Department of Physics

Board of Studies Meeting

The minutes of the 22nd meeting of the Board of Studies held on 26.10.2026 at 10.30 a.m. at the B1 Block, Room No.1515.

Members Present:

S.No	Name	Category
1	Dr. K. Girija	Chairman
2	Dr. D. Nataraj Professor, Department of Physics, Bharathiar University, Coimbatore	VC Nominee
3	Dr. M. Ulaganathan Associate Professor, Department of Physics, School of Physical Sciences, Amritha Vishwa Vidyapeetham, Coimbatore	Subject Expert
4	Dr. R. Ramesh Babu Professor and Head Department of Physics Bharathidasan University	Subject Expert
5	Dr. S. Logeshkumar Consultant – Expert Electronics, KV industries, Greenergy energy solutions, Coimbatore.	Industrial Expert
6	Mr. R. Sivaananthavela Managing Director INPHOENOX Edu- Tech 51/1 Mettukadu 2nd street, Narasimapuram,Kuniyamuthur, Coimbatore-641008	Alumni Member
7	Dr. S. Gokilamani	Co-opted Member
8	Dr. S. Gowri	Co-opted Member
9	Dr. P. Chidambara Rajan	Co-opted Member
10	Dr. V. Gopala krishnan	Member

11	Dr. M.R. Ananthan	Member
12	Mrs. R. Revathi	Member
13	Dr. R. Karunathan	Member
14	Dr. R. Dilip	Member
15	Dr. J Martin Sam Gnanaraj	Member
16	Ms. W.V Abina	Student Representative - PG
17	Ms B. Theshmika	Student Representative - UG

The HoD and Chairman of the Department of Physics welcomed all the members and thanked for their continued support and contributions toward the development of academic standards and enrichment of the syllabus.

The items of the agenda were taken one by one for discussion and the following resolutions were passed.

Item 22.1. *To review and approve the minutes of the previous meeting held on 01.04.2026.*

The Chairman of the Board presented the minutes of the previous meeting held on 01.04.2026 and requested the members to approve. After brief discussion, the following resolution was passed.

Resolution:

Resolved to approve the minutes of the previous meeting held on 01.04.2026.

Item 21.2. *To review and approve the syllabus for the IV Semester for the students admitted in PG from academic year 2025-26 onwards.*

The Chairman presented the scheme and syllabus for the IV semester for the students admitted during the academic year 2025-2026. The members deliberated in detail about the modifications required.

Changes Made:

M.Sc. Physics			
Semester	**Code**	**Course**	**Changes and Reason**
IV	25PYP4CB	Nuclear and Elementary Particle Physics	The following changes have been made as per the suggestion given by VC nominee Dr. D. Nataraj and subject expert Dr. R. Ramesh Babu. IKS and AI topic was added in Unit 1 and Unit 2. Unit 1 - Added - Hiranyagarbha (The concept of Cosmic Nucleus). Unit 2 - Added - Nuclear Data optimization by EUCLID
IV	25PYP4CP	Microprocessor	The following changes have been made as per the suggestion given by subject expert Dr. M. Ulaganathan and industrial expert Dr. S. Logesh Kumar; to remove certain experiments and include new advanced experiments based on Microcontroller Programming. The following experiments were removed 1. To generate triangular and square wave by using 8085 ALP 2. Write Microprocessor 8085 ALP for interface IV (Waveform generation) The following new experiments were added 1. Write a micro python code for Microcontroller Raspberry PI for controlling switch and buzzer 2. Write a micro python code for Microcontroller Raspberry PI to find the distance using ultrasonic sensor
IV	25PYP4DA	Solar Cells	The following changes have been made as per the suggestion given by subject expert Dr. Ramesh

			Babu and Dr M Ulaganathan. IKS topic was added in Unit 2 - Agni Vidya & Govishti
IV	25PYP4DB	Band gap Engineering in Semiconductors	The following changes have been made as per the suggestion given by subject expert Dr. Ramesh Babu and Dr M Ulaganathan. IKS topic was added in Unit 1 - Tridosha theory

After the discussion the following resolution was passed.

