

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI

Course Schedule – November 2016 – April 2017

Department : **PHYSICS**
Name/s of the Faculty : **Dr.R.Shanmugasundari**
Course Title : **PHYSICS –II**
Course Code : **15PH/AC/PH23**
Shift : **I**

Week & No. of hours	Units & Topics	Teaching Methodology	Text & References	Method of Evaluation
Nov. 14 - 19, 2016 (Day Order 1 to 6)	Unit 1 Electricity 1.1 Quantisation of Charge – Conservation of Electric Charge – Coulomb’s Law of Force between Charges – Flux of Electric Field - Gauss’s Law – Statement and Proof	Lecture	Subrahmanyam, N. and Lal Brij. A Text Book of Electricity and Magnetism	Problem solving
Nov. 21 - 28, 2016 (Day Order 1 to 6)	Electric Field of a Point Charge Using Gauss Law – Electric Potential – Relation between Potential and Field Strength - 1.2 Capacitance			Review - Questioning
Nov. 29 – Dec 5, 2016 (Day Order 1 to 6)	Capacitance of Parallel Plate Capacitor with and without Dielectric Unit 2 Magnetism 2.1 Magnetic Field: Definition of B – Force on a Charge in a Magnetic Field, in an Electromagnetic Field (Lorentz Force)	Lecture	Halliday David, Resnik Robert and Walker Jearl, Fundamentals of Physics	Quiz
Dec 6 - 14, 2016 (Day Order 1 to 6)	Maxwell’s Electromagnetic Equations (No Derivations) – Physical Significance of the Equations 2.2 Electromagnetism: Force on a Current Carrying Conductor in a Magnetic field	Lecture	Subrahmanyam, N. and Lal Brij. A Text Book of Electricity and Magnetism	Problem solving
Dec. 15 – 21, 2016 (Day Order 1 to 6)	Moving Coil Ballistic Galvanometer – Theory, Current and Charge Sensitivity of B.G – Relation Between the Two			III Comp Problem test
Jan. 03- 09, 2017 (Day Order 1 to 6)	Unit 3 Geometrical Optics 3.1 Defects of Images- Monochromatic Aberrations – Spherical Aberrations in Lenses – Methods of Minimizing Spherical Aberration- Chromatic Aberration – Achromatic Combination of Lenses in Contact and Lenses Separated by a Distance	Presentation using PPT	Subramaniam N. and Brijlal. Optics	Problem solving
Jan. 10- 17, 2017 (Day Order 1 to 6)	3.2 Optical Instruments: Telescopes – Angular Magnification of Telescopes – Refractive Astronomical Telescope – Terrestrial		Kakani, S L, and Bhandari K C. A Text Book of Optics	III Comp Presentation

	Telescope –			
Jan. 18- 20, 2017 (Day 1 to 3)	Reflecting Telescopes – Radio Telescope – Hubble Telescope - Revision			
Jan.23 - 28, 2017	C.A. Tests			
Jan.30 – Feb 01, 2017 (Day Order 4 to 6)	Unit 4 Physical Optics 4.1 Interference: Newton’s Rings – Measurement of Wavelength	Lecture	Subramaniam N. and Brijlal. Optics	Review - Questioning
Feb.02 - 09, 2017 (Day Order 1 to 6)	Diffraction Introduction – Fraunhofer Diffraction – Transmission Grating – Normal Incidence – Determination of Wavelength - Polarisation – Double Refraction			Problem solving
Feb.10 - 17, 2017 (Day Order 1 to 6)	Nicol Prism – Optical Activity – Determination of Specific Rotatory Power Using Laurent’s Half Shade Polarimeter – Uses of Polaroids	Lecture	Subramaniam N. and Brijlal. Optics	Problem solving
Feb.20 - 27, 2017 (Day Order 1 to 6)	Unit 5 Electronics 5.1 Introduction to Amplifiers - Operational Amplifier – Ideal Op- Amp -CMRR	Lecture	Mehta, V.K. Principles of Electronics.	Review - Questioning
Feb.28 – Mar 07, (Day Order 1 to 6)	Inverting and Non- Inverting Op- Amp Summing, Difference, Integral and Differential Op- Amp		Mehta, V.K. Principles of Electronics.	III Comp Problem test
Mar. 06 - 16, 2017	C.A. IMPROVEMENT TESTS			
Mar. 08 - 15, 2017 (Day Order 1 to 6)	5.2 BooleanAlgebra- DeMorgan’sTheorem–Verification- Algebraic Simplification – Implementation of Boolean Algebra into Circuits		Mehta, V.K. Principles of Electronics.	Problem solving
Mar. 16, 2017(Day Order 1)	Problem solving in Unit 5			
Mar. 17 - 23, 2017 (Day Order 2 to 6)	REVISION			
March 24, 2017 (DayOrder1)				

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI

Course Schedule – November 2016 – April 2017

Department : **PHYSICS**
Name/s of the Faculty : **Dr.R.Shanmugasundari**
Course Title : **ENERGY PHYSICS**
Course Code : **15PH/GE/EP23**
Shift : **I**

Week & No. of hours	Units & Topics	Teaching Methodology	Text & References	Method of Evaluation
Nov. 14 - 19, 2016 (Day Order 1 to 6)	Unit 1 Introduction 1.1 Energy : Sources of Energy - Forms of Energy- Potential , Kinetic, Mechanical, Chemical and Thermal Units of Energy.	Lecture	Vandana. S. Alternative Energy.	
Nov. 21 - 28, 2016 (Day Order 1 to 6)	Uses of Energy, Energy Conversion 1.2 Non-Renewable Energy – Coal, Petroleum, Gas			Review - Questioning
Nov. 29 Dec 5, 2016 (Day Order 1 to 6)	Renewable Energy- Solar, Wind, Biomass, Geothermal and Nuclear , Advantages and Disadvantages	Lecture	Tiwari. G. N. and Ghosal M. K. Renewable Energy resources	Quiz
Dec 6 - 14, 2016 (Day Order 1 to 6)	Unit 2 Non-Renewable Energy 2.1 Coal - Early Uses as Fuel,- Electricity Generation, Petroleum- Composition, Reservoirs – Uses	Lecture		
Dec. 15 – 21, 2016 (Day Order 1 to 6)	2.2 Natural Gas – Process, Conversion to Electrical Energy			Review - Questioning
Jan. 03- 09, 2017 (Day Order 1 to 6)	Unit 3 Renewable Energy 3.1 Solar Energy- Solar Energy Conversion, Solar Pond, Solar Voltaic Cell Conversion	Presentation using PPT	Ashok V. Desai. Non-conventional Energy	
Jan. 10- 17, 2017 (Day Order 1 to 6)	Wind Energy , Wind Mill Types , Geothermal- Power Plants, Uses of Geothermal Water		Tiwari. G. N. and Ghosal M. K. Renewable Energy resources	III Comp Test
Jan. 18- 20, 2017 (Day 1 to 3)	3.2 Biomass Energy – Biofuel Conversion Process, Gasification of Bio Mass			Review - Quiz
Jan.23 - 28, 2017	C.A. Tests			
Jan.30 – Feb 01,2017 (Day Order 4 to 6)	Nuclear: Nuclear Fission and Fusion, Power Reactors	Lecture		Review - Questioning
Feb.02 - 09, 2017 (Day Order 1 to 6)	Hydroelectric Power, Principle - Production of Power Unit 4 Energy and Environment 4.1 Energy and Environment, Conservation of Energy		Ashwin Paramar. Energy Future	

Feb.10 - 17, 2017 (Day Order 1 to 6)	Energy Consumption, Calorific Values of Energy	Lecture		
Feb.20 - 27, 2017 (Day Order 1 to 6)	Unit 5 Energy Audit and Planning 5.1 Sustainable Energy Development, Present and Future, Need of Alternate Source of Energy.	Lecture	Ashwin Paramar. Energy Future	Case study analysis
Feb.28 – Mar 07, (Day Order 1 to 6)	III Comp Presentation			III Comp. Presentation
Mar. 06 - 16, 2017	C.A. IMPROVEMENT TESTS			
Mar. 08 - 15, 2017 (Day Order 1 to 6)	5.2 Energy Audit	Demo and Case study presentation		
Mar. 16, 2017(Day Order 1)	Case study analysis			
Mar. 17 - 23, 2017 (Day Order 2 to 6)	REVISION			
March 24, 2017 (Day Order 1)	REVISION			

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI

Course Schedule – November 2016 – April 2017

Department : Physics
Name/s of the Faculty : Ms. D. Anceila
Course Title : Physics - II
Course Code : 15PH/AC/PH23
Shift : II

