VASAVI COLLEGE OF ENGINEERING
(AUTONOMOUS)

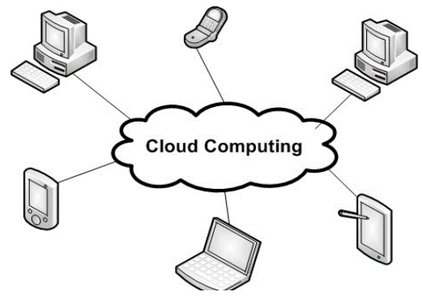
IBRAHIMBAGH, HYDERABAD-500 031

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) V and VI Semesters with effect from 2021-22
(For the batch admitted in 2019-20)
(R-19)



DEPARTMENT OF INFORMATION TECHNOLOGY
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Website: www.vce.ac.in

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

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.

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

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.

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
SCHEME OF INSTRUCTION AND EXAMINATION (R-19)
B.E. – INFORMATION TECHNOLOGY : FIFTH SEMESTER (2021 - 2022)

B.E (IT) V-SEMESTER								
Course Code	**Course Name**	**Scheme of Instruction**			**Scheme of Examination**			
		Hours per week			**Duration in Hrs**	**Maximum Marks**		**Credits**
		L	**T**	**P/D**		**SEE**	**CIE**	
U19PC510IT	Data Communications and Computer Networks	3	1	-	3	60	40	4
U19PC520IT	Microprocessors & Interfacing	3	-	-	3	60	40	3
U19PC530IT	Operating Systems	3	-	-	3	60	40	3
U19PC540IT	Automata, Languages and Computation	3	-	-	3	60	40	3
U19OE5XXXX	Open Elective - III	3	-	-	3	60	40	3
U19HS510EH	Skill Development Course-V : Soft Skills	1	-	-	2	40	30	1
U19PE510IT	Skill Development Course -VI : Technical Skills	1	-	-	2	40	30	1
PRACTICALS								
U19PC511IT	Computer Networks lab	-	-	2	3	50	30	1
U19PC521IT	Microprocessors & Interfacing Lab	-	-	2	3	50	30	1
U19PC531IT	Operating Systems Lab	-	-	2	3	50	30	1
U19PW519IT	Mini Project – II	-	-	2	-	-	30	1
	CCA-III : Paper Presentation	-	-	-	**-**	**-**	**-**	**-**
	ECA-II	-	-	-	**-**	**-**	**-**	**-**
	Library / Sports / Proctorial Interaction	-	-	-	-	-	-	-
Student should acquire one online certification course equivalent to 2 credits during III-VII Semesters.								
	Total	**17**	**1**	**8**	**-**	**530**	**380**	**22**
	Grand Total	**26**			**-**	**910**		

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

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DEPARTMENT OF INFORMATION TECHNOLOGY

DATA COMMUNICATIONS AND COMPUTER NETWORKS

Syllabus for B.E V- SEMESTER

L:T:P(Hrs./week): 3:1:0	SEE Marks :60	Course Code:**U19PC510IT**
Credits : 4	CIE Marks :40	Duration of SEE : 3 Hours

COURSE OBJECTIVES	COURSE OUTCOMES
The Objectives of the course:	*On completion of the course, students will be able to*
1. Introduce the fundamental concepts of Data Communications and computer networks. 2. Describe the layers, protocols and services in ISO-OSI and TCP/IP Models.	1. Compare ISO-OSI with TCP/IP models and understand data transmission in physical layer. 2. Examine various techniques and protocols of data link layer to enable node to node delivery. 3. Analyse different routing protocols and algorithms to enable end-to-end connectivity. 4. Analyse different transport layer protocols and congestion control mechanisms to enable process to process delivery. 5. Illustrate different application layer protocols including DNS, EMAIL, FTP, HTTP and SNMP.

UNIT I:
Introduction: Data communication, network applications, Data flow, network types, topologies, Protocols and standards, OSI and TCP/IP Protocol Suite.
Physical Layer: Introduction to Data and Signals, Transmission media (wired and wireless), Switching.

UNIT II:
Data Link Layer: Design issues, framing, error detection and correction, parity, LRC, CRC, hamming code, elementary data link protocols- Stop-and-wait, sliding window protocols.
Medium Access sublayer: ALOHA, CSMA/CD, LAN Standards: IEEE 802.3, IEEE 802.11.

UNIT III:
Network Layer: Network layer design issues, routing algorithms- Shortest Path Routing, Flooding, Distance Vector Routing, Link State Routing, IPV4, IPV6, Internet, Internet Control protocols - ARP, RARP, DHCP.

UNIT IV:
Transport Layer: Process to Process Communication, User Datagram Protocol (UDP), Transmission Control Protocol (TCP), Congestion control algorithms, Quality of Service.

UNIT V:
Application Layer: Domain Name System (DNS), EMAIL, File Transfer Protocol (FTP), WWW, HTTP, SNMP.

Learning Resources:

1. Data Communication and Networking, 4th Edition, Behrouz A. Forouzan, McGrawHill.
2. Andrew S Tanenbaum, David J. Wetherall, Computer Networks, 5th Edition, Pearson, 2012.
3. Data and Computer Communication, 8th Edition, William Stallings, Pearson Prentice Hall India
4. James F. Kurose, Keith W. Ross, "Computer Networking, A Top-Down Approach Featuring the Internet", Sixth Edition, Pearson Education, 2012.
5. https://nptel.ac.in/courses/106105183/25
6. http://www.nptelvideos.in/2012/11/computer-networks.html
7. https://nptel.ac.in/courses/106105183/3

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:	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)
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DEPARTMENT OF INFORMATION TECHNOLOGY

MICROPROCESSORS AND INTERFACING

SYLLABUS FOR V-SEMESTER

L: T:P (Hrs./week): 3:0:0	SEE Marks :60	Course Code: **U19PC520IT**
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 understand the architectural features of 8085 and 8086 microprocessors and use them in assembly language programming and interfacing with different peripherals.	1. Describe 8085 architecture features and program it. 2. Summarize the 8086 architecture and its special architectural features, do assembly language programming for 8086 3. Understand the architectures of 8255 and 8279, analyze and develop Interfacing circuits for memory and I/O. 4. Understand DOS and BIOS function calls, explain the architectural features of 8259 and 8253, analyze and design interfacing circuits. 5. Learn architectural features of 8251 and 8257, analyze and develop interfacing circuits.

UNIT – I:
General definitions of microprocessors and microcontrollers, micro processor architecture and its operations, 8085 microprocessor Architecture and signal descriptions, 8085 instructions and addressing modes , Instruction cycle, machine cycle, T-states, counters and time delays, stacks and subroutines, assembly language programming examples

UNIT – II:
8086/8088 Architectures, pin diagrams and timing diagrams: Register Organization, Architecture, signal descriptions, physical memory organization, General bus operation, I/O Addressing capability, Minimum and Maximum mode of 8086 System and Timings.
8086/8088 Instruction set and assembler directives: Instruction formats, Addressing modes of 8086, Instruction set of 8086/8088, Assembler directives and operators, Assembly language programming with 8086/8088
Special architectural features and related programming: Stack, Stack Structure of 8086/8088, Interrupts and ISRs, Interrupt cycle, Maskable and Non maskable Interrupts, procedures and macros, Coprocessor.

UNIT – III:
Basic peripherals and their interfacing with 8086/8088: Semiconductor memory Interfacing, Dynamic RAM interfacing, Interfacing I/O ports, PIO 8255, modes of operation of 8255, Interfacing ADC, DAC, Stepper Motor, The Keyboard/ Display controller 8279, programming examples.

UNIT – IV:
Programmable Peripheral devices and their Interfacing with 8086 : 8259A programmable interrupt controller, 8253 programmable interval timer, DOS and BIOS function calls.

UNIT – V:
Programmable communication Interface 8251 USART, DMA Controller 8257. DMA Transfers and operations, Introduction to advanced processors.

Learning Resources :

1. Ramesh S. Gaonkar, Microprocessor Architecture, Programming and Applications with the 8085, 5/E, Prentice Hall, 2002.
2. A.K.Ray and K.M.Bhurchandi, Advanced Microprocessors and peripherals 2nd edition Tata McGrawHill, 2006.
3. Douglas V. Hall, Microprocessors and Interfacing: Programming and Hardware, Tata McGraw- Hill Publishing Company Limited, 2006.
4. Barry B.Brey,The Intel Microprocessors 8086, 8088, 80188, 80186, 80286, 80386, 80486, and Pentium Processors, Pearson Education, 8th Edition, 2009.
5. I. Liu, G. A. Gibson, Microcomputer Systems: The 8086/8088 Family, 2nd Ed., Prentice Hall, 1986.
6. N. Sentil Kumar, M. Saravanan, S. Jeevananthan, S.K. Shah, Microprocessors and Interfacing, Oxford University Press, 2012.
7. https://nptel.ac.in/courses/108105102/53

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)
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DEPARTMENT OF INFORMATION TECHNOLOGY

OPERATING SYSTEMS

Syllabus for B.E V- SEMESTER

L:T:P (Hrs./week): 3:0:0	SEE Marks : 60	Course Code : **U19PC530IT**
Credits : 3	CIE Marks : 40	Duration of SEE : 3 Hours

COURSE OBJECTIVES	COURSE OUTCOMES
The Objectives of the course:	*On completion of the course, students will be able to:*
1. Demonstrate the principles of modern operating systems and functionalities. 2. Discuss the services of major operating systems such as Windows and Linux.	1. Understand the functionalities of Operating System, Process, threads and evaluate CPU scheduling algorithms. 2. Apply contiguous & non- contiguous techniques for main memory management. 3. Design solutions for classical problems of synchronization and strategies for deadlock handling. 4. Implement techniques for file organization, I/O operation, and system protection. 5. Compare and contrast key features and functionalities of Windows and LINUX.

UNIT-I: Introduction and Process Management:
Operating System Functionalities, Types of Operating Systems, User Operating System Interface, System calls, System Boot. Process Concept: Overview, Threads. Process Scheduling - Uniprocessor scheduling algorithms, Multiprocessor and Real-time scheduling algorithms.

UNIT-II: Memory Management:
Background, Swapping, Contiguous Memory Allocation, Paging, Segmentation. Virtual Memory Management: Demand Paging, Page replacement algorithms, Thrashing, Allocating Kernel Memory.

UNIT-III: Process Synchronization:
Inter Process Communication, Process Synchronization - Peterson's Solution, Bakery Algorithm, Semaphores, Critical Section, Monitors. Classical problems of synchronization. Deadlocks: Deadlock prevention, deadlock avoidance and Deadlock Detection and Recovery - Bankers Algorithm.

UNIT-IV:Storage and I/O Management:
File System-Basic Concepts, File System Structure, File System Mounting, Directory Structure, Allocation Methods, Free Space Management. I/O Management: Disk Structure, RAID Structure, Disk Scheduling, Protection :Goals of Protection, Principles of Protection, Domain of Protection, Access Matrix.

UNIT-V
Case Study: Windows 7 : Design Principles, System Components, Terminal Services & Fast User Switching, File System, Networking, Programmer Interface. **Case Study: The Linux System :** Design Principles, Kernel Modules, Process Management, Scheduling, Memory Management, File System, Input Output, Inter Process Communication, Network Structure, Security.