Resolution:

Resolved to approve the above modifications and adopt the revised syllabus for the students admitted for the academic year 2025-26.

Item 21.3. *To review and approve the syllabus for the II Semester for students admitted in PG from the academic year 2026-27 onwards.*

Changes Made:

M.Sc. Physics			
Semester	**Code**	**Course**	**Changes and Reason**
II	26PYP2CB	Solid State Physics	The following changes have been made as per the suggestion given by VC Nominee Dr. D. Nataraj and subject expert Dr. Ramesh Babu. IKS topic was added in Unit 1 - Vaisheshika Sutras Unit 5 – Free electron concepts were added instead of Energy Band Theory; contents of Semester III Condensed Matter Physics Unit 1 is exchanged in Unit 5 Solid State Physics (Semester II); changes done for easy understanding.
II	26PYP2CQ	Electronics - II	The following changes have been made as per the suggestion given by subject expert Dr. Ramesh Babu and Industrial

			expert Dr. Logeshkumar. The following Experiment were removed, Construction of astable multivibrator using Op-amp 741 and the following experiment was added: Construction of two stage non-inverting amplifier using op-amp

After the discussion the following resolution was passed.

Resolution:

Resolved to approve the above modifications and adopt the revised syllabus for the students admitted for the academic year 2026-27.

Item 21.4. *To review and approve the syllabus for the VI Semester for students admitted in UG from the academic year 2024-25 onwards.*

The Chairman presented the detailed syllabus for the students admitted in the academic year 2024-25 for the VI semester. After discussion it was unanimously decided to adopt the syllabus without any changes.

Resolution:

Resolved to approve and adopt the syllabus of the VI semester for the UG students admitted for the academic year 2024-25.

Item 21.5. *To review and approve the Self-Study syllabus offered in III Semester for 2026-2027 Batch PG students*

The chairman presented the syllabus of Self Study Course offered in Semester III for PG students.

MSc. Physics			
Semester	**Code**	**Course**	**Change**
III	26PYPSSA	IPR, Innovation and Entrepreneurship	No Change
III	26PYUSSB	Nanoscience	**New Course: Remote Sensing and GIS** Course was changed as in elective, Nanophysics was offered.

Resolution:

Resolved to approve the Self-Study course offered in III Semester for 2026-2027 Batch PG students.

Item 21.6. *To review and approve for credit transfer; courses offered by NPTEL that are equivalent to courses offered in our curriculum (PG - Semester I and II).*

The chairman presented the course offered by NPTEL that are equivalent to course offered in II Semester for PG for approval for equivalency.

1. 25PYP2DA - Physics of nanomaterials

Resolution:

Resolved to approve the NPTEL course offered in II Semester for PG for equivalency.

Item 21.7: *To approve the panel of examiners.*

The Chairman presented the panel of examiners for question paper setting, question paper scrutiny and conduct of practical and theory examination submitted to CoE for exam related work.

Resolution:

Resolved to approve the panel of examiners for question paper setting and evaluation of answer scripts for the Even Semester of the academic year 2026-2027.

Finally, the Chairman thanked all the members for their cooperation and contribution in enriching the syllabus with active participation in the meeting and sought the same spirit in the future also. The meeting was closed with formal vote of thanks proposed by the Dr. K. Girija, Head and Chairman, Physics.

Date: 26.10.2026

26/10/2026

(Dr. K. Girija)

BoS Chairman/HoD
Department of Physics
Dr. N. G. P. Arts and Science College
Coimbatore – 641 048

