INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)
Dundigal, Hyderabad -500 043

INFORMATION TECHNOLOGY

COURSE DESCRIPTOR

Course Title	**WEB TECHNOLOGIES**				
Course Code	**ACS006**				
Programme	B.Tech				
Semester	V	IT			
Course Type	Core				
Regulation	R16				
Course Structure	**Theory**			**Practical**	
	Lectures	**Tutorials**	**Credits**	**Laboratory**	**Credits**
	3	1	4	3	2
Chief Coordinator	Mr. A Krishna Chaitanya, Assistant Professor				
Course Faculty	Dr. B Venkateswara Rao, 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 arrange of web applications.

II. COURSE PRE-REQUISITES:

Level	Course Code	Semester	Prerequisites	Credits
UG	ACS001	I	Computer Programming	4
UG	ACS003	III	Object Oriented Programming Through Java	4

III. MARKS DISTRIBUTION:

Subject	SEE Examination	CIA Examination	Total Marks
Web Technologies	70 Marks	30 Marks	100

IV. DELIVERY / INSTRUCTIONAL METHODOLOGIES:

✘	Chalk & Talk	✔	Quiz	✔	Assignments	✔	MOOCs
✔	LCD / PPT	✔	Seminars	✘	Mini Project	✔	Videos
✘	Open Ended Experiments						

V. EVALUATION METHODOLOGY:

The course will be evaluated for a total of 100 marks, with 30 marks for Continuous Internal Assessment (CIA) and 70 marks for Semester End Examination (SEE). Out of 30 marks allotted for CIA during the semester, marks are awarded by taking average of two CIA examinations or the marks scored in the make-up examination.

Semester End Examination (SEE): The SEE is conducted for 70 marks of 3 hours duration. The syllabus for the theory courses is divided into five units and each unit carries equal weight age in terms of marks distribution. The question paper pattern is as follows. Two full questions with "either" or "choice" will be drawn from each unit. Each question carries 14 marks. There could be a maximum of two sub divisions in a question.

The emphasis on the questions is broadly based on the following criteria:

50 %	To test the objectiveness of the concept.
50 %	To test the analytical skill of the concept OR to test the application skill of the concept.

Continuous Internal Assessment (CIA):

CIA is conducted for a total of 30 marks (Table 1), with 25 marks for Continuous Internal Examination (CIE), 05 marks for Quiz/ Alternative Assessment Tool (AAT).

Table 1: Assessment pattern for CIA

Component	Theory		Total Marks
Type of Assessment	CIE Exam	Quiz / AAT	
CIA Marks	25	05	30

Continuous Internal Examination (CIE):

Two CIE exams shall be conducted at the end of the 8th and 16th week of the semester respectively. The CIE exam is conducted for 25 marks of 2 hours duration consisting of two parts. Part–A shall have five compulsory questions of one mark each. In part–B, four out of five

questions have to be answered where, each question carries 5 marks. Marks are awarded by taking average of marks scored in two CIE exams.

Quiz - Online Examination

Two Quiz exams shall be online examination consisting of 25 multiple choice questions and are to be answered by choosing the correct answer from a given set of choices (commonly four). Such a question paper shall be useful in testing of knowledge, skills, application, analysis, evaluation and understanding of the students. Marks shall be awarded considering the average of two quiz examinations for every course.

Alternative Assessment Tool (AAT)

This AAT enables faculty to design own assessment patterns during the CIA. The AAT converts the classroom into an effective learning centre. The AAT may include tutorial hours/classes, seminars, assignments, term paper, open ended experiments, METE (Modeling and Experimental Tools in Engineering), five minutes video, MOOCs etc.

