

Department of Biotechnology

Star College Scheme

Progress report by Stella Maris College (Autonomous) Chennai

For the academic year 2011-12

1. **Name of the College** : Stella Maris College (Autonomous), Chennai

2. **Name of Departments supported** : **Botany, Zoology, Chemistry, Physics**

Name of the Principal : Dr. Sr. Jasintha Quadras fmm
principal@stellamariscollege.edu.in
044- 28111987/ 28111951

Name of Coordinator : Dr. Juliana Joe
designation, address, phone nos. Vice Principal & Associate Professor
Dept. of Zoology
joejuliana@gmail.com
044- 28111987/ 28111951

3. **No. of regular faculty with Ph.D. in each participating department:**

S. No	Department	No. of Faculty	
		Aided	Management
1	Botany	4	-
2	Zoology	5	1
3	Chemistry	6	-
4	Physics	1 + 2* (*pursuing Ph.D.)	1* (*pursuing Ph.D.)

4. **List of courses (B.Sc./M.Sc./PG Diploma, certificate etc) run by different participating departments:**

Department	Regular Course	Certificate Course
Botany	B.Sc. Plant Biology and Plant Biotechnology	Herbal Therapy and Beauty Care (UGC Sponsored)
Zoology	B.Sc. Advanced Zoology and Biotechnology	Medical Biotechnology Medical Laboratory Technology
Chemistry	B.Sc. Chemistry M.Sc. Chemistry	-
Physics	B.Sc. Physics	-

5. Admission in different courses in participating departments in 2011-12 academic session:

S.No.	Department	Cut off % for admission	No. of students admitted	No. of drop out students	% of results
1	Botany	60	45	6	96.67
2	Zoology	80	52	10	82.05
3	Chemistry	63	50	6	87.50
4	Physics	67	51	5	82.86

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

A) Student activities

i. Industrial visit / Field Visits

Department	Particulars
Botany	<ul style="list-style-type: none"> • Visit to Kovalam Seashore to study the habitat of sea weeds and prepared Herbaria of Marine Algae at the seashore – I year Students • Visit to Irulas Tribal Women's Welfare Society at Chengalpet to study the medicinal value of herbs by II year Students • Visit to Thandarai, Chengalpet to study Biodiversity of higher plants and for the collection of plants for herbarium preparation by II year Students • Visit to Ecotel, Raintree Hotel by I year Students
Zoology	<ul style="list-style-type: none"> • The I B.Sc students visited the Zoological Survey of India on August 2, 2011 as part of their Invertebrata curriculum to observe the specimens in the museum and learn about Systematics. • The II B.Sc students visited the Genetics, Bioinstrumentation and Biotechnology Laboratories at Ramachandra Medical College, Porur in order to familiarize themselves with instruments, karyotyping and techniques of clinical importance on August 13, 2011. • The III B.Sc students visited the Veterinary College at Vepery and familiarized themselves with the working of different types of including Electron Microscope and bioinstruments on September 13, 2011. • The III B.Sc students undertook a one day field trip to a Govt. Sericulture Farm at Yelagiri hills on September 30, 2011 • On December 17, 2011 the I Year students went on a Nature Walk at Guindy National Park to understand the Biodiversity. • The II year G.E Aquaculture students visited the Zoological Survey of India on January 31, 2012 to observe the various specimens in

