



Dr. N.G.P. ARTS AND SCIENCE COLLEGE

(An Autonomous Institution, Affiliated to Bharathiar University, Coimbatore)
Approved by Government of Tamil Nadu and Accredited by NAAC A++ Grade (3rd Cycle- 3.64 CGPA)
Dr. N.G.P.-Kalapatti Road, Coimbatore-641048, Tamil Nadu, India
Web: www.drngpasc.ac.in | Email: info@drngpasc.ac.in | Phone: +91-422-2369100

BoS

18th

Department of Physics

Board of Studies Meeting

The minutes of the 18th meeting of the Board of Studies held on 08.11.2024 at 10.00 am at the B1 Block, Room No.1513.

Members Present:

S.No	Name	Category
1	Dr. K. Girija	Chairman
2	Dr. R. Kalaiselvan Associate Professor Bharathiyar University, Coimbatore.	VC Nominee
3	Dr. J. Shanthy Professor and Head Avinashilingam Institute for Home Science and Higher Education for Women University, Coimbatore.	Subject Expert
4	Dr. K. S. Rajini Professor Amirta University, Coimbatore.	Subject Expert
5	Mr. G. Maheswaran Chief Executive Officer Silicon Technologies, Coimbatore.	Industrial Expert
6	Ms. A. Suvathini Junior Assistant Commercial Tax Office, Tirupur.	Meritorious Alumni
7	Dr. N. Kuppasamy	Co-opted Member
8	Dr. A. Hazel Verbina	Co-opted Member
9	Dr. R. Sowrirajan	Co-opted Member
10	Dr. R. Ravikumar	Co-opted Member
11	Dr. V. Gopala Krishnan	Member
12	Dr M.R Ananthan	Member
13	Mrs. R. Revathi	Member
14	Dr. R. Karunathan	Member





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15	Dr. R. Dilip	Member
16	Dr. S. Gunasekaran	Member
17	Dr. Martin Sam Ganaraj	Member
18	Ms. S. Vasuki	Student Representative -UG
19	Mr. M. Dhanushvarman	Student Representative - PG

The HoD and Chairman of the Department of Physics welcomed and introduced all the members and appreciated them for their continuous support and contribution for the development of academic standard and enrichment of the syllabus.

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

Item 16.1. *To review and approve the minutes of the previous meeting held on 05.04.2024.*

The chairman of the Board presented the minutes of the previous meeting held on 5.4.2024 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 5.4.2024.

Item 16.2. *To review and approve the scheme, regulations and syllabus for the II Semester for the students admitted in UG and PG from academic year 2024-25 onwards.*

The chairman presented the detailed scheme and regulation for the students admitted from the academic year 2024-2025 onwards and syllabus for the II semester. The members deliberated in detail about the modifications required. After discussion it was unanimously decided to adopt the following changes.



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Changes Made:

B.Sc. Physics		
Code	Course	Changes and Reason
24PYU2CA	Core: Heat and Thermodynamics	<p>The following changes have been made as per the suggestion given by subject experts Dr. J. Shanthi and Dr. K. S. Rajini in accordance with competitive syllabus.</p> <p>Unit IV: Gas equation title was added and deletion of topics, Determination of Cp by Regnault's method – Callender and Griffith's bridge</p>
24PYU2CB	Core: Atomic Physics	<p>The following changes have been made as per the suggestion given by Dr. K.S. Rajini</p> <p>Unit I: Binding energy topic was deleted and addition of Rutherford's experiments on scattering of α particle</p> <p>Experiment related topic was added for better understanding.</p>
M.Sc. Physics		
Code	Course	Changes and Reason
24PYP2CA	Core: Spectroscopy	<p>The following changes have been made as per the suggestion given by Dr. K.S. Rajini and Industrial expert Mr. Maheswaran</p> <p>Unit III: Surface selection rules – SERS microprobe – applications of SERS were deleted</p> <p>Unit IV: Bloch Equations was deleted.</p> <p>Topics deleted were of higher order and content was heavy, hence experts suggested to delete.</p>
24PYP2CB	Core: Solid State Physics	<p>Unit I: HCP crystal structure was added</p> <p>The following change have been made as per the suggestion given by Dr. R. Kalaiselvan so as to include all the crystal structures.</p>



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IDC Offered

Code	Course	Department
B.Sc. Physics		
24PYU2IM	Physics II	Mathematics and Chemistry
24PYU2IA	Biophysics	Biotechnology (New Course)

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 2024-25.

Item 16.3. *To review and approve scheme, regulation and syllabus for the IV Semester for students admitted in UG and PG from the academic year 2023-24 onwards.*

The Chairman presented the detailed scheme, regulation and syllabus for the students admitted from the academic year 2023-2024 onwards and syllabus for the IV semester. The members deliberated in detail about the modifications required. After discussion it was unanimously decided to adopt the following changes.

Changes Made:

B.Sc. Physics		
Code	Course	Changes and Reason
232PY1A4CA	Core: Optics and Spectroscopy	As per suggestions given by Dr. R. Kalaiselvan - University nominee and Dr. J. Shanthi- Subject expert, Certain topics were added and deleted in Unit II, III, IV and V as follows in comparison with competitive exam syllabus. Unit II: Added: Newton's Rings: Expression for the radii of rings, Determination of wavelength of sodium light by Newton's rings.





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		<p>Deleted: Application of interference.</p> <p>Unit III: Added: The zone plate, Determination of Wavelength of light using Transmission Grating.</p> <p>Deleted: Paschen mounting.</p> <p>Unit IV: Added: Polarization of Light: Huygen's Theory and condition for double refraction in Uniaxial crystals Fresnel's theory of optical rotation.</p> <p>Deleted: Huygen's explanation of double refraction.</p>
232PY1A4CB	Core: Principles of Electronics and Communication	<p>As per suggestions given by Dr. R. Kalaiselvan - University nominee and Dr. J. Shanthi- Subject expert,</p> <p>Certain topics were added and deleted in Unit II, III and V as follows in view of current topics.</p> <p>Unit II: Added: Type of Field Effect Transistors Deleted: Circuit operations of D MOSFET, E MOSFET - Characteristics of UJT.</p> <p>Unit III: Added: Amplitude modulation - Theory of Frequency Modulation. Deleted: Frequency spectra - Representation of AM - Representation of FM.</p> <p>Unit V: Added: Satellite Orbits - Satellite communication system - Satellite applications.</p>
232PY1A4CP	Core Practical: Optics and Spectroscopy	<p>As per suggestions given by Mr. G. Maheswaran, industrial expert the Experiment, Determination of the refractive index of a prism using i-i' curve was changed to i-d curve for better understanding at UG level.</p>



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M.Sc. Physics		
Code	Course	Changes and Reason
232PY2A4CB	Core: Nuclear and Elementary Particle Physics	As per suggestions given by Dr. R. Kalaiselvan - University nominee and Dr. J. Shanthi- Subject expert, Entire syllabus was reframed to incorporate topics in accordance with entrance/ competitive exams.
232PY2A4CP	Core Practical-VI General Physics	General Physics title changed to Microprocessor as per subject experts suggestion

IDC Offered

Code	Course	Department
B.Sc. Physics		
232PY1A4IA	Biophysics	Biotechnology

After discussion the following resolution was passed.

