Syllabus-2023-2024

(SOS)(BSc_ComputerScience)

Title of the Course	Web Designing with PHP
Course Code	BSCS0501[T]

Part A

Year	3rd	**Semester**	5th	**Credits**	L	T	P	C
					3	0	1	4
Course Type	Embedded theory and lab							
Course Category	Disciplinary Major							
Pre-Requisite/s				**Co-Requisite/s**				
Course Outcomes & Bloom's Level	**CO1-** To remember various Web Development Strategies using PHP and syntax rules of web Programming**(BL1-Remember)** **CO2-** To understand the basics of web architecture, Development techniques, knowledge about file system.**(BL2-Understand)** **CO3-** To implement: HTML, JavaScript and Arry, strings, database connectivity to create Web applications.**(BL3-Apply)** **CO4-** To analyze various Server-side programming techniques and OOPS Techniques**(BL4-Analyze)** **CO5-** To evaluate and improve the performance of the web application with the help of session handling Techniques**(BL5-Evaluate)**							
Coures Elements	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕		**SDG (Goals)**	SDG1(No poverty) SDG2(Zero hunger) SDG4(Quality education)				

Part B

Modules	Contents	Pedagogy	Hours
1	Introducing PHP – history and Basic development Concepts, PHP delimiters, creating user-defined variables, data types with PHP, type casting – Creating first PHP Scripts, declaring and using constants, Using Variable and Operators, – Storing Data in variables -Setting and Checking variables Data types, comments with php, useful readymade function of PHP. Controlling Program Flow: making decisions with if, else, and switchwriting More Complex Conditional Statements – Repeating Action with Loops and super global variables.	Lectures with whiteboard/PPT, Recorded video/interactive videos	8
2	Use of HTML for web design and JavaScript-, html scripts and form elements, embedding php with HTML, redirecting web pages, adding dynamic content using Java script, Working with Numeric Functions. Working with Arrays: Storing Data in Arrays –Numerically index array, associative and multi-decisional, array Processing Arrays with Loops and Iterations – Using Arrays with Forms - Working with Array Functions, Array sorting, converting array to scalar variables – Working with Dates and Times	Lectures with whiteboard/PPT, Recorded video/interactive videos	8
3	String Handling: formatting strings, joining and splitting a string comparing strings matching and replacing substrings, string functions, introduction of php regular expression. Exception Handling: exception handling structure, try…catch…throw Introduction to file system- file system and uses, saving program data for later use for file system, opening a file, creating and writing to a file closing a file and deletion operation on file, reading data from a file, file handling functions. Processing Directories.	Lectures with whiteboard/PPT, Recorded video/interactive videos	8
4	Using PHP Functions and Classes: Introduction to functions. Creating userdefined function parameters, returning values, calling by values versus calling by reference, using include () and require () functions. Creating PHP Classes – Using Advanced OOP Concept, creating a PHP class, object, methods, operations, class attributes, class method invocation, php static hinting, object cloning, inheritance, final keyword, php abstract class, and interface.	Lectures with whiteboard/PPT, Recorded video/interactive videos	8
5	Working with Database: working on MYSQL database, connection PHP with MySQL, creating database tables, implementing	Lectures with whiteboard/PPT, Recorded video/interactive videos	8

	insert delete, update and select query using PHP script,		

Part C

PBL TOPICS

PHP

1. **Simple CMS (Content Management System):**
- Build a basic CMS using PHP where users can create, edit, delete, and manage content (e.g., articles, blog posts).
- Include features like user authentication, role-based access control, and a WYSIWYG editor for content creation.

2. **Online Quiz System:**
- Develop an online quiz application where users can take quizzes on various topics.
- Implement features such as user registration, quiz creation, multiple-choice questions, scoring, and result display.

3. **Online Task Management System:**
- Create a task management application where users can create tasks, assign them to others, set deadlines, and track progress.
- Include features like user authentication, task categorization, priority levels, and status updates.

4. **E-commerce Website:**
- Build a simple e-commerce platform using PHP where users can browse products, add them to cart, and make purchases.
- Implement features like user registration, product catalog, shopping cart functionality, and payment integration (e.g., PayPal).

5. **OnlineStudent Information System:**
- Develop a student information system for managing student records, course details, grades, and attendance.
- Include features such as user authentication, student enrolment, course registration, and grade management.

