C. U. SHAH UNIVERSITY

Faculty of Computer Science

Bachelor of Computer Application (BCA)

(3 years – Six Semester Full Time Course)

Semester: II **Subject Code: BCA201** **Name :Communication Skills-II**

Teaching & Evaluation Scheme

Sr. No.	Subject Code	Name of the Subject	Teaching Scheme (Hours)				Evaluation Scheme								
							Theory					Practical (Marks)			
			Th	Tu	Pr	Total	Sessional Exam		University Exam		Total	Pr/ Viva	TW	Total	Total
							Marks	Hrs	Marks	Hrs					
1	BCA201	Communication Skills-II	4	1	-	5	30	1.5	70	2.5	100	-	-	-	100

Objectives:

- To enhance knowledge of English language and to develop communication skills.
- To acquire a new perspective on communicative English
- To improve and to extend the range of communication in English.
- To develop written and speech communication.

Prerequisites: Basic knowledge of English language.

Course outline:

Sr .No.	Course Contents	Number of Hours
	Part A Conversation Practice	
1	Describing Things around you, Describing places: saying what there is	3
2	Introduction - as an Art, Talking about people, Saying what they do	3
3	Talking about routine, saying what people do or don't do, information through graphs, tables, maps	3
4	Talking about past events, talking about things happening 'now', saying when things /events happened, describing scenes, events meeting people, exchanging greetings spoken skills	3
5	talking about past intentions & future plans	3
6	Expressing time , talking about Public Transport Asking about information regarding travelling, using dictionary Expressing time , talking about Public Transport	3

7	Talking about what you can do/ can't do, saying what you would do, giving advise talking about obligations, sharing views	3
Part B Literary Text		
8	Text 1 (The old Man & the Sea by Ernest Hemingway - A Nobel &Pulitzer Prize Winner	10
9	Text 2 Wing Word (Selected Poems)	9
Part C Grammar		
10	a) Direct - Indirect Speech b)Phrases & Clauses c) Causal Verbs c) Degree of Comparison	6
11	Translation Studies a)Selected paragraphs for translation	2
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Learning Outcomes:

- At the end of the course the students endowed with good communication skill.in English language.

Books Recommended:

1,*"The old man and the sea"*

2, *"Winged word – a collection of poems"* (The teacher is free to select any five poems from collection)

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Semester: II **Subject Code: BCA202** **Name:Mathematics**

Teaching & Evaluation Scheme

Sr. No.	Subject Code	Name of the Subject	Teaching Scheme (Hours)				Evaluation Scheme								
							Theory					Practical (Marks)			
			Th	Tu	Pr	Total	Sessional Exam		University Exam		Total	Pr/ Viva	TW	Total	Total
							Marks	Hrs	Marks	Hrs					
1	BCA202	Mathematics	4	1	-	5	30	1.5	70	2.5	100	-	-	-	100

Objectives:

- This course provides the non- science, mathematics and business student the foundational introduction to the fundamental concepts in Mathematics.

Prerequisites: A basic understanding of Mathematical Operations.

Course outline:

Sr. No.	Course Contents	Number of Hours
1	**Set Theory** Introduction to set theory Methods of representation of set Operations on set and its properties	4
2	**De'Morgans Law** Cartesian product , Typical examples	3
3	**Real time arithmetic** Percentage ,Ratio and proportion Profit and loss ,Simple and compound interest	5
4	**Matrix** Introduction Types of matrices (Row ,column, square, Diagonal, transpose, unit, null matrix)	3
5	**Operations on matrix** Properties of transpose Adjoint of square matrix Inverse of square matrix	5

	Typical examples	
6	**Reasoning-I** Series completion test Coding and decoding test	5
7	**Reasoning-II** Direction sense test Mathematical ability test Data interpretation	5
8	**Co-ordinate geometric-I** Introduction Quadrants and lines Distance between two points	3
9	**Co-ordinate geometric-II** Section formula Area of triangles Typical examples	5
10	**Arithmetic progression** Sequence, series Arithmetic progression Definition Nth term , sum of N terms	3
11	**Geometric progression** Definition Nth term , sum of N terms	3
12	**Harmonic progression** Harmonic progression	2
13	**Mean** Arithmetic Mean, Geometric Mean Harmonic Mean Relation between A.M, G.M and H.M Typical examples	2
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Learning Outcomes:

- At the end of this course the students have advanced knowledge of mathematics.

