UNIVERSITY OF RAJASTHAN
JAIPUR

SYLLABUS

PGDCA

Semester Scheme

I & II Semester 2016-2017

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University of Rajasthan
JAIPUR

UNIVERSITY OF RAJASTHAN, JAIPUR

PG DCA

PG DCA I/II Semesters 2016-17 and Onwards

Eligibility :

All the graduate from recognized university situated in Rajasthan having 48% marks of CGPA of 3.0 in the UGC Seven Scale for general category (45% marks or CGPA 2.5 in the UGC Seven Point Scale for SC/ST/Non Creamy layer OBC) in aggregate and minimum 60% marks for non-Rajasthan candidate. Reservation as per the University Rules.

Scheme of Examination of PG DCA for the Academic Session 2016-17 and onwards for Affiliated Colleges

1. Each of the semester I and II will consist of six theory papers and three practical papers(Laboratories).

2. Each theory paper shall carry 100 marks for the University semester examination of three hours duration.

3. The University Examination of the theory paper will consist of six questions on the pattern mentioned below :-

   a. Candidate has to attempt six questions in all.
   b. Question No. 1 covering whole syllabus will consists of 10 short answer questions carrying 2 marks each taking two questions from each unit.
   c. Question No. 2 to 6, each of 16 marks, will be framed by taking one question from each unit. There will be an internal choice within the unit.

4. Each practical paper shall be of 4 hours duration on one day and carry 100 marks for the practical examination. The practical examination will involve 3 exercises, each of 20 marks, practical record of 15 marks and viva-voce examination of 25 marks.

5. The medium of instruction and examination shall be English only.

6. (a) The minimum marks for passing each theory and practical examination shall be 40% separately in the University semester end examination.
   (b) The candidate may be promoted to the II semester if he/she has cleared at least four theory papers and two practical papers of the Semester-I.

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7. At the end of the final examination, the candidate eligible for the award of PG DCA degree shall be classified on the basis of marks obtained in semesters I and II examination taken together as follows:

(a) I division with Honour - 75% or more marks in aggregate provided the candidate has passed all papers and examinations in first attempt.

(b) I Division - 60% or more marks but fails to satisfy the criterion for being classified distinction as lay in the 7(a).

(c) II Division - All other than those included in 7(a) and 7(b) above, and marks 48% or more but less than 60% of the aggregate marks.

(d) All the rest will be declared to have passed the examination, if they obtain a minimum pass marks in each paper, ver., 40%.

8. A candidate must pass the PG DCA Course within Three years of the initial admission to the course.

9. For the award of prizes or ranking, the marks obtained in the first attempt of the examination only will be taken into account.

PGDCA-First Semester 2016-17

S. No.	Subject Code	Subject Title	Course category	Credit	Contact Hours per Week			EoSE* Duration (Hrs)	
					L	T	P	Thy	P
1	PGD 701	Fundamentals of Information Technology	CCC	4	3	1	0	3	0
2	PGD 702	Operating System	CCC	4	3	1	0	3	0
3	PGD 703	Programming in C	CCC	4	3	1	0	3	0
4	PGD 704	Office Management Tools	ECC	4	3	1	0	3	0
5	PGD 705	E-Commerce	ECC	4	3	1	0	3	0
6		Elective –I (**Any One in Elective Group –I**)	ECC	4	3	1	0	3	0
Practical									
1	PGD 711	Programming in C	CCC	4	0	0	6	0	4
2	PGD 712	Office Management Lab	CCC	4	0	0	6	0	4
3		Elective Lab II (**Any One in Elective Group –II**)	ECC	4	0	0	6	0	4

*End of Semester Examination

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PGDCA-Second Semester 2016-17

S. No.	Subject Code	Subject Title	Course category	Credit	Contact Hours per Week			EoSE * Duration (Hrs)	
					L	T	P	Thy	P
1	PGD 801	Database Management System	CCC	4	3	1	0	3	0
2	PGD 802	Programming in C++	CCC	4	3	1	0	3	0
3	PGD 803	Web Application Developments	CCC	4	3	1	0	3	0
4	PGD 804	Data Communication & Computer Networks	ECC	4	3	1	0	3	0
5	PGD 805	Computer Organization	ECC	4	3	1	0	3	0
		Elective –III (**Any One in Elective Group –III**)	ECC	4	3	1	0	3	0
Practical									
1	PGD 811	Programming in C++ Lab	CCC	4	0	0	6	0	4
2	PGD 812	Web Application Lab	CCC	4	0	0	6	0	4
3	PGD 813	Mini Project	ECC	4	0	0	6	0	4

*End of Semester Examination

Note :

a. The Syllabus of the PG CDA course in the University Campus as well as in the all affiliated colleges is same.

b. The Scheme for the credit based PG CDA course applicable in the University Campus and non-credit based PG DCA course for all affiliated colleges of the University.

Elective I (Any One) Theory Paper

1. PGD A01: Accounting Using Tally
2. PGD A02: DTP using Pagemaker & Coreldraw

Elective II (Any One) Practical Paper

1. PGD B01: Accounting Using Tally
2. PGD B02: DTP using Pagemaker & Coreldraw

Elective III (Any One) Theory Paper

1. PGD C01: System Analysis & Design
2. PGD C02 : Multimedia Systems

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PG DCA First Semester 2016-17

PGD 701: Fundamentals of Information Technology

Theory: 3 hours per week

Examination: Theory Paper – 3 hours; Max. Marks – 100

Note:

1. Candidate has to attempt six questions in all.
2. Question No. 1 covering whole syllabus will consists of 10 short answer questions carrying 2 marks each taking two questions from each unit.
3. Question No. 2 to 6, each of 16 marks, will be framed by taking one question from each unit. There will be an internal choice within the unit.