Learning Resources:

1. Operating System Concepts - Operating System Concepts, Ninth Edition, Abraham Silberschatz, Peter Baer Galvin, Greg Gagne, John Wiley & Sons Inc.
2. Modern Operating Systems- Andrew S Tanenbaum, Prentice Hall
3. Operating Systems - Operating System: Internals and Design Principles , William Stallings
4. Operating Systems - System Programming and Operating Systmes D M Dhamdhere, Tata Mc Graw Hill
5. Operating Systems - Operating Systems: A Modern Perspective, Gary Nutt, Addison Wesley
6. Operating Systems - Operating Systems, Achyut S Godbole, Tata Mc Graw Hill
7. Design of the Unix Operating System - Maurice Bach, Prentice Hall.
8. https://nptel.ac.in/courses/106108101/
9. https://www.classcentral.com/course/udacity-introduction-to-operating-systems-3419

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**

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DEPARTMENT OF INFORMATION TECHNOLOGY

AUTOMATA, LANGUAGES AND COMPUTATION

Syllabus for B.E V-SEMESTER

L:T:P (Hrs./week): 3:0:0	SEE Marks : 60	Course Code : **U19PC540IT**
Credits : 3	CIE Marks : 40	Duration of SEE : 3 Hrs

COURSE OBJECTIVES	COURSE OUTCOMES *On completion of the course, students will be able to*
Introduce central concepts in theory of computation and to design grammars and recognizers for different formal languages, and also to determine the decidability and intractability of computational problems.	1. Design finite automata, RE's for a given language. 2. Define properties of RL's, Design grammars, minimize FA and also apply the concept of pumping lemma to prove that certain languages are not regular. 3. Design PDA's for various CFG's and CFL's, simplify the CFG's, define properties of CFL's. 4. Define programming techniques of Turing machines and design Turing machines for decidable problems 5. Apply mathematical and formal techniques for solving problems in computer science and also define concepts of computability theory, and complexity theory.

UNIT I:

Finite Automata: Introduction, Central Concepts of Automata Theory, Deterministic Finite Automata, Nondeterministic Finite Automata, NFA to DFA Conversion, Finite Automata with Epsilon Transitions, Equivalence between NFA with and without Epsilon Transitions.

Regular Expressions: Regular Expressions, Identity Rules for Regular Expressions, Algebraic Laws for Regular Expressions, Equivalence between Finite Automata and Regular Expressions, Applications of Finite Automata and Regular Expressions.

UNIT II:

Properties of Regular Languages: Pumping Lemma for Regular Languages, Closure Properties of Regular Languages, Decision Properties of Regular Languages, Equivalence between two FSM's, Minimization of Finite Automata.

Grammars and Languages: Chomsky Hierarchy of Languages, Grammars and Languages Generated, Context-Free Grammars, Derivations, Parse Trees, Ambiguity in Grammars and Languages.

UNIT III :

Pushdown Automata: Introduction, Formal Definition and Behavior of PDA, Language of PDA, Design of PDA, Equivalence of PDA and CFG's, DPDA.

Properties of Context Free Languages: Simplification of CFG's, Normal Forms for CFG's: CNF and GNF, Pumping Lemma for Context Free Languages, Closure Properties of Context Free Languages, Decision Properties of Context Free Languages

UNIT IV :

Turing Machines: Introduction, Formal Definition and Behavior of TM, Language of a TM, Design of TM's, Programming Techniques for TM's, Extensions to the TM's, Restricted TM's.

UNIT V :

Undecidability: Recursive and Recursively Enumerable Languages, Properties of Recursive and Recursively Enumerable Languages, The Church-Turing Thesis, A Language that is not Recursively Enumerable, An Undecidable Problem that is RE, PCP and MPCP.

Learning Resources:

1. John E.Hopcroft, Rajeev Motwani, Jeffery D Ulman, Introduction to Automata Theory Languages And Computation, Third edition, Pearson Education.
2. Theory of Computer Science- Automata languages and computation –Mishra and Chandrashekaran, Third edition, PHI
3. Michael Sipser, Introduction to Theory of Computation, 3rd Edition, Course Technology, 2012.
4. K.Krithivasan and R.Rama; Introduction to Formal Languages, Automata Theory and Computation; Pearson Education, 2009.
5. John C. Martin, Introduction to Languages and The Theory of computation, Third edition, Tata McGraw Hill, 2003.
6. https://nptel.ac.in/courses/106106049/
7. https://nptel.ac.in/courses/106104028/

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)
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DEPARTMENT OF INFORMATION TECHNOLOGY

COMPUTER NETWORKS LAB
SYLLABUS FOR B.E. V SEMESTER

L:T:P(Hrs./week): 0:0:2	SEE Marks :50	Course Code:**U19PC511IT**
Credits : 1	CIE Marks :30	Duration of SEE : 3 Hours

COURSE OBJECTIVES	**COURSE OUTCOMES** *On completion of the course, students will be able to*
Understand the use of client/server architecture in application development, use Input/Output API to implement network applications, to develop simple network monitoring services.	1. Demonstrate the usage of socket APIs 2. Apply the basics of network programming to perform Input/Output operations in the network. 3. Use of different protocols and network programming concepts to develop client-server applications. 4. Implementation of different services like ping, time and date service

1. Understanding and using of commands like ifconfig, DNS, netstat, ping, arp, telnet, ftp, finger, traceroute, whois etc.
2. Usage of elementary socket system calls[socket(),bind(),listen(), accept(),connect(),send(), recv(), sendto(), recvfrom()].
3. Implementation of Connection oriented iterative service (TCP).
4. Implementation of Connection oriented concurrent service (TCP).
5. Implementation of Connectionless Iterative service (UDP).
6. Implementation of Connectionless concurrent service (UDP).
7. Implementation of Time service and Date service using RPC.
8. Implementation of Ping service.
9. Implement CRC, bit stuffing, byte stuffing.

Note: Implement programs in C programming using LINUX platform.

Content Beyond Syllabus:
1. Implementation of HTTP.
2. Implementation of Concurrent chat server(current Logged in users)

Learning Resources:
1. W. Richard Stevens, "Unix Network Programming", Prentice Hall, PearsonEducation,2009.
2. Douglas E.Comer, "Hands-on Networking with Internet Technologies", Pearson Education.
3. https://nptel.ac.in/courses/106105183/25
4. http://www.nptelvideos.in/2012/11/computer-networks.html
5. https://nptel.ac.in/courses/106105183/3

No. of Internal Tests:	02	Max. Marks for Internal Test:	12
Marks for assessment of each experiment			18
Duration of Internal Test: 2Hours			

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DEPARTMENT OF INFORMATION TECHNOLOGY

MICROPROCESSORS AND INTERFACING LAB

SYLLABUS FOR B.E. V SEMESTER

L:T:P(Hrs./week): 0:0:2	SEE Marks :50	Course Code: **U19PC521IT**
Credits : 1	CIE Marks :30	Duration of SEE : 3 Hours

COURSE OBJECTIVES	COURSE OUTCOMES *On completion of the course, students will be able to*
The course will enable the students to write assembly language programs using 8085 and 8086 microprocessors.	1. Do basic assembly language programming using 8085 microprocessor 2. Do basic assembly language programming using 8086 microprocessor. 3. Interface various peripherals to 8086 microprocessor.

1. Assembly Language programming with 8085, 8086 .
2. Interfacing and programming of 8255.
3. Interfacing and programming of 8253/8254.
4. Interfacing and programming of 8279.
5. A/D and D/A converter interface.
6. Stepper motor interface.
7. Display interface

Note: Adequate number of programs covering all the instructions of 8085 & 8086 instruction set. Experiments should be done on the 8085, 8086 microprocessor trainer kits and Assembler

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: 2Hours

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
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DEPARTMENT OF INFORMATION TECHNOLOGY

OPERATING SYSTEMS LAB
SYLLABUS FOR B.E. V SEMESTER

L:T:P(Hrs./week): 0:0:2	SEE Marks :50	Course Code: **U19PC531IT**
Credits : 1	CIE Marks :30	Duration of SEE : 3 Hours

Course Objective:	**Course Outcomes:**
The course will enable the students to:	**At the end of the course student will be able to:**
Learn the usage of system calls along with applying the concepts of inter process communication and process synchronization.	1. Write programs which interact with the operating system using system calls . 2. Write programs to demonstrate inter process communication. 3. Write programs to demonstrate process synchronization. 4. Write programs for threads creation and manipulation.

1. Familiarity and usage of system calls of Linux on
   a) File management (open,close, read, write, open dir, readdir, stat etc)
   b) Process management (fork, exec ,getpid, wait exit etc)
2. Implement a program to get and set the environment variables using system calls.
3. Implementation of Echo server using pipes.
4. Implementation of Echo server using shared memory.
5. Implementation of Echo server using messages.
6. Implementation of Producer Consumer Problem using semaphores.
7. Implementation of Producer Consumer Problem using message passing.
8. Implementation of Reader-writer problem using semaphores.
9. Implementation of Dining philosophers problem using semaphores.
10. Creating threads and manipulating under Linux platform.

Learning Resources:

1. W. Richard Stevens, Unix Network Programming, Prentice Hall/Pearson Education,2009.
2. http://profile.iiita.ac.in/bibhas.ghoshal/teaching_os_lab.html

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: 2Hours

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DEPARTMENT OF INFORMATION TECHNOLOGY
SYLLABUS FOR B.E. V SEMESTER

MINI PROJECT-II

Instruction: 2Hrs /week	**SEE Marks** :--	**Course Code** : **U19PW519IT**
Credits : 1	**CIE Marks** : 30	**Duration of SEE** :--

COURSE OBJECTIVES	COURSE OUTCOMES
	On completion of the course, students will be able to
1. Promote project-based learning by working on societal problems. 2. Encourage individual and teamwork, communication, life-long learning and follow professional ethics.	1. Review the existing literature/ models to identify the scope for extension. 2. Apply technical knowledge to develop novel solutions for real life problems. 3. Plan and execute projects by following effective software development life cycle. 4. Design and demonstrate the prototypes. 5. Practice professional ethics, teamwork and lifelong learning.

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.

OPEN ELECTIVES OFFERED BY VARIOUS DEPARTMENTS IN B.E. V SEMESTER

Dept	Title	Code	credits
Civil	Spatial Information Technology	U19OE510CE	3
CSE	Principles of Data Structures	U19OE510CS	3
ECE	Sensors for Engineering Applications	U19OE510EC	3
ECE	Mathematical Programming for Engineers	U19OE010EC	3
EEE	Solar Power and applications	U19OE510EE	3
Mech.	Introduction to Robotics	U19OE510ME	3
Mech.	Introduction to Automobile Engineering	U19OE520ME	3
Maths.	Numerical Methods	U19OE510MA	3
Physics	Thin Film Technology and Applications	U190E52OPH	3
HSS	Technical Writing and Professional Presentations	U190E51OEH	3

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

SPATIAL INFORMATION TECHNOLOGY
(Open Elective-III)
SYLLABUS FOR B.E. V SEMESTER

L : T : P (Hrs./week):3:0: 0	SEE Marks:60	Course Code: **U19OE510CE**
Credits : 3	CIE Marks:40	Duration of SEE:3 Hrs

COURSE OBJECTIVES	COURSE OUTCOMES
Objectives of this course are to	Upon the completion of the course, students are expected to
1. To provide fundamental knowledge on geo spatial technology such as Remote sensing GPS and GIS.	1. Select the type of remote sensing technique/data, identify and analyze the earth surface features from the satellite images. 2. Identify GPS components, interpret the navigational message and signals received by the GPS satellites, Identify the error sources and apply corrections for accurate positioning. 3. Analyse the basic components of GIS, process spatial and attribute data, identify and rectify mapping inaccuracies and prepare thematic maps

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

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

Unit III: Global positioning Systems (GPS) : Overview of GNSS and Introduction to GPS, GLONASS, GALILEO, COMPASS, IRNSS systems , Applications of GPS.

