a more standard curricula and standard operating procedure / kits for practical	100%	**2.0** Standard Operating Procedure implemented in lab sessions for Python, Sagemath, R-programming, C, Office Automation, LATEX, SCILAB and MATLAB
	To provide access and exposure to students in research laboratories and industries.	80%	**1.5** Most proposed activities completed; some will proceed as planned.
	To implement an interdisciplinary based learning experience in order to understand the application of Science and Technology and to select various carrier options in different scientific fields	80%	**1.5** Seminars and career guidance conducted; internships and mentoring to be expanded.
	To improve the faculty through Virtual learning process for efficient, effective and integrated interdisciplinary and applied aspects of respective subjects	60%	**1.0** Some faculty members started using online platforms (NPTEL)
	To improve technical support of laboratory staff for active participation in solving the problems in the related field and to improve laboratory conditions with the correct functioning of a management system in laboratory	80%	**1.5** Basic and practical training done; ERP training planned for Laboratory staff.
	To impart advanced knowledge to the teachers of Government schools of rural area in their discipline to manage the academic and societal issues for the betterment of the region	80%	**1.5** Conducted outreach programme for rural school students and teachers, including mathematical software training, model park visits, and a math exhibition.

Physics	To strengthen the existing curriculum, practical courses are enriched by introducing new application-oriented practicals in Physics	100	**2.0** We have implemented the requisite modifications in the practical curriculum as per the DBT proposal.
	Implementation of an inter-disciplinary-based learning experience helps to understand applications of science and technology and to select varying carrier options in different scientific fields	100	**2.0** Conducted various interdepartmental and Career guidance programmes.
	It will also support to impart advanced techniques to the teachers of Government schools of rural area in their discipline to manage the academic and social issues for the betterment of the region.	60	**1.0** Exposure visits arranged for School students, College students and teachers to understand the principles of various available equipments.
Zoology	To empower teaching and learning process by excelling the academic and physical infrastructure.	100	**2.0** Practical curriculum revised per DBT proposal.
	To enrich the curriculum by introducing advanced courses related to applied biotechnology in the syllabus and increasing more number of practical courses.	50	**1.0** 12 of 30 projects completed; remaining will be completed in future.
	To create collaborations with reputed institutions, industries and other research laboratories.	60	**1.0** Visits made to Madurai Kamaraj University lab and Ayurvedic unit.
	To offer associated seminars, workshops, FDP/FIP, etc., supported by eminent experts where appropriate.	90	**1.5** Conferences, Seminar and Hands-on training held in Agriculture Biotechnology, Cell & Molecular Biology and Genetics.

	Students will have updated knowledge of recent trends in life sciences	75	**1.5** Students interned at a Diagnostic lab for IVF training; two attended a Molecular Technique Workshop; one completed a 15-day summer training in Molecular Biology.

Course Coordinator

Dr.C. SUBRAMANI, M.Sc., M.Phil., Ph.D.,
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Head of the Institution

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Proofs (S.No.6-14) of Key performance Indicators

6. No. of hands-on experiments being conducted (Newly introduced)

Department of Chemistry

1. Complexometric Titration - Estimation of Hardness of water using EDTA
2. Water Quality parameter Analysis
3. Instrumental method of analysis – Spectrophotometrically, Colorimetrically
4. To analyse Micronutrients of Soil sample of our college campus.
5. Chromatographic Techniques - Identification of Amino Acids by TLC, Separation of Leaf Pigments by Column Chromatography
6. Electrochemistry - pH metric (HCl Vs NaOH)
7. Adsorption: Adsorption of acetic acid on activated carbon charcoal

Department of Mathematics

Programming in SCILAB

1. Write a program in Scilab to find carnality of the sets.
2. Write a program in Scilab to discuss inclusion and exclusion problem.
3. Write a program in Scilab to evaluate the polynomial.
4. Write a program in Scilab to compute first order and second order differentiation of functions.
5. Write a program in Scilab to compute single integral, double integral and triple integral of functions.
6. Write a program in Scilab to compute permutations and combinations.
7. Write a program in Scilab to discuss sum rule principle and product rule principle in Probability.
8. Write a program in Scilab to compute conditional probability.
9. Write a program in Scilab to plot 2D and 3D graphs.
10. Write a program in Scilab to compute matrix addition and multiplication.

Department of Physics

1. Potentiometer – Calibration of high range voltmeter.
2. Conversion of Galvanometer into Voltmeter
3. Conversion of Galvanometer into Ammeter
4. Dielectric constant measurement

5. Clipper and Clamper
6. Active Filters
7. Shift Registers
8. BCD Adder and Subtractor
9. Counters
10. Encoder and Decoder
11. Flip-Flops
12. Conversion of Galvanometer into voltmeter
13. Conversion of Galvanometer into Ammeter

Department of Zoology

1. Identify the morphology of the insects present in the college campus
2. Squash preparation of salivary gland of Chironomous larvae for visualizing Polytene Chromosome
3. Tissue Preparation for microscopic observation
4. Developmental Stages in Chick embryo
5. Genomic DNA extraction and estimation of Nucleic acids Protein Extraction and quantitative estimation using UV-Visible Spectrophotometer
6. Protein extraction and quantitative estimation using UV-Visible Spectrophotometer
7. Estimation of Haemoglobin by Haemoglobinometer
8. Estimation of Carbohydrates, protein and Lipids in the give samples
9. Estimation of pH
10. Estimation of O_2 Saturation in Blood
11. Effect of insulin level on human blood glucose
12. Study of Soil microbial diversity inside the college campus
13. Study of Soil microbial diversity in and around Chinnalapatti
14. Study of Soil microbial diversity in Dindigul Tannery effluent samples
15. Microbial Culture Techniques – Sterilization
16. Isolation of DNA from Microbes

17. Isolation of DNA from animal tissues
18. Isolation of Protein from animal tissues
19. Separation Nucleic acids using Agarose Gel Electrophoresis
20. Separation Protein fragments using Polyacrylamide Gel Electrophoresis
21. Western Blotting Techniques
22. To study nests and nesting habits of the birds and social insects.
23. To study taxis (phototaxis, geotaxis, chemotaxis and hydrotaxis) behaviour in earthworm.
24. Habituation to touch in garden snail.

7. Number of New experiments introduced:

In line with the objectives of the DBT Star College Scheme, the practical curriculum was revised by:

a) Adding new experiments

b) Converting demonstration-based practicals into hands-on-experiments and

c) Removing redundant experiments.

These revisions in all four participating departments were approved by the Board of Studies and the Academic Council.

Programme	Date of approval by BOS	Link to Minutes of Meetings
Chemistry	**02-05-2024**	**https://drive.google.com/file/d/1nvz99okf0uHhs2vVk7_Y4oVRtyU5z8r7/view?usp=sharing**
Mathematics	**03-05-2024**	**https://drive.google.com/file/d/1y4mZfnRIx2NkcjfEkjJ1NO0jh1XCLJcZ/view?usp=sharing**
Physics	**03-05-2024**	**https://drive.google.com/file/d/1B_1nAaEzHq9zOiUD3sg5vztQ9q7rlwOo/view?usp=sharing**
Zoology	**02-05-2024**	**https://drive.google.com/file/d/1lH08ScroioDUcKKIVeERytMeYSryPmxj/view?usp=sharing**

8. Publications (Scopus indexed) /patents, if any.

List of publications:

Department of Chemistry				
S.No.	**Name**	**Title of the article**	**Month, year of publication/ journal**	**DOI/ Link**
1.	Dr. G. N. Kousalya	Synthesis and Characterization of nitrogen – doped carbon dots from Carissa Carandoss for environmental and in-vitro biomedical applications	**Waste and Biomass Valorization (2024)**	https://doi.org/10.1007/s12649-024-02808-6
2.	Dr. G. N. Kousalya	Green synthesized Silver and Copper nanoparticles using Solanum trilobabum root extract and comparative study	**Russian journal of Organic Chemistry Vol.60 (2024), PP 1264-1273**	https://doi.org/10.1134/S1070428024070182
3.	Dr. M. Pandeeswaran	Synthesis of 2-(morpholin-4-yl)-5-(piperazin-1-yl) pyrido [4,3-d] pyrimidine derivatives, crystal structure, molecular docking studies, and anti-oxidant activities	**Journal of Molecular Structure 1322 (2025) 140430**	https://doi.org/10.1016/j.molstruc.2024.140430

Department of Mathematics				
S. No	**Name**	**Title of the article**	**Month, year of publication/ journal**	**DOI/ Link**
1	Dr. S. Ramachandran	Unscrambling Type-3 fuzzy shortest cycle route problem by Intuitionistic fuzzy branch and bound (penalty)	Aug. 2024	**https://tnsroindia.org.in/JOUR**
2	Dr. P. Pandiammal	Plithogenic Sociogram based Plithogenic Cognitive Maps approach in sustainable industries	2024	**https://doi.org/10.54216/IJNS.240203**

3	Dr. P. Pandiammal	Plithogenic hyper soft based Plithogenic cognitive maps in sustainable industrial development	Nov. 2024	https://digitalrepository.unm.edu/nss_journal/vol73/iss1/7

Department of Physics				
S. No	**Name**	**Title of the article**	**Month, year of publication/ journal**	**DOI/ Link**
1	P. Uma Mageshwari	Utilization of Solar Energy and Magnetic Nano Particle for the Treatment of Dye Effluent around Dindigul District	December 2024	https://doi.org/10.70135/seejph.vi.5929
2	P. Uma Mageshwari	Synthesis and Characterization of Metal Oxide (Cuo) Nanoparticles by Simple Precipitation Method	April 2024	https://doi.org/10.53555/kuey.v30i4.2506
3	P. Uma Mageshwari, K. Ramavenkateswari, K. Jayabala	Effect of Ultrasonic Sound and Doping in the Particle Arrangement and Morphology of Nano Calcium Hydroxide	March 2025	http://doi.org/10.31788/RJC.2025.1819003
4	S Suba Viveka, T Logu, N Ahsan, J. Karthikeyan, S. Kalainathan, Y. Okada, K. Sethuraman	Investigation on intermediate band formation and photoresponsivity enhancement of spray deposited Sn doped CuGaS2 (CuGa1-xSnxS2) thin films	March 2025	https://doi.org/10.1016/j.mseb.2024.117950
5	Shilpa Chauhan, Anshu Singh, Richa Saini, T. Logu, R. Jayaraman Thanigai Arul Kumaravelu, Thangavel Rajalingam, Chung-Li Dong, Asokan Kandasami	Regulation of oxygen vacancies by gamma-irradiation in BiVO4 thin films and their electrochemical performance	March 2025	https://doi.org/10.1016/j.ceramint.2025.02.098

6	Thangavel Ravikumar, T. Logu, Anju Thomas, Santhosh Nallakumar, Saravanan Pandiaraj, Muthumareeswaran Mr, Abdullah N Alodhayb, Sudhagar Pitchaimuthu, Vimukthi Dananjaya, Chamil Abeykoon, Kalainathan Sivaperuman, Andrews Nirmala Grace	Impact of annealing temperature on the response and sensitivity of spinel ZnFe2O4 thin film to ammonia gas sensing at room temperature	January 2025	https://doi.org/10.1016/j.mtchem.2025.102515
7	Thangavel Ravikumar, T. Logu, Kalainathan Sivaperuman	Synergistic effect of rGO decoration on ZnFe2O4 nanorods for low concentration detection of ammonia at room temperature with high selectivity and response	October 2024	https://doi.org/10.1016/j.surfin.2024.105076
8	K Suganya, K Senthil Kannan, R.Hariharasuthan, V.Swarnalatha, M. Meena, T. Rajesh Kumar, R Manikandan	Effect of Shocked Impact of 50 Scaling on the Structural, Morphological, Optical, and Electrical Properties of MMTC Crystals for Correlated Sensor, Photonic, and Piezoelectric Functionalities	September, 2024	https://doi.org/10.1007/s11664-024-11273-9

9. Training received by faculty:

a) Faculty training (Online FDP/ webinars/ Orientation programme/ refresher courses, Minimum 3 days duration)

Department of Chemistry				
S.No.	**Date**	**Name of the faculty**	**Title of the programme**	**Nature of the programme/ organiser**
1	11.11.2024 to 17.11.2024	Dr. G. N. Kousalya	IKS and NEP 2020: Project and Retrospect	FDP, ACT Academy, Kerela.
2	24.03.2025 to 29.03.2025	Dr. G. N. Kousalya	Sustainable technologies for water treatment and Environmental Protection	FDP, KPR Institute of Engineering and Technology, Coimbatore.
3	26.05.2025 to 30.05.2025	Dr. A. Sahaya Raja	Five-Day Online Faculty Development Programme on "Modern Trends in Chemical Sciences"	PG and Research Department of Chemistry Vivekananda College, Madurai.

