
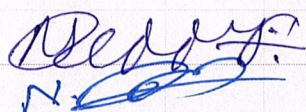
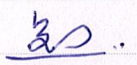
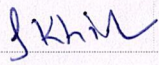




BOARD OF STUDIES MEETING – 2019-20
K.S.R.M COLLEGE OF ENGINEERING
AUTONOMOUS

Minutes of the Meeting

Date	28.12.2019	Day	Saturday
Time	12 NOON	Venue	Web Technologies Lab (MB210)
Dept./SS	CSE	Convener	Dr. M. Sreenivasulu

Members Present:11				Members Absent: 02		
S.No	Name	Designation	Signature	S.No	Name	Designation
1	Dr. M. Sreenivasulu	Prof., & HOD CSE, KSRMCE		1	Dr. D. Janakiram	Prof., Dept. of CSE, IITM, Chennai
2	Dr. R.B.V. Subramanyam	Prof., & HOD CSE, NITW		2	Sri. S. Aditya	Industry
3	Dr. C. Shoba Bindhu	Prof., in CSE, JNTUA				
4	Dr. G. Varaprasad	Alumni, Prof., BMS College of Engg., Bangalore				
5	Dr. B.V. Ramana Reddy	Prof., KSRMCE				
6	Dr. V. Lokeswara Reddy	Prof., KSRMCE				
7	Dr. N. Ramanjaneya Reddy	Associate Prof., KSRMCE				
8	Dr. M.V. Rathnamma	Associate Prof., KSRMCE				
9	Smt. B. Manorama Devi	Assistant Prof., KSRMCE				
10	Sri. G. Nagendra Babu	Assistant Prof., KSRMCE				
11	Sri. S. Khaja Khizar	Assistant Prof., KSRMCE				

Dr. M. Sreenivasulu, welcomed all the members to the meeting and presented the agenda of the meeting.
Kadapa, AndharPardesh-516003

The resolutions are:

	Todo item	Discussion	Resolution	Coordinator/in-charge
1	To finalize the curriculum and syllabus for V B.Tech (CSE) under R18UG Regulations.	The Head of the Department has presented the curriculum and the syllabus designed by the faculty after taking the feedback from all stakeholders and comparing with premier institute syllabus.	The committee has approved curriculum and syllabus for V sem B.Tech CSE under R-18UG Regulations which also includes <u>New Courses</u> and <u>Professional Electives</u> . The suggestions provided by the expert team are considered and modifications will be done respectively.	Dr. M. Sreenivasulu
2	To finalize and approve the syllabus for Certificate Courses/Skill Courses/Employability Courses/Entrepreneurship.	The Head of the Department has presented the syllabus for certification courses and skill courses, designed by the faculty after taking the feedback from all stakeholders.	The committee appreciated the <u>certification courses</u> to be offered by the department and approved the content for offering <u>Certificate Courses/Skill Courses/Employability Courses/Entrepreneurship</u> .	Dr. M. V. Rathnamma
3	<u>Feedback/suggestions from stake holders and action taken report.</u>	The Head of the Department presented Feedback and suggestions from stakeholders and also action taken report by the department.	The committee approved action taken report on suggestions and feedback collected from the stakeholders.	Smt. B. Manorama Devi

The Head of the Department have proposed the Vote of thanks and concluded the meeting.



Convener

Dr. M. Sreenivasulu,

M E, Ph. D.

Professor & HOD CSE

K.S.R.M. College of Engineering

KADAPA - 516 003

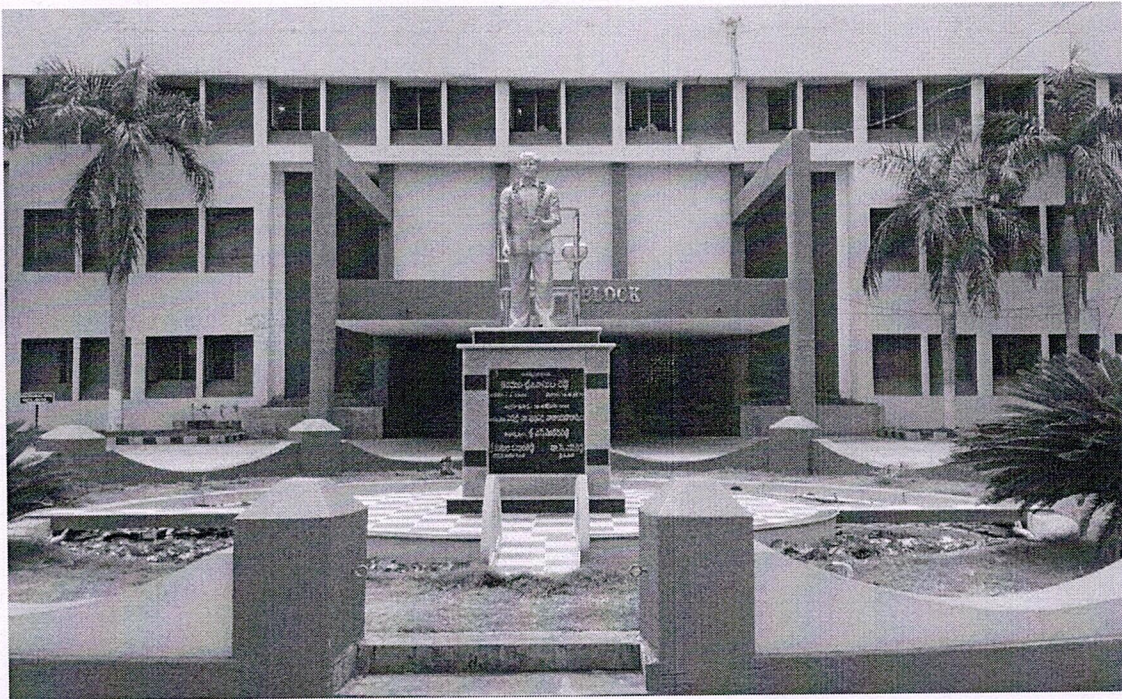
**DEPARTMENT OF
COMPUTER SCIENCE AND ENGINEERING**

COURSE STRUCTURE AND SYLLABUS

FOR

B.Tech CSE (I Sem - VIII Sem) (R18 Regulations)

