C. U. SHAH UNIVERSITY

Faculty of Computer Science

Post Graduate Diploma in Computer Application (PGDCA)

(1 year – Two Semester Full Time Course)

Semester:I **Subject Code: PGD101** **Name: Computer Fundamentals & Networking**

Teaching & Evaluation Scheme

Sr. No.	Subject Code	Name of the Subject	Teaching Scheme (Hours)				Evaluation Scheme								
							Theory					Practical (Marks)			
							Sessional Exam		University Exam		Total				
			Th	Tu	Pr	Total	Marks	Hrs	Marks	Hrs		Pr/ Viva	TW	Total	Total
1	PGD101	Computer Fundamentals & Networking	4	-	-	4	30	1.5	70	2.5	100	-	-	-	100

Objectives:

- To provide basic knowledge of computer, computer peripherals
- To provide basic knowledge of operating system
- To familiarize each student with the hardware functions of a computer.
- To provide knowledge of various networks like LAN, MAN, WAN and different network technology.

Prerequisites:-Willingness to learn how computers can be operated

Course outline:

Sr. No.	Course Contents	Number of Hours
1	**Computer Basics** - Definition of computer - Block Diagram Of Computer - Characteristics of computer - Generations of computer - Analog computer	4
2	**Digital computer** Mini, Micro, Mainframe, Super, Hybrid computer	2
3	**Number Systems& Conversions** 1) Decimal to Binary, Octal, Hexadecimal 2) Binary to Decimal, Octal, Hexadecimal 3) Octal to Decimal, Binary, Hexadecimal 4) Hexadecimal to Decimal, Binary, Octal	4
4	**Complement** 1) 1's complement 2) 2's complement	5

	Addition of two binary numbers Subtraction of two binary numbers using 1's and 2's complement method	
5	**Data Representation** Concept and use of ASCII, BCD, and EBCDIC Introduction - Nibble, Bit, Byte, Carry Bit, Parity Bit, Sign Bit, Word: 1. Double Word 2. Quad word	5
6	**Input Devices** Key board, Mouse, Touch screen, Scanner, OCR, OMR, MICR, OBR, Light pen	4
7	**Output Devices** CRT, LCD, Plasma Printers: Impact, Non-Impact, Laser Printer, matrix printer, drum printer, ink jetprinter	4
8	**Storage Devices And Type Of Memory** RAM (With Architecture), ROM,PROM, EPROM, EEPROM, Cache Memory, Magnetic Tape, Magnetic Disk, CDs, DVD, Blu-Ray Disc, Pen drive Port Introduction: USB, Serial, Parallel and PS2	4
9	**Overview of Computer Languages** - Computer Languages: Machine level language, Assembly level language, High-level language - Definition of assembler, Compiler and interpreter	4
10	**Network Introduction** Network Concept, Network Services : File, Print Service,Communication, Database, Security,Application Service, LAN, MAN, WAN, OSI and TCP/IP Models	4
11	**Network Model** Peer to Peer, Client – Server, Network Topologies, Bus, Ring, Star, Mesh	3
12	**Transmission Media** Transmission Cable Co-Axial Cable, Twisted Pair Cable, Fiber Optic Cable Wireless Transmission Media	3
13	**Connectivity Devices** Modems, Repeater, Hub, Bridge	2
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Learning Outcomes:

- At the end of the syllabus student will be aware with computer peripherals, fundamentals of computers and basic networking services and models.

Books Recommended:

1, "*Computer Fundamentals"*,P.K.Sinha, BPB Publication(4th Edition).
2, *"Networking Essential"*, Glenn Berg, Tech. Media(1st Edition)

3, *"Fundamental of Computer"*, V.Rajaraman, PHI Publication(4th Edition)
4, "*TCP/IP Protocol Suite*", B. A. Forouzn, TMH Publication(3rd Edition)
5, "*Computer Networks*", A.S.Tananbaum, Pearson Publication(4th Edition)

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Semester: I **Subject Code:PGD102** **Name: Programming in C**

Sr. No.	Subject Code	Name of the Subject	Teaching Scheme (Hours)				Evaluation Scheme								
							Theory					Practical (Marks)			
							Sessional Exam		University Exam		Total				
			Th	Tu	Pr	Total	Marks	Hrs	Marks	Hrs		Pr/ Viva	TW	Total	Total
1	PGD102	Programming in C	4	-	4	8	30	1.5	70	2.5	100	30	20	50	150

Objectives:

- To introduce the basics of programming to the students. Students will familiar with problem solving techniques.
- To introduce basic and intermediate level concepts and techniques of the C programming language.

Pre-requisites: Basic knowledge of flow charts and algorithms.

