INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)
Dundigal, Hyderabad -500 043

COMPUTER SCIENCE AND ENGINEERING

COURSE DESCRIPTOR

Course Title	**IT WORKSHOP**				
Course Code	AITB02				
Programme	B. Tech				
Semester	III	CSE | IT			
Course Type	Core				
Regulation	IARE - R18				
Course Structure	**Theory**			**Practical**	
	Lectures	**Tutorials**	**Credits**	**Laboratory**	**Credits**
	-	-	-	4	2
Chief Coordinator	Mr. C. Praveen Kumar, Assistant Professor.				
Course Faculty	Ms. P. Navya, Assistant Professor Ms. B. Pravallika, Assistant Professor Mr. J. Thirupathi, Assistant Professor Ms. J. Hareesha, AssistantProfessor Ms. G. Sulakshana, Assistant Professor Ms. B. Anupama, Assistant Professor				

I. COURSEOVERVIEW:

This course covers the basics of computer knowledge and demonstrates fundamental LaTex programming techniques, spreadsheet files and terms including the most common latex functions and the usage of the mathematical equations. This course helps the students in gaining the knowledge to write simple latex applications, mathematical equations and web design. This course helps to undertake future courses that assume latex programming topics include web design, html, computer networks, cabling a network using CCNA. This course in reached to student by power point presentations, lecture notes, and lab involve the problem solving in mathematical and engineeringareas.

II. COURSEPRE-REQUISITES:

Level	Course Code	Semester	Prerequisites	Credits
-	-	-	Basic Computer Knowledge	-

III. MARKSDISTRIBUTION:

Subject	SEE Examination	CIA Examination	Total Marks
IT Workshop Laboratory	70 Marks	30 Marks	100

IV. DELIVERY / INSTRUCTIONALMETHODOLOGIES:

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

V. EVALUATIONMETHODOLOGY:

Each laboratory will be evaluated for a total of 100 marks consisting of 30 marks for internal assessment and 70 marks for semester end lab examination. Out of 30 marks of internal assessment, continuous lab assessment will be done for 20 marks for the day to day performance and 10 marks for the final internal lab assessment.

Semester End Examination (SEE): The semester end lab examination for 70 marks shall be conducted by two examiners, one of them being Internal Examiner and the other being External Examiner, both nominated by the Principal from the panel of experts recommended by Chairman,BOS.

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

20 %	To test the preparedness for the experiment.
20 %	To test the performance in the laboratory.
20 %	To test the calculations and graphs related to the concern experiment.
20 %	To test the results and the error analysis of the experiment.
20 %	To test the subject knowledge through viva – voce.

Continuous Internal Assessment (CIA):

CIA is conducted for a total of 30 marks (Table 1), with 20 marks for continuous lab assessment during day to day performance, 10 marks for final internal lab assessment.

Table 1: Assessment pattern for CIA

Component	Laboratory		Total Marks
Type of Assessment	Day to day performance	Final internal lab assessment	
CIA Marks	20	10	30

Continuous Internal Examination (CIE):

One CIE exams shall be conducted at the end of the 16th week of the semester. The CIE exam is conducted for 10 marks of 3 hours duration.

Preparation	Performance	Calculations and Graph	Results and Error Analysis	Viva	Total
2	2	2	2	2	10

VI. HOW PROGRAM OUTCOMES AREASSESSED:

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.	3	Videos/ StudentViva
PO2	**Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using firstprinciplesofmathematics,naturalsciences,and engineering sciences	2	Lab Exercises/ StudentViva
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.	3	Videos/ StudentViva
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	Lab Exercises

3 = High; 2 = Medium; 1 = Low

VII. HOW PROGRAM SPECIFIC OUTCOMES AREASSESSED:

Program Specific Outcomes (PSOs)		Strength	Proficiency assessed by
PSO1	**Professional Skills:** The ability to understand, analyze and develop 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.	2	Videos
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.	3	Lab Exercises
PSO3	**Successful Career and Entrepreneurship:** The ability to employ modern computer languages, environments, and platforms in creating innovative	1	Lab Exercises

Program Specific Outcomes (PSOs)		Strength	Proficiency assessed by
	career paths to be an entrepreneur, and a zest for higher studies.		

