

PYTHON PROGRAMMING LAB

Course Code	23ES1351	Year	II	Semester	I
Course Category	Engineering Science	Branch	ME	Course Type	Practical
Credits	1	L-T-P	0-0-2	Prerequisites	C Programming
Continuous Internal Evaluation:	30	Semester End Evaluation:	70	Total Marks:	100

Course outcomes: At the end of the course, the student will be able to:

CO	Statement	BTL
CO1	Solve the different methods for linear, non-linear and differential equations	L5
CO2	Learn the PYTHON Programming language	L1
CO3	Familiar with the strings and matrices in PYTHON	L1
CO4	Write the Program scripts and functions in PYTHON to solve the methods	L6
CO5	Evaluate different methods of numerical solutions	L5

Contribution of Course outcomes towards achievement of programme outcomes & Strength of correlations (High:3, Medium: 2, Low:1)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2			2							1	3	
CO2	3	2			2							1	3	
CO3	3	2			2							1	3	
CO4	3	2			2							1	3	
CO5	3	2			2							1	3	

Syllabus	Mapped CO
Write Programs in PYTHON Programming for any 12 of the following:	
Write Programs in PYTHON Programming for the following:	CO1
1. To find the roots of non-linear equation using Newton Raphson's method.	CO2
2. Curve fitting by least – square approximations	CO3
3. To solve the system of linear equations using Gauss - elimination method	CO4
4. To solve the system of linear equations using Gauss - Siedal method	CO5
5. To solve the system of linear equations using Gauss - Jordan method	
6. To integrate numerically using Trapezoidal rule	

<ol style="list-style-type: none"> 7. To integrate numerically using Simpsons rule 8. To find the largest eigen value of a matrix by Power – method 9. To find numerical solution of ordinary differential equations by Euler’s method 10. To find numerical solution of ordinary differential equations by Runge-Kutta method 11. To find numerical solution of ordinary differential equations by Milne’s method 12. To find the numerical solution of Laplace equation 13. To find the numerical solution of Wave equation 14. To find the solution of a tri-diagonal matrix using Thomas algorithm 15. To fit a straight using least square technique 	
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Online Learning Sources

- https://www.udemy.com/course/python-the-complete-python-developer-course/?matchtype=e&msclkid=0584dfb54dc715f39c0bb9aaf74033be&utm_campaign=BG-Python.v.PROF.la.EN.cc.INDIA.ti.7380&utm_content=deal4584&utm_medium=udemyads&utm_source=bing&utm_term=.ag.1220458320107116.ad.kw.Python+language.de.c.dm.pl.ti.kwd-76278984197882%3Aloc-90.li.116074.pd.&couponCode=IND21PM
- https://www.w3schools.com/python/python_intro.asp
- <https://www.youtube.com/watch?v=eWRfhZUzrAc>
- https://onlinecourses.nptel.ac.in/noc20_cs83/preview
- <https://www.edx.org/learn/python>
- Virtual Labs - <https://python-iitk.vlabs.ac.in/>
- Virtual Labs - <https://virtual-labs.github.io/exp-arithmetic-operations-iitk/>
- Virtual Labs - <https://cse02-iiith.vlabs.ac.in/>
- https://mlritm.ac.in/assets/cse/cse_lab_manuals/R20_cse_manuals/Python%20Lab%20Manual.pdf