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**PUNJABI UNIVERSITY, PATIALA**

**OUTLINES OF TESTS,  
SYLLABI AND COURSES OF READINGS**

**FOR**

**PGDCA  
(SEMESTER SYSTEM)**

**SEMESTER I & II**

**(Sessions 2022-23 & 2023-2024)**

**PROGRAM CODE - PDCA2PUP**

**(As per RUSA Guidelines)**



**PUNJABI UNIVERSITY,  
PATIALA 147002**

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**SYLLABI, OUTLINES OF PAPERS AND TESTS FOR**

<b>PGDCA Semester I</b> <b>Sessions 2022-23&amp; 2023-2024</b> <i>PROGRAM CODE - PDCA1PUP</i>				
Code No.	Title of Paper	Lectures per Week	Univ. Exam. Marks	Int. Ass. Marks
<i>PDCA1101T</i>	Introduction to Information Technology and E-Commerce	5	70	30
<i>PDCA1102T</i>	Computer Programming Using C	5	70	30
<i>PDCA1103T</i>	Windows Operating System and Office Automation	5	70	30
<i>PDCA1104L</i>	Programming Lab-I (Based on paper PGDCA-112)	8	70	30
<i>PDCA1105L</i>	Programming Lab-II (Based on paper PGDCA-113)	8	70	30
<b>PGDCA Semester II</b> <b>Sessions 2022-23&amp; 2023-2024</b>				
Code No.	Title of Paper	Lectures per Week	Univ. Exam. Marks	Int. Ass. Marks
<i>PDCA1201T</i>	Database Management System	5	70	30
<i>PDCA1202T</i>	Programming using Python	5	70	30
<i>PDCA1203T</i>	Web Technology	5	70	30
<i>PDCA1204L</i>	Programming Lab-III (Based on paper PGDCA-122)	8	70	30
<i>PDCA1205L</i>	Programming Lab-IV (Based on paper PGDCA-123)	8	70	30

**CONTINUOUS ASSESSMENT (THEORY PAPERS)**

1.	Two tests will be conducted during the Semester. Both the tests will be considered for assessment.	:	60% of the marks allotted for Continuous Assessment
2.	Assignment/Quizzes	:	20% of the marks allotted for Continuous Assessment
3.	Attendance	:	10% of the marks allotted for Continuous Assessment.
4.	Class Participation and behavior	:	10% of the marks allotted for Continuous Assessment.

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**PO2A1101T : Introduction to Information Technology and E-Commerce****Maximum Marks: 70**  
**Minimum Pass Marks: 35%****Maximum Time: 3 Hrs.**  
**Lectures to be delivered: 45-55**

**Course Objective:** This course is meant to prepare students for work in industry in the information processing fields as well as prepare students for business and computer-related courses. On completion of this course, the students will be able to:

- Have basic knowledge of computer hardware and software;
- Understand business areas to which computers may be applied;
- Provide an introduction to business organisation and information systems;
- Develop the skills in communication, verbal and written, which play an important part in business computing and information processing;

**Course Content****SECTION A**

Computer Fundamentals: Block structure of a computer, characteristics of computers, problem solving with computers, generations of computers, Classification of computers on the basis of capacity, purpose, and generation. Number System: Decimal, hexadecimal, and octal systems, conversion from one system to the other. Binary Arithmetic: Addition, subtraction and multiplication. Memory types: Magnetic core, RAM, ROM, Secondary, Cache, Input and Output Units: functional characteristics; Overview of storage devices: floppy disk, hard disk, compact disk, tape; Printers: Impact, non-impact. Graphical I/O devices: Light pen, joystick, Mouse, Touch screen; OCR, OMR, MICR

**SECTION B**

Computer languages: Machine language, assembly language, high level language, 4GL. Compiler, Interpreter, Assembler, System Software, Application Software. Data Network and Communication: Network types, Transmission Modes, Network topologies, Internet: Evolution of Internet, E-mail WWW, FTP, TELNET, IRC, Video Conferencing. E-Commerce: The scope of E commerce, Electronic Market, Electronic Data Interchange, Internet Commerce, Benefits and limitations of E-Commerce, Produce a generic framework for E-Commerce, Architectural framework of Electronic Commerce, Web based E Commerce Architecture.

