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

Sponsored
by
VASAVI ACADEMY OF EDUCATION
Hyderabad

SCHEME OF INSTRUCTION AND SYLLABI UNDER CBCS FOR B.E. (EEE) V and VI Semesters With effect from 2019-20 (For the batch admitted in 2017-18) (R-17)

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING
Phones: +91-40-23146030, 23146031
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With effect from the Academic Year 2019-20

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

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

SCHEME OF INSTRUCTION AND EXAMINATION (R-17) :: B.E. - EEE : FIFTH SEMESTER (2019 - 20)

B.E (EEE) V Semester								
Course Code	Name of the Course	Scheme of Instruction			Scheme of Examination			Credits
		Hours per Week			Duration in Hrs	Maximum Marks		
		L	T	P/D		SEE	CIE	
THEORY								
HS510EH	Finishing School – III : Soft Skills	1	0	0	2	40	30	1
PC510EE	Power Systems-II	3	0	0	3	60	40	3
PC520EE	Electrical Measurements & Instrumentation	3	0	0	3	60	40	3
PC530EE	Power Electronics	3	0	0	3	60	40	3
PC540EE	Linear Control Systems	3	0	0	3	60	40	3
PC550EE	Digital Electronics & Logic Design	3	0	0	3	60	40	3
OE5XXXX	Open Elective-IV	3	0	0	3	60	40	3
MC510EE	Finishing School – III : Technical Skills	1	0	0	2	40	30	1
PRACTICALS								
PC511EE	Electrical Machines Lab-II	0	0	2	3	50	30	1
PC521EE	Electrical Measurements and Instrumentation Lab	0	0	2	3	50	30	1
PC531EE	Controls Systems & Simulation Lab	0	0	2	3	50	30	1
	TOTAL	**20**	**0**	**6**		**590**	**390**	**23**
	GRAND TOTAL	**26**				**980**		**23**
Student should acquire one online certificate course during III- VIII Semester								

Note: Left over hours are allocated for Library/Sports/Proctorial Interaction/CC/TC/RC/CCA/ECA

With effect from the Academic Year 2019-20

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
9-5-81, Ibrahimbagh, Hyderbad-500031, Telangana State

Department of Humanities & Social Sciences
Finishing School - Soft Skills III

SYLLABUS FOR BE 3/4 - FIRST SEMESTER (V Semester)

L:T: P (Hrs/Week):1:0:0	SEE Marks: 40	Course Code: **HS510EH**
Credits: 1	CIE Marks: 30	Duration of SEE : 2 Hours

COURSE OBJECTIVES	COURSE OUTCOMES
This is a foundation course and aims at enhancing employability skills in students. 1. Students will be introduced to higher order thinking skills and problem solving on the following areas - Arithmetic ability, Numerical ability and General reasoning. 2. Students will be trained to work systematically with speed and accuracy while problem solving.	At the end of the course students will be able to: 1. Solve questions on the above mentioned areas using short cuts and smart methods. 2. Understand the fundamentals concept of Aptitude skills. 3. Perform calculations with speed and accuracy.

UNIT 1 QUANTITATIVE APTITUDE - NUMERICAL ABILITY

- Introduction to higher order thinking skills
- Speed Maths
- Number systems
- LCM & HCF

UNIT 2 QUANTITATIVE APTITUDE- ARITHMETIC ABILITY FOUNDATION

- Percentage
- Profit loss and discounts

- Ratio proportions Allegations and mixtures
- Averages

UNIT 3 REASONING ABILITY – GENERAL REASONING PART 1

- Coding decoding
- Directions
- Series completions - Letter, Number & Element Series

UNIT 4 REASONING ABILITY- GENERAL REASONING PART 2

- Analogies
- Classification
- Alphabet test
- Blood Relations

UNIT 5 REASONING ABILITY- ARITHMETIC REASONING
4 hrs

- Mathematical operations
- Ranking
- Ages
- Clocks & Calendars

Learning Resources:

1. scoremore.talentsprint.com

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

1. No. of Internal Tests	: 2	Max. Marks for each Internal Test	:	20
2. No. of Assignments	: 2	Max. Marks for each Assignment	:	5
3. No. of Quizzes	: 2	Max. Marks for each Quiz Test	:	5

Duration of Internal Test: 90 minutes

With effect from the Academic Year 2019-20

VASAVI COLLEGE OF ENGINEERING (Autonomous)

IBRAHIMBAGH, HYDERABAD – 500 031

Department of Electrical & Electronics Engineering

Power System - II

SYLLABUS FOR B.E. V - SEMESTER

L:T:P(Hrs/week):3:0:0	SEE Marks: 60	Course Code: **PC510EE**
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. Acquire knowledge of Transmission Lines Performance, Power circle diagrams & Corona. 2. Understand the Per Unit system of Representation, load flow studies and different load flow methods. 3. Learn about the Symmetrical Fault analysis and S.C capacity of a Bus. 4. Acquire the knowledge of the fundamentals of Sequence components, Sequence networks of Generator, T/F, T.M.L & Load and Unsymmetrical Fault analysis of power system. 5. Understand the concept of Travelling Wave theory and Bewley Lattice diagram.	1. Able to calculate and compare the performance (Constants A, B, C & D, voltage regulation & efficiency) of different types of Transmission lines. 2. Able to differentiate and choose the proper load flow method for solution of load flow problems. 3. Student can calculate the P.U quantities in power system and analyze symmetrical fault (LLL-Fault) and calculate S.C capacity of a Bus. 4. Able to draw the diagram of Sequence networks of different components and calculate the Unsymmetrical Fault (LG, LL, LLG & LLLG) current value & MVA values. 5. Student can evaluate the value of coefficient of reflection and refraction of voltage or current wave and construct Bewley Lattice diagram.

UNIT-I: Transmission Line Theory:
Short, medium, long lines – Line calculations, Tuned lines – Power circular diagrams and their applications. Corona : Causes – Disruptive and Visual Critical Voltages, Power loss – minimization of Corona Effects.

UNIT-II: Per Unit system of Representation :
Use of per Unit Quantities in power systems, Advantages of per unit system.
Load flow studies: Formation of Y bus for a system, modeling of tap changing and phase shifting transformer, formulation of load flow problem, Solution of load flow by Gauss-Seidel, Newton-Raphson, Decoupled and fast Decoupled methods, comparison of different load flow methods.

UNIT-III: Short Circuit Studies:
Z-bus formation - Symmetrical Three phase Transients in R-L series circuits – short circuit currents – Reactances of Synchronous Machines – Symmetrical Fault calculations. Short circuit capacity of a bus.

UNIT-IV: Unsymmetrical faults :
Symmetrical components of unsymmetrical phasors – Power in terms of symmetrical components - sequence impedance and sequence networks. Sequence networks of unloaded generators – Sequence impedances of circuit elements – Single line to ground, line-to-line and double line to ground faults on unloaded generator – Unsymmetrical faults of power systems.

UNIT-V: Transients in power systems :
Causes of over voltages : Traveling Wave Theory – Wave equation – Open Circuited Line – The short circuited line – Junction of lines of different natural impedances – Reflection and refraction – Coefficients – Junction of Cable and overhead lines – Junction of three lines of different natural impedances – Bewley Lattice diagram.

Learning Resources:

1. C.L. Wadhwa , Electrical Power Systems, Wiley Eastern Ltd., 4th Ed. 2006.
2. John J.Grainger William D. Stevenson Jr. Power System Analysis, Tata MCGraw Hill Edn.2003
3. I.J.Nagrath & D.P.Kothari "Modern Power Systems Analysis" TMH Edition, 2003.
4. A. Chakrabarti, M.L.Soni, P.V.Gupta, U.S.Bhatnagar, A Text book on Power System, Dhanpat Rai & Co(P) Ltd.

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

1.	No. of Internal Tests	: 2	Max. Marks for each Internal Test	:	20
2.	No. of Assignments	: 2	Max. Marks for each Assignment	:	5
3.	No. of Quizzes	: 2	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 Engineering
Electrical Measurements and Instrumentation

SYLLABUS FOR B.E. V - SEMESTER

L:T:P(Hrs/week):3:0:0	SEE Marks: 60	Course Code: **PC520EE**
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. Measure and calculate the Energy in a 1-ph/3-ph system of balanced/unbalanced. 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 Instrumentation:
Basic characteristics of measuring instruments - accuracy, precision and uncertainty, sources of measurement error.

Instruments: Ammeter and Voltmeter, Expression for torque of moving coil, moving iron, dynamometer and electrostatic instruments. Extension of range of instruments, wattmeter, torque expression for dynamometer instruments. Active & Reactive power measurement.

UNIT -II : Energy meters:
Single phase and poly phase, driving torque and braking torque equations, Errors and testing compensation, maximum demand indicator, Single phase & 3 – phase electrodynamo meter power factor meter, frequency meter – electrical resonance, Use of Oscilloscope in frequency, phase and amplitude measurements(Lissajous Patterns) and Weston type of synchoroscope.

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 and AC polar and coordinate type Potentiometer & Applications – Measurement of impedance, 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 Potentiometers, Linear-motion variable inductors. Transducers: Proximity Inductive Transducers, LVDT, Optical Encoders and Capacitive Transducers, 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
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

With effect from the Academic Year 2019-20

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

Department of Electrical & Electronics Engineering
Power Electronics

SYLLABUS FOR B.E. V - SEMESTER

L:T:P(Hrs/week):3:0:0	SEE Marks: 60	Course Code: **PC530EE**
Credits: 3	CIE Marks: 40	Duration of SEE: 3 Hours

COURSE OBJECTIVES	**COURSE OUTCOMES**
1. To provide fundamentals of power semi – conductor devices and its applications in power electronics. 2. To impart the knowledge of turn – on and turn – off of various power semi – conductor switches. 3. To understand the operation and application of various power converters in power electronics. 4. To impart the knowledge of control techniques employed for switches in different types of converters.	On completion of the course, students will be able to 1. Categorize and compare various devices used in power electronics. 2. Analyze and select the appropriate converter for a given application. 3. Suggest suitable commutation, protection and control circuits for a given application. 4. Design power and control circuits for the required application with given specifications.

UNIT-I: Power Semiconductor Devices:

Power diode, types of power diodes - general purpose diodes, fast recovery diodes and Schottky diodes, their Characteristics, Basic structure, working, steady state and switching characteristics of BJT, Power MOSFETs, IGBTs, SCRs and GTOs, two transistor analogy of SCR, comparison of BJT, MOSFET and IGBT, applications of power semi – conductor devices.

UNIT-II: Firing, Driver and Protection circuits:
R, RC and UJT triggering circuits for SCR, triggering circuits for single phase bridge rectifier and choppers, driver circuits for MOSFET, IGBT and BJT, commutation methods of SCRs, protection of SCRs.

UNIT-III: AC to DC Converters:
Principles of controlled rectification - study of 1 – φ and 3 – φ half and full controlled bridge rectifiers with R, R – L, R – L – E loads, effect of source inductances, dual converters - circulating current mode and circulating current free mode – control strategies.

UNIT-IV: DC to DC and AC to AC Converters:
Classification of choppers – A, B, C, D and E, switching mode regulators – study of Buck, Boost and Buck-Boost regulators, Cuk regulators, single phase AC voltage controllers with R & RL loads, principle of operation of 1 – φ bridge type cyclo converters & their applications.

UNIT-V: Inverters:
Principle of operation of 1 – φ inverter, 3 – φ bridge inverters (180° and 120° modes), voltage control of inverters - single pulse width modulation, multiple pulse width modulation and sinusoidal pulse width modulation, comparison of voltage source inverters and current source inverters, elementary multilevel inverters.

Learning Resources:

1.Singh, M.D and Khanchandani, K.B, – *Power Electronics*, Tata McGraw Hill, 2nd Edition, 2006.
2.Rashid, M.H – Power Electronics: Devices, Circuits and Applications. Pearson, 2003

3.Mohan, Undeland, Robbins, Power Electronics – Converters, Applications and Design, Wiley India Pvt Ltd, 2010.
4.Bimbra.P.S, *Power Electronics*, Third Edition, Khanna Publishers, 2012.

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

With effect from the Academic Year 2019-20

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

Department of Electrical & Electronics Engineering
Linear Control Systems

SYLLABUS FOR B.E. V - SEMESTER

L:T:P(Hrs/week):3:0:0	SEE Marks: 60	Course Code: **PC540EE**
Credits: 3	CIE Marks: 40	Duration of SEE: 3 Hours

COURSE OBJECTIVES	**COURSE OUTCOMES** On completion of the course, students will be able to
Study the principles of system modeling, system analysis and feedback control, and use them to design and evaluate feedback control systems with desired performance; specifically, to acquire the related knowledge and techniques to meet the following course objectives: 1. *Control system modeling*: modeling of electric, mechanical and electromechanical systems, using differential equations, transfer functions, block diagrams, and state variables; 2. *Control system analysis*: analysis of properties of control systems, such as sensitivity, stability, controllability, tracking, in time and frequency domains; and 3. *Control system design*: design of feedback controllers, such as PID, lead and lag compen- sators, pole placement designs, to meet desired system performance specifications.	1. To model the electrical, mechanical and electromechanical systems using differential equations, transfer functions, block diagrams and state variables. 2. To obtain the time and frequency response of systems and analyse them with respect to performance specifications. 3. To analyze the stability, controllability and observability in time and frequency domains. 4. To design the feedback controllers, such as PID, lead and lag compensators to meet the desired performance specifications. 5. To analyze the stability, controllability and observability of digital control systems.

UNIT – I: Open and closed loop systems:
Continuous time and discrete time control systems, control system components – Error sensing devices – Potentiometers. Synchros, AC – DC servo motors – Block diagram representation, Transfer function and impulse response – signal flow graphs.

UNIT – II: Time Response:
Types of input, Transient response of second order systems for step input. Time domain specifications – Types of system – static error coefficients, Error series – Routh-Hurwitz criterion of stability.
Root locus technique – Typical systems analyzed by root locus technique – Effect of location of roots on system response, PID controller

UNIT – III: Frequency Response – I:
Introduction, Frequency domain specifications. MP, wP for a second order system,Frequency response analysis using Bode plots and Nyquist plots, Relative stability analysis, gain margin and phase margin.

UNIT – IV: Frequency Response – II:
Nyquist stability criterion, Principle of argument, Analysis of Typical systems using Nyquist stability criterion.
Compensation: Lead, Lag, Lead – Lag Compensation using bode plot.

UNIT – V : State Space Representation:
Concept of state, State Variable, State Models of linear time invariant systems. Derivation of state models from transfer functions and differential equations. State transition matrix – solution of state equations by time domain method. Observability and Controllability.

Learning Resources:

1. I.J. Nagrath, M. Gopal, Control System Engineering< new Age International (P) Limited publishers, 2007.
2. J. F. Franklin and J.D. Powell – Digital Control of Dynamic Systems, Addison Wesley.
3. M. Gopal, Control System Principles and Design – Tata Mc Graw Hill, 2nd edition, 2003.
4. K. Ogata, Modern Control Systems, 3rd Edition, PHI.

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

With effect from the Academic Year 2019-20

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

Department of Electrical & Electronics Engineering
Digital Electronics and Logic Design

SYLLABUS FOR B.E. V - SEMESTER

L:T:P(Hrs/week):3:0:0	SEE Marks: 60	Course Code: **PC550EE**
Credits: 3	CIE Marks: 40	Duration of SEE: 3Hours

COURSE OBJECTIVES	**COURSE OUTCOMES** On completion of the course, students will be able to
To impart the knowledge of combinational and sequential digital circuits.	1. Comprehend the number system and apply programmable logic devices to implement the logic functions. 2. Explain and apply logic gates, Boolean algebra, k-map and tabulation method for implementation of logic functions. 3. Classify different logic families. 4. Design different combinational circuits 5. Design Sequential Circuits.

UNIT-I: Boolean Algebra and Combinational Logic :
AND, OR and NOT operations – Laws of Boolean Algebra – minimization of Boolean expressions – truth tables and maps – sum – of products and product of sums – map method of reduction – incompletely specified functions – multiple output minimization – tabular minimization.

UNIT-II: Digital logic Families and IC's :
Digital logic families and IC's-Characteristics of Digital IC's –introduction to RTL,DTL, TTL , CMOS, ECL families, Details of TTL logic family- totem pole, open collector ouputs. Wired AND operation, Comparision of performance, TTL subfamilies, – multiplexer and demultiplexer – encoder and decoder – code converters, implementation of combinational logic using standard logic gates and multiplexers.

UNIT-III: Binary arithmetic and circuits :

Half adder and Full adder – Subtractor and Magnitude comparator – number complements – two's complement arithmetic – carry look ahead adder – decimal numbers and their codes – BCD and Excess – 3 arithmetic.

UNIT-IV: Synchronous sequential Circuits :

Basic latch circuit – debouncing switch – SR, JK, D and T flip-flops truth-table and excitation table – ripple and synchronous counters – design of counters - up/down counter – general BCD counter – shift registers – ring counters.

UNIT-V: Design of Digital Systems :

Concept of state. State diagram – sequence detectors – sequence generators –Design procedure, synthesis using D,JK,T flip-flops-applications of registers-concepts of programmable logic devices– PROM, PLA, PAL

Learning Resources:

1. Morris Mano M., Digital Design, Prentice Hall of India, Second Edition, 1994.
2. Zvi Kohavi, Switching and Finite Automata Theory, Tata McGraw Hill, Second Edition, 1991
3. Tocci & Widmer_Digital Systems-Pearson Education-Eight Editiion, 2003.
4. Donald Pleach/Albert Paul Malvino/ Goutam Saha :Digital Principles and Applications" MCGraw-Hill, 2006.
5. B. Somnath Nair, Digital Elctronics and Logic Design, Prentice Hall, India, 2002

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 Engineering

Electrical Machines Lab – II

SYLLABUS FOR B.E. V - SEMESTER

L:T:P(Hrs/week):0:0:2	SEE Marks :50	Course Code : **PC511EE**
Credits: 1	CIE Marks: 30	Duration of SEE : 3 Hours

COURSE OBJECTIVES	**COURSE OUTCOMES** On completion of the course, students will be able to
To expose the students to practical experiments of AC machines.	1. Estimate or test the performance of induction and synchronous machines by conducting suitable experiments and report the results. 2. Predetermine the voltage regulation of Non- salient and Salient Alternators by conducting suitable tests. 3. Evaluate the various characteristics of ac machines by conducting suitable experiments. 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. Three phase to two phase conversation (Scott Connection)
2. Heat run test on three phase transformer.
3. No-load test, blocked rotor test and load test on 3-phase Induction motor.
4. Speed control of three phase induction motor.
5. Performance characteristics of single phase induction motor.
6. a) Voltage regulation of Alternator by Synchronous impedance method.
   b)Voltage regulation of Alternator by Ampere – turn method.
   c) Voltage regulation of Alternator by Z.P.F. method.
7. Voltage Regulation of Alternator by slip test.
8. Determination of V curves and inverted V curves of Synchronous motor.
9. Power angle characteristics of a Synchronous motor.
10. Load characteristics of Induction Generator.
11. P.F. improvement of Induction motor using capacitors.
12. Synchronization of Alternator using three dark lamp method.