Part D(Marks Distribution)

Theory					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**
100	40	60	18	40	12
Practical					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**
100	50	60	30	40	20

Part E

Books	VIKRAM VASWANI PHP A Beginner's Guide Tata McGraw-Hill
Articles	Steven Holzner The PHP Complete Reference – Tata McGraw-Hil
References Books	
MOOC Courses	
Videos	

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	3	3	1	2	-	-	-	-	-	-	-	1	2	1
CO2	2	2	-3	2	1	-	-	-	-	-	-	-	2	2	2
CO3	2	1	1	1	3	-	-	-	-	-	-	-	1	2	1
CO4	1	2	-1	2	2	-	-	-	-	-	-	-	2	2	1
CO5	2	2	2	1	2	-	-	-	-	-	-	-	1	2	1
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Syllabus-2023-2024

(SOS)(BSc_ComputerScience)

Title of the Course	Computer Oriented Statistical Methods
Course Code	BSMA0501[T]

Part A

<table>
<tr><td rowspan="2">Year</td><td rowspan="2">3rd</td><td rowspan="2">Semester</td><td rowspan="2">5th</td><td rowspan="2">Credits</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td>4</td><td>0</td><td>0</td><td>4</td></tr>
<tr><td>Course Type</td><td colspan="8">Theory only</td></tr>
<tr><td>Course Category</td><td colspan="8">Disciplinary Minor</td></tr>
<tr><td>Pre-Requisite/s</td><td colspan="3">Understanding of algebra, basic calculus, and probability theory. Familiarity with descriptive statistics, such as measures of central tendency and dispersion, is necessary. Basic computer skills are helpful for using statistical software like R or Python. Critical thinking, problem-solving, and logical reasoning skills are essential for analyzing data and drawing valid conclusions. Continuous learning and practice are crucial in statistics due to its dynamic nature.</td><td>Co-Requisite/s</td><td colspan="4">Concurrent study of experimental design, to understand how data is collected and its impact on analysis. Familiarity with a programming language such as Python or R is beneficial for data manipulation and analysis. Basic knowledge of probability theory, calculus, and algebra supports a deeper understanding of statistical concepts. An understanding of research methods aids in interpreting statistical results within context. Additionally, critical thinking skills are essential for evaluating the validity of statistical methods and conclusions. Practical experience applying statistical techniques to real-world problems enhances understanding and proficiency.</td></tr>
<tr><td>Course Outcomes & Bloom's Level</td><td colspan="8">CO1- To remember the data collection plans and basic tools of descriptive statistics (BL1-Remember)
CO2- To analyze the relationship between two variables using scatter plot and Interpret a simple correlation. (BL4-Analyze)
CO3- To apply the concept of sampling distribution of a statistic and hypothesis(BL3-Apply)
CO4- TO Understand the concept of sampling distribution of a statistic and its properties, difference between parameter and statistic(BL2-Understand)
CO5- To evaluate the correlation and regression analysis and measure of central tendency(BL5-Evaluate)</td></tr>
<tr><td>Coures Elements</td><td colspan="2">Skill Development ✓
Entrepreneurship ✕
Employability ✓
Professional Ethics ✕
Gender ✕
Human Values ✕
Environment ✕</td><td>SDG (Goals)</td><td colspan="5">SDG4(Quality education)</td></tr>
</table>

Part B

Modules	Contents	Pedagogy	Hours
1	Introduction: Frequency distribution and Frequency charts, Histogram, Frequency polygons, Frequency curves and Cumulative frequency distribution. Measures of Central Tendency: Arithmetic mean median, mode.	Audio/Video clips, group discussion, lecture with ppt, quiz	8
2	Measures of Dispersion: Moments, Skewness and kurtosis, Range, mean deviation, standard deviation, coefficient of variation	Audio/Video clips, group discussion, lecture with ppt, Review Analysis	10
3	Combinatorics: Permutation and Combination, Repetition and Constrained Repetition, Binomial Coefficients, Binomial Theorem. Elementary Probability Theory: Sample space, events, classical definition of probability, theorems on total and compound probability, independent and dependent events, mutually exclusive events	Audio/Video clips, group discussion, lecture with ppt, classroom presentations, Analysis	8
4	Regression and Correlation: Coefficient of correlation, rank Correlation, Regression analysis, Curve fitting: Method of Least square	Audio/Video clips, group discussion, lecture with ppt, quiz	8
5	Testing of Hypotheses: Simple and composite hypothesis, errors of kind-I and kind-II, critical region, level of significance. Tests of Significance: Tests for simple hypotheses, Student's t test, F-test and applications.	Audio/Video clips, group discussion, lecture with ppt, quiz	8

Part D(Marks Distribution)

Theory					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**
100	40	60	18	40	22
Practical					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**
0	0	0	0	0	0

Part E

Books	H. C. Saxena and J. N. Kapoor Mathematical Statistics S. Chand and sons Co.
Articles	
References Books	M. Ray Statistical Methods Ram Prasad Publication
MOOC Courses	https://onlinecourses.nptel.ac.in/noc24_ec03/preview
Videos	https://onlinecourses.nptel.ac.in/noc24_ec03/preview

