



Bachelor of Science (Computer Applications & Information Technology)
B.Sc. (CA&IT) Semester-II

Course Code	US02AIIIT51	Title of the Course	Lab-Communication Skills in English-II
Total Credits of the Course	2	Hours per Week	4

Course Objectives:	<ol style="list-style-type: none">1. To process information using a variety of media2. To use appropriate phrases for performing language functions3. To edit, select and present information in a format/ perspective4. To listen and reduce information to a point form5. To read and to expand from points to paragraph6. To predict, comprehend, infer and synthesize information7. To question, probe, and arrive at information through discussions, dialogues and interviews.
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Course Content		
Unit	Description	Weightage* (%)
1.	Reading Skills <ul style="list-style-type: none">– Mechanics of Reading i.e. Eye Movement and Different Reading Styles– Issues of Reading Speed and Comprehension Value– Reading Gears for different reading purposes– Skimming & Scanning Skills– Barrier of Reading	10
2.	Listening & Feedback Skills <ul style="list-style-type: none">– Importance and purpose of Listening.– Barriers to Effective Listening.– Ways of improving Listening Skills.– Giving Feedbacks i.e Confirmatory and corrective	10
3.	Writing Skills <ul style="list-style-type: none">– Job Application and Resume Writing– Writing E-mails, Notice Writing– Paragraph Writing i.e. Topics sentence and supporting sentence, attributes of a good paragraph, types of paragraphs	60
4.	Speaking Skills <ul style="list-style-type: none">– Presentation Skills– Notions and Functions of everyday usage– Interview Skills– Connectives and Linkages	20





Teaching-Learning Methodology	Oral-Direct instructions, Audio Video, Structural Approach, Lexical Approach, Inquiry base learning, Dictation, Role play , Self- Learning, Language Games and Task-based teaching.
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Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage (%)
1.	University Examination	100

Course Outcomes: Having completed this course, the learner will be able to	
1.	To process information using a variety of media.
2.	To use appropriate phrases for performing language functions.
3.	To edit, select and present information in a format/perspective.
4.	To listen and reduce information to a point form.
5.	To read and expand from points to paragraph.
6.	To predict, comprehend, infer and synthesize information.
7.	To question, probe and arrive at information through discussions, dialogues and interviews.





Suggested References:

Sr. No.	References
1.	Meenakshi Raman & Sangita Sharma, Technical Communication; Principles and Practice , Oxford University Press.
2.	Chrissie Wright, Communication Skills, Jaico Publication.
3.	Grant Taylor, English Conversation Practice, New Delhi: Tata McGraw Hill.
4.	R P Bhatanagar and R T Bell, Communication in English, Hyderabad, Orient Longman.
5.	D Sasikumar and P V Dhamija, Spoken English, New Delhi: Tata McGraw Hill.
6.	M. Farhathullah, Communication Skills for Technical Students.
7.	Champa Tickoo and Jaya Sasikumar, Writing with a Purpose, Chennai, OUP.
8.	David Jolly, Writing Tasks: Authentic task approach to individual Writing needs, Cambridge University Press.





Bachelor of Science (Computer Applications & Information Technology)
B.Sc. (CA&IT) Semester-II

Course Code	US02CIIT51	Title of the Course	Advanced C Programming & Introduction to Data Structures
Total Credits of the Course	4	Hours per Week	4

Course Objectives:	<ol style="list-style-type: none">1. To provide basic understanding of pointers, structures, unions and file handling.2. To impart knowledge on fundamental concepts of data structures.3. To introduce students to stacks, queue and linked lists.
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Course Content		
Unit	Description	Weightage* (%)
I	Usage of Pointers <ul style="list-style-type: none">– Introduction and usage of pointers ,– Declaration, initialization and dereferencing of pointer variables– Pointers and function arguments, Returning multiple values through pointers, Dynamic Memory Allocation,– Pointers and arrays, Pointer arithmetic, Pointer to Pointer	25
II	Structures Unions & File Handling <ul style="list-style-type: none">– Basics of structures, Structures and functions, Structures and arrays, Pointers to structures, Nested structures– Introduction to Unions, Typedefs– Introduction and Usage of files– Operations on files, File access modes, Handling text files	25
III	Introduction to Data Structures & Stacks <ul style="list-style-type: none">– Introduction to data structures, their usage, applications and advantages– Primitive and non-primitive data structures and operations on them– Linear and non-linear data structures– Introduction to stacks, Operations on stacks– Applications of stacks	25
IV	Queue & Linked Lists <ul style="list-style-type: none">– Queues and their uses– Types of queues : Simple queues, Circular queues, Double ended queues, Priority Queue.– Application of Queue, Introduction to linked lists,– Types of linked lists,– Singly linked lists, Doubly linked lists, Circular linked lists, Circular Doubly linked list, Applications of linked lists.	25