No. of Internal Tests:	01	Max. Marks for Internal Test:	12
Marks for day-to-day laboratory class work			18
Duration of Internal Test: **2 Hours**			

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

Department of Electrical & Electronics Engineering
Electrical Measurements and Instrumentation Lab

SYLLABUS FOR B.E. V - SEMESTER

L:T:P(Hrs/week):0:0:2	SEE Marks :50	Course Code : **PC521EE**
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 have fair knowledge about Transient, Frequency response of RLC-circuits and Parameters of network. 2. To understand the various theorems concepts and their application. 3. To understand the construction, working principles, calibration and applications of different types of Analog instruments – Ammeter, Voltmeters, Watt meter, Energy meter and Potentio meters. 4. To have the knowledge of measurement of circuit elements R, L & C using bridges.	1. Able to identify and choose the proper type of theorem to solve the circuits. 2. Able to identify and choose the proper type and range of meter to measure current, voltage, Power and Energy. 3. Student can calibrate ammeter, voltmeter and wattmeter using the Potentiometer. 4. Student can calculate the R, L & C values using the proper bridges.

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 Maxwell's and Anderson's Bridge
4. Measurement of Capacitance by DeSautry's bridge
5. Calibration of Voltmeter & Ammeter by using D.C Potentiometer.

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 at 1KHZ and 100 KHZ frequency of supply by using LCR meter.

No. of Internal Tests:	01	Max. Marks for Internal Test:	12
Marks for day-to-day laboratory class work			18
Duration of Internal Test: 2 **Hours**			

With effect from the Academic Year 2019-20

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

Department of Electrical & Electronics Engineering
Control Systems & Simulation Lab

SYLLABUS FOR B.E. V - SEMESTER

L:T:P(Hrs/week):0:0:2	SEE Marks :50	Course Code : **PC531EE**
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 objective of the lab is to provide an experience in working with various control system components and control systems for understanding analyzing them and also enhance the analyzing capability by introducing simulation tools for control systems.	1. Obtain the characteristics of AC, DC servo motors and synchro pair. 2. Obtain the characteristics of second order system and analyze the time domain specifications. 3. Understand AC and DC position control systems and analyze them. 4. Obtain the frequency response characteristics and design lead and lag compensators.

LIST OF EXPERIMENTS:

1. Characteristics of DC and AC Servo motors.
2. Characteristics of Synchro Pair .
3. Frequency response of compensating networks.
4. Step response of second order system.
5. DC position control system.
6. AC position control system.
7. Closed loop PPI and PDI controller.
8. Step response and frequency response of a given plant.
9. Design of lag and lead compensation for the given plant.
10. ON/ OFF Temperature control system.
11. Temperature control system.

12. Level Control System.
13. Simulation of Root locus, Nyquist plot, Bode plot using Matlab/Simulink
14. Design of lead and lag compensators using MATLAB
15. Conversion of state to transfer function and transfer function state space using MATLAB
16. Time response of Second order system using MATLAB(Simulink)
17. Design of PID controller
18. Frequency response characteristics and relative stability analysis using MATLAB

No. of Internal Tests:	01	Max. Marks for Internal Test:	12
Marks for day-to-day laboratory class work			18
Duration of Internal Test: **2 Hours**			

OPEN ELECTIVES OFFERED BY VARIOUS DEPARTMENTS IN B.E. V SEMESTER (2019-20)

Dept	Title	Code	credits
Civil	Remote Sensing and GPS	OE510CE	3
CSE	Fundamentals of Object Oriented Programming	OE510CS	3
CSE	Web Design	OE520CS	3
ECE	Mathematical Programming for Engineers	OE510EC	3
ECE	Sensors for Engineering Applications	OE520EC	3
IT	Introduction to Database Management Systems	OE510IT	3
IT	Introduction to Statistical Programming	OE520IT	3
Mech.	Optimization Methods	OE510ME	3
Mech.	Introduction to Robotics	OE520ME	3
Maths.	Discrete Mathematics for Engineers	OE520MA	3
Physics	Vacuum Technology and Applications	OE510PH	3
H&SS	Technical Writing And Professional Presentations	OE010EH	3

With effect from the Academic Year 2019-20

VASAVI COLLEGE OF ENGINEERING (Autonomous)

IBRAHIMBAGH, HYDERABAD – 500 031

DEPARTMENT OF CIVIL ENGINEERING

REMOTE SENSING AND GPS

(Open Elective-IV)

SYLLABUS FOR B.E. V SEMESTER

L : T : P (Hrs./week):3:0: 0	SEE Marks:60	Course Code: **OE510CE**
Credits : 3	CIE Marks:40	Duration of SEE:3 Hrs

COURSE OBJECTIVES	COURSE OUTCOMES
Objectives of this course are to	Upon the completion of the course, students are expected to
1. To provide fundamental knowledge on geo spatial technology such as Remote sensing and GPS	1. Understand the characteristics of the electromagnetic radiation and their interactions with the atmosphere and surface features for better analysis and interpretation of the remote sensing data. 2. Explain the various remote sensing systems, satellite characteristics and elements of visual interpretation techniques 3. Describe the fundamental theory and concepts of the Global Positioning System to provide 3D positioning with great accuracy. 4. Compute errors and biases in GPS measurements and understand the differences between point and relative GPS positioning. 5. Present the applications of remote sensing and GPS in various fields

Unit I: Introduction and Basic Concepts of Remote Sensing

Introduction, Basic concepts of remote sensing, Airborne and space born sensors, Passive and active remote sensing, EMR Spectrum, Energy sources and radiation principles, Energy interactions in the atmosphere, Energy interactions with earth surface features, Atmospheric windows, Spectral reflectance curves

Unit II: Remote Sensing Systems

Satellites and orbits, Polar orbiting satellites, Image characteristics and different resolutions in Remote Sensing, Multispectral, thermal and hyperspectral remote sensing. Some remote sensing satellites and their features, Map and Image, color composites, introduction to digital data, elements of visual interpretation techniques.

Unit III: Global positioning Systems (GPS)

Overview of GNSS and Introduction to GPS, GLONASS, GALILEO, COMPASS, IRNSS systems

GPS: Basic concepts, Functional system of GPS – Space segment, control segment and user segment, Working principle of GPS, Signal structure and code modulation, Pseudo-range measurements and navigation message

Unit IV : Errors and Positioning methods of GPS

Errors and biases in GPS measurements, Accuracy of navigation position: UERE and DOP, Intentional degradation of GPS signals: Selective availability (SA) and Anti-spoofing (AS) Differential GPS: Space based augmentation systems (e.g., SBAS, GAGAN) and Ground based augmentation systems (e.g., WASS, EGNOS)

GPS Carrier Phase measurements: Single Differencing, Double Differencing and Triple Differencing in GPS measurements.

Surveying with GNSS: Point positioning, Relative positioning, Static and Kinematic positioning.

Unit V : Applications of remote sensing and GPS

Applications of remote sensing and GPS in various fields, Integration of remote sensing, GPS and GIS.

Learning Resources:

1. James B. Campbell & Randolph H. Wynne., Introduction to Remote Sensing, The Guilford Press, 2011
2. Lillesand, Kiefer, Chipman., Remote Sensing and Image Interpretation, Seventh Edition, 2015
3. Leick, A., GPS Satellite Survey, John Wiley: NJ, 2015
4. Hofmann, B., Lichtenegger H. and Collins J., Global Positioning System: Theory and Practice, Springer: Berlin, 2011.

5. Basudeb Bhatta, Remote Sensing and GIS, Oxford University Press, 2011.
6. Hofmann-Wellenh of, Bernhard, Lichtenegger, Herbert, Wasle, Elmar, GNSS – GPS, GLONASS, Galileo and more, 2013

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

1	No. of Internal Tests	: 2	Max. Marks for each Internal Tests	:	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 2019-20

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

Department of Computer Science & Engineering
FUNDAMENTALS OF OBJECT ORIENTED PROGRAMMING

(OPEN ELECTIVE-IV)

SYLLABUS FOR B.E. V-SEMESTER
(COMMON FOR CIVIL, ECE, EEE & MECH)

L:T:P (Hrs./week): 3:0:0	SEE Marks : 60	Course Code : **OE510CS**
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 Apply object oriented principles for developing an application using Java constructs.	1 Adopt the fundamentals of Object oriented system development for developing a application.
2 Design GUI using existing Java classes and interfaces.	2 Apply basic features of OOP to design an application.
	3 Employ runtime error handling, concurrent programming practices to develop a parallel processing application.
	4 Perform string handling, read and write operations using console and files IO streams.
	5 Design GUI for a java application using AWT classes.

UNIT-I: Object Oriented System Development: Understanding Object Oriented Development, Understanding Object Concepts, Benefits of Object Oriented Development.
Java Programming Fundamentals: Introduction, Overview of Java, Data types, Variables and Arrays, Operators, Control Statements.

UNIT-II: Building blocks of OOP: Classes and Methods, Constructor, Parameterized constructor, Garbage Collection, this, static, final

keywords, Inheritance, types of inheritance, Method Overriding, Abstract class, Nested class, Interface, Package.

UNIT-III: Exception Handling: try, catch, throw, throws, finally, creating user defined exceptions
Multithreaded Programming: Types of Thread creation, multiple threads, isalive, join, thread priority, Thread Synchronization, Inter process communication.

UNIT-IV: String Handling: String constructors, operations, character extraction, comparison, search, modification. StringBuffer, methods, StringBuilder, StringTokenizer
Util: Date, Calendar, Random, Timer, Observable
IO: Files and Directories, I/O Classes and Interfaces, Byte Streams classes and Character Stream classes

UNIT-V: Applet: Applet Class, Applet architecture
Event Handling: The Delegation Event Model, Event Classes, Source of Events, Events Listener Interfaces
GUI Development: AWT: Classes, Working with Graphics, Frames, Menu, Layout Managers**.**

Learning Resources:

1. Herbert Schildt, The Complete Reference Java, 7th Edition, Tata McGraw Hill 2005.
2. P. Radha Krishna, Object Oriented Programming through Java, Universities Press, 2007.
3. Sachin Malhotra, Saurabh Choudhary, Programming in Java, 2nd Edition, Oxford Press, 2014.
4. https://docs.oracle.com/javase/tutorial/java

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

1	No. of Internal Tests	: 2	Max. Marks for each Internal Tests	:	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 : 1 Hour 30 Minutes

With effect from the Academic Year 2019-20

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

Department of Computer Science & Engineering
WEB DESIGN (OPEN ELECTIVE-IV)

SYLLABUS FOR B.E. V-SEMESTER
(COMMON FOR CIVIL, ECE, EEE & MECH)

L:T:P (Hrs./week): 3:0:0	SEE Marks : 60	Course Code : **OE520CS**
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 Develop web application using HTML, CSS, JavaScript and PHP.	1 Design static web pages.
	2 Apply styles to the web pages.
	3 Create dynamic web pages using JavaScript.
	4 Design DTD and schema for a given XML file.\
	5 Develop server side components using PHP.

UNIT-I: Web Basics and overview: Introduction to Internet, World Wide Web, Web Browsers, Web Servers, URL, MIME, HTTP, Web Programmers Tool Box, Introduction to HTML Purpose of HTML and XHTML, Text Formatting, Hypertext Links, Images, Lists, Tables, Forms and Frames.

UNIT-II: Cascading Style Sheets- Levels of Stylesheet, Style Specification Formats, Selector Formats, Property Value Forms, Font Properties, List Properties, Alignment of Text, Box Model, Background Images, Borders, div and span tags, Conflict Resolution.

UNIT-III: JavaScript - Object Orientation and JavaScript, Primitives, Operations, Expressions, Control Statements, Object Creation, Arrays, Functions- Introduction, Program Modules in JavaScript, Programmer-Defined Functions, Function Definitions, Random-Number Generation, Scope Rules, JavaScript Global Functions, Recursion, Constructors,

Regular Expressions, DOM Model, Events, Event Handling in JavaScript, JavaScript objects.

UNIT-IV: Introduction to XML, Syntax of XML, XML Document Structure, Document type Definition, Namespaces and Schemas.
Client-Server Architecture, Multi-tier Architecture, Web server.

UNIT-V: PHP- Overview of PHP, General Syntactic Characteristics, Primitives, Operations, and Expressions, Output, Control Statements, Arrays, Functions, Pattern Matching, Form Handling, Cookies and Session Tracking.

Learning Resources:

1. Robert W. Sebesta, "Programming the World Wide Web", Pearson Education.(3rd)
2. Uttam K.Roy, "Web Technologies", Oxford publishers.
3. http://www.w3schools.com
4. https://www.php.net/manual/en/tutorial.php

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

1	No. of Internal Tests	: 2	Max. Marks for each Internal Tests	:	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 : 1 Hour 30 Minutes

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)

IBRAHIMBAGH, HYDERABAD – 500 031

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

MATHEMATICAL PROGRAMMING FOR ENGINEERS

(OPEN ELECTIVE-IV)

SYLLABUS FOR B.E. V - SEMESTER

L:T:P (Hrs./week) : 3:0:0	SEE Marks : 60	Course Code: **OE510EC**
Credits : 3	CIE Marks : 40	Duration of SEE : 3 Hours

COURSE OBJECTIVES	COURSE OUTCOMES
To provide fundamental knowledge of programming language for solving problems.	On completion of the course, students will be able to 1. Generate arrays and matrices for numerical problems solving. 2. Represent data and solution in graphical display. 3. Write scripts and functions to easily execute series of tasks in problem solving. 4. Use arrays, matrices and functions in Engineering applications 5. Design GUI for basic mathematical applications.

UNIT - I : Introduction:

Basics of MATLAB, MATLAB windows, Advantages of MATLAB,on-line help, file types.

MATLAB Basics: Variables and Constants –Vectors and Matrices- Arrays - manipulation- Built-in MATLAB Functions. Creating and printing simple plots, Creating ,Saving and Executing a Script File, Creating and Executing a function file.

Programming Basics: Data types-Operators – Hierarchy of operations, Relational and logical operators, if-end structure, if-else-end structure, if-elseif-else-end structure, switch-case statement, for-end loop, while-end loop, break and continue commands.

UNIT - II : Scripts and Functions

Script Files, Function Files, Debugging methods in MATLAB.

Graphics: Basic 2D plots: Printing labels- grid and axes box- Entering text in a box- Axis control-Style options-Multiple plots-subplots-specialized 2D plots: stem-,bar, hist, pi, stairs, loglog , semilog ,polar ,comet 3D plots: Mesh,Contour,Surf,Stem3,ezplot.

UNIT - III : Numerical Methods Using MATLAB

Numerical Differentiation, Numerical integration- Newton-Cotes integration formulae, Multi-step application of Trapezoidal rule, Simpson's 1/3 Rule for Numerical Integration. MATLAB functions for integration.

Linear Equations- Linear algebra in MATLAB, Solving a linear system, Gauss Elimination, Finding eigen values and eigen vectors, Matrix factorizations, Advanced topics.

UNIT - IV : Nonlinear Equations

System of Non-linear equations, Solving System of Equations Using MATLAB function fsolve, Interpolation-Lagrange Interpolation, Two dimensional Interpolation, Straight line fit using Least Square Method, Curve fitting using built-in functions ployval and polyfit , cubic fit using least square method. Finding roots of a polynomial -roots function, Newton-Raphson Method.

UNIT - V :

Solution of Ordinary differential Equations(ODEs)-The 4^{th} order Runge-kutta Method, ODE Solvers in MATLAB,Solving First –order equations using ODE23 and ODE45.

Structures and Graphical user interface(GUI): Advanced data Objects, How a GUI works, Creating and displaying a GUI. GUI components, Dialog Boxes.

Learning Resources:

1. Getting started with MATLAB "A quick introduction for scientist and engineers by RudraPratap, Oxford publications.
2. Advanced Guide to MATLAB-Practical Examples in Science and Enginneringby S.N.Alam,S.Islam,S.K.Patel-I.K.International Publishing House Pvt.Ltd.
3. Stephen J. Chapman-"MATLAB Programming for Engineers"- 5th Edition-Cengage Learning- 2015. Getting started with MATLAB (Version 9) The Math works.

4. An Introduction to MATLAB® Programming and Numerical Methods for Engineers 1st Edition by Timmy Siauw Alexandre Bayen, Elsevier-18th April 2014.
5. https://nptel.ac.in/courses/103106118/2
6. https://www.udemy.com/numerical-methods/

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

1. No. of Internal Tests	:	2	Max. Marks for each Internal Tests	:	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 2019-20

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)

IBRAHIMBAGH, HYDERABAD – 500 031

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

SENSORS FOR ENGINEERING APPLICATIONS

(OPEN ELECTIVE-IV)

SYLLABUS FOR B.E. V – SEMESTER

L:T:P (Hrs./week) : 3:0:0	SEE Marks : 60	Course Code: **OE520EC**
Credits : 3	CIE Marks : 40	Duration of SEE : 3 Hours

COURSE OBJECTIVES	COURSE OUTCOMES
1. The student will come to know the various stimuli that are to be measured in real life instrumentation. 2. He will be able to select the right process or phenomena on which the sensor should depend on 3. He will be aware of the various sensors available for measurement and control applications.	On completion of the course, students will be able to 1. Appreciate the operation of various measuring and control instruments which they encounter in their respective fields. 2. Visualize the sensors and the measuring systems when they have to work in areas of interdisciplinary nature and also think of sensors and sensors systems when for a new situation they encounter in their career 3. Identify and select the right process or phenomena on which the sensor should depend on. 4. Know various stimuli that are to be measured in real life instrumentation.

