## B.E.MBA integrated in ELECTRICAL & ELECTRONICS
### VII SEMESTER

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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

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  
**Sessional:** 50  
**Credits:** 4  
**L T P:** 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

**Energy Scenario and Basics of Energy**  

**Energy Management and Audit**  

**Energy Action Planning and Financial Management**  

**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.

### Part-B

**Electrical System and Motors**  

**Lighting System**  

**Energy Efficient Technologies in Electrical Systems**  

### Reference Books:

3. Related journal and conference papers.  
4. Website: www.energymanagerstraining.com
EE-752  
Energy Management and Auditing Lab

Sessional: 50  
Credits : 1  

L T P 0 0 2

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          L T P 3 1 0
Sessional: 50        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
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
Objective: To understand the concept and importance of accounting for managers.

Part – A
Accounting and its functions; Basic Accounting Concepts and Accounting Conventions; Accounting Principles; Generally Accepted Accounting Policies (GAAP); Accounting Standards; Branches of Accounting: Financial Accounting; Cost Accounting; Management Accounting; Accounting Equation; Accounting Structure; Types of Accounts.
Rules regarding Journal Entries; Recording of Journal Entries; Ledger Posting; Trial Balance; Preparation of Final Accounts; Trading Account; Profit & Loss Account; Balance Sheet; Treatment of Adjustments into trial balance.
Meaning of Management Accounting; Nature; Scope; Objectives; Functions of Management Accounting; Relationship between Financial and Management Accounting; Tools and Techniques of Management Accounting; Limitations; Meaning of Financial Statement; Importance and Limitations of Financial Statement; Meaning and Objectives of Financial Statement Analysis; Limitation of Financial Analysis.
Ratio Analysis: Meaning of Ratio; Interpretation of Ratios; Significance of Ratio Analysis; Limitations of Ratio Analysis; Classification of Ratio; Analysis of Short-term financial position; Analysis of Long term financial position; Analysis of profitability.

Part – B
Fund Flow Analysis: Meaning and Concept of Funds; Meaning of Fund Flow; Meaning of Fund Flow Statement; Significance; Limitations; Procedure of Preparing Fund Flow Statement; Schedule Showing Change in working capital; Adjusted Profit & Loss Account; Statement of Sources and Applications of Funds. Treatment of Adjustment;
Cash Flow Analysis: Meaning; Classification of Cash Flow; Comparison between Fund Flow Statement and Cash Flow Statement; Difference between Cash Flow Statement and Cash Budget Limitations; Preparation of Cash Flow Statement (as per AS-3); Treatment of Adjustments.

Text Books:
1. Managerial Accounting, Hilton, Ramesh, Jaidev, TMH
Paper Title: **Statistics & Business Research Methodology**

**Paper Code:** IBM 702  
**Max. Marks (Final Exam):** 50  
**Max. Marks (Sessional Exam):** 50  
**Time:** 3 Hours  
**Credits:** 3  
**Total Lectures:** 45  
**L T P:** 3 0 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 from each part.

**Objective:** The objective of this course is to make the students familiar with statistics used in Business Research Methodology.

**Part A**


Research Design: Meaning, Characteristics and various concepts relating to research design and classification of research design, Importance.

Measurement and Scaling: Data Types Nominal, Ordinal and Ratio scale; scaling techniques.

**Part B**

Formulation of Hypothesis: Confidence Intervals, Meaning, Characteristics and concepts relating to testing of Hypothesis (Parameter and statistic, Standard error, Level of significance, type-I and Type-II errors, Critical region, one tail and two tail tests); Procedure of testing Hypothesis. Numerical problems based on chi-square test, Hypothesis tests for one population mean: Z test, t-test, Wilcoxon Signed-Rank test, Inferences for two population means, Mann-Whitney Test, F-test.

Data Analysis & Interpretation: Introduction to Multivariate analysis- Multiple and partial correlation, Analysis of Variance (ANOVA)- One way and Two way ANOVA. Introduction to discriminant analysis and Factor Analysis.

**Suggested Readings:**
1. Business Research Methods, William G. Zikmund, Cengage Learning India
2. Business Research Methods, Cooper, D.R. & Schindler, TataMcGraw-Hill