

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

III Year B.Tech. EEE-I Sem

L	T/P/D	C
4	-/-	4

(A50423) IC APPLICATIONS

UNIT-I:

Integrated Circuits : Classification, chip size and circuit complexity, Classification of Integrated circuits, comparison of various logic families, standard TTL NAND Gate-Analysis & characteristics, TTL open collector O/Ps, Tristate TTL, MOS & CMOS open drain and tri-state outputs, CMOS transmission gate, IC interfacing- TTL driving CMOS & CMOS driving TTL.

UNIT-II:

OP-AMP and Applications: Basic information of OP-AMP, ideal and practical OP-AMP, internal circuits, OP-AMP characteristics, DC and AC characteristics, 741 OP-AMP and its features, modes of operation-inverting, non-inverting, differential.

Basic application of OP-AMP, instrumentation amplifier, ac amplifier, V to I and I to V converters, sample & hold circuits, multipliers and dividers, Differentiators and Integrators, Comparators, introduction to voltage regulators.

UNIT-III:

Active Filters & Oscillators: Introduction, 1st order LPE, HPF filters. Band pass, Band reject and all pass filters. Oscillator types and principle of operation – RC, Wien and quadrature type, waveform generators – triangular, sawtooth, square wave and VCO.

UNIT-IV:

Timers & Phase Locked Loops : Introduction to 555 timer, functional diagram, monostable and astable operations and applications, Schmitt Trigger. PLL - introduction, block schematic, principles and description of individual blocks of 565.

UNIT-V:

D-A and A- D Converters: Introduction, basic DAC techniques, weighted resistor DAC, R-2R ladder DAC, inverted R-2R DAC, and IC 1408 DAC, Different types of ADCs - parallel comparator type ADC, counter type ADC, successive approximation ADC and dual slope ADC. DAC and ADC specifications.

TEXT BOOKS:

1. Linear Integrated Circuits, D. Roy Chowdhury, New Age International (p) Ltd.
2. Op-Amps & Linear ICs, Ramakanth A. Gayakwad, PHI.

REFERENCE BOOKS:

1. Operational Amplifiers & Linear Integrated Circuits, R.F. Coughlin & Fredrick F. Driscoll, PHI.
2. Operational Amplifiers & Linear Integrated Circuits: Theory & Applications, Denton J. Daibey, TMH.
3. Design with Operational Amplifiers & Analog Integrated Circuits, Sergio Franco, McGraw Hill.
4. Digital Fundamentals – Floyd and Jain, Pearson Education.

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(A50014) MANAGEMENT SCIENCE**Objectives:**

This course is intended to familiarise the students with the framework for the managers and leaders available for understanding and making decisions relating to issues related organisational structure, production operations, marketing, Human resource Management, product management and strategy.

UNIT -I:

Introduction to Management and Organisation: Concepts of Management and organization- nature, importance and Functions of Management, Systems Approach to Management - Taylor's Scientific Management Theory - Fayal's Principles of Management - Maslow's theory of Hierarchy of Human Needs - Douglas McGregor's Theory X and Theory Y - Herzberg Two Factor Theory of Motivation - Leadership Styles, Social responsibilities of Management. Designing Organisational Structures: Basic concepts related to Organisation - Departmentation and Decentralisation, Types and Evaluation of mechanistic and organic structures of organisation and suitability.

UNIT -II:

Operations and Marketing Management: Principles and Types of Plant Layout-Methods of production (Job, batch and Mass Production), Work Study -Basic procedure involved in Method Study and Work Measurement - Business Process Reengineering (BPR) - Statistical Quality Control: control charts for Variables and Attributes (simple Problems) and Acceptance Sampling, TQM, Six Sigma, Deming's contribution to quality. Objectives of Inventory control, EOQ, ABC Analysis, Purchase Procedure, Stores Management and Stores Records - JIT System, Supply Chain Management, Functions of Marketing, Marketing Mix, and Marketing Strategies based on Product Life Cycle, Channels of distribution.

