

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 : COMPUTER SCIENCE AND ENGINEERING
REGULATION : 2017
PROGRAM : B.Tech – COMPUTER SCIENCE AND 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 COMPUTER ENGINEERS	MATHEMATICS	FC(BS)	2	2	0	3	
2		PROGRAMMING IN PYTHON	CSE	FC(ES)	3	0	0	3	
3		DATA STRUCTURES	CSE	CC	3	0	0	3	
4		SMART MATERIALS	PHYSICS	FC(BS)	3	0	0	3	
5		BASICS OF CIVIL AND MECHANICAL ENGINEERING	CIVIL & MECHANICAL	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		DATA STRUCTURES LAB	CSE	CC	0	0	4	2	
9		ENGINEERING SKILLS PRACTICE LAB A. BASIC CIVIL ENGINEERING B. BASIC MECHANICAL ENGINEERING	CIVIL & MECHANICAL	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 COMPUTER 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:					
<ol style="list-style-type: none"> 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”, 18th 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 COMPUTER 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	1,2				3,4,5						
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								
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 : DATA STRUCTURES	L	T	P	C
	TOTAL HOURS: 45	3	0	0	3
	PREREQUISITE : NIL				
PURPOSE:					
To study basics of programming structures, linear and non-linear structures using ADT and array based implementation.					
INSTRUCTIONAL OBJECTIVES:					
1.	To learn linear structures.				
2.	To learn about tree structures.				
3.	To learn about balanced trees.				
4.	To learn hashing and Set concepts.				
5.	To learn about graphs using algorithms.				
UNIT – I					
LINEAR STRUCTURES					9
Abstract Data Types (ADT) – List ADT – array-based implementation – linked list implementation – cursor-based linked lists – doubly-linked lists – applications of lists –Stack ADT – Queue ADT – circular queue implementation – Applications of stacks and queues					
UNIT – II					
TREE STRUCTURES					9
Tree ADT – tree traversals – left child right sibling data structures for general trees and graphs.					
UNIT – III					
BALANCED TREES					9
AVL Trees – Splay Trees – B-Tree – heaps – binary heaps – applications of binary Heaps.					
UNIT – IV					
HASHING AND SET					9
Hashing – Separate chaining – open addressing – rehashing – extendible hashing – Disjoint Set – ADT dynamic equivalence problem – smart union algorithms – path compression – applications of Set.					
UNIT – V					
GRAPHS					9
Definitions – Topological sort – breadth-first traversal – shortest -path algorithms –minimum spanning tree – Prim's and Kruskal's algorithms – Depth-first traversal –biconnectivity – Euler circuits – applications of graphs					
TEXT BOOKS:					
1. M. A. Weiss, “Data Structures and Algorithm Analysis in C”, Second Edition, Pearson Education, 2005.					
REFERENCES:					
1. A. V. Aho, J. E. Hopcroft, and J. D. Ullman, “Data Structures and Algorithms”, Pearson Education, First Edition Reprint 2003.					
2. R. F. Gilberg, B. A. Forouzan, “Data Structures”, Second Edition, Thomson India, Edition, 2005.					

COURSE CODE:

NAME OF THE COURSE: DATA STRUCTURES

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	4	2,3								
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 CIVIL AND MECHANICAL ENGINEERING			L	T	P	C
	PART A – BASIC CIVIL ENGINEERING						
	TOTAL HOURS : 30			2	0	0	2
PREREQUISITE : NIL							
PURPOSE:							
The aim of the subject is to provide a fundamental knowledge of basic Civil Engineering.							
INSTRUCTIONAL OBJECTIVES:							
1.	To understand the basic concepts of surveying and construction materials.						
2.	To impart basic knowledge about building components.						
UNIT – I SURVEYING AND CIVIL ENGINEERING MATERIALS 15							
Surveying: Objects – types – classification – principles – measurements of distances – angles – levelling – determination of areas – illustrative examples. Civil Engineering Materials: Bricks – stones – sand – cement – concrete – steel sections.							
UNIT – II BUILDING COMPONENTS AND STRUCTURES 15							
Foundations: Types, Bearing capacity – Requirement of good foundations. Superstructure: Brick masonry – stone masonry – beams – columns – lintels – roofing – flooring – plastering – Mechanics – Internal and external forces – stress – strain – elasticity – Types of Bridges and Dams – Basics of Interior Design and Landscaping.							
TEXT BOOK:							
1. “Basic Civil and Mechanical Engineering”, VMU, (2017).							
REFERENCES:							
1. Ramamrutham S., “Basic Civil Engineering”, Dhanpatrai Publishing Co. (P) Ltd., 2009.							
2. Seetharaman S., “Basic Civil Engineering”, Anuradha Agencies.							

COURSE CODE :												
NAME OF THE COURSE : BASICS OF CIVIL AND MECHANICAL ENGINEERING												
PART A – BASIC CIVIL ENGINEERING												
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	1,2			1,2							
3	Category	HSS	BS	ES	CC	EC	EEC	PII				
				√								

COURSE CODE	SEMESTER – II							
	NAME OF THE COURSE : BASICS OF CIVIL AND MECHANICAL ENGINEERING				L	T	P	C
	PART B - BASIC MECHANICAL ENGINEERING							
	TOTAL HOURS: 30				2	0	0	2
PREREQUISITE: NIL								

PURPOSE:

The aim of the subject is to provide knowledge of fundamentals of Mechanical Engineering.