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

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

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

Unit V: Basic Concepts: Introduction to GIS, History of GIS, Early development in GIS, Areas of GIS application, Components of GIS, Overview of GIS Software packages, Current issues and Trends in GIS.

Variables-Point, line, polygon, Geographic coordinate system, Map projections, Map Analysis.

GIS Data: Data types – spatial, non-spatial (attribute data) – data structure, data format – point line vector – Raster – Polygon

Data Input : Keyboard entry, Manual Digitizing, Scanner, Remotely sensed data, Existing Digital data Cartographic database, Digital elevation data

Data Editing: Detection and correction of errors, data reduction, edge matching

Learning Resources:

1. James B. Campbell & Randolph H. Wynne., Introduction to Remote Sensing, The Guilford Press, 2011
2. Lillesand, Kiefer, Chipman., Remote Sensing and Image Interpretation, Seventh Edition, 2015
3. Leick, A., GPS Satellite Survey, John Wiley: NJ, 2015
4. Hofmann, B., Lichtenegger H. and Collins J., Global Positioning System: Theory and Practice, Springer: Berlin, 2011.
5. Basudeb Bhatta, Remote Sensing and GIS, Oxford University Press, 2011.
6. Hofmann-Wellenh of, Bernhard, Lichtenegger, Herbert, Wasle, Elmar, GNSS – GPS, GLONASS, Galileo and more, 2013
7. Thanappan Subash., Geographical Information System, Lambert Academic Publishing, 2011.
8. Paul Longley., Geographic Information systems and Science, John Wiley & Sons, 2005
9. John E. Harmon & Steven J. Anderson., The design and implementation of Geographic Information Systems, John Wiley & Sons, 2003
10. ArcGIS 10.1 Manuals, 2013.
11. Kang Tsung Chang., Introduction to Geographic Information Systems, Tata Mc Graw Hill Publishing Company Ltd, New Delhi, 2008.
12. Burrough, P.A., Principles of GIS for Land Resource Assessment, Oxford Publications, 2005.

13. C.P.Lo & Albert K. W.Yeung, Concepts and Techniques of Geographic Information Systems, Prentice Hall India Pvt.Ltd, 2002.

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 COMPUTER SCIENCE AND ENGINEERING

PRINCIPLES OF DATA STRUCTURES (OPEN ELECTIVE-III)
SYLLABUS FOR B.E. V SEMESTER

L : T : P(Hrs./week): 3	SEE Marks:60	Course Code: **U19OE510CS**
Credits: 3	CIE Marks :40	Duration of SEE: 3 Hrs

COURSE OBJECTIVES	**COURSE OUTCOMES**
Objectives of this course are to:	At the end of the course, students will be able to:
1. Understand Basic linear and non-linear data structures and learn techniques of recursion 2. Understand concepts of Linked lists 3. Understand Concepts of Stacks and queues 4. Understand Concepts of Trees 5. Understand Concepts of Graphs and different sorting and searching techniques and their complexities.	1. Understand the basic concepts of data structures. 2. Understand the notations used to analyze the performance of algorithms. 3. Choose and apply an appropriate data structure for a specified application. 4. Understand the concepts of recursion and its applications in problem solving. 5. Demonstrate a thorough understanding of searching and sorting algorithms.

UNIT-I

Introduction: Data Types, Data structures, Types of Data Structures, Operations, ADTs, Algorithms, Comparison of Algorithms, Complexity, Time- space tradeoff.

Recursion: Introduction, format of recursive functions, recursion Vs. Iteration, examples.

UNIT-II

Linked Lists: Introduction, Linked lists and types, Representation of linked list, operations on linked list, Comparison of Linked Lists with Arrays and Dynamic Arrays.

UNIT-III

Stacks and Queues: Introduction to stacks, applications of stacks, implementation, and comparison of stack implementations. Introduction to queues, applicationsof queues and implementations, Priority Queues and applications.

UNIT-IV

Trees: Definitions and Concepts, Operations on Binary Trees, Representation of binary tree, Conversion of General Trees to Binary Trees, Representations ofTrees, Tree Traversals, Binary search Tree.

UNIT-V

Searching and Sorting: Linear searching, binary Searching, sorting algorithms: bubble sort, selection sort, quick sort, merge sort.

Textbooks:

1. Narasimha Karumanchi, "Data Structures and Algorithms MadeEasy", Career Monk Publications, 2017
2. Horowitz E, Sahni S., and Susan Anderson-Freed," Fundamentals ofData structures in C", Silicon Pr; 2 edition (1 August 2007)
3. ReemaThareja, "Data Structures using C", Oxford, 2014.

Reference Books:

1. Kushwaha D. S. and Misra A. K, "Data structures A ProgrammingApproach with C", PHI.
2. Seymour Lipschutz," Data Structures with C", McGraw Hill Education,2017.

Learning Resources:

1. https://www.tutorialspoint.com/data_structures_algorithms/index.htm
2. https://www.edx.org/course/foundations-of-data-structures
3. https://sites.google.com/site/merasemester/data-structures

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

ACCREDITED BY NAAC WITH 'A++' GRADE

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

SENSORS FOR ENGINEERING APPLICATIONS (OPEN ELECTIVE)

SYLLABUS FOR B.E. V - SEMESTER (for other branches)

L:T:P (Hrs./week) : 3:0:0	SEE Marks : 60	Course Code: **U19OE510EC**
Credits : 3	CIE Marks : 40	Duration of SEE : 3 Hours

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

UNIT - I

Introduction to sensors and transducers .Need for sensors in the modern world. Different fields of sensors based on the stimuli - various schematics for active and passive sensors. Static and dynamic characteristics of sensors - zero, I and II order sensors – Response to impulse, step, ramp and sinusoidal inputs. Environmental factors and reliability of sensors.

UNIT – II

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

UNIT – III

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

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

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

UNIT – IV

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

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

UNIT – V

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

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

MEMs and MEM based sensors.

Learning Resources :

1. Doebelin, "Measurement Systems: Application and Design", McGraw Hill Kogakusha Ltd.
2. Julian W. Gardner, Vijay K. Varadan, Osama O. Awadelkarim "Microsensors, MEMS and Smart Devices", New York: Wiley, 2001.
3. Henry Bolte, "Sensors – A Comprehensive Sensors", John Wiley.
4. Jocob Fraden," Handbook of Modern Sensors, Physics, Designs, and Applications", Springer.
5. Manabendra Bhuyan," Intelligent Instrumentation Principles and Applications", CRC Press.
6. Randy Frank," Understanding Smart Sensors", Second edition, Artech House.

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
ACCREDITED BY NAAC WITH 'A++' GRADE

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

MATHEMATICAL PROGRAMMING FOR ENGINEERS (OPEN ELECTIVE)

SYLLABUS FOR B.E. V – SEMESTER (for other branches)

L:T:P (Hrs./week) : 3:0:0	SEE Marks : 60	Course Code: **U19OE010EC**
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 Rudra Pratap, Oxford publications.
2. Advanced Guide to MATLAB-Practical Examples in Science and Engineering by S.N.Alam, S.Islam, S.K. Patel-I.K. International Publishing House Pvt. Ltd.
3. Stephen J. Chapman-"MATLAB Programming for Engineers"- 5th Edition- Cengage Learning- 2015. Getting started with MATLAB (Version 9) The Math works.
4. An Introduction to MATLAB® Programming and Numerical Methods for Engineers 1st Edition by Timmy Siauw Alexandre Bayen, Elsevier-18th April 2014.
5. https://nptel.ac.in/courses/103106118/2
6. https://www.udemy.com/numerical-methods/

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

1	No. of Internal Tests:	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 ELECTRICAL AND ELECTRONICS ENGINEERING

Solar Power and Applications
Open Elective-III
SYLLABUS FOR B.E. V SEMESTER

L: T: P (Hrs/Week):3:0:0	SEE Marks: 60	Course Code:**U19OE510EE**
Credits:3	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 impart the basics of solar energy harnessing and solar panel and array.	1. Compare different energy resources. 2. Identify and choose proper type of meter for solar radiation measurement. 3. Use proper solar thermal system according to the load requirements. 4. Categorize and compare photovoltaic cells. 5. Apply the knowledge of solar energy.

Unit – I
Fundamentals of Energy Sources: Oil crisis of 1973, Classifications of Energy Resources, Importance of Non-conventional energy sources, Advantages-disadvantages and salient features of Non-conventional energy sources.

Unit – II
Solar Energy Basics: Sun as a source of energy, the Earth, Radiation Spectrums, Extraterrestrial and Terrestrial Radiations, Depletion of solar Radiation, Pyranometer, Pyrheliometer, Sunshine Recorder.

Unit – III
Solar Thermal Systems: Solar Collectors, Solar Water Heater, Solar Passive space – heating and cooling systems, Solar Cookers, Solar furnaces, Solar thermal water pump, Vapour compression refrigeration and Solar pond Electric power plant.

Unit – IV
Solar Photovoltaic Systems: Solar Cell fundamentals, Cell characteristics, Cell classification, Module, Panel and Array, Maximizing the Solar PV output and load matching, MPPT.

Unit – V
Solar PV systems & Applications: Solar PV system classification - Stand-Alone Solar PV system and Grid-Interactive Solar PV system. Applications - Water Pumping, lighting, medical refrigeration, village power and Telecommunication.

Suggested Reading:
1. B H Khan, Non-Conventional Energy Resources, 2nd Edition, Tata McGraw Hill.
2. G. D. Rai, Non-Conventional Energy Sources, 13th Reprint 2014, Khanna Publications.

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. V-SEMESTER

INTRODUCTION TO ROBOTICS (Open Elective-III)

Instruction : 3 Hours	SEE Marks : 60	Course Code : U19OE510ME
Credits : 3	CIE Marks: : 40	Duration of SEE : 3 Hours

Course objectives	Course Outcomes
The objectives of this course are to: Identify robots and its peripherals for satisfactory operation and control of robots for industrial and non-industrial applications.	On completion of the course, the student will be able to 1. understand the anatomy of the robot and various robot configurations for it's selection depending on the task. 2. classify the end effectors , understand different types of joints, various types of robot drive systems for carrying out the assigned job effectively. 3. analyze a planar manipulator through forward kinematics and understand the control of robot manipulator for better reliability and efficiency using python programming. 4. Classify the various sensors used in robots for proper selection to an application. 5. summarize various industrial and non-industrial applications of robots for their selection to a particular task.

UNIT-I

ROBOT BASICS

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

UNIT-II

ROBOT ELEMENTS

End effectors-Classification, Robot drive system types: Electrical, pneumatic and hydraulic. Robot joints and links-Types, Motion interpolation, Robot trajectories2D and 3D Transformation- Scaling, Rotation and Translation, Homogeneous transformation

UNIT-III

ROBOT KINEMATICS AND CONTROL

Robot kinematics – Basics of direct and inverse kinematics. D-H matrix. Forward kinematics for a 2-link RR planar manipulator.
Control of robot manipulators – Point to point and Continuous Path Control. Robot programming methods. Introduction to Solve any robotic kinematic problem using python programming.

UNIT-IV

ROBOT SENSORS

Sensors in robots – Touch sensors-Tactile sensors – Proximity and range sensors. Force sensors, Light sensors, Pressure sensors, position and velocity feedback devices.
Introduction to Machine Vision and Artificial Intelligence.