UNIT - I

Introduction: What is a sensor and what is a transducer? Electrical sensor – need for sensors in the modern world. Different fields of sensors based on the stimuli - various schematics for active and passive sensors.

General characteristics and specifications of sensors – Implications of

specifications uses of sensors – measurement of stimuli - block diagram of sensor system. Brief description of each block.

UNIT – II

Sensors for mechanical systems or mechanical sensors - Displacement - acceleration and force - flow of fluids – level indicators – pressure in fluids – stress in solids. Typical sensors - wire and film strain gauges, animometers, piezo electric and magnetostrictive accelerometers, potentiometric sensors, LVDT.

UNIT – III

Thermal sensors – temperature – temperature difference – heat quantity. Thermometers for different situation – thermocouples thermistors – color pyrometry.

Optical sensors: light intensity – wavelength and color – light dependent resistors, photodiode, photo transistor, CCD, CMOS sensors.

Radiation detectors: radiation intensity, particle counter – Gieger Muller courter (gas based), Hallide radiation detectors.

UNIT – IV

Magnetic sensors: magnetic field, magnetic flux density – magneto resistors, Hall sensors, super conduction squids.

Acoustic or sonic sensors: Intensity of sound, frequency of sound in various media, various forms of microphones, piezo electric sensors.

UNIT – V

Electrical sensors: conventional volt and ammeters, high current sensors, (current transformers), high voltage sensors, High power sensors.

High frequency sensors like microwave frequency sensors, wavelength measuring sensors.

MEMs and MEM based sensors.

Learning Resources :

1. Doebelin, “Measurement Systems: Application and Design”, McGraw Hill Kogakusha Ltd.
2. Julian W. Gardner, Vijay K. Varadan, Osama O. Awadelkarim “Microsensors, MEMS and Smart Devices”, New York: Wiley, 2001.
3. Henry Bolte, “Sensors – A Comprehensive Sensors”, John Wiley.

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

1. No. of Internal Tests	:	2	Max. Marks for each Internal Tests	:	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 INFORMATION TECHNOLOGY
INTRODUCTION TO DATABASE MANAGEMENT SYSTEMS

(Open Elective-IV)

SYLLABUS FOR B.E. V SEMESTER

(Common for CIVIL, ECE, EEE & MECH)

L : T : P (Hrs./week): 3:0:0	SEE Marks :60	Course Code :**OE510IT**
Credits :3	CIE Marks: 40	Duration of SEE :3 Hours

COURSE OBJECTIVES	**COURSE OUTCOMES** *On completion of the course, students will be able to*
Apply the concepts of database management systems and design relational databases.	1. Understand functional components of the DBMS and develop ER model for a given problem and map ER it to Relational model 2. Understand Relational model and basic relational algebra operations. 3. Devise queries using SQL. 4. Design a normalized database schema using different normal forms. 5. Understand transaction processing and concurrency control techniques.

UNIT – I

Introduction: Database System Applications, Purpose of Database Systems, View of Data, Database Languages, Relational Databases, Database Architecture, Database Users and Administrators.

Database Design and the E-R Model: Overview of the Design Process, The E-R Model, Constraints, E-R Diagrams

UNIT – II

Relational Model: Structure of Relational Databases, Database Schema, Keys, Schema Diagrams, Relational Query Languages, Fundamental Relational-Algebra Operations.

UNIT – III

Structured Query Language: Introduction, Data Definition, Basic Structure of SQL Queries, Modification of the Database, Additional Basic Operations, Set Operations, Null Values, Aggregate Functions, Nested Subqueries, Join Expressions, Views.

UNIT – IV

Relational Database Design: Features of Good Relational Design, Normalization-Decomposition Using Functional Dependencies, Functional-Dependency Theory.

UNIT – V

Transactions: Transaction Concepts, Transaction State, Concurrent Executions, Serializability

Concurrency Control: Lock-Based Protocols, Timestamp-Based Protocols.

Learning Resources :

1. Abraham Silberschatz, Henry F Korth, S. Sudarshan, Database System Concepts, 6th Edition, McGraw-Hill International Edition, 2011.
2. Raghu Ramakrishnan, Johannes Gehrke, Database Management Systems, Third Edition, McGraw-Hill International Edition, 2003.
3. Elmasri, Navathe, Somayajulu and Gupta, Fundamentals of Database System, 6th Edition, Pearson Education, 2011.
4. Patric O'Neil, Elizabeth O'Neil, Database-principles, programming, and performance,Morgan Kaufmann Publishers, 2001.
5. Peter Rob, Carlos coronel, Database Systems, (2007), Thomoson.
6. https://nptel.ac.in/courses/106105175/

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

1	No. of Internal Tests	: 2	Max. Marks for each Internal Tests	:	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 Information Technology

INTRODUCTION TO STATISTICAL PROGRAMMING
(Open Elective-IV)
SYLLABUS OF B.E V- SEMESTER
(Common for CIVIL, ECE, EEE & MECH)

L:T:P(Hrs./week): 3:0:0	SEE Marks :60	Course Code :**OE520IT**
Credits : 3	CIE Marks: 40	Duration of SEE :3 Hours

COURSE OBJECTIVES	**COURSE OUTCOMES** *On completion of the course, students will be able to*
The course will enable the students to apply the R programming language in the analysis of Statistical data.	1. Write simple programs in R language to manipulate and visualize the data. 2. Write complex program using different constructs of R language to solve simple problems. 3. Use R programming language in the simulation of different types of random variables. 4. Write programs using R language in the analysis and computation of different matrix operations. 5. Use R programming language in the simulating multivariate random numbers, Markov chain, and Monte carlo integration

Unit I: Introduction to R Language
Basic features of R, Built-in functions, logical vectors and relational operators, Data input and output, programming statistical graphs- High-level plots, low level graphic functions.

Unit II: Programming with R
Flow control, Managing complexity through functions, Miscellaneous programming tips, Debugging and maintenance, Efficient programming.

Unit III: Simulation

Montecarlo simulation, Generation of pseudo random numbers, Simulation of other random variables-Bernouli, Binomial, Poisson, Exponential and Normal random variables.

Unit IV: Computational Linear Algebra

Vectors and matrices in R, Matrix multiplication and inversion, Eigen values and Eigen vectors

Unit V: Advances Simulation methods

Multivariate random number generation, Markov Chain Simulation, Monte Carlo Integration, other Advanced Simulation methods

Learning Resources:

1. A first Course in Statistical Programming with R, W. John Braun, Duncan J. Murdoch, Cambridge University Press, 2007.
2. https://cran.r-project.org/manuals.htm

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

1	No. of Internal Tests	: 2	Max. Marks for each Internal Tests	:	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 Mechanical Engineering

OPTIMIZATION METHODS (OE-IV)

SYLLABUS FOR B.E.V-SEMESTER

L:T:P(Hrs/week):3:0:0	SEE Marks:60	Course Code: **OE510ME**
Credits :03	CIE Marks:40	Duration of SEE: 03Hours

COURSE OBJECTIVE	**COURSE OUTCOMES** *On completion of the course, students will be able to*
The objective of the course is to understand Linear & non-linear programming, transportation modeling , CPM & PERT for project scheduling and control, and application of various optimization techniques for respective field engineering (Inter disciplinary)	1 optimization of resources in multi disciplinary areas through linear programming under different conditions.
	2 sensitivity analysis of a linear programming problem as per customer requirements tosuit various Organizations.
	3 minimization of total cost to apply for transportation techniques for the transhipment of Goods and products and Implement techniques like project management to analyze about material management.
	4 optimization of resources in multi disciplinary areas through non-linear programming under different conditions.

UNIT-I: OPTIMIZATION-AN OVERVIEW

Meaning of Optimization-Origin of Optimization-Introduction to Linear programming problems (LPP) -Formulation of LPP- Graphical method, simplex method.

UNIT-II: ADVANCED TOPICS IN LINEAR PROGRAMMING

Duality in LPP, Differences between primal and dual, shadow prices, Dual simplex method, sensitivity analysis. special cases in LPP.

UNIT-III

Transportation Model: Definition of the transportation model-matrix of Transportation model-Formulation and solution of transportation models- Methods for calculating Initial basic feasible solution-Optimization of transportation model using MODI method.

Project Scheduling: Introduction to network analysis, Rules to draw network diagram, Fulkerson rule for numbering events, Critical path method, PERT.

UNIT-IV

Non linear programming problems: Optimization methods for single variable, multivariable functions, Maxima-Minima

One Dimensional Minimization: Uni-modal Function, Unrestricted search, Exhaustive search,Dichtomous search, Interval Halving method, Fibonacci and golden bisection Method , Newton and Quasi Newton method.

UNIT-V

Non Linear - Unconstrained Optimization

classification, scaling of design variables, Random search methods, Univeriate search, pattern Directions, Hook Jeeves, Powel method, Rosenbrock method.

Learning Resources:

1. Singiresu S.Rao, “Engineering optimization- Theory and Practice”, 4th Edition, John Wiley and Sons, 2009.
2. NVS Raju, “Optimization methods for Engineers ", PHI Learning Pvt. Ltd., 2014.
3. Prem Kumar Gupta and Dr. DS Hira, “Operations Research", S.Chand & Company Pvt. Ltd., 2014.
4. R. Paneerselvam, “Operations Research”, PHI Learning Pvt Ltd., 2009.
5. Kalyanmoy Deb, Optimization for Engineering Design- algorithms and examples, PHI Pvt. Ltd., 1st Edition 2003, Delhi.

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

1	No. of Internal Tests:	02	Max.Marks for each Internal Test:	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: **1 Hour 30 Minutes**

VASAVI COLLEGE OF ENGINEERING (Autonomous)

IBRAHIMBAGH, HYDERABAD – 500 031

Department of Mechanical Engineering

INTRODUCTION TO ROBOTICS (OE-IV)

SYLLABUS FOR B.E.V-SEMESTER

L:T:P(Hrs/week):3:0:0	SEE Marks:60	Course Code: **OE520ME**
Credits :03	CIE Marks:40	Duration of SEE: 03Hours

COURSE OBJECTIVE	**COURSE OUTCOMES** *On completion of the course, students will be able to*
The objective of the course is to identify robots and their peripherals for satisfactory operation and control of robots for industrial and non-industrial applications.	1 understand the anatomy of the robot and various robot configurations for it's selection depending on the task.
	2 classify the end effectors , understand different types of joints, various types of mechanical actuation and robot drive systems for carrying out the assigned job effectively.
	3 analyze a planar manipulator through forward kinematics and understand the control of robot manipulator for better reliability and efficiency.
	4 Classify various sensors used in robots for proper selection to an application.
	5 summarize various industrial and non-industrial applications of robots for their selection to a particular task.

UNIT-I : ROBOT BASICS

Robot-Basic concepts, Need, Law, History, Anatomy, specifications.
Robot configurations-cartesian, cylindrical, polar ,articulated and SCARA.
Robot wrist mechanism, Precision and accuracy of robot.

UNIT-II : ROBOT ELEMENTS

End effectors-Classification, Types of Mechanical actuation, Gripper design, Robot drive system types: Electrical, pneumatic and hydraulic. Position and velocity feedback devices, Robot joints and links-Types, Motion interpolation.

UNIT-III : ROBOT KINEMATICS AND CONTROL

Robot kinematics – Basics of direct and inverse kinematics, Robot trajectories, 2D and 3D Transformation- Scaling, Rotation and Translation, Homogeneous transformation. D-H matrix. Forward kinematics for a 2-link RR planar manipulator.

Control of robot manipulators – Point to point and Continuous Path Control. Robot programming.

UNIT-IV : ROBOT SENSORS

Sensors in robots – Touch sensors-Tactile sensors – Proximity and range sensors. Force sensors, Light sensors, Pressure sensors.

Introduction to Machine Vision and Artificial Intelligence.

UNIT-V : ROBOT APPLICATIONS

Applications of robots in Industries, Medical, Household, Entertainment, Space, Underwater, Defense, and Disaster management.

Applications of Micro and Nanorobots, Future Applications of robots.

Learning Resources:

1. Mikell P. Groover, Mitchell Weiss, Roger N Nagel and Nicholas G Odrey, “Industrial Robotics Technology, Programming and Applications”, Tata McGraw-Hill Publishing Company Limited, 2nd Edition , 2008.
2. Deb. S.R and Sankha Deb, "Robotics Technology and Flexible Automation", Tata McGraw Hill Publishing Company Limited, 2nd Edition, 2010.
3. Klafter R.D, Chmielewski T.A, and Negin. M, “Robotic Engineering: An Integrated Approach”, Prentice Hall of India Pvt. Ltd., 1994.

4. K.S. Fu,R.C. Gonzalez and C.S.G. Lee , “Robotics control, sensing, vision and intelligence”,Tata Mc Graw-Hill Publishing Company Limited, 2008
5. R.K. Mittal and I.J. Nagrath “Robotics and Control”, Tata McGraw-Hill Publishing Company Limited,2003.

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

1	No. of Internal Tests:	02	Max.Marks for each Internal Test:	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: **1 Hour 30 Minutes**

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)

9-5-81, Ibrahimbagh, Hyderbad-500031, Telangana State

DEPARTMENT OF MATHEMATICS

(OPEN ELECTIVE)

DISCRETE MATHEMATICS FOR ENGINEERS

Syllabus for B.E., V- Sem., (CBCS)

L:T:P(Hrs/week):3:0:0	SEE Marks:60	Course Code: **OE520MA**
Credits :03	CIE Marks:40	Duration of SEE: 03Hours

COURSE OBJECTIVES	COURSE OUTCOMES
The course will enable the students to:	**At the end of the course students will be able to:**
1. **Understand** Propositions and their equivalences, predicates and quantifiers and learn various proof strategies. 2. **Study** the concepts of number theory such Modular Arithmetic, Congruences and basic cryptography etc., 3. **Understand** the basics of counting, combinatory, and various methods of solving Recurrence relations. 4. **Understand** Relations, Equivalence relations, Posets and Hasse diagrams. 5. **Analyze** the concepts of Graphs.	1. **Use logical notation** to define and reason about **fundamental mathematical concepts and synthesize induction hypothesis and simple Induction proofs**. 2. **Prove elementary properties of modular arithmetic** and basic cryptography and apply in Computer Science. 3. **Calculate number of possible outcomes** of elementary combinatorial processes such as permutations and combinations **Model and analyze computational processes** using analytic and Combinatorial methods. 4. **Prove** whether a given relation is an equivalence relation/ poset and will be able to draw a Hasse diagram. 5. **Apply** graph theory models of data structures and to solve problems of connectivity**.**

UNIT – I Logic: Logic- Logical connectives- Propositional equivalences– Predicates and quantifiers – Nested quantifiers.

Mathematical Reasoning, Induction: Proof Strategy- Methods of Proofs- Mathematical Induction- Second Principle of Mathematical Induction.

UNIT – II Number Theory: The Integers and Division- Division Algorithm- Fundamental Theorem of Arithmetic –Modular Arithmetic- Integers and Algorithms- Euclidean Algorithm -Linear Congruences- Fermat's Little Theorem

UNIT – III Counting: Basics of counting- Pigeonhole principle- Permutations and combinations – Pascal's Identity- Vandermonde's Identity- Generalized Permutations and combinations.
Advanced Counting Techniques: Recurrence relations: Solving Recurrence Relations- Linear Homogeneous and Non-Homogeneous Recurrence relations.

UNIT – IV Relations: Relations – Properties -Representing relations - Equivalence Relations - Partial Orderings- Poset.

UNIT –V Graph Theory: Introduction- Types of graphs- Graph terminology- Basic theorems- Representing Graphs and Graph Isomorphism - Connectivity- Euler and Hamiltonian paths -

Learning Resources:

1. Kenneth H.Rosen – Discrete Mathematics and its application – 5th edition, Mc Graw – Hill, 2003.
2. Joel. Mott. Abraham Kandel, T.P.Baker, Discrete Mathematics for Computer Scientist & Mathematicians, Prentice Hall N.J., 2nd edn, 1986.
3. Discrete and Combinatorial Mathematics by Ralph P. Grimaldi , Pearson International
4. J.P.Trembly, R.Manohar, Discrete Mathematical Structure with Application to Computer Science, Mc Graw- Hill – 1997.
5. R.K. Bisht, H.S.Dhami - Discrete Mathematics, Oxford University Press, 2015.
6. http://mathworld.wolfram.com/topics
7. http://www.nptel.ac.in/course.php

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

1	No. of Internal Tests	: 2	Max. Marks for each Internal Tests	:	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, Telangana State

DEPARTMENT OF PHYSICS

(OPEN ELECTIVE)

VACUUM TECHNOLOGY AND APPLICATIONS

L:T:P(Hrs/week):3:0:0	SEE Marks:60	Course Code: **OE510PH**
Credits :03	CIE Marks:40	Duration of SEE: 03Hours

Course objectives	*Course outcomes*
Students will be able to learn	***At the end of the course students will be***
1. Learn basic terms and definitions of vacuum technology 2. Acquire knowledge on vacuum pump parameters 3. Gain insight of various vacuum production methods 4. Learn measurement of vacuum 5. Known various applications of vacuum.	1. Define various vacuum ranges and terms related to vacuum technology 2. List out vacuum pump parameters 3. Narrate working of various types of vacuum pumps 4. Explain working of different vacuum measuring devices 5. List our application and use of vacuum in various fields of engineering and technology.

UNIT-I: FUNDAMENTALS OF VACUUM

Vacuum Nomenclature and Definitions, units of vacuum, Vacuum ranges, Types of flow: turbulent flow, viscous or laminar flow, molecular flow, Knudsen flow Vacuum Physics-out gassing, Mean free path of the molecules, adsorption, desorption, evaporation theory-rate of evaporation, Hertz- Knudsen equation, types of evaporation.

