

**PGDCSA**  
**Course Pattern - 2016 Set**

<b>Sem.</b>	<b>Code</b>	<b>Course</b>	<b>Hrs</b>	<b>Crs</b>
<b>I</b>	16DCA1101	Foundations of Computer Science	8	5
	16DCA1102	Office Automation	8	5
	16DCA1103	Visual Programming	8	5
	16DCA1104	Software Lab - I (Visual Programming and Office Automation)	6	3
<i><b>Total for Semester I</b></i>			<b>30</b>	<b>18</b>
<b>II</b>	16DCA2105	Recent Trends in IT	8	5
	16DCA2106	Multimedia	8	5
	16DCA2107	Web Design	8	5
	16DCA2108	Software Lab - II (Multimedia and Web Design)	6	3
<i><b>Total for Semester II</b></i>			<b>30</b>	<b>18</b>
<i><b>Total for all Semesters</b></i>			<b>60</b>	<b>36</b>

**Sem. I**  
**16DCA1101**

**Hours/Week : 8**  
**Credits : 5**

## **FOUNDATIONS OF COMPUTER SCIENCE**

### **Assurance of Learning**

- Understand the basic terminology in the digital logic used in computers.
- Explore the various types of Operating Systems.
- Understand the Database Management System and Internet Concepts.
- Identify the various types of Networks.

### **Unit I**

**12 Hrs**

**DIGITAL COMPUTER FUNDAMENTALS:** Introduction - Number Systems - Conversion Between Number Bases - Octal Arithmetic - Hexadecimal Arithmetic - BCD - The ASCII Code. **DIGITAL LOGIC:** The Logic Gates - Boolean Algebra - NOR Gates - NAND Gates.

### **Unit II**

**12 Hrs**

**DATABASE:** Introduction- Data, Information And Knowledge - Database: Definition - Logical Data Concepts - Physical Data Concepts - Database Management System - DBMS Architecture.

### **Unit III**

**12 Hrs**

**OPERATING SYSTEMS:** Introduction - Operating System Definition - Evolution of Operating System - Types of Operating System - Functions of Operating Systems - Process Management - Memory Management - File Management - Device Management - Security Management - User Interface - Modern Operating Systems.

### **Unit IV**

**12 Hrs**

**NETWORKS:** Data Communication - Transmission Media - Computer Network: LAN - MAN - WAN - Network Topologies: Bus - Ring - Star - Tree - Mesh - Communication Protocols: OSI Model - Categories of The OSI Layers - Network Devices.

### **Unit V**

**12 Hrs**

**INTERNET:** Introduction - Evolution of Internet - Basic Internet Terms - Internet Applications: Email - FTP - Video Conferencing - Newsgroups - Mailing List - Search Engines - Data Over Internet – Internet and Viruses.

### **Text Book**

1. ITL Education Solutions Limited, "Introduction Of Computer Science", Pearson Education, India, 2<sup>nd</sup> Ed., 2011.

### **Book for Reference**

1. ITL Education Solutions Limited, "Introduction To Information Technology", Pearson Education, India, 2<sup>nd</sup> Ed., 2012.

**Sem. I**  
**16DCA1102**

**Hours/Week : 8**  
**Credits : 5**

## **OFFICE AUTOMATION**

### **Assurance of Learning**

- Gain skills to create word document.
- Design relational databases using Access.
- Send and Receive email using outlook.
- Perform financial analysis using worksheets.
- Design presentation using PowerPoint.

### **Unit I**

**12 Hrs**

**WORD PROCESSOR:** Speed Techniques for Using Word - Laying Out Text and Pages - Word Styles - Desktop Publishing with Word - Tools for Reports and Scholarly Papers.

### **Unit II**

**12 Hrs**

**SPREADSHEET:** Up and Running with Excel - Refining Your Worksheet - Formulas and Functions for Crunching Numbers - Analyzing Data.

### **Unit III**

**12 Hrs**

**PRESENTATION:** Creating a New Presentation - Hiding and Displaying the Slides Pane and Notes Pane - Selecting, Moving, and Deleting Slides - Fashioning a Look for Your Presentation - Entering the Text - Making Your Presentations Livelier - Delivering a Presentation.

### **Unit IV**

**12 Hrs**

**ACCESS:** Introducing Access - Building Your Database Tables - Entering the Data - Sorting, Querying, and Filtering for Data - Presenting Data in a Report.