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	-	-	-	2	2	-	-	-	-	-	-	1	-	1
CO2	3	3	1	3	3	2	-	-	-	1	-	-	2	-	2
CO3	3	2	-	1	3	-	-	-	-	-	-	-	1	3	2
CO4	3	2	-	2	-	-	-	-	-	-	-	-	-	3	1
CO5	2	2	-	1	-	-	-	-	-	-	-	-	-	2	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Syllabus-2023-2024

(SOS)(BSc_ComputerScience)

Title of the Course	Java Programing
Course Code	BSPH0502[T]

Part A

Year	3rd	**Semester**	5th	**Credits**	L	T	P	C
					3	0	1	4
Course Type	Embedded theory and lab							
Course Category	Disciplinary Major							
Pre-Requisite/s	basic knowledge of any one programming language such as C/C++			**Co-Requisite/s**				
Course Outcomes & Bloom's Level	**CO1-** To remember various syntax rules of java programming **(BL1-Remember)** **CO2-** To understand various Object-Oriented Concepts, Exception handling, Multithreading, networking and database connectivity techniques**(BL2-Understand)** **CO3-** To implement java AWT and Swing and for GUI Programming and Event handling, java IO for Input and output handling, jdbc for database connectivity**(BL3-Apply)** **CO4-** To analyze various Error ,and Database Handling techniques to learn how to improve the performance of the java application**(BL4-Analyze)** **CO5-** To evaluate and compare various application Development techniques**(BL5-Evaluate)**							
Coures Elements	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕		**SDG (Goals)**	SDG1(No poverty) SDG2(Zero hunger) SDG4(Quality education) SDG8(Decent work and economic growth)				

Part B

Modules	Contents	Pedagogy	Hours
1	Introduction of java Introduction to JAVA History of Java: Comparison of Java and C++; Java as an object oriented language: Java buzzwords; JVM and JRE;A simple program, its compilation and execution; the concept of path and class path: Java Basics: Data types; Operators- precedence and associatively; Type conversion; decision making controls – if, if ..else, switch; loops – for, while, do…while; advanced for loop. Special statements–return, break, continue, Modular programming: methods and method overloading, memory allocation and garbage collection, static keyword	Lectures with whiteboard/PPT, Recorded video/interactive videos	15
2	Object Oriented Programming in Java: Class fundamentals, java Packages, Access specifies, Constructors; Copy constructor; this pointer; finalize () method, array and String, mutable and immutable; String Buffer and String Builder; Java Inheritance: Inheritance basics, method overriding and final keyword, polymorphism, static and dynamic polymorphism Abstract Class & Interfaces: abstract classes, uses of abstract classes, implementation of abstract class, defining an interface, implementing & applying interfaces, extending interfaces	Lectures with whiteboard/PPT, Recorded video/interactive videos	10
3	Exception Handling; understanding Exception and its classes; class hierarchy for Throwable, call stack mechanism, checked and unchecked Exception. Try, catch and finally block, throw and throws claus Multithreading: Basic idea of a Thread, differences between process and Thread, multithreaded programming; different states of a Active thread, The lifecycle of a thread; Creating thread with the thread class and runnable interface, thread constructor and thread methods; Thread synchronization; Thread scheduling; Producer consumer relationship; Daemon thread, Selfish threads, interthread communication.	Lectures with whiteboard/PPT, Recorded video/interactive videos	9
4	Java AWT: The class hierarchy of window fundamentals; The basic user interface components Label, Button, Check Box, Radio Button, menu and Choice menu, Text area, Frame; Layout managers Java Applets: Introduction of java Applet, Life cycle of applet; HTML Tags for applet. Java Event Handling Model: Java's event delegation model event source, Event listeners: ActionListener, MouseListener, KeyListener	Lectures with whiteboard/PPT, Recorded video/interactive videos	7

5	Collection Framework: Introduction to collections framework, collection interfaces, collection classes JAVA Database Connectivity (JDBC): JDBC Drivers, Connection Interface, Result set types of Result Set, applying insert, delete, display and update operation	Lectures with whiteboard/PPT, Recorded video/interactive videos	4

Part C

List of Practical

1. WAP which takes two numbers on command line and find their sum.

Part D(Marks Distribution)

Theory					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**
100	40	60	18	40	22
Practical					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**
100	50	60	30	40	20

Part E

Books	Naughton & Schildt The Complete Reference Java 2 Tata McGraw Hill
Articles	
References Books	Horstmann & Cornell “Core Java 2” (Vol I & II) Sun Microsystems
MOOC Courses	
Videos	

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	-	-	-	3	2	-	-	-	-	-	-	-	-	-	1
CO2	2	2	1	1	2	-	-	-	-	-	-	-	3	-	3
CO3	1	1	1	-	1	-	-	-	-	-	-	-	3	2	3
CO4	-	2	-	2	1	-	-	-	-	-	-	-	3	3	3
CO5	-	1	-	-	1	-	-	-	-	-	-	-	2	3	3
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Syllabus-2023-2024

