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UNIVERSITY OF MYSORE

Estd. 1916

Vishwavidyanilaya Karyasoudha
Crawford Hall, Mysuru- 570 005

No.AC.2(S)/384/14-15

Dated: 28.05.2016

01-6

NOTIFICATION

Sub: Revised Regulations and Syllabus in Post-Graduation Diploma in Software Development (PGDSD) from the Academic year 2016-17.

Ref: 1. Decision of the Faculty of Science & Technology Meeting held on 16.02.2016.

2. Decision of the Academic Council meeting held on 29-03-2016.

*****

The Board of Studies in Central for Information Science and Technology (CIST) which met on 25-11-2015 has resolved to modify the Syllabus and Regulations of Post-Graduation Diploma in Software Development (PGDSD) from the academic year 2016-17.

The Faculty of Science and Technology and the Academic Council at their Meetings held on 16.02.2016 and 29.03.2016 respectively have also approved the above said proposal and the same is hereby notified.

The Revised Regulations and Syllabus in Post-Graduation Diploma in Software Development (PGDSD)is annexed and it may be downloaded from the University Website i.e., www.uni-mysore.ac.in

Draft approved by the Registrar

Deputy Registrar (Academic)

31/5/16

To:

1. The Registrar (Evaluation), University of Mysore, Mysore.
2. The Dean, Faculty of Science & Technology, DOS in Earth Science, MGM.
3. The Chairman, BOS in Centre for Information Science and Technology, Manasagangotri, Mysore.
4. The Director, Centre for Information Science and Technology, Manasagangotri, Mysore.
5. The Director, College Development Council, Maharaja's College Centenary Building, University of Mysore, Mysore.
6. The Deputy/Assistant Registrar/Superintendent, Administrative Branch, UOM, Mysore.
7. The Deputy/Assistant Registrar/Superintendent, Examination Branch, UOM, Mysore.
8. The P.A. to the Vice-Chancellor/Registrar/Registrar(Evaluation), UOM., Mysore.
9. Office file.

Science Notification-2016-17 Ja

UNIVERSITY OF MYSORE

REVISED

REGULATIONS

for

Post Graduate Diploma in Software Development (PGDSD)

Choice based Credit System

Effective from the academic year 2016 -17

UNIVERSITY OF MYSORE

Revised Regulations for the Post Graduate Diploma in Software Development
(Choice based Credit System)
(Effective from academic year 2016-17)

The program shall be called **Post Graduate Diploma in Software Development (PGDSD).** It is a one-year program consisting of two semesters coming under the Faculty of Science and Technology. The course shall be governed by the following regulations:

1. ELIGIBILITY FOR ADMISSION

1.1. A candidate who has passed any Bachelor's degree from a recognized University is eligible for admission to the first semester of the program.
1.2. There shall be two streams; Stream-1: From 10 a.m. to 5 p.m., Stream-2: From 8 a.m. to 10 a.m. and from 5 p.m. to 8 p.m. Regular students are admitted to Stream-1 and candidates who are employed are admitted under Stream-2. In case there are vacant seats in Stream-2, such seats shall be filled by regular students. In case of high demand, depending on the availability of faculty and infrastructure, more than one section can be formed.

2. INTAKE

2.1. There shall be a minimum of 15(fifteen) candidates for running a Batch/Section.
2.2. The merit of the candidate is the aggregate percentage of marks of all years of Bachelor's degree examination.
2.3. The selection of eligible candidates for admission to course shall be based on merit–cum-reservation policy of the government of Karnataka from time to time.

3. COURSE OF STUDY

3.1. The course of study for the Post Graduate Diploma in Software Development (PGDSD) shall extend over a period of one year consisting of two semesters. Each semester shall be of sixteen weeks duration. The academic calendar shall be as notified by the university from time to time. However, a candidate can take a maximum of two years for completion as per double the duration norms of University of Mysore.
3.2. The medium of instruction shall be English.
3.3. There shall be five papers of theory with practical in the first semester. There shall be four papers with practicals and one project work in the second semester. The hours of instruction shall be two hours/week for each theory paper and four hours (two hours duration Two times a week) for each practicals.

4. ATTENDANCE, PROGRESS AND CONDUCT

4.1. Each semester shall be taken as a unit for the purpose of calculating attendance.
4.2. The students shall attend practicals and theory classes as prescribed by the University during each semesters.
4.3. A student shall be considered to have completed a semester if the student has attended not less than 75% of number of working periods of the course during the said semester.

4.4. The student who fails to complete the course in the manner stated in 4.3 above shall not be permitted to appear for the University examinations. Such a candidate shall enroll himself/herself in the coming two years. However the admission is subject to the availability of the seats.

4.5. If the conduct/behavior of the student is not found to be satisfactory, action will be initiated as per the University regulations.

5. SCHEME OF EXAMINATION

5.1 There shall be a University examination at the end of each semester. The duration of theory and practical examination shall be of Two hours duration respectively.

5.2 The duration and maximum marks and minimum marks for pass in each of the theory and practical shall be as given below:

Paper	Theory Papers and Practicals	Credits			Marks						Total	
		L 2 (2hrs/week)	P 2 (4hrs/ week)	Total 4	I.A		Theory Exam		Practical Exam			
					Max	Min	Max	Min	Max	Min	Max	Min
	I Semester:											
PGDSD : T-1.1	Computer concepts and Operating Systems	2	2	4	20	-	50	18	30	11	100	40
PGDSD : T-1.2	Programming in C and Data Structure	2	2	4	20	-	50	18	30	11	100	40
PGDSD : T-1.3	Web Programming	2	2	4	20	-	50	18	30	11	100	40
PGDSD : T-1.4	Software Engineering and Testing	2	2	4	20	-	50	18	30	11	100	40
PGDSD : T-1.5	Data Communication and Networking	2	2	4	20	-	50	18	30	11	100	40
	II Semester											
PGDSD: T- 2.1	RDBMS with MY SQL	2	2	4	20	-	50	18	30	11	100	40
PGDSD : T-2.2	Object Oriented Programming in Java	2	2	4	20	-	50	18	30	11	100	40
PGDSD: T- 2.3	ASP.NET	2	2	4	20	-	50	18	30	11	100	40
PGDSD: T- 2.4	Software project management	2	2	4	20	-	50	18	30	11		
PGDSD: 2.4	Project**		4	4	20	-			80	28	100	40

5.3 In the Practical examination each student should execute one question out of the 10/12 practical questions approved in the syllabus. Change of program during lab examinations is not permitted because all the Programmes are given from the predefined list, from the syllabus only.

