KRANTIGURU SHYAMJI KRISHNA VERMA
KACHCHH UNIVERSITY

Department of Computer Science

Syllabus for Post Graduate Diploma in Computer Applications

(Effective From June 2016)

Krantiguru Shyamji Krishna Verma Kachchh University, Bhuj

Post Graduate Diploma in Computer Applications

One Year Full Time Programme

This course abbreviated as P.G.D.C.A. is a post-graduate programme of 02 semester's duration.

CREDIT SYSTEM

One credit in theory course is equivalent to classroom teaching of 1 hour per week for 15 weeks, whereas one credit in practical requires 3 hours of performing practical per week for 15 weeks.

ELIGIBILITY CRITERIA

1. A candidate who has passed graduation (viz. Bachelor of Commerce / Bachelor of Arts etc.) with minimum 40% marks.

2. A candidate who has passed an equivalent examination from any other university/examining body shall have to produce Eligibility Certificate from KSKV Kachchh University, Bhuj (which can be obtained from the University Office) along with the application for admission in the first semester.

DOCUMENTS REQUIRED

Original as well as self attested copies of

1. S.S.C (10^{th}) mark sheet, Passing and Trial Certificate.
2. H.S.C. (10+2) or Equivalent Mark sheet.
3. Graduation mark sheets.
4. Degree Certificate of qualifying degree.
5. Transfer / Leaving Certificate.
6. SC/ST/SEBC caste certificate wherever applicable.
7. Non-Creamy Layer Certificate in case of SEBC
8. Relevant reservation documents as notified by the government.

ADMISSION PROCEDURE

- Counselling will be given to the candidates on the day of admission before actual admission takes place in each college.

CRITERIA FOR EVALUATION

- Continuous and Comprehensive Evaluation (CCE) will be conducted by respective departments; CCE will have 30% weightage. A student shall have to score minimum 40% marks in internal evaluation to pass.
- End semester examination will have 70% weightage. A student shall have to score minimum 40% marks in internal evaluation to pass.
- CCE Marking Scheme for theory courses other than foundation:
  For each paper, 30 % of CCE may be further distributed as under:
  a) Seminar/Assignment/Project/Presentation : 10 Marks
  b) Internal Test: 20 Marks

  Internal Test comprises of 40 Marks and $1\frac{1}{2}$ hours duration.

Krantiguru Shyamji Krishna Verma Kachchh University

POST GRADUATE DIPLOMA IN COMPUTER APPLICATIONS

Semester I

Course Type	Course Code	Name of Course	T / P	Credit	Exam Duration in Hours	Component of Marks		
						Internal	External	Total
Core Courses	CCCS101	Computer Fundamental and PC Software	Theory	4	3	30	70	100
	CCCS102	Computer Programming Using C	Theory	4	3	30	70	100
	CCCS103	Practical Based on CCCS101	Practical	4	3	30	70	100
	CCCS104	Practical Based on CCCS102 and Elective Courses	Practical	4	3	30	70	100
Elective Courses (Any One)	CECS101	Multimedia Application Development	Theory	4	3	30	70	100
	CECS102	System Analysis and Design	Theory	4	3	30	70	100
Elective Courses (Any One)	CECS103	Desktop Publishing	Theory	4	3	30	70	100
	CECS104	Personality Development and Soft Skills	Theory	4	3	30	70	100
Total				**24**		**180**	**420**	**600**

KSKV Kachchh University
Program: PGDCA
Semester: I

Paper Code: CCCS101	**Total Credit :** 4
Title of Paper: Computer Fundamental and PC Software	**Total Marks :** 70 **Time :** 3 Hrs

Unit	Description	Weighting
I	**Introduction to Computer Systems and Number Systems** Block diagram of a simple computer and significance of different functional units. Evolution of computers Definitions of the terms: hardware, software. Applications of computers. Binary, octal, decimal, and hexadecimal number systems Conversion of numbers among binary, octal, decimal, and hexadecimal number systems. Addition and subtraction of binary numbers	20%
II	**Parallel Instruction Execution and Memory Organization** **Introduction to parallel instruction execution** Array processors, Multiprocessors, Multiple functional units Pipelining, Primary memory – Introduction to RAM, ROM, Cache, Registers. Secondary memory. Various types and organization of secondary storage devices such as magnetic disks, optical disks, flash memories.	20%
III	**Addressing Techniques and I/O Devices** Addressing techniques like Immediate, Direct, Indirect, Register, Indexing and Stack, Common types of Input/Output devices, such as Monitors, keyboard, mouse Printers (Line, Dot Matrix, Inkjet, Laser) Scanners	20%
IV	**PC Software-I** Introduction to word processing. Examples of some popular word processing packages. Uses of word processors. Creation, editing, and formatting of documents. Mail merge facility in word processors. Global search & replacement of text Page layout and printing of a document. Spelling checker, Tables, Templates, Advanced features. Introduction to spreadsheets Examples of some popular spreadsheet packages Uses of spreadsheet packages	20%
V	Addressing cells in a spreadsheet Building Spreadsheets using formulas, conditional calculations, built-in functions. Graph-plotting facilities. Sorting and filtering data. Using externally created data files in a spreadsheet package. What-if analysis and protection facility in spreadsheets Using pivot tables. Applications of spreadsheets. Introduction to presentation tools. Creating a presentation. Formatting slides Slide transition and adding special effects. Inserting pictures, sound, charts	20%

Basic Text & Reference Books :-	
1.	Tanenbaum A.S. : Structured Computer Organization, Prentice-Hall of India Pvt. Ltd.
2.	Rajaraman V. : Computer Fundamentals, Prentice-Hall of India Pvt. Ltd.
3.	Taxali R.K : PC Software for windows made simple, Tata McGraw-Hill Publishing Co. Ltd.

KSKV Kachchh University
Program: PGDCA
Semester: I

Paper Code: CCCS101	**Total Credit :** 4
Title of Paper: Computer Fundamental and PC Software	**Total Marks :** 70 **Time :** 3 Hrs

Unit	Description		Total Marks
I	Q.1 (A) Answer the Following. (Definitions, Blanks, Full Forms, True/False, Match the Following)	06	14
	Q.1 (B) Medium / Long Questions. (With Internal Option)	08	
II	Q.2 (A) Answer the Following. (Definitions, Blanks, Full Forms, True/False, Match the Following)	06	14
	Q.2 (B) Medium / Long Questions. (With Internal Option)	08	
III	Q.3 (A) Short / Medium Questions (With Internal Option)	06	14
	Q.3 (B) Medium / Long Questions. (With Internal Option)	08	
IV	Q.4 (A) Short / Medium Questions (With Internal Option)	06	14
	Q.4 (B) Medium / Long Questions. (With Internal Option)	08	
V	Q.5 (A) Short / Medium Questions (With Internal Option)	06	14
	Q.5 (B) Medium / Long Questions. (With Internal Option)	08	

