

Mandatory certificate program for non-science students 2012-13
Syllabus (Odd Semester)

BASIC ELECTRONICS AND GADGETS

UNIT 1: Introduction to Electronics (10 hours)

Electronics and its applications. Electronic components: Resistors, Capacitors, inductors- types, uses. Conductors, insulators, semiconductors- definitions. Semiconductor materials- Silicon, Germanium, semiconductor devices: Diode- working and application of diode as rectifier, Transistor- working, transistor as an amplifier (block diagram), electronic switch. Electronic DC power supply- basic block diagram. Basics of measuring instruments- DMM and CRO.

UNIT 2: Fundamentals of Electronic Audio systems (10 hours)

Basic principle of electronic communication- Line and wireless, merits and demerits. Basic operation of transmitter and receivers. AM and FM radio receivers- qualitative description. Frequency allotment. Microphone, Loud speakers- basic working. CD player- Concept of Compact disc, DVDs, laser light and diode principle. Simplified block diagram a typical CD player.

UNIT 3: Basics of Colour TV and video systems (10 hours)

Principle of TV transmission and reception, Colour TV principle, Simplified block diagram of TV. Digital TV principle- set top converter box, Satellite TV- operating principle. Flat panel TV, projection system- qualitative description. Basic working principle of video camera and camcorders.

UNIT 4: Communication systems (10 hours)

Wired telephone – basics of telephone, telephone exchange, cables- copper cable, Optical fiber cables- principle of operation, cordless phone- working, advantages and disadvantages. Fundamentals of cellular mobile phone- Cells, coverage area, roaming, operation (qualitative description).

UNIT 5: e-waste (5 hours)

Electronic waste- brief description, qualitative discussion of hazards of e-waste, the materials responsible, management of e-waste, Indian and global current scenario of e-waste and its management.

Books for reference:

Principles of Electronics- V K Mehta and Rohit Mehta, S Chand and Co, New Delhi

Consumer Electronics- B R Gupta, 4th Edition, Kataria &sons, New Delhi

Consumer Electronics – Anand M L, Khanna Publishers, 2011

Web Reference:

Wikipedia

Howthingswork.com

Assessment methods for Certificate Programs:

Internal assessment- Assignment/ presentation and attendance

Mid SEM exam – written type 50 marks.

End SEM Exam- written type 100 marks.