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MINUTES OF THE THIRTEENTH BOARD OF STUDIES MEETING

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

The Meeting of Board of Studies (BoS) was held as given below:

Name of the Body	Board of Studies
Department	Physics
Meeting No.	13
Date and Time	04.08.2022 @ 10.00 a.m.
Venue	Seminar Hall - C1 Block
Members Attended	The details are given in the ANNEXURE -I

Item	AGENDA
01	Discussion on UG Curriculum for AY 2022-23 and onwards adopting R4 guidelines
02	Discussion on UG syllabi for Part III - Core Courses for first semester 2022-23 Batch
03	Discussion on syllabus for Part III- Inter Disciplinary Course (IDC) offered by other departments
04	Discussion on syllabus for Part III - Inter Disciplinary Course (IDC) offered to other departments
05	Discussion on Part I (Tamil/Hindi/French/Malayalam) offered by Language department for 2022-23 Batch
06	Discussion on Part II (English) offered by English Department for 2022-23 Batch
07	Discussion on Part IV (AECC) Environmental Studies for 2022-23 Batch
08	Discussion on credits for Part V Extension Activity for 2022-23 Batch
09	Discussion on PG Curriculum for AY 2022-23 and onwards adopting R4 guidelines
10	Discussion on PG syllabi for first semester courses 2022-23 Batch
11	Discussion on PG DSE syllabi for first semester courses 2022-23 Batch
12	Discussion on Value Added Certificate Courses (VACC)
13	Any other matters

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MINUTES OF THE THIRTEENTHBOARD OF STUDIES MEETING

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

The Chairman of BoS welcomed all the Panel members for the meeting. The items listed in the agenda were taken for discussion.

The following are the minutes of the meeting:

Item - 01	Discussion on UG Curriculum for AY 2022-23 and onwards adopting R4 guidelines
Discussion	Under regulation R4, common syllabi have been designed for the mandatory core theory courses recommended by TANSCHE. The UG Curriculum for AY 2022-23 was presented for discussion.
Resolution	The Board members unanimously approved the curriculum.
Item - 02	Discussion on syllabi for Part III - Core Courses for first semester UG - 2022-23 Batch
Discussion	**222PY1A1CA: Properties of Matter and Sound** • Prof. Shanthi and Prof. Kalaiselvan suggested the book authored by Brijlal and Subrahmanyam on Sound as text book and suggested to delete the contents found in school syllabus. ▪ Unit I- Stress, Strain - Hooke's law– Elastic moduli- Poisson's ratio ▪ Unit II - Capillary rise method. ▪ Unit III -Stokes formula ▪ Unit IV - Simple Harmonic Motion, Progressive waves, Beats, Stationary waves, Properties, Laws of transverse vibration in a string, Sonometer experiment for the frequency of tuning fork. • Prof. Shanthi suggested to enhance the syllabus with contents related to advanced learning. ▪ Relation between angle of shear and linear strain ▪ work done in increasing area of a surface ▪ Poiseuille's formula for the flow of a liquid through capillary tube ▪ Damped vibration - force vibrations - Saw tooth wave - square wave **222PY1A1CB: Mechanics** • Prof. Shanthi and Prof Kalaiselvan suggested to delete the following contents in order to incorporate advanced topics. ▪ Unit I- Conservation law of linear momentum-Definition and types of collisions - Elastic and in elastic collision -special cases- Illustration with examples of collisions during accidents and collisions at atomic and sub-atomic level ▪ Unit III - Acceleration due to gravity – Variation of g with

altitude, depth and rotation of earth. Gravitational potential – Kepler's law of gravitation - Energy of orbiting satellite – Einstein and Gravity (Principle of Equivalence).

- Unit IV - Relation between then – Expression for a acceleration of a body rolling down an inclined body without slipping - Center of mass –Velocity and acceleration of centre of mass – Rocket motion

- The following contents are added to enrich the knowledge about mechanics
  - Unit I - Calculation of final velocities of colliding particle - Impulse of a force - Value of the scattering angle - Impulse and linear momentum – Newton's law of impact - Co-efficient of restitution - Motion of two smooth bodies perpendicular to the line of impact - Definitions for direct and oblique impact
  - Unit III - Motion of a planet in an elliptical orbit around the sun - Conservation of angular momentum of a system, a consequence of a rotational invariance of potential energy of the system - Motion of a planet or a satellite in it orbit – Applications (Scattering of a positive particle by a massive nucleus - Effect on linear and angular speeds of a particle on contraction of its orbit - The shape of the galaxy).
  - Unit IV - Acceleration of Two Objects Connected by a Cord - Acceleration of Two Connected Objects When Friction Is Present – Automobile Antilock Braking Systems (ABS)
  - Unit V – Pitot tube

222PY1A1CP: Practical - Properties of Matter and Mechanics
- Prof. Shanthi suggested to include to include the experiments "1. Young's Modulus – Koenig's method. 2. Young's Modulus - Cantilever - Static Method. 3. Young's Modulus - Cantilever - Dynamic Method".

Resolution	The Board approved the syllabus
Item-03	**Discussion on syllabus for Part III - Inter Disciplinary Course (IDC) offered to Department of Mathematics and Department of Chemistry**

Discussion	**222PY1A1IP: Modern Physics with Practical - I B.Sc. (Mathematicss) and I B.Sc. (Chemistry).**
	• Prof. Shanthi and Prof. Kalaiselvan suggested to remove the following topics in school syllabus
	  ▪ Unit I- Ohm's law – Kirchoff's laws – Applications of Krichhoff's laws to Wheatstone's network – condition for balance- measurement of resistance – measurement of specific resistance –determination of temperature coefficient of resistance
	  • Unit II – completely changed without any repetition of 1st and 2nd semester IDC syllabus
	  • Unit III - Interference – conditions for interference maxima and minima - Diffraction – Difference between diffraction and

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interference

- Unit IV - Semiconductor – PN junction diode – V-I characteristics of a Junction diode - Zener diode – Regulated power supply - Working of an NPN transistor – Common Emitter characteristics of a Transistor – current gain - Applications of Transistor.
- Unit V - Number system — Binary – Octal and Hexadecimal system - conversion of one number system to another number system — Logic gates – OR, AND, NOT, XOR, NAND and NOR gates – truth tables –Laws of Boolean's algebra – De Morgan's theorems
- Prof.Shanthi The following contents with relevant experiments are added.

    - Unit I - Capacitors – Types of capacitors - Spherical capacitor - Cylindrical capacitor - Calibration of ammeter
        - Calibration of low range voltmeter using potentiometer
        - Determination of unknown resistance using Carey Foster's bridge
        - Calibration of low range ammeter using potentiometer
    - Unit II - Ionic crystals - Covalent crystals - Metallic bond - Band theory of solids - Tunnel diodes - Energy bands - Superconductivity - Bound electron pairs - Hall effect - Experimental determination of hall coefficient
        - Determination of band gap of semiconductors using four probe method
        - Determination of band gap of semiconductor by thermal method
    - Unit III - 6.Determination of wavelength of mercury lines by grating minimum deviation method
        - Determination of the radius of curvature in Newton's rings
    - Unit IV - Band gap determination using post office box – Transistor characteristics in common base and common emitter mode - Transistor single stage amplifier- Expression for input impedance - Output impedance and current gain
        - Characterization of junction diode
        - Determination of band gap using Post office box method
    - Unit V - 1's and 2's complement of a binary number and binary arithmetic - Steps in the fabrication of Monolithic IC's – General applications of IC's - Registers - Flip flops - JK flip flops
        - Verification of logic gate truth table
        - Verification of De Morgan's law
        - Construction and working of IC regulated power supply

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Resolution	The Board unanimously approved the revised syllabus
Item - 04	**Discussion on syllabus for Part III - Inter Disciplinary Course (IDC) offered by Department of Mathematics**
Discussion	**222MT1A1IP – Fundamentals of Mathematics with MATLAB** • Syllabus approved by the Mathematics BoS was endorsed by the members of the board.
Resolution	The Board approved the same
Item – 05	**Discussion on Part I (Tamil/Hindi/French/Malayalam) offered by Language department for 2022-23 Batch**
Discussion	**221TL1A1TA/ 221TL1A1HA /221TL1A1FA /221TL1A1MA: Part I:Tamil-I: Ikkala Illakiyam / Hindi-I/French-I/ Malayalam - I respectively** • The unified syllabus approved by the Board of Studies in Languages were placed for endorsement.
Resolution	The Board approved the same
Item -06	**Discussion on Part II (English) offered by department of English for 2022-23 Batch**
Discussion	**221EL1A1EA : Part II: Professional English I** • The unified syllabus approved by the Board of Studies in English was placed for endorsement.
Resolution	The Board members unanimously approved the syllabus
Item -07	**Discussion on Part IV (AECC) Environmental Studies for 2022-23 Batch**
Discussion	**223MB1A1AA: Environmental Studies** • The unified syllabus approved by the Board of Studies in Microbiology was placed for endorsement.
Resolution	The Board approved the syllabus
Item-08	**Discussion on credits for Part V Extension Activity for 2022-23 Batch**
Discussion	• One credit to be awarded for participation in NSS/NCC/YRC/RRC/Yoga/Sports/Clubs
Resolution	The Board members approved the same
Item –09	**Discussion on PG Curriculum for AY 2022-23 and onwards adopting R4 guidelines**
Discussion	Under regulation R4, common syllabi have been designed for the mandatory core theory courses recommended by TANSCHE The PG Curriculum for AY 2022-23 was presented for discussion.
Resolution	The Board members unanimously approved the curriculum.

