VASAVI COLLEGE OF ENGINEERING
(AUTONOMOUS)
Ibrahimbagh, Hyderabad-31
Approved by A.I.C.T.E., New Delhi and
Affiliated to Osmania University, Hyderabad-07

Sponsoredby
VASAVI ACADEMY OF EDUCATION
Hyderabad

SCHEME OF INSTRUCTION AND SYLLABI UNDER CBCS FOR B.E. (EEE) VII and VIII Semesters With effect from 2025-26 (For the batch admitted in 2022-23) (R-22)

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING
Phones: +91-40-23146030, 23146031
Fax: +91-40-23146090

INSTITUTE VISION

Striving for a symbiosis of technological excellence and human values.

INSTITUTE MISSION

To arm young brains with competitive technology and nurture holistic development of the individuals for a better tomorrow.

DEPARTMENT VISION

Empowering Future Engineers in Electrical & Electronics Engineering with Technological Excellence and Human Values.

DEPARTMENT MISSION

To Arm Aspiring Engineers with Cutting-Edge Technology and Cultivate Holistic Development, Fostering a Synergy of Knowledge and Values for a Brighter Future.

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

PEO 1: Graduates will acquire technical competence to analyze, design and solve engineering problems in the field of Electrical and Electronics engineering and use modern engineering tools, techniques and software.

PEO 2: Graduates will be able to acquire necessary skills and obtain employment and will be productive in the professional practice of Electrical and Electronics Engineering and related fields.

PEO 3: Graduates will be sensitive to professional and social contexts, committed to ethical action and engaged in lifelong learning skills.

PROGRAM SPECIFIC OUTCOMES (PSOs)

- EEE students will be able to design, analyze Power Systems & Electrical Machines to solve complex engineering problems.
- EEE students will be able to design and analyze Electrical and Power Electronic Circuits.
- EEE students will be able to use and apply modern software tools and techniques related to Electrical Engineering.

B.E. (EEE) PROGRAM OUTCOMES (PO's)	
PO1	**Engineering Knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO2	**Problem Analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO3	**Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO4	**Conduct investigations of complex problems:** Use research based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO5	**Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
PO6	**The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
PO7	**Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate 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:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
P1O	**Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
P11	**Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
P12	**Lifelong learning:** Recognize the need for, and have the preparation and ability to engage in independent and lifelong learning in the broadest context of technological change.

With effect from the Academic Year 2025-26

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS):: IBRAHIMBAGH, HYDERABAD – 500 031.

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

SCHEME OF INSTRUCTION AND EXAMINATION (R-22):: B.E. - EEE : SEVENTH SEMESTER(2025-26)

B.E (EEE) VII Semester								
Course Code	**Name of the Course**	**Scheme of Instruction**			**Scheme of Examination**			
		Hours per Week			**Duration in Hrs**	**Maximum Marks**		**Credits**
		L	**T**	**P/D**		**SEE**	**CIE**	
THEORY								
U22PC710EE	Switchgear and Protection	3	-	-	3	60	40	3
U22PC720EE	Power System Operation and Control	3	1	-	3	60	40	4
U22PC730EE	Digital Signal Processing	3	-	-	3	60	40	3
U22PE7XXEE	Professional Elective –I	3	-	-	3	60	40	3
U22PE7XXEE	Professional Elective –II	3	-	-	3	60	40	3
PRACTICALS								
U22PC711EE	Power Systems Lab	-	-	2	3	50	30	1
U22PC731EE	Digital Signal Processing Lab	-	-	2	3	50	30	1
U22PE7X1EE	Professional Elective -I Lab	-	-	2	3	50	30	1
U22PE7X1EE	Professional Elective-II Lab	-	-	2	3	50	30	1
U22PW719EE	Project Seminar	-	-	2	-	-	30	1
	Total	**15**	**01**	**10**		**500**	**350**	**21**
	Grand Total	**26**				**850**		**21**

Professional Elective – I:

1. U22PE710EE - Electrical Drives and Static Control
2. U22PE720EE - Electrical Measurements & Instrumentation

Professional Elective – II:

1. U22PE730EE - Modelling, Design & Simulation of EV
2. U22PE740EE - Programmable Logic Controllers

With effect from the Academic Year 2025-26

VASAVI COLLEGE OF ENGINEERING (Autonomous)

IBRAHIMBAGH, HYDERABAD – 500 031

Department of Electrical & Electronics Engineering

Switchgear and Protection

SYLLABUS FOR B.E. VII - SEMESTER

L:T:P (Hours/week):3:0:0	SEE Marks:60	Course Code: **U22PC710EE**
Credits : 3	CIE Marks:40	Duration of SEE: 3 Hours

COURSE OBJECTIVES	**COURSE OUTCOMES** On completion of the course, students will be able to
1. To analyze principles of operation of the different types of electromagnetic relays. 2. To comprehend principles and operation of static, microprocessor and distance relays. 3. To comprehend the different principles of protective schemes in power system and power apparatus. 4. To comprehend the principles of operation of the different types of circuit breakers. 5. To be acquainted with different lightening arrestors for the protection of the various equipments of power system.	1. Calculate parameters of relay operations, analyze the principles of operation of various electromagnetic relays, derive the characteristics and apply for protection of transmission lines. 2. Analyze the characteristics of dual input comparators, static relays and microprocessor based relays and distance relays. 3. Apply the knowledge of different principles of relays for equipment protection like alternators, transformers, bus bars etc. 4. 4. 4.Comprehend, analyze the concepts ofcircuit interruption and perform calculations on restriking voltage, recovery voltage, RRRV etc. 5. Comprehend analyze and apply the knowledge of different types of lightening arrestors, surge absorbers and design of ground wire, insulation coordination for various over voltage applications.

UNIT-I: Introduction to protective relays: Need for protection – primary protection – backup protection – zones of protection – Definitions of relays pickup, Dropout and reset values, Classification of relays, operating principles and construction of Electromagnetic and induction relays, Over current. Directional features Universal relay torque equation. Over current protection for radial feeders and ring mains, Protection of parallel lines, Relay settings for over current relays, Earth fault and phase fault protection.

UNIT-II: Static phase and Amplitude comparators: Characteristics of dual input comparators. Distance protection – 3 steps distance relays, Characteristics of distance relays on RX Diagram – Static over current relay, Microprocessor based over current relaying (block diagram), need for numerical relays, advantages and functional block diagram of numerical relay.

UNIT-III: Transformer and generator protection: Differential relays – percentage differential relays – protection of generator and transformer using percentage differential relays – split phase, interturn protection, overheating, loss of excitation, protection of generators – Protection of transformers against magnetizing in rush – Buchholz relays – Protection of earthing transformers – Generator transformer unit protection, Bus Bar Protection.

UNIT- IV: Circuit breakers: Need for circuit breakers – arc properties – principles of arc quenching theories, Recovery and restriking voltages, derivations of RRRV – Maximum RRRV etc., Definitions in Circuit breakers, rated symmetrical and asymmetrical breaking current – rated making current – rated capacity, voltage and frequency of circuit breakers, Auto reclosure, Duty cycle, Current chopping – resistance switching – Circuit breaker ratings – types of circuit breakers –air, air blast, SF6 and vacuum circuit breakers, testing of circuit breakers.

UNIT – V Over voltage protection: Protection of transmission lines against direct lightening strokes – ground wires – protection angle – protection zones – height of ground wire – tower footing resistance and its effects – Equipment protection assuming rod gaps, arcing horns, different types of lightening arrestors – their construction – surge absorbers – Peterson coil – insulation co-ordination.

Learning Resources:

1. Badriram, Viswakarma, Power System Protection and Switchgear, TataMcGraw Hill, 2011.
2. C.L. Wadhwa, Electrical Power system, Wiley Eastern Ltd. 2nd Edition,2010.
3. Sunil S.Rao, Switchgear and Protection, Khanna Publications.
4. B. Ravindranath & M.Chander, Power Systems Protection & Switchgear,New Age International, Special Indian Edition.

The break-up of CIE: Internal Tests+ Assignments + Quizzes

1. No. of Internal Tests	:	2	Max. Marks for each Internal Test	:	30
2. No. of Assignments	:	3	Max. Marks for each Assignment	:	5
3. No. of Quizzes	:	3	Max. Marks for each Quiz Test	:	5

Duration of Internal Tests : 90 Minutes

With effect from the Academic Year 2025-26

VASAVI COLLEGE OF ENGINEERING

(Autonomous)

IBRAHIMBAGH, HYDERABAD – 500 031

Department of Electrical & Electronics Engineering

Power System Operation and Control

SYLLABUS FOR B.E. VII - SEMESTER

L:T:P (Hours /week):3:0:0	SEE Marks :60	Course Code:U22PC720EE
Credits : 3	CIE Marks: 40	Duration of SEE: 3 Hours

COURSE OBJECTIVES	**COURSE OUTCOMES** On completion of the course, students will be able to
1. Provide knowledge on obtaining solution for load dispatch problems. 2. Understand the importance of unit commitment problem 3. Understand the frequency stabilization in power system 4. Provide knowledge on steady state stability and transient stability on Power system. 5. Understand the importance of power factor and voltage control in Power Systems	1. Draw the fuel cost characteristics, input-output characteristics and heat rate characteristics of generating units and solve the load dispatch problem. 2. Solve unit commitment problems using various technique 3. Compute steady state error for changes in load demand and design controllers to minimize the error for single area and two area systems. 4. Determine the steady state and transient stability of power system. 5. Illustrate power factor correction techniques and voltage control methods in power system.