KSKV Kachchh University
Program: PGDCA
Semester: I

Paper Code: CCCS102	**Total Credit :** 4
Title of Paper: Fundamentals of Computer Programming Using C	

Unit	Description	Weighting
I	**Concept of Algorithm, Flowchart and Languages** Concept of an algorithm and a flow chart, need and definition Symbols used to draw a flow chart. Typical (primitive) examples of flow charts and algorithms Generations of computer languages. High-level and low-level languages. Translators Introduction to editors and details about one of the editors	20%
II	**Basics of Programming** Problem analysis. Variables, expressions & manipulation Data types in a high-level language, operators I/O statements, Assignment statements Control strategies, Conditions	20%
III	**Structured Programming, Library Functions and Arrays** Loop statements Method of structured programming Common standard library functions Arrays and its types	20%
IV	**Strings, User-Defined Functions and Command-line arguments** String handling. Working with user defined functions Calling functions, passing arguments User-defined functions	20%
V	Pointer Structure and Union Bit fields, File Management Command Line Arguments	20%

Basic Text & Reference Books :-	
1.	Balaguruswami : Programming in ANSI C., Tata McGraw Hill Publication.
2.	Kernighan B., Ritchie D. : The C Programming Language, Prentice Hall.
3.	Cooper H. & Mullish H : The Sprit of C, Jaico Publication House, New Delhi.

KSKV Kachchh University
Program: PGDCA
Semester: I

Paper Code: CCCS102	**Total Credit :** 4
Title of Paper: Fundamentals of Computer Programming Using C	**Total Marks :** 70 **Time :** 3 Hrs

Unit	**Description**		**Total Marks**
I	Q.1 (A) Short Questions. (Definitions, Blanks, Full Forms, True/False, Match the Following)	04	14
	Q.1 (B) Short Questions / Medium Questions (With Internal Option)	06	
	Q.1 (C) Questions Based on Flowchart / Algorithm (With Internal Option)	04	
II	Q.2 (A) Short Questions. (Definitions, Blanks, Full Forms, True/False, Match the Following)	04	14
	Q.2 (B) Short Questions / Medium Questions (With Internal Option)	06	
	Q.2 (C) Questions Based on Program in C (With Internal Option)	04	
III	Q.3 (A) Short Questions. (Definitions, Blanks, Full Forms, True/False, Match the Following)	04	14
	Q.3 (B) Short Questions / Medium Questions (With Internal Option)	06	
	Q.3 (C) Questions Based on Program in C (With Internal Option)	04	
IV	Q.4 (A) Short Questions. (Definitions, Blanks, Full Forms, True/False, Match the Following)	04	14
	Q.4 (B) Short Questions / Medium Questions (With Internal Option)	06	
	Q.4 (C) Questions Based on Program in C (With Internal Option)	04	
V	Q.5 (A) Short Questions. (Definitions, Blanks, Full Forms, True/False, Match the Following)	04	14
	Q.5 (B) Short Questions / Medium Questions (With Internal Option)	06	
	Q.5 (C) Questions Based on Program in C (With Internal Option)	04	

KSKV Kachchh University
Program: PGDCA
Semester: I

Paper Code: CCCS103	**Total Credit :** 6
Title of Paper: Practical Based on CCCS101	**Total Marks :** 70 **Time :** 3 Hrs

Unit	Description	Weighting
	Sample Practical Exercises: **[A] 1. Microsoft Word** Creating the documents with Special effects like underline, bold, different size, different font, different color. Etc. Find and Replace operations like cut, paste, copy, and clipboard. Inserting Date & Time, Pictures, Bullets & Numbering etc. Paragraphs, bullets, indentation etc. Formatting features. Printing the documents, it includes paper-size, margins, header and footer, page no. etc. Creating a table. Mail merge, spell-check, drawing table. Template. **2. Microsoft PowerPoint** Creating a presentation Inserting/Deleting slides Different slide views Editing slides Formatting slides Slide transition & additing special effects Inserting sound, picture, chart, organization chart **3. Microsoft Excel** Creating Worksheets Printing, Inserting, Deleting, Copying, Moving worksheets. Formulas, built-in functions Graph-Plotting facilities Database Management System Using extenternally created data files. What – if analysis Formatting cells, Worksheets etc. Custom Controls Protection facility Pivot tables Macro facility	--

KSKV Kachchh University
Program: PGDCA
Semester: I

Paper Code: CCCS103	**Total Credit :** 4
Title of Paper: Practical Based on CCCS101	**Total Marks :** 70 **Time :** 3 Hrs

Unit	Description		Total Marks
Unit I to V	Q.1(A) Viva Voce	20	70
	Q.1 (B) Practical	50	

KSKV Kachchh University
Program: PGDCA
Semester: I

Paper Code: CCCS104	**Total Credit :** 4
Title of Paper: Practical Based on CCCS102 and Elective Courses	**Total Marks :** 70 **Time :** 3 Hrs

Unit	Description	Weighting
	Sample Practical Exercises: **Develop algorithms/flow charts/C programs for the following :** To prepare a cup of tea. To open a bank account. To find maximum from the given three numbers. To find simple interest and Compound Interest To read three sides of a triangle and print whether it will form a triangle or not To find the solution of quadratic equation. To find out N! (Factorial of N). To find out minimum and maximum from N numbers. To find whether given number is prime or not. To print the N terms of Fibonacci series. (i.e. 1, 1, 2, 3, 5, 8, 11 …). To read a number & check whether it is a palindrome or not. **Find the sum of the following series :** Sum = 1 + 3 + 5 + 7 ….. up to N terms. Sum = 5 - 10 + 15 - 20 + 25 ….. up to N terms. Sum = 1 + 1 + 2 + 3 + 5 + 8 + 13 ….. up to N terms. Sum = $1^2 + 2^2 + 3^2 + 4^2 + 5^2$ ….. up to N terms. Sum = 1! + 2! + 3! + 4! ….. up to N terms. **Read marks of three subjects and find the percentage of it. Also, print the appropriate class**. Here, If percentage < 40 then class is ‘fail’ If 40 <= percentage < 48 then class is ‘pass’ If 48 <= percentage < 60 then class is ‘second’ Else class is ‘first’. **Find the value of SUM for the following.** SUM = X + X / 2! + X / 3! + X / 4! ….. up to N terms. SUM = 1 - ½ + 1/3 - ¼ + 1/5 ….. up to N terms. To find the sum of the digits in a given positive numbers. To input a time as a number of seconds after midpoint and outputs it as hours: minutes: seconds. For example, if the input were 50000 the output should be 13: 53: 20. To read the price of one dozen bananas and calculate and print the total cost of N bananas. To read a number and find whether it is divisible by two or not. To accept a positive integer and check whether it is one-digit, two-digit or three-digit otherwise print appropriate message.	--

