INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

Dundigal, Hyderabad - 500 043

COMPUTER SCIENCE AND ENGINEERING

COURSE DESCRIPTION FORM

Course Title	**WEB TECHNOLOGIES**			
Course Code	**A60512**			
Regulation	**R15**			
Course Structure	Lectures	Tutorials	Practical's	Credits
	4	1	-	4
Course Coordinator	Dr. G. Ramu, Professor			
Team of Instructors	Mr. Santosh Patil, Assistant Professor Ms. V Divyavani, Assistant Professor Mr. Y Subba Rayudu, Assistant Professor			

I. COURSE OVERVIEW:

The World Wide Web continues to provide a foundation for the development of a broad range of increasingly influential and strategic technologies, supporting a large variety of applications and services, both in the private and public sectors. There is a growing need for management and decision makers to gain a clearer understanding of the application development process, from planning through to deployment and maintenance. This module will give you an insight into architectures, protocols, standards, languages, tools and techniques; an understanding of approaches to more dynamic and mobile content; and demonstrate how you can analyze requirements, plan, design, implement and test a range of web applications.

II. PREREQUISITES:

Level	Credits	Periods/Week	Prerequisites
UG	4	5	Java Programming

III. COURSE ASSESSMENT METHODS:

a) Marks Distribution

Session Marks	**University End Exam Marks**	**Total Marks**
There shall be 2 midterm examinations. Each midterm examination consists of subjective type and Objective type tests. The subjective test is for 10 marks, with duration of 1 hour. Subjective test of each semester shall contain 4 questions; the student has to answer 2 questions, each carrying 5 marks. The objective type test is for 10 marks with duration of 20 minutes. It consists of 10 Multiple choice and 10 objective type questions, the student has to answer all the questions and each carries half mark. First midterm examination shall be conducted for the first two and half units of syllabus and second midterm examination shall be conducted for the remaining two and half units. Five marks are given for assignments. There shall be two assignments in every theory course. Marks shall be awarded considering the average of two assignments in each course	75	100

IV. EVALUATION SCHEME:

S. No	Component	Duration	Marks
1	I Mid Examination	80 Minutes	20
2	I Assignment	-	5
3	II Mid Examination	80 Minutes	20
4	II Assignment	-	5
5	External Examination	3 Hours	75

V. COURSE OBJECTIVES:

The course should enable the students to:

I. Analyze the basic HTML tags and design and develop basic web pages.
II. Understand the features of PHP to develop real time applications.
III. Understand the syntax and semantics of java script programming language.
IV. Use the basic building blocks of XML documents and validation of XML documents.
V. Apply the knowledge of JSP, Servlets to develop the applications.

VI. COURSE OUTCOMES:

Upon completion of this course, students will be able to:

1. Understand the basic HTML tags.
2. Identify the methods to read data from web pages using PHP.
3. Create a web based application using PHP
4. Identify the engineering structural design of XML and parse tree.
5. Understand the concept of java scripts.
6. Understand Beans concepts.
7. Create applications by using the concepts like JSP and Servlet.
8. Apply JDBC and ODBC technologies to create database.
9. Create a server side java application called JSP to catch form data sent from client and store it on database.
10. Identifying the process of form validation using Java script.

VII. HOW PROGRAM OUTCOMES ARE ASSESSED

Program Outcomes		Level	Proficiency assessed by
PO 1	**Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.	H	Assignments
PO 2	**Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.	S	Assignments
PO 3	**Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.	H	Mini Project
PO 4	**Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.	S	Open ended experiments
PO 5	**Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.	S	Mini Project
PO 6	**The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the	N	---

Program Outcomes		Level	Proficiency assessed by
	consequent responsibilities relevant to the professional engineering practice.		
PO 7	**Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.	N	---.
PO 8	**Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.	N	---
PO 9	**Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.	N	---
PO 10	**Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.	S	Seminars / Term Paper / 5 minutes Video
PO 11	**Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.	N	---
PO 12	**Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.	S	Certifications