UNIT-II: VACUUM TERMINOLOGY

Methods of production of vacuum, vacuum pump function basics, throughput, pumping speed, conductance, evacuation rate, fore vacuum and high-vacuum pumping, Pump Choice, valve less, valved pumping system, Positive Displacement Vacuum Pumps, Momentum Transfer Vacuum Pumps, Entrapment Pumps, traps and baffles. Function of the oil in oil-sealed vacuum pumps. Effects of condensable

vapours on mechanical pump performance, Water vapour tolerance of a pump, Back-streaming

UNIT-III: VACUUM PUMPS

Systems construction and working of vacuum pumps: Roots vacuum pumps, Rotary vane pump, multi stage rotary pumps, diffusion pump, Turbomolecular pumps, cryo-pump, ion getter pumps,

UNIT-IV: VACUUM MEASUREMENT

Overview of gauges, direct reading and indirect reading gauges, classification of pressure gauge, Vacuum gauges: thermocouple gauge, Pirani gauge, cold cathode and hot cathode ionization gauge, Penning gauge, leak detection, Leak detection methods-leak rate.

UNIT-V: VACUUM APPLICATIONS

Deposition of thin films, Vacuum technology in the semiconductor industry, Vacuum technology in metallurgical processes, Vacuum technology in the chemical industry,

SUGGESTED BOOKS:

1. Dorothy M. Hoffman and Bawa Singh, Handbook of Vacuum Science and Technology, Academic Press, 1998
2. M. N. Avadhanulu and P.G. Kshirsagar, Textbook of Engineering Physics, Revised Edition, S.Chand, 2015
3. David J. Hucknall, Vacuum Technology and Applications, Butterworth Heinema Ltd,1991
4. John F. O'HanlonA User's Guide to Vacuum Technology, Jhon Willey and sons, 2006

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

1	No. of Internal Tests	: 2	Max. Marks for each Internal Tests	:	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 2019-20

VASAVI COLLEGE OF ENGINEERING (Autonomous)

IBRAHIMBAGH, HYDERABAD – 500 031

DEPARTMENT OF HUMANITIES AND SOCIAL SCIENCES

OPEN ELECTIVE B.E V Semester

TECHNICAL WRITING AND PROFESSIONAL PRESENTATIONS

Common to all branches

L: T: P (Hrs/Week): 3	SEE Marks: 60	Course Code: **OE010EH**
Credits: 3	CIE Marks: 40	Duration of SEE: Hours: 03

COURSE OBJECTIVES	COURSE OUTCOMES
The course will enable the students to:	**At the end of the course the student will be able to**
1. understand the principles and mechanics of technical writing for students of engineering. 2. comprehend specific communications skills associated with reporting technical information and will write a series of papers ranging from process description and feasibility reports to research projects, project proposals, and statement of purpose, which are pre-requisites for start-up companies and getting into foreign universities as well. 3. make effective presentations as part of today's workplace demands.	1. write effective reports 2. research and write project proposals and SoPs 3. make persuasive presentations

UNIT I

A. TECHNICAL REPORTS- INFORMAL

Informal report formats, project and research reports

B. TECHNICAL REPORTS-FORMAL

Formal report components, feasibility reports, evaluation reports, Analytical and informational reports, executive summaries.

UNIT II

TECHNICAL WRITING IN BUSINESS CORRESPONDENCE

Components of a letter, types of electronic communication, effective emails, instant and text messaging guidelines.

UNIT III

Technical Resume, Curriculum Vitae, Biodata, Cover letter, resume format.

UNIT IV

A. PROFESSIONAL PRESENTATIONS

Paper presentations, Poster presentations, PowerPoint presentations, video demos and tutorials

B. VIDEO DEMOS AND TUTORIALS

Storyboard writing, e-learning methods; video demos, training videos, webinars, conducting surveys, questionnaire, assessments, quiz, introduction to e-learning tools; Adobe Captivate, TechSmith Camtasia.

UNIT-V

HOW TO WRITE PROPOSALS AND STATEMENT OF PURPOSE

Types of proposals, persuasive elements, requests for proposals, stating your objective

METHODOLOGY: -	**ASSESSMENT: -**
Case Studies	Online assignments
Demonstration	Individual and Group Presentations
Expert lectures	Writing and Audio-visual lessons

Learning Resources: -

1. Effective Technical Communication, M Ashraf Rizvi, Tata McGraw-Hill Education, 2005
2. Raman, Meenakshi & Sangeeta Sharma. Technical Communication: Principles and Practice. Second Edition. New Delhi: Oxford University. Press, 2011.
3. Hacking Your Statement of Purpose: A Concise Guide to Writing Your SOP, Milena Young, 2014.

4. How to prepare a feasibility study: a step-by-step guide including 3 model studies. Front Cover. Robert E. Stevens, Philip K. Sherwood. Prentice-Hall, 1982.
5. Successful Presentations (with DVD): John Hughes & Andrew Mallett. Oxford university Press.

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

1	No. of Internal Tests	:	2	Max. Marks for each Internal Tests	:	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 2019-20

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

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

SCHEME OF INSTRUCTION AND EXAMINATION (R-17) :: B.E. - EEE : SIXTH SEMESTER (2019 - 20)

B.E (EEE) VI Semester								
Course Code	Name of the Course	Scheme of Instruction			Scheme of Examination			Credits
		Hours per Week			Duration in Hrs	Maximum Marks		
		L	T	P/D		SEE	CIE	
THEORY								
HS040EH	Economics and Finance for Engineers	2	0	0	3	60	40	2
HS610EH	Finishing School – IV : Soft Skills	1	0	0	2	40	30	1
PC610EE	Linear Integrated Circuits	3	0	0	3	60	40	3
PC620EE	Switchgear & Protection	3	0	0	3	60	40	3
PC630EE	Signals & Systems	3	0	0	3	60	40	3
PC640EE	Microprocessors & Microcontrollers Applications	3	0	0	3	60	40	3
OE6XXXX	Open Elective-V	3	0	0	3	60	40	3
MC040EH	Human Values and Professional Ethics– II	1	0	0	2	40	30	1
MC610EE	Finishing School – IV : Technical Skills	1	0	0	2	40	30	1
PRACTICALS								
PC611EE	Power Electronics & Simulation Lab	0	0	2	3	50	30	1
PC621EE	Microprocessors & Microcontrollers Applications Lab	0	0	2	3	50	30	1
PW619EE	Mini project	0	0	2	-	-	30	1
	TOTAL	**20**	**0**	**6**		**580**	**450**	**23**
	GRAND TOTAL	**26**				**1000**		
Student should acquire one online certificate course during III- VIII Semester								

Note: Left over hours are allocated for Library/Sports/Proctorial Interaction/CC/TC/RC/CCA/ECA

With effect from the Academic Year 2019-20

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

Department of Humanities and Social Sciences
Economics and Finance for Engineers

SYLLABUS FOR B.E-VI SEMESTER

L:T:P(Hrs/Week):2:1:0	SEE Marks : 60	Course Code: **HS040EH**
Credits: 2	CIE Marks : 40	Duration of SEE: 3 Hours

COURSE OBJECTIVES	**COURSE OUTCOMES** On completion of the course, students will be able to
The objective of the Course is to equip the prospective engineers with the concepts and tools of economics, finance, cost and taxes for business decisions.	1. Decide appropriate price for goods and services with the company's given cost structure for an estimated profit of the companies. 2. Identify the suitable sources of finance for the company by considering the functions of major banks such as SBI and RBI 3. Compare the long term financial investment proposals to decide whether a proposal is financially viable or not through capital budgeting techniques. 4. Analyze the given financial statements of a firm to understand its past financial performance in the market. 5. Calculate the impact of the new tax policies on the company's financial structure/ individual incomes.

Unit I: **Basics of Economics:**

Scarcity Definition of Economics - Macro and Micro Economics - Managerial Economics - Meaning of a Firm - Objectives of a Firm - Profit Maximization - Demand Concept -Price Elasticity of Demand - Meaning of Supply -Equilibrium Price and Quantity -Production -Cobb Doughlas Production Function - Economies of Scale.

Unit II: **Cost and Price:**

Cost - Meaning -Classification of Costs -Short run and Long run costs - Cost Sheet - Break even Analysis - Methods of Pricing (Problems on Cost Sheet, Breakeven Analysis and Methods of Pricing can be asked).

Unit III: **Banking & Finance:**

RBI and its role –Commercial Banks - Functions -Capital Budgeting Discounting and Non discounting Techniques- Working Capital Management - Concepts and Components of Working Capital - Operating Cycle.

UNIT IV: **Understanding Financial Statements:**

Financial Statements- Meaning - Types -Purpose - Ratios(Liquidity, Solvency & Profitability Ratios)(Problems can be asked on Ratios)

Unit V: Direct & Indirect Taxes:

Heads of Income - Income from Salaries - Income from House Property - Income from Business - Income from Capital Gains -Income from Other Sources - Latest Tax Rates - GST -CGST - SGST - IGST - GST network.

Learning Resources :

1. S.P.Jain and K.LNarang., "Cost Accounting", Kalyani Publishers, Twentieth Edition Revised– 2008.
2. S.P.Jain and K.L Narang., "Financial Accounting", Kalyani Publishers – 2002.
3. Mehta P.L.,"Managerial Economics: Analysis,Problems and Cases", Thirteenth Edition, Sultan Chand and Sons, Nineteenth Edition - 2013.
4. M.Y.Khan and P.K. Jain., "Financial Management – Text, Problems and Cases", Mc Graw Hill Education Private Limited, New Delhi.
5. Vinod KSinghania and Kapil Singhania., "Direct Taxes Law and Practice", Taxmann Publications, Sixtieth Edition - 2018.
6. Dr,Vinod K Singhania., "Students' Guide to GST and Customs Law", Taxmann Publications, Edition-2018.
7. Muralidharan., "Modern Banking", Prentice Hall of India.

8. *M. L. Seth., "Micro Economics",* Lakshmi Narain Agarwal.
9. Dr. R.P. Rustagi., "Fundamentals of Financial Management"Taxmann Publications.
10. Dr. D.M. Mithani, "Money Banking International Trade & Public Finance", Himalaya Publishing House - 2014.
11. Rajesh., "Banking Theory and Practice", Tata Mc Graw Hill Publishing

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 Humanities & Social Sciences
Finishing School – IV – Soft Skills

SYLLABUS FOR BE VI Semester

L:T:P (Hrs/Week):1:0:0	SEE Marks:40	Course Code: **HS610EH**
Credits: 1	CIE Marks:30	Duration of SEE: 2 Hours

COURSE OBJECTIVES	COURSE OUTCOMES
This is a foundation course and aims at enhancing employability skills in students. 1. Students will be introduced to higher order thinking skills and problem solving on the following areas - Arithmetic ability, Numerical ability and General reasoning. 2. Students will be trained to work systematically with speed and accuracy while problem solving.	At the end of the course students will be able to: 1. Solve questions on the above mentioned areas using short cuts and smart methods. 2. Understand the fundamentals concept of Aptitude skills. 3. Perform calculations with speed and accuracy.

UNIT 1 QUANTITATIVE APTITUDE- ARITHMETIC ABILITY ADVANCED

- Time speed and distance
- Time and work
- Interest calculations

UNIT 2 REASONING ABILITY- LOGICAL REASONING

- Arrangements- Linear; Circular; Complex
- Puzzles
- Venn diagrams
- Syllogism
- Cubes & Cuboids
- Dices

UNIT 3 REASONING ABILITY- NON VERBAL REASONING

- Figure Series
- Figure Completion
- Mirror Images
- Water Images
- Paper Cutting
- Paper Folding
- Embedded Images

UNIT 4 REASONING ABILITY- CRITICAL REASONING PART 1 2hrs

- Statement Assumptions
- Statement Arguments

UNIT 5 REASONING ABILITY- CRITICAL REASONING PART 2 4hrs

- Course Of Action
- Cause & Effect
- Inferences

Learning Resources:

1. scoremore.talentsprint.com

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

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3. No. of Quizzes	: 2	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 Engineering
Linear Integrated Circuits

SYLLABUS FOR B.E. VI - SEMESTER

L:T:P(Hrs /week):3:0:0	SEE Marks: 60	Course Code : **PC610EE**
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 fundamental concepts of linear and non linear devices and circuits namely Operational Amplifier, Multivibrator, 555 timer, ADC, DAC conversion methods, voltage regulators and provide an overview on design of second order filters for Linear IC applications.	1. Demonstrate an understanding of fundamentals of linear integrated circuits. 2. Analyze the various applications and circuits based on particular linear integrated circuit. 3. Select and use an appropriate linear integrated circuit to build a given application. 4. Analyze the non-linear circuit applications and design voltage regulators.

UNIT-I:

Operation amaplifiers: Characteristics, open loop voltage gain, output impedance, input impedance, common mode rejection ratio – Offset balancing techniques – Slew rate, Frequency response - Stability, frequency compensation of Op-amp ,basic applications – Inverter summer, analog integrator, differentiator, current to voltage converter, voltage to current converter, voltage follower.

UNIT-II:

Voltage limiter, clipper and clamper, precision rectifier- full wave and half wave , peak detector, comparator, zero crossing detector, Schmitt trigger,

monostable, astable , multiplier, analog divider, Instrumentation amplifier circuits using Op-amps.

UNIT-III:

Waveform generation using op-amps-sine, Square, Triangular, Quadrature oscillators ,voltage controlled oscillator/multi vibrator, voltage to frequency converter , 555 timer functional diagram, operation as monostable and astable. phase locked loop, A/D and D/A converters.

UNIT-IV:

Series voltage regulator, shunt regulators, and switching regulators using OP-amp, dual voltage regulator, fixed voltage regulators, dual tracking regulators, current sensing and current feed back protection.

UNIT-V:

RC active filters-low pass,high pass and band pass, band reject, notch, first order, second order transformation , state variable filter , switched capacitor filter , universal filter, Balanced modulator and demodulator

Learning Resources:

1. D.Roy Choudhury, Linear Integrated Circuits, Shail B.Jain, 4th Edition, New Age International(P) Ltd., 2010.
2. R.A. Gayakwad, Op-Amps and Linear Integrated Circuits, 4th Edition, Prentice Hall of India, 2009.
3. Coughlin and Driscoll, Operational Amplifiers and Linear Integrated Circuits, 6th Edition, Prentice hall of India, 2003.
4. Malvino Albert Paul, Electronic Principles, 7th Edition, Tata McGraw Hill, 2006.
5. S. Franco, "Design with Operational Amplifiers and Analog Integrated Circuits", McGraw Hill Inc., 2002

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 Engineering
Switchgear and Protection

SYLLABUS FOR B.E. VI - SEMESTER

L:T:P(Hrs /week):3:0:0	SEE Marks :60	Course Code : **PC620EE**
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 lightning 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.comprehend, analyze the concepts of circuit interruption and perform calculations on restriking voltage, recovery voltage, RRRV etc. 5. comprehend analyze and apply the knowledge of different types of lightning 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, Over voltage and Power relays. 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 – Bucholz relays – Protection of earthing transformers – Generator transformer unit protection.

UNIT- IV: Circuit breakers:
Need for circuit breakers – arc properties – principles of are quenching, Theorics, Recovery and restriking voltages, 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 – derivations of RRRV – Maximum RRRV etc., Circuit breaker calculations – types of circuit breakers – Bulk oil, Minimum oil, 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 – conductor clearances – conductor heights – 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, Tata McGraw 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 Test: 90 minutes

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

Department of Electrical & Electronics Engineering
Signals and Systems

SYLLABUS FOR B.E. VI - SEMESTER

L:T:P(Hrs/week):3:0:0	SEE Marks :60	Course Code : **PC630EE**
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 define and classify continuous and discrete time signals & systems 2. To determine the frequency domain characteristics of continuous and discrete time signals using transform techniques. 3. To verify the causuality and stability of LTI system and find its response using convolution.	1. Analyse continuous time signals and systems and transform them to frequency domain. 2. Convert continuous time signals to discrete time signals using sampling. 3. Analyse discrete time signals and systems and transform them to frequency domain using ZT. 4. Determine the response of an LTI system using convolution.

UNIT – I: Continuous Time Signals & Systems:
Introduction, elementary signals, classification of signals and basic operations on signals. Introduction to systems and its classification.
Fourier Series: Review of Fourier series, existence and convergence, trigonometric and exponential Fourier series representations and their relations, symmetry conditions, properties, complex Fourier spectrum.

UNIT – II: Signal Representation by Continuous Exponentials:
Introduction to Fourier Transform, existence, Fourier transform of singularity functions and signals, properties, Fourier transform of a periodic function.
Introduction to Linear Time Invariant (LTI) system, Unit impulse and step response, Transfer function of an LTI system.

UNIT – III: Sampling:

Introduction to sampling, sampling theorem, aliasing, sampling Techniques.

Signal Representation by Generalized Exponentials: Introduction to Laplace transforms, Existence, Region of convergence (ROC) and it properties. Properties of Laplace transform. Inverse Laplace transform, analysis and characterization of continuous LTI systems using Laplace Transform.

UNIT – IV: Discrete Time Signals & Systems:

Introduction, elementary signals, classification of signals and basic operations on signals. Introduction to systems and its classification. Linear shift invariant systems, Stability and Causality, Linear constant coefficient systems. Discrete Fourier Series (DFS), Discrete Time Fourier Transform (DTFT).

Z-Transforms: Introduction to Z-Transform, existence, Region of Convergence (ROC) and its properties. S-plane and Z-plane correspondence, properties of Z-Transform, Inverse Z-Transform, analysis and characterization of discrete LTI systems using Z-Transform

UNIT – V: Convolution & Correlation:

Continuous convolution - graphical interpretation and convolution properties. discrete convolution- graphical interpretation and convolution properties. Continuous correlation-cross correlation and auto correlation, their graphical interpretation and properties. Discrete correlation- cross correlation and auto correlation, their graphical interpretation and properties, Power Spectral Density (PSD) and Energy Spectral Density (ESD).

Learning Resources:

1. Signals, Systems & Communications - B.P. Lathi, 2013, BSP.
2. Signals and Systems - A.V. Oppenheim, A.S. Willsky and S.H. Nawab, 2 Ed., PHI.
3. Signals & Systems - Simon Haykin and Van Veen,Wiley, 2 Ed.
4. Signals and Systems – A.Rama Krishna Rao – 2008, TMH.
5. M.J. Robert " Fundamentals of signals and systems", McGraw Hill, 2008.