Cont….

Item –10	Discussion on PG syllabi for first semester courses 2022-23 Batch
Discussion	The board discussed the syllabus of the following courses offered in first semester. **222PY2A1CA: Mathematical Physics** • Prof. Shanthi suggested to delete the following UG level contents. ▪ Unit I- Vector algebra and vector Calculus - Concept of gradient, divergence and curl – Gauss`s divergence theorem, Green`s theorem and Stoke`s theorem (statement and proof) - Types of Matrices and their properties- Eigenvalue and Eigenvector – Cayley-Hamilton`s theorem ▪ Unit III - Laguerre differential equations: Laguerre polynomials - Generating functions – Recurrence relation ▪ Unit IV - Gamma and beta functions. • Prof. Shanthi and Prof. Kalaiselvan suggested to incorporate the following contents. ▪ Unit I - Matrices & Linea Vector Space: Rank of a Matrix and some of its theorems (Normal Form, Triangular Form) – Types of linear equations - Solution to linear homogeneous and non-homogeneous equations - Linear independence, basis and dimension - inner products. Orthonormality and completeness - Schwartz Inequality - Gram-Schmidt orthogonalization process ▪ Unit IV - Partial differential equations: Poisson and Helmholtz equations; diffusion and wave equations. ▪ Unit V – Quotient rule- Pseudo tensors - Cyclic groups and abelian groups, cosets **222PY2A1CB: Thermodynamics and Statistical Mechanics** • Prof. Rajini suggested to incorporate the following contents to describe different ensembles. ▪ Unit I - Liouville's Theorem ▪ Unit IV - Derivation of Boltzmann transport equation - Representation of States - Free Streaming - Collision Term-Langevin's Theory - Molecular Diameter. **222PY2A1CC: Classical Mechanics** • Prof. Kalaiselvan suggested to delete the UG level contents. ▪ Unit II - Lagrange's equation from Hamilton's principle - Hamilton's equation of motion ▪ Unit III - Harmonic oscillator problem ▪ Unit IV - Euler's theorem- Coriolis force - kinetic energy of motion about a point – Non inertial frames and pseudo forces--Heavy symmetrical top. ▪ Unit V - Transformation of scattering to laboratory coordinates - relativistic mechanics, momentum vectors. • Prof. Shanthi and Prof. Kalaiselvan suggested the following contents to understand the dynamics of macrobodies. ▪ Unit I - Symmetry properties

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- Unit IV - Symmetry properties.
- Unit V – Consequences of Lorentz transformations.

222PY2A1CD: Electronics

- Prof. Kalaiselvan suggested to remove the following UG contents. level.
  - Unit I - Semiconductor diodes: Introduction to Semiconductor – PN junction diode – Gunn diode – Photo diode- Impatt diode – Characteristics and applications
  - Unit II - Transistor biasing and optoelectronics devices: Thevenin's and Norton's theorem – Transistor action – PNP-NPN transistors- Transistor biasing and stabilization – Need for Biasing – Operating point – Two port network – Hybrid model – JFET- UJT – SCR
  - Unit III - Operational amplifier – CMRR – Slew rate- Instrumentation amplifier – V to I and I to V converter- Op amp stages- Equivalent circuits – sample and hold circuits. Applications of op-amp: Inverting, Non inverting amplifiers – circuits- Adder- subtractor – Differentiator- Integrator – Schmitt trigger- Triangular wave generator- Sine wave generator- Active filters: Low, high and Band pass first and second order Butterworth filters.
  - Unit IV - Semiconductor memories: Classification of memories and sequential memory – Static shift register, ROM, PROM, and EPROM principle and operation Read & write memory- Static RAM, content Addressable memory – Principle, block diagram and operation. Programmable logic Array (PLA)- Operation. Charge coupled Device (CCD) – Principle, construction, working and Data transfer mechanism
  - Unit V - A/D and D/A converter: Sampling theorem – Time division multiplexing – Quantization – DC- Weighted resistor method – Binary Ladder network- ADC – Successive approximation, Dual slope and counter method – Voltage to frequency conversion and voltage to time conversion.
- Prof Kalaiselvan and Mr G Maheswaran suggested to include the following contents to enrich the subject.
  - Unit I - Special Diodes :VI Characteristic of a PN junction diode - The Ideal Diode - Static and Dynamic Resistance of a Diode - Parallel Configuration of a Diode circuits with a DC Voltage Source - Diode circuit with DC and AC voltage sources - Varactor Diode
  - Unit II - Power Electronics & Optoelectronics Device: Bipolar Junction Transistor construction, Current Gain, Input & output of BJT in CB, CE, CC configurations. Phototransistor - Operation, Characteristic, drain and transfer characteristics of JFET. Circuit symbol, drain characteristics, and transfer characteristics of depletion type MOSFET. Photo Multiplexer.

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- Unit III -Thyristors: Types of Thyristors - Silicon Controlled rectifier (SCR) - SCR Biasing & Operation -SCR equivalent circuit - VI Characteristics of SCR - Unijunction Transistor (UJT) -constructions & Equivalent circuit of UJT - UJT Operation - VI Characteristics of UJT - Silicon controlled switch (SCS) - SCS operation, Applications - SUS, SBS, SAS
- Unit IV - Analog Electronics: Op-Amp Parameters - Block diagram of an Op-Amp - The Op-Amps as a Voltage amplifier - Ideal Operational Amplifier - Virtual ground and summing point - Inverting Amplifier - Non Inverting Amplifier - Linear Amplifier - Differential amplifier - Active filters - low pass filters - high pass filters - band pass filters.
- Unit V – Op Amp Applications and Special ICs: Comparators - The integrator - The differentiator - Log Amplifier – Antilog Amplifier. Linear Integrated circuits - Digital Integrated Circuits – Integrated devices and circuits formation - Applications. 555 Timer circuit: Functional block diagram, characteristics & applications – Astable and monostable multivibrator

222PY2A1CP: Practical - Thermodynamics and Optics
- Prof. Kalaiselvan suggested to the following experiments
  1. Young's Modulus- Elastic constants of the material-hyperbolic fringes.
  2. Determination of the thickness of wire by air wedge and diffraction.
  3. Determination of the thermistor - temperature coefficient and band"

222PY2A1CQ: Practical - Electronics- I
- Prof. Shanthi suggested the following experiments
  1. Construction of an active filters using Op-Amp.
  2. Construction of an frequency response of an Op-Amp.
  3. Assemble the parameters of Op - Amp." are added to make the experiment count 15 out of which 12 experiments has to be performed in this semester.

Resolution	The Board approved the revised syllabus
Item-11	**Discussion on PG DSE syllabi for first semester courses 2022-23 Batch**

Discussion	**222PY2A1DA: Energy Physics**
	- Dr Rajini and Mr G Maheswaran suggested to delete the following contents at UG level.
	  - Unit I - Electric energy from conventional sources - Thermal plants - IGCC power generation - Gas turbine plants - Nuclear power: Nuclear fission - Nuclear fusion (due to repetition in B.Sc.)- Energy reserve: Coal - Oil - Natural gas - Gas conservation - Gas based generating plants.
	  - Unit II - Merits and demerits of wind energy – Hydrogen energy: Hydrogen production – Electrolysis – Thermal

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decomposition of water - Hydrogen fuel from sunflower oil - Characteristics and applications of hydrogen production - Hydrogen storage - Hydrogen fuel and its use.

- Unit III - Biogas plants: Floating drum and fixed dome type biogas plant - Deenbandhu biogas plant - Community night soil based biogas plant - Power generation from liquid waste - Environmental benefits.

- Unit IV - Solar energy measuring equipment - Pyrheliometers - Pyranometers - Solar radiation data - Solar thermal power generation - Stirling cycle - Brayton cycle -Solar energy utilization - Solar cooking - Solar green houses - Types of green houses - Application of solar energy in space.

- Unit V - Geothermal energy: Geothermal Resources - Power generation - Utilization of geothermal energy - Ocean energy: Tidal energy -Characteristics - Tidal power project - Types of tidal power plants - Advantage and Disadvantage of tidal power.

- Prof. Shanthi and Dr Rajini suggested the following contents to enrich the knowledge on various forms of renewable energy technologies and its real time applications.

