

**B.TECH 5TH SEMESTER
FUNDAMENTALS OF MANAGEMENT
HUT-302E**

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Theory : 100 Marks
Sessionals : 50 Marks
Total : 150 Marks
Time : 3 hours

UNIT-I Financial Management

Introduction of Financial Management, Objectives of Financial Decisions, Status and duties of Financial Executives. Financial Planning – Tools of financial planning. Management of working capital, Factors affecting requirements of working capital. Capital structure decisions. Features of appropriate capital structure. Sources of finance.

UNIT-II Personnel Management

Personnel Management – Meaning, Nature and Importance; Functions of Personnel Management – (a) Managerial Functions and (b) Operative functions. Job Analysis: Meaning and Importance; Process of Job Analysis; Job Description and Job specification. Human Resource Development-Meaning and concept.

UNIT-III Production Management

Production Management : Definition and Objectives
Plant location: Ideal plant location. Factors affecting plant location.
Plant Layout : Ideal plant layout, factors affecting plant layout.
Work Measurement : Meaning, Objectives and Essentials of work Measurement.
Production Control : Meaning and importance of production control and steps involved in production control.

UNIT-IV Marketing Management

Nature, scope and importance of marketing management. Modern Marketing concepts. Role of marketing in economic development. Marketing Mix. Marketing Information System. Meaning, nature and scope of International Marketing.

NOTE :

The question paper shall have eight questions in all organized into four sections, each section having two questions from each of the four units. The candidate shall have to attempt five questions in all , selecting at least one question from each unit.

Suggested Books:

1. Business Environment – Francis Charurilam (Himalaya Publishing House).
2. Management – Harold, Koontz and Cyrilo' Donell (Mc Graw Hill)
3. Principles of Personnel Management – Edwin B. Flippo (Mc Graw Hill)
4. Personnel Management and Industrial Relations – D.C. Sharma and R.C. Sharma
(SJ Publications, Meerut)
5. Basic Marketing – Cundiff and Still (PHI, India)
6. Marketing Management – S.A. Sherlekar (Himalaya Publishing House Bombay)
7. Principles and Practice of Management – L.M. Prasad
8. Financial Management – I.M. Pandey (Vikas Publishing House, New Delhi)
9. International Marketing – Vorn terpestre and Ravi Sasathy.
10. Production Management – E.S. Buffa & W. H. Tausart, Richard D. Irwin,
Homewood, Illionis.
11. Personnel Management – C.B. Mamoria, (Himalaya Publishing House)

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**B.TECH 5th SEMESTER
LINEAR IC APPLICATIONS
(ECE-307E)**

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4 1 -

Theory : 100
Sessional : 50
Time : 3Hrs

UNIT-I:

DIFFERENTIAL AND CASCADE AMPLIFIERS: Balanced, unbalanced output differential amplifiers, FET differential amplifier, current mirrors, level Translators, cascade configuration of amplifiers, operational amplifiers, Introduction to ideal OP-AMP, characteristic parameters, Practical OP-AMP, its equivalent circuit and op-amp circuit configurations.

UNIT-II:

OP-AMP WITH NEGATIVE FEEDBACK AND FREQUENCY RESPONSE: Block diagram representation of feedback amplifier, voltage series feedback, voltage shunt feedback differential amplifiers, frequency response compensating network, frequency response of internally compensative op-amp and non compensating op-amp. High frequency op-amp equivalent circuit, open loop gain V/s frequency, closed loop frequency response, circuit stability, slew rate.

UNIT-III:

OP-AMP APPLICATION: DC, AC amplifiers, peaking amplifier, summing, scaling, averaging and instrumentation amplifier, differential input output amplifier, voltage to current converter, current to voltage converter, very high input impedance circuit, integration and differential circuit, wave shaping circuit, active filters, oscillators

UNIT-IV:

SPECIALIZED LINER IC APPLICATIONS: 555 timer IC(monostable & astable operation) & its applications , Universal active filter, PLL, power amplifier, 8038 IC.

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Suggested Books:

1. R.A. Gayakwaed , OP-amps and Linear Integrated circuits .
2. K.R.Botkar , Integrated circuits.

B.TECH 5th SEMESTER
LINEAR CONTROL SYSTEMS
(EIE-301-E)

L T P
 4 1 -

Theory : 100
 Sessional : 50
 Time : 3Hrs

Unit I

Introduction: The Control system, Stepper motor, multivariable control systems.

Mathematical model of physical systems: Differential equation of physical systems, transfer function, block diagram algebra, signal flow graphs.

Feedback Characteristics of control systems: Feedback and non-feedback systems, reduction of parameter variation by use of feedback, control over system dynamics by use of feedback, control of the effect of disturbance of signal by use of feedback.

