

FATIMA MATA NATIONAL COLLEGE

AUTONOMOUS

(Reaccredited with 'A' Grade by NAAC)
Affiliated to University of Kerala



DEPARTMENT OF PHYSICS
BOARD OF STUDIES MEETING
HELD ON 23-02-2019

IQAC INTERNAL QUALITY
ASSURANCE CELL

23/02/2019

Board of Studies Meeting - Members Present

- 1) Dr. C. Yohannan Panicker
- 2) Baiju V
- 3) Dr. Subodh G.
- 4) Ms. V. Vimala Mariam Nazreen
- 5) Dr. Sheena Mary Y.
- 6) Ignatius D
- 7) Dr. Benzon K.B
- 8) Mr. Patric V Lobo
- 9) Mrs. Vinod V
- 10) Dr. Sheena Mary Y
- 11) Ms. Binthra. Christophur
- 12) Dr. Madhav George

Minutes of the Board of Studies meeting of the Dept of Physics, Fatima Mata National College (Autonomous), Kollam held on 23rd February 2019
Chair: Ms Vimala V. (HoD)

The meeting started at 10a.m. with a silent prayer. Eleven members were present. Head of the Department Ms Vimala V. welcomed the members. The agenda of the meeting was to revise the syllabus of M.Sc. Physics Programme for the students to be admitted from 2019 onwards. Guidelines for revising the syllabus were read out by the Chair. After detailed discussions, the Board proposed the following changes and modifications in the syllabus.

General Pattern Changes-

The board proposed to interchange the papers PPH33N Advanced Nuclear Physics (special paper in Sem 3) and PPH42 Nuclear and Particle Physics (paper in sem 4). Hence there will be two special papers in the semester 4. The board asked about the practicality of this interchange and asked to present the same before the academic council. Dr Subodh G. suggested changing the number of papers per semester from 3 to 4 in the coming years and he asked to present the same in the academic council.

Course wise discussion

PPH11: The existing syllabus for the paper Classical Mechanics has been thoroughly studied and found that it is apt enough to follow the same with slight changes. In Unit II the topic "Motion of a heavy symmetric top" has to be made specific. The sessions to be covered under that title have been made clear and added to the syllabus. In Unit III, due to time constraints the topic "Schwarzschild solutions" has been proposed remove. Also "types of bifurcation" has to be mentioned in the last session of unit III.

PPH12:

The topics "Kroneker delta-Quotient law-conjugate symmetric tensor-metric tensor: covariant & contravariant-differentiation of a tensor-covariant derivative-intrinsic derivative" are added to the title "Tensor Analysis" of unit III. The topics "group multiplication table-conjugate elements & classes- orthogonality theorem" are added to the title "Group Theory" of unit III. The topic "Lie groups" is removed from the title "Group Theory" of unit III. The topic "Green's function" is transferred from the title "Differential Equations" to the title "Special Function" of unit II. The text "A first course in representation theory and linear Lie groups(S.C.Bagchi,S.Madan,A,Sitaram,V.BTewari)" is removed from the syllabus. The texts "Mathematical Physics (B. S. Rajput)" and "Mathematical Physics (B. D. Gupta)" are added.

PPH13

Board proposed to change the title of unit 1 as Transistor Amplifiers. It was suggested to add the features of operational amplifiers and to make the syllabus specific wherever necessary.

PPH21

Modern Optics & Electromagnetic theory

In Unit 1 – the session Non-linear optics has to be modified. It was proposed to add the topics Harmonic generation, phase matching, third harmonic generation optical mixing, paramagnetization of light

PPH22

In unit 2, the chapter titled as Phase transition the topics such as 'Yang and Lee theory of phase transitions, London theory of phase transitions are removed. And hour distribution also modified.

In unit 2 the chapter entitled as paradoxes in quantum mechanics removed. Hour distribution has been modified.

Unit 4 chapter name changed as energy eigen value problems. one book titled as " Roger Bowley and Mariana Sanchez, Introductory statistical mechanics, second edition, Clarendon press ,Oxford(1999)". added in the book for study category

PPH23: in this paper it was suggested that titles must be more specific.

PPH31: The following changes are proposed to be made in the course Advanced Quantum Mechanics.

- **Time Independent Perturbation Theory** -effect of electric field on the $n=2$ state of hydrogen- spin-orbit interaction (Addition in unit 1)
- **Elements of Quantum Field theory (12hours)** Lagrangian and Hamiltonian formulation of classical fields-quantisation of fields-quantisation of the Schrodinger equation-Klein-Gordon and Dirac fields-quantisation of the electromagnetic field (Removed from unit 3)
- **Angular momentum (12hours)** Angular momentum operators and commutation relations-eigen values and eigen functions of L^2 and L_z -general angular momentum-eigen values of J^2 and J_z -angular momentum matrices-spin angular momentum -spin vectors for a spin $\frac{1}{2}$ system-addition of angular momentum-Clebsch-Gordan coefficients (moved from unit 1 to unit 3)

PPH32

Adding some additional topics as such as NMR and ESR application, FTIR spectrometer (block diagram).

PPH33

The title of the paper is changed to "Basic Nuclear and Particle Physics". The paper is revised by changing the common topics it shared with the paper titled "Advanced Nuclear Physics".

PPH41: In the paper "Condensed Matter Physics", Unit III the board suggested to add "Applications of superconductors (qualitative), powder and single crystal xrd techniques" etc.

PPH42N In our M.Sc Physics Course, Paper "15PPH33N Special Paper 1- Advanced Nuclear Physics" shifted to Semester IV from Semester III and the common topics of "15PPH42- Nuclear and Particle Physics" and "Advanced Nuclear Physics" are compared and the common topics were eliminated. BOS, held in February 2019 accepted the changes made in the syllabus. The title of the paper "Nuclear and Particle Physics" changed to "Basic Nuclear and Particle Physics".

PPH43N


Unit 1 & 2- No change

Syllabus Change only Unit 3 : portions revised according to the availability of reference books. The change is approved by BOS.

Scope: Students are motivated to other branch of physics such as medical physics and radiation physics

The following experiments have been proposed to add in practical papers (PH252 and PH262):

- First year – (i) RC integrator and differentiator –study of its response. (ii) Differential Amplifier-using transistors –to measure CMRR
- Second year - Negative feedback –non inverting amplifier, upper cut off frequency, constant gain-bandwidth product


Dr. Sheena Mary Y.
Secretary


Chairperson