Unit- I

Defining IT, Information systems, Data and Information, Elements of Electronic data processing system, Transaction processing, Modes of transactions. its Applications : IT in Business and industry, IT in home and play, IT in education and training IT in entertainment and the Arts, IT in Science, Engineering, and ethical issues in IT.

Unit II

Computer software and its types, Programming languages - Machine, assembly and high level, Language translators. Overview of the Digital Computer System - Operating Systems, Application Software, Types of Computers.

Unit-III

Representation of Data: Digital versus Analog, Digital number system (binary, octal, decimal and hexadecimal numbers,), Conversion from one form to another, fractional numbers and signed numbers, Complements, Arithmetic operations on binary numbers, Fixed point and floating point representations., Logic Gates (NOT, OR, AND), types Codes (ASCII, EBCDIC, Unicode), encoding and decoding.

Unit-IV

Computer Components (Briefly overview) : Mother Board, Processor, types of RAM, RAM, Flash, Cache,; SDRAM, DDR), System clock, Buses (Data, Address, Control).

Input devices & output Devices –Printers, Scanner, different types of scanner

Storage devices : Storage types , random versus sequential access, formatting, tracks and sectors, speed, storage capacity, Hard Disk structure; Hard Drive Interfaces (IDE, EIDE, SCSI, RAID,SATA,ATA). Optical Disks : pits and lands, CD (ROM,R,R/W), DVD (ROM,R,RAM), Magnetic tapes, Modem (Fax/Data/Voice).

Unit- V

Internet Applications: Internet, Internet Applications, e-Mail, IRC, Web Surfing, Web Browsers,, Search Engines, Internet Service Providers, Downloading, Audio and Video Conferencing.

Security issues in Internet — Bugs, Viruses, Anti-viruses, Firewalls etc. Internet threats to the society, Cyber laws and Legal issues.

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Suggested Reference Books:

1. M. Morris Mano: Computer System Architecture, 3 Hall of India,2008.

2. John D. Carpinell: Computer Systems Organization & Architecture, 3 edition;Pearson Education Asia., 2008.

3. Peter Norton's Introduction to Computers, Third Edition, McGraw Hill

4. Sinha PK; Computer Fundamentals;BPB, 2002.

5. Malvino B.; Digital Computer Electronics; III Edn;TM}I.

6. Albert Paul Malvino, Electronic Principles, McGraw Hill

7. P.Pal Chaudhuri, Computer Organization and Design, Prentice Hall of India.

PGD 702 : Operating Systems

Theory: 3 hours per week
Examination: Theory Paper – 3 hours; Max. Marks – 100

Note:

1. Candidate has to attempt six questions in all.
2. Question No. 1 covering whole syllabus will consists of 10 short answer questions carrying 2 marks each taking two questions from each unit.
3. Question No. 2 to 6, each of 16 marks, will be framed by taking one question from each unit. There will be an internal choice within the unit.

Unit-I

Necessity of an Operating System, Operating system structure, Evolution of Operating System (multiprogramming systems, batch systems, timesharing system, distributed systems and Real Time system), Operating system structure, Operating system components and services, system calls, system programs, Virtual machines.

Unit-II

Process management: process concept, process scheduling, cooperating processes, Threads, Inter-process communication, CPU scheduling criteria, Scheduling algorithms, Multiple-processor scheduling, Real time scheduling and Algorithm evaluation.

Process Synchronization and Deadlocks: The Critical section problem, synchronization hardware semaphores, Classical problems of synchronization, Critical regions, Monitors, Deadlocks-System model, Characterization, Deadlock prevention, Avoidance and Detection, Recovery from deadlock, Combined approach to deadlock handling.

Unit-III

Storage management: Memory management- Logical and Physical Address Space, Swapping, Contiguous Allocation, Paging, Segmentation with paging, Virtual Memory, Demand paging and

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its performance, page replacement algorithms, Allocation of frames, Threshing, Page Size and other considerations, Demand segmentation

Unit –IV

File & Disk Management :File systems, secondary storage Structure, File concept access methods, directory implementation, Efficiency and performance recovery, Disk structure, Disk scheduling methods, Disk management , Recovery Disk structure, disk structure, disk scheduling methods, disk management, Swap-Space management, Disk reliability.

Unit-V

Goals of Protection, Domain of protection, The Security problem, Program threats, Authentication, One Time passwords, program threats, System threats, Threat Monitoring, Encryptions. Computer Security techniques.

Recommended books:

1. Galvin P.B, Silberschatz; Operating System Principles; (Seventh Edition),J Wiley 2008
2. Tanenbaum A.S, Modern Operating Systems, 2nd Edn. PHI Publ,2003
3. William Stalling: Operating Systems, Internal & Design Principles, Sixth Edn; Pearson, 2009.
4. Gary Nutt: Operating Systems-A Modern Perspective (Second Edition) , Pearson Education, 2008.
5. D.M. Dhamdhere: Systems Programming and Operating Systems (Second Edition), Tata McGraw Hill Publishing company Limited.
6. Harvey M. Deitel, Operating Systems, Pearson Education.

PGD 703 : Programming in C

Theory: 3 hours per week
Examination: Theory Paper – 3 hours; Max. Marks – 100

Note:

1. Candidate has to attempt six questions in all.
2. Question No. 1 covering whole syllabus will consists of 10 short answer questions carrying 2 marks each taking two questions from each unit.
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Unit-I

Problem solving with computers, Flow charts, Basic concepts of programming languages, programming domains.

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C Character set, variables and constants, keywords, Type checking, Scope and lifetime data types. Operators, Instructions, assignment statements, arithmetic expression, comment statements, simple input and output, Boolean expressions.

Unit-II

Control structures, decision control structure, loop control structure, case control structure. String and character handling, arrays and string processing, data validation examples .