3 = High; 2 = Medium; 1 = Low

VIII. COURSE OBJECTIVES :

The course should enable the students to:	
I	Understand the fundamental concepts of computer networking.
II	Use the preamble of LaTeX file to define document class and layout options.
III	Use LaTeX and various templates acquired from the course to compose Mathematical documents, presentations, and reports.
IV	Understand web design concepts.

IX. COURSE OUTCOMES(COs):

COs	Course Outcome	CLOs	Course Learning Outcome
CO 1	Implement interactive web page(s) using HTML, CSS andJavaScript.	CLO 1	Explain and use TeX and LaTeX.
		CLO 2	Installation and usage of MikTeX.
		CLO 3	Installs MikTeX on Windows operating systems.
		CLO 4	Use basic components of MiKTeX such as package manager, update manager, etc.
CO 2	Design a responsive web site using HTML5 and CSS3.	CLO 5	Explains how to obtain LaTeX.
		CLO 6	Write mathematical documents via LaTeX.
		CLO 7	Lists LaTeX editors.
		CLO 8	Write documents containing mathematical formulas.
CO 3	Build Dynamic web site using server side PHP Programming and Databaseconnectivity.	CLO 9	Type mathematical symbols in paragraphs.
		CLO 10	Types equations and formulas.
		CLO 11	Writes mathematical symbols.
		CLO 12	Labels and refers the equations.
CO 4	Illustrate various IT web services for betterment of knowledge.	CLO 13	Writes articles in different journal styles.
		CLO 14	Explains the basic structures of an article.
		CLO 15	Draws graphs and figures in LaTeX.
		CLO 16	Includes graphic files into LaTeX documents.

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
AITB02.01	CLO 1	Explain and use TeX and LaTeX.	PO1, PO2	2
AITB02.02	CLO 2	Installation and usage of MikTeX.	PO1, PO2	2
AITB02.03	CLO 3	Installs MikTeX on Windows operating systems.	PO2,PO3	3
AITB02.04	CLO 4	Use basic components of MiKTeX such as package manager, update manager,etc.	PO2	2
AITB02.05	CLO 5	Explains how to obtain LaTeX.	PO1,PO2, PO3	3
AITB02.06	CLO 6	Write mathematical documents via LaTeX.	PO2, PO3	2
AITB02.07	CLO 7	Lists LaTeX editors.	PO1,PO2, PO3	3
AITB02.08	CLO 8	Write documents containing mathematical formulas.	PO1,PO2, PO3	3
AITB02.09	CLO 9	Type mathematical symbols in paragraphs.	PO1,PO2, PO 3,PO5	3
AITB02.10	CLO 10	Types equations and formulas.	PO2, PO3	2
AITB02.11	CLO 11	Writes mathematical symbols.	PO2, PO3	2
AITB02.12	CLO 12	Labels and refers the equations.	PO1,PO2, PO5	3
AITB02.13	CLO 13	Writes articles in different journal styles.	PO1, PO2, PO3	3
AITB02.14	CLO 14	Explains the basic structures of an article.	PO1, PO2	2
AITB02.15	CLO 15	Draws graphs and figures in LaTeX.	PO1, PO2, PO5	3
AITB02.16	CLO 16	Includes graphic files into LaTeX documents.	PO1, PO2	2
AITB02.17	CLO 17	Custimize LaTeX documents.	PO2, PO3	3
AITB02.18	CLO 18	Prepare presentation using LaTeX.	PO1, PO3	2

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XI. MAPPING COURSE OUTCOMES LEADING TO THE ACHIEVEMENT OF PROGRAM OUTCOMES AND PROGRAM SPECIFICOUTCOMES:

Course Outcomes (COs)	Program Outcomes (POs)				Program Specific Outcomes(PSOs)		
	PO1	PO2	PO3	PO5	PSO1	PSO2	PSO3
CO 1	3	3	3		3	3	
CO 2	3	3			3	3	2
CO 3	3	3	2	2	3	2	2
CO 4	3	3	2		2	2	

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

Course Learning Outcomes (CLOs)	Program Outcomes (POs)												ProgramSpecific Outcomes(PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CLO 1	3	2											2	2	
CLO 2	3	2											3	2	
CLO 3		3	2										1	3	
CLO 4		3											3		
CLO 5	2	3	2											3	
CLO 6		3	2											3	
CLO 7	3	2	1										2	3	
CLO 8	2	3	1										2	3	
CLO 9	2	3	1		1								1	3	1
CLO 10		2	3										2	3	1
CLO 11		2	3										3	2	
CLO 12	3	2			2									3	
CLO 13	3	2	2										2	3	
CLO 14	2	3											3		
CLO 15	3	2			2								1	1	
CLO 16	3	2											2	3	
CLO 17		3	3											3	
CLO 18	1		3												1

3 = High; 2 = Medium; 1 = Low

XIII. ASSESSMENT METHODOLOGIES –DIRECT

CIE Exams	PO1, PO2, PO3,PO5	SEE Exams	PO1,PO2 PO3,PO5	Lab Exercises	PO5	Seminars	-
Laboratory Practices	PO1, PO2, PO3,PO5	Student Viva	PO1, PO2, PO3,PO5	Mini Project	-	Certification	-

XIV. ASSESSMENT METHODOLOGIES -INDIRECT

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

XV. SYLLABUS

WEEK-1	**LaTeX FORMATTING**
Introduction of LaTex and LateX document formatting: Create a LaTeX document with following formatting: All margins with 1.5, headings with bold, text with normal, chapter name with blue color, line space with1.5.	
WEEK-2	**TECHNICAL PAPER PREPARATION IN LaTeX**
Essential steps in writing the technical report: Create a technical report according to IEEE format includes title of the paper, authors name and affiliations, abstract and keywords, introduction section, background section, and other sections, references.	
WEEK-3	**FORMATTING MATHEMATICAL EQUATIONS IN LaTeX**
Create a LaTeX document with following mathematical equations along with equation numbers in Italic format: summation (represent in sigma symbol), integration, integral of summation, average of summation, trigonometric equations, polynomial and non-polynomial equations	
WEEK-4	**GRAPHICS AND TABLES IN LaTeX**
Create a LaTeX documents with images and image caption at centre alignment, table with thick border and table caption with centre alignment, row height, content with cell centre alignment.	
WEEK-5	**VARIOUS FORMATTING STYLES IN LaTeX**
Using LaTeX to create project certificate. Features to be covered:- Formatting Fonts in word, Drop Cap in word, Applying Text effects, Using Character Spacing, Borders and Colors, Inserting Header and Footer, Using Date and Time option in both LaTeX.	
WEEK-6	**EXCEL SPREADSHEETS**
Spreadsheet Orientation: Accessing, overview of toolbars, saving spreadsheet files, Using help and resources. Creating a Scheduler:- Gridlines, Format Cells, Summation, auto fill, Formatting Text Calculating GPA - Features to be covered:- Cell Referencing, Formulae in spreadsheet – average, std. deviation, Charts, Renaming and Inserting worksheets, Hyper linking, Count function, Sorting, Conditional formatting.	
WEEK-7	**PREPARATION OF POWERPOINT PRESENTATION IN LaTeX**
Student should work on basic power point utilities and tools in Latex which help them create basic power point presentation. PPT Orientation, Slide Layouts,InsertingText, Formatting Text, Bullets and Numbering, Auto Shapes, Lines andArrows	
WEEK-8	**WEBPAGES CREATION AND DESIGNING**
HTML, creating simple web pages, images and links, design of web pages. Develop home page: Student should learn to develop his/her home page using HTML consisting of his/her photo, name, address and education details as a table and his/her skill set as a list.	
WEEK-9	**WEB DESIGN FOR SAMPLE PROJECT**
Create a webpage with HTML describing your department. Use paragraph and list tags. Apply various colors to suitably distinguish key words. Also apply font styling like italics, underline and two other fonts to words you find appropriate. Also use header tags. Create links on the words e.g. “Wi-Fi” and “LAN” to link them to Wikipedia pages. Insert an image and create a link such that clicking on image takes user to other page. Change the background color of the page. At the bottom create a link to take user to the top of the page.	
WEEK-10	**NETWORK CONNECTIVITY**
Students should get connected to their Local Area Network and access the Internet. In the process they configure the TCP/IP setting. Finally students should demonstrate how to access the websites and email.	