Books Recommended:

1,*"Mathematical & statistical foundation of computer science"*,C Jamnadas& Co(New Edition-2013).
2, "*BCA Advanced Mathematics"*, H.R. Vyas, B.S. Shah Publication(3rd Edition-2007)
3, *"Advanced Mathematics"*,RaviGor,NiravPublication(4th Edition-2006)
4, *"A Mordern approach to verbal and non-verbal reasoning", R. S. Aggrawal*, S. Chand, Publication(New Edition-2011).
5, *"Mathematics for MBA",* R. S. Aggarwal, S. Chand, Publication

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Semester: II **Subject Code: BCA203** **Name:Advance C & Data Structure**

Teaching & Evaluation Scheme

Sr. No.	Subject Code	Name of the Subject	Teaching Scheme (Hours)				Evaluation Scheme								
							Theory					Practical (Marks)			
			Th	Tu	Pr	Total	Sessional Exam		University Exam		Total	Pr/ Viva	TW	Total	Total
							Marks	Hrs	Marks	Hrs					
1	BCA203	Advance C & Data Structure	4	-	4	8	30	1.5	70	2.5	100	30	20	50	150

Objectives:

- To impart knowledge of advanced C programming language.

Prerequisites: Basic knowledge of C Language.

Course outline:

Sr. No.	Course Contents	Numbers of Hours
1	**Arrays & UDF** Handling arrays (declaring & initialization, passing arrays to functions) Declaration, definition and calling of UDF Passing parameters in UDF and retuning values	4
2	**Pointers & Structure** Declaring and initializing pointers Advantages and disadvantages of pointers Passing pointers to functions Relation between pointers and arrays Structure declaration , Member accessing using pointer	4
3	**Advance C** Dynamic allocation and de-allocation of memory : function malloc(size), function calloc(n,size), function free(block)	3
4	**Algorithms & its Complexity** A Typical example Algorithm description ,Sub-algorithms Space complexity and Time complexity Big-O Notation, Big-Omega notation	4
5	**Searching** Linear search ,Binary search	2
6	**Sorting** Bubble sort ,Insertion sort,Selection sort	4

7	**Elementary Data Structure** Primitive and Non Primitive data structures Linear and nonlinear structures	2
8	**Stack** Operations on stack Implementation of stacks using arrays	3
9	**Queue** Operations on queue Array implementation of queues Circular queue Circular queue with array implementation	4
10	**Evaluation of expressions using stacks** Postfix expressions Prefix expression	3
11	**Singly Link List** Introduction to Singly linked lists Implementation of linked list , Insertion of a node at the beginning Insertion of a node at the end, Insertion of a node after a specified node Traversing the entire linked list, Deletion of a node from linked list	3
12	**Doubly linked list** Implementation of doubly linked list Circular linked list , Implementation of circular linked list Applications of the linked lists	4
13	**Tree** Basic terminology, Properties of a tree, Binary trees Properties of binary trees, Traversals of a binary tree: In order traversal, Post order traversal, Preorder traversal	4
14	**Graph** Introduction, Adjacency matrix, adjacency lists Graph traversal Depth first search (DFS) Concept Breadth first search (BFS) Concept	4
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Learning Outcomes:

- At the end of the course the students will be endowed with Advance level of C language using DMA, creating a linked list, stack, queue and graph.

Books Recommended:

1, "*Data Structure through C/C++*", R.B.Patel, Khanna Publication
2, "*Data and File Structure*", Trembley& Sorenson, TMH Publication
3, "*Data Structure & algorithms Using C*", R.S.Salaria, Khanna Publication
4, "*Data structure through C/C++*", Tennaunbuam
5, "*Data Structures and Algorithms*", Aho Alfred V., Addison Wesley,

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Semester: II **Subject Code: BCA204** **Name: Web Scripting Language**

Teaching & Evaluation Scheme

Sr. No.	Subject Code	Name of the Subject	Teaching Scheme (Hours)				Evaluation Scheme								
							Theory					Practical (Marks)			
			Th	Tu	Pr	Total	Sessional Exam		University Exam		Total	Pr/ Viva	TW	Total	Total
							Marks	Hrs	Marks	Hrs					
1	BCA204	Web Scripting Language	4	-	4	8	30	1.5	70	2.5	100	30	20	50	150

Objectives:

- To make familiar students with HyperText Markup Language (HTML) elements to form the building blocks for developing websites.

Prerequisites: Basic knowledge of computer.