Unit-I : Economic Operation of Power System

Importance of interconnection of Power Systems.

Economic Operation: Input-output curves, Heat rates and incremental cost curves, Economic operation neglecting transmission losses, iterative method. Derivation of transmission loss coefficients, Economic operation including Transmission losses.

Unit-II: Unit Commitment

Constraints in unit commitment - thermal unit constraints, hydro constraints

and fuel constraints, Unit commitment solution methods - Priority list methods, Dynamic programming method and Lagrangian relaxation method.

Unit-III : Load Frequency Control

Governor Characteristics – concept of control area – modeling of single area control – Steady state and dynamic analysis of single area system with and without controller, Regulation of two generators in parallel. Development of model for two area system. Introduction to Automatic Voltage Regulator.

Unit-IV : Power System Stability

Steady State Stability: Definition, Steady state stability of a synchronous machine connected to infinite bus, calculation of steady state stability limit, Factors affecting the Steady state stability. Transient stability: Definition, Swing equation, Equal area criterion, Application of equal area criterion, factors effecting transient stability, Introduction to mathematical formulation of voltage stability problem.

Unit-V: Power factor control and voltage control

Power factor: Causes and disadvantages of low power factor, methods of power factor improvement - Static capacitors, Synchronous condensers and phase advancers. Advantages of power factor improvement.

Necessity of voltage control, methods of voltage control - excitation control, tap changing transformers and booster transformers. Reactive Power Control: Reactive power generation and absorption. Introduction to FACTS Controllers- TCSC, STATCOM, UPFC.

References

1. Allen J.Wood and Bruce F.Wollenberg, *Power Generation, Operation and Control*, 2nd edition, New York: John Wiley & Sons Inc, 1996.
2. Olle I. Elgerd, *Electrical Energy Systems Theory,* Tata McGraw Hill publishers.
3. Leon K. Kirchmayer, *Economic Operation of Power System,* Wiley India Pvt Ltd.
4. C.L.Wadhwa, *Electric Power Systems,* 3rd Edition, New age International (P),Ltd., 2002.
5. D.P.Kothari and I.J.Nagrath, *Modern Power Systems Analysis*, 3rd Edition, Tata McGraw Hill publishers, 2004
6. Haadi Sadat, *Power Systems Analysis*, Tata McGraw Hill publishers.
7. Abhijit Chakravarthy, Sunitha Halder, *Power Systems Operation and Control,* PHI Publishers

8. John J. Grainger, William D. Stevenson,Jr, *Power Systems Analysis*, McGraw Hill publishers.
9. Internet sources (IEEE xplore, Science direct, webpages etc)

The break-up of CIE: Internal Tests+ Assignments + Quizzes

1. No. of Internal Tests	:	2	Max. Marks for each Internal Test	:	30
2. No. of Assignments	:	3	Max. Marks for each Assignment	:	5
3. No. of Quizzes	:	3	Max. Marks for each Quiz Test	:	5

Duration of Internal Tests : 90 Minutes

With effect from the Academic Year 2025-26

VASAVI COLLEGE OF ENGINEERING

(Autonomous)

IBRAHIMBAGH, HYDERABAD – 500 031

Department of Electrical & Electronics Engineering

Digital Signal Processing

SYLLABUS FOR B.E. VII - SEMESTER

L:T:P (Hours /week):3:0:0	SEE Marks :60	Course Code: **U22PC730EE**
Credits : 3	CIE Marks: 40	Duration of SEE: 3 Hours

COURSE OBJECTIVES	**COURSE OUTCOMES** On completion of the course, students will be able to
1. To impart the knowledge on digital processing of a signal. 2.To introduce the analysis techniques based on discrete Fourier transforms. 3.To explain the use of circular convolution. 4.To provide a glimpse of filter design. 5. To provide a glimpse on DSP processor features and its applications.	1. Compare analog and digital processing of a signal. 2. Convert and analyze, discrete signals and systems in time and frequency domains. 3. Perform circular convolution and compare it with linear convolution. 4. Design and suggest hardware implementation of digital filter for the given specifications. 5. Interface and control buck – boost converter.

UNIT-I

Introduction to Digital Signal Processing: Introduction to discrete signals & systems, scheme for the digital processing of a signal, advantages of digital signal processing, representation of discrete systems using linear constant co-efficient difference equations - zero input response and zero state response, applications of DSP.

UNIT-II

Discrete Fourier Transform: Discrete Fourier transform, Phase and amplitude spectra, Properties of discrete Fourier transform, linear convolution of sequences using DFT, circular convolution: overlap save method and overlap add method.

Fast Fourier transform: Radix- 2 decimation in time and decimation in frequency FFT algorithms, Inverse FFT.

UNIT-III

IIR filters: Types of filters, IIR filters – design of Butterworth & Chebyshev low pass and high pass filters, IIR filter design by impulse invariance and bilinear transformation. Realization of IIR filters using direct, canonic, cascade and parallel forms.

UNIT-IV

FIR Filters: Design and characteristics of FIR digital filters, Frequency response of linear phase filters, Window techniques – rectangular window, Hamming window, Bartlet and Kaiser window. Realization of linear – phase FIR filters.

UNIT-V

Introduction to digital signal controller: Basic features of TMSF28069 digital signal controller, Automatic code generation using MATLAB - Model-Based Design and Rapid Prototyping, Workflow for automatic code generation.

Real time control in Power Electronics Applications: Open loop control of a buck boost converter and DC motor.

Learning Resources:

1. "Digital Signal Processing, Principles, Algorithms and Applications", John G. Proakis, Dimitris, G.Manolakis, Pearson education, 4th Edition, 2014.
2. "Digital Signal Processing, A Computer – Based Approach", Sanjit K Mitra, 3rd Edition, McGraw Hill, 2011.
3. "Introduction to Microcontroller Programming for Power Electronics

Control Applications, Mattia Rossi, Nicola Toscani, Marco Mauri, Francesco Castelli Dezza · 2021

4. "Digital Signal Processing", Oppenheim AV, and Schafer R. W, Pearson education, 2015.

The break-up of CIE: Internal Tests+ Assignments + Quizzes

1. No. of Internal Tests	:	2	Max. Marks for each Internal Test	:	30
2. No. of Assignments	:	3	Max. Marks for each Assignment	:	5
3. No. of Quizzes	:	3	Max. Marks for each Quiz Test	:	5

Duration of Internal Test: 90 minutes

VASAVI COLLEGE OF ENGINEERING (Autonomous)
IBRAHIMBAGH, HYDERABAD – 500 031

Department of Electrical & Electronics EngineeringElectrical Drives and Static Control
(Professional Elective – I)

SYLLABUS FOR B.E. VII - SEMESTER

L:T:P (Hours /week):3:0:0	SEE Marks :60	Course Code : **U22PE710EE**
Credits : 3	CIE Marks: 40	Duration of SEE : 3 Hours

COURSE OBJECTIVES	**COURSE OUTCOMES** On completion of the course, students will be able to
To understand and analyze the Speed control of DC motor, Induction motor, stepper motor, Brush less DC motor& Switched Reluctance Motor by using various power electronic converters.	1. Describe the operation and control of electrical drives 2. Analyze the speed control of chopper Fed dc motor. 3. Analyze the speed control of phase controlled rectifier fed dc motor. 4. Choose an appropriate speed control for Induction motor drive to meet the requirements of application in Industry. 5. Select an appropriate speed control for stepper motor, BLDC motor and SRM drive to meet the requirements of application in Industry.

UNIT-I: Electrical Drives:
Definition and block diagram of electrical drive; Parts of electrical drives; Classification of drives; modes of operation; Multi quadrant operation of drives with an example; closed loop control of drives; important factors for selection of electrical drives; advantages of electrical drives.

UNIT-II: Chopper fed DC drive:
Review of dc chopper and duty ratio control, chopper fed dc motor for speed control, steady state operation of a chopper fed drive, armature current waveform and ripple. Review of motoring and generating modes operation of a separately excited dc machine, four quadrant operation of dc machine; single-quadrant, two-quadrant and four-quadrant choppers;

steady-state operation of multi-quadrant chopper fed dc drive, regenerative braking.

UNIT-III: Controlled rectifier fed DC drives:

Single phase fully controlled rectifier control of dc separately excited motor; single phase half controlled rectifier control of dc separately excited motor; three phase fully controlled rectifier control of dc separately excited motor; dual converter control of dc separately excited dc motor.

Closed-loop control of DC Drive:

Control structure of DC drive, inner current loop and outer speed loop, dynamic model of dc motor – dynamic equations and transfer functions.

UNIT-IV: Induction motor Drives:

Speed control of 3-phase induction motor with A.C voltage regulators, Voltage source inverters, Current source inverter and Cyclo-converters; v/f control ac drive; Static rotor resistance control; slip power recovery schemes: Static Krammer drive and Scherbius drive.

UNIT-V: Brushless dc (BLDC) MOTOR DRIVES: Construction and operation of BLDC motor; BLDC motor drive for servo applications; features and applications.

Stepper motors: Construction and classification of stepper motor; operation of variable reluctance stepper motor with suitable configuration; Calculation of step angle; operation of Permanent magnet stepper motor; features and applications.

Switched reluctance motor: Construction and operation of switched reluctance motor; converter circuits; Features and applications.