Zoology	<p>the museum and in the aquarium.</p> <ul style="list-style-type: none"> • Turtle Walk – Students of all three years participated in a turtle walk organized in coordination with the Students’ Sea Turtle Conservation Network on February 18, 2012. Mr.Arun, of the Sea Turtle Conservation Network, highlighted the causes for the dwindling numbers of the Oliver ridley turtles to the students. The turtle walk gave the students an opportunity to be a part of the conservation efforts.
Chemistry	<ul style="list-style-type: none"> • Visits to IIT-M – II U.G. and Central Leather Research Institute – I & II U.G. to study the working of different instruments and gain exposure to analytical instrumentation techniques. • Industrial visit to M/s.Metalloys Ltd., Ambattur, an Electroplating & gold plating unit – I year students and III year students gained knowledge about the basic principles involved in electroplating process.
Physics	<ul style="list-style-type: none"> • The first year students of the department were taken on a field trip to Walsam Industries and AMPITRON Products, Taramani. The students were exposed to the manufacture of windings in a transformer and different types of transformers. The students were also exposed to the manufacture of switches and power gadgets and were also briefed on the fabrication of wires and switches. • The third year students were taken to the Lifeline Hospital and were exposed to the medical instruments working under physics principles. They had demonstrations on the CT, MRI and NMR scanning.

ii. List of projects taken by students

Department	Details
Botany	<ul style="list-style-type: none"> • Total chlorophyll content in various leaves (green/coloured) by Colorimetric method. • Amylase activity – Enzyme kinetics • Enzyme – Substrate relationship with respect to Peroxidase. • Induction of root in stem cuttings using IAA. • Estimation of proteins from pulses by colorimetric method. • Estimation of oil content from Groundnut using soxhlet method
Zoology	<p>After participating in the workshop on “<i>Drosophila</i> Culture Techniques” the following projects have been carried out by III Year students.</p>

Zoology	<ul style="list-style-type: none"> • Verification of Mendel's monohybrid cross ratio • Verification of test cross ratio • Verification of Sex – linked inheritance • Study of linkage phenomenon • Effect of Green tea and Aloevera extract on the development of <i>Drosophila</i> sps. • Effect of curcumin powder on the development of <i>Drosophila</i> sps. • Effect of benzaldehyde on the development of <i>Drosophila</i> sps. <p>Animal Behaviour Projects</p> <ul style="list-style-type: none"> • Behavioral analysis of guinea pigs. • Feeding behavior in pigeon • Behavior patterns in rabbit • Study on domesticated geese. • Amazing Ants • Aggression in male fruit flies • Camouflage pattern in <i>Chameleo zeylanicus</i> with respect to temperature, humidity and light intensity • Study of behavior in Ancona ducks at Semmozhi Poonga. • Aggressive behavior of fighter cock and hen.
Chemistry	<ul style="list-style-type: none"> • Analysis of Food and Water samples

iii. Excursion

- The III B.Sc. students went on Excursion to different places
 - Botany - Yercaud
 - Zoology - Yelagiri
 - Chemistry - Kodaikkanal
 - Physics - Wayanad

iv: Any Other:

Department	Details
Botany	<p>Tree Census programme</p> <p>The Tree Census Programme of Chennai City was launched on August 2011 at Stella Maris College. The Director of Environment and Forests Dr. Srinivasa Murthy IFS was the chief guest and inaugurated the same. The III year students were given training on the techniques (size, height and breadth) involved in the Tree Census. They completed the tree census at Stella Maris College campus and also participated in the Tree Census Programme held at Sacred Heart School, Annasalai and Census of trees in the campus were taken. In addition, they have</p>

Botany	<p>completed Tree Census in Agri-horticultural Society and Semmozhi Poonga (Public gardens) and the neighboring areas around Stella Maris College. This helped them to gain knowledge on the flora of Chennai city.</p> <p>Herbal Garden maintained by Department of Botany It has 60 medicinal plants with name boards containing Botanical name, common name and its medicinal uses. It is a learning experience for the students as they maintain Herbal garden.</p>
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Internship