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 Engineering

Microprocessors & Microcontrollers Applications

SYLLABUS FOR B.E. VI - SEMESTER

L:T:P (Hrs /week):3:0:0	SEE Marks :60	Course Code : **PC640EE**
Credits : 3	CIE Marks: 40	Duration of SEE : 3 Hours

COURSE OBJECTIVES	**COURSE OUTCOMES** On completion of the course, students will be able to
The objective of this course is become familiar with the architecture and instruction sets of 8086 and 8051 processors and as well as interfacing an external devices to these processors.	students will be able to 1. Applying the basic concepts of digital fundamentals to Intel 8086 architecture. 2. Apply the knowledge of 8086 instruction set and identify a detail software and hardware structure of the microprocessor. 3. Illustrate the different peripherals (8255, 8257, 8259 etc) interfacing with the microprocessor. 4. Design, Develop and interface microcontroller base systems to peripheral devices and systems at the chip level.

UNIT – I:

Over view of micro computer structure and operation - Microprocessor Architecture of 8086- Segmented memory, Addressing modes, Instruction set, Minimum and Maximum mode operations.

UNIT-II:

Construction of machine codes for MOVE 8086 instruction - Assembly language Programming, Assembler directives, simple programs using Assembler, strings, procedures, Macros, timing.

UNIT- III:

Memory and I/O interfacing, A/D and D/A interfacing, 8255 (PPI), programmable Interval Timer (8253), Keyboard and display interface, interrupts of 8086, Seven segment display, 8257 DMA controller, 8251 USART

UNIT – IV:

Microcontrollers - 8051 microcontroller, Architecture, I/O ports, connecting external memory, Instruction set, Assembly language programming.

UNIT – V:

Interrupts programming concepts with examples, Serial communication programming concepts with examples, Timers, Counters, Applications of micro controllers interfacing LEDs, Seven Segment display, Keyboard Interfacing, LCD interfacing, Stepper motor interfacing.

Learning Resources:

1. Douglas.V.Hall-Microprocessors and Interfacing-Rara Mcgraw Hill-Revised 2nd edition, 2006.
2. Krishna Kant – Microprocessors and Microcontrollers – Architecture, Programming and System Design 8085, 8086 8051, 80996, Prentice-Hall India-2007.
3. Kenneth.J.Ayala _ "the 8051 , Microprocessors Architecture , Programming and Application, Thomson publishers, 2nd edition.
4. Walter A. TRiebel & Avatar Singh- The 8088 and 8086 Microprocessor – Fourth Edition, pearson

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 HUMANITIES & SOCIAL SCIENCES
Human Values and Professional Ethics-II

SYLLABUS FOR B.E. - - VI SEMESTER
(COMMON FOR ALL BRANCHES)

L:T:P(Hrs/Week):1:0:0	SEE Marks : 40	Course Code: **MC040EH**
Credits:1	CIE Marks : 30	Duration of SEE : 2 Hours

COURSE OBJECTIVES	COURSE OUTCOMES
The course will enable the students to :- 1. Get a holistic perspective of value- based education. 2. Grasp the meaning of basic human aspirations vis-a-vis the professional aspirations. 3. Understand professionalism in harmony with self and society. 4. Develop ethical human conduct and professional competence. 5. Enrich their interactions with the world around, both professional and personal.	All the end of this course the student will be able to 1. Gain a world view of the self, the society and the profession. 2. Start exploring themselves in relation to others and their work –constantly evolving into better human beings and professionals. 3. Inculcate Human values into their profession. 4. Obtain a holistic vision about value-based education and professional ethics.

UNIT-1 PERSONAL ETHICS AND PROFESSIONAL ETHICS

a. PERSONAL ETHICS: A person 's personal or self-created values and codes of conduct. Civic virtues and Civic sense.

b. NEED FOR ETHICAL CODES

Code of Professional Ethics- Observance of the code, Obligations towards the Features of professional ethics: Openness, Transparency, Privacy, Impartiality, Practicality, Loyalty.

Profession, Ethics and Information Security, Deterring Unethical and Illegal Behaviour, Work ethics.

UNIT-2 GENDER SENSITISATION

a. Social issues regarding women - Female infanticide and foeticide, dowry & property rights, violence against women.
b. Impact of globalization on the status of women - Political and legal empowerment
c. Women at work- Success stories.

{Post independence and current movements in India (Telengana movement 1948-50, Chipko movement 1973, Navnirman movement 1974, question of Representation in Politics)
Change makers - Shashi Deshpande, Taslima Nasreen, Kumkum Sangari, Veena Mazumdar, Neera Desai.

Women's Studies in India--UGC's initiatives -- Centers for Women's Studies- Capacity building for Women leaders in education—Women development cells-- Women's Studies in the XIth Plan.

Women role models -- Case studies– Indira Gandhi, Kiran Mazumdar, Kiran Bedi, Ela Bhatt, Mother Teresa, PT Usha, Rukminidevi Arundale, Annie Beasant, Sarojini Naidu, Medha Padhkar, Kalpana Chawla, etc.}

MODE Of DELIVERY

• **Questionnaires** • **Quizzes** • **Case-studies** • **Observations and practice** • **Home and classroom assignments**	• **Discussions** • **Skits** • **Short Movies/documentaries** • **Team tasks and individual tasks** • **Research based tasks** • **Viva**

Relavant Websites,CD's and Documentaries

- Value Education website, Http://www.universalhumanvalues.info UPTU webiste, Http://www.uptu.ac.in
- Story of stuff, Http://www.storyofstuff.com
- AlGore, As Inconvenient Truth, Paramount Classics ,USA

- Charlie Chaplin, Modern Times, United Artists, USA
- IIT Delhi, Modern Technology-The Untold story-Anand Gandhi, Right Here Right Now, Cyclewala production.

Learning Resources:

1. PL Dhar, RR Gaur, 1990, Science and Humanism, Commonwealth Publishers.
2. B.L Bajpai, 2004, Indian Ethos and Modern Management, New Royal Book Co., Lucknow. Reprinted 2008.
3. A.N Tripathy, 2003 Human values, New Age International Publishers.
4. EG Seebauer & Robert L. Berry,2000, Fundamentals of Ethics for Scientists and Engineers, Oxford University Press.

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

1.	No. of Internal Tests	: 1	Max. Marks for each Internal Test	:	20
2.	No. of Assignments	: 1	Max. Marks for each Assignment	:	5
3.	No. of Quizzes	: 1	Max. Marks for each Quiz Test	:	5

Duration of Internal Test: 90 minutes

With effect from the Academic Year 2019-20

VASAVI COLLEGE OF ENGINEERING (Autonomous)

IBRAHIMBAGH, HYDERABAD – 500 031

Department of Electrical & Electronics Engineering

Power Electronics & Simulation Lab

SYLLABUS FOR B.E. VI - SEMESTER

L:T:P(Hrs /week):0:0:2	SEE Marks :50	Course Code : **PC611EE**
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 objective of the lab is to provide an experience in working with power converters and enhance the analyzing capability by introducing simulation tools for power converters.	1. Obtain the characteristics of power electronic devices. 2. Operate power electronic converters for any given application. 3. Apply the knowledge of power converters to operate electrical machines as drives. 4. Develop power electronic converter models using software.

List of experiments:

1. Characteristics of SCR, power BJT, MOSFET and IGBT
2. Gate trigging circuit for devices (SCR, BJT, MOSFET and IGBT) using R, R – C and UJT's and IC's
3. 1 – Ø AC voltage controller with R & R – L loads
4. 1 – Ø step down cyclo – converter with R & R – L loads
5. Study of forced commutation techniques
6. Two quadrant D.C drive
7. Buck – boost choppers
8. 1 – Ø bridge rectifiers: half and full control with R & R – L loads
9. Study of UPS & SMPS
10. V/f control of A.C drive
11. Simulation of 1-Ø full & semi converter
12. Simulation of 1-Ø & 3-Ø inverter
13. 1 – Ø inverter with R and R – L loads

No. of Internal Tests:	01	Max. Marks for Internal Test:	12
Marks for day-to-day laboratory class work			18
Duration of Internal Test: **2 Hours**			

VASAVI COLLEGE OF ENGINEERING (Autonomous)

IBRAHIMBAGH, HYDERABAD – 500 031

Department of Electrical & Electronics Engineering

Microprocessors & Microcontrollers Applications Lab

SYLLABUS FOR B.E. VI - SEMESTER

L:T:P(Hrs /week):0:0:2	SEE Marks :50	Course Code : **PC621EE**
Credits : 1	CIE Marks: 30	Duration of SEE : 3 Hours

COURSE OBJECTIVES	**COURSE OUTCOMES** On completion of the course, students will be able to
To introduce to students the basics of microprocessor and microcontroller programming and their applications.	1. To familiarize with the assembly level programming. 2. Design circuits for various applications using microprocessor and microcontrollers. 3. An in-depth knowledge of applying the concepts on real- time applications.

List of Experiments

I. Microprocessor 8086 : using MASM/TASM

1. Programs for signed/unsigned multiplication and division
2. Program for finding average of N 16 bit
3. Program for finding largest number in an array
4. Program for code conversion like BCD to 7-segment
5. Program for compute factorial of a positive integer number.
6. String Manipulation instructions
7. use of JUMP and CALL instructions
8. Macro and Procedure instructions

II. Interfacing :using 8086 Kit

1. 8279– Keyboard Display : Write a small program to display a string of characters.
2. 8255– PPI : Write an ALP to generate triangular wave using DAC.
3. 8253-timer/counter. Application of different modes
4. 8251 – USART : Write a program in ALP to establish Communication between two processors.
5. Traffic signal controller
6. ADC interfacing

III. Microcontroller 8051 :

1. Data transfer- Block of move, exchange, sorting ,finding largest element in an array.
2. Arithmetic instructions: Multi byte operations
3. Boolean & logical instructions(Bit manipulations)
4. Programs to generate delay, programs using serial port and on chip timer/counter.
5. Use of JUMP and CALL instructions

Program Development using 'C' cross compiler for 8051

1. Square wave generation using timers.
2. Interfacing of keyboard and 7-segment display module.
3. ADC interfacing for temperature monitoring.
4. DAC interfacing for generation of sinusoidal wave.
5. Stepper motor control(clock wise, anti clockwise, in precise angles
6. LCD interfacing

IV. Proteus Software

1. Introduction to Proteus software
2. LED Interfacing
3. LCD interfacing
4. Keyboard interfacing

No. of Internal Tests:	01	Max. Marks for Internal Test:	12
Marks for day-to-day laboratory class work			18
Duration of Internal Test: **2 Hours**			

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

Department of Electrical & Electronics Engineering
Mini Project

SYLLABUS FOR B.E. VI – SEMESTER

L:T:P(Hrs /week):0:0:2	SEE Marks : -	Course Code : **PW619EE**
Credits : 1	CIE Marks: 30	Duration of SEE : -

COURSE OBJECTIVES	**COURSE OUTCOMES** On completion of the course, students will be able to
1.Learn contemporary Learn contemporary technologies 2. Design/Develop/Implement /Solve an engineering problem in the relevant areas of Electrical and Electronics Engineering	1. Apply the knowledge acquired in the electrical engineering. 2. Demonstrate the ability to locate and use technical information from multiple sources. 3. Demonstrate the ability to communicate effectively through a technical report. 4. Demonstrate independent learning and professional ethics. 5. Demonstrate the project management capabilities.

The students are required to carry out mini projects in relevant areas of Power Systems, Power Electronics, Electrical Machines, Measurements, Control Systems, Circuits, Micro Processors Controller and digital signal processing.

Students are required to submit a report on the mini project.

- Batch size shall be 2 (or) 3 students per batch.
- Allocation by department.
- Two reviews – One during 5^{th} week and another during 10^{th} week and final evaluation shall be conducted during 15^{th} to 16^{th} week.
- Students are required to give Presentations / Demonstration of the work during the reviews.
- Students are required to submit mini project report.

OPEN ELECTIVES OFFERED BY VARIOUS DEPARTMENTS IN B.E. VI SEMESTER (2019-20)

Dept	Title	Code	credits
Civil	Project Management	OE610CE	3
CSE	Introduction to Databases	OE610CS	3
CSE	Introduction to Operating Systems	OE620CS	3
ECE	Basics of Communication Systems	OE610EC	3
ECE	Internet of Things and Applications	OE620EC	3
ECE	Introduction to Mobile Communications	OE630EC	3
IT	Introduction to Web Application Development	OE610IT	3
IT	Introduction to Machine Learning	OE620IT	3
Mech.	Introduction to Automobile Engineering	OE610ME	3
Mech.	Additive Manufacturing and its applications	OE620ME	3
Physics	Fundamentals of Nano Materials And their Applications	OE610PH	3
H&SS	English for Competitive Examinations	OE610EH	3
H&SS	Technical Writing and Professional Presentations	OE010EH	3

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

DEPARTMENT OF CIVIL ENGINEERING
PROJECT MANAGEMENT (Open Elective-V)

SYLLABUS FOR B.E. VI SEMESTER

L : T : P (Hrs./week): 3:0:0	SEE Marks:60	Course Code: **OE610CE**
Credits : 3	CIE Marks:40	Duration of SEE: 3 Hrs

COURSE OBJECTIVES	COURSE OUTCOMES
The objectives of the course are to	Upon the completion of the course, students are expected to
1. Learn the concept of project management along with functions and objectives. 2. Understand the various techniques used for project planning such as bar charts, CPM, PERT and crashing of networks. 3. Acquire knowledge on various types of contracts, tenders.	1. Understand the objectives, functions and principles of management in projects. 2. Practice the network techniques like CPM and PERT for better planning and scheduling of engineering works. 3. Analyse the importance of cost and time in network analysis and planning the work accordingly. 4. Knowledge on Contracts, Tenders, and Work orders related to the projects. 5. Interpret the concept of Linear Programming and solve problems by Graphical and Simplex methods.

UNIT-I

Significance of Project Management: Objectives and functions of project management, management team, principles of organization and types of organisation.

UNIT-II

Project Planning: Project Planning, bar charts, network techniques in project management - CPM Expected likely, pessimistic and optimistic time, normal distribution curve and network problems of PERT

UNIT-III

Time Cost Analysis: Cost time analysis in network planning, updating

UNIT-IV

Contracts: Introduction, types of contracts and their advantages and disadvantages, conditions of contracts, Introduction to Indian contract act.

Tender: Tender form, Tender Documents, Tender Notice, Work Order.

UNIT-V

Linear programming and optimization Techniques: Introduction to optimization – Linear programming, Importance of optimization, Simple problems on formulation of LP, Graphical method, Simplex method.

Learning Resources:

1. Srinath L.S., PERT and CPM: Principles and Application, East-West Press, 2001.
2. Peret, F, Construction Project Management an Integrated approach, Taylor and Francis, Taylor and Francis Group, London & New York, 2009
3. Punmia B.C., and Khandelwal, PERT and CPM, Laxmi Publications, 2006.
4. http://nptel.ac.in/courses/

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 Computer Science & Engineering
INTRODUCTION TO DATABASES (OPEN ELECTIVE-V)
SYLLABUS FOR B.E. VI-SEMESTER
(COMMON FOR CIVIL, ECE, EEE & MECH)

L:T:P (Hrs./week): 3:0:0	SEE Marks : 60	Course Code : **OE610CS**
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. Identify different issues involved in the design and implementation of a database system. 2. Understand transaction processing.	1.Identify the functional components of database management system. Create conceptual data model using Entity Relationship Diagram 2.Transform a conceptual data model into a relational model 3.Design database using normalization techniques 4.Apply indexing and hashing techniques for effective data retrieval 5.Explain transaction processing.

UNIT-I

Introduction: Database System Application, Purpose of Database Systems, View of Data, Database Languages, Relational Database, Database Architecture, Database Users and Administrators.

Database Design and E-R Model: Overview of the Design Process, the E-R Model, Constraints, E-R Diagrams.

UNIT-II

Relational Model: Structure of Relation Database, Relational Algebra Operations, Modification of the Database.

Structured Query Language: Introduction, Basic Structure of SQL Queries, Set Operations, Aggregate Functions, Null Values, Nested Sub queries, Views, Join Expressions.

UNIT-III

Relational Database Design: Features of Good Relational Designs, Atomic Domains and first Normal form, Decomposition Using Functional Dependencies, functional Dependency Theory.

UNIT-IV

Indexing and Hashing: Basic Concepts, Ordered Indices, B+ Tree Index Files, B-Tree Files, Multiple – Key Access, Static Hashing, Dynamic Hashing, Comparison of Ordered Indexing and Hashing.

UNIT-V

Transaction Management: Transaction concept, Storage Structure, Transaction Atomicity and Durability, Transaction Isolation and Atomicity, Serializability, Recoverability.

Learning Resources:

1. Abraham Silberschatz, Henry F Korth, Sudharshan S, Database System Concepts, 6th Edition(2011), McGraw-Hill International Edition.
2. Date CJ, Kannan A, Swamynathan S, An Introduction to Database System , 8th Edition(2006) Pearson Education.
3. Raghu Ramakrishna, and Johannes Gehrke, Database Management Systems, 3rd Edition(2003), McGraw Hill.
4. RamezElmasri, Durvasul VLN Somyazulu, Shamkant B Navathe, Shyam K Gupta, Fundamentals of Database Systems, 4th Edition(2006), Pearson Education.
5. Peter rob, Carlos coronel, Database Systems, (2007), Thomoson.
6. http://nptel.ac.in/courses/106106093/

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 Computer Science & Engineering
INTRODUCTION TO OPERATING SYSTEMS (OPEN ELECTIVE-V)

SYLLABUS FOR B.E. VI-SEMESTER
(COMMON FOR CIVIL, ECE, EEE & MECH)

L:T:P (Hrs./week): 3:0:0	SEE Marks : 60	Course Code : **OE620CS**
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.Understand different Operating system Structures and Services.	1. Compare CPU scheduling algorithms and Operating system structures 2. Apply different techniques for Main memory management. 3. Describe file management techniques. 4. Describe deadlock handling methods 5. Analyze Disk scheduling algorithms and I/O operation implementation techniques.

UNIT-I:

Introduction to operating systems: Definition, User view and System view of the Operating system, Operating system structure, Operating system services.

Process: Process concept, Process Control block, Context switching.

CPU Scheduling: Scheduling Criteria, Scheduling Algorithms: FCFS, SJF, Round Robin

UNIT-II:

Memory Management: Swapping, Contiguous memory allocation: Fixed Partitioning, Variable Partitioning. Non-Contiguous memory allocation: Paging.