Learning Resources:

1. Gopal K. Dubey, Fundamentals of Electrical Drives, Narosa Public House, Delhi, 2007.
2. Bimal.K.Bose, Modern Power Electronics and AC Drives, Pearson Education Asia, 2002.
3. S.K.Pillai, A First Course in Electrical Drives, New Age International, 2000.
4. V.Subramaniam, Thyristor control of electrical drives, TMH edition

2010

5. M.H. Rashid, Power Electronics circuits drives and applications, Pearson education, India 2018

The break-up of CIE: Internal Tests+ Assignments + Quizzes

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1.	No. of Internal Tests	:	2	Max. Marks for each Internal Test	:	30
2.	No. of Assignments	:	3	Max. Marks for each Assignment	:	5
3.	No. of Quizzes	:	3	Max. Marks for each Quiz Test	:	5

Duration of Internal Tests : 90 Minutes

VASAVI COLLEGE OF ENGINEERING (Autonomous)
IBRAHIMBAGH, HYDERABAD – 500 031

Department of Electrical & Electronics Engineering

Electrical Measurements and Instrumentation
(Professional Elective – I)

SYLLABUS FOR B.E. VII - SEMESTER

L:T:P (Hours /week):3:0:0	SEE Marks :60	Course Code : **U22PE720EE**
Credits : 3	CIE Marks: 40	Duration of SEE : 3 Hours

COURSE OBJECTIVES	**COURSE OUTCOMES** On completion of the course, students will be able to
Enable the student to have a fair knowledge about the fundamentals of construction & working principles of Analogue Ammeters, Voltmeters, Watt meters, Energy meters, power factor meters and frequency meters. Learn the measurements of circuit elements R, L & C using bridges, construction & working principle and applications of DC & AC potentiometers, CTs & PTs. Learn the fundamentals of Transducers & Strain Gauges.	1. Identify and choose the proper type and range of meter to measure current / voltage / Power. 2. Use the suitable digital instrument for measurement. 3. Calculate the R, L & C values using the appropriate bridges. 4. Calibrate ammeter/ voltmeter/ wattmeter using the Potentiometer. 5. Identify and choose the proper type of Transducer or strain gauge for measurement of Non electrical quantities.

UNIT -I: Principles of Measurement and Instruments:
Basic characteristics of measuring instruments - accuracy, precision, resolution, and Sensitivity. types of measurement error – Gross errors, systematic errors and Random errors.
Instruments: Classification of instruments – Indicating, Recording, and Integrating. Secondary instruments principles of Operation. Indicating instruments operating forces – Deflecting force, Controlling force and Damping force.

Ammeters and Voltmeters: Permanent Magnet Moving Coil (PMMC) instrument, torque equation, advantages & dis-advantages, errors in PMMC, Extension of range – Ammeter shunts and voltmeter multipliers, Moving-Iron instrument (MI) – Attraction type, Repulsion type, torque equation, advantages & dis-advantages, errors in MI. Dynamometer type instrument - torque equation, advantages & dis-advantages.

UNIT -II: Digital Instruments:

Advantages of digital instruments, Digital Voltmeters (DVM), types of DVms – Ramp type, Integrating type, and Potentiometric type. Use of Oscilloscope in frequency, phase and amplitude measurements (Lissajous Patterns), Smart/Static Energy meter - basic components and operation.

Analog Instruments: Dynamometer type Wattmeter, torque equation, Active & Reactive power measurement, Power factor meter and Frequency meter.

UNIT –III: Measurement of Resistance, Inductance and Capacitance using Bridges:

Wheatstone's bridge, Kelvin's Double Bridge, Loss of charge method, Megger, Maxwell's Inductance bridge, Hay's bridge, Anderson's bridge, Desauty's bridge, Schering bridge, Wagner's Earthing device and Heaviside mutual Inductance bridge.

UNIT –IV: Potentiometers and Instrument Transformers:

Standard cell and standard resistance, Crompton's DC, AC polar and coordinate type Potentiometers. Applications – Measurement of resistance, Calibration of ammeter, voltmeter and wattmeter. Instrument transformers – C.T. & P.T's Ratio and phase angle errors.

UNIT -V: Measurement of Non – Electrical quantities:

Measurement of Linear displacement – Linear Potentiometer, Linear-motion variable inductor. Transducers: Proximity Inductive Transducers, LVDT.

Measurement of angular velocity – Inductive Tachometer, DC & AC Tachogenerators.

Strain Gauge: Basic construction of Bonded strain Gauge and Unbonded Strain Gauge.

Learning Resources:

1. A.K. Sawhney, A course in Electrical and Electronics Measurements and Instruments- Dhanpat RAi and Sons, Delhi, 2005
2. Umesh Sinha, Electrical and Electronics Measurements and Instruments, Satya Prakashan
3. F.W.Golding and Widdis, Electrical and Electronics Measurements and Instruments 5th Edition-2010

The break-up of CIE: Internal Tests+ Assignments + Quizzes

1.	No. of Internal Tests	:	2	Max. Marks for each Internal Test	:	30
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3.	No. of Quizzes	:	3	Max. Marks for each Quiz Test	:	5

Duration of Internal Tests : 90 Minutes

VASAVI COLLEGE OF ENGINEERING (Autonomous)
IBRAHIMBAGH, HYDERABAD – 500 031

Department of Electrical & Electronics Engineering
MODELLING, DESIGN & SIMULATION OF ELECTRIC VEHICLE
(Professional Elective – II)

SYLLABUS FOR B.E. VII - SEMESTER

L:T:P (Hours /week):3:0:0	SEE Marks :60	Course Code : **U22PE730EE**
Credits : 3	CIE Marks: 40	Duration of SEE : 3 Hours

COURSE OBJECTIVES	**COURSE OUTCOMES** On completion of the course, students will be able to
have fair knowledge about the basic measurement concept,	1. Analyses the impact of Air pollution and Global warming. 2. Calculate the Vehicle Tractive effort and performance. 3. Identify and choose the proper type of power train and transmission for given application. 4. Analyses the different electric drives control strategies. 5. Calculate the BLDC motor parameters for EV application.

Unit – I

Environmental Impact and History of Modern Transportation: Air Pollution, Nitrogen Oxides, Carbon Monoxide, Unburned Hydrocarbons and Other Pollutants. Global Warming, Petroleum Resources, Importance of Different Transportation Development Strategies to Future Oil Supply, History of Electric Vehicles.

Unit – II

Vehicle Fundamentals: General Description of Vehicle Movement, Vehicle Resistance, Dynamic Equation, Tire–Ground Adhesion and Maximum Tractive

Effort, Power Train Tractive Effort and Vehicle Speed, Vehicle Power Plant and Transmission Characteristics, Vehicle Performance and Braking Performance.

Unit – III

Electric Vehicles: Configurations of Electric Vehicles, Performance of Electric Vehicles - Traction Motor Characteristics, Tractive Effort and Transmission Requirement, and Vehicle Performance. Tractive Effort in Normal Driving and Energy Consumption.

Unit – IV

Electric Propulsion Systems: DC Motor Drives - Principle of Operation and Performance, Combined Armature Voltage and Field Control, Chopper Control of DC Motors, Two-Quadrant and Four-Quadrant Control. Induction Motor Drives - Basic Operation Principles of Induction Motors, Steady-State Performance, Constant Volt/Hertz Control, Power Electronic Control, Field Orientation Control.

Unit – V

Permanent Magnetic Brush-Less DC Motor Drives: Basic Principles of BLDC Motor Drives, BLDC Machine Construction and Classification, Performance Analysis and Control of BLDC Machines, Extension of Speed Technology, Sensor less Techniques - Methods Using Back EMF Sensing, Unique Sensor less Techniques.

Text Book / References:

1.Mehrdad. Ehsani, Yimin Gao Stefano Longo Kambiz M. Ebrahimi "Modern Electric, Hybrid Electric,and FuelCell Vehicles, 3rd edition, CRC Press, 2018.
2.T. Denton, "Electric and Hybrid Vehicles", Routledge, 2016
3.S. Onori, L. Serrao and G. Rizzoni, " Electric Vehicles: Energy Management Strategies", Springer, 2015.

The break-up of CIE: Internal Tests+ Assignments + Quizzes

1. No. of Internal Tests	:	2	Max. Marks for each Internal Test	:	30
2. No. of Assignments	:	3	Max. Marks for each Assignment	:	5
3. No. of Quizzes	:	3	Max. Marks for each Quiz Test	:	5

Duration of Internal Tests : 90 Minutes

VASAVI COLLEGE OF ENGINEERING (Autonomous)
IBRAHIMBAGH, HYDERABAD – 500 031

Department of Electrical & Electronics Engineering
Programmable Logic Controllers
(Professional Elective – II)

SYLLABUS FOR B.E. VII - SEMESTER

L:T:P (Hours /week):3:0:0	SEE Marks :60	Course Code : **U22PE740EE**
Credits : 3	CIE Marks: 40	Duration of SEE : 3 Hours

COURSE OBJECTIVES	**COURSE OUTCOMES** On completion of the course, students will be able to
1. Design, Programme and build an operational control system complete with instrumentation, analog/ digital inputs and outputs and Programmable Logic controllers. 2. Practicalities of working with PLCs in an industrial environment and fault-finding in an automated environment.	1. Design a PLC system, component, or process to meet a set of specifications. 2. Describe and understand how analogue and digital instrumentation connect to a PLC. 3. Understand advanced programming techniques including functional block and statement list. 4. Program, edit and test PLC programs incorporating combinational and sequential logic function, timers, counters and data handling instructions. 5. Design, understand and solve industrial problems with automation solutions

UNIT-I:
PLC Basics PLC system, I/O modules and interfacing CPU processor programming equipment programming formats, construction of PLC ladder diagrams, devices connected to I/O modules.

