21BCADC501	DSE-Core 1: MVC Design Pattern in PHP	04 hrs/wk	04 Credits

Objectives:

To enable the students to
1. Understand the concepts of Object Oriented Progragramming using PHP
2. Implements constructors, default constuctors, inheritance, interfaces, abstract classes and abstract methods
3. Describe the advance PHP concepts next level of programming in PHP
4. Understand how MVC frameworks work, making it easier to define Model-View-Controller (MVC)
5. Apply to build a custom MVC Framework from absolute scratch and create an application based on PHP OOP

Unit -1 Object Oriented Programming in PHP (12 hrs)
- The Basics of PHP and Introduction
  - Introduction, Web Server (xamp Server, Apache Server), Installation and Configuration of PHP (php.ini, httpd.conf)
- Object Oriented Programming in PHP
  - Defining Classes and Properties, Methods
  - Instantiating an object, changing values of properties
  - Defining constructor, destructor
  - Access controllers (public, private)
  - Keywords : new, this, self, final
  - Scope resolution operator (::), arrow operator
  - Static properties & methods
  - Accessor methods (setters & getters)
  - Method chaining

Unit -2 Features of OOP & Magic Methods & Constants (12 hrs)
- Inheritance, Protected members
- Method overriding, about Method overloading
- Polymorphism
- Interface
- Abstract classes & methods
- Trait
- Magic Methods
- Magic Constants
- Encapsulation

Unit – 3 Advanced PHP (12 hrs)
- Predefined Variables
- Autoloading Classes
- Anonymous Classes
- Exceptions & Error Handling
- Object Iteration
- Object Cloning, Comparing Objects

- Type Hinting,
- Late Static Bindings
- Objects and References

Unit – 4 MVC Concepts (12 hrs)
- What is MVC?
- MVC Architecture
- Workflow
- What is Controller and action method
- What is View
- What is Model
- What is Route
- Web application Security Challenges (SQL injection, XSS, CSRF)

Unit – 5 PHP MVC Application (12 hrs)
- Create an Application
- Directory Structure
- Bootstrap
- Routing
- Controller
- Models
- Views
- Database (CRUD) Operations
- First Application

Text Books

1. *HasinH,(2007)*, **Object-Oriented Programming with PHP5**. Packt Publications.
2. *Chris Pitt*, **Pro PHP MVC**, Publisher Apress.
3. *Atom Yah*, **Learning MVC architecture with PHP.**
4. *Junade Ali,* **Mastering PHP Design Patterns,** Publisher Packt Publishing.

Reference Books
1. *David Powers*, **PHP 7 Solutions,** Publisher Apress.
2. *Larry Ullman*, **PHP Advanced and Object-Oriented Programming**, Publisher Peachpit Press.
3. *Matt Zandstra*, **PHP Objects, Patterns,** and Practice, Publisher Apress.
4. *Christopher Pitt,* **Pro PHP 8 MVC: Model View Controller Architecture-Driven Application Development**, Publisher Apress.

21BCADC503	**DSE Core Practical 1:** MVC Design Pattern in PHP Practical	**04 hrs/wk**	**02 Credits**

- Practical based on MVC Design Pattern in PHP Practical

18BCADC502	DSE-Core 1: Advanced JAVA Programming	04 hrs/wk	04 Credits

Objectives:

To enable the students to
1. Design console based, GUI based and web based applications
2. Understand Integrated Development Environment
3. Understand the concepts of Event Handling
4. Create, debug and run multi-tier and enterprise- level applications
5. Understand current trends of application development using Java platform

Unit -1 Java Database Connectivity   (12 Hrs)

- The JDBC Connectivity Model
- JDBC driver types, JDBC API
- Database Programming: Connecting to the Database
- Creating a SQL Query, Executing SQL Queries, Getting the Results
- Updating Database Data
- Error Checking and the SQL Exception Class
- Statement Interface, PreparedStatement, CallableStatement
- ResultSet Interface, Updatable Result Sets
- Use of Type-1 and Type-4 driver for MySQL with GUI

Unit -2 Layout Manager, GUI using Swing

- **Layout Manager**

   o What is Layout Managers
   o FlowLayout
   o BorderLayout
   o GridLayout
   o GridBagLayout
   o CardLayout
   o What is swing, Swing Vs. AWT
   o Container class
   o Swing Components (JLabel, JButton, JCheckBox,JCheckboxgroup, JChoice, JTextField, TextArea, JList, JScrollbar, JPanel, JFrame, JMenu, JMenuBar, JMenuItem, JPasswordField,RadioButton)

Unit – 3 Enterprise Edition and Servlet API   (12 Hrs)

- J2EE Architecture.
- Distributed Multitier Applications
- J2EE Containers
- Web server and Application Server
- Servlet Model: Overview of Servlet,Servlet Life Cycle
- HTTP (Request and Response interface) Methods Structure
- Deployment descriptor(web.xml)
- ServletException

- ServletContext and ServletConfig interface
- Attributes in Servelt
- Servlet Collaboration (RequestDispatcher interface)
- The Filter API: Filter, FilterChain, Filter Config
- Cookies and Session Management: Understanding state and session
- Understanding Session Timeout and Session Tracking
- URL Rewriting, Hidden form fields

Unit -4 Java Server Pages (12Hrs)
- JSP Overview: The Problem with Servlets
- Life Cycle of JSP Page
- JSP Processing
- JSP Application Design with MVC
- JSP Directives, JSP Action, JSP Implicit Objects
- JSP Form Processing (GET & POST)
- JSP Session and Cookies Handling
- JSP Database Access
- JSP Standard Tag Libraries, JSP Custom Tag
- JSP Expression Language
- JSP Exception Handling(Error Handling)
- JSP XML Processing

Unit-5 Custom Tags in JSP Pages (12Hrs)
- What Is a Custom Tag?
- Types of Tags
- Tags with Attributes
- Tags with Bodies
- Tags That Define Variables
- Communication between Tags
- Tag Library Descriptors
- Declaring Tag Files
- Declaring Tag Handlers
- Declaring Tag Attributes for
- Tag Handlers
- Declaring Tag Variables for Tag Handlers
- Programming Simple Tag Handlers
- Including Tag Handlers in
- Web Applications
- Cooperating Tags

Text Books
1. *Jim Keogh.* (2007)*, The Complete Reference J2EE* , Tata McGraw Hill publishers; 2 edition
2. Naughton& Herbert Schildt. *JAVA 2: The Complete Reference.* McGraw Hill

Reference Books

1. *Craig Walls. (2007), Spring in Action,* DreamTech press
2. *Cameron McKenzie. (2008), Hibernate Made Easy,* hiberbook.com

Web References:

1. www.tutorialspoint.com
2. www.javatpoint.com

18BCADC504	**DSE Core Practical 1:** Advanced JAVA Programming Practical	**04 hrs/wk**	**02 Credits**

Practical based on MVC Design Pattern in PHP Practical / Advanced JAVA Programming Practical.