JAWAHARLAL NEHRU TECHNOLOGY UNIVERSITY HYDERBAD

II Year B.Tech.EEE-II sem	**L**	**T/P/D**	**C**
	-	-/3/-	**2**

GENDER SENSITIZATION

(An Activity-based Course)

Objectives of the Course:

- To develop students' sensibility with regard to issues of gender in contemporary India.
- To provide a critical perspective on the socialization of men and women.
- To introduce students to information about some key biological aspects of genders.
- To expose the students to debates on the politics and economics of work.
- To help students reflect critically on gender violence.
- To expose students to more egalitarian interactions between men and women.

Learning Outcomes:

- Students will have developed a better understanding of important issues related to gender in contemporary India.
- Students will be sensitized to basic dimensions of the biological, sociological, psychological and legal aspects of gender. This will be achieved through discussion of materials derived from research, facts, everyday life, literature and film.
- Students will attain a finger grasp of how gender discrimination works in our society and how to counter it.
- Students will acquire insight into the gendered division of labour and its relation to politics and economics.
- Men and women students and professionals will be better equipped to work and live together as equals.
- Students will develop a sense of appreciation of women in all walks of life.
- Through providing accounts of studies and movements as well as the new laws that provide protection and relief to women, the text book will empower students to understand and respond to gender violence.

Unit I:

UNDERSTANDING GENDER:

Gender: Why should we study it? (Towards a world of Equals: Unit-1)

Socialization: Making Women, Making Men (Towards a world of Equals: Unit-2)

Introduction, Preparing for Womanhood, Growing up Male, First lessons in Caste, Different Masculinities.

Just relationships: Being together as Equals (Towards a World of Equals: Unit-12)

Mary Kom and other. Love and Acid just do not mix, Love Letters, Mothers and Fathers, Further reading: Rosa Parks- The Brave Heart.

UNIT-II:

GENDER AND BIOLOGY:

Missing Women: Sex Selection and its consequences (Towards a world of Equals: Unit-4)

Declining Sex Ratio, Demographic Consequences.

Gender Spectrum: Beyond the Binary (Towards a World of Equals: Unit-10)

Two or Many? Struggles with Discrimination.

Additional Reading: Our Bodies, Our Health (Towards a World of Equals: Unit-13)

UNIT-III:

GENDER AND LABOUR:

Housework: The Invisible Labour (Towards a World of Equals: Unit-3)

“My Mother doesn’t Work”. “Share the Load”.

Women’s Work: Its Politics and Economics (Towards a World of Equals: Unit-7)

Fact and Fiction, Unrecognized and Unaccounted work, Further Reading: Wages and Conditions of Work.

UNIT- IV:

ISSUES OF VIOLENCE:

Sexual Harassment: Say No! (Towards a World of Equals: Unit-6)

Sexual Harassment, not Eve-teasing-Coping with Everyday Harassment-Further Reading: “chupulu”.

Domestic Violence: Speaking Out (Towards a World of Equals: Unit-8)

Is Home a Safe Place?-When Women Unite [Film], Rebuilding Lives, Further Reading: New Forums for Justice.

Thinking about Sexual Violence (Towards a World of Equals: Unit-11)

Blaming the Victim- "I Fought for my Life…..". Further Reading: The Caste Face of Violence.

UNIT-V:

GENDER STUDIES:

Knowledge: Through the Lens of Gender (Towards a World of Equals- Unit-5)

Point of View. Gender and the Structure of Knowledge. Further Reading: Unacknowledged Women Artists of Telangana.

Whose History? Questions for Historians and Others (Towards a World Equals:Unit-9)

Reclaiming a Past. Writing other Histories. Further Reading: Missing Pages form Modern Telangana History.

Essential Reading: **All the units in the textbook,"towards a world of equals:A Bilingual Textbook on gender" written by A.Suneeta,Uma Bhrugubanda,Duggirala Vasanta,Rama Melkote,Vasudha Nagaraj,Asma Rasheed,Gogu Shyamala,Deepa sreenivas and Suise Tharu.**

Note: Since it is interdisciplinary Course, Resourse Person can be drawn from the fields of English Literature or Sociology or Political Science or any other qualified faculty who has expertise in this field.

REFERANCE BOOKS:

1.Sen,Amartya."More than one Million Women are Missing."New York Review of Books 37.20(20 December 1990).print "We Were Making History…."Life stories of Women in the Telangana People's Struggle.New Delhi:kali for Women,1989.