Functions, function prototype, subroutines, scope and lifetime of identifiers parameter passing mechanism, recursion.

Unit-III

User defined data types, enumerated data types, unions, structures, array of structures,

Unions of structures. Storage class specifies, Pre processors header files and standard lib, Functions.

Unit IV

Pointer : Definition and uses of pointers, arithmetic , pointers and arrays, pointers and function, pointer to pointer, pointer to structures. Dynamic memory allocation.

Unit-V

Implementation of simple data structures : Stacks, Queues, Linked Lists, trees, searching and sorting algorithms.

Console Input and Output functions, data files, operations on data files, text and binary files, formatted data files.

Recommended reference books:

1. Gottfried B; Programming with C: Schaum Qutlines; Mc Graw Hill Edition.
2. Balagurusamy E; Programming in ANSI C;Fifth Edn; Mc Graw Hill,2011.
3. Kanetkar Y.; LET US C; X Edition, BPB,2010
4. Deitel HM & Deitel JP; C How to program; 5th Edn; Pearson Pub.

PGD 704: Office Management Tools

Theory: 3 hours per week
Examination: Theory Paper – 3 hours; Max. Marks – 100

Note:

1. Candidate has to attempt six questions in all.
2. Question No. 1 covering whole syllabus will consists of 10 short answer questions carrying 2 marks each taking two questions from each unit.
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Unit-I

The Need and Importance of Office Automation, Role of computer in Office automation and management, Office automation software.

Word Processing Software : Creating and Saving documents, Entering, Editing, Moving, Copying and Formatting Text, Page formatting, Finding and replacing text, Spell checking and Grammar checking, enhancing documents, Indexing, Columns, Tables and feature there in, Inserting (Objects, picture, files etc.), Using Graphics, templates and wizard, using mail merge, using WordArt, customizing, MS Word. Designing pages with MS Publisher, Inserting and Manipulating Objects, Editing Fills and re coloring pictures.

Unit- II

Spreadsheet Software Spreadsheet terminology, organization of the worksheet area, entering information, editing cells using commands and functions, moving copying, Inserting and deleting rows and columns, formatting worksheet, printing worksheet, creating charts, modifying and enhancing charts, using date, time and addressing modes, naming range and using statistical, mathematical and financial functions, database in a worksheet, creating, sorting, querying and maintaining the database, multiple worksheets and Macros, working with objects.

Unit-III

Data Base Management Software Planning a database (tables, queries, forms, reports), Creating and editing database, customizing tables, linking tables, designing and using forms, modifyir database structure, maintaining database, Sorting and Indexing database, Querying a database: and generating Reports, modifying a Report, exporting a Report to another format.

Unit- IV

Presentation Software Anatomy of a PowerPoint Presentation, Creating and Viewing a presentation, Managing Slide Shows, Navigating through a presentation, Using hyperlinks, advanced navigation with action setting and action buttons, organizing formats with Master Slides, applying and modifying designs, adding graphics, multimedia and special effects, creating presentation for the web.

Unit V

Office System user interface, Managing security and privacy in the MS Office System, Sharing documents between Office System Components and different versions of the office System.

Office management using Smart Devices

Reference Books:

1. Microsoft;2007 Microsoft Office System; PHI
2. Microsoft; Microsoft Office 2003 : Plain & Simple; PHI
3. Microsoft; Microsoft Office XP: Plain & Simple; PHI
4. Sanjay Saxena; A First Course in Computers 2003 Edition; Vikas Pub.
5. Joe Habraken; Microsoft Office 2003;Que; Techmedia.

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PGD 705: E-Commerce

Theory: 3 hours per week
Examination: Theory Paper – 3 hours; Max. Marks – 100

Note:

1. Candidate has to attempt six questions in all.
2. Question No. 1 covering whole syllabus will consists of 10 short answer questions carrying 2 marks each taking two questions from each unit.
3. Question No. 2 to 6, each of 16 marks, will be framed by taking one question from each unit. There will be an internal choice within the unit.

Unit-I

Basic Concepts : Introduction, Definition, Objectives, Advantages and disadvantages, Traditional commerce Vs E-Commerce, E-Commerce opportunities for industries, Growth of E-Commerce.

Electronic Data Interchange : Concepts of EDI and Limitation, Application of EDI, Disadvantages of EDT, EDI model; MIME and Value-Added Network, Internet-based EDT.

Unit-II

E-Commerce Models: B2C,B2B, C2C, C2B, other models — Brokerage Model, Aggregator Model, Info-mediatory Model, Community Model and value chain Model.

Electronic Payment Systems: Special features required in payment systems, Types of E-payment systems, E-Cash, E-cheque, credit card, Smart Card, Electronic Purses, e-Billing.

Unit-III

E-Transition Challenges in Indian Corporate, E-Commerce and WWW, e- Marketing, E-Customer Relationship Management, E-CRM Problems and Solutions, CRM Capabilities and Customer life cycle, E-Supply Chain Management.

E-Strategy Planning the E-Commerce Project, E-Business Strategy and Data Warehousing & Mining. Customer-effective Web Design.

Unit- IV

M-Commerce: Overview of mobile-Commerce, Mobile Delivery Technology & Switching Methods, m-Commerce Security issues, Mobile ATM(ICICI Bank Case Study). Applications of M-Commerce: Mobile Financial Applications, m-wallet, Mobile Shopping. Case-Study of an e-commerce application.

Unit- V

Security Issues in E-Commerce: Network and Website Security Risks, Security risk of E-Commerce, Types of threats, Security tools and risk management approach. Cyber laws, Business Ethics, Social Ehics, IT Acts of the India.

Suggested Books:

(1) Bharat Bhaskar, Electronic Commerce — Framework Technologies and Applications, Tata McGraw Hill.