KSKV Kachchh University
Program: PGDCA
Semester: I

Paper Code: CCCS104	**Total Credit :** 4
Title of Paper: Practical Based on CCCS102 and Elective Courses	**Total Marks :** 70 **Time :** 3 Hrs

Unit	Description		Total Marks
Unit I to V	Q.1(A) Viva Voce	20	70
	Q.1 (B) Practical	50	

KSKV Kachchh University
Program: PGDCA
Semester: I

Paper Code: CECS101	**Total Credit :** 4
Title of Paper: Multimedia Application Development	**Total Marks :** 70 **Time :** 3 Hrs

Unit	Description	Weighting
I	**Introduction** Multimedia : meaning Various facets of multimedia : audio, text, graphics, animation, video Classification of multimedia technology Multimedia: hardware/software essentials, different categories of multimedia software.	20%
II	**Working with Audio, Text and Graphics** Multimedia audio : introduction, digital audio and sound card fundamentals, sound card functionalities, audio jacks, connectors, digital audio playback, audio editing Multimedia text : introduction, designing text for multimedia, hypermedia, hypertext Multimedia graphics : introduction, basic concepts of color displays, monitor video modes, color monitors and their parameters, graphics in multimedia projects	20%
III	**Working with Video** Multimedia video : introduction, video in multimedia projects, digital video fundamental, full motion and full screen videos, digital video files sizes, digital video production techniques – video production in multimedia, shooting the sequences, video capture techniques, video capture boards, video capture software, editing video, embedding sound clips	20%
IV	**Working with Animation** Multimedia Animation : introduction, classifications, two-dimensional animation and three dimensional animation technology, animation development process, names of animation software tools for 2D and 3D	20%
V	A brief Introduction to Flash, Flash Movie development, Seating of Document Property, Creating share with oval tool, Adding text to button, Converting a share into symbol, Editing buttons symbols, Adding key frame, Verifying changes with Test Movie, Adding layers to a movie, Viewing layers in the Timeline, Working with layers, Create Graphic symbols, Insert Instance, Motion Tweezing, Motion Tween settings.	20%

Basic Text & Reference Books :-	
1.	Multimedia Magic. By S. Gokul, BPB Publications, 1998.
2.	Introduction to Multimedia : By Ana Weston Solomon, Tata McGraw-Hill Publishing Company Limited, 2005

KSKV Kachchh University
Program: PGDCA
Semester: I

Paper Code: CECS101	**Total Credit :** 4
Title of Paper: Multimedia Application Development	**Total Marks :** 70 **Time :** 3 Hrs

Unit	Description		Total Marks
I	Q.1(A) Short / Medium Questions (With Internal Option)	06	14
	Q.1(B) Short / Medium Questions (With Internal Option)	08	
II	Q.2(A) Short / Medium Questions (With Internal Option)	06	14
	Q.2(B) Short / Medium Questions (With Internal Option)	08	
III	Q.3(A) Short / Medium Questions (With Internal Option)	06	14
	Q.3(A) Short / Medium Questions (With Internal Option)	08	
IV	Q.4(A) Short / Medium Questions (With Internal Option)	06	14
	Q.4(B) Short / Medium Questions (With Internal Option)	08	
V	Q.5(A) Short / Medium Questions (With Internal Option)	06	14
	Q.5(B) Short / Medium Questions (With Internal Option)	08	

KSKV Kachchh University
Program: PGDCA
Semester: I

Paper Code: CECS102	**Total Credit :** 4
Title of Paper: System Analysis and Design	**Total Marks :** 70 **Time :** 3 Hrs

Unit	Description	Weighting
I	**INTRODUCTION TO SYSTEM ANALYSES AND DESIGN** Business Process Modeling, Information System Components, Types of Business Information Systems, Organizational Structure, System Development Techniques and Tools, Overview of Systems development Methodologies, The System Development Life Cycle, Information Technology Department, The System Analyst Position. **PRELIMINARY INVESTIGATION** The importance of strategic planning, A framework for system development, Information System Projects, Evaluation of system requests, Preliminary investigation overview, Steps in preliminary investigation	20%
II	**RQEUIREMENTS MODELING** System analysis phase overview, System development methods, Modeling tools and techniques, system requirements checklist, Scalability and total cost of ownership, Fact finding, Interviews, Other fact finding techniques, Documentation, Preview of data, Process and object modeling **DATA AND PROCESS MODELING** Data flow diagrams, Data dictionary, Process Description tools, Logical vs. physical models **OBJECT MODELING** Object oriented terms and concepts, Relationships among objects and classes, Object modeling with the unified modeling language	20%
III	**TRANSITION TO SYSTEM DESIGN** Evaluating software alternatives, Steps in evaluating and purchasing software packages, Completion of system analysis, Transition to system design, Prototyping, Overview of system design, Designing and using codes User interface design, Input design, Output design issues, Printed output	20%
IV	Data design concepts, Data design terminology, Data relationships, Normalization, Steps in database design, Database models, Data storage, Data control	20%
V	**APPLICATION ARCHITECTURE** Design checklist, Planning the architecture, Client/server architecture, Impact of the internet, Processing methods, Network models, Modeling application architecture, System management and support, system design completion **APPLICATION DEVELOPMENT** Quality assurance, Overview of application development, Structured application development, Other application development tools, Coding, Object-oriented application development, Testing the application, Documentation, Management approval	20%

Basic Text & Reference Books :-	
1.	System Analyses And Design, 4th Edition, By Shelly/Cashman/Rosenblatt (Thomson)
2.	System Analyses and Design, 3rd Edition, By Elias Awad (Galgotia Publications)
3.	

KSKV Kachchh University
Program: PGDCA
Semester: I

Paper Code: CECS102	**Total Credit :** 4
Title of Paper: System Analysis and Design	**Total Marks :** 70 **Time :** 3 Hrs

Unit	Description		Total Marks
I	Q.1(A) Short / Medium Questions (With Internal Option)	06	14
	Q.1(B) Short / Medium Questions (With Internal Option)	08	
II	Q.2(A) Short / Medium Questions (With Internal Option)	06	14
	Q.2(B) Short / Medium Questions (With Internal Option)	08	
III	Q.3(A) Short / Medium Questions (With Internal Option)	06	14
	Q.3(A) Short / Medium Questions (With Internal Option)	08	
IV	Q.4(A) Short / Medium Questions (With Internal Option)	06	14
	Q.4(B) Short / Medium Questions (With Internal Option)	08	
V	Q.5(A) Short / Medium Questions (With Internal Option)	06	14
	Q.5(B) Short / Medium Questions (With Internal Option)	08	

KSKV Kachchh University
Program: PGDCA
Semester: I

Paper Code: CECS103	**Total Credit :** 3
Title of Paper: Desktop Publishing	**Total Marks :** 70 **Time :** 3 Hrs

