VELTECH MULTI TECH

Dr RANGARAJAN Dr. SAKUNTHALA ENGINEERING COLLEGE

(Owned by Vel Trust 1997)

(An ISO 9001: 2008 Certified Institution)

Accredited By NAAC with 'A' Grade and NBA Accredited Institution

(Approved by AICTE New Delhi and Govt. of Tamil Nadu, Affiliated to Anna University Chennai)

SYLLABUS

WEEKLY SCHEDULE

V SEMESTER 2017-18

DEPARTMENT OF EEE

IV YEAR DEGREE COURSE

#42, Avadi – Vel Tech Road,
Avadi
Chennai – 600062
Telefax – 044-26841061
E-mail: emailto@veltechmultitech.org
Website :www.veltechmultitech.org

VISION OF THE INSTITUTE

Elevating well being of humanity by augmenting human resource potential through quality technical education and training.

MISSION OF THE INSTITUTE

- To effectuate supremacy in technical education through articulation of research and industry practices for social relevance.
- To inculcate the habit of lifelong learning.
- To exhibit professional ethics, commitment and leadership qualities

VISION OF THE DEPARTMENT

To emerge as a centre of academic excellence in Electrical and Electronics Engineering and related fields through knowledge acquisition and propagation meeting global practices

MISSION OF THE DEPARTMENT

• To nurture the talent and to facilitate the students with research ambience in Electrical and Electronics Engineering

•To propagate lifelong learning

• To impart the right proportion of knowledge, attitudes and ethics in students, to enable them take up positions of responsibility in the society and make significant contributions

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

- To prepare graduates to have successful and flourishing career in the electrical and electronics industry.
- To make students able to excel in their career with ethical values and managerial skills to solve real life technical problems.
- To make students capable of solving problems in electrical and electronics engineering which are found in utilities and industries
- To help students to engage in quest for self-learning and life-long learning.

PROGRAM OUTCOMES OF EEE

PO1: Engineering knowledge: Enables to apply the knowledge of differential equations, integrals, matrix theory, Laplace, Fourier and z-transformation for engineering problems.

PO2: Problem analysis: Enables to define Basic science, Circuit theory, Electromagnetic Field theory, Control theory and to apply them to analyze complex engineering problems.

PO3: Design/development of solutions: Enables to configure and apply solutions to transmission and distribution networks, electrical apparatus and to handle the engineering aspects of Electrical Energy Generation and Utilization.

PO4: Use research-based knowledge: Enable to analysis, synthesis and interpretate the data to provide valid conclusions.

PO5: Modern tool usage: Enables to design, implement and evaluate computer-based system/tools to meet the desired needs.

PO6: The engineer and society: Enables to apply the knowledge gained to assess societal, health, legal and cultural issues, and consequent responsibilities relevant to the professional engineering practice.

PO7: Environment and sustainability: Enables to understand the impact of the Electrical engineering solutions in societal and environmental contexts and demonstrates the knowledge of and need for sustainable development.

PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9: Individual and team work: Enables to function effectively on teams to full-fill the goals.

PO10: Communication: Enables to express the dynamic solutions to fit-into the engineer community.

PO11: Project management and finance: Demonstrate knowledge and understanding of engineering and management principles, and apply these to one's own work, as a member or a leader in a team.

PO12: Life-long learning: Enables to recognize the need for, and have the preparation to engage in continuing professional development.

WEEK DETAILS

SL.NO.	WEEK	FROM	TO
1	**WEEK1**	**24.06.2017**	**--**
2	**WEEK2**	**26.06.2017**	**01.07.2017**
3	**WEEK3**	**03.07.2017**	**08.07.2017**
4	**WEEK4**	**10.07.2017**	**15.07.2017**
5	**WEEK5**	**17.07.2017**	**22.07.2017**
6	**WEEK6**	**24.07.2017**	**29.07.2017**
7	**WEEK7**	**31.07.2017**	**05.08.2017**
8	**WEEK8**	**07.08.2017**	**12.08.2017**
9	**WEEK9**	**14.08.2017**	**19.08.2017**
10	**WEEK10**	**21.08.2017**	**26.08.2017**
11	**WEEK11**	**28.08.2017**	**02.09.2017**
12	**WEEK12**	**04.09.2017**	**09.09.2017**
13	**WEEK13**	**11.09.2017**	**16.09.2017**
14	**WEEK14**	**18.09.2017**	**23.09.2017**
15	**WEEK15**	**25.09.2017**	**30.09.2017**
16	**WEEK16**	**02.10.2017**	**07.10.2017**
17	**WEEK17**	**09.10.2017**	**13.10.2017**