N - None **S – Supportive** **H - Highly Related**

VIII. HOW PROGRAM SPECIFIC OUTCOMES ARE ASSESSED:

Program Specific Outcomes		Level	Proficiency assessed by
PSO 1	**Professional Skills:** The ability to research, understand and implement computer programs in the areas related to algorithms, system software, multimedia, web design, big data analytics, and networking for efficient analysis and design of computer-based systems of varying complexity.	H	Lectures, Assignments
PSO 2	**Problem-Solving Skills:** The ability to apply standard practices and strategies in software project development using open-ended programming environments to deliver a quality product for business success.	H	Projects
PSO 3	**Successful Career and Entrepreneurship:** The ability to employ modern computer languages, environments, and platforms in creating innovative career paths, to be an entrepreneur, and a zest for higher studies.	S	Guest Lectures

N - None **S - Supportive** **H - Highly Related**

IX. SYLLABUS:

UNIT - I

Introduction to PHP: Declaring variables, data types, arrays, strings, operators, expressions, control structures, functions, Reading data from web form controls like text boxes, radio buttons, lists etc., Handling File uploads, Connecting to database (My SQL as reference), executing simple queries, handling results, Handling sessions andcookies.

File Handling in PHP: File operations like opening, closing, reading, writing, appending, deleting etc. on text and binary files, listing directories.

UNIT - II

XML: Introduction to XML, Defining XML tags, their attitudes and values, Document Type Definition, XML Schemas, Document Object Model, XHTML.

Parsing XML Data – DOM and SAX Parsers in Java.

UNIT - III
Introduction Servlets: Common Interface (CGI), Lifecycle of a Servlet, deploying a Servlet, The Servlet API Reading Servlet parameters, Reading Initialization parameters, Handling Http Request & Responses, Using Cookies and Sessions, Connecting to a database using JDBC.

UNIT – IV
Introduction to JSP: The Anatomy of a JSP Page, JSP Processing, Declarations, Directives, Expressions, Code Snippets, implicit objects, Using Beans in JSP Pages, Using Cookies and session for session tracking, connecting to database in JSP.

UNIT – V
Client Side Scripting: Introduction to Javascript: Javascript language – declaring variables, scope of variables, functions, event handles (on click, on submit etc.), Object Model, From validation.
Simple AJAX application.

TEXT BOOKS:
1. Web Technologies, Uttam K Roy, Oxford University Press.
2. The Complete Reference PHP – Steven Holzner, TataMcGraw-Hill.

REFERENCES
1. Web Programming, building internet applications, Chris Bates 2nd edition, Wiley Dreamtech.
2. Java Server Pages – Hans Bergsten, SPD O" Reilly.
3. Java Script, D.Flangagan, O'Reilly, SPD.
4. Beginning Web Programming-Jon Duckett WROX.
5. Programming world wide web, R.W.Sebesta, Fourth Edition, Pearson.
6. Internet and World Wide Web – How to program, Dietel and Nieto, Pearson.

X. COURSE PLAN:

The course plan is meant as a guideline. There may probably be changes.

Lecture No	Course Learning Outcomes	Topic/s to be covered	Reference
UNIT – I 1	Introduction to Web Technologies	Introduction to World Wide Web	T1: 1.5, 4.1, 4.2 R2:1.2, 1.3, 1.5, 2.3
2-7	To gain knowledge about the basic HTML tags	Basic HTML tags	T1:1.4, 2.2, 2.5 R2: 2.1, 3.2, 3.3, 4.1.4
		Lists, Images, Tables	T1:2.6-2.14, 3.1-3.16 R2:3.5, 3.6
		Forms, Frames	T1: 2.15
		Cascading style sheets	T1:5.1-5.4 R2:3.7
8-9	To understand the basics of PHP	Introduction to PHP	T2: 1.5, 1.6,
		Declaring variables	T2:1.9
10-12	Understand the data types in PHP	Data types	T2:2.2
		Arrays	T2:2.4
		Strings	T2:2.7
13-16	To gain knowledge about basic building blocks of PHP	Operators, Expressions, Control structures, Functions	T2: 3.4,3.8,4.4
17-23	To understand the methods to read data, upload into files and connection to database	Reading data from web form controls	T2:8.1-8.5 R2: 4.4
		Handling File uploads	T2:8.6, 8.7 R2:4.4

