

**PROFORMA FOR SUBMISSION OF PROGRESS
REPORTS BY COLLEGES SUPPORTED
UNDER STAR COLLEGE SCHEME 2014-2015**

1. Name of the College : PSGR Krishnammal College for Women
2. Name of Departments supported : Physics, Chemistry, Botany, Zoology & Mathematics

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- 3. List of courses (B.Sc./M.Sc./PG Diploma, Certificate, etc) run by different participating departments**

Department	Courses Offered					
	UG	PG	M.Phil	Ph.D	Certificate /Diploma/ Advanced Diploma Course	Job oriented course
Physics	B.Sc. Physics	M.Sc Physics	Physics	Physics	Embedded System Design	PCB Fabrication Techniques.
Chemistry	B.Sc Chemistry	M.Sc Chemistry	Chemistry	Chemistry	Textile Chemistry	Textile Chemistry
Botany	B.Sc Plant Biology and Plant Biotechnology	M.Sc Botany	Botany	Botany	Commercial Horticulture	Commercial Tissue Culture
Zoology	B.Sc Advacned Zoology and Biotechnology	-	-	-	Pathology and Clinical Laboratory Science	Vermiculture & Mushroom Culture
Mathematics	B.Sc Mathematics	Mathematics	Mathematics	Mathematics	-	A Tool for Research – SPSS

4. Admission in different courses in participating departments in 2011-12 , 12-13, 13-14

&14-15 academic sessions:

S.No.	Year	Cut off % for admission	No. of students admitted	% of result	Position in university	No. of drop out students
Physics						
1	2011-12	70	60	99.4	Autonomous	02
2	2012-13	70	60	100	&	06
3	2013-14	75	60	100	Affiliated to	01
4	2014-15	85	62	100	Bharathiar University	01
Chemistry						
1	2011-12	70	60	87	Autonomous	07
2	2012-13	70	60	90	&	02
3	2013-14	80	60	88	Affiliated to	01
4	2014-15	85	63	90	Bharathiar University	03
Botany						
1	2011-12	60	60	90	Autonomous	15
2	2012-13	60	60	92	&	04
3	2013-14	59	60	99.6	Affiliated to	02
4	2104-15	70	63	100	Bharathiar University	01
Zoology						
1	2011-12	60	60	81	Autonomous	10
2	2012-13	60	60	76	&	05
3	2013-14	60	60	70	Affiliated to	02
4	2014-15	70	63	94	Bharathiar University	Nil
Mathematics						
1	2011-12	60	60	95	Autonomous	03
2	2012-13	60	60	94	&	07
3	2013-14	95.3	60	95	Affiliated to	Nil
4	2014-15	99	63	100	Bharathiar University	Nil

5. Activities carried out during the year (department wise):

DEPARTMENT OF PHYSICS

A) Student activities:

i. Summer School :

- 10 students attended the training program at SITARC, Coimbatore from 02.01.2015 to 20.1.2015. This training helped the students to gain knowledge on instrument calibration and materials testing.
- Hands on training on the use of Microcontrollers organized by the Department of Physics on 20.8.2014 for the students of III BSc Physics, helped them to learn the basics of programming using microcontrollers and to understand its use as a storage device. The students gained a detailed knowledge of the use of the microcontroller which is a small computer on a single integrated circuit containing a processor core, memory, and programmable input/output peripherals. The expertise gained would help them to get placed in IT related industries.

ii. Industrial Visit:

S.No	Class	Place of Visit	Date	No.of Beneficiaries	Justification
1.	III B.Sc. Physics	Radio Astronomy Centre, Ooty	26.8.14 27.8.14	53	The visit to the radio astronomy centre at Ooty, kindled the interest of students to take up research It enabled the students to gain practical knowledge of the applications of the principles of physics in astronomy.

iii. List of project taken by students (purchase of chemicals, analysis):

- Green Synthesis of silver nano particles (**Interdepartmental with Chemistry & Botany**)
- Hydro thermal synthesis of titanium dioxide nano particles (**Interdepartmental with Chemistry**)
- Growth and characterization of ZTTC single crystals (**Interdepartmental with Chemistry**)
- Study of polymer stability with metal oxide (**Interdepartmental with Chemistry**)
- Synthesis of cobalt ferrite nano particles (**Interdepartmental with Chemistry**)

- Synthesis of titanium dioxide nano particles by sol gel method (**Interdepartmental with Chemistry**)

iv. Excursions

27.08.14 Ooty - 53 students and 3 staff members

B) Teachers activities:

i. Seminars Attended:

- **Mrs M.Lavanya** attended a workshop on Optics at Chikkanna Govt Arts College, Tiruppur on 13.8.14
- **Mrs S.Subanya** attended a workshop on Optics at Chikkanna Govt Arts College, Tiruppur on 13.8.14
- **Mrs M.Lavanya** will attend and present a paper on **“Generation of super long dark channel using Annular Multi Gaussian beam”** in International conference on Optics and Photonics -ICOP 2015, Feb 20-22 ,2015 organized by Department of Applied Optics and Photonics, University of Calcutta.
- **Mrs M.Lavanya** will attend and present a paper on **“Focussing properties of linearly polarized Hollow Gaussian beam through a dielectric interface”** International conference on Optics and Photonics -ICOP 2015, Feb 20-22 ,2015 organized by Department of Applied Optics and Photonics, University of Calcutta.

ii Workshop Organized:

1. **“Hands on training on Nano-technology”** an Interdepartmental program for Physics, Chemistry, Botany and Zoology was conducted on 10.9.14 and 11.9.14 – (**Speakers** – Dr D.Mangalaraj , Dr N.Ponpandian, Dr R.T.Rajendra kumar, Dr C.Viswanathan)

iii Training course attended:

Teaching Staff:

- **Ms T. Poongodi and Ms A.P.Birundha** have been selected to attend the fourth refresher course on Materials preparation and measurements at Indian Academy of Science, Bangalore from 10.2.15 to 25.2.15.

- **Mrs M .Lavanya** will attend the DST sponsored training program on Photonics for Women Scientists at Sophitorium campus, Jatni, Khurda, Odisha from March 9 – 14, 2015

Activities for non teaching staff:

1. Training on Lab safety measures for non teaching staff of Physics department
2. Hands on training to operate instruments like hot air oven, distilled water unit, planetary mill, pH meter for laboratory staff of Physics department. Four laboratory staff attended the program on 12.9.14 in Physics laboratory.

iv. Guest lectures:

1. **Mr. P.Radjaradjane**, senior terminal manager, Indian Oil Corporation delivered the Inaugural address on the topic Career opportunities for Physics students on 10.7.2014
2. **Dr D.Ravishankaran**, Assistant professor in Nano Technology, Nano Biomaterials and Sensors lab, PSG Institute of advanced studies, delivered a guest lecture on “**Functional nano materials for health care appliances**” on 24.07.14.
3. **Dr R.Arunkumar**, Assistant professor, Department of Basic sciences, ,PSG College of Technology, delivered a guest lecture on “**Crystals for technological advancements**” on 09.08.14
4. **Dr Sathish Kumar Dubey, R& D Siemens Bangalore**, delivered a guest lecture on Optical metrology and laser processing applications on 14.8.14
5. **Dr P. Parameswaran Scientific officer, Material Synthesis and structural characterisation division ,Physical metallurgy group, IGCAR** delivered a guest lecture on “**Electron microscope and its characterization technique**” on 1.9.14
6. **Dr. Sa. K.Narayana Dass**, Former Professor and Head, Department of Physics, Bharathiar University, delivered a guest lecture on “**Nobel Laureates**” on 17.10.14.

7. **Dr. M. Umadevi**, Associate Professor and Head, Department of Physics, Mother Teresa University, Kodaikanal delivered a guest lecture on “Nanotechnology” on **12.12.2014**
8. **Dr. Rakesh K Singh**, Assistant Professor, IIST, Trivandrum delivered a guest lecture on “Photonics” on **29.12.2014**.

Lab manuals, SOPs prepared:

- i. Lab manuals for III B.Sc. Physics.
- ii. SOPs for Hands on training on Nano Technology
- iii. e- resources developed.