Department	Name of the Student	Particulars
Botany	Ms Madhana Surya & Ms Sneha	A 10 day UGC/SAP-Sponsored workshop to motivate and promote the Culture of research at Undergraduate Level
Zoology	Ms. Shankari Subramaniam	Fellowship for Project oriented Biological Education Summer research Diploma
	Ms. Anusha	Two month Summer Internship in Cell and molecular Biology Lab at IISc, Bangalore
	Ms. Anusha	One month Project in Molecular Oncology Lab at IIT, Madras
	Ms. Amrutha and Ms. Ridhi	Three week General Internship at Lister Metropolis in Lab Practices
	Ms. Anjali	Summer Internship -Three weeks training on karyotyping at AIIMS, New Delhi
	Ms. Anjali and Ms. Ridhi	Attended a one-week workshop on forensic Sciences in IIT, Bombay
	Ms. Shivaranjani, Ms. Christina, Ms. Anne Metilda and Ms. Sujithra	Two weeks Certificate program on Good Lab Practices at Apollo Hospitals, Chennai
	Ms. Christina Nilofer and Angel Metilda	A 10 day UGC/SAP-Sponsored workshop to motivate and promote the Culture of research at Undergraduate Level
	Ms. Maria Josephine	One month internship on preparing confectionery at Madras Food Industry, Perambur
	Ms Angel Metilda	Three week internship at the Aavin factory at Madhavaram to study the steps in quality control
Chemistry	Ms. Divya.V. Rajan	National Project Oriented Chemical Education (POCE) Programme at Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR)
Physics	Ms. Anju Sebastian	Summer Research Fellowship programme offered by JNCASR Bangalore, under Prof. T. Pradeep, in DST Unit of Nanoscience and Technology, IIT Madras.

B) Teachers activity

i. Workshop, Seminar attended

Department	Details
Botany	<ul style="list-style-type: none">• Dr. Nirmala Kanagaraj and Dr. Priscilla Jebakumari attended an “International Conference on Frontiers in Pharmaceutical Chemistry and Biologics An Interdisciplinary Approach” which was organised by Women’s Christian College, Chennai.• Dr. Geradette attended an “International Conference on Foods 2012 – Food Web: A Global Connect” at MOP Vaishnav College, Chennai.
Zoology	<ul style="list-style-type: none">• Dr. Chitralkha Ramachandran and Dr. Annie Cherian attended a one day Seminar to review Implementation of UGC Guidelines to reduce Dissections in a phased manner organized by Dept. of Zoology, University of Madras on March 9, 2012.• Dr. Annie Cherian attended a one day Seminar on “Mental Health and well being in Youth” organized by SCARF & Dept. of Social Work, Stella Maris College on Feb. 27, 2012.• Dr. Rita Jayaraj attended an International Conference on “Foods 2012- Food Web : A Global Connect” organised by School of Food science M.O.P. Vaishnav College for Women (Autonomous), Chennai on Feb. 17 & 18, 2012.• Dr. Kalpana Ramanan attended a National Seminar on the “Conservation of Biodiversity” organised by Quaide Milleth Government College for Women, Chennai on Feb. 7, 2012.
Chemistry	<ul style="list-style-type: none">• Ms. Avila Josephine & Ms. Mary Teresita presented scientific papers (both oral and poster) on “Nanoscience and nanotechnology” at an International conference from July 6th -8th 2011 at Coimbatore Institute of technology.• Dr. Shiny John Vairamon, Dr. Mary N.L and Dr. Mary George attended an International conference on Frontiers in Pharmaceutical chemistry and Biologics-An Interdisciplinary Approach on July 29 & 30, 2011 at Women’s Christian College• Dr. Shiny John Vairamon, Dr. Mary N.L and Dr. Revathy Raju attended an International Symposium on Societal and Environmental Needs organised by CLRI, Chennai. This symposium enlightened on the recent research in polymeric materials.• Dr. Mary George – Poster Presentation on Synthesis of single crystal and thermal stability of Ni(II) and Cu(II)-Schiff base