Syllabus Revision

Faculty: Basic and Applied Sciences **Board: Physics**

Semester: II

Course Code / Name: 26PYP2CB, SOLID STATE PHYSICS

Unit	Existing	Changes
I	**Fundamentals of Crystallography and Bonding in solids** The solid state –Periodicity in crystals - Bravais lattices in three dimension –Rational features of a crystals and miller indices - Interplanar spacing - Simple and common crystal structures (SC, BCC, FCC, Diamond, NaCl,) - Forces between atoms – Ionic bonding – The Born-Haber Cycle – Covalent bonding – Metallic bonding – Hydrogen bonding – Van der Waals bonding, IKS: Vaisheshika Sutras	Added: Vaisheshika Sutras
II	**Diffraction of Waves and Particles by Crystals** X-rays and their generation - Moseley's law - X-ray Diffraction - Bragg's law - Correction for Bragg's equation - Laue equation - Interpretation of Braggs equation - Ewald construction - Reciprocal lattice - Properties of reciprocal lattice -Reciprocal lattice to BCC & FCC lattice - X-Ray Diffraction experiment - Powder diffractometer - Electron Diffraction - Neutrons Diffraction.	No Change
III	**Crystal Imperfections and Atomic Diffusion** Crystal imperfections: Point imperfections – Concentrations of point imperfection – Line imperfections – Burgers Vector – Presence of dislocation – Surface imperfections - Ficks first and second law – Atomic diffusion: Diffusion mechanism – Random walk treatment of diffusion – Kirkendall effect - Diffusion in alkali halides.	No Change
IV	**Lattice Vibration and Thermal Properties** Lattice Vibration: Dynamics of the chain of identical atoms - Symmetry in K space - Number of modes in the first zone Low wavelength limit - Phase and group	No Change

	velocities - Dynamics of a diatomic linear chain - The acoustic branch - The optical branch - Anharmonicity and thermal expansion - Thermal properties: the classical model - Einstein's theory of specific heat - Density of states.	
V	~~**Energy Band Theory and Fermi Surface**~~ ~~Energy Band Theory: Bloch theorem – Kronig – Penney model – Construction of Fermi surfaces – Extended, Reduced, and periodic zone schemes – Nearly free electron model – Tight binding approximation Fermi surface: Fermi surface and Brillouin zones – Characteristics of Fermi surfaces – Experimental study of Fermi surfaces: Anomalous skin effect – Cyclotron resonance – De Haas Van Alphen effect.~~	Added: **Free Electrons in Crystal** Electrical conductivity of metals - Relaxation time and mean free path - Electrical conductivity and ohms law - Wiedemann Franz Lorentz law - Electrical resistivity of metals - Fermi Dirac statistics – Temperature variation of fermi function – Density of energy state - The Hall effect.

PERCENTAGE OF SYLLABUS REVISED :21 %

COURSE FOCUS ON :

- [x] Skill Development
- [ ] Entrepreneurial Development
- [x] Employability
- [x] Innovations
- [ ] Intellectual Property Rights
- [ ] Gender Sensitization
- [ ] Social Awareness/ Environment
- [ ] Constitutional Rights/ Human Values/ Ethics

Syllabus Revision

Faculty: Basic and Applied Sciences **Board: Physics**
Semester: IV
Course Code / Name: 25PYP4DA, SOLAR CELLS

Unit	Existing	Changes
I	**Fundamentals of Semiconductors** Semiconductor as solar cell material - Formation of energy bands - Charge carriers in semiconductors - Carrier concentration and distribution - Carrier motion in semiconductors - Drift motion due to Electric field -Generation of carriers - Recombination of carriers.	No Change
II	**Solar Cells** Solar cell parameters - Open circuit voltage - Short circuit current - Fill Factor – Efficiency of solar cells - Effect of series and shunt resistance on efficiency - Effect of solar radiation on efficiency - Requirements for high short circuit current -Minimization of optical losses and recombination -Requirement for high open circuit voltage - Design for high FF – Solar simulator: I-V Measurement - Quantum efficiency measurement. IKS: Agni Vidya & Govishti	Added: IKS: Agni Vidya & Govishti
III	**First Generation Solar Cells** Amorphous silicon: The first bipolar amorphous semiconductor – Designs for amorphous silicon solar cells – Staebler Wronski effect – Atomic and electronic structure of hydrogenated amorphous silicon: Deposition techniques – RF glow discharge deposition - Glow discharge deposition at different frequencies – Hot wire chemical vapor deposition	No Change
IV	**Second Generation Solar Cells** CdTe properties and thin films - Fabrication methods - Condensation, reaction of Cd and Te vapors on a surface – Galvanic reduction of Cd and Te ions at a surface - Precursor reaction at a surface - Window Layers – CdTe absorber layer and cadmium chloride treatment - CdS/CdTe intermixing - Back contact - Solar cell characterization – CdTe modules	No Change
V	**Third Generation Solar Cells** Operating mechanism of dye-sensitized solar cell – Materials – Performance of highly efficient DSSCs – Electron transfer	No Change

	processes and charge recombination in DSSC - Organic-Inorganic perovskites for photovoltaics - Deposition methods – Electronic properties - Device operation - Ongoing challenges - Lead-free alternatives	