**(Effective from 2018-19 for Regular students and from 2019-20 for
Later Entry students)**



**KANDULA SREENIVASA REDDY MEMORIAL COLLEGE OF
ENGINEERING(AUTONOMOUS)**

KADAPA - 516005, AP

**(Approved by AICTE, Affiliated to JNTUA, Ananthapuramu, Accredited by NAAC)
(An ISO 9001-2008 Certified Institution)**


COMPUTER SCIENCE AND ENGINEERING

I Semester

Subject Code	Subject Category	Course Name	L	T	P	IM	EM	CR
1821101	BSC	Mathematics – I	3	1	0	30	70	4
1822104	BSC	Engineering Physics	3	1	0	30	70	4
1802103	ESC	Basic Electrical Engineering	3	1	0	30	70	4
1803107	ESC	Engineering Graphics & Design	1	0	4	50	50	3
1822108	BSC	Engineering Physics Lab	0	0	3	50	50	1.5
1802109	ESC	Basic Electrical Engineering Lab	0	0	2	50	50	1
1803110	ESC	Workshop and Manufacturing Practices	1	0	4	50	50	3
TOTAL			11	3	13	290	410	20.5

II Semester

Subject Code	Subject Category	Course Name	L	T	P	IM	EM	CR
1821201	BSC	Mathematics – II	3	1	0	30	70	4
1823202	BSC	Engineering Chemistry	3	1	0	30	70	4
1824203	HSMC	English	2	0	0	30	70	2
1805204	ESC	Programming for Problem Solving	3	0	0	30	70	3
1823207	BSC	Chemistry Lab	0	0	3	50	50	1.5
1805208	ESC	Programming for Problem Solving Lab	0	0	4	50	50	2
1824209	HSMC	English Lab	0	0	2	50	50	1
TOTAL			11	2	9	270	430	17.5


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III Semester

Subject Code	Subject Category	Course Name	L	T	P	IM	EM	CR
18993M1	MC	Environmental Science (Mandatory Course-1)	2	0	0	30	--	0
1804302	PN	Basics of Electronics Engineering	3	0	0	30	70	3
1805303	PCC	Data Structures	3	0	0	30	70	3
1805304	PCC	Discrete Mathematics	3	0	0	30	70	3
1805305	PCC	Digital Logic Design	3	0	0	30	70	3
1805306	PCC	Python Programming	3	0	0	30	70	3
1825307	HSMC	Managerial Economics and Financial Accounting	3	0	0	30	70	3
1814311	PN	Basics of Electronics Engineering Lab	0	0	2	50	50	1
1805309	PCC	Data Structures Lab	0	0	3	50	50	1.5
1805310	PCC	Python Programming Lab	0	0	3	50	50	1.5
TOTAL			20	0	8	360	570	22

IV SEMESTER

Subject Code	Subject Category	Course Name	L	T	P	IM	EM	CR
1823401	BSC	Biology for Engineers	2	0	0	30	70	2
1821402	BSC	Probability & Statistics	3	0	0	30	70	3
1805403	PCC	Computer Organization	3	0	0	30	70	3
1805404	PCC	Operating Systems	3	0	0	30	70	3
1805405	PCC	Design and Analysis of Algorithms	3	0	0	30	70	3
1805406	PCC	Java Programming	3	0	0	30	70	3
1805407	PCC	Formal Languages and Automata Theory	3	0	0	30	70	3
1805408	PCC	Java Programming lab	0	0	2	50	50	1
1805410	PCC	Operating Systems Lab	0	0	2	50	50	1
TOTAL			20	0	4	310	590	22



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V SEMESTER

Subject Code	Subject Category	Course Name	L	T	P	IM	EM	CR
1805501	PCC	Web Technologies	2	0	0	30	70	2
1805502	PCC	Data Base Management Systems	3	0	0	30	70	3
1805503	PCC	Computer Networks	3	0	0	30	70	3
1805504	PCC	Software Engineering	3	0	0	30	70	3
1805505 1805506 1805507	PEC	Professional Elective-1 1. Human Computer Interaction 2. Multimedia Systems 3. Distributed Systems	3	0	0	30	70	3
1805508	PCC	Compiler Design	3	0	0	30	70	3
1825509	PCC	Constitution of India	2	-	-	30	--	0
1805510	PCC	Databases Lab	0	0	2	50	50	1
1805511	PCC	Web Technologies Lab	0	0	2	50	50	1
1824512	HSC	Advanced English and Communications Skills lab	0	0	2	50	50	1
1805513	Project	Socially Relevant Project	0	0	4	100	--	2
TOTAL			19	0	10	460	570	22

VI SEMESTER

Subject Code	Subject Category	Course Name	L	T	P	IM	EM	CR
1805601	PCC	Internet of Things	3	0	0	30	70	3
1805602	PCC	Data Mining	3	0	0	30	70	3
1805603 1805604 1805605	PEC	Professional Elective-2 1. Artificial Intelligence 2. Software Testing 3. Mobile Adhoc Networks	3	0	0	30	70	3
180E501 180E502	OEC	Open Elective-1 1. Data Structures 2. Database Management Systems	3	0	0	30	70	3
1825609	HSC	Management Science	3	0	0	30	70	3
1805608	PCC	Mobile Application Development	3	0	0	30	70	3
1805609	PCC	Internet of Things Lab	0	0	2	50	50	1
1805610	PCC	Mobile Application Development Lab	0	0	2	50	50	1
1805611	Project	Internship	--	--	--	100	--	2
TOTAL			18	0	04	380	520	22



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VII SEMESTER

Subject Code	Subject Category	Course Name	L	T	P	IM	EM	CR
1805701	PCC	Machine Learning	3	0	0	30	70	3
1805702	PCC	Big Data Technologies	3	0	0	30	70	3
1805703 1805704 1805705	PEC	Professional Elective-3 1. Computer Graphics 2. Design Patterns 3. Cloud Computing	3	0	0	30	70	3
180E503 180E504	OEC	Open Elective-2 1. Python Programming 2. Computer Networks	3	0	0	30	70	3
180E505 180E506	OEC	Open Elective-3 1. Web Technologies 2. Operating Systems	3	0	0	30	70	3
1805710	PCC	Big Data Technologies Lab	0	0	2	50	50	1
1805711	PCC	Machine Learning Lab	0	0	2	50	50	1
1805712	Project	Technical Seminar	0	0	2	100	--	1
1805713	Project	Project-I	0	0	8	100	--	4
TOTAL			15	0	14	450	450	22

VIII SEMESTER

Subject Code	Subject Category	Subject Title	L	T	P	IM	EM	CR
1805801 1805802 1805803	PEC	Professional Elective-4 1. Cyber Security 2. Object Oriented Analysis & Design 3. Deep Learning	3	0	0	30	70	3
180E507 180E508	OEC	Open Elective-4 1. Software Engineering 2. Cloud Computing	3	0	0	30	70	3
1805806	Project	Project-II	0	0	12	50	50	6
TOTAL			6	0	12	110	190	12


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Course Title	WEB TECHNOLOGIES					B.Tech V Sem (R18) CSE		
Course Code	Category	Hours/Week			Credits	Maximum Marks		
1805501	PCC	L	T	P	C	Continuous Internal Assessment	End Exams	Total
		2	0	0	2	30	70	100
Mid Exam Duration: 2 Hours					End Exam Duration: 3Hrs			
Course Objectives:								
<ul style="list-style-type: none"> To learn the basic web concepts and Internet protocols. To introduce client side scripting with Java script and HTML. To introduce server side programming with PHP. 								
Course Outcomes: On successful completion of this course, the students will be able to								
CO 1	Define web server and installations of various web servers.							
CO 2	Understand the scripting languages HTML, CSS, Java Script and create static web pages.							
CO 3	Interpret the server side scripting PHP and create dynamic web pages.							
CO 4	Outline the advanced concepts of PHP and design web pages to authenticate users.							
CO 5	Develop server side programs using PHP and accessing database through PHP.							