Virtual memory: Demand paging, Page replacement Algorithms: FIFO, Optimal, LRU.

UNIT –III:

File System Interface: File Concept, Access Methods: Sequential, Indexed, and Direct

File System Implementation: File-System Structure, Allocation Methods: Contiguous, Linked and Indexed.

UNIT –IV:

Deadlocks: System model, deadlock characterization: Mutual Exclusion, Hold and Wait,
Non pre-emption, Circular wait. Deadlock Prevention, Deadlock Avoidance: Banker's algorithm.

UNIT-V:

Device Management: Disk Scheduling algorithms: FCFS, SSTF, SCAN.

I/O System: I/O hardware, Application I/O Interface.

Learning Resources:

1. Abraham Silberschatz, Peter B. Galvin, Greg Gagne, *Operating System Concepts*, 9th Edition (2016), Wiley India.
2. Andrew S. Tanenbaum, *Modern Operating Systems*, 2nd Edition (2001), Pearson Education, Asia.
3. Dhananjay, Dhamdhere.M, *Operating System-concept based approach*, 3rd edition (2009), Tata McGraw Hill, Asia
4. Robet Love: *Linux Kernel Development*, (2004)Pearson Education
5. Richard Stevens, Stephen Rago, *Advanced Programming in the UNIX Environment*, 3rd Edition(2013), Pearson Education
6. http://web.stanford.edu/~ouster/cgi-bin/cs140-spring19/index.php
7. https://nptel.ac.in/courses/106106144/

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 ELECTRONICS AND COMMUNICATION ENGINEERING

BASICS OF COMMUNICATION SYSTEMS (OPEN ELECTIVE-V)
SYLLABUS FOR B.E. VI - SEMESTER

L:T:P (Hrs./week) : 3:0:0	SEE Marks : 60	Course Code: **OE610EC**
Credits : 3	CIE Marks : 40	Duration of SEE : 3 Hours

COURSE OBJECTIVES	**COURSE OUTCOMES**
1. Distinguish between Amplitude and Frequency modulation methods and their application in Communication Receivers 2. Explain why multiplexing methods are necessary in communications and compare FDM with TDM 3. Compare and contrast FSK and BPSK modulation schemes employed in digital data transmission 4. Draw the block diagrams of different types of communication systems and explain their operation	On completion of the course, students will be able to 1. Identify the Radio frequency spectrum and the bands of different types of radio systems 2. Analyze the power, efficiency and transmission bandwidth of Amplitude and Frequency Modulated signals. 3. Convert the Radio frequency to Intermediate frequency and explain the operation of Superheterodyne Receiver. 4. Compare and contrast Frequency Division Multiplexing and Time Division Multiplexing used in the Communication systems 5. Detect and correct errors present in bit stream data using parity check 6. Explain the basic principles of different types of communication systems.

UNIT - I :

Introduction to Electronic Communication: Communication systems, Types of Electronic Communication, Modulation and Multiplexing, The Electromagnetic Spectrum, Bandwidth, Communication Applications, Gain and Attenuation definitions

Amplitude Modulation Fundamentals: AM concepts, Modulation Index and Percentage of Modulation, Sidebands and the Frequency Domain, AM Power

UNIT - II :

Fundamentals of Frequency Modulation: Basic principles of Frequency Modulation, Principles of Phase Modulation, Modulation Index and Sidebands, Noise – Suppression Effects of FM, Frequency Modulation verses Amplitude Modulation.

Communication Receivers: Basic Principles of Signal Reproduction, Superheterodyne Receivers, Frequency Conversion, Intermediate Frequency and Images, Noise.

UNIT - III :

Digital Communication Techniques: Digital Transmission of Data, Parallel and Serial Transmission, Data Conversion, Pulse Modulation.

Multiplexing and De-multiplexing: Multiplexing Principles, Frequency Division Multiplexing, Time Division Multiplexing, PCM Multiplexing.

UNIT - IV :

Transmission of Binary Data in Communication Systems: Digital Codes, Principles of Digital Transmission, Transmission Efficiency, Modem Concepts and Methods – FSK, BPSK, Error Detection and Correction

UNIT - V :

Different Types of Communication Systems: Microwave Concepts, Optical Principles, Optical Communication System, Satellite Communication Systems, Satellite Orbits, Cellular Telephone Systems, Bluetooth and Wi-Fi basics

Learning Resources:

1.Louis E. Frenzel, Principles of Electronic Communication Systems, 3rd Edition. Tata Mcgraw Hill.
2.Wayne Tomasi, Electronic Communications Systems, 5th Edition, Pearson Education.
3.https://nptel.ac.in/syllabus/syllabus.php?subjectId=117102059
4.https://nptel.ac.in/courses/117101051/12

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 ELECTRONICS AND COMMUNICATION ENGINEERING

INTERNET OF THINGS AND APPLICATIONS (OPEN ELECTIVE-V)
SYLLABUS FOR B.E. VI - SEMESTER

L:T:P (Hrs./week) : 3:0:0	SEE Marks : 60	Course Code: **OE620EC**
Credits : 3	CIE Marks : 40	Duration of SEE : 3 Hours

COURSE OBJECTIVES	COURSE OUTCOMES
1. The purpose of this course is to impart knowledge on IoT Architecture, practical constrains. 2. To study various protocols And to study their implementations	On completion of the course, students will be able to 1. Understand the Architectural Overview of IoT 2. Enumerate the need and the challenges in Real World Design Constraints 3. Compare various IoT Protocols. 4. Build basic IoT applications using Raspberry Pi. 5. Understand IoT usage in various applications.

UNIT - I : OVERVIEW

Introduction to IoT – Improving Quality of life.
IoT-An Architectural Overview, M2M and IoT Technology Fundamentals-Devices and gateways, Local and wide area networking, Data management, Business processes in IoT.

UNIT - II : Real-World Design Constraints

Real-World Design Constraints- Introduction, Technical Design constraints-hardware is popular again, Data representation and visualization, Interaction and remote control. Power Management in IoT device, Power conditioning using energy harvesting.

UNIT - III : IOT PROTOCOLS

Introduction to MQTT, Quality of services in MQTT,standards and security in MQTT.

Introduction and implementation of AMQP, Implementation of CoAP and MDNS.

UNIT - IV : Device for IoT

Choice of Microcontroller, Introduction to Raspberry Pi ,Features of Pi, Programming platform, Phython programming for Pi. Building basic IoT Applications using Raspberry Pi.

UNIT - V : IoT case studies

Smart Cities and Smart Homes, Connected Vehicles, Agriculture, Healthcare, Activity Monitoring.

Learning Resources:

1. Jan Holler, VlasiosTsiatsis, Catherine Mulligan, Stefan Avesand, StamatisKarnouskos, David Boyle, "From Machine-to-Machine to the Internet of Things: Introduction to a New Age of Intelligence", 1 st Edition, Academic Press, 2014.
2. Peter Waher, "Learning Internet of Things", PACKT publishing, BIRMINGHAM – MUMBAI
3. Bernd Scholz-Reiter, Florian Michahelles, "Architecting the Internet of Things", ISBN 978-3-642-19156-5 e-ISBN 978-3-642-19157-2, Springer
4. 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
5. https://nptel.ac.in/courses/106105166/5
6. https://nptel.ac.in/courses/108108098/4

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 ELECTRONICS AND COMMUNICATION ENGINEERING
INTRODUCTION TO MOBILE COMMUNICATIONS
(OPEN ELECTIVE-V)

SYLLABUS FOR B.E. VI - SEMESTER

L:T:P (Hrs./week) : 3:0:0	SEE Marks : 60	Course Code: **OE630EC**
Credits : 3	CIE Marks : 40	Duration of SEE : 3 Hours

COURSE OBJECTIVES	COURSE OUTCOMES
1. To understand the technology trends changing from generation to generation. 2. To have an insight into the various propagation models and the effects of fading. 3. To understand the multiple access techniques and Mobile communication system specifications.	On completion of the course, students will be able to 1. Analyze various methodologies to improve the cellular capacity. 2. Identify various Propagation effects. 3. Identify the effects of fading and multi path propagation. 4. Categorize various multiple access techniques for Mobile Communications. 5. Analyze the specifications of GSM based Mobile Communication Systems.

UNIT - I:

Introduction to Wireless Communication Systems: Evolution of Mobile Radio Communications, Examples of Wireless Communications Systems, Trends in Cellular Radio and Personal Communication Systems.

The Cellular Concept – System Design Fundamentals: Introduction, Frequency Reuse, Channel Assignment Strategies, Handoff Strategies, Interference and System Capacity, Improving Coverage and Capacity in Cellular Systems.

UNIT - II:

Mobile Radio Propagation - Large Scale Path Loss: Introduction to Radio wave Propagation, Free Space Propagation Model, Reflection, Ground Reflection (Two-Ray) Model, Diffraction, Scattering.

UNIT - III:

Mobile Radio Propagation - Small Scale Fading and Multipath: Small Scale Multipath Propagation, Small – Scale Multipath Measurements, Parameters of Mobile Multipath Channels, Types of Small-Scale Fading, Rayleigh and Ricean Distributions.

UNIT -IV:

Multiple Access Techniques for Wireless Communications: Introduction, Frequency Division Multiple Access (FDMA), Time Division Multiple Access (TDMA), Code Division Multiple Access (CDMA), Space Division Multiple Access (SDMA).

UNIT -V:

Wireless Systems and Standards: Global System for Mobile (GSM) – Services and features, System architecture, GSM Radio subsystem, channel types, Frame structure for GSM.

Learning Resources:

1. Theodore S. Rappaport, Wireless Communications Principles and Practices, 2nd edition, Pearson Education.
2. David Tse, Pramodh Viswanath, Fundamentals of Wireless Communication, 2005, Cambridge University Press.
3. Name of the course: Introduction to Wireless and Cellular Communications
Course url: https://swayam.gov.in/nd1_noc19_ee48/preview

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 Information Technology
INTRODUCTION TO WEB APPLICATION DEVELOPMENT
(OPEN ELECTIVE-V)
SYLLABUS FOR B.E VI- SEMESTER
(Common for CIVIL, ECE, EEE & MECH)

L:T:P(Hrs./week): 3:0:0	SEE Marks : 60	Course Code : **OE610IT**
Credits : 3	CIE Marks : 40	Duration of SEE : 3 Hrs

COURSE OBJECTIVES	**COURSE OUTCOMES** On completion of the course, students will be able to
Acquire basic skills for designing static and dynamic Web Applications using HTML, CSS , Java script and PHP.	1. Design a static web pages using HTML, CSS. 2. Use JavaScript for creating dynamic web pages and client side validation. 3. Use built-in functions of PHP to perform server side validations and sending emails. 4. Use built-in functions of PHP to connect , query and fetch results from a database. 5. Build a PHP application using an MVC Framework.

UNIT-I: Introduction
Introduction: World Wide Web, Web Browsers, Web Servers, URL, HTTP, TCP Port. HTML: Standard HTML document structure, Basic Tags, Images, Hypertext Links, Lists, Tables, Frames. CSS: In-line style sheets, Internal Style sheets and External Style sheets.

UNIT-II: Basics of JavaScript
JavaScript: Introduction, Basics of JavaScript-variables, data types and operators, Control Structures, Arrays, Functions, HTML Forms, Events and event handling.

UNIT-III: Basics of PHP

Basics of PHP: Data Types, Variables and Operators, Control Structures: If else, Switch Case. Loop: For, ForEach, While, Do While. Functions in PHP, PHP Forms, Cookies & Sessions, File Processing.

UNIT-IV: Advanced PHP

Advanced PHP: PHP E-Mail, Filters, Database Access, OOPS in PHP. Application using PHP.

UNIT-V: Introduction to MVC

Introduction to Model View Controller Architecture, Building Application using a PHP Framework, Testing and Deploying a PHP application.

Learning Resources:

1. "Web Technologies", 7th Edition, Uttam K.Roy,2012.
2. "Internet & World Wide Web How to Program", 5/e, Paul J. Deitel, Harvey M. Deitel, Abbey Deitel,2012.

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

1	No. of Internal Tests	: 2	Max. Marks for each Internal Tests	:	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 Information Technology
INTRODUCTION TO MACHINE LEARNING
(OPEN ELECTIVE-V)

SYLLABUS FOR B.E VI- SEMESTER
(Common for CIVIL, ECE, EEE & MECH)

L:T:P (Hrs./week): 3:0:0	SEE Marks :60	Course Code: **OE620IT**
Credits : 3	CIE Marks: 40	Duration of SEE :3Hrs

COURSE OBJECTIVES	**COURSE OUTCOMES** On completion of the course, students will be able to
Introduce the fundamental concepts and approaches in Artificial intelligence and Machine Learning field to effectively apply techniques to the real-world problems.	1. Demonstrate knowledge of the Artificial intelligence and machine learning literature. 2. Apply an appropriate algorithm for a given problem. 3. Apply machine learning techniques in the design of computer systems. 4. Prove basic results in the theory of learning 5. Explain the relative strengths and weaknesses of different machine learning methods and approaches.

UNIT-I:
Introduction to AIML: Foundations of AI, Sub areas of AI, Applications. Introduction to learning, Types of Learning: Supervised Learning, Unsupervised Learning, Reinforcement Learning.
Supervised learning: Linear Regression, Logistic Regression.

UNIT-II:
Supervised Non-parametric learning: Introduction to Decision Trees, K-Nearest Neighbor, Feature Selection.

Supervised Parametric learning: Support Vector Machine, Kernel function and Kernel SVM.

UNIT-III:

Supervised Parametric learning (Neural networks): Perceptron, Multilayer Neural Network, Backpropagation.

UNIT-IV:

Supervised Parametric Bayesian learning: Introduction, Naive Bayes Classification, Bayesian Network.

UNIT-V:

Unsupervised leaning: Clustering, K-means Clustering, DBSCAN

Learning Resources:

1. Tom Mitchell, Machine Learning, First Edition, McGraw-Hill, 1997
2. Christopher Bishop. Pattern Recognition and Machine Learning. Second Edition.
3. EthemAlpaydin , Introduction to Machine Learning, Second Edition
4. T. Hastie, R. Tibshirani, J. Friedman. The Elements of Statistical Learning, 2e, 2008.
5. http://nptel.ac.in/courses/106106139/

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

1	No. of Internal Tests	: 2	Max. Marks for each Internal Tests	:	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 Mechanical Engineering
INTRODUCTION TO AUTOMOBILE ENGINEERING (OE-V)
SYLLABUS FOR B.E.VI-SEMESTER

L:T:P(Hrs/week):3:0:0	SEE Marks:60	Course Code: **OE610ME**
Credits :03	CIE Marks:40	Duration of SEE:03Hours

COURSE OBJECTIVES	**COURSE OUTCOMES** On completion of the course, students will be able to
1 familiarize the student with the different types of automobiles and engine components.	1 identify types of Automobiles and engine components.
2 impart adequate knowledge in fuel supply, cooling, lubrication systems of IC engines.	2 describe the engine fuel system in petrol and Diesel engines, cooling, lubrication systems.
3 understand the steering geometry, steering mechanism and types of suspension systems.	3 describe the steering mechanism, suspension systems
4 gain the knowledge about working of clutch, gear mechanism, brakes	4 analyse the working principle and operation of clutch, gear mechanism and brakes.
5 make the student conversant with types of wheels, tyres and pollution control techniques.	5 know the pollutants from automobile and pollution control techniques and identify the types of wheels, tyres.

UNIT-I

Introduction: Types of automobiles: Hybrid Vehicles, Electrical, gas and Fuel cell vehicles. Chassis and body, Lay out of transmission system, Engine components: cylinder block, cylinder head, crankcase, crank shaft and cam shaft. Types of IC Engines: SI and CI engines, two stroke and four stroke engines.

UNIT-II

Fuel system: Fuel supply system for SI engines and CI engines. Simple carburettor, Introduction to Multipoint fuel injection system (**MPFI**) of petrol engines and Introduction to **CRDI** system for diesel engines.

Cooling system: air cooling, water cooling: Thermo syphon, pump circulation system.

Lubrication system: Petroil System, splash system, pressure lubrication: Wet sump and Dry Sump.

Ignition system: Battery Ignition System, Magneto Ignition System and Electronic Ignition System.

UNIT-III

Suspension system: Rigid axle, Independent suspension system:Double wish bone type, Macpherson strut system, Air suspension system.

Steering system: front axle, wheel alignment, steering geometry: camber, caster, toe-in, toe-out, steering linkage for vehicle with rigid axle front suspension, steering linkage for vehicle with independent front suspension, Ackermann steering mechanism.

UNIT –IV

Power Train: Single plate clutch, Multi plate clutch. Manual Gear Box: sliding mesh gear box, constant mesh gear box, synchromesh gear box and Automatic Gear Box. Working principle of Differential.

Brakes: Types: Drum and Disc brakes, Mechanical and Hydraulic Brakes, **ABS** system.

UNIT –V

Wheels and Tyres: Types of Wheels: wire wheels, disc wheels, alloy wheels. Types of tyres: Tube type, tubeless type. **SRS** Airbag system.

Automobile Emissions and control: Automobile pollutants and sources of pollution. Pollution Control Techniques: Catalytic Converters, EGR and PCV. Bharath emission Norms.

Learning Resources:

1. Crouse & Anglin, “Automobile Engineering”, 10th Edition, Tata McGraw Hill Publishing Co. Ltd., New Delhi,. 2007.
2. Kirpal Singh, “Automobile Engineering”, Vol.I& II, 13th Edition, Standard Publishers, New Delhi 2013.

3. R.B Gupta, "Automobile Engineering" 7th Edition, Satya Prakashan, New Delhi, 2015.
4. Joseph Heitner, "Automotive Mechanics", 2nd Edition, Affiliated East West Pvt. Ltd., 2013.
5. C.P. Nakra, "Basic Automobile Engineering", 7th Edition, Dhanpat Rai Publishing C (P) Ltd., 2016.