UNIT-V

ROBOT APPLICATIONS

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

Learning Resources:

1. Mikell P. Groover, Mitchell Weiss, Roger N Nagel and Nicholas G Odrey, "Industrial Robotics Technology, Programming and Applications", TataMcGraw-Hill Publishing Company Limited , 2008.
2. Deb.S.R and Sankha Deb, "Robotics Technology and Flexible Automation", Tata McGraw HillPublishing Company Limited, 2010.
3. KlafterR.D, Chmielewski T.A, and Negin. M, "Robotic Engineering: An Integrated Approach", Prentice Hall of India Pvt. Ltd.,1994.
4. K.S. Fu,R.C. Gonzalez and C.S.G.Lee , "Robotics control, sensing, vision and intelligence",TataMcGraw-Hill Publishing Company Limited, 2008

5. R.K. Mittal and I.J.Nagrath "Robotics and Control", Tata McGraw-Hill Publishing Company Limited, 2003.

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

1	No. of Internal Tests:	02	Max.Marks for each Internal 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. V-SEMESTER
INTRODUCTION TO AUTOMOBILE ENGINEERING (OE-III)

Instruction : 3Hours	SEE Marks : 60	Course Code : U19OE520ME
Credits : 3	CIE Marks : 40	Duration of SEE : 3 Hours

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

UNIT-I

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

UNIT-II

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

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

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

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

UNIT-III

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

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

UNIT –IV

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

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

UNIT –V

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

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

Learning Resources:

1. Crouse & Anglin, "Automobile Engineering", 10th Edition, Tata McGraw Hill Publishing Co. Ltd., New Delhi,. 2007.
2. Kirpal Singh, "Automobile Engineering", Vol.I& II, 13th Edition, Standard Publishers, New Delhi 2013.
3. R.B Gupta, "Automobile Engineering" 7th Edition, Satya Prakashan, New Delhi, 2015.
4. Joseph Heitner, "Automotive Mechanics", 2nd Edition, Affiliated East West Pvt. Ltd., 2013.
5. C.P. Nakra, "Basic Automobile Engineering", 7th Edition, Dhanpat Rai Publishing C (P) Ltd., 2016.

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

1	No. of Internal Tests:	02	Max.Marks for each Internal 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 MATHEMATICS

NUMERICAL METHODS
(Open Elective)
For B.E., V - Semester – CBCS
(for CSE & IT only)

L:T:P (Hrs./week):3:0:0	SEE Marks :60	Course Code: **U19OE510MA**
Credits : 3	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 various numerical methods to solve Algebraic and Transcendental equations. **2. Understand** the methods to solve linear system of equations. **3. Understand** the numerical methods in interpolation and extrapolation. **4. Understand** the numerical methods in interpolation using central differences. **5. Understand** numerical methods in solving ordinary differential equations.	***1.*** **Apply** numerical methods to solve Algebraic and Transcendental equations which cannot be solved by traditional algebraic methods ***2.*** **Solve** linear system of equations using direct and iteration methods. ***3.*** **Use** various numerical methods in interpolation and extrapolation. ***4.*** **Use** various numerical methods in interpolation using central differences. ***5.*** **Find** numerical solutions of ordinary differential equations.

Unit – I: (8 Hours)

Solution of Algebraic and Transcendental equations:

Intermediate value property of equations-Solution of Algebraic and Transcendental equations: Bisection method, Newton-Raphson method Regula-Falsi method.

Unit – II: (8 Hours)

Solution of linear system of equations:

Direct methods- Gauss elimination method- Factorization method- Iterative methods: Jacobi's Iteration method-Gauss - Seidel Iteration method-Ill-conditioned system of equations.

Unit – III: (8 Hours)

Numerical differences-I

Introduction to finite differences - Interpolation- Newton's Forward and Backward Interpolation Formulae – Interpolation with unequal intervals – Lagrange's Interpolation Formula – Divided differences- Newton's divided difference formula.

Unit – IV: (8 Hours)

Numerical differences-II

Central differences interpolation-Gauss's forwards and backward difference formulae-Stiriling's formula- Bessel's formula.

Unit – V: (8 Hours)

Numerical Solutions of Ordinary Differential Equations

Numerical Solutions of Ordinary Differential Equations: Taylor's Series Method - Euler's Method - Modified Euler's Method – Runge-Kutta Method of 4^{th} order (without proofs).

Text Books:

1. Numerical methods in engineering and science by B.S.Grewal, Khanna publishers
2. Advanced Engineering Mathematics by R.K.Jain & S.R.K.Iyengar, Narosa publishing house.

Reference Books:

1. Numerical Analysis by S.S.Sastry, PHI Ltd.

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 PHYSICS

Open elective Course
THIN FILM TECHNOLOGY AND APPLICATIONS

L:T:P (Hrs./week):3:0:0	SEE Marks :60	Course Code: **U19OE510PH**
Credits : 3	CIE Marks: 40	Duration of SEE: 3 Hrs

Course Objectives	Course Outcomes
Students are able to	***The students acquire the ability to***
1. Learn the fundamental atomistic mechanisms. 2. Narrate thin film deposition techniques 3. Acquire knowledge on thin film devices 4. Appreciate applications of thin films	1. State fundamental definitions of thin film technology 2. Describe thin film deposition techniques 3. Illustrate thin film devices and their use 4. Apply thin films coatings for a variety industrial applications

UNIT-I: THIN FILM GROWTH
Classification of films- formation of thin films- Condensation and nucleation, growth and coalescence of islands, - nucleation theories: capillarity and atomistic models, sticking coefficient, adhesion, substrate effect, film thickness effect.

UNIT-II: DEPOSITION TECHNIQUES

Thin film deposition techniques- simple thermal evaporation- Chemical vapor deposition technique-Advantages and disadvantages of Chemical Vapor deposition (CVD), physical vapour deposition electron beam evaporation- RF sputtering, flash evaporation, Laser ablation- spin coating- molecular beam epitaxy (MBE), Spin coating, Film thickness measurement-ellipsometry, quartz crystal oscillator techniques, structure and microstructure of thin films.

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

UNIT-IV: PROPERTIES OF THIN FILMS
Electrical conduction in continuous and discontinuous metallic thin films. Transport and optical properties of metallic, semiconducting and dielectric films.

UNIT-V: THIN FILM DEVICES AND APPLICATIONS
Anti-reflection coatings, fabrication of thin film resistor, capacitor, diode, gas sensors and temperature sensors. Thin film solar cells, Quantum well and Quantum dot solar cells. Application of thin films in different areas such as electronics, medical, defense, sports, automobiles, applications of thin films in various fields etc.

Learning resources:s

1. Kasturi Chopra Thin Film Device Applications, Mac Graw Hill, New York, 2012
2. A. Goswami, thin film fundamentals, New age international, 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:	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
OPEN ELECTIVE B.E.-3/4- V Semester
Course Name: TECHNICAL WRITING AND PROFESSIONAL PRESENTATIONS
Common to all Branches

L:T: P (Hrs/Week):3	SEE Marks:60	Course Code: U19OE520EH
Credits: 3	CIE Marks:40	Duration of SEE:Hours:03

COURSE OBJECTIVES	COURSE OUTCOMES
TWPP	**TWPP**
Understand the principles and mechanics of technical writing for students of engineering	Write effective reports
Identify different kinds of business correspondences and the dos and don'ts for each of them	Articulate business correspondences based on need
Make effective presentations as part of today's workplace demands	Make persuasive presentations
Recognize the need for Video and Written CVs with focus on specific elements	Design their videos CVs
Comprehend skills associated with technical writing and understand different papers ranging from process description and feasibility reports to research projects, project proposals, and SOPs	Write papers ranging from process description and feasibility reports to research projects, project proposals, and statement of purpose

UNIT 1: FORMAL & INFORMAL TECHNICAL REPORTS
10 hrs

- Informal Report Formats
- Project and Research Reports
- Formal Report Components, Feasibility Reports, Evaluation reports
- Analytical and Informational reports
- Executive summaries.

UNIT 2: BUSINESS CORRESPONDENCE
6 hrs

- Electronic communication
- Effective emails
- Instant and text messaging guidelines

UNIT 3: PROFESSIONAL PRESENTATIONS
8 hrs

- Paper presentations & Poster presentations
- PowerPoint presentations
- Storyboard writing

UNIT 4: RESUME & CVs
6 hrs

- Technical Resume
- Cover letter, resume format
- Video CVs

UNIT 5: WRITING PROPOSALS & SOPs
6 hrs

- Types of proposals
- Request for proposals
- Stating your objective

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

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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)
SCHEME OF INSTRUCTION AND EXAMINATION (R-18)
B.E. – INFORMATION TECHNOLOGY : SIXTH SEMESTER (2021 - 2022)

B.E (IT) VI-SEMESTER								
Course Code	Course Name	Scheme of Instruction			Scheme of Examination			
		Hours per week			Duration in Hrs	Maximum Marks		Credits
		L	T	P/D		SEE	CIE	
U19PC610IT	Artificial Intelligence and Machine Learning	3	-	-	3	60	40	3
U19PC620IT	Embedded Systems and IOT	3	-	-	3	60	40	3
U19PC630IT	Web Technologies	3	-	-	3	60	40	3
U19OE6XXXX	Open Elective - IV	3	-	-	3	60	40	3
U19HS040EH	Economics and Finance for Engineers	2	-	-	3	60	40	2
U19HS610EH	Skill Development Course–VII : Soft Skills	1	-	-	2	40	30	1
U19PE610IT	Skill Development Course–VIII : Technical Skills	1	-	-	2	40	30	1
U19HS020EH	Human Values & Professional Ethics – II	1	-	-	2	40	30	1
PRACTICALS								
U19PC611IT	Artificial Intelligence and Machine Learning Lab	-	-	2	3	50	30	1
U19PC621IT	Embedded Systems and IOT Lab	-	-	2	3	50	30	1
U19PC631IT	Web Technologies Lab	-	-	2	3	50	30	1
U19PW619IT	Theme Based Project	-	-	2	-	-	30	1
	CCA- IV : Technical Skills	-	-	-	-	-	-	-
	Library / Sports / Proctorial Interaction	-	-	-	-	-	-	-
Student should acquire one online certification course equivalent to 2 credits during III-VII Semesters.								
	Total	**17**	**-**	**8**	-	**570**	**410**	**21**
	Grand Total	**25**			**-**	**980**		

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

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

ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING
SYLLABUS FOR B.E VI- SEMESTER

L:T:P (Hrs./week):: 3:0:0	SEE Marks : 60	Course Code : **U19PC610IT**
Credits : 3	CIE Marks: 40	Duration of SEE : 3 Hrs

Course Objectives	**Course Outcomes**
The Objectives of the course:	*At the end of the course student will be able to:*
1. Introduce the fundamental concepts of logic programming, searching strategies in Artificial Intelligence. 2. Discuss supervised and unsupervised Machine Learning algorithms and evaluation metrics to validate the performance. 3. Introduce the basics of deep learning and reinforcement learning.	1. Apply appropriate search strategies for solving a given search problem. 2. Apply logic concepts to prove inferences from the given premises. 3. Apply appropriate parametric, non-parametric ML algorithm and ensemble learning for a given classification problem and validate. 4. Understand the fundamentals of deep learning and reinforcement learning and develop a multi-layer neural network to solve a classification problem. 5. Identify clusters from unlabelled data and validate.