Department of Physics				
S.No.	**Date**	**Name of the faculty**	**Title of the programme**	**Nature of the programme/ organiser**
1	02.09.2024 to 05.09.2024	Dr. T. Rajesh Kumar	Four days Skill Development Program on "Energy storage Technology and Sustainability"	Department of Physics, Amrita School of Physical Science, Coimbatore
2	30.08.2024	Dr. K. Ramavenkateswari	Workshop on Hands on training on Computational Physics for University / College Professor of Physics department	PG & Research Department of Physics, Government Arts College, Melur.
3	30.08.2024	Dr. K. Jayabala	Workshop on Hands on training on Computational Physics for University / College Professor of Physics department	PG & Research Department of Physics, Government Arts College, Melur.

4	30.08.2024	Dr. P. Uma Mageshwari	Workshop on Hands on training on Computational Physics for University / College Professor of Physics department	PG & Research Department of Physics, Government Arts College, Melur.

Department of Zoology				
S. No.	**Date**	**Name of the faculty**	**Title of the programme**	**Nature of the programme/ organiser**
1	23.02.2025 to 01.03.2025	Dr. S. Dharaneedharan	5th 7 Days hands-on Workshop for College Teachers on Using Drosophila melanogaster for Biology Laboratory classes	FDP, Department of Zoology, Banaras Hindu University, Varanasi.

(b) NPTEL certification:

Department of Mathematics			
S. No.	**Date**	**Name of the faculty**	**Title of the programme**
1.	Jul – Aug 2024	Dr. J. Kaliga Rani	Managing Intellectual Property in Universities
2.	Jan-March 2025	Dr. J. Kaliga Rani	Roadmap for Patent Creation
Department of Physics			
S.No.	**Date**	**Name of the faculty**	**Title of the programme**
1	July – August 2024	Dr. K. Ramavenkateswari	NPTEL - Faculty Development Programme - A Brief Introduction to Psychology
2	July – August 2024	Dr. K. Jayabala	NPTEL - Faculty Development Programme - A Brief Introduction to Psychology
3	July – August 2024	Dr. P. Uma Mageshwari	NPTEL - Faculty Development Programme - A Brief Introduction to Psychology

10. Exhibitions/seminars/training courses conducted:

a) Workshop, Hands on Training, FDP, Conference etc.

Department of Chemistry			
S. No.	**Title of the Program**	**Nature of the program**	**Participants**
1	One-Day Seminar on Essential Skills for the Pharmaceutical Industry	Seminar	I, II, III B.Sc., Chemistry (90)
2	Digital Tools for Effective Scientific Presentations	Seminar	II, III B.Sc., Chemistry (61)
3	Application of Phytochemicals in the Medicinal Plants	Seminar	I, II, III B.Sc., Chemistry (90)
4	The Applications of Instruments and Hands on Training for Students	Hands on Training	I, II, III B.Sc., Chemistry (90)
5	The Applications of Instruments and Hands on Training for Non-Teaching Staffs	Hands on Training	Laboratory staff - 12
6	Learning Advanced Technologies using simple working models	Workshop	All UG students from science departments
7	Hands on Training on UV Visible Spectroscopy	Hands on Training	35 Students from M.V.Muthiah Govt. Arts college for Women and III year Chemistry Students
8	Enzymatic Techniques Using Drosophila	Work Shop	I, II, III B.Sc., Chemistry (90) and II B.Sc., Zoology (15)
9	Corrosion Study on Historical Monuments	Seminar	I, II, III B.Sc., Chemistry (90)
10	Hands on Training on Thin Layer Chromatography	Hands on Training	I, II, III B.Sc., Chemistry (90)
11	Workshop on Diary Chemistry	Workshop	I, II, III B.Sc., Chemistry (90)
12	Electrochemical Methods of Analysis	Hands on Training	III B. Sc., Chemistry and B.Sc., Physics & II B.Sc., Zoology Students (45 students)
13	Impact of green gases on global warming	Seminar	I, II, III B.Sc., Chemistry (90)
14	Role of Chemistry in Flora and Fauna	Seminar	I, II, III B.Sc., Chemistry (90)

15	Scope for Chemist to Become an Entrepreneur	Workshop	I, II, III B.Sc., Chemistry (90)
16	Recent trends in Nano Chemistry	Seminar	I, II, III B.Sc., Chemistry (90)
17	Faculty Development Programme on Tools for Effective Teaching of Chemistry	FDP	22 Faculty members from Department of Chemistry
18	Role of Chemist in Various Industries	Workshop	I, II, III B.Sc., Chemistry (90)
19	Science And Intellectual Property: A Journey of Innovation and Rights	Seminar	All UG students from science departments
20	Green synthesis, Characterization and biological studies of gold and silver nanoparticles using medicinal plants and its applications	Seminar	I, II, III Chemistry Students (90 students)

Industrial visit /Notable laboratory

S.No.	Place of Visit	Date of visit	Beneficiaries	Learning outcomes
1.	CECRI, Karaikudi	26.09.2024	29	Gained knowledge on advanced analytical instruments
2.	Talco DINTEC CETP, Dindigul	22.01.2025	23	Understood the Processing and treatment methods of tannery effluents
3.	Sewage Water Treatment Plant,Dindigul	28.03.2025	38	Learned about the processes and control methods in sewage effluent treatment systems

Internships

S. No	Date	Industry/ institution etc.	Beneficiaries
1	21.12.2024 to 31.12.2024	Naga Food Ltd NGO Colony, Dindigul	04
2	16.12.2024 to 25.12.2024	Sunshine International Agritech Genkuvarpatti, Periyakulam	03
3	21.12.2024 to 31.12.2024	New Fresh Juice Company Panchampatti, Dindigul	04
4	21.12.2024 to 31.12.2024	Naga Mineral Ltd, Seelappadi,Dindigul.	01
5	23.12.2024 to 04.01.2025	National Detergents, Maara Soaps Mottanampatti, Dindigul	10

Department of Mathematics			
S.No.	**Title of the Program**	**Nature of the program**	**Participants**
1.	Workshop on Graphing 3D objects in Geogebra	Workshop	III B.Sc., Mathematics (21)
2.	Workshop on Preparation for Competitive Examination in Mathematical Science	Workshop	I, II, III B.Sc., Mathematics & II M.Sc., (66)
3.	A Workshop on Graph Theory and Linear Algebra using Sagemath	Workshop	III B.Sc., Mathematics (21)
4.	A Workshop on Fundamentals of Statistics and its Applications using R Programming	Workshop	II & III B.Sc., Mathematics (42)
5.	A One-day Hands-on Training on "Day Book in MS – Excel"	Hands on Training	III B.Sc., Mathematics (21)
6.	FDP on Intellectual Property Rights and Consultancy in Mathematics	FDP	TEACHING FACULTY (*25*)
7.	Seminar on Role of Mathematics in AI	Seminar	I, II, III B.Sc., Mathematics & II M.Sc., (66)
8.	A Seminar on Graph Theory and its application	Seminar	III B.Sc., Mathematics & II M.Sc., Mathematics & Chemistry (46)
9.	A Seminar on Fuzzy set and its applications	Seminar	III B.Sc., Mathematics (21)
10.	Five Day Winter Training on Algebra and Analysis	Winter training	III B.Sc., Mathematics (21)
11.	A Lab Assistant Development Programme on open-source mathematical software	FDP	Non-teaching staff members with PG students (20)

Lab Visit / Industrial Visit

S.No	Date	Title of the Program	Participants
1	11.03.2025	Mother Teresa University for women	I, II, III B.Sc., Mathematics

Internship

S.No.	Date	Industry/ institution etc.	Beneficiaries
1	03.01.2025 to 17.01.2025	SYSCOM Infotech, Dindigul.	21

Department of Physics			
S.No	**Title of the Program**	**Nature of the program**	**Participants**
1.	Workshop and Hands on Training on Experiments in Optics	Workshop and Hands on Training	Staff (7), I, II, III B.Sc., Physics (41)
2.	International Conference on Advanced Nanomaterials for Energy, Environment and Healthcare Applications 2024 (ANEH 2024)	International Conference	325 Outside Participants (Both National and International)
3.	Hands on training Program on New Practical	Hands on training	Staff (6), II, III B.Sc., Physics (20)
4.	Hands on Training Program on "Exploring the Physics of Futuristic Materials	Hands on training	Staff (6), II B.Sc., Chemistry, II B.Sc., Physics, I B.Sc., Physics, III B.Sc., Physics, I B.Sc., Maths, II B.Sc., Maths Students (45)
5.	Inter Departmental Activity Hands on Training on Physics Laboratory Overview	Hands on training	III B.Sc., Physics, II B. Sc., Maths (27)
6.	Inter Departmental Activity Hands on Training on Physics Laboratory Overview	Hands on training	II, III B.Sc., Physics, III B.Sc., Chemistry (24)
7.	Inter Departmental Activity Career Guidance Programme – Unleashing the Leader Power	Career Guidance	I, II, III B.Sc., Physics, II B.Sc., Zoology, II B.Sc., Maths (61)
8.	Inter Departmental Activity Career Guidance Programme – Public Service Examinations	Career Guidance	I, II, III B.Sc., Physics, II B.Sc., Zoology, II B.Sc., Maths (61)
9.	Trouble Shooting of Electrical Components for Laboratory Staffs	FDP	M.V. Muthiah Government Arts College for Women, Dindigul (2), G.T.N Arts College, Dinidgul (14)

10.	Trouble Shooting of Electronics & Digital Components for Laboratory Staffs	FDP	M.V. Muthiah Government Arts College for Women, Dindigul (2), G.T.N Arts College, Dinidgul (14)
11.	Hands on Training on "Synthesis and Characterization of Nanomaterials"	Hands on training	I, II, III B.Sc., Physics (29)
12.	Interdepartmental Programme DFT and Simulation Software: A Beginner's Guide for UG Students	Hands on Training	Staff (7), I, II. III B.Sc., Physics, II B.Sc., Maths (58)
13.	Interdepartmental Programme Hands on Training on "Synthesis and Characterization of materials for Super capacitors"	Hands on Training	II M.Sc., Physics, II B.Sc., Maths, II, III B.Sc., Physics (33)
14.	Hands-on experience with optical and electronics experiments	Hands on Training	III B.Sc., Chemistry, III B.Sc., Physics (20)
15.	Inter Departmental Programme Career Opportunities for UG students	Career Guidance	III B.Sc., Physics, I B.Sc., Physics, III B.Sc., Zoology, II B.Sc., Maths (45)

Lab Visit / Industrial Visit

S.No	Date	Title of the Program	Participants
1	18.09.2024	Indian Institute of Astrophysics, Kodaikanal	I, II & III Physics (49)
2	26.09.2024	CSIR CECRI, Karaikudi	I, II & III Physics (49)
3	31.01.2025	Anna Science Centre-Planetarium, Tiruchirappalli	I, II & III Physics (39)

Internship

S.No.	Date	Industry/ institution etc.	Beneficiary
1	04.01.2025 to 13.01.2025	PHYSAAC LAB, Usilampatti, Madurai	13

Department of Zoology			
S.No.	**Title of the Program**	**Nature of the program**	**Participants**
1	Center of Excellence for Vegetables, Reddiyarchatram	Field Visit	III B.Sc., Zoology (28)
2	Electrophoretic Techniques and its Applications	Hands on Training	III B.Sc., Zoology (28)
3	Natural History Talk: Introduction to Paleontology	Seminar	I, II, III B.Sc., Zoology (83)
4	Muthupandi Fish Farm Alanganallur, Madurai	Field Visit	III B.Sc., Zoology (28)
5	SS Vermicompost, Vadipatti	Field Visit	III B.Sc., Zoology (28)
6	Colorimetric Technique in Biological Research	Workshop	III B.Sc., Zoology (28)
7	Summer Training Camp - Molecular Biology Techniques – BRIC – DBT – Rajive Gandhi Center for Biotechnology - Thiruvananthapuram	Students Summer Training	II B.Sc., Zoology (23)
8	Chromatography and Immuno Haematology	Workshop	I, II, III B.Sc., Zoology (83)
9	Importance of Herbal Medicine in Our Daily Life	Seminar	I, II, III B.Sc., Zoology (83)
10	The Power of Translational Research	Seminar	I, II, III B.Sc., Zoology (83)
11	Role of Omics in Life Science Based Research	Workshop	III B.Sc., Zoology (28)
12	Role of In-Silico Based Omics Tools in Life Sciences Research	Workshop	III B.Sc., Zoology (28)
13	Sustainable Freshwater Aquaculture Practices	Seminar	I, II, III B.Sc., Zoology (83)
14	Zebrafish : A Window into Human Biology and a Gateway to New Therapies	Seminar	I, II, III B.Sc., Zoology (83)
15	FDP for DBT SCS	FDP	6 Zoology Faculties