***In case of practical examination, the following scheme shall be followed:**

Writing procedure – 05 marks, Execution -12 marks, Viva-voce – 8 record-05 marks

****In case of Project, the following scheme shall be followed:**

Project Demonstration/execution: 30 marks, Viva-voce: 20 marks, Dissertation: 30 marks

5.4 The internal assessment marks in each theory paper shall be awarded by the concerned course teacher based on (i) two class tests, each of one hour duration, conducted by him/ her during the semester, (ii) Assignment and (iii) one seminar. Average of the two tests to be considered as the final internal assessment marks.

Internal assessment: 20 marks
Test1: 15 marks
Test2: 15 marks
1 Assignment/ Seminar: 5 marks
2 Assignment/ Seminar : 5 marks

5.5 Candidate shall submit two copies of the dissertation along with CD/DVD on project work during second semester for evaluation. The project viva shall be conducted by one internal examiner and one external examiner approved by the Registrar (Evaluation).

6. DECLARATION OF RESULTS AND CLASSIFICATION OF SUCESSFUL CANDIDATES

6.1 The candidate who obtains a minimum of 35% of marks in each of the theory and practical examination and a minimum of 40% of marks of theory/practical/Project examination and Internal Assessment marks put together shall be declared to have passed in the respective paper. The candidate is declared to have passed the semester if he/she passes in all the papers. The candidate who fails to get such a minimum marks in any paper(s) shall repeat the theory / practical examination of that paper. The Internal Assessment marks once awarded is final and there is no provision for improvement. Minimum Credits for getting the Diploma: 20 credits from 2 semesters.

6.2 The Grades shall be declared on the basis of aggregate marks obtained by the candidate, who has successfully completed both the semesters of the course.

6.3 The classification of credits of successful candidates shall be as under:

Grades in each paper:

1. Marks secured in the paper is 90% and above - A Grade
2. Marks secured in the paper is 80% and above but less than 90% - B Grade
3. Marks secured in the paper is 70% and above but less than 80% - C Grade
4. Marks secured in the paper is 60% and above but less than 70% - D Grade
5. Marks secured in the paper is 50% and above but less than 60% - E Grade
6. Marks secured in the paper is 40% and above but less than 50% - F Grade
7. Marks secured in the paper is less than 40% - Dropped

LIST OF SUBJECTS TO BE STUDIED FOR PGDSD

Paper	Theory Papers and Practicals	Credits		
		L 2 (2hrs/week)	P 2 (4hrs/week)	Total
	I Semester:			
PGDSD : T-1.1	Computer concepts and Operating Systems	2	2	4
PGDSD : T-1.2	Programming in C and Data Structure	2	2	4
PGDSD : T-1.3	Web Programming	2	2	4
PGDSD : T-1.4	Software Engineering and Testing	2	2	4
PGDSD : T-1.5	Data Communication and Networking	2	2	4
	II Semester			
PGDSD: T- 2.1	RDBMS with MY SQL	2	2	4
PGDSD : T-2.2	Object Oriented Programming in Java	2	2	4
PGDSD: T- 2.3	ASP.NET	2	2	4
PGDSD: T- 2.4	Software project management	4	2	4
PGDSD: 2.4	Project**		4	4

PGDSD 1.1 Computer Concepts and Operating System

32 hours (2 hours per week)

UNIT-1 **8 hours**

Introduction to computers, Computer Concepts, Input Devices, Output Devices, Secondary Storage Devices, Memory Organization, Computer Architecture, Operating System Basics, Programming Languages.

Unit-2 **8 hours**

Introduction to number system, Binary system, Decimal system, Octal system, Hexadecimal system. Various Conversion in Number system, One's and Two's Complements, Binary Arithmetic, One's and Two's Complement, Subtraction, Floating Point Arithmetic. Boolean Algebra and Venn diagram, Logic Gates.

UNIT-3 **8 hours**

Process Management**,** process, process state, process control block, Thread and Multithreading Process Scheduling algorithm, Concurrency Control, Dead Lock, Interrupt Handler, Memory Management, Logical and physical Address space, swapping, Paging and Segmentation. Virtual Memory, Demand paging, Page replacement, Page Replacement Algorithm, FIFO Page replacement algorithm, Optimal Algorithm, LRU Algorithm

UNIT-4 **8 hours**

File System Interface, Concept of File, File Access Methods, File System Implementation, File system Structure, File system Organization. I/O System, Network systems, Distribution, systems, MS- Dos Internal commands, MS-Dos External commands, Introduction to Unix, Introduction to Linux

REFERENCES

1. Computer Concepts Basics, Dolores J Wells, **Publisher:** Course Technology ,**Edition Number:** 4 , **ISBN:** 1423904621,**EAN:** 9781423904625, **Publish Date:** 2008-12-31
2. Computer Concepts: Illustrated Brief, Dan Oja, **ISBN**: 0538749547, **Edition**: 8 **, Publisher**:Course Technology
3. **Computer Concepts And C Programming ,** Kumar, Udaya; Jeyapoovan; ISBN: 8125916458, EAN: 9788125916451, Edition: Paperback, Publisher: Vikas Publishing House
4. Computer Concepts and C Programming, J B Dixit, ISBN: 8170081130 Publisher: Laxmi publications PVT.LTD
5. Computer Concepts and C Programming, Dr S Ravishankar , **Publisher:** Himalaya ,**Edition Number:** 2 ,**EAN:** CHIMPUB110247
6. Computer Concepts & C Programming, Sangameshwara Bg, SANGUINE TECHNICAL PUBLISHERS, **ISBN:** 8188849308