6. Advisory committee meeting:

Advisory Committee meeting to be held in February 2015.

7. List of New Practical's /demonstrations introduced for UG students of each batch (I, II and III year) in different departments supported under Star College Scheme in the last one year: III Year – Core Physics Practical - III

Practicals:

1. Op Amp Astable Multivibrator
2. Study of characteristics of photodiode(solar cell)
3. Determination of efficiency of solar cells
4. Qualitative and Quantitative study of chlorophyll, carbohydrates, proteins and heavy metal ions.

Demonstrations:

1. Determination of resistivity for different materials by four probe method
 2. Determination of Curie temperature of ferrites.
- 8. Number of students taking project vs. total number of students. Please give list of projects department-wise during the support period**

Number of students involved in projects in the year 2014-15 - 53 Vs 53 students

List of projects for the year 2014-15

- Green Synthesis of silver nano particles (**Interdepartmental with Chemistry & Botany**)

- Hydro thermal synthesis of titanium dioxide nano particles (**Interdepartmental with Chemistry**)
- Growth and characterization of ZTTC single crystals (**Interdepartmental with Chemistry**)
- Study of polymer stability with metal oxide (**Interdepartmental with Chemistry**)
- Synthesis of cobalt ferrite nano particles (**Interdepartmental with Chemistry**)
- Synthesis of titanium dioxide nano particles by sol gel method (**Interdepartmental with Chemistry**)

9. Interdepartmental activities conducted:

- **“Hands on training on Nano-technology”** an Interdepartmental program for Physics, Chemistry, Botany and Zoology organized by Department of Physics on 10.9.14 and 11.9.14). Students and faculty members from all the department attended the program. (**Speakers** – Dr D.Mangalaraj , Dr N.Ponpandian, Dr R.T.Rajendra Kumar, Dr. C.Viswanathan)
- Students of B.Sc. Maths, Chemistry, Botany and Zoology attended the Lecture on **“Nobel Laureates”** organized by the Department of Physics on 17.10.14. **Dr. Sa. K. Narayana Dass**, Former Professor and Head, Department of Physics, Bharathiar University delivered the lecture.
- Students of Physics and Chemistry will attend the lecture workshop on **“Applications of Laser technology in Science, Research and Innovation Landscape”** organized by the Department of Physics on 12.01.2015 and 13.01.2015.

10. Qualitative improvements due to DBT support (please highlight 5 salient lines)

- i. The industrial visit to Radio Astronomy Centre, Ooty kindled the students' interest in the study of space science with regard to transmittance and reception of radio waves to and from space.
- ii. The project works on Preparation and characterization of different nano particles for various applications like nonlinear optics, and memory devices etc motivated the to take up research in the field of nano technology.
- iii. The guest lectures on various topics have enriched the knowledge of the faculty and students.

- iv. The participation of faculty in the refresher course on Materials preparation and measurements at Indian academy of science, Bangalore will enrich their knowledge about various materials and their characterization.
- v. The internship program at SiTARC helped the students to gain knowledge on Instruments calibration and materials testing.

11. Strengths and weaknesses of each department (3 each)

Strength

- 1. Well equipped laboratory
- 2. Qualified and experienced faculty
- 3. Team spirit among the faculty
- 4. Students who have done both their UG & PG in our department have been selected as Junior Research fellows in International advanced research centre for powder metallurgy and new materials (ARCI).

Weakness: - Nil –

12. Problems faced, if any, in implementation of the programme and utilization of

DBT grant (in two-three lines) :

Difficulty in preplanning and execution of various programme due to delay in the release of grant

13. DBT grants utilization:

A) Non-recurring (Equipment) – Details submitted in the year 2012-13 report

B) Recurring Details - Amount Sanctioned 2, 00,000/-

Total expenses under different heads

S.No	Details	Amount in Rs.
1	Student Activities:	
	(i) Training Program	9600
	(ii) Industrial Visit	20000
	(iii) Students Project	20000
2	Teachers activities	
	(i)Workshop/Seminar attended	

	(ii) Training Course (iii) Guest Lecture	5000 5000 10400
3	Interdepartmental activities conducted	10000
4	Chemicals / Consumables	120000
	TOTAL	2,00,000

Students Feedback:

The financial assistance provided by DBT under the STAR College scheme has enriched the quality of the teaching learning process. The purchase of additional equipments helped the students to carry out the experiments individually.

The hands on training provided on Microcontrollers helped the students to learn the basics of programming using microcontrollers. The expertise gained would help them to get placed in IT related industries.

Hands on training of Nano technology helped the students and faculty to gain practical knowledge in this field of current interest.

The training attended by the students at SiTARC, helped them to gain knowledge on instrument calibration and materials testing.

Faculty feedback:

The workshops and training programme attended by faculty under star college schemes has enriched the subject knowledge of the faculty. The faculty had an opportunity to interact with the experts in different fields of Physics. This enabled their teaching to be more effective thus motivating the students to take up research.

Future Plans:

- To make the department the most sought after for research.
- To ensure placement and opportunities abroad for the students.

Department of Chemistry

5. Activities carried out during the year (department wise): 2014-15

A) Students Activities

i. Summer school:

Hands on training – “Analysis of water quality parameters” in collaboration with **SEEDS ENVIRO LABS**, Coimbatore. (Interdepartmental/ Intercollegiate). 100 students of PSGR Krishnammal College for Women, CBM College, Nirmala College for Women, PSG College of Arts and Science and Government Arts College Coimbatore, KonguNadu College of Arts and Science, SRMV College of Arts and Science attended the programme on 2.9.2014 & 3.9.2014. The students gained practical knowledge on the Analysis of Water Quality parameters and handling sophisticated instruments related to water analysis.

Training Programme - “Glass Blowing Technology” in collaboration with **Ashok Glassworks and Neons**, Ganapathy, Coimbatore from 15.12.2014 to 18.12.2014 (**Four days**). 100 students of II B.Sc Chemistry and III B.Sc Chemistry students have participated. The students acquired practical knowledge regarding the fabrication of various glasswares viz., standard flask, weighing bottle, conical flask, pipette, funnel, dropper, condenser (Liebig, coil, and bulb). They also learnt how the markings are made on the graduated apparatus. Students also underwent hands on training in fabricating various glasswares. Thus, the training served as a platform for the students to gain information regarding glass blowing and become future entrepreneurs.

ii. Industrial Visit

S. No	Class	Place of Visit	Date	No. of Beneficiaries	Justification
1	III B.Sc. Chemistry	Central Food Technology and Research Institute (CFTRI), Mysore	04.09.14	45	The opportunity to visit CFTRI & DFRL have imparted knowledge on food processing, preservation and packaging techniques. This has kindled research aptitude in students towards food chemistry
2	III B.Sc. Chemistry	Defence Food Research Laboratory (DFRL), Mysore	05.09.14	45	

Workshop: (Interdepartmental)

Title	Date	Duration	No. of participants
Workshop on “Demonstration experiments in Chemistry and Quiz” by Dr. T.S.Lakshmi Narasimhan, Indian Association of Nuclear Chemists and Allied Scientists (IANCAS), IGCAR	30.1.2015 & 31.1.2015	Two days	200 –Expected (Interdepartmental and School students)

iii. List of Projects taken by III BSc Chemistry students

(14 Groups with each 4-5 students)

- Satin leaf (*Chrysophyllum oliviforme*) extract mediated green synthesis of silver nano particles: Antioxidant and anticancer activities (**Interdepartmental – with Botany**)
- Synthesis and characterization of silver embedded polyaniline composite (**Interdepartmental –with Physics**)
- Interfacial polymerization of polyaniline copolymers (**Interdepartmental –with Physics**)
- Transition metal complexes of 2-naphthoic acid – Synthesis and spectral studies (**Interdepartmental – with Botany**)
- GIS mapping, assessment, analysis and treatment of water quality parameters for samples collected from various panchayats of Dharmapuri District (**Interdepartmental –with Zoology**)
- Synthesis, characterization and biological studies of Ni(II)amide complexes (**Interdepartmental – with Botany**)
- Corrosion inhibitive performance of isoxazole and pyrazole on mild steel corrosion in 1M H₂SO₄
- Correlation of physico- chemical analysis of ground water, surface water and industrial waste water onto sorption techniques
- Physico-chemical assessing of water pollution level in industrial effluents of textile industry