16	Standard Operating Procedures & Microbiological Techniques	Lecture Workshop	15 Lab Assistants
17	Navigating The Future: Promising The Career Avenues for Zoology Aspirants	Guest Lecture	I, II, III B.Sc., Zoology (83)
18	Environmental Radioactive Monitoring and Protection	Seminar	I, II, III B.Sc., Zoology (83)
19	Haemocytometer and its Applications	Workshop	III B.Sc., Zoology (28)
20	Climate Change and its Effect on Urban Bio Diversity	Conference	I, II, III B.Sc., Zoology (83)
21	Marine Biodiversity and their Conservation	Conference	I, II, III B.Sc., Zoology (83)

Lab Visit / Industrial Visit

Sl.No	Date	Title of the Program	Participants
1	20.12.2024	AVN Ayurvedic Formulations Pvt Ltd - Madurai	III B.Sc., Zoology (28)

Internship

S.No.	Date	Industry/ institution etc.	Beneficiaries
1	21.12.2024 to 03.01.2025	Ashwanth Diagnostics and Research Centre & ADRC Lifesciences Pvt. Ltd.	28
2	21.12.2024 to 03.01.2025	Rudraash Diagnostics Labs & Pvt Ltd, Dindigul	28

(b) Add- on Courses/ Value added courses:

S.No.	Department	Title of the Course	Date and Duration	Class	Total number of beneficiaries
1	Chemistry	Chemistry of Water	30 Hours	I Year	29
2		Aroma compounds	30 Hours	II Year	38
3		Paper and Pulp Technology	30 Hours	III year	23
4		Leather Technology	30 Hours		

5.	Mathematics	Office Automation Practicals	30 Hours	III year	21
6.		LATEX	30 Hours	III year	21
7.		Programming in SCILAB	30 Hours	I year	24
8.		SAGEMATH	30 Hours	II year	21
9.	Physics	Conceptual Physics	30 Hours	I Physics	21
10.		Problems in Physics	30 Hours	II Year	17
11.		Optical Sensors	30 Hours	III Year	13
12.		Electrical Appliances	30 Hours	III Year	13
13.	Zoology	Vermitechnology	30 Hours	III Year	28
14.		Bee Keeping	30 Hours	III Year	28
15.		Horticulture	30 Hours	II Year	23
16.		Malacology	30 Hours	I Year	32

11. Books/journals subscribed from grants:

Department of Physics			
S.No	**Name of the Author**	**Title of the Books**	**Number of Copies**
1	H.K. Dass	Mathematical Physics	1
2	Arfken and Weber	Mathematical Methods for Physicists	1
3	D.S. Mathur	Mechanics	1
4	H.J. Pain	The Physics of Vibrations and Waves	1
5	Ajoy Ghatak	Optics	1
6	David J. Griffiths	Introduction to Electrodynamics	1
7	Garg, Bansal, and Ghosh	Thermal Physics	1
8	Arthur Beiser	Modern Physics	1
9	S.O. Pillai	Solid State Physics	1
10	Boylestad and Nashelsky	Electronic Devices and Circuits	1
11	Rajendran	Materials Science	1
12	Neamen	Semiconductor Physics and Devices	1
13	OUSEPH	Practical Physics and Electronics	1
14	Hewitt	Conceptual Physics	1

12. Outreach activities:

Department of Chemistry		
Date	**Name of the Activity**	**Beneficiaries**
11.09.2024	DBT Lab Visit from College	St. Antony's College of Arts and Sciences for Women, Dindigul (30)
09.01.2025	DBT Lab Visit from School	BVB School, Palani and Shri Maharishi Vidya Mandir, Dindigul (80)
Department of Mathematics		
11.09.2024	Outreach Activity-Higher Education Institution visit-2024 and social responsibility	St. Antony's College of Arts and Sciences for Women,Dindigul (Staff – 7, Students- 38)
03.02.2025	How to prepare for government public examination mathematics for higher secondary school students	St. Mary's Hr. Sec. School (60)

09.01.2025	DBT Mathematics laboratory and DBT Mathematics Park	Model school, Maharishi Vidhya Mandir, Dindigul. (50)
21.09.2024 03.10.2024 19.10.2024	Competitive Examination Preparation and Problem-solving Techniques	Seelapadi Village Library (10)
Department of Physics		
19.07.2024	Awareness Program on Financial management and effective banking operations for self-help group people	Seelapadi Village (Self-help group women -17)
21.08.2024	DBT lab and Museum	Model school, Maharishi Vidhya Mandir, Dindigul (55)
11.09.2024	Demo for Allied Practicals for College students	St. Antony's College of Arts and Sciences for Women, Dindigul (34)
Department of Zoology		
19.05.2024	Awareness Programme on Health and Hygiene	Seelapadi Village People

13. Colleges mentored to apply for DBT Star College grants –

Faculty members from the Science Departments of Cardamom Planters Association College, Pankajam Nagar, Bodinayakanur, Theni, Tamil Nadu, participated in a mentoring session focused on the DBT Star College Scheme. Dr. C. Subramani, Assistant Professor & DBT Coordinator, along with Dr. Dharanidharan, Associate Coordinator, led the session. They provided detailed guidance on the application process, eligibility criteria, and best practices for preparing a successful proposal. Approximately 15 faculty members benefited from this session, gaining valuable insights into enhancing science education through the DBT Star College Scheme.

14. Invited Lectures:

Department of Chemistry			
Date	**Title**	**Name of the Resource person(s) with designation**	**Number of participants**
08.08.2024	From Molecules to Milestone: Pathways to Achieve Success in Chemistry	Dr. M. Arunachallam, Assistant Professor, Department of Chemistry, GRI – DTBU Gandhigram	90
20.09.2024	Exploring Advanced Opportunities in Chemistry: Pathways After B.Sc.	Dr. D. S. Bhuvaneswari, Associate Professor Department of Chemistry Thiagarajar College, Madurai	90
20.01.2025	A great career Launcher for Chemistry graduates	Dr. P. Krishnan,Scientist, 517 Methven Grove Drive, FMC Corporation, USA	90

Department of Mathematics			
Date	**Title**	**Name of the Resource person(s) with designation**	**Number of participants**
19.07.2024	MoU Signing and Expert talk on Recent Trends in IT	Mr. Sanjay Raj, Managing Director, Reccsar Pvt. Ltd, Madurai.	I, II, III B.Sc & II M.Sc Mathematics (66)
07.08.2024	Lecture on Recreational Mathematics	Dr. B. Johnson, Assistant Professor, PG & Research department of Mathematics, American College, Madurai.	I, II, III B.Sc & II M.Sc Mathematics (66)
17.12.2024	An Invited Talk on Differential Equations and its Applications	Dr. P. Muthukumar, Associate Professor, Department of Mathematics' The Gandhigram Rural Institute (Deemed to be Universites), Gandhigram, Dindigul.	B.Sc Maths, Physics, Chemistry & Zoology (164)
18.12.2024	A Motivational Talk on Mathematics	Dr. A. Mohamed Ali, Assistant Professor, PG & Research Department of Mathematics, Saraswathi Narayanan College (Autonomous), Perungudi, Maduari.	I, II, III B.Sc & II M.Sc Mathematics (66)

Department of Physics			
Date	**Title**	**Name of the Resource person(s) with designation**	**Number of participants**
26.07.2024	Guest Lecture on Energy Physics	Mr.N.Nagendran Waste to Energy EPC Director and Founder, Chennai	Staff (6), I, II, III B.Sc., Physics (37)
31.07.2024	Invited Talk on Raman the Legend	Dr.M.Sivaraman, Former Professor of Physics The Gandhigram Rural Institute (Deemed to be University), Gandhigram	Staff (6), I, II, III B.Sc., Physics (36)
13.09.2024 Forenoon	Invited talk on Evolution of the Universe	Mr. U. Shanmugasundaram Retired Manager Central Bank of India,Chennai	Staff (6), I, II, III B.Sc., Physics I, II B.Sc., Maths (51)
15.10.2024 Forenoon	Invited talk on Inspiring Physics; Proud to be Physicists	Dr. A. John Peter Head, PG & Research Department of Physics, Government Arts College, Melur-625106	Staff (7), I, II, III B.Sc., Physics I B.Sc., Maths (42)
16.10.2024 Afternoon	Invited Talk on Indian Knowledge System (IKS) in Physics	Dr. A. Alexandar Assistant Professor Department of Physics St. Joseph's College Tiruchirappalli	II, III B.Sc., Physics II, III B.Sc., Chemistry (41)
07.03.2025 Forenoon	Guest Lecture on Material Science and its Applications	Dr. K. Prabha, Assistant Professor, Department of Physics Mother Teresa Women's University, Kodaikanal	I, II, III B.Sc., Physics II B.Sc., Chemistry, I B.Sc., Maths (70)

Department of Zoology			
Date	**Title**	**Name of the Resource person(s) with designation**	**Number of participants**
31.07.2024	Save Tiger Save Future	Dr. A. Kanimozhi Assistant Professor, Dept. of Zoology, Surashtra College of Arts and Science, Theni.	I, II, III B.Sc., Zoology (83)
22.01.2025	Organic Plant Growth Formulations	Mr. Sebastian, Organic Farmer, Dindigul.	I, II, III B.Sc., Zoology (83)

Dr.C. SUBRAMANI, M.Sc., M.Phil., Ph.D.,
Course Coordinator
DBT Star College Scheme
G.T.N. Arts College (Autonomous)
DINDIGUL - 624 005.
Tamilnadu, India

PRINCIPAL
G.T.N. ARTS COLLEGE
(AUTONOMOUS)
DINDIGUL - 624 005.

DEPARTMENT OF BIOTECHNOLOGY

STAR COLLEGE SCHEME

ANNUAL PROGRESS REPORT 2025-2026

Sanction Order No: HRD-11011/16/2022-HRD-DBT

Submitted by

IN GOD WE TRUST

SINCE 1964

G.T.N. ARTS COLLEGE (AUTONOMOUS)

A Telugu Linguistic Minority Institution | Affiliated to Madurai Kamaraj University
Re-accredited (Cycle II) by NAAC with "A++" Grade | Indexed in NIRF 2025
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Skill Hub Initiative of PMKVY 4.0 by MSDE, New Delhi

Old Karur Road, Dindigul - 624 005, Tamil Nadu.

www.gtnartscollege.ac.in

Department of Biotechnology

Proforma for submission of Annual Progress Report Supported under Star College Scheme

1. Name of the College : **G.T.N. Arts College (Autonomous), Dindigul, Tamil Nadu**

2. Name of Coordinator, Designation, Address, Phone nos. : **Dr. C. Subramani**
Assistant Professor and Head
Department of Mathematics
G.T.N. Arts College (Autonomous)
Old Karur Road, Dindigul – 624 005
Tamil Nadu.
Mobile: 9894248495

3. Assessment duration : **01.04.2025 to 08.01.2026**
Duration in years : **1 Year**

4. Details of Departments Supported

S. No	Name of Department	Courses (B.Sc./M.Sc./PG Diploma, Certificate etc.,) Offered	Regular Faculty Members	
			Total = 65	
			With Ph.D.	Without Ph. D
1	Chemistry	B.Sc., M.Sc., Ph.D.,	8	9
2	Mathematics	B.Sc., M.Sc., Ph.D.,	4	11
3	Physics	B.Sc., M.Sc.	9	1
4	Zoology	B.Sc.,	4	1

5. Number & Date of Advisory committee meeting: Mentoring and Internal Advisory Committee meeting held on 27.06.2025.

Attended and presented the Annual Progress Report of our college at the All India Coordinators Meet and 5th Review Meeting organized under the DBT Star College Scheme, held at Hindu College, University of Delhi, from 1st to 3rd July 2025.

