| Technical Writing using LaTeX | | Semester | 4 |
|---|---|---|---|
| Course Code | BCSL456D | CIE Marks | 50 |
| Teaching Hours/Week (L: T:P: S) | 0:0:2:0 | SEE Marks | 50 |
| Credits | 01 | Exam Hours | 02 |
| Examination type (SEE) | Practical | | |

**Course objectives:**
- To introduce the basic syntax and semantics of the LaTeX scripting language
- To understand the presentation of tables and figures in the document
- To illustrate the LaTeX syntax to represent the theorems and mathematical equations
- To make use of the libraries (Tikz, algorithm) to design the diagram and algorithms in the document

| Sl.NO | Experiments |
|---|---|
| 1 | Develop a LaTeX script to create a simple document that consists of 2 sections [Section1, Section2], and a paragraph with dummy text in each section. And also include header [title of document] and footer [institute name, page number] in the document. |
| 2 | Develop a LaTeX script to create a document that displays the sample Abstract/Summary |
| 3 | Develop a LaTeX script to create a simple title page of the VTU project Report [Use suitable Logos and text formatting] |
| 4 | Develop a LaTeX script to create the Certificate Page of the Report [Use suitable commands to leave the blank spaces for user entry] |
| 5 | Develop a LaTeX script to create a document that contains the following table with proper labels. |
| 6 | Develop a LaTeX script to include the side-by-side graphics/pictures/figures in the document by using the subgraph concept |
| 7 | Develop a LaTeX script to create a document that consists of the following two mathematical equations |

Table for experiment 5:

| S.No | USN | Student Name | Marks | | |
|---|---|---|---|---|---|
| | | | Subject1 | Subject2 | Subject3 |
| 1 | 4XX22XX001 | Name 1 | 89 | 60 | 90 |
| 2 | 4XX22XX002 | Name 2 | 78 | 45 | 98 |
| 3 | 4XX22XX003 | Name 3 | 67 | 55 | 59 |

Equations for experiment 7:

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$= \frac{-2 \pm \sqrt{2^2 - 4*(1)*(-8)}}{2*1}$$

$$= \frac{-2 \pm \sqrt{4+32}}{2}$$

$$\varphi_\sigma^\lambda A_t = \sum_{\pi \in C_t} \mathrm{sgn}(\pi) \varphi_\sigma^\lambda \varphi_\pi^\lambda$$

$$= \sum_{\tau \in C_{\sigma t}} \mathrm{sgn}(\sigma^{-1}\tau\sigma) \varphi_\sigma^\lambda \varphi_{\sigma^{-1}\tau\sigma}^\lambda$$

$$= A_{\sigma t} \varphi_\sigma^\lambda$$

| 8 | Develop a LaTeX script to demonstrate the presentation of Numbered theorems, definitions, corollaries, and lemmas in the document |
|---|---|
| 9 | Develop a LaTeX script to create a document that consists of two paragraphs with a minimum of 10 citations in it and display the reference in the section |
| 10 | Develop a LaTeX script to design a simple tree diagram or hierarchical structure in the document with appropriate labels using the Tikz library |
| 11 | Develop a LaTeX script to present an algorithm in the document using algorithm/algorithmic/algorithm2e library |
| 12 | Develop a LaTeX script to create a simple report and article by using suitable commands and formats of user choice. |

**Course outcomes (Course Skill Set):**
At the end of the course, the student will be able to:
- Apply basic LaTeX command to develop simple document
- Develop LaTeX script to present the tables and figures in the document
- Illustrate LaTeX script to present theorems and mathematical equations in the document
- Develop programs to generate the complete report with citations and a bibliography
- Illustrate the use of Tikz and algorithm libraries to design graphics and algorithms in the document

## Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50) and for the SEE minimum passing mark is 35% of the maximum marks (18 out of 50 marks). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together

### Continuous Internal Evaluation (CIE):
CIE marks for the practical course are **50 Marks**.
The split-up of CIE marks for record/ journal and test are in the ratio **60:40**.
- Each experiment is to be evaluated for conduction with an observation sheet and record write-up. Rubrics for the evaluation of the journal/write-up for hardware/software experiments are designed by the faculty who is handling the laboratory session and are made known to students at the beginning of the practical session.
- Record should contain all the specified experiments in the syllabus and each experiment write-up will be evaluated for 10 marks.
- Total marks scored by the students are scaled down to **30 marks** (60% of maximum marks).
- Weightage to be given for neatness and submission of record/write-up on time.
- Department shall conduct a test of 100 marks after the completion of all the experiments listed in the syllabus.
- In a test, test write-up, conduction of experiment, acceptable result, and procedural knowledge will carry a weightage of 60% and the rest 40% for viva-voce.
- The suitable rubrics can be designed to evaluate each student's performance and learning ability.
- The marks scored shall be scaled down to **20 marks** (40% of the maximum marks).

The Sum of scaled-down marks scored in the report write-up/journal and marks of a test is the total CIE marks scored by the student.

### Semester End Evaluation (SEE):
- SEE marks for the practical course are 50 Marks.
- SEE shall be conducted jointly by the two examiners of the same institute, examiners are appointed by the Head of the Institute.
- The examination schedule and names of examiners are informed to the university before the conduction of the examination. These practical examinations are to be conducted between the schedule mentioned in the academic calendar of the University.
- All laboratory experiments are to be included for practical examination.
- (Rubrics) Breakup of marks and the instructions printed on the cover page of the answer script to be strictly adhered to by the examiners.  **OR** based on the course requirement evaluation rubrics shall be decided jointly by examiners.
- Students can pick one question (experiment) from the questions lot prepared by the examiners

jointly.

- Evaluation of test write-up/ conduction procedure and result/viva will be conducted jointly by examiners.
- General rubrics suggested for SEE are mentioned here, writeup-20%, Conduction procedure and result in -60%, Viva-voce 20% of maximum marks. SEE for practical shall be evaluated for 100 marks and scored marks shall be scaled down to 50 marks (however, based on course type, rubrics shall be decided by the examiners)
- Change of experiment is allowed only once and 15% of Marks allotted to the procedure part are to be made zero.

The minimum duration of SEE is 02 hours

**Suggested Learning Resources:**

- **BOOK:** A Short Introduction to LaTeX BY FIRUZA KARMALI (AIBARA), A book for beginners, 2019
- **BOOK:** Formatting Information: A Beginner's Introduction to Typesetting with LaTeX, BY PETER FLYNN, Comprehensive TeX Archive Network (2005)
- LaTeX TUTORIAL: [https://latex-tutorial.com/tutorials/]
- LaTeX TUTORIAL: [https://www.javatpoint.com/latex]