Unit	Description	Weighting
I	**Introduction** Publishing – meaning and planning Graphics and desktop publishing, Publication purpose and effectiveness, Introduction to a popular desktop publishing software and key features	20%
II	**Using DTP Software-I (Page Maker)** Working with document - creating, saving, printing, etc. Working with tools and pallets, navigation Working with margins, indents, tabs and ruler Working with text , paragraph and graphics	20%
III	**Using DTP Software-II (Page Maker)** Working with multipage documents Working with master pages, hyperlinks Working with frames, text frames, Using tables Using styles and story board, Working with objects, forms Working with templates, Importing and exporting	20%
IV	Corel Draw Introduction, Surfing the Interface, Getting to know the status bar. Getting to scrollbar and color palette. Understanding Dialog box, Exploring the standard toolbar, Toolbox. Browsing the Menus, File, Edit, View, Layout, Arrange, Effect, Bitmaps, Text, Tools, Drawing and working with Lines and Curves. Drawing and working with Rectangles, Ellipse and Polygons, Adding Text and Formatting Text, Working with Objects, Defining Outline and Fill Color, Working with outlines, The outline pen dialog, The outline color dialog, Understanding fills, Fountain fills, Pattern fills, Creating Special Effects, Using an envelope, Creating perspective effects, Blending objects	20%
V	Photo Shop Photoshop's Environment Graphics and Environment Elements Navigating in Photoshop. Sizing Images, Image Size and Resolution Cropping. Selecting Image Areas. The Rectangular and Elliptical Marquee Tools. The Lasso Tools and Saving Selections. The Magic Wand Tool. The Magnetic Lasso Tool and Modifying Selections Layers, Feathering Edges: Image Modes, Color and Painting, Selecting Colors, Painting Tools and the Clone Stamp Tool. Text, Layer Effects, and Filters, Filters, Merging, and Flattening. Adjusting Images, Brightness/Contrast and Levels Adjustment Layers, Toning Tools and Hue/Saturation	20%

Basic Text & Reference Books :-	
1.	Jain S. : PageMaker 7 Training Guide, BPB, 2008
2.	Busch : Teach Yourself PageMaker 6.5 for Mac & Windows, BPB, 2002
3.	Connally C. : PageMaker (R) 7 – The Complete Reference, McGraw-Hill/Osborne Media, 2002
4.	Mastering Corel Draw by Rick Altman, BPB 4th Edition

KSKV Kachchh University
Program: PGDCA
Semester: I

Paper Code: CECS103	**Total Credit :** 4
Title of Paper: Desktop Publishing	**Total Marks :** 70 **Time :** 3 Hrs

Unit	Description		Total Marks
I	Q.1(A) Short / Medium Questions (With Internal Option)	06	14
	Q.1(B) Short / Medium Questions (With Internal Option)	08	
II	Q.2(A) Short / Medium Questions (With Internal Option)	06	14
	Q.2(B) Short / Medium Questions (With Internal Option)	08	
III	Q.3(A) Short / Medium Questions (With Internal Option)	06	14
	Q.3(A) Short / Medium Questions (With Internal Option)	08	
IV	Q.4(A) Short / Medium Questions (With Internal Option)	06	14
	Q.4(B) Short / Medium Questions (With Internal Option)	08	
V	Q.5(A) Short / Medium Questions (With Internal Option)	06	14
	Q.5(B) Short / Medium Questions (With Internal Option)	08	

KSKV Kachchh University
Program: PGDCA
Semester: I

Paper Code: CECS104	**Total Credit :** 4
Title of Paper: Personality Development and Soft skills	**Total Marks :** 70 **Time :** 3 Hrs

Unit	Description	Weighting
I	Introduction to Soft Skills and Hard Skills, Break the ice berg – FEAR, Self Development - Etiquette and Manners. The Self Concept: Attitude, The process of attitude formation, positive attitude, How to build a success attitude, You are the chief architecture of yourself. Self Management Techniques. Believe in your self: Self Image and Self Esteem, Building Self Confidence, Environment we mix with, How to build self image?.	20%
II	Meaning and definition of personality, Personal Planning and Success Attitude: Prioritizing, Creating the master plan, Active positive visualization and Spot analysis. Self Motivation and Communication: Levels of motivation, power of irresistible enthusiasm, etiquettes and manners in a group, public speaking, Importance of listening and responding.	20%
III	Motivation Skills & Personality Development, Goal Setting, Career Planning, Resume Building, Psychometric Test, Priority Management & Time Management, Positive Attitude and Self Confidence. Verbal Communication includes Planning, Preparation Delivery, Feedback and assessment of activities like: Public speaking, Group Discussion, Oral Presentation skills, Perfect Interview, Listening and observation skills, body language and use of Presentation aids.	20%
IV	Written communication that includes project proposals, brochures, newsletters, articles. Etiquettes that include: etiquettes in social as well as office settings, email etiquettes, telephone etiquettes. Improving Personal Memory, study skills that include rapid reading, notes taking and creativity.	20%
V	Problem Solving and Decision Making Skills, Perceptive, Conceptual, Creative, Analytical and Decisive. Leadership as a process: co-ordination while working in a team, Leadership styles, Leader and Team player, Management of conflict, Profiles of great and successful personalities, Role of career planning in personality development, negotiation, Motivating.	20%

Basic Text & Reference Books :-	
1.	Wallace : Personality Development 1st Edition, 2008 Cengage Learning India.
2.	Kundu, C.l.- Personality development, Sterling Bangalore
3.	Listening and Responding – Sandra D.Collins-Cengage Learning India.
4.	1,001 ways to inspire your organization, your team and your self – David E. Rye- Jaico publishing house.

KSKV Kachchh University
Program: PGDCA
Semester: I

Paper Code: CECS104	**Total Credit :** 4
Title of Paper: Personality Development and Soft skills	**Total Marks :** 70 **Time :** 3 Hrs

Unit	Description		Total Marks
I	Q.1(A) Short / Medium Questions (With Internal Option)	06	14
	Q.1(B) Short / Medium Questions (With Internal Option)	08	
II	Q.2(A) Short / Medium Questions (With Internal Option)	06	14
	Q.2(B) Short / Medium Questions (With Internal Option)	08	
III	Q.3(A) Short / Medium Questions (With Internal Option)	06	14
	Q.3(A) Short / Medium Questions (With Internal Option)	08	
IV	Q.4(A) Short / Medium Questions (With Internal Option)	06	14
	Q.4(B) Short / Medium Questions (With Internal Option)	08	
V	Q.5(A) Short / Medium Questions (With Internal Option)	06	14
	Q.5(B) Short / Medium Questions (With Internal Option)	08	