PERCENTAGE OF SYLLABUS REVISED : 1%
COURSE FOCUS ON :

- [x] Skill Development
- [ ] Entrepreneurial Development
- [x] Employability
- [x] Innovations
- [ ] Intellectual Property Rights
- [ ] Gender Sensitization
- [ ] Social Awareness/ Environment
- [ ] Constitutional Rights/ Human Values/ Ethics

Syllabus Revision

Faculty: Basic and Applied Sciences **Board: Physics**
Semester: IV
Course Code / Name: 25PYP4DB, BAND GAP ENGINEERING IN SEMICONDUCTORS

Unit	Existing	Changes
I	**Conduction in Metals** Electron volt - Unit of energy - Current density - Motion in a magnetic field – Nature of the atom - Energy band theory of crystals - Insulators - Semiconductors - Conductors - Conduction in metals - Potential energy field in a metal - Bound and free electrons - Energy density - Fermi level - Density of states. IKS: Tridosha theory	Added: IKS: Tridosha theory
II	**Theory of Semiconductors** Electrons and holes in an intrinsic semiconductor - Conductivity of a semiconductor - Carrier concentrations in an intrinsic semiconductor - Donor and acceptor impurities - Fermi level in a semiconductor having impurities – Diffusion – Carrier lifetime - The continuity equation.	No Change

III	**Semiconductor Diode Characteristics** Qualitative theory of the p-n junction – The p-n junction as a diode – Band structure of an open - Circuited p-n junction – The current components in a p-n diode – Ohmic contacts - Open circuited p-n junction - Theory of p-n diode forward and reverse currents - The schottky barrier diode - The Schottky effect.	No Change
IV	**Excess Carriers in Semiconductors** Optical absorption - Luminescence – Photoluminescence – Electroluminescence - Carrier lifetime and Photoconductivity – Direct recombination of electrons and holes – Indirect recombination of electrons and holes - Steady state carrier generation - Photoconductive devices - Diffusion of carriers - Diffusion processes - The Haynes – Shockley experiment.	No Change
V	**Optoelectronic Devices** Photo diodes - Current and voltage in an illuminated junction - Solar cells - Photodetectors - Gain, Bandwidth, and signal-to-noise ratio of photodetectors – Light emitting diodes - Light emitting materials – Lasers - The basic semiconductor laser - Heterojunction lasers.	No Change

PERCENTAGE OF SYLLABUS REVISED : 1%

COURSE FOCUS ON :

- [x] Skill Development
- [ ] Entrepreneurial Development
- [x] Employability
- [x] Innovations
- [ ] Intellectual Property Rights
- [ ] Gender Sensitization
- [ ] Social Awareness/ Environment
- [ ] Constitutional Rights/ Human Values/ Ethics

