



मेडी-केप्स विश्वविद्यालय, इंदौर

Medi-Caps University, Indore

Syllabus

Course Code	Course Name	Hours per Week			Total	Total
		L	T	P	Hrs.	Credits
CA3SE04	PHP Programming	3	0	4	7	5

Course Objectives:

1. To provide basic knowledge of PHP syntax and learn about creating first PHP script.
2. To provide knowledge about the Conditional statement, Loops and uses of Array in PHP
3. To provide knowledge about the uses of Functions and Strings in PHP
4. To provide knowledge about how to send information to the Web Server by using GET and POST method and also aware about advanced OOPs Concept.
5. To enable the students to integrate MySQL with PHP and make database connectivity

Prerequisites : Basics of Programming

Co-requisites : Nil

Curriculum:

Unit-I: Introduction to PHP

Introducing PHP, important tools and software requirement, Basic development Concepts – Creating first PHP Scripts, Variable and constants, Type of data in PHP, expressions, scopes of a variable (local, global). PHP Operators, Operator precedence and associativity.

Unit-II: Control Statements and Arrays

Controlling Program Flow: If-Else conditional statement, Switch case, Loops (while, for, do-while loop), goto, break, continue and exit statement.

Working with Arrays: Storing Data in Arrays, Processing Arrays with Loops and Iterations, Using Arrays with Forms, Working with Array Functions, Working with Dates and Times.

Unit-III: Functions and String

Function, need of function, declaration and calling a function, function with arguments, default argument function, function argument with call by value and call by reference, scope of function.

Creating and accessing string, searching and replacing string, formatting, joining and splitting string, string related library function.

Unit-IV: Form handling and classes

Capturing form data, GET and POST form methods, dealing with multivalue fields, redirecting a form after submission.

Creating Classes – Using Advanced OOP Concepts.

Unit-V: Database Connectivity

Working MySQL with PHP-database connectivity, usage of MYSQL commands in PHP, processing result sets of queries, handling errors-debugging and diagnostic functions-validating user input through Database layer and Application layer, formatting query output with Character, Numeric, Date and time , sample database applications.

List of Practicals:

1. Write a PHP script to get the PHP version and configuration information.
2. Create a simple HTML form and accept the user name and display the name through PHP echo statement.
3. Write a program to display strings and variables with the echo command.
4. Write a program to display strings and variables with the print command.
5. Write a program to demonstrate data types.
6. Write a program to get the length of a string.
7. Write a program to count the number of words in a string.
8. Write a program to reverse a string.
9. Write a program to search for a specific text within a string.
10. Write a program to replace text within a string.
11. Write a program to perform arithmetic operations.
12. Write a program to find greater number among three number using logical operator.
13. Write a program to find greater number among three number using nested if.
14. Write a program to print the day name according to the number using switch.
15. Write a program to print the series from 1 to 100 using for loop.
16. Write a program to create array and initialize the array.
17. Write a program to display the string using function.
18. Write a program to sort the array.
19. Write a program to find the length of array.
20. Write a program to search an element in an array.
21. Write a program to create a html form and apply validation on it.
22. Write a program use readfile() to read a file and write it to the output buffer.
23. Write a program for session handling.
24. Write a program to connect your interface with MySQL
- 25. Develop a project to manage a particular system.**

Course Outcomes:

- A. Students will be able to creating first PHP script.
- B. Students will be able to understand If-Else conditional statement, Loops and implement Array with Forms.
- C. Students will be able to create Function and handle String related library Function.
- D. Students will be able to perform Form Handling and also aware about OOPs concept
- E. Students will be able to implement PHP with MySQL and make database connectivity

Text Book:

1. *PHP: the complete reference*, Holzner, Steven, *Tata McGraw-Hill Education*.
2. *PHP and MYSQL*, Vikram Vanvanshi, *Tata McGraw-Hill*.
3. *PHP and MySQL*, Murach, Joel, and Ray Harris. *Murach's. Mike Murach & Associates, Inc.*

Reference Books:

1. *Php and mysql for dynamic web sites: visual quickpro guide*, Ullman, Larry,, *Peachpit Press*.
2. *Programming PHP*, Lerdorf, Rasmus, Kevin Tatroe, and Peter MacIntyre, *O'Reilly Media, Inc.*
3. *Beginning PHP, Apache, MySQL Web Development*, Glass, Michael K., et al., *John Wiley & Sons*.
4. *PHP and MySQL Web development*, Welling, Luke, and Laura Thomson, *Sams Publishing*.
5. *Head First PHP & MySQL*, Beighley, Lynn, and Michael Morrison. *O'Reilly Media, Inc.*