Practical's based on Introduction to Computers

	Microsoft WORD
01	Create Document, non-documents files
02	Add Bullets and numbering. Create Hyperlinks
03	Create tables. Insert pictures and videos, Mail merge documents
04	Create broachers. Create book work

	Microsoft EXEL
05	Creating various worksheets, mathematical calculations, using different formulae
06	Preparing various types of Graphs/charts, different Chart options, colouring, etc.(
07	Sorting and Filtering Printing worksheet
	Microsoft POWER POINT
08	Creating slides, designing slides, back ground, layout styles, special effects Editing text, adding/deleting aligning, making bold, italic and fonts, colour text
09	Changing back ground colors and designs
10	Creating auto shapes, drawing clip art, word art, smart art, charts, tables, text boxes, images, shading and 3-d effect
11	Rotating text and pictures, text wrapping, saving, quitting and printing slides Inserting new slides, making animation effects
12	Inserting hyperlinks between files. Viewing the slides, slide transition, making sound effects, inserting movie/sound from external files

PGDSD 1.2 Programming in C and Data structure

UNIT-1

C Language Preliminaries Introduction, History and features of C, Characteristics of C, Applications of C. Constants And Variables, Fundamentals of C, Variables, Constants, Data Types, int, float, char, double. Input-Output statements, formatted input, formatted output statements, Unformatted input statements, unformatted output statements.

UNIT-2

Operators In C, **C** operators, unary operator, binary operator, arithmetic operator, increment operator, Decrement operator, relational operator, logical operator, bit wise operator, ternary Operator, comma operator, size of ()-operator, mathematical functions, header files, Preprocessor directives. Control Statements, Conditional control statements, if-statements, if-else statements, nested if- statements, Switch-statements, go to statement. Loop Control Structures, while statement, do-while statement, for statement, nested for statement, break Statement, continued statement.

UNIT-3

Arrays, Definition, classification of arrays, declaration of an array, One-dimensional array & Multidimensional arrays. Functions Function definitions, arguments and parameters, category of functions, function with No arguments and no return values, function with arguments but no return value, Functions with no arguments and return values, local and global variables. Pointers, Definition, call by value and call by reference, pointer declaration, and pointer notations. Strings**,** declaring and initializing string variables, reading and writing strings, string handling functions.

UNIT-4

Structures And Unions, Definitions, declarations, embedded structure declarations, initialization of a Structure, array of structures, unions, definitions, declarations, accessing union Members, and initialization. File operations, Data organization, file operations, opening a file, reading from a file, trouble in Opening a file, closing the file. Advanced concepts Bit fields, Marcos, types def.

Introduction to data structures, singly linked lists, doubly linked lists, circular list, representing stacks and queues in C using arrays and linked lists, infix to post fix conversion, postfix expression evaluation. Trees- Binary tress, terminology, representation, traversals, graphs- terminology, representation, graph traversals (dfs & bfs)

References:

1) The C Programming Language, B.W. Kernighan, Dennis M.Ritchie, PHI/Pearson Education
2) Computer Concepts and C Programming P.B.Kotur Sapna Book House
3) Programming in C, E.Balagurusamy, Tata McGraw Hill
4) Let us C , Yashavant P. Kanetkar, BPB Publications
5) Computer Basics and C, V Rajaraman, Tata McGraw Hill
6) Programming With C, Gottfried, Sehaums Outline Series, Tata McGraw hill Publications
7) Computer science, A structured programming approach using C, B.A. Forouzan and R.F. Gilberg, Third edition, Thomson.
8) DataStructures Using C - A.S.Tanenbaum, Y. Langsam, and M.J. Augenstein, PHI/Pearson education.
9) C & Data structures - P. Padmanabham, B.S. Publications.
10) C Programming with problem solving, J.A. Jones & K. Harrow, Dreamtech Press

11) Programming in C - Stephen G. Kochan, III Edition, Pearson Eductaion.
12) Data Structures and Program Design in C, R.Kruse, C.L. Tondo, BP Leung, Shashi M, Second Edition, Pearson Education.

Practical's based on Programming in C and Data structure

01	Write a program to find sum of all prime numbers between 100 and 500.
02	Write a program to reverse the digits of a given number. For example, the number 9876 Should be returned as 6789
03	Write a program to compute the wages of a daily laborer as per the following rules **Hours Worked** **Rate Applicable** Upto first 8 hrs Rs 50/- For next 4 hrs Rs 10/- per hr extra For next 4 hrs Rs 20/- per hr extra For next 4 hrs Rs 25/- per hr extra For rest Rs 40/- per hr extra Accept the name of the laborer and no. of hours worked. Calculate and display the wages. The program should run for N number of laborers as specified by the user
04	Write a program to input 20 arbitrary numbers in one-dimensional array. Calculate Frequency of each number. Print the number and its frequency in a tabular form
05	Write a function, str_search(char* s1,char* s2, int n) , that takes two strings and an integer, as arguments and returns a pointer to the nth occurrence of 1st string s1 in 2nd string s2, or NULL if it is not present.
06	Write a C function to remove duplicates from an ordered array. For example, if input array contains 10,10,10,30,40,40,50,80,80,100 then output should be 10,30,40,50,80,100.
07	Write a menu driven program to maintain a Telephone Directory having following file structure: 1. Name : Character type : Length =20 characters. 2. Address : Character type : Length =40 characters. 3. Phone: Character type : Length =12 characters. Menu 1. Add record(s) 2. Display record(s) 3. Search record(s) 4. Modify record(s) 5. Delete record(s) 6. Backup copy of File 7. Exit Type your choice= 1,2,3,4,5,6,7— ->
08	Write a program to extract words form any text file and store in another file. Sort the words in alphabetical order and store them in the same file. Read the sorted file and print the frequency of each word.
09	Write a program to display the Following pattern called Floyed's Triangle. 1 2 3 4 5 6 7 8 9 10

