

University Of Pune

Syllabus for Post Graduate Diploma in Computer Management (P.G.D.C.M) (From Academic Year 2008-2009)

(I) Introduction:

1. The name of the programme shall be Post Graduate Diploma in Computer Management (PGDCM).
2. The PGDCM Programme will be a part time one year's Diploma course in Computer Management, divided into two semesters. It will consist of 8 papers adding up to 800 marks(including Practicals and Project Work) as detailed later.
3. Ordinarily, in each class, not more than 60 students be admitted.

(II) Eligibility for Admission:

A student seeking admission to this course must have passed any one of the following qualifications

1. Bachelor's Degree of any statutory University or any other recognized foreign University.
2. Any Diploma awarded by Board of Technical Education of any state or Central Government - Post SSC three years Diploma with 1 year post Diploma experience or Post HSC two years Diploma with 1 year post –Diploma experience.

(III) Number of Lectures and Practical:

Lectures and Practical should be conducted as per the scheme of lectures and practicals indicated in the course structure.

(IV) Practical Training and Project Work:

As a part of the course, students will have to complete their practical & Project work under guidance of an Internal guide. The project should consist of a practical problem related to an industrial / service organization. The practical and project work will be assessed by the institution offering the PGDCM Programme internally and the marks allotted for the project should be included in the marks for the paper titled “practicals” during the second semester of the PGDCM programme.

(V) Assessment:

The final total assessment of the candidate is made in terms of an internal assessment and an external assessment for each course.

- (a) For each paper, 30% marks will be based on internal assessment and 70% marks for semester and examination (external assessment), unless otherwise stated.
- (b). The internal marks will be communicated to the University at the end of each semester, but before the semester end examinations.

These marks will be considered for the declaration of the results

(VI) Examination:

Examinations shall be conducted at the end of the semester i.e. during November / December and in April/ May.

(VII) Standard of Passing:

Every candidate must secure 40% marks in each head of passing.

(VIII) Medium of Instruction:

The medium of Instruction will be English.

(IX) Revision of Syllabus:

As the computer technology is changing very fast revision of the syllabus should be considered every three years.

PGDCM Semester I

Subject Code	Subject Name	Type	Mark	Hrs. (30 sessions of 90 mins each)
101	Elements of Information Technology and office Automation (Windows Operating system and MS Office)	C	100	45
102	Programming using Visual Basic	C	100	45
103	Introduction to C and C++ language	C	100	45
104	Practicals	FI	100	45

PGDCM Semester II

Subject Code	Subject Name	Type	Mark	Hrs.
201	Web Technology including E-Commerce, HTML and Basic Java.	C	100	45
202	Software Engineering	C	100	45
203	Database Management System and Oracle	C	100	45
204	Practicals	FI	100	45

**Detailed syllabus for Post Graduate Diploma in Computer Management
(2 Semesters)**

101: Elements of Information Technology & Office Automation

Sr. No	Chapter Details	Nos. of Session	%	Reference
1	Introduction	1	5	1
	What is computer, Characteristics Basic buiding blocks-CPU, I/o memory, History and generation			
2	Data Representation	5	15	1,7
	Need for binary system, Conversion, representation of negative nos-ing magnitude, 1's and 2's complement, representation of fractions, Binary arithmetic – Add, Sub, Mul, Div ., Representations of characters- ASCII,EBCDIC			
3	Hardware	8	20	1,2,7
	Logic gates (AND,OR,NOT)-No Boolean algebra, Input device (types,working), keyboard, mouse, Special purpose i/p devices and applications MICR, Bar code scanner, OCR,Joystick etc., Output devices (Types, working Application),monitor, printr, plotr, Memory devices, Primary memory- R/W ROM etc., Exteded , Expanded memory, Secondary Memory – Floppy, HDD, CDROM, Tape, RAID, DVD etc., Multimedia, Types of Data Processing-batch, online and real- time.			
4	Softwares.	5	10	1,2,5
	Classification- systo.ems/Application, system software - , compilers, Interpreters, Programming languages - .exe, .com programs, Files – types, operations, DOS, Win 9x, Booting process/Device drivers/systems files operations (practical)			

5	Operating System Introduction	1	8	8
6.	Miscellaneous	1	8	1,2,3,6
	Viruses, Maintenance (Do's& Don't's)			
	Office Auomation & MS Office			
1.	Introduction to MS Windows	5	10	6
	What is GUI & Windows Concepts of Toolbars, menus Titlebarr, controls, dialogue box, statusbar, messagebox and mouse operations Program manager – all options File Manager – All options			
2	MS Word	2	9	6
	Create and open documents Edit your documents Advanced editing-find text, replace text, check spelling, using auto- correct/ auto-text) Save and exit documents Using multiple documents Print documents Formal documents			
3	MS Excel	2	15	6
	Start Excel Open/reate spreadsheet Save & exit spreadsheet Edit spredssheet using formulae and function Format spreadsheet Print spreadsheet Usig multiple spreadsheet			
4	Introduction to Microsoft Outlook			1,5