Syllabus Revision

Faculty: Basic and Applied Sciences **Board: Physics**

Semester: IV

Course Code / Name: 25PYP4CB, NUCLEAR AND ELEMENTARY PARTICLE PHYSICS

Unit	Existing	Changes
I	**Properties of Nucleus and Nuclear forces** Nuclear constituents – Nuclear size - Nuclear mass – Nuclear binding energy curve and stability of nuclei – Nuclear magnetic dipole moment - Electric quadrupole moment – Nuclear spin – Parity – Deuteron – Theory of ground state of deuteron - Nucleon-nucleon scattering – Scattering cross section – Spin dependence of nuclear force – Hiranyagarbha (The concept of Cosmic Nucleus).	Added: IKS: Hiranyagarbha (The concept of Cosmic Nucleus).
II	**Nuclear Decay** Determination of energy of alpha particles - Alpha ray spectra and nuclear energy levels – Gamow's theory – Beta decay process – Measurement of beta ray energies – Beta ray spectra – Selection rules in beta decay – Fermi theory of beta decay – Absorption of gamma ray by matter – Measurement of gamma ray energies – Internal conversion - Nuclear Data optimization by EUCLID	Added: Nuclear Data optimization by EUCLID
III	**Radio Activity** Properties of alpha, beta and gamma rays - Mean life of a radioactive element - Half life period - Determination of decay constant and half life - Soddy's displacement law - Radioactive series - Law of successive disintegration and radioactive equilibrium – Properties of radioactive rays - Radioactive decay – Radioactive dating –Radiation Protection and Detection by Fallout and Dispersion Modelling.	No Change
IV	**Nuclear Reactions** Nuclear reactions and the origin of elements - Conservation laws in nuclear reactions - Q value - Threshold energy - Nuclear Transmutation - Nuclear reaction cross section - Types of nuclear reactions - Compound nucleus theory - Breit Wigner dispersion formula - Direct reaction - Nuclear fission - Energy released in fission - Nuclear chain reaction - Four factor formula - Nuclear fusion - Stellar energy	No Change

V	**Particle Physics** Production of new particles in high energy reaction - Classification of elementary particle – Fundamental interaction - Quantum numbers - Law in production and decay process - Symmetry and conservation laws - Special symmetric groups - Gelman-Neumann theory - Quark mode- Neural Networks for Particle Identification	No Change

PERCENTAGE OF SYLLABUS REVISED : 2%
COURSE FOCUS ON :

- [x] Skill Development
- [ ] Entrepreneurial Development
- [x] Employability
- [x] Innovations
- [ ] Intellectual Property Rights
- [ ] Gender Sensitization
- [ ] Social Awareness/ Environment
- [ ] Constitutional Rights/ Human Values/ Ethics

Syllabus Revision

Faculty: Basic and Applied Sciences **Board: Physics**
Semester: IV
Course Code / Name: 25PYP4CP / Microprocessor

Unit	Existing	Changes
1.	Write 8085 ALP for 8 bit addition and subtraction	No Change
2.	To perform 8 Bit multiplication and division using 8085 instruction.	No Change
3.	To find the biggest and smallest number element in the array using 8085	No Change
4.	Write 8085 ALP for LED interfacing	No Change
5.	To perform for sorting the element in an array in ascending and descending order using 8085	No Change

6.	~~To generate triangular and square wave by using 8085 ALP~~	Write a micro python code for Microcontroller Raspberry PI PICO for controlling switch and buzzer
7.	Masking off most significant four bits and setting bits using two different instructions using 8085	No Change
8.	Write 8085 ALP for Stepper motor controller	No Change
9.	Write 8085 ALP for Elevator controller	No Change
10.	~~Write Microprocessor 8085 ALP for interface IV (Waveform generation)~~	Write a micro python code for Microcontroller Raspberry PI to find the distance using ultrasonic sensor
11.	Write Microprocessor 8085 ALP for Traffic control system	No Changes
12.	~~Write Microprocessor 8085 ALP for subroutines (display results)~~	Write a micro python code for Microcontroller Raspberry PI for control LEDs switching.

End Semester Practical Examination requires completion of 10 experiments out of 12

PERCENTAGE OF SYLLABUS REVISED : 30 %
COURSE FOCUS ON:

✓	Skill Development	✓	Entrepreneurial Development
✓	Employability	✓	Innovations
✓	Intellectual Property Rights	-	Gender Sensitization
-	Social Awareness/ Environment	-	Constitutional Rights/ Human Values/ Ethics

Syllabus Revision

Faculty: Basic and Applied Sciences **Board: Physics**
Semester: II
Course Code / Name: 26PYP2CQ / ELECTRONICS - II

