

VINAYAKA MISSION'S RESEARCH FOUNDATION, SALEM
(Deemed to be University)

AARUPADAI VEEDU INSTITUTE OF TECHNOLOGY, CHENNAI
&
VINAYAKA MISSION'S KIRUPANANDA VARIYAR ENGINEERING COLLEGE, SALEM

FACULTY OF ENGINEERING AND TECHNOLOGY

STRUCTURED CHOICE BASED CREDIT SYSTEM

BOARD : CIVIL ENGINEERING
REGULATION : 2017
PROGRAM : B.Tech., – CIVIL ENGINEERING (FULL TIME - REGULAR)

CURRICULUM AND SYLLABUS

SEMESTER – II									
S.NO	COURSE CODE	COURSE TITLE	OFFERING DEPARTMENT	CATEGORY	L	T	P	C	
THEORY									
1		MATHEMATICS FOR CIVIL ENGINEERS	MATHEMATICS	FC(BS)	2	2	0	3	
2		PROGRAMMING IN PYTHON	CSE	FC(ES)	3	0	0	3	
3		CONSTRUCTION MATERIALS	CIVIL	CC	3	0	0	3	
4		SMART MATERIALS	PHYSICS	FC(BS)	3	0	0	3	
5		BASICS OF ELECTRICAL AND ELECTRONICS ENGINEERING	EEE & ECE	FC(ES)	4	0	0	4	
PRACTICAL									
6		PROGRAMMING IN PYTHON LAB	CSE	FC(ES)	0	0	4	2	
7		ENGINEERING GRAPHICS (Theory + Practice)	MECHANICAL	FC(ES)	1	0	4	3	
8		COMPUTER AIDED BUILDING DRAWING LAB	CIVIL	CC	0	0	4	2	
9		ENGINEERING SKILLS PRACTICE LAB A. BASIC ELECTRICAL ENGINEERING B. BASIC ELECTRONICS ENGINEERING	EEE & ECE	FC(ES)	0	0	4	2	
TOTAL					16	2	16	25	
L – LECTURE HOUR					T – TUTORIAL HOUR		P – PRACTICAL HOUR		C – CREDIT

HSS	HUMANITIES AND SOCIAL SCIENCES	CC	CORE COURSES
BS	BASIC SCIENCES	EC	ELECTIVE COURSES
ES	ENGINEERING SCIENCES	EEC	EMPLOYABILITY ENHANCEMENT COURSES + EXTRA CURRICULAR COURSES + CO - CURRICULAR COURSES
PII	PROJECT + INTERNSHIP + INDUSTRY ELECTIVES		

COURSE CODE	SEMESTER – II				
	NAME OF THE COURSE : MATHEMATICS FOR CIVIL ENGINEERS	L	T	P	C
	TOTAL HOURS: 60	2	2	0	3
	PREREQUISITE : ENGINEERING MATHEMATICS				
PURPOSE:					
To impart analytical ability in solving mathematical problems as applied to the respective branches of Engineering.					
INSTRUCTIONAL OBJECTIVES :					
1	To familiarize with the applications of differential equations.				
2	To equip themselves familiar with Laplace transform.				
3	To gain good knowledge in the application of Fourier transforms.				
4	To learn about Z- transforms and its applications.				
5	Fourier series has the wide application in the field of heat diffusion, wave propagation and in signal and systems analysis.				
UNIT – I ORDINARY DIFFERENTIAL EQUATIONS					
Solutions of second and third order linear ordinary differential equation with constant coefficients – Method of variation of parameters – Cauchy’s and Legendre’s linear equations – Simultaneous first order linear equations with constant coefficients.					
UNIT – II LAPLACE TRANSFORMS					
Laplace transform – transform of elementary functions – basic properties – derivatives and integrals of transforms – transforms of derivatives and integrals – initial and final value theorems – Transform of periodic functions					
UNIT – III INVERSE LAPLACE TRANSFORMS AND APPLICATIONS					
Inverse Laplace transform – Convolution theorem – Initial and Final value theorem-Solution of linear ODE of second order with constant coefficients and first order simultaneous equation with constant coefficients using Laplace transforms.					
UNIT – IV FOURIER TRANSFORMS					
Fourier transform pairs - Fourier Sine and Cosine transforms – Properties - Transforms of simple functions - Convolution theorem - Parseval's identity.					
UNIT – V Z – TRANSFORMS					
Z-Transform – Elementary Properties – Inverse Z-Transform – Convolution Theorem – Formation of Difference Equations – Solution of first and second order Difference Equations using Z-Transform.					
TEXT BOOKS:					
1. "Engineering Mathematics I & II ", by Department of Mathematics, VMKVEC (Salem) & AVIT (Chennai), (2017).					
2. Dr.A.Singaravelu, “Engineering Mathematics I & II”, 23rd Edition, Meenakshi Agency, Chennai (2016).					
3. Dr.A.Singaravelu , “Transforms and Partial differential Equations”, 18 th Edition, Meenakshi Agency, Chennai (2013).					