**Pedagogy:**

The Instructor is expected to use leading pedagogical approaches in the class room situation, research-based methodology, innovative instructional methods, extensive use of technology in the class room, online modules of MOOCS, and comprehensive assessment practices to strengthen teaching efforts and improve student learning outcomes.

The Instructor of class will engage in a combination of academic reading, analyzing case studies, preparing the weekly assigned readings and exercises, encouraging in class discussions, and live project based learning.

**Case/Class Discussion Assignments:**

Students will work in groups of up to four to prepare a brief write-up due before the start of each class covering the case study or class material to be discussed in the next session. Questions may include a quantitative analysis of the problem facing the decision-maker in the case.

**Class Participation:**

Attendance will be taken at each class. Class participation is scored for each student for each class

**Text and Readings:** Students should focus on material presented in lectures. The text should be used to provide

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further explanation and examples of concepts and techniques discussed in the course:

- P. K. Sinha and P. Sinha, "Foundation of Computers", BPB.
- D. H. Sanders, "Computers Today", McGraw Hill.
- SatishJain, "Information Technology", BPB.
- David Cyganski, John A. Orr, "Information Technology Inside and Outside" Pearson Education.
- V. Rajaraman, "Fundamentals of Computers" Prentice Hall of India.
- B. Ram, "Computer Fundamentals", Wiley.
- Elias. M. Awad, " Electronic Commerce", Prentice-Hall of India Pvt Ltd.
- Ravi Kalakota, Andrew B. Whinston, "Electronic Commerce-A Manager's guide", Addison-Wesley.

#### **Scheme of Examination**

- English will be the medium of instruction and examination.
- Written Examinations will be conducted at the end of each Semester as per the Academic Calendar notified in advance
- Each course will carry 100 marks of which 30 marks shall be reserved for internal assessment and the remaining 70 marks for written examination to be held at the end of each semester.
- The duration of written examination for each paper shall be three hours.
- The minimum marks for passing the examination for each semester shall be 35% in aggregate as well as a minimum of 35% marks in the semester-end examination in each paper.
- A minimum of 75% of classroom attendance is required in each subject.

#### **Instructions to the External Paper Setter**

The question paper will consist of three Sections: A, B and C. Sections A and B will have four questions each from the respective section of the syllabus and will carry 10.5 marks for each question. Section C will consist of 7-15 short answer type questions covering the entire syllabus uniformly and will carry a total of 28 marks.

#### **Instructions for candidates**

- Candidates are required to attempt five questions in all, selecting two questions each from section A and B and compulsory question of section C.
- Use of non-programmable scientific calculator is allowed.

**POCA1102T : Computer Programming Using C****Maximum Marks: 70****Maximum Time: 3 Hrs.****Minimum Pass Marks: 35%****Lectures to be delivered: 45-55**

**Course Objective:** This course is designed to explore computing and to show students the art of computer programming. Students will be able to learn Understand programming using C concepts for writing good programs. On completion of this course, the students will be able to

- Write, compile and debug programs in C language.
- Use different data types, operators and console I/O function in a computer program.
- Design programs involving decision control statements, loop control statements and case control structures.
- Understand the implementation of arrays, pointers and functions and apply the dynamics of memory by the use of pointers.
- Comprehend the concepts of structures and classes: declaration, initialization and implementation.
- Apply basics of object oriented programming, polymorphism and inheritance.
- Use the file operations, character I/O, string I/O, file pointers, pre-processor directives and create/update basic data files.

**Course Content****SECTION A**

Problem Solving with Computers, c character set, identifier, constants, variables, rules for defining variables, Data types, operators: arithmetic, relational, logical, comma, conditional, assignment, arithmetic expressions, input and output statements, assignment statements.