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(2) Ravi Kalakota & A.B. Whinston, Frontiers of Electronic Commerce, Pearson Education.

(3) Ravi Kalakota & A.B. Whinston, Electronic Commerce — A Manager's Guide, Pearson Education.

(4) Agarwala Kamlesh, N and Agarwala Deeksha, Business on the Net Introduction to the E-Com., Macmillan India.

(5) P. T. Joseph, E-Commerce: A Managerial Perspective, PHI, 2002.

Elective –I (Any One)

PGD A01: Accounting Using TALLY

Theory: 3 hours per week
Examination: Theory Paper – 3 hours; Max. Marks – 100

Note:

1. Candidate has to attempt six questions in all.
2. Question No. 1 covering whole syllabus will consists of 10 short answer questions carrying 2 marks each taking two questions from each unit.
3. Question No. 2 to 6, each of 16 marks, will be framed by taking one question from each unit. There will be an internal choice within the unit.

Unit I

Introduction about Key Strokes, Students Tally Versions, Faculty.

Business Organization: Service org., Trading org., Manufacturing org.

Accounting Principles, Concepts & Convention, Definition, Types of concepts, Types of Conventions.

Unit II

Transactions: Types of accounts, golden rules. Types of Journal Book, Accounting voucher in Tally. Compound Journal Entry.

Mode of Accounting: Posting, Trial balance. Financial Statement: Trading & P/L A/C. Balance Sheet, Processing Transaction in Tally.

Unit III

Accounting with Tally: Accounting Basics, Understanding Ledgers & Groups, Understanding Voucher Types, Entering: Sales & Purchase, Payments & Receipts, Contra & Adjustments, Debit & Credit Notes. Reports: Printing - Exporting – Mailing, Bank Reconciliation & Printing Cheque.

Unit IV

Inventory Management with Tally: Entering Inventory Details, Items with Groups & Categories, Multi Location Stock, Stock Transfer & Manufacturing, Purchase & Sales Order, Costing: Cost

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Centers & Categories, Job Costing, Item Costing, Purchase Costing, Job Work, Using Batch wise Details Batch/Lot Number, Manufacturing & Expiry Dates. Multiple Price Levels.

Unit V

Taxation with Tally: Value Added Tax (VAT), Central Sales TAX, Manufacturer Excise, Dealer Excise, Service TAX, TDS, Payroll, Special Features: Multi Currency, Interest Calculation, Budgets & Controls.

Reference Books

1. Tally ERP9 Series A reference Manual
2. Tally ERP9 – Dematech Press Easy & Simple

PGD A02: Desktop Publishing (DTP) using PageMaker / Corel Draw

Theory: 3 hours per week
Examination: Theory Paper – 3 hours; Max. Marks – 100

Note:

1. Candidate has to attempt six questions in all.
2. Question No. 1 covering whole syllabus will consists of 10 short answer questions carrying 2 marks each taking two questions from each unit.
3. Question No. 2 to 6, each of 16 marks, will be framed by taking one question from each unit. There will be an internal choice within the unit.

Unit I

Page Maker

Creating a New Document: - Setting the Margins, Setting the Page Size, Changing the Page Orientation, Setting the Page Numbers, Changing the Page size view, Displaying Rulers, Changing the Rulers Measurement System, Using Rulers, Using Guides, Adding Guide lines to Master Pages, Aligning to Guidelines, Displaying Guidelines, Locking Guidelines.

Entering Text: - Changing the font Families, Changing font size, Changing typeface styles, Changing Character Specifications, Changing type leading, Changing character width, Changing tracking.

Saving your document: - Saving a new document, Saving Existing Document, Saving a document as another document, Reverting to a previously saved version.

Developing a Paragraph: - Typing a text, Adding special character to text, Aligning text.

Formatting Paragraph:- Changing Indents, Changing the Space around paragraph, Changing Paragraph Alignment, Controlling How paragraphs break between pages and columns, Adding lines above or below your paragraph.

Creating a Frame: - Converting other objects to Frames, Selecting text & Dragging Text, Editing Text, Cutting, copying and Pasting Text, Using Undo & revert. Inserting & removing pages, Adjusting Hyphenation.

Adjusting Indents and Tabs:- Setting and Changing Tabs, Setting and Changing Indents, Settings the Leader Style, Resetting the Tab Ruler.

Unit II

Page Maker

Adding Shapes: Changing lines and fill specifications, Changing Round Corner, Creating Header & Footer. Defining Style:- Creating a new style, Editing a style, Removing Style, Copying style, Applying style to text, Changing style.

Developing a long Document:- Using Story Editor, Switch between story editor and layout editor, Closing the story editor and placing the story, Checking your spelling, Using find feature.

Using Color: - Opening a color palette, Adding color to text, Defining a custom colors.

Printing:- Printing your document, Printing a proof copies, Setting paper options.

Unit III

Photoshop

Introduction of Photoshop.

Creating a New File:- Main Selections, Picking color, Filling a selection with color, More ways to choose colors and fill selections, Painting with paintbrush tool, Using the magic wand tool and applying a filter, Saving your document.

Color Mode:- Gray Scale Color Mode, RGB Color Mode, CMYK Color Mode, Bitmap Mode, Open a file, Preference.

Foreground & background:- Changing Foreground and Background colors, Using the Large color selection Boxes and small color swathes, Using the Eyedropper tool to sample Image color, Changing the Foreground Color While using a Painting Tool.

Using Brushes:- Millions of Brushes in One, Selecting the Brush Shape, Drawing a vertical and Horizontal Straight lines with any brush, Drawing connecting Straight Lines (at any angle) with any brush, Creating a New Brush, Saving Brushes, Loading Brushes, Creating a Custom Brushes, Using the Painting Modes, Fade, Airbrush Options, Pencil Options.