Week & No. of hours	Units & Topics	Teaching Methodology	Text & References	Method of Evaluation
Nov. 14 - 19, 2016 (Day Order 1 to 6)	Unit 1 Electricity 1.1.Quantisation of Charge – Conservation of Electric Charge – Coulomb’s Law of Force between Charges – Flux of Electric Field – Gauss’s Law – Statement and Proof	Lecture	Text Book of Electricity and Magnetism Subrahmanyam, N. and Lal Brij. A	
Nov. 21 - 28, 2016 (Day Order 1 to 6)	1.1.Electric Field of a Point Charge Using Gauss Law – Electric Potential – Relation between Potential and Field Strength	Lecture	Text Book of Electricity and Magnetism Subrahmanyam, N. and Lal Brij. A	Questioning on the classes taught
Nov. 29 – Dec 5, 2016 (Day Order 1 to 6)	1.2. Capacitance- Capacitance of Parallel Plate Capacitor with and without Dielectric.	Lecture and problem solving	Text Book of Electricity and Magnetism Subrahmanyam, N. and Lal Brij.A	
Dec 6 - 14, 2016 (Day Order 1 to 6)	Unit 2 Magnetism 2.1.Magnetic Field: Definition of B – Force on a Charge in a Magnetic Field, in an Electromagnetic Field (Lorentz Force) Maxwell’s Electromagnetic Equations (No Derivations) – Physical Significance of the Equations	Lecture	Text Book of Electricity and Magnetism Subrahmanyam, N. and Lal Brij. A	Questioning on the classes taught

Dec. 15 - 21, 2016 (Day Order 1 to 6)	2.2.Electromagnetism: Force on a Current Carrying Conductor in a Magnetic field – Moving Coil Ballistic Galvanometer – Theory, Current and Charge Sensitivity of B.G – Relation Between the Two.	Lecture and problem solving	Text Book of Electricity and Magnetism Subrahmanyam, N. and Lal Brij. A	
Jan. 03- 09, 2017 (Day Order 1 to 6)	Unit 3 Geometrical Optics 3.1.Defects of Images- Monochromatic Aberrations – Spherical Aberrations in Lenses – Methods of Minimizing Spherical Aberration-	Lecture	Optics Subramaniam N. and Brijlal.	Quiz – III Component
Jan. 10- 17, 2017 (Day Order 1 to 6)	3.1.Chromatic Aberration - Achromatic Combination of Lenses in Contact and Lenses Separated by a Distance	Lecture and problem solving	Optics Subramaniam N. and Brijlal.	
Jan. 18- 20, 2017 (Day Order 1 to 3)	3.2. Optical Instruments: Telescopes – Angular Magnification of Telescopes – Refractive Astronomical Telescope –	Lecture	Optics Subramaniam N. and Brijlal.	
Jan.23 - 28, 2017	C.A. Tests			
Jan.30 – Feb 01, 2017 (Day Order 4 to 6)	3.2. Terrestrial Telescope – Reflecting Telescopes – Radio Telescope – Hubble Telescope	Lecture	Optics Subramaniam N. and Brijlal.	Group presentation – III component
Feb.02 - 09, 2017 (Day Order 1 to 6)	Unit 4 Physical Optics 4.1 Interference: Newton’s Rings – Measurement of Wavelength - Diffraction: Introduction – Fraunhofer Diffraction –	Lecture cum demonstration	Optics Subramaniam N. and Brijlal.	

	Transmission Grating – Normal Incidence – Determination of Wavelength -			
Feb.10 - 17, 2017 (Day Order 1 to 6)	4.1. Polarisation – Double Refraction- Nicol Prism – Optical Activity – Determination of Specific Rotatory Power Using Laurent’s Half Shade Polarimeter – Uses of polaroids	Lecture cum demonstration	Optics Subramaniam N. and Brijlal.	Questioning on the classes taught
Feb.20 - 27, 2017 (Day Order 1 to 6)	Unit 5 Electronics 5.1. Introduction to Amplifiers - Operational Amplifier – Ideal Op- Amp - CMRR – Inverting and Non- Inverting Op- Amp -	Lecture cum demonstration	Principles of Electronics Mehta, V.K..	Problem Test - III component
Feb.28 – Mar 07, 2017 (Day Order 1 to 6)	5.1. Summing, Difference, Integral and Differential Op- Amp	Lecture	Principles of Electronics Mehta, V.K..	
Mar. 06 - 16, 2017	C.A. IMPROVEMENT TESTS			
Mar. 08 - 15, 2017 (Day Order 1 to 6)	5.2. Boolean Algebra- De Morgan’s Theorem - verification-Algebraic Simplification – Implementation of Boolean Algebra into Circuits	Lecture cum demonstration	Principles of Electronics Mehta, V.K..	Questioning on the classes taught
Mar. 16, 2017 (Day Order 1)	REVISION			
Mar. 17 - 23, 2017 (Day Order 2 to 6)	REVISION			
March 24, 2017 (Day Order 1)				

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI

Course Schedule – November 2016 – April 2017

Department : Physics
Name/s of the Faculty : Ms. N. Neeraja
Course Title : Environmental Studies
Course Code : 15PH/GC/ES 22
Shift : I

Week & No. of hours	Units & Topics	Teaching Methodology	Text & References	Method of Evaluation
Nov. 14 - 19, 2016 (Day Order 1 to 6)	Unit1 Natural Resources 1.1. Renewable & non renewable resources 1.2.Forest resources – use and over exploitation 1.3.Water resources – use and over utilization of surface & ground water	Lecture	Textbook of Environmental Studies- Arul. P.A	
Nov. 21 - 28, 2016 (Day Order 1 to 6)	1.4. Mineral resources – use and exploitation. 1.5. Food resources – world food problems – effects of modern agriculture – sustainable agriculture.	Lecture	Textbook of Environmental Studies- Arul. P.A	Questioning on the classes taught
Nov. 29 – Dec 5, 2016 (Day Order 1 to 6)	1.6. Energy resources – renewable and non renewable energy sources – use of alternative sources of energy. 1.7.Need for public awareness in conservation of natural resources.	Guest Lecture	Textbook of Environmental Studies- Arul. P.A	Group Discussion-III Component
Dec 6 - 14, 2016 (Day Order 1 to 6)	Unit 2 Ecosystems and Biodiversity 2.1. Characteristic features of terrestrial and aquatic ecosystems – structure, function, food chain, food web & ecological pyramids. 2.2.Ecological succession. (a brief study)	Lecture	Textbook of Environmental Studies- Bharucha, E.,	
Dec. 15 - 21, 2016 (Day Order 1 to 6)	2.3.Definition and levels of biodiversity 2.4.Hot spots of biodiversity		Textbook of Environmental Studies- Bharucha, E.,	

Jan. 03- 09, 2017 (Day Order 1 to 6)	2.5. Threats to biodiversity – habitat loss – poaching of wildlife – man & wildlife conflicts. 2.6.Conservation of biodiversity – <i>in-situ</i> and <i>ex-situ</i> conservation methods	Lecture	Textbook of Environmental Studies- Bharucha, E.,	Group presentation – III component
Jan. 10- 17, 2017 (Day Order 1 to 6)	Unit 3 Environmental Pollution 3.1. Air Pollution : sources , effects and control 3.2. Water Pollution: sources, effects and control	Lecture	Textbook of Environmental Studies- Bharucha, E.,	
Jan. 18- 20, 2017 (Day Order 1 to 3)	3.3. Soil Pollution : sources, effects and control 3.4.Noise Pollution : sources , effects and control	Lecture	Textbook of Environmental Studies- Bharucha, E.,	Questioning on the classes taught
Jan.23 - 28, 2017	C.A. Tests			
Jan.30 – Feb 01, 2017 (Day Order 4 to 6)	3.5.Nuclear Hazards 3.6.Environmental Impact Assessment	Guest Lecture	Textbook of Environmental Studies- Bharucha, E.,	
Feb.02 - 09, 2017 (Day Order 1 to 6)	3.7. Role of individual, society and government in prevention of pollution.	Lecture	Textbook of Environmental Studies- Bharucha, E.,	Questioning on the classes taught
Feb.10 - 17, 2017 (Day Order 1 to 6)	Unit 4 Social Issues and the Environment 4.1. Multidisciplinary nature of environmental studies	Lecture	Textbook of Environmental Studies- Arul. P.A	
Feb.20 - 27, 2017 (Day Order 1 to 6)	4.2. Population explosion and its impact on environment 4.3.Water conservation – rain water harvesting – watershed management	Lecture	Textbook of Environmental Studies- Arul. P.A	Quiz- III Component
Feb.28 – Mar 07, 2017 (Day Order 1 to 6)	4.4. Environmental ethics 4.5. Climate change and global warming	Lecture	Textbook of Environmental Studies- Arul. P.A	

Mar. 06 - 16, 2017	C.A. IMPROVEMENT TESTS			
Mar. 08 - 15, 2017 (Day Order 1 to 6)	4.6. Role of information technology in environment	Lecture	Textbook of Environmental Studies- Arul. P.A	Questioning on the classes taught
Mar. 16, 2017 (Day Order 1)	Revision			
Mar. 17 - 23, 2017 (Day Order 2 to 6)	REVISION			
March 24, 2017 (Day Order 1)				

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI

Course Schedule – November 2016 – April 2017

Department : Physics
Name/s of the Faculty : Ms. A. Suganthi Lark
Course Title : Basic Principles of Physics
Course Code : 15PH/GE/BP22
Shift : I