UNIT - I

Introduction to Web Technologies: Introduction to Web servers like Apache1.1, IIS XAMPP(Bundle Server), WAMP(Bundle Server), Handling HTTP Request and Response, installations of above servers.

UNIT - II

HTML Common tags: List, Tables, images, forms, Frames; Cascading Style sheets;

Introduction to Java Script: Introduction to Java Scripts, Objects in Java Script, Dynamic HTML with Java Script.

UNIT - III

Overview of PHP Data types and Concepts: Variables and data types, Operators, Expressions and Statements, Strings, Arrays and Functions.

Overview of Classes, Objects, and Interfaces: Creating instances using Constructors, Controlling access to class members, Extending classes, Abstract classes and methods, using interfaces, Using class destructors, File Handling and Using Exceptions.

UNIT - IV

PHP Advanced Concepts: Using Cookies, Using HTTP Headers, Using Sessions, Authenticating users, Using Environment and Configuration variables, Working with Date and Time.

UNIT - V

Using Creating and Forms: Understanding Common Form Issues, GET vs. POST, Validating form input.


PHP and Database Access: Basic Database Concepts, Connecting to a MYSQL database, Retrieving and Displaying results, Modifying, Updating and Deleting data..

Text Books:

1. Beginning PHP and MySQL, 5th Edition, Jason Gilmore, Apress Publications (Dream tech.)
2. PHP 5 Recipes A problem Solution Approach Lee Babin, Nathan A Good, Frank M.Kromann and Jon Stephens.
3. Web Programming, building internet applications, Chris Bates 3rd edition, WILEY Dreamtech.
4. PHP 6 Fast and Easy Web Development, Julie Meloni and Matt Telles, Cengage LearningPublications.

References: Books:

1. Open Source Web Development with LAMP using Linux, Apache, MySQL, Perl and PHP, J.Lee and B.Ware(Addison Wesley) Pearson Education.
2. PHP 5.1, I Bayross and S. Shah, The X Team, SPD
3. PHP and My SQL by Example, E. Quigley, Prentice Hall (Pearson).
4. PHP Programming solutions, V. Vaswani. TMH.


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Course Title	DATABASE MANAGEMENT SYSTEMS					B.Tech V Sem (R18) CSE		
Course Code	Category	Hours/Week			Credits	Maximum Marks		
1805502	PCC	L	T	P	C	Continuous Internal Assessment	End Exams	Total
		3	0	0	3	30	70	100
Mid Exam Duration: 2 Hours					End Exam Duration: 3Hrs			
Course Objectives:								
<ul style="list-style-type: none"> To study the physical and logical database designs, database modeling, relational, hierarchical and network models. To understand and use data manipulation language to query, update, and manage a database To develop an understanding of essential DBMS concepts such as: database security, integrity, concurrency. 								
Course Outcomes: On successful completion of this course, the students will be able to								
CO 1	To understand the basic concepts and the application of Database systems.							
CO 2	To understand the basics of SQL and construct queries using SQL.							
CO 3	To understand the Relational Database design principles.							
CO 4	To apply concurrency control and recovery techniques during transaction execution.							

UNIT - I

Introduction - Database-System Applications, Purpose of Database Systems, View of Data, Database languages, Data base architecture, Database Users and Administrators.

Introduction to the Relational Model - Structure of Relational Databases, Database Schema, Keys, Schema Diagrams, Relational Query Languages, Relational Operations.

Database Design and the E-R Model - Overview of the Design Process, The Entity Relationship Model, Constraints, Removing Redundant Attributes in Entity Sets, Entity Relationship Diagrams.

UNIT - II

Introduction to SQL - Overview of the SQL Query Language, SQL Data Definition, Basic Structure of SQL Queries, Additional Basic Operations, Set Operations, Null Values, Aggregate Functions, Nested Sub queries, Modification of the Database.

Advanced SQL - Integrity Constraints, SQL Data Types and Schemas, Functions and Procedures, Triggers.

Other Relational Query Languages - The Relational Algebra, Tuple Relational Calculus, Domain Relational-calculus.

UNIT - III

Schema Refinement and Normal Forms - Schema Refinement – Problems Caused by Redundancy, Decompositions, Problems related to decomposition. Reasoning about Functional Dependencies, First, Second, Third Normal forms, BCNF. Lossless join Decomposition, Dependency- preserving Decomposition. Schema refinement in Data base Design, Multi valued Dependencies, Fourth Normal Form, Join Dependencies, Fifth Normal Form, Inclusion dependencies.

Query Processing and Optimization- Overview, Measures of Query Cost, Selection Operation, Transformation of Relational Expressions.

Transactions - Transaction Concept, A Simple Transaction Model, Storage Structure, Transaction Atomicity and Durability, Transaction Isolation, Serializability, Transaction Isolation and Atomicity, Transaction Isolation Levels, Implementation of Isolation Levels, Transactions as SQL Statements .

UNIT - V

Concurrency Control - Lock-Based Protocols, Deadlock Handling, Multiple Granularity, Timestamp-Based Protocols, Validation-Based Protocols, Multi version Schemes, Snapshot Isolation, Insert Operations, Delete Operations, and Predicate Reads.


Recovery System - Failure Classification, Storage, Recovery and Atomicity, Recovery Algorithm, Buffer Management, Failure with Loss of Non-volatile Storage, Early Lock Release and Logical Undo Operations, Remote Backup Systems.

Text Books:

1. Silberschatz, Korth, Database System Concepts. 5th Edition, McGraw Hill.
2. Raghurama Krishnan, Johannes Gehrke, Data base Management Systems. 3rd Edition, Tata McGraw Hill.
3. Elmasri, Navathe, Fundamentals of Database Systems, Pearson Education.
4. C.J. Date, Introduction to Database Systems

Reference Books:

1. Peter Rob, Ananda Rao and Carlos Corone, Database Management Systems, Cengage Learning.
2. Ramez Elmasri, Shamkanth B. Navathe, Fundamentals of Database Systems, 7th Edition, Pearson.
3. Abraham Silberschatz, Henry F. Korth, S. Sudarshan, Database System Concepts, Indian Edition, McGraw Hill.


