SEMESTER-IV			
CORE – VI – PROGRAMMING IN C++			
Code: 15UPHC41	**Hours / week :4**	**Hrs / Semester: 60**	**Credits :4**

Objectives:

To have knowledge about the aspects of C++ language.

To apply C++ language to write various programs for solving some important problems in physics.

Unit I: Introduction, Tokens, Operators and Expressions

Introduction to Digital computer – Block diagram – Algorithm – flowchart – What is C++? - Character set – C++ Tokens-keywords-identifiers-basic data types-user defined data types-derived data types-symbolic constants-declaration of variables-dynamic initialization of variables-reference variables-Operators in C++ -scope resolution operator.

Expressions - Special assignment expressions – Implicit conversions – Hierarchy of arithmetic expressions - Operator precedence – library functions – statements. Structure of a simple C++ program – Implementation of a C++ program - Control structures. .

Unit II: Arrays, Functions, Classes and Objects

One dimensional array – Two dimensional arrays - Functions in C++ -the main function –function prototyping –call by reference –return by reference-inline functions-default arguments.

Specifying class-A simple class example –creating objects-accessing class members-defining member functions-nesting of member functions-private member functions-arrays within a class - arrays of objects-objects as function arguments-returning object.

Unit III: Constructors and Operator Overloading

Constructors-parameterized constructors -multiple constructors in a class-dynamic constructor-copy constructors-destructors.

Introduction-defining operator over loading-over loading unary operators-overloading binary operators –manipulation of strings using operators-rules for overloading.

Unit IV: Inheritance and Managing Console I/O Operations

Inheritance-introduction-defining derived class-single inheritance-multilevel inheritance-multiple inheritance-hierarchical inheritance –hybrid inheritance.

C++ streams-C++ stream classes-unformatted I/O operations-formatted console I/O operations –manipulators - managing output with manipulators-designing our own manipulators.

Unit V: Working With Files

Classes for file stream operations-opening and closing a file –detecting end-of –file – more about open() file modes-file pointers and their manipulations-sequential input and output operations – Updating a file : Random Access.

Text Book :

1. E.Balagurusamy, Object oriented programming with C++, Tata McGraw-Hill publishing company Ltd. New Delhi. 2nd reprint (2008).

UNIT	CHAPTER	SECTION NO.
I	2,3,4	2.3,2.6,3.1 – 3.14,3.19 – 3.21,3.23,3.24,4.11
II	4	4.1 – 4.7,5.3 – 5.9,5.13,5.14,5.16
III	6 ,7	6.2 – 6.4, 6.6 – 6.8, 6.11,7.1 – 7.4,7.6,7.7
IV	8,10	8.1 – 8.3 ,8.5 – 8.8 ,10.1 – 10.6
V	11	11.1 – 11.8

Book for Reference:

1. D.Ravichandran, Programming in C++, Tata Mc. Graw Hill Publishing company Ltd. New Delhi.

SEMESTER- VI			
PRACTICAL V– COMPUTER PROGRAMMING – C++			
Code: 15UPHPR5	**Hours / week :-2**	**Hrs / Semester:- 30**	**Credits :4**

Any 14 experiments:

1. Simple arithmetic operations (i.e. addition, subtraction, multiplication and division) using do-while loop.
2. Name of the day in a week using Switch–case statement.
3. Validity of any entered character (whether it belongs to the alphabetical set or a number or a special character) using if else.
4. Quadratic equation.
5. Sum of the series using for loop.
   a. Sum=1+3+5+…….n.
   b. Sum=$x-x^3/3!+x^5/5!-x^7/7!+\ldots\ldots x^n/n!$
   c. Sum=$1^2+2^2+4^2+\ldots\ldots n^2$
6. Matrix addition and its transpose.
7. Multiplication of two matrices.
8. The largest number in the given array and sort them in ascending or descending order using function declaration.
9. Factorial of a number using function declaration (with /without using the return statement)
10. (a) Displaying the content of an array using pointer arithmetic
    (b) Displaying the current date (such as day, month and year) using member function
11. Fibonacci numbers using constructor
12. Student details using inheritance concept.
13. Period of a pendulum of given length L.
14. Young's modulus from the data obtained from uniform bending method.
15. Bank account (Data members: Name of the depositor, Account Name, Type of account, Balance amount in the account and Member functions are to assign initial values, deposit an amount, withdraw an amount, display name and balance)