Rubber Stamp Options: - Rubber stamps an Aligned Clone, Rubber Stamping, Impressionist Style, Using line tool.

Using the Editing Tool: - The Smudge Tool, The Blur and Sharpen Tool, The Dodge / Burn Tool, Shadows, Mid-tones and Highlights.

Selection Tools:- Making Rectangular and Square Selections, Feathering a Selections, Lasso Features, Lasso Options, Making selections by color or Gray Scale value using the Magic Wand, Moving an anchor point or Direction point to change the shape of curve, Adding and Removing Anchor points, Moving Path, Saving, Loading and Creating New Path, Filling & Stroking Path.

Unit IV

Photoshop

Introduction of layers: - Creating & editing new layers, adding a background.

Creating Layer Mask: - Layer Masks, Adjustment Layers.

Adding Fills and Gradients: - Filling with paint bucket tools, filling type with grading fills.

Applying Filters: - Blur Filters, Render Filters, Sharpen Filters, Sketch Filters, Texture Filters, Other Special Filters

Printing your document, save your file:- Save file as a JPEG, TIFF, GIF, PNG.

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Unit V

Coral draw

Introduction to coral draw, use and importance in designing, various graphic file and file extension, vector image an raster images, introduction to screen and work area.

Introduction to tool of coral draw, managing palettes, working with images, patterns and textures, working with shapes, colors and fills, image rasterization and editing, transformation menu.

Coral draw files and supporting documents, import and export of files and file formats, page setup an designing, using styles and templates, working with text, formatting text, text attributes.

Designing different page layouts, column layout, working with layers, special effect to objects and texts, contour tool, layout for news paper and magazines.

Preparation of visiting card and invitation cards, Shaping Dockers and logo design, introduction brochure and books, introduction to magazine deigning.

Reference Books

1. Complete Reference of Page Maker- Tata McGraw Hill
2. DTP Publishing Mint Page Maker – Springer Pubication.
3. Photoshop in Easy Steps- Tata McGraw Hill
4. Coral Draw an Official Guide- Tata McGraw Hill
5. Cavgage Learning- Bring it Home with Coral Draw
6. Coral Draw in Simple Steps- Wiley Publication

Practical Examination

Each practical paper shall be of 4 hours duration on one day and carry 100 marks for the practical examination. The practical examination will involve 3 exercises, each of 20 marks, practical record of 15 marks and viva-voce examination of 25 marks.

PGD 711: Programming in C
Lab Exercise on Theory Paper PGD 703

PGD 712: Office Management Lab
Lab Exercise on Theory Paper PGD 704

Lab

Elective II (Any One) Lab

PGD B01: Accounting Using Tally Lab
Lab Exercise on Theory Paper PGD A01.

PGD B02: DTP using Pagemaker / Coreldraw
Lab Exercise on Theory Paper PGD A02.

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PG DCA Second Semester 2016-17

PGD 801: Database Management Systems

Theory: 3 hours per week
Examination: Theory Paper – 3 hours; Max. Marks – 100

Note:

1. Candidate has to attempt six questions in all.
2. Question No. 1 covering whole syllabus will consists of 10 short answer questions carrying 2 marks each taking two questions from each unit.
3. Question No. 2 to 6, each of 16 marks, will be framed by taking one question from each unit. There will be an internal choice within the unit.

Unit-I

Overview of DBMS: Basic concepts, Database system architecture, Schemas, Instances, Components, Database users, Three-tier architecture, Centralized, Distributed and Client/Server architecture, Data independence. Database models: Entity relationship model, hierarchical model, relational model, network model, Object-Oriented data model.

Unit II

Data Modeling using ER Model: ER model concepts, ER diagram, mapping constraints, Keys, Generalization, aggregation, reduction of ER diagrams to tables, extended ER model, Relationship of higher degree. Enhanced ER Model : Concepts, Specialization, Generalization, Data abstraction, Knowledge representation and University EER Model as example.

Unit-III

Relational Model : Concepts, Constraints, Languages, Relational database design by ER & EER mapping, Relational algebra relational calculus.
Normalization : Normal forms – First, second, third and BCNF.

Unit-IV

Transaction processing : Transactions atomicity, durability, serializability and isolation. Concurrency control techniques – Two phase locking, timestamp ordering, multiversion, Granularity locking techniques, Database recovery techniques based on deferred & immediate updates and shadow paging.

Unit-V

SQL: Characteristics of SQL, advantages, data types in SQL, SQL Operators, types of SQL commands, Tables indexes, Views Nulls, Aggregate Functions, Select statement, Sub queries, Insert, Update and Delete operations, Joins, Unions. .

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Reference Books:

1. Korth H F and Silberschataz A, System Concepts, Sixth Edition; McGraw Hill,2006
2. Leon, and Leon, SQL Tata McGraw Hill Pub. Co. Ltd.
3. Ivan Bayross; SQL/PL 4th Edn: BPB,2009
4. Navathe S.B. Elmasri R,; Fundamentals of Database Systems, Fifth Edition, Pearson 2009.
5. Ramakrishan and Gharke, Database Management Systems, 3rd Edition, Tata Mc Graw Hill, 2003.
6. Data C J Database Management Systems, Pearson Education Asia.
7. Singh S.K.; Database Systems; I Edition; Pearson, 2006.

PGD 802: Programming in C++

Theory: 3 hours per week
Examination: Theory Paper – 3 hours; Max. Marks – 100

Note:

1. Candidate has to attempt six questions in all.
2. Question No. 1 covering whole syllabus will consists of 10 short answer questions carrying 2 marks each taking two questions from each unit.
3. Question No. 2 to 6, each of 16 marks, will be framed by taking one question from each unit. There will be an internal choice within the unit.