Course outline:

Sr. No.	Course Contents	Number of Hours
1	**Fundamental of 'C'** History of C, Importance of C language, Structure of C program, C tokens, variables and data types, comments, constants, Symbolic constant.	5
2	**Operators** Arithmetic, relational, logical, assignment, bitwise, increment and decrement, conditional, special operators.	3
3	**Expression** Arithmetic expressions, evaluation of expressions, type conversion, precedence and associativity	4
4	**Control Structures** Simple IF statement, if – else statements, Nested if-else, switch statement	4
5	**Looping and jumping structures** Looping statements,goto statement, break and continue statement.	5

6	**Array** Concept of array, One and Two dimensional arrays, declaration and initialization of arrays	4
7	**String** String, String storage, Reading and writing string, String handling functions.	4
8	**User Define Functions** Concept of user defined functions, function prototype, definition of function, parameter passing, calling a function, category of function, recursive function.	5
9	**Structure and Union** Basics of structure, structure members, accessing structure members, array of structures, array within structure, size of structures, unions, bit-fields.	4
10	**Pointers** Basics of pointers, pointer and array, pointer to array, array of pointers, pointer as function argument, function returning a pointer.	5
11	**File Management** Introduction to file I/O operations on file, Reading from and writing to files, File handling functions, command line arguments.	5
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Learning Outcomes:

- At the end of this course, the students can solve problem using C, fundamental of programming language and also improve the programming skills.

Books Recommended:

1, "*Programming in ANSI C",* EBalagurusamy TMH Publication. (4th Edition).
2, "*C : The Complete Reference*" Herbert Schildt, TMH Publication.(4th Edition).
3, "*Let us C*" by Y Kanetkar, BPB Publication(3rd Edition).
4, "*C Programming Language*", Brian W. Kernighan(2nd Edition).
5, "*The C Programming Language*",BRAINW,Pearson(2nd Edition).

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Semester: I **Subject Code: PGD103** **Name: Programming in Visual Basic**

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	PGD103	Programming in Visual Basic	4	-	4	8	30	1.5	70	2.5	100	30	20	50	150

Objectives:

- To impart knowledge of event driven programming using different controls in VB

Pre-requisites: Basic knowledge of computer and GUI.

Course outline

Sr. No.	Course Contents	Number of Hours
1	**Introduction** OOPS Concepts VB as Event Driven Programming Property, Event and Method VB as IDE	3
2	**Controls-I** Text Box, Label, Command Button, OptionButton, Check Box, Frame, Horizontal-Vertical, Scroll Bar, Combo Box	5
3	**Controls-II** List Box, Timer, Shape, Line, Drive List Box Directory List Box, File, List Box, Picture Box, Image Box Use of Msgbox( ) and InputBox( )	5
4	**Advanced control** Common Dialog Control Rich Text Box MSFlex Grid	4
5	**Variable and Operators** Data Types	4

	Declaration of Variables Arithmetic &RelationsOperators Scope & Life Time of Variables (Local Variable, Form VariableModule Variable, GlobalVariable)	
6	**DecisionMaking,Looping** Decision Making using If &SelectCase, Loops using For, While...Wend, While Loop...End Loop, DoLoop...While, Do Until ...Loop	4
7	**Array** Defining Array 1D, 2D, 3D, Static & Dynamic Array, Control Array	3
8	**Multiple Forms, MDI** Using Multiple Forms, Model Form & Modeless Form, Parent & Child Form ConceptusingMDI Form, Difference of MDI & SDI	4
9	**Procedure,Functions,Menus** Creating Procedures &Functions, Concept of ByRef&ByVal Concept of Public &PrivateScope, Use of Menu Editor	4
10	**Library functions** Array(),IsArray(), Asc(), Chr(), InStr(),Day(), Format(),Date(),DateDiff(), IsNull(),IsNumeric()Join(), LCase(),Left(),Len(),LoadPicture(),LTrim(),RTrim(), Mid(),Now(), Replace(),RGB(),Right(),Rnd(),Split(),Sqr(),Str(),UCase(),Val()	4
11	**File Handling** Sequential File Handing in VB	2
12	**Database Programming** Introduction to DAO and database connectivity,Introduction to ADO Control, Bounded Connectivity &UnboundedConnectivity	3
13	**Advance Concepts** Data-grid control, ActiveX Control, ActiveX DLL	3
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Learning Outcomes:

- At the end of the course the students will be endowed with event driven programming.

Books Recommended:

1,"*Mastering VB 6"*EvagelousPetroutoss, TMH Publication(2nd Edition).
2, *"Programming in Visual Basic 6.0",* by Julia Bradely, TMH Publication(2nd Edition).
3.*"VB Black Book",* Steven Holtzner, Dreamtech Press Publication(2nd Edition).
4, "*The Complete Reference VB6*", NoelJerkeTMH Publication(2nd Edition).
5, "*VB6 Unleashed*", Rob Thayer Sams, Tech Media(2nd Edition).

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Semester: I **Subject Code: PGD104** **Name:Web Scripting Languages**

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	PGD104	Web Scripting Languages	4	-	2	6	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.

Pre-requisites: Basic knowledge of computer.