	<p>complexes at the International Conference on Frontiers in Material science for Energy and Environment from 11th -13th Jan, 2012 at Loyola College.</p> <ul style="list-style-type: none"> • Dr. Revathy Rajagopal & I PG Students attended a Workshop on Group Theory and its application to molecular vibration (WOGAM 2011) on 7th October 2011at Women's Christian College, Chennai. • Dr. Revathy Rajagopal attended a Theme Meeting on Material Science (TMMS) from 13th -15th February 2012 at IGCAR, Kalpakkam. • Dr. Revathy Rajagopal & Dr.Mary N.L attended a Workshop on "Microscale techniques in Physical Chemistry" from 21st – 22nd February 2012 at Garware College, Pune.
Physics	<ul style="list-style-type: none"> • Dr. R. H. Rajini attended a '<i>National Workshop on Examination Reforms</i>' on 3rd and 4th of February 2012 at Ethitraj College, Chennai • Sr. Fransisco Nirmala attended a one day workshop on '<i>Exploring Nano Domain</i>' at Nano Centre for Nano Science & Nano Technology, University of Madras, Chennai on 1st February 2012. • Sr. Fransisco Nirmala attended a '<i>Team meeting on Material Chemistry</i>' held at IGCAR, Kalpakkam during 13th – 15th February 2012. • Sr. Fransisco Nirmala attended an '<i>International Conference on Recent Trends on Advanced Materials</i>' held at V.I.T University, Vellore during 20th - 22nd Feb 2012. • Dr. C. S. Ramya submitted a paper entitled '<i>Solid-State ¹H MAS NMR and Vibrational Spectroscopic Studies of PVP Based Polymer Electrolytes</i>' to <i>Asian Conference on Solid State Ionics (ACSSI-2012) that will be held in Sendai, Japan</i>, from 17th to 20th July, 2012 (Accepted for Oral presentation).

ii. Training courses conducted for the students

Department	Details
Interdisciplinary	<p>One week Workshop on Instrumentation Techniques for 30 students from the departments of Botany, Chemistry, Zoology and Physics from 13.2.2012 to 18.02.2012.</p> <p>Training on Electrophoretic techniques, Chromatography, Flame photometry, Photomicrography, Fluorimetry and Spectrophotometry.</p>

Interdisciplinary	<p>A Hands-on–training on “Bioinformatics Tools for Sciences” for 20 students from the departments of Botany, Chemistry, Zoology and Physics from March 6 to 8th, 2012.</p> <p>Hands on training on</p> <p>a) BLAST tool which helps to find the similarity between the sequences.</p> <p>b) Multiple Sequence Alignment and Phylogenetic analysis</p> <p>c) Visualizing the biomolecules using Rasmol</p>
Botany	<ul style="list-style-type: none"> • One day training programme on Processing of Fruits and Vegetables to learn various preservation techniques and their nutraceutical value at Rajaji Bhavan on August, 2012. • Hands on Training on Mushroom Cultivation to learn the life cycle and economic importance of fungus (<i>Pleurotus</i> sp) on July 2012. • Training in Mycological Techniques from Feb. 13-15, 2012. The I Year UG Botany students were given hands on training in Mycological Techniques. It included study on Micrometry and Calibration of Microscopes. Experiments were designed to isolate and culture fungi from various sources (Air, Water, Soil, Wall and Tables in the laboratory). Students were also given training on culturing fungi using various media and inoculation techniques. The objective of this training programme was to teach the students to identify common fungi present in the environment and learn to differentiate the various thallus organizations of fungi and the spores they produce. • Training in Molecular Biology Techniques on 5th & 6th of March, 2012. A two day workshop on Molecular Biology Techniques for the III year students was conducted to enlighten the Students on the basic techniques involved in isolation and separation of proteins, DNA and running them on Agarose Gel Electrophoresis and SDS-PAGE.
Zoology	<ul style="list-style-type: none"> • A workshop on “Drosophila Culture Techniques” for III U.G.students to gain knowledge on maintenance of flies, preparation of culture medium , identification of sex and to observe the developmental stages.
Chemistry	<ul style="list-style-type: none"> • A group of ten II UG students underwent one week training at Diet Aqua, on Analysis of the Quality of Water Samples during May 2011. They were trained on estimating TDS, pH, chloride, fluoride, nitrite, ammonia and microbial aspects. • Hands on Training on Fruits and Vegetable processing for 22 students to learn the scientific aspects of fruits and vegetable