UNIT -III:

Human Resources Management (HRM): Concepts of HRM, HRD and Personnel Management and Industrial Relations (PMIR), HRM vs PMIR, Basic functions of HR Manager: Manpower planning, Recruitment, Selection, Training and Development, Placement, Wage and Salary Administration, Promotion, Transfer, Separation, Performance Appraisal, Grievance Handling

and Welfare Administration, Job Evaluation and Merit Rating - Capability Maturity Model (CMM) Levels - Performance Management System.

UNIT -IV:

Project Management (PERT/CPM): Network Analysis, Programme Evaluation and Review Technique (PERT), Critical Path Method (CPM), Identifying critical path, Probability of Completing the project within given time, Project Cost Analysis, Project Crashing (simple problems).

UNIT -V:

Strategic Management and Contemporary Strategic Issues: Mission, Goals, Objectives, Policy, Strategy, Programmes, Elements of Corporate Planning Process, Environmental Scanning, Value Chain Analysis, SWOT Analysis, Steps in Strategy Formulation and Implementation, Generic Strategy alternatives. Bench Marking and Balanced Score Card as Contemporary Business Strategies.

TEXT BOOKS:

1. Stoner, Freeman, Gilbert, *Management*, 6th Ed, Pearson Education, New Delhi, 2004
2. P Vijaya Kumar, N. Appa Rao and Ashima B. Chhalill, Cengage Learning India, 2012.

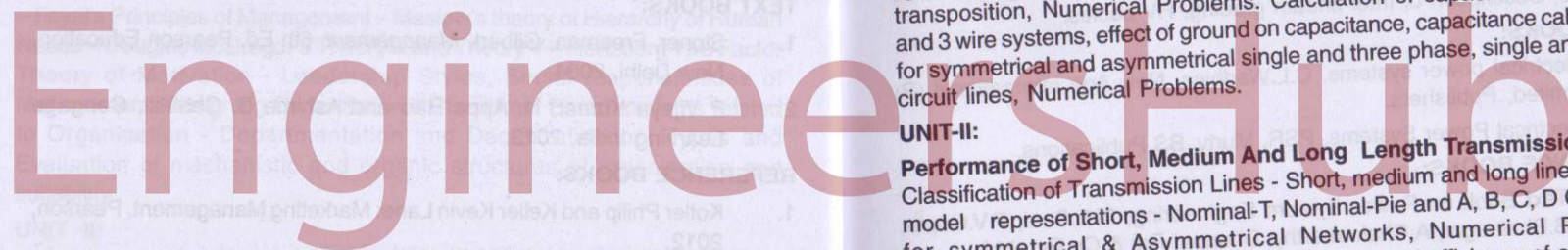
REFERENCE BOOKS:

1. Kotler Philip and Keller Kevin Lane: *Marketing Management*, Pearson, 2012.
2. Koontz and Weihrich: *Essentials of Management*, McGraw Hill, 2012.
3. Thomas N.Duening and John M.Ivancevich *Management—Principles and Guidelines*, Biztantra, 2012.
4. Kanishka Bedi, *Production and Operations Management*, Oxford University Press, 2012.
5. Samuel C.Certo: *Modern Management*, 2012.
6. Schermerhorn, Capling, Poole and Wiesner: *Management*, Wiley, 2012.
7. Parnell: *Strategic Management*, Cengage, 2012.
8. Lawrence R Jauch, R.Gupta and William F.Glueck: *Business Policy and Strategic Management*, Frank Bros. 2012.
9. Aryasri: *Management Science*, McGraw Hill, 2012

Outcomes:

By the end of the course, the student will be in a position to

- Plan an organisational structure for a given context in the organisation.
- carry out production operations through Work study.
- understand the markets, customers and competition better and price the given products appropriately.
- ensure quality for a given product or service.
- plan and control the HR function better.
- plan, schedule and control projects through PERT and CPM.
- evolve a strategy for a business or service organisation.



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(A50221) POWER SYSTEMS-II

Objective:

This course is an extension of Power systems-I course. It deals with basic theory of transmission lines modeling and their performance analysis. Also this course gives emphasis on mechanical design of transmission lines, cables and insulators.