INSTRUCTIONAL OBJECTIVES :

- To understand foundry and welding processes of manufacturing.
- To impart fundamentals of automotive engines and important components.

UNIT – I	FOUNDRY AND WELDING	15
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Foundry: Introduction to Casting – Types, Pattern – Definition, Function. Foundry tools. Green Sand Moulding application.

Welding: Introduction to welding, Classification – Gas welding, Arc Welding, TIG, MIG, Plasma – Definitions. Arc Welding – Methods and Mechanisms – Applications.

UNIT – II	AUTOMOTIVE ENGINES AND COMPONENTS	15
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Introduction, Two stroke and four stroke cycle – Petrol and Diesel Engines – Construction and working. Fundamentals of automotive components – Brakes, Clutches, Governor, Flywheel, Axles, Drives etc., Fuel supply systems, Exhaust emission and control.

TEXT BOOK:

- “Basic Civil and Mechanical Engineering”, School of Mechanical Engineering Sciences, VMU, Salem, (2017).

REFERENCES:

- K.Venugopal, V.Prabhu Raja, G. Sreekanjana, “Basic Civil and Mechanical Engineering”, Anuradha Publications.
- G.Shanmugam, M.S.Palanichamy, “Basic Civil and Mechanical Engineering”, Tata McGraw Hill Publications.

COURSE CODE :		NAME OF THE COURSE : BASICS OF CIVIL AND MECHANICAL ENGINEERING										
		PART B - BASIC MECHANICAL ENGINEERING										
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	1-2				1-2						
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										
		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 : DATA STRUCTURES LAB	L	T	P	C	
	TOTAL HOURS : 60	0	0	4	2	
	PREREQUISITE : NIL					
PURPOSE:						
This course will give the knowledge in storage of data using list, stack, queue and tree concepts						
INSTRUCTIONAL OBJECTIVES :						
1.	To implement linear and Non-linear structures.					
2.	To implement tree structures.					
3.	To implement balanced trees.					
LIST OF EXPERIMENTS:						
1. Exercises using Objects, Classes, Inheritance. 2. Operator Overloading and Polymorphism. 3. Array implementation of List Abstract Data Type (ADT). 4. Linked list implementation of List ADT. 5. Cursor implementation of List ADT. 6. Array implementations of Stack ADT. 7. Linked list implementations of Stack ADT. 8. Queue ADT. 9. Search Tree ADT - Binary Search Tree. 10. Heap Sort. 11. Quick Sort.						
REFERENCE:						
1. Laboratory Reference Manual.						

COURSE CODE :												
NAME OF THE COURSE : DATA STRUCTURES 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 SKILLS PRACTICE LAB PART A - BASIC CIVIL ENGINEERING	L	T	P	C
	TOTAL HOURS : 30	0	0	2	1
	PREREQUISITE : NIL				
PURPOSE:					
The aim of the subject is to provide a fundamental knowledge of basic Civil Engineering.					
INSTRUCTIONAL OBJECTIVES:					
1.	Ability to fabricate carpentry components and pipe connections including plumbing works.				
LIST OF EXPERIMENTS:					
Buildings:					
1. Study of plumbing and carpentry components of residential and industrial buildings, Safety aspects.					
Plumbing Works:					
2. Study of pipeline joints, its location and functions: valves, taps, couplings, unions, reducers, elbows in household fittings.					
3. Study of pipe connections requirements for pumps and turbines.					
4. Preparation of plumbing line sketches for water supply and sewage works.					
5. Hands-on-exercise: Mixed pipe material connection – Pipe connections with different joining components.					
6. Demonstration of plumbing requirements of high-rise buildings.					
Carpentry using Power Tools only:					
7. Study of the joints in roofs, doors, windows and furniture.					
8. Hands-on-exercise: Wood work, joints by sawing, planing and cutting.					
REFERENCE:					
1. Laboratory Reference Manual.					

COURSE CODE:		NAME OF THE COURSE : ENGINEERING SKILLS PRACTICE LAB PART A - BASIC CIVIL ENGINEERING										
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
3	Category	HSS	BS	ES	CC	EC	EEC	PII				
				√								

COURSE CODE	SEMESTER – II				
	NAME OF THE COURSE: ENGINEERING SKILLS PRACTICE LAB PART B - BASIC MECHANICAL ENGINEERING	L	T	P	C
	TOTAL HOURS: 30	0	0	2	1
	PREREQUISITE: NIL				
PURPOSE:					
The aim of the subject is to make students understand the basic manufacturing operations.					
INSTRUCTIONAL OBJECTIVES:					
1.	To create ability to make fittings, casting moulds, wooden joints and welding joints.				
LIST OF EXPERIMENTS:					
1. Tee – Fitting 2. Vee – Fitting 3. Preparation of a mould for a single piece pattern 4. Preparation of a mould for a split piece pattern 5. Half- Lap Joint in Carpentry 6. Dove Tail Joint in Carpentry 7. Lap Joint – Welding 8. Butt Joint – Welding					
REFERENCES:					
“Engineering Skill Practices Lab Manual”, School of Mechanical Sciences, VMU.					

COURSE CODE :		DEPARTMENT OF MECHANICAL ENGINEERING										
NAME OF THE COURSE : ENGINEERING SKILLS PRACTICE LAB PART B - BASIC MECHANICAL ENGINEERING		a	b	c	d	e	f	g	h	i	j	k
1	Student Outcomes	√	√	√	√	√						
2	Mapping of instructional objectives with student outcome	1	1	1	1	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.