UNIT-I:
Introduction to AI: Introduction, Intelligent Systems, Foundations of AI, Sub Areas of AI, Applications.
Problem solving - State-Space Search and Control Strategies: Introduction, General Problem Solving, Characteristics of Problem, Exhaustive Searches, Heuristic Search Techniques, Iterative-Deepening A*.
UNIT-II:
Logic Concepts and Logic Programming: Introduction, Propositional Calculus, Propositional Logic, Natural Deduction System, Axiomatic System, Semantic Tableau System in Propositional Logic, Resolution Refutation in Propositional Logic, Predicate Logic, Logic Programming.
Introduction to Machine Learning: Types of Learning: Supervised Learning, Unsupervised Learning, Reinforcement Learning, Applications of ML.
Supervised Learning: Linear Regression, Logistic Regression, Bias-Variance Trade-Off.
UNIT-III:
Supervised-Nonparametric Learning: Introduction to Decision Trees, The Basic Decision Tree Learning Algorithm-ID3, Overfitting in Decision Trees, k-Nearest Neighbor Learning, Feature Selection, Feature Extraction, Collaborative Filtering.
Supervised-Parametric Learning: Support Vector Machine, The Dual Formulation, Nonlinear SVM and Kernel Functions.
UNIT-IV:
Artificial Neural Networks: Introduction, The Perceptron, Learning Boolean Functions, Multilayer Perceptrons, Backpropagation.
Supervised-Parametric Bayesian Learning: Probability Basics and Bayes Theorem, MAP, Maximum likelihood, Naive Bayes Classifier, Bayesian Belief Networks.
UNIT-V:
Ensemble Learning: Bagging, Boosting-Ada Boost, Random Forests.
Unsupervised Leaning: Clustering, k-Means Clustering, Density-based Clustering-DBSCAN, Hierarchical Clustering.
Reinforcement Learning: Introduction, The Learning Task, Q Learning.

Learning Resources:

1. Saroj Kaushik, Artificial Intelligence, Cengage Learning, 2011.
2. Russell, Norvig, Artificial intelligence, A Modern Approach, Pearson Education, Second Edition, 2004
3. Tom Mitchell, Machine Learning , First Edition, McGraw-Hill, 1997
4. Christopher Bishop. Pattern Recognition and Machine Learning. Second Edition.
5. Ethem Alpaydin , Introduction to Machine Learning, Second Edition
6. T. Hastie, R. Tibshirani, J. Friedman. The Elements of Statistical Learning, 2e, 2008.
7. http://nptel.ac.in/courses/106106139/
8. https://nptel.ac.in/courses/106/105/106105152/

Faculty I/c. (Name & Signature) Chairman, BOS

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 INFORMATION TECHNOLOGY
SYLLABUS FOR B.E VI- SEMESTER

EMBEDDED SYSTEMS and IOT

SYLLABUS FOR B.E VI- SEMESTER

L:T:P (Hrs./week):: 3:0:0	SEE Marks : 60	Course Code : **U19PC620IT**
Credits : 3	CIE Marks: 40	Duration of SEE : 3 Hrs

COURSE OBJECTIVES The course will enable the students to:	**COURSE OUTCOMES** *On completion of the course, students will be able to*
1. Understand different components of Embedded System Design and interfacing of different peripherals to the computing unit. 2. Use various software development tools in the design of Embedded and IoT based systems.	1. Apply the architectural features of 8051 controller in writing assembly language and Embedded C programs. 2. Learn to interface various peripherals with 8051 and understand the architecture and instruction set of ARM7 processor and write simple assembly language programs using it. 3. Explain the various concepts related to Real Time Operating Systems 4. Understand various protocols like CAN and I2C used in Embedded System design and architectural overview of IOT 5. Explain the various components related to the design of IoT Based Systems.

UNIT – I:

Introduction, Complex Systems and Microprocessor, Embedded System Design Process, The 8051 Architecture, signal functions, Instruction set , assembly language programming, Input/output Ports and Circuits, I/O port programming, External Memory interfacing, Counter and Timers: modes of operation, timer programming, Serial communication programming, Interrupts and interrupt programming.

UNIT – II:

Interfacing with 8051, keyboards, LEDs, LCDs, ADC, DAC, stepper motor, keyboard.
ARM architecture - ARM organization and implementation - The ARM instruction set - The thumb instruction set - Basic ARM Assembly language program - ARM CPU cores.

UNIT – III:

Introduction to Real- Time Operating Systems: Tasks and Task States, Tasks and Data, Semaphores, and Shared Data; Message Queues, Mailboxes and Pipes, Timer Functions, Events, Memory Management, Interrupt Routines in an RTOS Environment. Vxworks: commands and programming.

UNIT – IV:

Categories of multiprocessors, Bus protocols, I2C bus and CAN bus, multiprocessor system-on-chip (MPSoC), accelerators.

Introduction to Internet of Things- Definitions & Characteristics of IoT, Physical Design of IOT, Logical Design of IOT, IOT Enabling Technologies, IOT Levels & Deployment Templets, Various types of IoT Applications

UNIT – V:

Difference between IOT and M2M, Introduction, IoT Design Methodology.
Case study on IOT system, Basic building blocks of an IoT device,
Raspberry Pi: About the board, Raspberry Pi interfaces-Serial, SPI,I2C. Programming Rasberry Pi with Python Case study illustrating IOT Design.

Learning Resources:

1. Wayne Wolf, "Computers and Components", Elsevier.
2. KennethJ.Ayala, "The8051 Microcontroller", Third Edition, , Thomson.
3. Muhammad Ali Mazidi, Janice Gillespie Mazidi, Rolin D. Mc Kinlay, The 8051 Microcontroller and Embedded Systems using Assembly and C, Second Edition, Pearson.
4. David E. Simon, "An Embedded Software Primer", Pearson Education
5. Raj Kamal, "Embedded Systems", Tata McGraw Hill.
6. FrankVahid, TonyGivargis, John Wiley, "Embedded System Design", Wiley Student Edition.
7. W.A. Smith, "ARM Microcontroller Interfacing: Hardware and Software, Eketor, 2010.
8. NPTEL Online Course on Microprocessors and Microcontrollers, Santanu Chattopadhyay.
9. Arshdeep Bahga, Vijay Madisetti, "Internet of Things: A Hands-on Approach", Universities Press.

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

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Duration of Internal Test: **90 Minutes**

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

WEB TECHNOLOGIES
SYLLABUS FOR B.E VI- SEMESTER

L:T:P (Hrs./week):: 3:0:0	SEE Marks : 60	Course Code: **U19PC630IT**
Credits : 3	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 student will be able to:**
Acquire basic skills for designing static and dynamic Web Applications using HTML, CSS , Java script , Servlets and JSP's & frame works like Bootstrap and Angular JS	1. Design static web pages using HTML, CSS. 2. Use JavaScript for creating dynamic web pages and client side validation. 3. Develop web applications using Bootstrap and Angular JS 4. Create web applications using Servlets and JSP 5. Apply OOP principles to create webservices.

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

UNIT-II
JavaScript: Introduction, Basics of JavaScript-variables, data types and operators, Control Structures, Arrays, Functions, HTML Forms, Events and event handling.
XML : XML: The Syntax of XML, XML Document Structure, Document Type Definitions.

UNIT-III
Bootstrap: The Grid system, Layout components: Tables, Images, Jumbotron, alerts, buttons, badges, progress bars, cards, drop downs, pagination, Collapse, Navbar, forms, inputs, carousel.
Angular JS: Preparing Development Environment, Angular modules and Controllers, Input Validation, Data Binding and Templates.

UNIT-IV
Servlets: Introduction to Servlets, Container, Servlet Life Cycle and API, Deployment Descriptor , Servlet Config and Servlet Context, Listeners, Session Management, Model View Controller (MVC) Pattern.
JSP: Introduction to Java Server Pages, JSP vs Servlet, Life Cycle of a JSP, Scriptlets, Directives, Attributes, Expressions, Declarations, Comments, Implicit Objects, JSTL.

UNIT-V
Web Services: Java Web Services Basics, Creating, Publishing, Testing and Describing a Web Service, SOAP, REST, JSON Web Services

Learning Resources:
1. Robert W. Sebesta, Programming the World Wide Web, 7th Edition (2014), Pearson Education.
2. "Web Technologies", 7th Edition, Uttam K.Roy,2012.
3. Paul J. Deitel, Harvey M. Deitel, Abbey Deitel, Internet & World Wide Web How to Program, 5th Edition, Pearson Education.
4. Head First Servlets and JSP 2nd Edition, Bryan Basham, Kathy Sierra & Bert Bates, ORielly, 2008.
5. AgusKurniawan,"AngularJS Programming by Example",PE Press, First Edition
6. http://getbootstrap.com/

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

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

ECONOMICS AND FINANCE FOR ENGINEERS

L:T:P (Hrs./week):: 2:0:0	SEE Marks: 60	Course Code: **U19HS010EH**
Credits: 2	CIE Marks:40	SEE: 3 hrs.

COURSE OBJECTIVES	**Course Outcomes**
The objective of the Course is to equip the prospective engineers with the concepts and tools of economics, finance, cost and taxes that facilitate business decisions.	1. Enable students to identify the essential components such as production quantity limits, elasticity, demand and supply in business decision making. 2. Facilitate students in calculation of cost components to enable control of costs. 3. Make better investment decisions both in short and long run by understanding the financial viability of given investment proposals. 4. Analyze the given financial statements of a firm to understand the past performance and to make decisions for future. 5. Identify the impact of the new tax policies on the company's financial structure/ individual's incomes.

Unit I: Basics of Economics:
Scarcity Definition of Economics - Macro and Micro Economics -Managerial Economics - Meaning of a Firm - Objectives of a Firm - Demand Concept and Law of Demand -Price Elasticity of Demand (types), Income elasticity - cross elasticity - advertising elasticity - Meaning of Supply - Equilibrium Price and Quantity - Production - Cobb Doughlas Production Function - Economies of Scale. (Simple problems on computation of elasticity)
Unit II: Cost and Price:
Cost - Meaning -Classification of Costs -Short run and Long run costs -Cost Sheet - Break even Analysis - Methods of Pricing (Problems on Cost Sheet, Breakeven Analysis and Methods of Pricing can be asked).
Unit III: Sources and uses of Finance:
RBI and its role - Commercial Banks - Functions - Capital Budgeting -Discounting and Non discounting Techniques (including simple problems) - Working Capital Management - Concepts and Components of Working Capital – determinants of working capital - Operating Cycle - estimation of working capital.
UNIT IV: Understanding Financial Statements:
Financial Statements- Meaning - Types - Purpose - Ratios (Liquidity, Solvency & Profitability Ratios including problems)
Unit V: Direct & Indirect Taxes:
Heads of Income - Income from Salaries - Income from House Property - Income from Business - Income from Capital Gains -Income from Other Sources – old and new regime tax rates and calculation of tax - Latest Tax Rates - GST -CGST - SGST - IGST - GST network.

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

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

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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 HUMANITIES & SOCIAL SCIENCES

Skill Development Course - IV - Verbal Aptitude
SYLLABUS FOR BE 3/6 - SECOND SEMESTER (VI Semester)

L:T: P (Hrs./Week) : 2	SEE Marks: 40	Course Code:**U19BS430EH**
Credits:1	CIE Marks: 30	Duration of SEE: Hours : 2

COURSE OBJECTIVES	COURSE OUTCOMES
This course aims at enhancing employability skillI:	At the end of the course students will be able to:
Students will be introduced to higher order thinking and problem solving in the following areas - Vocabulary, Fill in the Blanks, Passage Based Questions, Jumbles & Spotting the Errors	Solve questions in Verbal Ability in the mentioned areas using shortcuts and smart methods
Students will be trained to work systematically with speed and accuracy while problem solving	Solve questions with speed and accuracy.
Students will enhance their vocabulary and use it effectively to solve problems	Clear the Verbal Ability Section in Employment Eligibility Tests

Unit 1: Vocabulary- Reading for Content and Context
Overview:
This course is designed for students to not just understand the importance of vocabulary but also to build on it by using the appropriate tools and methods. After which they will be able to solve vocabulary based questions and also use vocabulary as a tool to solve problems.