Decision statement: if, if else, nested if, switch statement, break statement, continue statement, go to statement.

Loops and control statements: While loop, for loop and do-while loop, nested loops

Arrays: one dimensional Array, multi-dimensional arrays, array initialization.

**SECTION B**

Pointers: Pointer data type, pointers and arrays, pointers and functions.

Functions: definition, declaration, function prototype, types of functions, call by value, call by reference, recursion, processing character strings.

Structures: Using structures, arrays of structures and arrays in structures, union

Files in C: Sequential files, random access files, Unformatted files, Text files, binary files.

**Pedagogy:**

The Instructor is expected to use leading pedagogical approaches in the class room situation, research-based methodology, innovative instructional methods, extensive use of technology in the class room, online modules of MOOCS, and comprehensive assessment practices to strengthen teaching efforts and improve student learning outcomes.

The Instructor of class will engage in a combination of academic reading, analyzing case studies, preparing the weekly assigned readings and exercises, encouraging in class discussions, and live project based learning.

**Case/Class Discussion Assignments:**

Students will work in groups of up to four to prepare a brief write-up due before the start of each class covering the case study or class material to be discussed in the next session. Questions may include a quantitative analysis of the problem facing the decision-maker in the case.

**Class Participation:**

Attendance will be taken at each class. Class participation is scored for each student for each class

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**Text and Readings:** Students should focus on material presented in lectures. The text should be used to provide further explanation and examples of concepts and techniques discussed in the course:

- E. Balagurusamy, "Programming in C", Tata McGraw Hill.
- Kamthane, "Programming with ANSI and Turbo C", Pearson Education
- Rajaraman, V, "Fundamentals of Computers", PHI
- Kanetkar, "Let Us C", BPB Publications.

**Scheme of Examination**

- English will be the medium of instruction and examination.
- Written Examinations will be conducted at the end of each Semester as per the Academic Calendar notified in advance
- Each course will carry 100 marks of which 30 marks shall be reserved for internal assessment and the remaining 70 marks for written examination to be held at the end of each semester.
- The duration of written examination for each paper shall be three hours.
- The minimum marks for passing the examination for each semester shall be 35% in aggregate as well as a minimum of 35% marks in the semester-end examination in each paper.
- A minimum of 75% of classroom attendance is required in each subject.

**Instructions to the External Paper Setter**

The question paper will consist of three Sections: A, B and C. Sections A and B will have four questions each from the respective section of the syllabus and will carry 10.5 marks for each question. Section C will consist of 7-15 short answer type questions covering the entire syllabus uniformly and will carry a total of 28 marks.

**Instructions for candidates**

- Candidates are required to attempt five questions in all, selecting two questions each from section A and B and compulsory question of section C.
- Use of non-programmable scientific calculator is allowed.

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## PDCAI103IT: Windows Operating System and Office Automation

**Maximum Marks: 70**

**Minimum Pass Marks: 35%**

**Maximum Time: 3 Hrs.**

**Lectures to be delivered: 45-55**

**Course Objective:** This course is designed to explore basics of Windows operating system and its installation process. Students will be able to learn the concepts of MS Office and its utilities. On completion of this course, the students will be able to

- Install and maintain operating system and associated devices and drivers
- Create and edit word documents using advanced features
- Create and manipulate excel sheets
- Explore the use of power point presentations and the impact of multimedia

### Course Content

#### **SECTION A**

Windows Operating System: features, history, hardware requirements and its installation SystemGraphics interface: Benefits, Screen attributes: icons and bars. Mouse vs. keyboard input, Features and accessories of the Windows program. Objects and their properties.

Folder and file management: Working with files, Naming files, Navigate to Folders with Windows Explorer, Copying and moving files, Deleting files, Managing folders, Creating, Viewing, Expanding and collapsing, Backing up and restoring files. Components of Windows: format of a window, moving windows, resizing windows, minimizing and maximizing windows.