UNIT-II:
PLC Programming input instructions, outputs, operational procedures, programming examples using contacts and coils. Drill-press operation. Digital logic gates programming in the Boolean algebra system,

conversion examples Ladder diagrams for process control Ladder diagrams and sequence listings, ladder diagram construction and flow chart for spray process system.

UNIT-III:

PLC Registers: Characteristics of Registers module addressing holding registers input registers, output registers. PLC Functions Timer functions and industrial applications counters counter function industrial applications, Arithmetic functions, Number comparison functions, number conversion functions.

UNIT-IV:

Data handling functions: SKIP, Master control Relay Jump Move FIFO, FAL, ONS, CLR and Sweep functions and their applications. Bit Pattern and changing a bit shift register, sequence functions and applications, controlling of two axes and three axis Robots with PLC, Matrix functions.

UNIT-V:

Analog PLC operation: Analog modules and systems Analog signal processing multi bit data processing, analog output application examples, PID principles position indicator with PID control, PID modules, PID tuning,PID functions.

Learning Resources:

1. Programmable Logic Controllers – Principle and Applications by John.W.Webb and Ronald A Reiss Fifth edition, PHI.
2. Programmable Logic Controllers – Programming Method and Applications by JR Hackworth and F.D Hackworth – Jr- Pearson, 2004.

The break-up of CIE: Internal Tests+ Assignments + Quizzes

1. No. of Internal Tests	:	2	Max. Marks for each Internal Test	:	30
2. No. of Assignments	:	3	Max. Marks for each Assignment	:	5
3. No. of Quizzes	:	3	Max. Marks for each Quiz Test	:	5

Duration of Internal Tests : 90 Minutes

With effect from the Academic Year 2025-26

VASAVI COLLEGE OF ENGINEERING (Autonomous)

IBRAHIMBAGH, HYDERABAD – 500 031

Department of Electrical & Electronics Engineering

Power Systems Lab

SYLLABUS FOR B.E. VII – SEMESTER

L:T:P (Hours/week):0:0:2	SEE Marks:50	Course Code : **U22PC711EE**
Credits : 1	CIE Marks:30	Duration of SEE : 3 Hours

COURSE OBJECTIVES	**COURSE OUTCOMES** On completion of the course, students will be able to
1. To allow students to practically verify several concepts and procedures learned in power systems and switchgear and protection 2. To promote teamwork among students and effective communication skills.	1. Student will be able to calculate parameters related to electric transmission line, alternators and transformers 2. Student will be able to understand the a relay operation and use them 3. Students will be able to understand insulators and their properties. 4. Communicate effectively and support constructively towards team work 5. Pursue lifelong learning for career and professional growth with ethical concern for society and environment.

List of Experiments

1. Characteristics of Artificial Transmission line
   (a) Regulation and (b) Efficiency
2. Determination of A, B, C, D constants of Long Transmission line.
3. Differential protection of single-phase transformer.

4. Determination of Positive, Negative and Zero Sequence reactances of 3-phase Alternator.
5. Determination of Positive, Negative and Zero-sequence reactances of 3- phase Transformers using sequence current excitation fault calculation.
6. Dielectric test on Transformer oil
7. Determination of String efficiency of simulated string of insulators
8. Fault studies on 3 phase Alternator.
9. Simulation of transmission line using software tool (ABCD constants, Efficiency and regulation of transmission line).
10. Simulation for determination of voltage distribution and String efficiency of string of insulators using software tool.
11. Y-bus formation by Inspection method using MATLAB
12. Differential protection of single-phase Transformer using LABVIEW.
13. Zonal protection of Long transmission line using LABVIEW.
14. Zonal Protection of Long transmission lines on transmission line simulator.
15. Earth fault protection on transmission line simulator.
16. Over voltage and under voltage protection on transmission line simulator.
17. Reactive power compensation of power system on transmission line simulator.

Virtual Lab Experiments

1. Ferranti effect
https://vp-dei.vlabs.ac.in/Dreamweaver/Sim9/web/index.html
2. Checking Breakdown Voltage of Different Electrodes
https://vp-dei.vlabs.ac.in/Dreamweaver/sim_5/web/Exp5.html
3. Simulation of over-current relay
https://vp-dei.vlabs.ac.in/Dreamweaver/sim7.html
4. Checking the Dielectric Strength of Transformer Oil
https://vp-dei.vlabs.ac.in/Dreamweaver/sim4.html

From the above experiments, each student should perform at least 10 (Ten) experiments.

No. of Internal Tests:	01	Max. Marks for Internal Test:	12
Marks for assessment of each experiment			18
Duration of Internal Test: **3 Hours**			

With effect from the Academic Year 2025-26

VASAVI COLLEGE OF ENGINEERING (Autonomous)
IBRAHIMBAGH, HYDERABAD – 500 031

Department of Electrical & Electronics Engineering
Digital Signal Processing Lab

SYLLABUS FOR B.E. VII - SEMESTER

L:T:P (Hours/week):0:0:2	SEE Marks:50	Course Code: **U22PC731EE**
Credits : 1	CIE Marks: 30	Duration of SEE : 3 Hours

COURSE OBJECTIVES	**COURSE OUTCOMES** On completion of the course, students will be able to
The laboratory is aimed to provide basics in software implementation of signal processing and programming to control electrical machines.	1. Demonstrate the use of software to perform convolution of signals and transform signals between different domains. 2. Design analog and digital filters. 3. Interface electrical machines with digital signal processor.

List of Experiments

1. Discrete waveform generation – square, triangular, ramp and trapezoidal.
2. Verification of linear and circular convolution .
3. Computation of DFT, IDFT using direct and FFT methods
4. Verification of sampling theorem.
5. Design of Butterworth and Chebyshev LP & HP filters.
6. Design of LPF using rectangular, Hamming and Kaiser Windows.
7. Programming digital I/O and driving LEDs
8. D.C Motor speed control using digital signal processor.
9. 3 - ϕ Induction motor speed control using digital signal processor.
10. Brushless D.C motor speed control using digital signal processor.
11. Demonstration of aliasing using LabVIEW
12. Digital FIR filter using LabVIEW

Virtual Lab Experiments

1. Study of Quantization of continuous-amplitude, discrete-time analog signals.
2. Study of convolution: series and parallel system.

From the above experiments, each student should perform at least 10 (Ten) experiments.

No. of Internal Tests:	01	Max. Marks for Internal Test:	12
Marks for assessment of each experiment			18
Duration of Internal Test: **3 Hours**			

With effect from the Academic Year 2025-26

VASAVI COLLEGE OF ENGINEERING (Autonomous)
IBRAHIMBAGH, HYDERABAD – 500 031

Department of Electrical & Electronics Engineering

ELECTRICAL DRIVES & STATIC CONTROL LAB

SYLLABUS FOR B.E. VII -SEMESTER

L:T:P (Hours/week):0:0:2	SEE Marks:50	Course Code: **U22PE711EE**
Credits : 1	CIE Marks: 30	Duration of SEE : 3 Hours

COURSE OBJECTIVES	**COURSE OUTCOMES** On completion of the course, students will be able to
1. To impart the knowledge on speed control of DC and AC motor drives. 2. Practice simulation studies for controlling DC and AC motors.	1. Control the speed of DC and AC motor drives with power electronic converters. 2. Simulate control techniques for speed control of DC and AC motor drives. 3. Evaluate the performance of three phase converters for drives.

List of Experiments

1. Simulation of Single phase fully controlled bridge rectifier with R-load and highly inductive load.
2. Simulation of three phase fully controlled bridge rectifier with R-load and highly inductive load.
3. 1 – Ø bridge rectifiers: Full converter and Semi-converter with R & R – L loads
4. 3 – Ø bridge rectifiers: Full converter and Semi-converter with R & R – L loads
5. Simulation of Buck and Boost Converters.
6. Buck converter
7. Buck-Boost Converter
8. Simulation of Single phase voltage source inverters

9. Simulation of three phase voltage source inverters.
10. Single phase inverter- R and RL load
11. Three phase inverter– R and RL load
12. Simulation of Single phase AC voltage controller
13. Simulation of single phase cyclo-converter
14. Single phase AC voltage controller
15. Single phase cyclo-converter

Virtual Lab Experiments

- Drive with a BLDC brushless DC motor

From the above experiments, each student should perform at least 10 (Ten)experiments.

No. of Internal Tests:	01	Max. Marks for Internal Test:	12
Marks for assessment of each experiment			18
Duration of Internal Test: **3 Hours**			

With effect from the Academic Year 2025-26

VASAVI COLLEGE OF ENGINEERING (Autonomous)
IBRAHIMBAGH, HYDERABAD – 500 031

Department of Electrical & Electronics Engineering
Electrical Measurements and Instrumentation Lab

SYLLABUS FOR B.E. VII -SEMESTER

L:T:P (Hours/week):0:0:2	SEE Marks:50	Course Code: **U22PE721EE**
Credits : 1	CIE Marks: 30	Duration of SEE : 3 Hours

COURSE OBJECTIVES The course will enable the students to:	**COURSE OUTCOMES** On completion of the course, students will be able to
Enable the student To learn the construction, working, calibration and applications of different types of Analog instruments – Ammeter, Voltmeters, Wattmeter, Energy meter, Potentiometers & Power factor meter and also have the fair knowledge of measurement of circuit elements R, L & C using bridges.	1. Identify and choose the proper type and range of meter to measure current, voltage, Power, Energy and Power factor. 2. Calibrate ammeter, voltmeter, Wattmeter and power factor meter using the Potentiometer. 3. Calculate the R, L & C values using the proper bridges. 4. Measure non-electrical quantity (displacement).