	<p>processing and packaging from 22.08.11 – 26.08.11.</p> <ul style="list-style-type: none"> • Training on Food and Water analysis for 20 students from 22.08.11 – 24.08.11. • Training on Analysis of Phytochemicals in food products for 20 students from 24.08.11 – 26.08.11.
Physics	<ul style="list-style-type: none"> • Workshop on Learning Principles of Electronics Gadgets on Sep. 28, 2011 was conducted to make the students appreciate the working of simple electronic circuit used in everyday home appliances • Workshop on Analytical Instruments on Feb. 27, 2012 for II B.Sc. students and they were trained to use Polarimeter, Laser Equipment kit, Conductivity Meter, pH meter, Light Emitting diode and performed various experiments. • Workshop on Microprocessor and Microcontrollers Interfacing Devices on March 15, 2012 for III B.Sc. students. The application of microprocessor like Stepper motor, Traffic light regulator and interfacing with 8255 I/O were dealt on the workshop.

iii. Guest lectures (Please mention Name, Designation, host institute of guest faculty invited)

Botany

Name of the External Expert	Title of the Lecture	Designation & Host Institute
Dr. Udayaprakash	Citric acid production and Culturing of Penicillium.	Associate Professor, Veltech University
Dr. VijayaParthasarathy	Applications of Alage.	Former Head, Dept. of Botany, Stella Maris College
Dr. MujeeraFathima	Environmental Biomonitoring	Associate professor, & Head, Dept. of Botany, Govt. Arts College, Nandanam

Zoology

Name of the External Expert	Title of the Lecture	Designation & Host Institute
Mr. Colin Stevenson	How to save a Dragon: Conserving our Crocodiles	Director, Madras Crocodile Bank Trust
Dr. H. Devaraj	Recent trends in Biotechnology and Career Prospects	Professor, Dept. of Zoology, University of Madras
Dr. Kalpana Gowrishankar	Pedigree Analysis and its applications	Genetic Consultant, Child Trust Hospital
Ms. Gayatri	Molecular Evolution and Phylogenetic Trees	Volunteer at the Madras Crocodile Bank and Alumnus of Stella Maris College

Ms. Anusha Shankar	“Importance of Conservation Biology”.	Research Scholar, Bangalore
Dr. Sathya Radhakrishnan	Role of Animal Welfare Organizations	Blue Cross, Chennai

Chemistry

Name of the External Expert	Title of the Lecture	Designation & Host Institute
Prof. K. S.Viswanathan	<ul style="list-style-type: none"> The Art of doing Science The Basics of Spectroscopy and the principles of NMR 	Professor, IGCAR, Kalpakkam
Dr. K.K. Balasubramanian	Atropisomerism	Visiting Professor, B.S.Abdur Rahman University and Sri Ramachandra university

Physics

Name of the External Expert	Title of the Lecture	Designation & Host Institute
Dr. T.R. Govindarajan	Braids, Knots and Physics	Professor, Dept.of Physics, IMSc, Chennai
Dr. Sriramkumar L	Distant Supernovae and the Accelerating Universe	Associate Professor, Dept. of Physics, IIT Madras
Dr. Varkey Sebastian	Nanomagnetism	Associate Professor, Dept. of Physics, Kannur University, Kerala
Dr. C.K. Subramaniam	Solar Photo Voltic	Associate Professor, Dept. of Physics, VIT, Vellore
Dr. Kumar Sathian	Programming Techniques in microprocessor 8085	Retd. Professor, Madras Christian College, Chennai

iv. Exhibition

Department	Details
Botany	Aug. 26, 2011 - Exhibition on Nutritional aspects of Mushroom and its cultivation, Nutraceutical and Pharmaceutical properties of spices and condiments
Zoology	<ul style="list-style-type: none"> Feb. 14, 2012 - ‘EXZOOBITION’ - Exhibition on various facets of Zoology was organized by students of I, II & III B.Sc. Zoology. This event is an experiential learning process and the thrust areas were Chordata, Applied Zoology, Microbiology, Environmental Biotechnology, Physiology, and Environment related issues. Aug. 26, 2011 - Exhibition to create awareness on Anemia, healthy diet to prevent anemia, diet for Anemic patients and anemia screening.