  - Unit I - Energy and sustainable development- Scientific principles of renewable energy- Properties of transparent materials- Heat transfer by mass transport – Multimode transfer and circuit analysis - Extraterrestrial solar radiation - Components of radiation - Effect of earth's atmosphere - Measurement and estimation of solar radiation

  - Unit II - Assessing the resource for small installations - Reaction turbines – Hydroelectric systems - Turbine types and terms - Linear momentum and basic theory – Dynamic matching - Blade element theory- Characteristics of the wind - Power extraction by a turbine - Electricity generation- Mechanical power

  - Unit III -Biofuel classification - Biomass production for energy farming - Direct combustion for heat- Pyrolysis (destructive distillation)- Alcoholic fermentation – Anaerobic digestion for biogas - Wastes and residues - Vegetable oils and biodiesel- Geophysics - Dry rock and hot aquifer analysis - Harnessing Geothermal Resources

  - Unit IV - Air heaters - Water desalination - Solar ponds - Solar concentrators- Solar thermal electric power systems - Photon absorption at the junction - Solar radiation absorption - Maximising cell efficiency -Solar cell construction - Types and adaptations of photovoltaics - Photovoltaic circuit properties – Thermodynamic considerations - Photophysics.

  - Unit V – Biological storage - Chemical storage - Heat storage- Electrical storage: batteries and accumulators- Fuel cells - Mechanical storage- Distribution of energy - Electrical power - Socio-political factors - Some policy tools.

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222PY2A1DB: Material Science & Processing Techniques

- Prof. Shanthi suggested to remove the following contents.
  - Unit I - Significance of crystal growth - Crystal growth processes in laboratory and industrial scale - Classification of crystal growth methods - Growth from solutions - , Solubility phase diagram - Saturation - Super saturation - Growth from gel - Growth from flux - Sublimation method
  - Unit II - Nature of plasma - Types of plasma - Properties of plasma - V-I characteristics - Advantages of plasma processing – Plasma spraying - Structure of sprayed deposits - Plasma melting and re-melting - non-thermal plasma: Glow discharge plasma - Plasma reactors for surface treatment. .
  - Unit III - Units and range of vacuum - Surface processes and out gassing - Gas flow mechanism - Classification of pumps: Positive displacement pumps – Kinetic pumps - Entrapment pumps - Classification of pressure gauges: Total pressure gauges - Hydrostatic pressure gauges - Thermal conductivity gauges – Ionization gauges - Vacuum system: simple rotary, diffusion, turbo molecular, ultra-high vacuum and cryo-pumped systems..
  - Unit IV - Sputtering - Pulsed laser deposition - Molecular beam epitaxy - Electrochemical deposition - SILAR method - Ball Milling - Co- precipitation
  - Unit V - XPS - AES - SIMS - LEED - AFM - STM.
- Prof. Kalaiselvan suggested to include the following contents to enrich the knowledge about crystal nucleation and growth which forms the basics for materials preparation.
  - Unit I - Nucleation phenomena: Critical supersaturation - Nucleation on a Substrate - Nucleation of a Crystalline Material - Surface Nucleation - Vapor–Liquid–Solid Mechanism of Crystal Growth - Gibbs's Free Energy- Chemical Potential - Solubility Curves
  - Unit II - Advantages of plasma processing - Plasma-particle interaction - Plasma processing systems - Plasma-spraying - Plasma reactors and furnaces- Plasma decomposition - Processing of ceramics - Treatment of hazardous wastes
  - Unit III -Artificial vacuum - Natural vacuum - Applications of vacuum techniques - Calculation of vacuum systems - Vacuum pumps - Principles of pumping - Parameters and classifications - Mechanical pumps - Vapour pumps - Ion-pumps - Classification and selection of vacuum gauges- Thermal conductivity gauges- Pirani gauge
  - Unit IV -Thermal Evaporation: RF Heating, Electron Bombardment heating. Cathodic Sputtering: Glow Discharge sputtering, Reactive sputtering.
  - Unit V – Raman spectroscopy - UV–vis spectroscopy -

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Photoluminescence (PL) spectroscopy- Fourier transform infrared spectroscopy (FTIR) - Scanning Electron Microscopy - Transmission Electron Microscopy - Scanning Probe Microscopy.

222PY2A1DC: Laser Physics & Non Linear Optics

- Mr G Maheswaran and Dr Rajini suggested to remove the following contents in order to include the contemporary contents..
    - Unit I - Basic Construction of Lasing-Einstein Relations - Three - Level System - Four – Level System
    - Unit II - Optical Resonator - Laser Modes - Axial modes - Transverse modes.
    - Unit III - Wavelength – Coherence - Mode and Beam Diameter – Polarizations -Introduction to Gaussian Beam width - Rayleigh Range - Guoy Phase Shift - 3-D Gaussian Beams - ABCD Law for Gaussian Beam -The Complex Radius of Curvature - Tensorial ABCD Law.
    - Unit IV - Diffraction - Limited spot size - Spherical Aberration - Thermal Lensing Effects - Depth of Focus - Tight focusing of laser beam - Angular Spectrum Representation of Optical Near Field - Focusing of Higher order laser modes - Radially Polarized Doughnut mode
    - Unit V - Introduction - Nonlinear Optical Media - The Nonlinear Wave Equation - Scattering Theory Born Approximation - Second-order Nonlinear Optics-Second - Harmonic Generation (SHG) - The Electro-Optic Effect - Three-Wave Mixing - Optical Kerr Effect
- Prof. Shanthi, Prof. Kalaiselvan and Dr Rajini suggested the following to learn the contemporary contents.
    - Unit I - Absorption process - Emission process - threshold gain - Gain medium
    - Unit II - Threshold conditions - Line shape function with Doppler broadening - Population inversion and pumping threshold - High intensity laser- Frequency stabilization.
    - Unit III -Industry, medical application of laser - Safety aspects in laser usage - Laser Doppler velocity meter - Laser strain gauges - Holography: operating principal - construction and reconstruction of hologram - simplified theory of holography - holographic memory - Laser machining processes - Laser spectroscopy
    - Unit IV - Optical Parametric Oscillation- Nonlinear Susceptibility - Properties of the Nonlinear Susceptibility.
    - Unit V – The Wave Equation for Nonlinear Optical Media - Phase Matching - Quasi-Phase-Matching - The Manley Rowe Relations- Sum Frequency Generation - Difference Frequency Generation and Parametric Amplification - Nonlinear Optical

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	Interactions with Focused Gaussian Beams
Resolution	The board members approved the revised syllabus
Item-12	**Discussion on Value Added Certificate Courses(VACC)**
Discussion	• The value added certificate course offered by industry: Smart phone trouble shooting and PCB designing was discussed
Resolution	The board approved the VACC course
Item -13	**Any other matters**
Discussion	• The board members discussed and recommended the Panel of Examiners
Resolution	The Board approved the same

The Chairman of Board of Studies (BoS) thanked all the members for their active participation and providing their valuable suggestions.

Date: 04.08.2022

04/08/2022

(Dr. C. Selvakumar)

BoS Chairman/HoD
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Syllabus Revision

Faculty: BAS

Board: Physics

Semester: I

Course Code/ Name: 22ITL1A1TA / PART – I - TAMIL - I: Ikkala Ilakkiyam

Unit	Existing	Changes
I	1. உயிர் பெற்ற தமிழர் பாட்டு - பாரதியார் 2. படி - பாரதிதாசன் 3. போராடப் பிறப்பட்டோம் - தமிழ் ஒளி 4. தமிழ்க் கொலை புரியாதீர் - புலவர் குழந்தை 5. திரைத்தமிழ்: அ)சும்மா கிடந்த நிலத்தை - எனத் தொடங்கும் பாடல் - பட்டுக்கோட்டை கல்யாண சுந்தரனார். ஆ) சமரசம் உலாவும் இடமுமே - எனத் தொடங்கும் பாடல் - மருதகாசி. இ) உன்னை அறிந்தால் - எனத் தொடங்கும் பாடல் – கண்ணதாசன்.	இலக்கிய வரலாறு - மறுமலர்ச்சி கவிஞர்களின் தமிழ்ப்பணிகள் பாஞ்சதேசம் - பாரதியார் தமிழின் பெருமை - நாமக்கல் கவிஞர் திரைத் தமிழ் : விஸ்வநாதத்த வளர்க்கப் போராண்டி – உடுமலை நாராயணகவி
II	1. கடமையைச் செய் - மீரா 2. அம்சாவின் பொங்கள் - ஞானக்கூத்தன் 3. செருப்புடன் ஒரு போட்டி - மு.மேத்தா 4. சிங்கவால் தூக்கின் காரணம் - சிற்பி 5. கடலோசை-2004 - முத்தமிழ் விரும்பி 6. கரிக்கிறது தாய்ப்பால் - ஆரூர் தமிழ்நாடன் 7.ஐந்தாம் வகுப்பு 'அ' பிரிவு - நா. முத்துக்குமார் 8. ஹைகூ கவிதைகள் - 15 கவிதைகள்	இலக்கிய வரலாறு - புதுக்கவிதையின் தோற்றமும் வளர்ச்சியும் ஒப்பிலாத சமுதாயம் - அப்துல் ரகுமான் கன்னிமாடம் - மு.மேத்தா மலையச எக் காற்று - சிற்பி
III	1. ஒரு கதவும் கொஞ்சம் கள்ளிப்பாலும் - தாமரை 2. நீரில் அலையும் முகம் - அ. வெண்ணிலா 3. தொட்டிச் செடி - இளம்பிறை 4. ஏனிந்த வித்தியாசங்கள் - மல்லிகா	தொலைந்து போனேன் - தாமரை தற்காத்தல் - பொன்மணி வைர முத்து புதையுண்ட வாழ்க்கை - சுகந்தி சுப்ரமணியன்
IV	1. வேப்பமரம் - ந.பிச்சமூர்த்தி 2. அகல்யை - புதுமைப்பித்தன் 3. ஒருபிடி சோறு - ஜெயகாந்தன் 4. காய்ச்சமரம் - கி.ராஜநாராயணன் 5. திசை - பாமா 6. குறிஞ்சி மலர்ச் தாத்தா - சு. வேணுகோபால்	இலக்கிய வரலாறு - சிறுகதையின் தோற்றமும் வளர்ச்சியும் கனகாம்பரம் - கு.ப.ராஜகோபாலன் ஆற்றங்கரைப் பிள்ளையார் - புதுமைப்பித்தன் பொம்மை - ஜெயகாந்தன் காட்டில் ஒரு மான் - அம்பை வேட்கை - சூர்யகாந்தன்
V	அ. இலக்கியவரலாறு 1. மறுமலர்ச்சி கவிஞர்களின் தமிழ்ப்பணிகள் 2. புதுக்கவிதையின் தோற்றமும் வளர்ச்சியும் 3. சிறுகதையின் தோற்றமும் வளர்ச்சியும் ஆ.இலக்கணம்:1.வல்லினம் மிகும், மிகா இடங்கள் (ஒற்றுப்பிழை நீக்கி எழுதுதல்) 2. ர,ற,ல, ழ, ள,ண, ன,ன வேறுபாடு (ஒலிப்பு நெறி, சொற்பொருள் வேறுபாடு அறிதல்) இ. படைப்பாக்கப் பயிற்சி 1. கவிதை, சிறுகதை எழுதுதல்	இலக்கிய வரலாற்றுப் பகுதி அந்தந்த அலகுகளுக்குத் தகுந்தாற் போல் மாற்றி அமைக்கப்பட்டுள்ளது.