SUBJECT CONTENTS

SL.NO	SUBJECT CODE	SUBJECT NAME
THEORY		
1	EE6501	Power System Analysis
2	EE6502	Microprocessors and Microcontrollers
3	ME6701	Power Plant Engineering
4	EE6503	Power Electronics
5	EE6504	Electrical Machines - II
6	IC6501	Control Systems
PRACTICAL		
7	EE6511	Control and Instrumentation Laboratory
8	GE6563	Communication Skills - Laboratory Based
9	EE6512	Electrical Machines Laboratory - II

TEST / EXAM SCHEDULE

SL.NO	SUBJECT CODE	SUBJECT NAME	UNIT TEST I	UNIT TEST II	PRE MODEL EXAM	UNIT TEST IV
1	EE6501	Power System Analysis	10.07.2017 FN	27.07.2017 FN	16.08.2017	07.09.2017
2	EE6502	Microprocessors and Microcontrollers	10.07.2017 AN	27.07.2017 AN	17.08.2017	07.09.2017
3	ME6701	Power Plant Engineering	11.07.2017 FN	28.07.2017 FN	18.08.2017	08.09.2017
4	EE6503	Power Electronics	11.07.2017 AN	28.07.2017 AN	19.08.2017	08.09.2017
5	EE6504	Electrical Machines - II	12.07.2017 FN	29.07.2017 FN	21.08.2017	09.09.2017
6	IC6501	Control Systems	12.07.2017 AN	29.07.2017 AN	22.08.2017	09.09.2017

SL.NO	SUBJECT CODE	SUBJECT NAME	MODEL EXAM
1	EE6501	Power System Analysis	28.09.2017
2	EE6502	Microprocessors and Microcontrollers	04.10.2017
3	ME6701	Power Plant Engineering	06.10.2017
4	EE6503	Power Electronics	09.10.2017
5	EE6504	Electrical Machines - II	11.10.2017
6	IC6501	Control Systems	13.10.2017

SL.NO	SUBJECT CODE	SUBJECT NAME	MODEL LAB
1	EE6511	Control and Instrumentation Laboratory	25.09.2017 FN
2	GE6563	Communication Skills - Laboratory Based	25.09.2017 AN
3	EE6512	Electrical Machines Laboratory - II	26.09.2017 FN

EE6501 POWER SYSTEM ANALYSIS

WEEK 1:

UNIT - I INTRODUCTION

WEEK 2:

Need for system planning and operational studies – basic components of a power system. Introduction to restructuring Single line diagram – per phase and per unit analysis.

WEEK 3:

Generator - transformer transmission line and load representation for different power system studies. Primitive network - construction of Y-bus using inspection and singular transformation methods – z-bus

WEEK 4: UNIT TEST-I

UNIT - II POWER FLOW ANALYSIS

Importance of power flow analysis in planning and operation of power systems - statement of power flow problem

WEEK 5:

Classification of buses - development of power flow model in complex variables form -iterative solution using Gauss-Seidel method

WEEK 6:

Q-limit check for voltage controlled buses – power flow model in polar form - iterative solution using Newton-Raphson method.