Resolution:

Resolved to approve the above modification and adopt the revised syllabus of the IV semester for the UG and PG students admitted for the academic year 2023-24.

Item 16.4. *To review and approve scheme, regulation and syllabus for the VI Semester for students admitted in UG from the academic year 2022-23 onwards.*

The Chairman presented the detailed scheme, regulation and syllabus for the students admitted from the academic year 2022-2023 onwards and syllabus for the VI semester. The members deliberated in detail about the modifications required. After discussion it was unanimously decided to adopt the following changes.

Changes Made:

Code	Course	Changes and Reason
222PY1A 6DD	Solar Photovoltaic Technology	As per suggestions given by Dr. R. Kalaiselvan - University nominee and Dr. J. Shanthi- Subject expert, The following topics were removed



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		Unit III: Wattage of modules and Unit V: Simple Payback Period
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New Courses Introduced:

Code	Course	Changes and Reason
222PY1A6SA	Fundamentals of AI	Introduced in accordance with current academic requirement and placement opportunity.

After discussion the following resolution was passed.

Resolution:

Resolved to approve the above modification and adopt the revised syllabus of the VI semester for the UG students admitted for the academic year 2022-23.

Item 16.5. *To review and approve the Diploma, Certificate, Skill oriented courses to be offered during the academic year 2024-25.*

The chairman presented the Value Added Certificate Course (VACC) – Data Analytics and Python for a duration of 40 hours to be offered for Physics students during the even semester of the academic year 2024-2025.

Resolution:

Resolved to approve the Value Added Certificate Course to be offered for Physics students during the even semester of the academic year 2024-2025.

Item 16.6. *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 of examination are submitted to CoE for exam related work.





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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 2024-2025.

Item 16.7 : To consider and approve any other item brought forward by the Chairman and the members of the board.

The chairman presented the courses offered by NPTEL that are equivalent to courses offered in V semester for UG and III Semester for PG for approval for equivalency.

Resolution:

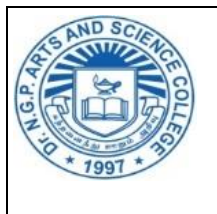
Resolved to approve the NPTEL courses offered in V semester for UG and III Semester for PG for equivalency.

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: 8.11.2024

K. Girija
8/11/2024
(Dr. K. Girija)

BoS Chairman/HoD
Department of Physics
Dr. N.G.P. Arts and Science College
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Syllabus Revision

Faculty : Basic and Applied Sciences

Board : Physics

Semester: II

Course Code / Name: 24PYU2CA / HEAT AND THERMODYNAMICS

Unit	Existing	Changes
I	Kinetic Theory of Gases : Concept of ideal gas – Expression for pressure exerted on a Gas - Derivation of gas laws – Degrees of freedom - Maxwell’s law of equipartition of energy – Relation between molar specific heats and degrees of freedom - Van der waals equation of state: Correction for pressure and correction for volume – Joule Kelvin effect: Temperature of inversion.	No Changes
II	Thermodynamics : Zeroth law of thermodynamics – Concept of heat - Internal energy (U) - First law of thermodynamics – Specific heats of a gas – Adiabatic process- Isothermal process – Carnot’s cycle - Second law of thermodynamics –Concept of entropy - Change in entropy - Entropy of a perfect gas - Third law of thermodynamics.	No Changes
III	Transmission of Heat : Conduction - Coefficient of thermal conductivity – Rectilinear flow of heat along a bar - Forbes Method to find K – Cylindrical flow of heat - Thermal conductivity of rubber – Thermal conductivity of glass - Wiedemann-Franz law - Thermopile – Properties of thermal radiation.	No Changes
IV	Thermometry : Concept of heat and temperature – Relation between Celsius, Kelvin, Fahrenheit scale of temperatures - Platinum resistance thermometer - Determination of C_v by Joly’s method – Determination of C_p by Regnault’s method – Callender and Griffith’s bridge - Gas equation –Low temperature measurement – High temperature measurement.	Gas equation
V	Calorimetry : Newton’s law of cooling – Specific heat of a liquid: Joule’s electrical method - Calendar and Barnes’ continuous flow	No Changes





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	method – Experimental determination of heat capacities - Two specific heats of a gas – Specific heat of a gas by Joly’s differential steam calorimeter.	
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PERCENTAGE OF SYLLABUS REVISED : 5 %

COURSE FOCUS ON :

- | | |
|--|--|
| <input checked="" type="checkbox"/> Skill Development
<input checked="" type="checkbox"/> Employability
<input type="checkbox"/> Intellectual Property Rights
<input checked="" type="checkbox"/> Social Awareness/ Environment | <input type="checkbox"/> Entrepreneurial Development
<input checked="" type="checkbox"/> Innovations
<input type="checkbox"/> Gender Sensitization
<input type="checkbox"/> Constitutional Rights/ Human Values/ Ethics |
|--|--|

Syllabus Revision

Faculty : Basic and Applied Sciences

Board : Physics

Semester: II

Course Code / Name: 24PYU2CB / ATOMIC PHYSICS

Unit	Existing	Changes
I	Positive Rays and Mass Spectrograph Discovery – Properties of positive rays - Thomson’s parabola method – Aston’s mass spectrograph – Bainbridge’s mass spectrograph - Dempster mass spectrograph - Mass defect and packing fraction – Binding energy.	Rutherford’s experiments on scattering of α particle
II	Structure of the Atom Basic concept of Thomson's atom model - Bohr atom model - Bohr interpretation on hydrogen spectrum - Ritz combination principle - Correspondence principle - Sommerfeld’s relativistic atom model - Vector atom model - Quantum numbers associated with vector atom model - Coupling schemes: L-S coupling - J-J coupling - The Pauli exclusion principle.	No Change

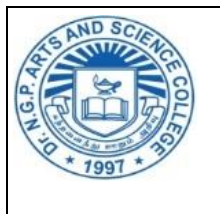


III	Fine Structure of Spectral Lines Critical potential - Atomic excitation - Experimental determination of critical potential: Franck and Hertz's method - Davis and Goucher's method. Optical spectra: Spectral terms - Spectral notation - Selection rules - Intensity rules - Interval rule - Normal Zeeman effect: Theory and experiment - Larmor's theorem- Anomalous Zeeman effect - Paschen-Back effect - Stark effect.	No Change
IV	X-Rays Production of X-Rays – Properties - Absorption of X-Rays – Laue experiment - Bragg's law – Bragg's X-Ray spectrometer – X-Ray Spectra, Characteristic X-Ray Spectra - Moseley's Law and Its Importance – Compton Scattering: Theory and Experiment.	No Change
V	The Photoelectric Effect Experimental investigation on the Photoelectric Effect - Einstein's Photoelectric Equation – Millikan's Experiment - Photoelectric Cell - Photo Emissive Cell - Photo Voltaic Cell – Photoconductive Cell - Application of Photoelectric Cell.	No Change

