VASAVI COLLEGE OF ENGINEERING
(AUTONOMOUS)
IBRAHIMBAGH, HYDERABAD-500 031
ACCREDITED BY NAAC WITH A++ GRADE
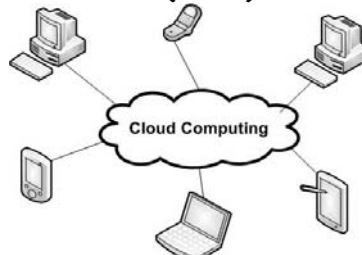
Approved by A.I.C.T.E., New Delhi and
Affiliated to Osmania University, Hyderabad-07

Sponsored by

VASAVI ACADEMY OF EDUCATION
Hyderabad

**SCHEME OF INSTRUCTION AND SYLLABI UNDER CBCS FOR
B.E. (IT) III and IV Semesters with effect from 2021-2022
(For the batch admitted in 2020-21)
(R-20)**

**DEPARTMENT OF INFORMATION TECHNOLOGY
+91-40-23146050, 23146051
Fax: +91-40-23146090
Website: www.vce.ac.in**

Vision

Striving for a symbiosis of technological excellence and human values.

Mission

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

Quality Policy

Education without quality is like a flower without fragrance. It is our earnest resolve to strive towards imparting high standards of teaching, training and developing human resources.

DEPARTMENT OF INFORMATION TECHNOLOGY

Vision

To be a centre of excellence in core Information Technology and multidisciplinary learning and research, where students get trained in latest technologies for professional and societal growth.

Mission

To enable the students acquire skills related to latest technologies in IT through practice- oriented teaching and training.

DEPARTMENT OF INFORMATION TECHNOLOGY

Programme Educational Objectives (PEOs) for IT Program
The Programme will produce graduates

PEO1. With theoretical and practical knowledge to obtain employment or pursue higher studies and solve problems in Information Technology.

PEO2. With effective written and oral communication skills that will help them to work in diversified and dynamic working environments.

PEO3. With competence to succeed in their professional lives with ethical values.

Program Specific Outcomes (PSOs) for IT Program
The Students will demonstrate

PSO1. Competency in programming using different programming languages to implement algorithms.

PSO2. Competency in the analysis and design of a software solution using different modelling tools.

PSO3. Competency in Electronic Design and Embedded System Design using different simulation tools.

Program Outcomes (POs) for IT Program
At the end of the program, the graduates will demonstrate

1. **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

2. **Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

3. **Design/development of solutions:** Design solutions for complex engineering problems and design system components or

processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

4. **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

5. **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

6. **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

7. **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

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

9. **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

10. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

11. **Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

12. **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROMOTION RULES

1. Attendance and Sessional marks requirements:

1	B.E(4yrs)	**Attendance:** Minimum aggregate attendance required to eligible to attend semester end exams is 75% and 65% with Medical Condonation respectively.
		Sessional Marks: Minimum aggregate of sessional marks required to become eligible for appearing semester end examinations is 40%

II. Promotion rules for B.E(4YDC) course

S No	Semester/Class	Conditions to be fulfilled
1	I-SEM TO II- SEM	Regular course of study of I-SEM and 40% aggregate CIE marks in I-SEM
2	II-SEM TO III SEM	a. Regular course of study of II SEM and
		b. 40% aggregate CIE marks in II-SEM
		c. Must have secured at least 50% of total credits prescribed for I and II SEMs together
3	III-SEM to IV-SEM	a. Regular course of study of III-SEM and
		b. 40% aggregate CIE marks in III-SEM
4	IV-SEM to V-SEM	a. Regular course of study of IV SEM
		b. 40% aggregate CIE marks in IV-SEM
		c. Passed in all the courses of I and II SEMs
		d. Must have secured at lest 50% of total credits prescribed for III and IV SEMs put together
5	V-SEM to VI-SEM	a) Regular course of study V-SEM b) 40% aggregate CIE marks in V-SEM
6	VI-SEM to VII-SEM	a. Regular course of study of VI SEM
		b. 40% aggregate CIE marks in VI-SEM
		c. Passed in all the courses of III and IV SEMs
		d. Must have secured at least 50% of total credits prescribed for V and VI SEMs put together

7	VII-SEM to VIII-SEM	a. Regular course of study of VII SEM b. 40% aggregate CIE marks in VII SEM
8	Eligibility to appear VIII-SEM exams	a. Regular course of study of VIII SEM and 40% aggregate CIE marks in VIII-SEM

III. Promotion rules for B.E(3 YDC) course (Lateral Entry)

S No	Semester/Class	Conditions to be fulfilled
1	III-SEM to IV-SEM	a. Regular course of study of III-SEM and
		a. 40% aggregate CIE marks in III-SEM
2	IV-SEM to V-SEM	e. Regular course of study of IV SEM
		f. 40% aggregate CIE marks in IV-SEM
		g. Must have secured at lest 50% of total credits prescribed for III and IV SEMs put together
3	V-SEM to VI-SEM	c) Regular course of study V-SEM d) 40% aggregate CIE marks in V-SEM
4	VI-SEM to VII-SEM	e. Regular course of study of VI SEM
		f. 40% aggregate CIE marks in VI-SEM
		g. Passed in all the courses of III and IV SEMs
		h. Must have secured at least 50% of total credits prescribed for V and VI SEMs put together
5	VII-SEM to VIII-SEM	c. Regular course of study of VII SEM d. 40% aggregate CIE marks in VII SEM
6	Eligibility to appear VIII-SEM exams	b. Regular course of study of VIII SEM and 40% aggregate CIE marks in VIII-SEM

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
SCHEME OF INSTRUCTION AND EXAMINATION (R-20)
B.E. – INFORMATION TECHNOLOGY : THIRD SEMESTER (2021 - 2022)

Course Code	Course Name	Hours per week			Duration in Hrs	Maximum Marks		Credits
		L	T	P/D		SEE	CIE	
U20BS340MA	Discrete Mathematics	3	-	-	3	60	40	3
U20ES310IT	Digital Electronics & Logic Design	3	-	-	3	60	40	3
U20PC310IT	Data Structures	3	-	-	3	60	40	3
U20PC320IT	Object Oriented Programming	3	-	-	3	60	40	3
U20OE3XXXX	Open Elective – I	2	-	-	3	60	40	2
U20HS330EH	Skill Development Course-I (Communication Skills –I)	1	-	-	2	40	30	1
U20BS350MA	Skill Development Course – II (Aptitude – I)	1	-	-	2	40	30	1
U20MC010CE	Environmental Science	2	-	-	3	60	40	-
U20MC310ME	Introduction to Entrepreneurship	1	-	-	2	40	30	-
PRACTICALS								
U20PC311IT	Data Structures Lab	-	-	2	3	50	30	1
U20PC321IT	Object Oriented Programming Lab	-	-	2	3	50	30	1
U20PW319IT	Mini Project – I	-	-	2	3	50	30	1
Co-Curricular Activities-I		-	-	-	-	-	-	-
Extra-Curricular Activities-I		-	-	-	-	-	-	-
Library / Sports / Mentor Interaction		-	-	-	-	-	-	-
Student should acquire one online certification course equivalent to 2 credits during III-VII Semesters.								
Total		**19**	**-**	**6**	**-**	**630**	**420**	**19**
Grand Total		**25**		**--**		**1050**		

Note:
1. One hour is allotted to Library / Sports / Personality Development Programme / Mentor Interaction.
2. The left over hours are to be allotted to CC / RC / TC based on the requirement.

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
IBRAHIMBAGH, HYDERABAD – 500 031
DEPARTMENT OF MATHEMATICS
DISCRETE MATHEMATICS
for B.E., III- Sem., (CBCS) *(for IT only)*

Instruction:3 +1 Hours per week	Semester End Exam Marks: 60	Subject Reference Code: **U20BS340MA**
Credits : 3	Sessional Marks : 40	Duration of Semester End Exam : 3 Hrs.

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 (10 Hours)
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 (10 Hours)
Number Theory: The Integers and Division- Division Algorithm- Fundamental Theorem of Arithmetic –Modular Arithmetic-Integers and Algorithms- Euclidean Algorithm. Applications of Number Theory-Linear Congruences- The Chinese Remainder Theorem (without Proof)- Fermat's Little Theorem- Public key cryptography- RSA Encryption and Decryption.

UNIT – III (12 Hours)
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 (10 Hours)
Relations: Relations – Properties -Representing relations - Equivalence Relations - Partial Orderings- Poset- Hasse diagrams – Maximal & Minimal Elements.

UNIT –V (10 Hours)
Graph Theory: Introduction- Types of graphs- Graph terminology- Basic theorems- Representing Graphs and Graph Isomorphism - Connectivity- Euler and Hamiltonian paths - Planar graphs- Euler's Formula- Graph coloring- Basic Definitions.

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 & Mathematicans, Prentiee Hail 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
DEPARTMENT OF INFORMATION TECHNOLOGY

DIGITAL ELECTRONICS AND LOGIC DESIGN
SYLLABUS FOR III-SEMESTER

L:T:P (Hrs./week): 3:0:0	SEE Marks :60	Course Code : **U20ES310IT**
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 design combinational and sequential circuits.	1. Simplify Boolean Functions using algebraic and K-map techniques to specific number of literals. 2. Design combinational circuits using fundamental logic gates and programmable logic devices for a given problem. 3. Draw the circuits of different types of flipflops and explain their operation using Truth tables and excitation tables. 4. Analyze any given synchronous or asynchronous sequential circuit and design synchronous or asynchronous sequential circuits for a given specification of the problem. 5. Implement combinational and sequential circuits using VHDL programming language.

UNIT – I:
Introduction to Boolean algebra and number system, Logic Gates, Optimized implementation of logic functions – Karnaugh Map, Strategies for minimization of product-of-sum and sum-of-product functions. Multiple output circuits. NAND and NOR logic networks, Cost functions, Introduction to CAD tools and VHDL

UNIT – II:
Combinational circuit building blocks – Multiplexers. Decoders. Encoders. Code converters, Arithmetic comparison circuits. General structures of a PLA, gate level diagram, schematic diagram, PAL. Structure of CPLDs and FPGAs, 2-input and 3-input lookup tables(LUT). Design of Arithmetic-circuits using CAD tools. VHDL for Combinational circuits

UNIT – III:
Basic Latch, Gated SR Latch, gated D Latch, T Flip-flop, JK Flip-flop, excitation tables. Master-Slave edge triggered flip-flops. Set up and hold time of a flip-flop. Registers, Counter. Using registers and counters with CAD tools. Design examples using VHDL.

UNIT – IV:
Synchronous Sequential Circuits – Analysis of Synchronous sequential Circuits Basic design steps. State-Assignment problem Moore and Mealy state models. State minimization, Design of FSM with CAD Tools. Implementation using VHDL.

UNIT – V:
Introduction to Asynchronous sequential circuits, Analysis of Asynchronous sequential circuits. Hazards: static and dynamic hazards. Significance of Hazards. Clock skew, ASM Charts, Digital Hardware Design Flow.

Learning Resources :
1. M. Moris Mano, Charles R. Kime, Logic and Computer Design Fundamentals, 2nd edition, Pearson Education Asia, 2001.
2. Stephen Brown , Zvonko Vranesic – Fundamentals of Digital Logic with VHDL design, McGraw Hill – 2000.
3. Virendrakumar Digital ElectronicsTheory& Experiments, New Age International Publishers, 2002
4. John F. Walkerly, Digital Design : Principles and Practices, Pearson India, 4th Edition.
5. Ronald J. Tocci, Neal S. Widmer, Gregory L. Moss, Digital Systems: Principles and Applications, Pearson India, 10th Edition.
6. https://nptel.ac.in/courses/117106086/

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
DATA STRUCTURES
SYLLABUS FOR III-SEMESTER

L:T:P (Hrs./week): 3:0:0	SEE Marks :60	Course Code : **U20PC310IT**
Credits : 3	CIE Marks :40	Duration of SEE : 3 Hours

Course Objectives	Course Outcomes
The Objectives of the course:	**At the end of the course student will be able to:**
1. Demonstrate linear and non-linear data structures and their applications. 2. Illustrate searching and sorting techniques.	1. Understand asymptotic notations, operations on arrays and stacks, and evaluate arithmetic expressions. 2. Analyze search, insert and delete operations on queues and linked list. 3. Compare complexities of insertion, deletion and search operations on trees, binary search trees and balanced binary search trees. 4. Understand the operations on multiway search trees and apply graph search algorithms to find minimal cost Spanning trees. 5. Evaluate the complexities of sorting, searching and hashing techniques.

UNIT-I:
Basic Concepts: Elementary Data Organizations, Data Abstraction. Data Structures Introduction and Operations: insertion, deletion, traversal. Performance analysis - time complexity and space complexity, Asymptotic Notations- Big O, Omega and Theta notations.
Arrays: Arrays – ADT, Polymonials, Sparse matrices, Strings-ADT, Pattern Matching
Stacks: Stack Abstract Data Type, Representation of a Stack using Arrays –Implementation of Stack Operations - Stack Applications: Infix to postfix Transformation - Evaluating Arithmetic Expressions.
UNIT-II:
Queues: Queue Abstract Data Type- Representation of a Queue using array - Implementation of Queue Operations - Applications of Queues - Circular Queues.
Linked List: Introduction – Singly Linked list -Operations on a singly linked list -Dynamically Linked Stacks and Queues Doubly linked list-Operations on a doubly linked list, Circular Linked list, Polynomial manipulation - Operations, Sparse Matrices.
UNIT-III:
Trees: Introduction, Binary Trees, Binary Tree Traversals, Priority Queues, Heaps.
Binary Search trees (BST) : Definition, Searching a BST, Insertion into a BST, Deletion from a BST.
Efficient Binary Search Trees: AVL Trees, Red-Black Trees, Splay Trees.
UNIT-IV:
Multiway Search Trees: m-way search trees-Definition and Properties, Searching an m-way search tree, B-Trees-Definition and properties, Number of Elements in a B-Tree, Insertion into a B-Tree and Deletion from a B-Tree.
Trie Data Structure : Introduction, Basic Operations
Graphs: The Graph ADT, Elementary graph operations - Depth First Search (DFS), Breadth First Search (BFS), Minimum Cost Spanning Trees- Kruskal's Algorithm, Prim's Algorithm.
UNIT-V:
Sorting and complexity analysis: Insertion Sort, Heap Sort, Topological Sort
Searching: Linear Search, Binary Search Techniques and their complexity analysis.
Hashing : Introduction, Static Hashing – Hash tables, Hash functions, Overflow handling.
Learning Resources:

1. Ellis Horowitz, Sartaj Sahni and Susan Anderson-Freed, Fundamentals of Data Structures in C, 2/e, Universities Press, 2008
2. Mark A Weiss, Data Structures and Algorithm Analysis In C, Second Edition (2002), Pearson
3. Richard F, Gilberg, B.A. Forouzan, "Data Structures, A Pseudocode Approach with C", Cengage, 2nd Edition
4. Thomas H. Cormen, Charles E. Leiserson, Ronald L. Rivest and Clifford Stem 'Introduction to Algorithms' 2002.
5. Tanenbaum A. M , Langsam Y. Augenstein M. J, Data Structures using C, Second Edition (2008), Pearson
6. Data Structures through C in depth,S K Srivastava,Deepali Srivastava,BPB publications,2nd Edition
7. http://nptel.ac.in/courses/106106127/
8. http://nptel.ac.in/courses/106103069/
9. https://ocw.mit.edu/courses/electrical-engineering-and-computer-science/6-006-introduction-to-algorithms-fall-2011/lecture-videos/

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

OBJECT ORIENTED PROGRAMMING
SYLLABUS FOR B.E. III-SEMESTER

L:T:P (Hrs./week): 3:0:0	SEE Marks : 60	Course Code : **U20PC320IT**
Credits : 3	CIE Marks : 40	Duration of SEE : 3 Hours

COURSE OBJECTIVE	COURSE OUTCOMES
	On completion of the course, students will be able to
1. Provide an overview of object-oriented programming concepts. 2. Explore java libraries to build applications.	1. Illustrate object-oriented programming features using Java. 2. Perform exception handling and multithreading. 3. Perform I/O operations, String manipulation using java libraries. 4. Implement data structures using collections framework. 5. Design and develop GUI using java libraries.

UNIT-I: Object Oriented Programming Fundamentals :
Object, Class, Abstraction, Encapsulation, Inheritance, Polymorphism.
Java Programming Fundamentals: Overview of Java , Java-keywords, Data types, Variables, Arrays, Command Line Arguments, Operators, Control statements, Structure of a Java class, Classes, Methods, Abstract Classes, Nested Classes. **Interfaces :** Defining interfaces, extending interfaces, implementing interfaces. **Packages**: Creation, importing a package and user defined package.

UNIT-II: Exception Handling: Introduction, types of exceptions, syntax of exception handling code, multiple catch statements, using finally statement, user-defined exceptions.
Multithreaded Programming: Introduction to threads, creating threads, extending the Thread class, implementing the Runnable interface, life cycle of a thread, priority of a thread, synchronization, and Inter-thread Communication.
UNIT-III: Exploring java.io : Java I/O classes and interfaces, Files, Character and Byte Streams Serialization.
Exploring java.lang: Object, Wrapper classes, String, StringBuffer, System.
Exploring java.util: Scanner, StringTokenizer, Date, Calendar.
UNIT-IV: Introduction to Generics: Defining Generics, Generics and Subtyping, Wildcards, Generic Methods.
Introduction to Collections: Collection Framework, Benefits of Collections Framework, Collection Framework Interfaces :   Collection , Set, List, Queue, Deque, Sorted Set, Map, Sorted Map.   Collection Framework Implementations : HashSet, TreeSet, ArrayList, LinkedList, PriorityQueue, ArrayDeque, HashMap, TreeMap. Traversing Collections.Collection Framework Algorithms : Sorting, Searching.
UNIT-V: GUI Programming : Introduction to Abstract Window Toolkit(AWT), Swing and Applets : AWT Class Hierarchy, Swing Class Hierarchy, Swing Components, Containers, Layout Managers, Event Handling : The Delegation Event Model, Model View Controller Architecture, Modifying Look and Feel, Working with Graphics and Applets.

<u>**Learning Resources:**</u>
1. Herbert Schildt, The Complete Reference Java, 7th Edition, Tata McGraw Hill, 2006.
2. James M Slack, Programming and Problem solving with JAVA, Thomson Learning, 2002.
3. C Thomas Wu, An Introduction to Object Oriented Programming with Java 5th edition, McGraw Hill Publishing, 2010.
4. Y. Daniel Liang , An Introduction to JAVA Programming, Tata McGraw Hill, 2009.
5. Kathy Sierra, Head First Java, 2/e, Shroff Publishers, 2012.
6. https://nptel.ac.in/courses/106105191/
7. https://docs.oracle.com/javase/tutorial/

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)
Hyderabad-500031, Telangana State
DEPARTMENT OF HUMANITIES & SOCIAL SCIENCES

Course Name : Skill Development Course-I (Communication Skills-I)
SYLLABUS FOR BE 2/4 -THIRD SEMESTER (III Semester)

L:T:P (Hrs./week): 2:0:0	SEE Marks : 40	Course Code: **U20HS330EH**
Credits: 1	CIE Marks : 30	Duration of SEE : 2 Hours

COURSE OBJECTIVES	COURSE OUTCOMES
Communication Skills in English	**Communication Skills in English**
Get students proficient in both receptive and productive skills especially virtually	Introduce themselves effectively and converse in a formal environment especially in the online space
Enable students to understand the importance and method of exchanging information in a formal space- both written and spoken	Write emails with appropriate structure and content
Introduce students to an ideal structure for a presentation and discussion- individually and in groups	Use appropriate structure based on the content employing appropriate transitions in written and spoken communication
Develop and improve reading skills needed for college work and reproduce the content based on the situational need	Paraphrase content and write an effective summary

Unit 1: Delightful Descriptions 6 hrs
- Introductions on an Online Forum
- Making Observations and Giving Opinion
- Recalling and Describing

Unit 2: Formal Conversation Skills 6 hrs
- Ask for Information
- Give Information
- Give Feedback
- Seek Permission

Unit 3: Technical Expositions and Discussions 8 hrs
- Classification
- Sequence
- Compare and Contrast
- Cause and Effect
- Problem and solution

Unit 4: Rational Recap 4 hrs
- Paraphrasing
- Summarizing

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

Learning Resources:
learn.talentsprint.com

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

1	No. of Internal Tests:	02	Max.Marks for each Internal Tests:	20
2	No. of Assignments:	02	Max. Marks for each Assignment:	05
3	No. of Quizzes:	02	Max. Marks for each Quiz Test:	05

Duration of Internal Test: **90 Minutes**

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
Hyderabad- 500031, Telangana State
DEPARTMENT OF MATHEMATICS

Course Name :: Skill Development Course II -Aptitude I
SYLLABUS FOR THIRD SEMESTER (III Semester)

L : T : P (Hrs/Week) : 2	SEE Marks : 40	Course Code: **U20BS350MA**
Credits: 1	CIE Marks : 30	Duration of SEE : 120 minutes

COURSE OBJECTIVES	COURSE OUTCOMES
Aptitude	**Aptitude**
This is a foundation course and aims at enhancing employability skills.	Solve questions in the mentioned areas using shortcuts and smart methods.
Students will be introduced to higher order thinking and problem solving skills in the following areas - Arithmetic Ability, Numerical Ability and General Reasoning.	Understand the fundamentals concept of Aptitude skills.
Students will be trained to work systematically with speed and accuracy while problem solving.	Perform calculations with speed and accuracy.