(SOS)(BSc_ComputerScience)

Title of the Course	AI and its Application
Course Code	DSE1[T]

Part A

Year	3rd	**Semester**	5th	**Credits**	L	T	P	C
					2	0	1	3
Course Type	Embedded theory and lab							
Course Category	Discipline Specific Elective							
Pre-Requisite/s	General programming concepts, understanding of software systems, Software engineering process, Logic.			**Co-Requisite/s**				
Course Outcomes & Bloom's Level	**CO1-** Remember**(BL1-Remember)** **CO2-** Understand**(BL2-Understand)** **CO3-** Analyze**(BL3-Apply)** **CO4-** Apply**(BL4-Analyze)** **CO5-** Create**(BL6-Create)**							
Coures Elements	Skill Development ✕ Entrepreneurship ✕ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕		**SDG (Goals)**	SDG1(No poverty) SDG2(Zero hunger) SDG8(Decent work and economic growth)				

Part B

Modules	Contents	Pedagogy	Hours
Unit -1	General Issues and Overview of AI The AI problems, what is an AI technique, Characteristics of AI applications. Introduction to LISP programming: Syntax and numeric functions, Basic list manipulation functions, predicates and conditionals, input output and local variables, iteration and recursion, property lists and arrays	Lecturing	12
Unit 2	Problem Solving, Search and Control Strategies: General problem solving, production systems, control strategies forward and backward chaining, exhaustive searches depth first breadth first search. Heuristic Search Techniques Hill climbing, branch and bound technique, best first search & A* algorithm, AND / OR graphs, problem reduction & AO* algorithm, constraint satisfaction problems.	Lecturing	10
Unit 3	Knowledge Representations : First order predicate calculus, skolemization, resolution principle & unification, interface mechanisms, horn's clauses, semantic networks, frame systems and value inheritance, scripts, conceptual dependency.	Lecturing	10
Unit 4	Natural Language processing Parsing techniques, context free grammar, recursive transitions nets (RNT), augmented transition nets (ATN), case and logic grammars, symantic analysis.Game playing Minimax search procedure, alpha-beta cutoffs, additional refinements. Planning: Overview an example domain the block word, component of planning systems, goal stack planning, non linear planning.	Case Study	7
Unit 5	Probabilistic Reasoning and Uncertainty Probability theory, bayes theorem and bayesian networks, certainty factor. Expert Systems: Introduction to expert system and application of expert systems, various expert system shells, vidwanframe work, knowledge acquisition, case studies, MYCIN. Learning: Rote learning, learning by induction, explanation based learning.	Case Study	6

Part C

Case Study

Rules/Instructions

- Students are required to prepare Case study on any one of the topic.
- Typed (Properly formatted , at least 20 Pages with front page and index , summary)
- Students are required to upload the signed copy of case study on LMS within time line.
- It is an individual activity

Topic : 1. Exploring the Role of Machine Learning in Financial Fraud Detection: A Case Study of Credit Card Companies

It must consists of following points-

- Overview of types of frauds in the field of digital transactions.
- Emphasis should be given on literature review with respect to role of machine leaning in fraud detection as well as prevention.
- Supporting data survey by the reputed organization/Journals can be added to case study.
- References

Topic : 2

An Analysis of the Effectiveness of Expert Systems in Improving Decision Making in the Healthcare Industry

It must consist of following points -

- Key features of expert system.
- Architecture used in expert system
- Examples of expert system.
- Comparative study of expert systems used in healthcare Industry using literature survey.
- Results in graphs illustrating effectiveness of expert system in Improving Decision Making in the Healthcare Industry
- References

Part D(Marks Distribution)

Theory					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**
100	40	60	18	40	12
Practical					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**
100	050	60	30	40	20

Part E

Books	Elaine Rich and Kevin Knight “Artificial Intelligence”-Tata McGraw Hill. Artificial intelligence” 4 ed. Pearson.
Articles	
References Books	Dan W. Patterson “Introduction to Artificial Intelligence and Expert Systems”, Prentice India. Nils J. Nilson “Principles of Artificial Intelligence”, Narosa Publishing House. M.Sasikumar,S.Ramani etc. “Rule based Expert System”, Narosa Publishing House.
MOOC Courses	
Videos	

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	2	3	1	2	1	2	-	-	-	1	-	-	-
CO2	-	3	3	2	3	-	-	-	1	-	-	1	-	-	-
CO3	-	3	3	2	3	2	2	1	1	-	-	1	-	-	-
CO4	-	3	2	2	3	-	-	-	2	-	-	1	-	-	-
CO5	-	1	2	1	2	1	1	1	1	-	-	1	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-