	11 12 13 14 15
10	Define a structure for an Employee having EmployeeName, EmployeeCode, BasicPay, DearnessAllowance, HRA, PF, GrossPay, NetPay Take an array of 10 Employees. Write 'C' functions to :- a) Accept data for EmployeeName, EmployeeCode, BasicPay for all the employees. b) Compute :- a. DearnessAllowance = 50% of BasicPay b. HRA = 20% of BasicPay + DearnessAllowance c. PF = 12% of BasicPay + DearnessAllowance d. GrossPay = BasicPay + DearnessAllowance + HRA e. NetPay = GrossPay – PF c) Display the name of employee who has highest GrossPay. d) Compute and display average net pay. e) Display list of all employees in the alphabetical order of employee name.
11	Write a program to convert a given decimal number to its binary equivalent and vice versa.
12	Write a program to display the content of a Text file, which means it, will behave like TYPE command of MSDOS. Suppose the name of your program file: FILETYPE.C and FILETYPE.EXE and the name of the source file is MYFILE.TXT. The following command should work: C: \PROGRAM> FILETYPE MYFILE.TXT

PGDSD 1.3 Web Programming

UNIT-1

Basics in Web Design, Brief History of Internet ,What is World Wide Web, Why create a web site, Web Standards.

introduction to HTML, HTML Document, Basic structure of an HTML document , Creating an HTML document, Mark up Tags, Heading-Paragraphs, Line Breaks, HTML Tags. Introduction to elements of HTML, Working with Text , Working with Lists, Tables and Frames Working with Hyperlinks, Images and Multimedia.

UNIT-2

Working with Forms and controls. Tables & Lists – Creating Tables and Lists in HTML documents. Links: Creating links to local range,other pages, specific part of page, electronic mail. Images: Including icon and picture in HTML document. Creation of animated GIF. Sizing the pictures. MultimediaObjects Adding external images, video, and sound file including device independent (DVI) files. Add marquees of scrolling text. Frames Setting and releasing frames. Using one frame to index another. Creating floating frames, borderless frames and frames with borders. Forms Creating basic forms. Adding text box, check box, radio buttons, pulldown menus, single-line text field and password field. Processing the forms. Style sheets Creating style sheets to other HTML element, altering different characteristics and features.

UNIT 3

Fundamentals of Web, XHTML – 1: Internet, WWW, Web Browsers and Web Servers, URLs, MIME, HTTP, Security, The Web Programmers Toolbox. XHTML: Basic syntax, Standard structure, Basic text markup, Images, Hypertext Links. XHTML – 2, CSS: XHTML (continued): Lists, Tables, Forms, Frames CSS: Introduction, Levels of style sheets, Style specification formats, Selector forms, Property value forms, Font properties, List properties, Color, Alignment of text, The box model, Background images, The and tags, Conflict resolution.

UNIT 4

XML: Introduction, Syntax, Document structure, Document type definitions, Namespaces, XML schemas, Displaying raw XML documents, Displaying XML documents with CSS, XSLT style sheets, XML processors, Web services.

UNIT 5

PHP:Origins and uses of PHP, Overview of PHP, General syntactic characteristics, Primitives, operations and expressions, Output, Control statements, Arrays, Functions, Pattern matching, Form handling, Files, Cookies, Session tracking, Database access with PHP and MySQL

REFERENCE:

Text Books:

1. Robert W. Sebesta: Programming the World Wide Web, 4th Edition, Pearson Education, 2008. (Listed topics only from Chapters 1 to 9, 11 to 15)

Reference Books:

1. M. Deitel, P.J. Deitel, A. B. Goldberg: Internet & World Wide Web How to Program, 4th Edition, Pearson Education, 2004.
2. Chris Bates: Web Programming Building Internet Applications, 3rd Edition, Wiley India, 2007.
3. Xue Bai et al: The web Warrior Guide to Web Programming, Cengage Learning, 2003.

Practical's based on Web Programming

01	Create the following HTML page With body tag and its attributes, paragraph tag and attributes
02	Create a web page in html with 4x3 table b) Within each table, place 12 images of Indian Tourist Spots, in each box c) Each image link to the corresponding site of Tourist Spot d) Each Image must be at least 100x100 in size
03	Create a page with two frames _ The left frame of page contains the list of names & Images of the Indian National Hero's.. _ On the left frame when you click on name or image, the details will be shown on the right frame.
04	create a job application form _ Create an area called section one and place text boxes that receives details - a) Name b) Age c) Gender d) High School e) Qualifications _ Create an area called section two and place text boxes that receives details - a) Previous Employment b) References c) Qualification _ At the end place a submit button
05	a) Take the picture of the motherboard b) Place an image map on each item that is pointed out on the picture

	c) Have them link to some information that you know about them. d) There should be some sort of navigation or a back button on each page
06	Create a XHTML form with Name, Address Line 1, Address Line 2, and E-mail text fields. On submitting, store the values in MySQL table. Retrieve and display the data based on Name
07	
08	
09	Write a PHP program to store current date-time in a COOKIE and display the 'Last visited on' date-time on the web page upon reopening of the same page.
10	Write a PHP program to store page views count in SESSION, to increment the count on each refresh, and to show the count on web page.
11	.
12	

PGDSD 1.4 Software Engineering and Testing

Unit-1:

The role of software engineering in system design, software products, emergence of software engineering, notable changes in software development practices, the changing nature of software, the software engineering challenges,

Unit-2:

Software processes, desired characteristics of software process, the software life cycle, software development process models, comparison of process models.

Unit-3:

Requirement analysis and specification, need for SRS, characteristics of SRS, organization of SRS document. Techniques for representing complex logic, functional specification with Use Cases, formal system development techniques. System models: Data-flow models, semantic data models, object models, data dictionaries.

UNIT 4

Testing as an Engineering Activity – Role of Process in Software Quality – Testing as a Process – Basic Definitions – Software Testing Principles – The Tester's Role in a Software Development Organization – Origins of Defects – Defect Classes – The Defect Repository and Test Design – Defect Examples – Developer/Tester Support for Developing a Defect Repository.