WEEK-11	SURFING THE WEB
Web Browsers, Surfing the Web: Students customize their web browsers with the LAN proxy settings, bookmarks, search toolbars and pop up blockers.	
WEEK-12	**ROUTER CONFIGURATION**
Cabling a network using CCNA, basic and challenge router configuration, subnetting, practical test router connections and settings, troubleshooting challenges.	

REFERENCE BOOKS:

1 Introduction to Information Technology, ITL Education Solutions limited, Pearson Education India,2005
2 LaTeX Companion – Leslie Lamport,PHI/Pearson.
3 David Anfinson and Ken Quamme, IT Essentials: PC Hardware and Software Companion Guide, Third Edition, Cisco Press,2008

WEB REFERENCES:

1. https://www.latex-tutorial.com/tutorials/
2. https://tutorial.techaltum.com/webdesigning.html

Course Home Page:

SOFTWARE AND HARDWARE REQUIREMENTS FOR A BATCH OF 24 STUDENTS:

HARDWARE: Desktop Computer Systems: 24 nos.

SOFTWARE: LaTeX

XVI. COURSEPLAN:

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

Week No.	Topics to be covered	Course Learning Outcomes (CLOs)	Reference
1	LaTex Formatting	CLO 1, CLO 2, CLO 3, CLO 4	T2:1.4-1.5
2	Technical Paper Preparation In Latex	CLO 5, CLO 6	T2:3.1-3.5
3	Formatting Mathematical Equations In Latex	CLO 5, CLO 6	T2: 5.2-5.3
4	Graphics And Tables In Latex	CLO 5, CLO 6, CLO 7	T2: 6.7
5	Various Formatting Styles In Latex	CLO 5, CLO 6, CLO 7, CLO 8	T2: 4.1-4.5
6	Excel Spreadsheets	CLO 5, CLO 6, CLO 9	T1:7, 10
7	Preparation Of Powerpoint Presentation In Latex	CLO 5, CLO 6, CLO 7, CLO 13	T2:10.3-10.5
8	Webpages Creation And Designing	CLO 5, CLO 6, CLO 7, CLO 13,	T2: 12.1- 12.4
9	Web Design For Sample Project	CLO 5, CLO 6, CLO 7	T2: 6.1-6.6
10	Network Connectivity	CLO 6, CLO 7, CLO 12	T1:8
11	Surfing The Web	CLO 6, CLO 7, CLO 15	T2:10.4
12	Router Configuration	CLO 6, CLO 7, CLO 15, CLO 16, CLO 17, CLO 18	R3:12.4

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

S NO	DESCRIPTION	PROPOSED ACTIONS	RELEVANCE WITH POs	RELEVANCE WITH PSOs
1	Assist student to design system calls in LaTex Systems.	Lab Experiments	PO 1	PSO 1
2	Stimulate students to develop graphics programming	Lab Experiments	PO 2	PSO 1
3	Encourage students to solve real time applications and prepare towards competitive examinations.	Lab Experiments	PO 2	PSO 1

Prepared by:

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