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

1	No. of Internal Tests:	02	Max.Marks for each Internal Test:	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: **1 Hour 30 Minutes**

With effect from the Academic Year 2019-20

VASAVI COLLEGE OF ENGINEERING (Autonomous)

IBRAHIMBAGH, HYDERABAD – 500 031

Department of Mechanical Engineering

ADDITIVE MANUFACTURING AND ITS APPLICATIONS

SYLLABUS FOR B.E.VI-SEMESTER

L:T:P(Hrs/week):3:0:0	SEE Marks:60	Course Code: **OE620ME**
Credits :03	CIE Marks:40	Duration of SEE:03Hours

COURSE OBJECTIVES	**COURSE OUTCOMES** On completion of the course, students will be able to
The objective of the course is to understand the fundamentals of various additive manufacturing technologies and their applications in Engineering Industry.	1 understand the fundamentals of prototyping.
	2 study the principle, process, advantages and limitations of liquid based AM systems.
	3 study the principle, process, advantages and limitations of solid based AM systems.
	4 study the principle, process, advantages and limitations of powder based AM systems.
	5 study the applications of AMT in various engineering industries.

UNIT-I

Introduction, Prototyping fundamentals, Historical development, Fundamentals of rapid prototyping, Advantages of Rapid prototyping, Commonly used terms, Rapid prototyping process chain, 3D modelling, Data Conversion, and transmission, Checking and preparing, Building, Post processing, AM data formats, Classification of AM process

UNIT-II

Liquid based AM systems: Stereolithography Apparatus(SLA): Models and specifications, Process, Working principle, photopolymers,

Photopolymerisation, Layering technology, laser and laser scanning, Applications, Advantages and disadvantages, Case studies
Solid ground curing(SGC): Models and specifications, Process, Working principle, Applications, Advantages and disadvantages, Case studies

UNIT-III

Solid based AM systems: Laminated object manufacturing(LOM): Models and specifications, Process, Working principle, Applications, Advantages and disadvantages, Case studies.
Fused Deposition Modeling (FDM): Models and specifications, Process, Working principle, Applications, Advantages and disadvantages, Case studies.

UNIT-IV

Powder based AM systems: Selective laser sintering(SLS): Models and specifications, Process, Working principle, Applications, Advantages and disadvantages, Case studies.
Three dimensional printing (3DP): Models and specifications, Process, Working principle, Applications, Advantages and disadvantages, Case studies.

UNIT-V

Applications of AM systems: Applications in aerospace industry, automotive industry, jewellery industry, coin industry, GIS Application, arts and architecture.
RP medical and bio engineering Application: planning and simulation of complex surgery, customized implant and prosthesis , design and production of medical devices, forensic science and anthropology, visualization of bio-molecules.

Learning Resources:

1. Chua C.K., Leong K.F. abd LIM C.S., "World Rapid prototyping : Principles and Applications", 2nd Editon, Scientific Publications, 2004
2. D.T.Pham and S.S.Dimov, "Rapid Manufacturing", Springer, 2001.
3. AmithabaGhose, "Rapid prototyping", Eastern Law House, 1997.

4. Paul F.Jacobs, “Stereolithography and other RP & M Technologies”, ASME Press, 1996.

5. Paul F.Jacobs, “Rapid Prototyping & Manufacturing”, ASME Press, 1996.

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

1	No. of Internal Tests:	02	Max.Marks for each Internal Test:	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: **1 Hour 30 Minutes**

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
Ibrahimbagh, Hyderabad-500 031, Telangana State

DEPARTMENT OF PHYSICS
FUNDAMENTALS OF NANO MATERIALS AND THEIR APPLICATIONS

SYLLABUS FOR B.E.VI-SEMESTER

L:T:P(Hrs/week):3:0:0	SEE Marks:60	Course Code: **OE610PH**
Credits :03	CIE Marks:40	Duration of SEE:03Hours

COURSE OBJECTIVES	COURSE OUTCOMES
Students will be able to learn	At the end of the course students will be
1. Learn bulk, thin and nano structures 2. Acquire knowledge on properties of nano materials 3. Appreciate fabrication techniques of nano materials 4. Learn nanomaterial characterization techniques. 5. Appreciate application of nano materials	1. Distinguish bulk, thin and nano materials from the point of view of size effects 2. List various properties of nano materials 3. Narrate various nanonmaterial preparation techniques 4. Describe necessary characterization techniques of nano materials 5. Write various applications of CNTS and nano structures.

UNIT-I: INTRODUCTION TO NANOSCIENCE

Distinction between bulk, thin and nano materials-surface to volume ratio, change of electronic structure, density of states of thin and nano materials, quantum confinement-quantum size effect-Reduction of dimensionality, Quantum wells (two dimensional),Quantum wires (one dimensional), Quantum dots (zero dimensional).

UNIT-II: PROPERTIES OF NANO MATERIALS

Material behavior at reduced dimensions, Electrical properties: conductivity, surface scattering, ballistic transport Magnetic properties: Soft magnetic Nano-crystalline alloy, Permanent magnetic Nano-crystalline

materials, Giant Magnetic Resonance, chemical properties, optical properties and thermal properties.

UNIT-III: NANOMATERIALS PREPARATION TECHNIQUES

Bottom-up and Top-down approaches. Preparation techniques Bottom-up methods: Physical Vapor Deposition, Laser Ablation, Chemical Vapor Deposition, Molecular Beam Epitaxy, Solgel method ,Self assembly, top-down methods: ball milling, Nano-lithography, Spark plasma sintering.

UNIT-IV: NANO MATERIAL CHARACTERIZATION TECHNIQUES

Characterization techniques: X-Ray Diffraction (XRD), working principles of Scanning Electron Microscopy (SEM), working of Transmission Electron Microscopy (TEM), Atomic Force Microscopy (AFM), Scanning Tunneling Microscope (STM), Field Ion Microscope (FEM).

UNIT-V: CARBON NANO MATERIALS AND APPLICATIONS

Graphene, Elementary ideas on Carbon nanotubes, CNTs, types of CNTs-single wall (SWCNT) and multiwall carbon nanotubes (MWCNT), properties and characteristics of SWCNTS and MWCNTS. Applications of nano materials in Cosmetic sector, Food, Agricultural, engineering, automotive Industry, environment, medical applications, Textiles, Paints, Energy, space Applications, nanosensors and nanocatalysts.

Learning Resources:

1. B.S. Murthy, P. Shankar, Baldev Raj, B.B. Rath and James Munday, Text Book of Nano Science and Nano Technology – University Press (India) 2013
2. K.K. Chattopadhyay and A.N. Benerjee, Introduction to Nanoscience and Nanotechnology , PHI, 2019

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

1	No. of Internal Tests:	02	Max.Marks for each Internal Test:	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: **1 Hour 30 Minutes**

With effect from the Academic Year 2019-20

VASAVI COLLEGE OF ENGINEERING (Autonomous)

IBRAHIMBAGH, HYDERABAD – 500 031

DEPARTMENT OF HUMANITIES AND SOCIAL SCIENCES

(OPEN ELECTIVE) VI SEMESTER

Course Name: ENGLISH FOR COMPETITIVE EXAMINATIONS

(Common to all branches)

L: T: P (Hrs/Week): 3	SEE Marks: 60	Course Code: **OE610EH**
Credits: 3	CIE Marks: 40	Duration of SEE: Hours: 03

COURSE OBJECTIVES	COURSE OUTCOMES
The course will enable the students to:	On completion of the course, students will be able to:
1. To familiarise the students to various types of competitive examinations.	1. The student will be able to solve various types of questions in competitive English examinations effectively.
2. To practice questions and prepare for GATE, GRE, CAT, TOEFL.	3. Provide logical conclusions for the questions on aptitude and reasoning within the stipulated time.

GATE :

- Concentrating on English grammar
- Recognizing suitable option in sentence completion
- Solving verbal analogies
- Categorizing word groups
- Ignoring distractions in critical reasoning questions
- Providing reasoning in verbal deduction

GRE :

VERBAL REASONING:

- Analysing and drawing add value to incomplete data; identify the perception of the author
- Identifying vital points and differentiating between relevant and irrelevant points
- Understanding and summarising the structure of a text
- Understanding the given words, sentences and entire texts; ability to focus on the meaning of the entire sentence
- Understanding relationships among words and concepts

ANALYTICAL WRITING:

- Articulating complex ideas effectively and with clarity

- Supporting ideas with relevant reasons and examples
- Examining claims and accompanying evidence
- Sustaining a well-focused, coherent discussion

CAT :

VERBAL ABILITY AND READING COMPREHENSION:

- Reading comprehension (antonyms/synonyms)
- Sentence correction
- Fill in the blanks & cloze passage
- Jumbled sentences
- Jumbled paragraph (word meaning based questions)
- Analogies
- Para odd one out
- Summary (facts, assumptions, judgements
- Verbal reasoning (paragraph formation)

TOEFL:

- Basic understanding, speed and accuracy, learning from reading, pronoun reference, author's point of view.
- Good delivery including clarity of speech, fluidity, natural pacing and correct intonation patterns.
- Correct use of language showing a good grasp of grammar, vocabulary and speech structures.
- Topic development in which you are able to show a well-structured. organized response that effectively connects ideas with enough support for each point you are making.
- Writing strategy and format execution skills.

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

1	No. of Internal Tests:	02	Max.Marks for each Internal Test:	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: **1 Hour 30 Minutes**

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

DEPARTMENT OF HUMANITIES AND SOCIAL SCIENCES

OPEN ELECTIVE B.E. V Semester

Technical Writing and Professional Presentations

Common to all branches

L: T: P (Hrs/Week): 3	SEE Marks: 60	Course Code: **OE010EH**
Credits: 3	CIE Marks: 40	Duration of SEE: Hours: 03

COURSE OBJECTIVES	COURSE OUTCOMES
The course will enable the students to:	**At the end of the course the student will be able to**
4. understand the principles and mechanics of technical writing for students of engineering. 5. comprehend specific communications skills associated with reporting technical information and will write a series of papers ranging from process description and feasibility reports to research projects, project proposals, and statement of purpose, which are pre-requisites for start-up companies and getting into foreign universities as well. 6. make effective presentations as part of today's workplace demands.	4. write effective reports 5. research and write project proposals and SoPs 6. make persuasive presentations

UNIT I

A. TECHNICAL REPORTS- INFORMAL

Informal report formats, project and research reports

B. TECHNICAL REPORTS-FORMAL

Formal report components, feasibility reports, evaluation reports,

Analytical and informational reports, executive summaries.

UNIT II

TECHNICAL WRITING IN BUSINESS CORRESPONDENCE

Components of a letter, types of electronic communication, effective emails, instant and text messaging guidelines.

UNIT III

Technical Resume, Curriculum Vitae, Biodata, Cover letter, resume format.

UNIT IV

A. PROFESSIONAL PRESENTATIONS

Paper presentations, Poster presentations, PowerPoint presentations, video demos and tutorials

B. VIDEO DEMOS AND TUTORIALS

Storyboard writing, e-learning methods; video demos, training videos, webinars, conducting surveys, questionnaire, assessments, quiz, introduction to e-learning tools; Adobe Captivate, TechSmith Camtasia.

UNIT-V

HOW TO WRITE PROPOSALS AND STATEMENT OF PURPOSE

Types of proposals, persuasive elements, requests for proposals, stating your objective

METHODOLOGY: -	**ASSESSMENT: -**
Case Studies	Online assignments
Demonstration	Individual and Group Presentations
Expert lectures	Writing and Audio-visual lessons

Learning Resources: -

1. Effective Technical Communication, M Ashraf Rizvi, Tata McGraw-Hill Education, 2005
2. Raman, Meenakshi & Sangeeta Sharma. Technical Communication: Principles and Practice. Second Edition. New Delhi: Oxford University. Press, 2011.

3. Hacking Your Statement of Purpose: A Concise Guide to Writing Your SOP, Milena Young, 2014.
4. How to prepare a feasibility study: a step-by-step guide including 3 model studies. Front Cover. Robert E. Stevens, Philip K. Sherwood. Prentice-Hall, 1982.
5. Successful Presentations (with DVD): John Hughes & Andrew Mallett. Oxford university Press.

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

1	No. of Internal Tests:	02	Max.Marks for each Internal Test:	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: **1 Hour 30 Minutes**

VASAVI COLLEGE OF ENGINEERING (Autonomous)

IBRAHIMBAGH, HYDERABAD – 500 031

Department of Electrical & Electronics Engineering

Activity Calendar

S.No.	Date	Day	Details of Activity / Public Holiday
JULY,2019			
1	15-07-2019	MON	Course Registration by Students--> BE III, V & VII SEMESTER
2	16-07-2019	TUE	Course Registration by Students--> BE III, V & VII SEMESTER
3	17-07-2019	WED	Course Registration by Students--> BE III, V & VII SEMESTER
4	18-07-2019	THU	Course Registration by Students--> BE III, V & VII SEMESTER
5	19-07-2019	FRI	Course Registration by Students--> BE III, V & VII SEMESTER
6	20-07-2019	SAT	Course Registration by Students--> BE III, V & VII SEMESTER
7	21-07-2019	SUN	PUBLIC HOLIDAY
8	22-07-2019	MON	Commencement of instruction : BE III, V & VII SEMESTER
9	23-07-2019	TUE	--
10	24-07-2019	WED	--
11	25-07-2019	THU	--
12	26-07-2019	FRI	--
13	27-07-2019	SAT	--
14	28-07-2019	SUN	PUBLIC HOLIDAY
15	29-07-2019	MON	BONALU- HOLIDAY
16	30-07-2019	TUE	--
17	31-07-2019	WED	**Guest Lecture on "Electrical Machine Design" for VII Semester students.**

AUGUST,2019

18	01-08-2019	THU	--
19	02-08-2019	FRI	--
20	03-08-2019	SAT	--
21	04-08-2019	SUN	PUBLIC HOLIDAY
22	05-08-2019	MON	
23	06-08-2019	TUE	--
24	07-08-2019	WED	--
25	08-08-2019	THU	--
26	09-08-2019	FRI	--
27	10-08-2019	SAT	PUBLIC HOLIDAY(2ND SATURDAY)
28	11-08-2019	SUN	PUBLIC HOLIDAY
29	12-08-2019	MON	BAKRID (ID-UL-FITR)
30	13-08-2019	TUE	--
31	14-08-2019	WED	--
32	15-08-2019	THU	INDEPENDENCE DAY
33	16-08-2019	FRI	**Two day workshop on MATLAB, "Simulation of Circuits & Fields" for III Semester under CCA activity.**
34	17-08-2019	SAT	**Essay writing competition under Professional Bodies for III-Semester students.**
35	18-08-2019	SUN	PUBLIC HOLIDAY
36	19-08-2019	MON	--
37	20-08-2019	TUE	--
38	21-08-2019	WED	**Guest Lecture on "Career Guidance" for III – Semester students.**
39	22-08-2019	THU	Orientation and Briefing session for Registration of subjects (ME/M.TECH III SEM)

40	23-08-2019	FRI	Orientation and Briefing session for Registration of subjects (ME/M.TECH III SEM)
41	24-08-2019	SAT	SRI KRISHNASHTAMI

Orientation and Briefing session for Registration of subjects (ME/M.TECH III SEM)

42	25-08-2019	SUN	PUBLIC HOLIDAY
43	26-08-2019	MON	Commencement of Instruction (ME/M.TECH- III SEM)
44	27-08-2019	TUE	--
45	28-08-2019	WED	--
46	29-08-2019	THU	--
47	30-08-2019	FRI	**Two day workshop on MATLAB, "Simulation of Circuits & Fields" for II Semester under CCA activity**
48	31-08-2019	SAT	**Elocution competition under Professional Bodies for VII Semester students**

SEPTEMBER, 2019

49	01-09-2019	SUN	PUBLIC HOLIDAY
50	02-09-2019	MON	VINAYAKA CHAVITHI
51	03-09-2019	TUE	**Technical Quiz under Professional Bodies for V Semester students**
52	04-09-2019	WED	--
53	05-09-2019	THU	Teachers' Day celebrations
54	06-09-2019	FRI	--
55	07-09-2019	SAT	--
56	08-09-2019	SUN	PUBLIC HOLIDAY
57	09-09-2019	MON	I-Internal Test: BE III, V & VII SEMESTER
58	10-09-2019	TUE	MOHARRUM- PUBLIC HOLIDAY
59	11-09-2019	WED	I-Internal Test: BE III, V & VII SEMESTER

60	12-09-2019	THU	I-Internal Test: BE III, V & VII SEMESTER
61	13-09-2019	FRI	I-Internal Test: BE III, V & VII SEMESTER
62	14-09-2019	SAT	I-Internal Test: BE III, V & VII SEMESTER
63	15-09-2019	SUN	PUBLIC HOLIDAY- Engineers' Day
64	16-09-2019	MON	**Electro Officina – Hardware Model demonstration workshop.**
65	17-09-2019	TUE	--
66	18-09-2019	WED	--
67	19-09-2019	THU	--
68	20-09-2019	FRI	-- **Two day workshop on MATLAB, "Simulation of Circuits & Fields" for III Semester under CCA activity**
69	21-09-2019	SAT	Parent-Teacher Meeting- BE III, V & VII SEMESTER
70	22-09-2019	SUN	--
71	23-09-2019	MON	--
72	24-09-2019	TUE	--
73	25-09-2019	WED	--
74	26-09-2019	THU	-- **Guest Lecture on PLC & SCADA for V Semester students**
75	27-09-2019	FRI	**Two day workshop on MATLAB, "Simulation of Circuits & Fields" for III Semester under CCA activity**
76	28-09-2019	SAT	BATHUKAMMA STARTING DAY- PUBLIC HOLIDAY
77	29-09-2019	SUN	PUBLIC HOLIDAY
78	30-09-2019	MON	DASARA VACATGION --> All semesters of BE, MCA & ME/M.TECH

OCTOBER, 2019

79	01-10-2019	TUE	
80	02-10-2019	WED	
81	03-10-2019	THU	
82	04-10-2019	FRI	
83	05-10-2019	SAT	
84	06-10-2019	**SUN**	
85	07-10-2019	MON	DASARA VACATGION --> All semesters of BE, MCA & ME/M.TECH
86	08-10-2019	TUE	DASARA VACATGION --> All semesters of BE, MCA & ME/M.TECH
87	09-10-2019	WED	DASARA VACATGION --> All semesters of BE, MCA & ME/M.TECH
88	10-10-2019	THU	DASARA VACATGION --> All semesters of BE, MCA & ME/M.TECH
89	11-10-2019	FRI	DASARA VACATGION --> All semesters of BE, MCA & ME/M.TECH
90	12-10-2019	SAT	DASARA VACATGION --> All semesters of BE, MCA & ME/M.TECH
91	13-10-2019	SUN	DASARA VACATGION --> All semesters of BE, MCA & ME/M.TECH
92	14-10-2019	MON	RECOMMENCEMENT OF CALSS WORK
93	15-10-2019	TUE	
94	16-10-2019	WED	**STTP - Power Electronics & Renewable Energy Systems Future & Scope**
95	17-10-2019	THU	
96	18-10-2019	FRI	
97	19-10-2019	SAT	FIRST CLASS TEST: ME/M.TECH- III SEM
98	20-10-2019	SUN	PUBLIC HOLIDAY
99	21-10-2019	MON	--