Krantiguru Shyamji Krishna Verma Kachchh University

POST GRADUATE DIPLOMA IN COMPUTER APPLICATIONS

Semester II

Course Type	Course Code	Name of Course	T / P	Credit	Exam Duration in Hours	Component of Marks		
						Internal	External	Total
Core Courses	CCCS205	Windows Programming using VB.NET	Theory	4	3	30	70	100
	CCCS206	Database Management System	Theory	4	3	30	70	100
	CCCS207	Practical Based on PG CCCS205	Practical	4	3	30	70	100
	CCCS208	Practical Based on PG CCCS206 and Elective Courses	Practical	4	3	30	70	100
Elective Courses (Any One)	CECS205	Internet and Web Programming	Theory	4	3	30	70	100
	CECS206	Cyber Security	Theory	4	3	30	70	100
Elective Courses (Any One)	CECS207	MIS and ERP	Theory	4	3	30	70	100
	CECS208	Data Communication and Computer Network	Theory	4	3	30	70	100
Total				**24**		**180**	**420**	**600**

Krantiguru Shyamji Krishna Verma Kachchh University
Post Graduate Diploma in Computer Applications
Semester: II

Paper Code: CCCS205	**Total Credit :** 4
Title of Paper: Windows Programming Using VB.Net	**Total Marks :** 70 **Time :** 3 Hrs

Unit	Description	Weighting
I	Overview of a .net framework: versioning and deployment, Memory management, Cross-Language integration, Metadata, IL dissemblers, The IDE components like IDE menu, CLR, CTS, Garbage Collector, Toolbox, Solution explorer, Property window, Output window, Task list window. Namespace and the imports keyword, the AssemblyInfo.vb file Variables (declaration, types, conversion), Constants, Arrays, Variables as Objects, Operators	20%
II	Flow control statements, Looping Statements, Modular coding :Procedures and Functions, appearance of forms, Loading and showing forms, Designing menus, Building dynamic forms at runtime, MDI application	20%
III	TextBox control, ListBox control, CheckedListBox, ComboBox, Controls, ScrollBar and TrackBar Control, Common Dialog control, Color Dialog control, Open and Save as Dialog control, Print Dialog Box, RichTextBox control, Listview, TreeView control	20%
IV	Building class, encapsulation and abstraction, Inheritance, Polymorphism. Sorting and searching in array, Arraylist collection, Hash Table, SortedList class, Char class, String class, DateTime class, Time Span class, Directory class, File class, DirectoryInfo class, FileInfo class.	20%
V	Architecture of ADO.NET, Creating a Data Set, Data binding, Data Adapter object, Command object and Data Reader object. Grid View Control	20%

Basic Text & Reference Books :-	
1.	Mastering Visual Basic .NET by E Petroutsos, BPB
2.	Visual Basic .NET Programming by Peter Aitken’s, Dreamtech Press

Krantiguru Shyamji Krishna Verma Kachchh University
Post Graduate Diploma in Computer Applications
Semester: II

Paper Code: CCCS205	**Total Credit :** 4
Title of Paper: Windows Programming Using VB.Net	**Total Marks :** 70 **Time :** 3 Hrs

Unit	**Description**		**Total Marks**
I	Q.1 (A) Answer the Following. (Definitions, Blanks, Full Forms, True/False, Match the Following)	06	14
	Q.1 (B) Medium / Long Questions. (With Internal Option)	08	
II	Q.2 (A) Short / Medium Question of VB.Net Programs. (With Internal Option)	06	14
	Q.2 (B) Medium / Long Questions. (With Internal Option)	08	
III	Q.3 (A) Short / Medium Questions (With Internal Option)	06	14
	Q.3 (B) Medium / Long Questions. (With Internal Option)	08	
IV	Q.4 (A) Short / Medium Questions (With Internal Option)	06	14
	Q.4 (B) Medium / Long Questions. (With Internal Option)	08	
V	Q.5 (A) Short / Medium Questions (With Internal Option)	06	14
	Q.5 (B) Medium / Long Questions of VB.Net / ADO.Net Programs. (With Internal Option)	08	

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Paper Code: CCCS206	**Total Credit :** 4
Title of Paper: Database Management System	

Unit	Description	Weighting
I	Basic Concepts : data, database, database systems, database management systems, instance, schema, Database Applications, Purpose and Advantages of Database Management System (over file systems), View of Data (Data Abstraction, Data Models), Database Languages (DML, DDL), Relational Databases (Tables, DML, DDL)	20%
II	Design Phases, Entity Relational Model (Entity Sets, Relationship Sets, Attributes), Constraints (Mapping Cardinalities, Keys, Participation Constraints), Entity Relationship Diagram, Weak Entity Set, Extended E-R Features (Generalization, Specialization and Aggregation), E-R Notations, Examples of ERD	20%
III	Functional Dependency and Normalization (1NF, 2NF and 3NF)	20%
IV	Structure of Relational Databases (Basic Structure, Database Schema, Types of Keys), Fundamental Relational Algebra Operations (Select, Project, Union, Set Difference, Cartesian Product and Rename Operator), Additional Relational Algebra Operators (Set Intersection, Natural Join, Division Operator, Assignment Operator), Examples	20%
V	Transaction Concept (Transaction State, Basic Definitions, ACID Property), Concurrent Execution (Reasons of Concurrent Execution, Serial and Concurrent Schedule), Serializability (Conflict and View Serializability), Recoverability of Schedules (Recoverable Schedule and Cascade-less Schedule), Lock-based Protocol (Types of Lock and Deadlock Concept), Two-Phase Locking Protocol. Working with MS-Access	20%

Basic Text & Reference Books :-	
1.	Silberschatz, Korth, Sudarshan, “Database System Concepts”, 5th Edition, McGraw Hill Publication
2.	Silberschatz, Korth, Sudarshan, “Database System Concepts”, 5th Edition, McGraw Hill Publication
3.	MS-Access Manuals.

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Paper Code: CCCS206	**Total Credit :** 4
Title of Paper: Database Management System	**Total Marks :** 70 **Time :** 3 Hrs

Unit	Description		Total Marks
I	Q.1 (A) Answer the Following. (Definitions, Blanks, Full Forms, True/False, Match the Following)	06	14
	Q.1 (B) Medium / Long Questions. (With Internal Option)	08	
II	Q.2 (A) Short / Medium Questions. (With Internal Option)	06	14
	Q.2 (B) Medium / Long Questions on E-R Diagram. (With Internal Option)	08	
III	Q.3 (A) Case Study of Normalization (With Internal Option)	06	14
	Q.3 (B) Case Study of Normalization (With Internal Option)	08	
IV	Q.4 (A) Short / Medium Questions (With Internal Option)	06	14
	Q.4 (B) Medium / Long Questions. (With Internal Option)	08	
V	Q.5 (A) Short / Medium Questions (With Internal Option)	06	14
	Q.5 (B) Medium / Long Questions. (With Internal Option)	08	