### **Unit V**

**12 Hrs**

**OUTLOOK:** Getting Acquainted With Outlook - Maintaining The Contacts Folder - Handling The E-Mail - Tasks, Reminders And Notes.

### **Text Book**

1. Peter Weverka, "Office 2010 All-In-One for Dummies", Wiley Publishing, Inc., Indianapolis, Indiana, 2010.

### **Book for Reference**

1. Bittu Kumar, "Microsoft Office 2010", V& S Publishers, New Delhi, 2011.

**Sem. I**  
**16DCA1103**

**Hours/Week : 8**  
**Credits : 5**

## **VISUAL PROGRAMMING**

### **Assurance of Learning**

- Design, create, build, and debug Visual Basic .NET applications.
- Explore different controls in the Visual Basic .NET Integrated Development Environment
- Write Windows applications using forms, controls, and events.

### **Unit I**

**12 Hrs**

**.NET FRAMEWORK AND VB.NET:** Evolution of the .NET Framework – Overview of the .Net Framework – VB.NET – Simple VB.Net Program. **VARIABLES, CONSTANTS AND EXPRESSIONS:** Variable Declarations and Initializations – Value Data Types – Reference Data Types – Boxing and Unboxing – Arithmetic Operators.

### **Unit II**

**12 Hrs**

**BASIC CONTROLS:** Textbox Control – Label Control – Button Control- Radio Button Control – Check Box Control – Group Box Control – Listbox Control – Checked List Box Control – Combo box Control. **CONTROL STATEMENTS :** If Statements – Select Case Statement – While Statement – Do Statement – For Statement.

### **Unit III**

**12 Hrs**

**METHODS AND ARRAYS:** Types of Methods– One Dimensional Array – Multi Dimensional Arrays. Timer Control – ProgressBar Control – LinkLabel Control – Panel Control – TreeView Control.

### **Unit IV**

**12 Hrs**

**ADDITIONAL CONTROLS:** Menu – SDI & MDI – Dialog Boxes – Toolbar –StatusBar.

### **Unit V**

**12 Hrs**

**DATABASE CONNECTIVITY:** Advantages Of ADO.NET – Managed Data Providers – Developing a Simple ADO.NET Based Application – Retrieving Data From Tables – Table Updating.

### **Text Book**

1. C. Muthu, "Visual Basic.NET", Vijay Nicole Imprints Pvt.Ltd., 2<sup>nd</sup> Ed., 2008.

### **Book for Reference**

1. Peter Aitken's, "Visual Basic .NET Programming" Dream Tech Press., 1<sup>st</sup> Ed., 2002.

**Sem. I**  
**16DCA1104**

**Hours/Week : 6**  
**Credits : 3**

**Software Lab - I**  
**VISUAL PROGRAMMING AND OFFICE AUTOMATION**

**Visual Programming**

1. Simulate a Simple Calculator
2. Design a Bio – Data Application Form
3. Develop a Notepad Editor using Dialog Control
4. Develop a College Admission Form Using MDI
5. Develop an Student Information System Using ADO.NET

**Office Automation**

6. Using Word Processor, perform the following operations – Spell Check, Table Creation, and Mail Merge.
7. i) Manipulate all the basic functions in spreadsheet.  
ii) Draw different types of charts in spreadsheet.
8. Create a simple slide show with the help of Presentation.
9. Create a student database.
10. Add an e-mail account using Outlook.

**Sem. II**  
**16DCA2105**

**Hours/Week : 8**  
**Credits : 5**

### **RECENT TRENDS IN IT**

#### **Assurance of Learning**

- Explore the different technologies in the current scenario
- Gain knowledge on the concepts of Mobile Computing, Cloud Computing, Big Data and Social Networking
- Gain idea about the Ethical Hacking

#### **Unit I**

**12Hrs**

**MOBILE COMPUTING:** Introduction – Technical and Other Limitations of Mobile Computing – Wireless Telephony – Cellular Concept- Multiple Access Techniques for Cellular System – Types of Spread Spectrum – Handoff.

#### **Unit II**

**12Hrs**

**CLOUD COMPUTING:** Cloud Computing Architecture – Introduction – Cloud Reference Model – Types of Clouds – Types of Clouds – Economics of the Cloud – Open Challenges.