REFERENCES:

1. Veerarajan, T., "Engineering Mathematics I, II and III", Tata McGraw Hill Publishing Co., New Delhi (2011).
2. Grewal, B.S., "Higher Engineering Mathematics", 42nd Edition, Khanna Publishers, Delhi (2012).
3. Kreyszig, E., "Advanced Engineering Mathematics", 8th Edition, John Wiley and Sons (Asia) Pvt Ltd., Singapore (2012).
4. Kandasamy .P, Thilagavathy. K. and Gunavathy. K., "Engineering Mathematics", Volumes I & II (10th Edition), S. Chand & Co., New Delhi (2014).

COURSE CODE**NAME OF THE COURSE: MATHEMATICS FOR CIVIL ENGINEERS**

COURSE DESIGNED BY		DEPARTMENT OF MATHEMATICS										
		a	b	c	d	e	f	g	h	i	j	k
1	Student Outcomes	√				√						
2	Mapping of instructional objectives with student outcome	1,4,5				2,3						
3	Category	HSS	BS	ES	CC	EC	EEC	PII				
			√									

COURSE CODE	SEMESTER – II				
	NAME OF THE COURSE : PROGRAMMING IN PYTHON	L	T	P	C
	TOTAL HOURS : 45	3	0	0	3
	PREREQUISITE : NIL				
PURPOSE:					
The purpose of this course is to introduce Python, a remarkably powerful dynamic programming language, to write code for different operating systems along with application domain. Python has evolved on more popular and powerful open source programming tool.					
INSTRUCTIONAL OBJECTIVES:					
1.	Able to setup Python working environment.				
2.	To understand the object oriented features of Python.				
3.	To develop Network Applications using Python.				
4.	To develop Web Applications using Python.				
5.	To use and develop GUI applications in Python programming.				
UNIT – I INTRODUCTION 9					
Introduction to Python – Advantages of Python programming – Tokens – Keywords - Variables – I/O methods - Data types – Operators.					
UNIT – II DATA STRUCTURES 9					
Strings - List - Tuples - Dictionaries – Sets.					
UNIT – III CONTROL STATEMENTS 9					
Flow Control – Selection Control Structure – If – if-else – if-elif-else – nested if Iterative control structures: while loop, for loop and range.					
UNIT – IV FUNCTIONS 9					
Declaration – Types of arguments – Fixed arguments, default arguments, keyword arguments, variable arguments, and keyword variable arguments – Recursion – Anonymous functions: lambda - Generators – Decorators.					
UNIT – V EXCEPTION HANDLING 9					
Exception Handling - Regular Expression - Calendars and Clocks Files: File I/O operations – Directory Operations– Reading and Writing in Structured Files: CSV and JSON.					
TEXT BOOK:					
1. Bill Lubanovic, "Introducing Python Modern Computing in Simple Packages", 1 st Edition, O'Reilly Media, 2014.					
REFERENCES:					
1. Mark Lutz, "Learning Python", 5 th Edition, O'Reilly Media, 2013.					
2. David Beazley, Brian K. Jones, "Python Cookbook", 3 rd Edition, O'Reilly Media, 2013.					
3. Mark Lutz, "Python Pocket Reference", 5 th Edition, O'Reilly Media, 2014.					
4. www.python.org.					
5. www.diveintopython3.net.					