List of Experiments:

1. Measurement of low resistance by Kelvin's Double Bridge
2. Calibration of Single phase energy meter by Phantom Loading
3. Measurement of Inductance by Anderson's Bridge
4. Measurement of capacitance by DeSautry's bridge
5. Use of D.C Potentiometer for measurement of unknown voltage and impedance
6. Calibration of 3-phase Energy meter (Electromagnetic/static) by direct loading.
7. Calibration of Power Factor meter.
8. Measurements of 3 phase reactive power using single phase wattmeter.
9. Calibration of LPF meter by phantom loading.

10. Measurement of R,L,C & Q at 1KHz and 100 KHz frequency of supply by using LCR meter.
11. Characteristics of LVDT.
12. Experiment with the strain-gauge.

From the above experiments, each student should perform at least10 (Ten) experiments.

No. of Internal Tests:	01	Max. Marks for Internal Test:	12
Marks for assessment of each experiment			18
Duration of Internal Test: **3 Hours**			

With effect from the Academic Year 2025-26

VASAVI COLLEGE OF ENGINEERING (Autonomous)
IBRAHIMBAGH, HYDERABAD – 500 031

Department of Electrical & Electronics Engineering

Modelling, Design & Simulation of EV LAB

SYLLABUS FOR B.E. VII -SEMESTER

L:T:P (Hours/week):0:0:2	SEE Marks:50	Course Code: **U22PE731EE**
Credits : 1	CIE Marks: 30	Duration of SEE : 3 Hours

COURSE OBJECTIVES	**COURSE OUTCOMES** On completion of the course, students will be able to
have fair knowledge about the basic measurement concept,	1. Calculate the Vehicle Tractive effort and performance. 2. Identify and choose the proper type of power train and transmission for given application. 3. Analyses the different electric drives control strategies. 4. Calculate the BLDC motor parameters for EV application. 5.Calculate the Battery Size.

List of Experiments

1. Battery Modelling with Lithium – ion Cells.
2. Battery Sizing and Design for Electric Vehicles
3. Optimize EV Battery Performance using Simulation.
4. Electric Vehicle modelling using Simulink.
5. Electric Vehicle modelling using Powertrain Block set.
6. System Modelling & simulation of an Electric Two-wheeler.
7. Using model-based design for designing an Electric drivetrain.

8. Optimizing electric powertrain performance through system level modelling.
9. Frontloading vehicle development through simulation.
10. Development of battery and BMS using Simulink.

No. of Internal Tests:	01	Max. Marks for Internal Test:	12
Marks for assessment of each experiment			18
Duration of Internal Test: **3 Hours**			

With effect from the Academic Year 2025-26

VASAVI COLLEGE OF ENGINEERING (Autonomous)

IBRAHIMBAGH, HYDERABAD – 500 031

Department of Electrical & Electronics Engineering

Programmable Logic Controllers Lab

Syllabus for B.E. VII-SEMESTER

L:T:P (Hrs/Week):0:0:2	SEE Marks : 50	Course Code: **U22PE741EE**
Credits: 1	CIE Marks : 30	Duration of SEE :3 Hours

Course Objectives	Course Outcomes
To provide the practical knowledge on different PLCs and associated programming languages for the industrial automation.	Students are 1. Able to design the programs for any industrial automation application using CX-Programmer. 2. Able to control the real time electrical devises with HMI-PLC. 3. Able to visualize and control the industry automation with SCADA-PLC. 4. Able to control the electrical equipments remotely through GSM module.

List of Experiments

1. Basic control function
2. Implementation of logic gates and Boolean functions
3. PLC timer functions
4. PLC counters functions
5. PLC Arithmetic functions
6. Number Comparison functions
7. Study of sequencer
8. Industrial Applications of PLC
9. Motor control using PLC
10. Sequential lighting of bulbs
11. Automatic Traffic control
12. SCADA applications
13. Motor control through MMI-PLC
14. Temperature control using GSM

Virtual Lab Experiments

1. Study hardware and software used in PLC
2. Implementation Logic Gates
3. Implementation Of DOL Starter
4. Implementation Of On-Delay Timer
5. Implementation Of Off-Delay Timer

6. Implementation Of Up-Down Counter
7. Implementation Of PLC Arithmatic Instructions
8. Implementation Of PID Controller

Url: https://plc-coep.vlabs.ac.in/List%20of%20experiments.html

From the above experiments, each student should perform at least 10 (Ten) experiments.

No. of Internal Tests:	01	Max. Marks for Internal Test:	12
Marks for assessment of each experiment			18
Duration of Internal Test: **3 Hours**			

With effect from the Academic Year 2025-26

VASAVI COLLEGE OF ENGINEERING (Autonomous)

IBRAHIMBAGH, HYDERABAD – 500 031

Department of Electrical & Electronics Engineering

Project Seminar

SYLLABUS FOR B.E. VII - SEMESTER

L:T:P(Hours /week):0:0:2	SEE Marks: -	Course Code:**U22PW719EE**
Credits: 1	CIE Marks: 30	Duration of SEE: -

Oral presentation is an important aspect of engineering education. The objective of the seminar is to prepare the student for systematic independent study of stat of the art topics in broad area of his/her specialization.

Seminar topics may be chosen by the students with the advice from faculty members. Students are to be exposed to the following aspects of Seminar Presentation

- Literature survey.
- Organization of material.
- Preparation of OHP slides/PC presentation
- Technical writing

Each student is required to

1. Submit one page synopsis of the Seminar talk for display on notice board.
2. Give a 20 minutes presentation through OHP, PC, Slide projector, followed by 10 minutes discussion.
3. Submit a report on the seminar topic with list of references and slides used.

Seminars are to be scheduled from 3rd week to the last week of the Semester and any change in the schedule should be discouraged.
The sessional marks will be awarded to the students by at least two faculty members on the basis of an oral and a written presentation as well as involvement in the discussions.

With effect from the Academic Year 2025-26

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS) :: IBRAHIMBAGH, HYDERABAD – 500 031.

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

SCHEME OF INSTRUCTION AND EXAMINATION (R-22) :: B.E. - EEE : EIGHTH SEMESTER (2025-26)

B.E (EEE) VIII Semester								
Course Code	**Name of the Course**	**Scheme of Instruction**			**Scheme of Examination**			
		Hours per Week			**Duration in Hrs**	**Maximum Marks**		**Credits**
		L	**T**	**P/D**		**SEE**	**CIE**	
THEORY								
U22PE8XXEE	Professional Elective –III	3	-	-	3	60	40	3
U22PE8XXEE	Professional Elective –IV	3	-	-	3	60	40	3
PRACTICALS								
U22PW819EE	Project / Internship	-	-	12	VIVA-VOCE	50	50	6
	Total	**6**	**-**	**12**		**170**	**130**	**12**
	Grand Total	**18**				**300**		**12**

Professional Elective – III:

1. U22PE810EE - Smart Grid Technologies
2. U22PE820EE - Switched Mode Power Conversion
3. U22PE830EE - Electrical Machine Deign and Control
4. U22PE840EE- IoT Applications in Electrical Engineering

Professional Elective – IV:

1. U22PE850EE – AI Applications to Power Systems
2. U22PE860EE – PWM Converters and Applications
3. U22PE870EE – Battery Management Systems and Charging Stations
4. U22PE880EE- Electrical Energy Conversion & Auditing

With effect from the Academic Year 2025-26

VASAVI COLLEGE OF ENGINEERING (Autonomous)
IBRAHIMBAGH, HYDERABAD – 500 031

Department of Electrical & Electronics Engineering

Smart Grid Technologies
(Professional Elective – III)

SYLLABUS FOR B.E. VIII - SEMESTER

L:T:P (Hours /week):3:0:0	SEE Marks :60	Course Code : **U22PE810EE**
Credits : 3	CIE Marks: 40	Duration of SEE : 3 Hours

COURSE OBJECTIVES	**COURSE OUTCOMES** On completion of the course, students will be able to
Understand Smart grid and its functions, Distribution generation technologies, Communication technologies inSmart Grid	1. Analyse the features of Smart Grid 2. Assess the need of automatic in Power sector and its components 3. Illustrate various Distributed technologies adopted in Power Systems 4. Interpret role of PMUs and WAMs in Smart Grid. 5. Analyse control techniques adopted in Smart Grid

Unit I

Introduction to Smart Grid: Basics of Power Systems, definition of Smart Grid, need for Smart Grid, and Associated Concepts – Smart Grid Functions - Traditional Power Grid and Smart Grid – New Technologies for Smart Grid – Advantages – Indian Smart Grid – Key Challenges for Smart Grid.

Unit II

Smart Grid Architecture and Components: Architecture of Smart Grid Design– Review of the proposed architectures for Smart Grid. The

fundamental components of Smart Grid designs – Transmission Automation – Distribution Automation

Unit III

Distribution Generation Technologies: Introduction to Renewable Energy Technologies – Microgrids –Storage Technologies – Electric Vehicles and plug–in hybrids –Environmental impact– Economic Issues.