6. **Qualitative improvements due to the support of DBT Star College Scheme**

- The participating departments have been strengthened significantly through the procurement of new scientific equipments in multiple units using the grant provided under the DBT Star College Scheme. Additional learning resources were made available for our students in the form of new books and journals in the library. The support facilities Hands-on Training, Workshop and Faculty Development Programme helping the students and staff to acquire skills and stay updated with current scientific advancements.

- In line with the objectives of the DBT Star College Scheme, the practical curricula for UG programmes (Chemistry, Mathematics, Physics and Zoology) are upgraded by introducing new experiments involving advanced instruments and costly consumables such as chemicals, glassware, minor electronic components and software. This revision of curriculum with more number of experiments helps for improving our students learning skills and brings the joy of learning.

- Improved Lab facilities, Internships and Research exposure attract motivated students and better prepare them for higher studies competitive exams and biotech- related careers.

- The DBT Star College Scheme supports conducting various activities periodically such as seminars, workshops, hands-on training and demonstration. These activities help the students stay updated with the trends in their domain, create avenues to interact with resource persons and improve the confidential level of the Undergraduate students when applying their knowledge through hands-on training.

- This prestigious scheme extends its benefit to school students and teachers by providing the access to laboratory resources and motivates the students to opt for higher education in basic science.

- Furthermore, The scheme has contributed to the creation of a healthy academic environment among students and faculty members which leads in building an ecosystem of research, innovation and entrepreneurship.

- Visits to industry, academic and research institutions enabled the learners and faculty members in improving their knowledge and academic rapport for further collaborative activities.

- This premiere scheme has facilitated student interaction with experts from reputed institutions such as Bhabha Atomic Research Centre, Mumbai, Rajiv Gandhi Centre for Biotechnology, Kerala, Thermal Power Station, Kalpakkam, Shiksha Sanskruti Utthan Nyas, Tamil Nadu, IIT Chennai, CECRI Karaikudi, thereby creating an opportunity for exploring subject ideas and interact with industry veterans.

- Increased visibility and credibility in academic circles, leading to additional grant opportunities from other national agencies like DST. Additionally, DBT-Supported programmes raise the academic profile of the institution, making it a preferred partner for National and International collaboration grants and knowledge exchange.

Interdisciplinary Minor projects and their impact or similar activities and their outcome

S. No.	Department	Title of the Project	Outcome
1.	Chemistry	Isolation and Characterization of Oral bacteria from tobacco and Alcohol Consumers using herbal and chemical toothpaste.	Analysing Oral Microbes and their characters
2.		Corrosion Inhibition of Natural products.	Corrosion inhibition efficiency of carbon steel by plant extract in well water medium
3.		Sorption behaviour of Food dyes using *Ocimum basicillicum.*	Removal of Food Dyes/Abatement of Pollution using adsorbent to meet safety standards
4.		Chemical Sensors for the detection of Heavy metal ions in *Aqueous media.*	Simple chemical analysis used for detection of Heavy metals
5.		Adsorption Studies of Heavy Metals by Low- Cost Adsorbents.	Low cost adsorbents effectively removed heavy metals from textile effluents
6.		Phytochemical Screening Test various plant parts such as Root, Stem, Leaf, Seed Extract and its Anti-Microbial Activities.	Plant extract preparation and its biological activities
7.		Analysis of Physico Chemical Parameters of Farm Land Soil.	Analysis of chemical parameters of industrial and farm land soil
8.		Corrosion Inhibition of Amino acids.	Corrosion inhibition efficiency of carbon steel by in well water medium
9.		Role of Chemical composition in Various brand tooth pastes.	Identifying chemical composition present in the tooth pastes
10.	Mathematics	Statistical Analysis of Tuberculosis cases in Shanarpatti Block (2022–2024)	The project applied the application of statistical techniques and python programming to analyse the real time public health data, enhancing analytical skills and social awareness.
11.		A Statistical Study on Tea/Coffee consumption and its impact on Cognitive performance among G. T. N. Arts College students	The study provided insights into the relationships between moderate caffeine intake, alertness, and academic performance, emphasing the importance of healthy lifestyle practices.
12.		A Special Graph Theoretic approach to Chemical Stability	The project applied spectral graph theory concepts to examine chemical stability and aromaticity through eigenvalues and graph energy of molecular graphs.

13.		Graph Theoretical Modeling and Analysis of Electric Circuit using MATLAB	Graph theory concepts were employed to model and analyse electric circuits using MATLAB, promoting interdisciplinary learnings & technical competence.
14.		Graph Theory and its application in Protein-Protein Interaction networks.	Mathematical modelling techniques were used to analyse protein interaction networks and identify key hub proteins encouraging application of graph theory in biological systems.
15.		Understanding the user experience in online food delivery application	Statistical tools such as ANOVA were applied to evaluate user experience parameters and compare major food delivery platforms enhancing data interpretation skills.
16.	Physics	Enhanced photodegradation of Malachite Green by ZnO – Activated carbon (Neem Leaves) under UV Light Nanocomposite.	The present study describes composites offer a greener, low cost and faster alternative for dye degradation emerging as the optimal formulation.
17.		Eco-friendly Photocatalytic Degradation of Malachite Green using ZnO/ Activated Carbon Composite Derived from Teak Leavea (Tectona Grandis).	The present study describes the photo catalytic degradation of Malachite green dye using ZnO-carbon composite and it is highly effective for dye removal, with performance influenced by the compound.
18.		Sustainable Photocatalytic Treatment of Malachite Green Dye using ZnO Nanoparticles loaded on coconut shell –Based Activated Carbon.	From the study, the photocatalytic efficiency of coconut shell plays a critical role in enhancing charge carrier dynamics, suppressing recombination and facilitating reactive oxygen species (ROS generation).
19.		Photocatalytic Degradation of Malachite Green Dye using ZnO Nanoparticles supported on Activated carbon from sugarcane Bagasse (Saccharum of ficin arum) under UV illumination.	From the study demonstrates a low-cost, eco-friendly and sustainable photocatalyst for wastewater treatment applications.
20.		Computational Verification of Torricelli's Law: Integrating Python Analysis with Fluid Dynamics	From the study demonstrates how Torricelli's law of fluid discharge in water flow systems in everyday life.

21.	Zoology	Isolation and Characterization of Oral bacteria from tobacco and Alcohol Consumers using herbal and chemical toothpaste	Students got screened the bacterial diversity among the tobacco and alcohol consumers and also understand the basics of dental diseases.
22.		Haemotological Studies in selected fish of tilapia exposed to chromium	Students were experienced in analyzing the blood biochemical profile
23.		Identification and Characterization of Probiotic bacteria isolated from gut of *Cyprinus carpio*	Students assess the biological importance of probiotic microbes.
24.		Isolation and Production of Rhizobium and its impacts on Paddy growth	Students were able to prepare microbial manure
25.		Effect of Vermicompost in enhancing plant growth	To find the suitability of Raw materials in Vermi compost preparation

7. Any Novel aspect introduced or planning to introduce during the Scheme duration.

- New Add on and Skill-based courses such as Computational Mathematics, and Data Visualization using SAGEMATH, SCILAB were introduced. These courses enhanced students conceptual understanding and computational proficiency in core subjects.

- Introduced courses on Python, Sagemath, MATLAB, R-programming, SCILAB, Molecular biology, rDNA Technology, Experiments in Physical Chemistry, Volumetric Analysis, Analog Electronics and Digital Electronics. These courses broadened subject knowledge and improved analytical and programming skills.

- Mandatory Internship and interdisciplinary group project were introduced for all the students in the participating departments to promote collaborative and integrated learning.

- Introduction of new experiments in practical courses expanded the students experimental exposure and application based understanding.

- Workshops were conducted in emerging area such as Molecular Biology, Bio-medical Sciences, Agricultural Biotechnology, Bioinformatics, Nano-technology, Python programming, MATLAB, Sagemath, LaTeX and Drawing chemical structures using Chemdraw software.

- Winter training program and Hands-on Training on Sagemath, Latex, Python & Statistical Modelling and applications in science were organized. Domain Experts invited to provide application oriented training and practical exposure.

- Industry and academic institutional visits were organized to strengthen the Industry-Institution interface and provide real world exposure.

- Faculty members and students enhanced their competencies by actively participating in Intercollegiate meets, Internships and Conference & Training Programmes.

Future Plans

- To sign MoUs with research institutes and academic institution to strengthen collaborative research activities.
- To conduct outreach training programmes for school students to promote interest in basic Sciences.
- To organize community-oriented awareness programmes for the well-being of societal development.
- To design and implement the skill enhancement training programmes for the students and local community.
- To organise structured programmes that guide students in exploring career pathways and higher education opportunities.

8. Lessons learnt / difficulties faced/suggestions if any, in implementation of the programme and utilization of DBT grant.

- Introduction of interdisciplinary group projects and compulsory internships for final-year students.
- Improvement in the infrastructure facilities of all the participating departments using the DBT grant.
- The institution's reputation is elevating through Star College Scheme activities.
- Encouraging and supporting the knowledge of other department faculties for optimal use of equipment's.
- Persuade the UG students to publish research papers, thereby inculcating a research interest in them.
- Encourage the students to participate and present papers at Conferences/Seminars/Symposia, etc.
- A key difficulty encountered was the delay in the release of DBT funds, which affected the timely execution of some planned activities and resource procurement.

9. Key Performance Indicators

<table>
<tr><th>Sl No.</th><th>Indicator</th><th colspan="9">During Support 2024-25</th><th colspan="9">During/After Support 2025-26</th><th>Remarks</th></tr>
<tr><td rowspan="12">1.</td><td rowspan="12">No of Students Admitted</td><td colspan="9">Department of Chemistry</td><td colspan="9">Department of Chemistry</td><td rowspan="2"></td></tr>
<tr><td colspan="9">Total = 33</td><td colspan="9">Total = 32</td></tr>
<tr><td colspan="4">M = 22</td><td colspan="4">F = 11</td><td colspan="4">M = 17</td><td colspan="4">F = 15</td></tr>
<tr><td>SC</td><td>ST</td><td>OBC</td><td>G</td><td>SC</td><td>ST</td><td>OBC</td><td>G</td><td>SC</td><td>ST</td><td>OBC</td><td>G</td><td>SC</td><td>ST</td><td>OBC</td><td>G</td></tr>
<tr><td>4</td><td>0</td><td>18</td><td>0</td><td>4</td><td>0</td><td>7</td><td>0</td><td>3</td><td>1</td><td>13</td><td>0</td><td>2</td><td>0</td><td>13</td><td>0</td></tr>
<tr><td colspan="9">Department of Mathematics</td><td colspan="9">Department of Mathematics</td><td rowspan="2"></td></tr>
<tr><td colspan="9">Total = 24</td><td colspan="9">Total = 32</td></tr>
<tr><td colspan="4">M = 18</td><td colspan="4">F = 6</td><td colspan="4">M = 7</td><td colspan="4">F = 25</td></tr>
<tr><td>SC</td><td>ST</td><td>OBC</td><td>G</td><td>SC</td><td>ST</td><td>OBC</td><td>G</td><td>SC</td><td>ST</td><td>OBC</td><td>G</td><td>SC</td><td>ST</td><td>OBC</td><td>G</td></tr>
<tr><td>5</td><td>0</td><td>13</td><td>0</td><td>3</td><td>0</td><td>3</td><td>0</td><td>0</td><td>0</td><td>7</td><td>0</td><td>3</td><td>0</td><td>22</td><td>0</td></tr>
<tr><td colspan="9">Department of Physics</td><td colspan="9">Department of Physics</td><td rowspan="2"></td></tr>
<tr><td colspan="9">Total = 21</td><td colspan="9">Total = 22</td></tr>
<tr><td colspan="4">M = 16</td><td colspan="4">F = 5</td><td colspan="4">M = 9</td><td colspan="4">F = 13</td></tr>
<tr><td>SC</td><td>ST</td><td>OBC</td><td>G</td><td>SC</td><td>ST</td><td>OBC</td><td>G</td><td>SC</td><td>ST</td><td>OBC</td><td>G</td><td>SC</td><td>ST</td><td>OBC</td><td>G</td></tr>
<tr><td>8</td><td>0</td><td>8</td><td>0</td><td>1</td><td>0</td><td>4</td><td>0</td><td>2</td><td>0</td><td>7</td><td>0</td><td>2</td><td>0</td><td>11</td><td>0</td></tr>
<tr><td colspan="9">Department of Zoology</td><td colspan="9">Department of Zoology</td><td rowspan="2"></td></tr>
<tr><td colspan="9">Total = 33</td><td colspan="9">Total =46</td></tr>
<tr><td colspan="4">M = 14</td><td colspan="4">F = 19</td><td colspan="4">M = 25</td><td colspan="4">F =21</td></tr>
<tr><td>SC</td><td>ST</td><td>OBC</td><td>G</td><td>SC</td><td>ST</td><td>OBC</td><td>G</td><td>SC</td><td>ST</td><td>OBC</td><td>G</td><td>SC</td><td>ST</td><td>OBC</td><td>G</td></tr>
<tr><td>3</td><td>0</td><td>11</td><td>0</td><td>2</td><td>0</td><td>17</td><td>0</td><td>7</td><td>0</td><td>18</td><td>0</td><td>7</td><td>0</td><td>13</td><td>1</td></tr>
<tr><td>2.</td><td>No. of students passing out (%) Students Admitted /passing out (pass%)</td><td colspan="9">Chemistry – 76.19%
Mathematics – 100%
Physics – 100%
Zoology – 78%</td><td colspan="9">The end semester examinations of 2025-26 are yet to be conducted.</td><td></td></tr>
<tr><td>3</td><td>Drop-out rates</td><td colspan="9">Chemistry – 12.12%
Mathematics – 0 %
Physics – 0 %
Zoology – 22%</td><td colspan="9">Chemistry – 13.63%
Mathematics – 9 %
Physics – 0%
Zoology – 23.3%</td><td></td></tr>
<tr><td>4</td><td>No. of students Opting for M.Sc.</td><td colspan="9">Chemistry - 10
Mathematics – 6
Physics – 5
Zoology – 12</td><td colspan="9">Not Applicable</td><td>The end semester examinations of 2025-26 are yet to be conducted</td></tr>
<tr><td>5</td><td>Average Marks</td><td colspan="9">Chemistry – 66.15
Mathematics – 65.4
Physics – 65
Zoology – 68</td><td colspan="9">Not Applicable</td><td>The end semester examinations of 2025-26 are yet to be conducted</td></tr>
</table>