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Course Title	COMPUTER NETWORKS				B.Tech V Sem (R18) CSE			
Course Code	Category	Hours/Week			Credits	Maximum Marks		
1805503	PCC	L	T	P	C	Continuous Internal Assessment	End Exams	Total
		3	0	0	3	30	70	100
Mid Exam Duration: 2 Hours					End Exam Duration: 3Hrs			
Course Objectives:								
<ul style="list-style-type: none"> • Study the evolution of computer networks and future direction. • Study the concepts of computer networks from layered. • Perspective study the issues open for research in computer networks. 								
Course Outcomes: On successful completion of this course, the students will be able to								
CO 1	Understand the terminology and concepts of the OSI reference model and TCP-IP.							
CO 2	Describe the functions of Data link layer and its protocols.							
CO 3	Classifying the different routing algorithms and IP addressing with network layer							
CO 4	Understand connection establishment and services provides by TCP and UDP.							
CO 5	Explain the working of DNS and World Wide Web.							

UNIT - I

Introduction: Uses of Computer Networks, Network Hardware, Reference Models: OSI, TCP/IP, Comparison of OSI & TCP/IP reference models.

Introduction to physical layer: Data and Signals, Transmission impairment, Datarate limits, Performance.

Transmission media: Introduction, Guided Media, Unguided Media

Switching: Introduction, Circuit Switched Networks, Packet Switching

UNIT - II

The Data Link Layer: Data Link Layer design issues, Error Detection and Correction, Elementary Data Link Protocols, Sliding Window Protocols.

The Medium Access Control sublayer : Multiple Access protocols, Ethernet, Data Link Layer Switching.

UNIT - III

The Network Layer: Network layer design issues, Routing algorithms : The Optimality Principle, Shortest Path Algorithm, Flooding, Distance Vector Routing, Link State Routing, Hierarchical Routing, Broadcast Routing, Multicast Routing, Anycast Routing,

Congestion control algorithms, Quality of service, IP Addresses, IPv4, IPv6, Tunneling, Fragmentation.

UNIT - IV

The Transport Layer: The Transport Service, Elements of Transport Protocols, Congestion Control, The internet transport protocols: UDP, TCP: Introduction to TCP, Service Model, Protocol, Segment Header, Connection Establishment, Connection Release.

UNIT - V

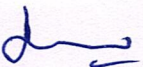
The Application layer: Domain Name System (DNS), World Wide Web (WWW), E-mail.

Text Books:

1. "Computer Networks", Andrew S. Tanenbaum, David J. Wetherall, Pearson, 5th edition, 2010.
2. "Data communications and networking", Behrouz A. Forouzan, TMH, 5th edition, 2012.
3. "Internetworking with TCP/IP – Principles, protocols, and architecture- Volume 1, Douglas E. Comer, 5th edition, PHI
4. "Computer Networks", 5E, Peterson, Davie, Elsevier.

Reference Books:

1. "Introduction to Computer Networks and Cyber Security", Chawan- Hwa Wu, Irwin, CRC Publications.
2. "Computer Networks and Internets with Internet Applications", Comer.
3. Computer Networks, A Top-Down Approach, James F. Kurose, Keith W. Ross, 3rd Edition, Pearson.
4. Computer Networks, A Top-Down Approach, Behrouz A. Forouzan, Firoz Mosharraf, Special Indian Edition, McGraw Hill.


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Course Title	SOFTWARE ENGINEERING					B.Tech V Sem (R18) CSE		
Course Code	Category	Hours/Week			Credits	Maximum Marks		
1805504	PCC	L	T	P	C	Continuous Internal Assessment	End Exams	Total
		3	0	0	3	30	70	100
Mid Exam Duration: 2 Hours					End Exam Duration: 3Hrs			
Course Objectives:								
<ul style="list-style-type: none"> • Knowledge of basic Software engineering methods and practices, and their appropriate application also the software engineering layered technology and Process frame work. • A general understanding of software process models such as the waterfall and evolutionary models. • Understanding of the role of project management including planning, scheduling, risk management, etc. • Understanding of data models, object models, context models and behavioural models also different software architectural styles. • Understanding of software testing approaches such as unit testing and integration testing other testing strategies and Risk management. 								
Course Outcomes: On successful completion of this course, the students will be able to								
CO 1	Ability to apply software engineering principles and techniques.							
CO 2	Ability to develop, maintain and evaluate large-scale software systems.							
CO 3	To produce efficient, reliable, robust and cost-effective software solutions.							
CO 4	To manage time, processes and resources effectively by prioritising competing demands to achieve personal and team goals Identify and analyzes the common threats in each domain.							

UNIT - I

Software and Software Engineering: The Nature of Software, Software Engineering, Software Process Software Myths. Process Models: A Generic Process Model, Prescriptive Process Models, Specialized Process Models, The Unified Process, Personal and Team Process Models.

UNIT - II

Understanding Requirements: Requirements Engineering, Establishing the Groundwork, Eliciting Requirements, Building the Requirements Model, Negotiating Requirements, Validating Requirements.

Requirements Modeling: Requirements Analysis, Scenario-Based Modeling, Data Modeling Concepts, Class-Based Modeling.

UNIT - III

Design Concepts: Design within the Context of Software Engineering, Design Process, Design Concepts, The Design Model.

Architectural Design: Software Architecture, Architectural Genres, Architectural Styles, Architectural Design.

UNIT - IV

User Interface Design: The Golden Rules, User Interface Analysis and Design, Interface Analysis, Interface Design Steps, Design Evaluation.

Coding and Testing: Testing, Testing in the Large versus Testing in the Small, Unit Testing, Integration Testing, Black-Box Testing, White-Box Testing, Debugging, System Testing.

UNIT - V

Software Project Management: Project Planning, Metrics for Project Size Estimation, Project Estimation Techniques, Empirical Estimation Techniques, COCOMO-A Heuristic Estimation Technique, Halstead's Software Science-An Analytical Technique, Risk Management.

Text Books:

1. Software Engineering: A practitioner's Approach, Roger S. Pressman, Seventh Edition, 2010, McGrawHill International Edition.
2. Fundamentals of Software Engineering, Rajib Mall, 4th Edition, 2014, PHI.
3. Software Engineering, Ian Sommerville, Ninth edition, Pearson education.
4. Software Engineering : A Primer, Waman S Jawadekar, Tata McGraw-Hill, 2008

Reference Books:

1. Software Engineering, A Precise Approach, Pankaj Jalote, Wiley India, 2010.
2. Software Engineering, Principles and Practices, Deepak Jain, Oxford University Press.
3. Software Engineering1: Abstraction and modeling, Diner Bjorner, Springer International edition, 2006.
4. Software Engineering2: Specification of systems and languages, Diner Bjorner, Springer International edition , 2006.
5. Software Engineering Foundations, Yingxu Wang, Auerbach Publications, 2008.


