

- 29 Sep-13 Oct 2021: Online Faculty Development Programme



**GURU ANGAD DEV
TEACHING
LEARNING
CENTRE**



**MINISTRY OF
EDUCATION
GOVT. OF INDIA**
PANDIT MADAN
MOHAN MALVIYA
NATIONAL
MISSION ON
TEACHERS AND
TEACHING
(PMMNMTT)

**Two-Week Interdisciplinary Online
Faculty Development Program/
Refresher Course / Certificate Program**

**Structural Analysis Using
Rietveld Refinement,
Microscopic and
Compositional Analysis**

29 September to 13 October 2021

In collaboration with


St. John's College
Agra


Bishop Moore
College, Mavelikara


Catholicate College
Pathanamthitta


Sacred Heart
College, Chalakudy


Christ College
(Autonomous)
Irinjalakuda

Topics Covered:

- Basics of X-ray Diffraction
- Rietveld Refinement
- Scanning Electron Microscopy
- Transmission Electron Microscopy
- X-ray Photoelectron Spectroscopy
- Intellectual Property Rights
- Research Ethics
- The Art & Science of Writing a Publishable Article
- Productive Research

- ❖ *Equivalent to Face to Face Two Week FDP.*
- ❖ *Fulfills Requirement as per CAS of UGC and AICTE for Promotional Requirements of Teachers*
- ❖ *All Science Faculty Members & Research Scholars Can Apply*
- ❖ *Registration fees: **Rs.1200/-***
(Inclusive of Course Fee, Study Material & Certificate)

Beneficiary Details

A/c Holder Name : Bishop Moore College

A/c number : 57040426450

IFSC : SBIN0070089

Bank : SBI, Mavelikara Town



For queries, please email to
hodphysicsbmc@gmail.com

About GAD-TLC of MHRD

"Guru Angad Dev Teaching Learning Centre" is a centre of MHRD under the Pandit Madan Mohan Malviya National Mission on Teachers and Training (PMMNMTT) of the MHRD, Govt. of India. The objectives of the Teaching Learning Centre are to prepare Modern age teachers. Under this centre many National level activities like Seminars, FDPs and workshops at both basic and advanced level are being conducted to empower the teachers in ICT skills, develop teaching kits / teacher's tools and ICT empowered pedagogies to enhance teaching-learning process. In its various programmes, around 15000 teachers across the nation have benefitted till now. GAD TLC is also organizing Student Specific Training Courses to upgrade their skills as required for their Professional Development.

Prof. A.K. Bakhshi Vice-Chancellor, PDM University, Haryana Chairman, GAD-TLC	Prof. K.V. Bhanu Murthy Professor, DTU Vice-Chairman, GAD-TLC	Prof. Jaswinder Singh Principal, SGTB Khalsa College Director, GAD-TLC	Dr. Vimal Rarh Project Head & Joint Director, GAD-TLC
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Resource Persons

Prof. A Sundaresan Professor & Chair Chemistry and Physics of Materials Unit, Jawaharlal Nehru Centre for Advanced Scientific Research			Prof. Priya Mahadevan S. N. Bose National Centre for Basic Sciences Kolkata
Prof. Dr. Ramesh C Gaur Dean & Director (Library & Information) & Head, Kalanidhi Division, Indira Gandhi National Centre for Arts (IGNCA), New Delhi			Prof. K Muralidhar Former HoD, Department of Zoology, University of Delhi
Dr. Suresha S. J Technology Manager, Micro and Nano Characterization Facility, CeNSE, IISc Bangalore			Prof. (Dr.) Bismi Gopalakrishnan Dean, Faculty of Law Head, School of Indian Legal Thought Mahatma Gandhi University, Kottayam
Dr. Madhu S. Nair Associate Professor Cochin University of Science and Technology Cochin			Dr. Lawwellman P. Asst. Professor of Law Government Law College, Calicut.
Dr. Madhu Chennabasappa Assistant Professor Siddaganga Institute of Technology Tumkur, Karnataka, India			Dr. Praveen Managutti University of Rennes 1, FRANCE

