

RESEARCH AND CONTENT DEVELOPMENT

II Semester: ST

| Course Code | Category | Hours / Week | | | Credits | Maximum Marks | | |
|-----------------------------|------------------------------|------------------------------|---|---|-------------------------|---------------|-----|-------|
| BSTB19 | Core | L | T | P | C | CIA | SEE | Total |
| | | 0 | 0 | 4 | 2 | 30 | 70 | 100 |
| Contact Classes: Nil | Tutorial Classes: Nil | Practical Classes: 48 | | | Total Classes:48 | | | |

. COURSE OVERVIEW:

This course deals with improving the aesthetic quality of your work, LaTeX users benefit from automating many of the tedious processes involved in writing a professional publication. LaTeX allows you to manage references, figures, tables, footnotes, formatting, mathematical equations, algorithms, scientific proofs, and more in a programmatic fashion that provides benefits far exceeding that of word processing software.

II. 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
- IV. Understand web design concepts

III. COURSE OUTCOMES

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| CO1 | Summarize the basic concepts of LaTeX for preparation of research article | Understand |
| CO2 | Develop the layout of Mathematical equation, Graphs and tables for LaTeX document preparation | Apply |
| CO3 | Apply the various Formatting Styles in LaTeX for develop the project certificates. | Apply |
| CO4 | Develop the Excel Spread Sheets for creating the Scheduler and GPA - Features | Create |
| CO5 | Make use of HTML and Network Connectivity for WEB designing for sample project | Apply |
| CO6 | Analyze the surfing the web and Router Configuration for Web Browsers, Cabling a network using CCNA. | Analyse |

IV. SYLLABUS:

LIST OF EXPERIMENTS

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| Week – I | 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 with 1.5. | |
| Week – II | 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. | |

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| Week – III | 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 – IV | 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 – V | 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 – VI | EXCEL SPREAD SHEETS |
| 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 – VII | 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, Inserting Text, Formatting Text, Bullets and Numbering. Auto Shapes. Lines and Arrows | |
| Week – VIII | WEB PAGES 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 – IX | 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 – X | 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 – XI | 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. | |

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| Week – XII | ROUTER CONFIGURATION |
| Cabling a network using CCNA, basic and challenge router configuration, subnetting, practical test router connections and settings, troubleshooting challenges. | |
| Reference Books: | |
| <ol style="list-style-type: none"> 1. Introduction to Information Technology, ITL Education Solutions limited, Pearson Education India, 2005 2. DavrdAnfimion and KenQuamme, “IT Essentials: PC Hardware and Software Companion Guide,Third Edition, Cisco Press, 2008 | |
| Web References: | |
| <ol style="list-style-type: none"> 1. https://www.latex-tutorial.com/tutorials/ 2. https://tutorial.techaltum.com/webdesigning.html | |