MAHARAJA AGRASEN INTERNATIONAL COLLEGE, RAIPUR (C.G.)

(B+ Grade by NAAC Affiliated to Pt. Ravishankar Shukla University, Raipur)

Academic Year

2021-22

Syllabus for PGDCA

Department of Computer Application

SCHEME OF TEACHING AND EXAMINATIONS 2014-2015
P.G.D.C.A. (Post Graduate Diploma in Computer Applications)

FIRST SEMESTER

Subject Code	SUBJECTS	Teaching Load Per Week			Credit	Examination Marks					
						Max. Marks			Min. Marks		
		L	T	P	L+ (T+P)/2	Th	Pr	Total	Th	Pr	Total
PGDCA101	Introduction to software organization	3	2	-	4	100	-	100	20	-	20
PGDCA102	Programming in "C"	3	2	-	4	100	-	100	20	-	20
PGDCA103	Office Automation & Tally	3	2	-	4	100	-	100	20	-	20
PGDCA104	Practical based on PGDCA-103			3 x 2	3	-	100	100	-	20	20
PGDCA105	Practical based on PGDCA-102			3 x 2	3	-	100	100	-	20	20
	TOTAL	9	6	12	18	300	200	500	60	40	100

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Department of Computer Application
Academic Year
2021-22
PGDCA First Semester

Name of the Program: **PGDCA**		Program Code: **PGDCA101**
Name of the Course: **Computer Fundamental**		Max Marks: **80**
Course Code: **PGDCA101**	Total Duration- **75 Hr**	(Internal:**20**+External:**80**)

Course Objective:

1. To understand basic of computer and working with operating system.
2. To develop working skill with productivity tools, graphics designing and internet.
3. To Process the knowledge of basic hardware peripherals
4. To acquire basic number system and programming skill.

Syllabus

Unit	Topic	Duration (In Hours)	Marks
1	Introduction to Computers Computer system: characteristics and capabilities.	15	16
	Computer Hardware and Software: Block Diagram of a Computer,		
	Different Data Processing: Data vs. Information, Data Processing System,		
	Storing Data, Processing Data Types of Computers: Analogue, Digital,		
	Hybrid, General and Special Purpose Computers.		
	Generation of Computers.		
2	Computer Peripherals Introduction to Input Devices:	15	16
	Categorizing Input Hardware, Keyboard, Direct Entry Card Readers		
	Scanning Devices- O.M.R., Character Readers, Thumb Scanner, MICR Smart Cards, Voice Input Devices,		
	Pointing Devices - Mouse, Light Pen, Touch Screen.		
	Computer Output: Output Fundamentals, Hardcopy Output Devices		
	Impact Printers, Non- Impact Printers, Plotters, Computer output Microfilm/Microfiche (COM) systems.		
	Softcopy Output Devices, Cathode Ray Tube, Flat Screen Technologies, Projectors, Speakers		
3	Basic Components & Storage Central Processing Unit:	15	16
	The Microprocessor, control unit, A.LU. Registers, Buses, Main Memory, Main Memory (RAM) for microcomputers,		
	Read Only Memory (ROM). Storage Devices: Storage Fundamentals,		

	Primary and Secondary Storage.		
	Data Storage and Retrieval Methods - Sequential, Direct & Indexed Sequential.		
	Tape Storage and Retrieval Methods Tape storage Devices, characteristics and limitations, Direct access Storage and Microcomputers Hard Disks.		
	Disk Cartridges, Direct Access Storage Devices for large Computer systems.		
	Mass storage systems and Optical Disks, CD ROM		
4	Computer Software & Languages System Software.	15	16
	System software Vs. Application Software, Types of System Software.		
	Introduction and Types of Operating Systems. Boot Loader.		
	Diagnostic Programs, BIOS, Utility Programs. Application Software: Microcomputer Software.		
	Interacting with the System, Trends in PC software, Types of Application Software.		
	Difference between Program and Packages. Computer Languages; Definition, Generations of computer languages.		
	Types of Languages, Language Processors: Assembler, Interpreter, and Compiler.		
5	Operating System and Linux Introduction,	15	16
	Uses of OS, Functions of OS, Booting process, Types of Reboot		
	Booting from different OS, Types of OS, DOS, Windows.		
	Linux Open-source Software concept and evolution of Linux.		
	Features of Multi-User Operating System; Structure of Linux OS.		
	Security Features of Linux, File System, Directory Structure and related commands.		
	Linux Editors & editor commands, Linux commands cd, md, rm, mv, cp, Is, cat, find, grep.		