Unit IV

Communication Technologies and Smart Grid: Introduction to Communication Technology – Synchro-Phasor Measurement Units (PMUs) –Wide Area Measurement Systems (WAMS).

Unit V

Tools and Techniques for Smart Grid: Computational Intelligence Techniques –Evolutionary Algorithms, Artificial Intelligence techniques Control of Smart Power Grid System: Load Frequency Control (LFC) in Micro Grid System – Voltage Control in Micro Grid System – Reactive Power Control in Smart Grid.

Suggested reading

1. Stuart Borlase, "Smart Grids, Infrastructure, Technology and Solutions", CRC Press, 2013.
2. Janaka Ekanayake, Kithsiri Liyanage, Jianzhong Wu, Akihiko Yokoyama, Nick Jenkins, "Smart Grid: Technology and Applications", Wiley, 2012.
3. Gil Masters, "Renewable and Efficient Electric Power System", Wiley-Electrical & Electronics Engineering Press, 2004.
4. Arun G. Phadke James S. Thorp, "Synchronized Phasor Measurements and their Applications", Second Edition, Springer, 2017
5. V. C. Gungor, Dilan Sahin, Taskin Kocak, Salih Ergut, Concettina Buccella, Carlo Cecati, Gerhard P. Hancke "Smart Grid Technologies: Communication Technologies and Standards", in IEEE Transactions on Industrial Informatics, vol. 7, no. 4, pp. 529-539, Nov. 2011, doi: 10.1109/TII.2011.2166794.
6. https://ieeexplore.ieee.org/Xplore/home.jsp
7. https://www.sciencedirect.com

The break-up of CIE: Internal Tests+ Assignments + Quizzes

1.	No. of Internal Tests	:	2	Max. Marks for each Internal Test	:	30
2.	No. of Assignments	:	3	Max. Marks for each Assignment	:	5
3.	No. of Quizzes	:	3	Max. Marks for each Quiz Test	:	5

Duration of Internal Tests : 90 Minutes

With effect from the Academic Year 2025-26

VASAVI COLLEGE OF ENGINEERING (Autonomous)

IBRAHIMBAGH, HYDERABAD – 500 031

Department of Electrical & Electronics Engineering

Switched Mode Power Conversion

(Professional Elective-III)

SYLLABUS FOR B.E. VIII - SEMESTER

L:T:P (Hours /week):3:0:0	SEE Marks :60	Course Code : **U22PE820EE**
Credits : 3	CIE Marks: 40	Duration of SEE : 3 Hours

COURSE OBJECTIVES	**COURSE OUTCOMES** On completion of the course, students will be able to
To apply the basic concepts of power electronics for designing converters and implement practical circuits for UPS, SMPS etc.	1. Design converter system for electrical applications 2. Design SMPS for small power applications. 3. Choose suitable control scheme for converters. 4. Design appropriate filter to get harmonic free power supply. 5. Choose appropriate filter for reduction of EMI.

UNIT – I: Basic Converter Circuits:

Buck Regulator, Buck- Boost Regulator, Boost Regulator, Cuk Converters and Resonant Converters. Choice of switching frequency.

UNIT – II: Isolated SMPS:

Fly back Converter, Forward Converter, Half-Bridge and Full Bridge Converters, Push-Pull Converter and SMPS with multiple outputs. Choice of switching frequency.

UNIT – III: Control Aspects:

PWM Controllers, Isolation in feedback loop, Power Supplies with multiple output.

UNIT – IV: Design Considerations:

Selection of output filter capacitor, Selection of energy storage inductor, Design of High Frequency Inductor and High frequency Transformer,

Selection of switches. Snubber circuit design.

UNIT – V: Electro Magnetic Interference (EMI):

EMI Filter Components, Conducted EMI suppression, Radiated EMI suppression, Measurement.

Learning Resources:

1. Switched Mode Power Supplies, Design and Construction, H. W. Whittington, B. W.Flynn and D. E. MacPherson, Universities Press, 2009 Edition.
2. Mohan N. Undeland . T & Robbins W, Power Electronics Converters, Application andDesign. John Wiley, 3rd edition, 2002
3. Umanand L., Bhat S.R., Design of magnetic components for switched Mode PowerConverters. , Wiley Eastern Ltd.,1992
4. Robert. W. Erickson, D. Maksimovic .Fundamentals of Power Electronics., SpringerInternational Edition, 2005
5. Course Material on Switched Mode Power Conversion, V. Ramanarayanan.
6. Krein P.T .Elements of Power Electronics., Oxford University Press
7. M.H.Rashid, Power Electronics. Prentice-Hall of India

The break-up of CIE: Internal Tests+ Assignments + Quizzes

1.	No. of Internal Tests	:	2	Max. Marks for each Internal Test	:	30
2.	No. of Assignments	:	3	Max. Marks for each Assignment	:	5
3.	No. of Quizzes	:	3	Max. Marks for each Quiz Test	:	5

Duration of Internal Tests: 90 Minutes

With effect from the Academic Year 2025-26

VASAVI COLLEGE OF ENGINEERING (Autonomous)

IBRAHIMBAGH, HYDERABAD – 500 031

Department of Electrical & Electronics Engineering

Electrical Machine Design and Control

(Professional Elective – III)

SYLLABUS FOR B.E. VIII - SEMESTER

L:T:P (Hours /week):3:0:0	SEE Marks :60	Course Code : **U22PE830EE**
Credits : 3	CIE Marks: 40	Duration of SEE: 3 Hours

COURSE OBJECTIVES	**COURSE OUTCOMES** On completion of the course, students will be able to
To impart the fundamentals of electric machine design such that the students can apply these concepts for designing the machines and electric drives used in electric vehicles and their control.	1. Choose materials for conducting, magnetic, insulating parts of the machine based on machine design requirements using the knowledge of properties of materials. 2. Design the thermal circuit for the permissible temperature rise and develop different methods to limit temperature to the maximum permissible value using different cooling methodologies. 3. Design AC machines, transformer,3 phase Induction machines in compliance with the given specifications applying the fundamentals 4. Demonstrate the electric vehicle drives. 5. Interpret the modelling and control of SRM and PMSM motors.

Unit I:

Introduction

Major considerations in electrical machine design, electrical engineering materials, space factor, choice of specific electric and magnetic loadings, thermal considerations, types of cooling, types of enclosures, Quantity of Cooling Medium required, heat flow, temperature rise, rating of machines.

Unit II:

Transformers

Sizing of a transformer, main dimensions, kVA output for single- and three-phase transformers, window space factor, overall dimensions, main dimensions, kVA output for single- and three-phase transformers, window space factor, overall dimensions, temperature rise in transformers, design of cooling tank, methods for cooling of transformers.

Unit III:

Induction Motors

Sizing of an induction motor, main dimensions, length of air gap, rules for selecting rotor slots of squirrel cage machines, design of rotor bars & slots, design of end rings, design of wound rotor, advanced control techniques

Unit IV:

Synchronous Machines

Sizing of a synchronous machine, main dimensions, design of salient pole machines, short circuit ratio, shape of pole face, armature design, armature parameters, estimation of air gap length, design of rotor, design of damper winding, determination of full load field mmf, design of field winding, design of turbo alternators, rotor design.

Unit V:

SRM and PMSM Drives:

Basics of magnetic circuits and principle of reluctance; basics of switched reluctance motor; modelling and control of switched reluctance motor; modelling and control of PMSM drive; advanced control techniques for PMSM drive

Learning Resources:

1. A. K. Sawhney, "A Course in Electrical Machine Design", Dhanpat Rai and Sons, 2016.
2. M.G. Say, "The Performance & Design of Alternating Current MAchines", CBS Publishers 2002
3. Principles of Electrical Machine Design ,R.K. Agarwal,S K Kataria and Sons; Reprint 2012 edition
4. Berker B., James W. J. & A. Emadi, "Switched Reluctance Motor Drives", CRC Press,2019
5. John G. Hayes and A. Goodarzi, "Electric Powertrain - Energy Systems, Power electronics and drives for Hybrid, electric and fuel cell vehicles", Wiley, 2018.

The break-up of CIE: Internal Tests+ Assignments + Quizzes

1. No. of Internal Tests	: 2	Max. Marks for each Internal Test	:	30
2. No. of Assignments	: 3	Max. Marks for each Assignment	:	5
3. No. of Quizzes	: 3	Max. Marks for each Quiz Test	:	5

Duration of Internal Tests: 90 Minutes

With effect from the Academic Year 2025-26

VASAVI COLLEGE OF ENGINEERING (Autonomous)

IBRAHIMBAGH, HYDERABAD – 500 031

Department of Electrical & Electronics Engineering

IoT Applications in Electrical Engineering

(Professional Elective-III)

SYLLABUS FOR B.E. VII - SEMESTER

L:T:P (Hours /week):3:0:0	SEE Marks :60	Course Code: **U22PE840EE**
Credits : 3	CIE Marks: 40	Duration of SEE : 3 Hours

COURSE OBJECTIVES	**COURSE OUTCOMES** On completion of the course, students will be able to
• To introduce the terminology, technology and its applications • To introduce the concept of M2M (machine to machine) with necessary protocols • To introduce the Python Scripting Language which is used in many IoT devices • To introduce the Raspberry PI platform, that is widely used in IoT applications • To introduce the implementation of web-based services on IoT devices	• Understanding of IoT value chain structure (device, data cloud), application areas and technologies involved. • Understand IoT sensors and technological challenges faced by IoT devices, with a focus on wireless, energy, power, and sensing modules • Market forecast for IoT devices with a focus on sensors • Explore and learn about Internet of Things with the help of preparing projects designed for Raspberry Pi

UNIT-I:

Introduction to IOT, What is IIOT, IOT Vs. IIOT, History of IIOT, Components of IIOT - Sensors, Interface, Networks, People &Process, Hype cycle, IOT Market, Trends& future Real life examples, Key terms – IOT Platform, Interfaces, API, clouds, Data Management Analytics,

UNIT-II:

Overview of IOT components ;Various Architectures of IOT and IIOT, Advantages & disadvantages, Industrial Internet - Reference Architecture;

IIOT System components: Sensors, Gateways, Routers, Modem, Cloud brokers, servers and its integration, WSN.