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Course Title	HUMAN COMPUTER INTERACTION (Professional Elective-1)				B.Tech V Sem (R18) CSE			
Course Code	Category	Hours/Week			Credits	Maximum Marks		
1805505	PEC	L	T	P	C	Continuous Internal Assessment	End Exams	Total
		3	0	0	3	30	70	100
Mid Exam Duration: 2 Hours					End Exam Duration: 3Hrs			
Course Objectives:								
<ul style="list-style-type: none"> To gain an overview of Human-Computer Interaction (HCI), with an understanding of user interface design in general. To apply models from cognitive psychology to predicting user performance in various human-computer interaction tasks and recognize the limits of human performance as they apply to computer operation. Evaluate techniques in interface design. 								
Course Outcomes: On successful completion of this course, the students will be able to								
CO 1	Ability to identify screen elements to solve real time problems.							
CO 2	Ability to identify and implement proper components for different web needs.							
CO 3	Ability to apply HCI and principles to interaction design.							
CO 4	Ability to explore different devices based on social needs.							

UNIT - I

Introduction: Importance of user Interface – definition, importance of good design. Benefits of good design. A brief history of Screen design.

The graphical user interface – popularity of graphics, the concept of direct manipulation, graphical system, Characteristics, Web user – Interface popularity, characteristics- Principles of user interface.

UNIT - II

Design process – Human interaction with computers, importance of human characteristics human consideration, Human interaction speeds, understanding business functions- Business definition and requirement analysis, Basic business functions.

UNIT - III

Screen Designing:- Design goals – Screen planning and purpose, organizing screen elements, ordering of screen data and content – screen navigation and flow – Visually pleasing composition – amount of information – focus and emphasis – presentation information simply and meaningfully – information retrieval on web – statistical graphics – Technological consideration in interface design.

UNIT - IV

Windows – New and Navigation schemes selection of window, selection of devices based and screen based controls. Components – text and messages, Icons and increases – Multimedia, colors, uses problems, choosing colors.

UNIT - V


Software tools: Specification methods, Interactive-building tools, Evaluation and Critiquing tools. Interactive devices: Interactive device- keyboards and function keys- pointing devices- Speech reorganization, digitalization and generation- Image and video displays – Printers.

Text Books:

1. The essential guide to user interface design, Wilbert O Galitz, Wiley Dream Tech.
2. Designing the user interface. 3rd Edition Ben Shneidermann, Pearson Education Asia.
3. Human – Computer Interaction. Alan Dix, Janet Finckay, Gre Goryd, Abowd, RussellBealg, Pearson Education.
4. Interaction Design Prece, Rogers, Sharps. Wiley Dreamtech.

Reference Books:

1. User Interface Design, Soren Lauesen, Pearson Education.
2. Human –Computer Interaction, D. R. Olsen, Cengage Learning.
3. Human –Computer Interaction, Smith - Atakan, Cengage Learning.
4. Human-Computer Interaction Fundamentals and Practices, Gerard Jounghyun Kim, CRC Press


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Course Title	MULTIMEDIA SYSTEMS (Professional Elective-1)				B.Tech V Sem (R18) CSE			
Course Code	Category	Hours/Week			Credits	Maximum Marks		
1805506	PEC	L	T	P	C	Continuous Internal Assessment	End Exams	Total
		3	0	0	3	30	70	100
Mid Exam Duration: 2 Hours					End Exam Duration: 3Hrs			
Course Objectives:								
<ul style="list-style-type: none"> To adapt the architecture for design of multimedia system. To solve issues related to multimedia file handling. To adopt hypermedia standards in developing multimedia applications. Know the basics of creating multimedia applications. 								
Course Outcomes: On successful completion of this course, the students will be able to								
CO 1	Analyze and synthesis the key components of multimedia technologies including text, audio and graphics.							
CO 2	Understand the key components of multimedia technologies including video, animation and compression techniques.							
CO 3	Examine various process scheduling techniques.							
CO 4	Recall the data storage and retrieval methods.							
CO 5	Interpret reference model for multimedia synchronization and summarize applications of multimedia.							

UNIT - I

Multimedia: Definition, Where to use multimedia, Medium, Main properties of multimedia system, Traditional data stream characteristics, Data stream characteristics for continuous media, Information units.

Sound/Audio: Basic sound concepts, Music, Speech.

Images/Graphics: Basic concepts, Computer image processing.

UNIT - II

Video and Animation: Basic concepts, Television, Computer based animation.

Data Compression: Storage space, Coding requirements, Source, Entropy and Hybrid coding, Some basic compression techniques, JPEG, H.261,(P×64), MPEG, DVI.

UNIT - III

Computer Technology: Communication Architecture, Multimedia Workstation.

Multimedia Operating Systems: Introduction, Real time, Resource management, Process management.

Multimedia Communication systems: Application Subsystem, Transport subsystem.

UNIT - IV

Database Systems: Multimedia Database Management System, Characteristics of an MDBMS, Data Analysis, Data Structure, Operations on data, Integration in a Database model.

Documents, Hypertext and MHEG: Documents, Hypertext and Hypermedia, Document Architecture ODA, MHEG.

UNIT - V

Synchronization: Introduction, Notion of Synchronization, Presentation requirements, Reference model for multimedia synchronization, Synchronization specifications.


Multimedia Applications: Introduction, Media Presentation, Media Composition, Media Integration, Media Communication, Media Consumption, and Media Entertainment.

Text Books:

1. "Multimedia: Computing, Communications and Applications", Ralf Steinmetz and Klara Nahrstedt, Pearson Education.
2. "Multimedia: Making It work:", Tay Vaughan, Pearson Education.
3. "Multimedia Systems", Koegel Buford, Pearson Education
4. "Fundamentals of Multimedia", Ze-Nian Li, Mark.S.Drew, Springer.

Reference Books:

1. "Multimedia System design", Prabhat K. Andheigh, Kiran Thakrar, THM
2. "Multimedia Communication Systems: Techniques, standards and networks, K.R.Rao,D.Milovanovic.
3. Introduction to Multimedia, Ramesh Bangia, Firewall Media.
4. Principles of Multimedia, 2nd Edition, Ranjan Parekh, MAT Lab examples.