Week & No. of hours	Units & Topics	Teaching Methodology	Text & References	Method of Evaluation
Nov. 14 - 19, 2016 (Day Order 1 to 6)	Unit 1 Mechanics 1.1 Newton's Laws of Motion- Conservation of Linear Momentum. Impulse- Collision- Centripetal force	lecture	Halliday, David and Robert Resnick. Murugesan R. <i>Electricity and Magnetism.</i>	
Nov. 21 - 28, 2016 (Day Order 1 to 6)	1.1. Centrifugal Forces –First and Second Order of Levers –Simple Machines	lecture	Halliday, David and Robert Resnick. Narayananamurthi.M and Nagaratham. N. <i>Dynamics.</i>	Questioning on classes taught
Nov. 29 – Dec 5, 2016 (Day Order 1 to 6)	1.2.Experiments I Conservation of Linear Momentum II Centripetal and Centrifugal Forces III Simple Machines	Lecture and demonstration	Murugesan R. <i>Electricity and Magnetism.</i>	
Dec 6 - 14, 2016 (Day Order 1 to 6)	Unit 2 Optics (9 hrs.) 2.1Light – Characteristics of Light- Reflection – Refraction – Interference – Diffraction - Polarization	Lecture	Halliday, David and Robert Resnick.	Questioning on classes taught
Dec. 15 - 21, 2016 (Day Order 1 to 6)	2.1.Electromagnetic Spectrum- Microscope Telescope- Spectrometer	Lecture	Narayananamurthi.M and Nagaratham. N. <i>Dynamics.</i> Murugesan R. <i>Electricity</i>	

			<i>and Magnetism.</i>	
Jan. 03- 09, 2017 (Day Order 1 to 6)	2.1.Laser-Stimulated Emission – Principle of Laser Action	Lecture and demonstration	Halliday, David and Robert Resnick.	
Jan. 10- 17, 2017 (Day Order 1 to 6)	2.2.Experiments i.Parts of Optical Instruments ii.Study of Spectrum Using Prism and Transmission Grating	Lecture and demonstration	Murugesan R. <i>Electricity and Magnetism.</i>	Test – III Component
Jan. 18- 20, 2017 (Day Order 1 to 3)	iii.Determination of Thickness of Thin Wire Using LASER	Lecture and demonstration	Naranyanamu rthi.M and Nagaratham. N. <i>Dynamics.</i>	
Jan.23 - 28, 2017	C.A. Tests			
Jan.30 – Feb 01, 2017 (Day Order 4 to 6)	Unit 3 Electricity 3.1.Ohm’s Law- Resistance in Series and Parallel	Lecture and demonstration	Murugesan R. <i>Electricity and Magnetism.</i>	Questioning on classes taught
Feb.02 - 09, 2017 (Day Order 1 to 6)	Electromagnetic Induction- Lenz’s Law-	Lecture	Naranyanamu rthi.M and Nagaratham. N. <i>Dynamics</i>	
Feb.10 - 17, 2017 (Day Order 1 to 6)	Magnetic Materials- Different Types of Magnetic Materials-	Lecture	Naranyanamu rthi.M and Nagaratham. N. <i>Dynamics</i>	
Feb.20 - 27, 2017 (Day Order 1 to 6)	DC and AC-Three Phase AC	Lecture	Murugesan R. <i>Electricity and Magnetism.</i>	Quiz– III Component
Feb.28 – Mar 07, 2017 (Day Order 1 to 6)	Experiments i.Verification of Ohm’s Law ii.Study of Magnetic Properties	Lecture and demonstration	Murugesan R. <i>Electricity and Magnetism.</i>	
Mar. 06 - 16, 2017	C.A. IMPROVEMENT TESTS			

Mar. 08 - 15, 2017 (Day Order 1 to 6)	Experiments iii. Generation of EMF Using Induction Coil	Lecture and demonstration	Naranyanamu rthi.M and Nagaratham. <i>N. Dynamics</i>	Questioning on classes taught
Mar. 16, 2017 (Day Order 1)	REVISION			
Mar. 17 - 23, 2017 (Day Order 2 to 6)	REVISION			
March 24, 2017 (Day Order 1)				

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI

Course Schedule – November 2016 – April 2017

Department : PHYSICS
Name/s of the Faculty : Ms. N.Neeraja & Sr. Nirmala
Course Title : THERMAL PHYSICS AND STATISTICAL MECHANICS
Course Code : 11PH/MC/TS24
Shift : I

Week & No. of hours	Units & Topics	Teaching Methodology	Text & References	Method of Evaluation
Nov. 14 - 19, 2016 (Day Order 1 to 6)	Unit 1 Radiation 1.1- Blackbody radiation-distribution of energy in the spectrum of a blackbody Unit 2 Thermodynamics 2.1- Thermodynamic systems-thermal equilibrium and concept of temperature-zeroth law of Thermodynamics	Lecture	Heat and Thermodynamics -Mathur.D.S	
Nov. 21 - 28, 2016 (Day Order 1 to 6)	1.1 - Experimental arrangement to study energy distribution- - Experimental results 2.1- Concept of temperature-zeroth law of Thermodynamics Thermodynamic processes-internal energy	Lecture	Heat and Thermodynamics -Mathur.D.S	Questioning on the classes taught
Nov. 29 – Dec 5, 2016 (Day Order 1 to 6)	1.1- Statements of Stefan-Boltzmann and Wiens' law-Quantum theory of radiation 2.1-Thermodynamic processes- internal energy 2.2- First law of thermodynamics-Isothermal and adiabatic elasticity of a gas	Lecture and problem solving	Heat and Thermodynamics-Subramanyan N and Brij Lal	
Dec 6 – 14, 2016 (Day Order 1 to 6)	1.2- Average energy of planck's oscillator-Planck's hypothesis 2.2- First law of thermodynamics	Lecture and problem solving	Heat and Thermodynamics-Subramanyan N and Brij Lal	Questioning on the classes taught
Dec. 15 – 21, 2016 (Day Order 1 to 6)	1.2- Planck's' radiation relation 2.2–Second law of thermodynamics-Statements	Lecture	Heat and Thermodynamics –Mathur.D.S	Solving numerical problems- III

	of Clausius and Kelvin 2.2 – heat engines and efficiency			Component
Jan. 03- 09, 2017 (Day Order 1 to 6)	5.1- Production of very low temperature and experiment 2.2 – heat engines and efficiency	Lecture	Heat and Thermodynamics-Subramanyan N and Brij Lal	
Jan. 10- 17, 2017 (Day Order 1 to 6)	5.1Adiabatic demagnetization of paramagnetic salt-theory 2.2-Thermodynamic potentials	Lecture	Heat and Thermodynamics -Mathur.D.S	Questioning on the classes taught
Jan. 18- 20, 2017 (Day Order 1 to 3)	5.2- Definition of phase space-micro and macro states 2.2-Thermodynamics of refrigeration-coefficient of performance	Lecture and problem solving	Heat and Thermodynamics -Mathur.D.S	
Jan.23 - 28, 2017	C.A. Tests			
Jan.30 – Feb 01, 2017 (Day Order 4 to 6)	5.2- Ensembles-definition of Thermodynamic probability 3.2- Second law of thermodynamics in terms of entropy	Lecture	Heat and Thermodynamics -Mathur.D.S	
Feb.02 - 09, 2017 (Day Order 1 to 6)	5.2- Thermodynamic probability Unit 4 Maxwell's thermodynamical relations 4.1- Maxwell's thermodynamical relations	Lecture and problem solving	Heat and Thermodynamics -Mathur.D.S	Group presentation – III component
Feb.10 - 17, 2017 (Day Order 1 to 6)	5.2- Classical Statistics 4.2- deduction from thermodynamical relations	Lecture	Heat and Thermodynamics -Mathur.D.S	Questioning on the classes taught
Feb.20 - 27, 2017 (Day Order 1 to 6)	5.2-Maxwell-Boltzmann Statistics 4.2-1. First Tds equations	Lecture and problem solving	Heat and Thermodynamics -Mathur.D.S	
Feb.28 – Mar 07, 2017 (Day Order 1 to 6)	4.2- Second Tds equations	Lecture	Heat and Thermodynamics-Subramanyan N and Brij Lal	Questioning on the classes taught
Mar. 6 - 16, 2017	C.A. IMPROVEMENT TESTS			

Mar. 8 - 15, 2017 (Day Order 1 to 6)	4.2- 2. variation of intrinsic energy with volume	Lecture and problem solving	Heat and Thermodynamics-Subramanyan N and Brij Lal	Questioning on the classes taught
Mar. 16, 2017 (Day Order 1)	4.2- 3. $C_p - C_v = R$ 4.2 -4. Clapeyron latent heat equation	Lecture	Heat and Thermodynamics-Subramanyan N and Brij Lal	
Mar. 17 - 23, 2017 (Day Order 2 to 6)	REVISION			
March 24, 2017 (Day Order 1)				