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Paper Code: CCCS207	**Total Credit :** 6
Title of Paper: Practical Based on CCCS205	**Total Marks :** 70 **Time :** 3 Hrs

Unit	Description	Weighting
	1. Create a Visual Basic .Net program which used to find area of circle. Area = PI * r^2 2. Create a Visual Basic .Net program which used to find area of rectangle. Area of rectangle = l*b 3. Create a Visual Basic .Net program which used to find area of Triangle. Area of Triangle =1/2*Base * Height 4. Create a Visual Basic .Net program which used to find circumference of circle. circumference of circle = 2 x PI * r 5. Create a Visual Basic .Net program which used to find perimeter of rectangle. Perimeter of rectangle=2(l+b) 6. Create a .NET program which used to determine that student is pass or fail. Marks of student input by user. As given below. (using If) 7. Create a Visual Basic .Net program which used to determine that number is positive or negative or zero. Change the backcolor of textbox based on result. 8. Create a Visual Basic .Net program which used to determine that given number is numeric or not? Print result in a label. (Hint: IsNumeric function) 9. Create a Visual Basic .Net program which used to determine that input string is valid date or not. (Hint: IsDate) 10. Create a .NET program which used to display name of day based on input value by user. For example if user enter 1 then display Sun, 2 then Mon as on. Using if statement. 11. Create a .NET program which used to display 1 to 10 in a textbox control Using While Loop 12. Create a Visual Basic .Net program which used to display 1 to 10 in a textbox using various Do loop Display using Do while entry controlled as well as exit controlled Display using Do until entry controlled as well as exit controlled 13. Create a Visual Basic .Net program which will print even and odd numbers up to given number. Also print sum of even numbers and odd numbers. 14. Create an application which allow user to select gender of a student as well as year of student. Display output as given below. Such as Male – SecondYear in a single textbox control. 15. For an Employee table containing EmpNo, EmpName & EmpSal, design a form that allows user to go through all employees using suitable button. Also include buttons that show total number of employees and maximum salary. [Use Data Reader] 16. For students table, containing Roll, Name and Marks, design a form that allows add, modify and delete operations using suitable buttons. Provide navigation facility to access First, Last, Next & Previous records. Also add searching & sorting facilities on specified columns. [Use BindingSource and BindingNavigator feature] 17. Assuming 2 tables – Dept (DeptNo, DeptName) and Employee (EmpNo, EmpName, EmpSal, DeptNo) where each employee belongs to a department. Display list of departments in combo box using complex data binding. When user selects a department,	--

	all employees from that department should be displayed in Grid. Also add a "Print" button that displays the list of employees in selected department using crystal report. [Use BindingSource and BindingNavigator feature]	

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Paper Code: CCCS207	**Total Credit :** 4
Title of Paper: Practical Based on CCCS205	**Total Marks :** 70 **Time :** 3 Hrs

Unit	Description		Total Marks
Unit I to V	Q.1(A) Viva Voce	20	70
	Q.1 (B) Practical	50	

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Paper Code: CCCS208	**Total Credit :** 4
Title of Paper: Practical Based on CCCS206 and Elective Courses	**Total Marks :** 70 **Time :** 3 Hrs

Sample Practical List (MS-Access)

1. Create the tables described below :
   (Assign appropriate Primary Key and Foreign Key constraints).
   (i.) Table Name : **Salespeople**
   - Commission must be between 0 and 1.

SNUM	SNAME	CITY	COMMISSION
1001	Peel	London	.12
1002	Serres	San Jose	.13
1004	Motika	London	.11
1007	Rifkin	Barcelona	.15
1003	Axelrod	New York	.10

(ii) Table Name: Customers

CNUM	CNAME	CITY	RATING	SNUM
2001	Hoffman	London	100	1001
2002	Giovanni	Rome	200	1003
2003	Liu	San Jose	200	1002
2004	Grass	Berlin	300	1002
2006	Clemens	London	100	1001
2008	Cisneros	San Jose	300	1007
2007	Pereira	Rome	100	1004

(iii) Table Name: **Order**

ONUM	AMOUNT	ODATE	CNUM	SNUM
3001	18.69	10/03/1990	2008	1007
3003	767.19	10/03/1990	2001	1001
3002	1900.10	10/03/1990	2007	1004
3005	5160.45	10/03/1990	2003	1002
3006	1098.16	10/03/1990	2008	1007
3009	1713.23	10/04/1990	2002	1003
3007	75.75	10/04/1990	2004	1002
3008	4723.00	10/05/1990	2006	1001
3010	1309.95	10/06/1990	2004	1002
3011	9891.88	10/06/1990	2006	1001

2. Display the structure of (i) Salespeople, (ii) Customers and (iii) Order table.
3. Check how many tables are there in your logins.
4. List all the records of (i) Salespeople, (ii) Customers and (iii) Orders table.
5. Create the tables described below :
   (i.) Table Name : **Dept**

Column Name	Data Type	Size	Description
DEPTNO	NUMBER	3	Primary Key

DNAME	VARCHAR 2	20	
LOCATION	VARCHAR 2	20	Location must be either ‘new york’ or ‘chicago’

(ii). Table Name: **Employee**

Column Name	Data Type	Size	Description
ENO	NUMBER	4	Primary Key
ENAME	VARCHAR2	20	Unique
JOB	VARCHAR2	20	Not Null
MGR	NUMBER	4	
HIREDATE	DATE		
SALARY	NUMBER	6,2	Max. value = 5000
COMMISSION	NUMBER	6,2	
DEPTNO	NUMBER	3	FK Must be either 10 or 20 or 30

6. Insert appropriate records into the above tables.
7. Write queries for the following:
   1. List all records of employee table.
   2. Display eno, ename, job, salary and deptno from employee table.
   3. List eno, ename, job, salary and deptno of all employees belonging to deptNo 10.
   4. List eno, ename, job, salary and deptno of all employees having salary greater than 2200.
   5. List eno, ename, job, salary and deptno of all employees having salary less than 3100or belonging to deptno 30.
   6. List eno, ename, job, salary and deptno of all employees having salary less than 3000 and belonging to deptno 30.
   7. Display ename of all employees whose name starts with ‘M’ or ‘J’.
   8. List eno, ename, job, salary and deptno of all employees having job of ‘clerk’ or ‘manager’.
   9. List eno, ename, job, salary, commission and deptno of all employees who are receiving some commission.
   10. List eno, ename, job, salary and deptno of all employees having salary as 1250 or 2450 or 3000.
   11. List eno, ename, job, salary and deptno of all employees having minimum salary 1500 and maximum salary 3000.
   12. List eno, ename, salary, commission, total salary(salary + commission) of all employees.
   13. List ename and salary of all employees in such a way that the employee who is earning maximum is displayed first.
   14. Display all employees who are clerk or earning salary greater than 2400.
   15. Add one more column ‘city varchar2(5)’ to the employee table.