6	No. of Hands-on experiments being conducted	Chemistry – 42 Mathematics – 69 Physics – 60 Zoology – 95		Chemistry – 42 Mathematics – 60 Physics – 60 Zoology – 95	
7	No. of new experiments introduced	Chemistry – 7 Mathematics – 10 Physics – 11 Zoology – 21		Chemistry – 7 Mathematics – 11 Physics – Nil Zoology – 3	
8	Publications (scopus indexed) / patents, if any.	**Publications** Chemistry – 3 Mathematics – 3 Physics – 8	**Books** Mathematics - 2	**Publications** Chemistry – 7 Mathematics – 2 Physics – 7	.
9	Training received by Faculty	Chemistry – 2 Mathematics – 4 Physics – 4 Zoology – 1		Chemistry – 2 Mathematics – 7 Physics – 3 Zoology – 1	
10	Exhibitions/Seminars / Training Courses conducted	Chemistry – 23 Mathematics – 11 Physics – 15 Zoology – 13		Chemistry – 20 Mathematics – 7 Physics – 7 Zoology – 17	
11	Books/journals subscribed from grants	**Books Purchased** Physics – 14	**Journals Subscribed** Nil	**Books Purchased** Chemistry - 20 Mathematics - 18 Zoology - 27	
12	Outreach Activities	Chemistry – 2 Mathematics – 4 Physics – 6 Zoology – 1		Chemistry – 2 Mathematics – 2 Physics – 1 Zoology – 1	
13	Colleges mentored to apply for DBT Star College grants	Bodi CPA College		Bodi CPA College	
14	Invited Lectures	Chemistry – 3 Mathematics – 4 Physics – 6 Zoology – 2		Chemistry – 3 Mathematics – 5 Physics – 14 Zoology – 3	

7. Self Evaluation

Department	*Objective (as stated in proposal)	% achieved	Reasons for under achievement / if achieved, state in quantitative metrics
Chemistry	To strengthen the existing curriculum practical courses are enriched by introducing new application-oriented practical in the respective discipline	100%	**02**
	Drive the learners and faculty to progress technically expertise through Hands-on Training, Seminars and Projects	100 %	**02**
	Conduct hands on training to the students in handling modern instruments	100%	**02**
	Consenting the students to attend Workshops, Internships, Summer Training and Industrial Visits	100%	**02**
	Encourage team work and social responsibility	100%	**02**
Mathematics	To strengthen the existing academic and physical infrastructure for achieving excellence in teaching and training the undergraduate students	100%	**02**
	To devise a more standard curricula and standard operating procedure / kits for practical	100%	**02**
	To enhance the quality of teaching and learning process to stimulate original and creative thinking in order to develop skills and aptitudes	100%	**02**
	To provide access and exposure to students in research laboratories and industries	100%	**02**
	To conduct specialized training programmes for faculty improvement for optimizing technical capabilities	100%	**02**
	To enhance the interdisciplinary skills that provides reservoirs of knowledge with maximum connectivity between the subjects	100%	**02**
	To implement an interdisciplinary based learning experience in order to understand the application of Science and Technology and to select various carrier options in different scientific fields	100%	**02**
	To improve the faculty through virtual learning process for efficient, effective and integrated interdisciplinary and applied aspects of respective subjects	100%	**02**

	To improve technical support of laboratory staff for active participation in solving the problems in the related field and to improve laboratory conditions with the correct functioning of a management system in laboratory	100%	02
	To impart advanced knowledge to the teachers of Government schools of rural area in their discipline to manage the academic and societal issues for the betterment of the region	100%	02
Physics	To strengthen the existing curriculum, practical courses are enriched by introducing New Application-Oriented Practicals in Physics	100%	02
	Implementation of an inter-disciplinary-based learning experience helps to understand applications of science and technology and to select varying carrier options in different scientific fields	100%	02
	It will also support to impart advanced techniques to the teachers of Government schools of rural area in their discipline to manage the academic and social issues for the betterment of the region.	100%	02
Zoology	To empower teaching and learning process by excelling the academic and physical infrastructure.	100%	02
	To enrich the curriculum by introducing advanced courses related to applied biotechnology in the syllabus and increasing more number of practical courses.	100%	02
	To create collaborations with reputed institutions, industries and other research laboratories.	100%	02
	To offer associated seminars, workshops, FDP/FIP, etc., supported by eminent experts where appropriate.	100%	02
	Students will have updated knowledge of recent trends in life sciences	100%	02

Course Coordinator

Dr.C. SUBRAMANI, M.Sc., M.Phil., Ph.D.,
Course Coordinator
DBT Star College Scheme
G.T.N. Arts College (Autonomous)
DINDIGUL - 624 005.
Tamilnadu, India

Head of the Institution

PRINCIPAL
G.T.N. ARTS COLLEGE
(AUTONOMOUS)
DINDIGUL - 624 005.

Proofs (S. No. 6-14) of Key performance Indicators

6. No. of Hands-on Experiments being conducted (Newly introduced)

Department of Chemistry

1. Complexometric Titration - Estimation of Hardness of water using EDTA
2. Water Quality Parameter Analysis
3. Instrumental method of analysis – Spectrophotometrically, Colorimetrically
4. To analyse Micronutrients of Soil sample of our college campus.
5. Chromatographic Techniques - Identification of Amino Acids by TLC, Separation of Leaf Pigments by Column Chromatography
6. Electrochemistry - pH metric (HCl Vs NaOH)
7. Adsorption: Adsorption of acetic acid on activated carbon charcoal

Department of Mathematics

1. Write a Sagemath program to find first three derivatives of a given function.
2. Write a Sagemath program to find n^{th} derivatives of a given function.
3. Write a Sagemath program to find radius of curvature of a given function.
4. Write a Sagemath program to find the integration of a given function.
5. Write a Sagemath program to find the roots of quadratic function.
6. Create a LaTeX document with multiple chapters, sections, and subsections.
7. Create a LaTeX document with a bibliography and citations.
8. Design a LaTeX template for a company or organization.
9. Format a multi-line equation with alignment in LaTeX.
10. Create a presentation using LaTeX.
11. Prepare a LaTeX document for a research paper.

Department of Physics

1. Potentiometer – Calibration of high range voltmeter.
2. Conversion of Galvanometer into Voltmeter
3. Conversion of Galvanometer into Ammeter
4. Dielectric Constant Measurement
5. Clipper and Clamper
6. Active Filters
7. Shift Registers
8. BCD Adder and Subtractor
9. Counters
10. Encoder and Decoder
11. Flip-Flops

Department of Zoology

1. Identify the morphology of the insects present in the college campus
2. Squash preparation of salivary gland of Chironomous larvae for visualizing Polytene Chromosome
3. Tissue Preparation for microscopic observation
4. Developmental Stages in Chick embryo
5. Genomic DNA extraction and estimation of Nucleic acids Protein Extraction and quantitative estimation using UV-Visible Spectrophotometer
6. Protein extraction and quantitative estimation using UV-Visible Spectrophotometer

7. Estimation of Haemoglobin by Haemoglobinometer
8. Estimation of Carbohydrates, protein and Lipids in the give samples
9. Estimation of pH
10. Estimation of O2 Saturation in Blood
11. Effect of insulin level on human blood glucose
12. Study of Soil microbial diversity inside the college campus
13. Study of Soil microbial diversity in and around Chinnalapatti
14. Study of Soil microbial diversity in Dindigul Tannery effluent samples
15. Microbial Culture Techniques – Sterilization
16. Isolation of DNA from Microbes
17. Isolation of DNA from animal tissues
18. Isolation of Protein from animal tissues
19. Separation Nucleic acids using Agarose Gel Electrophoresis
20. Separation Protein fragments using Polyacrylamide Gel Electrophoresis
21. Western Blotting Techniques
22. To study nests and nesting habits of the birds and social insects.
23. To study taxis (phototaxis, geotaxis, chemotaxis and hydrotaxis) behaviour in earthworm.
24. Habituation to touch in garden snail.

7. Number of New experiments introduced:

In line with the objective of the DBT Star College Scheme, the practical curriculum is revised by: a) adding new experiments b) converting demonstrated practicals into hands-on-experiments and c) removing redundant experiments. The curriculum revisions in all the four participating departments were approved by the Board of Studies and Academic council meeting.

