

V.V.VANNIAPERUMAL COLLEGE FOR WOMEN



(Belonging to Virudhunagar Hindu Nadars)
An Autonomous Institution Affiliated to Madurai Kamaraj University
Re-accredited with 'A' Grade (3rd Cycle) by NAAC



VIRUDHUNAGAR - 626 001 (TAMILNADU)

ANNUAL PROGRESS REPORT

2021 - 2022

STAR COLLEGE SCHEME FOR STRENGTHENING UG SCIENCE DEPARTMENTS
No.HRD-11011/163/2020-HRD-DBT
DT.24.08.2020

SUPPORTED DEPARTMENTS

PHYSICS

CHEMISTRY

ZOOLOGY

MATHEMATICS & COMPUTER SCIENCE

BOTANY & BIOTECHNOLOGY

BIOCHEMISTRY



सत्यमेव जयते

DEPARTMENT OF BIOTECHNOLOGY
Ministry of Science & Technology
Government of India

Under

DBT STAR COLLEGE SCHEME

DEPARTMENT OF BIOTECHNOLOGY

**MINISTRY OF SCIENCE AND TECHNOLOGY, MHRD,
NEW DELHI**

APRIL - 2022

DEPARTMENT OF BIOTECHNOLOGY
PROFORMA FOR SUBMISSION OF ANNUAL PROGRESS REPORT
SUPPORTED
UNDER
DBT STAR COLLEGE SCHEME

1.Name of the College V. V.Vanniaperumal College for Women (Autonomous),
Virudhunagar
2 Name of the Coordinator, Dr.M.Tamilselvi,
Designation, Address, Associate Professor of Zoology,
Phone Nos. V.V.Vanniaperumal College for Women (Autonomous),
Virudhunagar-626001
Contact No : 9894883106

3. Assessment Duration 2021-2022 Duration in Years : 2nd Year

Details of Departments supported

Sl.No	Name of the Department	Courses (B.Sc./M.Sc./PG Diploma, Certificate etc.) offered	Regular Faculty Members		
			Total =39		
			Total strength	With Ph.D	Without Ph.D
1	Physics	B.Sc	7	7	-
2	Chemistry	B.Sc	6	4	2
3	Zoology	B.Sc	5	5	-
4	Mathematics	B.Sc	11	9	2
	Computer Science	B.Sc	4	3	1
5	Botany	B.Sc	3	3	-
	Biotechnology (Self Finance)	B.Sc	5	1	4
6	Biochemistry	B.Sc	3	3	-
Total			44	35	9

5. Number & Date of Advisory Committee Meeting

	Meeting	Number	Date
1.	Advisory Committee Meeting (Internal)	1	30.03.2022
2.	General Meeting	2	08.12.2021 & 10.02.2022

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

V.V.Vanniperumal College for Women, Virudhunagar is one of the reputed higher educational institutions taking great endeavours in providing quality education to the rural womenfolk in Southern Tamilnadu. Its remarkable march towards its progress is the “joint venture” with the Department of Biotechnology to strengthen the UG Science Departments by increasing infrastructure facilities, fortifying teaching, learning and research processes and moulding the students to compete globally. The achievements of UG beneficiary Science Departments under Star College Scheme of DBT are

- ✓ DBT has enabled the beneficiary UG Science departments to procure new equipments, multiple pieces of existing equipments, software, slides, charts, models, books, glassware and apparatus under Star College Scheme. **Strengthened the adequate physical infrastructure** in all the departments pave the way for promoting the quality of teaching, learning and research process. Moreover, **possibility of more admission in the forthcoming years due to the State of Art laboratories.**
- ✓ Since more equipment were purchased under DBT, **additional practical modules were incorporated in the existing syllabus** and it was approved in BOS. Group practical were converted into individual practical which provide more opportunity to do the experiments individually by students rather than team. **Students’ interest on practical and doing ability has been increased.** The Department of Physics purchased multiple pieces of electronic kits (UJT, SCR & FET) and they were included in the Microprocessor practical. The Department of Zoology has included Phase Contrast Microscope in theory part of the syllabus. The Department of Computer Science purchased Dreamweaver Adobe creative cloud software and included more number of exercises in Animation and Web Design Lab.
- ✓ Well equipped Water Quality Testing Laboratory (Department of Chemistry), Plant Tissue Culture Lab (Department of Biochemistry) Molecular Biology Lab and Bioinformatics Lab (Biotechnology), Microbiology Lab (Common Lab to promote inter-departmental projects) were established under this scheme to promote research activity.
- ✓ Due to DBT support, all the beneficiary science departments were able to invite eminent academic expertise, scientists and industrialists across the country (NIAB, ZSI, BSI, NIOT, CLRI, CSIR – National Physics Lab, IIT etc.,) through organized **Guest Lectures, Seminar, Workshop, Conference and Faculty Development Programmes** for providing a broad academic exposure to both the students and faculty. This created more

interest in the specific field of their disciplinary area and meet out the global demands through research. In addition, the learning community presented their research work in the conference. The organized FDP programmes on “Drawing electrical circuit using Inscape software” helped the faculty of Physics to draw the circuit diagrams in a simple way in preparing the lab manual on “Electronics “