UNIT-I:

Transmission Line Parameters: Types of conductors - calculation of resistance for solid conductors - Calculation of inductance for single phase and three phase, single and double circuit lines, concept of GMR & GMD, symmetrical and asymmetrical conductor configuration with and without transposition, Numerical Problems. Calculation of capacitance for 2 wire and 3 wire systems, effect of ground on capacitance, capacitance calculations for symmetrical and asymmetrical single and three phase, single and double circuit lines, Numerical Problems.

UNIT-II:

Performance of Short, Medium And Long Length Transmission Lines: Classification of Transmission Lines - Short, medium and long line and their model representations - Nominal-T, Nominal-Pie and A, B, C, D Constants for symmetrical & Asymmetrical Networks, Numerical Problems .Mathematical Solutions to estimate regulation and efficiency of all types of lines - Numerical Problems.

Long Transmission Line-Rigorous Solution, evaluation of A,B,C,D Constants, Interpretation of the Long Line Equations, Incident, Reflected and Refracted Waves -Surge Impedance and SIL of Long Lines, Wave Length and Velocity of Propagation of Waves - Representation of Long Lines - Equivalent-T and Equivalent Pie network models (numerical problems).

UNIT - III:

Power System Transients & Factors Governing The Performance of Transmission Lines : Types of System Transients - Travelling or Propagation of Surges - Attenuation, Distortion, Reflection and Refraction Coefficients - Termination of lines with different types of conditions - Open Circuited Line, Short Circuited Line, T-Junction, Lumped Reactive Junctions (Numerical Problems). Bewley's Lattice Diagrams (for all the cases mentioned with numerical examples).

Skin and Proximity effects - Description and effect on Resistance of Solid Conductors -Ferranti effect - Charging Current - Effect on Regulation of the

Transmission Line. Corona - Description of the phenomenon, factors affecting corona, critical voltages and power loss, Radio Interference.

UNIT-IV:

Overhead Line Insulators & Sag, Tension Calculations: Types of Insulators, String efficiency and Methods for improvement, Numerical Problems - voltage distribution, calculation of string efficiency, Capacitance grading and Static Shielding.

Sag and Tension Calculations with equal and unequal heights of towers, Effect of Wind and Ice on weight of Conductor, Numerical Problems - Stringing chart and sag template and its applications.

UNIT-V:

Underground Cables: Types of Cables, Construction, Types of Insulating materials, Calculations of Insulation resistance and stress in insulation, Numerical Problems. Capacitance of Single and 3-Core belted cables, Numerical Problems. Grading of Cables - Capacitance grading, Numerical Problems, Description of Inter-sheath grading, HV cables.

TEXT BOOKS:

1. Electrical power systems, C.L.Wadhwa, New Age International (P) Limited, Publishers.
2. Electrical Power Systems, PSR. Murty, BS Publications.

REFERENCE BOOKS:

1. A Text Book on Power System Engineering, M.L.Soni, P.V.Gupta, U.S.Bhatnagar, A.Chakrabarthy, Dhanpat Rai & Co Pvt. Ltd.
2. A Textbook of Power System Engineering, R. K. Rajput, Laxmi Publications (P) Limited.
3. Electrical Power Generation, Transmission and Distribution, S.N.Singh, PHI.
4. Principles of Power Systems, V.K Mehta and Rohit Mehta S.Chand Company Pvt. Ltd.
5. Power System Engineering, I.J.Nagarath & D.P Kothari , TMH.
6. Power System Analysis and Design, Dr. B. R. Gupta, S. Chand & Company Limited.
7. Power System Analysis, Operation and control, Abhijit Chakrabarti, Sunitha Halder , PHI, 3/e, 2010
8. Electrical Power Transmission system engineering Analysis and design by Turan Gonen, CRC Press (Taylor & Francis Group) Special Indian Edition,2/e.