Course Outcome: The students will be able to:

1. Converse in basic computer terminology.
2. Formulate tools, graphics designing and internet.
3. Process the knowledge of basic hardware peripherals.
4. Know and use different number system and the basics of programming.

References:

1. Introduction to Information Technology, V RajaRaman, PHI Second Edition.
2. Computer Fundamental, P.K Sinha, BPB Publication.
3. Fundamental of Information Technology: Chetan Shrivastava, Kalyani Publication.
4. Computers Today: Suresh S Basandra, Golgotia Publication.

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Department of Computer Application
Academic Year
2021-22
PGDCA First Semester

Name of the Program: PGDCA		Program Code: PGDCA I SEM
Name of the Course: OFFICE AUTOMATION		Max Marks: **100**
Course Code: **PGDCA 102**	Total Duration- **75 Hr**	(Internal:**20** + External: **80**)

Course Objective: Students will learn about:

1. To perform documentation
2. To perform accounting operations
3. To perform presentation skills

Syllabus

Unit	Topic	Duration (In Hours)	Marks
1	Introduction to word processing software and its features, Creating new document	15	16
	Saving documents, Opening and printing documents. Home Tab: Setting fonts, Paragraph settings, various styles (Normal, no spacing, Heading, Heading2, Title, Strong),		
	Find & replace, Format painter, Copy paste and paste special. Insert Tab: Pages, Tables, pictures, clipart, shapes, header & footer, word art, equation and symbols.		
	Page Layout Tab: Page setup, page Background, Paragraph (indent and spacing) Mailing Tab: Create envelops and Labels, Mail merge.		
	Review Tab: Spelling and grammar check, new comment, Protect document,		
	View Tab: Document views, Zoom, Window (New window, Split, Switch window)		
2	Introducing Excel, Use of excel sheet, creating new sheet, Saving, Opening, and printing workbook.	15	16
	Home Tab: Font, Alignment, Number, Styles and cells and editing, Conditional Formatting.		
	Insert Tab: Table, Charts (column chart, Pic chart, Bar chart, Line chart) and Texts (header & footer, word art, signature line)		
	Page Layout Tab: Page setup options, Scale to fit (width, height, scale).		
	Formulas Tab: Autosum (sun, average, min, max), logical (IF, and or not true, false), Math &trig (sin, cos, tan, ceiling, floor, fact, mod, log), watch window.		
	Data Tab: Get external data from MS Access, Sort and filter options, Data validation, Group and ungroup.		
	Review Tab: Protect sheet, protect workbook, share workbook View Tab: Page breaks, Page layout, freezing panes, Split and hide.		

3	Introducing power point, Use of power point presentation, creating new slides saving. Opening and printing.	15	16
	Home Tab: New slide, Layout, Reset, Delete, setting text direction, align text, convert to smart art, Drawing options.		
	Insert Tab: Table, picture, clipart, photo album, smart art, shapes and chart, movie and sound, hyperlink and action, text box, word art, object.		
	Design Tab: Page setup options, slide orientation, applying various themes, selecting background style and formatting it		
	Animations Tab: Custom animation for entrance, exit and emphasis, applying slide transition, setting transition speed and sound, animation on rehears timing Slide show.		
	view Tab: Start slid show options, setup options. View tab: Presentation views, colours and window option		
4	Front end and back end of application, Introduction to DBMS, Features of DBMS,	15	16
	Creating blank databases, saving it in accdb format. Defining data types in ms access.		
	Home Tab: Datasheet view, design view, pivot chart view, pivot table view, sort and filter options.		
	Create Tab: Creating tables, Creating reports, Query wizard. External		
	Data Tab: importing data from access and excel sheet, exporting data to excel and ms word.		
	Datasheet Tab: Relationships, Fields and columns options, Data type and formatting options		
5	Getting Started with Microsoft Publisher: Navigate the Interface. Customize the Publisher Interface, Create a Publication.	15	16
	Adding Content to a Publication: Add Text to a Publication, Add Pages and Picture Placeholders, Control the Display of Content in Text Boxes, Apply Building Blocks to a Publication. Formatting Text & Paragraphs in a Publication		

Course Outcome: Students will be able to:
1. Documents, spreadsheets and would be acquainted with internet.
2. Make database and about creation of journal, ledger, and trial balance of transaction in tally software.
3. Make Presentation through office automation.