2.Tripi Lahiri."By the Numbers:Where Indian Women Work."Women's Studies Journal(14 November 2012) Available online at:http://blogs.wsj.com/India real time/2012/11/14/by-the-numbers-where-Indian-Women-work/>

3.K.Satyanarayana and Susie Tharu(Ed.) stell Nibs Are Sprouting:New Dalit Writing From South India,Dossier 2:Telugu and Kannada htpp://harper.co.in/BookDetail,asp?Book Code=3732

4.Vimala. “vantillu (the kitchen)”. Women writing in india: 600 BC to the present volume II; The 20th century.Ed. Susie Tharu and K. Lalita. Delhi: Oxford university press, 1995, 599-601.

5. shatrughna, veena et al. women’s work and its impact on child health and nutrition, Hyderabad, national institute of nutrition, Indian council of medical research. 1993.

6. stree shakti sanghatana, “ we were making history….” Life stories of women in the Telangana people’s struggle. New delhi: kali for women, 1989.

7. Menon, nivedita. Seeing like a feminist. New delhi: zubaan- penguin books,2012.

8. Jayaprabha, A. “chupulu(stares)”. Women writing in india; 600BC to the present, volume II; The 20th century Ed. Susie Thatu and K. Lalita. Delhi: Oxford university press, 1995, 596-597.

9. Javeed, shayan and Anupam Manuhaar. “women and wage discrimination in Indian: A Critical Analysis” international journal of Humanities and social science invention 2.4(2013).

10. Gautam, Liela and Gita Ramaswamy. ”A ‘Conversation’ between a Daughter and a Mother”. Broadsheet on contemporary Politics, special issue on sexuality and harassment; Gender politics on campus today, Ed. Madhumeeta Sinha and Asma Rasheed. Hyderabad: Anveshi Research center for women’s Studies, 2014.

11. Abdulali Sohaila. “ I fought for my life….and won”. Available online at: http://www.thealternative.in/lifestyle/i-fought-for-my-lifeand-won-sohaila-abdulal/

12. Jeganathan pradeep, partha chatterjee(Ed). “community, Gender and violence subaltern studies XI”. Permanent Black and Ravi Dayal Publishers, New Delhi, 2000

13. K. Kapadia. The violence of development; the politics of identity, gender and social inequalities in India. London; Zed books, 2002.

14. S. Benhabib. Situating the self: Gender, community, and postmodernism in contemporary ethics, London; Routiedge, 1992

15.Virginia Woolf. A Room of one’s own. Oxford; Black swan. 1992.

16. T. Banuri and M. Mahmood, just development; beyond Adjustment with a Human Face, Karachi; Oxford university press, 1997

JAWAHARLAL NEHRU TECHNOLOGY UNIVERSITY HYDERBAD

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 LPF, 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.

REFERANCE BOOKS:

1. Operational Amplifiers and Linear Integrated Circuits , R.F. Coughlin and Fredrick F. Driscoll, PHI.

2. Operational Amplifiers and Linear Integrated Circuits: Theory and Applications , Denton J. Daibey, TMH.

3. Design with Operational Amplifiers and Analog Integrated Circuits - Sergio Franco, McGraw Hill.

4. Digital Fundamentals-Floyd and Jain, Person Education.

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JAWAHARLAL NEHRU TECHNOLOGY UNIVERSITY HYDERBAD

III Year B.Tech.EEE-I sem	**L**	**T/P/D**	**C**
	4	**-/-/-**	**4**

(A50014)MANAGEMENT SCIENCES

Objective:

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 organizational structure, production operations, marketing, Human resource Management and strategy.

UNIT-I:

Introduction to Management and organisation: Concepts of Management and organization-Nature and importance and Functions of Management, System 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 organization 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, 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,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 & Keller Kevin Lane: Marketing Mangement, Pearson,2012.

2. Koontz & Weihrich: Essentials of Management, McGraw hill,2012.

3. Thomas N.Duening and John M.lvancevich 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.Lawerence R Jauch,R. Gupta and William F.Glueck: Business policy and Strategic Management, Frank Bros.2012.

9. Aryasri: Management Science, McGraw Hill,2012.

Outcome:

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

- Plan an organizational structure for a given context in the organization.
- carry out production operations through Work study.

- understand the markets,custmores 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 organization.