Course outline:-

Sr. No.	Course Contents	Number of Hours
1	**INTERNET & WWW** Introduction about connect Internet, ISP, WWW Definitions :www, web server, web client,website, web page, search engine Applications (E-mail, Chat)	3
2	**HTML** Concept and use of HTML, HTML Document Structure	2
3	**DOCUMENT TAG** <HTML></HTML><HEAD></HEAD><BODY></BODY> <TITLE></TITLE><!-- -->	2
4	**TEXT FORMATTING TAG** <H1></H1> TO<H6></H6><P></P><PRE></PRE><B></B><U></U><I></I><TT></TT><STRIKE></STRIKE><BIG></BIG><STRONG></STRONG><SMALL></SMALL><FONT></FONT><BLINK><MARQUEE>	5
5	**Linking, Line Break and Horizontal Rule Tab** <A><LINK> <HR>	2

6	**List Creation** <OL></OL><UL></UL><LI><DL></DL><DT><DD>	3
7	**IMAGE HANDLING IN HTML** <IMG></IMG><AREA></AREA><MAP></MAP>	3
8	**TABLE CREATION** <CAPTION><TABLE></TABLE><TR><TH><TD>	3
9	**Frame and Form** <FRAME><FRAMESET><FORM><INPUT><SELECT><OPTION><TEXTAREA>	5
10	**XHTML** Introduction and use of XHTML,HTML v/s XHTML, XHTML syntax	3
11	**CSS** Introduction of Style sheet, Types of Style sheet, Class & ID, CSS Font Property CSS Text Property, CSS Background Property, CSS Border Property CSS List Property, CSS Padding Property, CSS Margin Property	4
12	**JavaScript** Introduction to JavaScript, Operator, Conditional Structure & Looping Structure, Dialog Boxes	4
13	**Built-in Functions** **String :**chatAt(), concat(), indexOf,lastIndexOf(), replace(), search(),substr(), substring(), toLowerCase(),toUpperCase() **Math :**abs(), ceil(), floor(), pow(), random(),round(), max(), min() **Date :**date(), getDate(), getDay(), getMonth(),getYear(), getFullyear(), getHours(),getMinutes(), getSeconds(),getMilliseconds(), setDate(), setDay(),setMonth(), setYear(), setFullyear(),setHours(), setMinutes(),setSeconds() **Array :**Join(), reverse(), pop(), push(), shift(),sort()	4
14	**Java Script Object** User Define Object, Document Object, History Object, Navigator Object Form Object	3
15	**Events in Java Script** onclick, ondblclick, onblur, onfocus,onchange, onkeypress,onkeydown, onkeyup,onMousemove, onmouseout,onsubmit, onreset, onselect, onload, onunload, timer event	2
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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

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Semester: I **Subject Code: PGD105** **Name:Computer Organization and Architecture**

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	PGD105	Computer Organization and Architecture	4	-	-	4	30	1.5	70	2.5	100	-	-	-	100

Objectives:

- To impart the knowledge of computer architecture by following a bottom-up approach: by starting from basic hardware components (transistors and logic gates) to construct more sophisticated circuits (adders, decoders, flip-flops, registers, . . .), which are then combined into memory units, processor units as well as a whole computer system.
- To understand how a modern CPU works

Pre-requisites: Basic knowledge of Computer

Course outline:

Sr. No.	Course Contents	Number of Hours
1	**Computer Organization &Data Representation:** Introduction to Computer Organization, Computer Design, Computer Architecture, Fixed Point Representation, Parity bit, Floating Point Representation	4
2	**Logic Gates** Introduction to Logic Gates., Type of gates, Universal Gates, Conversions and applications.	5
3	**Boolean Algebra:** Definition, Purpose of Boolean Algebra, Boolean function, truth table, logic diagrams	5
4	**Map Simplification** Karnaugh Mapupto 3 variable, Product-of-Sums simplification, Sum of Products, Don't care Condition	6

5	**Combinational Circuit** Definition, Block Diagrams, Half Adder, Full Adder, Decoders, Encoders, Multiplexers. De-multiplexer	6
6	**Sequential Circuit** SR Flip Flop, D Flip Flop, JK Flip-Flop, T Flip-Flop, Registers, Shift Registers, Binary Counter	6
7	**Central Processing Unit –CPU** Introduction, Major Components, Stack Organization : Register Stack, Memory Stack, Polish Notation	5
8	**Input- Output Organization** Peripherals, memory bus, connection to IO bus to IO devices	5
9	**Memory Organization:** Definition,RAM, ROM, DMA, DMA Controller, Cache Memory, Virtual Memory	6
		48

Learning Outcomes:

- At the end of the course the learners will aware of gates, CPU registers, I/O organization and Memory organization.

Books Recommended :

1, "*Computer System Architecture",* Morris Mano, PHI Publication(3rd Edition).
2, "*Digital Logic and Computer Design*",Morris Mano, PHI Publication.
3, *"Modern Digital Electronics",* R.P.Jain, TMH Publication.
4, "Structure Computer Organization", A. S. Tannanbaum, PHI Publication (4th Edition)
5, "Computer Architecture and Organization", John P. Huyes, McGraw-Hill (3rd Edition)