University of Kerala

Discipline	Mathematics				
Course Code	UK4SECMAT200				
Course Title	Typesetting Documents with LaTeX				
Type of Course	SEC				
Semester	IV				
Academic Level	200-299				
Course Details	Credit	Lecture per week	Tutorial per week	Practical	Total Hours per week
	3	2	-	2	4
Pre-requisites	Basic computer knowledge				
Course Summary	This course provides the basics of LaTeX programs which enable the students to create good quality scientific documents and presentations				

Detailed Syllabus

Module	Unit	Contents	Hrs
I		**Basics of LaTeX**	**6 hours**
	1	What is LaTeX, Why LaTeX, Preparing and Compiling a LaTeXfile (Sec. 1.1–1.5, 1.7 of Text)	
	2	Fonts, font sizes, emphasis, coloured text (Sec. 2.1–2.4 of Text)	
	3	Document structure – chapters, sections, subsections (Sec. 3.1 of Text)	
	4	Labels and referencing (Sec. 3.2 of Text)	
	5	Alignment, quotes, paragraphs, spacing and hyphenation (Sec. 3.3–3.10 of Text)	
II		**Lists, Tables and Figures**	**6 hours**

Module	Unit	Contents	Hrs
	6	Listing environments — enumerate, itemize, description, nesting (Sec. 6.1–6.1.5 of Text)	
	7	Tables — tabular, tabularx, cell merge, column width control (Sec. 7.1–7.7 of Text)	
	8	Inserting figures — captions, positioning, side-by-side (Sec. 9.1–9.4 of Text)	
	9	Wrapped figures, rotated figures, figure formatting (Sec. 9.5–9.10 of Text)	
III	**Typesetting Mathematics and Theorem Environments**		**6 hours**
	10	Inline and display mathematics, symbols and operators (Sec. 11.1–11.4 of Text)	
	11	Equation numbering, overwriting and sub-numbering (Sec. 11.4–11.7 of Text)	
	12	Matrices and vectors (Sec. 12.5 of Text)	
	13	Theorem, lemma, example, proof using theorem-like environments (Sec. 13.3.3 of Text)	
IV	**Bibliography and Complete Documents**		**6 hours**
	14	Bibliography — thebibliography environment (Sec. 14.1–14.3 of Text)	
	15	List of contents and index (Sec. 16.1–16.2 of Text)	
	16	Letter and Article document classes (Sec. 19.1–19.2 of Text)	
	17	Book and Report structure (Sec. 20.1–20.3 of Text)	
	18	Beamer slides — themes, overlays, tables and figures (Sec. 21–22 of Text)	
V	**Topics suggestted for the teacher designed module**		**6 hours**
	19	Page layout, page style and fancy headers/footers (Sec. 5.1–5.4 of Text)	
	20	Mini pages and multi-column pages (Sec. 4.3–4.4 of Text)	
	21	User-defined commands and environments (Sec. 13.1–13.4 of Text)	
	22	Hyperlinks, highlighting and verbatim (Sec. 18.2–18.5 of Text)	

Topics and problems for Practical sessions and practical examinations– 30 hours

1. Prepare a document with the concepts fonts styles, font sizes, coloured text
2. Prepare a document with the concepts chapters, sections, subsections, Labels and referencing
3. Prepare a document with the concepts enumerate, itemize, description, nesting
4. Prepare a document inserting tables with the concepts tabular, tabularx, cell merge, column width control

5. Prepare a document inserting figures with the concepts captions, positioning, side-by-side
6. Prepare a document with figure formatting concepts like wrapped figures, rotated figures, figure formatting
7. Prepare a document with the concepts Inline and display mathematics, symbols and operators
8. Prepare a document with the concepts Equation numbering, overwriting and sub-numbering, Matrices, determinants and vectors
9. Prepare a document with the concepts Theorem, lemma, example, proof using theorem-like environments
10. Prepare a document with the concepts Bibliography , List of contents and index
11. Prepare a beamer presentation with 5 slides including atleast 10 concepts from the entire list of topics

Textbooks

1. Dilip Datta, LaTeXin 24 Hours, A Practical Guide for Scientific Writing, Springer, 2017.

References

1. Donald Binder, Martin Erickson, A student's guide to the study, practice and tools of modern mathematics, CRC Press, 2010.
2. E. Krishnan, The LaTeX Tutorial: A Primer, by The Tutorial Team, Indian TeX Users Group, Sayahna Foundation, http://www.sayahna.org, 2020.
3. Hubert Partl, Irene Hyna and Elisabeth Schlegl, The Not So Short Introduction to LaTeX2ϵ, Tobias Oetiker, Version 6.4, 09 March 2021.

E- resources

1. https: //www.overleaf.com/learn/latex/Learn_LaTeX_in_30_minutes

Course Outcomes

CO No.	Upon completion of the course the graduate will be able to	PO/PSO	Cognitive Level	Knowledge Category	Lecture(L) Tutorial (T)	Practical (P)
CO 1	Understand the basics of LaTeX programs	PSO1, PO7	U	F,C	L	P
CO 2	Create good quality scientific documents	PSO5, PO3	Ap,C	P	L	P
CO 3	Create good quality presentations	PSO5, PO3, 4	Ap, C	P	L	P

(R-Remember, U-Understand, Ap-Apply, An-Analyse, E-Evaluate, C-Create)
(F-Factual, C-Conceptual, P-Procedural, M-Metacognitive)

Mapping of CO with PSOs and POs

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	1												3	
CO2					3				2					
CO3			-	-	3				3	3				

(- -Nill, 1-Slightly/Low, 2-Moderate/Medium, 3-Substantial/High)

Assessment Rubrics

- Quiz/Assignment/Discussion/Seminar
- Midterm Exam
- Programming Assignments
- Final Exam

Mapping of COs to Assessment Rubrics

	Internal Examination	Assignment	Project Evaluation	End Semester Exam
CO1	✓	✓		✓
CO2	✓	✓	✓	✓
CO3	✓	✓	✓	✓