VI. HOW PROGRAM OUTCOMES ARE ASSESSED:

Program Outcomes (POs)		Strength	Proficiency assessed by
PO1	**Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.	2	Seminars & Assignments
PO2	**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.	2	Seminars
PO3	**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.	2	Seminars
PO5	**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.	3	Seminars & Assignments
PO12	**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.	2	Assignments

3 = High; 2 = Medium; 1 = Low

VII. HOW PROGRAM SPECIFIC OUTCOMES ARE ASSESSED:

Program Specific Outcomes (PSOs)		Strength	Proficiency assessed by
PSO1	**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.	3	Assignments

Program Specific Outcomes (PSOs)		Strength	Proficiency assessed by
PSO2	**Software Engineering Practices:** The ability to apply standard practices and strategies in software service management using open-ended programming environments with agility to deliver a quality service for business success	2	Seminars & Assignments
PSO3	**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.	-	-

3 = High; 2 = Medium; 1 = Low

VIII. COURSE OBJECTIVES (COs):

The course should enable the students to:	
I	Design static and dynamic web pages using HTML, CSS and Java Script.
II	Understand a well-formed XML schemes for developing web applications.
III	Design and implement web services from the server and client side.
IV	Understand how server-side programming works on the web using PHP.
V	Apply tools to retrieve the information from the database using PHP.

IX. COURSE OUTCOMES (COs):

COs	Course Outcome	CLOs	Course Learning Outcome
CO 1	Implement interactive web page (s) using HTML, CSS and JavaScript.	CLO 1	Understand the basic HTML tags.
		CLO 2	Understand and apply the design principles of HTML and Java Script to create static and dynamic web pages.
CO 2	Build well-formed XML Document and implement Web Applications using Javascript objects.	CLO 3	Understand the difference between HTML and XML scripting languages.
		CLO 4	Identify the engineering structural design of XML and parse construction tree model.
		CLO 5	Analyze the client side validation procedure in web applications.
CO 3	Implement server side java application called Servlet/JSP to catch form data sent from client, process it and store it on database.	CLO 6	Proficient in creating reusable web component using java bean.
		CLO 7	Identify the difference between the JSP and Servlet.
		CLO 8	Able to use web server and data base servers using specific vendor related software's.
		CLO 9	Create applications by using the concepts like JSP and Servlet.
		CLO 10	Identify and perform requesting and response generation process in web servers.
CO 4	Understand the general concepts of PHP scripting language for the development of Internet	CLO 11	Understand the PHP downloading, installation and configuring PHP process.
		CLO 12	Understand branching statements, loop statements and use them in problem solving.

COs	Course Outcome	CLOs	Course Learning Outcome
	websites.	CLO 13	Identify the methods to read data from web pages using PHP.
CO 5	Build Dynamic web site using server side PHP Programming and Database connectivity.	CLO 14	Understand how MYSQL server is connected with PHP
		CLO 15	Able to perform crude operations in data base servers, operations in PHP
		CLO 16	Understand the file handling methods using PHP.
		CLO 17	Familiar with basic HTML, XML, JSP and PHP techniques: Creation of web pages, that Includes verification and validation of web pages.
		CLO 18	Possess the knowledge and skills for employability and to succeed in national and international level competitive examinations.

X. COURSE LEARNING OUTCOMES (CLOs):

CLO Code	CLO's	At the end of the course, the student will have the ability to:	PO's Mapped	Strength of Mapping
ACS006.01	CLO 1	Understand the basic HTML tags.	PO1;PO3	3
ACS006.02	CLO 2	Understand and apply the design principles of HTML and Java Script to create static and dynamic web pages.	PO2;PO5	3
ACS006.03	CLO 3	Understand the difference between HTML and XML scripting languages.	PO3	2
ACS006.04	CLO 4	Identify the engineering structural design of XML and parse construction tree model.	PO1	2
ACS006.05	CLO 5	Analyze the client side validation procedure in web applications.	PO3	2
ACS006.06	CLO 6	Proficient in creating reusable web component using java bean.	PO1;PO5	3
ACS006.07	CLO 7	Identify the difference between the JSP and Servlet.	PO1;PO3	3
ACS006.08	CLO 8	Able to use web server and data base servers using specific vendor related software's.	PO5	3
ACS006.09	CLO 9	Create applications by using the concepts like JSP and Servlet.	PO2	2
ACS006.10	CLO 10	Identify and perform requesting and response generation process in web servers.	PO3	3
ACS006.11	CLO 11	Understand the PHP downloading, installation and configuring PHP process.	PO1;PO5	3
ACS006.12	CLO 12	Understand branching statements, loop statements and use them in problem solving.	PO1	2
ACS006.13	CLO 13	Identify the methods to read data from web pages using PHP.	PO3	2
ACS006.14	CLO 14	Understand how MYSQL server is connected with PHP	PO1;PO2	2
ACS006.15	CLO 15	Able to perform crude operations in data base servers, operations in PHP	PO1	3
ACS006.16	CLO 16	Understand the file handling methods using PHP.	PO 3	2