		Connecting to database (MySQL)	T2:9.1-9.3 R2:4.3
		Executing simple queries	T2: 10.1, 10.2, 10.7, 10.8, 10.10, 10.11
		Handling results	T2:10.12, 10.14
		Handling sessions and cookies	T2:12.1 12.3
24-26	Summarize the file handling mechanism of PHP	File operations on text	T1:12.2-12.11 R2:6.3, 6.4, 6.5, 6.8
		File operations on binary files	T1:11.3-11.4 R2: 7.2, 7.3
		listing directories	T1: 11.12 R2:7.1, 7.2.3
UNIT – II 27-29	Discover XML, add user defined tag names in HTML	Introduction to XML	T1:11.10 R2:7.6
		Defining XML tags	T1:11.12
		XML attitudes and values	R2:9.2
30	Summarize validation techniques in XML using DTD	Document Type Definition	R2:9.4
31-34	Examine disadvantages of DTD and know the importance of XML Schema	XML Schemas	R2:9.4
		Document Object Model	T1:17.1 R2:10.2
		Document Object Model	T1:17.2
		XHTML	T1:17.7, 18.1, 18.2
35-36	Apply programming language features on xml document using parsers	DOM Parsers in Java	T1:18.2
		SAX Parsers in Java	T1:17.3 R2:11.4
UNIT – III 37-40	Gain knowledge on web servers	Introduction Servlets	T1:15.1 R2:8.2
		Common Interface (CGI)	T1:15.2 R2:8.3
		Lifecycle of a Servlet	T1:15.7 R2:8.5.2
		Deploying a Servlet	T1:15.7.4
41-43	Discuss the initialization of parameters.	The Servlet API	T1:15.7.6
		Reading Servlet parameters	T1:15.7.7
		Reading Initialization parameters	T1:15.7.8
44	Understanding the HTTP requests and responses.	Handling Http Request & Responses	T1:15.7.9
45	Applying the Cookies and sessions on servlets.	Using Cookies and Sessions	T1:15.8
46	Create connection between Servlets and database	Connecting to a database using JDBC.	T1:15.9
UNIT – IV 47-53	Understand the JSP Processing	Introduction to JSP	T1:16.1
		The Anatomy of a JSP Page	T1:16.2
		JSP Processing	T1:16.3
		Declarations	T1:16.4
		Directives	T1:16.4.1

		Code Snippets	T1:16.4.2
54	Understand the JSP objects	Implicit objects	T1:16.5
55	Gain the knowledge on EJBs	Using Beans in JSP Pages	T1:16.6
56	Gain knowledge on memory usage	Using Cookies and session for session tracking	T1:16.7
57	Create connection between JSP and database	Connecting to database in JSP.	T1:16.8
UNIT – V 58-61	Add dynamic content into HTML code using java Script	Introduction to Javascript	T1:17.1
		Declaring variables	T1:17.2.2
		Scope of variables	T1:17.3.6
		Functions	T1:17.4
62	Understand various types of Event handlers in java script	Event handles	T1:17.5
63-64	Discuss pre-defined objects, Dynamic HTML	Object Model	T1:17.6
		Form validation.	T1:17.7
65	Gain knowledge about AJAX	Simple AJAX application	T1:17.8

XI. MAPPING COURSE OBJECTIVES LEADING TO THE ACHIEVEMENTOF PROGRAM OUTCOMES:

Course Objectives	Program Outcomes												Program Specific Outcomes		
	PO 1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
I		S	H								H		S		
II			S								S				S
III		S	S											S	
IV								S			S				S
V			S					S			H		H	S	

S =Supportive H = Highly Related

XII. MAPPING COURSE OUTCOMES LEADING TO THE ACHIEVEMENT OF THE PROGRAM OUTCOMES:

Course Outcomes	Program Outcomes												Program Specific Outcomes		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1		S								S			S		
2			S								S			S	
3		S					S							S	
4											H				S
5											H				H
6							S				S		H		
7			S								S				H
8	S														
9															
10															

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