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI

Course Schedule – November 2016 – April 2017

Department : **PHYSICS**
Name/s of the Faculty : **Dr.R.Shanmugasundari**
Course Title : **MATHEMATICAL PHYSICS**
Course Code : **15PH/MC/MP44**
Shift : **I**

Week & No. of hours	Units & Topics	Teaching Methodology	Text & References	Method of Evaluation
Nov. 14 - 19, 2016 (Day Order 1 to 6)	Unit 1 Vector Calculus 1.1 Scalar Point Function - Gravitational Potential and Electrostatic Potential - Vector Point Function – Electric Intensity and Magnetic Field	Lecture - Problem solving	Murray .Spiegel. Schaum’s Outline of theory and Problems of Vector Analysis	Problem solving
Nov. 21 - 28, 2016 (Day Order 1 to 6)	Directional Derivatives - Gradient of a Scalar Field. 1.2 Vector Differentiation – Determination of Velocity and Acceleration From Position Vector		Gupta B.D. Mathematical Physics	Review - Questioning
Nov. 29 – Dec 5, 2016 (Day Order 1 to 6)	Partial Differentiation of Vectors Unit 2 Vector Analysis 2.1 The Divergence of a Vector Function - the Curl or Rotation of a Vector Function -	Lecture - Problem solving	Murray .Spiegel. Schaum’s Outline of theory and Problems of Vector Analysis	Quiz
Dec 6 - 14, 2016 (Day Order 1 to 6)	Geometrical Interpretation - Physical Significance. 2.2 Relations between Gradient, Divergence and Curl	Lecture - Problem solving	Gupta B.D. Mathematical Physics	Problem solving
Dec. 15 – 21, 2016 (Day Order 1 to 6)	Electrostatic Potential and Field – Maxwell’s Equations.		Gupta B.D. Mathematical Physics	III Comp. Problem test
Jan. 03- 09, 2017 (Day Order 1 to 6)	Unit 3 Vector Integration 3.1 Vector Integration: Ordinary Integrals of Vectors - Line Integrals - Surface Integrals - Volume Integrals	Presentation	Satyaprakash. Mathematical Physics	Problem solving
Jan. 10- 17, 2017 (Day Order 1 to 6)	3.2 Gauss’s Theorem - Statement and Physical Interpretation - Stoke’s Theorem and Green’s Theorem (Statement Only)			III Comp Presentation
Jan. 18- 20, 2017 (Day 1 to 3)	Poisson’s Equation and Laplace’s Equations - Revision		Gupta B.D. Mathematical Physics	

Jan.23 - 28, 2017	C.A. Tests			
Jan.30 – Feb 01, 017 (Day 4 to 6)	Vector Integration Applications in Gravitation, Hydrodynamics and Electromagnetism.	Lecture		Review - Questioning
Feb.02 - 09, 2017 (Day Order 1 to 6)	Unit 4 Differential Equations 4.1 Initial and Boundary Value Problems - Applications of First Order Differential Equations - Falling Body Problems - Electrical Circuits (RL and RC).		Bronson Richard Schaum's Outline of theory and Problems of Differential Equations	Problem solving
Feb.10 - 17, 2017 (Day Order	4.2 Second Order Differential Equations with Constant Coefficients: The Characteristic Equation – General Solutions - Applications of Second Order Differential Equations	Lecture	”	Problem solving
Feb.20 - 27, 2017 (Day Order 1 to 6)	(i) System of Springs (ii) Electrical Circuits (LCR). Unit 5 Group Theory 5.1 Group Theory - Definition of Groups Subgroups -	Lecture - Problem solving	Modern Algebra by Arumugam	Review - Questioning
Feb.28 – Mar 07, (Day 1 to 6)	Symmetry Elements Transformation - Point Groups - Representation of a Group.		”	III Comp Problem test
Mar. 06 - 16, 2017	C.A. IMPROVEMENT TESTS			
Mar. 08 - 15, 2017 (Day Order 1 to 6)	5.2 Applications of Group Theory – Elementary Particles - Application to IR and Raman Active Vibrations.	Lecture - Problem solving	”	Problem solving
Mar. 16, 2017(Day Order 1)	Problem solving in Unit 5			
Mar. 17 - 23, 2017 (Day Order 2 to 6)	REVISION			
March 24, 2017 (Day Order 1)				

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI

Course Schedule – November 2016 – April 2017

Department : PHYSICS
Name/s of the Faculty : Dr. K. H. Rajini and Ms. Anceila. D
Course Title : Physics for Chemistry - II
Course Code : 15PH/AC/PC43
Shift : I

Week & No. of hours	Units & Topics	Teaching Methodology	Text & References	Method of Evaluation
Nov. 14 - 19, 2016 (Day Order 1 to 6) 1 + 2	Unit 1 1.1Coulomb's law of inverse squares electric field 1.2 Conservative nature of electrostatic field – electric field electric potential	Lecture	Allied physics by Murugesan. R	Questioning
Nov. 21 - 28, 2016 (Day Order 1 to 6) 1 + 2	1.1 definition flux of electric field Gauss's law 1,2 potential at a point due to point charge relation between them	Lecture	Allied physics by Murugesan. R	Questioning
Nov. 29 – Dec 5, 2016 (Day Order 1 to 6) 1 + 2	1.1 application of Gauss's law 1.3.Capacitance : principle- capacitance of a parallel plate	Lecture	Electricity and Magnetism by Tiwari	Review - Questioning
Dec 6 - 14, 2016 (Day Order 1 to 6) 1 + 2	1.1 field due to spherical charge distribution and plane infinite sheet 1.3 capacitor with and without dielectric	Lecture	Electricity and Magnetism by Tiwari	Review - Questioning
Dec. 15 - 21, 2016 (Day Order 1 to 6) 1 + 2	1.1 field due to point charge and cylindrical distribution 2.1 Magnetic field : definition of B force on a charge in a magnetic field –	Lecture	Electricity and Magnetism by Tiwari	Review - Questioning

Jan. 03- 09, 2017 (Day Order 1 to 6) 1 + 2	Unit 4 4.1 MASER : Ammonia MASER 2.1 force on a charge in an electro magnetic field	Lecture	Laser physics by B.B. Laud Electricity and Magnetism by Brijlal and Subramanian	Problem Test - III Component
Jan. 10- 17, 2017 (Day Order 1 to 6) 1 + 2	4.2 LASER :- Carbon dioxide LASER – applications 2.2 Maxwell’s electromagnetic equations - physical significance	Lecture	Laser physics by B.B. Laud Electricity and Magnetism by Brijlal and Subramanian	Questioning
Jan. 18- 20, 2017 (Day Order 1 to 3) 1	2.3 Magnetic properties of materials		Electricity and Magnetism by Brijlal and Subramanian	
Jan.23 - 28, 2017	C.A. Tests			
Jan.30 – Feb 01, 2017 (Day Order 4 to 6) 2	4.3 Holography : principles – preparation of holograms 2.3 hysteresis- magnetometer method of drawing hysteresis curve- energy laws	Lecture	Laser physics by B.B. Laud	
Feb.02 - 09, 2017 (Day Order 1 to 6) 1 + 2	4.3 Holography : preparation of holograms Unit 3 3.1 Electromagnetism force on a current carrying conductor in a magnetic field –	Lecture	Laser physics by B.B. Laud	Questioning
Feb.10 - 17, 2017 (Day Order 1 to 6) 1 + 2	4.3 Holography : Applications 3.2 moving coil ballistic galvanometer -r charge and current sensitivity	Lecture	Laser physics by B.B. Laud Electronics by V.K. Mehta	Questioning
Feb.20 - 27, 2017 (Day Order 1 to 6)	4.4 Fibre Optics principles – characteristics	Lecture	Laser physics by B.B. Laud	Assignment - III Component

1 + 2	Unit 5 5.1 Operational amplifier – ideal op- amp - CMRR – inverting and non-inverting		Electronics by V.K. Mehta	
Feb.28 – Mar 07, 2017 (Day Order 1 to 6) 1 + 2	4.4 Fibre Optics classification – 5.1 op- amp - summing, difference, integral and differential op- amp.	Lecture	Laser physics by B.B. Laud Electronics by V.K. Mehta	Questioning
Mar. 06 - 16, 2017	C.A. IMPROVEMENT TESTS			
Mar. 08 - 15, 2017 (Day Order 1 to 6) 1 + 2	4.4 Fibre Optics Applications 5.2 Digital electronics : number system – decimal to binary conversion – binary addition-subtraction – multiplication – division	Lecture	Laser physics by B.B. Laud Electronics by V.K. Mehta	Questioning
Mar. 16, 2017 (Day Order 1) 1	5.2 problems in digital number system	Lecture	Electronics by V.K. Mehta	
Mar. 17 - 23, 2017 (Day Order 2 to 6)	REVISION			
March 24, 2017 (Day Order 1)				

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI

Course Schedule – November 2016 – April 2017

Department : Physics
Name/s of the Faculty : Ms. N. Neeraja & Ms. D. Anceila
Course Title : Home Electrical Installations
Course Code : 15PH/GE/HE23
Shift : I