- ✓ Good number of **Hands on Training Programmes organized under this scheme** honed ,
 - (i) **Technical Skill Development** in their specific field (Molecular techniques- Biotechnology; Web Designing using Dreamweaver- Computer Science; ExPASy software tool for Drug Design-Biotechnology, Statistical analysis using SPSS software- Mathematics, Pant tissue culture- Biochemistry); that would be helped the students to join in **reputed** industries and research laboratories across the world .
 - (ii) **Cognitive Skill** to compete the competitive examinations (Practice sessions for JAM- Mathematics)and
 - (iii) **Self Employment** opportunities (Biofertilizer preparation-Biotechnology; Preparation of Household chemical items- Department of Chemistry, Candle making from Bees wax and Cut Cocoon products - Department of Zoology)
- ✓ Organized **school level Competitions/ Inter-departmental /Inter-disciplinary/ inter-institutional competitions** created awareness on the celebrations of special occasion by conducting various competitions. These competitions not only sharpen the innate talents of the students but fostering innovative ideas for discoveries The organized Science Exhibition on 30.03.2022 encouraged the students to learn more about the concepts of theory and practicals through exhibited models/ charts/ specimen/ practical demo/ demo on handling equipments.
- ✓ **Research Centres and Industrial visit** provided more opportunities to the students to have interaction with the Scientists and Industrialists. These visits promoted higher studies (Thondi visit), self employment venture (mushroom farm visit, Transtech electronic system) in the challenging world and instilled entrepreneurial skills (mushroom farm).
- ✓ Numbers of interdepartmental and interdisciplinary and inter-institutional student projects have been increased considerably because of facilitated physical infrastructure under this scheme to meet the relevant problems with scientific approach (preservation of palm leaf manuscript, digitalizing Folk literature).

- ✓ The Department of Tamil and the Department of Computer Science have jointly been engaged themselves in the noble work of digitization of Palm leaf manuscript of Tamils' (around 300 palm leaf manuscripts) using the purchased software under DBT –SCS scheme. It not only inculcates social responsibility among the students in preservation of our old written documents for the benefit of future generation, but provide job opportunities to the Arts and Science students.
- The projects on “Analysis of waste water from laboratory in college premises” and “Fluoride content in ground water level of nearby villages of Virudhunagar District (Chemistry) are alarming the public to find a solution in proper use and disposal of water resources. These kinds of projects boost the students to identify the regional problems in their own area that involve them to overcome the real life situation and instill accountability, environmental awareness and social responsibility among the students. Moreover, students have the opportunity to present their research work in Regional/State/ National/International Conferences and Seminars and publish in reputed journals.
- The Biotechnology Department has started spirulina cultivation and vermiculture at lab scale.
- The organized hands on training and visits to Siddha and Ayurveda research centres, students are able to prepare medicines for common diseases and can sell on demand.
- Lab manuals for the practicals, SOP for the purchased equipments and the teaching aids, charts are prepared under Star College Scheme.

7. Any novel aspect introduced or planning to introduce during the scheme duration

- ✓ All the beneficiary science department under Star college scheme have extended their noble service to the PG Assistants of Government –Aided School teachers of four educational Districts (Aruppukkottai, Sivakasi, Srivilliputhoor and Virudhunagar) of Virudhunagar District. In accordance with the revised syllabus of Tamilnadu Government, the Practical session on experiments, demonstration on handling of instruments and lecture were arranged to understand the concepts in an easy manner. Around 300 PG Assistants of Science teachers were highly benefitted and they expressed their gratitude to DBT for sharing the expertise of the science faculty of our college to conduct theory and practical classes. This programme gave a very good significant impact to the Government Schools (2020-2021) and Government –aided schools (2021-2022) PG Assistants of Virudhunagar District. Moreover, the department of Physics extended its valuable service in conduct of practical to the Government Boys School of Pandalkudi in Virudhunagar District. The students gained practical knowledge in

handling of the apparatus which was donated in the last year (2020-2021) by our College Managing Board during implementation of Star College Scheme. **It will be helpful to get academically sound new entrants during I year UG admission as well as escalate the pass percentage in NEET exam from rural region of Virudhunagar District.**

- ✓ The department of chemistry included greener organic synthetic reaction in the practical to minimize the use of chemicals and time consumption.
- ✓ From the established **Vermiculture Unit** under this scheme, the Department of Zoology, the collected vermicompost (25Kgs) and it was given to Green Club of our college to make green environment. It was planned to conduct more interdepartmental and interdisciplinary projects to promote self –employment opportunities among the students.
- ✓ The department of Physics has a plan to produce value added products by using solar dryer and hot water to the sick students during this pandemic period.
- ✓ We are adopting Miyawaki afforestation Method in our college campus after the industrial visit under Star College Scheme.
- ✓ As it was demanded by the participants earlier during the outreach programme, implementation of spawn production and consultation for mushroom culture were successful.
- ✓ As each department purchased specific equipments BOD, COD Analyser and Chem Draw Software (Chemistry), Microscopes (Botany and Zoology), Plant Tissue Culture Unit (Biochemistry), Adobe Creative Cloud – (Computer Science) under this scheme, they have planned **to carry out more interdepartmental and interdisciplinary projects.**
- ✓ **The work is on progress in built of Common Science Laboratory** to accommodate large group of UG students in a common platform for promoting research activities at UG level.
- ✓ **The Department of Biotechnology has a plan to sign an MOU** with a Biopolymer industry
- ✓ **We organized training programme on** handling and operation of new equipments (Physics, Zoology, Botany, Biotechnology) /software (Chemistry, Biotechnology, Computer Science and Mathematics) and maintenance training to the lab attendants.

