



PSGR Krishnammal College for Women



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DBT STAR COLLEGE SCHEME

Newsletter - 2019

Volume I Issue 2 March 2019

**Department of Computer Science
Department of Computer Applications
Department of Information Technology**

SECRETARY MESSAGE



I am pleased to know that the Department of Computer Science, Information Technology and Computer Applications had come out with a newsletter. The newsletter showcases the various activities organized by the departments to promote interdisciplinary research under DBT Star College Scheme. I extend my hearty congratulations to the faculty members and students in all three departments for their enthusiasm and efforts to achieve success.

Dr. N. Yesodha Devi

PRINCIPAL MESSAGE

I am happy to find that the newsletter, prepared by the departments of Computer Science, Information Technology and Computer Applications carries the news of various activities organised by these departments under DBT Star College Scheme. The events such as mentor meetings, workshops, guest lectures and industrial visits are been organized to promote interdisciplinary knowledge in Bioinformatics. This newsletter highlights the efforts taken by the faculty members and students to enrich the knowledge in Bioinformatics. I congratulate the entire faculty team of all the three departments which comes under DBT Star College Scheme for the active involvement on planning, execution of events and bringing out this newsletter on the various activities carried out by them under this scheme.



Dr. S. Nirmala

ABOUT DBT STAR COLLEGE SCHEME

STAR COLLEGE SCHEME has been initiated by Department of Biotechnology, New Delhi, to support colleges and university departments offering undergraduate education to improve science teaching. The programme aims to improve the skills of teachers by organizing faculty training, improved curriculum and emphasize on practical training to students by providing access to specialized infrastructure. Five of our science departments such as Botany, Zoology, Physics, Chemistry and Mathematics have been included in the star college scheme from the academic year 2012 - 2013 and these departments have been elevated to star status in the year 2017. In the academic year 2016 -2017, DBT star college scheme has been extended to three departments namely Computer Science, Information Technology and Computer Applications of our institution.

Under this Scheme, the curriculum has been updated with the interdisciplinary topics of Bio informatics, Bio-Computational methods, Bio-Perl for the students of B. Sc. Computer Science, B.Sc. Information Technology and BCA respectively. To enhance interdisciplinary knowledge among students and faculty members, these departments organized various Guest lectures, Workshops, Faculty Development Programmes in the topics like Computational Biology, Bio-programming Python and Perl. The students were given opportunity to do internship, projects of inter disciplinary in nature and were able to visit various research institutes like CCMB, Trans university, CBNR. This scheme enhances the technical skills of students to process biological data and motivated them to take projects in the related fields which improved the placement opportunities in research laboratories.

MENTOR MEETING



The mentor meeting was organized by the department of Computer science. Dr. M. Jeyam, Assistant Professor, Department of Bioinformatics, Bharathiar University has given suggestions towards students projects and industrial visits.

The mentor meeting was organized by the department of Information Technology. Dr. Selvi Subramanian, Professor, Department of Biotechnology, PSG College of Technology gave suggestions regarding students projects and industrial visit.



The mentor meeting was organized by the department of Computer Applications. Dr. R.Subash Kumar, Assistant Professor, Department of Biotechnology, Sri Ramakrishna Arts and Science College, Coimbatore has shared his views on bio-informatics projects and workshops.

WORKSHOPS

Workshop on **Sequence Alignment Using Python Libraries** was organized by the Department of Computer Applications. Mr. M. Eswaran, Head, Computer Operations, Live Stream Technologies, Coimbatore was the Resource Person and 60 students were benefitted. The participants acquired programming skills in Python Programming.



Workshop on **Python Programming with Biological Databases** was organized by the Department of Computer Applications. Dr. S. Barath Kumar, Assistant Professor, Department of Biotechnology, Karpagam University, Coimbatore was the Resource Person. This workshop was attended by 60 students and it helped them to sharpen their skills in working with biological databases using python programming.

Workshop on **Structure Analysis with Modular Programming** was organized by the Department of Information Technology. Mr. M. Naveen Kumar, Web Developer, Accent Techno Soft, Coimbatore was the Resource Person and 58 students were benefitted. The participants acquired practice oriented skill to carry out the python functions and its modules.



