

MANAGEMENT & ENTREPRENEURSHIP

Subject Code	: 10AL51	IA Marks	: 25
No. of Lecture Hrs/Week	: 04	Exam Hours	: 03
Total no. of Lecture Hrs.	: 52	Exam Marks	: 100

MANAGEMENT

UNIT - 1

MANAGEMENT: Introduction - Meaning - nature and characteristics of Management, Scope and functional areas of Management - Management as a Science, Art or Profession Management & Administration - Roles of Management, Levels of Management, Development of Management Thought-Early Management Approaches-Modern Management Approaches.

7 Hours

UNIT - 2

PLANNING: Nature, importance and purpose of planning process - Objectives - Types of plans (Meaning only) - Decision making - Importance of planning - steps in planning & planning premises - Hierarchy of plans.

6 Hours

UNIT - 3

ORGANISING AND STAFFING: Nature and purpose of organization - Principles of organization - Types of organization - Departmentation - Committees – Centralisation Vs Decentralisation of authority and responsibility - Span of control - MBO and MBE (Meaning only) Nature and importance of Staffing - Process of Selection & Recruitment (in brief).

7 Hours

UNIT - 4

DIRECTING & CONTROLLING: Meaning and nature of directing - Leadership styles, Motivation Theories, Communication - Meaning and importance – Coordination, meaning and importance and Techniques of Co - ordination. Meaning and steps in controlling - Essentials of a sound control system - Methods of establishing control.

6 Hours

ENTREPRENEURSHIP

UNIT - 5

ENTREPRENEUR: Meaning of Entrepreneur; Evolution of the Concept, Functions of an Entrepreneur, Types of Entrepreneur, Intrapreneur - an emerging Class. Concept of Entrepreneurship - Evolution of Entrepreneurship, Development of Entrepreneurship; Stages in entrepreneurial process; Role of entrepreneurs in Economic Development; Entrepreneurship in India; Entrepreneurship – its Barriers.

6 Hours

UNIT - 6

SMALL SCALE INDUSTRY: Definition; Characteristics; Need and rationale: Objectives; Scope; role of SSI in Economic Development. Advantages of SSI Steps to start an SSI - Government policy towards SSI; Different Policies of S.S.I.; Government Support for S.S.I. during 5 year plans, Impact of Liberalization, Privatization, Globalization on S.S.I., Effect of WTO/GATT Supporting Agencies of Government for S.S.I Meaning; Nature of Support; Objectives; Functions; Types of Help; Ancillary Industry and Tiny Industry (Definition only).

7 Hours

UNIT - 7

INSTITUTIONAL SUPPORT: Different Schemes; TECKSOK; KIADB; KSSIDC; KSIMC; DIC Single Window Agency; SISI; NSIC; SIDBI; KSFC.

6 Hours

UNIT - 8

PREPARATION OF PROJECT: Meaning of Project; Project Identification; Project Selection; Project Report; Need and Significance of Report; Contents; formulation; Guidelines by Planning Commission for Project report; Network Analysis; Errors of Project Report; Project Appraisal. Identification of Business Opportunities - Market Feasibility Study; Technical Feasibility Study; Financial Feasibility Study & Social Feasibility Study. **7 Hours**

TEXT BOOKS:

1. **Principles of Management** - P. C. Tripathi, P. N. Reddy; Tata McGraw Hill, 4th Edition, 2010.
2. **Dynamics of Entrepreneurial Development & Management** - Vasant Desai Himalaya Publishing House.
3. **Entrepreneurship Development** - Small Business Enterprises - Poornima M Charantimath - Pearson Education – 2006.

REFERENCE BOOKS:

1. **Management Fundamentals** - Concepts, Application, Skill Development Robert Lusier – Thomson.
2. **Entrepreneurship Development** - S S Khanka - S Chand & Co.
3. **Management** - Stephen Robbins - Pearson Education /PHI -17th Edition, 2003.

