

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 28-07-2018

IQAC INTERNAL QUALITY
ASSURANCE CELL

28/07/2018

BOARD OF STUDIES MEETING

MEMBERS PRESENT

- 1) Dr. Issac Paul
- 2) Dr. C. Yohannes Parakkal
3. Blhari. C
4. Dr. Mathew George
5. Baiju V
6. Ms. Vimala V
7. ~~Mr. Rathiresh Kumar R.~~
8. Dr. Sheena Macy Y.
9. Mr. Ignatius J
10. Mr. Sunil A.
11. Ms. Bindhu Christopher
12. Dr. Ben Byju
13. Dr. Benzon K.B.
14. ~~Mr. Rathiresh Kumar R.~~

Minutes of the Board of Studies meeting of the Dept of Physics, Fatima Mata National College
(Autonomous), Kollam held on 28th July 2018
Chair: Ms Vimala V. (HoD)

The meeting started at 10a.m. with a silent prayer. Thirteen members were present. Head of the Department Ms Vimala V. welcomed the members. The agenda of the meeting was to revise the syllabus of B.Sc. Physics First Degree Programme for the students to be admitted from 2019 onwards. Guidelines for revising the syllabus were read out by the Chair. Each course in the UG (both core and complementary) were discussed separately. After detailed discussions, the Board proposed the following changes and modifications in the syllabus.

Core papers

1. For the core course UPY141: Basic Mechanics and Properties of Matter: As Teachers and students find it difficult to complete certain topics in the existing syllabus, the board members suggested to make necessary changes in the it. Some topics were already taught at the higher secondary level. Board members suggested to exclude such topics. Topics like 'Interchange ability of suspension and oscillation-four points collinear with C.G about which the time period is the same-conditions for maximum and minimum periods' are proposed to be included in unit 3
2. The existing core courses in semester 3 and semester 4 has been proposed to be the core courses of semester 2 and semester 3 respectively with necessary modifications and redistribution of time.
3. Semester 4: The existing core course 15UPY541: Classical & Relativistic Mechanics for semester 5 with a credit 4 is to be changed as UPY1441 Classical & Relativistic Mechanics for semester 4 with a credit 2. Respective modifications have been proposed by the BoS members regarding credit distribution.
4. Semester 5

- b) UPY542: A new paper is proposed to introduce as "Statistical Physics, Research Methodology and Disaster Management". In the 5th semester. The unit 1: STATISTICS PHYSICS of this paper was in third semester in the old syllabus. The unit 2: RESEARCH METHODOLOGY is newly introduced in this paper. The unit 3: ERROR ANALYSIS was in the semester 2 of the old syllabus. The unit 4: DISASTER MANAGEMENT is newly introduced.
- c) In the paper UPY543 ELECTRONICS, the portions which are decided to remove are "Extrinsic semi conductor – n-type and p-type semi conductors - PN junction –LED (theory and application)-solar cell-photodiode-Tunnel diode-theory, characteristics and working, construction and working of UJT and SCR". The portions that are added is feedback amplifier topologies.
- d) In the paper PY544 Atomic and Molecular Physics, students already learnt about the fundamental atomic models except vector atom model in unit :1. The topic 'atomic models' is presented as revision topic. In unit 3, topics have to be made specific as "X-ray –Discovery-properties-scattering-measurement of X-ray wavelength by ruled gratings ". The term origin of x-ray mentioned in the previous syllabus is made more specific as "Origin of continuous and characteristic X-rays". An additional topic is added as X-ray energy level diagram. The term Moseley's law mentioned in the earlier syllabus change in to specification by Moseley's law and its importance. The term hydrogen like character of X-ray spectrum is removed from the syllabus. Application of x ray is added to the third unit. In the fourth unit according to the expert view "molecular orbital, hydrogen molecule ion, hydrogen molecule, hybridization" are eliminated. Instead of this origin of molecular spectra is added.
- e) Open Course: The following additions are made in the paper UPY1551.5 Energy Physics. In the second unit, the topics added are: solar radiation measurement techniques -Pyrheliometers - the Angstrom, the Abbot silver disc, Eppley pyrheliometer- Pyranometers- Eppley pyranometer, Yellot Solarimeter. In fourth unit, types of gober gas plants, elementary ideas are included.
5. Semester 6

- a) UPY641 Solid State Physics,
Board suggested that specification of each topic has to be made under required titles. Some topics in unit two is has to be eliminated as they are already present in the 5th semester. Hour distribution must be modified as per portions. According to the expert opinion no derivation is required for 'Kronig -Penney model'. Relevant suggestions made by the members are noted for further restructuring of the syllabus.
- b) For the course UPY542 Nuclear & Particle Physics, the existing units 1(INTRODUCTION TO THE NUCLEUS-14 HOURS) and unit 3(NUCLEAR FORCES-8HOURS) are combined and changed into two units as unit1(GENERAL PROPERTIES OF NUCLEI-14 HOURS) and unit 2(NUCLEAR MODELS-11HOURS). The unit 2(RADIOACTIVITY-10HOURS) is made some relevant changes and put as unit 3 with 12 hours. Unit 4 is changed into unit 5 with a decrease of two instructional hours and given the name "Particle detectors and accelerators ". Unit 5 is changed into unit 4 with a decrease of one instructional hour. No change is made in unit 6. Unit seven is changed by removing topics related to "Cosmic Rays and Cernkov Radiations" and is renames as "particle Physics" with a decrease of two instructional hours.
- c) UPY643 Classical and Modern Optics, it was proposed to include the topic 'Polaroids' in unit 3 due to the application level importance of polarizaton in

- d) In the paper PY1644-DIGITAL ELECTRONICS AND COMPUTER SCIENCE, board members suggested to modify the syllabus as the portions are vast and cannot be covered under the prescribed hours. Since all the topics are relevant, only slight exclusions are made like signed arithmetic operation, real or floating point representation of numbers in unit 1; internal organization memory chips, operating systems in unit 2 ; overloaded functions, inline functions, default arguments, scope rule for functions, compilation and execution of data in unit 3. The unit on numerical techniques has to be excluded and a unit on microprocessor has to be included
- e) In the paper UPY661.1 Electronic Instrumentation, portions removed are measurement errors- standards of measurement functional elements of an instrument- standard in quality management-radiation detectors- basic idea of instrumentation amplifier. Portions added are Analog storage oscilloscopes-components and working.