Web References:

1. <https://www.w3schools.com/php/default.asp>



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		L	T	P	Hrs.	Credits
CA3CO13	Software Engineering	4	0	0	4	4

Course Objectives:

1. A general understanding of software process models such as the waterfall and evolutionary models
2. Understanding of software requirements and the SRS documents
3. Understanding of the role of project management including planning and scheduling
4. Understanding of software design and Modular Design using coupling and cohesion
5. Understanding of software testing and debugging approaches

Prerequisites : Nil

Co-requisites : Nil

Curriculum:

Unit-I Introduction to Software Engineering

Introduction to Software Systems, Challenge in large projects, Successful software system, Reasons for failure, Engineering: other disciplines, Engineering, Large Projects, Software projects, Apply Engineering Approach, Software Process, Process Types, Multiple processes, Step in a Process, Characteristics of a Good Process. Software Development Methodologies: Overview of Software Development Life Cycle Phases, Waterfall Model, Prototyping Model, RAD Model, Iterative Development: Spiral Model, Agile Methodology- Scrum, Extreme Programming. Overview of Software Project Management Process, Project planning and Project Monitoring and Control.

Unit-II Requirements engineering/specification

Introduction to requirement engineering, Requirement, Types of requirement, Requirements Audience, Functional and non-functional requirements, Requirements imprecision, Problems with natural language, Editor grid requirement, Requirement problems, Structured presentation, Guidelines for writing requirements, System requirements. Requirements and design. Alternatives to NL specification, Structured language specifications, Form-based specifications, Tabular specification, Graphical models, The requirements document, IEEE requirements standard. Data and Process Modeling: Data Model, concept of entity and

relationship, E-R model. Process Model, Function Decomposition Diagrams, Data Flow Diagram (DFD), DFD Notation, Context Diagram, Process Refinement, Physical DFD.

Unit-III Software Project Management

Introduction to Project Management, an Effective Project Management, Software Project Phases and Activities, Software Development Strategies, Project Management Process Groups: Schematic, Interaction Within and Across Project, Framework for Project Management, impact of Good Project Management. Software Project Estimation: Stages in Project Estimation, Estimation Approaches, PERT Sizing Approach to Estimation, Levels of Application, Function Point Counting Procedure, Components of FP Count, FP for Average Complexity Functions, COConstructive COSt MOdel (COCOMO).

Unit-IV Software Design

Software Design Process, Characteristics of a Good Design, Design Principles, Modular Design, concepts of Coupling and Cohesion, Design Notation and Specification, Structured Design Methodology. Coding: Programming Principles and Guidelines, Coding Process, Refactoring.

Unit-V Software Testing

Basics of Testing, test Case, Levels of Testing, Stub Modules, Test Drivers, Test Drivers during Partial Integration, Testing, Modules with Top Down Integration, Testing Modules with Bottom Up Integration, Regression Testing, test Objectives, Alpha testing and Beta testing, Debugging.

Black box vs. white box testing: Black Box Testing techniques, White Box Testing techniques, Statement Coverage, Implicit statements, Basic Path Testing, Cyclomatic Complexity, Condition Testing, Condition Testing Strategies, Data Flow Testing Strategie.

List of Practicals:

Not Applicable.

Project:

Optional.

Course Outcomes:

- A. Students will be able to apply appropriate software process model.
- B. Students will be able to apply requirement engineering and manage software requirement in terms of DFD and SRS document.
- C. Students will be able to apply estimation techniques at different stages of software project management.
- D. Students will be able to use design methodology and effective modular design.
- E. Students will be able to use different strategy for software testing and debugging.

Text Books:

1. *An Integrated Approach to Software Engineering*, Pankaj Jalote, Narosa Publishing House publications
2. *Software Engineering: A Practitioners Approach*, R. S. Pressman, McGraw Hill
3. *Software Engineering: Concepts & Practices*, Ugrasen Suman, Cengage Learning

Reference Books:

1. *Software Engineering Concepts*, Richard E. Fairly, *Tata McGraw Hill Inc. New York*
2. *Fundamentals of Software Engineering*, Rajib Mall, *PHI Publication*
3. *Software Engineering Fundamental*, Ali Behforooz and Frederick J Hudson, *Oxford University Press*
4. *Software Project Management: A Concise Study*, S A Kelkar, *PHI Learning*
5. *Software Engineering*, Ian Sommerville, *Pearson Education, New Delhi*

Web Source:

1. https://www.tutorialspoint.com/software_engineering/
2. <https://www.agilealliance.org/agile101/>
3. <http://www.softwaretestinghelp.com/>

Open Learning Source:

1. <https://www.coursera.org/courses?languages=en&query=software+engineering>
2. <http://nptel.ac.in/courses/106101061/32>



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		L	T	P	Hrs.	Credits
CA3CO14	Object Oriented Technology	3	0	4	7	5

Course Objectives:

1. To understand and gain the fundamental knowledge of Object Oriented Technology
2. To make the students aware of concepts of object oriented programming.
3. To make the students cognizant of developing of programming skills.
4. To enhance student's ability of dealing with object oriented concepts.
5. To inspire students for innovative approach of technical skills in software development.

Pre-requisite : Basic knowledge of computer programming

Co-requisite : Not Applicable

Curriculum:

Unit-I Basics of JAVA

Basics of JAVA, tools in JDK, javadoc, java, jdb. JAVA Language- Keywords, Constants, Variables, and Data Types. Operators and Expressions, Decision making, Branching and Looping, Labelled Loops Statement, Jump statements: Break, Continue, and Return.

Unit-II Array and Classes

Arrays and Strings Creating Arrays, one and two Dimension Arrays. Classes, Objects and Methods Defining a class, adding variables and Methods, creating objects, constructors, Wrapper Classes. Inheritance, Basics types, using super, multi level hierarchy, abstract and final classes, packages and interfaces.

Unit-III Exception handling and Multithreading

Exception Handling, Fundamentals exception types, uncaught exceptions, throws, throw, try - catch, final, built in exceptions, creating your own exceptions. Multithreading Fundamentals, Java Thread model : priorities, synchronization, messaging, thread class, Runnable interface, Inter-thread communication, suspending, resuming and stopping threads.

Unit-IV AWT programming

Containers and components, AWT classes, window fundamentals: Component, Container, Panel, Window, Frame, AWT Controls, Layout Managers and Menus: adding and removing control, Labels, Button, Check Box, Radio Button, Choice , menu, Text area, Scroll list, Scroll bar; Frame; Layout managers- flow layout, Grid layout, Border layout, Card layout.

Unit-V Event handling and Swing

Event Handling-Different mechanism, the Delegation Event Model, Event Classes, Event Listener interfaces and Adapter. Java Swing -Icons and Labels, Text fields, Buttons, Combo Boxes, Tabbed and Scroll Panes, Trees, Tables.

List of Practicals:

1. WAP to display “Welcome in JAVA PROGRAMMING” on the screen.
2. WAP to take different types of input from the user using Scanner class.
3. WAP to take command line argument & print them.
4. WAP for finding greater no. between 2 nos. using ternary operator.
5. WAP to find the greater no. between 3 nos. using nested if & relational operators.
6. WAP to find greater no. between 3 nos. using logical operators.
7. WAP to demonstrate type conversion.
8. WAP to check the no. is Armstrong or not.
9. WAP to check the no. is Perfect or not.
10. WAP to print pattern as:

```
          1
         2 3 2
        3 4 5 4 3
       4 5 6 7 6 5 4
```
11. WAP to search an element in an array.
12. WAP to sort elements of array.
13. WAP to demonstrate class and object.
14. WAP to find maximum of 2 nos. using function overloading.
15. WAP for Stack simulation using class & constructors.
16. WAP to perform different methods on String.
17. WAP & steps to create your own package.
18. WAP to create your own exception.
19. Create a Thread with the help of Thread class.
20. Create a Thread with the help of Runnable interface.
21. WAP which uses all methods of Thread class.
22. WAP to create 3 threads & set their priority to min, max & normal & write their outputs.
23. WAP for Thread which have synchronized method.
24. WAP to demonstrate Thread using suspend, resume & stop methods.
25. WAP in an AWT to perform addition which should include Textboxes, Label & Button.

26. WAP to use MouseListener & its methods.
27. WAP to use CardLayout.
28. WAP in AWT to change background colour on button click of selected buttons.
29. WAP in AWT to show “You clicked me x times” on button click of a button.
30. WAP in AWT to show and hide the buttons alternatively.
31. WAP in Swing which must have checkboxes and labels showing their status.
32. WAP in Swing to create MenuBar & perform different operations accordingly to Menu. (Shape & Colour should be the Menu Items)
33. WAP in Swing to use JTabbedPane. (Movies’ Poster should appear on clicking the Movie name)
34. WAP in Swing to create JTree in JScrollPane.
35. Create a swing based project in java

Course Outcome:

1. Students will understand the significance of Object Oriented Technology.
2. Students will gain awareness regarding urgency about the programming skills.
3. Student will attain knowledge regarding technical skills for software development.
4. The students will gain fundamental knowledge of the object oriented technology, which will help in any object oriented programming language.
5. Student will also be introduced by front-end of software.