Week & No. of hours	Units & Topics	Teaching Methodology	Text & References	Method of Evaluation
Nov. 14 - 19, 2016 (Day Order 1 to 6)	Unit 1 Basic Electric Circuits 1.1.Introduction to electricity Basic Facts : Electric Circuits – Basic Components Used in an Electric Circuit – Complete Circuit- Unit 4 Demonstration and Hands on training-I Introduction to simple circuits	Lecture Cum demonstration	Basic Electrical Installation Work. Lindslaey Trevor.	
Nov. 21 - 28, 2016 (Day Order 1 to 6)	1.1.Lighting Circuits – Series and Parallel Circuits -Switches – Types of Switches 4.1.Experiments on Closed, Open, Short, Series and Parallel Circuits.	Lecture Cum demonstration	Basic Electrical Installation Work. Lindslaey Trevor.	Problem solving
Nov. 29 – Dec 5, 2016 (Day Order 1 to 6)	1.1.Plugs and Its Types – Safety Practices and Measurements 4.2. Wiring Practice of Switches and Plugs.	Lecture Cum demonstration	Basic Electrical Installation Work. Lindslaey Trevor.	Questioning on the classes taught
Dec 6 - 14, 2016 (Day Order 1 to 6)	1.2.Introduction to AC and DC. Principles of Single Phase and Three Phase Connections.	Lecture	Electricity and Magnetism Brijlal & Subramaniyam	

Dec. 15 - 21, 2016 (Day Order 1 to 6)	Unit 2 Electrical Connections 2.1.Introduction to Fuses-Fuse Wire – Melting Point – Causes and Repairing a Fuse- the Earth Wire – Lightning Conductor	Lecture Cum demonstration	Basic Electrical Installation Work. Lindslaey Trevor.	Quiz- III Component
Jan. 03- 09, 2017 (Day Order 1 to 6)	2.2.Using and Paying for Electricity- Consumption	Lecture problem solving	Basic Electrical and Electronics G. Nagarajan	Problem solving
Jan. 10- 17, 2017 (Day Order 1 to 6)	2.2. Working of KWH- Meters . Unit 5 Demonstration and Hands on training- II 5.1. Replacing Fuses	Lecture	Basic Electrical and Electronics G. Nagarajan	
Jan. 18- 20, 2017 (Day Order 1 to 3)	Unit 3 Electrical Appliances 3.1.Electric Iron	Lecture Cum demonstration	Basic Electrical Installation Work. Lindslaey Trevor. Electrical appliance Anwani	
Jan.23 - 28, 2017	C.A. Tests			
Jan.30 – Feb 01, 2017 (Day Order 4 to 6)	3.1.Heater 4.3. Measurement of Current and Voltage Using Multimeter.	Lecture cum demonstration		Questioning on the classes taught
Feb.02 - 09, 2017 (Day Order 1 to 6)	3.1. Microwave Oven- Incandescent and Fluorescent Lamps	Lecture Cum demonstration	Basic Electrical Installation Work. Lindslaey Trevor.	Report submission on power consumption of various appliances at home (III Component)
Feb.10 - 17, 2017 (Day Order 1 to 6)	3.1. Working of CFL-Starter	Lecture	Basic Electrical Installation Work. Lindslaey Trevor.	
Feb.20 - 27, 2017 (Day Order 1 to 6)	3.1. Inverter- Electric Fan- Regulator (SCR)- Control Rheostat	Lecture	Electronics V.K. Mehtha	

Feb.28 – Mar 07, 2017 (Day Order 1 to 6)	3.2. Rice Cooker(Thermostat)- 5.2. A Model of House Wiring	Lecture Cum demonstration	Basic Electrical Installation Work. Lindslaey Trevor.	Questioning on the classes taught
Mar. 06 - 16, 2017	C.A. IMPROVEMENT TESTS			
Mar. 08 - 15, 2017 (Day Order 1 to 6)	3.2. Voltage Stabilizer 5.3.Tubelight Connection	Lecture Cum demonstration	Basic Electrical Installation Work. Lindslaey Trevor.	
Mar. 16, 2017 (Day Order 1)	REVISION			
Mar. 17 - 23, 2017 (Day Order 2 to 6)	REVISION			
March 24, 2017 (Day Order 1)				

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI

Course Schedule – November 2016 – April 2017

Department : Physics
Name/s of the Faculty : Ms. D. Anceila
Course Title : Home Electrical Installations
Course Code : 15PH/GE/HE23
Shift : II

Week & No. of hours	Units & Topics	Teaching Methodology	Text & References	Method of Evaluation
Nov. 14 - 19, 2016 (Day Order 1 to 6)	Unit 1 Basic Electric Circuits 1.1.Introduction to electricity Basic Facts : Electric Circuits – Basic Components Used in an Electric Circuit – Complete Circuit-	Lecture Cum demonstration	Basic Electrical Installation Work. Lindslaey Trevor.	
Nov. 21 - 28, 2016 (Day Order 1 to 6)	1.1.Lighting Circuits – Series and Parallel Circuits -Switches – Types of Switches	Lecture Cum demonstration	Basic Electrical Installation Work. Lindslaey Trevor.	Problem solving
Nov. 29 – Dec 5, 2016 (Day Order 1 to 6)	1.1.Plugs and Its Types – Safety Practices and Measurements Unit 4 Demonstration and Hands on training- I 4.1.Experiments on Closed, Open, Short, Series and Parallel Circuits.	Lecture Cum demonstration	Basic Electrical Installation Work. Lindslaey Trevor.	Questioning on the classes taught
Dec 6 - 14, 2016 (Day Order 1 to 6)	1.2.Introduction to AC and DC. Principles of Single Phase and Three Phase Connections. 4.2.Wiring Practice of Switches and Plugs.	Lecture	Electricity and Magnetism Brijlal & Subramaniyam	

Dec. 15 - 21, 2016 (Day Order 1 to 6)	Unit 2 Electrical Connections 2.1.Introduction to Fuses-Fuse Wire – Melting Point – Causes and Repairing a Fuse- the Earth Wire – Lightning Conductor	Lecture Cum demonstration	Basic Electrical Installation Work. Lindslaey Trevor.	Quiz- III Component
Jan. 03- 09, 2017 (Day Order 1 to 6)	2.2.Using and Paying for Electricity- Consumption	Lecture problem solving	Basic Electrical and Electronics G. Nagarajan	Problem solving
Jan. 10- 17, 2017 (Day Order 1 to 6)	2.2. Working of KWH- Meters . Unit 5 Demonstration and Hands on training- II 5.1. Replacing Fuses	Lecture	Basic Electrical and Electronics G. Nagarajan	Questioning on the classes taught
Jan. 18- 20, 2017 (Day Order 1 to 3)	Unit 3 Electrical Appliances 3.1.Electric Iron	Lecture Cum demonstration	Basic Electrical Installation Work. Lindslaey Trevor. Electrical appliance Anwani	
Jan.23 - 28, 2017	C.A. Tests			
Jan.30 – Feb 01, 2017 (Day Order 4 to 6)	3.1.Heater 4.3. Measurement of Current and Voltage Using Multimeter.	Lecture cum demonstration		
Feb.02 - 09, 2017 (Day Order 1 to 6)	3.1. Microwave Oven- Incandescent and Fluorescent Lamps	Lecture Cum demonstration	Basic Electrical Installation Work. Lindslaey Trevor.	Report submission on power consumption of various appliances at home.
Feb.10 - 17, 2017 (Day Order 1 to 6)	3.1. Working of CFL-Starter	Lecture	Basic Electrical Installation Work. Lindslaey Trevor.	
Feb.20 - 27, 2017 (Day Order 1 to 6)	3.1. Inverter- Electric Fan- Regulator (SCR)- Control Rheostat	Lecture	Electronics V.K. Mehtha	

Feb.28 – Mar 07, 2017 (Day Order 1 to 6)	3.2. Rice Cooker(Thermostat)- 5.2. A Model of House Wiring	Lecture Cum demonstration	Basic Electrical Installation Work. Lindslaey Trevor.	Questioning on the classes taught
Mar. 06 - 16, 2017	C.A. IMPROVEMENT TESTS			
Mar. 08 - 15, 2017 (Day Order 1 to 6)	3.2. Voltage Stabilizer 5.3.Tubelight Connection	Lecture Cum demonstration	Basic Electrical Installation Work. Lindslaey Trevor.	Questioning on the classes taught
Mar. 16, 2017 (Day Order 1)	REVISION			
Mar. 17 - 23, 2017 (Day Order 2 to 6)	REVISION			
March 24, 2017 (Day Order 1)				

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI

Course Schedule – November 2016 – April 2017

Department : Physics
Name/s of the Faculty :Sr.G.Francisco Nirmala FMM
Course Title :Fundamentals of Nanoscience
Course Code : 15PH/AE/FN45
Shift : I

