MANONMANIAM SUNDARANAR UNIVERSITY TIRUNELVELI UG COURSES – AFFILIATED COLLEGES

Part IV Value Based Education Syllabus (For all UG Courses) w.e.f 2017-18

II Semester

Objective: To enable the students to understand the social realities and to inculcate an essential value system towards building a health society.

Unit I: Social Justice Definition – need – parameters of social justice – factors responsible for social injustice – caste and gender – contributions of social reformers.

Unit II : Human Rights and Marginalized People Concept of Human Rights – Principles of human rights – human rights and Indian constitution – Rights of Women and children – violence against women – Rights of marginalized People – like women, children, dalits, minorities, physically challenged etc

Unit III: Social Issues and Communal Harmony Social issues – causes and magnitude - alcoholism, drug addiction, poverty, unemployment etc – communal harmany –concept –religion and its place in public in public domain – separation of religion from politics –secularism role of civil society

Unit IV: Media Education and Globalized World Scenario Mass media –functions –characteristics – need and purpose of media literacy – effects and influence - - youth and children – media power – socio cultural and political consequences mass mediated culture - - consumeristic culture – Globalization – new media- prospects and challenges

Unit V: Values and Ethics Personal values – family values – social values – cultural values – Professional values – and overall ethics – duties and responsibilities

MSU/ 2017-18 / UG-Colleges / Part-III (B.Sc.Physics) / Semester – II / Allied - II ALLIED PHYSICS - II

Unit I: Electricity Current and current density – Expression for current density – Ohm's law – Resistors in series and in parallel – I-V characteristic of a resistor – Color coding – Conversion of a galvanometer into an ammeter and voltmeter – Kirchoff's laws – Application of Kirchoff's laws in Wheatstone network – sensitiveness of bridge.

Unit II: Electromagnetism Magnetism: Definition of magnetic induction B, Magnetic field intensity H , Intensity of magnetization M – Relation connecting M, B and H – Magnetic permeability µ and magnetic susceptibility K – Relation between µ and K – Properties of Dia, Para and Ferro magnetic materials. Electromagnetism: Faraday's law of electromagnetic induction – Lenz's law – Expression for induced current and charge – Self inductance – Self inductance of a long solenoid – Determination of self inductance by Rayleigh's method –Mutual inductance – Coefficient of coupling – Determination of mutual inductance using BG.

Unit III: Electronics Junction diodes-forward and reverse bias-diode charecteristics- Zener diode – VI characteristic of a Zener diode – Transistors-Charecteristics of a transistor(common emitter mode only). Digital Electronics: Decimal and binary numbers – binary to decimal and decimal to binary-Binary addition – Binary subtraction by 1's and 2's complement method – Basic logic gates OR, AND, NOT (Symbol, Boolean equation, truth table, circuit and working) – NAND, NOR, EX-OR(Symbol, Boolean equation , truth table only) – De Morgan's theorem.

Unit IV: Nuclear physics

Introduction – Classification of nuclei – General properties of nucleus – Nuclear size, Nuclear mass, Nuclear density, Nuclear charge, Nuclear spin & Nuclear magnetic dipole moments – Mass defect – Binding energy - Binding energy curve – Nuclear forces – Properties – Fundamental laws of radioactivity – Soddy Fajan's displacement law – Law of radioactive disintegration – Half life period – The mean life.

Unit V: Mechanics and Relativity Projectiles – Time of flight – Range on the horizontal plane – Greatest height attained by the projectile – Path of the projectile– Range on an inclined plane – Relativity: Frames of references – Postulates of special theory of relativity – Galilean & Lorentz transformation equations – Length contraction – Time dilation.

Books for study 1. Electricity and Magnetism – R.Murugesan 2. Modern physics – R. Murugesan 3. Principle of Electronics – V.K.Mehta 4. Digital principles and applications - Albert Paul Malvino & Donald P.Leach 5. Mechanics – D.S.Mathur