SEMESTER III			
NME I	**Applied Physics I**		
Code : 18UPHN31	**Hrs/Week : 2**	**Hrs/Sem : 30**	**Credits : 2**

Vision: To transform our students in the field of applied physics

Mission: To train our students in domestic wiring, air conditioning and fibre and laser optics

Course Outcome:

CO.No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO –1	recall the tools used in the home	3	Re
CO –2	discuss the systems of domestic wiring	3	Un
CO –3	explain the principle of Air Conditioning	3	Un
CO –4	sketch the refrigerating cycle	3	Ap
CO –5	describe the function of a compressor	3	Un
CO –6	understand the theory behind the important properties of light such as reflection, refraction , interference and total internal reflection	1,3	Un
CO –7	discuss the types of optical fibers	2,3	Ev
CO –8	list out the applications of lasers	3	Re

SEMESTER III			
NME I	**Applied Physics I**		
Code : 18UPHN31	**Hrs/Week : 2**	**Hrs/Sem : 30**	**Credits : 2**

Unit I: Domestic Wiring

Introduction – Tools – Precautions in handling tools – Wires – Cables – Systems of domestic wiring (CTS wiring, conduit wiring) – Fuses.

Unit II: Electrical Appliances

Electric bell – Electric iron – Electric kettle – Hot plate – Fan – Washing machine.

Unit III: Air Conditioning

Air conditioning – Principle – Refrigerating cycle – Refrigerants – Evaporators – Function of a compressor – Freezers – Ice plant – Water coolers.

Unit IV: Fibre optics

Introduction – Principles of optical fibre – Total internal reflection – Acceptance angle – Numerical aperture – Types of optical fibres – Fibre optic communication system – Advantages.

Unit V: Laser

Basic principle – Concept of laser – Population inversion – Pumping action – Characteristics of laser – Determination of the wavelength of the given laser source of light using grating – Determination of particle size – Application of lasers.

Text Books:

1. G. Jose Robin and A. Ubald Raj, Applied Physics, Indira Publications, Marthandam, 1998
2. P.Mani, A text book of Engineering Physics-I, Dhanam Publications, 2007 Edition.

SEMESTER IV			
NME II	**Applied Physics II**		
Code : 18UPHN41	**Hrs/Week : 2**	**Hrs/Sem : 30**	**Credits : 2**

Vision: To enlighten our students to be aware of digital, energy and nano physics

Mission: To make our students knowledgeable on digital electronics, renewable energy sources and communication physics

Course Outcome:

CO.No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO –1	explain number system	2	Un
CO –2	construct logic gates	2	Cr
CO –3	construct solar ponds for water desalination, solar cookers and solar green houses	7	Cr
CO –4	assess the working of windmills used for power generation	7	Ev
CO –5	explain the applications of ultrasonics	1	Un
CO –6	define nanomaterials	3	Re
CO –7	list out Special features of nanophase materials	3	Re
CO –8	describe Pulsed laser deposition	3	Un

SEMESTER IV			
NME II	**Applied Physics II**		
Code : 18UPHN41	**Hrs/Week : 2**	**Hrs/Sem : 30**	**Credits : 2**

Unit I: Number System

Number system – Conversion of decimal number to binary number – Binary – Decimal conversion – Binary addition, subtraction – 1's and 2's complement – Hexa decimal numbers – Octal numbers.

Unit II: Logic Gates

Introduction – AND, OR, NOT, NOR, NAND, exclusive OR gate- LED – LCD – Seven segment display.