PERCENTAGE OF SYLLABUS REVISED : 2%

COURSE FOCUS ON:

- | | |
|--|--|
| <input checked="" type="checkbox"/> Skill Development | <input type="checkbox"/> Entrepreneurial Development |
| <input checked="" type="checkbox"/> Employability | <input type="checkbox"/> Innovations |
| <input type="checkbox"/> Intellectual Property Rights | <input type="checkbox"/> Gender Sensitization |
| <input type="checkbox"/> Social Awareness/ Environment | <input type="checkbox"/> Constitutional Rights/ Human Values/ Ethics |



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Syllabus Revision

Faculty : Basic and Applied Sciences

Board : Physics

Semester: VI

Course Code / Name: 24PYP2CA/Spectroscopy

Unit	Existing	Changes
I	Infrared Spectroscopy: Vibrational energy of a diatomic molecule- Infrared selection rules -Vibrating diatomic molecule - Normal modes of vibration in crystal - Interpretation of vibrational spectra - Group frequencies - IR spectrophotometer instrumentation - Fourier transform infrared spectroscopy (Principle and Working) - Applications.	No Changes
II	Microwave Spectroscopy: Rotation of molecules – Expression for the rotational constant - Theory of microwave spectra of linear and symmetric top molecules – Techniques and instrumentation - Chemical analysis by microwave spectroscopy.	No Changes
III	Raman Spectroscopy: Theory of Raman scattering - Rotational Raman spectra - Vibrational Raman spectra - Mutual exclusion principle - Raman spectrometer - Sample handling techniques - Polarization of Raman scattered light - Structure determination using IR and Raman spectroscopy - Surface selection rules—SERS microprobe—Applications of SERS.	
IV	Nuclear Magnetic and Electron Spin Resonance Spectroscopy: Theory of NMR method – Resonance condition – NMR Instrumentation – Relaxation processes - Bloch equations - Chemical shift – Spin-spin coupling – Interpretation of certain NMR spectra. - Principle of ESR - ESR spectrometer – Total Hamiltonian – Hyperfine structure – ESR spectra of free radicals in solution.	
V	Nuclear Quadrupole Resonance and Mossbauer Spectroscopy: Principle of nuclear quadrupole resonance – Transitions for axially and non-axially symmetric systems – NQR instrumentation – Chemical bonding – Hydrogen bonding. The Mossbauer effect - Recoilless emission and absorption - Experimental techniques - Isomer shift – Quadrupole Interaction - Magnetic hyperfine interaction – Applications.	No Changes





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PERCENTAGE OF SYLLABUS REVISED : 8 %

COURSE FOCUS ON :

- | | |
|---|---|
| <input checked="" type="checkbox"/> Skill Development
<input checked="" type="checkbox"/> Employability
<input type="checkbox"/> Intellectual Property Rights
<input type="checkbox"/> Social Awareness/ Environment | <input type="checkbox"/> Entrepreneurial Development
<input type="checkbox"/> Innovations
<input type="checkbox"/> Gender Sensitization
<input type="checkbox"/> Constitutional Rights/ Human Values/ Ethics |
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Syllabus Revision

Faculty : Basic and Applied Sciences

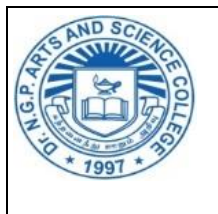
Board : Physics

Semester: II

Course Code / Name: 24PYP2CB / 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, HCP, FCC, Diamond, NaCl,) - Forces between atoms – Ionic bonding – The Born-Haber Cycle – Covalent bonding – Metallic bonding – Hydrogen bonding – Van der Waals bonding	HCP
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 Changes
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 Changes





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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 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.	No Changes
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.	No Changes

PERCENTAGE OF SYLLABUS REVISED : 2 %

COURSE FOCUS ON:

- | | |
|---|--|
| <input checked="" type="checkbox"/> Skill Development | <input type="checkbox"/> Entrepreneurial Development |
| <input checked="" type="checkbox"/> Employability | <input checked="" type="checkbox"/> Innovations |
| <input type="checkbox"/> Intellectual Property Rights | <input type="checkbox"/> Gender Sensitization |
| <input checked="" type="checkbox"/> Social Awareness/ Environment | <input type="checkbox"/> Constitutional Rights/ Human Values/ Ethics |

Syllabus Revision

Faculty : Basic and Applied Sciences

Board : Physics

Semester: II

Course Code / Name: 24PYP2CC/Quantum Mechanics I

Unit	Existing	Changes
I	Foundations of Quantum Mechanics: Postulates of quantum mechanics - Wave packet, Eigen values and functions – Hermitian operator - Free particle – Operator for momentum and energy – Interpretation of the wave function – Probability of interpretation, expectation value - Schrödinger equation, Ehrenfest's theorem.	No Changes
II	Eigen Spectrum, Identical Particles: Equation of motion – Schrödinger, Heisenberg	No Changes



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	and interaction representation - Square well potential with rigid walls - Square well potential with finite walls - Square well potential barrier - Alpha emission - Identical particles – Exchange operator.	
III	Three-Dimensional Problems and Angular Momentum: Particle in a spherical well - Hydrogen atom – Rigid rotator - Angular momentum operator – Eigen value and eigen function of L^2 and L_z – Eigen value of J^2 and J_z – Addition of angular momenta – Clebsh Gordan coefficients.	No Changes
IV	Matrix Formulation, Spin of Quantum Theory: Eigen values and eigen vector of matrices - Hilbert space - Dirac’s Bra-Ket notation - 1D harmonic oscillator in matrix mechanics - Pauli’s exclusion principle - Inclusion of spin – Spins functions for two electrons.	No Changes
V	Scattering Theory: Scattering by a perfectly rigid sphere - Scattering by a coulomb field - Green’s functions – Born approximation and its validity – Scattering by a square well potential – Scattering from an exponential potential.	No Changes

PERCENTAGE OF SYLLABUS REVISED : Nil

COURSE FOCUS ON :

- | | |
|--|--|
| <input checked="" type="checkbox"/> Skill Development | <input type="checkbox"/> Entrepreneurial Development |
| <input checked="" type="checkbox"/> Employability | <input checked="" type="checkbox"/> Innovations |
| <input type="checkbox"/> Intellectual Property Rights | <input type="checkbox"/> Gender Sensitization |
| <input type="checkbox"/> Social Awareness/ Environment | <input type="checkbox"/> Constitutional Rights/ Human Values/ Ethics |





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Syllabus Revision

Faculty : Basic and Applied Sciences

Board : Physics

Semester: II

Course Code / Name: 24PYP2CP / CORE III: SOLID STATE AND SPECTROSCOPY

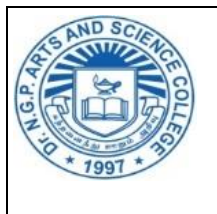
Ex. No	Existing	Changes
1	Determination of optical activity of specific rotation using Polarimeter.	No Change
2	Determination of refractive index of liquid using He-Ne laser	
3	Determination of e/m by Thomson method	
4	Determination of Rydberg's constant using Solar spectrum	
5	Study of Band gap energy using Thermistor	
6	Determination of Hall coefficient using Hall Effect	
7	Determination of Refractive index of liquid by Newton's ring	
8	Determination of Resistivity using Four probe method	
9	Find Young's modulus of the material by Hyperbolic fringes	
10	Study of dielectric constant and Curie temperature of magnetic materials.	
11	Determination of thermal conductivity of liquid and air by Lee's disc Method.	
12	Determination of Planck's constant.	