UNIT 5

TEST CASE DESIGN Introduction to Testing Design Strategies – The Smarter Tester – Test Case Design Strategies – Using Black Box Approach to Test Case Design Random Testing – Requirements based testing – positive and negative testing -–– Boundary Value Analysis – decision tables - Equivalence Class Partitioning state-based testing– cause effect graphing – error guessing - compatibility testing – user

documentation testing – domain testing Using White–Box Approach to Test design – Test Adequacy Criteria – static testing vs. structural testing – code functional testing - Coverage and Control Flow Graphs – Covering Code Logic – Paths – Their Role in White–box Based Test Design – code complexity testing – Evaluating Test Adequacy Criteria.

TEXT BOOKS:

1. Srinivasan Desikan and Gopalaswamy Ramesh, " Software Testing – Principles and Practices", Pearson education, 2006.
2. Aditya P.Mathur, "Foundations of Software Testing", Pearson Education,2008.
3.
4. Ian Sommerville – Software Engineering, Fifth Edition, Addison-Wesley.
5. Pankaj Jalote – An Integrated Approach to Software Engineering, Third Edition.
6. Rajib Mall – Fundamentals of Software Engineering, PHI.
7. Roger S. Pressman – Software Engineering, Sixth Edition, Mc Graw Hill.
8. Ghezzi, Jazayeri, Mandrioli – Fundamentals of Software Engineering, PHI.

Practical's based on Software Engineering and Testing

01	A program reads three integer values, representing the lengths of the sides if the triangle. The program prints whether the triangle is scalene, isosceles or equilateral. Develop a set of test cases that would test the program adequately.
02	Derive a flow graph for the above program and apply basis path testing to develop test cases that will guarantee the execution of all the statements. Execute the cases and show the results.

03	Given the following procedure
	PROCEDURE AVERAGE
	Interface Returns avg, input, valid
	Interface accepts value, min, max
	int value [100];
	int avg; input, valid, min, max, sum, i
	i = 1;
	input = valid = 0;
	sum = 0
	Do WHILE value [i] <> - 999 and input <100
	Input = input + 1
	If value [I]>= min and value [I] <=max
	THEN valid = valid + 1
	Sum = sum + value [I]
	ELSE
	SKIP
	END IF
	i = i + 1;
	END DO
	IF Valid > 0
	THEN avg = sum/valid

	B Level Syllabus R4 171
	ELSE
	Avg = -999
	END IF
	END AVERAGE
	a) Draw a flow graph for the above given algorithm.
	b) Determine the cyclomatic complexity by applying
	i) Number of regions
	ii) Edges and nodes
	iii) Predicate nodes
	c) Determine a basis set of linearly independent paths.

04	Draw a Graph Matrix corresponding to algorithm given in Q3 & compute the cyclomatic complexity. Prepare the test cases of the given algorithm to test the conditions using CONDITION TESTING.
05	Write a program in a programming language, specified by the examiner, to accept a 10 numbers & sort them in the order accepted at run time. Make a flow graph and design test cases for the condition testing. Also mention the expected results.
06	You are to prepare a Test Plan. What are the various test factors to be analyzed that correspond to Project Risks?
07	A university's web site allows students to enroll online bio-data. The form contains following fields: i. Name of the student ii. Father's name iii. Address iv. City v. State vi. Pin code vii. Sex viii. Date of Birth ix. Academic Qualifications Exam Passed b. University/Board c. Marks obtained d. Division e. Max Marks Design the validation checks for the given fields.
08	Write a program to find the sum of the matrices. Write all the test cases so as to verify the correctness of the logic.
09	Prepare a list of checks to test date, numeric and alpha fields in any data entry screen.
10	Write a program to create fibonacci series and and create du and dc graph for the same.
11	Prepare a checklist to test the Graphical User Interface of Windows based application.
12	Prepare a comprehensive checklist to test a WEB Site

PGDSD 1.5 Data Communication and Networking

UNIT – 1

Networking: Needs and Advantages, Network, Network Types – Client, Server and Peers, introduction

to various types of servers. TCP / IP reference Model and ISO reference Model, Physical layer, Data link layer, MAC (Medium Access Control) and LLC (Logical Link Control), Error Detection and Correction.

UNIT – 2

Network topology – Bus, Star, Ring, Star bus, Star ring, Mesh, features, Advantages and Disadvantages of each type. Transmission media – Guided transmission media, unguided transmission media. LAN standard, 802.3,802.4,802.5, Ethernet, Fast Ethernet, Token Rings, FDDI, ATM

UNIT – 3

Network layer: circuit switching, packet switching, routing and congestion control. Transport layer, connection oriented service, connectionless oriented service, TCP and UDP.

UNIT – 4

Value Added Networks: X.25 Interface Network, Frame Relay, ISDN (Integrated Service Digital Network. Interface Devices. Application Layer: Email, WWW, and FTP. Network Security, Satellite communication.

Reference:

1. Andrew & Tanenbaum, Computer Networks, Pearson Education.
2. William Stallings, Data and Computer Communications, 7/e Pearson Education.
3. S.K Basandra & S.Jaiswal, Local Area Networks, Galgotia Publications.
4. Ames Chellis Charles Perkins, Mathew Strebe Networking Essentials: Study Guide MCSE, 2/e, BPB Publication.
5. Black Uyless, Computer Networks: Protocols, Standards, and Interfaces, 2/e, PHI.
6. William A Shay, Understanding Communications and Networks, 3/e, Thomson Learning – Vikas Publication.

Practical's based on Data Communication and Networking

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PGDSD 2.1 RDBMS with MySQL

UNIT1:

SQL, SQL*Plus: Introduction to SQL SQL Commands and Data types Introduction to SQL*Plus SQL*Plus formatting commands Operator and Expression SQL v/s SQL*Plus.