Unit III: Energy Physics

Conventional and non conventional energy sources – Solar energy – Photovoltaic effect – Solar cooker (box type) – Solar ponds – Wind energy – Power of wind – Construction and working of wind mill – Ocean energy.

Unit IV: Ultrasonics

Introduction – Properties of ultrasonics – Ultrasonics production (magnetostriction method) – Acoustic grating – SONAR – Applications of ultrasonics.

Unit V: Nanomaterials

Introduction **–** Definition – Special features of nanophase materials – Different forms of nanomaterials – Synthesis of nanomaterials (basics) – Preparation of nanomaterials: Pulsed laser deposition – Applications of nanophase materials.

Text Books:

1. G. Jose Robin, A. Ubald Raj, Applied Electronics, Indira Publication, First Edition 2008.
2. G. Jose Robin, A. Ubald Raj, Applied Physics
3. P.Mani, A text book of Engineering Physics –I, Dhanam Publication, First Edition 2007.
4. P.Mani, A text book of Engineering Physics –II, Dhanam Publication, Tenth Edition 2016.

SEMESTER III	
Self Study Paper **Electrical Wiring and Appliances**	
Code : 18UPHSS1 (Optional)	**Credits : +2**

Vision: To produce competent students to handle electrical appliances and wiring in their home

Mission: To equip the students with adequate knowledge and skills in the field of electrical wiring and appliances

Course Outcome:

CO.No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	recall the tools used in the home	3	Re
CO –2	discuss the systems of domestic wiring	3	Un
CO –3	explain the principle of AC	1,3	Un
CO –4	sketch the refrigerating cycle	1,3	Ap
CO –5	describe the function of a compressor	3	Un
CO –6	list out the types of motor	1,3	Re
CO –7	describe a single phase a.c.motor	1,3	Un
CO –8	sketch electric kettle	3	Ap

SEMESTER III	
Self Study Paper **Electrical Wiring and Appliances**	
Code : 18UPHSS1 (Optional)	**Credits : +2**

Unit I: Domestic Wiring I

Introduction – Tools – Precautions in handling tools – Wires – Cables – General rules for wiring – Systems of domestic wiring.

Unit II: Domestic Wiring II

Tests to be carried out on wiring installation before commissioning – Good grounding and its need – Fuses – Switch wiring.

Unit III: Air Conditioning

Air conditioning – Principle – Refrigerating cycle – Refrigerants – Evaporators – Function of a compressor – Freezer.

Unit IV: Electric motors and coil winding

Electric motor – Motor classification – Motor Rating – Squirrel cage induction motor – A single phase a.c .motor – Motor winding – Coil winding.

Unit V: Electrical Appliances

Electric bell – Electric iron – Electric kettle – Hot plate – Fan – Washing machine.

Text Books:

1. G. Jose Robin and A. Ubald Raj, Applied Physics, Indira Publications, Marthandam, 1998.

SEMESTER III			
NME I	**Applied Physics I**		
Course Code: 21UPHN31	**Hrs./Week : 2**	**Hrs./Sem : 30**	**Credits : 2**

Objectives:

1. To enrich students in the field of applied physics
2. To train students in domestic wiring
3. To understand basic principle behind air conditioning
4. To understand the theory of laser and applications of laser

Course Outcome:

CO.No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO –1	recall the tools used in the home	10	Re
CO –2	discuss the systems of domestic wiring	10	Ev
CO –3	explain the principle of air conditioning	10	Un
CO –4	sketch the refrigerating cycle	10	Ap
CO –5	describe the function of a compressor	10	Un
CO –6	understand the theory behind laser	10	Un
CO –7	discuss the types of emission of laser	10	Ev
CO –8	list out the applications of lasers	10	Re

SEMESTER III			
NME I	**Applied Physics I**		
Course Code: 21UPHN31	**Hrs./Week : 2**	**Hrs./Sem : 30**	**Credits : 2**

Unit I: Domestic Wiring

Introduction – Tools – Precautions in handling tools – Wires – Cables – Systems of domestic wiring (CTS wiring, conduit wiring) – Fuses.