PERCENTAGE OF SYLLABUS REVISED : Nil

COURSE FOCUS ON :

<input checked="" type="checkbox"/> Skill Development	<input type="checkbox"/> Entrepreneurial Development
<input checked="" type="checkbox"/> Employability	<input checked="" type="checkbox"/> Innovations
<input type="checkbox"/> Intellectual Property Rights	<input type="checkbox"/> Gender Sensitization
<input type="checkbox"/> Social Awareness/ Environment	<input type="checkbox"/> Constitutional Rights/ Human Values/ Ethics





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18th

Syllabus Revision

Faculty : Basic and Applied Sciences

Board : Physics

Semester: II

Course Code / Name: 24PYP2CQ / CORE PRACTICAL: ELECTRONICS- II

Exp. No	Existing	Changes
1	Construction of Colpitt's oscillator using Op-Amp.	4. Construct the emitter follower and measure its gain. 10. Construction of single state transistor amplifier and to measure the gain at different frequency of the input signal.
2	Study the Schmitt trigger using OP-Amp. IC555.	
3	Study the static and drain characteristics of a JFET.	
4	Construct analog to digital converter using IC 741.	
5	Construct inverting, non-inverting and voltage follower using Op-Amp.	
6	Study the half adder, full adder, half subtractor and full subtractor using ICs.	
7	Construction of bistable multivibrator using Op-amp 741/NE 555.	
8	Study the characteristics of BJT.	
9	Construct the Log amplifier using Op-amp 741.	
10	Construct an astable multivibrator using IC 741.	
11	Construct second order low and high pass filters using IC 741.	
12	Study the characteristics of MOSFET.	

PERCENTAGE OF SYLLABUS REVISED : 2%

COURSE FOCUSES ON:

<input checked="" type="checkbox"/> Skill Development	<input type="checkbox"/> Entrepreneurial Development
<input checked="" type="checkbox"/> Employability	<input checked="" type="checkbox"/> Innovations
<input type="checkbox"/> Intellectual Property Rights	<input type="checkbox"/> Gender Sensitization
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Syllabus Revision

Faculty: Basic and Applied Sciences

Board: Physics

Semester: VI

Course Code / Name: 24PYP2DA / Physics of Nanomaterials

Unit	Existing	Changes
I	Classification of Nanomaterials Definition of zero, one, two and three dimension nanomaterials – Surface energy – Chemical potential as a function of surface curvature – Electrostatic stabilization: Surface charge density - DLVO theory - Steric stabilization: solvent and polymer.	No change
II	Special Nanomaterials Carbon fullerenes and nanotubes: Carbon fullerenes, Fullerene derived crystals, Carbon nanotubes - Micro and Mesoporous Materials: Ordered mesoporous structures - Random mesoporous structures - Crystalline microporous materials: Zeolites - Organic-inorganic hybrids: Class 1 hybrids - Class 2 hybrids.	No Change
III	Properties of Nanomaterials Physical properties of nanomaterials: Melting points and lattice constants – Mechanical properties – Optical properties: Surface plasmon resonance – Quantum size effects – Electrical property: Surface scattering - Change of electronic structure - Quantum transport - Effect of microstructure.	No Change
IV	Synthesis Methods Physical vapour deposition: Evaporation - Molecular beam epitaxy - Sputtering - Chemical vapour deposition: Typical chemical reaction - Reaction kinetics – CVD methods - Atomic layer deposition - Superlattices - Sol-Gel Films.	No Change
V	Characterization Tools Structural characterization: X-Ray diffraction – Scanning electron microscopy – Transmission electron microscopy - Scanning probe microscopy – Chemical characterization: Optical spectroscopy - Electron spectroscopy - Ion spectroscopy.	No Change

PERCENTAGE OF SYLLABUS REVISED : NIL





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Syllabus Revision

Faculty : Basic and Applied Sciences

Board : Physics

Semester: IV

Course Code / Name: 232PY1A4CA: OPTICS AND SPECTROSCOPY

Unit	Existing	Changes
I	Geometrical Optics: Aberrations: Spherical aberrations in lens - Methods of minimizing spherical aberration - Coma - Astigmatism - Chromatic aberration - Expression for an object at infinity - Achromatic lens - Condition for achromatism of two thin lenses separated by a finite distance - Dispersion by a prism - Angular dispersion and dispersive power.	Nil
II	Interference: Interference in thin films due to reflected and transmitted light – Fringes produced by a wedge-shaped thin film – Newton’s Rings: Expression for the radii of rings -Determination of wavelength of sodium light by Newton's rings- Refractive index of the liquid in Newton’s ring – Michelson interferometer – Measurement of wavelength, difference in the wavelength of two waves of Michelson interferometer – Fabry-Perot interferometer - Application of interference- Fresnel biprism.	Newton’s Rings: Expression for the radii of rings, Determination of wavelength of sodium light by Newton's rings
III	Diffraction: Fresnel’s assumptions - Rectilinear propagation of light - Half period zone – The zone plate- Fresnel and Fraunhofer diffraction - Fraunhofer diffraction at double slit - Theory of plane diffraction grating - Determination of Wavelength of light using Transmission Grating – Paschen mounting- Resolving power: Rayleigh’s criterion - Resolving power of telescope, prism, and grating.	The zone plate, Determination of Wavelength of light using Transmission Grating



IV	Polarization Polarization of Light: Brewster’s law - Huygen’s explanation of double refraction –Huygen’s Theory and condition for double refraction in Uniaxial crystals – Production and detection of linear polarized light- Quarter wave plate and half wave plate- Production and detection of elliptical, circular polarized light - Application of polarized light - Optical activity: Optical rotation – Fresnel’s theory of optical rotation- Specific rotation: Fresnel’s explanation - Laurent’s half shade polarimeter- Specific rotation of Sugar solution.	Polarization of Light: Huygen’s Theory and condition for double refraction in Uniaxial crystals Fresnel’s theory of optical rotation Specific rotation of Sugar solution.
V	Spectroscopy Types of Spectra: Infrared spectroscopy- Ultraviolet spectroscopy- Rayleigh’s Scattering- Origin of pure rotational spectrum of a molecule - Theory of the origin of vibration, rotation spectrum of a molecule - Electronic spectra of molecules – Raman effect: Experimental study of Raman effect - Quantum theory of Raman effect – Application of Raman spectra.	Types of Spectra: Infrared spectroscopy- Ultraviolet spectroscopy- Rayleigh’s Scattering- Raman effect:

PERCENTAGE OF SYLLABUS REVISED : 10%

COURSE FOCUS ON :

<input checked="" type="checkbox"/> Skill Development <input checked="" type="checkbox"/> Employability <input checked="" type="checkbox"/> Intellectual Property Rights <input type="checkbox"/> Social Awareness/ Environment	<input checked="" type="checkbox"/> Entrepreneurial Development <input checked="" type="checkbox"/> Innovations <input type="checkbox"/> Gender Sensitization <input type="checkbox"/> Constitutional Rights/ Human Values/ Ethics
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Syllabus Revision

Faculty : Basic and Applied Sciences

Board : Physics

Semester: IV

Course Code / Name: 232PY1A4CB / PRINCIPLES OF ELECTRONICS AND COMMUNICATION

Unit	Existing	Changes
I	Diodes and Transistors: PN Junction diode - Zener diode - Light emitting diode - Photo diode- Tunnel diode - Shockley diode. Transistor: terminals, facts, actions, symbols - Characteristics of CB, CE - Transistor testing.	No Changes
II	Field Effect Transistors and IC's : Type of Field Effect Transistors- Principle and working of JFET - Circuit operations of D-MOSFET, E-MOSFET—Characteristics of UJT . Output characteristics of JFET – Metal oxide semiconductor FET -Types of MOSFET - Integrated Circuits - Advantage and disadvantage of IC's- - IC classifications, Making monolithic IC's IC packing's- IC symbols.	Type of Field Effect Transistors
III	Modulations and Demodulations: Modulation – Necessity for modulation – Types of modulation – Amplitude modulation -Modulation factor – Theory of Frequency modulation - Frequency spectra—Representation of AM—Representation of FM— Comparison of AM and FM Demodulation - Essentials in demodulation.	Amplitude modulation - Theory of Frequency modulation
IV	AM Transmitter and Receiver : AM detector - AM receiver - Types of AM receiver - TRF receiver – Super heterodyne receiver – Image frequency rejection – S/N ratio – Sensitivity – Selectivity – RF amplifier – Mixer – Detection and AGC.	No Changes
V	Satellite communication, Radar and Fibre Optics Communication: Components of a communication system – Satellite Orbits - Satellite communication system - Satellite applications . Up Link – Down Link – RADAR: Principle, Transmitting and reception systems – Applications - Fiber Optics: Principle, Structure, Acceptance Angle, and Numerical Aperture.	Satellite Orbits - Satellite communication system - Satellite applications.





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Syllabus Revision

Faculty : Basic and Applied Sciences

Board : Physics

Semester: IV

Course Code / Name: 232PY1A4CP/ CORE PRACTICAL: OPTICS AND SPECTROSCOPY

Ex. No	Existing	Changes
1	Determination of the wavelength of sodium light and the number of lines per centimeter using diffraction grating	-
2	Determination of dispersive power and resolving power using plane diffraction grating. (Under DBT Scheme)	-
3	Find the thickness of a thin paper by measuring the width of interference fringes produced by a wedge-shaped Film	
4	Determination of the refractive index of a prism using (i-i') curve	Determination of the refractive index of a prism using (i-d) curve
5	Determination of the radius of curvature of lens using Newton's Rings.	
6	Determine the wavelength of a source using Michelson's interferometer. (Under DBT Scheme)	



7	Determination of the resolving power of the material of a prism using mercury source.	
8	Find the values of the Cauchy constants of the material of a prism using mercury source.	
9	Comparison of the Refractive indices of two different liquids using hollow prism.	
10	Determination of the Refractive index of water using hollow prism.	
11	Determination of the wavelength of sodium light using Newton's Rings.	
12	Determine the dispersive power of the material of a prism using mercury Source. (Under DBT Scheme)	

PERCENTAGE OF SYLLABUS REVISED : 2 %

COURSE FOCUS ON :

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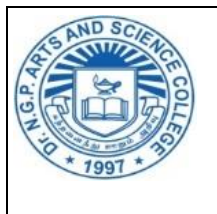
Board : Physics

Semester: VI

Course Code / Name: 232PY1A4SA/Concepts and programming in C

Unit	Existing	Changes
I	Basic Structure of C programming: Character sets – Constants – Keywords and Identifiers – Variables – Data types – Declaration of Variables – Assigning values to Variables – Defining symbolic constants	No Changes
II	Operators and Expression: Arithmetic operators – Relational operators – Logical operators – Assignment operators – Increment and Decrement operators – Conditional operators –Special operators – Arithmetic expression – Evaluation of expression – Precedence of arithmetic operators – Some computer problems – Type conversion in expression – Operator precedence and associativity –Mathematical functions.	No Changes
III	Control statements: Reading and writing character – Formatted input and output – Decision making: IF statement: Simple IF – IF ELSE – Nesting of IF..ELSE..ELSE - IF Ladder – Switch Statement – Operator – go to statement – while - Do..While – for loop – Jumps in loops – Simple programs.	No Changes
IV	Arrays: One dimensional array – Declaration of array – Initiating on two and multidimensional arrays – Declaring and initializing string variables – Reading strings from terminal – Writing strings on the screen – Arithmetic operations on characters – Simple programs - Sorting, searching program using one dimensional array, matrix manipulation.	No Changes
V	Physics Problems into C programming: Conversion of Temperature from C to F and F to C – Determination of Velocity of Light by Foucault’s Rotating Mirror method – Determination of G by Boy’s Method – Young’s Modulus – Uniform and Non Uniform method – Determination of Frequency: Sonometer – Spectrometer: Refractive index and Dispersive power of Prism – Newton’s rings: Radius of Curvature.	No Changes





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<input checked="" type="checkbox"/> Employability	<input checked="" type="checkbox"/> Innovations
<input checked="" type="checkbox"/> Intellectual Property Rights	<input type="checkbox"/> Gender Sensitization
<input checked="" type="checkbox"/> Social Awareness/ Environment	<input type="checkbox"/> Constitutional Rights/ Human Values/ Ethics