The department of Computer Science has organized a workshop on **Bio-Python**. Ms. V. Ramya, Project Lead and Mr. N. Vasanth, Software Engineer, KG-Information System Pvt. Ltd, Coimbatore demonstrated the basics of python programming and packages used to process biological data. Around 25 students and 9 faculty members of Computer Science were benefitted.

Workshop on **Microarray Data Analysis using R Studio** was organized by the Department of Information Technology. Mr. S. Sabarish, Tech Lead, Chisel Language and Learning Institute, Coimbatore was the Resource Person. He has highlighted the methods and techniques relevant to the application of biological science using R tool and 57 students were benefitted.



Dr. R. Porkodi, Assistant Professor, department of Computer Science, Bharathiar University, Coimbatore, handled the sessions in Inter-departmental workshop **Big data and Bioinformatics** conducted by the department of Computer Science. She shared her knowledge on the role of big data in processing the biological data. 50 students from various science departments of our college were benefitted.

An off campus workshop on **Molecular Modeling and Simulations of Biomolecules** was organized at the Department of Biotechnology, School of Agriculture and Biosciences, Karunya Institute of Technology and Sciences, Coimbatore by the department of Computer Science. A total of 25 students and 2 faculty members were given training on Bio-modeling tools, PDB sum and the Schrodinger Suite.



GUEST LECTURES

Dr. Jibu Thomas Ph.D, Associate Professor, Karunya Institute of Technology and Sciences, Coimbatore delivered a lecture on **Applications and Project Areas in Bioinformatics** organized by the department of Computer Science. Around 320 students and 12 faculty members of Computer Science were benefitted. He emphasized the importance of research in bioinformatics and also suggested topics for carrying out research.



The department of Computer Science has organized a guest lecture on **Computational Biology**. Dr. S. Shiva Shankari, Assistant Professor, Department of Bio-Informatics, Nirmala College for Women, Coimbatore addressed a total of 60 students and 11 faculty members. The students gained ideas to carry out their final year projects on developing new tools, website for bioinformatics and mobile applications for processing biological data.

Guest Lecture on **Sequence Alignment using Python Packages** was conducted by the Department of Information Technology. Dr. G. Viveka, Assistant Professor, Department of Biotechnology, PSG College of Technology, Coimbatore was the resource person. 2 faculty members and 100 students were benefitted and gained knowledge on fundamental concepts and technical aspects of Python for the DNA sequence and its alignment.



Guest Lecture on **Protein Structure Analysis** was conducted by the Department of Information Technology. Dr. Ayyavu Mahesh, Director, Centre for Stem Cell and Cancer Genomics, AMI BioScience, Coimbatore was the resource person. Around 8 Faculty members and 250 Students of B.Sc Information Technology gained knowledge on structure and analysis of DNA and Protein using different online tools.

Guest lecture on **Medical Image Processing** was organized by the Department of Computer Applications. Dr. R. Siva Shankar, Assistant Professor, Department of MCA, Madanapalle Institute of Technology & Science, Andhra Pradesh delivered the lecture. 320 students and 9 faculty members were a part of this event.



Guest lecture on **Biological Data Reterival Using Data Analytical Tools** was organized by the Department of Computer Applications Ms. V. Ramya, Project Lead, KGISL, Coimbatore delivered the lecture. 320 students and 9 faculty members were a part of this event.

INDUSTRIAL VISIT

Industrial Visit to **Centre for Cellular and Molecular Biology, Hyderabad**, was organized by the Department of Information Technology. 58 Students of III B.Sc IT and 2 Faculty members visited the institution. Another Visit to **Biozone Research Technologies, Chennai**, of 49 Students of II B.Sc IT and 2 Faculty members visited. The students were exposed to interdisciplinary knowledge which encouraged them to take projects related to it.



The Department of Computer science had organized a visit to **UPASI-Tea Research Foundation, Munnar** to expose the students on different landscapes, a variety of people and thereby encouraging interaction. A total of 48 students and 2 faculty members acquired knowledge in the software automated tools of the plantation industry.

75 Students with 3 faculty members went on an Industrial visit to **The University of Trans-Disciplinary Health Sciences & Technology, Bangalore**. They acquired knowledge in the area of Next Generation Genomic Sequences and Analysis.