JAWAHARLAL NEHRU TECHNOLOGY UNIVERSITY HYDERBAD

III Year B.Tech.EEE-I sem	**L**	**T/P/D**	**C**
	4	**-/-/-**	**4**

(A50221)POWER SYSTEMS-II

Objective:

This course is an extension of Power system-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 and 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 and 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, Dhanapathi Rai & Co Pvt.Ltd.
2. A Text book 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 Chakrpabarti, Sunitha Halder,PHI,3/e,2010
8. Electrical power Transmission system engineering analysis and design by Turan Gonen,CRC press(Taylor & Franics 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.

JAWAHARLAL NEHRU TECHNOLOGY UNIVERSITY HYDERBAD

III Year B.Tech. EEE-I sem	**L**	**T/P/D**	**C**
	4	**-/-/-**	**4**

(A50211)CONTROL SYSTEMS

Objectives:

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 system-Open loop and closed loop control systems and their differences-Different examples of control systems- Classification of control systems, Feed-Back Charactestics, Effect 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: Stranded test signals- Time response of first order system-Characteristics 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 system.

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, Person

2. Control System, 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 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 function 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 system 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.

JAWAHARLAL NEHRU TECHNOLOGY UNIVERSITY HYDERBAD

III Year B.Tech.EEE-I sem	**L**	**T/P/D**	**C**
	4	**-/-/-**	**4**

(A50220)POWEWR ELECTRONICS

Objectives:

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 and 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, Mid-point 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 Freewheeling 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, Johan 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.

JAWAHARLAL NEHRU TECHNOLOGY UNIVERSITY HYDERBAD

III Year B.Tech.EEE-I sem	**L**	**T/P/D**	**C**
	4	-/-/-	**4**

(A50218)ELECTRICAL MACHINES-III

Objectives:

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 Xd and Xq (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 reactance.

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. Electric Machines-PS Bhimbra,Khanna Publishers.

2.Prinicpals of Electric Machines ,V.K.Mehta,Rohit Mehta,S.Chand Publising.

REFERENCE BOOKS:

1. Electromachanics - III (Synchronous and single phase machines), S.Kamakashiah, Right Publishers

2. Electric Machines – by I.J.Nagrath & D.P.Kothari, Tata Mc Graw - Hill Publishers

3. The Performance and Design of A.C.Machines – by M.G.Say,BPB publishers.

4.theory of alternating current machinery ,langsdorf,Tata Mcgrawal companies.

5. Electric Machinery A.E Ftizerald,C.Kinglesy and S.Umans,Mcgraw 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 Pravite limited.

9. Electric 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 charcteristics of single-phase motors and special machines, with which he/she can able to apply the above conceptual things to real-world electrical and problems and applications.

JAWAHARLAL NEHRU TECHNOLOGY UNIVERSITY HYDERBAD

III Year B.Tech.EEE-I sem	**L**	**T/P/D**	**C**
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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. Scott connection of transformers
4. No-load & 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 Xd and Xq 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. Brake test on three phase Induction Motor
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.

JAWAHARLAL NEHRU TECHNOLOGY UNIVERSITY HYDERBAD

III Year B.Tech.EEE-I sem	**L**	**T/P/D**	**C**
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(A50086)ADVANCED COMMUNICATION SKILLS (ACS) LAB

Introduction

The introduction of the English Language 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 an integrated theory and lab course to enable students to use 'good' English and perform the following:

- Gather ideas and information, to organise ideas relevantly and coherently.
- Engage in debates.
- Participate in group discussions.
- Face interviews.
- Write project/research reports/technical reports.
- Make oral presentations.
- Write formal letters.
- Transfer information from non-verbal to verbal texts and vice versa.
- To take part in social and professional communication.

Objectives:

This Lab focuses on using computer-aided multimedia 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 Adavanced 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 antonym, 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 form context, scaning, skimming, inferring meaning, critical reading & effective googling.

3. **Activities on Writing skills-** structure and presentation of different types of writing/Resume writing/e-correspondence/Technical report writing/portfolio writing-planning for writing-improving one's writing.

4. **Activities 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 discussions and Interview Skills**-Dynamics of group discussion,intervation,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 teleconference & 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-80GB,RAM-512MB 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**
- **Team Building,**
- **Decision making**

Books Recommended:

1.Techinical 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 Prespective, Stev Duck & David T. Mc Mahan. 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 Buckely 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 TOFEL/ GRE/ GMAT/ CAT/ IELTS by Barron's/ DELTA/ Cambridge University Press.

15.International English for Call Contres 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 English Language 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 a 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 with the help of another member of the staff of the same department of the same institution.

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.