HAJEE KARUTHA ROWTHER HOWDIA COLLEGE

(An Autonomous Institution Affiliated to Madurai Kamaraj University, Madurai.)

Uthamapalayam, Theni District. Pin Code: 625 533.

DEPARTMENT OF PHYSICS

PART – IV NME PHYSICS

SYLLABUS

Choice Based Credit System – CBCS

(As per TANSCHE/MKU Guidelines)

(Academic Year 2020 -2021 onwards)

Details of Course Category, Code, Credits & Title

Course Category	Course Code	Course Title	Hrs	CIAE	TEE	Max. Marks	Credits
Semester - I							
Part – IV							
NME - I	20UPHN11	Basic Physics – I	2	25	75	100	2
Semester – II							
Part – IV							
NME - II	20UPHN21	Basic Physics – II	2	25	75	100	2

Course Code	Course Title	Category	Total Hours	Credits
20UPHN11	Basic Physics - I	NME – I	30	2

Nature of Course	
Knowledge Oriented	✓
Skill Oriented	
Employability Oriented	
Entrepreneurship Oriented	

Course Relevance	
Local	
Regional	
National	
Global	✓

Preamble

To understand the fundamental concept of Physics in Optics, Energy resources and Unit systems by the experience in everyday life.

Syllabus

UNIT I 6 Hours

Measurements of length, mass, time andother physical quantities–Dimensional formula for area, volume, density and force–Uses of dimension.

UNIT II 6 Hours

Matter – solid, liquid, gas and plasma – change of state – specific heat capacity – specific latent heat of ice and steam.

UNIT III 6 Hours

Kinds of energy–mechanical energy, thermal energy, optical energy, sound energy, electrical energy, nuclear energy–conservation of energy.

UNIT IV 6 Hours

Non-renewable energy - Fossilfuel, Coal and oil – Renewable energy – solar, wind, biomass and OTEC.

UNIT V 6 Hours

Mirror – laws ofreflection - image formation(concave and convex mirror) – lens – law's of refraction–image formation(concave and convex lens)–Defects of eye and rectification.

Text Books

B.V. Narayan Rao, ***First year B. Sc Physics,*** New Age International(P) Ltd,1998.

Reference Books

D. S. Mathur, ***Mechanics***, S. chand and Co., 2002.

D .S. Mathur, ***Properties of Matter***, S, chand and Co., 2002.

Brijlal and Subramanian, ***Properties of matter,*** S. Chand and co., 2002.

Pedagogy

Chalk & Talk, E-Resources, Group Discussion,

Teaching aids

Black Board, LCD Projector

Course Contents and Lecture Schedule

Module No.	Topic	No. of Lectures	Content Delivery Methods
UNIT - I			
1.1	S.I unit system - Fundamental quantities and its unit	2	Discussion
1.2	Derived quantities and its unit	2	PPT
1.3	Dimensional analysis	2	Chalk and talk
UNIT - II			
2.1	Matter - Solid, Liquid, Gas and Plasma, change of state	2	PPT
2.2	Specific heat capacity–specific latent heat of ice and steam.	4	Chalk and Talk
UNIT - III			
3.1	Kinds of energy – mechanical energy, thermal energy, optical energy, sound energy	3	Chalk & Talk
3.2	Electrical energy, nuclear energy– conservation of energy.	3	PPT
UNIT - IV			
4.1	Non - renewable energy - Fossil fuel, Coal and oil	3	YouTube video
4.2	Non - renewable energy - Fossil fuel, Coal and oil	3	Discussion
UNIT - V			
5.1	Mirror – laws of reflection - image formation(concave and convex mirror)	3	PPT
5.2	Lens – laws of refraction – image formation (concave and convex lens) – Defects of eye and rectification.	3	YouTube video
Total		**30**	

Course Designer

Mr. J. Hakim

Assistant Professor of Physics

Course Code	Course Title	Category	Total Hours	Credits
20UPHN21	**Basic Physics - II**	**NME – II**	**30**	**2**

Nature of Course	
Knowledge Oriented	✓
Skill Oriented	
Employability Oriented	
Entrepreneurship Oriented	

Course Relevance	
Local	
Regional	
National	✓
Global	

Preamble

To understand the application of fundamental concept of Physics in Electricity, Electronics, A.C & D.C sources and basic measuring instruments.

Syllabus

UNIT I 6 Hours

Electric current – Voltage and resistance – Ohm's law and Kirchhoff's law – Resistance in series and parallel

UNIT II 6 Hours

DC source – Primary cells – Lechlanche and Daniel cell – Secondary cells – Acid Accumulator – DC generator

UNIT III 6 Hours

Alternating current generating by hydro, thermal and atomic power stations– RMS value– Peak value (Quantitative)–AC generator–no derivation

UNIT IV 6 Hours

Potentiometer – principle – Comparison of emfs of two given cells – Electric power–Moving coil galvanometer–Conversion of galvanometer into ammeter and voltmeter.

UNIT V 6 Hours

Simple electrical circuits–resistor, capacitor and inductor connected to AC source (independently)–Relationship between emf and current in each case–Diode–Bridge Rectifier.

Text Books

R. Murugesan, ***Electricity and Magnetism***, S. Chand & Co, 2004.

Reference Books

Brijlal & Subramaniam, ***Electricity and Magnetism***, S. Chand & Co. 2002.

Pedagogy

Chalk & Talk, E-Resources, Group Discussion,

Teaching aids

Black Board, LCD Projector

Course Contents and Lecture Schedule

Module No.	Topic	No. of Lectures	Content Delivery Methods
UNIT - I			
1.1	Electric current – Voltage and resistance – Ohm's law	2	Discussion
1.2	Kirchhoff's law	2	Chalk and talk
1.3	Resistance in series and parallel	2	PPT
UNIT - II			
2.1	DC source – Primary cells – Lechlanche and Daniel cell	3	YouTube
2.2	Secondary cells – Acid Accumulator – DC generator	3	PPT
UNIT - III			
3.1	Alternating current generating by hydro, thermal and atomic power stations	3	Discussion
3.2	RMS value– Peak value (Quantitative)–AC generator–no derivation	3	Chalk & Talk
UNIT - IV			
4.1	Potentiometer–principle–Comparison of emfs of two given cells–Electric power	3	PPT
4.2	Moving coil galvanometer–Conversion of galvanometer into ammeter and voltmeter.	3	Chalk and Talk
UNIT - V			
5.1	Simple electrical circuits – resistor, capacitor and inductor connected to AC source (independently)–Relationship between emf and current in each case	5	PPT
5.2	Diode–Bridge Rectifier.	1	YouTube video
	Total	**30**	

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