Unit II: Electrical Appliances

Electric bell – Electric iron – Electric kettle – Hot plate – Fan (Electrical, Axial, Centrifugal).

Unit III: Air Conditioning

Principle – Refrigerating cycle – Refrigerants – Evaporators – Function of a compressor – Freezers – Ice plant – Water coolers.

Unit IV: Laser

Introduction– Stimulated Absorption – Principle of spontaneous emission and stimulated emission – Concept of laser - Population inversion – Pumping action – Characteristics of laser – Basic components of laser.

Unit V: Applications of Laser

Laser drilling – Laser cutting– Laser welding – Spot welding – Air pollution monitoring – Water pollution monitoring – Laser remote sensing.

Text Books:

1. Jose Robin G and Ubald Raj A. *Applied Physics*. Marthandam: Indira Publications. 3rd edition 1998.
2. Dr. Mani. P *A text book of Engineering Physics-I.* Dhanam Publications. 10thedition 2013.
3. Jose Robin G and Ubald Raj A. *Laser and its Applications*. Marthandam: Indira Publications. First Edition 2003**.**

Book for Reference:

1. Jose Robin G and Ubald Raj A. *Maintenance of Electrical Appliances*. Marthandam: Indira Publications. First Edition July 2017.
2. Kakani S L and Shubhra Kakani. *Photonics – Optoelectronics*. CBS Publishers &Distributors Pvt Ltd. First Edition 2017.

SEMESTER IV			
NME II	**Applied Physics II**		
Course Code : 21UPHN41	**Hrs./Week : 2**	**Hrs./Sem : 30**	**Credits : 2**

Objectives:

1. To enlighten students to be aware of solar energy sources
2. To make students understand the working of windmills, OTEC and Geothermal process used for power generation and biomass energy conversion
3. To enrich the knowledge of our students on communication physics
4. To make students knowledgeable on nano physics

Course Outcome:

CO.No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO –1	construct solar ponds for water desalination and solar cookers	7	Cr
CO –2	understand the working of solar dryers and solar water heater.	7	Un
CO –3	explain the bio mass energy conversion	`7	Un
CO –4	understand the working of windmills, otec and geothermal process used for power generation	7	Un
CO –5	explain the advantages of fibre optics communication.	2	Un
CO –6	define nanomaterials	10	Re
CO –7	list out special features of nanophase materials	10	Re
CO –8	describe pulsed laser deposition	10	Un

SEMESTER IV			
NME II	**Applied Physics II**		
Course Code : 21**UPHN41**	**Hrs./Week : 2**	**Hrs./Sem : 30**	**Credits : 2**

Unit I: Energy Physics – I

Conventional and non conventional energy sources (Introduction) – Solar energy – Solar cooker(box type) – Solar ponds – Solar Crop Dryers – Solar Water Heater - Water Desalination.

Unit II: Energy Physics – II

Bio mass energy – Biomass conversion process digestion - Ocean Thermal energy - Geothermal Energy – Wind Energy.

Unit III: Medical Physics

Nuclear medicine - Radiation Therapy - Magnetic Resonance Imaging (MRI) – Endoscopy– Electroencephalogram (EEG) – Electrocardiogram (ECG) – Cardiac Pacemaker – Blood Pressure Apparatus (Sphygmomanometer).

Unit IV: Fibre Optics

Introduction – Optical fibre and cable – Total internal reflection - Principles and propagation of optical fibre – Acceptance angle – Numerical aperture – Types of optical fibres (Material and Number of modes) – Fibre optic communication system – Advantages and disadvantages.

Unit V: Nanomaterials

Introduction– Definition – Special features of nanophase materials – Different forms of nanomaterials – Synthesis of nanomaterials (basics) – Preparation of nanomaterials: Pulsed laser deposition – Properties of nanophase materials - Applications of nanophase materials.