Outcome:

After going through this course the student gets a thorough knowledge on calculation of transmission line parameters, performance analysis of short medium long length transmission lines and factors affecting the performance analysis of transmission lines, transients in power systems, operation of different types of overhead line insulators, sag and tension calculation of transmission lines and detailed analysis of underground cables for power transmission and distribution , with which he/she can able to apply the above conceptual things to real-world electrical and electronics problems and applications.

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(A50211) CONTROL SYSTEMS

Objective:

In this course it is aimed to introduce to the students the principles and applications of control systems in everyday life. The basic concepts of block diagram reduction, time domain analysis solutions to time invariant systems and also deals with the different aspects of stability analysis of systems in frequency domain and time domain.

UNIT – I:

Introduction: Concepts of Control Systems- Open Loop and closed loop control systems and their differences- Different examples of control systems- Classification of control systems, Feed-Back Characteristics, Effects of feedback. Mathematical models – Differential equations, Impulse Response and transfer functions - Translational and Rotational mechanical systems.

UNIT II:

Transfer Function Representation: Transfer Function of DC Servo motor - AC Servo motor- Synchro transmitter and Receiver, Block diagram representation of systems considering electrical systems as examples -Block diagram algebra – Representation by Signal flow graph - Reduction is using Mason's gain formula.

UNIT-III:

Time Response Analysis Standard test signals - Time response of first order systems – Characteristic Equation of Feedback control systems, Transient response of second order systems - Time domain specifications – Steady state response - Steady state errors and error constants – Effects of proportional derivative, proportional integral systems.

UNIT – IV:

Stability Analysis in S-Domain: The concept of stability – Routh's stability criterion – qualitative stability and conditional stability – limitations of Routh's stability

Root Locus Technique: The root locus concept - construction of root loci-effects of adding poles and zeros to $G(s)H(s)$ on the root loci. Basics of PID controllers.

UNIT – V:

Frequency Response Analysis: Introduction, Frequency domain specifications-Bode diagrams-Determination of Frequency domain specifications and transfer function from the Bode Diagram-Phase margin

and Gain margin-Stability Analysis from Bode Plots.

TEXT BOOKS:

1. Control Systems theory and applications, S.K Bhattacharya, Pearson.
2. Control Systems, N.C.Jagan, BS Publications.

REFERENCE BOOKS:

1. Control systems, A.Ananad Kumar, PHI.
2. Control Systems Engineering, S.Palani, Tata-McGraw-Hill.
3. Control systems, Dhanesh N.Manik, Cengage Learning.
4. Control Systems Engineering, I. J. Nagrath and M. Gopal, New Age International (P) Limited, Publishers.
5. Control Systems, N.K.Sinha, New Age International (P) Limited Publishers.

Outcome:

After going through this course the student gets a thorough knowledge on open loop and closed loop control systems, concept of feedback in control systems, mathematical modeling and transfer function derivations of translational and rotational systems, Transfer functions of Synchros, AC and DC servo motors, Transfer function representation through block diagram algebra and signal flow graphs, time response analysis of different ordered systems through their characteristic equation and time-domain specifications, stability analysis of control systems in S-domain through R-H criteria and root-locus techniques, frequency response analysis through bode diagrams, with which he/she can able to apply the above conceptual things to real-world electrical and electronics problems and applications.

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(A50220) POWER ELECTRONICS

Objective:

With the advent of semiconductor devices, revolution is taking place in the power transmission distribution and utilization. This course introduces the basic concepts of power semiconductor devices, converters and choppers and their analysis.

UNIT – I:

Power Semi Conductor Devices & Commutation Circuits: Thyristors – Silicon Controlled Rectifiers (SCR's) – BJT – Power MOSFET – Power IGBT and their characteristics and other thyristors – Basic theory of operation of SCR – Static characteristics – Turn on and turn off methods- Dynamic characteristics of SCR - Turn on and Turn off times -Salient points. Two transistor analogy – SCR - UJT firing circuit — Series and parallel connections of SCR's – Snubber circuit details – Specifications and Ratings of SCR's, BJT, IGBT - Numerical problems – Line Commutation and Forced Commutation circuits.