Percentage Of Syllabus Revised: 44 %

Course Focus On:

☑ Skill Development   ☑ Entrepreneurial Development

☑ Employability   ☑ Innovation

☐ Intellectual Property Right (IPR)

Cont….

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13th

Syllabus Revision

Faculty: BAS

Board: Physics

Semester : I

Course Code/ Name: 221TL1A1HA/ PART – I - HINDI – I : Modern Literature

Unit	Existing	Changes
I	गद्य – नूतन गद्य संग्रह (जय प्रकाश) पाठ 1- रजिया पाठ 2- मक्रील पाठ 3- बहता पानी निर्मला पाठ 4- राष्ट्रपिता महात्मा गाँधी	-
II	कहानी कुंज- डाँ वी.पी. 'अमिताभ'(पाठ 1-4)	-
III	व्याकरण : शब्द विचार (संज्ञा, सर्वनाम,कारक,विशेषण)	व्याकरण : शब्द विचार (संज्ञा, सर्वनाम,विशेषण)
IV	अनुच्छेद लेखन	-
V	अनुवाद अभ्यास-III (केवल अंग्रेजी से हिन्दी में) (पाठ 1 to 10)	-

PERCENTAGE OF SYLLABUS REVISED: 25 %

COURSE FOCUS ON:

☑ Skill Development   ☑ Entrepreneurial Development

☑ Employability   ☑ Innovation

☐ Intellectual Property Right (IPR)

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Syllabus Revision

Faculty:BAS

Board: Physics

Semester : I   Course Code/ Name: 221TL1A1FA / PART – I FRENCH – I: Grammar, Translation and Civilization.

Unit	Existing			Changes		
I	**Objectifs de Communication**	**Tâche**	**Activités de réception et de production orale**	-		
	• Saluer • Enter en contact avec quelqu'un. • Se presenter. • S'excuser	En cours de cuisine, premiers contacts avec les members d'un groupe	• Comprendre des personnes qui se saluent. • Échanger pour entrer en contact, se présenter, saluer, s'excuser. • Communiquer avec *tu* ou *vous*. • Comprendre les consignes de classe • Épeler son nom et son prénom. Computer jusqu'à 10.			
II	**Objectifs de Communication**	**Tâche**	**Activités de réception et de production orale**	-		
	• Demander de se presenter. • Présenter quelqu'un.	Dans la classe de français, se presenter et remplir une fiche pour le professeur.	• Comprendre les informations essentielles dans un échange en milieu professionnel. • Échanger pour se presenter et présenter quelqu'un.			
III	**Objectifs de Communication**	**Tâche**	**Activités de réception et de production orale**			
	• Exprimer ses gouts.	Dans un café, participer à une soirée de rencontres rapides et remplir de taches d'appréciation.	• Dans une soirée de recontres rapid comprendre des personnes qui échangent sur elles et sur leurs goût • Comprendre une personne qui parler des goûts de quelqu'un d'autre.			
IV	**Objectifs de Communication**	**Tâche**	**Activités de réception et de production orale**	Demander à quelqu'un de faire quelque chose Demander poliment Parler d'actions passes	Organiser un programme d'activités pour accueillir une personne importante	Comprendre une personne demande un service à quelqu'un. Demander à quelqu'un de faire quelque chose.Imaginer et raconter au passe à partir de situations dessinées.
	• Présenter quelqu'un	Dans un café, participer à une soirée de rencontres rapides et remplir de taches d'appréciation	• Exprimer ses goûts. • Comprendre une demande laissée sur un répondeur téléphonique. • Parler de ses projets de week-end.			
	Autoévaluation du module I Page 40 – Préparation au DELF A1 page 42			Tu veux bien? Page 46		
V	~~Demander à quelqu'un de faire quelque chose~~ ~~Demander poliment~~ ~~Parler d'actions passes~~	~~Organiser un programme d'activités pour accueillir une personne importante~~	~~Comprendre une personne demande un service à quelqu'un.~~ ~~Demander à quelqu'un de faire quelque chose.Imaginer et raconter au passé à partir de situations dessinées~~	Make in Own Sentences		
	~~Tu veux bien? Page 46~~					

PERCENTAGE OF SYLLABUS REVISED: 25%
COURSE FOCUS ON:

- ☑ Skill Development
- ☑ Entrepreneurial Development
- ☑ Employability
- ☑ Innovation
- ☐ Intellectual Property Right (IPR)

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Syllabus Revision

Faculty: BAS

Board: Chemistry

Semester : I

Course Code/ Name: 221TL1A1MA / PART – I - MALAYALAM – I : Modern Literature

Unit	Existing	Changes
I	Novel : ~~Alahayude penmakkal~~	Novel : Pathummayude Adu
II	Novel : ~~Alahayude penmakkal~~	Novel : Pathummayude Adu
III	Short Story : Nalinakanthi	-
IV	Short Story : Nalinakanthi	-
V	~~Composition & Translation~~	Expansion of ideas, General Essay and Translation

Percentage of Syllabus Revised: 50%

Course Focus On:

- ☑ Skill Development
- ☑ Entrepreneurial Development
- ☑ Employability
- ☑ Innovation
- ☐ Intellectual Property Right (IPR)

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Syllabus Revision

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

Semester: I

Course Code / Name: 222PY1A1CA/ Properties of Matter & Sound

Unit	Existing	Changes
I	~~Stress, Strain – Hooke's law – Elastic moduli– Poisson's ratio(11thstd Vol.II – 51 page)~~ –Bending of beams – Expression for bending moment –Determination of young's modulus by uniform bending method – Torsion of a body – Expression for couple per unit twist - Work done in twisting a wire – Torsional oscillations of a body - Rigidity modulus by dynamic torsion method (Torsional pendulum).	Relation between angle of shear and linear strain–
II	Molecular forces – Explanation of surface tension on kinetic theory – ~~Surface energy – Excess pressure inside a curved liquid surface – Capillary rise method (11th std Vol.II – 71 page)~~-Variation of surface tension with temperature- Jaegar's method.	work done in increasing area of a surface
III	~~Co-efficient of viscosity~~– Critical velocity – Rate of flow of liquid in a capillary tube – ~~Poiseuille's formula~~– Viscosity of highly viscous liquid -~~Stokes formula(11th std Vol.II – 65 page)~~-Viscosity of gases– Meyer's Modification of Poiseuille's formula--Rankine's method.	Poiseuille's formula for the flow of a liquid through capillary tube
IV	~~Simple Harmonic Motion(11th std Vol.II – 190 page)– Progressive waves(243)~~-Properties – Composition of two S.H.M- ~~Beats(252) – Stationary waves – Properties (255) – Laws of transverse vibration in a string-Sonometer experiment for the frequency of tuning fork(224).~~	Damped vibration - force vibrations - Saw tooth wave - square wave
V	Ultrasonics –Production – Piezoelectric crystal method – Magnetostriction method – Applications - Acoustics of building –Sabine's Reverberation formula (No derivation) - Factors affecting acoustics of building- Sound distribution in an auditorium- Requisites for good acoustics.	-

PERCENTAGE OF SYLLABUS REVISED   **:12 %**

COURSE FOCUS ON:

☑ Skill Development   ☑ Entrepreneurial Development

☑ Employability   ☐ Innovation

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Syllabus Revision

Faculty : Basic and Applied Sciences

Board : Physics

Semester: I

Course Code / Name: 222PY1A1CB/ Mechanics

Unit	Existing	Changes
I	~~Conservation law of linear momentum~~ –Collision – ~~Definition and types of collisions~~ ~~Elastic and in-elastic collision~~ - Elastic collisions in one dimension – ~~special cases~~ –Collisions in two dimensions - ~~Illustration with examples of collisions during accidents and collisions at atomic and sub-atomic level.~~	Calculation of final velocities of colliding particle - Elastic collision in two and three dimensions – Impulse of a force - Value of the scattering angle - Impulse and linear momentum – Newton's law of impact - Co-efficient of restitution - Motion of two smooth bodies perpendicular to the line of impact - Definitions for direct and oblique impact
II	Moment of inertia – Theorems of perpendicular and parallel axes – Calculation of for Rectangular, Cylindrical and Spherical Bodies – Compoundpendulum –Theory– Determination of g and k.	
III	Newton's law of gravitation – G by Boy's method – Mass and density of earth – ~~Acceleration due to gravity~~ ~~Variation of g with altitude, depth and rotation of earth.~~ ~~Gravitational potential~~ ~~Kepler's law of gravitation~~ ~~Energy of orbiting satellite~~ ~~Einstein and Gravity (Principle of Equivalence).~~	Motion of a planet in an elliptical orbit around the sun - Conservation of angular momentum of a system, a consequence of a rotational invariance of the potential energy of the system - Motion of a planet or a satellite in its orbit – Applications (Scattering of a positive particle by a massive nucleus - Effect on linear and angular speeds of a particle on contraction of its orbit - The shape of the galaxy).
IV	Torque and angular acceleration – ~~Relation between then~~ ~~Expression for a acceleration of a body rolling down an inclined body without slipping~~ ~~Center of mass~~ ~~Velocity and acceleration of centre of mass~~ Determination of motion of individual particle– System of variable mass - ~~Rocket motion.~~	Acceleration of Two Objects Connected by a Cord - Acceleration of Two Connected Objects When Friction Is Present – Automobile Antilock Braking Systems (ABS)
V	Friction-laws of friction-Experimental method for determining coefficient of friction –Hydrodynamics - Equation of continuity of flow – Bernoulli's theorem and its applications – Venturi meter.	Pitot tube

PERCENTAGE OF SYLLABUS REVISED : 42.667 %

COURSE FOCUS ON:

- ☑ Skill Development
- ☑ Entrepreneurial Development
- ☑ Employability
- ☐ Innovation
- ☐ Intellectual Property Right (IPR)

Syllabus Revision

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

Semester: I

Course Code / Name:　222PY1A1CP/Core Practical-Properties of Matter and Mechanics

Existing	Changes
• Young's Modulus-Non-uniform Bending (Microscopic Method) • Young's Modulus-Uniform Bending (Microscopic Method) • Rigidity Modulus – Static Torsion • Study of the rate of flow of water through a capillary tube under different pressure heads. • Determination of surface tension of water by drop weight method • To determine the Coefficient of Viscosity of water by Capillary Flow Method (Poiseuille's Method). • To determine the Coefficient of Viscosity of the liquid by Stoke's Method • Sonometer – Frequency of a tuning fork • Determination of Rigidity modulus of a string • Determination of moment of Inertia of a body. • Study of the motion of a freely falling body. • Compound Pendulum – Determination of 'g' and 'K'.	
	• Young's Modulus – Koenig's method • Young's Modulus - Cantilever - Static Method • Young's Modulus - Cantilever - Dynamic Method

PERCENTAGE OF SYLLABUS REVISED　　　　**: 11.11%**

COURSE FOCUS ON:

☑ Skill Development　　　　☑ Entrepreneurial Development

☑ Employability　　　　☐ Innovation

☐ Intellectual Property Right (IPR)

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Syllabus Revision

Faculty: BAS
Semester: I

Board: Physics
Course Code/ Name: 223MB1A1AA –Environmental studies

Unit	Existing	Changes
I	Introduction to Environmental studies& Ecosystems: Multidisciplinary nature of environmental studies; components of environment – atmosphere, hydrosphere, lithosphere and biosphere. Scope and importance; Concept of sustainability and sustainable development. E c o s y s t e m - Structure and function of ecosystem; Energy flow in an ecosystem: food chain, food web and ecological succession. Case-studies-of-the-following ecosystems: Forest-ecosystem, Grassland-ecosystem, Desert-ecosystem, Aquatic-ecosystems (ponds, streams, lakes, rivers, oceans, estuaries).	
II	Natural Resources: Renewable and Non-renewable Resources: Land Resources and land use change; Land degradation, soil erosion and desertification. Deforestation: Causes and impacts due to mining, dam building on environment, forests, biodiversity and tribal populations. Water: Use and overexploitation of surface and ground water, floods, droughts, conflicts over water (international & inter-state). Heating-of-earth-and-circulation of-air; air-mass-formation-and-precipitation. Energy resources: Renewable and non-renewable energy sources, use of alternate energy sources, growing energy needs, case studies.	
III	Biodiversity and Conservation: Levels of biological diversity: genetic, species and ecosystem diversity; Biogeography zones of India; Biodiversity patterns and global biodiversity hot spots. India as a mega-biodiversity nation; Endangered and endemic species of India. Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts, biological invasions; Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity. Ecosystem-and-biodiversity-services: Ecological, economic, social, ethical, aesthetic and Informational value.	
IV	Environmental Pollution, Environmental Policies & Practices: Environmental pollution: types, causes, effects and controls; Air, water, soil, chemical and noise pollution. Nuclear hazards and human health risks. Solid waste management: Control measures of urban and industrial waste. Pollution case studies. Climate change, global warming, ozone layer depletion, acid rain and impacts on human communities and agriculture. Environment Laws: Environment Protection Act; Prevention & Control of Pollution Act – Air & Water. Wildlife Protection Act; Forest Conservation Act; International-agreements: Montreal-and Kyoto-protocols-and-conservation-on-Biological-Diversity-(CBD). The-Chemical-Weapons Convention-(CWC). Nature-reserves, tribal-population-and-rights, and-human, wildlife conflicts-in-Indian-context.	
V	Human Communities and the Environment& Field Work : Human population and growth: Impacts on environment, human health and welfares. Carbon-foot-print. Resettlement-and-rehabilitation-of-project-affected-persons; case-studies. Disaster management: floods, earthquakes, cyclones-and-landslides. Environmental-movements: Chipko, Silent-valley, Bishnios-of-Rajasthan. Environmental ethics: Role of Indian and other religions and cultures in environmental conservation. Environmental communication and public awareness.case-studies-(e.g., CNG vehicles-in-Delhi). Visit to an area to document environmental assets; river/forest/flora/fauna, etc. Visit-to-a-local-polluted-site —Urban/Rural/Industrial/Agricultural. Study-of-common-plants, insects, birds-and-basic principles-of-identification. Study-of-simple-ecosystems-pond, river, Delhi-Ridge, etc.	Population explosion – Family Welfare Programmes Role of Information Technology in Environment and human health. Role of the Colleges, Teachers and Students in village adoption towards clean, green and make in villages in various aspects.

Percentage Of Syllabus Revised: 33 %
Course Focus On:

☑ Skill Development   ☑ Entrepreneurial Development

☑ Employability   ☐ Innovation

☐ Intellectual Property Right (IPR)

Syllabus Revision

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

Semester: I

Course Code / Name: 222PY2A1CA/ Mathematical Physics

Unit	Existing	Changes
I	**Vector Analysis and Matrices:** ~~Vector algebra and vector Calculus - Concept of gradient, divergence and curl - Gauss's divergence theorem, Green's theorem and Stoke's theorem (statement and proof)~~ - Types of Matrices and their properties- Rank of a Matrix – ~~Eigenvalue and Eigenvector – Cayley-Hamilton's theorem.~~	Matrices & Linea Vector Space: Rank of a Matrix and some of its theorems (Normal Form, Triangular Form) – Types of linear equations - Solution to linear homogeneous and non homogeneous equations - Linear independence, basis and dimension - inner products, Orthonormality and completeness - Schwartz Inequality - Gram-Schmidt orthogonalization process
II	**Complex Variable:** Analytical functions - Cauchy-Riemann equations - Line integrals - Cauchy's theorem - Cauchy integral formula - Taylor's and Laurent's expansions - Cauchy's residue theorem – Poles – Evaluation of residues.	-
III	**Special Functions:** Legendre's differential equations: Legendre polynomials - Generating functions – Recurrence relation; Bessel's differential equation: Bessel polynomials – Generating functions – Recurrence relation; Hermite differential equation: Hermite polynomials - Generating functions – Recurrence relation; ~~Laguerre differential equations: Laguerre polynomials - Generating functions - Recurrence relation.~~	-
IV	**Differential Equations:** Differential Equations: Linear Ordinary differential equations - First order and second order equations and their various solutions – ~~Gamma and beta functions.~~ Partial differential equations: Solution of Laplace equation – Solution of wave and heat equations in two dimensions.	Partial differential equations: Poisson and Helmholtz equations; diffusion and wave equations.
V	**Tensor and Group theory:** Tensors: Contravariant, covariant and mixed tensors – Addition and subtraction of tensors – Symmetry and Antisymmetry tensor-Group theory: Subgroups - Classes - Homomorphism and isomorphism – Reducible and irreducible representations - Character table for simple molecular types (C2v and C3v point group).	Quotient rule- Pseudo tensors - Cyclic groups and abelian groups, cosets