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

Lessons Learnt:

- Team spirit is well developed among the students and faculty during the organization of various programmes under DBT Star College Scheme and in doing the different types of projects.
- We had practical difficulties in organizing online programmes. Later, we learnt how to overcome these difficulties.
- Interdisciplinary projects help the students to become aware of societal problems and make them socially responsible citizens.
- The Computer Science has taken initiative work in collaboration with the Department of Tamil in preservation of Palm leaf Manuscripts of Tamils' using the purchased software under Star College Scheme of DBT.

Difficult Faced:

- ✓ Contact hours between the faculty members and the students got reduced for their regular classes, as they are involved in various activities. Nevertheless, we handled the classes for completing the syllabus after the college hours.
- ✓ We felt difficult to conduct the programmes such as Guest lectures, workshops and seminars in pandemic Covid omicron situation. As Switching over to online mode from offline mode and vice versa, the resource person preferred to conduct the programme in online mode .
- ✓ Planned to take our students to renowned Central Research Institutes (CMFRI in Kochi and Mandapam, Ramanujam Institute for Advanced study in Mathematics, Chennai, CECRI in Karaikudi, Nuclear Power Plant in Kudankulam) as per the submitted proposal. Unfortunately, permission was not granted to visit these places in this pandemic period. Nevertheless, we took our students to nearby research institutes to fulfil their dreams under this scheme.
- ✓ Catching hold of students for the allocated project hours was a challenging one. This matter was discussed in General Meeting and assigned an hour to carry out the project and permission was granted to carry out the student projects after 1.00 pm in all Saturdays.

Suggestions:

- DBT shall recommend nationalised and state level research institution to take up DBT Star College students for internship (pandemic situation and omicron arrival was made tough to get the permission from the parents as well as the organization).
- If the funds are released at the beginning of the every academic year, it will be easier for the faculty members to proceed various planned activities.



9. KEY PERFORMANCE INDICATORS

1. NUMBER OF STUDENTS ADMITTED:

Details of Departments Supported	SC	ST	OBC	G	Students Admitted
Physics	6	-	38	1	45
Chemistry	5	-	41	-	46
Zoology	8	-	23	-	31
Mathematics & Computer Science	9	-	62	1	72
	5	-	42	1	48
Botany	Allied Department (Regular)				
Biotechnology (Self-finance)	5	-	37	-	42
Biochemistry	1	-	17	-	18

2. Number of students passing out (%) students Admitted/Passing out (Pass %)

S.No	Details of Departments Supported	During Support [2021-2022]			Remarks
		Students Admitted	% of Admission	Pass Percentage (%)	
1	B.Sc. Physics	45	97.82	-	The pass % will be sent to DBT after publishing the result for the period 2021-2022 as Summative examination in the month of June was rescheduled due to the impact of COVID 19.
2	B.Sc. Chemistry	46	100		
3	B.Sc. Zoology	31	67.39		
4	B.Sc. Mathematics &	72	100		
	B.Sc. Computer Science	48	100		
5	Botany &	(Allied Regular Department)			
	B.Sc. Biotechnology (Self- Finance)	42	91.30		
6	B.Sc. Biochemistry	18	39.13		

3. Drop-out rates

S.No	Details of Departments Supported	During Support [2021-2022]	Remarks
1	B.Sc. Physics	11.11	After joining in our college, students prefer to for professional Courses (Engineering, Agriculture, and Medical Courses) while the selection list is published
2	B.Sc. Chemistry	13.04	
3	B.Sc. Zoology	3.22	
4	B.Sc. Mathematics &	9.72	
	B.Sc. Computer Science	8.33	
5	Botany &	(Allied Regular Department)	
	B.Sc. Biotechnology (Self- Finance)	9.52	
6	B.Sc. Biochemistry	5.55	

4. Number of students opting for M.Sc.

S.No	Details of Departments Supported	2021-2022	Remarks
1	B.Sc. Physics	13	After getting a degree, Students prefer Training Course (B.Ed.) and Job. After completing B.Ed, some of the students again join in PG course
2	B.Sc. Chemistry	13	
3	B.Sc. Zoology	09	
4	B.Sc. Mathematics &	16	
	B.Sc. Computer Science	11	
5	Botany &	(Allied Regular Department)	
	B.Sc. Biotechnology (Self- Finance}	12	
6	B.Sc. Biochemistry	10	

5. Average Marks

S.No	Details of Departments Supported	During Support [2020-2021]	During Support [2021-2022]
1	B.Sc. Physics	77	Summative examination was rescheduled to the month of June 2022 as the second semester was started in the month of January 2022 due to pandemic impact.
2	B.Sc. Chemistry	77	
3	B.Sc. Zoology	63	
4	B.Sc. Mathematics &	76	
	B.Sc. Computer Science	72	
5	Botany &	Allied Regular Department	
	B.Sc. Biotechnology (Self- Finance)	68	
6	B.Sc. Biochemistry	69	