- Synthesis, characterization and biological studies of Co(II)amide complexes (**Interdepartmental – with Botany**)
- Synthesis and antimicrobial studies of some chalcone derivatives (**Interdepartmental – with Botany**)
- Synthesis and antibacterial evaluation of some novel 2-aminopyrimidines (**Interdepartmental – with Botany**)
- Synthesis and antibacterial evaluation of some pyrimidine 2-thione (**Interdepartmental – with Botany**)
- Synthesis and characterization of transition metal hydrazine complexes with aromatic acid

B. Teacher's Activities

i. Seminars attended:

- **Dr.K.Parameswari** attended and presented a paper entitled “Adsorption and corrosion inhibition characteristics of cardo polyester on mild steel in acid solution” in Recent advances in Chemistry organized by Department of Chemistry, Arulmigu Palaniandavar college of arts and culture, Palani on 11.08.2014
- **Dr.S.Chitra** attended the National Convention of Electrochemists organized by School of Chemistry, Madurai Kamaraj University, Madurai from 23.07.2014 & 24.07.2014.
- **Dr.S.Chitra** attended and presented a paper entitled “Study of adsorption properties and inhibition of mild steel corrosion in 1M H₂SO₄ media by polyester-tobacco composite” in National Convention of Electrochemists (NCE-18) organized by School of Chemistry, Madurai Kamaraj University, Madurai from 23.07.2014 & 24.07.2014.
- **Dr. D. Nalini** attended and presented a paper entitled “Quantum chemical study on the relationship between the molecular structure and corrosion inhibitive property of indoloimidazoline derivative” in International Conference on Electrochemical Science and Technology (ICONEST-2014) organized by Department of Chemistry, JN Tata Auditorium, IISc-Campus, Bengaluru from 07.08.2014- 09.08.2014.
- **Dr. D. Nalini** attended and presented a paper entitled “Enhancement of corrosion protection efficiency of mild steel by isoxazoline derivative in acidic medium: Electrochemical and computational studies” in International Symposium for Research

Scholars on Metallurgy, Materials Science and Engineering (ISRS) 2014 organized by Department of Chemistry, IIT Madras, Chennai from 11.12.2014- 13.12.2014.

- **Mrs. P. Kanchana** attended and presented a paper entitled “Synthesis and characterisation mixed ligands complexes of transition metals with pyridine-3-carboxylic acid with hydrazine as coligand and their use as precursor for nanomaterial synthesis” in One day national seminar on Recent advances in chemistry organized by Department of Chemistry, Arulmigu Palaniandavar college of arts and culture, Palani on 11.08.2014
- **Mrs. P. Kanchana** attended and presented a paper entitled “Synthesis and characterisation of transition metal complexes of the heteroaromatic acids with hydrazines as co-ligand and their use as precursor for nano material synthesis” in National conference on advancement in material science organized by Department of Chemistry, CIT, Coimbatore on 26.09.2014 & 27.09.2014.
- **Mrs. V. Hemapriya** attended and presented a paper entitled “Studies on corrosion inhibition of mild steel in 1M sulphuric acid by thiazole derivatives ” in Eighteenth National convention of electrochemist NCE – 18 organized by School of Chemistry, Madurai Kamaraj University, Madurai from 23.07.2014 & 24.07.2014.
- **Mrs. V. Hemapriya** attended and presented a paper entitled “Surface protective properties of pyrimidobenzthiazoles for mild steel corrosion in 1M sulphuric acid” in International Conference on Electrochemical Science and Technology (ICONEST-2014) organized by Department of Chemistry, JN Tata Auditorium, IISc-Campus, Bengaluru from 07.08.2014- 09.08.2014
- **Mrs. K. Kalaiselvi** attended and presented a paper entitled “Physico-chemical characterization of industrial effluent in Erode District” in National Seminar on “Water crisis: The challenges ahead of global governance” organized by Department of Chemistry, PSGR Krishnammal College for Women from 27. 08.2014 – 28.08.2014
- **Mrs. K. Kalaiselvi** attended and presented a paper entitled “Physico-Chemical assessment of water pollution level in industrial effluent of textile industry in Tirupur” in National Seminar on “Water crisis: The challenges ahead of global governance” organized by Department of Chemistry, PSGR Krishnammal College for Women from 27. 08.2014 – 28.08.2014.

- **Mrs. G. Sathya Priyadarshini** attended and presented a paper entitled “Quantum chemical studies on the inhibiting effect of salicylaldehyde-4N-ethylthiosemicarbazone on mild steel corrosion using DFT” in International Conference on Electrochemical Science and Technology (ICONEST-2014) organized by Department of Chemistry, JN Tata Auditorium, IISc-Campus, Bengaluru from 07.08.2014- 09.08.2014
- **Mrs. R. Kayalvizhi** attended and presented a paper entitled “Theoretical elucidation on the inhibition mechanism of N-paratoluene sulphonyl-2,6-diphenyl-3,5-dimethyl piperidin-4-one - DFT approach” in International Conference on Electrochemical Science and Technology (ICONEST-2014) organized by Department of Chemistry, JN Tata Auditorium, IISc-Campus, Bengaluru from 07.08.2014- 09.08.2014

ii. **Seminars, Workshops organized:**

- A two day National Seminar on “**Water crisis: The Challenges ahead of Global Governance**” (27. 08.2014 & 28.08.2014) (Intercollegiate)
- Hands on training “**Analysis of Water Quality Parameters**” in collaboration with Seeds Enviro Labs, Coimbatore (02.09.2014 & 03.09.2014) (Interdepartmental/Intercollegiate)
- Four days training programme on “**Glass Blowing**” at Ashok Glassworks & Neons, Ganapathy, Coimbatore (15.12.2014 - 18.12.2014)
- Workshop on “Demonstration experiments in Chemistry and Quiz” by Dr. T.S.Lakshmi Narasimhan, Indian Association of Nuclear Chemists and Allied Scientists (IANCAS), in collaboration with IGCAR, Kalpakkam (to be conducted on 30.1.2015 & 31.1.2015) (Interdepartmental)

iii. **Training courses attended:**

- Four days training programme on “**Glass blowing**” at Ashok Glassworks & Neons, Ganapathy, Coimbatore attended by **Ms. E. Kayalvizhy, Mrs. P. Kanchana, Dr. G. Selvi, Mrs. V. Hemapriya, Mrs. K. Kalaiselvi, Mrs. R. Kayalvizhi, Mrs. F. Therasa Rani and Dr. N. Arunadevi** from 15.12.2014 to 18.12.2014.

Activities for Non-teaching Staff:

Training attended by Non-teaching staff:

Two laboratory staff attended hand on training in the operation of Muffle furnace, Microwave oven, Sonicator, Ultra centrifuge, FT-IR and UV Spectroscopy in the Department of Chemistry for a week.

iv. Guest lecturers:

- **Dr. N. Dharmaraj**, Professor, Department of Chemistry, Bharathiar University, delivered a guest lecture on “Nickel Based Nano Composites for Novel Heterogeneous Catalyst” (30.06.2014).
- **Dr. S. C. Murugavel**, Associate Professor, Department of Chemistry, PSG College of Technology, delivered a guest lecture on “Polymers – Smart and Adaptive Materials” (07.07.2014).
- **Dr. D. Ravi Shankaran**, Assistant Professor, Nano Technology, Nano Bio Materials & Sensors Lab, PSG Institute of Advanced Studies, delivered a guest lecture on “Functional Nanomaterials for HealthCare Applications” (24.07.2014). **Interdepartmental with Physics**
- **Dr. R. Karvembu**, Associate Professor, Department of Chemistry, NIT, Trichy delivered a guest lecture on “Transition metal complexes with simple ligands: Interesting structures and efficient catalysis” (13.08.2014).
- **Mr. R. Girijan**, Product Consultant, Toswin Analyticals Pvt. Ltd., Mumbai delivered a guest lecture on “Applications of GC-MS and particle size analyzer” (22.08.2014).
- **Dr. S. Meenakshi**, Professor, Department of Chemistry, Gandhigram Rural Institute, Gandhigram, delivered a guest lecture on “Waste water treatment using membrane technology” (25.08.2014) **Interdepartmental with Zoology**
- **Dr. K. Vijaykanth, Professor**, Department of Chemistry, Karunya University, Coimbatore delivered a lecture on “Innovative technology and Models for Bio Nanosensors” (8.12.2014) **Interdepartmental with Botany**
- **Dr. T. Daniel Thangadurai**, Professor & Head, Department of Nanotechnology, Sri Ramakrishna Engineering College, Coimbatore delivered a guest lecture on “Recent Research Trends in Sensor Materials” (23.12.2014).