UNIT – II:

AC-DC Converters (1-Phase & 3-Phase Controlled Rectifiers): Phase control technique – Single phase Line commutated converters – Mid point and Bridge connections – Half controlled converters with Resistive, RL loads and RLE load– Derivation of average load voltage and current -Active and Reactive power inputs to the converters without and with Freewheeling Diode –Numerical problems. Fully controlled converters, Midpoint and Bridge connections with Resistive, RL loads and RLE load– Derivation of average load voltage and current – Line commutated inverters -Active and Reactive power inputs to the converters without and with Free wheeling Diode, Effect of source inductance – Derivation of load voltage and current – Numerical problems. Three phase converters – Three pulse and six pulse converters – Mid point and bridge connections average load voltage With R and RL loads – Effect of Source inductance–Dual converters (both single phase and three phase) - Waveforms –Numerical Problems.

UNIT – III:

DC-DC Converters (Choppers): Choppers – Time ratio control and Current limit control strategies – Step down choppers Derivation of load voltage and currents with R, RL and RLE loads- Step up Chopper – load voltage expression, Jones chopper, AC Chopper, Problems.

UNIT-IV:

AC-AC Converters (AC Voltage Controllers) & Frequency Changers (Cyclo-Converters) : AC voltage controllers – Single phase two SCR's in anti parallel – With R and RL loads – modes of operation of Triac – Triac with R and RL loads – Derivation of RMS load voltage, current and power factor wave forms – Firing circuits -Numerical problems –Cyclo-converters – Single phase mid - point cyclo-converters with Resistive and inductive load (Principle of operation only) – Bridge configuration of single phase cyclo-converter (Principle of operation only) – Waveforms.

UNIT – V:

DC-AC Converters (Inverters): Inverters – Single phase inverter – Basic series, parallel inverter –operation and Waveforms – Three phase inverters (180, 120 degrees conduction modes of operation)-Voltage control techniques for inverters, Pulse width modulation techniques – Numerical problems.

TEXT BOOKS:

1. Power Electronics, Dr. P. S. Bimbhra, Khanna Publishers.
2. Power Electronics Devices, Circuits and Industrial applications, V. R. Moorthi, Oxford University Press.

REFERENCE BOOKS:

1. Power Electronics: Circuits, Devices and Applications, M. H. Rashid, Prentice Hall of India.
2. Power Electronics, M. D. Singh & K. B. Kanchandhani, Tata Mc Graw – Hill Publishing Company.
3. Power Electronics, Vedam Subramanyam, New Age International (P) Limited, Publishers.
4. Elements of Power Electronics, Philip T. Krein, Oxford University Press.
5. Power Electronics, M. S. Jamil Asghar, PHI Private Limited.
6. Power Electronics, P.C.Sen, Tata Mc Graw-Hill Publishing.
7. Power Electronics, K. Hari Babu, Scitech Publications India Pvt. Ltd.
8. Principles of Power Electronics, John G. Kassakian, Martin F. Schlect, Geroge C. Verghese, Pearson Education.
9. Thyristorised Power Controllers, G. K. Dubey, S. R. Doradra, A. Joshi and R. M. K. Sinha, New Age International (P) Limited Publishers.

Outcome:

After going through this course the student gets a thorough knowledge on construction operation V-I characteristics commutation firing and protection

of various power semiconductor devices, focused analysis of thyristor device, nature of the R, RL and RLE loads for different power inputs, AC-to-DC power conversion through 1-phase & 3-phase controlled rectifiers, DC-to-DC power conversion through step-up and step-down choppers, AC-to-AC power conversion through AC voltage controllers, Frequency conversion through cyclo-converters, DC-to-AC power conversion through 1-phase & 3-phase inverters, different types of PWM (pulse-width modulation) techniques, steady-state and transient state analysis of all the power converters, with which he/she can able to apply the above conceptual things to real-world electrical and electronics problems and applications.

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(A50218) ELECTRICAL MACHINES – III

Objective:

This subject is an extension of previous machines courses. It deals with the detailed analysis of Synchronous generators and motors which are the prime source of electrical power generation and its utilities. Also concerns about the different types of single phase motors which are having significant applications in house hold appliances and control systems.