6. No. of Hands on Experiments being conducted

S.No	Date	Title	Number of Beneficiary
DEPARTMENT OF PHYSICS			
1	07.03.2022	Introduction to Python	53
2	09.03.2022 10.03.2022	Computational Physics with Python	53
3	12.03.2022	Instrumentation for Raman and Fluorescence	192
DEPARTMENT OF CHEMISTRY			
4	09.12.2021	Atom Economy in Green and Classical Chemical Reactions	66
5	18.12.2021	Quantitative Analysis of Minerals and Detection of Adulterants in food Sample	87

6	05.03.2022	Identification of λ max value for organic compounds using Spectrophotometer”	50
7	24-03-2022	Inter-Institutional Workshop on “Semi micro Physical Chemistry Experiments	42
DEPARTMENT OF ZOOLOGY			
8	16.12.2021	Handling of Advanced Microscopes	41
9	01.03.2022	Farm made fish feed preparation	27
10	15.03.2022	Analytical Techniques In Basic Sciences	31
11	28.03.2022	Demonstration of PCR	32
12	29.03.2022	Biochemical Characterization of Microbes.	15
DEPARTMENT OF MATHEMATICS & COMPUTER SCIENCE			
13	27.12.2021	Web Designing using Dreamweaver	39
14	17.02.2022	CorelDraw – Graphic Design for Beginners	10
15	21.02.2022	MATLAB Applications in Differential Equations	10
16	04.03.2022& 05.03.2022	SCILAB & R Programming	10
17	16.03.2022	Designing and Construction of Mathematical Models	61
18	22.03.2022	Advanced Statistical Data Analysis using SPSS	71
DEPARTMENT OF BOTANY & BIOTECHNOLOGY			
19	08.12.2021	Compound and Dissection Microscope Operation Techniques	200
20	10.12.2021		108
21	14.12.2021		72
22	24.02.2022	Hands-on Training Programme on “ Mushroom Cultivation”	80
23	25.02.2022		78
24	02.03.2022	Hands-on Training Programme on “ Biofertilizer Preparation”	40
25	09.12.2021 10.12.2021	Antibiotic Sensitivity Assay	43
26	15.12.2021	Chromatographic Techniques	48
27	10.03.2022	ExPASy software tools for Drug Design	27
28	24.03.2020	Immunological techniques	40
29	25.03.2022	Molecular techniques	45
DEPARTMENT OF BIOCHEMISTRY			
30	28.02.2022 15.03.2022	Plant Tissue Culture	49
31	23.03.2022	Western Blotting and Cloning	48
32	25.03.2022	Preparation of Siddha Medical Products	20
33	25.03.2022	Flame Photometric technique	40

7. Number of new experiments introduced

Class	Course Name & Course Code	Experiment
DEPARTMENT OF PHYSICS		
I B.Sc. Physics	General Physics I20UPHC21P	1. Callender Barnes specific heat capacity of liquid 2. Thermal conductivity of a metal
II B.Sc. Physics	General Physics II 20UPHC41P	1. Determination of specific rotatory power using polarimeter 2. Determination of Characteristics of Solar cell 3. Determination of acceptance angle and numerical aperture using Fiber optic cable
	Applied Electronics & Instrumentation 20UEIA41P	1. SCR characteristics 2. Measurement of Strain using Strain gauge transducer
III B.Sc. Physics	General Physics- III 20UPHC61P	1. Determination of Planck constant 2. Determination of Dielectric constant
	Electronics 20UPHC62P	1. Frequency modulation 2. Phase Locked Loop Oscillator
	Digital Electronics 20UPHC63P	1. Pulse Code Modulation 2. Pulse Width Modulation and Demodulation
	Microprocessor Lab 20UPHS61P	12 Experiments
DEPARTMENT OF CHEMISTRY		
III B.Sc Chemistry	Organic Analysis and Estimation 18UCHC62PN	Characterization of Organic Compounds using IR Spectrometer
	Gravimetric Analysis and Organic Preparation 18UCHC61PU	Chromatographic Separation of $KMnO_4$ & $K_2Cr_2O_7$ Chromatographic Separation of Amino Acid, Lipids and Carbohydrates
	Physical Chemistry -II 18UCHC62N	Electrochemical Cells Determination of I, II, III order Dissociation content of H_3PO_4 by P^H Measurement is included
	Physical Chemistry -I 18UCHC53N	In Photochemistry dye degradation is Introduction
II B.Sc Chemistry	In Organic Semi micro Qualitative Analysis 18UCHC41PN	Estimation of Fe(III) and Cu(II) by Colorimeter
I B.Sc Chemistry	Volumetric Analysis Practical 20UCHC21P	Analysis of Na level in various junk Food by flame Photometer
DEPARTMENT OF MATHEMATICS		
III B.Sc Mathematics	Statistics using R programming 20UMTS61P	Develop a program to calculate Mean, Median, Mode Standard Deviation, Variance, Minimum value, Maximum value, Quartile, Inter quartile range.
		Write a program to present the data in Tabulation and Graphical representation.
		Develop a program in R using t- test
		Develop a program in R using F- test
		Develop a program in R using chi- square test
		Develop a program to calculate one way ANOVA