10EE52 SIGNALS AND SYSTEMS

Subject Code	:	10EE52	IA Marks	:	25
No. of Lecture Hrs./ Week	:	04	Exam Hours	:	03
Total No. of Lecture Hrs.	:	52	Exam Marks	:	100

PART - A

UNIT - 1

INTRODUCTION-Definitions of signals and a system, classification of signals, basic operations on signals, elementary signals viewed as interconnections of operations, properties of systems. **10 Hours**

UNIT – 2 and 3

TIME – DOMAIN REPRESENTATIONS FOR LTI SYSTEMS-Convolution, impulse response, properties, solution of differential and difference equations, block diagram representation. **10 Hours**

UNIT - 4

FOURIER REPRESENTATION OF PERIODIC SIGNALS-Introduction, Fourier representation of continuous-time periodic signals (FS), properties of continuous-time Fourier series (excluding derivation of defining equations for CTFS), Fourier representation of discrete-time periodic signals, properties of discrete-time Fourier series (DTFS). **6 Hours**

PART - B**UNIT - 5**

THE CONTINUOUS-TIME FOURIER TRANSFORM-Representation of a periodic signals: continuous-time Fourier transform (FT), Properties of continuous-time Fourier transform. Application; frequency response of LTI systems, Solutions of differential equations. **7 Hours**

UNIT - 6

THE DISCRETE-TIME FOURIER TRANSFORM-Representations of periodic signals: The discrete-time Fourier transform (DTFT), Properties of DTFT. Application; frequency response of LTI systems, Solutions of differential equations. **7 Hours**

UNIT –7 and 8

Z- TRANSFORMS-Introduction, Z-transform, properties of ROC, properties of Z-transforms, inversion of Z-transform methods - power series and partial expansion, Transforms analysis of LTI systems, transfer function, stability and causality, unilateral Z-transform and its application to solve difference equations. **12 Hours**

TEXT BOOKS:

1. **Signals and Systems**- Simon Haykin and Barry Van Veen, John Wiley & Sons, 2nd Edition 2008.
2. **Fundamentals of Signals and Systems** - Michel J Roberts, TMH, 2nd Edition, 2010.

REFERENCE BOOKS:

1. **Signals and Systems**, Alan V Oppenheim, Alan S. Willsky and S. Hamid Nawab, PHI, 2nd edition, 2009.
2. **Signals and Systems**, H P Hsu and others, Schaums Outline Series, TMH, 2nd Edition, 2008.

10EE53 TRANSMISSION AND DISTRIBUTION

Subject Code	:	10EE53	IA Marks	:	25
No. of Lecture Hrs./ Week	:	04	Exam Hours	:	03
Total No. of Lecture Hrs.	:	52	Exam Marks	:	100

PART - A**UNIT - 1**

TYPICAL TRANSMISSION & DISTRIBUTION SYSTEMS SCHEME-General layout of power system, Standard voltages for transmission, advantages of high voltage transmission. Transmission line efficiency and line drop. Feeders, distributors & service mains. **5 Hours**

UNIT - 2

OVERHEAD TRANSMISSION LINES- Types of supporting structures and line conductors used. Sag calculation- supports at same level and at different levels. Effect of wind and ice, Sag at erection, Stringing chart and sag templates. Line vibrators. **5 Hours**

UNIT – 3

INSULATORS- Introduction, materials used, types, potential distribution over a string of suspension insulators. String efficiency & methods of increasing strings efficiency, grading rings and arcing horns. Testing of insulators. **6 Hours**

UNIT - 4

(A)**CORONA**- Phenomena, disruptive and visual critical voltages, corona power loss. Advantages and disadvantages of corona. **4 Hours**

(B)**UNDERGROUND CABLES**- Types, material used, insulation resistance, thermal rating of cables, charging current, grading of cables, capacitance grading & inter sheath grading, testing of cables. **6 Hours**

Part - B**UNIT – 5 and 6**

Line parameters: calculation of inductance of single phase line, 3phase lines with equilateral spacing, unsymmetrical spacing, double circuit and transposed lines. Inductance of composite conductor lines. Capacitance- of single-phase line, 3phase lines with equilateral spacing, unsymmetrical spacing, double circuit and transposed lines. Capacitance of composite conductor lines. **12 Hours**

UNIT - 7

Performance of power transmission lines- Short transmission lines, medium transmission lines- nominal T, end condenser and π models, long transmission lines, ABCD constants of transmission lines, Ferranti effect, line regulation. **8 Hours**

UNIT - 8

Distribution- Requirements of power distribution, radial & ring main systems, ac and dc distribution: calculation for concentrated loads and uniform loading. **6 Hours**

TEXT BOOKS:

1. **A Course in Electrical Power**- Soni Gupta & Bhatnagar, Dhanpat Rai & Sons.
2. **Electrical Power Systems**- C. L. Wadhwa, New Age International, 5th Edition, 2009.