Department	Date of approval by BOS	Link to Minutes of Meeting
Chemistry	06.02.2025	https://drive.google.com/file/d/1QV98NizabGYhDlBhak1brJ6D1fLZsNtR/view?usp=sharing
Mathematics	06.02.2025	https://drive.google.com/file/d/1hr_dGhvDbR8P9TAfAZirHJmaRcat1dr7/view?usp=sharing
Physics	06.02.2025	https://drive.google.com/file/d/1N9S768blnpNCriYYXnsBxuCAvf4ZLHKA/view?usp=drivesdk
Zoology	07.02.2025	https://drive.google.com/file/d/1gfcHPzZ5XWNq08PNihityqqhDg9DmLQI/view?usp=sharing

8. Publications (Scopus indexed) /patents, if any.

List of publications:

Department of Chemistry				
S. No	**Name**	**Title of the Article**	**Month, Year of Publication/ Journal**	**DOI/ Link**
1	Dr. J. Sathiyabama and Dr. A. Sahaya Raja	An Investigation into the Inhibitory Effect of Agave Americana Extract Mn Mild Steel Corrosion in HCl Medium.	June 2025	doi.org/10.31788/RJC.2025.1829131
2	Mr. T. Srinivasan	Synergistic Effects of Inorganic Oxides on Poly(3-amino-5-mercapto-1,2,4-triazole) - Electropolymerized Films for the Corrosion Inhibition of Cu–Ni (90/10) Alloys in an Aqueous Sodium Chloride Medium	November 2025	https://doi.org/10.1039/D5NJ03663A
3	Dr. A. Sahaya Raja	Advanced Microscopic Characterization and Antimicrobial Applications of Green-Synthesized Zinc Oxide Nanoparticles in Clinical Wound Healing Bandages	December 2025	https://doi.org/10.1002/jemt.70028
4	Dr. A. Sahaya Raja	Murraya Koenigii Root Extract-Mediated Green Synthesis of Transition Metal Nano Structures and their future studies in Sewage Effluent Treatment	June 2025	doi.org/10.31788/RJC.2025.1829223
5	Dr. A. Sahaya Raja	Inhibition of Corrosion of Mild Steel in Simulated Oil Well Water by An Aqueous Extract of Daucus Carota (Carrot)	March 2025	doi.org/10.17675/2305-6894-2025-14-1-17
6	Dr. M. Pandeeswaran	Design, Synthesis, in Vitro, and in Silico Study of Pyrido[4,3-D] Pyrimidine-Based Compounds as Potent Antidiabetic, Anti-Inflammatory and Antibacterial Agents	March 2025	doi.org/10.1016/j.molstruc.2025.142219
7	Dr. J. Dominic	Synergistic Design of Gadolinium-Doped Polyaniline/MWCNT Hybrid Nanocomposites for High-Performance Supercapacitors	January 2026	https://doi.org/10.1038/s41598-025-30564-7

Department of Mathematics				
S. No	**Name**	**Title of the Article**	**Month, Year of Publication/ Journal**	**DOI/ Link**
1	Dr. P. Pandiammal	A Study on Neutrosophic Fuzzy M-Subgroup	Indian Journal of Natural Sciences, Volume -16, Issue-89, pp: 93288-93297, Apr 2025, ISSN:0976-0977	https://www.tnsroindia.org.in/JOURNAL/issue89/IJONS%20-%20ISSUE%2089%20-%20APRIL%2025%20-%20FULL%20TEXT%20-%20%20PART%20-%2003--19.04.2025.pdf
2	Dr. P. Pandiammal	Notes on Plithogenic Fuzzy M-subgroup of an M-group and its applications	Indian Journal of Natural Sciences, Volume -16, Issue-89, pp: 91542-91557, Apr 2025, ISSN:0976-0977.	https://www.tnsroindia.org.in/JOURNAL/issue89/IJONS%20-%20ISSUE%2089%20-%20APRIL%2025%20-%20FULL%20TEXT%20-%20PART%20-%2001.pdf
Department of Physics				
S. No	**Name**	**Title of the Article**	**Month, Year of Publication/ Journal**	**DOI/ Link**
1	R Sangeetha, R Senthil Kumar, Nachammai Kathiresan, T Rajesh Kumar, Pandi Sangavi, Langeswaran Kulanthaivel	Spectroscopic and Computational Evaluation of 4-Chlorochalcone as a Promising Therapeutic Candidate against Cervical Cancer	January 2026	https://doi.org/10.1007/s00339-025-09177-4
2	Santhosh Nallakumar, Logu Thirumalaisamy, Kalainathan Sivaperuman, Thangavel Ravikumar, Anju Thomas, Vijaya B, Anand Sekar, UmaMageshwari P, Manohar Darla, Ravi Shanker Babu, Usha Rani Muthurakku	Catalytic Interplay and Oxygen Vacancy Mediation on Pristine and Silver Doped Bismuth Vanadate Thin Films for Potential Ammonia Detection at Room Temperature	January 2026	https://doi.org/10.1016/j.surfin.2025.108306

3	Thangavel Ravikumar, Kalainathan Sivaperuman, Logu Thirumalaisamy, Saravanan Pandiaraj, Maha Alruwaili, Nadyah Alanazi, Abdullah N Alodhayb, R Ramesh, Chamil Abeykoon, Andrews Nirmala Grace	Trace Level Detection of NH3 at Room Temperature using Cd-Znfe2o4 Thin Films	November 2025	https://doi.org/10.1016/j.isci.2025.114271
4	Soundarrajan Palanivel, Geetha Manikandan, Logu Thirumalaisamy, Rajamanickam Nagalingam, Shanthi Chockalingam, Sethuraman Kunjithapatham	The Composition of Simonkolleite Secondary Phase with Zno Nano/Micro Rod Array Thin Film during Co Doping: Changes in Morphology and Shifts in Charge Carriers	November 2025	https://doi.org/10.1016/j.matlet.2025.139809
5	R Marnadu, R Sangeetha, T Rajesh Kumar, N Sumathi, Vasudeva Reddy Minnam Reddy, Atif Mossad Ali, Mohd Shkir	Facile Development of Cu-Doped Nio Pn Junction Diodes for Enhanced Photodetector Devices	September 2025	https://doi.org/10.1016/j.optmat.2025.117198
6	Shilpa Chauhan, Anshu Singh, Richa Saini, Logu Thirumalaisamy, Jayaraman Ramakrishnan, Thanigai Arul Kumaravelu, Thangavel Rajalingam, Chung-Li Dong, Asokan Kandasami	Regulation of Oxygen Vacancies by Gamma-Irradiation in Bivo4 Thin Films and Their Electrochemical Performance	June 2025	https://doi.org/10.1016/j.ceramint.2025.02.098
7	Ravikumar Thangavel, Kalainathan Sivaperuman, Logu Thirumalaisamy, Saravanan Pandiaraj, Maha Alruwaili, Nadyah Alanazi, Abdullah N Alodhayb, Chamil Abeykoon, Andrews Nirmala Grace	Unleashing Synergy: rGO Decorated on a Cobalt-Doped ZnFe2O4 Film to Detect Trace-Level NH3 at Ambient Temperature with High Response and Cross-Selectivity	June 2025	https://doi.org/10.1021/acsaelm.5c00618

9. Training received by faculty:

Faculty training (Online FDP/ webinars/ Orientation programme/ refresher courses, Minimum 3 days duration)

Department of Chemistry				
S. No.	**Date**	**Name of the Faculty**	**Title of the Programme**	**Nature of the Programme/ Organiser**
1	24.07.2025 to 31.07.2025	Dr. A. Sahaya Raja	Indian Knowledge System Integration in Curriculum & Research: Prospects and Possibilities	FDP/Arul Anandar College (Autonomous), Karumathur, Madurai.
2	26.05.2025 – 30.05.2025	Dr. A. Sahaya Raja	Modern Trends in Chemical Sciences	FDP/Vivekananda College (Autonomous), Tiruvedakam, Maduai
Department of Mathematics				
S. No.	**Date**	**Name of the faculty**	**Title of the Programme**	**Nature of the Programme/ Organizer**
1.	22.09.2025-26.09.2025	Dr. J. Kaliga Rani	Five Days Virtual Faculty Development Programme on "Artificial Intelligence Empowered by Mathematics".	PPG College of Arts and Science, Coimbatore
2.	16.06.2025 - 20.06.2025		One week Faculty Development Program on "Microsoft Power BI Data Analyst Associate".	ICI Academy
3.	24.07.2025-31.07.2025		Seven Days National level FDP(Online) on "Indian Knowledge System Integration in Curriculum & Research: Prospects and Possibilities"	A.C.T. Academy and Research & Development Cell, Arul Anandar College (Autonomous), Karumathur
4.	08.09.2025 to 12.09.2025	Dr.P. Pandiammal	Five-day International online FDP on Indigenous Knowledge and AI in Mathematics: Harmony of tradition and technology".	PG & Research Department of Mathematics, Holy Cross College, Trichirappalli
5.	26.09.2025 to 30.09.2025		Five Days National Level FDP on "AI Driven E-content Development for Effective Engagement of Digital Natives".	Department of Mathematics, Arul Anandar College (Autonomous), Karumathur

6.	01.12.2025 to 07.12.2025		Seven Day online FDP on "New Dimensions in Mathematical and Statistical Research".	Department of Mathematics and Statistics, SRM Institute of Science and Technology, Kattankulathur
Department of Zoology				
S. No.	**Date**	**Name of the Faculty**	**Title of the Programme**	**Nature of the Programme/ Organiser**
1	18.01.2026 to 24.01.2026	Dr. K. Krishnaveni	8th 7 days Hands-on Workshop for College Teachers on Using *Drosophila melanogaster* for Biology Laboratory Classes	Faculty Development Program

(b) NPTEL certification:

Department of Mathematics			
S. No.	**Date**	**Name of the faculty**	**Title of the programme**
1.	Aug – Oct 2025	Dr. J. Kaliga Rani	Descriptive Statistics with R Software
Department of Physics			
S. No.	**Date**	**Name of the faculty**	**Title of the programme**
1	July – Aug 2025	Dr. K. Ramavenkateswari	NPTEL - Bioreactors
2	July – Aug 2025	Dr. K. Jayabala	NPTEL - Bioreactors
3	July – Aug 2025	Dr. P. Uma Mageshwari	NPTEL - Bioreactors

10. Exhibitions/seminars/training courses conducted:

a. Workshop, Hands on Training, FDP, Conference etc.

S.No	**Department**	**Title of the Program**	**Nature of the Program**	**Participants**
1	Chemistry	One Day Seminar on "Advanced Materials for Next Generation Solar Cells"	Seminar	I, II, III B.Sc., Chemistry (90)
2	Chemistry	One Day Hands-on-Training on Thin Layer Chromatography"	Hands on Training	II, III B.Sc., Chemistry (61)

3	Chemistry	One Day Seminar on "Challenges and Strategic Solutions in Electrochemical 3D Nanodevices"	Seminar	I, II, III B.Sc., Chemistry (90)
4	Chemistry	A Faculty Programme on "Innovative ICT Tools in Chemistry Teaching"	FDP	Staff (8)
5	Chemistry	A One Day Workshop on "Instrumentation of UV and FTIR Spectroscopy"	Workshop	I, II, III B.Sc., Chemistry (90)
6	Chemistry	Water Quality Parameter Analysis	Hands on Training	All UG students from science departments (Zoology, Physics and Chemistry)
7	Chemistry	One Day Seminar on "Nanomaterials and its Applications"	Seminar	I, II, III B.Sc., Chemistry (90)
8	Chemistry	The Sustainable You: Cultivating a Greener Personality for a Better World	Invited Talk	I, II, III B.Sc., Chemistry (90)
9	Chemistry	Micro and Nanoplastic Chemistry in the Environment	Seminar	I, II, III B.Sc., Chemistry (90)
10	Chemistry	Healing with the Herbs of Life	Workshop	I, II, III B.Sc., Chemistry (90) and MVM Womens Govt. Arts College (15)
11	Chemistry	Photochemical Extraction Methods	Hands on Training	I, II, III B.Sc., Chemistry (90) and MVM Womens Govt. Arts College (15)
12	Chemistry	Defluoridation Using Biopolymer Based Adsorbents	Seminar	I, II, III B.Sc., Chemistry (90) and MVM Womens Govt. Arts College (15)
13	Chemistry	Corrosion Behaviour of Metals in Artificial Saliva	Seminar	I, II, III B.Sc., Chemistry (90)
14	Chemistry	Thin Layer Chromatography	Hands on Training	I, II, III B.Sc., Chemistry (90)
15	Chemistry	Organic Stereochemistry: Concepts and Applications	Guest Lecture	I, II, III B.Sc., Chemistry (90)
16	Chemistry	Handling of Analytical Instruments	Hands on Training (Lab Assistants)	Laboratory Staff (12)
17	Chemistry	Tricks on Chemical Bonding and Molecular Structure	Seminar	I, II, III B.Sc., Chemistry (110)

18	Chemistry	Climate Change	Guest Lecture	All UG students from science departments (Zoology, Physics and Chemistry)
19	Chemistry	Skill Development and Entrepreneurial Opportunities in the Soap and Detergents	Skill Development	I, II, III B.Sc., Chemistry (110)
20	Chemistry	Preparation of Chemical Structure to Textnotes Using Softwares	Workshop	I, II, III B.Sc., Chemistry (90)
21	Mathematics	A Workshop on "Introduction to LATEX"	Workshop	I, II B.Sc., Mathematics (33) Staff (15)
22	Mathematics	A Workshop on "Python Programming"	Workshop	I, II B.Sc., Mathematics (33) Staff (15)
23	Mathematics	One day Hands on Training Programme on "SAGEMATH"	Hands on Training	I, II B.Sc., Mathematics (28) Staff (15)
24	Mathematics	FDP on "Innovative Teaching Strategies using ICT Tools in Mathematics"	FDP	Staff (15)
25	Mathematics	A One Day Seminar on "Mathematics for Machine Learning"	Seminar	I, II, III B.Sc., Mathematics, II, III B.Sc., AI (122) Staff (12)
26	Mathematics	Five Day Winter Training on "Statistical Modeling and Applications in Science"	Winter training	II, III B.Sc., Mathematics, III B.Sc., Physics, II B.Sc., Chemistry, I B.Sc., Zoology (37) Staff (15)
27	Mathematics	A Lab Assistant Development Programme on "Troubleshooting and Software Maintenance"	FDP (NTS)	Laboratory Staff (15)
28	Physics	Faculty Development programme on "Evolution of Battery Materials for Energy Storage Application"	FDP	Staff (25)
29	Physics	Faculty Development programme Hands on Training on "Designing of on Supercapacitors: A Smart way Forward"	FDP	Staff (25)