		Develop a program to calculate pdf and cdf for some special distribution
		Develop a program to calculate Correlation
		Develop a program to find the Regression lines
		Develop a program to find the moment generating functions in R
DEPARTMENT OF BIOCHEMISTRY		
I B.Sc Biochemistry	Core Practical-1 Biomolecules 20UBCC21P	Separation of amino acids using paper Chromatography
II B.Sc Biochemistry	Core Practical-2 Biochemical Analysis of metabolites 20UBCC41P	Analysis of Na using Flame Photometry Experiment Analysis of K using Flame Photometry
III B.Sc Biochemistry	Core Practical-4 Microbiology 20UBCC62P	<ul style="list-style-type: none"> • Analysis of Ca using Flame Photometry • SDS-PAGE • AGE • Plant Tissue Culture

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

SCOPUS INDEXED RESEARCH ARTICLES	
S.No	DEPARTMENT OF PHYSICS
1.	Rathinamala, I., Babu, I.M., William, J. J., Muralidharan, G., and Prithivikumaran, N. (2021). Extra-Durable Hybrid Supercapacitor based on Cobalt Sulfide and Carbon (MWCNT) Matrix Electrodes, <i>Journal of Energy Storage</i> , 34 :102200
2	Vidhya, R. , Malliga, P., Karthikeyan, R., and Neyvasagam, K.(2021). Influence of nickel dopant concentration on structural, optical, magnetic and electrochemical properties of TiO ₂ nanoparticle, <i>International Journal of Nanotechnology</i> ,8(5-8):610–621.
3.	Vidhya, R. , Gandhimathi, R., Karthikeyan and R., Neyvasagam, K. (2021). Visible light driven enhancement in photodegradation of organic dyes using Fe _x Ti _{1-x} O ₂ thin films, <i>Materials Today: Proceedings</i> , 47, pp. 1819–1828
DEPARTMENT OF CHEMISTRY	
4	Anitha .A and A.John(2022). Chapter 1. Heterojunction Photocatalysts: Boon for water purification, Heterojunction Photocatalysts Materials: Advances and Application in Energy and the Environment, Jenny Stanford Publishers, CRC Press, Singapore
DEPARTMENT OF BOTANY	
5	Biruntha,M., Mariappan,P., Karunai Selvi,B. , John Paul,J.A., and Karmegam, N.(2020). Vermiremediation of Urban and Agricultural Biomass Residues for Nutrient Recovery and Vermifertilizer Production, <i>Waste and Biomass Valorization</i> , 11(12):6483-6497.
6	Biruntha,M., Karmegam,N., Archana,J., Karunai Selvi,B. , John Paul, J., Balamurali Krishnan, B., Chang, S.W., and Ravindran, B. (2020). Vermiconversion of biowastes with low-to-high C/N ratio into value added vermicompost, <i>Bioresource Technology</i> , 297,1-8.
7	Biruntha,M., Archana, J., Kavitha,K., Karunai Selvi, B. , John Paul, J.A., Balachandar, R., Saravanan,M.,and Karmegam,N.(2020).Green Synthesis of Zinc Sulfide Nanoparticles Using <i>Abrus precatorius</i> and its Effect on Coelomic Fluid Protein Profile and Enzymatic Activity of the Earthworm, <i>Eudrilus eugeniae</i> , <i>Bio Nano Science</i> , 10(1):149–156
DEPARTMENT OF BIOCHEMISTRY	
8	Sudha Rameshwari,K. , Abirami,M., and Gloria Jemmi Christobel,R. (2020). Partial Characterization of green synthesized silver nanoparticles of <i>Cardiospermum halicacabum</i> and <i>Butea monosperma</i> aqueous extract combination (CHBMCSNP), <i>Research Journal of</i>

	<i>Pharmacy and Technology</i> , 13(12):6218-6223.
9	Jarrett, N.M., Gloria Jemmi Christobel, R. , Abirami, M.P., Abirami, S., and Shila, S. (2020). Cytotoxic and apoptotic effect of citrus flavonoid naringin in treating pa-1 ovarian cancer cells, <i>Research Journal of Pharmacy and Technology</i> , 13(9):4051-4057.
DEPARTMENT OF BIOTECHNOLOGY	
10	Sinthia Ganesan,(2021). Biosynthesis and Characterization of using silver nanoparticles using ginger spent and their antibacterial Activity, <i>Current Botany</i> ,12:174-179 (UGC Care Listed Journal)

DETAILS OF PATENT

S.No	Details of Inventor and title of the Invention
1	Dr. V. Jeyasimga and Sinthia Ganesan, Assistant Professor(s) of Biotechnology Title of the invention : Method for manufacturing Biodegradable Polymeric Nanoparticles Publication date: 04.03.2022 Application Number : 202241007582, Indian patent