Syllabus Revision

Faculty: Basic and Applied Sciences

Board: Physics

Semester: IV

Course Code / Name: 232PY2A4CA: MOLECULAR PHYSICS

Unit	Existing	Changes
I	Molecular Structure and Bonding Chemical bonding - The VSEPR model - Valence bond theory – The hydrogen molecule - Polyatomic molecules - Molecular orbital theory – Bond properties - Polyatomic molecules - Molecular shape in terms of molecular orbitals - Molecular structure, properties and conformations.	No change
II	Molecular Symmetry Molecular forces – Explanation of surface tension on kinetic theory – Work done in increasing area of a surface – Pressure difference across a liquid surface - Jaegar’s method - Variation of surface tension with temperature - Experimental study of variation of surface tension with temperature.	No change
III	Molecular Interactions and Mechanics Electric properties of molecules - Electric dipole moments - Polarizabilities - Relative permittivity’s - Interactions between dipoles - Repulsive and total interactions - Molecular interactions in gases - Potential energy (force field) in molecular mechanics.	No change
IV	Molecular Reaction Dynamics Potential energy surfaces – Transition state theory – The Eyring equation – Thermodynamic aspects – Microscopic – Macroscopic connection - Zero-point vibrational energy - Molecular electronic, rotational, vibrational and translational partition functions.	No change





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V	Electron Transfer, Electronic Structure and Spectra The rates of electron transfer processes - Theory of electron transfer processes - Crystal-field theory - Ligand-field theory - Electronic spectra of atoms - Electronic spectra of complexes - Charge-transfer bands.	No change
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PERCENTAGE OF SYLLABUS REVISED : NIL

COURSE FOCUS ON :

<input checked="" type="checkbox"/> Skill Development <input checked="" type="checkbox"/> Employability <input checked="" type="checkbox"/> Intellectual Property Rights <input type="checkbox"/> Social Awareness/ Environment	<input checked="" type="checkbox"/> Entrepreneurial Development <input checked="" type="checkbox"/> Innovations <input type="checkbox"/> Gender Sensitization <input type="checkbox"/> Constitutional Rights/ Human Values/ Ethics
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Syllabus Revision

Faculty: Basic and Applied Sciences

Board: Physics

Semester: IV

Course Code / Name: 232PY2A4CB: NUCLEAR AND ELEMENTARY PARTICLE PHYSICS

Unit	Existing	Changes
I	Properties of Atomic Nucleus Nuclear size and its determination - Mass spectroscopy - Theories of nuclear composition - Binding energy - Semi empirical mass formula - Quantum numbers for individual nucleons - Independence of atomic and nuclear properties - Quantum properties of nuclear states - Nuclear magnetic dipole moment - Electric multipole moment	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 forces
II	Radioactivity Molecular forces – Explanation of surface tension on kinetic theory – Work done in increasing area of a surface – Pressure difference across a liquid surface - Jaegar’s method - Variation of surface tension with temperature - Experimental study of variation of surface tension with temperature.	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





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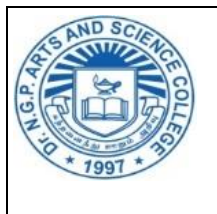
III	Nuclear Force and Nuclear Reactions Nuclear force: The ground state of the deuteron z- Central and non-central forces - Nuclear Reactions: Types of nuclear reactions - The balance of mass and energy in nuclear reactions - The Q equation - Reaction cross section - Breit - Wigner formula.	Radio Activity 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
IV	Radioactivity Decay Range of alpha particles - Disintegration energy of spontaneous alpha decay- Alpha decay paradox - Barrier penetration - Gamow's theory of alpha decay - Fermi's theory of beta decay - The detection of neutrino - Parity non conservation in beta decay - Gamma ray emission - Selection rules - Internal conversion - Nuclear isomerism.	Nuclear Reactions 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.
V	Elementary Particles Antiparticles and antimatters - Feynman diagrams - Estimation of a pion mass - The four fundamental forces of nature - W Bosons and gluons - Conservation laws - The nucleon isospin - The Gell-Mann-Nishijima relation: Isospin of particles - The Quark model - The QCD - Colour quantum number - Colors for quarks and Gluon.	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 model

PERCENTAGE OF SYLLABUS REVISED : 60%

COURSE FOCUS ON :

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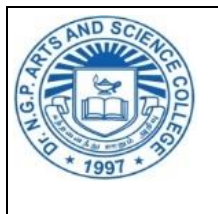
Board : Physics

Semester: IV

Course Code / Name: 232PY2A4DA / 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 Changes
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.	No Changes
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 Changes
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 Changes
V	Third Generation Solar Cells: Operating mechanism of dye-sensitized solar cell – Materials – Performance of highly efficient DSSCs – Electron transfer processes and charge recombination in DSSC - Organic-Inorganic perovskites for photovoltaics - Deposition methods –Electronic properties - Device operation - Ongoing challenges - Lead-free alternatives.	No Changes





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COURSE FOCUS ON :

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| <input checked="" type="checkbox"/> Employability | <input checked="" type="checkbox"/> Innovations |
| <input type="checkbox"/> Intellectual Property Rights | <input type="checkbox"/> Gender Sensitization |
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Faculty : Basic and Applied Sciences

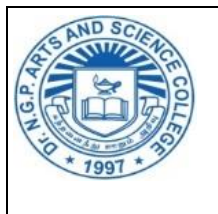
Board : Physics

Semester: IV

Course Code / Name: 232PY2A4CP/ CORE PRACTICAL IV: MICROPROCESSOR

Ex. No	Existing	Changes
1	Write 8085 ALP for 8 bit addition and subtraction	No changes
2	To perform 8 Bit multiplication and division using 8085 instruction set	
3	To find the biggest and smallest number element in the array using 8085	
4	Write 8085 ALP for LED interfacing	
5	To perform for sorting the element in an array in ascending and descending order using 8085	
6	To generate triangular and square wave by using 8085 ALP	
7	Masking off most significant four bits and setting bits using two different instructions using 8085	
8	Write 8085 ALP for Stepper motor controller	
9	Write 8085 ALP for Elevator controller	





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10	Write Microprocessor 8085 ALP for interface IV (Waveform generation)	
11	Write Microprocessor 8085 ALP for Traffic control system	
12	Write Microprocessor 8085 ALP for subroutines (display results)	

PERCENTAGE OF SYLLABUS REVISED : NIL

COURSE FOCUS ON :