Text Books:

1. Jose Robin G and Ubald Raj A, *Energy Physics*. Marthandam: Indira Publications. First edition 2014.
2. Dr. Sr. GerardinJayam. *Physics Every day*. First Edition 2008.
3. Dr. Mani P. *A text book of Engineering Physics –I*. Dhanam Publication. Tenth Edition 2013.
4. Dr. Mani P. *A text book of Engineering Physics –II*. Dhanam Publication. Tenth Edition 2016.

Book for Reference:

1. Rai G.D. *Nonconventional Energy Sources*. Khanna Publishers. Reprint, 2014.

2. Ubald Raj A and Jose Robin G. *Solid State Physics*. Marthandam: Indira Publications. second edition 2018.
3. Murugeshan R and Kiruthiga Sivaprasath. *Optics and Spectroscopy*. S. Chand and Company Ltd. Ninth edition 2019.
4. Arumugam M. *Biomedical Instrumentation*. Anuradha Agencies. Reprint, 2002.

SEMESTER- I			
SEC I	**Professional English For Physics – I**		
Course Code: 21UPHPE1	**Hrs./Week : 2**	**Hrs./Sem : 30**	**Credits : 2**

Objectives:

1. To gain knowledge regarding competence in speaking and reading correct English.
2. To know the importance of English in professional life.

COURSE OUTCOMES:

CO. No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	recognize their own ability to improve their own competence in using the language	**1,3**	**R**
CO-2	use language for speaking with confidence in an intelligible and acceptable manner	1,4	**U**
CO-3	understand the importance of reading for life	1,6,4	**U**
CO-4	read independently unfamiliar texts with comprehension	1,2	**U, An**

CO-5	understand the importance of writing in academic life	1, 2	**U**

SEMESTER- I			
SEC I	**Professional English For Physics – I**		
Course Code: 21UPHPE1	**Hrs./Week : 2**	**Hrs./Sem : 30**	**Credits : 2**

UNIT 1: COMMUNICATION **(6 hrs)**

Listening: Listening to audio text and answering questions - Listening to Instructions

Speaking: Pair work and small group work

Reading: Comprehension passages –Differentiate between facts and opinion

Writing: Developing a story with pictures.

Vocabulary: Register specific - Incorporated into the LSRW tasks

UNIT 2: DESCRIPTION **(6 hrs)**

Listening: Listening to process description.-Drawing a flow chart.

Speaking: Role play (formal context)

Reading: Skimming/Scanning- Reading passages on products, equipment and gadgets.

Writing: Process Description –Compare and Contrast Paragraph-Sentence Definition and

Extended definition - Free Writing

Vocabulary: Register specific -Incorporated into the LSRW tasks.

UNIT 3: NEGOTIATION STRATEGIES (6 hrs)

Listening: Listening to interviews of specialists / Inventors in fields (Subject specific)

Speaking: Brainstorming (Mind mapping). Small group discussions (Subject -Specific)

Reading: Longer Reading text

Writing: Essay writing (250 words)

Vocabulary: Register specific - Incorporated into the LSRW tasks

UNIT 4: PRESENTATION SKILLS (6 hrs)

Listening: Listening to lectures.

Speaking: Short talks

Reading: Reading Comprehension passages

Writing: Writing Recommendations Interpreting Visuals inputs

Vocabulary: Register specific -Incorporated into the LSRW tasks

UNIT 5: CRITICAL THINKING SKILLS (6 hrs)

Listening: Listening comprehension - Listening for information

Speaking: Making presentations (with PPT- practice)

Reading: Comprehension passages –Note making

Comprehension: Motivational article on Professional Competence, Professional Ethics and Life Skills)

Writing: Problem and Solution essay– Creative writing –Summary writing

Vocabulary: Register specific - Incorporated into the LSRW tasks

SEMESTER- II			
SEC II	**Professional English For Physics – II**		
Course Code: 21UPHPE2	**Hrs./Week : 2**	**Hrs./Sem : 30**	**Credits : 2**

Objective

1. To gain knowledge regarding communication skills.
2. To organise and write proposals for conducting seminars and workshops.