9. Training received by the Faculty

S.No	Date	Details of the training	No. of Beneficiary
DEPARTMENT OF PHYSICS			
1.	26.05.2021	Faculty Development Program on “Drawing Electric Circuits using Inkscape”	7
2.	06.01.2022	Faculty Development Program on “Essentials of Research”	4
3.	11.01.2022	Faculty Development Program on “Applications of CHEMDRAW Tools in Science”	4
4.	09.02.2022	CTEP-Popular Lecture Series “Computational Approaches to Identify the Small Molecules against Infectious Diseases”	4
5.	16.02.2022-18.02.2022	Faculty Development Program on “Thrust Areas of Bio fertilizer Production Technology”	3
6.	07.03.22	Hands on Training Program on “Introduction to Python”	7
7.	09.03.22 – 10.03.22	Hands on Training Program on “Computational Physics with Python”	7
8.	12.03.2022	Workshop on “Instrumentation for Raman and Fluorescence”	7
9.	14.03.2022	Recent Advancements in Material Science	7
DEPARTMENT OF CHEMISTRY			
1	11.01.2022	Applications of CHEMDRAW Tools in Science	6
2.	18.02.2022	Chem Sketch Applications	6
3	16.02.2022-18.02.2022	Thrust Areas of Biofertilizer Production Technology	3
4.	22.03.2022	Advanced statistical data analysis using SPSS	1
5.	15.02.2022	Arokhyam Tharum Arputha Moolikaikal	3

DEPARTMENT OF ZOOLOGY			
1	26.05.2021	Drawing Electric Circuits using Inkscape	2
2	11.01.2022	Applications of CHEMDRAW tools in sciences	2
3	06-01-2022	Essentials of Research”	2
4	14.02.2022	What, Why, and How of Patents	4
5	15.02.2022	Arokhyan Tharum Arputha Moolikaikal	7
6	16.02.2022 to 18.02.2022	Thrust areas of biofertilizer technologies.	6
7	23.01.2022 to 24.02.2022	Plant Tissue Culture”	2
8	18.02.2022	Chem Sketch Applications	2
DEPARTMENT OF MATHEMATICS & COMPUTER SCIENCE			
1.	17.02.2022	CorelDraw – Graphic Design for Beginners	10
2.	21.02.2022	MATLAB Applications in Differential Equations	10
3.	04.03.2022 & 05.03.2022	SCILAB & R Programming	10
4.	22.03.2022	Advanced Statistical Data Analysis using SPSS	10
5	04.01.2022	FDP on “Intellectual Property Rights: Patent around us	30
6	03.02.2022 & 04.02.2022	FDP on WordPress and Hadoop	30
7	07.02.2022 & 08.02.2022	FDP on “Machine Learning Using Python”	28
8	17.02.2022 & 18.02.2022.	FDP on “AngularJS”	27
DEPARTMENT OF BOTANY & BIOTECHNOLOGY			
1.	11.01.2022	FDP on “Application of Chem Draw tools in science”	4
2.	25.01.2022	Herbal Preparation and Utilization against COVID-19	1
3.	27.01.2022	Teaching and Learning Process Through E-Resources	1
4.	15.02.2022	Arokhyam Tharum Arputha Moolikaikal	3
5.	23.02.2022 & 24.02.2022	Plant Tissue Culture	4
6.	14.02.2022	What,Why and How of Patents	3
7	22.02.2022	Good laboratory practices	3
8	06.01.2022	Essentials of Research	3
9	18.02.2022	Chem Sketch Applications	2
10	03.03.2022 – 04.03.2022	Workshop on Woody Plant Tissue Culture	1
11	18.03.2022	FDP on “Microbes as Biopreservatives organized by Department of Zoology	1
DEPARTMENT OF BIOCHEMISTRY			
1.	15.02.2022	Arokkyam Tharum Arputha Mooligaikal	3
2.	23.02.2022 & 24.02.2022	Plant Tissue Culture	7
3.	18.02.2022	Chem Sketch Applications	2
4.	16.02.2022- 18.02.2022	Biofertilizer Production technology	4
5.	14.02.2022	What,Why and How of Patents	4
6.	18.3.2022	Microbes as biopreservatives	2
7.	26.09.2022	Green and sustainable Campus initiatives	1

8.	12.03.2022	Herbal medicines in pharmaceutical industry	1
9.	13.03.2022	Bioinformatics	1
10.	06.01.2022	Essentials of Research	2
11.	21.01.2022 to 25.02.2022	Intellectual property Rights	2

10. Exhibitions/Seminars/ Training Courses conducted

Exhibitions	
Participating Departments	Highlight of the exhibition
All the Beneficiary Science Departments [Physics, Chemistry, Zoology, Mathematics & Computer Science, Botany & Biotechnology and Biochemistry	Around 550 school students from 23 schools (from 4 educational Districts, Virudhunagar, Aruppukkottai, Srivilliputhoor and Sivakasi) in Virudhunagar District were participated. Moreover, our college students(Arts, Science and Commerce and Management) participated and enjoyed the models/charts displayed in the exhibition