UNIT-III:
IoT Physical Devices and Endpoints- Introduction to Arduino and Raspberry Pi- Installation, Interfaces (serial, SPI, I2C), Programming – Python program with Raspberry PI with focus on interfacing external gadgets, controlling output, reading input from pins.

UNIT-IV:
Controlling Hardware- Connecting LED, Buzzer, Switching High Power devices with transistors, Controlling AC Power devices with Relays, Controlling servo motor, speed control of DC Motor, Light sensor, temperature sensor with thermistor, voltage sensor, Temperature and Humidity Sensor DHT11, Motion Detection Sensors, Level Sensors, USB Sensors, Distance Measurement with ultrasound sensor

UNIT-V:
Application of IoT: Smart Homes: Smart Appliances, Security and Safety. Smart Energy: Smart Meters, Automatic Meter Reading (AMR), Advanced Metering Infrastructure (AMI), Real Time Pricing, Smart grid, Smart Cities: Smart Vehicles, Smart Lighting, Smart Parking etc, plug in hybrid electric-vehicles (PHEV), algorithms for vehicle to grid and grid to vehicle management, smart charging stations.

Learning Resources:
1. Internet of Things - A Hands-on Approach, Arshdeep Bahga and Vijay Madisetti, Universities Press, 2015, ISBN: 9788173719547

2. Getting Started with Raspberry Pi, Matt Richardson & Shawn Wallace, O'Reilly (SPD), 2014, ISBN: 9789350239759 3. Raspberry Pi Cookbook, Software and Hardware Problems and solutions, Simon Monk, O'Reilly (SPD), 2016, ISBN 7989352133895

3.Daniel Minoli, "Building the Internet of Things with IPv6 and MIPv6: The Evolving World of M2M Communications", ISBN: 978-1-118-47347-4, Willy Publications

4. Bernd Scholz-Reiter, Florian Michahelles, "Architecting the Internet of Things", ISBN 978-3- 642-19156-5 e-ISBN 978-3-642-19157-2, Springer

5. Peter Waher, 'Learning Internet of Things', Packt Publishing, 2015 3. Editors Ovidiu Vermesan

6. Peter Friess,'Internet of Things – From Research and Innovation to Market Deployment', River Publishers, 2014

7. N. Ida, Sensors, Actuators and Their Interfaces, SciTech Publishers, 2014.

The break-up of CIE: Internal Tests+ Assignments + Quizzes

1.	No. of Internal Tests	:	2	Max. Marks for each Internal Test	:	30
2.	No. of Assignments	:	3	Max. Marks for each Assignment	:	5
3.	No. of Quizzes	:	3	Max. Marks for each Quiz Test	:	5

Duration of Internal Tests: 90 Minutes

With effect from the Academic Year 2025-26

VASAVI COLLEGE OF ENGINEERING (Autonomous)

IBRAHIMBAGH, HYDERABAD – 500 031

Department of Electrical & Electronics Engineering

AI Applications to Power Systems

(Professional Elective – IV)

SYLLABUS FOR B.E. VIII - SEMESTER

L:T:P (Hours /week):3:0:0	SEE Marks :60	Course Code: **U22PE850EE**
Credits : 3	CIE Marks: 40	Duration of SEE : 3 Hours

COURSE OBJECTIVES	**COURSE OUTCOMES** On completion of the course, students will be able to
1. To introduce the fundamentals of Artificial Neural Networks (ANNs) and explain their applications in power systems. 2. To familiarize students with the principles of Fuzzy Logic, including fuzzy sets, membership functions, and fuzzy inference systems relevant to power systems. 3. To explain the concepts and operations of Genetic Algorithms (GA) and how they are used to search for optimal solutions in complex optimization problems. 4. To demonstrate the mechanisms of Particle Swarm Optimization (PSO) and Jaya Algorithm, emphasizing their role in solving nonlinear optimization problems. 5. To provide practical insights into applying soft computing optimization techniques to real-world power system problems	1. Analyze the Artificial Neural networks and apply it for load forecasting. 2. Illustrate the Fuzzy Logic technique and apply it for Load Frequency Control problem in Power Systems. 3. Apply the functioning of Genetic Algorithm in attaining the global optimal solution for any Power Systems problem. 4. Interpret the functioning of Particle Swarm Optimization and Jaya Algorithm in identifying the global optimal solution for any Power Systems problem. 5. Apply optimization techniques to solve the practical Power Systems problems of Economic Scheduling, Optimal DG placement, Optimal Power Flows, Planning

Unit I

Biological foundations to Intelligent Systems, Artificial Neural Networks, Activation functions, Architecture of Neural networks: Single layer and Multilayer Feed Forward Neural Networks, Types of learnings, Supervised Learning Algorithms: Hebb network, Perceptron model, Adaline model, Back Propagation Algorithm and Radial Basis Function Networks, Application: Load Forecasting

Unit II

Introduction to Fuzzy Logic, Fuzzy Sets operations, properties of fuzzy sets, Membership functions, Features of Membership Functions, Fuzzification, Fuzzy inference system, Defuzzification methods: Max-Membership Principle, Centroid method, Weighted Average method, Mean-Max Membership, Centre of Largest areas, center of sums, First of Maxima, Last of Maxima, Application: Load Frequency Control in Power System.

Unit III

Introduction to Evolutionary algorithms; Introduction to Genetic algorithm, encoding methods, Selection methods: Roulette wheel selection, Rank based Selection, Tournament selection, Linear Ranking Selection, Exponential Ranking Selection, Elitism operation; Crossover operation; Mutation operation; Development of Algorithm and Numerical on GA.

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Unit IV

Particle Swarm Optimization: Introduction to Particle Swarm Optimization, Development of PSO Algorithm, Numerical on PSO algorithm

Jaya Algorithm: Introduction to Jaya algorithm; Development of Jaya algorithm, Numerical on Jaya Algorithm.

Unit V

Applications of AI Techniques to Practical Power Systems problems: Economic scheduling of generators; optimal DG placement in Distribution system, Optimal power flow, Reactive Power Planning.

Suggested reading

1. Jacek.M. Zurada,"An Introduction to ANN", Jaico Publishing House
2. Simon Haykins, "Neural Networks", Prentice Hall
3. Timothy J. Ross,"Fuzzy Logic with Engg. Applications",Wiley Publishers

4. Driankov Dimiter,Hans Hellendoorn, Michael Reinfrank "An Introduction to Fuzzy Control", Springer-Verlag Berlin Heidelberg
5. David E.Goldberg,"Genetic Algorithms", Pearson Education India
6. Sivanandam, S. N., and S. N. Deepa. Principles of soft computing, John Wiley & Sons, 2007.
7. https://ieeexplore.ieee.org/Xplore/home.jsp
8. https://www.sciencedirect.com

The break-up of CIE: Internal Tests+ Assignments + Quizzes

1. No. of Internal Tests	:	2	Max. Marks for each Internal Test	:	30
2. No. of Assignments	:	3	Max. Marks for each Assignment	:	5
3. No. of Quizzes	:	3	Max. Marks for each Quiz Test	:	5

Duration of Internal Tests: 90 Minutes

With effect from the Academic Year 2025-26

VASAVI COLLEGE OF ENGINEERING (Autonomous)
IBRAHIMBAGH, HYDERABAD – 500 031
Department of Electrical & Electronics Engineering
PWM Converters and Applications
(Professional Elective – IV)

Syllabus for B.E. VIII-SEMESTER

L:T:P (Hrs/Week):3:0:0	SEE Marks: 60	Course Code: **U22PE860EE**
Credits: 3	CIE Marks: 40	Duration of SEE :3 Hours

Course Objectives	Course Outcomes
To know the modulation techniques employed for power electronic converters, design multi-level inverters with different topologies, performance evaluation of inverter fed drives and compensation techniques for power factor and reactive power.	After completion of the course, students will be able to: 1.Understand the basic converter topologies and pulse-width modulation techniques. 2: Understand the different pulse width modulation techniques. 3: Identify the methods of power factor and reactive power compensation. 4: Estimate the performance of inverter fed drives. 5: Apply Pulse width modulation for multi-level converters.

UNIT I

Overview of Power electronic converters for dc-ac and ac-dc power conversion, Applications of voltage source converter, Purpose of pulse width modulation (PWM), Pulse width modulation techniques.

UNIT II

Triangle-comparison based PWM - Sine-triangle modulation, Third harmonic injection PWM (THIPWM), Bus-clamping PWM. Space vector-based PWM - Concept of space vector, Conventional space vector PWM and bus-clamping PWM, Comparison between triangle-comparison and space vector based PWM, Advanced bus-clamping PWM.