COURSE OUTCOMES:

CO. No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	attend interviews with boldness and confidence.	**7,8,9**	**An, E**
CO-2	adapt easily into the workplace context, having become communicatively competent.	**7,8,9**	**An, E**
CO-3	apply to the research departments, development organizations / sections in companies and offices with winning proposals.	10	**An**

SEMESTER- I			
SEC II	**Professional English For Physics – II**		
Course Code: 21UPHPE2	**Hrs./Week : 2**	**Hrs./Sem : 30**	**Credits : 2**

UNIT 1: Communicative Competence (6 hrs)

1. Listening – Listening to talks/lectures by eminent scientist on Physics related topics - (TED Talks) and answering comprehension exercises based on the talks
2. Speaking: Small group discussions (the discussions is based on the listening and reading Passages - open ended questions)
3. Reading: One Physics based reading texts followed by comprehension activities/exercises
4. Writing: Summary writing based on the reading passages.

UNIT 2: Persuasive Communication (6 hrs)

1. Listening: listening to a product launch- sensitizing learners to the nuances of persuasive communication
2. Speaking: Debates – Just a minute activities
3. Reading: reading texts on advertisements (on products relevant to the subject areas) and answering inferential questions.
4. Writing: dialogue writing- writing an argumentative /persuasive essay.

UNIT 3: Digital Competence (6 hrs)

1. Listening to interviews.
2. Speaking: Interviews with subject specialists (using video conferencing skills)
3. Reading: Selected sample of Web Page
4. Writing: Functioning of a computer
5. Reading: Comprehension: Essay on Digital Competence for Academic and Professional Life.

   The essay will address some aspects of digital competence in relation to MS Office and how they can be utilized in relation to work in the subject area.

UNIT 4: Creativity and Imagination (6 hrs)

1. Listening to short (2 to 5 minutes) academic videos (prepared by EMRC/ other MOOC videos on Indian academic sites – Eg.https://www.youtube.com/watch?v=8Krok63LbW8

   (Video showcasing the importance of study of Astrophysics)

2. Speaking: Making oral presentations through short films – Physics based
3. Reading: Essay on Creativity and Imagination - Physics based
4. Writing: Poster making – Writing slogans/Captions – Physics based

UNIT 5: Workplace Communication and Basics of Academic Writing (6hrs)

1. Speaking: Short presentation using PowerPoint
2. Reading: Writing: Flyers.
3. Writing: An introduction, paraphrasing.
4. Punctuation (period, question mark, exclamation point, comma, semicolon, colon, dash, hyphen, parentheses, brackets, braces, apostrophe, quotation marks)

SEMESTER III			
Core Skill Based Elective Instrumentation Physics			
Course Code: 21UPHS31	**Hrs/Week:2**	**Hrs/Sem:30**	**Credits:2**

Objectives:

1. To enrich students with the knowledge of instrumentation physics
2. To facilitate students in understanding the basic principles of instrumentation physics
3. To aid the students in measurement techniques

CO.No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO–1	identify the errors of instruments	4	Un
CO–2	find out the arithmetic mean, deviation from the mean, average deviation, standard deviation	8	Cr
CO–3	list out the characteristics of resting potential	3	Re
CO–4	compare active and passive transducers	3	Ev
CO–5	understand the working of bio medical equipments such as electron microscope.	3	Un
CO–6	read and interpret the output of bio potential recorders such as CT scan	3	Ev
CO–7	recall the functional elements of measuring instruments	3	Re
CO–8	describe the applications of physics in the field of medicine	3	Un

SEMESTER III			
Core Skill Based Elective	**Instrumentation Physics**		
Course Code: 21UPHS31	**Hrs/Week:2**	**Hrs/Sem:30**	**Credits:2**

Unit I: Measurement and Error

Definition – Accuracy and precision – Significant figures - Types of error (Gross error, Systematic error, Random error) – Statistical analysis (Arithmetic mean, Deviation from the mean, Average deviation, Standard deviation)

Unit II: Electrodes

Electrode potential– Purpose of the electrode paste - Electrode material – Types of electrodes – Depth and needle electrodes (2.4.6) – Surface electrodes – Chemical electrodes (Hydrogen electrode, pH electrode, pCO_2 electrode).