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Syllabus Revision

Faculty : Basic and Applied Sciences

Board : Physics

Semester: VI

Course Code / Name: 222PY1A6CA/ Relativity and quantum mechanics

Unit	Existing	Changes
I	Special Theory of Relativity: Frame of references – Galilean transformation – Newtonian relativity – The velocity of light – Failure of Newtonian mechanics – Newtonian relativity and electromagnetism – The concept of Ether – Michelson – Morley experiment – Einstein’s postulates – Lorentz transformations – Inverse transformations – Velocity transformation – Length contraction – Time dilation – Variation of mass	No Changes
II	Wave Packet Description: Phase velocity and group velocity – Analytical expression for a group of waves – Derivation of the De’Broglie relation - Relation between the phase velocity and the wavelength of De’Broglie wave – De’Broglie wavelength associated with a particle of mass M and kinetic energy – Verification of De’Broglie relation – Davisson and Germer’s experiments – G P Thomson’s	No Changes



	experiments	
III	Basics of Uncertainty Principle: Uncertainty principle – Elementary proof between displacement and momentum – Energy and time – Physical significance of Heisenberg’s uncertainty principle –Diffraction of electrons through a slit – Gamma ray microscope thought experiment – Applications: Non-existence of free electrons in the nucleus –Size and energy in the ground state of hydrogen atom	No Changes
IV	Schrodinger Equation and its solutions: Schrodinger equation - Properties of wave function - Probability interpretation of wave function and probability and current density - Operators - Expectation value – Eigen values and eigen functions - Time dependent form- Time independent form - Particle in one dimensional box - Equation of continuity.	No Changes
V	Angular Momentum in Quantum Mechanics: Orbital angular momentum operators and their commutation relations - Separation of three dimensional Schrodinger equation into radial and angular parts - Elementary ideas of spin angular momentum of an electron - Pauli matrices.	No Changes

PERCENTAGE OF SYLLABUS REVISED : Nil

COURSE FOCUS ON :

- | | |
|---|---|
| <input checked="" type="checkbox"/> Skill Development
<input checked="" type="checkbox"/> Employability
<input type="checkbox"/> Intellectual Property Rights
<input type="checkbox"/> Social Awareness/ Environment | <input checked="" type="checkbox"/> Entrepreneurial Development
<input checked="" type="checkbox"/> Innovations
<input type="checkbox"/> Gender Sensitization
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18th

Syllabus Revision

Faculty : Basic and Applied Sciences

Board : Physics

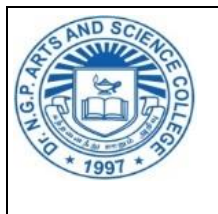
Semester: VI

Course Code / Name: 222PY1A6CB/Digital electronics and Microprocessors

Unit	Existing	Changes
I	Number System, Binary Arithmetic and Codes: Binary Numbers - Octal numbers - Hexadecimal numbers (Conversion of one number system into other). Arithmetic operation – Binary Addition – Binary subtraction – 1’s complement subtraction - 2’s complement subtraction. Binary coded decimal – Weighted binary codes – Non-weighted codes - Excess 3 codes – Grey codes.	No Changes
II	Boolean Algebra, Logic Gates and Arithmetic Circuits: Basic laws of Boolean algebra - Properties of Boolean algebra – De Morgan’s theorems. Logic Gates: OR, AND, NOT, NAND, NOR, Ex-OR, Ex-NOR gates –Universal building blocks - Half adder – Full adder – Half Subtractor – Full Subtractor – Parallel binary adder – Parallel binary Subtractor – Binary to Grey code converter – Grey to Binary converter.	No Changes
III	Microprocessor Architecture and Assembly Language: Microprocessor Organization - Languages: Machine, Assembly and ASCII code -High level language. Operating systems - Microprocessor architecture and its operations: Initiated operations - Internal data operations - External initiated operations.	No Changes
IV	Microcomputer Systems: Memory addressing - Address lines, Word size and Classification. I/O devices -Logic devices for interfacing: Decoder – Encoder. 8085 MPU: 8085 Microprocessor –Communication and Bus timings - Control signals.	No Changes
V	8085 Assembly Language Programming: Instruction classification – Data Transfer (copy) operations – Arithmetic operations – Logic operations – Branch operations - Instruction word size and data format – Write, Assemble and Execute a simple program – Debugging a program.	No Changes

PERCENTAGE OF SYLLABUS REVISED : NIL





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COURSE FOCUS ON :

- | | |
|--|--|
| <input checked="" type="checkbox"/> Skill Development | <input type="checkbox"/> Entrepreneurial Development |
| <input checked="" type="checkbox"/> Employability | <input type="checkbox"/> Innovations |
| <input type="checkbox"/> Intellectual Property Rights | <input type="checkbox"/> Gender Sensitization |
| <input type="checkbox"/> Social Awareness/ Environment | <input type="checkbox"/> Constitutional Rights/ Human Values/ Ethics |

Syllabus Revision

Faculty : Basic and Applied Sciences

Board : Physics

Semester: VI

Course Code / Name: 222PY1A6CP/ CORE PRACTICAL: ELECTRONICS

Exp. No	Existing	Changes
1	Construct half adder and full adder circuits using NAND Gate and verify its truth table.	No Changes
2	To design, construct and verify the operation of the following flipflops using gates (i) S-R Flip Flop using NOR Gates (ii) S-R Flip Flop using NAND gate	
3	Verification of De-Morgan's theorem.	
4	Microprocessor 8085 – LED interfacing.	
5	OP-AMP parameters – Adder, Subtractor.	
6	OP-AMP applications - Inverting-non-inverting. (Under DBT Star College Scheme).	
7	OP-AMP parameters - Integrator, differentiator.	
8	Construct an Astable multivibrator using OP-AMP or transistor.	
9	Op-amp - Study of the attenuation characteristics and design of the phase shift	



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	oscillator.	
10	Construct and verify the values of Monostable multivibrator using OP-AMP or transistor (Under DBT Scheme).	
11	Study the characteristics of JFET (Under DBT Scheme).	
12	8085 ALP for 8-bit Addition and Subtraction	

PERCENTAGE OF SYLLABUS REVISED : NIL

COURSE FOCUSES ON :

<input checked="" type="checkbox"/> Skill Development	<input type="checkbox"/> Entrepreneurial Development
<input checked="" type="checkbox"/> Employability	<input checked="" type="checkbox"/> Innovations
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Syllabus Revision

Faculty : Basic and Applied Sciences

Board : Physics

Semester: VI

Course Code / Name: 222PY1A6SA / FUNDAMENTALS OF AI (New Course)

Unit	Existing	Changes
I	Unit I Foundation of AI: Introduction - History of AI - Structure of AI - Types of Data - Big Data - Data process - Ethics and Governance.	
II	Unit II Machine Learning: Introduction to Machine Learning - Machine Learning Process - Supervised Learning - Unsupervised Learning - Decision Tree - Ensemble Modelling.	
III	Unit III Deep Learning: Introduction to Deep Learning - Difference between Deep Learning and Machine Learning - Artificial Neural Networks - Recurrent Neural Networks - Applications.	



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IV	Unit IV Robotic Process Automation: Introduction to RPA -Pros and Cons of RPA - Determine the right functions to automate - RPA and AI - RPA in the Real world.
V	Unit V Implementation and Future of AI: Approaches to implement AI - Steps for AI implementation - Right Tools and Platforms - Automobiles - Drug discovery.