Seminars/ Training Courses		
Date	Title	No. of Beneficiary
DEPARTMENT OF PHYSICS		
17.12.2021 - 05.01.2022	Training to Lab attendants on “ Orientation to Ms Office and Excel “	19
28.12.2021	Regional Level Seminar On “Recent Advancement In Medical Physics	199
14.03.2022	National Level seminar on Recent Advancements in Material Science	245
24.03.2022	Training Programme to Non-teaching staff on “Maintenance and usage of Renewable Energy Gadgets for Energy Conservation”	28
30.03.2022	Projects based on Physics projects	200
DEPARTMENT OF CHEMISTRY		
17.11.2021	One Day Workshop On “ Seasonal Impact On Water Quality”	37
04.01.2022	Lab attendants training on “Preparation of Chemical Reagents and stock Solution “	19
06.01.2022		23
16.02.2022 & 17.02.2022	National Level Seminar On “Scientometric Visualization Of Computational And Natural Products Chemistry –Svncpc 2022	234
07.03.2022	Interdepartmental hands on training programme on “Preparation of Household Chemical Items”	50
09-03-2022	Workshop on “Sonochemistry in Green Chemistry and Workshop on assisted reactions in Green Chemistry	42
10.03.2022	Interdisciplinary Training programme on “Tie & Dye and Batik Printing”	75
12.03.2022	Training programme on “Tie & Dye and Batik Printing” to Women of Self Help Group	30
12.03.2022	Training programme on “Preparation of Household Chemical Items “ to Women of Self-Help group.	30

DEPARTMENT OF ZOOLOGY		
06.01.2022 - 21.01.2022	Lab attendants training on “Preservation of Specimens, Techniques and Maintenance of Museum”	22
01.03.2022	Interdepartmental Training Programme on “Candle making from Bee Wax”	27
09.03.2022	National Seminar On “Global Marine Diversity-Status, Threats And Conservation	414
24.03.2022	Departmental training programme on “Decorative products from the Cut Cocoons of Silkworms”	32
DEPARTMENT OF MATHEMATICS & COMPUTER SCIENCE		
10.01.2022	Lab attendants training on “Assembling the system and Installation of Windows Operating System “	29
11.02.2022	National Seminar On “Current Scenario In Graph Theory And Its Applications	125
21.02.2022	Workshop on “MATLAB Applications in Differential Equations	69
04.03.2022 05.03.2022	Workshop on “SCILAB & R Programming	71
16.03.2022	Designing and Construction of Mathematical Models	61
05.03.2022 12.03.2022 19.03.2022 26.03.2022	Training programme on “Series of Practice sessions for JAM”	102
17.03.2022	Virtual Inter Institutional Conference On “Big Data”	319
DEPARTMENT OF BOTANY & BIOTECHNOLOGY		
13.01.2022	Lab attendants training on “Laboratory Safety “	14
19.01.2022	Lab attendants training on “Technical training Programme on Preparation of Dry and Wet Specimens “	16
20.01.2022	Lab attendants training on “Technical training Programme on Handling of Physical and Electronic Balance “	16
07.03.2022	National Level Seminar On “Trends In Field Plant Taxonomy and Conservation	120
14.3.2022	National Level Seminar On “Thrust Areas In Biotechnology	95
23.03.2022	Spirulina Cultivation	61
24.03.2022	Workshop on “Immunological techniques’	40
25.03.2022	Workshop on “Molecular techniques’	43
DEPARTMENT OF BIOCHMISTRY		
07.01.2022	Lab attendants training on “Reagent and Media preparation”	26
25.03.2022	Workshop on “Flame Photometric Technique”	40
25.03.2022 26.03.2022	Inter- institutional training on “Modern Baking Technology”	30

11. BOOKS/ JOURNALS SUBSCRIBED FROM GRANTS

S.No	Departments Supported	During Support [2020-2021]	During Support [2021-2022]	Remarks
1	B.Sc. Physics	18	12	A total of 107 books were purchased under DBT Star College Scheme for the year 2020-2021(1 st year grant).
2	B.Sc. Chemistry	14	14	
3	B.Sc. Zoology	13	13	
4	B.Sc. Mathematics	23	24	
	B.Sc. Computer Science	14	16	During 2 nd year support [2021-2022], 93 books were purchased under Contingency Grant of DBT Star College Scheme.
5	Botany &	2	0	
	B.Sc. Biotechnology (Self- Finance}	5	5	
6	B.Sc. Biochemistry	18	9	
Total		107	93	

12. OUTREACH ACTIVITIES

Date	Title	Number of Beneficiary
DEPARTMENT OF PHYSICS		
21.12.2021	Experimental Physics	45 (PG Physics Assistants of Government – Aided School in Virudhunagar, District.
28.02.2022	Experimental Physics	45. +2 (School students)
DEPARTMENT OF CHEMISTRY		
23.12.2021	Demonstration of EDTA Titrations	47 (PG Chemistry Assistants of Government – Aided Schools in Virudhunagar District
28.03.2022	Awareness Programme on “ Water Quality Index”	50 Chattrareddiyapatty village
30.03.022	Hand on training on “Manufacturing of phenoyl, soap oil, Sanitizer and candle	10 Folk Women in Thamarai Self Help Group at Chattrareddiyapatti Village in Virudhunagar District
DEPARTMENT OF ZOOLOGY		
02.03.2022	<ul style="list-style-type: none"> • Handling of advanced Microscopes, • Practical on identification of blood group • Preparation of diagrams for biology classroom teaching 	37 PG Zoology Assistants of Government – Aided School in Virudhunagar District
28.03.2022	Awareness Programme on “Anaemia among Adolescent Girls”	100 Government Hirgher Secondary School, Chattrareddiapatti Village in Virudhunagar District.