COURSE CODE :

NAME OF THE COURSE : PROGRAMMING IN PYTHON

COURSE DESIGNED BY		DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING										
		a	b	c	d	e	f	g	h	i	j	k
1	Student Outcomes	√				√						√
2	Mapping of instructional objectives with student outcome	1-5				1-5						1-5
3	Category	HSS	BS	ES	CC	EC	EEC	PII				
				√								

COURSE CODE	SEMESTER – II				
	NAME OF THE COURSE : CONSTRUCTION MATERIALS	L	T	P	C
	TOTAL HOURS : 45	3	0	0	3
	PREREQUISITE : NIL				
PURPOSE:					
The aim of the course is to know about the various materials, both conventional and modern, that are commonly used in civil engineering construction.					
INSTRUCTIONAL OBJECTIVES:					
1.	He should be able to appreciate the criteria for choice of the appropriate material and the various tests for quality control.				
2.	The student will learn the use of the materials.				
3.	The student will learn in detail the manufacturing process of all the materials.				
4.	Special Materials used for architectural purposes also will be taught in detail.				
UNIT I STONES – BRICKS – CONCRETE BLOCKS 9					
Stone as building material – Criteria for selection – Tests on stones – Deterioration and Preservation of stone work – Bricks – Classification – Manufacturing of clay bricks – Tests on bricks – Compressive Strength – Water Absorption – Efflorescence – Bricks for special use – Refractory bricks – Cement, Concrete blocks – Light weight concrete blocks					
UNIT - II LIME – CEMENT – AGGREGATES – MORTAR 9					
Lime – Preparation of lime mortar – Cement, Ingredients – Manufacturing process – Types and Grades – Properties of cement and Cement mortar – Hydration – Compressive strength – Tensile strength – Soundness and consistency – Setting time – Aggregates – Natural stone aggregates – Industrial by products – Crushing strength – Impact strength – Flakiness – Abrasion Resistance – Grading – Sand Bulking					
UNIT-III CONCRETE 9					
Concrete – Ingredients – Manufacture – Batching plants – Ready Mix Concrete – Properties of fresh concrete – Slump – Flow and compaction – Principles of hardened concrete – Compressive, Tensile and shear strength – Modulus of rupture – Tests – Mix specification – Mix proportioning – IS method – High Strength Concrete and High Performance Concrete – Other types of Concrete.					
UNIT-IV TIMBER AND OTHER MATERIALS 9					
Timber - Industrial timber – Plywood – Veneer – Thermocole –Bitumen –Market forms Panels of laminates – Steel – Aluminium and Other Metallic Materials – Composition – Uses – Market forms – Mechanical treatment – Paints – Varnishes – Distempers.					
UNIT - V MODERN MATERIALS 9					
Glass – Ceramics – Sealants for joints – Fibre glass reinforced plastic – Clay products – Refractories – Composite materials – Types – Applications of laminar composites – Fibre textiles – Geo membranes and Geotextiles for earth reinforcement					
TEXT BOOKS:					
1. Rangwala, S.C., “Engineering Materials ”, Charotar Publishing House, Anand, 2008.					
2. R.K.Rajput, “Engineering Materials”, S.Chand Publications, 2008.					
3. Shetty.M.S., "Concrete Technology (Theory and Practice)", S. Chand and Company Ltd., 2008.					

REFERENCES :

1. Varghese. P.C, "Building Materials", PHI Learning Pvt. Ltd, New Delhi, 2012.
2. Gambhir.M.L., "Concrete Technology", 3rd Edition, Tata McGraw Hill Education, 2004.
3. Duggal.S.K. "Building Materials", 4th Edition, New Age International , 2008.