UNIT TEST-II

WEEK 7:

UNIT - III FAULT ANALYSIS – BALANCED FAULTS

Importance of short circuit analysis - assumptions in fault analysis - analysis using Thevenin's theorem

WEEK 8:

Z-bus building algorithm - fault analysis using Z-bus, Computations of short circuit capacity, post fault voltage and currents

WEEK 9: PRE MODEL EXAM

WEEK 10: PRE MODEL EXAM

UNIT - IV FAULT ANALYSIS – UNBALANCED FAULTS

Introduction to symmetrical components – sequence impedances – sequence circuits of synchronous machine, transformer and transmission lines

WEEK 11:
Sequence networks analysis of single line to ground, line to line and double line to ground faults using Thevenin's theorem and
WEEK 12: Z-bus matrix. **UNIT TEST-IV**
WEEK 13:
UNIT - V STABILITY ANALYSIS
Importance of stability analysis in power system planning and operation - classification of power system stability, Angle and voltage stability – Single Machine Infinite Bus (SMIB) system:
WEEK 14:
Development of swing equation - equal area criterion - Determination of critical clearing angle and time, Solution of swing equation by modified Euler method and Runge-Kutta fourth order method
WEEK 15: MODEL LAB, MODEL EXAM
WEEK 16: MODEL EXAM
WEEK 17: MODEL EXAM

TEXT BOOK:

1. Nagrath I.J. and Kothari D.P., 'Modern Power System Analysis', Tata McGraw-Hill, Fourth Edition, 2011.
2. John J. Grainger and W.D. Stevenson Jr., 'Power System Analysis', Tata McGraw-Hill, Sixth reprint, 2010.
3. P. Venkatesh, B.V. Manikandan, S. Charles Raja, A. Srinivasan, ' Electrical Power Systems-
4. Analysis, Security and Deregulation', PHI Learning Private Limited, New Delhi, 2012.

REFERENCES:

1. Hadi Saadat, 'Power System Analysis', Tata McGraw Hill Education Pvt. Ltd., New Delhi, 21st reprint, 2010.
2. Kundur P., 'Power System Stability and Control, Tata McGraw Hill Education Pvt. Ltd., New Delhi, 10th reprint, 2010.
3. Pai M A, 'Computer Techniques in Power System Analysis', Tata Mc Graw-Hill Publishing Company Ltd., New Delhi, Second Edition, 2007.

5. J. Duncan Glover, Mulukutla S. Sarma, Thomas J. Overbye, ' Power System Analysis & Design', Cengage Learning, Fifth Edition, 2012.
6. Olle. I. Elgerd, 'Electric Energy Systems Theory – An Introduction', Tata McGraw Hill Publishing Company Limited, New Delhi, Second Edition, 2012.
7. C.A.Gross, "Power System Analysis," Wiley India, 2011.

EE6502 MICROPROCESSORS AND MICROCONTROLLERS

WEEK 1:

UNIT - I 8085 PROCESSOR INTRODUCTION

WEEK 2:

Hardware Architecture, pinouts – Functional Building Blocks of Processor, Memory organization –I/O ports and data transfer concepts

WEEK 3:

Timing Diagram – Interrupts

WEEK 4: UNIT TEST-I

UNIT - II PROGRAMMING OF 8085 PROCESSOR

Instruction -format and addressing modes – Assembly language format – Data transfer, data manipulation& control instructions

WEEK 5:

Programming: Loop structure with counting & indexing

WEEK 6: Look up table - Subroutine instructions – stack,

UNIT TEST-II

WEEK 7: UNIT - III 8051 MICRO CONTROLLER

Hardware Architecture, pintouts – Functional Building Blocks of Processor – Memory organization

WEEK 8:

I/O ports and data transfer concepts– Timing Diagram, Interrupts- Comparison to Programming concepts with 8085

WEEK 9: PRE MODEL EXAM

WEEK 10: PRE MODEL EXAM

UNIT - IV PERIPHERAL INTERFACING

Study on need, Architecture, configuration and interfacing, with ICs: 8255, 8259, 8254, 8237, and 8251

WEEK 11:

8279,

WEEK 12: A/D and D/A converters &Interfacing with 8085& 8051

UNIT TEST-IV

WEEK 13:

UNIT - V MICRO CONTROLLER PROGRAMMING & APPLICATIONS

Data Transfer, Manipulation, Control Algorithms& I/O instructions**,** Simple programming exercises key board and display interface

WEEK 14:

Closed loop control of servo motor, Stepper motor control –Washing Machine Control

WEEK 15: MODEL LAB, MODEL EXAM

WEEK 16: MODEL EXAM

WEEK 17: MODEL EXAM

TEXT BOOK:

1. Krishna Kant, "Microprocessor and Microcontrollers", Eastern Company Edition, Prentice Hall of India, New Delhi , 2007.
2. R.S. Gaonkar, 'Microprocessor Architecture Programming and Application', with 8085, Wiley Eastern Ltd., New Delhi, 2013.
3. Soumitra Kumar Mandal, Microprocessor & Microcontroller Architecture, Programming & Interfacing using 8085,8086,8051,McGraw Hill Edu,2013.