Lab manuals, SOPs prepared:

- Lab manuals for II and III B.Sc. Chemistry.
- SOPs for Hands on training on “Analysis of water quality parameters” jointly organized by departments of Chemistry / Botany and SEED ENVIRO Labs Coimbatore.
- e – resources developed.

6. Advisory committee meeting:

Advisory Committee meeting to be held in February 2015.

7. List of New Practicals/demonstrations introduced for UG students of each batch (I, II and III year) in different departments supported under Star College Scheme in last one year:**II BSc Chemistry****New practicals introduced 2014-15****Biochemistry Practical – I****Qualitative Analysis:**

1. Qualitative analysis of Carbohydrates (Mono, Di and Poly saccharides), Amino acids, Proteins and Lipids.

Quantitative Analysis

1. Estimation of Ascorbic acid
2. Estimation of Glycine by formal titration
3. Determination of Acid value of fats
4. Estimation of Ca in milk.

Chromatography: (Group Experiments)

1. Identification of amino acids by TLC.

III BSc Chemistry**Chemistry Practical – III****Gravimetric Determination of the following using sintered glass crucible:**

Ni as Ni-DMG

Ba as BaCrO₄

Ca as CaC₂O₄.H₂O

Potentiometric titration: acid-base

Water Quality Parameter Analysis

Alkalinity, Hardness, Chloride, Dissolved Oxygen, Estimation of TDS, TSS, TS and pH of the given water samples

8. Number of students taking project vs. total number of students. Please give list of projects department-wise during the support period.

57 Vs 57

- Satin leaf (*Chrysophyllum oliviforme*) extract mediated green synthesis of silver nano particles: Antioxidant and anticancer activities (**Interdepartmental – with Botany**)
- Synthesis and characterization of silver embedded polyaniline composite (**Interdepartmental –with Physics**)
- c. Interfacial polymerization of polyaniline copolymers (**Interdepartmental –with Physics**)
- Transition metal complexes of 2-naphthoic acid – Synthesis and spectral studies (**Interdepartmental – with Botany**)
- GIS mapping, assessment, analysis and treatment of water quality parameters for samples collected from various panchayats of Dharmapuri District (**Interdepartmental –with Zoology**)
- Synthesis, characterization and biological studies of Ni(II)amide complexes (**Interdepartmental – with Botany**)
- Corrosion inhibitive performance of isoxazole and pyrazole on mild steel corrosion in 1M H₂SO₄
- Correlation of physico- chemical analysis of ground water, surface water and industrial waste water onto sorption techniques
- Physico-chemical assessing of water pollution level in industrial effluents of textile industry
- Synthesis, characterization and biological studies of Co(II)amide complexes (**Interdepartmental – with Botany**)
- Synthesis and antimicrobial studies of some chalcone derivatives (**Interdepartmental – with Botany**)

- Synthesis and antibacterial evaluation of some novel 2-aminopyrimidines
(Interdepartmental – with Botany)
- Synthesis and antibacterial evaluation of some pyrimidine 2-thione
(Interdepartmental – with Botany)
- Synthesis and characterization of transition metal hydrazine complexes with aromatic acid

9. Interdepartmental activities conducted:

- All faculty members of department of Chemistry, Botany and Zoology of PSGR Krishnammal College for Women and faculty members from Avinashilingam College, Nirmala College for Women, PSG College of Arts and Science, Government Arts College Coimbatore, Kongunadu College of Arts and Science, SRMV College of Arts and Science attended one day training programme on “Analysis of water quality parameters” jointly organized by Department of Chemistry and Seeds Enviro Labs, Cbe on 2.9.2014 & 3.9.2014.
- Group projects were carried out in collaboration with departments of **Botany, Zoology and Physics.**

10. Qualitative improvements due to DBT support

- The visit to CFTRI and DFRI, Mysore gave the students first hand knowledge about food processing and packaging technologies.
- Interaction with eminent personalities through guest lecturers helped the students to update their subject knowledge.
- The hands on training on analysis of Water quality parameters enhanced their practical skill and infused in them a yearning for scientific research.
- Group projects motivated the students to take up research.
- Some of our students have got admission to PG courses in Anna University, Bharathiar University and NIT, Trichy
- One of our B.Sc students is placed in mineral water industry at Coimbatore.
- Our students are selected for Summer project at Hyderabad University, IGCAR, Kalpakkam.

11. Strengths and weaknesses

Strength –

1. Students strength

2. Qualified faculty
3. Well equipped lab for practicals and projects

Weakness - NIL

12. Problems faced, if any, in implementation of the programme and utilization of DBT grant (in two-three lines)

Difficulty in preplanning and execution of various programmes due to delay in the release of grant

13. DBT grant utilization:

Recurring: Sanctioned Amount Rs 2,00,000/-

S. No	Details	Amount in Rupees
1	Students Activities i) Training Programme	40,000
2	Teachers Activities i) Workshop ii) Guest Lecture	30,000 10,000
3	Chemicals & Consumables	1,20,000
Total		2,00,000

Students Feedback

The financial assistance given by DBT under STAR College scheme has enhanced the quality of teaching, learning process. With the introduction of new practicals and increase in the number of instruments (Potentiometer, Conductivity meter etc.) and chemicals has helped us to carry out the experiments individually with skill, which were carried out before support as group experiments.

The hands-on training on analysis of various water quality parameters was very useful and exposure to various instrumental techniques will definitely help to get job in analytical laboratory. The training at Ashok Glasswares and Neons has motivated to become an entrepreneur in the glass blowing field. Interdisciplinary approach in group project helped us to utilize the facilities available and faculty expertise in other departments and to pursue research in future. Overall the financial support has enabled to get a thorough knowledge in various

aspects of chemistry and related fields which would help us to get placed in reputed industries and also for higher studies.

Faculty feedback

The workshops and training programme attended by faculty under star college schemes has enriched the subject knowledge of the faculty. The faculty had an opportunity to interact with the experts in different fields of chemistry through guest lectures/visiting faculty and this has enabled them to disseminate the knowledge gained to students in a very effective manner and also motivated the students to take up higher studies.

Future Plans

- To set up a glass blowing unit in the Department, to recycle and reuse the waste glass.
- To provide more placement opportunities in Chemical and analytical and R&D institutes.