Reference Books		
1	Fundamentals of computers	V.Rajaraman
2	Peter Norton's Introduction to computers	Peter Norton
3	Computer Network	Andrew S Tanenbaum
4	Computer Networks and distributed Processing	James Martin
5	Computer Studies	C S French
6	Manual for Ms Office	
7	Fundamentals of digital computer	Thomas Bartee
8	Operating system	Milan Milenkovic

Sr.no	Chapter details	No of sessions	%	Reference
1	Introduction	6	15	1,2
	Event driven programming Starting & Exiting VB Understand VB Environment Project explorer Properties window Toolbox Form layout window Property pages Getting help Saving project Printing project Running application			
2	Adding Code And events	3	10	1,2
	Code window Naming Conventions Variables (all datatypes – byte, Boolean, integer, long, long integer, single (single precision, floating-point), double (double-precision floating point), currency (scaled integer), decimal, dat object (fixed/variable), variant(with numbers/ characters) user – defined(using types) Scope(global, local, static) Constnts			
3	Visual Basic controls	7	20	1,2
	Label and Text box Command button Frame check box, option button List box, combo box Drive list box and Dir list box, file list box Formatting Control arrays Tab order			
4	Working with functions	4	10	1,2
	String Mathematical Date Data type conversions			
5	Control statements and loop structure	3	15	1,2
	IF & IIF statement			

	Select case Do For			
6	Dialog Boxes	3	5	1,2
	Message box, Input box, Common dialog box(Microsoft-common dialog box 6.0)			
7	Menus	4	25	1,2
	Creating menus Adding code to menu Toolbars Other common controls(MS Windows common controls 6.0)			
	Reference Books			
1	Visual basic 6.0 in 21 days	Peter Greg		
2	Complete Reference on visual basic			

103: Introduction to C & C++ Language

PART-A Introduction to C

Sr.no	Chapter details	No of sessions	%	Reference
1	An Overview of C	1	2	1,3,4
	Brief History of C Compilation & Execution of C. Program			
2	C Fundamentals	2	8	1,3,4
	Variables, Data Types, Operator & Expression Character Set C Token Identifier & Keyword Constant, Integer, Floating Point, Character, String, Enumeration Data Types in C Data Declaration & Definition Operator & Expression- Arithmetic, Relational, Logical, Increment & Decrement, Bitwise, Assignment, Conditional Precedence & Associativity of Operators.			
3	Console I/O	1	2	1,3,4
	Introduction Character input & Output String Input & Output. Formatted Input/Output (scanf/printf) sprintf & sscanf			
4	Control Statement	2	8	1,3,4
	Introduction Selection Statements If, Nested if, if-else-if, The? Alternative, The Conditional Expression, switch, Nested switch Jump Statements goto & label, exit() function			
5	Loop control Structure	3	8	1,3,4
	The for statement;Nested for Loop;for loop variants;the while statement;Increment/decrement operators;Use of Break and Continue;the do-while loop			

6	Array Single Dimension Arrays Accessing array elements, Initializing an array Multidimensional Arrays Initializing the arrays, Memory Representation Accessing array elements Passing Single Dimension array to Function	3	10	1,3,4
7	Storage classes Automatic, Register, Static (local and global), External, scope rules	2	5	1,3,4
8	Function Introduction Arguments & local variables Returning Function Results by reference & Call by value Recursion	2	10	3
9	Character Strings What are strings, standard library string functions: strlen(), strcat(), strcpy(), strcmp()	1	5	1,3,4

Reference Books				
1	C : The Complete Reference :	Herbert Schildt		
2	Art of 'C'	Schildt		
3	Let us C	Y.P. Kanetkar		
4	Spirit Of "C" .:	Moolish Kooper		
5	The C Programming Language	Kernighan & Ritchie.		