CONFERENCE AND TRAINING ATTENDED

- One faculty member from the department of computer science attended **India International Science Festival – 2018 (IISF-2018)** organized by Ministry of Science and Technology, Ministry of Earth Sciences in association with Vijnana Bharati at Indira Gandhi Pratishthan, Lucknow.
- Five faculty members from the department of computer science, information technology and computer applications had attended the Faculty Development Programme on **Data Analytics Using Python** Programming organized by EICT & IIT Guwahati at Bannari Amman Institute of Technology, Coimbatore
- Four faculty members from the department of computer science, information technology and computer applications had attended the national workshop on **Artificial Intelligence with Deep Learning**, organized by IIT, Roorkee at PSG College of Technology, Coimbatore



- Three faculty members from the department of computer science had participated in the Faculty Development Programme on **Artificial Intelligence, Machine Learning** and Deep Learning at PSG College of Technology, Coimbatore.
- Seven faculty members and nine students from the department of computer science, information technology and computer applications attended the **National Seminar on Computer Genomics tools for next-generation Sequencing and Biomedical Data Analysis** at Bharathiar University, Coimbatore.
- Three faculty members and nine students from the department of computer science, information technology and computer applications attended the **DBT sponsored National workshop on Big Data and Analytics** at Dr. NGP Arts and Science College, Coimbatore.



FACULTY DEVELOPMENT PROGRAMME

Interdepartmental Faculty Development Programme on **Internet of Things** was organized by the department of Computer Applications. Mr. C.Vignesh Manikandan, Vice President, Akkam Industrial Training and Research Institute, Coimbatore presided over the sessions as the resource person. 25 faculty members had participated and gained knowledge on the working of Internet of Things.



The department of computer science has organized a FDP on **Packages for Processing Biological Data in R**. Around 25 faculty members from various science departments of our college had participated. The session was handled by Mr. Kenndy and Mr. Murali, software developer, Litz India Tech Pvt. Ltd, Coimbatore. The faculty members gained knowledge on the R packages used to process biological data.

Interdepartmental FDP on **Computational Biology and Bioinformatics using Python** organized by the Department of Information Technology. Dr. Ruban Durairaj, Guest Faculty, Department of Bioinformatics and Dr. Soonu Aravindan, School of Educational Studies, Department of Extension & Career Guidance, Bharathiar University was the Resource Person. 30 faculty members from the various science departments of our college got benefitted. The faculty gained knowledge on computational biology and undergone a hands on training in python tools.





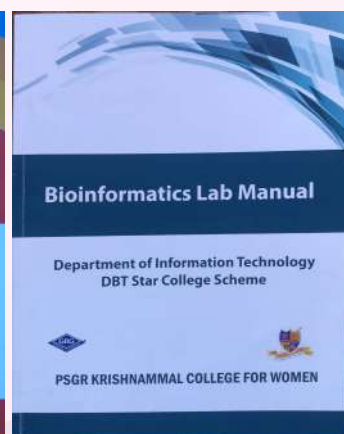
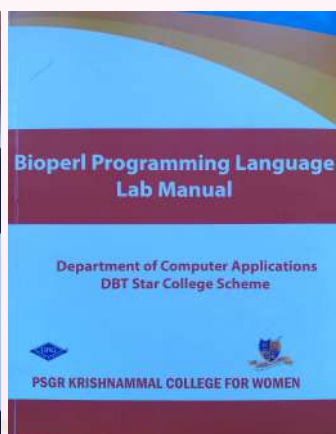
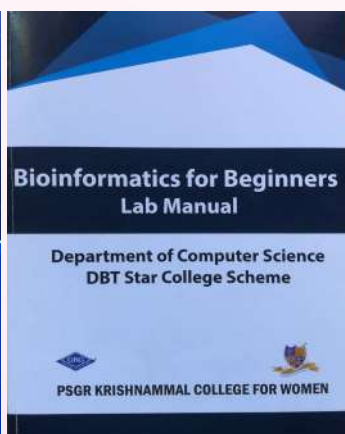
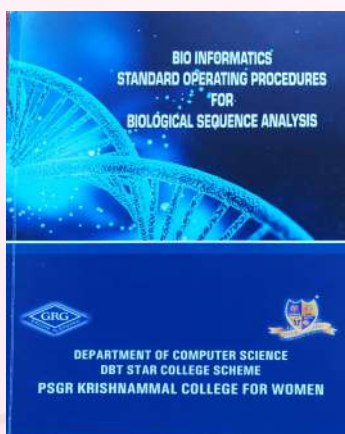
The Departments of Computer Science, IT and BCA organized an Inter-collegiate Faculty Development Programme on **Biological Data Mining and Analytics**. The resource persons Mr. Aneesh Nair, Head - Operations, Biozone Research Technologies Pvt. Ltd. Chennai, Dr. J. Sridhar, UGC-Commonwealth Doctoral Fellow - UK, Assistant Professor, Department of Biotechnology (DDE), Madurai Kamaraj University, Madurai and Dr. N. Palaniappan, System Analyst - Computer Centre, Gandhigram Rural Institute - Deemed University, Dindugal handled the sessions. Around 46 faculty members from various institutions of Tamil Nadu participated in this event. They gained skills on using data mining techniques and tools to process and analyze biological data.