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Course Title	DISTRIBUTED SYSTEMS (Professional Elective-1)					B.Tech V Sem (R18) CSE		
Course Code	Category	Hours/Week			Credits	Maximum Marks		
1805507	PEC	L	T	P	C	Continuous Internal Assessment	End Exams	Total
		3	0	0	3	30	70	100
Mid Exam Duration: 2 Hours					End Exam Duration: 3Hrs			
Course Objectives:								
<ul style="list-style-type: none"> To make the student to understand the features of distributed systems. Creating awareness among students on processes and synchronization among processes. Learn the concepts of consistency models, replication and fault tolerance in distributed systems. 								
Course Outcomes: On successful completion of this course, the students will be able to								
CO 1	Identify the core concepts of distributed systems.							
CO 2	Understand the concepts of threads and communication mechanisms for processes.							
CO 3	Develop the clock synchronization, mutual exclusion and election algorithms.							
CO 4	Analyze the consistency and replication models.							
CO 5	Understand the fault tolerance mechanisms in distributed systems.							

UNIT - I

Introduction: Definition of a distributed system, Goals, Types of distributed systems.

Architectures: Architecture styles, System architectures.

UNIT - II

Processes: Threads, virtualization, clients, servers, code migration.

Communication: Fundamentals, Remote Procedure Call, Message oriented communication, Stream oriented communication, Multicast communication.

UNIT - III

Synchronization: Clock synchronization, Logical clocks, Mutual exclusion, Election Algorithms.

UNIT - IV

Consistency and Replication: Introduction, Data centric consistency models, Client centric consistency models, Replica management, Consistency protocols.

UNIT - V


Fault Tolerance: Introduction to fault tolerance, Process resilience, Reliable client server communication, Reliable group communication, Distributed commit, Recovery.

Text Books:

1. Andrew S. Tanenbaum, Marteen Van Steen, "Distributed Systems: Principles and Paradigms", 2nd Edition, PHI.
2. George Coulouris, Jean Dollimore, Tim Kindberg, "Distributed Systems – Concepts and Design", Fourth Edition, Pearson Education.
3. Andrew S. Tanenbaum, "Distributed Operating System", Pearson Education.
4. Pradeep K. Sinha, "Distributed Operating Systems – Concepts and Design", PHI publications.

Reference Books:

1. Distributed Systems and Algorithm Analysis, Randy Chew, Theodore Johnson, Pearson.
2. Distributed Systems and Paradigms, Andrew. S. Tanenbaum, Maarten Van Steen, 2nd Edition, Pearson.
3. Distributed Systems: Computing over Network, Joel M. Crichlow, 2nd Edition, PHI.


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Course Title	COMPILER DESIGN					B.Tech V Sem (R18) CSE		
Course Code	Category	Hours/Week			Credits	Maximum Marks		
1805508	PCC	L	T	P	C	Continuous Internal Assessment	End Exams	Total
		3	0	0	3	30	70	100
Mid Exam Duration: 2 Hours					End Exam Duration: 3Hrs			
Course Objectives:								
<ul style="list-style-type: none"> To make the student to understand the process involved in compilation. Creating awareness among students on various types of parsers. Understand the syntax analysis, intermediate code generation, type checking, and the role of symbol table. 								
Course Outcomes: On successful completion of this course, the students will be able to								
CO 1	Understand and analyze the various phases of Compiler.							
CO 2	Identify the tokens using lexical analyzer techniques.							
CO 3	Categorize and implement parsing techniques.							
CO 4	Understand syntax directed definition and develop type checking semantics using synthesized and inherited attributes.							
CO 5	Understand the storage allocation and intermediate code representations.							
CO 6	Summarize the code optimize techniques and demonstrate code generation technique and concepts.							

UNIT - I

Introduction to Compiling: Compilers, Analysis of the Source program, the phases of a compiler, the cousins of the Compiler, grouping of phases, Compiler construction tools.

Lexical Analysis: The role of the analyzer. Input buffering, Specification of tokens, Recognition of tokens, A language for Specifying Lexical analyzer.

UNIT - II

Syntax Analysis: The role of the parser, Context-free grammars, writing a grammar, Top down parsing, Bottom-up parsing, Operator-precedence parsing, LR parsers, Parser generators.

UNIT - III

Syntax Directed Translation: Syntax-directed definitions, Construction of syntax trees, S-attributed definitions, L-attributed definitions.

Type Checking: Type systems, Specification of simple type checker, Equivalence of type expressions, type conversions.

UNIT - IV

Run-Time Environments: Source Language issues, storage organization, Storage-allocation strategies, Access to non local names, Symbol tables.

Intermediate Code generation: Intermediate languages, three address code, quadruple, triple and indirect triple.

UNIT - V

Code Generation: Issues in the Design of a code generator, The target machine, Basic blocks and flow graphs, Next-use information, A simple code generator, Register allocation and assignment, DAG representation of basic blocks, peephole optimization.


Code Optimization: Introduction, the principle source of optimization.

Text Book:

1. Alfred V. Aho, Ravi Sethi, Jeffrey D. Ullman, Compilers-Principles, Techniques and Tools, Pearson Education.
2. Alfred V. Aho, Jeffrey D. Ullman, Principles of Compiler Design. Narosa Publications.
3. K. V. N. Sunitha, Compiler Construction, Pearson Education.
4. K. Muneeswaran, Compiler Design, Oxford university press

Reference Books:

1. Introduction to Compiler Design, Torben Egidius Mogensen, 2nd Edition, Springer.
2. Principles of Compiler Design, Nandini Prasad K.S, 3rd Edition, Cengage Publication.
3. Compiler Design, Santanu Chattopadhyay, PHI.
4. Principles of Compiler Design, M. Ganga Durga, T.G. Mani Kumar, MJP Publishers.


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Course Title	CONSTITUTION OF INDIA (Mandatory Course)				B.Tech V Sem (R18) CSE			
Course Code	Category	Hours/Week			Credits	Maximum Marks		
1825509	MC	L	T	P	C	Continuous Internal Assessment	End Exams	Total
		2	-	-	0			
Mid Exam Duration: 2 Hours								
Course Objectives:								
<ul style="list-style-type: none"> • To understand the premises informing the twin themes of liberty and freedom from a civil rights perspective. • To address the growth of Indian opinion regarding modern Indian intellectuals' constitutional role and entitlement to civil and economic rights as well as the emergence of nationhood in the early years of Indian nationalism. • To address the role of socialism in India after the commencement of the Bolshevik Revolution in 1917 and its impact on the initial drafting of the Indian Constitution. 								
Course Outcomes: On successful completion of this course, the students will be able to								
CO 1	Understand the growth of the demand for civil rights in India for the bulk of Indians before the arrival of Gandhi in Indian politics.							
CO 2	Tell the intellectual origins of the framework of argument that informed the conceptualization of social reforms leading to revolution in India.							
CO 3	Explain the circumstances surrounding the foundation of the Congress Socialist Party [CSP] under the leadership of Jawaharlal Nehru and the eventual failure of the proposal of direct elections through adult suffrage in the Indian Constitution.							
CO 4	Define the passage of the Hindu Code Bill of 1956.							