UNIT – I:

Synchronous Machines & Characteristics: Constructional Features of round rotor and salient pole machines – Armature windings – Integral slot and fractional slot windings; Distributed and concentrated windings – distribution, pitch and winding factors – E.M.F Equation. Harmonics in generated EMF – suppression of harmonics – armature reaction - leakage reactance – synchronous reactance and impedance – experimental determination - phasor diagram – load characteristics.

UNIT – II:

Regulation of Synchronous Generator: Regulation by synchronous impedance method, M.M.F. method, Z.P.F. method and A.S.A. methods – salient pole alternators – two reaction analysis – experimental determination of X_d and X_q (Slip test) Phasor diagrams – Regulation of salient pole alternators.

UNIT – III:

Parallel Operation of Synchronous Generator: Synchronizing alternators with infinite bus bars – synchronizing power torque – parallel operation and load sharing - Effect of change of excitation and mechanical power input. Analysis of short circuit current wave form – determination of sub-transient, transient and steady state reactances.

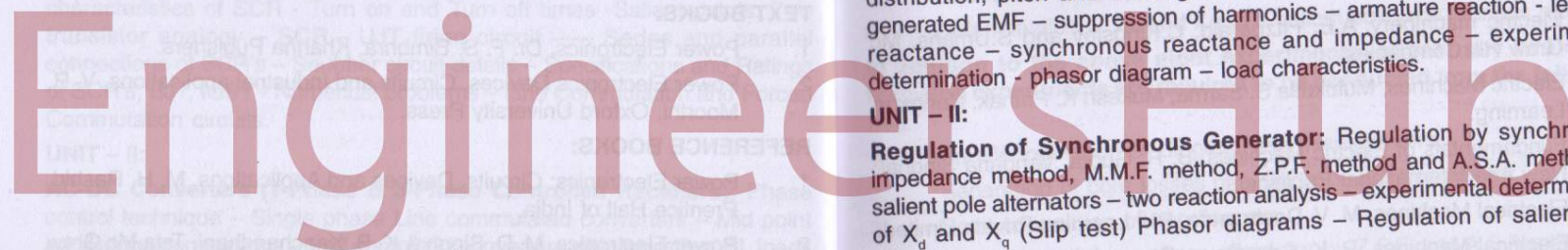
UNIT – IV:

Synchronous Motors : Theory of operation – phasor diagram – Variation of current and power factor with excitation – synchronous condenser – Mathematical analysis for power developed.

Power Circles: Excitation and power circles – hunting and its suppression – Methods of starting – synchronous induction motor.

UNIT – V:

Single Phase Motors & Special Machines: Single phase Motors: Single phase induction motor – Constructional features-Double revolving field theory



Equivalent circuit – split-phase motors – Capacitor start Capacitor run motors.
Principles of A.C. Series motor-Universal motor, Stepper motor shaded pole motor, (Qualitative Treatment only).

TEXT BOOKS:

1. Electrical machines-PS Bhimbra, Khanna Publishers.
2. Principles of Electrical Machines, V. K. Mehta, Rohit Mehta, S. Chand Publishing.

REFERENCE BOOKS:

1. Electromechanics-III (Synchronous and single phase machines), S.Kamakashiah, Right Publishers
2. Electric Machines, I.J. Nagrath & D.P. Kothari, Tata Mc Graw – Hill Publishers.
3. Performance and Design of AC Machines, MG.Say, BPB Publishers.
4. Theory of Alternating Current Machinery, Langsdorf, Tata McGraw-Hill Companies.
5. Electric machinery, A.E. Fitzgerald, C.Kingsley and S.Umans, Mc Graw Hill Companies.
6. Electric Machines, Mulukutla S. Sarma, Mukesh K. Pathak, Cengage Learning.
7. Fundamentals of Electric Machines, B. R. Gupta, Vandana Singhal, New Age International Publishers.
8. Electrical Machines, M. V. Deshpande, PHI Learning Private Limited.
9. Electrical Machines, R. K. Srivastava, Cengage Learning.