#### **Unit III**

**12Hrs**

**BIG DATA:** Big Data and its Important - Convergence of Key Trend - Relatively Speaking – A Wide Variety of Data – The Expanding Universe of Unstructured Data – Setting the Tone at the Top.

#### **Unit IV**

**12Hrs**

**SOCIAL NETWORKING:** Introduction –Social Media Marketing – Big Brands and Social Media-Small Business and Social Media – Twitter and Micro blogging Introduction – History – Protocol – Clients – Tips.

#### **Unit V**

**12Hrs**

**ETHICAL HACKING:** Ethics and Legality - Defining , Understanding the Purpose of Ethical Hacking - An Ethical Hacker's Skill Set - Ethical Hacking Terminology - The Phases of Ethical Hacking - Identifying Types of Hacking Technologies and Ethical Hacks - Understanding Testing Types - To Be Ethical - Performing a Penetration Test - Keeping It Legal.

#### **Text Books**

1. Rajesh Kumar Maurya, “Mobile Computing” , Global Academic Publishers, New Delhi, 1<sup>st</sup> Ed., 2012. Unit: I
2. Rajkumar Buuyya, Christian Vecchiola, Thamari Selvi ,”Mastering Cloud Computing”, Tata McGraw Hill , New Delhi, 1<sup>st</sup> Ed., 2013. Unit: II
3. Michael Minelli, Michele Chambers, Ambiga Dhiraj, “Big Data Analytics , Emerging Business Intelligence and Analytic Trends for Today's businesses”, Wiley India Pvt. Ltd., New Delhi, 2014. Unit: III

4. Den Zarrella “The Social Media Marketing Book”, O’Reilly Media Inc, 1<sup>st</sup> Ed., 2009. Unit: IV
5. Kimberly Graves, “Certified Ethical Hacker Study Guide” ,Wiley publishing Inc, 2010. Unit: V

**Books for Reference**

1. Asoke K Taukder, Roopa R Yavagal, "Mobile Computing", Tata McGraw Hill Pub. Co., New Delhi, 2005.
2. George Reese, “Cloud Application Architectures”, O’Reilly Media, Inc, 1<sup>st</sup> Ed., 2009.
3. Alan Nugent, Dr, Ferm Halper, Marcia Kaufman , Alan Nugent, Dr, Ferm Halper, Marcia Kaufman, "Big Data for Dummies”, Judith Hurwitz, , Wiley Publications, 2013.
4. William Stallings, "Cryptography and network Security – Principles and Practices”, Prentice Hall (Pearson Education), 4<sup>th</sup> Ed., 2006.

Sem.II  
16DCA2106

Hours/Week : 8  
Credits : 5

## MULTIMEDIA

### Assurance of Learning

- Describe different realizations of multimedia tools and the way in which they are used
- Plan experiments to test user perception of multimedia tools
- State the properties of different media streams; compare and contrast different tools such as Coral Draw, Photoshop and Flash

### Unit I

12Hrs

**INTRODUCTION:** Multimedia – Multimedia Changing the World – Multimedia PC. **TAXONOMY OF MULTIMEDIA OBJECTS:** Text – Graphics – Sound – Video – Animation. **SURVEY OF MULTIMEDIA APPLICATIONS:** Business and Industry – Education – Entertainment – Government and Politics – Medicine and Nursing – Application Development Packages.

### Unit II

12Hrs

**SELECTING MULTIMEDIA HARDWARE:** Competing Multimedia Standards – Multimedia Computer Components – Multimedia Computer Buyer's Checklists – Configuring a Multimedia Computer. **EMERGING TECHNOLOGY:** Digital Video – HDTV – Speech Recognition – Internet Phone Services – Wireless Communications.

### Unit III

12Hrs

**CORELDRAW:** The CorelDraw Screen – Property Bar - Views. **DRAWING AND SELECTING:** Getting Started with the Project – Working with Objects Shapes – Adding Effects to Objects. **WORKING WITH TEXT:** The Text Tool – Formatting Text – The Text Editor. **PAGE LAYOUT AND BACKGROUND:** Changing the Page Size – Page Frame – Inserting Pages – Rulers.

### Unit IV

12Hrs

**PHOTOSHOP:** Fundamentals – Opening and Importing Images – Resolution – Models and Color Spaces – Layers. **PAINTING PIXELS:** The Painting Tools – Erasing – Fills – Type. **SELECTION AND ALLIED OPERATIONS:** Marquee selection and cropping – Lasso Selection – Paths – Combining and Transforming Selections.