Unit	Existing	Changes
1.	Construction of Colpitt's oscillator using Op-Amp	No Change
2.	Construction of single state transistor amplifier and to measure the gain at different frequency of the input signal	No Change
3.	Construct inverting, non-inverting and voltage follower using Op-Amp	No Change
4.	Study the half adder, full adder, half subtractor and full subtractor using ICs	No Change
5.	Construction of bistable multivibrator using Op-amp	No Change
6.	~~Construction of astable multivibrator using Op-amp 741~~	Construction of two stage non-inverting amplifier using op-amp
7.	Study the characteristics of Bipolar Junction Transistor (BJT)	No Change
8.	Construct the Log amplifier using Op-amp	No Change
9.	Study the characteristics of Metal Oxide Semiconductor Field Effect Transistor (MOSFET)	No Change
10.	Study the static and drain characteristics of a Junction Field-Effect Transistor (JFET)	No Change
11.	Construct the emitter follower and measure its gain	No Change
12.	Study the Schmitt trigger using Op-Amp	No Change

End Semester Practical Examination requires completion of 10 experiments out of 12

PERCENTAGE OF SYLLABUS REVISED : 10 %
COURSE FOCUS ON:

✓	Skill Development		Entrepreneurial Development
✓	Employability	✓	Innovations
	Intellectual Property Rights	-	Gender Sensitization
-	Social Awareness/ Environment	-	Constitutional Rights/ Human Values/ Ethics

ATTENDANCE OF THE TWENTY-SECOND BOARD OF STUDIES MEETING

Faculty : Basic and Applied Sciences **Board: Physics**

Venue : Room no. 1513 –B1 Block

Date : 26/10/2026

Time : 10:30 a.m

The following members were present for the board of studies meeting.

S. No.	Name	Designation	Attendance status
1.	Dr.K. Girija Associate Professor & Head Department of Physics Dr.N.G.P ASC	Chairman	Present
2.	Dr. D. Nataraj Professor, Department of Physics, Bharathiar University, Coimbatore Email : de.nataraj@buc.edu.in Cell : 9994734020	VC Nominee	Present
3.	Dr. M. Ulaganathan Associate Professor, Department of Physics, School of Physical Sciences, Amritha Vishwa Vidyapeetham, Coimbatore Email : m_ulaganathan@cb.amrita.edu Cell : 9500379742	Member (Subject Expert)	Present
4.	Dr.R.Ramesh Babu Professor and Head Department of Physics Bharathidasan University Email : rameshbabu.r@bdu.ac.in Cell : 9942060925	Member (Subject Expert)	Present
5.	Dr. S. Logeshkumar Consultant – Expert Electronics, KV industries, Greenergy energy solutions, Coimbatore Email:logesh.tamil@gmail.com Cell : 9894586216	Member (Industry Expert)	Present
6.	Mr. R. Sivaananthavela Managing Director	Member (Alumni)	Present

	INPHOENOX Edu- Tech 51/1 Mettukadu 2nd street, Narasimapuram,Kuniyamuthur, Coimbatore-641008 Email : siva170399@gmail.com Cell : 7010370199		
7.	Dr.S.Gokilamani Associate Professor & Head(i/c) Department of Mathematics Dr.N.G.P ASC	Co-opted Member	Present
8.	Dr.S.Gowri Professor and Head Department of Biochemistry Dr.N.G.P ASC	Co-opted Member	Present
9.	Dr.P.Chidambara Rajan Professor and Head Department of Biotechnology Dr.N.G.P ASC	Co-opted Member	Present
10.	Dr.V.Gopalakrishnan Professor Department of Physics Dr.N.G.P ASC	Member	Present
11.	Dr.M.R.Ananthan Associate Professor Department of Physics Dr.N.G.P ASC	Member	Present
12.	Mrs.R.Revathi Assistant professor Department of Physics Dr.N.G.P ASC	Member	Present
13.	Dr.R.Karunathan Assistant Professor Department of Physics Dr.N.G.P ASC	Member	Present
14.	Dr.R.Dilip Assistant Professor Department of Physics Dr.N.G.P ASC	Member	Present
15.	Dr.J Martin Sam Gnanaraj Assistant Professor Department of Physics	Member	Present

	Dr.N.G.P ASC		
16.	Ms.Abina W V II M.Sc Physics	Student Representative	Present
17.	Ms Theshmika III B.Sc Physics	Student Representative	Present

Date: 26/10/2026

26/10/2026
(Dr.K. Girija)

BoS Chairman/HoD
Department of Physics
Dr. N. G. P. Arts and Science College
Coimbatore – 641 048