COURSE CODE :**NAME OF THE COURSE : CONSTRUCTION MATERIALS**

COURSE DESIGNED BY		DEPARTMENT OF CIVIL ENGINEERING										
1	Student Outcomes	a	b	c	d	e	f	g	h	i	j	k
		√			√		√		√	√	√	√
2	Mapping of instructional objectives with student outcome	1-4			1-4		1-4		1-4	1-4	1-4	1-4
3	Category	HSS	BS	ES	CC	EC	EEC	PII				
					√							

COURSE CODE	SEMESTER – II				
	NAME OF THE COURSE : SMART MATERIALS	L	T	P	C
	TOTAL HOURS : 45	3	0	0	3
	PREREQUISITE : PHYSICAL SCIENCES				
PURPOSE:					
The fundamental knowledge gained will be useful for various applications in Engineering & Technology.					
INSTRUCTIONAL OBJECTIVES:					
1.	To understand the properties of smart materials.				
2.	To understand the structure of crystalline materials.				
3.	To learn the synthesis of Nano materials.				
4.	To learn the properties and classification of magnetic materials.				
5.	To understand the concept of superconducting materials and their properties.				
UNIT – I SMART MATERIALS 9					
Shape Memory Alloys (SMA) – Characteristics and properties of SMA, Application, advantages and disadvantages of SMA. Metallic glasses – Preparation, properties and applications.					
UNIT – II CRYSTALLINE MATERIALS 9					
Unit cell – Bravais lattice – Miller indices – Calculation of number of atoms per unit cell – atomic radius – coordination number – packing factor for SC, BCC, FCC, HCP structures.					
UNIT – III NANO MATERIALS 9					
Nanophase materials – Top-down approach - Mechanical Grinding – Lithography – Bottom-up approach – Sol-gel method – Carbon nanotubes – Fabrication – applications.					
UNIT – IV MAGNETIC MATERIALS 9					
Basic concepts – Classification of magnetic materials – Domain theory – Hysteresis – Soft and Hard magnetic materials.					
UNIT – V SUPERCONDUCTING MATERIALS 9					
Superconducting phenomena – properties of superconductors – Meissner effect – isotope effect – Type I and Type II superconductors – High T _c Superconductors – Applications of superconductors.					
TEXT BOOK:					
1. Mani P, “Engineering Physics II”, Dhanam Publications, 2011.					
REFERENCES:					
1. Pillai S.O., “Solid State Physics”, New Age International (P) Ltd., publishers, 2009.					
2. Senthilkumar G., “Engineering Physics II”, VRB Publishers, 2011.					

COURSE CODE :												
NAME OF THE COURSE : SMART MATERIALS												
COURSE DESIGNED BY					DEPARTMENT OF PHYSICS							
1	Student Outcomes	a	b	c	d	e	f	g	h	i	j	k
		√	√	√	√	√		√	√	√	√	√
2	Mapping of instructional objectives with student outcome	3	1	1	3	5		2	4	3	5	1
3	Category	HSS	BS	ES	CC	EC	EEC	PII				
			√									