### Unit V

12Hrs

**FLASH:** Animation with Interacting – Basic Concepts – Drawing – Lines and Shapes – Strokes and Fill – Shapes and Brushes – Selection –Transformation and Reshaping – Importing Artwork and Manipulating Images. **ANIMATION:** Animating One Frame at a Time – Motion Tweening – Symbols and Instances – Shape Tweening – Sound.

### Text Books

1. Fred T.Hofstetter "Multimedia Literacy", Tata McGraw Hill Publishing Company Limited, 3<sup>rd</sup> Ed., 2005. Units: I & II
2. Vikas Gupta "Multimedia and Web Design" Dreamtech Press, 2007. Unit: III
3. Nigel Chapman and Jenny Chapman, "Practical Multimedia". Wiley – Dream Tech Pvt. Ltd, 2<sup>nd</sup> Ed., 2003. Units: IV & V

**Books for Reference**

1. Ralf Steinmetz, Klara Nahrstedt, F. Koegel Buford “Multimedia Fundamentals”, Pearson Education, 1<sup>st</sup> Ed., 2004.
2. Thiagarajan and Anbumani, “Flash MX 2004”, Tata McGraw Hill, New Delhi, 2004.
3. Laurie Ulrich Fuller and Robert C. Fuller, “Photoshop CS3 Bible”, Willey India Pvt. Ltd, 2007.

**Sem. II**  
**16DCA2107**

**Hours/Week : 8**  
**Credits : 5**

## **WEB DESIGN**

### **Assurance of Learning**

- Gain knowledge on HTML5 structure for presentation of information in web pages.
- Incorporate aesthetics and formal concepts of layout and organization to design websites that effectively communicate using visual elements.
- Apply HTML5 and CSS3 standards to build dynamic websites.

### **Unit I**

**12 Hrs**

**INTRODUCING HTML5:** A Basic HTML5 Template - Doctype - HTML Element - Head Element - Defining Page's Structure - Header Element - Section Element - Article Element - Nav Tag Element - Aside Element - Footer Element.

### **Unit II**

**12 Hrs**

**HTML5 SEMANTICS:** A New Perspective on Types of Content - The Document Online - New Elements in HTML5. **HTML5 TABLES:** Table Attributes and Elements.

### **Unit III**

**12 Hrs**

**HTML5 FORMS:** HTML5 Attributes - HTML5 Form Input Types - New Form Controls in HTML5 - Changes to Existing Form Controls and Attributes. **HTML5 AUDIO AND VIDEO:** Video Container Formats - Video Codecs - Audio Codecs - The Markup Attributes - Creating Custom Controls.

### **Unit IV**

**12 Hrs**

**INTRODUCING CSS3:** CSS3 Selectors - CSS3 Colors- Drop Shadows - Text Shadow. **CSS3 GRADIENTS:** Linear Gradients - Radial Gradients - Repeating Gradients.

### **Unit V**

**12 Hrs**

**CSS TRANSFORMS AND TRANSITIONS:** Transforms - Transitions - Animations - Embedded Fonts - CSS3 Multicolumn Layouts - SVG and Drag and Drop.

### **Text Book**

1. Alexis Goldstein, Louis Lazaris, Estelle Weyl, "HTML5 & CSS3 for the Real World", Site Point Pvt. Ltd., 2011.

### **Books for Reference**

1. Brian P. Hogan, "HTML5 & CSS3 Develop with Tomorrow's Standards Today", Pragmatic Programmers, LLC, 2010.
2. Elizabeth Castro and Bruce Hyslop "HTML5 and CSS3", Visual QuickStart Guide, Peachpit Press, USA, 7<sup>th</sup> Ed., 2012.

**Sem. II**  
**16DCA2108**

**Hours/Week : 6**  
**Credits : 3**

**Software Lab - II**  
**MULTIMEDIA AND WEB DESIGN**

**Photoshop**

1. Create an image using different properties
2. Design pictures using layers
3. Design our college ID card

**Flash**

4. Move a Ball
5. Create an Advertisement

**HTML5**

6. Usage of New Semantic Elements
7. Embedding audio and video files into your HTML page
8. Create Form Input and Validation
9. Designing CSS style sheet using gradients
10. Design CSS style sheet to define settings for heading, body, table and links