

# Degree College Teachers Training Program in PHYSICS

22<sup>nd</sup> November to 12<sup>th</sup> December, 2018



Center of Excellence in Science and  
Mathematics Education

**Indian Institute of Science**

at its

Challakere Campus, Chitradurga  
under

Pandit Madan Mohan Malaviya National  
Mission on Teachers and Teaching  
(PMMMNTT, MHRD, Govt. of India)



The IISc at Challakere Campus offers a great opportunity for the degree college Physics teachers. This is a three weeks (21 days) residential training program equivalent to UGC refresher courses approved and supported by the MHRD, Govt. of India and L&T Technology

Services under CSR. A unique feature of this training is learning of Physics by doing experiment.

Contact hours of the program will be more than 180 hrs.

- 80 hrs of lectures (8.0 am - 12.0pm).
- 100 hrs of experiments (~1pm- 6.30 pm).
- 4-5 Experiments per day

Lecturers will be delivered by IISc Faculty members. Theory lectures will be based on UGC model curriculum, which includes:

Mathematical Physics; *Classical and Quantum Mechanics*; Electricity and magnetism; Electrodynamics; Nuclear Physics; Thermodynamics; Statistical Mechanics; Solid state Physics; Modern Physics; Electronics and Astrophysics.

Apart from the regular graduate experiments we have designed more experiments based on graduate Physics syllabus. Teachers will be doing more than 100 experiments in 20 days. In addition to standard B.Sc. experiments, teachers will do experiments including:

Centre of mass, Couple pendulum, Coefficient of viscosity – Pauli's principle, Linear and volume thermal expansion coefficient, verification of Clausius – Clapeyron equation, Determination of absolute temperature, Determination of universal gas constant, Enthalpy Entropy and Gibb's free energy, Determination of Cp/Cv for gases, Curie temperature, Energy of a photon, Determination of Planck's constant, Wavelength of light in water, Solar cell I-V characteristics, Arc spectra, Energy bandgap of semiconductor, Maximum power transfer theorem, Parallel plate capacitors and combinations, Parallel and series resonance of an RLC circuit, Diffraction due to Helical

structure, Determination of e/m of electron, Millikan's oil drop experiment, Simulation of half-life of radioactive decay, X-Ray diffraction, Determination of lattice parameters and atomic radii, UV spectroscopy, FTIR, Emission spectra of elements from Ocean Optics spectrometer, Planck's black body radiation. Computational exercise: Graph plotting - function graph and orbital shape using Origin software. Finding velocity using Tracker software.

Attempt here is to learn theory that is taught in the class room is verified by experiments.

Applications are invited from any Indian who teaches B.Sc. physics. Guest faculty and Contract lecturers, those who have attended two UGC refresher courses can also apply.

***Selection will be based on the first come first serve bases.***

***Download application form and Send your application form to***

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**Last date to receive application:  
October 25, 2018**