COURSE CODE	SEMESTER – II						
	NAME OF THE COURSE : BASICS OF ELECTRICAL AND ELECTRONICS ENGINEERING			L	T	P	C
	PART A - BASIC ELECTRICAL ENGINEERING						
	TOTAL HOURS : 30			2	0	0	2
PREREQUISITE : NIL							
PURPOSE:							
This course provides comprehensive idea about circuit analysis, working principles of machines and common measuring instruments.							
INSTRUCTIONAL OBJECTIVES:							
1.	Understand the basic concepts of AC and DC circuits.						
2.	Gain knowledge about the working principle, construction, applications of DC, AC machines and measuring instruments.						
3.	Understand the fundamentals of safety procedures, Earthing and Power system.						
UNIT – I							
HISTORY OF ELECTRICITY, QUANTITIES AND CIRCUITS						10	
Evolution of Electricity and Electrical inventions, Electrical quantities- Charge, Electric potential, voltage, current– DC & AC, power, energy, time period, frequency, phase, flux, flux density, RMS, Average, Peak, phasor & vector diagram. Electric Circuits - Passive components (RLC), Ohm’s law, KCL, KVL, Faraday’s law, Lenz’s law. Electrical materials – Conducting and insulating materials.							
UNIT – II						10	
MEASURING INSTRUMENT AND ENERGY CALCULATION							
Measuring Instruments – Analog and Digital meters – Types and usage. AC and DC Machines & Equipment- Types, Specifications and applications. Loads – Types of Loads- Power rating and Energy calculation – for domestic loads. Energy Efficient equipments – star ratings.							
UNIT – III						10	
ELECTRICAL SAFETY AND INTRODUCTION TO POWER SYSTEM							
Protection & Safety - Hazards of electricity - shock, burns, arc-blast, Thermal Radiation, explosions, fires, effects of electricity on the human body. Electrical safety practices, Protection devices. Electric Power- Generation resources, Transmission types & Distribution system (levels of voltage, power ratings and statistics) - Simple layout of generation, transmission and distribution of power.							
TEXT BOOKS:							
1. R.K.Rajput , “Basic Electrical and Electronics engineering”, Second Edition, Laxmi Publication, 2012. 2. “Basic Electrical and Electronics Engineering”, Department of EEE & ECE, Faculty of Engineering & Technology, VMRFDU, Anuradha Agencies, 2017. 3. Kothari.D.P and Nagrath.I.J, “Basic Electrical Engineering”, Second Edition, Tata McGraw - Hill, 2009. 4. Metha.V.K, Rohit Metha, “Basic Electrical Engineering”, Fifth Edition, Chand. S & Co, 2012.							
REFERENCE:							
1. Smarajt Ghosh, “Fundamentals of Electrical & Electronics Engineering”, Second Edition, PHI Learning, 2007.							

COURSE CODE :												
NAME OF THE COURSE : BASICS OF ELECTRICAL AND ELECTRONICS ENGINEERING												
PART A - BASIC ELECTRICAL ENGINEERING												
COURSE DESIGNED BY		DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING										
1	Student Outcomes	a	b	c	d	e	f	g	h	i	j	k
		√				√						
2	Mapping of instructional objectives with student outcome	1 -3				1						
3	Category	HSS	BS	ES	CC	EC	EEC	PII				
				√								

COURSE CODE	SEMESTER – II				
	NAME OF THE COURSE : BASICS OF ELECTRICAL AND ELECTRONICS ENGINEERING	L	T	P	C
	PART B - BASIC ELECTRONICS ENGINEERING				
	TOTAL HOURS : 30	2	0	0	2
PREREQUISITE : NIL					
PURPOSE:					
Basic information on how to use electronic components and explains the logic behind solid state circuit design. Starting with an introduction to semiconductor physics, the tutorial moves on to cover topics such as resistors, capacitors, inductors, transformers, diodes, and transistors.					
INSTRUCTIONAL OBJECTIVES:					
1.	Acquire knowledge in real life applications.				
2.	Fundamentals of semiconductor devices and transducers.				
3.	Principles of digital electronics.				
4.	Principles of various communication systems.				
5.	Knowledge on electronic components and communication engineering concepts.				
UNIT – I SEMICONDUCTOR DEVICES 10					
Passive and Active Components - Resistors, Inductors, Capacitors, Characteristics of PN Junction Diode - Zener Diode and its Characteristics - Half wave and Full wave Rectifiers - Voltage Regulation. Bipolar Junction Transistor, JFET, MOSFET & UJT.					
UNIT – II DIGITAL FUNDAMENTALS 10					
Number Systems – Binary, Octal, Decimal and Hexa-Decimal – Conversion from one to another – Logic Gates – AND, OR, NOT, XOR, Universal Gates – Adders, Multiplexer, De Multiplexer, Encoder, Decoder – Memories					
UNIT – III COMMUNICATION AND ADVANCED GADGETS 10					
Modulation and Demodulation – AM, FM, PM – RADAR – Satellite Communication – Mobile Communication, LED, HD, UHD, OLED, HDR & Beyond, Smart Phones – Block diagrams Only.					
TEXT BOOKS:					
1. R.K. Rajput, "Basic Electrical and Electronics Engineering", Laxmi Publications, Second Edition, 2012.					
2. "Basic Electrical and Electronics Engineering", Department of EEE & ECE, Faculty of Engineering & Technology, VMRFDU, Anuradha Agencies, 2017.					
3. Edward Hughes, "Electrical and Electronics Technology", Pearson Education Limited, Ninth Edition, 2005.					
REFERENCE:					
1. John Kennedy "Electronics Communication System", Tata McGraw Hill, 2003.					

