

## ABOUT THE COURSE

The objective of this Faculty Development Programme is to give a better exposure to the faculty members on the subject “ENGINEERING PHYSICS”. Engineering Physics is the most fundamental course in the extensive area of Physics which combines disciplines of physics, mathematics and Engineering. Engineering physics is devoted to creating and optimizing engineering solutions through enhanced understanding and integrated application of mathematical, scientific, statistical and engineering principles. This course is meant for cross-functionality and bridges the gap between theoretical science and practical engineering with emphasis in research and development, design and analysis. The objective of this course is to introduce the fundamentals of Engineering Physics with special emphasis on problem solving. Since problem solving is the backbone of Engineering Physics, there will be supervised tutorial sessions where the participants will apply the concepts discussed in the lectures and solve a variety of problems.

**PROPERTIES OF MATTER:** Elasticity, Stress-strain diagram and its uses, factors affecting elastic modulus and tensile strength, torsional stress and deformations, twisting couple, torsion pendulum theory and experiment, bending of beams, bending moment, cantilever beam, uniform and non-uniform bending, I-shaped girders, stress due to bending in beams.

**WAVES AND FIBER OPTICS:** Oscillatory motion, forced and damped oscillations with differential equations & plane progressive waves, wave equation. Lasers: population of energy levels, Einstein's A and B coefficients derivation,

resonant cavity, optical amplification, Semiconductor lasers: homojunction and heterojunction. Fiber optics: principle, numerical aperture and acceptance angle, types of optical fibres, losses in optical fibers, fibre optic sensors.

**THERMAL PHYSICS:** Transfer of heat, thermal expansion, expansion joints, bimetallic strips, thermal conduction, convection and radiation, heat conductions in solids, thermal conductivity, Forbe's & Lee's disc method, thermal insulation and its applications.

**QUANTUM PHYSICS:** Black body radiation, Planck's theory, Compton effect, wave particle duality, electron diffraction, concept of wave function and its physical significance, Schrödinger's wave equations, particle in a one-dimensional box, tunneling, scanning tunnelling microscope.

**CRYSTAL PHYSICS:** Single crystalline, polycrystalline & amorphous materials, unit cell, crystal systems, Bravais lattices, directions and planes in a crystal, Miller indices, inter-planar distances, coordination number and packing factor for SC, BCC, FCC, HCP and diamond structures, crystal imperfections, growth of single crystals: solution and melt growth techniques.

## ABOUT THE INSTITUTION

University College of Engineering Dindigul campus was established in the year 2009 and currently merged with Anna University, Chennai as per the Act of Tamilnadu Government to strengthen and improve the quality of higher education in the state of Tamilnadu. The college runs five Under Graduate Engineering programmes namely Civil, ECE, EEE, CSE & Mechanical and three Part Time Degree programmes namely Civil, EEE & Mechanical Engineering.

## ORGANIZING COMMITTEE

**CHIEF PATRON: Dr.M.K.Surappa**  
Vice-Chancellor,  
Anna University,  
Chennai.

**PATRON : Dr.S.Ganesan**  
Registrar,  
Anna University,  
Chennai.

**CHAIR : Dr.K.Shanthi**  
Director, CFD

**Dr.D.Sridharan**  
Addl. Director, CFD,  
Anna University, Chennai.

**CO-CHAIR : Dr. S. Chitraselvi**  
Dean(i/c),  
University College of Engg.,  
Dindigul

## CO-ORDINATORS:

**Dr.R.KANNAN**  
Associate Professor / Physics

**Dr.M.KRISHNAKUMAR**  
Assistant Professor / Physics  
University College of Engg., Dindigul

**VENUE:** Seminar Hall, UCE-Dindigul

## IMPORTANT DATES:

Submission of Application : 05-06-2018  
Intimation of selection : 08-06-2018  
(by E-mail)  
Confirmation by Participants : 10-06-2018

APPLICATION FORM  
FACULTY DEVELOPMENT PROGRAM  
on  
ENGINEERING PHYSICS  
20<sup>th</sup> - 26<sup>nd</sup> June 2018

1. Name :
2. Designation:
3. Qualification:
4. Age and Date of Birth:
5. Experience:
6. Email ID & Mobile No.:
7. Institution Address:
8. Institute Affiliated to Anna University: Yes/No
9. Address for Communication:
10. Accommodation Required: Yes/No

The information provided by me is true to the best of my knowledge. I agree to abide by the rules and regulations governing the Faculty Development Training Program. If selected, I shall attend the program for the entire duration.

Date :  
Place : Signature of the Applicant

**SPONSORSHIP**

Mr./Ms./Dr. \_\_\_\_\_ is an employee of our Institute /Organization and is hereby permitted for the above Faculty Development Training Program, if selected.

Date : Signature & Seal  
Place : Head of the Institution

**ELIGIBILITY**

Faculty from Physics Department, of colleges affiliated to Anna University, Chennai may be preferred.

**REGISTRATION**

- Registration for the program can be done using the attached form or photo copy of the form. The completed form should be sent by post to the Coordinator.
- Total number of participants is limited to **Twenty Five** only however, organizer's decision is final in the selection of the candidates.
- Participants will be selected on first comes first serve basis.
- Priority will be given to young faculty.
- Selected candidates will be intimated by e-mail. Confirmation of participation is to be made by email.
- No TA/DA will be paid.
- No course fee for the program.

**PROGRAM CERTIFICATES**

Participation certificates will be issued to the candidates who attend the program in full, by the Center for Faculty Development, Anna University, Chennai - 25

**MAILING ADDRESS**

For any queries and to send completed registration form  
**Dr.R.KANNAN & Dr.M.KRISHNAKUMAR**  
Coordinators, FDP on Physics,  
Department of Physics  
University College of Engineering,  
Mangarai Pirivu, Dindigul – 624 622  
Mobile No.: 9962576583, 9952169058  
Email ID: [ucedphysicsfdp18@gmail.com](mailto:ucedphysicsfdp18@gmail.com)

SEVEN DAYS FDTP  
ON  
PH8151 – ENGINEERING PHYSICS

20 - 26 June 2018

**REGISTRATION FORM**

**CO-ORDINATORS**

**Dr.R.KANNAN**  
**Dr.M.KRISHNAKUMAR**



*Sponsored by*  
**Center for Faculty Development**  
**Anna University, Chennai -25**

*Organized by*  
DEPARTMENT OF PHYSICS  
UNIVERSITY COLLEGE OF ENGINEERING  
MANGARAI PIRIVU  
DINDIGUL – 624 622  
TAMILNADU