Chemistry	Aug. 26, 2011 - Testing of Food Adulteration, Food colours and food additives, Reverse Osmosis Plant , Potability of water
Physics	Aug. 26, 2011 - Water Pollution and Harmful effects of Industrialisation

v. Any Other:

Department	Details
Botany	Workshop manual on Mycological Techniques Workshop manual on Molecular techniques Laboratory manual on Food Microbiology
Zoology	Laboratory manual on Cell and Molecular Biology, Genetics & Genetic Engineering
Chemistry and Botany	Conducted a Three day Workshop on Solid and Liquid Waste Management for 25 faculty- Course material on Environmental Science provided for the participants (Nov.30 – Dec.2, 2011)
Chemistry	Training in Micro scale experiments in inorganic and organic chemistry for faculty by Dr.S.Murugan, Hindu College, Nagercoil - Cost effective way of conducting practicals, saving time and chemicals (Feb.11.2012)
Zoology	Workshop on Development of an Alternative Laboratory curriculum in Zoology to Replace Animal Dissections and Experiments with humane techniques, for the faculty (Nov.25 and 26, 2011)

7. Advisory committee meeting: ---

A) Constitution of advisory committee:

Chair Person	Dr. Sr. Jasintha Quadras fmm Principal, Stella Maris College
DBT Representative	Dr. Suman Govil - Advisor, HRD Division, Dept. of Biotechnology, Ministry of Science & Technology, New Delhi
External Experts (Members)	Dr. Uma Rajan, Associate Professor, Dept. of Botany, Pachiappas College Dr Kaleena P.K., Associate Professor Dept. of Zoology, Presidency College
Members (from all participating departments)	Dr Geetha Swaminathan, IQAC Cordinator & Associate Professor, Dept. of Chemistry Dr Nirmala Kanagaraj, Head & Associate Professor, Dept. of Botany Dr Annie Cheiran, Head & Associate Professor, Dept. of Zoology Dr Priscilla Jebakumari, Academic Dean & Associate Professor, Dept. of Botany

	Dr Shiny John, Head & Associate Professor, Dept. of Chemistry Ms Suganthi Lark, Head & Associate Professor, Dept. of Physics Dr Rita Jeyaraj, Assistant Professor, Dept. of Zoology Ms Belina Xavier, Assistant Professor, Dept. of Physics
Coordinator – Member Secretary	Dr Juliana Joe, Vice Principal & Associate Professor, Dept. of Zoology

B) Advisory committee meeting conducted after implementation of scheme:

Date: November 18, 2011 (Minutes enclosed)

8. 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:

The Science departments continued to conduct the new practicals introduced in 2009-10 for enhancing the experiential learning and the understanding of the basic principles involved in various practicals.

Department	Details
Botany	<ul style="list-style-type: none"> • Isolation of photosynthetic pigments using different leaves by paper chromatography • Isolation and enumeration of bacteria and fungus by using different isolation techniques • Microscopy – sectioning techniques of various plant parts and double staining of the same for microscopic studies of stems, roots and thallus of few plants • Maceration technique to study the vascular elements • Estimation of protein through colorimeter • Preparation of Yoghurt, Grape wine & Apple wine – Industrial Microbiology • Production of Citric acid using fungus <i>Aspergillus niger</i> • Laying and maintaining the Kitchen Garden and Herbal garden • Vegetable carving – Techniques – Horticulture • Grafting & Budding – Demonstration - Horticulture • Preparation of Ayurvedic and Siddha medicines to learn pharmacognosy (study involved learning of binomial names, active principle, morphology and extraction process of plants) • Demonstration on Grafting and Budding propagation techniques used in Horticulture • Demonstration of protein separation using electrophoresis • Demonstration of composting techniques to learn the principle of biodegradation and to identify local earthworm varieties and their role in biodegradation <p>The curriculum of the Elective paper on Food Microbiology and Sanitation has an inbuilt practical component. The following practicals are included.</p> <ul style="list-style-type: none"> • Methylene Blue Reductase Test – To test the quality of milk