References:
1. 1.Comdex Information Technology course tool kit Vikas Gupta, WILEY Dreamtech,2005
2. The Complete Computer upgrade and repair book,3rd edition Cheryl A Schmidt, WILEY Dreamtech
3. Introduction to Information Technology, ITL Education Solutions limited, Pearson Education.
4. PC Hardware and A + Handbook – Kate J. Chas P

Department of Computer Application
Academic Year
2021-22
PGDCA I Semester

Name of the Program: **PGDCA**		Program Code: **PGDCA I SEM**
Name of the Course: **Programming in C Language**		Max Marks: **100**
Course Code: **PGDCA 103**	Total Duration- **75 Hr**	(Internal:**20** + External: **80**)

Course Objective: In this course, you will learn about:

1. Programming basics and the fundamentals of C
2. Arranging data in arrays
3. Mathematical and logical operations
4. Using if statement and loops
5. File management and dynamic memory allocation

Syllabus

Unit	Topic	Duration (In Hours)	Marks
1	Introduction Character set, Identifiers and Keywords,	15	16
	Variables, displaying variables, Reading Variables, Character and Character String. Qualifiers,		
	Type define Statements, Value initialized variables,		
	Constants, Constant Qualifier, Operators and Expressions,		
	Operator Precedence and Associativity, Basic input output: Single Character I/O, General Outputs,		
	Types of Characters in format string.		
	Scanf with specifiers, Search set Arrangements and Suppression Character, Format Specifiers for scanf		
2	Control Structure: if-statement,	15	16
	if-else statement, multiple decisions,		
	nested if statements, switch statement for-loop, while-loop,		
	do-while loop, break statement, statement, goto statement.		
	Functions: The main function, functions accepting more than one parameter, User defined and library functions		
	Concept associatively with functions, function parameter Return value,		
	recursion comparisons of iteration and recursion variable length argument list		

3	Scope and Extent, Arrays,	15	16
	Strings, Multidimensional Arrays, Strings, Array of Strings,		
	Function in String. Pointers: Definition and use of pointer, address operator, pointer variable, referencing pointer, void pointers,		
	pointer arithmetic, pointer to pointer, pointer and arrays, passing arrays to functions,		
	pointer and functions, accessing array inside functions,		
	pointers and two-dimensional arrays, array of pointers		
	pointers constants, pointer and strings.		
4	Declaring and using Structure,	15	16
	Structure initialization, Structure within Structure		
	Operations on Structures, Array of Structure, Array within Structure, Creating user		
	Defined data type, pointer to Structure and function.		
	Union,		
	difference between Union and Structure,		
	Operations on Union, Scope of Union		
5	Dynamic Memory Allocation: Library functions for Dynamic memory allocation,	15	16
	Dynamic Multi-Dimensional arrays		
	File Handling: - Introduction, Structure,		
	File handling,		
	Functions file types, unbuffered and buffered file,		

Course Outcome: After competing this course, you will be able to:

1. Develop a C program.
2. Store different data types in the same memory
3. Control the sequence of the program and give logical outputs.
4. Manage I/O operations in your C program.
5. Understand the basics of file handling mechanisms.

References:

1. 1 Let Us C -Yashwant Kanetkar
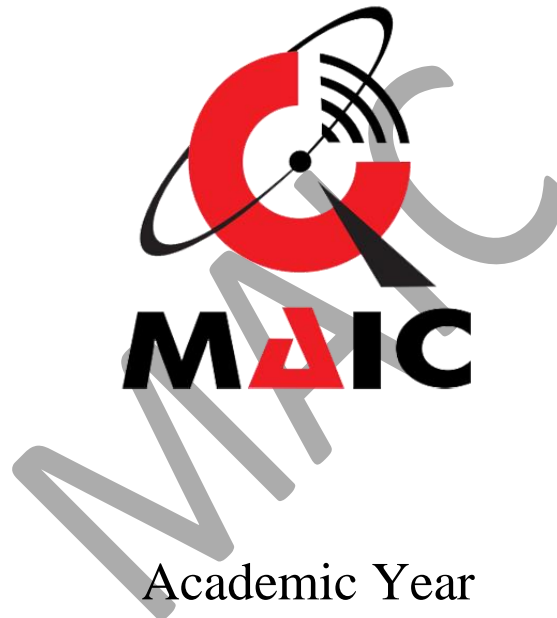2. Programming in C -E. Balagurusamy

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MAIC

Academic Year

2021-22

Syllabus for PGDCA

Department of Computer Application

MAHARAJA AGRASEN INTERNATIONAL COLLEGE

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Department of Computer Application
Academic Year
2021-22
PGDCA II Semester

Name of the Program: **PGDCA**		Program Code: **PGDCA II Sem**
Name of the Course: **Programming with VB.Net**		Max Marks: **80**
Course Code: **PGDCA106**	Total Duration- **75 Hr**	(Internal:**20**+External:**80**)