UNIT 1: QUANTITATIVE APTITUDE - NUMERICAL ABILITY
- Introduction to higher order thinking skills
- Speed Math
- Number systems
- LCM & HCF

UNIT 2: QUANTITATIVE APTITUDE- ARITHMETIC ABILITY FOUNDATION
- Ratio proportions
- Partnership
- Ages
- Allegations and mixtures
- Averages

UNIT 3: QUANTITATIVE APTITUDE
- Percentages
- Profit and loss

UNIT 4: REASONING ABILITY- GENERAL REASONING PART 1
- Blood Relations
- Number Series
- Coding and decoding

UNIT 5: QUANTITATIVE APTITUDE
- Time and Work
- Chain Rule
- Pipes and Cisterns

METHODOLOGY	**ASSESSMENTS**
- Demonstration	- Online assignments
- Presentations	- Individual and Group
- Expert lectures	
- Audio-visual lessons	

Learning Resources:
learn.talentsprint.com

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

1	No. of Internal Tests:	02	Max.Marks for each Internal Tests:	20
2	No. of Assignments:	02	Max. Marks for each Assignment:	05
3	No. of Quizzes:	02	Max. Marks for each Quiz Test:	05

Duration of Internal Test: **90 Minutes**

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

DEPARTMENT OF CIVIL ENGINEERING
ENVIRONMENTAL SCIENCE

SYLLABUS FOR B.E. III-SEMESTER

L:T:P (Hrs./week): 2:0:0	SEE Marks:60	Course Code: **U20MC010CE**
Credit: - - -	CIE Marks:40	Duration of SEE: 3 Hrs

COURSE OBJECTIVES	COURSE OUTCOMES
In this subject the students will	*Upon the completion of this course students will be able to*
1. Describe various types of natural resources available on the earth surface. 2. Explain the concepts of an ecosystem and the biotic and abiotic components of various aquatic ecosystems. 3. Identify the values, threats of biodiversity, endangered and endemic species of India along with the conservation of biodiversity. 4. Explain the causes, effects and control measures of various types of environmental pollutions. 5. Describe the methods for water conservation, the causes, effects of global warming, climate change, acid rain, ozone layer depletion, population explosion.	1. Describe the various types of natural resources. 2. Differentiate between various biotic and abiotic components of ecosystem. 3. Examine the values, threats of biodiversity, the methods of conservation, endangered and endemic species of India. 4. Illustrate causes, effects, control measures of various types of environmental pollutions. 5. Explain the methods of water conservation, causes, effects of climate change, global warming, acid rain and ozone layer depletion, population explosion.

UNIT-I: Environmental Studies: Definition, importance of environmental studies. Natural resources: Water resources; floods, drought, conflicts over water, dams-benefits and problems. Food resources; Effects of modern agriculture, fertilizer-pesticide problems, water logging salinity. Energy resources: Renewable and non-renewable energy resources. Land Resources, soil erosion and desertification.

UNIT-II: Ecosystems: Structure and function of an ecosystem, producers, consumers and decomposers, food chains, food webs, ecological pyramids, aquatic ecosystems (ponds, oceans, estuaries).

UNIT-III: Biodiversity: Genetic, species and ecosystem diversity. Values of biodiversity, threats to biodiversity, endangered and endemic species of India, conservation of biodiversity.

UNIT-IV: Environmental Pollution: Causes, effects and control measures of air pollution, water pollution, soil pollution, noise pollution, thermal pollution and solid waste & e-waste management.

UNIT-V: Social Aspects and the Environment: Water conservation, Climate change, global warming, acid rain, ozone layer depletion. Environmental Impact Assesment, population explosion.

Learning Resources:
1. Deswal S. and Deswal A., A Basic Course on Environmental studies, DhanpatRai& Co Pvt. Ltd. 2016
2. Benny Joseph, Environmental Studies, Tata McGraw-Hill, 2017
3. Suresh K. Dhameja, Environmental Studies, S.K. Kataria& Sons, 2010.
4. De A.K., Environmental Chemistry, New Age International, 2003.
5. Odum E.P., Fundamentals of Ecology, W.B. Sunders Co., USA, 2004.
6. Rajagopalan R., Environmental Studies, Second Edition, Oxford University Press, 2015

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

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

Duration of Internal Test: **90 Minutes**

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
IBRAHIMBAGH, HYDERABAD – 500 031
DEPARTMENT OF MECHANICAL ENGINEERING

INTRODUCTION TO ENTREPRENEURSHIP
SYLLABUS FOR B.E.III-SEMESTER

L:T:P(Hrs/week):1:0:0	SEE Marks:40	Course Code: **U20MC310ME**
Credits : --	CIE Marks:30	Duration of SEE: 02Hours

COURSE OBJECTIVE *The objective of the course is to*	COURSE OUTCOMES *On completion of the course, students will be able to*	
inspire students develop an entrepreneurial mind-set, educate about the resources and schemes available to start enterprises in India.	1	get awareness about entrepreneurship and potentially become an entrepreneur.
	2	discern the characteristics required to be a successful entrepreneur
	3	know the importance of effective communication.
	4	demonstrate effective sales skills

Unit-I: Sources of new ideas, techniques for generating ideas.

Team formation, how entrepreneurship has changed the country and world, entrepreneurial myths, E-cells and their significance, success story of entrepreneurs, eg: Practo, global entrepreneurs, entrepreneurial journeys, challenges, and successes, characteristics of a Successful Entrepreneur, entrepreneurial styles, introduction to business model.

Unit-II: Importance of effective communication for entrepreneurs, communication barriers, miscommunication, incorrect assumptions about people, importance of listening, design thinking-a problem solving process, sales skills, understanding the customer-centric approach, personal selling techniques, show and tell, elevator pitch, managing risks and learning from failures, women entrepreneurs.

Learning Resources:
1. Bruce R. Barringer and R. Duane Ireland, "Entrepreneurship: successfully launching new ventures", 3rd edition, Pearson Prentice Hall, 2009.
2. P. Denning and R. Dunham, "The Innovator's Way", MIT Press: Cambridge, Massachusetts, 2010.
3. Arya Kumar, "Entrepreneurship", Pearson Education, Delhi, 2012.
4. Michael H. Morris, D.F.Kuratko, J G Covin, "Corporate Entrepreneurship and Innovation", Cengage learning, New Delhi,2010
5. Peter F. Drucker, "Innovation and Entrepreneurship", Routledge Classics, 2015.
6. Eric Ries, "The Lean Start-up", Currency, 1st edition, 2011.
Web Resources:
7. http://www.learnwise.org

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

1	No. of Internal Tests:	01	Max. Marks for each Internal Test:	20
2	No. of Assignments:	01	Max. Marks for each Assignment:	05
3	No. of Quizzes:	01	Max. Marks for each Quiz Test:	05

Duration of Internal Test: **1 Hour**

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
IBRAHIMBAGH, HYDERABAD – 500 031
DEPARTMENT OF INFORMATION TECHNOLOGY

DATA STRUCTURES LAB
SYLLABUS FOR B.E. III-SEMESTER

L:T:P(Hrs./week):0:0:2	SEE Marks : 50	Course Code : **U20PC311IT**
Credits : 1	CIE Marks : 30	Duration of SEE : 3 Hours

Course Objectives	Course Outcomes
The Objectives of the course:	**At the end of the course student will be able to:**
1. Demonstrate stacks, queues, linked lists and its applications. 2. Provide hands-on experience to perform searching, sorting problems insertion and deletion operations on non-linear data structures.	1. Implement operations on stacks, queues and linked lists and evaluate expressions. 2. Execute insert, search and delete operations on trees. 3. Implement priority queues, heaps and sorting. 4. Implement graph traversal algorithms. 5. Implement multi way search trees.

1. Menu driven program that implements Stacks using arrays for the following operations
   a)create   b)push   c)pop   d) peek
2. Implementation of Infix to Postfix Conversion and evaluation of postfix expression.
3. Menu driven program that implements Queues using arrays for the following operations
   a)create   b)insert   c)delete   d) display
4. Menu driven program that implements Circular Queues for the following operations
   a)create   b)Insert   c)delete   d) display
5. Implementation of Singly Linked List, Stack using Singly Linked List, Queue using Singly Linked List.
6. Implementation of polynomial operations using Linked List.
7. Implementation of Doubly Linked List, Circular linked list.
8. Implementation of Operations on Binary Tree (Insert, Delete, Level Order, Search)
9. Implementation of Recursive and Iterative Traversals on Binary Trees.
10. Implementation of Operations on Binary Search Tree.
11. Implementation of operations on AVL Tree.
12. Implementation of Breadth First search Traversal on Graphs.
13. Implementation of Depth First search Traversal on Graphs.
14. Implementation of Insertion Sort, Heap Sort.
15. Implementation of B-Trees
16. Develop an application using appropriate data structures.

Learning Resources
1. Ellis Horowitz, Sartaj Sahni and Susan Anderson-Freed, Fundamentals of Data Structures in C, 2/e, Universities Press, 2008
2. Mark A Weiss, Data Structures and Algorithm Analysis In C, Second Edition (2002), Pearson
3. Richard F, Gilberg, B.A. Forouzan, "Data Structures, A Pseudocode Approach with C", Cengage, 2nd Edition
4. Thomas H. Cormen, Charles E. Leiserson, Ronald L. Rivest and Clifford Stem 'Introduction to Algorithms' 2002.
5. Tanenbaum A. M , Langsam Y. Augenstein M. J, Data Structures using C, Second Edition (2008), Pearson
6. Data Structures through C in depth,S K Srivastava,Deepali Srivastava,BPB publications,2nd Edition

Online Resources:
1. http://nptel.ac.in/courses/106106127/
2. http://nptel.ac.in/courses/106103069/
3. https://ocw.mit.edu/courses/electrical-engineering-and-computer-science/6-006-introduction-to-algorithms-fall-2011/lecture-videos/

No. of Internal Tests: 02   Max. Marks for Internal Test: 12

Marks for day-to-day laboratory class work   18
Duration of Internal Test: 2Hours

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
IBRAHIMBAGH, HYDERABAD – 500 031
DEPARTMENT OF INFORMATION TECHNOLOGY

OBJECT ORIENTED PROGRAMMING LAB
SYLLABUS FOR B.E. III-SEMESTER

L:T:P(Hrs./week):0:0:2	SEE Marks : 50	Course Code : **U20 PC321IT**
Credits : 1	CIE Marks : 30	Duration of SEE : 3 Hours

COURSE OBJECTIVE	COURSE OUTCOMES
The course will enable the students to	*On completion of the course, students will be able to*
1. Illustrate the key features of Object-Oriented Programming, threads and files. 2. Demonstrate command line as well as graphical user interface applications.	1. Implement object-oriented programming features using Java. 2. Implement exception handling and multithreading. 3. Execute I/O and String manipulation operations using java libraries. 4. Implement data structures using collections framework. 5. Develop GUI using java libraries.

JAVA API(java.lang package)
1. A program to illustrate the concept of arrays in Java.
2. A program to demonstrate the use of command line arguments.
3. A program to illustrate the concept of inheritance.
4. A program to illustrate the concept of dynamic polymorphism.
5. A program to illustrate the concept of abstract class.
6. A program to demonstrate various access specifiers and their scope using packages.
7. A program to demonstrate how multiple inheritance is achieved using interfaces.
8. A program to demonstrate exception handling by using throw, finally & multiple catch statements.
9. A program to illustrate the concept of user-defined exception.
10. A program to create multiple threads using Thread class and Runnable interface.
11. A program to illustrate the concept of thread synchronization.

JAVA API(java.io package)
12.a) A program to illustrate the use of FileInputStream and FileOutputStream
   b) A program to illustrate the use of BufferedInputStream and BufferedOutputStream.
   c) A program to illustrate the use of ObjectInputStream and ObjectOutputStream.

JAVA API(java.util package)
13.a) A program to demonstrate the use of Scanner class to read user input.
   b) A program to demonstrate the use of StringTokenizer.
   c) A program to demonstrate the use of Date and Calendar.
14. A program to demonstrate the use of Collection framework classes and algorithms.

JAVA API(java.awt , java.awt.event and , javax.swing package)
15. a) An application involving GUI with different controls using AWT.
    b) An application involving GUI with different controls using Swing.
    c) An application using Applet.

Learning Resources:
1. Herbert Schildt, The Complete Reference Java, 7th Edition, Tata McGraw Hill, 2006.
2. James M Slack, Programming and Problem solving with JAVA, Thomson Learning, 2002.
3. C Thomas Wu, An Introduction to Object Oriented Programming with Java 5th edition, McGraw Hill Publishing, 2010.
4. Y. Daniel Liang , An Introduction to JAVA Programming, Tata McGraw Hill, 2009.
5. Kathy Sierra, Head First Java, 2/e, Shroff Publishers, 2012.
6. https://nptel.ac.in/courses/106105191/
7. https://docs.oracle.com/javase/tutorial/

No. of Internal Tests:	02 Max. Marks for Internal Test:	12
Day-to-day laboratory class work which will be awarded based on the average of assessment for each experiment considering at the end of the course		18
Duration of Internal Test: 2 Hours		

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

DEPARTMENT OF INFORMATION TECHNOLOGY

MINI PROJECT-I
SYLLABUS FOR B.E. III-SEMESTER

L:T:P(Hrs./week):0:0:2	SEE Marks : 50	Course Code : **U20PW319IT**
Credits : 1	CIE Marks : 30	Duration of SEE : 3 Hrs

Course Objectives	Course Outcomes
The course will enable the students to:	**At the end of the course student will be able to:**
Develop and implement a project using any of the programming languages/simulation tools/electronic components.	1. Apply theoretical knowledge to design solutions for real life problems. 2. Demonstrate the ability to locate and use technical information from multiple sources. 3. Develop team spirit and demonstrate an understanding of professional ethics. 4. Demonstrate the ability to communicate effectively in speech and in writing. 5. Develop the capability for lifelong learning through advanced technology.

1. During the implementation of the projects, Personnel Software Process (PSP) has to be followed.
2. Two reviews will be conducted.
3. Report of the project work has to be submitted for evaluation.

Continuous Internal Evaluation (CIE) – 30 marks : To be evaluated by the Internal Examiner

Assesment-1 : **[5 Marks]**

To be conducted on week-2 : Review of problem selection and Abstract.

Assesment-2: [10 Marks]

To be conducted on week-7: Review of project design and initial phase of implementation.

Assesment-3: [15 Marks]

To be conducted on week-15 : Review of final implementation, presentation and report.

Semester End Examination(SEE) – 50 marks: To be evaluated by the External Examiner

Evaluation is done based on the following deliverables:

PowerPoint Presentation	[10 Marks]
Demonstration of the application	[20 Marks]
Project report	[10 Marks]
Viva Voce	[10 Marks]

External Examiner should be appointed from other premier Institutes OR from the industry.

**OPEN ELECTIVES OFFERED BY VARIOUS DEPARTMENTS IN
B.E. III SEMESTER**

Dept	Title	Code	credits
Civil	Green Buildings	U20OE310CE	2
CSE	Principles of Python Programming	U200E310CS	2
	Cyber Security	U200E320CS	2
ECE	Introduction to Signals & Systems	U20OE310EC	2
	Principles of Communication Engineering	U20OE320EC	2
EEE	Non Conventional Energy Sources	U20OE310EE	2
Mech.	Geometric Modelling	U20OE310ME	2
	Introduction to Unmanned Aerial Vehicle	U20OE320ME	2
	Basic Heat Transfer for Electronic Systems	U20OE330ME	2
IT	Object Oriented Programming Using Java	U20OE310IT	2
	Introduction To Scripting Languages	U20OE320IT	2
Maths.	Linear Algebra and its Applications	U200E310MA	2
Chemistry	Battery science and Technology	U20OE31OCH	2
Physics	Smart Materials & Applications	U20OE31OPH	2
H&SS	Learning to Learn	U20OE310EH	2

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

GREEN BUILDINGS (Open Elective-I)
SYLLABUS FOR B.E. III-SEMESTER

L : T : P (Hrs./week):2:0:0	SEE Marks:60	Course Code: **U20OE310CE**
Credits : 2	CIE Marks:40	Duration of SEE: 3 Hrs

COURSE OBJECTIVES	COURSE OUTCOMES
Objectives of this course are to:	Upon the completion of this course the students will be expected to:
1. Learn the principles of planning and orientation of buildings. 2. Environmental implications of natural and building materials along with green cover 3. Acquire knowledge on various aspects of green buildings	1. Explain the principles of building planning, its bylaws and provide facilities for rainwater harvesting 2. Relate safety to Green Technology 3. Understand the concepts of green building technologies 4. Understand rating systems of GRIHA IGBC and LEED

UNIT-I: Planning of buildings: Principles of planning, Relevant building bylaws, site selection for buildings, orientation of buildings, Provision of rain water harvesting

UNIT-II: Building-Energy-Implications: Environmental implications of buildings energy, carbon emissions, water use, waste disposal; Building materials: sources, methods of production and environmental Implications. Green building materials and recycling, Green cover and built environment

UNIT-III: Green Building Technologies: Introduction- Necessity - Concept of Green building. Principles of green building – Site selection criteria for Green Buildings – effective cooling and heating systems – effective electrical systems-Passive solar architecture - effective water conservation systems

UNIT-IV: Certification Systems: Certification systems- Green Rating for Integrated Habitat Assessment (GRIHA), Indian Green Building Council (IGBC) and Leadership in Energy and Environmental Design (LEED), case studies

Learning Resources:

1. Kumara Swamy N.Kameswara Rao A., Building Planning And Drawing, Charotar, Publications, 2013.
2. Shahane, V. S, "Planning and Designing Building", Poona, Allies Book Stall, 2004.
3. Michael Bauer, Peter Mösle and Michael Schwarz "Green Building – Guidebook for Sustainable Architecture" Springer, 2010.
4. Tom Woolley, Sam Kimmins, Paul Harrison and Rob Harrison "Green Building Handbook" Volume I, Spon Press, 2001.
5. Mili Majumdar, "Energy-efficient buildings in India" Tata Energy Research Institute, 2002.
6. TERI "Sustainable Building Design Manual- Volume I & II" Tata Energy Research Institute, 2009.

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

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

Duration of Internal Test: **90 Minutes**

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

Department of Computer Science & Engineering
PRINCIPLES OF PYTHON PROGRAMMING(OPEN ELECTIVE-I)
(Common for CIVIL, ECE, EEE & MECH)

SYLLABUS FOR B.E. III-SEMESTER

L:T:P (Hrs./week): 2:0:0	SEE Marks : 60	Course Code :**U200E310CS**
Credits : 2	CIE Marks : 40	Duration of SEE : 3 Hours

COURSE OBJECTIVES		COURSE OUTCOMES *On completion of the course, students will be able to*	
1	Acquire problem solving skills	1	Design python programs using arithmetic expressions and decision making statements
2	Learn programming and solve problems using Python language	2	Design modular python programs using functions
		3	Develop programs using strings and list
		4	Develop programs using tuples and dictionaries

UNIT-I: **Introduction to Python**: Variables, expressions and statements, order of operations

Conditionals: Modulus operators, Boolean expressions, logical operators, conditional execution, alternative executions, chained conditional, nested conditional

Iteration: while statement

UNIT-II: Functions: function calls, type conversion and coercion, mathematical functions, User-defined functions, parameters and arguments.
Recursion

UNIT-III: Strings: string length, string traversal, string slices and string comparison with examples, strings are immutable, find function, string module

List: list values, accessing elements, list traversal, list length, list membership, list and for loop, list operations with examples

UNIT-IV: **Tuples**: Mutability, tuple assignment, tuple as return values

Dictionaries: dictionary operations, dictionary methods, aliasing and copying, counting letters using dictionaries

Learning Resources:

1. Downey A, How to think like a Computer Scientist :Learning with Python, 1st Edition(2015), John Wiley
2. Lambert K.A, Fundamentals of Python –First Programs, 1st Edition(2015), Cengage Learning India
3. Perkovic L, Introduction to Computing using Python,2/e, (2015), John Wiley
4. Stewart Venit and Elizabeth Drake, Prelude to Programming: Concepts and Design, 6th Edition(2015),Pearson India
5. Mark J Guzdial, Introduction to Computing and programming in Python, 3rdEdition(2013), Pearson India
6. Allen Downey, Think Python, 2nd Edition(2015),Shroff Publisher Orielly
7. http://nptel.ac.in/courses/117106113/34
8. https://ocw.mit.edu/courses/electrical-engineering-and-computer-science/6-01sc-introduction-to-electrical-engineering-and-computer-science-i-spring-2011/python-tutorial/
9. www.scipy-lectures.org/intro/language/python_language.html

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

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

Duration of Internal Test: **90 Minutes**

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

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
CYBER SECURITY (OPEN ELECTIVE-I)
(Common for CIVIL, ECE, EEE & MECH)

SYLLABUS FOR B.E. III-SEMESTER

L:T:P (Hrs./week): 2:0:0	SEE Marks : 60	Course Code :**U200E320CS**
Credits : 2	CIE Marks : 40	Duration of SEE : 3 Hours

COURSE OBJECTIVES	COURSE OUTCOMES *On completion of the course, students will be able to*
1 To safeguard from threats and infection spread through the internet	1 Explain the concepts of confidentiality, availability and integrity 2 Explain the basics of fraud techniques used by a hacker 3 Explore the common exploitation mechanisms and inspect data sniffing over the network 4 Determine the ways an organization attempts to discover threats.

UNIT-I: **CYBER SECURITY FUNDAMENTALS:** Network and Security concepts: Information assurance fundamentals, Basic Cryptography, Symmetric Encryption, Public key encryption, Digital Signature, Key Exchange Protocols, DNS, Firewalls, Virtualization.

UNIT-II: ATTACKER TECHNIQUES AND MOTIVATIONS: How hackers cover their tracks, Tunneling techniques, Fraud Techniques: Phishing, Smishing, Vishing and Mobile Malicious Code, Rogue Antivirus, Click Fraud, Threat Infrastructure: Botnets, Fast-Flux, Advanced Fast-Flux.