Unit II

Time response analysis: Standard test signals, time response of first order and second order systems, steady state errors and error constants, design specification of second order systems.

Stability: The concept of stability, necessary condition for stability, Hurwitz stability criterion, Routh stability criterion, Relative stability analysis.

The Root Locus Technique: Root locus concept, construction of root loci.

Unit III

Frequency Response analysis: Correlation between time and frequency response, Polar plots, Bode plots.,

Stability in Frequency Domain: Nyquist stability criterion, relative stability using Nyquist criterion, closed loop frequency response.

Unit IV

Introduction to Design: Phase Lag compensation, Phase Lead Compensation, Phase Lag-Lead Compensation, feedback compensation.

State variable analysis: concept of state, state variables, state model, state model for linear continuous time systems, diagonalization solution of state equations, concept of controllability and observability.

NOTE:

The question paper shall have eight questions in all organized into four sections, each section having two questions from each of the four units. The candidate shall have to attempt five questions in all , selecting at least one question from each unit.

References:

- 1 Nagrath I J & Gopal M, control system engineering
- 2 Kuo B C, Automatic control systems

**B.TECH 5th SEMESTER
INDUSTRIAL MEASUREMENT
(EIE-303-E)**

L T P
4 1 -

Theory : 100
Sessional : 50
Time : 3Hrs

Unit I

Linear displacement transducers, RVDT, Strain Gauge, Load cell.

Torque Measurement: Torque Transducers, Digital Methods, Magneto –strictive transducer.

Linear and Angular Velocity Measurement: Electromagnetic Transducers, Electromagnetic Tachometer Generators, Digital methods, Photoelectric Tachometer.

Unit II

Pressure Measurement: Dead Weight Guages and Manometers, High Pressure Measurement, Low Pressure Measurement. Meter Guages, Thermal Conductivity, Ionization Guage.

Sound Measurement: Microphone, Types of Microphones, Acoustic Intensity Measurement System.

Unit III

Flow Measurement: Obstruction meters, Orifice, Nozzle, Venturi, Pitot tube, Rotameters, Turbine, Electromagnetic, Ultrasonic, Vortex meters, Laser Doppler Velocity meter, Direct Flow meters.

Liquid Level Measurement: Resistive Method, Inductive method, Capacitive method, Gamma ray method, Ultrasonic Method, Buoyancy method.

Unit IV

Temperature Measurement: Thermal Expansion methods, Bimetallic Thermometers, Liquid-in-glass Thermometers, Pressure Thermometers, Thermocouples, RTD, Thermistors, Semiconductor sensors, Digital Thermometers, Radiation Methods, Optical Pyrometers.

Miscellaneous Measurements: Humidity and Viscosity Measurement, pH meter.

NOTE:

The question paper shall have eight questions in all organized into four sections, each section having two questions from each of the four units. The candidate shall have to attempt five questions in all , selecting at least one question from each unit.

REFERENCES:-

1. A.K.Sawhney, Mechanical Measurement, Dhanpat Rai & Sons Publishers.
2. E.O.Doeblin, Measurement Systems, application & design, Mc-Graw-Hill International Edition.

**B.TECH 5th SEMESTER
INDUSTRIAL ELECTRONICS
(EIE-305-E)**

L T P
4 1 -

Theory : 100
Sessional : 50
Time : 3Hrs

Unit I

Introduction: Introduction to power electronics ,Characteristics of different solid state devices namely power diodes , SCR,DIAC, TRIAC,UJT,Power Transistors,SCS.

Switching of Thyristor : Two transistor operation, Firing Circuits for SCR, Temperature rise calculations,heat sink design, ,turn on method of SCR, Protection of SCR against over voltage ,over current,dv/dt, di/dt.Series and parallel operation of SCR.Methods of commutation of SCR.

Unit II

AC to DC converters : Classification of rectifiers, principle of working of each, analysis of output voltage & current waveforms, Ripple factor, utility factor and efficiency.Effects of source inductance and type of load ,Reactive power requirement of converter, Some important factors in design of converters, dual converters.

Unit III

DC to AC Converter: Classification of inverters, Operation of each type, Design of commutation circuits ,Analysis of voltage and current waveform,Voltage and frequency control, Current source inverter and pulse width modulated inverter.

Unit IV

AC to AC converters: Classification of cyclo converters, Principle of working along with control circuit.

DC to DC Converters: Classification of choppers, Operating principle and control circuit for each type.

NOTE:

The question paper shall have eight questions in all organized into four sections, each section having two questions from each of the four units. The candidate shall have to attempt five questions in all , selecting at least one question from each unit.