REFERENCE BOOKS:

1. **Elements of Power System Analysis**- W.D. Stevenson, TMH, 4th Edition
2. **Electric power generation Transmission & Distribution**- S. M. Singh, PHI, 2nd Edition, 2009.
3. **Electrical Power**- Dr. S. L. Uppal, Khanna Publications

10EE54 D.C. MACHINES AND SYNCHRONOUS MACHINES

Subject Code	:	10EE54	IA Marks	:	25
No. of Lecture Hrs./ Week	:	04	Exam Hours	:	03
Total No. of Lecture Hrs.	:	52	Exam Marks	:	100

PART - A**UNIT - 1**

DC GENERATOR-Review of basics of DC machines, classification of DC generator, types of armature winding, EMF equation, no-load characteristic, armature reaction, load characteristics. Commutation, types of Commutation, commutation difficulties, interpoles, compensating winding and equalizer rings (only qualitative treatment). **8 Hours**

UNIT - 2

DC Motors- (a) Classification, Back EMF and its significance, Torque equation, Characteristics of shunt, series & compound motors, speed control of shunt, series and compound motors. Application of motors. DC motor starters

(b) Special DC motors- permanent magnet motors, brushless DC motors. Applications. **8 Hours**

UNIT – 3 and 4

LOSSES AND EFFICIENCY- Losses in DC machines, power flow diagram, efficiency, condition for maximum efficiency.

TESTING OF DC MACHINES- Direct & indirect methods of testing of DC machines-Brake test, Swinburn's test, Hopkinson's test, Retardation test, Field's test, merits and demerits of tests.

10 Hours

PART - B**UNIT - 5**

SYNCHRONOUS MACHINES- Basic principle of operation, construction of salient & non-salient pole synchronous machines, generated EMF, effect of distribution and chording of winding, harmonics-causes, reduction and elimination. Armature reaction, synchronous reactance, leakage reactance, phasor diagram of non salient type alternator.

5 Hours

UNIT - 6

VOLTAGE REGULATION: Voltage regulation by EMF, MMF, ZPF & ASA method. Short circuit ratio and its importance. Two reaction theory-direct and quadrature axis reactances, phasor diagram. Slip test and regulation.

8 Hours

UNIT - 7

Synchronizing to infinite bus bars, parallel operation of alternators. Operating characteristics, power angle characteristics excluding armature resistance, operation for fixed input and variable excitation, power flow equations including armature resistance, capability curves of synchronous generators. **6 Hours**

UNIT - 8

SYNCHRONOUS MOTOR: Principle of operation, phasor diagrams, torque and torque angle, Blondal diagram, effect of change in load, effect of change in excitation, V and inverted V curves. Synchronous condenser, hunting and damping. Methods of starting synchronous motors. **7 Hours**

TEXT BOOKS:

1. **Electrical machinery**, P.S Bhimbra, Khanna Publishers
2. **Electrical machines**, DP Kothari, I.J.Nagarath, TMH, 4th edition, 2010.
3. **Electric Machines**, Mulukuntla S.Sarma, Mukesh K.Pathak, Cengage Learning, First edition, 2009.

REFERENCE BOOKS:

1. **Performance & Design of Alternating Current machines**, M. G. Say, CBS publishers, 3rd Edition, 2002.
2. **The Performance & Design of DC machines** A.E Clayton & N.N.Hancock CBS Publication, 3rd Edition, 2004.
3. **Electrical Machines**, Ashfaq Hussain, Dhanpat Rai Publications.