Learning Outcomes
Upon completion of the course, students should be able to:
1. Use context to find the meanings of words
2. Possess better vocabulary
3. Use vocabulary as a tool to solve questions in verbal ability

Competencies
1. Understand Collocations
2. Build on words by using Root Words
3. Understand how prefixes and suffixes work
4. Identify incorrect usage of words

Sessions
1.1 Concepts & Context Rules: Collocations & Phrasal Verbs
1.2 Prefixes/ Suffixes & Root Words
1.3 Phrases & Idioms; Questions based on it
1.4 One Word Substitution; Questions based on it
1.5 Antonyms, Synonyms & Incorrect Word Usage

Unit 2: Fill in the Blanks- Applying Content and Context
Overview:
This course is designed for students to identify the clue/ theme words in sentences, then understand the context in which the words are used and finally apply concepts like collocation, antonyms, and synonyms to solve questions.

Learning Outcomes
Upon completion of the course, students should be able to:
1. Identify the theme/ clue words in sentences
2. Solve Single & Double Fill in the blank questions
3. Solve Cloze tests by applying collocations and contextual vocabulary

Competencies
1. Use contextual vocabulary to solve problems
2. Apply vocabulary based tools
3. Apply tricks to solve questions

Sessions

2.1 Concepts & Rules: Single Fill in the Blanks
2.2 Double/ Triple Fill in the Blanks
2.3 Cloze Test

Unit 3: Jumbles
Overview:
This course is designed to develop and improve reading and study skills needed for college work. Topics include identifying main idea and supporting details, determining author's purpose and tone, distinguishing between fact and opinion, identifying patterns of organization in a sentence or passage and the transition words associated with each pattern, recognizing the relationships between words and sentences, identifying and using context clues to determine the meanings of words, identifying logical inferences and conclusions.

Learning Outcomes
Upon completion of the course, students should be able to:
1. Identify the structure of sentences & paragraphs
2. Apply tools of vocabulary and context to organize content
3. Solve questions on jumbled sentences & parajumbles

Competencies
1. Identify the author's purpose, point of view, tone, and method of development.
2. Use tools of language and logic to solve problems
3. Synthesize information given into logically correct sentences or passages

Sessions
3.1 Concepts- Purpose, Tone, Point of view
3.2 Parajumbles
3.3 Jumbled Sentences

Unit 4: Critical Reading Skills
Overview:
Research shows that good reading skills can lead to well written assignments. In this unit, students will learn, develop and improve reading and study skills needed for college work. Building on these basic strategies, students will develop skills to critically analyze texts and then the ability to identify its theme.

Learning Outcomes
Upon completion of the course, students should be able to:
1. Read a given text critically and propaganda techniques
2. Use contextual Vocabulary to find out meanings of new words
3. Use comprehension and vocabulary strategies to raise reading rate.

Competencies
1. Analyze text, e.g., simple outlining and note taking, summarize, draw conclusions, and apply information to personal experiences.
2. Increase speed of reading
3. Solve Reading Comprehensions using elimination strategies
4. Identify the theme of the passage

Sessions
4.1 Concepts- Basic Introduction & Short Passages
4.2 Article & Article Based Passages
4.3 Theme Detection

Unit 5: Spotting the Errors
Overview:
In this unit students will focus on identifying errors in sentences, rectifying them and improving the quality of sentences. Building on these skills will also have an impact on the written and spoken skills of students since they will be aware of the common and often made errors and therefore be able to avoid them while using language.

Learning Outcomes
Upon completion of the course, students should be able to:
1. Read, identify and rectify errors in sentences
2. Improve the quality of sentences by fixing errors

3. Use comprehension and vocabulary strategies to raise reading rate.

Competencies

1. Analyze language and improve its quality
2. Apply tips and tricks to solve questions faster
3. Improve the quality of their writing by being aware of the common errors

Sessions

5.1 Concepts- Basic Introduction & Sentence Fillers
5.2 Spot the Errors
5.3 Sentence Improvement

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

Learning Resources:

learn.talentsprint.com

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

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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 & SOCIAL SCIENCES
Course Name: Human Values and Professional Ethics-II

SYLLABUS FOR B.E. COMMON FOR ALL BRANCHES - BE- 3/4- **V/VI SEMESTER**

L : T : P (Hrs/Week) : 1:0:0	SEE Marks : 40	Course Code: **U19HS010EH**
Credits:1	CIE Marks : 30	Duration of SEE : Hours : 02

COURSE OBJECTIVES	COURSE OUTCOMES
The course will enable the students to :-	At the end of this course, the student will be able to
1. Create an awareness on the interrelation between Society, Ethics and Human Values	1. Identify ethical risks in everyday life and in societies that can lead to unethical choices, such as structures that diffuse responsibility or a group that has collectively de-stigmatized unethical behaviour
2. Understand how ethical dilemmas apply to real life scenarios	2. Identify ethical concerns in research and intellectual contexts, including academic integrity,use and citation of sources, and the objective presentation of data.
3. Develop ethical human conduct and professional competence.	3. Assess their own ethical values and the social context of problems and articulate what makes a particular course of action ethically defensible
4. Understand the role of good ethical practices and apply it in a project	4. Demonstrate knowledge of ethical values in non-classroom activities, such as service learning, internships, and field work integrate, synthesize, and apply knowledge of ethical dilemmas and resolutions in academic settings, including focused and interdisciplinary research

UNIT-1 NORMATIVE ETHICS & SOCIETAL ETHICS
This unit deals with normative ethics, the branch of moral philosophy, or ethics, concerned with criteria of what is morally right and wrong. It includes the formulation of moral rules that have direct implications for what human actions, institutions, and ways of life should be like. This unit also covers societal ethics which is the systematic reflection on the moral dimensions of social structures, systems, issues, and communities.

UNIT 2 - PROFESSIONAL ETHICS - NEED FOR ETHICAL CODES
This unit covers the code of Professional Ethics- it is designed to ensure that students learn the necessary skills that groom them to behave like employees should, one that is socially acceptable and respectful of one another. It establishes the rules for behavior and sends a message to every employee that universal compliance is expected.

UNIT- 3 - PRIVACY
This unit covers "Cyber ethics" - the code of responsible behavior on the Internet. Just as we are taught to act responsibly in everyday life with lessons such as "Don't take what doesn't belong to you" and "Do not harm others," we must act responsibly in the cyber world as well.
The basic rule is "Do not do something in cyberspace that you would consider wrong or illegal in everyday life."

UNIT-4- MEDIA AND MEDICAL ETHICS
This unit covers Media and Medical ethics is the best division of applied ethics dealing with the specific ethical principles and standards of media (including broadcast media, film, theatre, the arts, print media and the internet) and medicine (practice of clinical medicine and related scientific research)

MODE Of DELIVERY

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

Relevant Websites,CD's and Documentaries
- https://plato.stanford.edu/

Learning Resources:
- learn.talentsprint.com

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

ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING LAB
SYLLABUS FOR B.E VI- SEMESTER

L:T:P (Hrs./week):: 0:0:2	SEE Marks : 50	Course Code : **U21PC611IT**
Credits : 1	CIE Marks: 30	Duration of SEE : 3 Hrs

Course Objectives	**Course Outcomes**
The Objectives of the course:	**At the end of the course student will be able to:**
1. Introduce NumPy arrays, Matplotlib Scikit-Learn packages. 2. Analyse the performance of ML algorithms on benchmark datasets.	1. Implement python programs for storing and manipulating data using NumPy arrays, SciPy and Matplotlib. 2. Perform data prepossessing, analysis and visualizations using Pandas. 3. Apply supervised and unsupervised ML algorithms to real world problems. 4. Evaluate and compare the performance ML algorithms. 5. Choose an appropriate ML algorithm and design a solution for a given problem

1. Python basics for ML using NumPy, Matplotlib and Scikit-Learn packages.
2. Data pre-processing, train, test splits and model evaluation metrics.
3. Predicting the Diabetes progression in a patient based on Age, Gender, BMI, BP and six blood serum measurements on Scikit-Learn Diabetes dataset using Linear Regression.
4. Classifying hand-written digits on Scikit-Learn Digits dataset using Logistic Regression.
5. Classifying different species of Iris flowers on Scikit-Learn Iris dataset using KNN.
6. Classifying hand-written digits on Scikit-Learn Digits dataset using SVM.
7. Classifying hand-written digits on Scikit-Learn Digits dataset using MLP neural network.
8. Detecting spam emails / Sentiment analysis on Movie reviews using Naïve Bayes classification.
9. Unsupervised learning: K-means clustering on scikit learn Iris dataset.
10. Unsupervised learning: DBSCAN clustering on scikit learn Iris dataset.

Learning Resources:
1. https://www.numpy.org/
2. https://www.scipy.org/
3. https://matplotlib.org/
4. https://pandas.pydata.org/
5. https://scikit-learn.org/stable/

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

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

EMBEDDED SYSTEMS AND IOT LAB
SYLLABUS FOR B.E VI- SEMESTER

L:T:P (Hrs./week):: 0:0:2	SEE Marks : 50	Course Code : **U19PC621IT**
Credits : 1	CIE Marks: 30	Duration of SEE : 3 Hrs

COURSE OBJECTIVES	COURSE OUTCOMES *On completion of the course, students will be able to*
The course will enable the students to learn the instruction set and interfacing techniques of ARM and 8051 microcontrollers and their usefulness in implementing real time embedded system applications.	1 Write Assembly and embedded C language programs using 8051 Microcontrollers. 2 Write Assembly and embedded C language programs for interfacing different types of peripherals using 8051 microcontroller. 3 Write Assembly and C language programs for interfacing different I/O devices with ARM 4 Write programs for developing real time applications for embedded system using VxWorks 5. Write programs in python for a particular application and Analyze the performance of Internet of Things(IoT)

A. 8051 programming and Interfacing (Using Keil simulator)
   1. keil introduction and basic programs
   2. I/O port programming
   3 Serial Communication programming
   4 .Timer programming
   5 .Interrupt programming
   6 Interfacing different peripherals to 8051
B. ARM programming and Interfacing with different peripherals
C. Development and Porting of Real Time Applications on to Target machines such as Intel or other Computers using any RTOS
   I. Understanding Real Time Concepts using any RTOS through Demonstration of:
   1. Timing
   2. Multi-Tasking
   3. Semaphores
   4. Message Queues

D. Internet of Things

1. Program to blink LED using Arduino Uno Board.
2. Programming Raspberry PI to read data from Temperature, Pressure & Humidity sensor (BME280).
3. Program to operate buzzer using push buttons.
4. Interfacing ultrasonic, PIR sensors to Raspberry PI
5. Interfacing Soil Moisture sensor for Agriculture based Application
6. Developing Control applications to interface actuators.
7. Demonstrate communication protocol Bluetooth
8. Application of Zigbee in IoT systems.
9. Demonstrate communication protocol LoRa.
10. Publishing data on to Cloud using MQTT Protocol.
11. Read the data from the cloud and display them using MQTT Protocol

No. of Internal Tests:	02	Max. Marks for Internal Test:	12
Marks for assessment of each experiment			18
Duration of Internal Test: 2Hours			

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

WEB TECHNOLOGIES LAB
SYLLABUS FOR B.E VI- SEMESTER

L:T:P (Hrs./week):: 0:0:2	SEE Marks : 50	Course Code : U19PC631iT
Credits : 1	CIE Marks: 30	Duration of SEE : 3 Hrs

Course Objective:	Course Outcomes:
The course will enable students to:	**At the end of the course student will be able to:**
Be familiar with static Web page design using HTML and style sheets, dynamic web page design using java script and server side scripting languages, and also Responsive web pages.	1. Design Web pages using HTML,CSS,javascript. 2. Design Responsive web pages using frameworks. 3. Develop web applications using servlets and jsp 4. Create and publish web services

HTML:
- Creation of HTML Document using basic tags.
- Creation of Menu using ordered and unordered list and other options.
- Creation of web page using table tags and their attributes
- Creation of web page using frames.
- Creation of document using CSS.