REFERENCES:

1. Muhammad Ali Mazidi & Janice Gilli Mazidi, R.D.Kinely 'The 8051 Micro Controller and Embedded Systems', PHI Pearson Education, 5th Indian reprint, 2003.
2. N.Senthil Kumar, M.Saravanan, S.Jeevananthan, 'Microprocessors and Microcontrollers', Oxford,2013.
3. Valder – Perez, "Microcontroller – Fundamentals and Applications with Pic," Yeesdee Publishers, Tayler & Francis, 2013.

ME6701 POWER PLANT ENGINEERING

WEEK I:

UNIT - I COAL BASED THERMAL POWER PLANTS INTRODUCTION

WEEK 2:
Rankine cycle - improvisations, Layout of modern coal power plant, Super Critical Boilers, FBC, Boilers, Turbines, Condensers, Steam & Heat rate, Subsystems of thermal power plants – Fuel and ash handling
WEEK 3:
Draught system, Feed water treatment Binary Cycles and Cogeneration systems
WEEK 4: UNIT TEST-I
UNIT - II DIESEL, GAS TURBINE AND COMBINED CYCLE POWER PLANTS
Otto, Diesel, Dual & Brayton Cycle - Analysis & Optimisation
WEEK 5:
Components of Diesel and Gas Turbine power plants Combined Cycle Power Plants,
WEEK 6: Integrated Gasifier based Combined Cycle systems. **UNIT TEST-II**
WEEK 7:
UNIT- III NUCLEAR POWER PLANTS
Basics of Nuclear Engineering, Layout and subsystems of Nuclear Power Plants, Working of Nuclear Reactors
Boiling Water Reactor (BWR), P*ressurized Water Reactor* (PWR), CANada Deuterium- Uranium reactor (CANDU)
WEEK 8:
Breeder, Gas Cooled and Liquid Metal Cooled Reactors. Safety measures for Nuclear Power plants
WEEK 9: PREMODEL EXAM
WEEK 10: PREMODEL EXAM
UNIT - IV POWER FROM RENEWABLE ENERGY
Hydro Electric Power Plants – Classification, Typical Layout and associated components including
Turbines Principle, Construction and working of Wind,
WEEK 11:
Tidal, *Solar* Photo Voltaic (SPV), Solar, Thermal,
WEEK 12: Geo Thermal, Biogas and Fuel Cell power systems. **UNIT TEST-IV**
WEEK 13:

UNIT - V ENERGY, ECONOMIC AND ENVIRONMENTAL ISSUES OF POWER PLANTS

Power tariff types, Load distribution parameters, load curve, Comparison of site selection criteria**,** Relative merits & demerits, Capital

WEEK 14:

Operating Cost of different power plants, Pollution control technologies including Waste Disposal Options for Coal and Nuclear Power Plants

WEEK 15: MODEL LAB, MODEL EXAM

WEEK 16: MODEL EXAM

WEEK 17: MODEL EXAM

TEXT BOOKS

1. P.K. Nag, Power Plant Engineering, Tata McGraw – Hill Publishing Company Ltd., Third Edition, 2008

REFERENCES

1. M.M. El-Wakil, Power Plant Technology, Tata McGraw – Hill Publishing Company Ltd., 2010.
2. Black & Veatch, Springer, Power Plant Engineering, 1996.
3. Thomas C. Elliott, Kao Chen and Robert C. Swanekamp, Standard Handbook of Power Plant Engineering, Second Edition, McGraw – Hill, 1998.
4. Godfrey Boyle, Renewable energy, Open University, Oxford University Press in association with the Open University, 2004.