Control panel: Customizing screens, Screen colors, Patterns, Spacing icons, selecting time/date, setting the Sound, Concept of menu Using Help, Creating Short cuts, Basics of Window Setup, Notepad, Window Accessories, System restore. Customizing printing, changing the print queue, configuring the printer, Adding printers. Working with fonts: changing, removing, adding, customizing mouse and keyboard use.

System properties and the device manager Management tools, Memory configuration, Safe mode Install and uninstall applications, Setup/troubleshooting issues.

Maintaining and optimizing disks: Disk Cleanup, Disk defragmenter, Compressing and uncompressing folders and files. Encrypting and decrypting folders and files.

#### **SECTION B**

Introduction to MS Word, MS Word Documents: Creating a File, Saving and File Formats, File views. Font/Character Formatting: Styles and Character/Font Formatting, Character Formatting.

Paragraph Formatting: Styles and Paragraph Formatting, Structural Formatting, Paragraph Decoration. Styles: Styles Group, Styles Task Pane.

Page Setup and Sections: Page Borders, Header and Footer Layer, Header and Footer Navigation and Design, Adding Header and Footer Material. Tables and picture insertion.

Introduction to MS Excel, Creating and Editing Worksheets and Workbooks

Exploring the types of Data, Date and Time, Modifying Cell Contents, Applying Number Formatting, Cell Range Operations, Controlling the Worksheet View, Copying and Moving Ranges, Using Names to Work with Ranges, Adding Comments to Cells.

Formula and Functions, sorting and filtering data, graphs and charts

Introduction to MS PowerPoint, creating and editing slides, Inserting Content from External Sources, Using Content Placeholders, Creating Text Boxes Manually, Working with Text Boxes, Understanding layouts and Themes, Applying a Theme, Working with Preset Placeholders, Customizing and Creating Layouts, Managing Slide Masters, Managing Themes, Printing Slides.

Building Animation Effects, Transitions, and Support Materials: Understanding Animation and Transitions, Assigning Transitions to Slides, Using an Animation Preset.

MS Outlook: Organizing Messages, Contents, and Time with Outlook: Setting up E-mail Accounts, Modifying

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Account Settings, Composing and Sending Messages, Reading and Replying to Messages, Understanding the Inbox Display, Outlook Data Files, Working the Outlook Folders, Setting Options for an Individual E-Mail Message.

### **Pedagogy:**

The Instructor is expected to use leading pedagogical approaches in the class room situation, research-based methodology, innovative instructional methods, extensive use of technology in the class room, online modules of MOOCS, and comprehensive assessment practices to strengthen teaching efforts and improve student learning outcomes.

The Instructor of class will engage in a combination of academic reading, analyzing case studies, preparing the weekly assigned readings and exercises, encouraging in class discussions, and live project based learning.

### **Case/Class Discussion Assignments:**

Students will work in groups of up to four to prepare a brief write-up due before the start of each class covering the case study or class material to be discussed in the next session. Questions may include a quantitative analysis of the problem facing the decision-maker in the case.

### **Class Participation:**

Attendance will be taken at each class. Class participation is scored for each student for each class

**Text and Readings:** Students should focus on material presented in lectures. The text should be used to provide further explanation and examples of concepts and techniques discussed in the course:

- Office 2007 Bible- John Walkenbach, Herb Tyson, Faithe Wempen, Cary N. Prague, Michael R. Groh, Peter G. Aitken, Michael R. Irwin, Gavin Powell and Lisa A. Buci.
- Working With MS-Office 2000, Tata McGraw-Hill Publishing, Content Development Group.Chennai.

### **Scheme of Examination**

- English will be the medium of instruction and examination.
- Written Examinations will be conducted at the end of each Semester as per the Academic Calendar notified in advance
- Each course will carry 100 marks of which 30 marks shall be reserved for internal assessment and the remaining 70 marks for written examination to be held at the end of each semester.
- The duration of written examination for each paper shall be three hours.
- The minimum marks for passing the examination for each semester shall be 35% in aggregate as well as a minimum of 35% marks in the semester-end examination in each paper.
- A minimum of 75% of classroom attendance is required in each subject.

