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EE-701
Communication Engineering

External: 50         L T P
Sessional: 50       3 1 0
Credits : 4

Note: Examiner shall set eight questions, four from Part-A and four from Part-B of the syllabus. Candidate will be required to attempt any five questions selecting at least two questions from Part A and two from Part B.

Part-A
Amplitude Modulation & Demodulation and Systems

(15)

Frequency Modulation
Principles and generation of FM and PM signals, Reactance Modulator method, Armstrong Method, noise consideration in FM and PM system.

(07)

Part-B
Frequency Demodulation and Systems
detection of FM and PM signals, Foster Discriminator, ratio and PLL detectors, FM Transmitter(Block Diagram), FM receiver (Block Diagram), Pre-emphasis and de-emphasis circuit

(15)
Pulse Modulation & Demodulation
Principles, generation and detection of PAM, PWM, PPM & PCM signals, noise in pulse modulation system, band width consideration, companding, delta modulation, adaptive delta modulation systems. TDM & FDM.

(9)

Books Recommended:

EE-751
Communication Engg. Lab

Sessional: 50         L T P
Credits: 1        0 0 2

Practicals related to Theory.
EE-702
Energy Management and Auditing

External:  50         L T P
Sessional: 50         3 1 0
Credits : 4

Note: Examiner shall set eight questions, four from Part-A and four from Part-B of the syllabus. Candidate will be required to attempt any five questions selecting at least two questions from Part A and two from Part B.

**Part-A**

**Energy Scenario and Basics of Energy**

(3)

**Energy Management and Audit**

(6)

**Energy Action Planning and Financial Management**

(8)

**Energy Monitoring and Targeting**
Definition, Elements of Monitoring & Targeting System, A Rationale for Monitoring, Targeting and Reporting, Data and Information Analysis, Relating Energy Consumption and Production, CUSUM, Case Study.

(6)

**Part-B**

**Electrical System and Motors**

(8)

**Lighting System**

(6)

**Energy Efficient Technologies in Electrical Systems**

(6)

**Reference Books:**
3. Related journal and conference papers.
4. Website: www.energymanagerstraining.com

**EE-752**

Energy Management and Auditing Lab

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Note: Atleast four experiments and a case study are to be performed.

**List of experiments:**

1. To obtain polar curve of a lamp.
2. To measure harmonics and do the analysis for any 3-phase system.
3. To measure the currents, voltages and active and reactive powers in a three phase system using energy auditor.
4. To design a lighting system for any auditorium/building/ hall.
5. To test a 3-phase machine of unknown rating.

**Case Study:**

1. To perform case study for energy audit of educational institute/ industrial unit/ administrative or commercial building and prepare a complete report suggesting the changes to be made.
EE-703
POWER PLANT ENGINEERING

External: 50
Sessional: 50
Credits: 4

LTP: 3 1 0

Note: Examiner shall set eight questions, four from Part-A and four from Part-B of the syllabus. Candidate will be required to attempt any five questions selecting at least two questions from Part A and two from Part B.

Part-A

Introduction
Energy resources and their availability, types of power plants, selection of the plants, review of basic thermodynamic cycles used in power plants.

(4)

Thermal Power Plants
Flow sheet and working of modern-thermal power plants, Site selection, Power plant boilers including critical and super critical boilers, Fluidized bed boilers, Boilers mountings and accessories, Different systems such as coal handling system, Pulverizers and coal burners, Combustion system, Draft, Ash handling system, Dust collection-mechanical dust collector and electrostatic precipitator system, Feed water treatment and condenser and cooling towers and cooling ponds, Prospectus and development of thermal plants in India.

(12)

Diesel Power plant
Outline of diesel power plant, Systems of diesel power plant like air intake system, Fuel system, Cooling system, Exhaust system, lubrication system, Engine starting and stopping system, Diesel plant operation and efficiency, Comparative study of diesel power plant with steam power plant.

(7)

Part-B

Gas turbine
Classification, Open and closed cycle, Actual Brayton cycle, Methods of improving efficiency and specific output – open cycle with regeneration, Reheating and inter cooling, Combined steam and gas turbine plant.

(5)

Hydro-Electric Power plant
Elements of hydro electric power plant, Site selection, Hydrology, storage and pondage, General arrangements and operation of hydro power plant, Hydraulic turbines, Turbine size, Pelton wheel turbine, Francis and Kaplan turbines, Selection of turbines, Dams, Spillways, gates, Intake and out take works, Canals and layout of penstocks, Water hammer and surge tank, Simple numerical on hydrographs and number of turbine required, Hydraulic electric power plants in India.

(10)

Nuclear Power Plant
Nuclear fusion and fission, Chain reaction, Nuclear fuels, Components of nuclear reactor, Classification of reactors, Pressurized water reactor, Boiling water reactor, Gas cooled reactor, CANDU reactor, Fast breeder reactor, Nuclear ash and its disposal, Nuclear power plants in India.

(7)

TEXT BOOKS

OTHER BOOKS

EE-704
Embedded Systems

External: 50  L T P
Sessional: 50  3 1 0
Credits : 4

Note: Examiner shall set eight questions, four from Part-A and four from Part-B of the syllabus. Candidate will be required to attempt any five questions selecting at least two questions from Part A and two from Part B.

PART-A

Introduction Review of Embedded Hardware

(PART-A) 10

PIC Micro controller & Interfacing

(PART-A) 15

PART-B


(PART-B) 10

Introduction to Real Time Operating Systems: Task And Task States, Tasks and Data, Semaphores and shared data

(PART-B) 5

Operating System Services: Message queues, Mailboxes and Pipes, Timer Function, Events, Memory Management, Interrupt Routines in an RTOS Environment, Basic Design Using RTOS.

(PART-B) 5

Book Recommended:
EE-754
Embedded Systems Lab

Sessional: 50
Credits: 1
Practicals related to Theory.