Course outline:

Sr. No.	Course Contents	Number of Hours
1	**HTML** The Structure of a Page. Links and Navigation. Colors, Images, and Objects. Tables ,Forms, Frames. Deprecated and Browser-Specific Markup	5
2	**DHTML** JavaScript Objects and Dynamic HTML Some examples of Dynamic HTML	3
3	**XHTML** Introduction to XHTML HTML v/s XHTML XHTML syntax	4
4	**CSS** Introduction of Style sheet Types of Style sheet Class & ID	3
5	**CSS Property** CSS Font Property, CSS Text Property ,CSS Background Property, CSS Border	4

	Property, CSS List Property	
6	**Java Script Basics** Introduction Operator, Conditional Structure & LoopingStructure	3
7	**JavaScript Object** User Define Object, Document Object, History Object, Navigator Object, Form Object & Elements	4
8	**JavaScript Functions** Dialog Boxes, Arrays, User Define Function Built-in Functions :String, Math, Date, Array	5
9	**Events in Java Script** onclick, ondblclick, onblur,onfocus, onchange, onkeypress, onkeydown, onkeyup,onMousemove, onmouseout, onsubmit, onreset, onselect,onload, onunload, timer event	5
10	**XML** Introduction to XML XML Namespaces.Validation. Document Type Definitions.XML Schemas. RELAX NG.	5
11	**XML Processing** XPath.XSLT.	2
12	**Introduction Databases & Programming in XML** XQuery, the XML Query Language. XML and Databases. The XML Document Object Model (DOM). Simple API for XML (SAX).	5
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Learning Outcomes:

- Successful completion of this course will enable students to create web sites from scratch.

Books Recommended:

1,"*Beginning Web Programming with HTML, XHTML, and CSS*", Jon Duckett, Wrox Publication.
2, "Beginning JavaScript", Paul Wilton, Wrox Publication.
3, "*Practical HTML 4.0*", Lee Philips, PHI Publication.
4,"*World wide web design with HTML*", C Xavier, TMH Publication.
5, "*XML A Beginner's Guide*", Dave Mercer, Osborne
6, "*HTML, DHTML, JavaScript, Pearl & CGI*", BPB Publication.

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Semester: II **Subject Code: BCA205** **Name:Project Analysis & Design**

Teaching & Evaluation Scheme

Sr. No.	Subject Code	Name of the Subject	Teaching Scheme (Hours)				Evaluation Scheme								
							Theory					Practical (Marks)			
			Th	Tu	Pr	Total	Sessional Exam		University Exam		Total	Pr/ Viva	TW	Total	Total
							Marks	Hrs	Marks	Hrs					
1	BCA205	Project Analysis & Design	4	-	-	4	30	1.5	70	2.5	100	-	-	-	100

Objectives:

- To impart the knowledge of system development starting with analysis and also using different tools and methodology.

Pre-requisites: No prior knowledge required to develop a system.

Course outline:

Sr. No.	Course Contents	Numbers of Hours
1	**Overview** System, subsystem, business system information system Categories of information system System analyst, the role and task of systemanalyst	4
2	**System development** SDLC	2
3	**System development tools** Tools for systemdevelopment Managing project review and selection	4
4	**System requirements tools-I** Fact finding techniques: Interview ,Questionnaire, Record review, Observation	2
5	**System requirements tools-II** Decision Tree, Decision Table	4
6	**Structured Analysis** DFD notations, Physical & Logical DFD	5

	Developing DFD, Data dictionary	
7	**Prototype Development & CASE** Purpose of prototyping Steps in prototype method, Use of prototypes Role of CASE tools, Categories of Automated tools	5
8	**System Design** Objectives in designing an information system Elements of design. Design of input, Design of output ,Design of files	5
9	**Design of output** Output objectives Types of output, Presenting information, Designing printed output	4
10	**Design of input** Objectives of input design, Capturing data for input, Input validation	4
11	**Design of files** Basic File terminology Types of files, Methods of file organization	4
12	**Design of database** Relationships in data, Entity relationships Data models: Hierarchical data model, Network data model Introduction to normalization	5
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Learning Outcomes:

- At the end of this course, the students can analyze, design and develop a mini project.

Books Recommended:

1,*"Analysis and design of information system"*,James A Senn, TMH Publication.
2, *"Analysis and design of information system"*, V. Rajaraman,PHI Publication.
3,"Software Engineering: A Practitioner's Approach ",Roger S Pressman, Tata Graw-Hill Publication
4,*"Fundamentals of Software Engineering"*,RAJIB MALL,PHI Publication
5, *"Software Engineering"*,Ian Sommerville,Addison –Wesley Publication.

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