### **Instructions to the External Paper Setter**

The question paper will consist of three Sections: A, B and C. Sections A and B will have four questions each from the respective section of the syllabus and will carry 10.5 marks for each question. Section C will consist of 7-15 short answer type questions covering the entire syllabus uniformly and will carry a total of 28 marks.

### **Instructions for candidates**

- Candidates are required to attempt five questions in all, selecting two questions each from section A and B and compulsory question of section C.
- Use of non-programmable scientific calculator is allowed.



PDCA1104L: Programming Lab-I

**Maximum Marks: 100\***  
**Minimum Pass Marks: 35%**

**Max. Time: 3 Hrs.**  
**Practical sessions to be conducted: 60-70**

This laboratory course will mainly comprise of exercise based on subject PDCA1102T

\*Maximum Marks for Continuous Assessment: 30  
Maximum Marks for University Examination: 70

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PDCAH05L: Programming Lab-II

Maximum Marks: 100\*  
Minimum Pass Marks: 35%

Max. Time: 3 Hrs.  
Practical sessions to be conducted: 60-70

This laboratory course will mainly comprise of exercise based on subject ~~PDCAH03T~~

\*Maximum Marks for Continuous Assessment: 30  
Maximum Marks for University Examination: 70

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## PDCA12017.: Database Management System

Maximum Marks: 70

Minimum Pass Marks: 35%

Maximum Time: 3 Hrs.

Lectures to be delivered: 40-45

**Course Objective:** This course is designed to explore computing and to show students the art of design and creation of relational databases. On completion of this course, the students will be able to

- Gain the knowledge and understanding of Database analysis and design.
- Gain the knowledge of the processes of Database Development and Administration.
- Understand the functional dependencies and design of the database
- Understand the concept of Normalization

**Course Content****SECTION A**

Introduction: Database Approach, Characteristics of a Database Approach, Database System Environment. Roles in Database Environment: Database Administrators, Database Designers, End Users, Application Developers. Database Management Systems: Definition, Characteristics, Advantages of Using DBMS Approach, Classification of DBMSs. Architecture: Data Models, Database Schema and Instance, Three Schema Architecture, Data Independence – Physical and Logical data Independence. Database Conceptual Modelling by E-R model: Concepts, Entities and Entity Sets, Attributes, Mapping Constraints, E-R Diagram, Weak Entity Sets, Strong Entity Sets.

**SECTION B**

Relational Data Model: Concepts and Terminology. Constraints: Integrity Constraints, Entity and Referential Integrity constraints, Keys: Super Keys, Candidate Keys, Primary Keys, Secondary Keys and Foreign Keys. Relational Algebra: Basic Operations, Additional Operations, Example Queries. Relational Calculus: Tuple and Domain Relational Calculus, Example Queries.

Database Design: Problems of Bad Database Design. Normalization: Functional Dependency, Full Functional Dependency, Partial Dependency, Transitive Dependency, Normal Forms– 1NF, 2NF, 3NF, BCNF, Multi-valued Dependency, Join Dependency and Higher Normal Forms- 4NF, 5NF.

**Pedagogy:**

The Instructor is expected to use leading pedagogical approaches in the class room situation, research-based methodology, innovative instructional methods, extensive use of technology in the class room, online modules of MOOCS, and comprehensive assessment practices to strengthen teaching efforts and improve student learning outcomes.

The Instructor of class will engage in a combination of academic reading, analyzing case studies, preparing the weekly assigned readings and exercises, encouraging in class discussions, and live project- based learning.

**Case/Class Discussion Assignments:**

Students will work in groups of up to four to prepare a brief write-up due before the start of each class covering the case study or class material to be discussed in the next session. Questions may include a quantitative analysis of the problem facing the decision-maker in the case.

**Class Participation:**

Attendance will be taken at each class. Class participation is scored for each student for each class

**Text and Readings:** Students should focus on material presented in lectures. The text should be used to provide further explanation and examples of concepts and techniques discussed in the course:

- Elmasry Navathe, “Fundamentals of Database System”, Pearson Education.