CLO Code	CLO's	At the end of the course, the student will have the ability to:	PO's Mapped	Strength of Mapping
ACS006.17	CLO 17	Familiar with basic HTML, XML, JSP and PHP techniques: Creation of web pages, that Includes verification and validation of web pages.	PO2	2
ACS006.18	CLO 18	Possess the knowledge and skills for employability and to succeed in national and international level competitive examinations.	PO1;PO12	3

3 = High; 2 = Medium; 1 = Low

XI. MAPPING COURSE OUTCOMES LEADING TO THE ACHIEVEMENT OF PROGRAM OUTCOMES

Course Outcomes (COs)	Program Outcomes (POs)						
	PO1	PO2	PO3	PO5	PO12	PSO1	PSO2
CO1	3	3	3		1	3	2
CO2	3	3	2		2	3	
CO3	3	2	3	2		2	2
CO4	3	2	3	2		2	3
CO5	3	2	3				

3 = High; 2 = Medium; 1 = Low

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

(CLOs)	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CLO 1	3		2												
CLO 2		2			3								3		
CLO 3			2												
CLO 4	2												2		
CLO 5			2										3		
CLO 6	2				3										
CLO 7	2		3												
CLO 8					3								3		
CLO 9		2													

(CLOs)	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CLO 10			3										3		
CLO 11	2				3										
CLO 12	2													2	
CLO 13			2										2		
CLO 14	2	2											3		
CLO 15	3														
CLO 16			2										3		
CLO 17		2													
CLO 18	2											2			

3 = High; 2 = Medium; 1 = Low

XIII. ASSESSMENT METHODOLOGIES – DIRECT

CIE Exams	PO1, PO2, PO3, PO5, PSO1, PSO2	SEE Exams	PO1, PO2, PO3, PO5, PO12, POS1, POS2	Assignments	PO1, PO2, PO5	Seminars	PO1, PO3, PO5, PO12
Laboratory Practices	-	Student Viva	-	Mini Project	-	Certification	-
Term Paper	-						

XIV. ASSESSMENT METHODOLOGIES - INDIRECT

✔	Early Semester Feedback	✔	End Semester OBE Feedback
✘	Assessment of Mini Projects by Experts		

XV. SYLLABUS

Unit-I	Introduction to HTML and Java Script
Introduction to HTML: Fundamentals of HTML elements, Document body, text, hyperlink, lists, tables, color and images, frames; Cascading Style Sheets: Introduction, defining your own styles, properties and values in styles, style sheets, formatting blocks, and layers. JavaScript: JavaScript basics, variables, string manipulation, mathematical functions, statements, operators, arrays and functions.	
Unit-II	**Objects in Javascript and XML**
Objects in JavaScript: Data and objects in JavaScript, regular expressions, exception handling, built-in objects, events; Dynamic HTML with JavaScript: Data validation, opening a new window, Rollover buttons, moving images, multiple pages in a single download, floating logos. XML: Basics XML, document type definition, xml schemas, Document Object Model, presenting XML.	

Unit-III	SERVLETS and JSP
Servlet: Life cycle of a Servlet, a simple Servlet, the Servlet API, the Javax. Servlet package, reading Servlet parameters, the javax.Servlet.HTTP package, Handling HTTP requests and responses, using cookies and sessions. JSP: The anatomy of a JSP page, JSP processing, declarations, directives, expressions, code snippets, implicit objects, using beans in JSP pages, connecting to database in JSP.	
Unit-IV	**Introduction to PHP**
Basics of PHP: downloading, installing, configuring PHP, programming in a web environment and the anatomy of a PHP page; Overview of PHP data types and concepts: Variables and data types, operators, expressions and statements, strings, arrays and functions.	
Unit-V	**PHP and Database Access**
PHP and database access: Basic database concepts, connecting to a My SQL database, retrieving and displaying results, modifying, updating and deleting data; MVC architecture: PHP and AJAX other web technologies: PHP and XML, PHP and AJAX.	
Text Books:	
1. Chris Bates, "Web Programming: Building Internet Applications", Wiley Dream Tech, 2nd Edition, 2002. 2. Jeffrey C K Jackson, "Web Technologies", Pearson Education, 1st Edition, 2006. 3. Steven Holzner, "The Complete reference PHP", Tata McGraw-Hill, 1st Edition, 2007.	
Reference Books:	
1. W Hans Bergsten, "Java Server Pages", O Reilly, 3rd Edition, 2003. 2. D. Flanagan, "Java Script", O Reilly, 6th Edition, 2011. 3. Jon Duckett, "Beginning Web Programming", WROX, 2ndEdition, 2008. 4. Herbert Schildt, "Java the Complete Reference", Hill - Osborne, 8th Edition, 2011.	