UNIT-III: EXPLOITATION: Techniques to gain foothold: Shell code, Integer overflow, Stack based buffer overflow, Format String Vulnerabilities, SQL Injection, Web Exploit Tools, Misdirection, Reconnaissance, and Disruption Methods

UNIT-IV:**MALICIOUS CODE, DEFENSE & ANALYSIS TECHNIQUES:** Self-replicating replicating code, Worms, Viruses, Evading Detection and Elevating Privileges: Obfuscation, Spyware, Token Kidnapping, Memory Forensics, Honeypots, Malicious code naming, Intrusion detection systems

Learning Resources:

1. James Graham, Ryan Olson, Rick Howard, "Cyber Security Essentials", Auerbach Publications , CRC Press, 2011
2. Mike Shema, "Anti-Hacker Tool Kit (Indian Edition)", Mc Graw Hill, 2014
3. Cyber Security - Understanding Cyber Crimes, Computer Forensics and Legal Perspectives, Nina Godbole and Sunit Belpure, Publication Wiley , 2011
4. https://www.edx.org/micromasters/ritx-cybersecurity
5. https://www.coursera.org/specializations/cyber-security
6. http://nptel.ac.in/courses/106105031/
7. https://www.netacad.com/courses/security/introduction-cybersecurity

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

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

Duration of Internal Test: **90 Minutes**

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
IBRAHIMBAGH, HYDERABAD – 500 031
ACCREDITED BY NAAC WITH 'A++' GRADE
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
INTRODUCTION TO SIGNALS & SYSTEMS (OPEN ELECTIVE)
SYLLABUS FOR B.E. III – SEMESTER (for CSE & IT)

L:T:P (Hrs./week) :2:0:0	SEE Marks : 60	Course Code:**U20OE310EC**
Credits : 2	CIE Marks : 40	Duration of SEE : 3 Hours

COURSE OBJECTIVES	COURSE OUTCOMES
1. Define and classify continuous and discrete time signals and systems. 2. Determine frequency domain characteristics of continuous and discrete time signals.	*On completion of the course, students will be able to* 1. Analyze basic signals and systems in continuous and discrete time domain 2. Apply the properties of different transformation techniques to analyze continuous time domain signals and systems in frequency domain 3. Determine the response of an LTI system using Convolution 4. Apply the properties of different transformation techniques to convert a discrete time domain signal to frequency domain

UNIT - I
Continuous time signals: types of signals, representation of signals, basic elementary signals, operations on signals.
Continuous time systems: classification of systems - static and dynamic, linear and non linear, time invariant and time variant.

UNIT - II
Continuous time Fourier transforms: Introduction, existence, properties, magnitude and phase spectrums.
Laplace transforms: Introduction, existence, Laplace transform of basic elementary signals, properties, inverse Laplace transforms

UNIT - III
Discrete time signals: types of signals, representation of signals, basic elementary signals, operations on signals.
Discrete time systems: classification of systems - static and dynamic, linear and non linear, time invariant and time variant.

UNIT - IV
LTI Systems: Introduction to continuous and discrete time LTI systems, properties, impulse response, convolution, causality, stability, transfer function.
Z-transform: Introduction, existence, Z-transform of basic elementary signals, properties, inverse Z-transforms.
Applications: Basic network Analysis, Servo Motor

Learning Resources:
1. P. Ramakrishna Rao, Signals and Systems,McGraw Hill, 2008.
2. Alan V. Oppenheim, Alan S. Wilsky and S. Hamid Nawab, Signals and Systems, 2nd ed., PHI, 2009.
3. Nagoor kani , Signals and Systems McGraw Hill, 2013
4. https://onlinecourses.nptel.ac.in/noc19_ee07/preview
   (Principle of Signals and Systems by Prof. Aditya K Jagannatham
5. https://www.edx.org/course/signals-and-systems-part-1-1
6. https://www.edx.org/course/signals-systems-part-2-iitbombayx-ee210-2x-3

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

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

Duration of Internal Test: **90 Minutes**

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
IBRAHIMBAGH, HYDERABAD – 500 031
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
PRINCIPLES OF COMMUNICATION ENGINEERING (OPEN ELECTIVE)
SYLLABUS FOR B.E. III – SEMESTER (for EEE, CSE & IT)

L:T:P (Hrs./week) :2:0:0	SEE Marks : 60	Course Code: **U20OE320EC**
Credits : 2	CIE Marks : 40	Duration of SEE : 3 Hours

COURSE OBJECTIVES	COURSE OUTCOMES
Distinguish analog and digital Modulation techniques used in various Communication systems.	*On completion of the course, students will be able to* 1. Analyze the power and transmission bandwidth of Amplitude and Frequency Modulated signals. 2. Familiarize the process of reproduction of base band signal. 3. Analyze various pulse analog and pulse digital Modulation Techniques. 4. Understand the transmission of binary data in communication systems.

UNIT - I
Amplitude Modulation: Introduction to Modulation, Need for Modulation, Ordinary Amplitude Modulation – Modulation index, Side bands, AM Power, Double Side Band Suppressed Carrier Modulation, Single Side Band Modulation, Vestigial Side Band Modulation, AM demodulation, Applications of AM.

UNIT - II
Angle Modulation: Angle Modulation fundamentals, Frequency Modulation – Modulation index and sidebands, Narrowband FM, Wideband FM, Principles of Phase Modulation, Frequency Modulation verses Amplitude Modulation, FM demodulation, Frequency Division Multiplexing, Applications of FM.

UNIT - III
Signal Sampling and Analog Pulse Communication: Ideal Sampling, Pulse Amplitude Modulation, Pulse Width Modulation, Pulse Position Modulation.
Digital Communication Techniques: Quantization, Digital Transmission of Data, Parallel and Serial Transmission, Data Conversion, Time Division Multiplexing, Pulse Code Modulation, Delta Modulation.

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.

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.

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

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

Duration of Internal Test: **90 Minutes**

VASAVI COLLEGE OF ENGINEERING (Autonomous)
IBRAHIMBAGH, HYDERABAD – 500 031
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

Non Conventional Energy Sources
Open Elective-I
SYLLABUS FOR B.E. III SEMESTER

L: T: P (Hrs/Week):2:0:0	SEE Marks: 60	Course Code:**U20OE310EE**
Credits:2	CIE Marks: 40	Duration of SEE: 3Hours

COURSE OBJECTIVES The course will enable the students to:	**COURSE OUTCOMES** On completion of the course, students will be able to
To provide a survey of the most important renewable energy resources and the technologies for harnessing these resources within the framework of a broad range of simple to state- of - the-art energy systems.	1. Demonstrate the generation of electricity from various Non-Conventional sources of energy and solar power generation 2. Illustrate the generation of energy from wind and generation of energy from waste 3. Demonstrate the generation of energy by biomass and fuel cells 4. Illustrate the ocean and geo thermal energy generation

UNIT-I: Introduction and Solar Energy:
Introduction: Need for Non-conventional energy sources, Types of Non-Conventional energy sources. Renewable energy across the Global and in India. Renewable energy for rural applications, Renewable energy for urban, industrial and commercial applications
Solar Energy: Solar cell fundamentals: Semiconductors, Photovoltaic effect, Solar PV cell, module, panel, array, Solar cell operating characteristics: Voltage-current characteristic, energy losses, maximising the performance. Applications of solar energy, Solar energy program in India, Case study

UNIT-II: Wind Energy and Waste to Energy:
Wind Energy: Nature of wind, Basic components of Wind Energy Conversion System(WECS), Power extraction from the wind, Applications of wind energy. Wind energy program in India, Case Study
Waste to Energy: Key issues, Waste recovery management, Case study
UNIT-III: Biomass Energy and Fuel Cells:
BiomassEnergy: Definition, Bio fuels, Biomass resources, Biomass conversion technologies: Incineration- Thermo chemical conversion- Bio- chemical conversion. Advantages and disadvantages of biomass energy, Case study
Fuel Cells: Definition-Classification of fuel cells, Principle of operation, Hydrogen-oxygen fuel cell, Alkaline fuel cell, Proton exchange membrane fuel cell, Molten carbonate fuel cell, Solid oxide electrolyte cells, Comparison of fuel cells-Advantages and Disadvantages of fuel cells-Applications of Fuel cells. Case study

UNIT-IV: Ocean Energy and Geothermal Energy:
Ocean Energy: Ocean thermal electric conversion (OTEC) methods: Open cycle and Closed cycle- Principles of tidal power generation-Advantages and limitations of tidal power generation, Case study
Geothermal Energy: Geothermal resources- Vapour dominated geothermal plant- Liquid dominated geothermal plant- Applications of Geothermal Energy, Case study

Learning Resources:

1. B H KHAN, Non-Conventional Energy Resources, McGraw Hill, 2nd Edition, 2009.
2. G. S. Sawhney, Non-Conventional Energy Resources, PHI Learning Pvt Ltd, 2012
3. ShobhNath Singh, Non-Conventional Energy Resources, Pearson, 2016
4. G.D. Rai, Non-Conventional Energy Sources ,Khanna Publishers, New Delhi, 2011.
5. Ashok Desai V, Non-Conventional Energy, Wiley Eastern Ltd, 1990.
6. Mittal K.M, Non-Conventional Energy Systems, Wheeler Publishing Co. Ltd, 1997.
7. Ramesh R, Kurnar K.U, Renewable Energy Technologies, Narosa Publishing House, New Delhi, 1997.

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

1	No. of Internal Tests:	02	Max.Marks for each Internal Tests:	30
2	No. of Assignments:	02	Max. Marks for each Assignment:	05

3   No. of Quizzes: | 02 | Max. Marks for each Quiz Test: | 05 |
    Duration of Internal Test: **90 Minutes**

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
IBRAHIMBAGH, HYDERABAD – 500 031
Department of Mechanical Engineering

GEOMETRIC MODELLING (Open Elective-I)
SYLLABUS FOR B.E.III-SEMESTER

L:T:P(Hrs/week):2:0:0	SEE Marks:60	Course Code: **U20OE310ME**
Credits :02	CIE Marks:40	Duration of SEE:03Hours

COURSE OBJECTIVE	COURSE OUTCOMES
	On completion of the course, students will be able to
The objective of this course is to understand wire-frame modelling & transformations, surface, solid modelling and assembly modelling techniques.	1 identify various Wire frame modelling entities and their representations.
	2 interpret synthetic curve representations and various 2D transformations for geometric model by matrix approach.
	3 development of various surfaces using surface modelling.
	4 analyze various solid models using various solid modelling schemes and Study various Assembly constraints, Assembly tree and develop few assembled models.

UNIT-I: INTRODUCTION TO CAD
product life cycle, conventional design and computer aided design.
Wire Frame Modelling: wire frame entities and their definitions. Interpolation and approximation of curves. Concept of parametric and non–parametric representation of circle and helix curves, demonstration of 2D geometry through CAD software.

UNIT-II: SYNTHETIC CURVES
Parametric representation of cubic spline, Bezier and B– spline curves, continuity, properties and characteristics of splines. Concepts of NURBS, synthetic curves demonstration.

2D transformation and their mathematics: Translation, scaling, rotation, Homogeneous co-ordinates, Concatenated transformations.

UNIT-III: SURFACE MODELING
Analytical surfaces: Definitions of planar, surface of revolution, Tabulated cylinder. Synthetic surfaces: Cubic and Bezier surfaces, visualization of different surfaces.

UNIT-IV: SOLID MODELLING
C– rep and B– rep and feature instancing, Octree encoding, spatial enumeration, cell decomposition, sweeping approaches. Euler's representation of solid models, creation of solid model in CAD software.
ASSEMBLY MODELING: Assembly constraints, assembly tree, top down assembly, bottom up assembly, development of a history tree for a simple assembly, demonstration of simple assembly.

Learning Resources:
1. Ibrahim Zeid, "CAD/CAM- Theory and Practice", McGraw-Hill Inc. New York, 2011.
2. Steven Harrington, "Computer graphics: a programming approach", McGraw-Hill, 1987.
3. David Rogers, J. Alan Adams, "Mathematical elements for computer graphics", McGraw Hill, 1990.
4. McConnell, J. J. "Computer graphics theory into practice", Jones and Bartlett Publishers, 2006.

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

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

Duration of Internal Test: **90 Minutes**

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

Department of Mechanical Engineering

INTRODUCTION TO UNMANNED AERIAL VEHICLES (Open Elective-I)
SYLLABUS FOR B.E.III-SEMESTER

L:T:P(Hrs/week):2:0:0	SEE Marks:60	Course Code: **U20OE320ME**
Credits :02	CIE Marks:40	Duration of SEE: 03Hours

COURSE OBJECTIVE	COURSE OUTCOMES
	On completion of the course, students will be able to
The objective of this Course is to understand the features of UAV, elements, navigation and guidance of UAV and to design and silmulate UAV	1. Explain the types and characteristics of UAVs and their applications. 2. Illustrate the concepts of aerodynamics of flight vehicle. 3. Identify and explain the components, sensors and payload of UAVs, their navigation and guidance. 4. Design and perform structural, aerodynamic analysis of UAV components

Unit-I: Introduction to UAV
UAV: Definition, History; Difference between aircraft and UAV; DGCA Classification of UAVs; Types and Characteristics of Drones: Fixed, Multi-rotor, and Flapping Wing; Applications: Defense, Civil, Environmental monitoring.

Unit-II: Basics of Flight
Different types of flight vehicles; Components and functions of an airplane; Forces acting on Airplane; Physical properties and structure of the atmosphere; Aerodynamics – aerofoil nomenclature, aerofoil characteristics, Angle of attack, Mach number, Lift and Drag, Propulsion and airplane structures.

Unit-III: UAV Elements, Navigation and Guidance
Components: Arms, motors, propellers, electronic speed controller (ESC), flight controller; Propulsion; Data Link; Sensors and Payloads: GPS, IMU, Light Detection and Ranging (LiDAR), Imaging cameras, Classification of payload based on applications; Hyper-spectral sensors; Laser Detection and Range (LADAR); Synthetic Aperture Radar (SAR); Thermal cameras; ultra-sonic detectors; Case study on payloads. Introduction to navigation systems and types of guidance; Mission Planning and Control.

Unit-IV: Design & Simulation of UAV
Introduction to CAD; Design of UAV components; Structural Analysis using CAE; Aerodynamic Analysis using CFD; Manufacturing of the components of UAVs: 3D printing; Case studies;

Learning Resources:
1. Andey Lennon, "Basics of R/C Model Aircraft Design" Model Airplane News Publication
2. John Baichtal, Building Your Own Drones: A Beginners' Guide to Drones, UAVs, and ROVs.
3. K Valavanis, George J Vachtsevanos, Handbook of Unmanned Aerial Vehicles, New York, Springer, Boston, Massachusetts : Credo Reference, 2014. 2016.
4. DGCA RPAS Guidance Manual, Revision 3 - 2020

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

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

Duration of Internal Test: **90 Minutes**

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

Department of Mechanical Engineering

BASIC HEAT TRANSFER FOR ELECTRONIC SYSTEMS
(Open Elective-I)
SYLLABUS FOR B.E.III-SEMESTER

L:T:P(Hrs/week):2:0:0	SEE Marks:60	Course Code: **U20OE330ME**
Credits :02	CIE Marks:40	Duration of SEE:03Hours

COURSE OBJECTIVE	COURSE OUTCOMES *On completion of the course, students will be able to*	
The objective of this course is to study the basic laws of thermodynamics and the cooling of electronic equipment along with basic modes of heat transfer	1	understand and apply the first and Second laws of thermodynamics to various engineering problems.
	2	formulate heat conduction problems in rectangular, cylindrical and spherical coordinate system by transforming the physical system into a mathematical model.
	3	to determine heat transfer coefficient in forced and free convection heat transfer.
	4	analyse heat transfer processes involved in cooling of electronic components

UNIT-I: BASIC THERMODYNAMICS
Basic Concepts-System, Types of Systems, Control Volume, Surrounding, Boundaries, Universe, Macroscopic and Microscopic viewpoints, Thermodynamic Equilibrium, State, Property, Process, Cycle – Reversibility – Quasi–static process; Zeroth Law of Thermodynamics, First and Second laws of Thermodynamics. Numerical problems.

UNIT-II: HEAT TRANSFER: CONDUCTION
Heat Transfer – Different Modes, governing laws and application to heat transfer: Fourier, Newton, Stefan–Boltzmann laws; general heat conduction equation - Steady state one-dimensional heat conduction through slabs, hollow cylinders and spheres. Concept of thermal resistance in series and parallel (composite systems), contact resistance, overall heat transfer coefficient. Critical radius of insulation. Heat transfer with and without internal heat generation. Numerical problems.

UNIT-III: HEAT TRANSFER: CONVECTION
Extended surfaces: Fins - Applications of fins, Fin Equation, Fin Effectiveness and Efficiency. Convection Heat Transfer: Heat transfer coefficient - Forced and Natural Convection in Electronic Devices, non dimensional numbers - Nusselt number, Reynolds number, Grashoff number and Prandlt number, forced and free convection correlations - flat plates and cylinders. Numerical problems.

UNIT-IV: COOLING OF ELECTRONIC EQUIPMENT
Needs & Goals; Temperature effects on different failure modes; Electronic equipment for airplanes, missiles, satellites and spacecraft; electronic equipment for ships & submarines; electronic equipment for communication systems and ground support system; chassis and circuit boards cooling.

Learning Resources:
1. P.K. Nag, "Engineering Thermodynamics", Tata Mc Graw Hill, 4th Edition, 2008.
2. Yunus Cengel & Boles, "Thermodynamics – An Engineering Approach", TMH New Delhi, 2008.
3. Sachadeva R.C., "Fundamentals of Engineering Heat and Mass Transfer", New Age International (P) Ltd Publishers, New Delhi, 2010.
4. Dave S. Steinberg, "Cooling Techniques for Electronic Equipment", Second Edition, John Wiley & Sons, 1991.
5. Yunus Cengel & Afshin J Ghajar, "Heat and Mass Transfer: Fundamentals & its Applications",   Mc Graw Hill, 5th Edition, 2013.

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

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

Duration of Internal Test: **90 Minutes**

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
IBRAHIMBAGH, HYDERABAD – 500 031
DEPARTMENT OF INFORMATION TECHNOLOGY

OBJECT ORIENTED PROGRAMMING USING JAVA
(Open Elective-I) (Common for CIVIL, ECE, EEE & MECH)
SYLLABUS FOR B.E. III SEMESTER

L:T:P (Hrs/week):2:0:0	SEE Marks: 60	Course Code: **U20OE310IT**
Credits: 2	CIE Marks: 40	Duration of SEE : 3 Hours

COURSE OBJECTIVES	COURSE OUTCOMES *On completion of the course, students will be able to*
Explain the fundamentals of object-oriented programming in Java, including defining classes, invoking methods, using class libraries, building simple GUI applications.	1. Understand fundamental concepts in Object oriented approach. 2. Develop object-oriented programs using the concepts of exception handling and multi threading. 3. Demonstrate the usage of Java I/O streams to handle user input and output. 4. Design and develop GUI programs.

UNIT- I
Java Programming Fundamentals: Introduction, Overview of Java, Data types, Variables-scope and lifetime, Operators, Control statements, Structure of a Java class, Classes, Methods, Inheritance, and Command Line Arguments.
Arrays: One-dimensional arrays, creating an array, declaration of arrays, initialization of arrays, two-dimensional arrays.
Packages: Creation, importing a package and user defined package.
Interfaces: Defining interfaces, extending interfaces, implementing interfaces.

UNIT- II
Exception Handling: Introduction, types of exceptions, syntax of exception handling code, multiple catch statements, using finally statement, user-defined exceptions.

UNIT- III
Basic I/O Streams: Java I/O classes and interfaces, Files, Stream and Byte classes, Character Streams.
Exploring java.lang: Object, Wrapper classes, String, StringBuffer, System

UNIT- IV
Introducing Awt,Awt Controls:
Event Handling: The Delegation Event Model, Event Classes, Source of Events, Event Listener Interfaces.
Control Fundamentals, Labels, Using Buttons, Applying Check Boxes, CheckboxGroup, Choice Controls, Using Lists, Managing Scroll Bars, Using TextField, Using TextArea, Understanding Layout Managers, Menu bars and Menus, Dialog Boxes, FileDialog, Exploring the controls, Menus ,and Layout Managers.

Learning Resources:
1. Herbert Schildt, The Complete Reference Java, 7th Edition, Tata McGraw Hill, 2006.
2. James M Slack, Programming and Problem solving with JAVA, Thomson Learning, 2002.
3. C Thomas Wu, An Introduction to Object Oriented Programming with Java 5th edition, McGraw Hill Publishing, 2010.
4. Y. Daniel Liang , An Introduction to JAVA Programming, Tata McGraw Hill, 2009.
5. Kathy Sierra, Head First Java, 2/e, Shroff Publishers, 2012.
6. https://docs.oracle.com/javase/tutorial/
7. https://nptel.ac.in/courses/106105191/

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

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

Duration of Internal Test: **90 Minutes**

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
IBRAHIMBAGH, HYDERABAD – 500 031
DEPARTMENT OF INFORMATION TECHNOLOGY

INTRODUCTION TO SCRIPTING LANGUAGES
(Open Elective-I) (Common for CIVIL, ECE, EEE & MECH)
SYLLABUS FOR B.E. III SEMESTER

L:T:P (Hrs./week): 2:0:0	SEE Marks: 60	Course Code :**U200E320IT**
Credits : 2	CIE Marks: 40	Duration of SEE : 3 Hours

COURSE OBJECTIVES	COURSE OUTCOMES *On completion of the course, students will be able to*
This course will enable the students to acquire basic skills for writing python scripts.	1. Demonstrate basic knowledge of Python script. 2. Demonstrate an understanding of fundamental Python syntax and semantics and be fluent in the use of Python control flow statements and functions. 3. Construct python data structure programs using list, tuples, dictionaries, sets and numpy arrays. 4. Develop programs using Object oriented paradigm, and handle file related operations.

Unit – I
Introduction to Python, running a python script, writing comments, using variables, operators, expressions, strings and text, format specifiers, printing information. passing command line arguments, prompting users, parameters, unpacking variables.

Unit – II
Decision making: if and else if, repetition: while loops and for loops.
Defining functions, passing arguments to functions, returning values from functions, recursion.

Unit – III
Data structures: lists, operations on list, tuples, operations on tuples, sets, operations on sets, dictionaries, operations on dictionaries.
Numpy arrays: creation, access, slicing, matrix operations.

Unit – IV
Modules, Classes and Objects, is – a relationship: inheritance, has-a relationship: composition, Exception handling, File handling: reading and writing files, serialization using JSON.
Intro to Python Standard Library & other useful libraries: Scipy, Scikit, Pandas, Seaborn.