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- T. Connolly, C Begg, "Database Systems", Pearson Education.
- Jeffrey D. Ullman, "Principles of Database Systems", Galgotia Publications.
- Henry F. Korth, A. Silberschhatz, "Database Concepts," Tata McGraw Hill.
- C.J. Date, "An Introduction to Database Systems", Pearson Education.
- Naveen Parkash, "Introduction to Database Management", Tata McGraw Hill.

#### **Scheme of Examination**

- English will be the medium of instruction and examination.
- Written Examinations will be conducted at the end of each Semester as per the Academic Calendar notified in advance
- Each course will carry 100 marks of which 30 marks shall be reserved for internal assessment and the remaining 70 marks for written examination to be held at the end of each semester.
- The duration of written examination for each paper shall be three hours.
- The minimum marks for passing the examination for each semester shall be 35% in aggregate as well as a minimum of 35% marks in the semester-end examination in each paper.
- A minimum of 75% of classroom attendance is required in each subject.

#### **Instructions to the External Paper Setter**

The question paper will consist of three Sections: A, B and C. Sections A and B will have four questions each from the respective section of the syllabus and will carry 10.5 marks for each question. Section C will consist of 7-15 short answer type questions covering the entire syllabus uniformly and will carry a total of 28 marks.

#### **Instructions for candidates**

- Candidates are required to attempt five questions in all, selecting two questions each from section A and B and compulsory question of section C.
- Use of non-programmable scientific calculator is allowed.

## PDCA/202T : Programming with Python

Maximum Marks: 70

Minimum Pass Marks: 35%

Maximum Time: 3 Hrs.

Lectures to be delivered: 40-45

**Course Objective:** This course is designed to explore computing and to show students the art of computer programming. Students will be able to learn and Understand programming using python concepts for writing good programs. On completion of this course, the students will be able to

- Understand the basics of Python programming language
- Use different data types and control structures
- Explore the use of Python functions
- Create programs to access files in Python

**Course Content****SECTION A**

**Introduction to Python:** History of Python, Strength and Weakness, Different Versions, Installing Python , Setting up in local environment, IDLE, Executing from file, command line from interactive mode, Python Identifiers and reserved key words.

**Python syntax:** Variables and Variables type, Data types, Data Types Conversion, Operators (Arithmetic, Comparison, Assignment, Bitwise, Logical, Membership, Identity), Operators Precedence, Python Decision making (if, el if, else, nested if), Python loops (while, for, nested loops), Break and continue statements.

**Python Collections or Sequence:** Sequence introduction, Number operations, String Operations, List, Tuple, Dictionary, Set.

**Python Functions:** Function introduction, User defined functions, Functions with parameters, Keywords and optional parameters, Scope of variables (Global and Local), Anonymous function – Lambda, In-built function, List comprehension.

**SECTION B**

**Python Modules:** Modules, Standard Modules (Sys, Math, Time), Import Statement, from statement, Dir() functions.

**Python File handling:** Sending Output to STDOUT Using the print() Method, Reading Input with the input() Method, Creating File Objects with the open() Method, Controlling File Access Modes, Working with File Object Attributes, Closing File Objects with the close() Method, Reading and Writing to File Objects with read() and write(), Using File Processing Functions from the OS Module.

**Pedagogy:**

The Instructor is expected to use leading pedagogical approaches in the class room situation, research-based methodology, innovative instructional methods, extensive use of technology in the class room, online modules of MOOCS, and comprehensive assessment practices to strengthen teaching efforts and improve student learning outcomes.

The Instructor of class will engage in a combination of academic reading, analyzing case studies, preparing the weekly assigned readings and exercises, encouraging in class discussions, and live project- based learning.

**Case/Class Discussion Assignments:**

Students will work in groups of up to four to prepare a brief write-up due before the start of each class covering the case study or class material to be discussed in the next session. Questions may include a quantitative analysis of the problem facing the decision-maker in the case.