EE6503 POWER ELECTRONICS

WEEK 1:

UNIT - I POWER SEMI-CONDUCTOR DEVICES INTRODUCTION

WEEK 2: Study of switching devices, Diode, SCR, TRIAC, GTO, BJT, MOSFET, IGBT-Static and Dynamic Characteristics

WEEK 3: Triggering and commutation circuit for SCR- Design of Driver and snubber circuit

WEEK 4: UNIT TEST-I

UNIT - II PHASE-CONTROLLED CONVERTERS

2-pulse,3-pulse and 6-pulseconverters– performance parameters

WEEK 5:
Effect of source inductance, Gate Circuit Schemes for Phase Control– Dual converters
WEEK 6: UNIT TEST-II
WEEK 7:
UNIT - III DC TO DC CONVERTER
Step-down and step-up chopper-control strategy–Forced commutated chopper–Voltage commutated, Current commutated
WEEK 8:
Load commutated, Switched mode regulators, Buck, boost, buck-boost converter, Introduction to Resonant Converters
WEEK 9: PRE MODEL EXAM
WEEK 10: PRE MODEL EXAM
UNIT IV INVERTERS
Single phase and three phase voltage source inverters (both 120° mode and 180° mode), Voltage& harmonic control
WEEK 11:
PWM techniques: Sinusoidal PWM, modified sinusoidal PWM, Multiple PWM
WEEK 12: Introduction to space vector modulation –Current source inverter. **UNIT TEST-IV**
WEEK 13:
UNIT V AC TO AC CONVERTERS
Single phase and Three phase AC voltage controllers–Control strategy- Power Factor Control
WEEK 14:
Multistage sequence control -single phase and three phase cyclo converters, Introduction to Matrix converters
WEEK 15: MODEL LAB, MODEL EXAM
WEEK 16: MODEL EXAM
WEEK 17: MODEL EXAM

TEXT BOOKS

1. M.H.Rashid, 'Power Electronics: Circuits, Devices and Applications', Pearson Education, PHI Third Edition, New Delhi, 2004.

2. P.S.Bimbra "Power Electronics" Khanna Publishers, third Edition, 2003.
3. L. Umanand, " Power Electronics Essentials and Applications", Wiley, 2010

REFERENCES

1. Joseph Vithayathil,' Power Electronics, Principles and Applications', McGraw Hill Series, 6th Reprint, 2013.
2. Ashfaq Ahmed Power Electronics for Technology Pearson Education, Indian reprint, 2003.
3. Philip T. Krein, "Elements of Power Electronics" Oxford University Press, 2004 Edition. Ned Mohan, Tore. M. Undel and, William. P. Robbins,' Power Electronics: Converters, Applications and Design', John Wiley and sons, third edition,2003.
4. Daniel.W.Hart, "Power Electronics", Indian Edition, Mc Graw Hill, 3rd Print, 2013.
5. M.D. Singh and K.B. Khanchandani, "Power Electronics," Mc Graw Hill India, 2013.

EE6504 ELECTRICAL MACHINES – II

WEEK 1:

UNIT - I SYNCHRONOUS GENERATOR INTRODUCTION

WEEK 2:

Constructional details – Types of rotors –winding factors- emf equation – Synchronous reactance**,** Armature reaction – Phasor diagrams of non salient pole synchronous generator connected to infinite bus

WEEK 3:

Synchronizing and parallel operation – Synchronizing torque -Change of excitation and mechanical input- Voltage regulation – EMF, MMF, ZPF and A.S.A methods – steady state power angle characteristics– Two reaction theory –slip test -short circuit transients - Capability Curves

WEEK 4: UNIT TEST-I

UNIT - II SYNCHRONOUS MOTOR

Principle of operation – Torque equation – Operation on infinite bus bars - V and Inverted V curves - Power input and power developed equations – Starting methods

WEEK 5:

Current loci for constant power input, constant excitation and constant power developed,

WEEK 6: hunting – natural frequency of oscillations –damper windings- synchronous condenser**. UNIT TEST-II**

WEEK 7:

UNIT- III THREE PHASE INDUCTION MOTOR

Constructional details – Types of rotors –- Principle of operation – Slip –cogging and crawling- Equivalent circuit - Torque-Slip characteristics - Condition for maximum torque – Losses and efficiency

WEEK 8:

Load test - No load and blocked rotor tests - Circle diagram – Separation of losses – Double cage induction motors –Induction generators – Synchronous induction motor.