UNIT - I

History of Making of the Indian Constitution:

History, Drafting Committee, (Composition & Working)

Philosophy of the Indian Constitution:

Preamble, Salient Features

UNIT - II

Contours of Constitutional Rights & Duties:

Fundamental Rights, Right to Equality, Right to Freedom, Right against Exploitation, Right to Freedom of Religion, Cultural and Educational Rights, Right to Constitutional Remedies, Directive Principles of State Policy, Fundamental Duties.

UNIT - III

Organs of Governance:

Parliament, Composition, Qualifications and Disqualifications, Powers and Functions

Executive:

President, Governor, Council of Ministers, Judiciary, Appointment and Transfer of Judges, Qualifications, Powers and Functions.

UNIT - IV

Local Administration:

District's Administration head: Role and Importance, Municipalities: Introduction, Mayor and role of Elected Representative, CEO of Municipal Corporation.

Pachayati raj: Introduction, PRI: Zila Pachayat.

Elected officials and their roles, CEO Zila Pachayat: Position and role.

Block level: Organizational Hierarchy (Different departments),

Village level: Role of Elected and Appointed officials, Importance of grass root democracy.

UNIT - V

Election Commission:


Election Commission: Role and Functioning, Chief Election Commissioner and Election Commissioners.

State Election Commission: Role and Functioning.

Institute and Bodies for the welfare of SC/ST/OBC and women.

Text Books:

1. The Constitution of India, 1950 (Bare Act), Government Publication.
2. Dr. S. N. Busi, Dr. B. R. Ambedkar framing of Indian Constitution, 1st Edition, 2015.
3. M. P. Jain, Indian Constitution Law, 7th Edn., Lexis Nexis, 2014.
4. D.D. Basu, Introduction to the Constitution of India, Lexis Nexis, 2015.


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Course Title	DATABASES LAB				B.Tech V Sem (R18) CSE			
Course Code	Category	Hours/Week			Credits	Maximum Marks		
1805510	PCC	L	T	P	C	Continuous Internal Assessment	End Exams	Total
		0	0	2	1	50	50	100
					End Exam Duration: 3Hrs			
Course Objectives:								
<ul style="list-style-type: none"> • This course will enable students to Foundation knowledge in database concepts, technology and practice to groom students into well-informed database application developers. • Strong practice in SQL programming through a variety of database problems. • Develop database applications using front-end tools and back-end DBMS. 								
Course Outcomes: On successful completion of this course, the students will be able to								
CO 1	Construct, Update and query on the database.							
CO 2	Demonstrate the working of different concepts of DBMS							
CO 3	Implement, analyse and evaluate the project developed for an application.							

LIST OF SAMPLE EXPERIMENTS


1. Practicing DDL Commands.
2. Practicing DML Commands.
3. Implementation of Aggregate operations.
4. Implementation of special operators such as LIKE, BETWEEN, IN, EXISTS etc.
5. Implementation of SET operations (UNION, INTERSECTION, MINUS, JOIN etc)
6. Implementation of Oracle Functions.
7. Creating Views, Updatable views.
8. Creation of Triggers.
9. Creation of Cursors.
10. Writing sample programs in PL/SQL.

Text Books:

1. Silberschatz, Korth, Database System Concepts. 5th Edition, McGraw Hill.
2. Raghurama Krishnan, Johannes Gehrke, Data base Management Systems. 3rd Edition, Tata McGraw Hill.
3. Elmasri, Navathe, Fundamentals of Database Systems, Pearson Education.
4. C.J. Date, Introduction to Database Systems

Reference Books:

1. Peter Rob, Ananda Rao and Carlos Corone, Database Management Systems, Cengage Learning.
2. Ramez Elmasri, Shamkanth B. Navathe, Fundamentals of Database Systems, 7th Edition, Pearson.
3. Abraham Silberschatz, Henry F. Korth, S. Sudarshan, Database System Concepts, Indian Edition, McGraw Hill.


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Course Title	WEB TECHNOLOGIES LAB				B.Tech V Sem (R18) CSE			
Course Code	Category	Hours/Week			Credits	Maximum Marks		
1805511	PCC	L	T	P	C	Continuous Internal Assessment	End Exams	Total
		0	0	2	1	50	50	100
					End Exam Duration: 3Hrs			
Course Objectives:								
<ul style="list-style-type: none"> To learn the basic web concepts and Internet protocols. To introduce client side scripting with Java script and HTML. To introduce server side programming with PHP. 								
Course Outcomes: On successful completion of this course, the students will be able to								
CO 1	Design static web pages using HTML, CSS and Java Script.							
CO 2	Create dynamic web pages using PHP and Java Script.							
CO 3	Design web pages to authenticate users using Cookies.							
CO 4	Develop server side programs using PHP and accessing database through PHP.							

HARDWARE AND SOFTWARE REQUIRED

1. A working computer system with either Windows or Linux
2. A web browser either IE or Firefox
3. Apache web server or IIS Web server
4. A database either Mysql or Oracle

LIST OF EXPERIMENTS

1. Basic HTML Tags, Table Tags, List Tags, Image Tags, Forms
2. Implement forms using HTML, FRAMES, CSS.
3. Write *JavaScript* to validate the following fields of the above registration page.
 - a. Name (Name should contains alphabets and the length should not be less than 6 characters).
 - b. Password (Password should not be less than 6 characters length).
 - c. E-mail id (should not contain any invalid and must follow the standard pattern name@domain.com)
 - d. Phone number (Phone number should contain 10 digits only).
4. Install the following on local machine
 - Apache web server
 - Tomcat application server locally,
 - Install MySQL
 - PHP and configure it to work with Apache web server and MySQL.

5. Write an HTML page with Javascript that takes a number from one text field in the range 0-999 and display it in other text field in words. If the number is out of range ,it should show “out of range” and if it is not a number ,it should show “not a number” message in the result box.
6. Write an HTML page that has one input, which can take multi-line text and a submit button. Once the user clicks the submit button ,it should show the number of characters ,lines and words in the text entered using an alert message. Words are separated with white space and lines are separated with new line character.
7. Write an HTML page that contains a selection box with a list of 5 countries In the above page when the user selects a country, its capital should be printed next to the list, and add CSS to customize the properties of the font of the capital.
8. Create a php program to demonstrate the different predefined functions in Array and Math.
9. A user validation web application, where user submits the login name and password to server. These are checked against the data already available in database and if the data matches a successful login page is returned. Otherwise a failure message is shown to the user.
10. Create and save an XML document at the server, which contains 10 users information. Write a program which takes User Id as input and returns the user details by taking the user information from the XML document.
11. A web application takes a name as input and on submit it shows a hello page where is taken from the request and it shows a start time at the right top corner of the page and provides the logout button on clicking this button it should show a logout page with thank you message with the duration of Usage.
12. A web application that lists all cookies stored in the browser on clicking “list cookies” button, add cookies if necessary.
13. Create a table which should contain at least the following fields: name, password, email-id, phone number (these should hold the data from the registration form).
Write a PHP program to connect to that database and extract data from the tables and display them. Experiment with various SQL queries.