Botany	<ul style="list-style-type: none"> • Effect of Ezymatic browning in Potato and Apple • Percentage of water in Orange (different varieties) • Rate of Fermentation using Yeast • Refractometer – To check the sugar content of various fruits and vegetables • Preparation of Sauerkraut - Estimation of Lactic acid using volumetric analysis
Zoology	<ul style="list-style-type: none"> • Coliform count in drinking water samples by membrane filter technique • Hanging drop technique to observe the motility of Bacteria • Widal Slide agglutination test for Typhoid • VDRL Slide Flocculation test for Syphilis • Anti-A and Anti-B titration test • Direct Coombs test • ELISA – Qualitative test for pregnancy • Isolation of DNA and RNA <p>DEMONSTRATIONS :</p> <ul style="list-style-type: none"> • Antibiotic sensitivity test (Kirby Bauer diffusion method) • Bacterial growth curve • Isolation of Lymphocytes • Agarose gel electrophoresis • Plasmid DNA extraction
Chemistry	<ul style="list-style-type: none"> • Skill development major elective course, “Clinical Biochemistry” was introduced in the academic year, 2010-11. This gave an insight into diagnostic testing and enabled skill development for clinical analysis by the students. The students were exposed to collection and processing of blood and determination of various metabolic analytes like carbohydrates, proteins, lipids and enzymes. • Water analysis using pH meter, colorimeter, Nephelometer, TDS meter, volumetric and spectroscopic techniques [I &II B.Sc. Chemistry Students]. • Analysis of functional groups and derivative preparation of organic compounds [II B.Sc. Chemistry Students]. • Demonstration of basic analytical operations like solvent extraction and chromatographic techniques- TLC & Column chromatography [III B.Sc. Chemistry Students] • Food analysis and detection of food adulteration
Physics	<ul style="list-style-type: none"> • Op amp mini trainer kits were used to perform basic operations like adder, subtractor, source follower etc. • Equipments like Abbe refractometer, visible spectrophotometer, Conductivity Bridge were introduced to students through mini projects. • Laser experiments were introduced for practicals

9. DBT grant utilization:

A) Non-recurring : NIL

B) Recurring: Rs. 7,81,514 + 19,514 (Bank interest) :Rs. 8,01,028

The statement of accounts and utilization certificate will be submitted at the earliest.

10. Qualitative improvements due to DBT support

- ❖ The Financial assistance provided by the Star College Scheme helped in the purchase of several new Equipments in more numbers. This made it possible for every student to handle the equipment and perform the experiments individually. It has enhanced our practical curriculum and broadened the scope of our studies.
- ❖ Assisted in the conduct of Workshops and Seminars for both students and faculty which has helped in upgrading the knowledge
- ❖ It has also made possible the publication of Practical Manuals, which serve as ready reckoners to both students and faculty.
- ❖ Helped in updating our Department Library by purchasing relevant books for the new courses
- ❖ This grant has also enabled us to organize more field trips which enhanced teaching and learning process.
- ❖ Enhanced Experiential Learning and understanding through hands on training and facilitated exposure to instrumentation techniques for both faculty and students
- ❖ Through this programme, the students were motivated and enriched in scientific knowledge
- ❖ Students were exposed to different guest lectures, which brought in the application and current aspect of the various forms they studied.
- ❖ Through training programmes organized, the students gained practical knowledge on various principles, working and application of instruments.
- ❖ Helps to rekindle the passion to study basic sciences.