Department of Botany

5. Activities carried out during the year (department wise):

A) Student activities

i. Summer school:

S.No	Class	Internship done	No.of Beneficiaries	Justification
1.	II B.Sc. PBBT	Ragam Bakery Gandhimanagar, Peelamedu, Coimbatore 09-05-2014 to 23-05-2014	5	Learnt the manufacturing of various Bakery products and acquired knowledge in setting up an individual bakery
2.	II B.Sc. PBBT	Herbo Flora Biotech, Kovaipudur, Coimbatore 26-05-2014 to 09-06-2014.	6	Training in Plant tissue Culture and extraction of phytochemicals from plants.

ii. Industrial Visits :

S. No.	Class	Place of Visit	Date	No. of Beneficiaries	Justification
1.	III B.Sc. PBBT	Foundation for Revitalisation of Local Health Traditions (FRLHT), Bangalore	16 th September, 2014	55	Students observed medicinal plant garden (including exotic species) and they learnt the techniques to identify the plants scientifically based on their taste, smell, etc.. and they also learnt the technique for crude drug preservation, drying technique, etc..
2.	III B.Sc. PBBT	Central Food Technological Research Institute(CFTRI), Mysore	17 th September 2014	55	Students learnt food preservation techniques (production to preservation) from banana juice, icecream, meat, idly, dosai, kera hair oil, amla, egg tray.
3	III B.Sc. PBBT	Proposed Visit Sakthi Soyas, Pollachi	9 th January 2015	55	Soya products have wide applications in confectionary baking, and Pharmaceutical. Hence the students will be taken to Sakthi Soya industries, Pollachi, to know the production process of soya chunks, Soy flakes, soy granules, soy flour and Soyabean oil .

iii. List of projects undertaken by the students

(Ten groups of students with 5-6 students per group)

- Absorption of Iron from foundry soil by Fenugreek plants
- Assessment of the presence of microbes and adulterants in the pasteurized milk samples.
- Effect of low molecular weight chitosan and glucose chitosan coating on fruits and their storage period and analysis of nutritive value.
- Screening of Cassia fistula and Abutilon indicum leaves for its phytochemical, antimicrobial and antioxidant properties.
- Microbial contamination of ready to eat food.
- Enhancement of plant growth in different e-waste mixed soil using fruit peels as biocomposites.
- Callus induction of medicinal plant Hemigraphis colorata.
- Morphological and biochemical variation in Nerium species.
- Physico-chemical properties of edible oils.
- Adulteration of groceries

Training courses attended: 18 students attended two day Career development training programme for self employment in Biosciences “BIOENTREPRENEURSHIP” held on 15-16, December, 2014 at Department of Botany, Nirmala College for Women, Coimbatore

iv. Excursions

S.No	Class	Place of Visit	Date	No. of Beneficiaries	Justification
1.	III B.Sc. PBBT	Botanical Survey of India, Southern Regional Centre, Coimbatore	16.07.14	55	Students learnt herbarium techniques, typification, publication, etc..
2.	II B.Sc. PBBT	Salim Ali centre for Ornithology and Natural History, Anaikatty, Coimbatore	06.01.15	54	Students exposed to plant-bird interaction and wet land flora by lecture as well as trekking.

B) Teachers' activities

i. Workshops Conducted

- a. **III year UG Students (55) and 10 students** from other colleges were given hands on training on Morphology and Biochemical Characterization of Microbes in the workshop jointly organized by the Department of Botany and Bioline Research Institute, Coimbatore. Date: 31.07.2014 and 1.08.2014 (**Intercollegiate**).
- b. **Dr. K. Vasantha**, Assistant Professor in Botany, Govt. Arts College; Treasurer, Friendly Coimbatore Bonsai Club., gave training to 70 students on Bonsai Techniques and Bouquet Making. Date: 12.09.2014

ii. Workshops attended:

1. **All the faculty members** from the department of Botany attended the Workshop on Morphology and Biochemical characterization of microbes conducted by Department of Botany, PSGR Krishnammal College for Women and Bioline Laboratory, Coimbatore on July 31st and 1st Aug. 2014.
2. **Sashi, V.** 2014. Attended NADP Methodology Workshop on Urban Forestry to combat Pollution **held** at Forest College and Research Institute, Mettupalayam, on 8th October, 2014.

iii. Training Courses conducted /attended

1. **Krishnaveni**, 2014. Attended two day Career development training programme for self employment in Biosciences "BIOENTREPRENEURSHIP" held on 15-16, December, 2014 at Department of Botany, Nirmala College for Women, Coimbatore.
2. **TamilSelvi, K.S.** 2014. Attended two day Career development training programme for self employment in Biosciences "BIOENTREPRENEURSHIP" held on 15-16, December, 2014 at Department of Botany, Nirmala College for Women, Coimbatore.
3. **Sumathi, R.** 2014. Attended two day Career development training programme for self employment in Biosciences "BIOENTREPRENEURSHIP" held on 15-16, December, 2014 at Department of Botany, Nirmala College for Women, Coimbatore.

Activities for Non-teaching Staff:

Training attended by Non-teaching staff:

Three non teaching staff members undergone hands on training in the operation of UV-Visible spectrophotometer, Instron, Ultra centrifuge and HPLC on 5.7.2014 in the Department of Botany.

iv. Guest Lectures (Please mention Name, Designation, Host Institute of the Guest Faculty)

- **Mr. G. Gnanasekaran**, Botanical Assistant, Botanical Survey of India, TNAU campus, Coimbatore, highlighted on the Herbarium Methodology. Date: 30.06.2014
- **Mr. Senthil Kumar**, IFS, District Forest Officer, Coimbatore, emphasized the need for Biodiversity Conservation in Western Ghats Date: 15.07.2014. Inter department.
- **Mr. A.K.A. Kathirvelu**, National Social Worker, Salem, illustrated the effects of Global Warming. Date: 18.07.2014. Inter Department.
- **Dr. Shakthivel Sadayappan**, Department of Cell and Molecular Physiology, Loyola University, Chicago, described the Recent Trends in Biotechnology Research at USA. Date: 01.08.2014. Inter collegiate.
- **Dr. Sujaya Rao**, Professor, IPM and pollination Entomologist, Oregon State University (OSU) elaborated on Plant – Insect Interactions. Date: 15.09.2014. Inter Department.
- **Dr. L. Chandrasekar**, IFS, Conservator of Forest, Central Academy of State Forest Service, Coimbatore, introduced Biodiversity conservation through flagship species management. Date: 1.10.2014
- **Dr. K. Murugesan**, Professor, CAS in Botany, University of Madras, Guindy Campus, Chennai provided the Motivation for developing research aptitude among students Date: 30.12.2014
- **Dr.R. Sathishkumar**, Assistant Professor and Group Leader, Plant Genetic Engineering Laboratory, Department of Biotechnology, Bharathiar University, Coimbatore, explained the Biosafety issues related to rDNA technology and Metabolic Engineering of Vitamin E Pathway in Plants. Date: 31.12.2014.

6. Advisory committee meeting scheduled to February
7. **List of New Practicals/demonstrations introduced for UG students of each batch (I, II and III year) in different departments supported under Star College Scheme in last one year:**

III B.Sc PBBT

Practicals: Plant Biotechnology and Environmental Biotechnology

- Estimation of halides in water samples by potentiometry.
- Estimation of Co^{2+} and Ni^{2+} by colorimetry/spectrophotometry.
- Estimation of sulphates by turbidometry.
- Detection of heavy metals in various samples.
- Sampling techniques: wastewater analysis for physico-chemical characteristics such as pH, conductivity, TDS, DO, BOD, COD, CO_2 , alkalinity, nutrients, chlorides, hardness, settlability of solids.
- Microbial degradation of textile dyes/pesticides/hydrocarbons and oils
- Assay of enzymes involved in biotransformation.
- Pollutant removal using microorganisms from industrial effluent.
- Effect of heavy metals on microbial growth and microbial leaching of metals
- Effect of pesticides on soil microorganism

Demonstration:

- Preparation of MS medium, Sterilization of explant and inoculation, culture maintenance
- Transgenic plants -Photographs/charts.
- Demonstration of preparation of synthetic seeds.
- Plasmid DNA isolation, Restriction and digestion using agarose gel electrophoresis

8. **Number of students taking project vs. total number of students. Please give list of projects department-wise during the support period.**

All III year UG students (55 vs 55)

- Absorption of Iron from foundry soil by Fenugreek plants
- Assessment of the presence of microbes and adulterants in the pasteurized milk samples.

- Effect of low molecular weight chitosan and glucose chitosan coating on fruits and their storage period and analysis of nutritive value.
- Screening of *Cassia fistula* and *Abutilon indicum* leaves for its phytochemical, antimicrobial and antioxidant properties.
- Microbial contamination of ready to eat food.
- Enhancement of plant growth in different e-waste mixed soil using fruit peels as biocomposites.
- Callus induction of medicinal plant *Hemigraphis colorata*.
- Morphological and biochemical variation in *Nerium* species.
- Physico-chemical properties of edible oils.