Insert the details of the users who register with the web site, whenever a new user clicks the submit button in the registration page
14. Write a PHP which does the following job:


Insert the details of the 3 or 4 users who register with the web site by using registration. Authenticate the user when he submits the login form using the user name and password from the database.

Text Books:

1. Beginning PHP and MySQL, 5th Edition, Jason Gilmore, Apress Publications (Dream tech.)
2. PHP 5 Recipes A problem Solution Approach Lee Babin, Nathan A Good, Frank M.Kromann and Jon Stephens.
3. Web Programming, building internet applications, Chris Bates 3rd edition, WILEY Dreamtech.
4. PHP 6 Fast and Easy Web Development, Julie Meloni and Matt Telles, Cengage Learning Publications.

Reference Books:

1. Open Source Web Development with LAMP using Linux, Apache, MySQL, Perl and PHP, J.Lee and B.Ware(Addison Wesley) Pearson Education.
2. PHP 5.1, I Bayross and S. Shah, The X Team, SPD
3. PHP and My SQL by Example, E. Quigley, Prentice Hall (Pearson).
4. PHP Programming solutions, V. Vaswani. TMH


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Course Title	ADVANCED ENGLISH COMMUNICATION SKILLS LAB				B. Tech V Sem (R18) CSE			
Course Code	Category	Hours/Week			Credits	Maximum Marks		
1824512	HSC	L	T	P	C	Internal Assessment	End Exams	Total
		--	--	2	1	50	50	100
					End Exam Duration: 3Hrs			
Course Objectives:								
<ul style="list-style-type: none"> • To focus on improving the student's proficiency in English at all levels. • To train students to use language effectively to participate in group discussions, • To help them face interviews and sharpen public speaking skills • To enhance the confidence of the student by exposing him/her to various situations and contexts which he/she would face in his/her career. • To make students industry-ready. 								
Course Outcomes: On successful completion of this course, the students will be able to								
CO 1	Describe various employability skills required for the employment.							
CO 2	Understand speaking and listening skills.							
CO 3	Analyze Behavioral skills.							
CO 4	Illustrate various kinds of reports and present them schematically.							
CO 5	Classify the verbal and non-verbal communication.							

1.Syllabus:

The following course content is prescribed for the Advanced Communication Skills Lab:

Functional English – Introduction --Starting & Responding a Conversation--Social Etiquette
Conversation -- role play – Body language in conversation—departure phrases.

Technical Report Writing --- Types of formats and styles, subject matter, organization, clarity, coherence and style, data-collection, tools, analysis

Resume' Writing --- Structure, format and style, planning, defining the career, objective, projecting one's strengths, and skills, creative self-marketing, cover letter.

Group Discussion--- Communicating views and opinions, discussing, intervening.Providing solutions on any given topic across a cross-section of individuals, (keeping an eye on modulation of voice, clarity, body language, relevance, fluency and coherence) in personal and professional lives.

Interview Skills --- Concept and process, pre-interview planning, mannerisms, body language, organizing, answering strategies, interview through tele and video-conferencing.

Technical Presentations (Oral) --- Collection of data, planning, preparation, type, style and format, use of props, attracting audience, voice modulation, clarity, body language, asking queries.

2. Minimum Requirements

The English Language Lab shall have two parts:

The Computer aided Language Lab for 60 students with 60 systems, one master console, LAN facility and English language software for self-study by learners.

The Communication Skills Lab with movable chairs and audio-visual aids with a P.A System, a TV, A digital stereo-audio and video system, Camcorder etc.

System Requirement (Hardware Component):

Computer network with LAN with a minimum of 60 multimedia systems with the following specifications:

P-IV Processor, Speed-2.8 GHz, RAM_512 MB minimum, Hard Disk-80 GB, Headphones


Prescribed Software: Walden and K-Van Solutions.

Text Books:

1. **Technical writing and professional communication, Huckin and Olsen** Tata McGraw-Hill 2009.
2. **Speaking about Science, A Manual for Creating Clear Presentations by Scott Morgan and Barrett Whitener, Cambridge University press, 2006.**
3. **Handbook for Technical Writing** by David A McMurrey & Joanne Buckely CENGAGE Learomg 2008.
4. **Technical Communication** by Meenakshi Raman & Sangeeta Sharma, Oxford University Press 2009.

Reference Books:


1. **The ACE of Soft Skills** by Gopal Ramesh and Mahadevan Ramesh, Pearson Education, 2010.
2. **Cambridge English for Job-Hunting** by ColmDownes, Cambridge Unicversity Press, 2008.
3. **Resume's and Interviews** by M. Ashraf Rizvi, Tata McGraw-Hill, 2008.
4. **From Campus to Corporate** by KK Ramachandran and KK Karthick, Macmillan PublishersIndia Ltd, 2010.
5. **English Language Communication: A Reader cum Lab Manual** Dr A Ramakrishna Rao, DrG Natanam & Prof SA Sankaranarayanan, Anuradha Publications, Chennai 2008.
6. **Managing Soft Skills** by K R Lakshminarayan and T. Murugavel, Sci-Tech Publications, 2010.
7. **Business Communication** by John X Wang, CRC Press, Special Indian Edition, 2008.


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Course Title	SOCIAL RELEVANT PROJECT					B.Tech V Sem (R18) CSE		
Course Code	Category	Hours/Week			Credits	Maximum Marks		
1805513	PROJECT	L	T	P	C	Continuous Internal Assessment	End Exams	Total
		-	-	4	2	100	-	100
Internal Evaluation								
Course Objectives:								
The objective of the project is to enable the student to take up investigative study in rural areas in the field of Computer Science and Engineering.								
Course Outcomes: On successful completion of this course, the students will be able to								
CO 1	Understand core concepts and research findings relative to human development, socialization, group dynamics and life course processes.							
CO 2	Identify and transfer existing ideas into new contexts and applications							
CO 3	Apply and transfer academic knowledge into the real-world							
CO 4	Design a component or a product applying all the relevant standards and with realistic constraints							

The following are the rules and regulation for **Socially Relevant Projects**:

1. The student has to spend 50 to 60 Hrs in the semester on any socially relevant project and submit a report for evaluation.
2. The project is evaluated for 100 marks in the semester by a committee consisting of head of the department, project mentor and one senior faculty member of the department.
3. A student shall acquire 2 credits assigned, when he/she secures 50% or more marks from the total of 100 marks.
4. In case, if a student fails, he/she shall resubmit the report.
5. There is no external evaluation for the socially relevant project.


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