

**St. Mira's College for Girls, Pune.**  
**Autonomous – Affiliated to Savitribai Phule Pune University**  
**M.SC. Computer Science**  
**Compulsory Credit Course**

**Title:** Introduction to Latex and Scilab

**Eligibility:** Bachelor's degree in any Faculty

**Objectives:** To create understanding of the LaTeX  
 To understand the features of Latex useful for production of technical and scientific documentation  
 To understand the fundamentals of Scilab and Utilization Development of Proficiency in English and Communication Skills

**Course Structure:** The course is equivalent to 4 credits. The course can be run in any of the semesters.

**Syllabus for LaTeX (1 CREDIT COURSE – 15 hours)**


Sr.No.	CONTENT	INSTRUCTIONAL HOURS
1	Installation of the software LaTeX	1
2	Understanding Latex compilation Basic Syntax, Writing equations, Matrix, Tables	2
3	Page Layout – Titles, Abstract Chapters, Sections, References, Equation references, citation. List making environments Table of contents, Generating new commands, Figure handling numbering, List of figures, List of tables, Generating index.	4
4	Packages: Geometry, Hyperref, amsmath, amssymb, algorithms, algorithmic graphic, color, tilez listing.	3
5	Classes: article, book, report, beamer, slides. IEEtran.	2
6	Applications to: Writing Resumae Writing question paper Writing articles/ research papers Presentation using beamer.	3
7	Theory, Practical and exercises based on the above concepts.	1

*H.M. Prasad*  
*Shriyante*  
**Course Coordinator**



Syllabus for Scilab (1 CREDIT COURSE – 15 hours)

Sr.No.	CONTENT	INSTRUCTIONAL HOURS
1	Installation of the software Scilab. Basic syntax, Mathematical Operators, Predefined constants, Built in functions.	1
2	Complex numbers, Polynomials, Vectors, Matrix. Handling these data structures using built in functions.	2
3	Programming <ul style="list-style-type: none"> <li>• Functions</li> <li>• Loops</li> <li>• Conditional statements</li> <li>• Handling .sci files</li> </ul>	2
4	Installation of additional packages e.g. 'optimization'	1
5	Graphics handling <ul style="list-style-type: none"> <li>- 2D, 3D</li> <li>- Generating .jpg files</li> <li>• Function plotting</li> <li>• Data plotting</li> </ul>	3
6	Applications <ul style="list-style-type: none"> <li>• Numerical Linear Algebra (Solving linear equations, eigen values etc.)</li> <li>• Numerical Analysis – iterative methods</li> <li>• ODE – Plotting solution curves</li> </ul> Comparison with C / C++ / Matlab	6

*H. M. Phadnis*  
  
 Course Coordinator

Syllabus for Soft Skills (2 CREDIT COURSE – 30 hours)



The syllabi should consist of practical and the theoretical aspects as well. For every component there shall be the practical and theoretical contents as well.

S.No.	PRACTICAL	THEORY	Duration in hours
	<p><b>Development of Proficiency in English :</b></p> <ul style="list-style-type: none"> <li>Practice on Oral and spoken communication skill &amp; testing – voice &amp; accent, voice clarity, voice modulation &amp; intonation, word stress etc.</li> <li>Feedback and questioning Technique</li> <li>Objectiveness in Argument</li> <li>Development etiquettes and manners</li> <li>Study of different pictorial expression of non-verbal communication and its analysis</li> <li>Film presentation (Hollywood movies or English Serials)</li> </ul>	<p><b>Concepts of effective communication:</b></p> <ul style="list-style-type: none"> <li>Components of effective communication</li> <li>Communication process and handling them</li> <li>KISS (Keep it short and sweet) in communication – Composing effective messages.</li> <li>Non – Verbal Communication : its importance and nuances : Facial Expression , Posture , Gesture , Eye contact, appearance (dress code ).</li> </ul>	9
2	<p><b>Written Communication Skill Practice for:</b></p> <ul style="list-style-type: none"> <li>Correction of errors</li> <li>Making of Sentences</li> <li>Paragraph Writing</li> <li>Leave Application and simple letter writing</li> </ul>	<p><b>Grammatical use:</b></p> <ul style="list-style-type: none"> <li>Punctuation</li> <li>Meaning &amp; opposites</li> <li>Real Life conversations</li> <li>Vocabulary building</li> </ul>	6
3	<p><b>Presentation Skill practice</b></p> <ul style="list-style-type: none"> <li>Preparing in presentation</li> <li>Delivery of presentation</li> </ul>	<p><b>Concept of 4 method for presentation</b></p> <ul style="list-style-type: none"> <li>Preparation &amp; introduction</li> <li>Presentation</li> <li>Evaluation / feedback</li> <li>Summarization / Conclusion</li> </ul>	6



G.M. Phadnis

Course Coordinator