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Paper Code: CCCS208	**Total Credit :** 4
Title of Paper: Practical Based on CCCS206 and Elective Courses	**Total Marks :** 70 **Time :** 3 Hrs

Unit	Description		Total Marks
Unit I to V	Q.1(A) Viva Voce	20	70
	Q.1 (B) Practical	50	

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Paper Code: CECS205	**Total Credit :** 4
Title of Paper: Internet and Web Programming	**Total Marks :** 70 **Time :** 3 Hrs

Unit	Description	Weighting
I	A brief Introduction to the Internet, Intranet, Extranet. Internet services, Working of Internet, HTTP (Hypertext Transfer Protocol) The World Wide Web, TCP/IP, The Web Browsers, Search Engine and its categories, URL (Uniform Resource Locator), LAN, WAN, MAN. Types of websites. Case Study on Government Websites	20%
II	HTML (Hyper Text Markup Language).Understanding HTML, Create a Web Page, Basic HTML Tags, Linking to other Web Pages, Publishing HTML Pages, Text Alignment and Lists, Text Formatting Fonts Control, E-mail Links and link within a Page	20%
III	Creating Table, Creating HTML Forms, Creating FramesCreating Web Page Graphics, Putting Graphics on a Web Page, Custom Backgrounds and Colors, Creating Animated Graphics	20%
IV	Defining Style with HTML Tags, Features of Style Sheet. Cascading Style Sheets (CSS), Types of CSS. Introduction to JavaScript, Using operators, control statements	20%
V	Java Script: User defined functions, working with built-in objects: window object, document object, string object, array object and date object. Handling events in JavaScript. A brief Introduction to Dreamweaver, Planning and creation of your Site, Site Management	20%

Basic Text & Reference Books :-	
1.	Web Enabled Commercial Applications development using HTML, DHTML, JavaScript, PERL CGI., by Ivan Bayross, BPB Publication
2.	Manuals of Dreamweaver

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Paper Code: CECS205	**Total Credit :** 4
Title of Paper: Internet and Web Programming	**Total Marks :** 70 **Time :** 3 Hrs

Unit	Description		Total Marks
I	Q.1(A) Short / Medium Questions (With Internal Option)	06	14
	Q.1(B) Short / Medium Questions (With Internal Option)	08	
II	Q.2(A) Short / Medium Questions (With Internal Option)	06	14
	Q.2(B) Short / Medium Questions (With Internal Option)	08	
III	Q.3(A) Short / Medium Questions (With Internal Option)	06	14
	Q.3(A) Short / Medium Questions (Based on Table Creation) (With Internal Option)	08	
IV	Q.4(A) Short / Medium Questions (With Internal Option)	06	14
	Q.4(B) Short / Medium Questions (Based on Java Script) (With Internal Option)	08	
V	Q.5(A) Short / Medium Questions (With Internal Option)	06	14
	Q.5(B) Short / Medium Questions (With Internal Option)	08	

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Semester: II

Paper Code: CECS206	**Total Credit :** 4
Title of Paper: Cyber Security	**Total Marks :** 70 **Time :** 3 Hrs

Unit	Description	Weighting
I	Introduction, Cybercrime: Definition and Origins of the Word, Cybercrime and Information Security, Who are Cybercriminals? Classifications of Cybercrimes: E-Mail Spoofing, Spamming, Cyber defamation, Internet Time Theft, Salami Attack/Salami Technique, Data Diddling, Forgery, Web Jacking, Newsgroup Spam/Crimes Emanating from Usenet Newsgroup, Industrial Spying/Industrial Espionage, Hacking, Online Frauds, Pornographic Offenses , Software Piracy, Computer Sabotage, E-Mail Bombing/Mail Bombs, Usenet Newsgroup as the Source of Cybercrimes , Computer Network Intrusions, Password Sniffing, Credit Card Frauds, Identity Theft	20%
II	Introduction, Categories of Cybercrime, How Criminals Plan the Attacks: Reconnaissance, Passive Attack, Active Attacks, Scanning/Scrutinizing gathered Information, Attack (Gaining and Maintaining the System Access), Social Engineering, and Classification of Social Engineering, Cyberstalking: Types of Stalkers, Cases Reported on Cyberstalking, How Stalking Works? Real-Life Incident of Cyberstalking, Cybercafe and Cybercrimes, Botnets: The Fuel for Cybercrime, Botnet, Attack Vector Cloud Computing: Why Cloud Computing? , Types of Services, Cybercrime and Cloud Computing.	20%
III	Introduction, Proliferation of Mobile and Wireless Devices, Trends in Mobility, Credit Card Frauds in Mobile and Wireless Computing Era: Types and Techniques of Credit Card Frauds, Security Challenges Posed by Mobile Devices, Registry Settings for Mobile Devices Authentication Service Security: Cryptographic Security for Mobile Devices, LDAP Security for Hand-Held Mobile Computing Devices, RAS Security for Mobile Devices, Media Player Control Security, Networking API Security for Mobile Computing Applications, Attacks on Mobile/Cell Phones: Mobile Phone Theft, Mobile Viruses, Mishing, Vishing, Smishing, Hacking Bluetooth, Mobile Devices: Security Implications for Organizations: Managing Diversity and Proliferation of Hand-Held Devices, Unconventional/Stealth Storage Devices Threats through Lost and Stolen Devices, Protecting Data on Lost Devices, Educating the Laptop Users	20%
IV	Introduction, Proxy Servers and Anonymizers, Phishing: How Phishing Works? Password Cracking: Online Attacks, Offline Attacks, Strong, Weak and Random Passwords, Random Passwords, Keyloggers and Spywares: Software Keyloggers, Hardware Keyloggers, Antikeylogger, Spywares, Virus and Worms: Types of Viruses, Trojan Horses and Backdoors: Backdoor, How to Protect from Trojan Horses and Backdoors, Steganography: Steganalysis, DoS and DDoS Attacks: DoS Attacks, Classification of DoS Attacks, Types or Levels of DoS Attacks, Tools Used to Launch DoS Attack, DDoS Attacks, How to Protect from DoS/DDoS Attacks, SQL Injection: Steps for SQL Injection Attack, How to Avoid SQL Injection Attacks	20%
V	Introduction, Why Do We Need Cyberlaws: The Indian Context, The Indian IT Act: Admissibility of Electronic	20%

	Records: Amendments made in the Indian ITA 2000, Positive Aspects of the ITA 2000, The Weak Areas of the ITA 2000, Challenges to Indian Law and Cybercrime Scenario in India, Consequences of Not Addressing the Weakness in Information Technology Act Amendments to the Indian ITA 2008: Overview of Changes Made to the Indian IT Act, Cybercafe-Related Matters Addressed in the Amendment to the Indian IT Act, State Government Powers Impacted by the Amendments to the Indian IT Act, Impact of IT Act Amendments Impact Information Technology Organizations, Cybercrime and Punishment, Cyberlaw, Technology and Students: Indian Scenario	