COURSE CODE : NAME OF THE COURSE : BASICS OF ELECTRICAL AND ELECTRONICS ENGINEERING PART B - BASIC ELECTRONICS ENGINEERING												
COURSE DESIGNED BY		DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING										
1	Student Outcomes	a	b	c	d	e	f	g	h	i	j	k
		√	√	√	√	√						
2	Mapping of instructional objectives with student outcome	3,4	1	2	5	3,4						
3	Category	HSS	BS	ES	CC	EC	EEC	PII				
				√								

COURSE CODE	SEMESTER – II									
	NAME OF THE COURSE : PROGRAMMING IN PYTHON LAB						L	T	P	C
	TOTAL HOURS : 60						0	0	4	2
	PREREQUISITE : NIL									

PURPOSE:

This course will help the students to gain the in-depth knowledge in Python Programming.

INSTRUCTIONAL OBJECTIVES:

1.	To understand Control Structures.
2.	To understand Concept of Arrays.
3.	To implement Functions and files.

LIST OF EXPERIMENTS:

1. Write a Program to sum the series of N numbers.
2. Write a Program to calculate Simple Interest.
3. Write a Program to generate Fibonacci Series using for loop.
4. Write a program to calculate factorial using while loop.
5. Write a Program to
 - a) Find the greatest of three numbers using if condition.
 - b) Find the greatest of three numbers using conditional operator.
6. Write a program for finding the roots of a given quadratic equation using conditional control statements.
7. Write a program to compute matrix multiplication using the concept of arrays.
8. Write a program to compute matrix multiplication using the concept of arrays.
9. Write a program to implement recursive function.
10. Write a program to read and write data using file concepts.

REFERENCE:

1. Laboratory Reference Manual.

COURSE CODE :		NAME OF THE COURSE: PROGRAMMING IN PYTHON LAB										
COURSE DESIGNED BY		DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING										
1	Student Outcomes	a	b	c	d	e	f	g	h	i	j	k
		√				√						√
2	Mapping of instructional objectives with student outcome	1-5				1-5						1-5
3	Category	HSS	BS	ES	CC	EC	EEC	PII				
				√								

COURSE CODE	SEMESTER – II							
	NAME OF THE COURSE: ENGINEERING GRAPHICS (Theory + Practice)				L	T	P	C
	TOTAL HOURS : 60				1	0	4	3
	PREREQUISITE : NIL							
PURPOSE:								
The aim of the subject is to provide knowledge of fundamentals of mechanical Engineering.								
INSTRUCTIONAL OBJECTIVES:								
1.	To know about different types of lines and curves and represent letters and numbers in drawing sheets.							
2.	To know projection of points, straight lines.							
3.	To know projection of various solids.							
4.	To know about the section of solids and development of different types of surfaces.							
5.	To know about isometric projection and different angle of projection.							
UNIT – I PLANE CURVES AND FREE HAND SKETCHING 9								
Conics – Construction of ellipse– First angle projection – layout views – Developing visualization skills through free hand sketching of multiple views from pictorial views of objects.								
UNIT – II AUTOMOTIVE ENGINES AND COMPONENTS 9								
Projection of points, Projection of straight lines located in the first quadrant: inclined to both planes – Determination of true lengths and true inclinations – rotating line method only.								
UNIT – III PROJECTION OF SOLIDS 9								
Projection of simple solids like prisms, pyramids, cylinder and cone when the axis is inclined to any one reference plane by change of position method.								
UNIT – IV SECTION OF SOLIDS AND DEVELOPMENT OF SURFACES 9								
Sectioning of above solids in simple vertical position by cutting planes inclined to any one reference plane and perpendicular to the other – Obtaining true shape of section. Development of lateral surfaces of simple and truncated solids like Prisms, pyramids, cylinders and cones.								
UNIT – V ISOMETRIC VIEW AND PERSPECTIVE PROJECTION 9								
Principles of isometric View – isometric scale – isometric view of simple solids – Introduction to Perspective projection.								
TEXT BOOKS:								
1. N.D. Bhatt, “Engineering Drawing” Charotar Publishing House, 46 th Edition, (2003). 2. K. V. Natarajan, “A text book of Engineering Graphics”, Dhanalakshmi Publishers, Chennai (2006).								
REFERENCES:								
1. M.S. Kumar, “Engineering Graphics”, D.D. Publications, (2007). 2. K. Venugopal & V. Prabhu Raja, “Engineering Graphics”, New Age International (P) Limited. 3. M.B. Shah and B.C. Rana, “Engineering Drawing”, Pearson Education (2005). 4. K. R. Gopalakrishnana, “Engineering Drawing”, (Vol.I & II), Subhas Publications (1998).								