Adulteration of groceries

9. **Interdepartmental activities conducted Botany,**

Medicinal plant exhibition conducted on 06.01.2015. Student from other science departments (**Maths, Physics, Chemistry** and Zoology) visited the exhibition and gained knowledge on commonly available medicinal plants and their/products for common ailments.

10. **Qualitative improvements due to DBT support (please highlight 5 salient lines)**

Students were able to visit various industries which are actively involved in research.

Students were able to do the practical individually which were conducted in groups so far. Innovative projects and internship training were carried out by the students. Expertise from different fields was invited to give special lectures at micro and macro level.

The staff members were able to attend more number of seminars and workshops.

Lab manuals for hands on training, standard operating procedures for the workshop conducted and e-resources for the recent topics included in the syllabus

11. **Strengths and weaknesses of each department (3 each)**

Strength:

All the faculty members are doctorates and are actively involved in research, having two major projects under progress and completed three projects. The department is well equipped with instruments useful for advanced areas of research including molecular biology.

Weakness: Nil

12. Problems faced, if any, in implementation of the programme and utilization of DBT grant (in two-three lines)

Timely release of funds requested to carry out the activities throughout the year

13. DBT grant utilization:

a) Non-recurring (Equipment) Expenditure on this head has been completed in the year 2012-2013 and progress report submitted already.

b. Recurring: Sanctioned Amount Rs 2,00,000/-

S.No	Item	Amount (INR)
1	Students activities	
2	Projects and industrial visit	25,000
3.	Conduct of workshop	33,300
4	Excursion	10,800
5	Training programe	3,300
6	Exhibition on medicinal plants	5,000
	Teachers activities	
7	Preparation of lab manuals	2,000
8	Taining programme	600
	Chemicals and consumables	1,20,000
	Total	2,00,000

Feedback

1.Faculty:

Infrastructure improved

- Students could be given hands on training individually because of the availability of more number of instruments and easy availability of chemicals.
- Exposed to more number of guest lectures workshops seminars.
- Laboratory manual on Environmental biotechnology and plant biotechnology could be prepared.
- Standard operating procedures on “Bosai Techniques” and morphology and biochemical characterization of microbes could be made available.
- E-resouce on bio safety and IPR patents were made available to the students.

2. Students:

- Syllabus updated on thrust areas.
- Hands on training improved the practical skills.
- Because of the financial assistance from DBT more excursions and industrial visits were made.
- Financial assistance from DBT also helped as to carry out our project and complete our internships.

Future plan:

To train the students with required skill for life science sector in association with life science industries and thereby provides job opportunity to the students.

Department of Zoology

5. Activities carried out during the year (department wise): ZOOLOGY

A) Student activities:

i. Summer school:

- Medical laboratory techniques in clinical labs attached to hospitals in Coimbatore, Tirupur, Salem and Erode from 16.5.14 to 2.6.14.
- Waste water Treatment in Knitting Industries, Tirupur from 1.5.14 to 15.5.14
- Organic Farming and Roof Gardening Training in Coimbatore District Herbal and Tree grower's association Centre from 14.5.14 to 29.5.14
- Water analysis and Soil testing analysis training in Alpha Labs, Coimbatore from 14.5.14 to 29.5.14
- Training in Meenangadi Milk Producers Co-operative Society Ltd., Wyanad from 29.5.14 to 16.6.14

ii. Industrial visit

S. No	Class	Place of Visit	Date	No.of Beneficiaries	Justification
1.	III B.Sc. Zoology	Mangrove Forest-Pitchavaram	26.08.14 to 27.08.14	50	Gained knowledge about mangrove ecosystems.

iii. List of project taken by students (purchase of chemicals, field visit, hiring charges etc):

- A comparative study of protein and estrogen in broiler and desi chickens in relation with polycystic ovarian syndrome in women
- Comparative analysis of total protein content in soybeans and winged termites (**Interdepartmental – with Chemistry**)
- Impact of natural antioxidants on human bodyweight (**Interdepartmental – with Chemistry**)
- Evaluation of air pollution tolerance index of selective plant species in Coimbatore

(Interdepartmental – with Botany)

- Preparation of Kombucha tea by fermentation process
- A comparative study on the nesting behaviour, nest architecture and the biochemical aspects of the nest of the paper wasp-*Ropalidia marginata* and mud wasp, *Sceliphron caementarium*
- Nesting behaviour and biochemical estimation of the hemolymph of the paper wasp, *Ropalidia marginata*
- Phytochemical constituents of water hyacinth, *Eichornia crassipes* and its interaction with the selected aquatic insects in Singanullur lake, Coimbatore, Tamilnadu.

(Interdepartmental – with Botany)

- Relationship between water quality and fish production **(Interdepartmental – with Chemistry)**
- Studies on the trophobiotic interaction between thorn mimic treehopper (*Leptocentrus taurus*) and common Godzilla ant (*Camponotus compressus*) and their influence on the host plant, *Cassia fistula*
- Efficacy of essential oils in the control of microbes in contaminated currency notes in India
- Comparative microbiological analysis of pond water stored in different storage vessels **(Interdepartmental – with Botany)**

iv. Excursions

III Year BSC AZBT students visited Centre for Advanced Studies in Marine Biology, Museum, ENVIS Library - Annamalai University, Chidambaram on 25.8.14.

B) Teachers activity:

Workshop/Seminar conducted/attended

i Workshop Organised

a. Virtual Dissection:

Department of Zoology organized a one day workshop for Botany and Zoology students and faculty of our college on Virtual Dissection on 17.09.14. Hands on

training was given by Dr. Akbar Shaw, Mahatma Gandhi-Doerenkamp Centre (MGDC), Bharthidasan University, Trichurapalli. Supplemental teaching aid to physical dissection: alternatives allow students to become familiar with the intricacies of dissection *before* they dissect; provide a model of a properly dissected organism; offer additional information for students to extend their knowledge; allow for the viewing of specimens not normally dissected in class.

b. Instrumentation Training:

Hands on training to students of III year BSC Advanced Zoology and Biotechnology, Faculty and Lab Assistants on various instruments in our laboratory to understand the principles and emphasis on useful practical skills, A 'hands-on' approach helped the students to be competent enough to handle the instruments individually.

- i. Electrophoresis, Electronic Balance, pH Meter, Hot Air Oven, Incubator - **Precision Scientific Company** on 20.8.14 & 21.08.14
- ii. Clinical Spectrophotometer - **Diagnostic Services, CPC Diagnostics** on 21.08.14

c. Liquid Fertilizer

One day training programme on the production of liquid fertilizer from fish waste to the students (Zoology, Chemistry, Physics and Mathematics) and the non-teaching and supporting staff of our college on 07.01.15.

ii. Workshop attended

1. Dr. Sasikala G and Mrs. P. Susheela attended one day workshop on "SPSS Software" organised by Department of Mathematics, PSGR Krishnammal College for Women, Coimbatore on 30.07.14
2. Dr. Harathi P B attended two days Workshop on "Nanotechnology" organized by Department of Physics, PSGR Krishnammal College for Women, Coimbatore from 10.9.14 to 11.9.14

iii. Training course attended

1. Dr. Radha R attended two day training programme on "Analysis of water quality parameters" jointly organized by Department of Chemistry, PSGR Krishnammal

College for Women, Coimbatore and Seeds Enviro Labs, Coimbatore on 02.9.14 to 03.9.14

iv. Guest lectures

1. **Thiru M.Senthil Kumar**, I.F.S., District Forest Officer, Coimbatore Division, Coimbatore, delivered a guest lecture on Biodiversity in Western Ghats and its Conservation on 15.07.14
2. **Dr. K. Mageshwaran**, Clin Biotech Academy, Chennai Opportunities in Clinical research for Zoologists in India delivered a guest lecture on 17.07.2014
3. **Dr. Iswarya. S**, Assistant Professor, PSG Institute of Medical Sciences and Research, Peelamedu, Coimbatore delivered a guest lecture on Community Medicine on 21.07.14
4. **Dr. P. Rani**, Professor, Department of Biotechnology, PSG College of Technology, Peelamedu, Coimbatore Genomics and Proteomics delivered a guest lecture on 01.08.14
5. **Dr. Prashanthi Devi**, Assistant Professor, Department of Environmental Management, Bharathidasan University, Tiruchirapalli Environment and Health delivered a guest lecture on 09.08.14
6. **Sujaya Rao**, Professor, Field Crop Entomologist, Department of Crop and Soil Science Entomology, 4050 Cordley Hall, Corvallis, OR 97331, United States delivered a special lecture on Plant animal interactions 15.09.14
7. **Mr. Chandrasekar IFS**, Professor, CASFOS, Coimbatore delivered a guest lecture on Biodiversity on 01.10.14

6. Advisory committee meeting:

Advisory Committee meeting to be held in February 2015.