Learning Resources
1. Allen B. Downey, Think Python, 2nd Edition, Green Tea Press
2. "Learning Python", 5th Edition, O'reilly
3. https://www.python.org
4. https://nptel.ac.in/courses/106106182/
5. The Python Standard Library — Python 3.9.6 documentation
6. Python Tutorial (w3schools.com)
7. Best Python Libraries for Every Python Developer | by Claire D. Costa | Towards Data Science
8. Search results · PyPI

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

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

Duration of Internal Test: **90 Minutes**

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

LINEAR ALGEBRA AND ITS APPLICATIONS
(OPEN ELECTIVE-I for all branches of 2/4 B.E sem-III)

L:T:P (Hrs./week):2:0:0	SEE Marks :60	Course Code: **U200E310MA**
Credits : 2	CIE Marks: 40	Duration of SEE: 3 Hrs

COURSE OBJECTIVES	COURSE OUTCOMES
The course will enable the students to:	*At the end of the course students will be able to:*
1. **Study** the concept of Vector Spaces, Subspaces, and understand the meaning of Basis and Dimension of a vector Space and Co-ordinates. 2. **Understand** the meaning of linear transformation and properties. 3. **Understand** Range and Kernel, Rank-Nullity and Matrix of Linear Transformation. 4. **Understand** Inner Product Spaces, Orthonormal sets, Gram-Schmidt's Orothogonalization process.	1. **Solve** the problems on Vector Spaces and Linear Dependence and Independence of vectors. Determine the Basis and Dimension of a Vector Space and find the Co-ordinates. 2. **Determine** Linear Transformation, Product of Linear Transformations. 3. **Determine** Range and Kernel, Rank-Nullity and Matrix of Linear Transformation. 4. **Determine** distance, orthogonal, orthonormal sets and construct orthonormal basis based on Gram-Schmidt's Orothogonalization process.

UNIT – I (8 classes)
Vector Spaces-Definition of a Vector Space, Subspaces, Basis and Dimension, Coordinates and Change of Basis.

UNIT – II (6 classes)
Linear Transformation -I
Definition of Linear Transformation- Properties of Linear Transformations – Product of Linear Transformations – Algebra of Linear Operators.

UNIT – III (6 classes)
Linear Transformation -II
Range and kernel of a linear map – Dimension of Range and Kernel - Rank and nullity – Inverse of linear transformation - Rank nullity theorem (without Proof)- Matrix of Linear Transformation.

UNIT – IV (8 classes)
Inner Product Spaces-The Dot Product on R and Inner Product Spaces, Orthonormal Bases, Orthogonal Complements, Application: Least Squares Approximation

Learning Resources:
1. Introduction to Linear Algebra with Application, Author : Jim Defranza, Daniel Gagliardi, Publisher : Tata McGraw-Hill
2. An Introduction to Linear Algebra, V.Krishna Murthy, V.P Mainra, J.L Arora, Affiliated to East-West Press Pvt Ltd

Reference Books:
(i) Elementary Linear Algebra, Author: Anton and Rorres, Publisher: Wiley India Edition.
(ii) Advanced Engineering Mathematics, Author : Erwin Kreysig, Publisher : Wiley Publication
(iii) Elementary Linear Algebra, Author : Ron Larson, Publisher : Cengage Learning

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	:	2	Max. Marks for each Assignment	:	5
3	No. of Quizzes	:	2	Max. Marks for each Quiz Test	:	5

Duration of Internal Tests :   90   Minutes

VASAVI COLLEGE OF ENGINEERING (A)
DEPARTMENT OF CHEMISTRY
B E III Semester
Open Elective: BATTERY SCIENCE AND TECHNOLOGY

Instruction : 2Hrs / Week	Semester End Exam Marks : 60	Subject Reference Code : U20OE310CH
Credits : 2	Continuous Internal Exam Marks : 40	Duration of semester End Exam : 3Hours

LEARNING OBJECTIVES	LEARNING OUTCOMES
The course will enable the students to:	At the end of the course, students should be able to:
1. To introduce the various terms to understand the efficiency of batteries 2. To know the relevant materials reuired for the construction of primary and secondary batteries 3. To familiarize with the reactions involved during charging and discharging processes. 4. To focus on the need of fuel cells and the concept of their construction and functioning.	1. Discuss the construction, electrochemistry, technology and applications of selected primary batteries 2. Discuss the construction, electrochemistry, technology and applications of few secondary batteries 3. Explain the working principle, electrochemistry, technology and applications of prominent fuel cells 4. Choose a suitable battery or a fuel cel for a given application

UNIT-I: BATTERIES- FUNDAMENTALS

Introduction and types of batteries: Primary and secondary.
Battery characteristics: Free energy change, electromotive force of battery, ampere-hour, capacity, power, power density, energy density, efficiency, cycle life, tolerance to service conditions, performance characteristics.

UNIT-II: PRIMARY BATTERIES

Construction, chemistry and technology of Zinc-Air Battery, Zinc –HgO battery and their applications.
Primary lithium batteries: Soluble cathode cells, solid cathode cells- Lithium manganese dioxide, solid electrolyte cells- Lithium polymer electrolyte battery- Applications. Reserve battery- Electrochemistry of perchloric acid cell- applications.

UNIT-III: SECONDARY BATTERIES

Construction, chemistry and technology of maintenance free lead acid battery (MFLA), valve regulated lead acid battery (VRLA), absorbed glass mat lead acid battery (AGMLA) - comparision between lead acid battery and VRLA along with advantages - Construction, electro chemistry and applications of Nickel-Cadmium battery, Nickel metalhydride battery.
Lithium ion batteries: Construction, chemistry and applications of liquid organic electrolyte cells, polymer electrolyte cells, lithium ion cells.

UNIT- IV: FUEL CELLS

Introduction, classification based on temperature and nature of electrolyte. Working principle, components, applications and environmental aspects of alkaline fuel cell (AFC)- Hydrogen-Oxygen alkaline fuel cell, Molten carbonate fuel cell (MCFC), Polymer electrolyte membrane fuel cell (PEMFC), Solid oxide fuel cell (SOFC).

Learning Resources:

Text Books:
1. P.C.Jain and Monica Jain, "Engineering Chemistry", Dhanpat Rai and Pub, Co., New Delhi (2002)
2. S.S. Dara "A text book of engineering chemistry" S.Chand and Co.Ltd., New Delhi (2006).

Reference Books:
1. Dell R. M. and Rand D. A. J., "Understanding Batteries", Royal Society of Chemistry, UK, 2001.
2. Chemistry of Engineering Meterials by R.P Mani and K.N.Mishra, CENGAGE learning
3. Shasi Chawla, "Text Book of Engineering Chemistry", Dhanpat Rai Publishing Company, NewDelhi,2008.
4. Derek Pletcher and Frank C. Walsh, "Industrial Electrochemistry", Chapman and Hall, New York, 1993.

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

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

Duration of Internal Test: **90 Minutes**

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
IBRAHIMBAGH, HYDERABAD – 500 031
DEPARTMENT OF PHYSICS

SMART MATERIALS AND APPLICATIONS
Open Elective Course

L:T:P(Hrs/week):2:0:0	SEE Marks:60	Course Code: **U20OE310PH**
Credits :02	CIE Marks:40	Duration of SEE:03Hours

Course Objectives	Course Outcomes
The student will be able to	*At the end of the course, the student should at least be able:*
1. grasp the concepts of peizo and ferro electric materials	1. summarize various properties and applications of peizo and ferro electric materials
2. Learn fundamentals of pyro and thermo electric materials	2. apply fundamental principles of pyro and thermo electricity in relevant fields of engineering
3. gain knowledge on shape memory alloys	3. Explain types of shape memory alloys and their properties and applications
4. acquire fundamental knowledge on chromic materials	4. Outline the importance of chromic materials in engineering field.

UNIT I: PIEZO AND FERRO MATERIALS
Piezo electric effect and inverse piezoelectric effect, Piezo electric materials, Structure of Quartz crystal, Piezoelectric oscillator, Magnetostriction, Magnetostriction oscillator, piezo-electric sensors, applications of Piezo-electric materials. Characteristics and properties of ferro-electric materials, Structure of Barium Titanate, Curie-Weiss law, applications of Ferro electric materials

UNIT II: PYRO AND THERMO-ELECTRIC MATERIALS
Pyroelectricity: pyro electric effect, pyro electric materials, pyro-electric sensors.
Thermoelectricity: thermoelectric effect, Seebeck effect, Peltier effect, thermocouple and laws of thermocouples, applications of thermoelectric materials, Thermoelectric cooler and Principle and working of thermoelectric generator.

UNIT III: SHAPE MEMORY MATERIALS
Introduction to shape memory alloys (SMA)- Shape Memory Effect (SME) different phases of Shape memory alloys, Austenite, Martensite, Properties and characteristics of engineering SMAs, Super elasticity, one and two way shape memory effects, Properties of Ni-Ti shape memory alloy, Cu-based shape memory alloys, biomedical Materials, Advantages, disadvantages of SMAs, Applications of SMAs.

UNIT-IV: CHROMIC MATERIALS
Electro-chromaticity, Electro-chromic materials, Electro-chromic sensors and devices. Photo-chromaticity, Photo-chromic materials, Photo-chromic sensors and devices. Thermo-chromaticity, thermo-chromic materials, thermo-chromic sensors and devices. Smart fluids: Magneto-rheological and Electro-rheological fluids.

Learning Resources:
1. K. Otsuka and C M Wayman, Shape memory materials, Cambridge university press, 1998.
2. TW Duerig, KN Melton, D Stockel, CM Wayman, Engineering aspects of shape memory alloys, Butterworth-Heinemann, 1990
3. A.K. Sawhney, A Course in Electronic Measurements and Instrumentation, Dhanpat Rai & Sons, 2015
4. D. Patranabis, Sensors and Transducers, PHI Learning Pvt. Ltd., 2013

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

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

Duration of Internal Test: **90 Minutes**

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

DEPARTMENT OF HUMANITIES AND SOCIAL SCIENCES
OPEN ELECTIVE B.E. 2nd Year Semester 3rd Semester
Course Name: LEARNING TO LEARN
Common to all Branches

L:T: P (Hrs/Week):3	SEE Marks: 40/ 60	Course Code: **U20OE310EH**
Credits: 2	CIE Marks: 20/ 40	Duration of SEE:Hours:03

COURSE OBJECTIVES	COURSE OUTCOMES
Learning to Learn	**Learning to Learn**
Develop effective study skills, and enable students to cut down on the number of hours spent studying	Get learners maximize their learning in a stipulated amount of time
Explore illusions of competence in learning, the challenges of overlearning, and the advantages of interleaving	Become competent learners and learn creatively
Handle procrastination and learn for long term	Meet deadlines, submit progress reports and recall what has been learnt for effective usage
Plan, prioritise and carry out tasks based on goals and priority	Set Performance Standards and take initiative based on set goals

OVERVIEW:
No matter what your skill levels in topics you would like to master, you can change your thinking and change your life. If you are struggling to cope, you'll see a structured treasure trove of practical techniques that walk you through what you need to do to get on track. If you've ever wanted to become better at anything, this course will help serve as your guide.

UNIT 1: STUDY SKILLS
5 hrs.
Good study skills can increase a student's confidence, competence, and self-esteem. They can also reduce anxiety about tests and deadlines. This module is designed to develop effective study skills, and enable students to cut down on the number of hours spent studying, leaving more time for other important things in their life
- Study Skills Checklist
- Learning Styles
- Habits of Effective Students
- Using the Focused and Diffuse Modes
- Introduction to memory and Memory Technique

UNIT 2: Chunking
6 hrs.
In this module, we're going to be talking about chunks. Chunks are compact packages of information that your mind can easily access. We'll talk about how you can form chunks, how you can use them to improve your understanding and creativity with the material, and how chunks can help you to do better on tests. We'll also explore illusions of competence in learning, the challenges of overlearning, and the advantages of interleaving.
- Knowledge Chunking
- Skill and Will
- Sleep and Learning

UNIT 3: Procrastination and Memory
6 hrs.
In this module, we talk about two intimately connected ideas—procrastination and memory. Building solid chunks in long term memory--chunks that are easily accessible by your short term memory—takes time. This is why learning to handle procrastination is so important. Finally, we talk about some of the best ways to access your brain's most powerful long term memory systems so that learning is long term and the learner has the ability to recall and use it as per need.
- Controlling Procrastination
- Ranking the importance of tasks with a to- do list
- Finding their most productive time

- Keeping track of time spent on different tasks
- Introduction to Deep learning

UNIT 4: Renaissance Learning and Unlocking Your Potential
7 hrs.

In this module we're going to talk more about important ideas and techniques that will enhance student's ability to learn. Students will also discover how to more profitably interact with fellow learners, how to recognize your own strengths, and how to avoid the "imposter syndrome." Fighter pilots and surgeons use checklists to help them with their critical duties—you can use a similar checklist to help you prepare for tests. Ultimately, you will learn more about the joys of living a life filled with learning!

- Psychology of Goal Setting
- Criteria for Goal Setting
- Steps in Goal Setting
- Visioning
- Strategy & Action Plan
- Goal Progress Review

METHODOLOGY	**ASSESSMENTS**
- Case Studies	- Online assignments
- Demonstration	- Individual and Group
- Presentations	- Tracking Journal
- Expert lectures	- Checklist
- Writing and Audio-visual lessons	
- Games & Activities	
- Learning Tool	

LEARNING RESOURCES
learn.talentsprint.com

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

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

Duration of Internal Test: **90 Minutes**

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
SCHEME OF INSTRUCTION AND EXAMINATION (R-20)
B.E. – INFORMATION TECHNOLOGY : THIRD SEMESTER (2021 - 2022)

Course Code	Course Name	Scheme of Instruction Hours per week			Scheme of Examination			Credits
		L	T	P/D	Duration in Hrs	Maximum Marks SEE	CIE	
UB20BS300MA	Matrix Theory and Vector Calculus	2	-	-	3	50	-	-
UB20ES310CS	Computer Programming	2	-	-	3	50	-	-
Total		**4**	**-**	**-**	**--**	**100**	**-**	**-**
Grand Total		**4**			**--**	**100**		

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
DEPARTMENT OF MATHEMATICS

MATRIX THEORY & VECTOR CALCULUS
BRIDGE COURSE B.E. III-SEMESTER (CBCS)
(For CSE, EEE, ECE & IT)

Instruction:2 hours/Week	SEE Marks: 50	Course Code: **UB20BS300MA**
Credits: -	CIE Marks : -	Duration of SEE : 3 Hrs

UNIT-I: (4 Hours)
DIFFERENTIATION & INTEGRATION

Differentiation of standard functions(Formulae) - Partial Derivatives – Derivative of Composite functions and Implicit functions - Chain Rule - Total Derivative
Integration - Elementary Integration – Integration of standard functions- Methods of Integration-Integration by substitution- Integration by parts.

UNIT – II (6 Hours)
VECTOR DIFFERENTIATION
Scalar and Vector point functions -Vector Differentiation-Level Surfaces-Gradient of a scalar point function- Normal to a level surface - Directional Derivative – Divergence and Curl of a Vector field - Conservative vector field.
UNIT – III (6 Hours)
VECTOR INTEGRATION
Line, Surface and Volume integrals- Green's Theorem – Gauss Divergence theorem - Stokes's Theorem. (all theorems without proof).

UNIT- IV(8 Hours)
MATRIX THEORY
Rank of matrix- Echelon form - -System of Linear Equations- Consistency of Homogeneous and Non-homogeneous system of equations- Eigen values and EigenVectors.

Suggested Books:
1. B.S. Grewal, Higher Engineering Mathematics

VASAVICOLLEGEOFENGINEERING(AUTONOMOUS)
IBRAHIMBAGH,HYDERABAD– 500031

Department of Computer Science & Engineering
Course Name: COMPUTER PROGRAMMING

SYLLABUS FOR BRIDGE COURSE B.E. III-SEMESTER

L:T:P (Hrs./week): 2:0:0	SEE Marks : 50	Course Code :**UB20ES310CS**
Credits :--	CIE Marks : --	Duration of SEE : 3 Hours

COURSE OBJECTIVES	**COURSE OUTCOMES** *On completion of the course, students will be able to*
1. Acquire problem solving skills 2. Develop flow charts 3. Understand structured programming concepts 4. Write programs in C Language	1. Design flowcharts and algorithms for solving a problem and choose appropriate data type for writing programs in C language 2. Design modular programs involving input output operations, decision making and looping constructs 3. Apply the concept of arrays for storing, sorting and searching data 4. Apply the concept of pointers for dynamic memory management and string handling 5. Design programs to store data in structures and files

UNIT-I

Introduction to Computers: Computer Systems, Computing Environments, Computer Languages, Creating and Running Programs, Flowcharts.
Introduction to C Language- Background, C Programs, Identifiers, Types, Variables, Constants, Input/Output, Expressions, Precedence and Associativity, Side Effects, Evaluating Expressions, Type Conversion, Statements, Bitwise Operators.

UNIT-II
Selection: Logical Data and Operators, if... else, switch Statements, Standard Functions.
Repetition: Loops, while, for, do-while Statements, Loop Examples, break, continue, goto.
Functions: Designing Structured Programs, Functions Basics, User Defined Functions.

UNIT-III
Recursion-Recursive Functions, Preprocessor Commands.
Arrays: Two-Dimensional Arrays, Linear Search and Binary Search, Selection Sort and Bubble Sort.

UNIT-IV
Pointers: Introduction, Pointers to Pointers, Arithmetic operations using pointers
Strings – Concepts, C Strings, String Input/output, Functions, Arrays of Strings, String Manipulation Functions.

UNIT-V
Structure: Definition and Initialization of Structures, Accessing Structures, Nested Structures, Arrays of Structures, Structures and Functions, Pointers to Structures, Unions.
Input and Output: Files, Streams, Standard Library Input/Output Functions, Character Input/Output Functions.

Learning Resources:
1. B. A. Forouzan& Richard F. Gilberg, "A Structured Programming Approach using C", 3rd Edition, Cengage Learning, 2013.
2. Brian W. Kernighan and Dennis M. Ritchie, "The C Programming Language", 2nd Edition, Prentice-Hall, 2006.
3. Rajaraman V, "The Fundamentals of Computer", 4th Edition, Prentice-Hall of India, 2006.
4. Steve Oualline, "Practical C Programming", 3rd Edition, O'Reilly Press.
5. Jeri R. Hanly, Elliot B. Koffman, "Problem Solving and Program Design in C", 5th Edition, Pearson Education, 2007.
6. E. Balagurusamy, "Programming in ANSI C", 4th Edition, TMG, 2008.
7. Gottfried, "Programming with C", 3rd Edition, TMH, 2010.
8. R G Dromey, "How to Solve it by Computer", 1st Edition, Pearson Education, 2006.

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
SCHEME OF INSTRUCTION AND EXAMINATION (R-20)
B.E. – INFORMATION TECHNOLOGY : FOURTH SEMESTER (2021 - 2022)

Course Code	Course Name	Scheme of Instruction			Scheme of Examination			Credits
		Hours per week			Duration in Hrs	Maximum Marks		
		L	T	P/D		SEE	CIE	
U20BS420MA	Probability and Statistics	3	-	-	3	60	40	3
U20PC410IT	Computer Organization	3	-	-	3	60	40	3
U20PC420IT	Database Management Systems	3	-	-	3	60	40	3
U20PC430IT	Design & Analysis of Algorithms	3	-	-	3	60	40	3
U20PC440IT	Software Engineering	3	-	-	3	60	40	3
U20OE4XXXX	Open Elective – II	3	-	-	3	60	40	3
U20HS010EH	Human Values and Professional Ethics – I	1	-	-	2	40	30	1
U20BS430MA	Skill Development Course - III (Aptitude – II)	1	-	-	2	40	30	1
U20XX430XX	Skill Development Course - IV (Technical Skills- I)	1	-	-	2	40	30	1
PRACTICALS								
U20PC411IT	Database Management Systems Lab	-	-	2	3	50	30	1
U20PC421IT	Design and Analysis of Algorithms Lab	-	-	2	3	50	30	1
U20PC431IT	Software Engineering Lab	-	-	2	3	50	30	1
	Co-Curricular Activities-II	-	-	-	-	-	-	-
	Library /Sports/ Mentor Interaction	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Student should acquire one online certification course equivalent to 2 credits during III-VII Semesters.								
	Total	**21**	**-**	**6**	**--**	**630**	**420**	**24**
	Grand Total	**27**		**--**		**1050**		

Note:
1. One hour is allotted to Library / Sports / Mentor Interaction.
2. The left over hours are to be allotted to CCA-II / RC / CC / TC based on the requirement.

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
IBRAHIMBAGH,HYDERABAD– 500031
DEPARTMENT OF MATHEMATICS

PROBABILITY & STATISTICS
for B.E., IV- Sem., (CBCS)
(For IT only)

Instruction : 3 +1 Hours per week	**Sem. End Exam Marks** : 60	**Subject Reference Code** : **U20BS420MA**
Credits : 3	**Sessional Marks:** 40	**Duration of Semester End Exam** : 3 Hrs

COURSE OBJECTIVES	COURSE OUTCOMES
The course will enable the students to:	*At the end of the course students will be able to:*
1. **Study** the concepts and application of conditional probability	1. **Apply** conditional probability to the real world problems
2. **Understand** various concepts of Random variables and standard Statistical Distributions	2. **Apply** various statistical distributions to solve practical problems,to estimate unknown parameters of populations and apply the tests of hypotheses.
3. **Study** various methods of testing large samples	3. **Infer** properties of population conducting tests on samples
4. **Analyze** standard statistical tests employed for small samples	4. **Categorize** population based on tests on small samples
5. **Understand** fitting of a straight line to a given data and measuring Correlation between variables.	5. **Solve** problems on fitting of a straight line to the given data and also to find co-efficient of correlation and to determine regression lines and their application problems.