**Class Participation:**

Attendance will be taken at each class. Class participation is scored for each student for each class

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### Text and Readings:

- Paul Gries, Jennifer Campbell, Jason Montojo, Practical Programming- An Introduction to Computer Science Using Python 3.6, Shroff Publications and Distributors
- John V Guttag, Introduction to Computation and Programming Using Python“, Revised and expanded Edition, MIT Press , 2013
- Robert Sedgewick, Kevin Wayne, Robert Dondero, —Introduction to Programming in Python: An Interdisciplinary Approach, Pearson India Education Services Pvt. Ltd., 2016.
- Timothy A. Budd, Exploring Python, Mc-Graw Hill Education (India) Private Ltd., 2015.
- Paul Gries, Jennifer Campbell and Jason Montojo, Practical Programming: An Introduction to Computer Science using Python 3, Second edition, Pragmatic Programmers, LLC, 2013.
- Rossum, Introduction To Python ,Shroff Publications and Distributors
- Downey, Think Python 2/ED, Shroff Publications and Distributors
- Lutz, Learning Python, 5/ED, Shroff Publications and Distributors
- Campbell ,Practical Programming: An Introduction to Computer Science Using Python, Shroff Publications and Distributors

### Scheme of Examination

- English will be the medium of instruction and examination.
- Written Examinations will be conducted at the end of each Semester as per the Academic Calendar notified in advance
- Each course will carry 100 marks of which 30 marks shall be reserved for internal assessment and the remaining 70 marks for written examination to be held at the end of each semester.
- The duration of written examination for each paper shall be three hours.
- The minimum marks for passing the examination for each semester shall be 35% in aggregate as well as a minimum of 35% marks in the semester-end examination in each paper.
- A minimum of 75% of classroom attendance is required in each subject.

### Instructions to the External Paper Setter

The question paper will consist of three Sections: A, B and C. Sections A and B will have four questions each from the respective section of the syllabus and will carry 10.5 marks for each question. Section C will consist of 7-15 short answer type questions covering the entire syllabus uniformly and will carry a total of 28 marks.

### Instructions for candidates

- Candidates are required to attempt five questions in all, selecting two questions each from section A and B and compulsory question of section C.
- Use of non-programmable scientific calculator is allowed.

**Maximum Marks: 70**  
**Minimum Pass Marks: 35%**

**Maximum Time: 3 Hrs.**  
**Lectures to be delivered: 45-55**

**Course Objective:** This course is designed to explore the features of web technology and its significance in developing web-based applications. Students will be able to learn and Understand the concepts of web programming. On completion of this course, the students will be able to

- Understand the basics of HTML for creation of web pages
- Create forms for interactive applications
- Integrate HTML and CSS
- Understand the design of applets

### Course Content

#### SECTION A

Internet Basics: Networks, Protocols, TCP/IP, Internet Addresses, Ports, Sockets, Name Resolution, Firewalls, Protocol Tunneling, Proxy Servers, Internet Standards, governing the web HTTP, MIME, Inside URLs, Web applications, Overview of clients/servers web communication, comparison of web servers, Common Gateway Interface CGI.

Web Page Designing: Introduction to markup languages; HTML: list, table, images, frames, forms, pages style sheets CSS; XML: DTD, XML Namespaces, XML schemes, Presenting XML with CSS and XSLT, XML-DOM, What is XHTML?

#### SECTION B

Client Side Scripting: Java script: Introduction, documents, forms, statements, functions, objects; Event and event handling; Browsers and the DOM, JQuery: Syntax, Selectors, Events and AJAX methods.

Server Side Programming: PHP: Introduction, requirements, PHP syntax, data type, variables, strings, operators, if-else, control structure, switch, array, function, file handling, form, sending email, file upload, session/state management, error and exception, PHP Database for dynamic Web pages.

Introduction to Servlets: Servlet Basic Servlet Structure, Servlet Lifecycle, Servlet APIs. Writing thread safe Servlets. Setting Cookies and Session Management with Servlet API.