Week & No. of hours	Units & Topics	Teaching Methodology	Text & References	Method of Evaluation
Nov. 14 - 19, 2016 (Day Order 1 to 6)	Unit 1 Introduction- Nano and Nature	Lecture with Power Point Projection	Pradeep T. Nano: The Essentials.	Group interaction
Nov. 21 - 28, 2016 (Day Order 1 to 6)	Background to Nanotechnology- Nanoscale Bulk to Nano Transition	lecture	Pradeep T. Nano: The Essentials. D. Miller John, A Hand Book on Nanophysics.	Question and answer session
Nov. 29 – Dec 5, 2016 (Day Order 1 to 6)	Nanosize Effects - Size Dependent Phenomena - Quantum Confinement	Lecture com demonstration	Pradeep T. Nano: The Essentials. D. Miller John, A Hand Book on Nanophysics.	Group presentation – III component
Dec 6 - 14, 2016 (Day Order 1 to 6)	Unit-2 Metal nanoparticles: Structural and Optical Properties	Lecture com demonstration	GuoZhong Cao. Nanostructures and Nanomaterials. Viswanathan B. Nano Materials.	Question and answer session
Dec. 15 - 21, 2016 (Day Order 1 to 6)	Semiconductor Nanoparticles: Semiconductor Quantum Dots, Correlation of Properties with Size	Lecture with video clippings	GuoZhong Cao. Nanostructures and Nanomaterials. Viswanathan B. Nano Materials.	Group discussion
Jan. 03- 09, 2017 (Day Order 1 to 6)	Carbon Nanostructures: Introduction- Fullerenes- -CNT- Graphene- Properties	Lecture	GuoZhong Cao. Nanostructures and Nanomaterials.	Group presentation – III component
Jan. 10- 17, 2017 (Day Order 1 to 6)	Unit – 3	Lecture with video clipping	Pradeep T. Nano: The Essentials.	Question and answer session

	Physical Method: Ball Milling, Sputter Deposition			
Jan. 18- 20, 2017 (Day Order 1 to 3)	Chemical Methods: Co- Precipitation- Sol- Gel Synthesis- Solvothermal	Lecture cum demonstration	Viswanathan B. Nano Materials.	Group discussion
Jan.23 - 28, 2017	C.A. Tests			
Jan.30 – Feb 01, 2017 (Day Order 4 to 6)	Unit – 3 Bio Synthesis of Nanoparticles (Metal Nano Particles Au, Ag) Vapour Method- Thermal Evaporation- Chemical Vapour Deposition (CVD)	Lecture cum demonstration	Viswanathan B. Nano Materials.	Question and Answer Session
Feb.02 - 09, 2017 (Day Order 1 to 6)	Unit 4 Introduction Powder X-Ray Diffraction	Lecture with power point presentation	Viswanathan B. Nano Materials. Pradeep T. Nano: The Essentials.	Group discussion - III component
Feb.10 - 17, 2017 (Day Order 1 to 6)	Scanning Electron Microscope(SEM)- Transmission Electron Microscope(TEM)	Lecture	Pradeep T. Nano: The Essentials.	Group presentation – III component
Feb.20 - 27, 2017 (Day Order 1 to 6)	UV-Vis Absorption Spectroscopy- Photo Luminescence	Lecture	Pradeep T. Nano: The Essentials.	Question and answer session
Feb.28 – Mar 07, 2017 (Day Order 1 to 6)	Unit 5 Applications in Chemical Sciences: Solar Cells	Lecture cum demonstration	Viswanathan B. Nano Materials.	Group presentation – III component
Mar. 06 - 16, 2017	C.A. IMPROVEMENT TESTS			
Mar. 08 - 15, 2017 (Day Order 1 to 6)	Catalysis Photo- catalytic applications. Applications in	Lecture	Viswanathan B. Nano Materials. P. Poole Charles,	Question and answer session

	Life Sciences: Biosensors,		Jr. Frank J. Owens. <i>Introduction to Nanotechnology.</i>	
Mar. 16, 2017 (Day Order 1)	Nanomedicine, Drug Delivery.	Lecture	P. Poole Charles, Jr. Frank J. Owens. <i>Introduction to Nanotechnology.</i>	Question and answer session
Mar. 17 - 23, 2017 (Day Order 2 to 6)	REVISION			
March 24, 2017 (Day Order 1)				

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI

Course Schedule – November 2016 – April 2017

Department : Physics
Name/s of the Faculty : Dr. K. H. Rajini
Course Title : Nuclear Physics
Course Code : 11PH/MC/NP64
Shift : I

Week & No. of hours	Units & Topics	Teaching Methodology	Text & References	Method of Evaluation
Nov. 14 - 19, 2016 (Day Order 1 to 6) 5	Unit 1 1.1 Nuclear density, binding energy per nucleon, packing fraction, nuclear stability, magnetic moment,	Lecture	Atomic and Nuclear Physics by A.B. Gupta and Dipak Ghosh	Review
Nov. 21 - 28, 2016 (Day Order 1 to 6) 5	1.1.nuclear radius determination, nuclear charge determination 1.1nuclear force, meson theory of nuclear force	Lecture	”	Review
Nov.29 - Dec 5, 2016 (Day Order 1 to 6) 5	1.2. Nuclear model, liquid drop model, semi empirical mass formula magic numbers	Lecture	”	
Dec 6 - 14, 2016 (Day Order 1 to 6) 5	Unit 2 2.1 Laws of radioactivity Decay constant, Half life, mean Life, Law of successive disintegration, radioactive equilibrium	Lecture	Nuclear Physics by Murugesan	
Dec. 15 - 21, 2016 (Day Order 1 to 6) 5	2.1 alpha decay, beta decay, gamma decay principles of internal conversion - interaction of gamma ray with matter,	Lecture	Atomic and Nuclear Physics by A.B. Gupta and Dipak Ghosh	
Jan. 03- 09, 2017 (Day Order 1 to 6) 5	2.2. units of radioactivity, radiation effects Unit 3 3.1. Detectors : ionisation chamber,	Lecture PPT	Atomic Physics by J.B.Rajam	Questioning

Jan. 10- 17, 2017 (Day Order 1 to 6) 5	3.1 Geiger Muller counter – characteristics, scintillation counter, nuclear emulsion technique	Lecture	Nuclear Physics by Murugesan	Problem Test – III Component
Jan. 18- 20, 2017 (Day Order 1 to 3) 3	3.1 Accelerators : Van de Graff generator, linear accelerator,	Lecture	”	Questioning
Jan.23 - 28, 2017	C.A. Tests			
Jan.30 – Feb 01, 2017 (Day Order 4 to 6) 2	3.1 cyclotron, synchrotron, synchrocyclotron	Lecture	Nuclear Physics by Murugesan	Review Questioning
Feb.02 - 09, 2017 (Day Order 1 to 6) 5	Unit 4 4.1 Nuclear reactions – Q value, threshold value – endoergic reaction, artificial radioactivity, radioisotopes, uses	Lecture PPT	”	Questioning
Feb.10 - 17, 2017 (Day Order 1 to 6) 5	4.2 Nuclear fission – chain reaction – controlled and uncontrolled, multiplication factor – four factor formula, powerreactors,reactors in India,	Lecture	Atomic and Nuclear Physics by A.B. Gupta and Dipak Ghosh	Questioning
Feb.20 - 27, 2017 (Day Order 1 to 6) 5	4.2 nuclear fusion, thermonuclear reaction, C- N cycle, proton - proton cycle, plasma 5.1 Elementary particles, leptons, mesons, baryons,	Lecture	”	Quiz- III Component
Feb.28 – Mar 07, 2017 (Day Order 1 to 6) 5	Unit 5 5.1 fundamental interactions, their strength, antiparticle, strange particles, quarks 5.1Conservation Laws	Lecture PPT	”	

Mar. 06 - 16, 2017	C.A. IMPROVEMENT TESTS			
Mar. 08 - 15, 2017 (Day Order 1 to 6) 5	5.2 Nuclear resonance Spectroscopy - NMR introduction, experimental technique, applications	Lecture	Basic principles of Spectroscopy by Chang, Raymond	Questioning
Mar. 16, 2017 (Day Order 1) 1	5.2 NQR introduction, experimental technique, applications	Lecture	”	
Mar. 17 - 23, 2017 (Day Order 2 to 6)	REVISION			
March 24, 2017 (Day Order 1)				

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI

Course Schedule – November 2016 – April 2017

Department : Physics
Name/s of the Faculty : Ms. A. Suganthi Lark
Course Title : Semiconductor Electronics
Course Code : 11PH/MC/SE64
Shift : I