WEEK 9: PRE MODEL EXAM

WEEK 10: PRE MODEL EXAM

UNIT IV STARTING AND SPEED CONTROL OF THREE PHASE INDUCTION MOTOR

Need for starting – Types of starters – DOL, Rotor resistance, Autotransformer and Star-delta starters– Speed control

WEEK 11:

Voltage control, Frequency control and pole changing – Cascaded connection-V/f control,

WEEK 12: Slip power recovery scheme-Braking of three phase induction motor: Plugging, dynamic braking and regenerative braking. **UNIT TEST-IV**

WEEK 13:

UNIT V SINGLE PHASE INDUCTION MOTORS AND SPECIAL MACHINES

Constructional details of single phase induction motor – Double field revolving theory and operation – Equivalent circuit, No load and blocked rotor test – Performance analysis – Starting methods of single-phase induction motors

WEEK 14:

Capacitor-start capacitor run Induction motor- Shaded pole induction motor - Linear induction motor – Repulsion motor, Hysteresis motor - AC series motor- Servo motors- Stepper motors - introduction to magnetic levitation systems

WEEK 15: MODEL LAB, MODEL EXAM

WEEK 16: MODEL EXAM

WEEK 17: MODEL EXAM

TEXT BOOKS

1. A.E. Fitzgerald, Charles Kingsley, Stephen. D.Umans, 'Electric Machinery', Tata
   Mc Graw Hill publishing Company Ltd, 2003.
2. D.P. Kothari and I.J. Nagrath, 'Electric Machines', Tata McGraw Hill Publishing
   Company Ltd, 2002.
3. P.S. Bhimbhra, 'Electrical Machinery', Khanna Publishers, 2003

REFERENCES

1. M.N.Bandyopadhyay, Electrical Machines Theory and Practice, PHI Learning PVT LTD., New Delhi, 2009.
2. Charless A. Gross, "Electric /Machines, "CRC Press, 2010.
3. K. Murugesh Kumar, 'Electric Machines', Vikas Publishing House Pvt. Ltd, 2002.
4. Syed A. Nasar, Electric Machines and Power Systems: Volume I, Mcgraw -Hill College; International ed Edition, January 1995.
5. Alexander S. Langsdorf, Theory of Alternating-Current Machinery, Tata McGraw Hill Publications, 2001.

IC6501 CONTROL SYSTEMS

WEEK 1:

UNIT - I SYSTEMS AND THEIR REPRESENTATION INTRODUCTION

WEEK 2: Basic elements in control systems – Open and closed loop systems, Electrical analogy of mechanical and thermal systems – Transfer function – Synchros

WEEK 3: AC and DC servomotors – Block diagram reduction techniques – Signal flow graphs

WEEK 4: UNIT TEST-I

UNIT - II TIME RESPONSE

Time response – Time domain specifications – Types of test input, I and II order system response –Error coefficients – Generalized error series

WEEK 5:

Steady state error – Root locus construction

WEEK 6: Effects of P, PI, PID modes of feedback control –Time response analysis. **UNIT TEST-II**

WEEK 7:

UNIT - III FREQUENCY RESPONSE

Frequency response – Bode plot – Polar plot – Determination of closed loop response from open loop response

WEEK 8:

Correlation between frequency domain and time domain specifications, Effect of Lag, lead and lag-lead compensation on frequency response- Analysis

WEEK 9: PREMODEL EXAM

WEEK 10: PREMODEL EXAM

UNIT IV STABILITY AND COMPENSATOR DESIGN

Characteristics equation – Routh Hurwitz criterion – Nyquist stability criterion- Performance criteria

WEEK 11: Lag, lead and lag-lead networks

WEEK 12: Lag/Lead compensator design using bode plots**. UNIT TEST-IV**

WEEK 13:

UNIT V STATE VARIABLE ANALYSIS

Concept of state variables – State models for linear and time invariant Systems

WEEK 14:

Solution of state and output equation in controllable canonical form, Concepts of controllability and observability –Effect of state feedback.