UNIT –I (10 Hours)
Probability:
Basic terminology- Definition of Probability – Addition Law of probability- Independent events- Conditional Probability-Multiplication law of probability - Baye's Theorem.

UNIT –II (12 Hours)
Probability Distributions:
 Random Variables - Probability Distribution   and Density function for Discrete and Continuous Random variables - Expectation – Variance –Normal Distributions.

UNIT-III (12 Hours)
Tests of Hypothesis for Large samples:
 Introduction -Testing of Hypothesis- Null and Alternative Hypothesis -Errors- -Level of Significance –Confidence Intervals - One and two tailed tests - Tests of Significance for large samples – Tests for single mean- Difference of means.

UNIT-IV (8 Hours)
Tests of Hypothesis for Small samples:
Tests of Significance for small samples - t-test for single mean and difference of means - F- test for comparison of variances - Chi-square test for goodness of fit..

UNIT-V (10 Hours)
Curve Fitting:
 Curve fitting by the Method of Least Squares - Fitting of Straight line - Second degree parabolas – Regression - Lines of Regression - Correlation – Karl Pearson's Co-efficient of Correlation.

Learning Resources:
1. R.K. Jain & S.R.K. Iyengar, Advanced Engineering Mathematics, Third Edition, Narosa Publications, 2007.
2. Higher Engineering Mathematics, Dr.B.S Grewal   40th Edition, Khanna Publishers.
3. Advanced Engineering Mathematics, Kreyszig E, 8 th Edition, John Wiley & Sons Ltd, 2006.
4. A text book of Engineering Mathematics by N.P.Bali & Manish Goyal, Laxmi Publication.
5. Fundamentals of Mathematical Statistics, Gupta & Kapoor, Sultan chand & sons, New Delhi.
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:	02	Max.Marks for each Internal Tests:	30
2	No. of Assignments:	03	Max. Marks for each Assignment:	05
3	No. of Quizzes:	03	Max. Marks for each Quiz Test:	05

Duration of Internal Test: **90 Minutes**

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
IBRAHIMBAGH, HYDERABAD – 500 031
Department of Information Technology

COMPUTER ORGANIZATION
SYLLABUS FOR IV-SEMESTER

L:T:P(Hrs./week): 3:0:0	SEE Marks :60	Course Code : **U20PC410IT**
Credits : 3	CIE Marks :40	Duration of SEE : 3 Hours

COURSE OBJECTIVES	COURSE OUTCOMES
The course will enable the students to	*On completion of the course, students will be able to*
1. Provide the fundamentals of Computer Organization, basic processing units. 2. Explain input and output interfacing, memory and pipelining concepts.	1. Understand fundamentals of computer organization and instruction formats. 2. Analyse operations of arithmetic, logic, shift and control units. 3. Identify peripheral devices and analyse modes of data transfer. 4. Analyse the efficiency of cache, main memory and secondary storage. 5. Apply pipelining process to address structural, data and control hazards.

UNIT – I: Basic Structure of Computers :
Computer Types, Functional Units, Basic Operational Concepts, Bus Structures, Software, Performance, Multiprocessors and Multicomputer, Memory Locations and Addresses, Memory Operations, Instructions and Instruction Sequencing, Addressing Modes, Assembly Language, Additional Instructions

UNIT – II: Basic Processing Unit:
Register Transfer Language and Microoperations: Register Transfer Language, Register Transfer, Arithmetic Microoperations, Logic Microoperations, Shift Microoperations, Arithmetic Logic Shift Unit.
MICROPROGRAMMED CONTROL: Control memory, Address Sequencing, Microprogram Example, Design of Control Unit, Hardwired Control, Microprogrammed Control.

UNIT – III: Input Output Organization:
Peripheral Devices, Input-Output Interface, Asynchronous Data Transfer, Modes of Transfer, and Priority Interrupt, Direct Memory Access.

UNIT – IV: Memory System
Some Basic Concepts, Semiconductor RAM Memories, Read-Only Memories, Cache Memories, Performance Considerations, Virtual Memories, Memory Management Requirements, Secondary Storage-Magnetic Hard Disks, Optical Disks, Magnetic Tape Systems.

UNIT – V: Pipelining:
Basic Concepts, Data Hazards, Instruction Hazards, Influence on Instruction Sets, Datapath and Control Considerations, Superscalar Operation.

Learning Resources:
1. Carl Hamacher, ZvonkoVranesic, SafwatZaky, Computer Organization, 5th Edition, McGraw Hill, 2002.
2. M. M. Mano, Computer System Architecture, 3rd Edition, Prentice Hall, 1994.
3. W. Stallings, "Computer Organization and Architecture - Designing for Performance", Prentice Hall of India, 2002.
4. J .P. Hayes, "Computer Architecture and Organization", McGraw-Hill, 1998.
5. Pal Chouduri, Computer Organization and Design, 2nd Ed. Prentice Hall of India, 2007
6. D. A. Patterson and J. L. Hennessy, "Computer Organization and Design - The Hardware/Software Interface", 2005.
7. https://nptel.ac.in/courses/106106092/

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3	No. of Quizzes:	03	Max. Marks for each Quiz Test:	05

Duration of Internal Test: **90 Minutes**

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

DATABASE MANAGEMENT SYSTEMS
SYLLABUS FOR IV-SEMESTER

L:T:P(Hrs./week): 3:0:0	SEE Marks :60	Course Code : **U20PC420IT**
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 designrelational databases.	1. Understand functional components of the DBMS and develop ER model for a given problem and map ER it to Relational model 2. Devise queries using Relational Algebra and SQL 3. Design a normalized database schema using different normal forms. 4. Apply indexing and hashing techniques for effective data retrieval. 5. Understand transaction processing, concurrency control and recovery techniques

UNIT – I:
Introduction to DBMS: Overview, File system vs DBMS, Advantages of DBMS, Database System Applications, Relational Databases, Object – Based and Semi-structured Databases, Data Storage and Querying, 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, E–R Design Issues, Weak Entity Sets, Extended E-R Features.
UNIT – II:
Relational Model: Structure of Relational Databases, Reduction to Relational Schemas, Other Aspects of Database Design. Relational Algebra: Fundamental Relational-Algebra Operations, Additional Relational – Algebra Operations, Extended Relational -Algebra Operations, Null Values, Modification of the Databases.
Structured Query Language: Data Definition, Basic Structure of SQL Queries, Set Operations, Aggregate Functions, Null Values, Nested Sub queries, Complex Queries, Views, Joined Relations.
UNIT – III:
Advanced SQL and PLSQL: SQL Data Types and Schemas, Integrity Constraints, Authorization, SQL functions, procedural SQL, embedded SQL, cursors, ODBC and JDBC, triggers
Schema Refinement: Features of Good Relational Design, Functional-Dependency Theory, Decomposition Using Functional Dependencies, Normalization, First, Second, Third Normal Forms, Dependency Preservation – Boyce/Codd Normal Form, Multi-valued Dependencies and Fourth Normal Form – Join Dependencies and Fifth Normal Form.
UNIT – IV:
Indexing and Hashing: Basic Concepts, Ordered Indices, B+-tree Index Files, B-tree Index Files, Multiple-Key Access, Static Hashing, Dynamic Hashing, Comparison of Ordered Indexing and Hashing, Bitmap Indices, Index Definition in SQL.
Transactions: ACID properties, Transaction States, Implementation of Atomicity and Durability, Concurrent Executions, Serializability, Recoverability, Testing for serializability.
UNIT – V:
Concurrency Control: Lock-Based Protocols, Timestamp-Based Protocols, Validation-Based Protocols, Multiversion Schemes, Deadlock Handling.
Recovery System : Failure Classification, Storage Structure, Log-Based Recovery, Aries ,Media recovery.

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

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3	No. of Quizzes:	03	Max. Marks for each Quiz Test:	05

Duration of Internal Test: **90 Minutes**

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
IBRAHIMBAGH, HYDERABAD – 500 031
DEPARTMENT OF INFORMATION TECHNOLOGY

DESIGN AND ANALYSIS OF ALGORITHMS
SYLLABUS FOR B.E IV-SEMESTER

L:T:P(Hrs./week): 3:0:0	SEE Marks : 60	Course Code : **U20PC430IT**
Credits : 3	CIE Marks : 40	Duration of SEE: 3 Hrs

COURSE OBJECTIVES	COURSE OUTCOMES
	On completion of the course, students will be able to
1. Explain Asymptotic notations, time and space complexity analysis. 2. Discuss different algorithm design strategies and their applications. 3. Introduce NP-Hard and NP-Completeness concepts.	1. **Understand asymptotic notations and analyze the complexity of recursive and non-recursive algorithms**. 2. **Illustrate divide and conquer and greedy algorithm design strategies.** 3. **Apply dynamic programming strategy to solve optimization problems.** 4. **Solve problems using backtracking and branch and bound.** 5. **Understand NP hard and NP completeness.**

UNIT 1:
Introduction: Characteristics of algorithm. Analysis of algorithm: Asymptotic analysis of complexity bounds – best, average and worst-case behavior; Performance measurements of Algorithm, Analysis of recursive algorithms through recurrence relations: Substitution method, Recursion tree method, Amortized analysis.
UNIT 2:
Divide and conquer: The general method, Iterative and Divide and conquer for Binary search, Merge sort, Quick sort, Masters' theorem.
Greedy Method: The general method, Knapsack problem, Job sequencing with deadlines, Optimal storage on tapes, Optimal merge patterns, Huffman Codes, Dijikstra's algorithm.
UNIT 3:
Dynamic Programming: The general method, Bellman-Ford Algorithm, Multistage graph, All-Pairs Shortest Paths, Matrix chain multiplication, Optimal Binary Search trees, 0/1 Knapsack, Reliability design, Traveling Salesman Problem.

UNIT 4:
Backtracking: The general method, 8-Queens Problem, Graph Coloring, Hamiltonian cycles, Knapsack Problem
Branch and Bound: The general method, 0/1 Knapsack Problem, Traveling salesperson problem
UNIT 5:
NP-Hard and NP-Completeness: Basic concepts, NP-hard graph problems-Clique Decision Problem, Node Cover Decision Problem, NP-Hard Scheduling Problem - scheduling identical processors, NP-Hard code scheduling problems – Code generation with common sub-expression.

Learning Resources:
1. Ellis Horowitz, Sartaj Sahani, Sanguthevar Rajasekaran," Fundamentals of computer Algorithms", Second edition (2008),Universities Press
2. Thomas H. Cormen, Leiserson C.E, Rivest.R.L , Stein.C, Introduction to Algorithm, 2nd edition (2001), MIT press, USA.Introduction to Algorithms, 4TH Edition, Thomas H Cormen, Charles E Lieserson,
3. Algorithm Design, 1ST Edition, Jon Kleinberg and ÉvaTardos, Pearson.
4. Algorithm Design: Foundations, Analysis, and Internet Examples, Second Edition, Michael T Goodrich and Roberto Tamassia, Wiley.
5. Algorithms -- A Creative Approach, 3RD Edition, UdiManber, Addison-Wesley, Reading, MA.
6. https://nptel.ac.in/courses/106101060/
7. https://ocw.mit.edu/courses/electrical-engineering-and-computerscience/6-006-introduction-to-algorithms-fall-2011/lecture-videos

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3	No. of Quizzes:	03	Max. Marks for each Quiz Test:	05

Duration of Internal Test: **90 Minutes**

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

SOFTWARE ENGINEERING
SYLLABUS FOR B.E IV- SEMESTER

L:T:P (Hrs/week): 3:0:0	SEE Marks : 60	Course Code : **U20PC440IT**
Credits : 3	CIE Marks : 40	Duration of SEE : 3 Hrs

COURSE OBJECTIVES	COURSE OUTCOMES *On completion of the course, students will be able to*
Understand the various SDLC models and stages in Software design lifecycle.	1. Select the most suitable software process model out of several, for the development of a given software project. 2. Develop the ability to elicit, analyze and specify software requirements through a productive working relationship with various stakeholders of the project. 3. Understand the software design principles and learn how to apply them towards implementation. 4. Compare different ways and techniques of ensuring software quality and apply various test processes and techniques on conventional applications. 5. Develop an understanding of risks inherent to software development, and provide continuous quality improvement

UNIT I
Introduction to Software Engineering: Definition ofSoftware Engineering, application areas of software engineering, Process Framework, Process Patterns, Process Assessment, Personal and Team Process Models, Process Technology, Product and Process.
Process Models: Prescriptive Models, Waterfall Model, Incremental Process Models, Evolutionary Process Models, Specialized Process Models, and the Unified Process.
An Agile view of Process: What is Agility. What is an Agile Process, and Agile Process Models.
UNIT II
Understanding requirements: Requirement Analysis, Data Modeling Concepts, Scenario-Based Modeling, Flow-Oriented Modeling, Class-Oriented Modeling, Creating a Behavioral Model.
Design Engineering: Design within the context of SE, Design Process, Design Concepts, and the Design Model.
UNIT III
Architectural Design: Software Architecture, Architecture Genres, Architecture Styles, Architectural Design.
Component level Design: What is a Component,Designing Class-Based Components, Conducting Component-Level Design, Component-Based development and Object Constraint Language.
Performing User Interface Design: The Golden rules, User Interface Analysis and Design, Interface Design Steps, and design Evaluation.
UNIT IV
Software Testing Strategies: A Strategic Approach to Software Testing, Strategic Issues, Validation Testing, System Testing, Black-box and White-box testing, Basis path testing, and Control Structure testing and the Art of Debugging.
Software Quality Assurance (SQA): Elements of Software Quality Assurance, SQA Tasks, Goals and Metrics, and SQA Plan, Software Configuration Management, CMMI, ISO 9000 Quality Standards.
UNIT-V: Product Metrics, Risk Management
Product Metrics: A Framework for Product Metrics, Metrics for the Requirements Model, Metrics for the Design Model, Metrics for Testing, and Metrics for Maintenance.
Risk Management: Software Risks, Reactive Vs Proactive Risk Strategies, Risk Mitigation, Monitoring and management, and RMMM Plan.

<u>**Learning Resources:**</u>
1. Roger S.Pressman, Software Engineering: A Practitioners Approach, Seventh Edition, McGraHill, 2009.
2. Pankaj Jalote "An Integrated Approach to Software Engineering, Third Edition, Narosa Publishing house, 2008.
3. James F.Peters, WitoldPedrycz, Software Engineering-An engineering Approach, John Wiley Inc., 2000.
4. Ali Behforoz and Frederic J.Hadson, Software Engineering Fundamentals, Oxford University Press, 1997.
5. https://nptel.ac.in/downloads/106105087/

<u>**The break-up of CIE: Internal Tests+ Assignments + Quizzes**</u>

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

Duration of Internal Test: **90 Minutes**

VASAVI COLLEGE OF ENGINEERING (Autonomous)

IBRAHIMBAGH, HYDERABAD – 500 031
DEPARTMENT OF HUMANITIES & SOCIAL SCIENCES

Course Name: Human Values and Professional Ethics-1

Syllabus: COMMON FOR ALL BRANCHES - BE-2/4- **II and III SEMESTER**

L: T: P (Hrs/Week): 1	SEE Marks: 40	Course Code: U20HS010EH
Credits: 1	CIE Marks: 30	Duration of SEE: Hours: 02

COURSE OBJECTIVES	COURSE OUTCOMES
The course will enable the students to: -	On completion of this course the student will be able to :
1. Get a holistic perspective of value- based education.	1. Understand the significance of value inputs in a classroom and start applying them in their life and profession
2. Grasp the meaning of basic human aspirations vis-a-vis the professional aspirations.	2. Distinguish between Personal and Professional life goals– constantly evolving into better human beings and professionals.
3. Understand professionalism in harmony with self and society.	3. Work out the strategy to actualize a harmonious environment wherever they work.
4. Develop ethical human conduct and professional competence.	4. Distinguish between ethical and unethical practices, and start implementing ethical practices
5. Enrich their interactions with the world around, both professional and personal.	5. Apply ethics and values in their personal and professional interactions.

UNIT-1 Understanding the need and process for Value Education
 a) Basic Human Aspirations -Philosophy, purpose & objective of Life
  Understanding and living in harmony at various levels-with self, family, society and nature.
 b) **Ethical and moral values -** Truth, honesty, empathy, integrity, consistency, cooperation, confidentiality, trustworthiness, self-respect, self-restraint, self-assertion, self-reliance.

UNIT-2 Holistic Understanding of Professional Ethics and Human Values
a) At the level of individual: as socially and ecologically responsible engineers and technologists.
b) At the level of society: as mutually enriching organizations, being work conscious.
c) Recognizing the value of time and respecting time of self and others.

MODE Of DELIVERY

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

Relevant Websites, CD's and Documentaries
● Value Education website, Http://www.universalhumanvalues.info UPTU website, 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:	01	Max.Marks for each Internal Tests:	20
2	No. of Assignments:	02	Max. Marks for each Assignment:	05
3	No. of Quizzes:	02	Max. Marks for each Quiz Test:	05

Duration of Internal Test: **90 Minutes**

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)

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

DEPARTMENT OF MATHEMATICS
Course Name: Skill Development Course III - Aptitude II
SYLLABUS FOR BE - FOURTH SEMESTER (IV Semester)

L : T : P (Hrs/Week) : 2	SEE Marks :40	Course Code: U20BS430MA
Credits: 1	CIE Marks : 30	Duration of SEE : 120 Minutes

COURSE OBJECTIVES	COURSE OUTCOMES
APTITUDE	APTITUDE
Build further on aptitude skills and enhance employability skills	Solve questions in the mentioned areas using shortcuts and smart methods
Enhance higher order thinking skills and problem solving in the following areas - Arithmetic ability, Numerical ability and General reasoning	Understand the fundamentals concept of Aptitude skills
Train to work systematically with speed and accuracy while problem solving	Perform calculations with speed and accuracy

UNIT 1: QUANTITATIVE APTITUDE- ARITHMETIC ABILITY ADVANCED
8 hrs
- Time speed and distance
- Boats and Streams
- Problems on trains

UNIT 2: REASONING ABILITY- LOGICAL REASONING
6hrs
- Seating Arrangements- Linear; Circular; Complex
- Venn diagrams
- Syllogism
- Cubes & Cuboids
- Dices

UNIT 3: REASONING ABILITY- NON VERBAL REASONING
4hrs
- Figure Series
- Directions
- Clocks
- Calendars

UNIT 4: QUANTITATIVE APTITUDE -
2hrs
- Mensuration Part -1
- Mensuration Part -2
- Logarithms

UNIT 5: QUANTITATIVE APTITUDE
4hrs
- Permutations and combinations
- Probability

METHODOLOGY
- Demonstration
- Presentations
- Expert lectures
- Audio-visual lessons

ASSESSMENTS
- Online assignments
- Individual and Group

Learning Resources:
learn.talentsprint.com

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

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2	No. of Assignments:	01	Max. Marks for each Assignment:	05
3	No. of Quizzes:	01	Max. Marks for each Quiz Test:	05

Duration of Internal Test: **90 Minutes**

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

DATABASE MANAGEMENT SYSTEMS LAB
SYLLABUS FOR B.E. IV SEMESTER

L:T:P(Hrs/week): 0:0:2	SEE Marks :50	Course Code: **U20PC411IT**
Credits : 1	CIE Marks :30	Duration of SEE : 3 Hours

COURSE OBJECTIVES	COURSE OUTCOMES *On completion of the course, students will be able to*
Implement various SQL and PL/SQL constructs and develop small size database application.	1. Design and implement a database schema 2. Devise queries using SQL commands 3. Develop application programs using PLSQL 4. Generate reports for given requirements

1. **DDL Commands:**
a. Creation of tables with appropriate integrity constraints
b. Usage of alter, drop commands

2. **DML Commands:**
a. Data Insertion and Updating
b. Usage of truncate command

3. **TCL and DCL Commands:**
a. Setting privileges
b. save point, commit and rollback commands

4. **SQL Queries:**
a. Simple SQL queries using Select
b. SQL Built-in functions
c. SQL Operators and Nested queries

5. a. Joins and aggregate functions
b. Grouping and ordering commands

6. **PL/SQL:**
a. Blocks, Select Statement and control statements
b. Stored procedures and functions
c. Packages and Exception Handling
e. Cursors
f. Triggers

7. **REPORTS:**
a. Creation of Reports based on different queries.
b. Creation of full-fledged Database Application.

Learning Resources:
1. Ivan Bayross, SQL, PL/SQL, The Programming Language of Oracle,4th Edition, PBP Publications. Reference Books
    1. NileshShah, Database Systems Using Oracle, 2nd Edition(2007), PHI.
2. Rick F Van der Lans, Introduction to SQL, 4thEdition(2007), Pearson Education.
3. Benjamin Rosenzweig Elena Silvestrova, Oracle PL/SQL by Example, 3rdEdition(2004), Person Education.
4. Albert Lulushi, Oracle Forms Developer's Handbook, 1st Edition(2006), Pearson Education.
5. https://www.lynda.com/Accesstutorials/Welcome/195854/373426-4.html

No. of Internal Tests: 02   Max. Marks for Internal Test: 12

Marks for day-to-day laboratory class work   18
Duration of Internal Test: 2Hours

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
IBRAHIMBAGH, HYDERABAD – 500 031
DEPARTMENT OF INFORMATION TECHNOLOGY

DESIGN AND ANALYSIS OF ALGORITHMS LAB
SYLLABUS FOR B.E. IV SEMESTER

L:T:P (Hrs/week):0:0:2	SEE Marks : 50	Course Code : **U20PC421IT**
Credits : 1	CIE Marks : 30	Duration of SEE: 3 Hours

COURSE OBJECTIVES	COURSE OUTCOMES
	On completion of the course, students will be able to
Develop skills in design and implementation of abstractions of various algorithm strategies and their practical applications.	1. Apply divide and conquer approach to solve searching and sorting problems. 2. Design and implement algorithms using Greedy strategy for the problems; Fractional knapsack, Huffman codes, shortest path finding (Dijkstra's algorithm). 3. Use Dynamic programming approach to solve problems including, shortest path finding (Bellman ford algorithm, All pair shortest path), Matrix chain multiplication, 0/1 Knapsack problem. 4. Solve N-Queens problem and Graph colouring problem using Backtracking approach. 5. Implement Branch & Bound algorithm for 0/1 Knapsack problem and Travelling Salesman problem.