Week & No. of hours	Units & Topics	Teaching Methodology	Text & References	Method of Evaluation
Nov. 14 - 19, 2016 (Day Order 1 to 6)	Syllabus introduction UNIT I 1.1 Transistor Biasing Biasing of transistor – faithful amplification - stability factor- problems	Lecture	Allen Mottershead, (1982), Electronic Devices and Circuits , Prentice Hall of India Pvt. Ltd., New Delhi.	
Nov. 21 - 28, 2016 (Day Order 1 to 6)	1.2 Methods of transistor biasing- base resistor method - voltage divider bias method - problems - operating point	Lecture		Questioning on the classes taught
Nov. 29 – Dec 5, 2016 (Day Order 1 to 6)	load line analysis – DC load lines - AC load lines - problems	Lecture and problem solving		
Dec 6 - 14, 2016 (Day Order 1 to 6)	UNIT II Transistor Amplifiers 2.1 Introduction-single stage transistor amplifier - practical circuit of transistor amplifier - Solving Problems - multistage transistor 2.2 RC Coupled transistor amplifier – operation – frequency response - advantages – disadvantages Solving Problems	Lecture	Allen Mottershead, (1982), Electronic Devices and Circuits , Prentice Hall of India Pvt. Ltd., New Delhi.	Questioning on the classes taught

Dec. 15 - 21, 2016 (Day Order 1 to 6)	UNIT III Special semiconductor devices 3.1 Field effect transistors – JFET – working – channel conductance – space charge distribution	Lecture and problem solving	Allen Mottershead, (1982), Electronic Devices and Circuits , Prentice Hall of India Pvt. Ltd., New Delhi.	Test -III Component
Jan. 03- 09, 2017 (Day Order 1 to 6)	3.1.difference between JFET and bipolar transistor - JFET as an amplifier —	Lecture		
Jan. 10- 17, 2017 (Day Order 1 to 6)	3.1.IV characteristics – pinch off voltage – parameters of JFET.	Lecture and problem solving		Questioning on the classes taught
Jan. 18- 20, 2017 (Day Order 1 to 3)	3.2. Uni junction transistor – construction – operation – interbase resister – equivalent circuit – intrinsic stand off ratio – IV characteristics – peak voltage valley current – valley voltage negative resistance region – relaxation oscillator.	Lecture	Malvino Albert Paul and Leach Donald, <u>Digital Principles and Applications</u> , Tata McGraw Hill Pub. Co. Ltd., New Delhi,(1981).	
Jan.23 - 28, 2017	C.A. Tests			
Jan.30 – Feb 01, 2017 (Day Order 4 to 6)	UNIT IV 4.1 Deferential amplifier – CMRR – operational amplifier- functional diagram – virtual ground – non inverting – inverting modes of operation – gain equation.	Lecture	Gayakwad, R.A, <u>Op. Amps & Linear Integrated Circuits</u> , Prentice Hall, New Delhi(1998).	
Feb.02 - 09, 2017 (Day Order 1 to 6)	4.2 Operational amplifier application – adder- subtractor -	Lecture and problem solving	Gayakwad, R.A, <u>Op. Amps & Linear Integrated</u>	Problem Test - III Component

	scale and sign changer – differentiator – integrator – voltage follower		<u>Circuits</u> , Prentice Hall, New Delhi(1998).	
Feb.10 - 17, 2017 (Day Order 1 to 6)	4.3 Electronic analog computation – solution of simultaneous equations – differential equation	Lecture		Questioning on the classes taught
Feb.20 - 27, 2017 (Day Order 1 to 6)	UNIT V D/A and A/D converter 5.1. Weighted resistor D/A converter – R – 2R ladder	Lecture	Malvino Albert Paul and Leach Donald, <u>Digital Principles and Applications</u> , Tata McGraw Hill Pub. Co. Ltd., New Delhi,(1981).	
Feb.28 – Mar 07, 2017 (Day Order 1 to 6)	5.1.D/A converter parallel A/D converter	Lecture		Quiz -III Component
Mar. 06 - 16, 2017	C.A. IMPROVEMENT TESTS			
Mar. 08 - 15, 2017 (Day Order 1 to 6)	5.2 A/D conversion by counter method –	Lecture and problem solving		Questioning on the classes taught
Mar. 16, 2017 (Day Order 1)	5.2.A/D conversion using voltage to frequency converter			
Mar. 17 - 23, 2017 (Day Order 2 to 6)	REVISION			
March 24, 2017 (Day Order 1)				

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI

Course Schedule – November 2016 – April 2017

Department : **PHYSICS**
Name/s of the Faculty : **Dr. Belina Xavier**
Course Title : **Home Electrical Installations**
Course Code : **11PH/GE/HE44**
Shift : **I**

Week & No. of hours	Units & Topics	Teaching Methodology	Text & References	Method of Evaluation
Nov. 14 - 19, 2016 (Day Order 1 to 6)	General introduction to electricity UNIT 1: Basic electric circuits 1.1 Basic facts : electric circuits –basic components used in an Electric circuit – complete circuit	Lecture cum Demonstration	Lindslaey Trevor, Basic Electrical Installation Work	
Nov. 21 - 28, 2016 (Day Order 1 to 6)	1.2 Switches – types of switches – basic working of switches-plugs and its types	Lecture	Lindslaey Trevor, Basic Electrical Installation Work,	Questioning on classes taught
Nov. 29 – Dec 5, 2016 (Day Order 1 to 6)	1.2. safety practices and measurements. 1.3. Principles of single phase and three phase connections.	lecture	Brijlal and subramanyam, Electricity and Magnetism	Quiz – III Component
Dec 6 - 14, 2016 (Day Order 1 to 6)	UNIT 2:Electrical connections 2.1 Wires and its types- Hot wires – nichrome-fuses-fuse wire UNIT 4 4.2. Wiring practices of switches and plugs.	lecture	Lindslaey Trevor, Basic Electrical Installation Work	
Dec. 15 - 21, 2016 (Day Order 1 to 6)	2.1 Melting point – causes and repairing a fuse – lighting circuits	lecture		Questioning on classes taught

Jan. 03- 09, 2017 (Day Order 1 to 6)	2.1 series and parallel circuits – house lights 4.1. Experiments on closed, open, short, series and parallel circuits.	lecture, problem solving	Brijlal and subramanyam, Electricity and Magnetism	
Jan. 10- 17, 2017 (Day Order 1 to 6)	2.1.ring circuit – the earth wire – lightning conductor	lecture	Lindslaey Trevor, Basic Electrical Installation Work	Test- III Component
Jan. 18- 20, 2017 (Day Order 1 to 3)	2.2 Using and paying for electricity- consumption- KWH-meters.	lecture		
Jan.23 - 28, 2017	C.A. Tests			
Jan.30 – Feb 01, 2017 (Day Order 4 to 6)	Problems on Electricity consumption 4.3. Measurement of current and voltage using multimeter.	lecture		Questioning on classes taught
Feb.02 - 09, 2017 (Day Order 1 to 6)	UNIT 3: Home appliances 3.1 Wet grinder – mixer – refrigerator 5.1. Replacing fuses	lecture	Lindslaey Trevor, Basic Electrical Installation Work	
Feb.10 - 17, 2017 (Day Order 1 to 6)	3.1.Electric iron-heater-Microwave	lecture	Lindslaey Trevor, Basic Electrical	
Feb.20 - 27, 2017 (Day Order 1 to 6)	3.2 Emergency light – incandescent and fluorescent lamps-fittings-chokes-	lecture	Lindslaey Trevor, Basic Electrical Installation Work,	Seminar –III Component
Feb.28 – Mar 07, 2017 (Day Order 1 to 6)	3.2.CFL-starter-inverter 5.2. Model of house wiring	lecture	Lindslaey Trevor, Basic Electrical Installation Work,	
Mar. 06 - 16, 2017	C.A. IMPROVEMENT TESTS			
Mar. 08 - 15, 2017 (Day Order 1 to 6)	3.3 Motor pump(horse power)-jet pump-electric fan-regulator (SCR)-control rheostat 5.3 Tubelight connection	lecture	Lindslaey Trevor, Basic Electrical Installation Work,	Questioning on classes taught

Mar. 16, 2017 (Day Order 1)	3.3.rice cooker(thermostat)- voltage stabilizer.	lecture	Lindslaey Trevor, Basic Electrical Installation Work,	
Mar. 17 - 23, 2017 (Day Order 2 to 6)	REVISION			
March 24, 2017 (Day Order 1)				

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI

Course Schedule – November 2016 – April 2017

Department : Physics
Name/s of the Faculty :Sr. Franscisco Nirmala FMM
Course Title : Quantum Mechanics and Relativity
Course Code : 11PH/MC/QR64
Shift : I

