DEPARTMENT OF PHYSICS
SCHOOL OF MATHEMATICAL AND PHYSICAL SCIENCES
CENTRAL UNIVERSITY OF KERALA
(Established under the Central Universities Act 2009)
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Minutes of the Meeting: PG Board of Studies

29.07.2016

Members Present:

1. Professor K J Thomas (Chairman)
2. Professor P. Kolandaivel, Bharathiar University
3. Dr. Alok Sharan, Pondicherry University
4. Dr. Vincent Mathews
5. Vijay Shenoy, IISc, Bangalore (on Skype)

The meeting began at 11.00 AM on 29.07.2016 in the office of the Dean, SPS. The members of the board have discussed and deliberated on the content of the Programme Structure. After the deliberations, the Board of Studies has suggested some modifications to the existing syllabus. The modified programme structure is approved and enclosed herewith.

The programme structure with the modified syllabus will be in force for students admitted in 2016-17 academic year onwards.

Professor P. Kolandaivel

Dr. Alok Sharan

Dr. Vincent Mathew

Professor K J Thomas

PHY5103 Classical Electrodynamics

Course Code	PHY5103	Semester	I
Course Title	*Classical Electrodynamics*		
Credits	4	Type	Core

Course Outcome

(1) To train students in applying the laws of classical electrodynamics to modern experimental systems.
(2) To teach students how the laws of electrodynamics is used in modern communication systems
(3) To develop skills in numerically solving probleams of practical interest.

Course Structure

Contents: Electrostatics: Calculation of fields and potentials. Conductors. Boundary value problems. Multipole expansion and method of images. Electrostatics with dielectrics. Electrostatic energy. Magneto-statics: Ampere's theorem and Biot Savart law. Induction and Maxwell's equation. Electromagnetic waves and Poynting theorem. Waves in dielectrics and conducting media. Scalar and vector potential. Waves at boundary, reflection and refraction. Polarization. Rectangular waveguides and dielectric slab waveguides. Radiation from accelerating charges. Dipole antenna. Special theory of relativity and Lorentz transformation of fields.

Suggested Books

- D. J. Griffiths, Introduction to Electrodynamics, Pearson (2012)
- J.D. Jackson, Classical Electrodynamics, Wiley (2007)
- A. Zangwill, Modern Electrodynamics, Cambridge (2013)