ONLINE COURSES

- ➔ Self learning by the students is encouraged, 58 students of III B.Sc., Computer Science a had completed their Online Course on C# and HTML through Solo Learn. 117 students of II B.Sc. Computer science has completed C++ through Spoken Tutorials, IIT Bombay. This online course has motivated students to take up inter disciplinary projects on bioinformatics.
- ➔ 110 Students of Computer Applications has successfully completed online course on “Bioperl” through spoken tutorials, IIT Bombay.
- ➔ Online course on Bio python was successfully completed by 116 students of B.Sc. Information Technology through spoken tutorials, IIT Bombay. It encouraged the self learning of the students and enable to acquire computational skills

LAB MANUAL AND STANDARD OPERATING PROCEDURE

- ➔ Bioinformatics for Beginners - ISBN No: 9-788193-708828
- ➔ Bio Python Programming - ISBN No: 9-788193-708835
- ➔ Bio Perl programming - ISBN No: 9-788193-708842
- ➔ SOP - Biological sequence analysis - ISBN No: 9-788193-993613



INTERCOLLEGIATE PROGRAMME

In the Inter-Collegiate BIO-HYPHENZIA'18, Department of Computer Science organized **Connesione** competition. 86 students of 15 different Institutions in and around Coimbatore had participated and showcased their talents in this competition. The first prize was won by Ms. Deepthi Ramesh and Pavizha. B, Sri Krishna Arts and Science College, Coimbatore. The second prize was won by Mr. Sriram. S and Mr. Aravind Kumar. GS, PSG College of Arts and Science, Coimbatore and the third prize was won by Ms. D. Jenefer and Ms. A. Akalya, Rathinam College of Arts and Science, Coimbatore.



In the Inter-Collegiate Fete BIOHYPHENZIA'19, **Brain Quest** event was organized by the Department of Computer Applications. 100 Students from various institutions of Coimbatore actively participated in this competition. The first prize was won by Mr. J. Somesh Kanthan and Mr. P. Prasanth, Dr. NGP College of Arts And Science, Coimbatore, second prize was won by Mr. S. Manuprasanth and Mr. J. Manikandan, Dr. NGP College of Arts And Science, Coimbatore and the third prize was won by Ms. F. Priya and Ms. S. Sowmiya, Dr. NGP College of Arts And Science, Coimbatore.



In the Inter-Collegiate BIOHYPHENZIA'19, Department of Information Technology has organized **Quizzarium** competition. 82 students of 17 different Institutions in and around Coimbatore had participated and showcased their talents in this competition. The first prize was won by Mr. K. Praveen and Ms. P. Sneka of PSG College of Arts and Science, Coimbatore. The second prize was won by Mr. A. Kevin Roshan and Mr. A. Shine Simon of Sri Krishna College of Arts and Science, Coimbatore. The third prize was won by Ms. P. Pooja and Ms. V. Sneha of Dr. NGP Arts and Science College, Coimbatore.



INTERNSHIP

Internship help the students to develop and refine their skills in biological data base, tools and technologies of bioinformatics. 6 students of B.Sc. Computer Science, 16 students of Information Technology and 16 students of BCA undergone training in application areas of bioinformatics.