1) A) Implement a stack using a linked list such that the push and pop operations of stack still take O(1) time.
   B) Implement a queue using a linked list such that the enqueue and dequeue operations of queue take O(1) time
2) Implement Linear Search, Binary Search and Hashing.
3) Implement a parallelized Merge Sort algorithm and Quick sort algorithm to sort a given set of elements and determine the time required to sort the elements. Repeat the experiment for different values of n, the number of elements in the list to be sorted and plot a graph of the time taken versus n. The elements can be read from a file or can be generated using the random number generator. Program to be executed for various sizes of input. Fill the given table. Obtaining a constant value in the column "time taken" would prove that the complexity of merge sort is same in all case.

Size	Ascending		Descending		Random Order	
	Input	Time taken	Input	Time taken	Input	Time taken
4						
8						
16						
32						

4) Implement Knapsack Algorithm using Greedy Strategy.
5) Implement optimal merge patterns – Huffman encoding algorithm.
6) From a given vertex in a weighted connected graph, find single source shortest path to other vertices using a) Dijikstra's algorithm b) Bellman ford algorithm.
7) Implement Matrix –chain multiplication algorithm using dynamic programming.
8) Implement All-pairs shortest path algorithm.
9) Implement 0/1 Knapsack algorithm.
10) Implementation of N-queens problem using back tracking.
11) Implement Graph coloring problem using back tracking.
12) Develop a program to check whether a given graph is connected or not using DFS method.
13) Implement 0/1 knapsack using branch and bound.
14) Implement Travelling salesman problem using branch and bound.

Learning Resources:

1. Ellis Horowitz, Sartaj Sahani, Sanguthevar Rajasekaran," Fundamentals of computer Algorithms", Second edition (2008),Universities Press
2. Thomas H. Cormen, Leiserson C.E, Rivest.R.L , Stein.C, Introduction to Algorithm, 2nd edition (2001), MIT press, USA.Introduction to Algorithms, 4TH Edition, Thomas H Cormen, Charles E Lieserson,
3. Algorithm Design, 1ST Edition, Jon Kleinberg and ÉvaTardos, Pearson.
4. Algorithm Design: Foundations, Analysis, and Internet Examples, Second Edition, Michael T Goodrich and Roberto Tamassia, Wiley.
5. Algorithms -- A Creative Approach, 3RD Edition, UdiManber, Addison-Wesley, Reading, MA.
6. B.A.Forouzan & Richard F.Gilberg, "A Structured Programming Approach using C" 2nd Edition, Cengage Learning, 2007.
7. Mark A Weiss, Data Structures and Algorithm Analysis In C, Second Edition(2002), Pearson
8. https://ocw.mit.edu/courses/electrical-engineering-and-computerscience/6-006-introduction-to-algorithms-fall-2011/lecture-videos
9. http://nptel.ac.in/courses/106106127/
10. http://www.nptel.ac.in/courses/106102064

No. of Internal Tests: 02   Max. Marks for Internal Test: 12

Marks for day-to-day laboratory class work   18

Duration of Internal Test: 2Hours

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

SOFTWARE ENGINEERING LAB
SYLLABUS FOR B.E. IV SEMESTER

L:T:P(Hrs./week): 0:0:2	SEE Marks : 50	Course Code : **U20PC431IT**
Credits : 1	CIE Marks : 30	Duration of SEE: 3 Hrs

COURSE OBJECTIVES	COURSE OUTCOMES
	On completion of the course, students will be able to
Understand the concepts related to analysis, design, testing and Management techniques related to Object Oriented Software development.	1. Understand fundamental concepts and object-oriented techniques of systems analysis and design. 2. Be able to gather and document system requirements. 3. Generate and run test cases for various levels of testing by applying different testing methods. 4. Demonstrate the ability to use project management tools 5. Use of computer based tools to aid in system analysis and design.

1. System Definition
   a) Requirements Management
   b) Data Modeling
2. Design Modeling
   a) Use case Diagram
   b) Class Diagram
   c) Sequence Diagram
   d) Collaboration Diagram
   e) State Chart Diagram
   f) Activity Diagram
   g) Component Diagram
   h) Deployment Diagram
3. Software Development
   a) Application & Web modeling
   b) Configuration Management
   c) Unit Testing
4. Content Management
5. System Testing
   a) Functional Testing
   b) Reliability Testing
   c) Performance Testing
   d) Defect & Change Tracking
6. Change Management
   a) Configuration Management
   b) Requirement Management
   c) System Documentation
7. Project Management

Learning Resources:
1. Grady Booch, James Rumbaugh, Ivor Jacobson, The Unified Modeling Language-User Guide(Covering UML 2.0), Second Edition, Pearson Education, India,2007.
2. Ivor Jacobson, Grady Booch, James Rumbaugh, The Unified Software Development Process, Pearson Education, India, 2008.
3. http://nptel.iitg.ernet.in/Comp_Sci_Engg/IIT%20Madras/Object%20Oriented%20System%20Design.htm
4. http://nptel.ac.in/courses/106105153/

No. of Internal Tests: 02   Max. Marks for Internal Test: 12

Marks for day-to-day laboratory class work   18
Duration of Internal Test: 2Hours

**OPEN ELECTIVES OFFERED BY VARIOUS DEPARTMENTS IN
B.E. IV SEMESTER (2021-21)**

Dept	Title	Code	credits
Civil	DISASTER MANAGEMENT	U20OE410CE	3
CSE	INTRODUCTION TO DATA STRUCTURES	U200E410CS	3
CSE	INTRODUCTION TO SOFTWARE ENGINEERING	U200E420CS	3
ECE	MATHEMATICAL PROGRAMMING FOR ENGINEERS	U20OE410EC	3
ECE	INTRODUCTION TO COMMUNICATION SYSTEMS	U20OE420EC	3
Mech.	OPTIMIZATION METHODS	U20OE410ME	3
Physics	INTRODUCTION TO OPTOELECTRONIC DEVICES	U20OE410PH	3
HSS	CRITICAL THINKING	U20OE410EH	3

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
IBRAHIMBAGH, HYDERABAD – 500 031
DEPARTMENT OF CIVIL ENGINEERING

DISASTER MANAGEMENT (Open Elective-II)
SYLLABUS FOR B.E. IV-SEMESTER

L:T:P (Hrs./week):3:0:0	SEE Marks:60	Course Code: **U20OE410CE**
Credits : 3	CIE Marks:40	Duration of SEE: 3 Hrs

COURSE OBJECTIVES	COURSE OUTCOMES
Objectives of this course are to:	Upon the completion of this course the students will be expected to:
1. Know about the state of art of disaster management in world and explore the history of the disasters and comprehend how past events have helped shape the future. 2. Study the various natural and manmade disasters and apply the mitigation measures 3. Expose students to various technologies used for disaster mitigation and management.	1. Attain knowledge on various types, stages, phases in disaster with international & national policies and programmes with reference to the disaster reduction. 2. Understand various types of natural disaster, their occurrence, Effects, Mitigation and Management Systems in India 3. Understand different types of manmade disasters, their occurrence, Effects, Mitigation and Management Systems in India. 4. Explain the utility of geography information systems (GIS), Remote sensing technology in all phases of disaster mitigation and management. 5. Understand the Role of Remote Sensing and Geographical Information Systems (GIS) in Disaster Management

UNIT-I
Introduction: Hazard, vulnerability and risk, Types of disasters, Disaster management cycle, Progress of disaster management in world, vulnerability profile of India, Disaster management act, Disaster management in India.
UNIT-II
Natural Disasters – Hydro- meteorological based disasters: Tropical cyclones, floods, drought and desertification zones - Causes, Types, effects and Mitigation measures.

UNIT-III
Natural Disasters – Geographical based disasters: Earthquake, Tsunamis, Landslides and avalanches – Causes, Types, effects and Mitigation measures.

UNIT-IV
Human induced hazards: Chemical industrial hazards, major power breakdowns, traffic accidents, etc.

UNIT-V
Role of Remote Sensing and Geographical Information Systems (GIS) in Disaster Management: Introduction to remote sensing and GIS, its applications in disaster management.

Learning Resources:
1. Rajib, S and Krishna Murthy, R.R.(2012) "Disaster Management Global Challenges and Local Solutions", Universities Press, Hyderabad, 2012.
2. Navele, P & Raja, C.K. (2009), Earth and Atmospheric Disasters Management, Natural and Manmade, B.S. Publications, Hyderabad, 2009.
3. Battacharya, T. Disaster Science and Management, Tata McGraw Hill Company, New Delhi, 2012.

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

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2	No. of Assignments:	03	Max. Marks for each Assignment:	05
3	No. of Quizzes:	03	Max. Marks for each Quiz Test:	05

Duration of Internal Test: **90 Minutes**

VASAVI COLLEGE OF ENGINEERING (Autonomous)
IBRAHIMBAGH, HYDERABAD – 500 031
Department of Computer Science & Engineering
INTRODUCTION TO DATA STRUCTURES (OPEN ELECTIVE-II)

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

L:T:P (Hrs./week):3:0:0	SEE Marks:60	Course Code :**U200E410CS**
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 and use appropriate data structure for a given problem.	1	Implement linear data structures
2	Describe the linear and nonlinear data structures.	2	Develop an application using stacks and queues.
		3	Choose the appropriate nonlinear data structure and perform various operations on trees.
		4	Perform various operations on graphs.
		5	Analyze the time and space complexities of Algorithms.

UNIT – I:
Arrays: Arrays - ADT, Polynomials, Sparse matrices,
Linked Lists: Singly Linked Lists, Circularly linked lists, Doubly Linked Lists.
UNIT – II :
Stacks: Array Representation, Linked Representation, Applications**.**
Queues: Array Representation, Linked Representation, Applications.
UNIT – III: Introduction to non linear Data Structures: Tree Definitions and Properties, Representations of Binary Trees, Operations, Binary Tree Traversal
UNIT-IV: Graphs: Graph Definitions, properties and representations, Elementary Graph operations, Minimum Cost Spanning Trees- Kruskal's Algorithm, Prim's Algorithm.

UNIT-V: Performance analysis- time complexity and space complexity, Asymptotic Notation-Big O, Omega and Theta notations

Learning Resources:
1. Horowitz E, Sahni S and Susan Anderson-Freed, Fundamentals of Data structures in C, 2nd Edition(2008), Universities Press
2. Mark A Weiss, Data Structures and Algorithm Analysis In C, Second Edition(2002), Pearson
3. Kushwaha D. S and Misra A.K, Data structures A Programming Approach with C, Second Edition(2014), PHI.,
4. Gilberg R. F and Forouzan B. A, Data structures: A Pseudocode Approach with C, Second Edition(2007), Cengage Learning
5. Tanenbaum A. M , Langsam Y. Augenstein M. J, Data Structures using C, Second Edition (2008), Pearson.
6. Thomas H. Cormen, Charles E. Leiserson, Ronald L Rivest, Clifford Stein, Introduction to Algorithms, Third Edition(2009), MIT Press
7. Yedidyah Langsam , Moshe J. Augenstein ,Aaron M. Tenenbaum, Data Structures Using C and C++ , Second Edition(2009), PHI
8. https://ocw.mit.edu/courses/electrical-engineering-and-computer-science/6-006-introduction-to-algorithms-fall-2011/lecture-videos
9. http://nptel.ac.in/courses/106106127/
10. http://www.nptel.ac.in/courses/106102064

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Duration of Internal Test: **90 Minutes**

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

Department of Computer Science & Engineering
INTRODUCTION TO SOFTWARE ENGINEERING (OPEN ELECTIVE-II)

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

L:T:P (Hrs./week): 3:0:0	SEE Marks : 60	Course Code :**U200E420CS**
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 the concepts involved in the lifecycle of software development	1	Explain the software development lifecycle models for software system development.
2	learn the best practices to be employed for the design, and testing of a software project.	2	Learn the requirement process steps in software process model.
		3	Analyze the structural design models in object oriented system.
		4	Analyze the behavioral design models used in object oriented system.
		5	Identify verification and validation methods in a software engineering project at various phases of SDLC .

UNIT-I:
Introduction to Software Engineering:
A generic view of Process: Software Engineering, Process Framework, CMMI, Process Patterns, Process Assessment.
Process Models: Waterfall Model, Incremental Process Models, Evolutionary Process Models, Specialized Process Models, The Unified Process.
An Agile view of Process: What is an Agile Process, Agile Process Models- SCRUM, XP.
UNIT-II: Requirements Engineering: A bridge to Design and Construction, Requirements Engineering Tasks, Initiating Requirements Engineering Process, Eliciting Requirements, Negotiating Requirements, Validating Requirements.
UNIT-III:
Object oriented Modeling & design using UML: Introduction to UML.
Structural Modeling: Classes and Advanced Classes, Relationships ,Common Mechanisms, Class Diagrams, Interfaces, Types and Roles.
UNIT-IV:
Behavioural Modelling: Interactions, Interaction diagrams, Use Cases, Use Case Diagrams, Activity diagrams, State Machines, State chart Diagrams.
Architectural Modelling: Artifacts, Artifact diagrams, Deployment diagrams.
UNIT-V:
Testing Strategies: A Strategic approach to software testing ,Strategic issues, Test strategies for Conventional software, O-O Software, Validation testing, System testing, the art of debugging.
Testing Tactics: Software testing fundamentals, Black box and White box testing, Basis path testing, Control Structure, O-O testing methods, Testing for specialized environments, architectures and Applications testing patterns.

Learning Resources:
1. Roger S. Pressman, Software Engineering: A Practitioner's Approach, 6th Edition (2005), Tata McGrawHill.
2. Grady Booch, James Rumbagu, Ivor Jacobson, The Unified Modeling Language-User guide, (Covering UML 2.0) ,2nd Edition Pearson Education, India 2007.
3. Pankaj Jalote, An Integrated Approach to Software Engineering, 3rd Edition (2005), Narosa Publishing House.
4. http://nptel.ac.in/courses/106101061/
5. http://istqbexamcertification.com/what-is-a-software-testing/
6. http://agile.csc.ncsu.edu/SEMaterials/UMLOverview.pdf

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Duration of Internal Test: **90 Minutes**

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
IBRAHIMBAGH, HYDERABAD – 500 031
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
Mathematical Programming for Engineers
(OPEN ELECTIVE - II)
SYLLABUS FOR B.E. V - SEMESTER (for other branches)

L:T:P (Hrs./week) : 3:0:0	SEE Marks : 60	Course Code: **U20OE410EC**
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 4th 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/

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Duration of Internal Test: **90 Minutes**

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
IBRAHIMBAGH, HYDERABAD – 500 031
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
Introduction to Communication Systems
(OPEN ELECTIVE - II)
SYLLABUS FOR B.E. IV – SEMESTER (for other branches)

L:T:P (Hrs./week) : 3:0:0	SEE Marks : 60	Course Code: **U20OE420EC**
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:	02	Max.Marks for each Internal Tests:	30
2	No. of Assignments:	03	Max. Marks for each Assignment:	05
3	No. of Quizzes:	03	Max. Marks for each Quiz Test:	05

Duration of Internal Test: **90 Minutes**

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
IBRAHIMBAGH, HYDERABAD – 500 031
DEPARTMENT OF MECHANICAL ENGINEERING
SYLLABUS FOR B.E. IV-SEMESTER
OPTIMIZATION METHODS (Open Elective-II)

L:T:P (Hrs./week) : 3:0:0	SEE Marks : 60	Course Code: **U20OE410ME**
Credits : 3	CIE Marks : 40	Duration of SEE : 3 Hours

Course Objectives	Course Outcomes
The objectives of this course are 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)	On completion of the course, the student will be able to: 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 to suit 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. SingiresuS.Rao, "Engineering optimization- Theory and Practice", 4[th]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 INFORMATION TECHNOLOGY

INTRODUCTION TO OBJECT ORIENTED PROGRAMMING
(Open Elective-II) (Common for CIVIL, ECE, EEE & MECH)
SYLLABUS FOR B.E. IV SEMESTER

L:T:P (Hrs/week):3:0:0	SEE Marks: 60	Course Code: **U20OE410IT**
Credits: 3	CIE Marks: 40	Duration of SEE : 3 Hours

COURSE OBJECTIVES	COURSE OUTCOMES *On completion of the course, students will be able to*
Explain the fundamentals of object-oriented programming in Java, including defining classes, invoking methods, using class libraries, building simple GUI applications.	1. Understand fundamental concepts in Object oriented approach. 2. Develop object-oriented programs using the concepts of exception handling and multi threading. 3. Demonstrate the usage of Java I/O streams to handle user input and output. 4. Design and develop GUI programs. 5. Develop Applets for web applications.

UNIT- I
Java Programming Fundamentals: Introduction, Overview of Java, Data types, Variables-scope and lifetime, Operators, Control statements, Structure of a Java class, Classes, Methods, Inheritance, and Command Line Arguments.
Arrays: One-dimensional arrays, creating an array, declaration of arrays, initialization of arrays, two-dimensional arrays.
Packages: Creation, importing a package and user defined package.
Interfaces: Defining interfaces, extending interfaces, implementing interfaces.

UNIT- II
Exception Handling: Introduction, types of exceptions, syntax of exception handling code, multiple catch statements, using finally statement, user-defined exceptions.

UNIT- III
Basic I/O Streams: Java I/O classes and interfaces, Files, Stream and Byte classes, Character Streams, Serialization.
Exploring java.lang: Object, Wrapper classes, String, StringBuffer, System

UNIT- IV
Introducing AWT working with Graphics: AWT Classes, Working with Graphics.
Event Handling: The Delegation Event Model, Event Classes, Source of Events, Event Listener Interfaces.
Awt Controls: Control Fundamentals, Labels, Using Buttons, Applying Check Boxes, CheckboxGroup, Choice Controls, Using Lists, Managing Scroll Bars, Using TextField, Using TextArea, Understanding Layout Managers, Menu bars and Menus, Dialog Boxes, FileDialog, Exploring the controls, Menus ,and Layout Managers.

UNIT- V
Applet Programming: Introduction, how applets differ from applications, building applet code, applet life cycle, HTML-APPLET tag, passing parameters to applets.

Learning Resources:
1. Herbert Schildt, The Complete Reference Java, 7th Edition, Tata McGraw Hill, 2006.
2. James M Slack, Programming and Problem solving with JAVA, Thomson Learning, 2002.
3. C Thomas Wu, An Introduction to Object Oriented Programming with Java 5th edition, McGraw Hill Publishing, 2010.
4. Y. Daniel Liang , An Introduction to JAVA Programming, Tata McGraw Hill, 2009.
5. Kathy Sierra, Head First Java, 2/e, Shroff Publishers, 2012.
6. https://docs.oracle.com/javase/tutorial/
7. https://nptel.ac.in/courses/106105191/

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

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

Duration of Internal Test: **90 Minutes**

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

INTRODUCTION TO SCRIPTING LANGUAGES
(Open Elective-II) (Common for CIVIL, ECE, EEE & MECH)
SYLLABUS FOR B.E. IV SEMESTER

L:T:P(Hrs./week): 3:0:0	SEE Marks: 60	Course Code :**U20OE420IT**
Credits : 3	CIE Marks: 40	Duration of SEE : 3 Hours

COURSE OBJECTIVES	COURSE OUTCOMES
	On completion of the course, students will be able to
This course will enable the students to acquire basic skills for writing python scripts.	5. Write a python script to solve a basic problem using structured programming constructs
	6. Write a python script to solve a basic problem using object oriented programming constructs
	7. Create and use python modules
	8. Handle file related operations
	9. Encode and decode strings

Unit – I
Introduction to Python, running a python script, writing comments, using variables, operators, strings and text, format specifiers , printing information. passing command line arguments, prompting users, parameters, unpacking variables.

Unit – II
Decision making : if and else if, repetition : while loops and for loops, lists, operations on list , tuples, operations on tuples, sets, operations on sets, dictionaries, operations on dictionaries.

Unit – III
Defining functions, passing arguments to functions , returning values from functions, Exception handling.

Unit – IV
Modules , Classes and Objects, is – a relationship : inheritance, has-a relationship : composition.

Unit – V
File handling, serialization using JSON and pickle, encoding and decoding.

Learning Resources
9. Allen B. Downey, Think Python, 2nd Edition, Green Tea Press
10. "Learning Python", 5th Edition, O'reilly
11. https://www.python.org
12. https://nptel.ac.in/courses/106106182/

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

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

Duration of Internal Test: **90 Minutes**

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
IBRAHIMBAGH, HYDERABAD – 500 031
DEPARTMENT OF PHYSICS

INTRODUCTION TO OPTOELECTRONIC DEVICES
Open elective Course

L:T:P(Hrs/week):3:0:0	SEE Marks:60	Course Code: **U20OE410PH**
Credits :03	CIE Marks:40	Duration of SEE:03Hours

Course Objectives	Course Outcomes
The student will be able to	**At the end of the course, the student should at least be able:**
1. gain knowledge on working of optoelectronic light sources like LED	1. accustom with various device structures of optoelectronic light sources like LED
2. grasp the concepts of lasing action, merits and demerits of lasers	2. acquaint with various types of lasers and their applications
3. acquire the fundamental knowledge on photo-detectors.	3. assimilate working and use of photo detectors and solar cells in various applications
4. Narrate the properties of chromic materials	4. appreciate the importance of chromic materials in engineering field

UNIT-I: LIGHT EMITTING DIODES
Review of semiconductors, direct and indirect band semiconductors, electron-hole pair generation and recombination process- emission radiation and band gap of semiconductor-electroluminescence-construction and working of homojunction LED- introduction to SLED and ELED-semiconductor materials for LED fabrication, and OLEDS, applications of LEDs.

UNIT-II: SEMICONDUCTOR LASERS
Semiconductor diode laser -construction-working principle- advantages and applications of diode lasers. Semiconductor lasers- rate equations for carrier and photon-density, and their steady state solutions, modes in resonating cavity, gain and loss, quantum efficiency, construction and working of homo-junction and hetero-junction semiconductor lasers, advantages and applications of lasers.