30	Physics	Hands on Training on "Designing of simple electronic circuits and devices"	Hands on Training	Staff (6), Lab Assistant (1), I, II, III B.Sc., Physics (39)
31	Physics	Hands on Training on "Sustainable and Cost-Effective Solid-State Electrolytes for Battery Applications"	Hands on Training	Staff (5), Lab Assistant (1), I, II, III B.Sc., Physics (28), I B.Sc., Chemistry (3)
32	Physics	Hands on Training on Maintenance of Lab instruments for lab technicians	Hands on Training	Laboratory Staff (15)
33	Physics	Workshop on "Fabrication of Low Cost Metal Oxide Ammonia Sensors"	Workshop	Staff (6), Lab Assistant (1), I, II, III B.Sc., Physics (49)
34	Physics	Workshop on "Diverse Manifolds of Biogenic Nanomaterials in Synthesis, Characterization and Applications"	Workshop	Staff (6), Lab Assistant (1), I, II, III B.Sc., Physics (41), III B.Sc., Zoology (13)
35	Zoology	Herbal Product Preparation	Hands on Training	III B.Sc., Zoology (16)
36	Zoology	Startup Opportunities in Moringa Microenterprises	Workshop	III B.Sc., Zoology (16)
37	Zoology	Virtual Screening of Antimicrobial Peptides: Next Generation Antibiotics	Workshop	I, II, III B.Sc., Zoology (70)
38	Zoology	Synthesis of Nano particles: their characterization Techniques, Application in Medical and Agricultural Field	Lecture cum Workshop	III B.Sc., Zoology (16)
39	Zoology	Probiotics & Its Role on Human Health	Guest Lecture	III B.Sc., Zoology (16)
40	Zoology	Resent Advantages of Genetic Engineering and Genome Editing Technology	Lecture cum Workshop	III B.Sc., Zoology (16)
41	Zoology	Nematodes: Isolation, Identification and its Ecological Significance	Hands on Training	II B.Sc., Zoology (29)
42	Zoology	Phytochemical Extraction and its Applications	Lecture cum Workshop	I, II, III B.Sc., Zoology (70)

43	Zoology	Training program on "Laboratory Safety and Management"	Workshop	Laboratory Staff (12)
44	Zoology	Basic Rules and Regulations of Laboratory and Disposal of Chemicals	Guest Lecture	III B.Sc., Zoology (16)
45	Zoology	Innovation Pathways: Turning Research Outcomes into Startups	Guest Lecture	I, II, III B.Sc., Zoology (70)
46	Zoology	Antigen Antibody Interactions; Principles and Laboratory Techniques	Lecture cum Workshop	I, II, III B.Sc., Zoology (70)
47	Zoology	Screening and Protein Docking of Natural Compounds for Noval Drug Design	Lecture cum Workshop	Staffs (6)
48	Zoology	Exploring DBT with Special Emphasis on Funding	FDP	I, II, III B.Sc., Zoology (70)
49	Zoology	Marine Biotechnology	Seminar and	I, II, III B.Sc., Zoology (70)
50	Zoology	IPR for Applied Sciences	FDP	III B.Sc., Zoology (16)
51	Zoology	Biotechnology and Bio prospecting of Microbial Resources and IPR	Seminar	I, II, III B.Sc., Zoology (70)

b. Industrial visit /Notable laboratory:

S.No.	Department	Place of Visit	Date of Visit	Beneficiaries	Learning Outcomes
1.	Chemistry	CECRI, Karaikudi	26.09.2025	29	Acquired Knowledge on Advanced Analytical Instruments
2.	Chemistry	Water Treatment Plant, Theni District	18.12.2025	38	Acquired Knowledge on Processing and Treatment stages of drinking Water
3.	Chemistry	SIPCOT, Nilakottai	18.12.2025	28	Acquired Knowledge on Metal Processing and value addition
4.	Physics	Physaac Lab, Karumathur	16.10.2025	10	Acquired knowledge on UV illumination of Nano particles

4.	Zoology	SS Vermicompost, Madurai.	05.10.2025	14	Students have exposed to open vermicomposting farm and gained knowledge on selection of composting worms, soil physiochemical parameters, preparation of vermibed, inoculation of organic materials and harvesting of Vermicompost and their marketing
5.	Zoology	Muthupandi Fish Farm, Alanganallur, Madurai.	26.09.2025	14	Students were exposed to variety of ornamental fishes, explained about their managerial practice, their feeding material and their disease control methods.

c. Internships

Sl. No	Date	Industry/ Institution etc.	Beneficiaries
Chemistry	25.12.2025 to 04.01.2026	Accuracy Analabs (OCP) Pvt. Ltd., Dindigul - 624004	38
Mathematics	26.12.2025 to 05.01.2026	Syscom Infotech, Dindigul	20
Physics	20. 12.2025 to 19.12.2025	Sri Packing Machinery	08
Zoology	24.12.2025 to 07.01.2026	Rudraash Diagnostics Labs & Pvt Ltd, Dindigul	12

d. Educational Trip

S. No.	Date	Centre	Beneficiaries	Learning Outcomes
1.	06.01.2026	Anna Science Centre: Planetarium (Tamil Nadu Science and Technology Center), Trichy	45 – I, II, III B.Sc., Mathematics, Staffs (3)	Students enhanced understanding of scientific concepts through practical and visual learning
2.	08.01.2026	Indian Institute of Astro Physics Kodaikanal Solar Observatory, Kodaikanal	44 – I, II, III B.Sc., Mathematics, Staffs (4)	Learned about sun spot activity and space weather forecasting

3.	08.01.2026	Periyar Power Station, Theni, Kollam Highway	49 – I, II, III B.Sc., Physics, Staffs (6)	Students gained knowledge about conversion of various forms of energy into electrical energy for our daily life
4.	08.01.2026	CMFRI, Coral Museum and Live Coral Aquarium, Kurusadai Island in Rameshwaram	83 – I, II, III B.Sc., Zoology, Staffs (4)	Students got admired by the live vision of colourful coral fishes, understand their ecological significance. Also got knowledge on marine research activity going on in CMFRI.

11. Books/journals subscribed from grants:

Department of Chemistry			
S. No	**Name of the Author**	**Title of the Book**	**No. of Copies**
1.	Gopalakrishnan D & Karthik T	Basics of Textile Chemical Processing	2
2.	R.Gopalan, P.S. Subramani & K.Rangarajan	Elements of Analytical Chemistry	5
3.	Jain & Jain	Engineering Chemistry	2
4.	U.N. Dash	Nuclear Chemistry	5
5.	L. Veerakumari	Biochemistry	3
6.	V. Venkateswaran, R.Veerasamy& A.R Kulandaivelu	Basic Principals of Practical Chemistry	3
7.	DM Vasudevan Sreekumari S Kannan Vaidyanathan	Textbook of Biochemistry for Medical Students	2
8.	S. C. Rastogi	Biochemistry	2
9.	Clerk Ranken	Industrial Chemistry	4
10.	G. Vijayalakshmi	Research Methods Tips and Techniques	2
11.	P.L. Soni & Mohan Katyal	Textbook of Inorganic Chemistry	2
12.	V.S. Parmar & H.M. Chawla	Principals of Reaction Mechanism in Organic Chemistry	3
13.	G. Vijayalakshmi	Research Methods Tips and Techniques	2
14.	P.L. Soni & H.M. Chawla	Textbook of Organic Chemistry	2
15.	Mathur, Datta Roy and Dinakar	Text Book of Dairy Chemistry	2
16.	Mallikarjun and Jyothi	Nanochemistry	2

17.	U.N. Dash	Analytical Chemistry	1
18.	R.N. Sarin	Numerical Problems in Chemistry	1
19.	Jeyashree Ghosh	Text Book of Applied Chemistry	1
20.	Dr. M.S. Bhatnagar	Text Book of Polymer Chemistry	1
Department of Mathematics			
1.	Palm, W. J. (2005),\	Introduction to MATLAB 7 for Engineers (Vol. 7)	1
2.	Delores M. Etter, David C. Kuncicky, Holly moore (2012)	Introduction to MATLAB 7	2
3.	Goon, A. M., M.K. Gupta and B. Dasgupta Vol. II., (1987)	Fundamentals of Statistics	3
4.	Reema Thareja (2017)	PYTHON PROGRAMMING using problem solving Approach	1
5.	J.N. Kapur	Mathematical Modeling	3
6.	S.C. Gupta & V.K. Kapoor	Elements of Mathematical Statistics	3
7.	Choudam	Graph Theory	2
8.	S. Arumugam & S. Ramachandran	Invitation to Graph Theory	5
9.	Arumugam. S & Thangapandi Isaac. A	Statistics	3
10.	R.S. Aggarwal	Quantitative Aptitude	3
11.	Jared P. Lander	R for Everyone: Advanced Analytics and Graphics	1
12.	Arumugam	Numerical Methods	3
13.	Dr. A.P. Singh	Real Analysis for IIT-JAM Mathematics	6
14.	Dr. A.P. Singh	Group Theory for IIT-JAM Mathematics	6
15.	IFAS Publications	IIT JAM Algebra Mathematics Book (Theory & Application)	6
16.	Rajendra Dubey	CUET-PG Mathematics Practice Questions	6
17.	Rajendra Dubey	NBHM Ph.D Mathematics Previous Year Solved Papers	6
18.	Dr. A. P. Singh	Linear Algebra for IIT JAM Mathematics Dr. A.P. Singh	7

Department of Zoology			
1.	Sarada Subrahmanyam, Madhavan Kutty K, Hd Singh ,	Textbook Of Human Physiology	1
2.	Ps Verma, Bs Tyagi, Vk Agarwal	Animal Physiology	1
3.	Robert M Coleman, Mary F Lombbard, Raymond E Sicard	Fundamental Immunology	1
4.	Prasad S.	Animal Behaviour	1
5.	Bhupesh Satija	An Introduction to Animal Behaviour	1
6.	Ks Madhavan	Textbook Of Animal Behaviour	1
7.	Jp Shukla	Fundamentals Of Animal Behaviour	1
8.	Susan A. Weiner	Introduction To Chemical Principles: A Laboratory Approach	1
9.	S.K. Gakhar, Monika Miglani, Ashwani Kumar	Molecular Biology: A Laboratory Manual	1
10.	Kiran Singh	Concepts of Laboratory Techniques in Biology	1
11.	Veer Bala Rastogi	Principles of Molecular Biology	1
12.	Leela Dubey	Essential Forensic Biology	1
13.	Kd Chatterjee	Parasitology Protozoology & Helminthology	1
14.	Micheal J Pelczar Jr, Ecs Chain, Noel R Krieg	Pelczars Microbiology	1
15.	Ks Madhavan	Textbook Of Microbiology	1
16.	Manideepa Sengupta, Mallika Sengupta	Practicals In Microbiology	1
17.	Varsha Sharma	A Practical Guide on Techniques in Microbiology and Immunology	1
18.	Albert L Lehninger	Biochemistry	1
19.	Veer Bala Rastogi	Biostatistics: 4th Edition	1
20.	Suresh K Sharma	Research Methodology & Biostatistics	1
21.	Hs Jagtap, Sn Mukherjee, Vk Garad	Textbook Of Pisciculture & Aquarium Keeping	1
22.	William Bains	Biotechnology from A to Z	1
23.	RPH Editorial Board	CUET-UG: Section-II (Domain Specific Subjects: Biology / Biotechnology / Biochemistry / Biological Studies) Entrance Test (Books Series-21): 2023rd Edition	1
24.	Bd Singh	Biotechnology	1
25.	Ps Verma, Vk Agarwal	Cell Biology Genetics Molecular Biology Evolution & Ecology	1
26.	S L Mills	Medical Coding: A Guide to Success as A Coding Professional Paperback – 26 June 2023, by	1
27.	Jitendra Singh	Basic Horticulture	1