PERCENTAGE OF SYLLABUS REVISED   : 20 %

COURSE FOCUS ON:

- ☑ Skill Development
- ☐ Entrepreneurial Development
- ☑ Employability
- ☐ Innovation
- ☐ Intellectual Property Right (IPR)

Syllabus Revision

Faculty : Basic and Applied Sciences

Board : Physics

Semester: I

Course Code / Name: 222PY2A1CB/ Thermodynamics and Statistical Mechanics

Unit	Existing	Changes
I	Basic postulates of thermodynamics– Fundamental relations and definition of intensive variables – Intensive variables in the entropic formulation – Equations of state – Euler relation, densities - Gibbs-Duhem relation for entropy - ~~Phase space and ensembles~~ - Microstate and macrostate in quantum systems – Density of states and volume occupied by a quantum state	Liouville's Theorem
II	Microcanonical distribution function – Two level system in microcanonical ensemble – Gibbs paradox – The canonical distribution function – Partition function and free energy of an ideal gas – ~~The grand partition function~~ – Relation between grand canonical and canonical partition functions.	
III	Maxwell-Boltzmann, Bose-Einstein and Fermi-Dirac distributions – Non interacting Bose gas and thermodynamic relations – Chemical potential of bosons – Non interacting Fermi gas and thermodynamic relations – Fermi gas at zero and low temperature – Fermi energy and Fermi momentum. ~~Thermodynamic quantities. Physical interpretation of the classical limit.~~	
IV	Derivation of Boltzmann transport equation for change of states without and with collisions – Boltzmann equation for quantum statistics – Equilibrium distribution in Boltzmann equation – Transport processes; One speed and one dimension – Equipartition and Virial theorems –Brownian motion - Non-equilibrium process; Joule-Thompson process - Free expansion and mixing - Thermal conduction	Derivation of Boltzmann transport equation - Representation of States - Free Streaming - Collision Term-Langevin's Theory - Molecular Diameter
V	Heat capacities of heteronuclear diatomic gas – Heat capacities of homonuclear diatomic gas – One-dimensional Ising model and its solution by variational method - Phase transitions and criterion for phase transitions – Classification of phase-transitions by order and by symmetry – Phase diagrams for pure systems – Clausius-Clapeyron equation – ~~Gibbs phase rule~~	

PERCENTAGE OF SYLLABUS REVISED : 15.55 %

COURSE FOCUS ON:

- ☑ Skill Development
- ☐ Entrepreneurial Development
- ☑ Employability
- ☐ Innovation
- ☐ Intellectual Property Right (IPR)

Syllabus Revision

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

Semester: I

Course Code / Name: 222PY2A1CC/ Classical Mechanics

Unit	Existing	Changes
I	Lagrangian formulation: System of particles - Constraints and degrees of freedom - Generalized coordinates, force and energy - Conservation laws - Conservations oflinear and angular momenta - D'Alembert's principle of virtual work- Lagrange'sequation of motion - Applications of Lagrange equations of motion: free particle inspace - Atwood's machine.	Symmetry properties
II	Hamilton's equation and Canonical Transformation: Calculus of Variation- Principle of Least action – Hamilton's principle- Hamilton's function- ~~Lagrange's equation from Hamilton's principle~~- Legendre transformation and ~~Hamilton's equation of motion~~. Cyclic coordinates and conservation theorem – Canonical transformations- Hamilton's canonical equations – generating functions- Poisson brackets and its properties	
III	Hamilton- Jacobi theory and small oscillations: Hamilton- Jacobi equation for Hamilton's principle function – example ~~Harmonic oscillator problem~~– Hamilton's characteristic function – Action-angle variable- Application to Kepler problem in action angle variables. Eigen value equation – Vibrations of linear triatomic molecule	
IV	Kinematics of rigid body: Independent coordinates of rigid body- Properties of transformation matrix- Euler angle and ~~Euler's theorem~~- Infinitesimal rotation- ~~Coriolis force~~- Angular momentum and ~~kinetic energy of motion about a point~~ - ~~Non-inertial frames and pseudo forces~~- Euler's equation of motion – Torque free motion of a rigid body- ~~Heavy symmetrical top.~~	Moments of Inertia for different body systems
V	Central force problem and theory of relativity: Reduction to the equivalent one body problem – equation of motion and first integral- Classification of orbits- Kepler problem: Inverse square law of force- ~~Transformation of scattering to laboratory coordinates.~~ Orbits of artificial satellites, virtual theorem- Lorentz transformation, ~~relativistic mechanics, momentum vectors.~~	Consequences of Lorentz transformations.

PERCENTAGE OF SYLLABUS REVISED　　　　: 13.97 %

COURSE FOCUS ON:

- [✓] Skill Development
- [ ] Entrepreneurial Development
- [✓] Employability
- [ ] Innovation
- [ ] Intellectual Property Right (IPR)

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Syllabus Revision

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

Semester: I

Course Code / Name: 222PY2A1CD/ Electronics

Unit	Existing	Changes
I	Semiconductor diodes: Introduction to Semiconductor – PN junction diode – Zener diode – Gunn diode – Tunnel diode – Photo diode – Schottky diode – Impatt diode – Characteristics and applications	Special Diodes :VI Characteristic of a PN junction diode - The Ideal Diode - Static and DynamicResistance of a Diode - Parallel Configuration of a Diode circuits with a DC VoltageSource - Diode circuit with DC and AC voltage sources - Varactor Diode
II	Transistor biasing and optoelectronics devices: Thevenin's and Norton's theorem – Transistor action – PNP-NPN transistors- Transistor biasing and stabilization – Need for Biasing – Operating point – Two port network – Hybrid model – JFET- UJT – SCR	Power Electronics & Optoelectronics Device: Bipolar Junction Transistor construction, Current Gain, Input & output of BJT in CB, CE, CC configurations. Phototransistor - Operation, Characteristic, drain and transfer characteristics of JFET. Circuit symbol. drain characteristics, and transfer characteristics of depletion type MOSFET. Photo Multiplexer.
III	Operational amplifier – CMRR – Slew rate- Instrumentation amplifier – V to I and I to V converter- Op-amp stages- Equivalent circuits – sample and hold circuits. Applications of op-amp: Inverting, Non-inverting amplifiers – circuits- Adder- subtractor – Differentiator- Integrator – Schmitt trigger- Triangular wave generator- Sine-wave generator- Active filters: Low, high and Band pass first and second order Butterworth filters	Thyristors: Types of Thyristors - Silicon Controlled rectifier (SCR) - SCR Biasing & Operation -SCR equivalent circuit - VI Characteristics of SCR - Unijunction Transistor (UJT) -constructions & Equivalent circuit of UJT - UJT Operation - VI Characteristics of UJT - Silicon controlled switch (SCS) - SCS operation. Applications - SUS, SBS, SAS
IV	Semiconductor memories: Classification of memories and sequential memory – Static shift register, ROM, PROM, and EPROM principle and operation Read & write memory- Static RAM. content Addressable memory – Principle, block diagram and operation. Programmable logic Array (PLA)- Operation. Charge coupled Device (CCD) – Principle, construction, working and Data transfer mechanism	Analog Electronics: Op-Amp Parameters - Block diagram of an Op-Amp - The Op-Amps as a Voltageamplifier - Ideal Operational Amplifier - Virtual ground and summing point - Inverting Amplifier - Non Inverting Amplifier - Linear Amplifier - Differential amplifier - Active filters - low pass filters - high pass filters - band pass filters.
V	A/D and D/A converter: Sampling theorem – Time division multiplexing – Quantization – DC- Weighted resistor method– Binary Ladder network- ADC – Successive approximation, Dual slope and counter method – Voltage to frequency conversion and voltage to time conversion	Op Amp Applications and Special ICs: Comparators - The integrator - The differentiator - Log Amplifier - Antilog Amplifier. Linear Integrated circuits - Digital Integrated Circuits - Integrated devices and circuits formation - Applications. 555 Timer circuit: Functional block diagram, characteristics & applications – Astable and monostable multivibrator

PERCENTAGE OF SYLLABUS REVISED　　　　: 100 %

COURSE FOCUS ON:

- ☑ Skill Development
- ☑ Entrepreneurial Development
- ☑ Employability
- ☐ Innovation
- ☐ Intellectual Property Right (IPR)

Syllabus Revision

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

Semester: I

Course Code / Name: 222PY2A1CP/Lab-Thermodynamics and Optics

Existing	Changes
• Determination of Stefan's constant • Determination of specific heat capacity of metal-Forbes Method. • Determination of specific heat capacity of Liquid -Ferguson Method. • Young's Modulus- Elastic constants of the material -Elliptical fringes. • Determination of the wavelength of laser source – transmission grating. • Determine unknown resistance using a Kelvin double bridge experiment. • Determination of refractive index of liquid-Air wedge. • Determination of Audio Frequency-Bridge method. • Characteristics of LDR. • Determination of Planck's constant. • Thermal conductivity of liquid and air by Lee's disc method. • Determination of wavelength of laser - single slit/Double slit.	
	• Young's Modulus- Elastic constants of the material-hyperbolic fringes. • Determination of the thickness of wire by air wedge and diffraction. • Determination of the thermistor - temperature coefficient and band