UNIT III

Estimation of current ripple and torque ripple in inverter fed drives – line side converters with power factor compensation.

UNIT IV

Inverter loss - Simplifying assumptions in evaluation of inverter loss, dependence of inverter loss on line power factor, influence of PWM techniques on switching loss, design of PWM for low inverter loss. Effect of inverter dead-time effect - Requirement of dead-time, effect of dead-time on line voltages, dependence on power factor and modulation method, compensation of dead-time effect.

UNIT V

Over modulation techniques - Per-phase and space vector approaches to over modulation, average voltages in a synchronously revolving d-q reference frame, low-frequency harmonic distortion. PWM for multilevel inverter - Extensions of sine-triangle PWM to multilevel inverters, voltage space vectors, Space vector based PWM, analysis of line current ripple and torque ripple.

Suggested Reading:

1. Mohan, Undeland and Robbins, 'Power Electronics; Converters, Applicationsand Design', John Wiley and Sons, 1989.
2. Erickson R W, 'Fundamentals of Power Electronics', Chapman and Hall,1997
3. D. Grahame Holmes and Thomas A. Lipo, 'Pulse Width Modulation For Power Converters' John Wiley and Sons, 2003.
4. Satish Kumar Peddapelli, 'Pulse Width Modulation' De Gruyter, 2017.

The break-up of CIE: Internal Tests+ Assignments + Quizzes

1	No. of Internal Tests:	02	Max.Marks for each Internal Tests:	30
2	No. of Assignments:	03	Max. Marks for each Assignment:	05
3	No. of Quizzes:	03	Max. Marks for each Quiz Test:	05

Duration of Internal Test: 90 Minutes

With effect from the Academic Year 2025-26

VASAVI COLLEGE OF ENGINEERING (Autonomous)

IBRAHIMBAGH, HYDERABAD – 500 031

Department of Electrical & Electronics Engineering

Battery Management Systems and Charging Stations

(Professional Elective – IV)

Syllabus for B.E. VIII-SEMESTER

L:T:P (Hrs/Week):3:0:0	SEE Marks: 60	Course Code: **U22PE870EE**
Credits: 3	CIE Marks: 40	Duration of SEE :3 Hours

Course Objectives	Course Outcomes
The objective of this course is to introduce learner to batteries, its parameters, modelling and charging requirements. The course will help learner to develop battery management algorithms for batteries.	1 Interpret the role of battery management system. 2. Identify the requirements of Battery Management System. 3. Interpret the concept associated with battery charging / discharging process. 4. Calculate the various parameters of battery and battery pack. 5 Design the model of battery pack

UNIT -I: Introduction to Battery Management System:

Cells & Batteries, Nominal voltageand capacity, C rate, Energy and power, Cells connected in series, Cells connected in parallel, Electrochemical and lithium-ion cells, Rechargeable cell, Charging and Discharging Process, Overcharge and Undercharge, Modes of Charging.

UNIT -II: Battery Management System Requirement:

Introduction and BMS functionality, Battery pack topology, BMS Functionality, Voltage Sensing, Temperature Sensing, Current Sensing, High-voltage contactor control, Isolation sensing, Thermal control, Protection, Communication Interface, Range estimation, State-of-charge estimation, Cell total energy and cell total power.

UNIT –III: Battery State of Charge and State of Health Estimation, Cell Balancing:

Battery state of charge estimation (SOC), voltage-based methods to

estimate SOC, Model-based state estimation, Battery Health Estimation, Lithium-ionaging: Negative electrode, Lithium-ion aging: Positive electrode, Cell Balancing, Causes of imbalance, Circuits for balancing.

UNIT –IV: Modelling and Simulation:

Equivalent-circuit models (ECMs), Physics-based models (PBMs), Empirical modelling approach, Physics-based modelling approach, simulating an electric vehicle, Vehicle range calculations, simulating constant power and voltage, Simulating battery packs.

UNIT -V: Design of battery BMS:

Design principles of battery BMS, Effect of distance, load, and force on batterylife and BMS, energy balancing with multi-battery system.

Learning Resources:

1. Plett, Gregory L. Battery management systems, Volume I: Battery modeling. ArtechHouse, 2015.
2. Plett, Gregory L. Battery management systems, Volume II: Equivalent-circuitmethods. Artech House, 2015.
3. Bergveld, H.J., Kruijt, W.S., Notten, P.H.L "Battery Management Systems -Design byModelling" Philips Research Book Series 2002.
4. Davide Andrea," Battery Management Systems for Large Lithium-ion Battery Packs"Artech House, 2010.

1	No. of Internal Tests:	02	Max.Marks for each Internal Tests:	30
2	No. of Assignments:	03	Max. Marks for each Assignment:	05
3	No. of Quizzes:	03	Max. Marks for each Quiz Test:	05

Duration of Internal Test: 90 Minutes

With effect from the Academic Year 2025-26

VASAVI COLLEGE OF ENGINEERING (Autonomous)
IBRAHIMBAGH, HYDERABAD – 500 031
Department of Electrical & Electronics Engineering
Electrical Energy Conversion & Auditing
(Professional Elective – IV)
Syllabus for B.E. VIII-SEMESTER

L:T:P (Hrs/Week):3:0:0	SEE Marks: 60	Course Code: **U22PE880EE**
Credits: 3	CIE Marks: 40	Duration of SEE :3 Hours

Course Objectives	Course Outcomes
To provide the knowledge on current scenario of Renewable as well as Non-renewable energy resources available in the world, understand the real time energy management and Energy Auditing in various industries.	**1:** To understand the basic building blocks of various forms of energy and access energy scenario at national or international level. **2:** To understand efficient heat & electricity utilization, saving and recovery in different thermal and electrical system. **3:** To analyze economics of energy conservation opportunities in electrical and industrial utilities and reporting of energy audit. **4:** To analyze, calculate and improve the energy efficiency and performance of electrical and industrial utilities.

UNIT – I: Elements of Energy Conservation:

Classification of Energy, Indian energy scenario, Sectorial energy consumption (domestic, industrial and other sectors), energy needs of growing economy, energy intensity, long term energy scenario, energy pricing in india, energy security, energy conservation and its importance, energy strategy for the future.

UNIT – II: Energy Conservation and Electricity Acts::

Energy conservation Act 2001 and its features, notifications under the Act, Schemes of Bureau of Energy Efficiency (BEE) including Designated consumers, State Designated Agencies, Electricity Act 2003 and its features, Electricity Act 2010 and its features, ECBC code for Building Construction

UNIT – III: Energy Management & Audit:
Definition, energy audit, need, types of energy audit. Energy management (audit) approach-understanding energy costs, Bench marking, Energy performance, matching energy use to requirement, maximizing system efficiencies, optimizing the input energy requirements, fuel and energy substitution, energy audit instruments and metering

UNIT – IV: Financial Analysis Method:
Simple payback period, Return on investment, Net present value, Internal rate of return. Numericals.

UNIT – V: Energy Efficiency in Electrical Utilities:
Maximum Demand Controllers, Automatic Power Factor Controllers, Energy Efficient Motors, Soft Starters, Energy Efficient Lighting Controls, Energy Efficient Transformers, Electronics ballast

Learning Resources

1. Energy Conservation Guidebook, Dale R Patrick, Stephen W Fardo, 2nd Edition, CRC Press
2. https://www.beeindia.gov.in/content/energy-auditors
3. http://www.aipnpc.org/GuideBooks.aspx
4. Energy Management Handbook, W.C. Turner, John Wiley and Sons, A Wiley Inter science publication

1	No. of Internal Tests:	02	Max. Marks for each Internal Tests:	30
2	No. of Assignments:	03	Max. Marks for each Assignment:	05
3	No. of Quizzes:	03	Max. Marks for each Quiz Test:	05

Duration of Internal Test: 90 Minutes

With effect from the Academic Year 2025-26

VASAVI COLLEGE OF ENGINEERING

(Autonomous)

IBRAHIMBAGH, HYDERABAD – 500 031

Department of Electrical & Electronics Engineering

Project

SYLLABUS FOR B.E. VIII - SEMESTER

L:T:P (Hours /week):0:0:12	SEE Marks: 50	Course Code: **U22PW819EE**
Credits: 6	CIE Marks: 50	Duration of SEE: -

Solving the real life problem' should be the focus of U.G. project. Faculty members should prepare the project brief well in advance which should be made available to the students at the Departmental library. The project may be classified as hardware, software, modeling , simulation. It should involve one or many elements of techniques such as analysis, design, synthesis.

The Department will appoint a project co-ordinator who will coordinatethe following

- Grouping of students (a maximum of three in a group)
- Allotment of projects and project guides
- Project monitoring at regular intervals.

All project allotment are to be completed by 4th week of IV year 1st semester so that students get sufficient time for completion of the project. All projects will be monitored at least twice in a semester through students presentation. Sessional marks should be based on the grades/marks, awarded by a monitoring committee of faculty members and marks given by the supervisor.

Efforts be made that some of the projects are carried out in Industrieswith the help of Industry co-ordinators. Problems can also be invited from the industries to be worked out through UG project.

Common norms will be established for final documentation of the project report by the respective Department.

* Excellent /Very good/Good/Satisfactory/Unsatisfactory.

Note: Three periods of contact load will be assigned to each project guide.