Managing Tables and Data: Creating and Altering tables (Including constraints) Data Manipulation

Command like Insert, update, delete SELECT statement with WHERE, GROUP BY and HAVING, ORDER BY, DISTINCT, Special operator like IN, ANY, ALL, BETWEEN, EXISTS, LIKE Join, subquery, Built in functions, View, Sequence Synonyms, Database Links Index.

UNIT2:

Data Control and Transaction Control Command: Grant, Revoke, Role, Creating Users What is transaction? Starting and Ending of Transaction Commit, Rollback, Savepoint. Creating and Using Procedure, Functions, Package, Triggers. Creating Objects, PL/SQL Tables, Nestead Tables, Varrays etc…

UNIT3:

Oracle Database Structure Instance Architecture (Database Processes, Memory Structure, Data files) Creating & Altering Database Opening & Shutdown Database Initialization Parameter Control Files, Redo Logs files Tablespace(Create, Alter, Drop) Rollback Segment (Create, Alter, System, Transaction RBS) Oracle Blocks Import, Export and SQL*Loader.

UNIT4:

Backup & Recovery Backup & Recovery Type of Backup (Control file, Redo log file, Cold, Hot) What is Net 8? Why use Net 8?

Reference:

1. SQL, PL/SQL the programming lang. of oracle - Ivan Bayross - BPB Publications.
2. Using Oracle 8i - Page,Hughes.- QUE&PHI Publication.
3 Oracle 8i The Compete Reference - George Koch,Kevin Loney - Oracle Press and Tata MacGraw- Hill.
4. ONLINE REFERENCES Wikipedia Link http://en.wikipedia.org/wiki/SQL

Practical's based on RDBMS with MySQL

1	**Create two different tables with all different constraints listed below and relate the tables** **Table: Course** **Cno** **Cname** **Cfee** **Duration** **Eligibility** **Constraints for course table** **a) Apply primary key constraint for cno column in course table** **b) Apply not null constraint for cname column in course table** **c) Apply check constraint for cfee column in course table where cfee should be greater than 1500** **d) Apply check constraint for duration column in course table where duration should be either 1 or 2** **e) Apply check constraint for eligibility column in course table where eligibility should be either degree or PUC** **Table: Student** **Sid** **Sname** **Sage** **Qualification** **Address** **Tel no**

	Email **Constraints for student table** **a) Apply primary key constraint for sid column in student table where it has to implement a sequence to sid column and Sid should start with 1** **b) Apply not null constraint for Sname column and apply a check constraint such that if the name of the student is entered in uppercase accepts the name else show an error** **c) Apply check constraint for Age column where age should be greater than 19** **d) Apply unique constraint for Email and Telno** **e) Insert few values for both the table and try to violate the constraints. Give the information for error message and description for all the above listed constraints.**
2	**Write the Query to display Comparison operators and execute the commands using EMP table**
3	**Write the Query to display the information of employee who is earning the maximum salary** **a) Write the Query to display the information of employee who is earning the minimum salary** **b) Write the Query to display average salary of the employees in the emp table** **c) Write the Query to display sum of the salary in the emp table** **d) Write the Query to display number of rows in the emp table**
4	**Write the Query to display the employees information of the employee whose name is in the list of employees who is earning salary greater than 2000 and job as CLERK** a) **Write the Query to display all the information of the employee who do not get the commission null** b) **Write the Query to display all the information of the employee who gets the commission** c) **Write the Query to Display all the information of the employee who has got more experience.** d) **Select all the information of the employee who has same designation 'KING'**
5	**Create view with the following fields from EMP table. The fields are eid, ename, sal, job, designation.** **a) Try to execute DML commands like insert, update and delete and discuss the result. If it is possible to insert, update and delete the information then display the information else explain the reason.**
06	Create table DEPT with the following columns and constraints.

	<table><tr><td>Column name</td><td>Data type</td><td>Size</td><td>Constraint</td></tr><tr><td>DEPTNO</td><td>NUMBER</td><td>2</td><td>PRIMARY KEY</td></tr><tr><td>DNAME</td><td>VARCHAR2</td><td>10</td><td>UNIQUE + NOT NULL</td></tr><tr><td>LOCATION</td><td>VARCHAR2</td><td>10</td><td>UNIQUE + NOT NULL</td></tr></table>
07	Create table EMPLOYEE with the following columns and constraints. <table><tr><td>Column name</td><td>Data type</td><td>Size</td><td>Constraint</td></tr><tr><td>EMPNO</td><td>CHAR</td><td>4</td><td>PRIMARY KEY</td></tr><tr><td>ENAME</td><td>VARCHAR2</td><td>10</td><td>NOT NULL</td></tr><tr><td>JOB</td><td>VARCHAR2</td><td>10</td><td></td></tr><tr><td>MGR</td><td>CHAR</td><td>4</td><td></td></tr><tr><td>HIREDATE</td><td>TIMESTAMP</td><td></td><td>NOT NULL</td></tr><tr><td>GENDER</td><td>CHAR</td><td>1</td><td>'M' OR 'F' ONLY</td></tr><tr><td>SAL</td><td>NUMBER</td><td>8,2</td><td>DEFAULT 0</td></tr><tr><td>COMM</td><td>NUMBER</td><td>8,2</td><td>DEFAULT 0</td></tr><tr><td>DEPTNO</td><td>NUMBER</td><td>2</td><td>FOREIGN KEY REFERRING TO DEPTNO of DEPT table</td></tr></table>
08	Insert 5 records in both the tables.
09	Add table level constraint such that commission cannot be greater than 30% of salary after the table has been created. Assign the constraint name COMM_30_SAL.
10	Add new constraint with the name DEPT_CHK_LOCATION to DEPT table such that LOCATION can be any one of the following cities MUMBAI, PUNE, BENGALURU, LONDON, SAN FRANSISCO only.
11	Remove the UNIQUE constraint from the LOCATION column.
12	**Create two different tables and apply primary key for parent table and foreign key for child table**

PGDSD 2.2 Object Oriented Programming in Java

UNIT 1:

Introduction to Java Programming Language: An Introduction to Java: Java as a Programming Platform, The Java "White Paper" Buzzwords, Java and the Internet, A Short History of Java, Common Misconceptions About Java. The Java Programming Environment: Installing the Java Development Kit, Choosing a Development Environment, Using the Command-Line Tools, Using an Integrated Development Environment, Compiling and Running Programs from a Text Editor, Running a Graphical Application, Building and Running Applets.