Unit-I

Need of object Oriented Programming, Advantages of OOP, Comparison of Functional Programming and OOP approach, Essentials of OOP (Objects, Classes, Encapsulation, Data abstraction, Inheritance, Reusability, Polymorphism, Delegation, Message Communication).

C++ Basics : Preprocessors, comments, Data types, Operators, Expressions, Loops and Decisions, Arrays and String handling, Modular programming with Functions, Structure and Unions.

Unit II

Pointers and Run time binding, Dynamic memory allocation, Storage class specifies. Classes, Member functions, Objects, Arrays of objects, Nested classes, Constructors, Destructors, Inline member functions, Friend Functions, Static member function.

Inheritance, Single Inheritance, types of base classes, types of derivations, multiple inheritance, container classes, member access control.

Unit- III

Functions Overloading, Operator Overloading, polymorphism, early binding polymorphism with pointers, Unary and Binary Operator Overloading, Overload Assignment Operator, Copy Constructor, Data Conversion between Objects of different classes. C++ Free Store.

Virtual Function : Virtual Function, late binding, pure virtual functions, abstract classes, Generic Programming with Templates, Friend function, Overloaded Function Templates, Multiple Arguments function Template.

Unit-IV

Stream Computation with Console, Stream Computation with Files, opening and closing of file stream state member function binary file operations structures and file operations, classes and file operations, random access file processing.

Unit V

Templates, Generic Programming Concepts , Exception handling: Exception handling mechanism throwing mechanism, Catching mechanism.

Recommended Books:

1. Herbert Schildt; C++ : The Complete Reference 4th Edn; TMH, 2003.
2. Robert Lafore; Object Oriented Programming in C++ 4th Edition; Techmedia.
3. Balagurusamy ; Object Oriented Programming in C++; 4th Edition TMH,2009.
4. Venugopal, Rajkumar; Mastering C++; Tata Mcgrow Hill, 2006.
5. Kanetkar Y.: LET US C++; BPB; 2009.
6. Deitel and deitel; How to program C++, Addison Wesley, Pearson Education Aisa
7. John R. Hubbard, Programming with C++, McGraw Hill Internatinal.

PGD 803: Web Design and Development

Theory: 3 hours per week
Examination: Theory Paper – 3 hours; Max. Marks – 100

Note:

1. Candidate has to attempt six questions in all.
2. Question No. 1 covering whole syllabus will consists of 10 short answer questions carrying 2 marks each taking two questions from each unit.
3. Question No. 2 to 6, each of 16 marks, will be framed by taking one question from each unit. There will be an internal choice within the unit.

Unit-I

Creating and Maintaining Web Sites; Planning, Navigation and Themes, Site types and Architecture, Elements of a Web page, publishing and publicizing site/structuring web site. Search Engine Optimization,, Site Maps and other Navigation Aid, Site Delivery and Management.

Unit-II

Introduction of HTML and XHTML : introduction markup language, editing HTML & XHTML: Common tags, headers, text styles linking, images, formatting text, horizontal rules and more line

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breaks unordered lists nested and ordered lists, basic HTML/XHTML tables: intermediate tables and formatting, forms, more complex forms, internal linking, creating and using image maps.

Unit-III

Java script- introduction to scripting language, memory concepts, arithmetic decision making. Java script control structures, Java script functions, program modules in java script, function definitions duration of identifiers, scope rules, recursion java script global functions.

Array in Java script .

Unit-IV

Cascading Style Sheet : introduction- inline styles, creating style sheets with the style element, conflicting styles, linking external style sheets, positioning elements, background element dimensions, text flow and the box model, user style sheets.

Unit V

Introduction to PHP: Advantages of PHP, functions, Data types, Arrays,MySQL, Connecting Databases using ODBC, Files, Forms, Images, IMap objects. Handling Form data in a secured manner . Security on Web Pages.

Recommended Books:

1. M.L. Young; Complete Reference b: Internet; 2nd Edition; Tata McGraw Hill, 2006
2. Thomas A; Powel: Web Design ; C.R. : Second Edition TMH,2009.
3. Thomas A. Powel : HTML & XHTML : C.R. Fourth Edition; TMH, 2008
4. Harely Hahn: the Internet, Tata Mc Graw Hill.
5. G. Roverston; Hands on HTML., BPB Publication
6. D.A. Tauber, B. Kienan; Microsoft From Page 2000, BPB Publications.
7. Joel Sklar: Principles of Web Design BPB Publication

PGD 804: Data Communication and Computer Network

Theory: 3 hours per week
Examination: Theory Paper – 3 hours; Max. Marks – 100

Note:

1. Candidate has to attempt six questions in all.
2. Question No. 1 covering whole syllabus will consists of 10 short answer questions carrying 2 marks each taking two questions from each unit.
3. Question No. 2 to 6, each of 16 marks, will be framed by taking one question from each unit. There will be an internal choice within the unit.

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Unit-I

Overview of Data Communication and Network: Basic concept –Computer communication methods, Data Transmission modes, Signals, Modulation – Principles of Modulation, AM and FM Modulator Circuits, Demodulation .

Unit II

Network Models : Internet model, OSI seven layer network model, Functions of OSI layers, LAN technologies – protocols and standards, LAN hardware, TCP/IP (Protocols, architecture, layers, services).

Unit-III

Data transmission: Data Communication Systems, DTE-DCE Interface, Modems, Transmission media(Guided & Unguided), Multiplexing – FDM, WDM, TDM, Digital Subscriber Line (Operation, Layers, Traffic control), Microwave-Electromagnetic spectrum, Characteristics, Satellite- Artificial Satellite, Geosynchronous Satellites, Orbital classification, Spacing and Frequency allocation, Multiple accessing.

Optical fiber communication : Basic concept of light propagation, Fiber Cables, Light sources, Optical Detectors, Fiber cable losses, wave division multiplexing, fiber distributed data interface, the fiber channel

Unit-IV

Internet: Internet Architecture, Internet protocol and datagram, Routing protocols, UDP, Internet standard services, DNS.