Week & No. of hours	Units & Topics	Teaching Methodology	Text & References	Method of Evaluation
Nov. 14 - 19, 2016 (Day Order 1 to 6)	Unit 1 Wave like properties of particles: Matter waves- de Broglie postulates- de Broglie wavelength. Davisson and Germer experiment Wave – particle duality	Lecture and video clippings	Gupta S.L., V.Kumar H V Sharma , R C Sharma , Quantum Mechanics,	Questioning on the lecture delivered and group interaction.
Nov. 21 - 28, 2016 (Day Order 1 to 6)	Unit 1 Complementarity principle- Einstein's interpretation of duality for radiation :	Lecture with PPT and problem solving	Gupta S.L., V.Kumar H V Sharma , R C Sharma , Quantum Mechanics	Questioning on the lecture delivered and group presentation
Nov. 29 – Dec 5, 2016 (Day Order 1 to 6)	Born's interpretation of duality for matter- wave functions- superposition principles	Lecture and video clipping	Eisberg Robert, Robert Resnick, Quantum Physics	Quiz (III component)
Dec 6 - 14, 2016 (Day Order 1 to 6)	Properties of matter waves- relation between wave, group and particle velocities.	Lecture with PPT	Eisberg Robert, Robert Resnick, Quantum Physics.	Questioning on the lecture delivered
Dec. 15 - 21, 2016 (Day Order 1 to 6)	Unit 2: Schrödinger's theory of quantum mechanics and applications 2.1 Role of Schrödinger's theory- limitation of de Broglie hypothesis.	Lecture	Eisberg Robert, Robert Resnick, Quantum Physics. Resnick Robert, Introduction to the Special Theory of Relativity	Questioning on the lecture delivered
Jan. 03- 09, 2017 (Day Order 1 to 6)	Unit 2 Need for differential equation. Time independent Schrödinger's equation- time dependent Schrödinger's equation.	Lecture with Power point presentation	Eisberg Robert, Robert Resnick, Quantum Physics.	Quiz
Jan. 10- 17, 2017 (Day Order 1 to 6)	Unit 2 Application to one dimensional problems:	Lecture with video	Gupta S.L., V.Kumar H V Sharma , R C	Questioning on the

	particle in a one dimensional box. - the step potential Rectangular potential barrier- examples of barrier penetration by particles- linear harmonic oscillator .	clipping	Sharma , Quantum Mechanics	lecture delivered
Jan. 18- 20, 2017 (Day Order 1 to 3)	Application to three dimensional problems: the free particle- particle in a three dimensional box- degeneracy Unit 3 Quantum mechanical operators 3.1 Definition of an operator- operator algebra eigen values and eigen functions	Lecture	Gupta S.L., V.Kumar H V Sharma , R C Sharma , Quantum Mechanics	Quiz
Jan.23 - 28, 2017	C.A. Tests			
Jan.30 – Feb 01, 2017 (Day Order 4 to 6)	Hamiltonian operators- commutation relations between the components of orbital angular momentum	Lecture	Gupta S.L., V.Kumar H V Sharma , R C Sharma , Quantum Mechanics	Group discussion and interaction
Feb.02 - 09, 2017 (Day Order 1 to 6)	Commutation relation between momentum and free particle Hamiltonian <i>operators</i> Linear operators- Hermitian operators- properties- parity operators- properties- commutation relation between parity and symmetric	Lecture with Power point presentation, problem solving	Gupta S.L., V.Kumar H V Sharma , R C Sharma , Quantum Mechanics	Quiz- III component
Feb.10 - 17, 2017 (Day Order 1 to 6)	Unit- 4 The experimental background of the theory of relativity- Galilean transformations- Newtonian relativity- attempts to locate the absolute frame- Michelson-Morley experiment- explanation of negative results- postulates of special theory of relativity	Lecture and problem solving	Prakash Sathya, Relativistic Mechanics Resnick Robert, Introduction to the Special Theory of Relativity	Questioning in the lecture delivered
Feb.20 - 27, 2017 (Day Order 1 to 6)	Relativistic kinematics- Lorentz transformation		Resnick Robert, Introduction to	Group discussion

	equation (derivation) – consequence of Lorentz transformation equation (i) length contraction (ii) time dilation	Lecture	the Special Theory of Relativity Prakash Sathya, Relativistic Mechanics	
Feb.28 – Mar 07, 2017 (Day Order 1 to 6)	relativity and simultaneity – order of events- experimental verification of length contraction and time dilation concepts- meson paradox- twin paradox.	Lecture	Resnick Robert, Introduction to the Special Theory of Relativity. Prakash Sathya, Relativistic Mechanics	Questioning on the lecture delivered
Mar. 06 - 16, 2017	C.A. IMPROVEMENT TESTS			
Mar. 08 - 15, 2017 (Day Order 1 to 6)	Unit -5 Relativistic mechanics- proper time and proper velocity- relativistic energy and momentum- Mass - energy equivalence- evidence in support of mass.	Lecture and problem solving	Resnick Robert, <u>Introduction to the Special Theory of Relativity</u> Prakash Sathya, Relativistic Mechanics	Questioning on the lecture delivered
Mar. 16, 2017 (Day Order 1)	Energy relation between momentum and energy	Lecture and problem solving	Prakash Sathya, Relativistic Mechanics	Group discussion and interaction
Mar. 17 - 23, 2017 (Day Order 2 to 6)	REVISION			
March 24, 2017 (Day Order 1)				

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI

Course Schedule – November 2016 – April 2017

Department : PHYSICS
Name/s of the Faculty :Dr. Belina Xavier
Course Title :Nanoscience
Course Code : 11PH/ME/NS63
Shift :I

Week & No. of hours	Units & Topics	Teaching Methodology	Text & References	Method of Evaluation
Nov. 14 - 19, 2016 (Day Order 1 to 6)	Introduction to nanoscience Introduction-nano and nature-background to nanotechnology-nanoscale – time and length scale in structures.	Lecture	B. Viswanathan, Nano Materials	Quiz
Nov. 21 - 28, 2016 (Day Order 1 to 6)	Evolution of band structures and Fermi surfaces-electronic structure of nanocrystals.	Power point Presentation	B. Viswanathan, Nano Materials	Questioning on classes taught
Nov. 29 – Dec 5, 2016 (Day Order 1 to 6)	Bulk to nano transition-size and shapes-dimensionality and size dependent phenomena.	Power point Presentation	B. Viswanathan, Nano Materials	Questioning on classes taught
Dec 6 - 14, 2016 (Day Order 1 to 6)	Nano particles and its properties Metal nanoparticles: Size control of metal nanoparticles, structural, surface, electronic and optical properties.	Power point Presentation	CharlesP.Poole,Jr.,Frank J. Owens, Introduction to Nanotechnology	Questioning on classes taught

Dec. 15 - 21, 2016 (Day Order 1 to 6)	Semiconductor nanoparticles: Solid state phase transformation, excitons, quantum confinement effect, semiconductor quantum dots, correlation of properties with size.	Power point Presentation	CharlesP.Poole,Jr.,Frank J. Owens, Introduction to Nanotechnology	Questioning on classes taught
Jan. 03- 09, 2017 (Day Order 1 to 6)	Carbon nanostructures: Introduction- Fullerenes- C60- CNT- mechanical and optical properties.	Lecture	CharlesP.Poole,Jr.,Frank J. Owens, Introduction to Nanotechnology	Questioning on classes taught
Jan. 10- 17, 2017 (Day Order 1 to 6)	Synthesis of nanomaterials Chemical and coprecipitation- sol-gel synthesis of metal oxides - solvothermal- microwave heating synthesis.	Lecture cum Demonstration	CharlesP.Poole,Jr.,Frank J. Owens, Introduction to Nanotechnology	Test - III Component
Jan. 18- 20, 2017 (Day Order 1 to 3)	Sonochemical- electrochemical synthesis – photochemical synthesis	Lecture cum Demonstration	CharlesP.Poole,Jr.,Frank J. Owens, Introduction to Nanotechnology	
Jan.23 - 28, 2017	C.A. Tests			
Jan.30 – Feb 01, 2017 (Day Order 4 to 6)	Characterisation techniques Powder X-ray diffraction	Power point Presentation	CharlesP.Poole,Jr.,Frank J. Owens, Introduction to Nanotechnology	
Feb.02 - 09, 2017 (Day Order 1 to 6)	Scanning electron microscope(SEM)	Power point Presentation	CharlesP.Poole,Jr.,Frank J. Owens,	

	- Transmission electron microscope (TEM).		Introduction to Nanotechnology	
Feb.10 - 17, 2017 (Day Order 1 to 6)	UV-vis absorption spectroscopy- Photo luminescence.	Power point Presentation	CharlesP.Poole,Jr.,Frank J. Owens, Introduction to Nanotechnology	
Feb.20 - 27, 2017 (Day Order 1 to 6)	Applications of nanomaterials Nanosensors: Electro chemical sensors and biosensors.	Lecture	John D. Miller, A Hand Book on Nanophysics	Seminar – III Component
Feb.28 – Mar 07, 2017 (Day Order 1 to 6)	Energy: solar cells-LED's- photovoltaic device applications.	Lecture	John D. Miller, A Hand Book on Nanophysics	Seminar
Mar. 06 - 16, 2017	C.A. IMPROVEMENT TESTS			
Mar. 08 - 15, 2017 (Day Order 1 to 6)	Medical: Imaging of cancer cells - targeted nanodrug delivery system.	Lecture	John D. Miller, A Hand Book on Nanophysics	Seminar
Mar. 16, 2017 (Day Order 1)	Carbon nanotubes: Field emission –fuel cells – display devices.	Lecture	John D. Miller, A Hand Book on Nanophysics	Seminar
Mar. 17 - 23, 2017 (Day Order 2 to 6)	REVISION			
March 24, 2017 (Day Order 1)				