DEPARTMENT OF MATHEMATICS & COMPUTER SCIENCE

22.12.2021	Workshop regarding Google Classroom	37 PG Computer Assistants of Government – Aided Schools from Virudhunagar District.
17.02.2022	CorelDraw – Graphic Design for Beginners	81 Faculty Members (26 Colleges from Tamilnadu
02.03.2022	Enhancing the Ability of School Teachers in Aptitude	43 PG Mathematics Assistants of Government – Aided School in Virudhunagar District

DEPARTMENT OF BOTANY & BIOTECHNOLOGY

22.02.2022	Good Laboratory Practices	95 Faculty Members From 51 Colleges
02.03.2022	Plant Tissue Culture	35 PG Botany Assistants of Government - Aided Schools of Virudhunagar District
02.03.2022	<ul style="list-style-type: none"> • Lecture -Introduction to Biotechnology • Demonstration-DNA isolation 	35 PG Zoology Assistants of Government Aided Schools of Virudhunagar District
05.03.2022	Diversity and Conservation of Bryophytes	45 (college teachers)

DEPARTMENT OF BIOCHEMISTRY

02.03.2022	Hands on Training on Mushroom Cultivation -	37 PG Botany Assistants of Government - Aided Schools of Virudhunagar District
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14. INVITED GUEST LECTURES

Date	Title	Number of Beneficiary
DEPARTMENT OF PHYSICS		
15.02.2022	Exploring New Frontiers in Astronomy with 30 m Telescope	161
DEPARTMENT OF CHEMISTRY		
14.12.2021	Environmental Impact of Nanomaterials	37
09.02.2022	Organometallic Compounds for Organic Synthesis	43
25.02.2022	Role of Metals in Biological system	43
04.03.2022	topic “ESR Spectroscopy and its Applications”	43
09.03.2022	Inorganic Photochemistry	43

DEPARTMENT OF ZOOLOGY		
17.12.2021	Biodiversity Around us and Survey on Faunal Diversity	45
18.02.2022	Genes to Genomes	100
25.02.2022	Respect warning, Reduce warming, Prevent Fossiling	110
14.3.2022	Ecological Disasters	70
DEPARTMENT OF MATHEMATICS & COMPUTER SCIENCE		
22.12.2021	Beauty of Numbers	259
07.02.2022	Introduction to Statistical Quality Control	81
23.03.2022	Career Opportunities after Graduation in Mathematics	111 Final year students
DEPARTMENT OF BOTANY & BIOTECHNOLOGY		
04.03.2022	Exploring Novel Compounds from Biological material	45
05.03.2022	Plant-Microbe Interactions	89
09.03.2022	Sustainable Livelihood using Eco Friendly Biomaterials	80
10.03.2022	Algal Cell factories for Production of Biofuel and Bio products	95
15.03.2022	Significance of Medicinal Plants in Human Life	80
15.03.2022	Biotechnological strategies for Secondary metabolites' enhancement in plants"	96
DEPARTMENT OF BIOCHEMISTRY		
28.02.2022	Plant Tissue Culture	46
03.03.2022	Proteomics- and Application	70
16.03.2022	Cardiac Care	100
24.03.2022	Information Literacy on V.V. V. College E-Resources	46

10. SELF EVALUATION

S.NO	Department	Objectives	% achieved	Reasons for under achievement?If achieved, state in quantitative metrics
1	Physics	Purchased of Non-recurring items	100	2
		Training Programme		2
		Interdepartmental Competitions organized		2
		Outreach Programme organized		2
		Student Minor Projects completed		2
2	Chemistry	Outreach activities	100	2
		Faculty Development Programme		2
		Outreach programme		2
		Research Centre and Industrial Visit		2
		Purchased of Non-recurring items		2
3	Zoology	Purchased of Non-recurring items	100	2
		Seminar & paper presentation organized		2
		Research Centre visit		2
		Hands on Training Programme		2
		Student Minor Projects		2
4	B.Sc. Mathematics & B.Sc. Computer Science	FDP organized	100	2
		Interdepartmental competitions		2
		Workshop/Seminars organized		2
		Faculty Development Programme		2
		Student Minor Projects completed		2
5	Botany & B.Sc. Biotechnology (Self- Finance}	Purchased of Non-recurring items	100	2
		Seminar/workshop organized		2
		Hands on Training Programme		2
		Interdepartmental competitions		2
		Student Minor Projects Completed		2
6	B.Sc. Biochemistry	Purchased of Non-recurring items	100	2
		Faculty Development Programme		2
		Conference / Workshop organized		2
		Outreach activity		2
		Student Minor Projects completed		2

- For quantitative analysis you may fix five objective (Max) each having 2 marks and accordingly can calculate the matrix


Member Secretary & Coordinator
Dr. M. TAMILSELVI
Member Secretary / Co-ordinator
DBT - Star College Scheme
V.V. Vanniaperumal College for Women
Virudhunagar-626 001.
Tamilnadu, India.


Chairman & Principal
Dr. S.M. MEENA RANI
Principal / Chairman
DBT - Star College Scheme
V.V. Vanniaperumal College for Women
Virudhunagar-626 001.
Tamilnadu, India.