Course Objective:

1. Design, formulate, and construct applications with VB.NET
2. Integrate variables and constants into calculations applying VB.NET
3. Determine logical alternatives with VB.NET decision structures
4. Implement lists and loops with VB.NET controls and iteration
5. Separate operations into appropriate VB.NET procedures and functions

Syllabus

Unit	Topic	Duration (In Hours)	Marks
1	Introduction to .NET framework	15	12
	Overview of net framework features & architecture,		
	Managed Execution process, CLR, common language specification,		
	JIT Compilation, MSIL,		
	Namespaces, Assemblies, metadata, Common Type System,		
	cross language, interoperability, Garbage collection		
	Visual development & event driven programming,		
2	Programming with .NET Framework	15	12
	Windows form: working with Visual Studio IDE, creating a NET solution		
	Operators		
	MDI application, components and controls, Data types, variables		
	Type conversions, Methods and events		
	Scope and life time of variables,		
	Creating Enumerations.		
3	Control Structures: conditional statements	15	12
	loops, arrays, types of methods		
	method data, creating Sub Procedures and Functions		
	Msgbox, Input box		
	Introduction to exception handling- try catch statement		

	finally, statement		
	throw, user define Exception		
4	GUI Programming	15	12
	GUI Programming with window forms, Showing & hiding forms		
	Textbox, Rich Text boxLable, Button, List box, Combo box, Checkbox,		
	Picture box, Radio button, Toggle Button, Panel, Group box, Scrollbar,		
	Timer, Dialog boxes, Open File Dialog. Save File dialog Print dialog,		
	Font dialog, Color dialog.		
	Designing menus and sub menus.		
5	Database programming with ADO.Net	15	12
	ADO NET Architecture,		
	NET data provider, dataset components, creating database applications using Window forms (Database connectivity through ADO NET),		
	Accessing data using server explorer, Data Adapters & Data sets,		
	Command & Data reader.		
	data bind control, displaying		
	data in data grid		

Course Outcome: By learning the course, the students will be able to:

1. Assemble multiple forms, modules, and menus into working VB.NET solutions
2. Create VB.NET programs using multiple array techniques
3. Build integrated VB.NET solutions using files and structures with printing capabilities
4. Translate general requirements into data-related solutions using database concepts

References:

1. Microsoft Office 2007 fundamentals, L. Story, D Wall
2. MS Office, 5.3 Shriters, Firewall Media
3. Office 2000 made easy, Alan Neiber, Tata McGraw Hill
4. FLASHMX Bible, Rat Reinhart
5. Sams Teach Yourself Macromedia Flash8 in 24 Hours, Phillip Kerman
6. How do everything with Macromedia, Boele Hake, Dougsahlin
7. Multimedia Making it works, Tay Vaughan, Tata McGraw Hill

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Department of Computer Application
Academic Year
2021-22
PGDCA II Semester

Name of the Program: PGDCA		Program Code: **PGDCA II SEM**
Name of the Course: **Database Management System**		Max Marks: **100**
Course Code: **PGDCA 107**	Total Duration- **75 Hr**	(Internal:**20** + External: **80**)

Course Objective:

1. Discuss Database management systems, databases and its applications
2. Familiarize the students with a good formal foundation on the relational model.
3. Outline the various systematic database design approaches
4. Describe the concepts of transactions and transaction processing and the issues, techniques related to concurrency and recovery manager.
5. Explore the File organizations, indexing and hashing mechanisms.

Syllabus

Unit	Topic	Duration (In Hours)	Marks
1	Introduction Of Database Management System	15	12
	Purpose of Database, Views of data		
	Data Modeling		
	Data Language, Transaction Management,		
	Storage Management		
	Database Administrator and user		
	Database system structure		
2	Entity - Relationship model.	15	12
	Entity Relationship Model as a tool for conceptual design-entities		
	Attributes and relationships		
	E-R diagrams		
	Concept of keys; Case studies of ER modeling Generalization;		
	Specialization and aggregation		
	Converting an ER model into relational Schema		
3	Relational Model	15	12
	Structure of Relational database select, project, cross product. Different types of joins (inner join, outer joins, self-join)		
	set operations, Simple and complex queries using relational algebra.		
	Standalone and embedded query languages		