COURSE CODE:
NAME OF THE COURSE : ENGINEERING GRAPHICS (Theory + Practice)

COURSE DESIGNED BY

DEPARTMENT OF MECHANICAL ENGINEERING

1	Student Outcomes	a	b	c	d	e	f	g	h	i	j	k
		√		√								
2	Mapping of instructional objectives with student outcome	1-5		1-5								1-5
3	Category	HSS	BS	ES	CC	EC	EEC	PII				
				√								

COURSE CODE	SEMESTER – II									
	NAME OF THE COURSE : COMPUTER AIDED BUILDING DRAWING LAB						L	T	P	C
	TOTAL HOURS : 60						0	0	4	2
	PREREQUISITE : NIL									
PURPOSE:										
The student has to train the rural people using computer aided building drawing lab to prepare plans for all types of building and issue certificates.										
INSTRUCTIONAL OBJECTIVES:										
1.	The students will be able to draft the plan, elevation and sectional views of a buildings, industrials structures and framed buildings using computer software.									
LIST OF EXPERIMENTS										
<ol style="list-style-type: none"> Buildings with load bearing walls (Flat and pitched roof) – Including details of doors and windows. RCC framed structures. Office Buildings. Industrial buildings – North light roof structures – Trusses. Perspective view of one and two storey buildings. 										
TEXT BOOKS:										
<ol style="list-style-type: none"> Sikka V. B., A course in Civil Engineering Drawing, 4th Edition, S.K Kataria and Sons, 1998. George Omura, Mastering in AUTOCADD 2002, BPB Publications, 2002. 										
REFERENCE:										
1. Laboratory Reference Manual										

COURSE CODE :												
NAME OF THE COURSE : COMPUTER AIDED BUILDING DRAWING LAB												
COURSE DESIGNED BY		DEPARTMENT OF CIVIL ENGINEERING										
1	Student Outcomes	a	b	c	d	e	f	g	h	i	j	k
		√				√				√		√
2	Mapping of instructional objectives with student outcome	1				1				1		1
3	Category	HSS	BS	ES	CC	EC	EEC	PII				
					√							

COURSE CODE	SEMESTER – II									
	NAME OF THE COURSE : ENGINEERING SKILLS PRACTICE LAB						L	T	P	C
	PART A – BASIC ELECTRICAL ENGINEERING LAB									
	TOTAL HOURS : 30						0	0	2	1
PREREQUISITE : NIL										

PURPOSE:

To provide exposure to the students with hands on experience on various electrical engineering practices.

INSTRUCTIONAL OBJECTIVES:

1.	Learn the residential wiring and various types of wiring.
2.	Measure the various electrical quantities.
3.	Gain knowledge about the fundamentals of various electrical gadgets, their working and trouble shooting.
4.	Know the necessity and types of earthing and measurement of earth resistance.