XVI. COURSE PLAN:

The course plan is meant as a guideline. Probably there may be changes.

Lecture No.	Topics to be covered	Course Learning Outcomes (CLOs)	Reference
1-4	Introduction to HTML, Fundamentals of HTML elements, Document body, text, hyperlink	CLO 1	T1:1.1 T1:2.1-2.4
5-8	Lists, tables, color and images, frames ,Introduction to Cascading Style Sheets, defining your own styles	CLO 1	T1:2.6-2.9 T1:4.1-4.3
9-11	Properties and values in styles, Style sheets, formatting blocks, and layers	CLO 1	T1:4.4-4.7
12	JavaScript basics, variables, string manipulation	CLO 2	T1:5.1-5.5
13-14	Mathematical functions, statements, operators, arrays and functions.	CLO 2	T1:5.6-5.10
15-17	Data and objects in JavaScript, regular expressions, exception handling, built-in objects, events	CLO 2	T1:6.1-6.5
18-20	HTML with JavaScript: Data validation, opening a new window, Rollover buttons.	CLO 5	T1:7.1-7.3 T1:7.6
21-22	Moving images, multiple pages in a single download, floating logos	CLO 3	T1:7.7- 7.10
23-25	Basics XML, document type definition, xml schemas, Document Object Model, presenting XML.	CLO 4	T1:14.1-14.5
26-28	Lifecycle of a Servlet, a simple Servlet, the servlet API, the Javax.servlet package,reading Servlet parameters, the javax.servlet.	CLO 7	T2:11.3

Lecture No.	Topics to be covered	Course Learning Outcomes (CLOs)	Reference
29	HTTP package, Handling HTTP requests and responses, using cookies and sessions.	CLO 8	T2:11.3
30	The anatomy of a JSP page, JSP processing, declarations, directives, expressions, code snippets	CLO 9	T2:11.4
31-33	Implicit objects, using beans in JSP pages, connecting to database in JSP.	CLO 9	T2:11.4
34-35	Basics of PHP, downloading, installing, configuring PHP	CLO 10	T3:1
36	Programming in a web environment and the anatomy of a PHP page	CLO 11	T3:1
37-38	Overview of PHP data types and concepts: Variables and datatypes, operators, expressions and statements	CLO 11	T3:1, 2
39	Complex structures, structures and functions, passing structures through pointers, self-referential structures.	CLO 12	T3:2
40	Strings, arrays, Functions.	CLO 13	T3:3, 4
41	PHP and database access: Basic database concepts, connecting to a My SQL	CLO 14	T3:10
42	Retrieving and displaying results, modifying, updating and deleting data	CLO 15	T3:10
43	MVC Architecture	CLO 18	T3:18
44	PHP and other web technologies: PHP and XML	CLO 17	T3:12
45	PHP and AJAX.	CLO 17	T3:13

XVII. GAPS IN THE SYLLABUS - TO MEET INDUSTRY / PROFESSION REQUIREMENTS:

S NO	Description	Proposed actions	Relevance with POs	Relevance with PSOs
1	Updating latest version and new features of the PHP Language.	Seminars /NPTEL	PO 1, PO2, PO5	PSO 1
2	Familiarizing the role of Java script Objects in developing system level programs.	Assignments / NPTEL	PO 2, PO5	PSO 1
3	Familiarizing different applications of java beans, Deployment of BDK.	Seminars / Guest Lectures /NPTEL	PO 5	PSO 2
4	Implementation of XML DTD and DOM with ALTOVA XML Spy Enterprise Edition	Guest Lecturers	PO2	PSO1

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