Outcome:

After going through this course the student gets a thorough knowledge on, construction operation characteristics regulation parallel-operation power circles starting & speed control methods of synchronous machines and construction operation characteristics of single-phase motors and special machines, with which he/she can able to apply the above conceptual things to real-world electrical and electronics problems and applications.

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(A50289) ELECTRICAL MACHINES LAB – II

The following experiments are required to be conducted as compulsory experiments:

1. O.C. & S.C. Tests on Single-phase Transformer.
2. Sumpner's test on a pair of single-phase transformers.
3. Brake test on three-phase Induction Motor.
4. No-load and Blocked rotor tests on three-phase Induction motor.
5. Regulation of a three –phase alternator by synchronous impedance & m.m.f. methods.
6. 'V' and 'Inverted V' curves of a three—phase synchronous motor.
7. Equivalent Circuit of a single-phase induction motor.
8. Determination of X_d and X_q of a salient pole synchronous machine.

In addition to the above eight experiments, atleast any two of the following experiments are required to be conducted from the following list:

1. Parallel operation of Single-phase Transformers.
2. Separation of core losses of a single-phase transformer.
3. Scott connection of transformers.
4. Regulation of three-phase alternator by Z.P.F. and A.S.A methods.
5. Efficiency of a three-phase alternator.
6. Heat run test on a bank of 3 Nos. of single phase Delta connected transformers.
7. Measurement of sequence impedance of a three-phase alternator.

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(A50086) ADVANCED COMMUNICATION SKILLS (ACS) LAB

Introduction

The introduction of the Advanced Communication Skills Lab is considered essential at 3rd year level. At this stage, the students need to prepare themselves for their careers which may require them to listen to, read, speak and write in English both for their professional and interpersonal communication in the globalised context.

The proposed course should be a laboratory course to enable students to use 'good' English and perform the following:

- Gathering ideas and information to organise ideas relevantly and coherently.
- Engaging in debates.
- Participating in group discussions.
- Facing interviews.
- Writing project/research reports/technical reports.
- Making oral presentations.
- Writing formal letters.
- Transferring information from non-verbal to verbal texts and vice-versa.
- Taking part in social and professional communication.

Objectives:

This Lab focuses on using multi-media instruction for language development to meet the following targets:

- To improve the students' fluency in English, through a well-developed vocabulary and enable them to listen to English spoken at normal conversational speed by educated English speakers and respond appropriately in different socio-cultural and professional contexts.
- Further, they would be required to communicate their ideas relevantly and coherently in writing.
- To prepare all the students for their placements.

Syllabus:

The following course content to conduct the activities is prescribed for the Advanced Communication Skills (ACS) Lab:

1. **Activities on Fundamentals of Inter-personal Communication and Building Vocabulary** - Starting a conversation – responding appropriately and relevantly – using the right body language – Role Play in different situations & Discourse Skills- using visuals - Synonyms and antonyms, word roots, one-word substitutes, prefixes and suffixes, study of word origin, business vocabulary, analogy, idioms and phrases, collocations & usage of vocabulary.
2. **Activities on Reading Comprehension** –General Vs Local comprehension, reading for facts, guessing meanings from context, scanning, skimming, inferring meaning, critical reading & effective googling.
3. **Activities on Writing Skills** – Structure and presentation of different types of writing – *letter writing/Resume writing/ e-correspondence/ Technical report writing/ Portfolio writing* – planning for writing – improving one's writing.
4. **Activities on Presentation Skills** – Oral presentations (individual and group) through JAM sessions/seminars/**PPTs** and written presentations through posters/projects/reports/ e-mails/assignments etc.
5. **Activities on Group Discussion and Interview Skills** – Dynamics of group discussion, intervention, summarizing, modulation of voice, body language, relevance, fluency and organization of ideas and rubrics for evaluation- Concept and process, pre-interview planning, opening strategies, answering strategies, interview through tele-conference & video-conference and Mock Interviews.