Few of them are listed below:

- Cancer Computational Biology at Centre for Bioscience and Nanoscience Research, Coimbatore.
- Leaf Disease Detection Using Image Processing at Kovai Herbal Research Centre, Coimbatore.
- Herbal Plants Pharmacological System at Kovai Herbal Research Centre, Coimbatore.
- DNA Structure Analysis for Genetic Disease Prediction at Star Health Info Pvt Ltd, Coimbatore.
- Genetic Analysis using Multiple Sequence System at Unique Bio Research Centre, Coimbatore.
- Intelligent Techniques to Analysis Protein at Data Global Biotech Research Centre, Coimbatore.
- Dilution Calculator at Maylancer, Coimbatore
- Virus Statistics at Maylancer, Coimbatore
- Blood Sugar Level Analysis at Maylancer, Coimbatore

PROJECTS

Projects, prepare students to solve real-world problems .16 students of B.Sc. Computer Science, 7 students of Information Technology and 11 students of BCA undertook projects in Bioinformatics. Few of them are listed below.

- Enhancement Techniques in Image Processing at PSGR Krishnammal College for Women, Coimbatore.
- Biologically inspired quad tree color detection in dermoscopy image of melanoma at Litz Tech, Coimbatore.
- Digital and Web Biosphere at Aakkam Industrial Training and Research Institution, Coimbatore.
- Multiple Sequence Analysis of Cancer Causing Protein Present in Human Chromosomes analysis at Centre for Bioscience and Nano science Research, Coimbatore.
- Crime File Detection with DNA Sequence at V.G. Hospital, Coimbatore
- DNA Sequence with Military Man Profile Filtering at V.G. Hospital, Coimbatore
- Android App for Taxonomical Classification of Plants at PSGR Krishnammal College for Women, Coimbatore.
- Efflex Pumps in Gram Positive Bacterial Pathogens at BIOZONE Research Technologies, Chennai
- Oral Biofilm Drug Target at BIOZONE Research Technologies, Chennai

PAPER PRESENTATION & PUBLICATION

Ms. P. Jayashri and Mrs. T.S. Anushya Devi presented a paper entitled Cancer Biology with Molecular Docking at International Conference on Computational Intelligence and Data Science at Sankara College of Science and Commerce, Coimbatore on 10.10.2018 and published in IOSR Journal of Engineering (IOSRJEN), ISSN (e): 2250-3021, ISSN (p): 2278-8719 PP 71-76.

Ms. K. Ramya and Mrs. M. Selvanayaki presented a paper entitled Brain Tumor Segmentation using Patch Extraction with CNN Algorithm at International Conference on Computational Intelligence and Data Science at Sankara College of Science and Commerce, Coimbatore on 10.10.2018 and published in IOSR Journal of Engineering (IOSRJEN), www.iosrjen.org ISSN (e): 2250-3021, ISSN (p): 2278-8719 PP 16-19.

Ms. S. Boobashini and Dr. C. Arunpriya presented a paper on A Comparative Analysis of Web Based Multiple Sequence Alignment Tools Using Certain Metabolically Important Coding Gene Sequences at the International Conference Recent Trends in Computing Technologies ICRTCT'18, Dr. NGP Arts and Science College, Coimbatore.

ACHIEVEMENTS

- Enriched the knowledge and skills in interdisciplinary area to process biological data
- Established Bio-informatics laboratory
- Prepared 3 Lab manuals and 1 Standard Operating Procedure
- Visit to industries and research laboratories - Centre for Cellular and Molecular Biology, Hyderabad, UPASI Tea Research Foundation, Munnar, Bio zone Research Technologies, Chennai, The University of Trans-Disciplinary Health Sciences & Technology, Bangalore
- Collaboration with other science departments such as Chemistry, Botany, Zoology and carried out projects like Android App for taxonomical classification of Plants, Image enhancement for plants
- Enabled the students to take up interdisciplinary projects like Efflex Pumps in Gram Positive Bacterial Pathogens at Bio zone Research Technologies, Chennai
- Presented papers in national and international conferences
- Published a bacterial sequence – pseudomonas aeruginosa & MG905427 in NCBI database
- Published 2 research articles in journals
- Funded projects by faculty - Automated tool to predict leafs and its medicinal benefits using machine learning, Molecular diversity and genomic diversity of soil bacteria, Identification of rare genetic disorders like muscular dystrophy, autism using computational techniques

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