11. Problems faced, if any, in implementation of the programme and utilization of DBT grant:

No specific problem was encountered. However financial assistance for few more years will assist in enhancing the programme and sustaining the various activities.

ACKNOWLEDGEMENT:

The college places on record its sincere thanks to the Department of Biotechnology (DBT), Ministry of Science & Technology, Government of India, for the financial support and opportunity given to strengthen the Basic Sciences. This scheme has benefited nearly 450 undergraduate students and we are sure that similar financial assistance will help the young scientists to pursue higher studies and research which will benefit the society at large.

Dr. Juliana Joe
Coordinator

Dr. Sr. Jasintha Quadras fmm
Principal

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI

Minutes of the Advisory Committee Meeting

Star College Scheme

Date : November 18th, 2011

Venue : CC Block, Small Conference Room

Members Present :

Chair Person	Dr. Sr. Jasintha Quadras fmm Principal, Stella Maris College
DBT Representative	Dr. Suman Govil - Advisor, HRD Division, Dept. of Biotechnology, Ministry of Science & Technology, New Delhi
External Experts (Members)	Dr. Uma Rajan, Associate Professor, Dept. of Botany, Pachiappas College Dr Kaleena P.K., Associate Professor Dept. of Zoology, Presidency College
Members (from all participating departments)	Dr Geetha Swaminathan, IQAC Coordinator & Associate Professor, Dept. of Chemistry Dr Nirmala Kanagaraj, Head & Associate Professor, Dept. of Botany Dr Annie Cherian, Head & Associate Professor, Dept. of Zoology Dr Priscilla Jebakumari, Academic Dean & Associate Professor, Dept. of Botany Dr Shiny John, Head & Associate Professor, Dept. of Chemistry Ms Suganthi Lark, Head & Associate Professor, Dept. of Physics Dr Rita Jeyaraj, Assistant Professor, Dept. of Zoology Ms Belina Xavier, Assistant Professor, Dept. of Physics
Coordinator – Member Secretary	Dr Juliana Joe, Vice Principal & Associate Professor, Dept. of Zoology

- The meeting commenced with a prayer by Dr. Suganthi Lark, Head, Dept. of Physics
- Dr. Sr. Jasintha Quadras, fmm, Principal Stella Maris College welcomed the members and introduced the External Experts
- The following Science Departments presented the activities carried out in the years-2009-2010 & 2010-2011 and also highlighted the executed activities and future activities for the current year 2011-2012 under the Star College Scheme

Department of Zoology - Dr. Rita Jayaraj

Department of Botany - Dr. Priscilla Jebakumari

Department of Physics - Ms. Belina Xavier

Department of Chemistry - Dr. Shiny John Vairamon

- Dr. Suman Govil DBT Representative, appreciated the efforts taken by the Departments to implement the various activities under the Star College Scheme and made the following suggestions:
 - i) To promote an Inter-disciplinary approach, few activities could be planned along this line to benefit the students belonging to all four disciplines.
 - ii) The thrust should be on the Concepts/Principles of Basic Sciences to lay a strong foundation and a better understanding of the subjects.
 - iii) A common curriculum incorporating the Simple techniques in Basic sciences can be devised and taught to the students to enable them to have a broad based learning experience.
 - iv) Application oriented aspects of the various subjects should be given more emphasis.
- Dr. Uma Rajan, the external expert, complemented the faculty for organizing several programs for the benefit of the students under the Star College Scheme. He was also of the opinion that interdisciplinary Mini Projects, involving the faculty and students of all the four Departments could be planned and executed in future.
- He also suggested that students can get involved in learning simple techniques and handling of equipments which will be a good hands-on experience.
- Science Day could be organized involving all the four Departments to popularize the Basic Sciences.
- Dr. Kaleena, external expert, expressed that summer programs should be organized along with Industry tie-up to make it an enriching experience for the students.
- Dr. Juliana Joe, Coordinator for Star College Scheme proposed the Vote of Thanks.