JAVASCRIPT & XML:

- Basic javascript programs using control statements, arrays and functions.
- Write a java script to validate the following fields in a registration page
  1. Name (should contains alphabets and the length should not be less than 6 characters)
  2. Password(should not be less than 6 characters)
  3. E-mail(should not contain invalid addresses)
- Display the various forms of XML document

TWITTER BOOTSTRAP
- Design Responsive web pages.

ANGULAR JS
- Design Responsive web pages.

SERVLET &JSP:
- Develop a simple java Servlet application .
- Develop a simple JSP application.

Learning Resources:

1. "Web Technologies", 7th Edition, Uttam K.Roy,2012.
2. Head First Servlets and JSP 2nd Edition, Bryan Basham, Kathy Sierra & Bert Bates, ORielly, 2008.
3. "Internet & World Wide Web How to Program", 5/e, Paul J. Deitel, Harvey M. Deitel, Abbey Deitel,2012.
4. http://getbootstrap.com/

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

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VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
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DEPARTMENT OF INFORMATION TECHNOLOGY

THEME BASED PROJECT
SYLLABUS FOR B.E. VI SEMESTER

L:T:P(Hrs./week):0:0:2	SEE Marks :--	Course Code : **U19PW619IT**
Credits : 1	CIE Marks : 30	Duration of SEE :--

COURSE OBJECTIVES	**COURSE OUTCOMES**
	On completion of the course, students will be able to
3. Promote project-based learning by working on societal problems. 4. Encourage individual and teamwork, communication, life-long learning and follow professional ethics.	1. Review the existing literature/ models to identify the scope for extension. 2. Apply technical knowledge to develop novel solutions for real life problems. 3. Plan and execute projects by following effective software development life cycle. 4. Design and demonstrate the prototypes. 5. Practice professional ethics, teamwork and lifelong learning.

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.

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OPEN ELECTIVES OFFERED BY VARIOUS DEPARTMENTS IN B.E. VI SEMESTER

Dept	Title	Code	Credits
Civil	PROJECT MANAGEMENT	U19OE610CE	3
CSE	INTRODUCTION TO DATABASES	U19OE610CS	3
CSE	INTRODUCTION TO OPERATING SYSTEMS	U19OE620CS	3
ECE	INTERNET OF THINGS AND APPLICATIONS	U19OE610EC	3
ECE	INTRODUCTION TO MOBILE COMMUNICATIONS	U19OE620EC	3
EEE	ELECTRICAL INSTALLATION & SAFETY	U19OE610EE	3
Mech.	ADDITIVE MANUFACTURING AND ITS APPLICATIONS	U19OE610ME	3
Mech.	INDUSTRIAL ADMINISTRATION AND FINANCIAL MANAGEMENT	U19OE620ME	3
IT	INTRODUCTION TO WEB APPLICATION DEVELOPMENT	U19OE610IT	3
IT	INTRODUCTION TO MACHINE LEARNING	U19OE620IT	3
HSS	ENGLISH FOR COMPETITIVE EXAMINATIONS	U19OE610EH	3
Physics	FUNDAMENTALS OF NANO MATERIALS AND THEIR APPLICATIONS	U19OE610PH	3

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VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
IBRAHIMBAGH, HYDERABAD – 500 031
DEPARTMENT OF CIVIL ENGINEERING
PROJECT MANAGEMENT (Open Elective-IV)
SYLLABUS FOR B.E. VI SEMESTER

L : T : P (Hrs./week):3: 0 : 0	SEE Marks:60	Course Code: **U19OE610CE**
Credits : 3	CIE Marks:40	Duration of SEE: 3 Hrs

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

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

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

UNIT-III
Time Cost Analysis: Cost time analysis in network planning, updating

UNIT-IV
Contracts: Introduction, types of contracts and their advantages and disadvantages, conditions of contracts, Introduction to Indian contract act.
Tender: Tender form, Tender Documents, Tender Notice, Work Order.

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

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

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

1	No. of Internal Tests:	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**

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

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

L:T:P (Hrs./week): 3:0:0	SEE Marks : 60	Course Code :**U19OE610CS**
Credits : 3	CIE Marks : 40	Duration of SEE : 3 Hours

COURSE OBJECTIVES		**COURSE OUTCOMES** *On completion of the course, students will be able to*	
1	Identify different issues involved in the design and implementation of a database system.	1	Identify the functional components of database management system. Create conceptual data model using Entity Relationship Diagram
2	Understand transaction processing.	2	Transform a conceptual data model into a relational model
		3	Design database using normalization techniques
		4	Apply indexing and hashing techniques for effective data retrieval
		5	Explain transaction processing.

UNIT-I
Introduction: Database System Application, Purpose of Database Systems, View of Data, Database Languages, Relational Database, Database Architecture, Database Users and Administrators.
Database Design and E-R Model: Overview of the Design Process, the E-R Model, Constraints, E-R Diagrams.

UNIT-II
Relational Model: Structure of Relation Database, Relational Algebra Operations, Modification of the Database.
Structured Query Language: Introduction, Basic Structure of SQL Queries, Set Operations, Aggregate Functions, Null Values, Nested Sub queries, Views, Join Expressions.

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

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

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

Learning Resources:

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

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

1	No. of Internal Tests:	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**

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

Department of Computer Science & Engineering
INTRODUCTION TO OPERATING SYSTEMS
(OPEN ELECTIVE-IV)

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

L:T:P (Hrs./week): 3:0:0	SEE Marks : 60	Course Code :**U19OE620CS**
Credits : 3	CIE Marks : 40	Duration of SEE : 3 Hours

COURSE OBJECTIVES	**COURSE OUTCOMES** *On completion of the course, students will be able to*
1 Understand different Operating system Structures and Services.	1 Compare CPU scheduling algorithms and Operating system structures 2 Apply different techniques for Main memory management. 3 Describe file management techniques. 4 Describe deadlock handling methods 5 Analyze Disk scheduling algorithms and I/O operation implementation techniques

UNIT-I:
Introduction to operating systems: Definition, User view and System view of the Operating system, Operating system structure, Operating system services.
Process: Process concept, Process Control block, Context switching.
CPU Scheduling: Scheduling Criteria, Scheduling Algorithms: FCFS, SJF, Round Robin

UNIT-II:
Memory Management: Swapping, Contiguous memory allocation: Fixed Partitioning, Variable Partitioning. Non-Contiguous memory allocation: Paging.
Virtual memory: Demand paging, Page replacement Algorithms: FIFO, Optimal, LRU.

UNIT –III:
File System Interface: File Concept, Access Methods: Sequential, Indexed, and Direct
File System Implementation: File-System Structure, Allocation Methods: Contiguous, Linked and Indexed.

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

UNIT-V:
Device Management: Disk Scheduling algorithms: FCFS, SSTF, SCAN.
I/O System: I/O hardware, Application I/O Interface.

Learning Resources:

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

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

1	No. of Internal Tests:	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**

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VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
IBRAHIMBAGH, HYDERABAD – 500 031
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
Internet of Things and Applications
(OPEN ELECTIVE – IV)
SYLLABUS FOR B.E. VI - SEMESTER (for other branches)

L:T:P (Hrs./week) : 3:0:0	SEE Marks : 60	Course Code: **U19OE610EC**
Credits : 3	CIE Marks : 40	Duration of SEE : 3 Hours

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

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

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

UNIT - III : IOT PROTOCOLS
Introduction to MQTT, Quality of services in MQTT,standards and security in MQTT.
Introduction and implementation of AMQP, Implementation of CoAP and MDNS.

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

UNIT - V : IoT case studies
Smart Cities and Smart Homes, Connected Vehicles, Agriculture, Healthcare, Activity Monitoring.

Learning Resources:
1. Jan Holler, VlasiosTsiatsis, Catherine Mulligan, Stefan Avesand, StamatisKarnouskos, David Boyle, "From Machine-to-Machine to the Internet of Things: Introduction to a New Age of Intelligence", 1 st Edition, Academic Press, 2014.
2. Peter Waher, "Learning Internet of Things", PACKT publishing, BIRMINGHAM – MUMBAI
3. Bernd Scholz-Reiter, Florian Michahelles, "Architecting the Internet of Things", ISBN 978-3-642-19156-5 e-ISBN 978-3-642-19157-2, Springer
4. Daniel Minoli, "Building the Internet of Things with IPv6 and MIPv6: The Evolving World of M2M Communications", ISBN: 978-1-118- 47347-4, Willy Publications
5. https://nptel.ac.in/courses/106105166/5
6. https://nptel.ac.in/courses/108108098/4

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

1	No. of Internal Tests:	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**

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

L:T:P (Hrs./week) : 3:0:0	SEE Marks : 60	Course Code: **U19OE620EC**
Credits : 3	CIE Marks : 40	Duration of SEE : 3 Hours

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

UNIT - I:
Introduction to Wireless Communication Systems: Evolution of Mobile Radio Communications, Examples of Wireless Communications Systems, Trends in Cellular Radio and Personal Communication Systems.
The Cellular Concept – System Design Fundamentals: Introduction, Frequency Reuse, Channel Assignment Strategies, Handoff Strategies, Interference and System Capacity, Improving Coverage and Capacity in Cellular Systems.

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

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

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

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

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

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

1	No. of Internal Tests:	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**

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

Electrical Installation and Safety
Open Elective-IV
SYLLABUS FOR B.E. VI SEMESTER

L: T: P (Hrs/Week):3:0:0	SEE Marks: 60	Course Code:**U19OE610EE**
Credits:3	CIE Marks: 40	Duration of SEE: 3 Hours

COURSE OBJECTIVES The course will enable the students to:	**COURSE OUTCOMES** On completion of the course, students will be able to
Have a fair knowledge about the fundamentals of wiring systems, electrical safety procedures, Estimation of lighting & Power loads.	1. Identify and choose the proper type wiring for domestic & industrial applications. 2. Identify and choose the proper type wiring Accessories for domestic & industrial applications. 3. Apply and implement the Electrical safety procedures for repairs & hazards. 4. Design and Estimate the domestic lighting installation. 5. Design and Draw the wiring layout for a big office building, electrical laboratory, big industry and big hotel with lift arrangement

Unit – I

Wiring Systems: Introduction, size of wires, standard wires, types of wires, CTC, PVC, Lead sheathed VIR, weather proof wires, flexible wires different types of cable wires – Types and Installation of House Wiring Systems or Methods of installing wiring.

Unit – II

Wiring Accessories: - Clips, screws -round blocks switch boards, sockets socket pins - CTS wiring - Installation of surface conduit wiring.Rigid conduits, flexible conduits – Conduit accessories - elbows bushings - reducers, conduit box saddles, PVC conduit wiring - Concealed wiring.