PERCENTAGE OF SYLLABUS REVISED   **: 11.11%**

COURSE FOCUS ON:

☑ Skill Development   ☑ Entrepreneurial Development

☑ Employability   ☐ Innovation

☐ Intellectual Property Right (IPR)

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Syllabus Revision

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

Semester: I

Course Code / Name: 222PY2A1CQ/Lab-Electronics 1

Existing	Changes
• Build the Waveform generation of Sine Wave using OP-AMP • Construction of Hartley oscillator using OP-AMP • Construction of an Astable Multivibrator • Construction of Differentiator, Integrator circuit using OP-AMP • Construction of Adder, Subtractor, Sign Changer circuit using OP-AMP • Assemble the Serial and parallel sequential circuits using Shift Register • Determine the shift of output voltage using Clipping and Clamping circuits • Construct the Modulus counter using IC 7490 • Determine the Analog to digital Converter using Op-Amp • Build the Triangular waveform generation using Op-Amp • Construct the Phase Shift Oscillator • Make the Square Wave form using OP-AMP	
	• Construction of an active filters using Op-Amp • Construction of an frequency response of an Op-Amp

PERCENTAGE OF SYLLABUS REVISED　　　　**: 11.11%**

COURSE FOCUS ON:

☑ Skill Development　　　　☑ Entrepreneurial Development

☑ Employability　　　　☐ Innovation

☐ Intellectual Property Right (IPR)

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Syllabus Revision

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

Semester: I

Course Code / Name: 222PY2A1DA/Energy Physics

Unit	Existing	Changes
I	Electric energy from conventional sources – Thermal plants – IGCC power generation – Gas turbine plants – Nuclear power: Nuclear fission – Nuclear fusion – Energy reserve: Coal – Oil – Natural gas – Gas conservation – Gas-based generating plants.	Energy and sustainable development- Scientific principles of renewable energy-Properties of transparent materials- Heat transfer by mass transport – Multimode transfer and circuit analysis - Extraterrestrial solar radiation - Components of radiation - Effect of earth's atmosphere - Measurement and estimation of solar radiation
II	Wind energy: Types of rotors – Operation of wind turbines - Wind power generation curve – Horizontal axis wind turbine generator - Merits and demerits of wind energy – Hydrogen energy: Hydrogen production – Electrolysis– Thermaldecomposition of water – Hydrogen fuel from sunflower oil – Characteristics and applications of hydrogen production – Hydrogen storage – Hydrogen fuel and its use.	Assessing the resource for small installations - Reaction turbines – Hydroelectric systems - Turbine types and terms - Linear momentum and basic theory – Dynamic matching - Blade element theory- Characteristics of the wind - Power extraction by a turbine - Electricity generation- Mechanical power
III	Biomass conversion Technologies – Biochemical conversion - Biogas technology - Factors affecting biogas production - Biogas plants: Floating drum and fixed dome type biogas plant – Deenbandhu biogas plant – Community night soil based biogas plant – Power generation from liquid waste – Environmental benefits.	Biofuel classification - Biomass production for energy farming - Direct combustion for heat- Pyrolysis (destructive distillation)- Alcoholic fermentation – Anaerobic digestion for biogas - Wastes and residues - Vegetable oils and biodiesel- Geophysics - Dry rock and hot aquifer analysis - Harnessing Geothermal Resources
IV	Solar energy measuring equipment – Pyrheliometers– Pyranometers – Solar radiation data – Solar thermal power generation – Stirling cycle – Brayton cycle – Solar energy utilization – Solar cooking – Solar green houses – Types of green houses- Application of solar energy in space.	Air heaters - Water desalination - Solar ponds - Solar concentrators- Solar thermalelectric power systems - Photon absorption at the junction - Solar radiationabsorption - Maximising cell efficiency -Solar cell construction - Types andadaptations of photovoltaics - Photovoltaic circuit properties – Thermodynamicconsiderations - Photophysics.
V	Geothermal energy: Geothermal Resources – Power generation – Utilization of geothermal energy – Ocean energy: Tidal energy – Characteristics – Tidal power project – Types of tidal power plants – Advantage and Disadvantage of tidal power.	Biological storage - Chemical storage - Heat storage- Electrical storage: batteriesand accumulators- Fuel cells - Mechanical storage- Distribution of energy -Electrical power - Socio-political factors - Some policy tools.

PERCENTAGE OF SYLLABUS REVISED **: 85.45%**

COURSE FOCUS ON:

- ☑ Skill Development
- ☑ Entrepreneurial Development
- ☑ Employability
- ☐ Innovation
- ☐ Intellectual Property Right (IPR)

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Syllabus Revision

Faculty : Basic and Applied Sciences

Board : Physics

Semester: I

Course Code / Name: 222PY2A1DB/ Material Science & Processing Techniques

Unit	Existing	Changes
I	~~Significance of crystal growth – Crystal growth processes in laboratory and industrial scale~~ – ~~Classification of crystal growth methods~~ – ~~Growth from solutions~~ - Nucleation: Homogeneous and heterogeneous, ~~Solubility phase diagram~~ – ~~Saturation~~ – ~~Super saturation~~ – ~~Growth from gel~~ – ~~Growth from flux~~ - Growth from melt - Bridgmann method - Czochralski crystal pulling technique – ~~Sublimation method~~	Nucleation phenomena: Critical supersaturation - Nucleation on a Substrate - Nucleation of a Crystalline Material - Surface Nucleation - Vapor–Liquid–Solid Mechanism of Crystal Growth - Gibbs's Free Energy-Chemical Potential - Solubility Curves
II	~~Nature of plasma~~ – ~~Types of plasma~~ – ~~Properties of plasma~~ – ~~V-I characteristics~~ – ~~Advantages of plasma processing~~ – Thermal plasma: Principles of plasma generation - DC plasma torches - AC plasma torches - RF plasma torches - ~~Plasma spraying~~ – ~~Structure of sprayed deposits~~ – Plasma decomposition - ~~Plasma melting and re-melting~~ – ~~non-thermal plasma: Glow discharge plasma~~ – ~~Plasma reactors for surface treatment.~~	Advantages of plasma processing - Plasma-particle interaction - Plasma processing systems - Plasma-spraying - Plasma reactors and furnaces- Plasma decomposition - Processing of ceramics - Treatment of hazardous wastes
III	~~Units and range of vacuum~~ – ~~Surface processes and out gassing~~ – ~~Gas flow mechanism~~ – ~~Classification of pumps: Positive displacement pumps~~ – ~~Kinetic pumps~~ – ~~Entrapment pumps~~ – ~~Classification of pressure gauges: Total pressure gauges~~ – ~~Hydrostatic pressure gauges~~ – ~~Thermal conductivity gauges~~ – ~~Ionization gauges~~ – ~~Vacuum system: simple rotary, diffusion, turbo molecular, ultra-high vacuum and cryo-pumped systems.~~	Artificial vacuum - Natural vacuum - Applications of vacuum techniques - Calculation of vacuum systems - Vacuum pumps - Principles of pumping - Parameters and classifications - Mechanical pumps - Vapour pumps - Ion-pumps - Classification and selection of vacuum gauges- Thermal conductivity gauges- Pirani gauge
IV	~~Sputtering~~ – Chemical vapor deposition - ~~Pulsed laser deposition~~ – ~~Molecular beam epitaxy~~ – ~~Electrochemical deposition~~ – ~~SILAR~~ method - Sol-Gel Technique - Hydrothermal growth - ~~Ball Milling~~ - Combustion synthesis - Microwave synthesis - ~~Co- precipitation.~~	Thermal Evaporation: RF Heating, Electron Bombardment heating. Cathodic Sputtering: Glow Discharge sputtering. Reactive sputtering.
V	Working principles and instrumentation - XRD - ~~XPS~~ – ~~AES~~ – ~~SIMS~~ – ~~LEED~~ – ~~AFM~~ - SEM - ~~STM.~~	Raman spectroscopy - UV–vis spectroscopy - Photoluminescence (PL) spectroscopy- Fourier transform infrared spectroscopy (FTIR) - Scanning Electron Microscopy - Transmission Electron Microscopy - Scanning Probe Microscopy.