Networking Technology, ISDN (Services, Channels, Layers, Broadband ISDN), Cable Modem System, SMDS, Frame relay, fast Ethernet, LAN and Gigabit Ethernet, FDDI and CDDI, Asynchronous Transfer, SONET (architecture, Layers, frame, Applications), Switching Techniques

Unit-V

Networking and Internetworking Devices : Repeaters, Bridges, routers, Gateways and roles of these devices in communication.

Network Performance, Analytical approaches, simulation, traffic monitoring, Network Management.

Recommended Books:

1. Behrouz A Foruzan, Data Communication and Networking; 3rd Edition; Tata McGraw Hill., 2004
2. Behrouz A Foruzan, TCP/IP Protocal Suite; 2nd Edition; Tata McGraw Hill.,2003.
3. Stalling William; Data and Computer Communication; 8th Edition Pearson,2009.
4. Tannenbasum; Computer Networks; 4th edition, PHI 2008.
5. Wayne tomasim electronic Communications Systems, Pearson, Education Asia.
6. M.A. Miller, Data and Netowork Communications, Thomosn Kearning
7. Gilbert Held, Understanding Data Communication, Techmedia.
8. Fred Harshal, Data Communications Communications, Networks, Pearson Education Asia.

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PGD 805: Computer Organization

Theory: 3 hours per week
Examination: Theory Paper – 3 hours; Max. Marks – 100

Note:

1. Candidate has to attempt six questions in all.
2. Question No. 1 covering whole syllabus will consists of 10 short answer questions carrying 2 marks each taking two questions from each unit.
3. Question No. 2 to 6, each of 16 marks, will be framed by taking one question from each unit. There will be an internal choice within the unit.

Unit -I

Computer System History and Architecture development von Neumann machine, Mother Board, System clock, Bus (Data, Address Control), Bus architecture (ISA, MCA, EISA, PCI, AGP), Expansion slots and cards (Network adapter cards, SCSI card, Sound card, TV tuner card, PC card), Ports (Serial Parallel, AGP, USB Fire Wire), cables (RS 232, BIN), Input devices Output devices , Storage devices, random versus sequential access, formatting, tracks and sectors, speed, storage capacity, Floppy Disk, Hard Disk tracks, cylinders, sectors; Hard Drive Interfaces Optical Disks , Magnetic tape, Modern (Fax/Data/Voice).

Unit -II

Building blocks of computer system:
Basic building blocks – I/O, Memory, ALU and its components, Control Unit and its functions, Instruction –word, Instruction and Execution cycle, branch, skip, jump and shift instruction, Operation of control registers; Controlling of arithmetic operations, Classification of Computers (Workstation, Mainframe, Super Computer, Client Server Computer, Notebook, Tablet, PalmTop Computer)

Unit -III

Basics of Computer organization; system buses and instructions cycles, memory subsystem organization; system buses and instruction cycles, memory subsystem organization and interfacing, I/O subsystem organizations and interfacing, Register transfer languages. CPU design : specifying a CPU, design and implementation of a simple CPU (fetching instructions from memory, decoding and executing instructions, establishing required data paths, design of ALU, design of the control unit and design verification), design and implementation of a simple micro sequencer, Features of Pentium microprocessors.

Unit -IV

Addressing techniques and registers:
Addressing techniques – Direct, Indirect, Immediate, Relative, Indexed addressing and paging. Registers – Indexed, General purpose, Special purpose, overflow, carry, shift, scratch, Memory Buffer register; accumulators; stack pointers; floating point; status information and buffer registers. Memory: Main memory, RAM, static and dynamic, ROM, EPROM, EEPROM, EAROM, Cache and Virtual memory.

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Unit - V

Interconnecting System components:
Buses, Interfacing buses, Bus formats – address, data and control, Interfacing keyboard, display, auxiliary storage devices and printers. I/O cards in personal computers.
Introduction to Microprocessors and Microcontrollers: introduction to 8085 micropocesor, examples of few instructions to understand addressing techniques. Difference between microprocessor and microcontrollers, RISC v/s CISC

Recommended Books
Andrew S. Tanenbaum , Structured Computer Organization,Printice Hall
William Stallings, Computer Organization and Architecture , Sixth Edition, Pearson
Moriss Mano, Computer Organization,

Practical Examination

Each practical paper shall be of 4 hours duration on one day and carry 100 marks for the practical examination. The practical examination will involve 3 exercises, each of 20 marks, practical record of 15 marks and viva-voce examination of 25 marks.

PGD 811: Programming in C++

Lab Exercise on Theory Paper PGD 802.

PGD 812: Web Application Lab

Lab Exercise on Theory Paper PGD 803.

PGD 813: Mini Project

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Elective III (Any One)

PGD C01: System Analysis and Design Concepts

Theory: 3 hours per week
Examination: Theory Paper – 3 hours; Max. Marks – 100

Note:

1. Candidate has to attempt six questions in all.
2. Question No. 1 covering whole syllabus will consists of 10 short answer questions carrying 2 marks each taking two questions from each unit.
3. Question No. 2 to 6, each of 16 marks, will be framed by taking one question from each unit. There will be an internal choice within the unit.

Unit-I

System Concepts and the information systems Environment: The System concept Definition, System Central Objectives, Elements of a system, Environment, Boundaries and interfaces. Types of systems- Physical or Abstract systems, Open or Closed systems, Role, Need and Responsibility of System Analyst, Introduction to system Development approaches- Data Oriented and Object Oriented.

System Development Life Cycle : Linear or Waterfall Cycle, Linear cycle, phases of SW Development Life Cycle.