Organizing Committee

Dr. Jacob Chandy, Co-Patron, Principal, Bishop Moore College, Mavelikara
Dr. Philipose Onman, Co-Patron, Principal, Catholicate College, Pathanamthitta
Dr. Sr. Reena Ittyachan, Co-Patron, Principal, Sacred Heart College, Chalakudy
Fr. Dr. Jolly Andrews CMI, Co-Patron, Principal, Christ College, Irinjalakuda
Prof. S. P. Singh, Co-Patron, Principal, St. John's College, Agra
Dr. Ranjith Mathew Abraham, Vice Principal & IQAC Coordinator, Bishop Moore College, Mavelikara
Dr. Soosen Samuel M., Head of the Department of Physics, Catholicate College, Pathanamthitta
Dr. Susan Verghese P., Co-Ordinator, Head of the Department of Chemistry, St. John's College, Agra
Dr. D. Sajjan, Co-Ordinator, Head of the Department of Physics, Bishop Moore College, Mavelikara
Dr. Subin K Jose, Co-Ordinator, Department of Environment Science, Christ College, Irinjalakuda
Dr. Jerin Susan John, Convenor, Department of Physics, Bishop Moore College Mavelikara
Dr. Arun Aravind, Convenor, Department of Physics, Bishop Moore College Mavelikara
Dr. Dhanya I ., Convenor, Department of Physics, Catholicate College, Pathanamthitta
Dr. Nijo Varghese, Convenor, Head of the Department of Physics, Sacred Heart College, Chalakudy
Dr. Santhosh Paul, Convenor, Head, Department of Chemistry, Sacred Heart College, Chalakudy
Dr. Shaju K.V., Convenor, Vice Principal and Head, Department of Physics, Christ College, Irinjalakuda



Two-Week Interdisciplinary Online FDP Structural Analysis Using Rietveld Refinement, Microscopic and Compositional Analysis

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About the Collaborating Colleges



Bishop Moore College, Mavelikara, established in 1964 and affiliated to the University of Kerala, has been awarded A grade by NAAC in the 3rd cycle of accreditation and ranked 76 among the Colleges in India in the NIRF ranking 2020. The College offers 11 undergraduate, four postgraduate and two research programmes in Science, Commerce, Arts and Humanities along with two UGC-sponsored add-on courses, and also provides opportunities for students to carry out Summer Research Projects at reputed institutes in the country. The undergraduate programmes in the Science departments are supported under the DBT-STAR College scheme. The College has become an active hub of research with well equipped laboratories, over 100 publications in international journals, a number of completed major and minor research projects, the research facilities being enhanced by utilizing funds under the DST-FIST scheme and KSCSTE SARD project scheme. The research centres have collaborative projects with institutes like the UGC – DAE Consortium for Scientific Research, BARC Mumbai and IUAC, Delhi.



Catholicate College, Pathanamthitta founded in 1952 on the serene Basil Hills has a rich legacy of almost seven decades and is affiliated to Mahatma Gandhi University, Kottayam. The motto of this temple of learning is "Fear of the Lord is the beginning of wisdom." It imparts value-based education aimed at the holistic and intuitive growth of the individual so as to fulfill the vision of creating an educated and enlightened society for a brave new world. It has been re-accredited by NAAC with CGPA 3.60, A Grade and is one of the Thirteen special grade colleges in Kerala. The college has eight research departments and offers fifteen PG Programmes, thirteen UG Programmes and one Integrated MA Programme in the aided stream. The college was identified by the department of science and technology, government of India, for FIST funding. The college has been awarded ISO 9001-2008 certification. Current year, the college is celebrating its platinum jubilee. The college has been endeavoring to shape the destiny of a community in the fullest spirit of its stated mission, an educated, enlightened society for a brave new world.



Sacred Heart College, Chalakudy, is an institution managed by the Alvernia province of Franciscan Christ congregation, affiliated to the University of Calicut and aided by the Kerala government. The College, established in 1980, as a junior college with Pre-degree courses was upgraded to a first grade status in 1991 and is presently offering eight Under Graduate and six Post Graduate courses. The motto of the college is "LUX IN TENEBRIS LUCET" (Light Shines in Darkness). The College is located in a peaceful semi urban locality, the lush green gardens and well designed infrastructure provide the perfect ambience for learning, sharing and development of the students. The college was re-accredited by NAAC with A+ grade (CGPA 3.55) in 2017. The Department of Physics has been maintaining a unique position in the College in respect of overall performance, ever since it was established. Physics Department aims at moulding totally competent physicists with ingenuity, adaptability, social commitment, ethical values and spiritual elevation that can provide innovative leadership in academia and society.