10EE55 MODERN CONTROL THEORY

Subject Code	:	10EE55	IA Marks	:	25
No. of Lecture Hrs./ Week	:	04	Exam Hours	:	03
Total No. of Lecture Hrs.	:	52	Exam Marks	:	100

PART - A

UNIT – 1 and 2

STATE VARIABLE ANALYSIS AND DESIGN: Introduction, concept of state, state variables and state model, state modeling of linear systems, linearization of state equations. State space representation using physical variables, phase variables & canonical variables. **10 Hours**

UNIT - 3

Derivation of transfer function from state model, diagonalization, Eigen values, Eigen vectors, generalized Eigen vectors. **6 Hours**

UNIT - 4

Solution of state equation, state transition matrix and its properties, computation using Laplace transformation, power series method, Cayley-Hamilton method, concept of controllability & observability, methods of determining the same. **10 Hours**

PART - B

UNIT - 5

POLE PLACEMENT TECHNIQUES: stability improvements by state feedback, necessary & sufficient conditions for arbitrary pole placement, state regulator design, and design of state observer, Controllers- P, PI, PID. **10 Hours**

UNIT - 6

Non-linear systems: Introduction, behavior of non-linear system, common physical non linearity-saturation, friction, backlash, dead zone, relay, multi variable non-linearity. **3 Hours**

UNIT - 7

Phase plane method, singular points, stability of nonlinear system, limit cycles, construction of phase trajectories. **7 Hours**

UNIT - 8

Liapunov stability criteria, Liapunov functions, direct method of Liapunov & the linear system, Hurwitz criterion & Liapunov's direct method, construction of Liapunov functions for nonlinear system by Krasvskii's method. **6 Hours**

TEXT BOOKS:

1. **Digital control & state variable methods**, M. Gopal , 3rd Edition, TMH ,2008
2. **Control system Engineering**, I. J. Nagarath & M. Gopal, New Age International (P) Ltd, 3rd edition.

REFERENCE BOOKS:

1. **State Space Analysis of Control Systems**, Katsuhiko Ogata -PHI
2. **Automatic Control Systems**, Benjamin C. Kuo & Farid Golnaraghi, 8th edition, John Wiley & Sons 2009.
3. **Modern Control Engineering**, Katsuhiko Ogata, PHI, 5th Edition, 2010
4. **Modern Control Engineering**, D. Roy Choudary, PHI, 4th Reprint, 2009.
5. **Modern control systems**, Dorf & Bishop- Pearson education, 11th Edition 2008

10EE56 LINEAR IC'S AND APPLICATIONS

Subject Code	:	10EE56	IA Marks	:	25
No. of Lecture Hrs./ Week	:	04	Exam Hours	:	03
Total No. of Lecture Hrs.	:	52	Exam Marks	:	100

PART - A

UNIT - 1

OP-AMPS AS AC AMPLIFIER: Capacitor coupled voltage follower, high Z_{in} capacitor coupled voltage follower, capacitor coupled non-inverting amplifier, high Z_{in} capacitor coupled non-inverting amplifier, capacitor coupled inverting amplifier, setting upper cut off frequency, capacitor coupled difference amplifier, and use of single polarity supply. **6 Hours**

UNIT 2

OP-AMPS FREQUENCY RESPONSE AND COMPENSATION: Op amp circuits stability, frequency and phase response, frequency compensating methods, manufacturer's recommended compensation, op-amp circuit band width, slew rate effects, stray capacitance effects, load capacitance effects, Z_{in} mode compensation, circuit stability precautions. **7 Hours**

UNIT - 3

SIGNAL PROCESSING CIRCUITS: Precision half wave & full wave rectifiers, limiting circuits, clamping circuits, peak detectors, sample & hold circuit. DAC and ADC (Flash and successive approximations) **7 Hours**

UNIT - 4

OPAMPS AND NONLINEAR CIRCUITS: Op-amps in switching circuits, zero crossing detectors, inverting Schmitt trigger circuits, non-inverting Schmitt circuits, astable multivibrator, and monostable multivibrator. **6 Hours**

PART - B

UNIT - 5

SIGNAL GENERATOR: Triangular/rectangular wave generator, waveform generator design, phase shift oscillator, oscillator amplitude stabilization, Wein bridge oscillator, signal generators, output controllers **7 Hours**

UNIT - 6

ACTIVE FILTERS: First and second order high pass and low pass filters, band pass filter, band stop filter. **7 Hours**