4	Relational Database design Normalization concept in logical model;	15	12
	Pitfalls in database design		
	update anomalies		
	Functional dependencies, Join dependencies,		
	Normal forms (1NF, 2NF, 3NF).		
	Boyce Codd Normal form,		
	Decomposition, Multi-Valued Dependencies, 4NF, 5NF.		
5	Introduction to Commercial database query language,	15	12
	SQL & its environment. SQL as a data definition language-creating tables, altering tables, drop tables.		
	SQL as data manipulation language- Inserting, Deleting, Retrieving and updating data in a table		
	SQL as query language. Introduction to SQL constructs (SELECT…FROM, WHERE… GROUP BY… HAVING… ORDERBY….),		
	Temporary tables, Nested queries		

Course Outcome: At the end of this Database Management Systems course, students will be able to:

1. Model Entity-Relationship diagrams for enterprise level databases[L3]
2. Formulate Queries using SQL and Relational Formal Query Languages[L3]
3. Apply different normal forms to design the Database[L3]
4. Summarize concurrency control protocols and recovery algorithms[L5]
5. Identify suitable Indices and Hashing mechanisms for effective storage and retrieval of Data [L3]

References:

1. Data base system: Korth & Silberschatz.
2. Data Base Management System: Alexies & Mathews [Vikas publication
3. An Introduction to Data base System: C.J. Date
4. Data Base Management System: Raguramakrishnan.

Department of Computer Application
Academic Year
2021-22
PGDCA II Semester

Name of the Program: **PGDCA**		Program Code: **PGDCA II SEM**
Name of the Course: **Internet and Web Technology**		Max Marks: **100**
Course Code: **PGDCA 108**	Total Duration- **75 Hr**	(Internal:**20** + External: **80**)

Course Objective: This Course will enable:

1. This course is intended to teach the basics involved in publishing content on the World Wide Web.
2. A student will be familiar with client server architecture and able to develop a web application using HTML.
3. To provide adequate knowledge and understanding about E-Com practices to the students.
4. Student will be able to recognize features and roles of businessmen, entrepreneur, and managers.

Syllabus

Unit	Topic	Duration (In Hours)	Marks
1	Introduction to Computer and Hardware:	15	12
	Introduction of Information Technology, History of Computers		
	Organization of computers, Number Systems,		
	Programming language and types, public domain software,		
	Applications of Information Technology in business,		
	Applications of Information Technology industry, entertainment, science, engineering and medicine.		
	Applications of Information Technology science, engineering and medicine.		
2	Internet and its Application	15	12
	Evolution of internet, Internet applications,		
	TCP/IP, Addressing in Internet (IP), Domains, Internet service providers,		
	Connectivity such as dial up, leased line,		
	VSAT E- mail protocols (X-400, SMTP, UUCP),		
	Description of E-Mail headers		
	Email routing, e-mail client, POP-3, IMAP-4.		
3	FTP and Telnet: Introduction to File Transfer Protocol (FTP),	15	12

	Types of FTP servers (including anonymous). Telnet protocol,		
	Telnet client, Terminal emulation. Usenet and Internet relay chat,		
	Web publishing tool, Website planning. Website Hosting.		
	Multiple sites on one server, Maintaining a web site, WWW servers,		
	HTTP & URLs, Registration of website on search engines,		
	Maintenance of website.		
4	Dynamic HTML and Web Designing:	15	12
	HTML Basic concepts, Web designing issue, Structure of HTML documents, HTML Elements: Core attributes,		
	Language attributes, Core Events, Block Level Events, Text Level Events, Linking Basics, Linking in HTML, Images and Anchors,		
	Anchor Attributes, Image Maps, Semantic Linking Meta Information,		
	Image Preliminaries, Image Download issues, Images as Buttons,		
	Introduction to Layout: Backgrounds, Colors and Text, Fonts, Layout with Tables,		
	Introduction to CSS.		
5	Internet Security: Internet security vulnerability and threats,	15	12
	Firewalls, Introduction to AAA,		
	Malwares. E-Commerce. Introduction, Concepts & technology		
	Advantages, Limitations, Various electronics payment system,		
	Payment Gateways, Introduction to EDL		

Course Outcome: Students will be able

1. Students are able to analyze a web page and identify its elements and attributes.
2. Students are able to develop a dynamic webpage by the use of java script and DHTML.
3. An ability to effectively integrate IT-based solutions into the user environment.
4. An ability to use current techniques, skills, and tools necessary for computing practice.

References:

1. Introduction to Computers, P.K. Sinha BPB Publication, 6th edition.
2. Fundamentals of Computers, V. Rajaraman, Prentice Hall of India, 4th edition.
3. HTML Complete Reference, Thomas A. Powell, TMH
4. Frontiers of Electronics of Commerce, Ravi Kalakoda & Andrew B. Whinston Addison Bah Wesley 1196