7. List of New Practicals/demonstrations introduced for UG students of each batch (I, II and III year) in different departments supported under Star College Scheme in last one year:

I Year - (Core Practicals I)

Field observations combined with photography and/or videography

- 1) Study of live water specimens in nearby water bodies

2) Study of insect fauna.

Culture Methods

1) Culture of unicellular organisms (Amoeba, Paramecium, and Euglena)

2) Culture of multicellular organisms (Earthworm)

III Year - (Core Practicals III)

1. Isolation and estimation of DNA & RNA.

2. Blotting techniques- observation and photographs.

3. Techniques of sterilization dry and wet.

4. Preparation of nutrient agar & broth media.

5. Distribution of microbes in soil, air and water.

8. Number of students taking project vs. total number of students. Please give list of projects department-wise during the support period.

50 Vs 50

1. A comparative study of protein and estrogen in broiler and desi chickens in relation with polycystic ovarian syndrome in women
2. Comparative analysis of total protein content in soybeans and winged termites
(Interdepartmental – with Chemistry)
3. Impact of natural antioxidants on human bodyweight **(Interdepartmental – with Chemistry)**
4. Evaluation of air pollution tolerance index of selective plant species in Coimbatore
(Interdepartmental – with Botany)
5. Preparation of Kombucha tea by fermentation process
6. A comparative study on the nesting behaviour, nest architecture and the biochemical aspects of the nest of the paper wasp-*Ropalidia marginata* and mud wasp, *Sceliphron caementarium*
7. Nesting behaviour and biochemical estimation of the hemolymph of the paper wasp,

Ropalidia marginata

8. Phytochemical constituents of water hyacinth, *Eichornia crassipes* and its interaction with the selected aquatic insects in Singanullur lake, Coimbatore, Tamilnadu. **(Interdepartmental – with Botany)**
9. Relationship between water quality and fish production **(Interdepartmental – with Chemistry)**
10. Studies on the trophobiotic interaction between thorn mimic treehopper (*Leptocentrus taurus*) and common Godzilla ant (*Camponotus compressus*) and their influence on the host plant, *Cassia fistula*
11. Efficacy of essential oils in the control of microbes in contaminated currency notes in India
12. Comparative microbiological analysis of pond water stored in different storage vessels **(Interdepartmental – with Botany)**

9. Interdepartmental activities conducted:

1. **Thiru M.Senthil Kumar**, I.F.S., District Forest Officer, Coimbatore Division, Coimbatore, delivered a guest lecture on Biodiversity in Western Ghats and its Conservation on 15.07.14 **(Interdepartmental - with Botany)**.
2. **Dr. Iswarya. S**, Assistant Professor, PSG Institute of Medical Sciences and Research, Peelamedu, Coimbatore delivered a guest lecture on Community Medicine on 21.07.14 **(Interdepartmental - with Chemistry, Botany, Physics)**.
3. Hands on training to students of III year, Faculty and Lab Assistants on various instruments such as spectrophotometer, pH meter, Electrophoresis in our laboratory to understand the principles and emphasis on useful practical skills **(Interdepartmental - with Chemistry, Botany)**.
4. One day workshop on Virtual Dissection for the faculty and students of Botany and Zoology. **(Interdepartmental - with Botany)**.
5. **Sujaya Rao**, Professor, Field Crop Entomologist, Department of Crop and Soil Science Entomology, 4050 Cordley Hall, Corvallis, OR 97331, United States delivered a special lecture on Plant animal interactions 15.09.14 **(Interdepartmental - with Botany)**.
6. **Mr. Chandrasekar IFS**, Professor, CASFOS, Coimbatore delivered a guest lecture

on Biodiversity on 01.10.14 (**Interdepartmental - with Botany**).

7. Hands on Training- “Production of liquid fertilizer” from fish waste to the students non-teaching and supporting staff of our college on 07.01.15 (**Interdepartmental - with Chemistry**).

10. Qualitative improvements due to DBT support (please highlight 5 salient lines)

- Industrial visit helped the students to gain knowledge about culture techniques, mangrove ecosystems etc.
- Resource persons were invited to deliver special lectures which facilitated the students to broaden their horizons in various fields.
- Fund supported by DBT helped out to organize inter-departmental training programmes and workshop for the students and faculty.
- Students were able to do the practicals individually which were conducted in groups so far.
- Novel group projects were carried out and summer internship training at reputed organizations and labs
- Setting up digital laboratory for the Undergraduate students in the zoology helped the students to carry out virtual dissection.

11. Strengths and weaknesses of each department (3 each)

Strength:

- All the five faculty members are indulged in research
- Two Major projects ongoing, Two patent and copyrights are registered

Weakness:

- Recognition for post graduation programme is under process.

12. Problems faced, if any, in implementation of the programme and utilization of

DBT grant (in two-three lines)

NIL

13. DBT grant utilization:

A) Non-recurring (Equipment) – Details submitted in the year 2012-13 report

B) Recurring Details - Amount Sanctioned 2, 00,000/-

Total expenses under different heads

S.No	Details	Amount in Rs.
1	Student Activities:	
	(i) Training Program	11,600
	(ii) Industrial Visit	24,950
	(iii) Students Project	8,500
2	Teachers activities (i) Guest Lecture	10,000
3	Interdepartmental activities conducted	25,000
4	Chemicals / Consumables	1,20,000
	TOTAL	2,00,050

Feed Back

Fund supported by DBT helped the students to carry out innovative and real time group projects. During institutional visit, students gain knowledge in Medical laboratory techniques, Organic farming, and Waste water treatment. Industrial visit supported the students to identify the avenues available for higher education and future research. Special lectures organized facilitated the students to broaden their horizons in various fields. Hands on training programmes and workshops trained and encouraged the students to handle the equipments and instruments individually. Techniques learnt: Agar gel electrophoresis PAGE, Measurement of pH using Digital pH meter, Biochemical analysis using Spectrophotometer, Incubation of bacterial culture using Incubators, Isolation and separation of DNA by electrophoresis, Estimation of Biomolecules. Gained confidence to handle and maintain the instruments individually, motivated the students to pursue higher studies, eye opener for future research. A basic instrumentation laboratory set up under STAR college Scheme helped the students to do the practicals individually which were conducted in groups so far.

Future Plan

- To bring PG course -M.Sc., Zoology
- To provide students with a keener insight into and a deeper appreciation of the many facets of science. From this base, our graduates can pursue future specialization with confidence.
- The Department will focus its research and collections activities on grant-funded projects
- Collaborative research projects with abroad universities
- To augment faculty and student exchange programme in teaching learning process
- To create awareness among the students regarding the job opportunities as wildlife biologists with the Bachelor's Degree in Zoology
- To make the students do internships related to various fields of biology so as to provide networking opportunities in work environments that might be relevant to future employment settings.