UNIT 2:

Fundamental Programming Structures in Java: A Simple Java Program, Comments, Data Types, Variables, Operators, Strings, Input and Output, Control Flow, Big Numbers, Arrays. Objects and Classes Introduction to Object-Oriented Programming, Using Predefined Classes, Defining Your Own Classes, Static Fields and Methods, Method Parameters, Object Construction, Packages, Documentation Comments, Class Design Hints. Inheritance : Classes, Superclasses, and Subclasses, Object: The Cosmic Superclass, Generic ArrayLists, Object Wrappers and Autoboxing, Reflection, Enumeration Classes, Design Hints for Inheritance.

UNIT 3:

Interfaces and Inner Classes: Interfaces, Object Cloning, Interfaces and Callbacks, Inner Classes, Proxies. Introduction to GUI : AWT Architecture, Light-Weight vs Heavy-Weight, AWT Event Model, AWT Event Hierarchy & Event Handling, Using Top-Levels, components and containers, Introduction to Layouts, Focus Architecture. **Graphics Programming:** Java2D Rendering Model, Strokes & Fills, Geometries, Fonts and Text Layout, Transformations, Display and manipulation of Images and offscreen buffers, Using Color, Printing through Java, Doing More with Images using Image IO, Hardware Acceleration and Active Rendering techniques.

UNIT4:

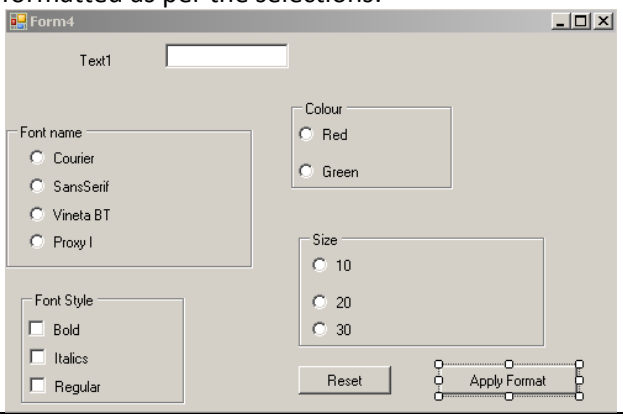
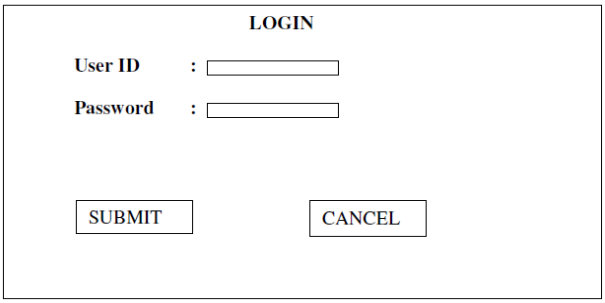
User Interface Components with Swing: The Model-View-Controller Design Pattern, Introduction to Layout Management, Text Input, Choice Components, Menus, Sophisticated Layout Management, Dialog Boxes. Deploying Applets and Applications: Applet Basics, the Applet HTML Tags and Attributes, Multimedia, the Applet Context, JAR Files, Application Packaging, Java Web Start, Storage of Application Preferences. Exceptions and Debugging: Dealing with Errors, Catching Exceptions, Tips for Using Exceptions, Logging, Using Assertions, Debugging Techniques, Using a Debugger.

REFERENCE

1. Timothy Budo, "An Introduction to Object-Oriented Programming with Java", Pearson Education, 2009.
2. H. Schildt, "The Complete Reference -Java2", Tata McGraw-Hill, 2008.
3. P. J Dietel and H. M Dietel, "Java How to Program", 7th Edition, Pearson
4. Wu C Thomas, "Introduction to Object Oriented Programming with Java", 4 Edition, Tata McGraw-Hill, 2008.
5. Balaguruswamy E, "Programming with Java", Tata McGraw-Hill, 2007.
6. Muthu C, "Essentials of Java Programming", 2008, Tata McGraw-Hill, 2007.
7. Bhave M.P, Patekar S.A, "Programming with Java", Pearson Education , 2009.

Practical's based on Object Oriented Programming in Java

01	Write a program to find area of geometrical figures using method.
02	Write a Java Program to create three new types of exceptions. Write a class with a method that throws all three. In main( ), call the method but only use a single catch clause that will catch all three types of exceptions.
03	Design a Calculator using Java Applet/Swing. The display should have all the digit buttons along with buttons for operations +,-,*, / and =. There is a designated panel to show the current results. If a digit button is clicked, the number is displayed on the panel. If an operator button is clicked the operation is to be performed. The calculator can operate in two modes. a. When, the operator buttons are pressed the intermediate results should be displayed. b. The operations can take in any number of arguments and the final result is displayed only when the = button is pressed.
04	Write a Java Program to create three interfaces, each with two methods. Inherit a new interface from the three, adding a new method. Create a class by implementing the new interface and also inheriting from a concrete class. Now write four methods, each of which takes one of the four interfaces as an argument. In main( ), create an object of your class and pass it to each of the methods.

05	Write a Java Program to find all the strings that match a given Regular Expression in one or more files or other sources
06	Write a Java Program to read from or write to a particular location in a file, such as an indexed file.
07	Create the following form using java applet/Swing and the text in textbox should be formatted as per the selections: 
08	Create table with the following structure: User id Character 10 Password Character 10 Primary Key- User id Now design a login form(connected to database using jdbc) and show a welcome message if userid and password combination is correct, otherwise display an error message. 
09	Create an application that creates a ball which bounces with the help of thread in JAVA Graphics.
10	Create a layout prototype of Ms-Paint in Java swing using menus and layout management. You can also add functionality to some of the menu item/toolbar items.
11	Write a program using inheritance that should be able to draw a circle, Ellipse, square, rectangle, parallelogram and a rhombus when relevant dimensions are read in e.g. a circle can be drawn when the centre and the radius is read in, and ellipse can be drawn when the major and minor axis lengths along with the centre is given, a rectangle can be drawn with two sides given and so on.
12	Write a program to implement mouse events and keyboard events.