100	22-10-2019	TUE	--
101	23-10-2019	WED	--
102	24-10-2019	THU	--
103	25-10-2019	FRI	--
104	26-10-2019	SAT	--
105	27-10-2019	SUN	PUBLIC HOLIDAY- DEEPAVALI
106	28-10-2019	MON	--
107	29-10-2019	TUE	--
108	30-10-2019	WED	--
109	31-10-2019	THU	--
NOVEMBER, 2019			
110	01-11-2019	FRI	--
111	02-11-2019	SAT	--
112	03-11-2019	SUN	PUBLIC HOLIDAY
113	04-11-2019	MON	**Workshop on "Battery Management Systems".**
114	05-11-2019	TUE	
115	06-11-2019	WED	
116	07-11-2019	THU	--
117	08-11-2019	FRI	--
118	09-11-2019	SAT	PUBLIC HOLIDAY(2ND SATURDAY)
119	10-11-2019	SUN	EID MILAD-UN-NABI- PUBLIC HOLIDAY

120	11-11-2019	MON	--
121	12-11-2019	TUE	KARTHIKA PURNIMA/ GURUNANAK'S BIRTH DAY
122	13-11-2019	WED	II- INTERNAL TEST-BE III, V & VII SEMESTER
123	14-11-2019	THU	II- INTERNAL TEST-BE III, V & VII SEMESTER --
124	15-11-2019	FRI	II- INTERNAL TEST-BE III, V & VII SEMESTER
125	16-11-2019	SAT	II- INTERNAL TEST-BE III, V & VII SEMESTER--**> LAST DATE OF INSTRUCTION**
126	17-11-2019	SUN	PUBLIC HOLIDAY
127	18-11-2019	MON	PREPARATION HOLIDAYS & PRACTICAL EXAMS(BE III, V & VII SEMESTER)
128	19-11-2019	TUE	PREPARATION HOLIDAYS & PRACTICAL EXAMS(BE III, V & VII SEMESTER)
129	20-11-2019	WED	PREPARATION HOLIDAYS & PRACTICAL EXAMS(BE III, V & VII SEMESTER)
130	21-11-2019	THU	PREPARATION HOLIDAYS & PRACTICAL EXAMS(BE III, V & VII SEMESTER)
131	22-11-2019	FRI	PREPARATION HOLIDAYS & PRACTICAL EXAMS(BE III, V & VII SEMESTER)
132	23-11-2019	SAT	PREPARATION HOLIDAYS & PRACTICAL EXAMS(BE III, V & VII SEMESTER)
133	24-11-2019	SUN	PUBLIC HOLIDAY
134	25-11-2019	MON	PREPARATION HOLIDAYS & PRACTICAL EXAMS(BE III, V & VII SEMESTER)
135	26-11-2019	TUE	PREPARATION HOLIDAYS & PRACTICAL EXAMS(BE III, V & VII SEMESTER)
136	27-11-2019	WED	PREPARATION HOLIDAYS & PRACTICAL EXAMS(BE III, V & VII SEMESTER)
137	28-11-2019	THU	PREPARATION HOLIDAYS & PRACTICAL EXAMS(BE III, V & VII SEMESTER)
138	29-11-2019	FRI	PREPARATION HOLIDAYS & PRACTICAL EXAMS(BE III, V & VII SEMESTER)
139	30-11-2019	SAT	PREPARATION HOLIDAYS & PRACTICAL EXAMS(BE III, V & VII SEMESTER)

DECEMBER,2019

140	01-12-2019	SUN	PUBLIC HOLIDAY
141	02-12-2019	MON	**COMMENCEMENT OF THEORY EXAMS (BE III, V & VII SEMESTER)**
142	03-12-2019	TUE	--
143	04-12-2019	WED	**Faculty Paper Presentations**
144	05-12-2019	THU	**Faculty Paper Presentations**
145	06-12-2019	FRI	**Faculty Paper Presentations**
146	07-12-2019	SAT	--
147	08-12-2019	SUN	PUBLIC HOLIDAY
148	09-12-2019	MON	--
149	10-12-2019	TUE	**Recent Advances in Power Systems & Power Electronics**
150	11-12-2019	WED	**(FDP)**
151	12-12-2019	THU	--
152	13-12-2019	FRI	--
153	14-12-2019	SAT	PUBLIC HOLIDAY(2ND SATURDAY)
154	15-12-2019	SUN	PUBLIC HOLIDAY
155	16-12-2019	MON	PROJECT SEMINAR (Presentation & Evaluation)- ME/M.TECH - III SEM
156	17-12-2019	TUE	PROJECT SEMINAR (Presentation & Evaluation)- ME/M.TECH - III SEM
157	18-12-2019	WED	PROJECT SEMINAR (Presentation & Evaluation)- ME/M.TECH - III SEM
158	19-12-2019	THU	PROJECT SEMINAR (Presentation & Evaluation)- ME/M.TECH - III SEM
159	20-12-2019	FRI	--
160	21-12-2019	SAT	**SECOND CLASS TEST: ME/M.TECH- III SEM--> LAST DATE OF INSTRUCTION**
161	22-12-2019	SUN	PUBLIC HOLIDAY
162	23-12-2019	MON	**SUBJECT REGISTRATION BY STUDENTS (BE IV, VI & VIII SEMESTER)**

163	24-12-2019	TUE	**SUBJECT REGISTRATION BY STUDENTS (BE IV, VI & VIII SEMESTER)** **DISPLAY OF ATTENDANCE AND SESSIONAL MARKS: ME/M.TECH- III SEM**
164	25-12-2019	WED	CHRISTMAS- PUBLIC HOLIDAY
165	26-12-2019	THU	BOXING DAY - PUBLIC HOLIDAY
166	27-12-2019	FRI	**SUBJECT REGISTRATION BY STUDENTS (BE IV, VI & VIII SEMESTER)**
167	28-12-2019	SAT	**SUBJECT REGISTRATION BY STUDENTS (BE IV, VI & VIII SEMESTER)**
168	29-12-2019	SUN	PUBLIC HOLIDAY
169	30-12-2019	MON	**Commencement of instruction : BE IV, VI & VIII SEMESTER**
170	31-12-2019	TUE	--

JANUARY, 2020

171	01-01-2020	WED	--
172	02-01-2020	THU	--
173	03-01-2020	FRI	--
174	04-01-2020	SAT	--
175	05-01-2020	SUN	PUBLIC HOLIDAY
176	06-01-2020	MON	COMMENCEMENT OF THEORY EXAMS : ME/M.TECH - III SEMESTER
177	07-01-2020	TUE	-
178	08-01-2020	WED	-
179	09-01-2020	THU	-
180	10-01-2020	FRI	-
181	11-01-2020	SAT	PUBLIC HOLIDAY(2ND SATURDAY)
182	12-01-2020	SUN	PUBLIC HOLIDAY

183	13-01-2020	MON	--
184	14-01-2020	TUE	--
185	15-01-2020	WED	--
186	16-01-2020	THU	--
187	17-01-2020	FRI	--
188	18-01-2020	SAT	**Technical Paper Presentation competition under Professional Bodies.**
189	19-01-2020	SUN	PUBLIC HOLIDAY
190	20-01-2020	MON	--
191	21-01-2020	TUE	--
192	22-01-2020	WED	--
193	23-01-2020	THU	--
194	24-01-2020	FRI	--
195	25-01-2020	SAT	--
196	26-01-2020	SUN	REPUBLIC DAY -PUBLIC HOLIDAY
197	27-01-2020	MON	**Two day workshop on PSCAD/ETAP & PCB Design for IV Semester students under CCA Activity.**
198	28-01-2020	TUE	**Two day workshop on PSCAD/ETAP & PCB Design for IV Semester students under CCA Activity.**
199	29-01-2020	WED	--
200	30-01-2020	THU	--
201	31-01-2020	FRI	**Guest Lecture on "Application of Machine Learning in Electrical Engineering" for VII Semester students.**

FEBRUARY, 2020

202	01-02-2020	SAT	--
203	02-02-2020	SUN	PUBLIC HOLIDAY
204	03-02-2020	MON	COMMENCEMENT OF MAKE-UP EXAMS: ME/M.TECH- III SEM
205	04-02-2020	TUE	**Two day workshop on PSCAD/ETAP & PCB Design for IV Semester students under CCA Activitv.**
206	05-02-2020	WED	**Two day workshop on PSCAD/ETAP & PCB Design for IV Semester students under CCA Activity.**
207	06-02-2020	THU	--
208	07-02-2020	FRI	--
209	08-02-2020	SAT	PUBLIC HOLIDAY(2ND SATURDAY)
210	09-02-2020	SUN	PUBLIC HOLIDAY
211	10-02-2020	MON	I-Internal Test: BE IV, VI & VIII SEMESTER
212	11-02-2020	TUE	I-Internal Test: BE IV, VI & VIII SEMESTER
213	12-02-2020	WED	I-Internal Test: BE IV, VI & VIII SEMESTER
214	13-02-2020	THU	I-Internal Test: BE IV, VI & VIII SEMESTER
215	14-02-2020	FRI	I-Internal Test: BE IV, VI & VIII SEMESTER
216	15-02-2020	SAT	--
217	16-02-2020	SUN	PUBLIC HOLIDAY
218	17-02-2020	MON	--
219	18-02-2020	TUE	--
220	19-02-2020	WED	--

S.No.	Date	Day	Details of Activity / Public Holiday
221	20-02-2020	THU	Registration for ME/M.TECH : IV SEM
222	21-02-2020	FRI	--
223	22-02-2020	SAT	**Guest Lecture for VII Semester students.**
224	23-02-2020	SUN	PUBLIC HOLIDAY
225	24-02-2020	MON	--
226	25-02-2020	TUE	--
227	26-02-2020	WED	--
228	27-02-2020	THU	EUPHORIA & TECHFEST-2020
229	28-02-2020	FRI	EUPHORIA & TECHFEST-2020
230	29-02-2020	SAT	EUPHORIA & TECHFEST-2020

MARCH,2020

231	01-03-2020	SUN	PUBLIC HOLIDAY
232	02-03-2020	MON	--
233	03-03-2020	TUE	--
234	04-03-2020	WED	--
235	05-03-2020	THU	--
236	06-03-2020	FRI	--
237	07-03-2020	SAT	Parent-Teacher Meeting- BE IV, VI & VIII SEMESTER
238	08-03-2020	SUN	PUBLIC HOLIDAY
239	09-03-2020	MON	--
240	10-03-2020	TUE	--
241	11-03-2020	WED	--
242	12-03-2020	THU	--

243	13-03-2020	FRI	--
244	14-03-2020	SAT	PUBLIC HOLIDAY (2ND SATURDAY)
245	15-03-2020	SUN	PUBLIC HOLIDAY
246	16-03-2020	MON	--
247	17-03-2020	TUE	--
248	18-03-2020	WED	--
249	19-03-2020	THU	--
250	20-03-2020	FRI	--
251	21-03-2020	SAT	**Guest Lecture on "Energy Audit" for V Semester students.**
252	22-03-2020	SUN	PUBLIC HOLIDAY
253	23-03-2020	MON	--
254	24-03-2020	TUE	--
255	25-03-2020	WED	--
256	26-03-2020	THU	--
257	27-03-2020	FRI	--
258	28-03-2020	SAT	--
259	29-03-2020	SUN	PUBLIC HOLIDAY
260	30-03-2020	MON	--
261	31-03-2020	TUE	--

APRIL,2020

262	01-04-2020	WED	--
263	02-04-2020	THU	--
264	03-04-2020	FRI	--
265	04-04-2020	SAT	--
266	05-04-2020	**SUN**	**BABU JAGVIVAN RAM'S BIRTH DAY--> PUBLIC HOLIDAY**
267	06-04-2020	MON	--
268	07-04-2020	TUE	--
269	08-04-2020	WED	--
270	09-04-2020	THU	--
271	10-04-2020	FRI	--
272	11-04-2020	SAT	PUBLIC HOLIDAY(2ND SATURDAY)
273	12-04-2020	SUN	PUBLIC HOLIDAY
274	13-04-2020	MON	II-Internal Test : BE IV, VI & VIII SEMESTER
275	14-04-2020	TUE	DR BR AMBEDHKAR'S BIRTH DAY-PUBLIC HOLIDAY
276	15-04-2020	WED	II-Internal Test : BE IV, VI & VIII SEMESTER
277	16-04-2020	THU	II-Internal Test : BE IV, VI & VIII SEMESTER
278	17-04-2020	FRI	II-Internal Test : BE IV, VI & VIII SEMESTER
279	18-04-2020	SAT	II-Internal Test : BE IV, VI & VIII SEMESTER**--> Last date of instruction**
280	19-04-2020	SUN	PUBLIC HOLIDAY

281	20-04-2020	MON	PREPARATION HOLIDAYS & PRACTICAL EXAMS(BE IV, VI & VIII SEMESTER)
282	21-04-2020	TUE	PREPARATION HOLIDAYS & PRACTICAL EXAMS(BE IV, VI & VIII SEMESTER)
283	22-04-2020	WED	PREPARATION HOLIDAYS & PRACTICAL EXAMS(BE IV, VI & VIII SEMESTER)
284	23-04-2020	THU	PREPARATION HOLIDAYS & PRACTICAL EXAMS(BE IV, VI & VIII SEMESTER)
285	24-04-2020	FRI	PREPARATION HOLIDAYS & PRACTICAL EXAMS(BE IV, VI & VIII SEMESTER)
286	25-04-2020	SAT	PREPARATION HOLIDAYS & PRACTICAL EXAMS(BE IV, VI & VIII SEMESTER)
287	26-04-2020	SUN	PUBLIC HOLIDAY
288	27-04-2020	MON	PREPARATION HOLIDAYS & PRACTICAL EXAMS(BE IV, VI & VIII SEMESTER)
289	28-04-2020	TUE	PREPARATION HOLIDAYS & PRACTICAL EXAMS(BE IV, VI & VIII SEMESTER)
290	29-04-2020	WED	PREPARATION HOLIDAYS & PRACTICAL EXAMS(BE IV, VI & VIII SEMESTER)
291	30-04-2020	THU	PREPARATION HOLIDAYS & PRACTICAL EXAMS(BE IV, VI & VIII SEMESTER)
	MAY,2020		
292	01-05-2020	FRI	PREPARATION HOLIDAYS & PRACTICAL EXAMS(BE IV, VI & VIII SEMESTER)
293	02-05-2020	SAT	PREPARATION HOLIDAYS & PRACTICAL EXAMS(BE IV, VI & VIII SEMESTER)
294	03-05-2020	SUN	PUBLIC HOLIDAY
295	04-05-2020	MON	**COMMENCEMENT OF THEORY EXAMS(BE IV, VI & VIII SEMESTER) /**

			SUMMER VACATION STARTS FOR STAFF
296	05-05-2020	TUE	--
297	06-05-2020	WED	--
298	07-05-2020	THU	--
299	08-05-2020	FRI	**LAST DATE FOR SUBMISSION OF DRAFT DISSERTATAION : ME/M.TECH IV**
300	09-05-2020	SAT	PUBLIC HOLIDAY(2ND SATURDAY)
301	10-05-2020	SUN	PUBLIC HOLIDAY
302	11-05-2020	MON	PRE SUBMISSION VIVA VOCE EXAM: ME/M.TECH IV SEM
303	12-05-2020	TUE	--
304	13-05-2020	WED	--
305	14-05-2020	THU	--
306	15-05-2020	FRI	--
307	16-05-2020	SAT	--
308	17-05-2020	SUN	PUBLIC HOLIDAY
309	18-05-2020	MON	--
310	19-05-2020	TUE	--
311	20-05-2020	WED	--
312	21-05-2020	THU	--
313	22-05-2020	FRI	--
314	23-05-2020	SAT	--
315	24-05-2020	SUN	PUBLIC HOLIDAY

316	25-05-2020	MON	--
317	26-05-2020	TUE	--
318	27-05-2020	WED	--
319	28-05-2020	THU	--
320	29-05-2020	FRI	--
321	30-05-2020	SAT	--
322	31-05-2020	SUN	PUBLIC HOLIDAY
	JUNE,2020		
323	01-06-2020	MON	--
324	02-06-2020	TUE	--
325	03-06-2020	WED	--
326	04-06-2020	THU	--
327	05-06-2020	FRI	--
328	06-06-2020	SAT	--
329	07-06-2020	SUN	PUBLIC HOLIDAY
330	08-06-2020	MON	--
331	09-06-2020	TUE	--
332	10-06-2020	WED	--
333	11-06-2020	THU	--
334	12-06-2020	FRI	Submission of approved thesis of the students External Evaluation: ME/M.TECH IV SEM

335	13-06-2020	SAT	PUBLIC HOLIDAY(2ND SATURDAY)
336	14-06-2020	SUN	PUBLIC HOLIDAY
337	15-06-2020	MON	--
338	16-06-2020	TUE	--
339	17-06-2020	WED	--
340	18-06-2020	THU	--
341	19-06-2020	FRI	--
342	20-06-2020	SAT	--
343	21-06-2020	SUN	PUBLIC HOLIDAY
344	22-06-2020	MON	Conduct of External Viva-voce : ME/M.TECH- IV SEM
345	23-06-2020	TUE	--
346	24-06-2020	WED	--
347	25-06-2020	THU	--
348	26-06-2020	FRI	--
349	27-06-2020	SAT	--
350	28-06-2020	SUN	PUBLIC HOLIDAY
351	29-06-2020	MON	--
352	30-06-2020	TUE	--
353	20.07.2020	MON	COMMENCEMENT OF III, V & VII SEMESTER BE CLASS WORK FOR THE YEAR 2020-2021