12. Outreach activities:

Department of Chemistry		
Date	**Name of the Activity**	**Beneficiaries**
11.09.2024	DBT Lab Visit from College	15 M.Sc students MVM Govt. Arts College for Women, Dindigul
24.10.2025	DBT Lab Visit from School	120 students from various School.
Department of Mathematics		
31.07.2025	Awareness program on Health and Hygiene for Women, Seelapadi Panchayat, Dindigul	70 Seelapadi Village Women
19.08.2025-23.08.2025	SHAKTHI MATH (Power-packed Vedic Mathematics) for the students of St. Mary's Higher secondary School, Dindigul	120 students from St. Mary's School.
Department of Physics		
07.08.2025	Discovering Science beyond the Classroom" for the students of Government Higher Secondary School, Kambiliampatti.	30 students from Govt. Hr. Sec. School
Department of Zoology		
24.10.2025	DBT Lab Visit from School	120 students from various School

(b) Add- on Courses/ Value added courses:

S. No.	Department	Title of the Course	Duration	Class	Total number of Beneficiaries
1	Chemistry	Chemistry of Water	30 Hours	I Year	29
2		Aroma compounds	30 Hours	II Year	38
3		Paper and Pulp Technology	30 Hours	III year	23
4		Leather Technology	30 Hours		
5.	Mathematics	Programming in SCILAB	30 Hours	I Year	23
6.		Computational Mathematics and Data Visualization Using Sagemath	30 Hours	II Year	10
7.		Document Preparation and Scientific Communication using LaTeX (23CMAT6P)	30 Hours	III Year	23

8.	Physics	Conceptual Physics	30 Hours	I Year	22
9.		Physics of Electronic Gadgets	30 Hours	II Year	21
10.		Fundamentals of Medical Physics	30 Hours	III Year	19
11.	Zoology	Malacology	30 Hours	I Year	35
12.		Food Processing Technology	30 Hours	II Year	27
13.		Aquarium Keeping	30 Hours	III Year	20

13. Colleges mentored to apply for DBT Star College grants:

Faculty members from the Science Departments of Cardamom Planters Association College, Pankajam Nagar, Bodinayakanur, Theni, Tamil Nadu, participated in a mentoring session focused on the DBT Star College Scheme. Dr. C. Subramani, Assistant Professor & DBT Coordinator, along with Dr. Dharanidharan, Assistant Coordinator, led the session. They provided detailed guidance on the application process, eligibility criteria, and best practices for preparing a successful proposal. Approximately 15 faculty members benefited from this session, gaining valuable insights into enhancing science education through the DBT Star College Scheme.

14. Invited Lectures:

Department of Chemistry			
Date	**Title**	**Name of the Resource person(s) with Designation**	**Number of Participants**
22.12.2025	The Sustainable You: Cultivating a Greener Personality for a Better World	Dr. D. S. Buvaneshwari Associate Professor Department of Chemistry Thiyagarajar College, Madurai	I, II, III B.Sc., Chemistry (90)
07.01.2026	Organic Stereochemistry: Concepts and Applications	Dr. G. Rajkumar Assistant Professor, Department of Chemistry, Vivekananda College, Tiruvedakam (West), Madurai	I, II, III B.Sc., Chemistry (90)
08.01.2026	Climate Change	Dr. N. Manimaran Assistant Professor School of Chemsitry Bharathidasan University, Trichy.	I, II, III B.Sc., Chemistry (90)
Department of Mathematics			
Date	**Title**	**Name of the Resource Person(s) with Designation**	**Number of Participants**
25.07.2025	Inauguration of Ramanujan Association, Inception of Association Logo and Invited talk	Dr. V. Ramachandran Assistant Professor PG & Research Department of Mathematics Mannar Thirumalai Naicker College Pasumalai, Madurai	I, II, III B.Sc., Mathematics (55) Staff (12)

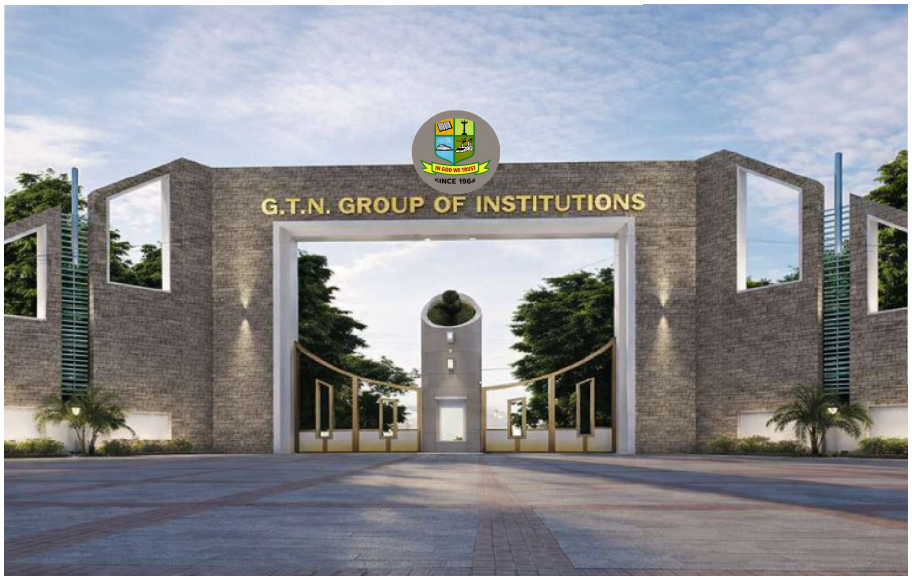
30.09.2025	An Invited Talk on "Relevance of Mathematics"	Dr. D. Sukumar Professor Department of Mathematics Indian Institute of Technology Hyderabad	I, II, III B.Sc., Mathematics (55) Staff (12)
16.12.2025	An Invited Talk on "Calculus and its applications in Modern Science"	Dr. R. Uthayakumar Senior Professor, (Alumnus 1984 - 87) Department of Mathematics The Gandhigram Rural Institute (Deemed to be Universities) Gandhigram, Dindigul	I, II, B.Sc., Mathematics (33) Staff (12)
17.12.2025	An Invited Talk on "Fundamentals of Mathematical Analysis"	Dr. G. Nagamani Associate Professor Department of Mathematics The Gandhigram Rural Institute (Deemed to be Universites), Gandhigram, Dindigul.	I, II B.Sc., Mathematics (36) Staff (12)
23.12.2025	An Invited Talk on "Fundamental Concepts in Algebra"	Dr. K. Arjunan Associate Professor & Head Department of Mathematics Government Arts and Science College Alangudi	I, II B.Sc., Mathematics (33) Staff (12)
Department of Physics			
Date	**Title**	**Name of the Resource person(s) with Designation**	**Number of Participants**
20.08.2025 Forenoon	Invited Talk on "Outer Space and Rockets"	Er. P. Sridharan Retired GM Rocket Propellant Plant, Vikram Sarabhai Space Centre, ISRO, Thiruvananthapuram	Staff (11), I B.Sc., Physics (14), I, II, III B.Sc., Maths (30), III Chemistry (2), II, III B.Sc., History (39).
16.12.2025 Forenoon	Invited talk on "Basic concepts and industrial processing of silicon solar cells"	Dr. M. Jeyanthinath Associate professor Department of Materials Science School of Chemistry, Madurai Kamaraj University, Madurai.	Staff (6), I, II, III B.Sc., Physics (35), B.Sc., Maths (23)
17.12.2025 Afternoon	Invited talk on "Societal and Environmental Impacts of Chitosan – Based Materials"	Dr. R. Mohan Assistant Professor PG and Research Department of Physics Sree Sevugan Annamalai College Devakottai.	Staff (6), I, II, III B.Sc., Physics (38), Lab Assistant (1)
19.12.2025 Afternoon	Guest Lecture on "Recent Trends in Energy Storage and Conversions"	Dr. M. Ulaganathan Associate Professor Department of Physics Amrita School of Physical Sciences Amrita Vishwa Vidyapeetham Coimbatore.	Staff (6), I, II, III B.Sc., Physics (33), II M.Sc., Physics (1) (Mother Teresa University, Kodaikanal)

22.12.2025 Forenoon	Inter Departmental Special Lecture on "Renewable Energy Technologies and Sustainable Development"	Dr. Dsilva Winfred Rufuss Associate Professor School Of Mechanical Engineering Vellore Institute of Technology Vellore	Staff (6), I, II, III B.Sc., Physics (37), Lab Assistant (1), III B.Sc., Chemistry (14)
22.12.2025 Afternoon	Guest Lecture on "Thermal Analysis"	Dr. P. Vickraman Senior Professor Department of Physics The Gandhigram Rural Institute (Deemed to be University) Gandhigram.	Staff (6), I, II, III B.Sc., Physics (35), Lab Assistant (1)
24.12.2025 Forenoon	An Invited Talk On "Intellectual Property Rights under Indian Patent Act 1970"	Mr. R. Chellapandy Managing Director PHYSAAC Lab for Research and Development Karumathur	Staff (6), I, II, III B.Sc., Physics (38), Lab Assistant (1)
24.12.2025 Forenoon	Guest Lecture on "Physics Around us:Small ideas that build a sustainable World"	Dr. C. Roobala Scientific Officer Sophisticated Instrumentation Facility Trichy. NIT, Trichy	Staff (6), I, II, III B.Sc., Physics (38), Lab Assistant (1).
24.12.2025 Afternoon	Interdepartmental Activity Singular-Value Decomposition and its Applications	Dr. A. Karnan Scientist Interdisciplinary Data Research Division CSIR – 4PI NAL Belur Campus Bangalore.	I, II, III B.Sc., Physics (36), I B.Sc., Maths (22)
05.01.2026 Forenoon	Guest Lecture on "Fundamentals of Spectroscopy Principles and Applications in Sciences"	Dr. B. Sundaresan Associate Professor and Head Centre for Research and Post Graduate studies in Physics Ayya Nadar Janaki Ammal College Sivakasi	Staff (6), I, II, III B.Sc., Physics (41), Lab Assistant (1), II B.Sc., Maths (9)
06.01.2026 Forenoon	Guest Lecture on "AI / ML for Science Learning; Promise, Pitfalls and Practice"	Dr. M. Sithartha Muthu Vijayan Principal Scientist CSIR Fourth Paradigm Institute NAL Belur Campus Bangalore	Staff (6), I, II, III B.Sc., Physics (46), Lab Assistant (1).
06.01.2026 Afternoon	Invited talk on "Spark of Tomorrow: The Epic Journey from Batteries to EVs	Dr. R. Dhanalakshmi Associate Professor of Physics Thiagarajar College of Arts and Science Madurai	Staff (6), I, II, III B.Sc., Physics (40), Lab Assistant (1).

07.01.2026 Forenoon	Guest Lecture on "Organic Electronic Devices-Organic Light Emitting Diode (OLED)"	Dr. K. Sethuraman Professor & Dean Department of Materials Science School of Technology, Central University of Tamil Nadu	Staff (6), I, II, III B.Sc., Physics (41), Lab Assistant (1).
07.01.2026 Afternoon	Guest Lecture on "High Power Lasers and its Applications"	Dr. T. C. Sabari Girisun Assistant Professor Department of Physics Bharathidasan University Tiruchirapalli	Staff (6), I, II, III B.Sc., Physics (45), Lab Assistant (1).
Department of Zoology			
Date	**Title**	**Name of the Resource person(s) with Designation**	**Number of Participants**
18.12.2025	Probiotics & Its Role on Human Health	Dr. P. Sivakumar, Assistant Professor & Head, Department of Zoology, Theni College of Arts and Science, Veerapandi, Theni	I, II, III B.Sc., Zoology (83), Staff (6)
23.12.2025	Methods of Collection and Preservation of Insects	Dr. T. Ramesh, Assistant Professor, Department of Zoology, Vivekananda College, Madurai	I, II, III B.Sc., Zoology (83), Staff (6)
05.01.2026	Microbe – Driven Bioremediation	Dr. K. Ramesh Kumar, Assistant Professor & Head, Department of Zoology, Vivekananda College, Madurai	II, III B.Sc., Zoology (83), Staff (6)

Dr.C. SUBRAMANI, M.Sc., M.Phil., Ph.D.,
Course Coordinator
DBT Star College Scheme
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DINDIGUL - 624 005.
Tamilnadu, India

PRINCIPAL
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