#### **Pedagogy:**

The Instructor is expected to use leading pedagogical approaches in the class room situation, research-based methodology, innovative instructional methods, extensive use of technology in the class room, online modules of MOOCS, and comprehensive assessment practices to strengthen teaching efforts and improve student learning outcomes.

The Instructor of class will engage in a combination of academic reading, analyzing case studies, preparing the weekly assigned readings and exercises, encouraging in class discussions, and live project based learning.

#### **Case/Class Discussion Assignments:**

Students will work in groups of up to four to prepare a brief write-up due before the start of each class covering the case study or class material to be discussed in the next session. Questions may include a quantitative analysis of the problem facing the decision-maker in the case.

#### **Class Participation:**

Attendance will be taken at each class. Class participation is scored for each student for each class

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**Text and Readings:** Students should focus on material presented in lectures. The text should be used to provide further explanation and examples of concepts and techniques discussed in the course:

- Jeffrey C Jackson, "Web Technology – A computer Science perspective", Person Education, 2007.
- Chris Bates, "Web Programming – Building Internet Applications", Wiley India, 2006.
- Xavier, C, " Web Technology and Design", New Age International
- Ivan Bayross, " HTML, DHTML, Java Script, Perl & CGI", BPB Publication.
- Ramesh Bangia, "Internet and Web.Design", New Age International
- Bhave, "Programming with Java", Pearson Education
- Ullman, "PHP for the Web: Visual QuickStart Guide", Pearson Education
- Deitel, "Java for programmers", Pearson Education
- Dustin R. Callaway, "Inside Servlets" Pearson Education.

#### **Scheme of Examination**

- English will be the medium of instruction and examination.
- Written Examinations will be conducted at the end of each Semester as per the Academic Calendar notified in advance
- Each course will carry 100 marks of which 30 marks shall be reserved for internal assessment and the remaining 70 marks for written examination to be held at the end of each semester.
- The duration of written examination for each paper shall be three hours.
- The minimum marks for passing the examination for each semester shall be 35% in aggregate as well as a minimum of 35% marks in the semester-end examination in each paper.
- A minimum of 75% of classroom attendance is required in each subject.

#### **Instructions to the External Paper Setter**

The question paper will consist of three Sections: A, B and C. Sections A and B will have four questions each from the respective section of the syllabus and will carry 10.5 marks for each question. Section C will consist of 7-15 short answer type questions covering the entire syllabus uniformly and will carry a total of 28 marks.

#### **Instructions for candidates**

- Candidates are required to attempt five questions in all, selecting two questions each from section A and B and compulsory question of section C.
- Use of non-programmable scientific calculator is allowed.

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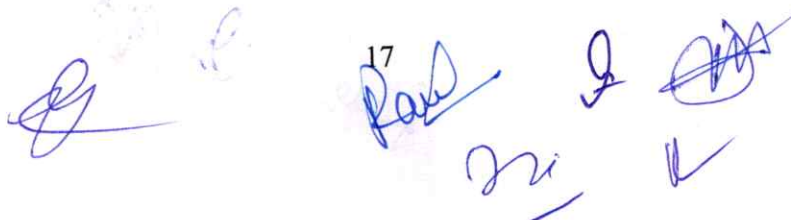
**PDCA1204L: Programming Lab-III**

**Maximum Marks: 100\***  
**Minimum Pass Marks: 35%**

**Max. Time: 3 Hrs.**  
**Practical sessions to be conducted: 60-70**

This laboratory course will mainly comprise of exercise based on subject **PDCA1202T**

\*Maximum Marks for Continuous Assessment: 30  
Maximum Marks for University Examination: 70

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**PDCA1205L : Programming Lab-IV**

**Maximum Marks: 100\***  
**Minimum Pass Marks: 35%**

**Max. Time: 3 Hrs.**  
**Practical sessions to be conducted: 60-70**

This laboratory course will mainly comprise of exercise based on subject **PDCA1203T**

\*Maximum Marks for Continuous Assessment: 30  
Maximum Marks for University Examination: 70

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