PART-B Introduction to C++

Sr. No	Chapter Details	Nos. of Session	%	Reference
1	Principle of OOP's Introduction Procedural Vs Object Oriented Programming Classes, Object, Data Abstraction, Encapsulation, Inheritance, Polymorphism Dynamic Binding, Message Passing Object Oriented Languages Object Based languages	1	2	1,2

2	Basics of C++ A Brief History of C & C++ C Vs C++ A Simple C++ Program Application of C++ Structure & Class Compiling & Linking	1	2	1,3
3	Expression Tokens, Keywords, Identifiers & Constants, Basic Data Types, User-Defined Data Types, Symbolic Constant, Type Compatibility, Reference Variables, Operator in C++, Scope Resolution Operator, Member De-referencing Operators, Memory Management Operators, Manipulators, Type Cast Operator	2	5	1,3
4	Functions In C++ The Main Function, Function Prototyping Call by Reference, Call by Address, Call by Value, Return by Reference Inline Function, Default Arguments Const Arguments, Function Overloading, Friend Function	2	8	1,2
5	Classes & Object A Sample C++ Program with class Defining Member Functions Making an Outside Function Inline Nesting of Member Functions Private Member Functions Arrays within a Class Memory Allocation for Objects Static Data Members, Static Member Functions, Arrays of Objects Object as Function Arguments Friendly Functions, Returning Objects, Const member functions Pointer to Members, Local Classes	3	10	1,2
6	Constructor & Destructor Constructor Parameterized Constructor Multiple Constructor in a Class Constructors with Default Arguments Dynamic Initialization of Objects Copy Constructor Dynamic Constructor Const Object	2	8	2,5,6

	Destructor			
7	Inheritance Defining Derived Classes Single Inheritance Making a Private Member Inheritable Multilevel Inheritance Hierarchical Inheritance Multiple Inheritance, Hybrid Inheritance Virtual Base Classes, Abstract Classes Constructor in Derived Classes Nesting of Classes	2	7	6

Reference books	
1 .C++: The Complete Reference	Herbert Schildt
2. Let us C++	Kanetkar
3. Object Oriented Programming with C++	E. Balagurusamy
4 C++	Primer Stanley Lippman & Lajoi
5. C++ Programming Language	Bjarne Stroustrup
6. C++ Programming Bible	Stevens & Clayton Walnum

104 : Practicals

The practicals should be based on the subject covered during the Semester. This should be evaluated based on submission of assignment and viva-voce examination.

201 Web Technology including ECommerce, HTML & Basic Java Part-A Web Technology including ECommerce

Srno	Chapter details	No of sessions	%	Reference
1	E-commerce What is Electronic Commerce? Benefits of electronic commerce How E-commerce works? Web Hosting ,Obtaining a Digital Certificate , Handling Money on the net Transaction on the Internet, Requirements of Payments, Procedure followed by cyber cash, Verifone& First Virtual	5	15	1,2
Part – B HTML				
Sr no	Chapter details	No of sessions	%	Reference
A.	HTML BASICS			

	Introduction To HTML WWW web publishing Introduction to XML Introduction to JavaScript	3	13	3,7,10
Part C OOD Concepts & Basic Java				
1	Object Oriented Programming-Basics	4	15	4,5,6
	Overview of Programming Paradigms Structure and classes, Encapsulation Polymorphism. Inheritance.			
2	Introduction to Java Programming	2	7	4,5,6
	Features of Java –As Programming Language JDK Environment and Tools			
3	Java-Programming Fundamentals	3	7	4,5,6
	Structure of Java Program Data types, variables, operators, keyword, Naming conventions. Flow of control-Decision, Iteration. Arrays.			
4	Classes & Objects	3	10	4,5,6
	Class-Members, access Modifiers Objects Constructors			
5	Interface-need/function	2	7	4,5,6
	Abstract classes Abstract Mtd			
6	Packages	2	6	
	Importing packages Java Lang-String, String Buffer, System. Wrapper class			
7	Event Programming	3	10	4,5,6
	Java awt Components. (Window, Frame, Panel, Test Field, Label, Button). Layout Manager, Border, Flow, Grid.			
8	Applet	3	10	4,5,6
	Java Applet-Applet Life Cycle			

<i>Books Recommended</i>	
1	The E-Business by Daniel Amor
2	E-Commerce by S.Jaiswal
3	The Complete Reference HTML by Thomas A. Powell
4	The Complete Reference Java 2 by Patrick Naughton,Herbert Schildt
5	The Java Tutorial by Mary Compione,Kathy Walrath
6	Core Java2 vol1 and vol2 by Cay S.Horstmann, Gary Cornell.
7	JavaScript Bible
8	Beginning XML by Wrox Press

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SOFTWARE ENGINEERING

Sr no	Chapter details	No of sessions	%	Reference
1	System concepts ,Integrated systems,sub-systems,modules	2	6	2
2	Role of systems analysis and others in system development	1	7	4,5,6
3	General Phase of System Development Life cycle, feasibility study, Requirements capture, detailed Systems analysis, Systems design, testing, On-site Implementation and Maintenance	3	20	2
4	Fact Finding Methods	2	7	2,7
5	Different approaches to Software Development	3		2,7
	5.a)Classic Method: Waterfall Model 5.b)Prototyping 5.c)Spiral Model 5.d)4 GL or Data Oriented Approach		10	1,2,4,6
6	Structured analysis and Design method and software Engineering techniques, Tools and Methodologies in systems Development. Application System Modelling Data Modelling: Entity Relationship method Process Modelling: Data Flow Diagrams Database Design Methods Mapping E-R model to arrive at the Database Design	15	40	1,3,4,6