PERCENTAGE OF SYLLABUS REVISED : 75 %

COURSE FOCUS ON:

☑ Skill Development   ☑ Entrepreneurial Development

☑ Employability   ☐ Innovation

☐ Intellectual Property Right (IPR)

Syllabus Revision

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

Semester: I

Course Code / Name: 222PY2A1DC/Laser Physics and Non Linear Optics

Unit	Existing	Changes
I	~~Basic Construction~~ and Principle of Lasing-Einstein Relations ~~and Gain Coefficient~~- Creation of a Population Inversion- ~~Three – Level System – Four – Level System~~ - Laser types - He-Ne Laser-CO_2 Laser - Nd:YAG Laser- SemiconductorLaser.	Absorption process - Emission process - threshold gain - Gain medium
II	~~Optical Resonator – Laser Modes – Axial modes – Transverse modes~~-Modificationin Basic Laser Structure - Basic Principle of Mode Locking - Active Mode Locking -Passive Mode Locking - Q-Switching.	Threshold conditions - Line shape function with Doppler broadening - Population inversion and pumping threshold - High intensity laser- Frequency stabilization.
III	~~Wavelength – Coherence – Mode and Beam Diameter – Polarizations –Introductionto Gaussian Beam width – Rayleigh Range – Guoy Phase Shift - 3-D GaussianBeams – ABCD Law for Gaussian Beam –The Complex Radius of Curvature – Tensorial ABCD Law.~~	Industry, medical application of laser - Safety aspects in laser usage - Laser Doppler velocity meter - Laser strain gauges - Holography: operating principal -construction and reconstruction of hologram - simplified theory of holography -holographic memory - Laser machining processes - Laser spectroscopy
IV	~~Diffraction – Limited spot size – Spherical Aberration – Thermal Lensing Effects –Depth of Focus – Tight focusing of laser beam –Angular Spectrum Representationof Optical Near Field – Focusing of Higher order laser modes – Radially PolarizedDoughnut mode~~	Optical Parametric Oscillation- NonlinearSusceptibility - Properties of the Nonlinear Susceptibility.
V	~~Introduction – Nonlinear Optical Media – The Nonlinear Wave Equation – Scattering Theory Born Approximation – Second-order Nonlinear Optics-Second – Harmonic Generation (SHG) – The Electro-Optic Effect – Three-Wave Mixing~~-Frequency and Phase Matching - Third Harmonic Generation - ~~Optical Kerr Effect~~- Self-Focusing	The Wave Equation for Nonlinear Optical Media - Phase Matching -Quasi-Phase-Matching - The Manley Rowe Relations- Sum Frequency Generation -Difference Frequency Generation and Parametric Amplification - Nonlinear OpticalInteractions with Focused Gaussian Beams

PERCENTAGE OF SYLLABUS REVISED   : 72%

COURSE FOCUS ON:

- ☑ Skill Development
- ☑ Entrepreneurial Development
- ☑ Employability
- ☐ Innovation
- ☐ Intellectual Property Right (IPR)

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Syllabus Revision

Faculty : Basic and Applied Sciences

Board : Physics

Semester: I

Course Code / Name: 222PY1A1IP/ Modern Physics with Practical

Unit	Existing	Changes
I	~~Ohm's law — Kirchoff's laws — Applications of Krichhoff's laws to Wheatstone's network— condition for balance~~- Carey-Foster's bridge – ~~measurement of resistance — measurement of specific resistance — determination of temperature coefficient of resistance~~— Potentiometer – calibration of Voltmeter	Capacitors – Types of capacitors - Spherical capacitor - Cylindrical capacitor - Calibration of ammeter 1.Calibration of low range voltmeter using potentiometer 2.Determination of unknown resistance using Carey Foster's bridge 3.Calibration of low range ammeter using potentiometer
II		Ionic crystals - Covalent crystals - Metallic bond - Band theory of solids - Tunnel diodes - Energy bands - Superconductivity - Bound electron pairs - Hall effect - Experimental determination of hall coefficient 4.Determination of band gap of semiconductors using four probe method 5.Determination of band gap of semiconductor by thermal method
III	~~Interference — conditions for interference maxima and minima~~— Air wedge – thickness of a thin wire – Newton's rings – determination of wavelength using Newton's rings.~~— Diffraction — Difference between diffraction and interference~~– Theory of transmission grating – normal incidence	6.Determination of wavelength of mercury lines by grating minimum deviation method 7.Determination of the radius of curvature in Newton's rings
IV	~~Semiconductor — PN junction diode — V-I characteristics of a Junction diode — Zener diode — Regulated power supply~~- Bridge rectifier. Transistor – ~~Working of an NPN transistor — Common Emitter characteristics of a Transistor — current gain — Applications of Transistor.~~	Band gap determination using post office box –Transistor characteristics in common base and common emitter mode - Transistor single stage amplifier- Expression for input impedance - Output impedance and current gain 8.Characterization of junction diode 9.To determine band gap using Post office box method
V	~~Number system — Binary — Octal and Hexadecimal system — conversion of one number system to another number system~~— Binary addition, subtraction. ~~Logic gates —OR, AND, NOT, XOR, NAND and NOR gates— truth tables~~—Half adder and Full adder – ~~Laws of Boolean's algebra — De Morgan's theorems.~~	1's and 2's complement of a binary number and binary arithmetic - Steps in the fabrication of Monolithic IC's – General applications of IC's - Registers - Flip flops - JK flip flops 10.Verification of logic gate truth table 11.Verification of De Morgan's law 12.Construction and working of IC regulated power supply

PERCENTAGE OF SYLLABUS REVISED : 100 %

COURSE FOCUS ON:

- ☑ Skill Development
- ☑ Entrepreneurial Development
- ☑ Employability
- ☐ Innovation
- ☐ Intellectual Property Right (IPR)

Syllabus Revision - New Course

Faculty: BAS   **Board: Mathematics   Semester: I**

Course Code/ Name: 222MT1A1IP/ FUNDAMENTALS OF MATHEMATICS WITH MATLAB

PERCENTAGE OF SYLLABUS REVISED: New Course

COURSE FOCUS ON:

☑ Skill Development   ☐ Entrepreneurial Development

☑ Employability   ☐ Innovation

☐ Intellectual Property Rights (IPR)

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ATTENDANCE OF THE THIRTEENTH BOARD OF STUDIES MEETING
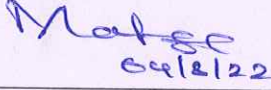
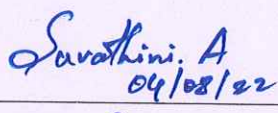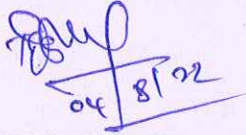**Faculty: Basic and Applied Sciences**　　　　　　　　　　**Board: Physics**

Venue　　:　Seminar Hall –C1 Block

Date　　　:　04/08/2022

Time　　　:　10:00 AM

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

S. No.	Name	Designation	Signature
1	**Dr. C. Selvakumar** Professor and Head Department of Physics Dr.N.G.P. ASC	Chairman	04/08/2022
2	**Dr. R. Kalaiselvan,** Assistant Professor, Department of Physics, Bharathiar University, Coimbatore-46	VC Nominee	4/8/2022
3	**Dr. J. Shanthi,** Professor and Head, Department of Physics, Avinashilingam Institute of Home Science, Coimbatore -43.	Subject Expert	04/08/22
4	**Dr. K S Rajini,** Associate Professor, Department of Sciences, School of Engineering, Amrita Vishwa Vidyapeetham, Coimbatore - 112.	Subject Expert	4/8/22
5	**Mr. G. Maheswaran,** Chief Executive Officer, Silicon Technologies, Coimbatore - 14.	Industrial Expert	04/8/22
6	**Ms. A. Suvathini,** Junior Assistant, Commercial Tax Office, Tirupur - 02.	Alumni	Suvathini. A 04/08/22
7	**Dr. N. Kuppusamy** Professor and Head Department of Tamil Dr. N.G.P. ASC	Co-opted Member	04/8/22

Contd.............

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8	**Dr. R. Vidya Prabha** Professor and Head Department of English Dr. N.G.P. ASC	Co-opted Member	R.V ett 4/8/22
9	**Dr. R.Sowrirajan** Assistant Professor and Head Department of Mathematics Dr. N.G.P. ASC	Co-opted Member	
10	**Dr M Suganthi** Assistant Professor and Head Department of Chemistry Dr. N.G.P. ASC	Co-opted Member	4.8.22
11	**Dr .V.Gopala Krishnan** Professor Department of Physics Dr.N.G.P. ASC	Member	4/8/22
12	**Dr. M.R. Ananthan** Associate Professor Department of Physics Dr.N.G.P. ASC	Member	M.R 4/8/22
13	**Ms. R.Revathi** Assistant Professor Department of Physics Dr.N.G.P. ASC	Member	4/8/22
14	**Dr .R.Karunathan** Assistant Professor Department of Physics Dr.N.G.P. ASC	Member	4/8/22
15	**Dr. S.S. Kanmani** Assistant Professor Department of Physics Dr.N.G.P. ASC	Member	
16	**Dr.K.Girija** Assistant Professor Department of Physics Dr.N.G.P. ASC	Member	ABSENT.
17	**Dr.R.Dilip** Assistant Professor Department of Physics Dr.N.G.P. ASC	Member	4/8/22
18	**Dr.Deepannita Chakraborty** Assistant Professor Department of Physics Dr.N.G.P. ASC	Member	4/8/22

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19	**Dr.M.R.Venkatraman** Assistant Professor Department of Physics Dr.N.G.P. ASC	Member	
20	**UG:Ms. G. Sharmila** III B.Sc. Physics Department of Physics Dr. N.G.P. ASC	Student Representative	
21	**PG: Mr. S. Dinesh** II M.Sc. Physics Department of Physics Dr. N.G.P. ASC	Student Representative	

Date: 04/08/2022

(Dr. C. Selva Kumar)

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