Basic Text & Reference Books :-	
1.	“Cyber Security Understanding Cyber Crimes, Computer Forensics and Legal Perspectives”, Nina Godbole, Sunit Belapur, Wiley India Publications, April, 2011
2.	"Cyberlaw: The Indian Perspective" by Pavan Duggal, Saakshar Law Publications, Delhi.
3.	Indian Legislation On Cyber Crime, S.R. Sharma, Anmol Publications
4.	Cyber Laws, Yatindra Singh, Universal Law Publishing Co
5.	The Information Technology Act, 200 – Universal Law Publishing Co

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Paper Code: CECS206	**Total Credit :** 4
Title of Paper: Cyber Security	**Total Marks :** 70 **Time :** 3 Hrs

Unit	Description		Total Marks
I	Q.1(A) Short / Medium Questions (With Internal Option)	06	14
	Q.1(B) Short / Medium Questions (With Internal Option)	08	
II	Q.2(A) Short / Medium Questions (With Internal Option)	06	14
	Q.2(B) Short / Medium Questions (With Internal Option)	08	
III	Q.3(A) Short / Medium Questions (With Internal Option)	06	14
	Q.3(A) Short / Medium Questions (With Internal Option)	08	
IV	Q.4(A) Short / Medium Questions (With Internal Option)	06	14
	Q.4(B) Short / Medium Questions (With Internal Option)	08	
V	Q.5(A) Short / Medium Questions (With Internal Option)	06	14
	Q.5(B) Short / Medium Questions (With Internal Option)	08	

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Paper Code: CECS207	**Total Credit :** 3
Title of Paper: MIS and ERP	**Total Marks :** 70 **Time :** 3 Hrs

Unit	Description	Weighting
I	Overview of Information Systems, Information Systems Hierarchy, Types of Information Systems like OAS, TPS, DSS, KMS etc... IT in Business Intelligence, Overview of Data Warehousing, Overview of Data Mining, Overview of DR (Disaster Recovery), BCP (Business Continuity Planning)	20%
II	Enterprise Resource Planning (ERP) : introduction, history, advantages Enterprise : introduction, business modeling, integrated data model, integrated management information Basic concepts of ERP.Risks and benefits of ERP	20%
III	Introduction to MRP, MRP-II and ERP Business Process Reengineering (BPR) Data warehousing, data mining and Online Analytical Processing (OLAP). Product Life Cycle Management (PLM), Supply Chain Management (SCM), Customer Relationship Management (CRM)	20%
IV	Marketplace : overview, dynamics, changing ERP market Indian ERP Scenario. Functional modules of ERP software Integration of ERP, SCM and CRM	20%
V	ERP package selection ERP Implementation basics, ERP Implementation Life Cycle	20%

Basic Text & Reference Books :-	
1.	Alexis Leon : Enterprise Resource Planning, Tata McGraw-Hill, New Delhi 1st and 2nd editions.
2.	Internet based resource.

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Paper Code: CECS207	**Total Credit :** 4
Title of Paper: MIS and ERP	**Total Marks :** 70 **Time :** 3 Hrs

Unit	Description		Total Marks
I	Q.1(A) Short / Medium Questions (With Internal Option)	06	14
	Q.1(B) Short / Medium Questions (With Internal Option)	08	
II	Q.2(A) Short / Medium Questions (With Internal Option)	06	14
	Q.2(B) Short / Medium Questions (With Internal Option)	08	
III	Q.3(A) Short / Medium Questions (With Internal Option)	06	14
	Q.3(A) Short / Medium Questions (With Internal Option)	08	
IV	Q.4(A) Short / Medium Questions (With Internal Option)	06	14
	Q.4(B) Short / Medium Questions (With Internal Option)	08	
V	Q.5(A) Short / Medium Questions (With Internal Option)	06	14
	Q.5(B) Short / Medium Questions (With Internal Option)	08	

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Paper Code: CECS208	**Total Credit :** 4
Title of Paper: Data Communication and Computer Network	**Total Marks :** 70 **Time :** 3 Hrs

Unit	Description	Weighting
I	Introduction- The telephone system, Standards organizations, History and Applications of data communications; Fundamentals of data communications- Signal representation, digital and analog signals, modems, data codes, Unicode, telecommunications and voice communications.	20%
II	Conducted media-Twisted pair, coaxial and fiber-optic cable, Radiated media- broadcast radio, microwave, cellular radio, SS radio, Media selection- cost, speed, errors and security, Computers and terminals, Network configurations, Terminal interfaces; Multiplexers- FDM, TDM, STDM, WDM, FDMA, TDMA, CDMA, multiplexer configurations, Concentrators, Front-end processors, Controllers, Protocol converters, Ancillary equipment.	20%
III	Analog modulation- AM, FM, PM, QAM, Digital modulation- digital to analog, analog to digital and digital to digital modulation, Transmission directions-simplex, half-duplex, full-duplex, Modes- serial, parallel, Synchronization- asynchronous, synchronous, Errors- detection, correction, prevention, Data Transmission- ISDN, DSL, LMDS Protocols –OSI, Wide Area Network protocols, Internet protocols, Local Area Network protocols	20%
IV	Switched circuits- DEMARC, LEC, VPN, ISDN, Dedicated circuits- voice grade, wideband, T-carrier, DSL, SONET, Fast packet services- X.25, Frame relay, ATM, SMDS, AIN, MPLS.	20%
V	Physical security, Software security, Digital signatures, Security issues. Network management- objectives, meeting the objectives, Management of wireless networks, Network monitoring tools.	20%

Basic Text & Reference Books :-	
1.	Business Data Communications: Shelly / Cashman / Serwatka (Thomson Publishers)
2.	Data Communication and Networking : Dr. M. Jain, Satish Jain (BPB)
3.	Data Communication and Computer Networks : Brijendra Singh (PHI)

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Paper Code: CECS208	**Total Credit :** 4
Title of Paper: Data Communication and Computer Network	**Total Marks :** 70 **Time :** 3 Hrs

Unit	Description		Total Marks
I	Q.1(A) Short / Medium Questions (With Internal Option)	06	14
	Q.1(B) Short / Medium Questions (With Internal Option)	08	
II	Q.2(A) Short / Medium Questions (With Internal Option)	06	14
	Q.2(B) Short / Medium Questions (With Internal Option)	08	
III	Q.3(A) Short / Medium Questions (With Internal Option)	06	14
	Q.3(A) Short / Medium Questions (With Internal Option)	08	
IV	Q.4(A) Short / Medium Questions (With Internal Option)	06	14
	Q.4(B) Short / Medium Questions (With Internal Option)	08	
V	Q.5(A) Short / Medium Questions (With Internal Option)	06	14
	Q.5(B) Short / Medium Questions (With Internal Option)	08	