	Normalization Technique for Database Design Controlled De-Normalization System Documentation Techniques Introduction System Flow Charts Logic Representation Techniques Decision Trees Decision Tables Pseudo code and structured English			
7	User Interface Design Menu ,screen and Report Layouts designing The mode/style of interaction between the system and user	(4)	10	1,2,6

<i>Books Recommended</i>	
1	Analysis and Design of information systems by senn
2	Software engineering Practioner's approach by roger Pressman
3	Introduction to System Analysis and Design by Hawryzkiewicz
4	System Analysis and Design by Elias M Awad
5	Introducing System Analysis and Design by Lee
6	System analysis and design by Perry Edwards.
7	Software Engineering Concepts Richard Fairley

203: Database Management System & Oracle

PART-A

A. Database Management System (DBMS)				
Sr.no	Chapter details	No of sessions	%	Reference
1	Introduction	1	5	1,2,3,6
	History –advantages and limitations of DBMS, Uses of DBMS Software modules in DBMS, architecture of DBMS			
2	Modelling Techniques	2	8	1,2,4,7
	Different types of models , ER model			
3	Introduction to Hierarchical and Network databases	1	5	
4	Relational Database	2	10	1,4,5,7
	Introduction codd's 12 rules, concepts of domain, tuple , cardinality			
5	Normalization	4	10	1,3,4,5
	Advantages & disadvantages of Normalization 1NF,2NF,3NF, rules with examples, anomalies			
6	Usage of MS Access, without programming	4	10	8

<i>Reference books</i>	
1	Introduction to database systems by C.J.Date
2	Database system concept by Korth
3	Principles of Database Management by James Martin
4	Computer Database organization by James Martin
5	Database Management Systems by Bipin Desai
6	Database Management systems by Ramakrishnan & Gehrke
7	Fundamentals of Database Systems by Elmasri Navathe
8	For Microcomputers application by Jackson

PART-B

Oracle				
Sr.no	Chapter details	No of sessions	%	Reference
1	Overview of RDBMS, Oracle introduction=Arcitecture,Processes(Background list)	1	-	1,2
2	Overview with Tools of Oracle Sql* Plus, PL/SQL, Forms, Report	2	5	1,2,3,4

	Precompilers (SQL Loader, Import, Export) Introduction of SQL DDL, DML, DTL(TCL) Basic Data Types- Char, Varchar/varchar2, Long, Number Column-name number Column-name number(P)-fixed point Column –name number(p,s)-floating point Fixed Date data type, Raw data type, Long raw data type			
3	Table Constraint Definition Domain,Entity,Referential Create table Alter table, Drop table, Normalization	2	10	2,3,4
4	Commands and clause Insert ,update, delete with ‘where’ clause Queries and SQL functions Select with all options Operations and operators Arithmetic, Comparison Logical, In, not , between, like, all, not like,%, any ,exists, not exists, is null, and, or, not Query Expression operators Union, intersect, minus	3	10	2
5	Operators precedence SQL Functions Date:Sys_date,new time,next_day,add_months Last_day, months_between Numeric:round, trunk, abs, ceil, cos, exp, floor Character: initcap, lower, upper, trim, translate, Length, char, Conversion : to_char, to_date, to_number Miscellaneous:uid,User,nvi,vsize Group function, Avg,max,min,sum,count Group by clause Having clause	2	8	2,4

6	Expression(set operations:join) Set operations - Union ,union all,intersect,minus Relating data through join concept Join theory - Simple join, equi join , non equi join, self join, outer join Table aliases, query and sub queries case should be taught / example	3	10	2
7	Introduction to PL/SQL Cursor Management Static cursor, Dynamic cursor, Explicit & implicit cursor Cursor for loop, Parametric cursor	3	7	1,2

Books Recommended

1	Understanding ORACLE Perry J. & Later J.
2	Oracle 7 by Ivan Byrass
3	SQL by Scott Urman
4	Oracle-One on One by Wrox

204: Practicals/Project

The practicals should be based on the subjects covered during the semester.the students are expected to complete a mini project which will give them an understanding of a real life business which will give them an understanding of a real life business situation .Both practical assignments and the mini project should be evaluated internally,based on submission of assignments and a viva=voce examinations