UNIT-III: SOLAR CELLS
Solar spectrum-Solar Cell- Photovoltaic effect- I-V characteristics of solar cell -fill factor, efficiency- materials fabrication of solar cells-thin film solar cell-solar panels- applications of solar cells.

UNIT-IV: PHOTODETECTORS
Photodiodes: Working and construction of Photodiode and its characteristics- dark current-PIN Photodiode-Avalanche Photodiode-Photodiode Quantum Efficiency-advantages and applications of photodiodes.

UNIT-V: CHROMIC MATERIALS (6 hours)
Electro-chromaticity, Electro-chromic materials, Electro-chromic sensors and devices.
Photo-chromaticity, Photo-chromic materials, Photo-chromic sensors and devices.
Thermo-chromaticity, thermo-chromic materials, thermo-chromic sensors and devices.
Smart fluids: Magneto-rheological and Electro-rheological fluids.

Learning Resources:
1. Ben G Streetman and Sany Kumar Banerjee, Solid state electronic devices, 7th edition, Pearson, 2016
2. Jasprit Singh, Semiconductor devices: Basic principles, Wiley, Delhi, 2014
3. M.N. Avadhanulu, Kshirsagar and TVS Arun Murthy, A textbook of Engineering Physics, 11th Edition, S. Chand, 2018.

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

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

Duration of Internal Test: **90 Minutes**

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
IBRAHIMBAGH, HYDERABAD – 500 031
DEPARTMENT OF HUMANITIES AND SOCIAL SCIENCES

CRITICAL THINKING
OPEN ELECTIVE B.E.-2/4- IV Semester

L:T:P(Hrs/week):3:0:0	SEE : 60	Course code : **U20OE410EH**
Credits : 3	CIE : 40	Duration of SEE : 3 Hours

Course Objectives	**Course Outcomes**
To help students: • Identify the core skills associated with critical thinking. • Comprehend the various techniques of critical thinking. • **Understand where to** look for bias and assumptions in problem analysis • Understand Structure, standards, and ethics of critical thinking **dents will learn** • How to control and evaluate their thought processes • How to reason effectively and consistently • Problem analysis best practices - using their decision time most effectively	**At the end of the course the student will be able to** • Analyse and use techniques for comparing alternative solutions • Demonstrate the difference between deductive and inductive reasoning. • Construct a logically sound and well-reasoned argument. • Evaluate, identify, and distinguish between relevant and irrelevant information • Formulate a thesis or Hypothesis • Employing Evidence/Information Effectively

UNIT I - Components of Critical Thinking
1. Applying Reason
2. Open Mindedness
3. Analysis
4. Logic

UNIT II - Non-Linear Thinking
1. Step Out of Your Comfort Zone
2. Don't Jump to Conclusions
3. Expect and Initiate Change
4. Being Ready to Adapt

UNIT III - Logical Thinking
1. Ask the Right Questions
2. Organize the Data
3. Evaluate the Information
4. Draw Conclusions

UNIT IV - Evaluate Information
1. Making Assumptions
2. Watch out for Bias
3. Ask Clarifying Questions
4. SWOT Analysis

UNIT-V - Problem Solving
1. Identify Inconsistencies
2. Trust Your Instincts
3. Asking Why?

METHODOLOGY:-
Case Studies
Demonstration
Expert lectures
Writing and Audio-visual lessons

ASSESSMENT :-
Online assignments
Individual and Group Presentations

Learning Resources:-
1. Critical Thinking: A Beginner`s Guide to Critical Thinking, Better Decision Making, and Problem Solving-Jennifer Wilson
2. Wait, What? And Life`s Other Essential Questions – James E.Ryan
3. Think Smarter: Critical Thinking to Improve problem-solving and Decision Making skill -Michael Kallet
4. The Art of Thinking Clearly-Rolf Dobelli

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

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

Duration of Internal Test: **90 Minutes**

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
SCHEME OF INSTRUCTION AND EXAMINATION (R20)
B.E. – IT : FOURTH SEMESTER (2021 - 2022)

S No.	Course Code	Course Name	Scheme of Instruction			Duration in Hrs	Scheme of Examination		Credits
			Hours per week				Maximum Marks		
			L	T	P/D		SEE	CIE	
SEMESTER - IV (BRIDGE COURSE)									
THEORY									
1	UB21HS410EH	English Language and Communication	2	-	-	3	50	-	-
PRACTICAL									
1	UB21HS411EH	English Language and Communication Skills Lab	-	-	2	3	50	-	-
		Total	2	-	2	-	100	-	-
		Grand Total	4			-	100		

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS), HYDERABAD-31
DEPARTMENT OF HUMANITIES AND SOCIAL SCIENCES

ENGLISH LANGUAGE AND COMMUNICATION (ELC)
Bridge Course for Lateral Entry Students
(Common to all branches)
ENGLISH LANGUAGE AND COMMUNICATION (Theory)
2020-2021 Batch – IV Semester

L: T: P (Hrs/Week) : 2	SEE Marks: 60	Course Code: **UB21HS410EH**
Credits: nil	CIE Marks: nil	Duration of SEE: Hours : 2

COURSE OBJECTIVES	COURSE OUTCOMES
The Course will enable the Learners to:	**At the end of the course the students will be able to :**
1. Converse effectively in various context.	1. Use language verbally and nonverbally in appropriate contexts
2. Listen for general and specific comprehension and write paragraphs.	2. Listen for global comprehension and to infer meaning from spoken discourses. Write paragraphs coherently.
3. Understand the elements of a good paragraph	3. Write paragraphs coherently.
4. Speak appropriately in daily conversations	4. Use phrases, essential vocabulary and polite expressions in every day conversations.

Unit-1 1.0: Communication & Functional English
1.1   Role and Importance of Communication, Process of Communication, Non- verbal communication, barriers to Communication. Conversational phrases: greetings, introductions, apology, compliments, agreeing and disagreeing, polite forms in everyday conversations.

Unit 2 2.0: Listening
2.1   Importance of listening, Active listening

Unit 3. 3.0: Writing
1.1   Paragraph writing, coherence and cohesion.

Unit 4 4.0: Grammar and Vocabulary
4.1 Common Errors, one word substitutes, Phrasal-verbs, collocations.
Unit-5 5.0: Reading
5.1 Prose text- On shaking hands

The break-up of marks for CIE:
No. of SEE -1   : No. of Internal Tests   : NIL

**VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS),
HYDERABAD-31
DEPARTMENT OF HUMANITIES AND SOCIAL SCIENCES**

ENGLISH LANGUAGE COMMUNICATION SKILLS LAB (ELCS LAB)
Bridge Course for Lateral Entry Students
(Common to all branches)
2020-2021 Batch – IV Semester

L: T: P (Hrs/Week) : 2	SEE Marks: 50	Course Code: **UB21HS411EH**
Credits: nil	CIE Marks: 30	Duration of SEE: Hours : 2

COURSE OBJECTIVES	COURSE OUTCOMES
The Course will enable the Learners to:	**At the end of the course the students will be able to :**
1. Converse in various situations.	1. Research and sift information to make Presentations.
2. Make paper and power point presentations.	2. Listen for gist and make inferences from various speeches.
3. Speak effectively using discourse markers.	3. Use connectives and make transitions effectively while speaking.

ELCS – Component - INTERACTIVE COMMUNICATION SKILLS LAB	
1	**Group discussion:** Objectives of GD, Types of GDs; Initiating, Continuing, and concluding a GD.
2	**Debate:** Understanding the differences between a debate and a group discussion, essentials of debate, concluding a debate.
3	**Role Plays:** Types of Role plays (formal and informal), usage of discourse markers.
4	**Presentation Skills:** Making effective presentations, using non-verbal communication, coping with stage fright, use of Audio visual aids researching on various topics.

The break-up of marks for CIE:
SEE:1   : No. of Internal Tests   : 1

Max. Marks for Internal Test   : 30
Duration of Internal Test   : 120 Minutes

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
HYDERABAD-500031

DEPARTMENT OF INFORMATION TECHNOLOGY
ACTIVITY CALENDAR FOR THE ACADEMIC YEAR
2021-2022

S. No.	Date	Day	Details of Activity / Public Holiday
July 2021			
1	01-7-2021	Thursday	Semester End lab Exams for IV, VI & VIII Sem students
2	02-7-2021	Friday	Semester End lab Exams for IV, VI & VIII Sem students
3	03-7-2021	Saturday	Semester End lab Exams for IV, VI & VIII Sem students
4	04-7-2021	Sunday	Public Holiday
5	05-7-2021	Monday	Semester End lab Exams for IV, VI & VIII Sem students
6	06-7-2021	Tuesday	Semester End lab Exams for IV, VI & VIII Sem students
7	07-7-2021	Wednesday	Semester End lab Exams for IV, VI & VIII Sem students
8	08-7-2021	Thursday	Semester End lab Exams for IV, VI & VIII Sem students
9	09-7-2021	Friday	Semester End lab Exams for IV, VI & VIII Sem students
10	10-7-2021	Saturday	Mock Interview by Alumni –Vishal for VIII Sem (2022 Batch) students Semester End lab Exams for IV, VI & VIII Sem students
11	11-7-2021	Sunday	**Public Holiday**
12	12-7-2021	Monday	Semester End Theory Exams for IV, VI & VIII Sem students
13	13-7-2021	Tuesday	Semester End Theory Exams for IV, VI & VIII Sem students
14	14-7-2021	Wednesday	Semester End Theory Exams for IV, VI & VIII Sem students
15	15-7-2021	Thursday	Semester End Theory Exams for IV, VI & VIII Sem students
16	16-7-2021	Friday	Semester End Theory Exams for IV, VI & VIII Sem students
17	17-7-2021	Saturday	Mock Interview by Alumni –Santosh, Kiranmayi , Sarika, Akhil & Srikar for VIII Sem (2022 Passed out) students Semester End Theory Exams for IV, VI & VIII Sem students
18	18-7-2021	Sunday	Mock Interview by Alumni –Santosh, Kiranmayi , Sarika, Akhil & Srikar for VIII Sem (2022 Passed out) students
19	19-7-2021	Monday	Mock Interview by Alumni –Abhijeeth for VIII Sem (2022 Batch) students Semester End Theory Exams for IV, VI & VIII Sem students
20	20-7-2021	Tuesday	Mock Interview by Alumni –Abhijeeth for VIII Sem (2022 Batch) students Semester End Theory Exams for IV, VI & VIII Sem students
21	21-7-2021	Wednesday	Semester End Theory Exams for IV, VI & VIII Sem students
22	22-7-2021	Thursday	Semester End Theory Exams for IV, VI & VIII Sem students
23	23-7-2021	Friday	Semester End Theory Exams for IV, VI & VIII Sem students

S. No.	Date	Day	Details of Activity / Public Holiday
24	24-7-2021	Saturday	Semester End Theory Exams for IV, VI & VIII Sem students
25	25-7-2021	Sunday	PUBLIC HOLIDAY
26	26-7-2021	Monday	Semester End Theory Exams for IV, VI & VIII Sem students
27	27-7-2021	Tuesday	Semester End Theory Exams for IV, VI & VIII Sem students
28	28-7-2021	Wednesday	Semester End Theory Exams for IV, VI & VIII Sem students Recommencement of Classwork for II sem students
29	29-7-2021	Thursday	Semester End Theory Exams for IV, VI & VIII Sem students
30	30-7-2021	Friday	Semester End Theory Exams for IV, VI & VIII Sem students
31	31-7-2021	Saturday	Semester End Theory Exams for IV, VI & VIII Sem students
August 2021			
32	1-8-2021	Sunday	PUBLIC HOLIDAY
33	2-8-2021	Monday	**Bonalu**
34	3-8-2021	Tuesday	
35	4-8-2021	Wednesday	
36	5-8-2021	Thursday	
37	6-8-2021	Friday	
38	7-8-2021	Saturday	
39	8-8-2021	Sunday	PUBLIC HOLIDAY
40	9-8-2021	Monday	
41	10-8-2021	Tuesday	
42	11-8-2021	Wednesday	
43	12-8-2021	Thursday	
44	13-8-2021	Friday	
45	14-8-2021	Saturday	
46	15-8-2021	Sunday	**Independence Day**
47	16-8-2021	Monday	Advance Supplementary Exams for IV, VI & VIII Sem students Second Internal for II sem Students
48	17-8-2021	Tuesday	Advance Supplementary Exams for IV, VI & VIII Sem students Second Internal for II Sem Students
49	18-8-2021	Wednesday	Advance Supplementary Exams for IV, VI & VIII Sem students Second Internal for II sem Students
50	19-8-2021	Thursday	Muharram
51	20-8-2021	Friday	Advance Supplementary Exams for IV, VI & VIII Sem students
52	21-8-2021	Saturday	Advance Supplementary Exams for IV, VI & VIII Sem students
53	22-8-2021	Sunday	PUBLIC HOLIDAY
54	23-8-2021	Monday	Advance Supplementary Exams for IV, VI & VIII Sem

S. No.	Date	Day	Details of Activity / Public Holiday
			students
55	24-8-2021	Tuesday	Advance Supplementary Exams for IV, VI & VIII Sem students
56	25-8-2021	Wednesday	Seminar on Demonstration of accessing journals remotely for V-Semester IT A&B, Mr. Ravi Kumar, Librarian, VCE Advance Supplementary Exams for IV, VI & VIII Sem students
57	26-8-2021	Thursday	Certification exam on "Introduction to Network switching and Routing Lab" under CC Activity. Advance Supplementary Exams for IV, VI & VIII Sem students Semester End Theory Exams for II Sem students
58	27-8-2021	Friday	Workshop on Introduction to Data Analytics for V-Semester IT A&B by Mr. Amit Gupta ,Adjunct Faculty, Sr. Data Scientist, CSEO, Microsoft India, Gachibowli (27-29 August 2021) under Professional Body Activity Advance Supplementary Exams for IV, VI & VIII Sem students Semester End Theory Exams for II Sem students
59	28-8-2021	Saturday	Workshop on Introduction to Data Analytics for V-Semester IT A&B by Mr. Amit Gupta ,Adjunct Faculty, Sr. Data Scientist, CSEO, Microsoft India, Gachibowli (27-29 August 2021) under Professional Body Activity Advance Supplementary Exams for IV, VI & VIII Sem students Semester End Theory Exams for II Sem students
60	29-8-2021	Sunday	Workshop on Introduction to Data Analytics for V-Semester IT A&B by Mr. Amit Gupta ,Adjunct Faculty, Sr. Data Scientist, CSEO, Microsoft India, Gachibowli (27-29 August 2021) under Professional Body Activity
61	30-8-2021	Monday	**Janmashtami** Course Registration by V and VII Sem students
62	31-8-2021	Tuesday	Advance Supplementary Exams for IV, VI & VIII Sem students Semester End Theory Exams for II Sem students Course Registration by V and VII Sem students
September 2021			
63	1-9-2021	Wednesday	Workshop on Android Development for V-Sem IT A&B by Mr. R. Dharma Reddy, Asst. Professor, Department of Information Technology, VCE (1-3 September 2021) Under CCA Activity Advance Supplementary Exams for IV, VI & VIII Sem

S. No.	Date	Day	Details of Activity / Public Holiday
			students Semester End Theory Exams for II Sem students Course Registration by V and VII Sem students
64	2-9-2021	Thursday	Workshop on Android Development for V-Sem IT A&B by Mr. R. Dharma Reddy, Asst. Professor, Department of Information Technology, VCE (1-3 September 2021) Under CCA Activity Advance Supplementary Exams for IV, VI & VIII Sem students Semester End Theory Exams for II Sem students Course Registration by V and VII Sem students
65	3-9-2021	Friday	Workshop on Android Development for V-Sem IT A&B by Mr. R. Dharma Reddy, Asst. Professor, Department of Information Technology, VCE (1-3 September 2021) Under CCA Activity Advance Supplementary Exams for IV, VI & VIII Sem students Semester End Theory Exams for II Sem students Course Registration by V and VII Sem students
66	4-9-2021	Saturday	Advance Supplementary Exams for IV, VI & VIII Sem students Semester End Theory Exams for II Sem students Course Registration by V and VII Sem students
67	5-9-2021	Sunday	Public Holiday
68	6-9-2021	Monday	Commencement of classwork for V and VII Sem Semester End Theory Exams for II Sem students
69	7-9-2021	Tuesday	Semester End Theory Exams for II Sem students
70	8-9-2021	Wednesday	Semester End Theory Exams for II Sem students
71	9-9-2021	Thursday	Semester End lab Exams for II Sem students
72	10-9-2021	Friday	**Ganesh Chaturthi**
73	11-9-2021	Saturday	Workshop on Introduction to Data Analytics(contd) for V-Semester IT A&B by Mr. Amit Gupta ,Adjunct Faculty, Sr. Data Scientist, CSEO, Microsoft India, Gachibowli under professional Body Activity. Semester End lab Exams for II Sem students
74	12-9-2021	Sunday	"VASAVI CODATHON – 2021"-Round-1on Online Programming Quiz in collaboration with M/s. Campus Corporate Connect (CCC) for V and VII Semester students of CSE and IT, for the academic year 2021-22.
75	13-9-2021	Monday	Semester End lab Exams for II Sem students
76	14-9-2021	Tuesday	Semester End lab Exams for II Sem students
77	15-9-2021	Wednesday	Guest Lecture on Software Testing with ML for VII Sem A&B

S. No.	Date	Day	Details of Activity / Public Holiday
			by professor from Manipal University, Jaipur Under CSI activity Course Registration by III Sem Students
78	16-9-2021	Thursday	Course Registration by III Sem Students
79	17-9-2021	Friday	Course Registration by III Sem Students
80	18-9-2021	Saturday	Guest Lecture on Introduction to Data visualization and Descriptive Statistics for V-Semester IT A&B by Mr. Amit Gupta ,Adjunct Faculty, Sr. Data Scientist, CSEO, Microsoft India, Gachibowli Under Professional Body Activity Guest Lecture on Introduction to CCA Paper Presentation for V-Sem to IT A&B Students by Dr. Raghavendra Kune, Adjunct Faculty & Scientist/Engineer 'SG', Head High performance computing Drones(HPCD), Advanced Data Processing Research Institute (ADRIN), Dept. of Space, ISRO. Course Registration by III Sem Students
81	19-9-2021	Sunday	PUBLIC HOLIDAY
82	20-9-2021	Monday	Commencement of III Sem Classwork
83	21-9-2021	Tuesday	Awareness on Virtual Labs by IIIT Hyderabad for III Sem by Mr. Ravi Shankar under CC Actvity.
84	22-9-2021	Wednesday	
85	23-9-2021	Thursday	
86	24-9-2021	Friday	
87	25-9-2021	Saturday	Alumni Interaction for III Sem students Workshop on Advanced Python by Mr. Amar Sharma for III Sem. under professional Body activity
88	26-9-2021	Sunday	PUBLIC HOLIDAY
89	27-9-2021	Monday	
90	28-9-2021	Tuesday	Microsoft Learn Student Event for III sem by Microsoft Learn Student Ambassadors Taruni & Sonal. K on " Hands-on GitHub" Under CC Activity
91	29-9-2021	Wednesday	Guest Lecture on Theory of Automata by U.S.N.Raju for V-Sem A,B&C students under Professional Body Activity.
92	30-9-2021	Thursday	
October 2021			
93	1-10-2021	Friday	
94	2-10-2021	Saturday	Gandhi Jayanti
95	3-10-2021	Sunday	PUBLIC HOLIDAY
96	4-10-2021	Monday	

S. No.	Date	Day	Details of Activity / Public Holiday
97	5-10-2021	Tuesday	Code Chef Event by Student Ambassadors of V-Sem for III-A,B&C students. Under CC Activity
98	6-10-2021	Wednesday	**First Day of Bathukamma**
99	7-10-2021	Thursday	
100	8-10-2021	Friday	
101	9-10-2021	Saturday	Alumni Interaction for V Sem Students
102	10-10-2021	Sunday	PUBLIC HOLIDAY
103	11-10-2021	Monday	
104	12-10-2021	Tuesday	"VASAVI CODATHON – 2021"-Round-II on Online Coding Challenge in collaboration with M/s. Campus Corporate Connect (CCC) for V and VII Semester students of CSE and IT, for the academic year 2021-22.
105	13-10-2021	Wednesday	
106	14-10-2021	Thursday	
107	15-10-2021	Friday	**Vijaya Dashami**
108	16-10-2021	Saturday	Workshop on Advanced Python by Mr. Amar Sharma for III Sem. under professional Body activity.
109	17-10-2021	Sunday	PUBLIC HOLIDAY
110	18-10-2021	Monday	First spell of offline lab session for V sem students I internal for VII Sem students
111	19-10-2021	Tuesday	**Eid e Milad**
112	20-10-2021	Wednesday	First spell of offline lab session for V sem students I internal for VII Sem students
113	21-10-2021	Thursday	First spell of offline lab session for V sem students I internal for VII Sem students
114	22-10-2021	Friday	Guest Lecture on Compiler Construction by Dr. U. S. N. Raju for VII-Sem A,B students. Under Professional Body Activity First spell of offline lab session for V sem students I internal for VII Sem students
115	23-10-2021	Saturday	Guest Lecture on DCCN by Dr. Radha Krishna, NIT Warangal, for V-Sem A, B &C students. Under CC Activity Guest Lecture on Digital Image Processing by U. S. N. Raju for VII-Sem A, B Students. Under Professional Body Activity First spell of offline lab session for V sem students I internal for VII Sem students
116	24-10-2021	Sunday	PUBLIC HOLIDAY
117	25-10-2021	Monday	Researcher's Forum on "Computational Intelligence" organized by Dept of IT on 25-26 October 2021. Under Professional Body Activity First spell of offline lab session for VII sem students