Department of Mathematics

Activities carried out during the year (department wise):

5. A) Student activities

(i) Summer school :

Training Programme on SCILAB:

60 UG students of Department of Mathematics attended the training Programme on 20.08.2014. The resource person was Dr. M. Paramasivam, Assistant Professor, Bishop Heber College, Tiruchirappalli.

ii. Industrial Visit :

An Industrial Training on Statistical Quality Control was organized on 27.12.2014. 50 students from the Department of mathematics, Chemistry and Zoology was benefited through this Programme.

iii. List of Projects Undertaken by Students

- Pythagorean Triples in Mathematical Modeling (Interdepartmental with Physics & Chemistry)
- Cryptography and its applications (Interdepartmental with Physics)
- Statistics in Psychology (Interdepartmental with Physics, Chemistry, Botany, Zoology)
- Random Numbers and Benford's Law Process (Interdepartmental with Physics & Chemistry)
- Generalized Trigonometry and Application of Trigonometry (Interdepartmental with Physics)
- Euler's Functions and its Applications (Interdepartmental with Physics & Chemistry)

iv. **Excursion:** 47 students and 2 faculty members from the Department of Mathematics visited Bangalore on 30.08.2014 to 03.09.2014.

B) Teachers' activities:

i. Workshops, Seminars Conducted /Attended

- Dr. K. Sumathi, Associate Professor of Department of Mathematics attended a Mid year Academy meeting, Bangalore from 03.07.2014 to 05.07.2014.

- Dr. G. Arthi, Assistant Professor of Department of Mathematics attended a
- New Faculty Induction Programme on 6.11.2014 at Hotel Club mélange, Erode.
- Dr. G. Arthi, Assistant Professor of Department of Mathematics attended a Four Days Programme on Indian Women and Mathematics Teachers Training Programme from 20.11.2014 – 23.11.2014 at Vellalar College for women, Erode.

ii. Training Courses Conducted / Attended

Training Programme on LATEX - Texmaker:

60 students of Department of Mathematics attended this programme on 14.08.2014. The resource person was Dr. V. Parthiban, Assistant Professor, Department of Mathematics, Bannari Amman Institute of Technology, Sathyamangalam.

iii. Guest Lectures (Please mention Name, Designation, Host Institute of the Guest Faculty)

1. **Dr. (Mrs.) P. Suguna**, Assistant Professor, Post Graduate & Research, Department of Mathematics, Government Arts College, Coimbatore delivered the lecture on the topic **Life Skills** on 10.07.2014. (Interdepartmental with Physics, Chemistry, Botany & Zoology)
2. **Dr. L. Lakshmanan**, Dean, Mathematical Sciences, P. S. G. R. Krishnammal College for Women, Coimbatore delivered a guest lecture on the topic **Significance of Mathematics** on 21.08.2014. (Interdepartmental with Physics & Chemistry)
3. **Dr. B. Selvaraj**, Dean, Nehru Institute of Technology, Coimbatore, delivered a lecture on **Motivational talk on Mathematics** on 20.09.2014. (Interdepartmental with Physics, Chemistry, Botany & Zoology)
4. **Dr. Mrs. Julia Rose Mary**, Associate Professor, Department of Mathematics, Nirmala College for Women delivered a lecture on the topic **Applied Mathematics - Queuing Theory** on 08.10.2014. (Interdepartmental with Physics)

5. **Dr. S. Karthikeyan**, Assistant Professor, Department of Mathematics, Periyar University, Salem, delivered a lecture on **Differential Equations and its Applications** on 11.12.2014. (Interdepartmental with Physics & Chemistry)
6. **Dr.P.Kandhasamy**, professor and Head (Retd), Department of Mathematics, Bharathiar university, Coimbatore, delivered a lecture on the topic **A Tribute to Srinivasa Ramanujan** on 22.12.2014. (Interdepartmental with Physics , Chemistry, Botany & Zoology)
7. **Dr. Saravanan**, Associate Professor, Department of Mathematics, Bharathiar University, Coimbatore , delivered a lecture on the topic **Fundamentals of Thermodynamics** on 23.12.2014. (Interdepartmental with Physics)
8. **Dr. Murugesan**, Assistant Professor, Government Arts College, Coimbatore delivered the lecture on the topic **Discrete series and its application** on 06.1.2015.\

6. Advisory Committee Meeting:

Advisory Committee meeting to be held in February 2015

7. List of New Practicals / Demonstrations introduced for UG Students for each class (I, II and III year) in Different Departments supported under Star College Scheme in last one year:

Computer Programming – C Practicals. (II year)

8. Number of Students taking Project vs. Total Number of Students. Please give list of projects (department-wise) during the support period.

- Pythagorean Triples in Mathematical Modeling (Interdepartmental with Physics& Chemistry)
- Cryptography and its applications(Interdepartmental with Physics)
- Statistics in Psychology(Interdepartmental with Physics, Chemistry, Botany, Zoology)
- Random Numbers and Benford's Law Process (Interdepartmental with Physics& Chemistry)

- Generalized Trigonometry and Application of Trigonometry (Interdepartmental with Physics)
- Euler's Functions and its Applications (Interdepartmental with Physics& Chemistry)

9. Inter-departmental Activities Conducted:

Two day Workshop on SPSS:

60 UG students from Department of Mathematics, Zoology, Chemistry, Physics and Botany attended two days Workshop on "SPSS" on 30.07.14 and 31. 07.14. The resource person was Dr. G. Uma, Assistant professor, Department of Statistics, PSG College of Arts and Science, Coimbatore.

10. Qualitative Improvements due to DBT Support (please highlight 5 salient points)

- Scilab can help a student focus on the procedure for solving a problem instead of spending time and energy developing a matrix algebra library.
- It provides all basic operations on matrices through built-in functions so that the trouble of developing and testing code for basic operations are completely avoided.
- Texmaker is a free LaTeX editor, that integrates many tools needed to develop documents with LaTeX, in just one application.
- Students trained in SPSS will be able to Manage, analyse, manipulate and display data, Quickly and accurately perform an enormous number of statistical functions, present results in a range of formats including graphically which are essential for their project and research works.
- The main objective of Industrial Training is to expose the students to actual working environment and enhance their knowledge and skill from what they have learned in the college.

11. Strengths and Weaknesses of each Department (3 each)

Strengths:

- Industrial training is viewed as important strategy to expose students to real work life and to equip them with necessary skills so that they would be job ready when they graduate
- Group projects can help students develop a host of skills that are increasingly important in the professional world.
- ‘Life Skills’ which is associated with managing and living a better quality of life helps the students to accomplish their ambitions and live upto their full potential.

Weakness: Nil

12. Problems Faced, if any, in implementation of the Program and Utilization of DBT Grant (in two-three lines): NIL

13. DBT Grant Utilization:

A) Non-recurring (Equipment) – Details submitted in the year 2012-13 report

B) Recurring Details: Amount Sanctioned: Rs. 2, 00,035/-

S.No	Details	Amount in Rs
1	Students Activities (i) Training Program (ii) Industrial Visit (iii) Students Project	10,150 14,340 17,910
2	Teachers Activities (i) Training Course (ii) Guest Lectures	10,000 18,100
3	Interdepartmental Activities	9,500
4	Consumables	1,20,035
	Total	2,00,035

Students' Feedback:

- Interaction with the eminent scholars during their visits for delivering guest lectures motivated the students to do further research in Mathematics.
- Training in SPSS provided a platform for self-employment by taking statistical consultancy for research project works.
- Knowing about LATEX thoroughly helps them to prepare their project documents with professional touch. It also helps to take-up desk top publishing as their job in future.
- Students are able to avail DST sponsored scholarships.
- Students participate in various competitions held in other institutions and win prizes, thus getting encouragement, self-motivation and self-confidence.
- Mathematical laboratories help students solve mathematical problems using computer language C.
- Industrial Visit on Statistical Quality Control enabled students not only to enrich their knowledge but also provide them an opportunity to come across diversified areas and understand about people with different cultures, traditions and languages.

Faculty Feedback:

- Variety of hands on training programmes and workshops attended by the faculty help them enhance their professional and personal development.
- These learning opportunities are designed to maximize their professional growth and teach the students in a very effective manner.
- Guest lecturers give the faculty an opportunity to interact with the eminent scholars which provides a platform for mutual knowledge sharing.

Future Plans:

- To become a full fledged DST sponsored department.
- Strengthening Research with International Collaboration.
- Taking up more number of major and minor research projects.

Signature of the Co-ordinator

Signature of the Principal