PGDSD 2.3 Programming with ASP.NET

Unit-1

Introduction, Common Language Runtime, Common Type System, Common Language Specification, The Base Class Library, The .NET class library Intermediate language, Justin- Time compilation, garbage

collection, Application installation & Assemblies, Web Services, Unified classes.

UNIT-2

ASP.NET Controls: Overview of dynamic web page, introduction & features of ASP.NET, understanding ASP.NET controls, applications, web servers, installation of IIS. Web forms, web form controls, server controls, client controls, adding controls to web form, buttons, text box, labels, checkbox, radio buttons, list box. Adding controls a runtime, Running a web application, creating a multiform web project, Form validation: client side and server side validation, Validation controls: required field comparison range, Calendar control, Ad rotator control, Internet Explorer control.

UNIT-2

ADO.NET: Overview of ADO.NET, from ADO to ADO.NET, ADO.NET architecture, Accessing data using data adapters and datasets, using command and data reader, binding data to data bind controls, displaying data in data grid.

UNIT-3

XML in .NET: XML basics, attributes, fundamentals of XML classes: Document, text writer, text reader, XML validations, XML in ADO.NET, Data document

UNIT-4

Web Services: Introduction, State management, view state, session state, application state, service description language, building & consuming a web service. Web application development, Caching, Threading concepts, Creating threads in .NET, Managing threads, Thread Synchronization, features of .NET, role based security & code access security, permissions

UNIT-4

Features of ASP.NET 2.0, Stages in Web Forms Processing, Introduction to Server Controls, HTML Controls, Validation Controls, User control, Data Binding Controls, Configuration, Personalization, Session State, ADO.NET

References:

1. Mitchell Scott, "Sams Teach Yourself ASP .NET 2.0 in 24 Hours, Complete Starter kit (with CD)", Pearson Education, 2006.
2. Onion Fritz and Keith Brown, "Essential ASP .NET 2.0", Pearson Education, 2007
3. The Completer Reference ASP.NET – Mathew Macdonald (TMH)
4. Professional ASP.NET – Wrox publication
5. VB.NET Programming Black Book – Steven Holzner (Dreamtech pub.)
6. Introduction to .NET framework – Wrox publication.
7. ASP.NET Unleashed - bpb publication.
8. Learn HTML in a weekend – Steven E. Callihan (TMH)
9. Using HTML – Lee Anne Philips (PHI)

Practical's based on Programming with ASP.NET

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PGDSD 2.4 Software Project management

UNIT 1

INTRODUCTION TO SOFTWARE PROJECT MANAGEMENT

Project Definition – Contract Management – Activities Covered By Software Project Management – Overview of Project Planning – Stepwise Project Planning.

UNIT 2

PROJECT EVALUATION

Strategic Assessment–Technical Assessment–Cost Benefit Analysis–Cash Flow Forecasting – Cost Benefit Evaluation Techniques – Risk Evaluation.

UNIT 3

ACTIVITY PLANNING

Objectives – Project Schedule – Sequencing and Scheduling Activities –Network Planning Models – Forward Pass – Backward Pass – Activity Float – Shortening Project Duration – Activity on Arrow Networks – Risk Management – Nature Of Risk – Types of Risk – Managing Risk – Hazard Identification – Hazard Analysis – Risk Planning and Control.

UNIT 4

MONITORING AND CONTROL

Creating Framework – Collecting The Data – Visualizing Progress – Cost Monitoring – Earned Value – Prioritizing Monitoring – Getting Project Back To Target – Change Control – Managing Contracts – Introduction – Types Of Contract – Stages In Contract Placement – Typical Terms Of A Contract – Contract Management – Acceptance.

UNIT 5

MANAGING PEOPLE AND ORGANIZING TEAMS

Introduction – Understanding Behavior – Organizational Behaviour:A Background – Selecting The Right Person For The Job – Instruction In The Best Methods – Motivation – The Oldman – Hackman Job Characteristics Model – Working In Groups – Becoming A Team –Decision Making – Leadership – Organizational Structures – Stress –Health and Safety – Case Studies.

TEXT BOOK:

1. Bob Hughes, Mikecotterell, “Software Project Management”, Third Edition, Tata McGraw Hill, 2004.

REFERENCES:

1. Ramesh, Gopalaswamy, "Managing Global Projects", Tata McGraw Hill, 2001.
2. Royce, “Software Project Management”, Pearson Education, 1999.

3. Jalote, “Software Project Manangement in Practive”, Pearson Education, 2002.

Practical’s based on Software Project management

01	Study Software Project management basics concept. Define Case study project of any software system. With synopsis of it.
02	Study of Life cycle of a project using steps. Prepare rough project task list and plan for software project.
03	Case study for Roles played by the project Manager and various team members in Software project. Distribute the project work according to role of team members
04	Software Time, Effort and Cost Estimation of given project using various methods.
05	Prepare Gantt chart (Task Entry) for project plan of software project with duration and create baseline and milestones.
06	Prepare PERT for project plan of software project with duration.
07	Prepare CPM for project plan of software project with duration.
08	Prepare list of resource in Software project task. Assigned resources to particular task. Enter respective entry in PERT, CPM and Gantt chart.
09	A Case Study on Risk management using given software project.
10	Track the project using recording actual duration or work done in each task of project. Enter data in Tracking Gantt chart wizard.
11	Generate various reports for all level of managers of Software Project for different milestone.
12	How Project fails: A Case Study on Common mistakes made during different phases of a project

PGDSD 2.5 Project