S. No.	Date	Day	Details of Activity / Public Holiday
			I Internal for V sem Students
118	26-10-2021	Tuesday	Researcher's Forum on "Computational Intelligence" organized by Dept of IT on 25-26 October 2021. Under Professional Body Activity
119	27-10-2021	Wednesday	
120	28-10-2021	Thursday	
121	29-10-2021	Friday	
122	30-10-2021	Saturday	
123	31-10-2021	Sunday	PUBLIC HOLIDAY
November 2021			
124	1-11-2021	Monday	First spell of offline lab session for III sem students
125	2-11-2021	Tuesday	First spell of offline lab session for III sem students
126	3-11-2021	Wednesday	First spell of offline lab session for III sem students
127	4-11-2021	Thursday	**Diwali**
128	5-11-2021	Friday	First spell of offline lab session for III sem students
129	6-11-2021	Saturday	First spell of offline lab session for III sem students
130	7-11-2021	Sunday	PUBLIC HOLIDAY
131	8-11-2021	Monday	I internal for III Sem students
132	9-11-2021	Tuesday	I internal for III Sem students
133	10-11-2021	Wednesday	I internal for III Sem students
134	11-11-2021	Thursday	I internal for III Sem students
135	12-11-2021	Friday	"VASAVI CODATHON – 2021"-Round-III Build and Present Application in collaboration with M/s. Campus Corporate Connect (CCC) for V and VII Semester students of CSE and IT, for the academic year 2021-22.
136	13-11-2021	Saturday	Guest Lecture on Operating System by Dr. Emmanuel, Manipal University, Manipal for V-Sem A&B Students. Under CC Activity
137	14-11-2021	Sunday	PUBLIC HOLIDAY
138	15-11-2021	Monday	
139	16-11-2021	Tuesday	
140	17-11-2021	Wednesday	
141	18-11-2021	Thursday	
142	19-11-2021	Friday	**Karthika Purnima / Guru Nanak Jayanti**
143	20-11-2021	Saturday	Parent Teacher Meeting for III Sem students
144	21-11-2021	Sunday	PUBLIC HOLIDAY
145	22-11-2021	Monday	I SEM Induction Program (22- 27 November 2021)
146	23-11-2021	Tuesday	I SEM Induction Program (22- 27 November 2021)
147	24-11-2021	Wednesday	I SEM Induction Program (22- 27 November 2021)

S. No.	Date	Day	Details of Activity / Public Holiday
148	25-11-2021	Thursday	I SEM Induction Program (22- 27 November 2021)
149	26-11-2021	Friday	I SEM Induction Program (22- 27 November 2021)
150	27-11-2021	Saturday	I SEM Induction Program (22- 27 November 2021) Guest Lecture on DELD for III Sem students.
151	28-11-2021	Sunday	PUBLIC HOLIDAY
152	29-11-2021	Monday	
153	30-11-2021	Tuesday	
December -2021			
154	1-12-2021	Wednesday	
155	2-12-2021	Thursday	
156	3-12-2021	Friday	
157	4-12-2021	Saturday	Alumni Interaction for V-Sem Students of A&B
158	5-12-2021	Sunday	PUBLIC HOLIDAY
159	6-12-2021	Monday	
160	7-12-2021	Tuesday	
161	8-12-2021	Wednesday	
162	9-12-2021	Thursday	
163	10-12-2021	Friday	Android Hackathon for V sem students under CC Activity
164	11-12-2021	Saturday	
165	12-12-2021	Sunday	PUBLIC HOLIDAY
166	13-12-2021	Monday	Second spell of Lab classes for V Sem students
167	14-12-2021	Tuesday	Second spell of Lab classes for V Sem students
168	15-12-2021	Wednesday	Second spell of Lab classes for V Sem students Second Internal for VII sem Students
169	16-12-2021	Thursday	Second spell of Lab classes for V Sem students Second Internal for VII sem Students
170	17-12-2021	Friday	Second spell of Lab classes for V Sem students Second Internal for VII sem Students
171	18-12-2021	Saturday	Second spell of Lab classes for V Sem students Second Internal for VII sem Students
172	19-12-2021	Sunday	PUBLIC HOLIDAY
173	20-12-2021	Monday	Second Internal for V sem Students Second spell of Lab classes for VII Sem students
174	21-12-2021	Tuesday	Second Internal for V sem Students Second spell of Lab classes for VII Sem students
175	22-12-2021	Wednesday	Second Internal for V sem Students Second spell of Lab classes for VII Sem students
176	23-12-2021	Thursday	Second Internal for V sem Students Second spell of Lab classes for VII Sem students

S. No.	Date	Day	Details of Activity / Public Holiday
177	24-12-2021	Friday	Second Internal for V sem Students Second spell of Lab classes for VII Sem students
178	25-12-2021	Saturday	**Christmas Day**
179	26-12-2021	Sunday	**Boxing Day**
180	27-12-2021	Monday	Semester End lab Exams for V and VII Sem students Second spell of Lab classes for III Sem students
181	28-12-2021	Tuesday	
182	29-12-2021	Wednesday	
183	30-12-2021	Thursday	
184	31-12-2021	Friday	
January 2022			
185	1-1-2022	Saturday	
186	2-1-2022	Sunday	PUBLIC HOLIDAY
187	3-1-2022	Monday	Semester End lab Exams for V and VII Sem students
188	4-1-2022	Tuesday	Second Internal for III sem Students Semester End lab Exams for V and VII Sem students
189	5-1-2022	Wednesday	Second Internal for III sem Students Semester End lab Exams for V and VII Sem students
190	6-1-2022	Thursday	Second Internal for III sem Students Semester End lab Exams for V and VII Sem students
191	7-1-2022	Friday	Second Internal for III sem Students Semester End lab Exams for V and VII Sem students
192	8-1-2022	Saturday	Second Internal for III sem Students Semester End lab Exams for V and VII Sem students International Conference on Computational Intelligence and Data Analytics (ICCIDA) (8-9, Jan-2022)
193	9-1-2022	Sunday	International Conference on Computational Intelligence and Data Analytics (ICCIDA) (8-9, Jan-2022)
194	10-1-2022	Monday	Semester End lab Exams for III Sem students
195	11-1-2022	Tuesday	Semester End lab Exams for III Sem students
196	12-1-2022	Wednesday	Semester End lab Exams for III Sem students
197	13-1-2022	Thursday	Semester End lab Exams for III Sem students
198	14-1-2022	Friday	Semester End lab Exams for III Sem students
199	15-1-2022	Saturday	Semester End lab Exams for III Sem students
200	16-1-2022	Sunday	PUBLIC HOLIDAY
201	17-1-2022	Monday	Semester End lab Exams for III Sem students
202	18-1-2022	Tuesday	Semester End lab Exams for III Sem students
203	19-1-2022	Wednesday	Semester End lab Exams for III Sem students
204	20-1-2022	Thursday	Semester End lab Exams for III Sem students
205	21-1-2022	Friday	Semester End lab Exams for III Sem students

S. No.	Date	Day	Details of Activity / Public Holiday
206	22-1-2022	Saturday	Semester End lab Exams for III Sem students
207	23-1-2022	Sunday	PUBLIC HOLIDAY
208	24-1-2022	Monday	Semester End Theory exams for III Sem students
209	25-1-2022	Tuesday	Semester End Theory exams for III Sem students
210	26-1-2022	Wednesday	**Republic Day**
211	27-1-2022	Thursday	Semester End Theory exams for III Sem students
212	28-1-2022	Friday	Semester End Theory exams for III Sem students
213	29-1-2022	Saturday	Semester End Theory exams for III Sem students
214	30-1-2022	Sunday	PUBLIC HOLIDAY
215	31-1-2022	Monday	Semester End Theory exams for III Sem students
February 2022			
216	1-2-2022	Tuesday	Semester End Theory exams for III Sem students
217	2-2-2022	Wednesday	Semester End Theory exams for III Sem students
218	3-2-2022	Thursday	Semester End Theory exams for III Sem students
219	4-2-2022	Friday	Semester End Theory exams for III Sem students
220	5-2-2022	Saturday	Semester End Theory exams for III Sem students
221	6-2-2022	Sunday	
222	7-2-2022	Monday	Semester End Theory exams for III Sem students Course Registration by IV Sem Students Outreach Program for Local Youth (7-12, Feb 2022)
223	8-2-2022	Tuesday	Semester End Theory exams for III Sem students Course Registration by IV Sem Students Outreach Program for Local Youth (7-12, Feb 2022)
224	9-2-2022	Wednesday	Semester End Theory exams for III Sem students Course Registration by IV Sem Students Outreach Program for Local Youth (7-12, Feb 2022)
225	10-2-2022	Thursday	Semester End Theory exams for III Sem students Course Registration by IV Sem Students Outreach Program for Local Youth (7-12, Feb 2022)
226	11-2-2022	Friday	Semester End Theory exams for III Sem students Course Registration by IV, VI and VIII Sem Students Outreach Program for Local Youth (7-12, Feb 2022)
227	12-2-2022	Saturday	Semester End Theory exams for III Sem students Outreach Program for Local Youth (7-12, Feb 2022)
228	13-2-2022	Sunday	PUBLIC HOLIDAY
229	14-2-2022	Monday	Commencement of IV, VI and VIII Sem classwork
230	15-2-2022	Tuesday	
231	16-2-2022	Wednesday	
232	17-2-2022	Thursday	
233	18-2-2022	Friday	
234	19-2-2022	Saturday	Alumni Interaction for IV Sem Students

S. No.	Date	Day	Details of Activity / Public Holiday
			Introduction of Theme Based Projects by Dr. Raghavendra Kune, Adjunct Faculty & Scientist/Engineer 'SG', Head High performance computing Drones(HPCD), Advanced Data Processing Research Institute (ADRIN), Dept. of Space, ISRO. Under CC Activity
235	20-2-2022	Sunday	PUBLIC HOLIDAY
236	21-2-2022	Monday	
237	22-2-2022	Tuesday	
238	23-2-2022	Wednesday	
239	24-2-2022	Thursday	
240	25-2-2022	Friday	
241	26-2-2022	Saturday	Declaration of Results for BE III Sem Students Guest Lecture on "Algo Dynamics " by Dr. Venkatesh Choppalla , IIT Hyderabad. Under Professional Body Activity for IV Sem students.
242	27-2-2022	Sunday	PUBLIC HOLIDAY
243	28-2-2022	Monday	
March 2022			
244	1-3-2022	Tuesday	
245	2-3-2022	Wednesday	
246	3-3-2022	Thursday	Workshop on UML by Dr. Salman Abdul Moiz Professor SCIS, University of Hyderabad, Central University, Hyderabad for IV Sem students between 3-5 march 2022 under Professional Body Activity
247	4-3-2022	Friday	Workshop on UML by Dr. Salman Abdul Moiz Professor SCIS, University of Hyderabad, Central University, Hyderabad for IV Sem students between 3-5 march 2022 under Professional Body Activity
248	5-3-2022	Saturday	Workshop on UML by Dr. Salman Abdul Moiz Professor SCIS, University of Hyderabad, Central University, Hyderabad for IV Sem students between 3-5 march 2022 under Professional Body Activity Alumni Interaction for VI sem students
249	6-3-2022	Sunday	PUBLIC HOLIDAY
250	7-3-2022	Monday	
251	8-3-2022	Tuesday	
252	9-3-2022	Wednesday	
253	10-3-2022	Thursday	
254	11-3-2022	Friday	
255	12-3-2022	Saturday	Guest Lecture on AI & ML by Dr. Raghavendra Kune, Adjunct Faculty & Scientist/Engineer 'SG', Head High

S. No.	Date	Day	Details of Activity / Public Holiday
			performance computing Drones(HPCD), Advanced Data Processing Research Institute (ADRIN), Dept. of Space, ISRO. Under CC Activity.
256	13-3-2022	Sunday	PUBLIC HOLIDAY
257	14-3-2022	Monday	
258	15-3-2022	Tuesday	
259	16-3-2022	Wednesday	
260	17-3-2022	Thursday	
261	18-3-2022	Friday	Guest Lecture on SQL Querying Hands-on for IV-Sem Students under Professional Bodies Activity by Mr. Amit Gupta ,Adjunct Faculty, Sr. Data Scientist, CSEO, Microsoft India, Gachibowli (18-19 March 2022)
262	19-3-2022	Saturday	Guest Lecture on SQL Querying Hands-on for IV-Sem Students under Professional Bodies Activity by Mr. Amit Gupta ,Adjunct Faculty, Sr. Data Scientist, CSEO, Microsoft India, Gachibowli (18-19 March 2022)
263	20-3-2022	Sunday	PUBLIC HOLIDAY
264	21-3-2022	Monday	
265	22-3-2022	Tuesday	
266	23-3-2022	Wednesday	
267	24-3-2022	Thursday	
268	25-3-2022	Friday	
269	26-3-2022	Saturday	Guest Lecture on AIML to VI-Sem Students under CCA by Dr. Atul Negi, Professor, School of Computer & Information Sciences, University of Hyderabad
270	27-3-2022	Sunday	PUBLIC HOLIDAY
271	28-3-2022	Monday	
272	29-3-2022	Tuesday	
273	30-3-2022	Wednesday	
274	31-3-2022	Thursday	
April 2022			
275	1-4-2022	Friday	
276	2-4-2022	Saturday	Alumni Interaction for IV sem students
277	3-4-2022	Sunday	PUBLIC HOLIDAY
278	4-4-2022	Monday	I Internal exams for IV , VI & VII sem Students
279	5-4-2022	Tuesday	**Babu Jagjivan Ram Jayanti**
280	6-4-2022	Wednesday	I Internal exams for IV , VI & VII sem Students
281	7-4-2022	Thursday	I Internal exams for IV , VI & VII sem Students
282	8-4-2022	Friday	I Internal exams for IV , VI & VII sem Students
283	9-4-2022	Saturday	

S. No.	Date	Day	Details of Activity / Public Holiday
284	10-4-2022	Sunday	PUBLIC HOLIDAY
285	11-4-2022	Monday	
286	12-4-2022	Tuesday	
287	13-4-2022	Wednesday	
288	14-4-2022	Thursday	**Dr Ambedkar Jayanti**
289	15-4-2022	Friday	
290	16-4-2022	Saturday	Parent teacher Meeting for IV, VI, VIII sem students
291	17-4-2022	Sunday	PUBLIC HOLIDAY
292	18-4-2022	Monday	
293	19-4-2022	Tuesday	
294	20-4-2022	Wednesday	
295	21-4-2022	Thursday	
296	22-4-2022	Friday	
297	23-4-2022	Saturday	
298	24-4-2022	Sunday	PUBLIC HOLIDAY
299	25-4-2022	Monday	
300	26-4-2022	Tuesday	
301	27-4-2022	Wednesday	
302	28-4-2022	Thursday	
303	29-4-2022	Friday	
304	30-4-2022	Saturday	Guest Lecture on Introduction to Web Apps and Hosting a website for VI-Sem Students under Professional Bodies Activity by Mr. Amit Gupta ,Adjunct Faculty, Sr. Data Scientist, CSEO, Microsoft India, Gachibowli
May 2022			
305	1-5-2022	Sunday	PUBLIC HOLIDAY
306	2-5-2022	Monday	
307	3-5-2022	Tuesday	
308	4-5-2022	Wednesday	
309	5-5-2022	Thursday	
310	6-5-2022	Friday	
311	7-5-2022	Saturday	Alumni Interaction for VI sem students
312	8-5-2022	Sunday	PUBLIC HOLIDAY
313	9-5-2022	Monday	
314	10-5-2022	Tuesday	
315	11-5-2022	Wednesday	
316	12-5-2022	Thursday	
317	13-5-2022	Friday	
318	14-5-2022	Saturday	Guest Lecture on Career Counseling and How to prepare for Product Company for VI-Sem Students under CCA by Mr. Amit Gupta ,Adjunct Faculty, Sr. Data Scientist, CSEO,

S. No.	Date	Day	Details of Activity / Public Holiday
			Microsoft India, Gachibowli
319	15-5-2022	Sunday	PUBLIC HOLIDAY
320	16-5-2022	Monday	
321	17-5-2022	Tuesday	
322	18-5-2022	Wednesday	
323	19-5-2022	Thursday	
324	20-5-2022	Friday	
325	21-5-2022	Saturday	
326	22-5-2022	Sunday	PUBLIC HOLIDAY
327	23-5-2022	Monday	
328	24-5-2022	Tuesday	
329	25-5-2022	Wednesday	
330	26-5-2022	Thursday	
331	27-5-2022	Friday	
332	28-5-2022	Saturday	Workshop on Big Data Analytics using HADOOP for VI-Sem Students under Professional Bodies Activity by Mr. Amar Sharma, Adjunct Faculty, Founder & CEO-M/s. Woir Software India Pvt. Ltd.
333	29-5-2022	Sunday	PUBLIC HOLIDAY
334	30-5-2022	Monday	
335	31-5-2022	Tuesday	II Internal exams for IV , VI & VII sem Students
June 2022			
336	1-6-2022	Wednesday	II Internal exams for IV , VI & VII sem Students
337	2-6-2022	Thursday	II Internal exams for IV , VI & VII sem Students
338	3-6-2022	Friday	II Internal exams for IV , VI & VII sem Students
339	4-6-2022	Saturday	II Internal exams for IV , VI & VII sem Students
340	5-6-2022	Sunday	PUBLIC HOLIDAY
341	6-6-2022	Monday	LAB SEE EXAMS for IV , VI and VIII Sem Studnets
342	7-6-2022	Tuesday	LAB SEE EXAMS for IV , VI and VIII Sem Studnets
343	8-6-2022	Wednesday	LAB SEE EXAMS for IV , VI and VIII Sem Studnets
344	9-6-2022	Thursday	LAB SEE EXAMS for IV , VI and VIII Sem Studnets
345	10-6-2022	Friday	LAB SEE EXAMS for IV , VI and VIII Sem Studnets
346	11-6-2022	Saturday	LAB SEE EXAMS for IV , VI and VIII Sem Studnets
347	12-6-2022	Sunday	PUBLIC HOLIDAY
348	13-6-2022	Monday	LAB SEE EXAMS for IV , VI and VIII Sem Students
349	14-6-2022	Tuesday	LAB SEE EXAMS for IV , VI and VIII Sem Students
350	15-6-2022	Wednesday	LAB SEE EXAMS for IV , VI and VIII Sem Students
351	16-6-2022	Thursday	LAB SEE EXAMS for IV , VI and VIII Sem Students
352	17-6-2022	Friday	LAB SEE EXAMS for IV , VI and VIII Sem Students
353	18-6-2022	Saturday	LAB SEE EXAMS for IV , VI and VIII Sem Students

S. No.	Date	Day	Details of Activity / Public Holiday
354	19-6-2022	Sunday	PUBLIC HOLIDAY
355	20-6-2022	Monday	Semester End Exams for IV, VI & VIII Sem students FDP on Block Chain / Computer Vision (20-25 June 2022)
356	21-6-2022	Tuesday	Semester End Exams for IV, VI & VIII Sem students FDP on Block Chain / Computer Vision (20-25 June 2022)
357	22-6-2022	Wednesday	Semester End Exams for IV, VI & VIII Sem students FDP on Block Chain / Computer Vision (20-25 June 2022)
358	23-6-2022	Thursday	Semester End Exams for IV, VI & VIII Sem students FDP on Block Chain / Computer Vision (20-25 June 2022)
359	24-6-2022	Friday	Semester End Exams for IV, VI & VIII Sem students FDP on Block Chain / Computer Vision (20-25 June 2022)
360	25-6-2022	Saturday	Semester End Exams for IV, VI & VIII Sem students FDP on Block Chain / Computer Vision (20-25 June 2022)
361	26-6-2022	Sunday	PUBLIC HOLIDAY
362	27-6-2022	Monday	Semester End Exams for IV, VI & VIII Sem students
363	28-6-2022	Tuesday	Semester End Exams for IV, VI & VIII Sem students
364	29-6-2022	Wednesday	Semester End Exams for IV, VI & VIII Sem students
365	30-6-2022	Thursday	Semester End Exams for IV, VI & VIII Sem students
July 2022			
366	1-7-2022	Friday	Semester End Exams for IV, VI & VIII Sem students
367	2-7-2022	Saturday	Semester End Exams for IV, VI & VIII Sem students
368	3-7-2022	Sunday	PUBLIC HOLIDAY
369	4-7-2022	Monday	Semester End Exams for IV, VI & VIII Sem students
370	5-7-2022	Tuesday	Semester End Exams for IV, VI & VIII Sem students
371	6-7-2022	Wednesday	Semester End Exams for IV, VI & VIII Sem students
372	7-7-2022	Thursday	Semester End Exams for IV, VI & VIII Sem students
373	8-7-2022	Friday	Semester End Exams for IV, VI & VIII Sem students
374	9-7-2022	Saturday	Semester End Exams for IV, VI & VIII Sem students
375	10-7-2022	Sunday	PUBLIC HOLIDAY
376	11-7-2022	Monday	Workshop on Introduction to Data Analytics for V-Semester IT A&B by Mr. Amit Gupta ,Adjunct Faculty, Sr. Data Scientist, CSEO, Microsoft India, Gachibowli (11-13 July 2022)
377	12-7-2022	Tuesday	Workshop on Introduction to Data Analytics for V-Semester IT A&B by Mr. Amit Gupta ,Adjunct Faculty, Sr. Data Scientist, CSEO, Microsoft India, Gachibowli (11-13 July 2022
378	13-7-2022	Wednesday	Workshop on Introduction to Data Analytics for V-Semester IT A&B by Mr. Amit Gupta ,Adjunct Faculty, Sr. Data Scientist, CSEO, Microsoft India, Gachibowli (11-13 July

S. No.	Date	Day	Details of Activity / Public Holiday
			2022
379	14-7-2022	Thursday	
380	15-7-2022	Friday	
381	16-7-2022	Saturday	Mock Interviews by Alumni for (2023 passing out) students
382	17-7-2022	Sunday	Mock Interviews by Alumni for (2023 passing out) students
383	18-7-2022	Monday	
384	19-7-2022	Tuesday	
385	20-7-2022	Wednesday	
386	21-7-2022	Thursday	
387	22-7-2022	Friday	
388	23-7-2022	Saturday	Mock Interviews by Alumni for (2023 passing out) students
389	24-7-2022	Sunday	Mock Interviews by Alumni for (2023 passing out) students