Text Books:

1. *The Complete Reference Java 2*, Naughton & Schildt, *Tata McGraw Hill*
2. *Java- How to Program*, Deitel, *Pearson Education, Asia*

Reference Books:

1. *Core Java 2 (Vol I & II)*, Horstmann & Cornell, *Sun Microsystems*
2. *Java 2.0*, Ivan Bayross, *BPB publications*
3. *Beginning Java 2, JDK*, Ivor Horton’s, *Wiley India*
4. *Java Programming for the absolute beginners* By Russell , Russell, *PHI Learning*
5. *Head First Java: A Brain-Friendly Guide* , Sierra, Kathy, and Bert Bates, *O’Reilly Media, Inc.*

Web Sources:

1. <https://www.javatpoint.com/>
2. <https://www.edx.org/course/subject/computer-science/java>

Open Learning Source:

1. <http://nptel.ac.in/courses/106106147/>
2. <https://www.edx.org/course/subject/computer-science/java>



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		L	T	P	Hrs.	Credits
CA3EG11	Wireless Mobile Computing	4	0	0		4

Course Objectives:

1. To study the specifications and functionalities of various protocols/standards of mobile network.
2. To provide knowledge about the antennas and their functionality.
3. To provide knowledge about IEEE 802.11 format.
4. To provide knowledge about the Intruders, Trojan Horse, Virus and Worms.
5. To enable the students to use the knowledge for practical cases.

Prerequisites : Knowledge of Computer Networks

Co-requisites : Nil

Curriculum:

Unit-I Introduction

Antenna, variation pattern, antenna types, types of fading. multiple access technique-SDMA, TDMA, FDMA, CDMA. MAC/CA, Cellular network organization, operations of cellular system, mobile radio propagation effects, handoff, power control, sectorization, traffic engineering, Infinite sources, lost calls cleared, grade of service, poison arrival process.

Unit-II GSM and GPRS

GSM- Services, system architecture, radio interface, logical channels, protocols, localization and calling, handover, security, GPRS-architecture, Interfaces, Channels, mobility management.

Unit-III IEEE 802.11

IEEE 802.11: LAN-architecture, 802.11 a, b and g, protocol architecture, physical layer, MAC layer, MAC management, HIPERLAN-protocol architecture, physical layer, MAC sub layer. Bluetooth-user scenarios.

Unit-IV Mobile TCP/IP

Mobile IP, DHCP, Ad hoc networks: Characteristics, performance issue, routing in mobile host. Wireless sensor network, Mobile transport layer: Indirect TCP, Snooping TCP, Mobile TCP, Selective retransmission, transaction oriented TCP. Introduction to WAP.

Unit-V Security

Intruders, Intrusion detection, password management, viruses and related threats, worms, trojan horse defense, difference biometrics and authentication system, firewall design principle.

List of Practicals:

Not Applicable.

Project:

Optional.

Course Outcomes:

- A. Students will be able to understand fundamentals of Technical analysis and different theories .
- B. Students will be able to understand the GSM and GPRS technologies.
- C. Students will be able to recognize 802.11.
- D. Students will get knowledge of various threats available on cyber.
- E. Students will be able to perform case studies and implement their knowledge on cyber.

Text Books:

1. *Mobile Communication*, J. Schiller, Addison , Wiley.
2. *Wireless Communication and Network*, William Stallings, Pearson Education.
3. *Mobile Wireless Communications*, Mischa Schwartz, Cambridge. *Technical Analysis Explained*, Martin Pring, McGraw Hills

Reference Books:

1. *Wireless Communication*, UpenDalal, Oxford Higher Education.
2. *Wireless Digital communication*, Dr. KamiloFeher, PHI.
3. *Mobile Communication Design Fundamental* , William C.Y Lee, John Wiley.
4. *Wireless Networks and Mobile Computing*, Bhabani P. Sinha, KoushikSinha, and Sasthi C. Ghosh, CRC Press.
5. *Handbook of Wireless Networks and Mobile Computing*, Ivan Stojmenovic, Wiley.