Unit III: Microscope

Optical microscope - Electron microscope – Comparison between optical and electron microscope – Resolving and Magnification power – Depth of focus – Types of electron microscope – TEM – SEM – Comparison between TEM and SEM.

Unit IV: Specialized and Advances in Medical Instruments

Angiography – Endoscopes – Computed Tomography (CT scan) – X-ray machine – Comparison of Fluoroscopy and Radiography – Computers in medicine – Lasers in medicine – Cryogenic surgery.

Unit V: Displays and Oscilloscope

Classification of displays – Display devices – Liquid crystal diode – Incandescentdisplay

–Oscilloscope – Basic principle – CRT features – Block diagram of oscilloscope.

Text Books:

1. Albert D. Helfrick and William D. Cooper. *Modern Electronic Instrumentation and Measurement Techniques.* Prentice-Hall of India Pvt Limited. Reprint, 8th edition 2002.
2. Arumugam M. *Biomedical Instrumentation*. Anuradha Agencies. Reprint, 2002.
3. Kalsi H. S. *Electronic Instrumentation*. Tata Mc Graw Hill Education Pvt. Limited. Reprint 2012.

Books for Reference:

1. Mani P. *A textbook of Engineering Physics-I.* Dhanam Publications. Reprint, 2013.

Jose Robin G and Ubald Raj A. *Applied Physics*. Marthandam: Indira Publications. 3rd edition 1998.

SEMESTER IV	
Self Study Course **Electrical Wiring and Appliances**	
Course Code: 21UPHSS2	**Credits : + 2**

(Optional)

Objectives:

1. To produce competent students to handle electrical appliances and wiring in their home
2. To equip the students with adequate knowledge and skill in the field of electrical wiring and appliances
3. To know how to handle domestic appliances effectively

Course Outcome:

CO.No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	recall the tools used in the home	10	Re
CO–2	discuss the systems of domestic wiring	10	Un
CO–3	explain the principle of ac	10	Un
CO–4	sketch the refrigerating cycle	10	Ap
CO–5	describe the function of a compressor	10	Un
CO–6	list out the types of street lighting	10	Re
CO–7	describe a wet grinder	10	Un
CO–8	sketch CFL	10	Ap

SEMESTER IV	
Self Study Course **Electrical Wiring and Appliances**	
Course Code: 21UPHSS2	**Credits : + 2**

(Optional)

Unit I: Domestic Wiring I

Introduction – Tools – Precautions in handling tools – Wires – Cables – General rules for wiring – Systems of domestic wiring.

Unit II: Domestic Wiring II

Tests to be carried out on wiring installation before commissioning – Good grounding and its need – Fuses – Switch wiring.

Unit III: Air Conditioning

Air conditioning – Principle – Refrigerating cycle – Refrigerants – Evaporators – Function of a compressor – Freezer.

Unit IV: Domestic Appliances - I

Tube light choke – Fluorescent light starter – Fluorescent lamp – Compact Fluorescent lamp – Street lighting – LED Street lighting – Solar street lighting system. **Unit V: Domestic Appliances - II**

Wet Grinder – Mixer Grinder – Water Heater: Storage type – Electric Iron – Washing Machine.

Text Book:

1. Jose Robin G and Ubald Raj A. *Applied Physics.* Marthandam: Indira Publications. 1998.
2. Jose Robin G and Ubald Raj A. *Maintenance of Electrical Appliances*. Marthandam: Indira Publications. First edition 2017.