Complementary papers

1. Chemistry Main

- Sem1 : For the course UPY131.2 – Rotational dynamics and Properties of matter In chapter the topic spinning top has to be changed as fly wheel. In chapter 3, one hour has to be added to cover the portions effectively. In unit 2 the hour distribution is to be changed from 5h to 3h. The topic “ Stokes metho”d has to be eliminated.
- Sem 2 : the existing syllabus is sufficient as a complementary course and hence no changes are proposed.
- Sem 3: In the paper PY1331.2 – Optics, Magnetism and Electricity, unit 1: the title “Newtons Rings” has to specified in detail. It has been proposed to add the heads “Theory –diameters of dark and bright rings-experiment to determine the wavelength of monochromatic light” in the syllabus. In unit 2 :Magnetism the topics “Domains & domain theory of ferromagnetism” have to be included and specified. The topics under “Polarization” must be revised thoroughly as it cannot be covered under 6 hrs.
- Sem 4 : For PY1431.1, In unit 2: the following additions have to be included : penetration depth-coherence length-critical fields-critical currents and necessary modifications are suggested. Unit 4: Spectroscopic Techniques must be thoroughly modified keeping in mind that the paper is a complementary course. The heads have to be specified more clearly. In unit 5, the head “transistor configurations”- has been specified in detail as : CB & CE configurations with circuit diagram , the topic “Transistor amplifier” has to be excluded for complementary paper

2. Mathematics Main

- Sem1: In the course UPY131.1 – Mechanics and Properties of matter,unit wise hour distribution has been suggested. In chapter 2 some topics are has to be excluded due to the lack of sufficient time. In chapter 2 time distribution has to be changed to 13 hours from 15 h. In chapter 3 one hour has to be added to cover the portions effectively.
- Sem 2: In the course “Heat & Thermodynamics”, it has been proposed to include : Unit 4: Fundamental concepts of Statistical mechanics. It is mandatory that the students know about the fundamentals of statistical mechanics.

- Sem 3: For PY1331.1 – Optics, Magnetism and Electricity (for Maths main), in the unit I: the title “Newtons Rings” has to be specified in detail. It has been proposed to add the heads “Theory –diameters of dark and bright rings-experiment to determine the wavelength of monochromatic light” in the syllabus. Similar additions have to be made in unit II. The topics Fresnel diffraction at a straight edge and circular aperture etc has to be excluded since it is beyond the scope as a complementary paper.
- Semester 4: For PY1431.1 Modern Physics and Electronics courses (for Maths main), the head “transistor configurations”- has been specified in detail as : CB & CE configurations with circuit diagram . The topic “Transistor amplifier” has to be excluded for complementary paper.

The following staff members were assigned the duty to make the necessary changes as proposed by the Board.

Core Course

Code	Paper	Faculty
UPY141	Basic Mechanics & Properties of Matter	Dr Ben Byju
UPY241	Heat & Thermodynamics	Mr Ratheesh Kumar R
UPY341	Electrodynamics	Mr Ratheesh Kumar R
UPY441	Classical & Relativistic Mechanics	Dr Sheena Mary Y.
UPY541	Quantum Mechanics	Mr Ratheesh Kumar R
UPY542	Statistical Physics, Research Methodology & Disaster Management	Mr Ignatius J.
UPY543	Electronics	Mr Sunil A.
UPY544	Atomic & Molecular Physics	Ms Bindhu Christopher
UPY551	Energy Physics	Dr Benzon K.B.
UPY641	Solid State Physics	Ms Bindhu Christopher
UPY642	Nuclear & Particle Physics	Mr Ignatius J.
UPY643	Classical & Modern Optics	Dr Ben Byju
UPY644	Digital Electronics & Computer Science	Dr Sheena Mary Y.
UPY661	Electronic Instrumentation	Mr Sunil A.

Complementary course

Code	Paper	Faculty
UPY131.1	Mechanics & Properties of Matter (for Maths main)	Ms Bindhu Christopher
UPY131.2	Rotational Dynamics & Properties of Matter (for Chem main)	Ms Bindhu Christopher

UPY231.1	Thermal Physics & Statistical Mechanics (for Maths main)	Dr Ben Byju
UPY231.2	Thermal Physics (for Chem main)	Dr Ben Byju
UPY331.1	Optics, Magnetism & Electricity (for Maths main)	Dr Sheena Mary Y.
UPY331.2	Optics, Magnetism & Electricity (for Chem main)	Dr Sheena Mary Y.
UPY431.1	Modern Physics & Electronics (for Maths main)	Dr Sheena Mary Y.
UPY431.2	Atomic Physics, Quantum Mechanics & Electronics (for Chem main)	Dr Sheena Mary Y.



Dr Sheena Mary Y.

Chairperson



Ms Vimala V.