Web Source:

1. <http://www0.cs.ucl.ac.uk/staff/ucacwxe/lectures/3C05-01-02/>.
2. <http://blough.ece.gatech.edu/8823/>
3. <https://www.slideshare.net/sandeepsinghsainimba/mobile-and-wireless-computing>
4. <https://www.techopedia.com/7/29693/networking>



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Course Code	Course Name	Hours per Week			Total	
		L	T	P	Hrs.	Credits
CA3CO12	Operating System	4	0	0	4	4

Course Objectives:

1. To acquaint the students with need of operating system.
2. To provide knowledge about history and functions of operating system.
3. To provide concept of process, scheduling and synchronization.
4. To provide concept of multithreading and deadlock.
5. To understand design issues of operating system.

Prerequisites : Prior Knowledge of programming and data structures.

Co-requisites : Nil

Curriculum:

Unit-I Introduction to Operating System:

Operating system and function, the evolution of operating systems (History of evolution of OS with the generations of computers), Operating System services, operating system Components. Operating System Concepts (Definition and examples of these topics)–Shell, kernel, system calls. Operating Systems Types: Batch, Time Sharing, Multiprogramming, Multitasking, Multiprocessor, Distributed, Real Time and Network.

Unit-II Process Management :

Process concept, Process Control Block, Process state transitions, schedulers (long term, short term, mid term), Context Switch, Operation on Process, Process Creation, Process Termination.

CPU Scheduling: concept of scheduling, CPU-I/O Burst Cycle, CPU Scheduler, Preemptive and Non-preemptive scheduling, Dispatcher Scheduling criteria, Scheduling Algorithms: FCFS, SJF (Preemptive and non-preemptive), Priority Scheduling (Preemptive and Nonpreemptive), Round Robin Scheduling, Multilevel Queues, Multilevel Feedback queues..

Unit-III Process Synchronization:

Introduction, Critical section problem, Semaphores: Concept, Implementation. Deadlock & Starvation, Binary Semaphores, Critical Sections, Classical Problems of synchronization: Bounded buffer problem, Readers & writers problem, Dining Philosophers problem. Deadlock: Introduction, Deadlock Characterization, Necessary Condition, Resource allocation graph, Deadlock Prevention, Avoidance, Safe State, Resource allocation graph

algorithm, Bankers algorithm, Deadlock Detection, Recovery from deadlock, Process Termination, Resource Preemption.

Unit-IV Memory Management:

Introduction to memory management, Address Binding, Dynamic Loading, Dynamic Linking, Overlays, Logical vs. physical addresses. Swapping, Contiguous memory allocation, Single Partition Allocation, Multiple Partition Allocation, External and Internal Fragmentation. Paging, Segmentation, Segmentation with paging, Virtual memory, Demand paging. Page replacement algorithms: FIFO, LRU, LRU approximation using reference bit, optimal replacement.

Unit-V File System:

Introduction of File System, File concepts, Access methods: Sequential access, Direct access. File structure, Allocation methods: Contiguous allocation, Linked Allocation, Indexed Allocation. Free Space Management: Bit Vector, Linked List, Grouping, Counting. Disk Scheduling: Introduction of Disk Scheduling, Disk scheduling algorithms namely First come first serve, shortest seek time first, SCAN, C-SCAN, LOOK and C-LOOK algorithms, Error handling, track-at-a-time caching, RAM Disks.

List of Practicals:

Not Applicable.

Project:

Not Applicable.

Course Outcomes:

- A. Be familiar with functions, structures and history of operating systems.
- B. understanding concept of process, scheduling, synchronization, deadlocks & multithreading.
- C. understanding concepts of memory management including virtual memory.
- D. understanding issues related to file system interface and implementation, disk management
- E. Be familiar with protection and security mechanisms.

Text Books:

1. *Operating System Concepts* , Silberschatz and Galvin, John, Wiley & Sons Inc.
2. *Modern Operating System* , Tenenbaum, A.S., PHI Publication.
3. *Operating Systems* , Godbole, A.S., Tata McGraw-Hill Publishing Company.

Reference Books:

1. *An Introduction to operating Systems* , H.M.Deitel, Pearson Education.
2. *System Programming and Operating Systems* , D.M.Dhamdhere, Pearson Education.
3. *Operating Systems* , William Stallings, Prentice Hall of India Pvt. Ltd.
4. *Operating System: Concept & Design*, Milankovic, M., McGraw Hill.
5. *Distributed Operating Systems concepts and design*, P.K.Sinha, Prentice Hall of India Pvt. Ltd.

Web Source:

1. <http://nptel.ac.in/courses/106106144/>

Open Learning Source:

1. <http://nptel.ac.in/courses/106108101/>