WEEK 15: MODEL LAB, MODEL EXAM

WEEK 16: MODEL EXAM

WEEK 17: MODEL EXAM

TEXT BOOKS

1. M. Gopal, 'Control Systems, Principles and Design', 4th Edition, Tata McGraw Hill, New Delhi, 2012
2. S.K.Bhattacharya, Control System Engineering, 3rd Edition, Pearson, 2013.
3. Dhanesh. N. Manik, Control System, Cengage Learning, 2012.

REFERENCES

1. Arthur, G.O.Mutambara, Design and Analysis of Control; Systems, CRC Press, 2009.
2. Richard C. Dorf and Robert H. Bishop, " Modern Control Systems", Pearson Prentice Hall, 2012.
3. Benjamin C. Kuo, Automatic Control systems, 7th Edition, PHI, 2010.
4. K. Ogata, 'Modern Control Engineering', 5th edition, PHI, 2012.
5. S.N.Sivanandam, S.N.Deepa, Control System Engineering using Mat Lab, 2nd Edition, Vikas Publishing, 2012.
6. S.Palani, Anoop. K.Jairath, Automatic Control Systems including Mat Lab, Vijay Nicole/ Mcgraw Hill Education, 2013.

EE6511 CONTROL AND INSTRUMENTATION LABORATORY

LIST OF EXPERIMENTS:

CONTROLSYSTEMS:

1. P, PI and PID controllers
2. Stability Analysis
3. Modeling of Systems – Machines, Sensors and Transducers
4. Design of Lag, Lead and Lag-Lead Compensators
5. Position Control Systems
6. Synchro-Transmitter- Receiver and Characteristics
7. Simulation of Control Systems by Mathematical development tools.

INSTRUMENTATION:

8. Bridge Networks –AC and DC Bridges
9. Dynamics of Sensors/Transducers a.
    a. Temperature
    b. Pressure
    c. Displacement
    d. Optical
    e. Strain f. Flow
10. Power and Energy Measurement
11. Signal Conditioning

a. Instrumentation Amplifier

b. Analog – Digital and Digital –Analog converters (ADC and DACs)

12. Process Simulation

GE6674 COMMUNICATION AND SOFT SKILLS - LABORATORY BASED

UNIT I LISTENING AND SPEAKING SKILLS

Conversational skills (formal and informal) – group discussion and interview skills – making presentations. Listening to lectures, discussions, talk shows, news programmes, dialogues from TV/radio/Ted talk/Podcast – watching videos on interesting events on Youtube

UNIT II READING AND WRITING SKILLS

Reading different genres of tests ranging from newspapers to philosophical treatises – reading strategies such as graphic organizers, summarizing and interpretation Writing job applications – cover letter – resume – emails – letters – memos – reports – blogs – writing for publications.

UNIT III ENGLISH FOR NATIONAL AND INTERNATIONAL EXAMINATIONS AND PLACEMENTS

International English Language Testing System (IELTS) – Test of English as a Foreign Language (TOEFL) – Graduate Record Examination (GRE) – Civil Service (Language related) – Verbal ability.

UNIT IV SOFT SKILLS (1)

Motivation – self image – goal setting – managing changes – time management – stress management – leadership traits – team work – career and life planning.

UNIT V SOFT SKILLS (2)

Multiple intelligences – emotional intelligence – spiritual quotient (ethics) – intercultural communication – creative and critical thinking – learning styles and strategies

EE6512 ELECTRICAL MACHINES LABORATORY - II

LIST OF EXPERIMENTS:

1. Regulation of three phase alternator by EMF and MMF methods.
2. Regulation of three phase alternator by ZPF and ASA methods.
3. Regulation of three phase salient pole alternator by slip test.
4. Measurements of negative sequence and zero sequence impedance of alternators.
5. V and Inverted V curves of Three Phase Synchronous Motor.
6. Load test on three-phase induction motor.
7. No load and blocked rotor test on three-phase induction motor. (Determination of equivalent circuit parameters).
8. Separation of No-load losses of three-phase induction motor.
9. Load test on single-phase induction motor.
10. No load and blocked rotor test on single-phase induction motor.
11. Study of Induction motor Starters.

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