PERCENTAGE OF SYLLABUS REVISED : 100 %

COURSE FOCUS ON :

- | | |
|---|---|
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<input type="checkbox"/> Innovations
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<input type="checkbox"/> Constitutional Rights/ Human Values/ Ethics |
|---|---|

Syllabus Revision

Faculty : Basic and Applied Sciences

Board : Physics

Semester: II

Course Code / Name: 222PY1A6DA / Nanophysics

Unit	Existing	Changes
I	Nanoscience Emergence of Nanotechnology – Scientific revolution – Classification of nanostructures (0D, 1D, 2D and 3D) – Surface area to volume ratio – Size effect in nanoparticles: Optical properties – Structural properties – Mechanical properties – Challenges of Nanotechnology.	Concepts of Nanoscience and Properties
II	Synthesis of nanomaterials Bottom-up and top-down approaches – Ball Milling – Sputtering – Vapor liquid solid (VLS) growth – Electron beam lithography – Sol-gel method – Chemical vapor deposition – Hydrothermal method – Electrochemical deposition.	Preparation of Nanomaterials





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III	Nanostructured Materials Carbon Fullerenes – Carbon nanotubes – Random mesoporous structures – Core-shell structures: metal-oxide structures – Metal-polymer structures – Nanocomposites and nanograined materials – Quantum confinement – Quantum dots.	No Changes
IV	Characterization of Nanomaterials X-ray diffraction – UV-Visible spectrometer – Raman spectroscopy – Fourier Transform infrared spectrometer – Scanning electron microscopy – Transmission electron microscopy – Vibrating sample magnetometer.	No Changes
V	Applications of Nanomaterials Nanoelectronics – Dye sensitized solar cells – Quantum electronic devices – Food processing and food packaging – Nanofertilizers – Nanoelectromechanical system (NEMS) based device – Nano sensors – Nano medicines – Nanobots.	No Changes

PERCENTAGE OF SYLLABUS REVISED : NIL

COURSE FOCUS ON:

- | | |
|--|--|
| <input checked="" type="checkbox"/> Skill Development

<input checked="" type="checkbox"/> Employability

<input type="checkbox"/> Intellectual Property Rights

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Syllabus Revision

Faculty: Basic and Applied Sciences

Board : Physics

Semester: VI

Course Code / Name: 222PY1A6DD / Solar Photovoltaic Technology

Unit	Existing	Changes
I	Energy band diagram of PN junction - PN junction potential - Width of depletion region - Carrier movements and current densities - Carrier concentration profile. Generation of Photovoltage -Light generated circuit - I-V equation of solar cells - Solar cell characteristics.	No changes
II	Upper limits of cell parameter: Short circuit current - Open circuit voltage -	No Changes





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	Fill Factor - Efficiency - Losses in solar cells: Model of a solar cell - Effect of series and shunt resistance on efficiency - Effect of solar radiation on efficiency - Effect of temperature on efficiency - Solar cell design	
III	Series and parallel connection of cells - Design and structure of PV module: Number of solar cells in a module - Wattage of modules - Fabrication of PV modules - PV module power output: I-V equation of PV module - Ratings of PV modules - Effect of solar irradiation	Wattage of modules
IV	Cell to battery- Battery parameters - Factors affecting Battery Performance: Battery voltage level - Battery discharge current - Batteries for PV systems: Lead-acid batteries - Ni-Cd batteries - Comparison of batteries	No Change
V	Type d Regulated standalone system with battery and AC and DC loads - Type e regulated hybrid system with AC and DC loads - Design of PV powered DC pump -Wire sizing in PV systems - Types of hybrid PV systems – Simple Payback Period	Simple Payback Period

PERCENTAGE OF SYLLABUS REVISED : 2 %

COURSE FOCUS ON:

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ATTENDANCE OF THE EIGHTEENTH BOARD OF STUDIES MEETING

Faculty : Basic and Applied Sciences

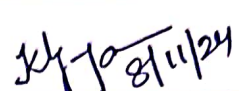

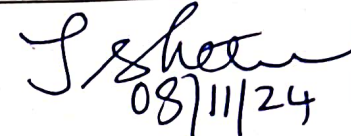
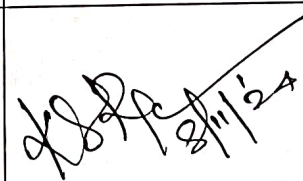
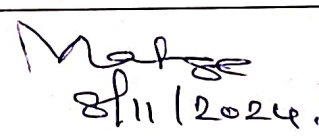
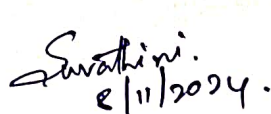

Board: Physics

Venue : Room no. 1513 -B1 Block

Date : 08/11/2024

Time : 10:00 AM

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

S. No.	Name	Designation	Signature
1.	Dr.K.Girija Associate Professor & Head (i/c)	Chairman	 08/11/24
2.	Dr. R. Kalaiselvan Associate Professor Department of Physics Bharathiar University Coimbatore -46	VC Nominee	 08/11/2024
3.	Dr. J. Shanthy Professor and Head Department of Physics Avinashilingam Institute of Home Sciences Coimbatore - 43	Member (Subject Expert)	 08/11/24
4.	Dr. K. S. Rajni Professor Department of Sciences School of Sciences Amrita Vishwa Vidyapeetham Coimbatore - 112	Member (Subject Expert)	 08/11/24
5.	Mr. G. Maheswaran Chief Executive Officer Silicon Technologies Coimbatore - 14	Member (Industry Expert)	 08/11/2024.
6.	Ms. A. Suvathini Junior Assistant Commercial Tax office Tirupur - 02	Member (Alumni)	 08/11/2024.
7.	Dr.N.Kuppusamy Professor & Head Department of Tamil Dr.N.G.P ASC	Co-opted Member	 08/11/24





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8.	Dr.A.Hazel Verbina Professor & Head (i/c) Department of English Dr.N.G.P ASC	Co-opted Member	
9.	Dr.R.Sowrirajan Professor & Head Department of Mathematics Dr.N.G.P ASC	Co-opted Member	
10.	Dr.R.Ravikumar Professor&Head (i/c) Department of Chemistry Dr.N.G.P ASC	Co-opted Member	
11.	Dr.V.Gopalakrishnan Professor Department of Physics Dr.N.G.P ASC	Member	
12.	Dr.M.R.Ananthan Associate Professor Department of Physics Dr.N.G.P ASC	Member	
13.	Mrs.R.Revathi Assistant professor Department of Physics Dr.N.G.P ASC	Member	
14.	Dr.R.Karunathan Assistant Professor Department of Physics Dr.N.G.P ASC	Member	
15.	Dr.R.Dilip Assistant Professor Department of Physics Dr.N.G.P ASC	Member	
16.	Dr.S.Gunasekaran Assistant Professor Department of Physics Dr.N.G.P ASC	Member	





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17.	Dr.J Martin Sam Gnanaraj Assistant Professor Department of Physics Dr.N.G.P ASC	Member	
18.	Mr.M.Dhanushvarman II M.Sc Physics	Student Representative	
19.	Ms.S.Vasuki III B.Sc Physics	Student Representative	

Date: 08/11/2024



34/70
8/11/2024
(Dr. K. Girija)

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



Dr. NGPASC
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