Unit – III

Safety Devices: Distribution fuse boards - Main switches – Different types of fuses and fuse carriers, MCB, ELCB & MCCB.

Safety procedures – Electric shock and first aid, causes for fire hazards in Electrical installations

Unit – IV

Estimation of Lighting: Estimation of domestic lighting installation service main - types of wire - specification - quantity of materials required for service main – estimation and selection of interior wiring system suitable to a given building - number of circuits - quantity of accessories required - estimates of materials for execution of the domestic wiring installation.

Unit – V

Estimation of power loads: Power wiring installation - Drawing wiring layout for a big office building, electrical laboratory, big industry, big hotel with lift arrangement and a residential building with 2 bed room house.- estimation upto 20 kVA calculation of load current based on ratings of various equipment's to be installed - size of wire.

Learning Resources:

1. J.B.Gupta –A course in Electrical installation Estimating & costing-9th edition 2014, S.K.Kataria& Sons.
2. S.L.Uppal-Electrical Wiring ,Estimating& costing Electrical wiring
3. Balbir Singh-Electrical Drawing
4. Arora -Electrical wiring
5. BVS Rao -Maintenance and Operation of Electrical Equipment –Vol-I-TMH
6. S.Rao -Testing, Commissioning Operation & Maintenance of Electrical equipment -TMH
7. CRDargar -Electrical Installation design and drawing -New Asian publishers.

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**

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IBRAHIMBAGH, HYDERABAD – 500 031

DEPARTMENT OF MECHANICAL ENGINEERING

SYLLABUS FOR B.E VI Semester (2020-21)

Additive Manufacturing and its Applications (Open Elective-IV)

L:T:P (Hrs./week): 3:0:0	SEE Marks:60	Course Code : **U19OE610ME**
Credits: 3	CIE Marks:40	Duration of SEE : 3 Hours

Course objectives	Course Outcomes
The objectives of this course are to : understand the fundamentals of various additive manufacturing technologies and their applications in Engineering Industry.	On completion of the course the student will be able to: 1. understand the fundamentals of prototyping. 2. study the principle, process, advantages and limitations of liquid based AM systems. 3. study the principle, process, advantages and limitations of solid based AM systems. 4. study the principle, process, advantages and limitations of powder based AM systems. 5. study the applications of AMT in various engineering industries.

UNIT-I

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

UNIT-II

Liquid based AM systems: Stereolithography Apparatus(SLA): Models and specifications, Process, Working principle, photopolymers, Photopolymerisation, Layering technology, laser and laser scanning, Applications, Advantages and disadvantages, Case studies

Solid ground curing(SGC): Models and specifications, Process, Working principle, Applications, Advantages and disadvantages, Case studies

UNIT-III

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

Fused Deposition Modeling (FDM): Models and specifications, Process, Working principle, Applications, Advantages and disadvantages, Case studies.

UNIT-IV

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

Three dimensional printing (3DP): Models and specifications, Process, Working principle, Applications, Advantages and disadvantages, Case studies.

UNIT-V

Applications of AM systems: Applications in aerospace industry, automotive industry, jewellery industry, coin industry, GIS Application, arts and architecture.

RP medical and bio engineering Application: planning and simulation of complex surgery, customized implant and prosthesis , design and production of medical devices, forensic science and anthropology, visualization of bio-molecules.

Learning Resources:

1. Chua C.K., Leong K.F. abd LIM C.S., "World Rapid prototyping : Principles and Applications", 2nd Editon, Scientific Publications, 2004
2. D.T.Pham and S.S.Dimov, "Rapid Manufacturing", Springer, 2001.
3. AmithabaGhose, "Rapid prototyping", Eastern Law House, 1997.
4. Paul F.Jacobs, "Stereolithography and other RP & M Technologies", ASME Press, 1996.
5. Paul F.Jacobs, "Rapid Prototyping & Manufacturing", ASME Press, 1996.

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

1	No. of Internal Tests:	02	Max.Marks for each Internal 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**

Faculty I/c. (Name & Signature) Chairman, BOS

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
IBRAHIMBAGH, HYDERABAD – 500 031
DEPARTMENT OF MECHANICAL ENGINEERING
SYLLABUS FOR B.E VI Semester (2020-21)
Industrial Administration and Financial Management
(Open Elective-IV)

L:T:P (Hrs./week): 3:0:0	SEE Marks:60	Course Code : **U19OE620ME**
Credits: 3	CIE Marks:40	Duration of SEE : 3 Hours

Course objectives	Course Out comes
The objectives of this course are to: 1. aware about types of business forms, organization structures, plant layouts, merits, demerits and applications. 2. understand method study procedure, PME, time study techniques and wage incentives. 3. importance of PPC and improving quality by control charts and sampling plants. 4. optimization of inventory to minimize total cost and other optimization techniques like LPP, project management techniques. 5. estimate selling price of a product, TVM and budgeting techniques, depreciation methods.	*On completion of the course, the student will be able to:* 1. understand business forms, organization structures and plant layouts. 2. implementation of method study and estimation of standard time. 3. understand types of production, functions of PPC, quality control by charts and sampling. 4. implement optimization techniques like LPP, assignment and project management techniques. 5. understand BEA, estimation of depreciation, selling price of a product and capital budgeting techniques.

UNIT – I

Industrial Organization : Types of various business organisations. Organisation structures and their relative merits and demerits. Functions of management.

Plant location and layouts: Factors affecting the location of plant and layout. Types of layouts and their merits and demerits.

UNIT – II

Work study: Definitions, Objectives of method study and time study. Steps in conducting method study. Symbols and charts used in method study. Principles of motion economy. Calculation of standard time– by– time study and work sampling. Performance rating factor. Types of ratings. Jobs evaluation and performance appraisal. Wages, incentives, bonus, wage payment plans.

UNIT – III

Inspection and quality control: Types and objectives of inspection S.Q.C., its principles quality control by chart and sampling plans. Quality circles, introduction to ISO.

Production planning and control: Types of manufacture. Types of production. Principles of PPC and its function. Production control charts.

UNIT – IV

Optimisation: Introduction to linear programming and graphical solutions. Assignment problems.

Project Management: Introduction to CPM and PERT. Determination of critical path.

Material Management: Classification of materials. Materials planning. Duties of purchase manager. Determination of economic order quantities. Types of materials purchase.

UNIT – V

Cost accounting: elements of cost. Various costs. Types of overheads. Break even analysis and its applications. Depreciation. Methods of calculating depreciation fund. Nature of financial management. Time value of money. Techniques of capital budgeting and methods. Cost of capital. financial leverage.

Learning Resources:

1. Pandey I.M., "Elements of Financial Management", Vikas Publ. House, New Delhi, 1994
2. Khanna O.P., "Industrial Engineering and Management", Dhanapat Rai & Sons.
3. Everrete E Admaa & Ronald J Ebert , "production and Operations Management", 5th Ed. , PHI , 2005
4. S N Chary, "Production and Operations Management", 3rd Ed. , Tata McGraw Hill, , 2006
5. Pannerselvam, "production and Operations Management", Pearson Education, 2007

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**

Faculty I/c. (Name & Signature) Chairman, BOS

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

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

L:T:P(Hrs./week): 3:0:0	SEE Marks : 60	Course Code : **U19OE610IT**
Credits : 3	CIE Marks : 40	Duration of SEE : 3 Hrs

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

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

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

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

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

UNIT-V: Introduction to MVC
Introduction to Model View Controller Architecture, Building Application using a PHP Framework, Testing and Deploying a PHP application.

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

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

1	No. of Internal Tests:	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**

Faculty I/c. (Name & Signature) Chairman, BOS

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

INTRODUCTION TO MACHINE LEARNING
(OPEN ELECTIVE-V) (Common for CIVIL, ECE, EEE & MECH)
SYLLABUS FOR B.E VI- SEMESTER

L:T:P (Hrs./week): 3:0:0	SEE Marks :60	Course Code: **U19OE620IT**
Credits : 3	CIE Marks: 40	Duration of SEE :3Hrs

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

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

UNIT-II:
Supervised Non-parametric learning: Introduction to Decision Trees, K-Nearest Neighbor, Feature Selection.
Supervised Parametric learning: Support Vector Machine, Kernel function and Kernel SVM.

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

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

UNIT-V:
Unsupervised leaning: Clustering, K-means Clustering, DBSCAN

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

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

1	No. of Internal Tests:	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**

Faculty I/c. (Name & Signature) Chairman, BOS

VASAVI COLLEGE OF ENGINEERING(AUTONOMOUS)
IBRAHIMBAGH, HYDERABAD – 500 031
DEPARTMENT OF HUMANITIES AND SOCIAL SCIENCES
(OPEN ELECTIVE) - B.E 3/4 -VI SEMESTER
ENGLISH FOR COMPETITIVE EXAMINATIONS
(Common to all branches)

L:T: P (Hrs/Week):3	SEE Marks:60	Course Code: **U19OE610EH**
Credits: 3	CIE Marks:40	Duration of SEE:Hours:03

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

GATE :

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

GRE :

VERBAL REASONING:

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

ANALYTICAL WRITING:

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

CAT :

VERBAL ABILITY AND READING COMPREHENSION:

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

TOEFL:

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

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

1	No. of Internal Tests:	02	Max.Marks for each Internal 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**

Faculty I/c. (Name & Signature) Chairman, BOS

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)

IBRAHIMBAGH, HYDERABAD – 500 031

DEPARTMENT OF PHYSICS

Open elective Course

FUNDAMENTALS OF NANO MATERIALS AND THEIR APPLICATIONS

L:T:P (Hrs./week): 3:0:0	SEE Marks:60	Course Code : **U19OE610PH**
Credits: 3	CIE Marks:40	Duration of SEE : 3 Hours

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

UNIT-I:INTRODUCTION TO NANOSCIENCE

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

UNIT-II: PROPERTIES OF NANO MATERIALS

Material behavior at reduced dimensions, Electrical properties: conductivity, surface scattering, ballistic transport Magnetic properties: Soft magnetic Nano-crystalline alloy, Permanent magnetic Nano-crystalline materials, Giant Magnetic Resonance, chemical properties, optical properties and thermal properties.

UNIT-III: NANOMATERIALS PREPARATION TECHNIQUES

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

UNIT-IV: NANO MATERIAL CHARACTERIZATION TECHNIQUES

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

UNIT-V: CARBON NANO MATERIALS AND APPLICATIONS

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

Learning Resources:

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

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

1	No. of Internal Tests:	02	Max.Marks for each Internal 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**

Faculty I/c. (Name & Signature) Chairman, BOS

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
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

Faculty I/c. (Name & Signature) Chairman, BOS

S. No.	Date	Day	Details of Activity / Public Holiday
			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 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 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

S. No.	Date	Day	Details of Activity / Public Holiday
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 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.

S. No.	Date	Day	Details of Activity / Public Holiday
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	
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 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

S. No.	Date	Day	Details of Activity / Public Holiday
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)
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
177	24-12-2021	Friday	Second Internal for V sem Students Second spell of Lab classes for VII Sem students

S. No.	Date	Day	Details of Activity / Public Holiday
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
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)

Faculty I/c. (Name & Signature) Chairman, BOS

S. No.	Date	Day	Details of Activity / Public Holiday
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 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 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

S. No.	Date	Day	Details of Activity / Public Holiday
			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	
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	

S. No.	Date	Day	Details of Activity / Public Holiday
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, 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
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

S. No.	Date	Day	Details of Activity / Public Holiday
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 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