Unit-II

System planning and Analysis : Strategies for determining information requirement, Problem definition & Project initiation, Background analysis, Data and Fact Gathering Techniques, Feasibility Studies- Technical, Operational, economic, cost benefit analysis, Interface design tools, user interface evaluations.

System Design: Process modeling, Physical and logical design. Conceptual Data modeling, Entity Relationship analysis, ER modeling, Context diagram. Tools of structured analysis (DFD, Data dictionary, Decision Tree, Decision tables, Structured English). Structure Charts, Modules, Parameter passing. Execution sequence, Structured Design, Conversion from Data Flow Diagrams to Structure Charts.

Unit-III

Input/Output Forms Design : Requirement of forms design, User Interface Design, Input design, CRT Screen forms design, Output design.

Files organization and Database Design : Designing to Fields, Physical records, Physical files, Database design, Data Structures, Normalization, Introduction to CASE Tools, Features, advantages, and limitations of CASE tools.

System Implementation, Maintenance and documentation, testing, evaluation, maintenance Activities, Documentation, Document configuration, maintaining a configuration.

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Unit-IV

Introduction to MIS : Meaning and Role of MIS, Definition of MIS, System Approach to MIS, MIS Organization within a company. Concept of Balanced MIS, effectiveness and efficiency criteria.

MIS Planning : MIS structure and components, MIS features, problem and Derivation of MIS Plans, Prioration and development strategies.

Conceptual Design of MIS : Definition of problem, system objectives and system constraints, Analysis of information source, alternative system design and selection optimal system.

Detailed System Design and Implementation: Application of basic design concepts of MIS, Involvement of end-user and role of MIS department and System Analyst, Role of Top Management during design and implementation.

Unit-V

System Evaluation : System evaluation review and update, Management and control of MIS function, Advanced MIS concept, Pitfalls in MIS development.

Decision Support System: DSS Definition, Characteristics, Application Case Study. Expert System : Concept Structure, Application and Case Study.

Applications of MIS : Applications of MIS to E-Business, Applications in Manufacturing sector, Service sector, DSS, Decision Support System, Enterprise Management Systems.

Recommended Books

1. Awad E.M.; System Analysis and Design; Second Edition; Galgotia Publication.
2. Igor Hawryzkiewyez, Introduction to System Analysis and Design, 4th edition. Prentice-Hall
3. Jain Mdhulika, Jain Satish; Strucutred system Analysis and Design;2nd Edition, 2007.
4. Jeffrey L. Whittren, and Lonnie D. Bentey, Systems analysis and Design Methods 4th edition, Tata McGraw-Hill.
5. Philip L Weaver, Practical SSADM wer 4+A Complete Tutorial Guider, Pitman Publishing.
6. Don Yeates, Maura Shields and David Helmy. System Analysis and Design Longman group limited.
7. Robert Mudrick; Management Information System; PHI.
8. W.S. Jawadkar; Management Information System;McGraw-Hill.

PGD C02: Multimedia Systems

Theory: 3 hours per week
Examination: Theory Paper – 3 hours; Max. Marks – 100

Note:

1. Candidate has to attempt six questions in all.
2. Question No. 1 covering whole syllabus will consists of 10 short answer questions carrying 2 marks each taking two questions from each unit.
3. Question No. 2 to 6, each of 16 marks, will be framed by taking one question from each unit. There will be an internal choice within the unit.

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Unit—I

Multimedia System Basics : Multimedia System Elements; Multimedia System Architecture; Multimedia technologies; Video/Audio Fundamentals, Multimedia Authoring Tools, Graphics and Image Data Representations, Fundamental Concepts in Video, Basics of Digital Audio. Multimedia I/O Technologies and Devices.

Unit—II

Compression and Decompression Techniques : Type of Compressions, Binary Image Compression Schemes, Image Compression, Video image Compression, Audio Compression, Lossless Compression Algorithms, Lossy Compression Algorithms, Image Compression Standards, Basic Video Compression Techniques, MPEG Video Coding I - MPEG-I and 2, MPEG Video Coding II - MPEG-4, DVI and Beyond.

Unit—III

Audio Compression : Audio Compression Techniques, MIDI, MPEG Audio Compression, Speech Reorganization and Generation, Video Images and Animation. File Formats and Standards — Rich Text, TIFF, RIFF, MIDI, JPEG, AVI, MPEG formats and its uses.

Unit— IV

Trends in Multimedia — Multimedia in Wireless Networks; Content-Based Retrieval in Digital Libraries; Multimedia Storage Systems, User Interface; Multimedia Synchronization, Multimedia Presentation and Web Technologies (Documents, Hypertext, MHEG), Multimedia Databases, P2P Multimedia Systems.

Unit—V

Multimedia Communication Multimedia Communication and Retrieval, Multimedia Network Fundamentals, Multimedia Networking Services.
Multimedia Applications : Media Preparation, Media Composition, Image Processing & Image Reorganization, Animation, Media Integration, Media Communication, Media Consumption; Education & Training, Media Entertainment and Full Motion Digital Video Applications.

Reference/Text Books:

1. Prabhat K. Adrleigh, Kiran Thakrar; Multimedia System Design; P1-It
2. RalfSteinmetz, Klara Nahrstedt; Multimedia : Computing, Communication & Applications; Pearson Education;
3. Fundamentals of Multimedia, Ze-Nian Li, and Mark S. Drew, Pearson Prentice Halt, October 2003.
4. Multimedia Communication Systems, K. Rammohanarao, Z. S. Bolzkovic, D. A. Milanovic, 1st edition, Prentice Hall, May 2002.
5. Web Caching and Replication, Michael Rabinovich and Oliver Spatscheck, Addison-Wesley, 2002.
6. Multimedia Communications: Applications, Networks, Protocols and Standards, Fred Hatsall, Addison-Wesley, 2001.

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