LIST OF EXPERIMENTS:

1. Residential house wiring using switches, fuse, indicator, lamp and energy meter.
2. Fluorescent lamp wiring.
3. Stair case wiring.
4. Measurement of electrical quantities – voltage, current, power & power factor in RLC circuit.
5. Measurement of energy using single phase energy meter.
6. Measurement of resistance to earth of electrical equipment.

REFERENCE:

Laboratory Reference Manual.

COURSE CODE :

NAME OF THE COURSE : ENGINEERING SKILLS PRACTICE LAB

PART A - BASIC ELECTRICAL ENGINEERING LAB

COURSE DESIGNED BY		DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING										
1	Student Outcomes	a	b	c	d	e	f	g	h	i	j	k
		√	√		√							
2	Mapping of instructional objectives with student outcome	1-4	1-4		1-4							
3	Category	HSS	BS	ES	CC	EC	EEC	PII				
				√								

COURSE CODE	SEMESTER – II						
	NAME OF THE COURSE : ENGINEERING SKILLS PRACTICE LAB PART B - BASIC ELECTRONICS ENGINEERING LAB						
	L	T	P	C			
	0	0	2	1			
Total Hours : 30							
Prerequisite : NIL							

PURPOSE:

The aim of this course is to impart fundamental hands-on skill in carrying out experiments at higher semester practical courses.

INSTRUCTIONAL OBJECTIVES:

1.	To familiarize the electronic components and basic electronic instruments.
2.	To analyze characteristics of Diodes, BJT and FET.
3.	To analyze the principles of digital logic gates.
4.	To understand the concept of basic modulation techniques.
5.	To Understand specifications of basic electronic components.

LIST OF EXPERIMENTS:

1. Identifying Electronics Components.
2. Practicing of Soldering and Desoldering.
3. Characteristics of PN junction Diode.
4. Characteristics of Zener diode.
5. Input & Output characteristics of BJT.
6. Transfer characteristics of JFET.
7. Verification of Logic Gates.
8. Study of Amplitude Modulation.
9. Study of Frequency Modulation.

REFERENCE:

Laboratory Reference Manual

COURSE CODE:

NAME OF THE COURSE: ENGINEERING SKILLS PRACTICE LAB

PART B - BASIC ELECTRONICS ENGINEERING LAB

COURSE DESIGNED BY		DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING										
1	Student Outcomes	a	b	c	d	e	f	g	h	i	j	k
			√		√							
2	Mapping of instructional objectives with student outcome		2,3, 4,5		1							
3	Category	HSS	BS	ES	CC	EC	EEC	PII				
				√								

CATEGORY :			
HSS	HUMANITIES AND SOCIAL SCIENCES	CC	CORE COURSES
BS	BASIC SCIENCES	EC	ELECTIVE COURSES
ES	ENGINEERING SCIENCES	EEC	EMPLOYABILITY ENHANCEMENT COURSES + EXTRA CURRICULAR COURSES + CO - CURRICULAR COURSES
PII	PROJECT + INTERNSHIP + INDUSTRY ELECTIVES		

STUDENT OUTCOMES :	
a.	An ability to apply knowledge of Mathematics, Science and Engineering.
b.	An ability to design and conduct experiments, as well as to analyze and interpret data.
c.	An ability to design a system, component, or process to meet desired needs within realistic constraints such as Economic, Environmental, Social, Political, Ethical, Health and Safety, Manufacturability and Sustainability.
d.	An ability to function on Multi Disciplinary Teams.
e.	An ability to identify, formulate and solve Engineering Problems.
f.	An understanding of professional and Ethical Responsibility.
g.	An ability to Communicate Effectively.
h.	The broad education necessary to understand the impact of Engineering Solutions in Global, Economic, Environmental and Social Context.
i.	A recognition of the need for, and an ability to engage in Life-Long Learning.
j.	A knowledge of contemporary issues.
k.	An ability to use the Techniques, Skills and Modern Engineering Tools necessary for Engineering Practice.