SARDAR PATEL UNIVERSITY
Vallabh Vidyanagar, Gujarat
(Reaccredited with 'A' Grade by NAAC (CGPA 3.25))
Syllabus with effect from the Academic Year 2021-2022

Teaching-Learning Methodology	Blended learning approach incorporating both traditional classroom teaching as well as usage of ICT tools
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Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written / Practical Examination (As per CBCS R.6.8.3)	15%
2.	Internal Continuous Assessment in the form of Practical, Viva-voce, Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	15%
3.	University Examination	70%

Course Outcomes: Having completed this course, the learner will be able to	
1.	understand the concepts of pointers, structures, unions and file handling.
2.	understand the fundamental concepts of data structures, stacks, queue and linked lists.

Suggested References:	
Sr. No.	References
1.	Kernighan B., Ritchie D. : The C Programming Language, Prentice Hall, 1988.
2.	Cooper & Mullish: The Sprit of C, Jaico Publication House, New Delhi.
3.	Balaguruswami : Programming in ANSI C., Tata McGraw Hill Publication.





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Course Code	US02CIIT52	Title of the Course	Web Application Development - II
Total Credits of the Course	4	Hours per Week	4

Course Objectives:	<ol style="list-style-type: none">1. To understand the basic concepts of XML and XHTML.2. To learn how to work with images, links, lists and tables.3. To study how to work with frames and XHTML forms.
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Course Content		
Unit	Description	Weightage* (%)
I	Introduction to DHTML & Cascading Style Sheets <ul style="list-style-type: none">- What is DHTML?- Applications of DHTML- Components of DHTML- Scripting : introduction, client-side v/s server-side- Introduction to Cascading Style Sheets (CSS)- Ways of specifying style – inline, internal, external	25
II	Advanced CSS & Basics of JavaScript <ul style="list-style-type: none">- Font, color, background, text, border, margin and list related attributes- Use of classes, spans, divs- Working with layers- Introduction to JavaScript- Applications and advantages of JavaScript- Using JavaScript on a webpage	25
III	Advanced JavaScript <ul style="list-style-type: none">- JavaScript basics – syntax, data types and literals, type casting, variables, operators, arrays- Flow control statements- Built-in functions- Working with strings, numbers, dates & times, etc.- User interaction through dialog boxes- User-defined functions	25
IV	Document Object Model & HTML Forms <ul style="list-style-type: none">- Introduction to DOM- Understanding objects in HTML	25





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	<ul style="list-style-type: none">- DOM hierarchy- Manipulating objects- Working with HTML forms- Basic form elements- Event handling	
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Teaching-Learning Methodology	Blended learning approach incorporating both traditional classroom teaching as well as usage of ICT tools.
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Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written / Practical Examination (As per CBCS R.6.8.3)	15%
2.	Internal Continuous Assessment in the form of Practical, Viva-voce, Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	15%
3.	University Examination	70%

Course Outcomes: Having completed this course, the learner will be able to	
1.	understand the basic concepts of XML and XHTML.
2.	work with images, links, lists and tables.
3.	work with frames and XHTML forms.

Suggested References:	
Sr. No.	References
1.	Ivan Bayross, "Web Enabled Commercial Applications Development using HTML, DHTML, Javascript, Perl CGI".
2.	Wilton P. : Beginning JavaScript, 2nd Edition, Wiley DreamTech, 2004.
3.	Danny Goodman, Machael Morrison , "JavaScript Bible", 3rd Edition





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Course Code	US02CIIT53	Title of the Course	System Analysis and Design
Total Credits of the Course	4	Hours per Week	4

Course Objectives:	<ol style="list-style-type: none">1. To understand the basic concepts related to Systems Analysis and the Systems development Life Cycle.2. To acquire the basic knowledge about Data Flow Diagrams, fact finding techniques, CASE tools and quality assurance.
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Course Content		
Unit	Description	Weightage* (%)
1	Systems Analysis and Systems Development Life Cycle (SDLC) <ul style="list-style-type: none">– The concept of a system– The elements and characteristics of a system– Types of systems– Meaning of systems analysis– Role of a systems analyst– Stages of systems analysis : Problem identification, Feasibility study and cost benefit analysis, System requirement analysis– Stages of systems design : System design specification and programming, System implementation, follow up, maintenance,– Evaluation of a system	25
2	Structured Systems Analysis and Design Method and Input/output Design <ul style="list-style-type: none">– Structured Systems Analysis and Design (SSADM) – need and Meaning– SSADM Methodology : System survey, Structured analysis, Structured Design, Hardware study, System Implementation, Maintenance, Advantages of SSADM.– System design control– Input : Data capture objectives, Data verification and validation– Output : Design principles of output, Output objectives	25