Minimum Requirement:

The Advanced Communication Skills (ACS) Laboratory shall have the following infra-structural facilities to accommodate at least 35 students in the lab:

- Spacious room with appropriate acoustics.
- Round Tables with movable chairs
- Audio-visual aids
- LCD Projector
- Public Address system
- P – IV Processor, Hard Disk – 80 GB, RAM–512 MB Minimum, Speed – 2.8 GHZ
- T. V, a digital stereo & Camcorder
- Headphones of High quality

Prescribed Lab Manual: A book titled **A Course Book of Advanced**

Communication Skills (ACS) Lab published by Universities Press, Hyderabad.

Suggested Software:

The software consisting of the prescribed topics elaborated above should be procured and used.

- **Oxford Advanced Learner's Compass**, 7th Edition
- **DELTA's key to the Next Generation TOEFL Test: Advanced Skill Practice.**
- **Lingua TOEFL CBT Insider**, by Dreamtech
- **TOEFL & GRE (KAPLAN, AARCO & BARRONS, USA, Cracking GRE** by CLIFFS)
- **The following software from 'train2success.com'**
 - **Preparing for being interviewed**
 - **Positive Thinking**
 - **Interviewing Skills**
 - **Telephone Skills**
 - **Time Management**

Books Recommended

1. Technical Communication by Meenakshi Raman & Sangeeta Sharma, Oxford University Press 2009.
2. Advanced Communication Skills Laboratory Manual by Sudha Rani, D, Pearson Education 2011.
3. Technical Communication by Paul V. Anderson. 2007. Cengage Learning Pvt. Ltd. New Delhi.
4. Business and Professional Communication: Keys for Workplace Excellence. Kelly M. Quintanilla & Shawn T. Wahl. Sage South Asia Edition. Sage Publications. 2011.
5. The Basics of Communication: A Relational Perspective. Steve Duck & David T. McMahan. Sage South Asia Edition. Sage Publications. 2012.
6. English Vocabulary in Use series, Cambridge University Press 2008.
7. Management Shapers Series by Universities Press(India)Pvt Ltd., Himayatnagar, Hyderabad 2008.
8. Handbook for Technical Communication by David A. McMurrey & Joanne Buckley. 2012. Cengage Learning.
9. Communication Skills by Leena Sen, PHI Learning Pvt Ltd., New Delhi, 2009.

10. Handbook for Technical Writing by David A McMurrey & Joanne Buckley CENGAGE Learning 2008.
11. Job Hunting by Colm Downes, Cambridge University Press 2008.
12. Master Public Speaking by Anne Nicholls, JAICO Publishing House, 2006.
13. English for Technical Communication for Engineering Students, Aysha Vishwamohan, Tata Mc Graw-Hill 2009.
14. Books on TOEFL/GRE/GMAT/CAT/ IELTS by Barron's/DELTA/ Cambridge University Press.
15. International English for Call Centres by Barry Tomalin and Suhashini Thomas, Macmillan Publishers, 2009.

DISTRIBUTION AND WEIGHTAGE OF MARKS:

Advanced Communication Skills Lab Practicals:

1. The practical examinations for the ACS Laboratory practice shall be conducted as per the University norms prescribed for the core engineering practical sessions.
2. For the English Language lab sessions, there shall be continuous evaluation during the year for 25 sessional marks and 50 End Examination marks. Of the 25 marks, 15 marks shall be awarded for day-to-day work and 10 marks to be awarded by conducting Internal Lab Test(s). The End Examination shall be conducted by the teacher concerned, by inviting the External Examiner from outside. In case of the non-availability of the External Examiner, other teacher of the same department can act as the External Examiner.

Mini Project: As a part of Internal Evaluation

1. **Seminar/ Professional Presentation**
 2. **A Report on the same has to be prepared and presented.**
- * **Teachers may use their discretion to choose topics relevant and suitable to the needs of students.**
- * **Not more than two students to work on each mini project.**
- * **Students may be assessed by their performance both in oral presentation and written report.**

Outcomes

- Accomplishment of sound vocabulary and its proper use contextually.
- Flair in Writing and felicity in written expression.
- Enhanced job prospects.
- Effective Speaking Abilities