Christ College, Irinjalakuda was started in 1956, by the Devamatha Province of the Carmelites of Mary Immaculate (CMI), an indigenous religious congregation founded in 1831 by Saint Cyriac Elias, a religious priest and versatile genius, who envisioned education as a tool for liberation and development. Founded as per the provisions of the Indian Constitution, part III, Article 30(1) and administered by Christ College Educational Society, (Regd. No. 137/75), this college is a Minority institution. College is affiliated to University of Calicut. Christ College is included under the sections 2(f) and 12B of the University Grants Commission (UGC) and was re-accredited by National Assessment and Accreditation Council (NAAC) with A grade (3.21) in the third cycle. Following recommendation from state government, the college has been conferred the "Autonomous status" by University Grants Commission (UGC) during the year 2015, the Diamond Jubilee year of the college. Christ College is part of a century-old tradition of CMI education that is at its heart, Christian and open to all sections of society. It offers an ideal vision of education that is aware of and responsive to the challenges of the nation's present situation.



St. John's College, Agra, was established in 1850 by the Church Missionary Society of England through the efforts of the Agra C.M.S. Association which came into being in 1840. From 1862 to 1888 the College remained affiliated to Calcutta University and later up to 1927 to Allahabad University. In 1927 with the formation of Agra University, the then Principal of the College Dr. A.W. Davies became its first Vice-Chancellor and the College was affiliated to the Agra University. The college became a First Grade College in 1891 with B.A. and LL. B. classes, and affiliation was granted in 1893 for postgraduate classes. Thus it has the rare distinction of being a postgraduate institution of more than a century's standing. The College can boast of having one of the most beautiful buildings in North India, built in red sandstone in Indo-Saracenic architecture. The foundation stone of the Centenary Wing was laid by Bharat Ratna Sarvapalli Radhakrishnan, former President of India, in 1958 and was opened by Bharat Ratna Pt. Jawaharlal Nehru, the first Prime Minister of India, in 1959, with the words "I have come to pay tribute to this temple of learning." The College has very distinguished alumni, the foremost of them being the late Dr. Shanker Dayal Sharma, the former President of India present situation.



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Programme Schedule

Date	Time	Section Title	Speaker
29/09/2021	9.30 am to 11.00 am	Inauguration	
	11.30 am to 1.00 pm	Ethics in Science-A Perspective	Prof. K Muralidhar
30/09/2021	9.30 am to 11.00 am	Intellectual Property Rights - Significance of Trademarks in Startups & Business Enterprises	Dr. Lawwellman P.
	11.30 am to 1.00 pm	Plagiarism In Research	Prof. Dr. Ramesh C Gaur
01/10/2021	9.30 am to 11.00 am	Introduction to Crystallography - 1	Prof.A Sundaresan
	11.30 am to 1.00 pm	Introduction to Crystallography - 2	Prof.A Sundaresan
04/10/2021	9.30 am to 11.00 am	Introduction to FullProf suite -Winplotr, Checkcell Indexing	Dr. Praveen Managutti
	11.30 am to 1.00 pm	Phase analysis, Profilefitting and space group analysis using FullProf	Dr. Praveen Managutti
05/10/2021	9.30 am to 11.00 am	Rietveld refinement using FullProf - single phase analysis	Dr. Madhu Chennabasappa
	11.30 am to 1.00 pm	Rietveld refinement - quantitative analysis of multi phase samples	Dr. Madhu Chennabasappa
06/10/2021	9.30 am to 11.00 am	Hands on training analysis of low symmetry structures (orthorhombic and monoclinic)	Dr. Madhu Chennabasappa
	11.30 am to 1.00 pm	Introduction to nanomaterial analysis using XRD	Dr. Madhu Chennabasappa
07/10/2021	9.30 am to 11.00 am	Introduction to Elemental Analysis techniques - XPS, EDAX, ICP	Dr. Madhu Chennabasappa
	11.30 am to 1.00 pm	Elemental oxidation analysis using deconvolution of High-res XPS spectra	Dr. Madhu Chennabasappa
08/10/2021	9.30 am to 11.00 am	Scanning Electron Microscopy	Dr. Suresha S. J.
	11.30 am to 1.00 pm	Intellectual Property Rights -Copyright Management & Plagiarism Issues	Prof. (Dr.) Bismi Gopalakrishnan
11/10/2021	9.30 am to 11.00 am	Productive Research - Role of Journal Indexing and Scientometrics	Dr. Madhu S. Nair
	11.30 am to 1.00 pm	Productive Research - Role of Journal Indexing and Scientometrics	Dr. Madhu S. Nair
12/10/2021	9.30 am to 11.00 am	Transmission Electron Microscopy	Dr. Suresha S. J.
	11.30 am to 1.00 pm	The Art of Writing and Publishing Papers in International Journals	Prof. Priya Mahadevan
13/10/2021		Valedictory	