Reference:

- 1.Thyristor Engg. By M. S. Berde
- 2.Power Electronics By Dr. P.S. Bimbhra
- 3.Thyristor and their applications By M. Ramamurthy.

**B.TECH 5th SEMESTER
POWER PLANT ENGINEERING
(EIE-307-E)**

L T P
4 1 -

Theory : 100
Sessional : 50
Time : 3Hrs

Unit-I :

Loads and load forecasting:

Load curves, Maximum Demand, Load factor, Diversity Factor, Capacity Factor, Utilization Factor, Types of Load, Load Forecasting.

Power Plant Economics:

Choice of type of generation, size of generator and number of units, cost of electrical energy, Depreciation of plant, Effect of load factor on cost of electrical energy.

Unit II:

Thermal power plants: Choice of site ,Main and Auxiliary equipments ,Flue gas -flow diagram. Water-steam-flow diagram, working of power plants and their lay outs, Characteristics of turbo generator .

Hydro electric plants: Choice of site ,classification of hydro electric plants, main parts and working of plants and their lay outs ,characteristics of hydro electric generators

Unit III:

Nuclear power plants: Choice of site,classification of plants ,main parts ,lay out and their working,associated problems ,

Diesel power plants: Diesel plant equipment, Diesel plant layout and its working, application of diesel plants.

Unit IV:

Combined working of plants: Advantages of combined operation, plant requirement for base load and peak load operation, combine working of run-off river plant and steam plant

Tariff and power factor improvement: Different types of tariffs and methods of power factor improvement

NOTE:

The question paper shall have eight questions in all organized into four sections, each section having two questions from each of the four units. The candidate shall have to attempt five questions in all , selecting at least one question from each unit.

Books

- 1.P.S.R.Murthy Power system operation and control Tata Mcgraw hill
- 2.MV Deshpande Elements of electrical power system design
- 3.BR Gupta Generation of electrical energy
- 4.PV Gupta A course in electrical power 5
- 5.S Mukhopadhyay Modern power system control and operation
- 6 S S Wadhera Power system Analysis and stability.

**B.TECH 5th SEMESTER
DESIGN LAB
(EIE-309-E)**

L T P
- - 2

Sessional : 50
Viva : 25
Time : 3Hrs

LIST OF EXPERIMENTS: -

1. Design of inverting, non inverting and buffer (unity gain) amplifier using op-amp.(741).
2. Design of differentiating ckt using op-amp 741.
3. Design Of Integrating Ckt Usng Using Op-Amp 741
4. Study of current to voltage and voltage to current converter using op-amp kit.
5. Design a band pass filter using op-amp 741.
6. Design a low pass filter using op-amp 741.
7. Design a high pass filter using op-amp 741.
8. Study & design an instrumentation amplifier using op-amp 741.
9. Study of digital to analog convertor.
10. To Design Summing & Subtractor Amplifier Using Op-Amp 741

NOTE:

At least 10 experiments are to be performed with atleast 7 from above list, remaining 3 may either be performed from the above list or designed & set by concerned institution as per the scope

**B.TECH 5th SEMESTER
TRANSDUCER LAB
(EIE-311-E)**

L T P
- - 2

Sessional : 25
Viva : 25
Time : 3Hrs.

LIST OF EXPERIMENT

1. To Measure Temperature using RTD.
2. To Measure Displacement using L.V.D.T.
3. To Measure Load using Load Cell.
4. Pressure Measurement using Cantilever.
5. Light Measurement using LDR & Photo Cell.
6. To Measure Angular Displacement using Capacitive Transducer.
7. To Measure the Variation in Water Level using Capacitive Transducer.
8. To Measure Speed of DC Motor using Reluctance Method.
9. To Measure Strain using Strain Gauge.
10. To Measure Speed using Photo Interrupter Method.

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NOTE:

At least 10 experiments are to be performed with atleast 7 from above list, remaining 3 may either be performed from the above list or designed & set by concerned institution as per the scope

**B.TECH 5th SEMESTER
INDUSTRIAL ELECTRONICS LAB
(EIE-313-E)**

L T P
- - 2

Sessional : 25
Viva : 25
Time : 3Hrs

LIST OF EXPERIMENT

1. To study the characteristics of SCR.
2. To study the characteristics of DIAC.
3. To study the characteristics of TRIAC.
4. To Study the characteristics Of UJT
5. To study the characteristics of MOSFET
6. To study the chopper MOSFET.
7. To study of SCR commutation (CLASS A-E)
8. To study of MOSFET inverter.
9. To study the single phase DUAL Converter.
10. To study the characteristics of SCR bridge rectifier.

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NOTE :

At least 10 experiments are to be performed with atleast 7 from above list, remaining 3 may either be performed from the above list or designed & set by concerned institution as per the scope