UNIT - 7

SPECIALIZED IC APPLICATIONS: Universal active filter, switched capacitor filter, phase locked loops, power amplifiers. **6 Hours**

UNIT - 8

DC VOLTAGE REGULATORS: Voltage regulators basics, voltage follower regulator, adjustable output regulator, precision voltage regulators, and integrated circuit voltage regulators. **6 Hours**

TEXT BOOKS:

1. **Operational amplifiers and linear IC's**, David A Bell, Oxford University Press, 2010.
2. **Operational amplifiers and linear IC's**, Ramakanth A Gayakwad, PHI, 4th edition, 2009.
3. **Linear integrated circuits**, S.P. Bali, TMH, 2009.

REFERENCE BOOKS:

1. **Op Amps and Linear Integrated Circuits-Concepts and Applications**, James M. Fiore, Cengage Learning, 2009.
2. **Op Amps, Design, Applications and Trouble Shooting**, Elsevier, 2nd Edition.
3. **Operational amplifiers and linear IC's**, Stanley William D, - 4th edition, Pearson Education.
4. **Linear Integrated Circuits- Analysis, Design and Applications**, B. Somanathan Nair, Wiley India, First Edition, 2009.

10EEL57 MEASUREMENTS AND CIRCUIT SIMULATION LABORATORY

Subject Code	:	10EEL57	IA Marks	:	25
No. of Practical Hrs./ Week	:	03	Exam Hours	:	03
Total No. of Practical Hrs.	:	42	Exam Marks	:	50

1. Measurement of low resistance using Kelvin's double bridge.
 2. Measurement of cable insulation and earth resistance using Meggar
 3. Measurement of inductance using Maxwell Inductance-Capacitance bridge & determination of Q-factor
 4. Measurement of capacitance using De-Sauty's bridge & determination of dissipation factor.
 5. Measurement of active and reactive power in balanced 3-phase circuit using two-watt meter method.
 6. Adjustment & calibration of 1-phase energy meter
 7. Determination of ratio & phase angle error in CT.
 8. a) Inverting, non-inverting & scale changing of signals using op -amps
b) RC phase shift oscillator using op amps (Both using simulation package)
 9. RC coupled amplifier-frequency response for variation of bias & coupling using simulation package
 10. Rectifier circuits-Bridge rectifier, diode clipping & clamping circuits using simulation package.
 11. Schmitt -trigger- inverting and non-inverting.
 12. Signal generator- triangular, saw tooth and rectangular wave generation
- Note: All experiments, except 5,6 and 7, are to be carried out by using components and verify the result by using a simulation package.**

10EEL58 TRANSFORMERS AND INDUCTION MACHINES LABORATORY

Subject Code	:	10EEL58	IA Marks	:	25
No. of Practical Hrs./ Week	:	03	Exam Hours	:	03
Total No. of Practical Hrs.	:	42	Exam Marks	:	50

1. (a) Predetermination of efficiency and regulation by Open Circuit and Short circuit tests on single - phase transformer.
(b) Calculation of parameters of equivalent circuit from the readings of the tests and determination of efficiency and regulation from the equivalent circuit to correlate results obtained earlier.
2. Sumpner's test on similar transformers and determination of combined and individual transformer efficiency.
3. Parallel operation of two dissimilar (different kVA) single-phase transformers and determination of load sharing and analytical verification given the Open Circuit and Short circuit tests details.
4. Polarity test and connection of 3 single-phase transformers in star – delta and determination of efficiency and regulation under balanced resistive load.
5. Scott connection with balanced and unbalanced resistive loads.
6. Load test on 3-phase induction motor- and plot of Torque versus speed, output hp versus efficiency, power factor and slip.
7. Predetermination of performance of 3-phase induction Motor from the Circle diagram.
8. (a) Determination of parameters of the equivalent circuit of a 3-phase Induction Motor by conducting NO load and Blocked rotor tests.
(b) Determination of performance quantities of the induction motor from the equivalent circuit to correlate the results obtained from the load test or circle diagram.

9. Speed control of 3-phase induction motor by varying rotor resistance.
10. Load test on- induction generator.
11. Load test on single- phase induction motor.