3	Data Flow Diagrams & Fact Gathering Techniques <ul style="list-style-type: none"> - Fact finding techniques : Interviewing, Questionnaires, Record inspection, Observation - Data Flow Diagrams (DFDs) – meaning and significance Symbols used in DFDs, constructing a DFD with illustration - Physical and logical DFDs - Use of system flowcharts - Introduction to Decision Table and Decision Tree - Structured English 	25
4	Computer Assisted System Engineering (CASE) Tools and Quality Assurance <ul style="list-style-type: none"> - CASE : an introduction - CASE components : Diagramming Tools, Information repository, - Interface generator, Code generator, Management tools - Benefits of CASE, limitations of CASE, - Levels of Assurance - Testing strategies 	25

Teaching-Learning Methodology	Blended learning approach incorporating both traditional classroom teaching as well as usage of ICT tools and also use case studies to understand different areas concept.
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Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written / Practical Examination (As per CBCS R.6.8.3)	15%
2.	Internal Continuous Assessment in the form of Practical, Viva-voce, Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	15%
3.	University Examination	70%

Course Outcomes: Having completed this course, the learner will be able to	
1.	understand the basic concepts related to Systems Analysis and the Systems development Life Cycle.
2.	draw Data Flow Diagrams, apply various fact finding techniques, Work with CASE tools and quality assurance.





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Suggested References:

Sr. No.	References
1.	S. Parthasarthy & B. W. Khalkar : System Analysis & Design, 1st Edition, Master Ed. Cons., Nashik.
2.	James A. Senn : Analysis & Design of Information System 2nd Edition, McGraw-Hill Int.





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Course Code	US02CIIT54	Title of the Course	Practicals
Total Credits of the Course	6	Hours per Week	12

Course Objectives:	To enable students to apply knowledge about the concepts related to Advanced C programming and data structures.
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Course Content		
	Description	Weightage* (%)
	Part-1 : Practical based on US02CIIT51	35
	Part-2 : Practical based on US02CIIT52	35
	Part-3 : Practical based on US02CIIT53	30

Teaching-Learning Methodology	Blended learning approach incorporating both traditional classroom teaching as well as usage of ICT tools
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Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage (%)
1.	University Examination	100

Course Outcomes: Having completed this course, the learner will be able to	
1.	apply knowledge about the concepts related to Advanced C programming and data structures.





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Course Code	US02SIIT51	Title of the Course	Mathematics
Total Credits of the Course	2	Hours per Week	2

Course Objectives:	<ol style="list-style-type: none">1. To teach basic concepts of vectors and matrices.2. To impart knowledge on basic concepts of graph theory and trees.3. To introduce students to elementary data analysis.
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Course Content		
Unit	Description	Weightage* (%)
I	Vectors and Matrices – Vectors in R_n , dot product and norm. Matrix addition and scalar multiplication, Matrix multiplication, transpose of matrix, square matrices: Diagonal, upper and lower triangular, symmetric, skew symmetric, orthogonal matrices. Determinants of matrices up to order 3.	25
II	Graph Theory – Graph, multigraph, degree of vertex, paths, connectivity, subgraph, connected components, cut points, bridges, Special graphs: complete, regular and bipartite graphs, matrices and graphs.	25
III	Planar Graphs and Trees – Planar graphs, Maps and regions, Euler's formula, Nonplaner graphs, coloured graphs, colors and maps, trees.	25
IV	Elementary Data Analysis – Formatted I/O statements, Assignment statements, Discrete and continuous frequency distribution, cumulative frequency distribution, graphical representation, Measures of central tendency: Mean, Median, Mode.	25

Teaching-Learning Methodology	Blended learning approach incorporating both traditional classroom teaching as well as usage of ICT tools.
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Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written / Practical Examination (As per CBCS R.6.8.3)	15%
2.	Internal Continuous Assessment in the form of Practical, Viva-voce, Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	15%
3.	University Examination	70%

Course Outcomes: Having completed this course, the learner will be able to	
1.	Gain knowledge of the basic concepts of vectors and matrices.
2.	Understand of the basic concepts of graph theory and trees.
3.	Familiar with elementary data analysis.

Suggested References:	
Sr. No.	References
1.	S.Lipschutz and Marc Lars Lipson : Discrete Mathematics, Schaum's series (International edition,1992).
2.	Vinay Kumar: Discrete Mathematics (BPB Publication, First edition - 2002).
3.	S. C. Gupta, Fundamentals of Statistics, Himalaya Publishing House, 2004.

