

KME 552 Python Lab

List of Python Program

1. Write a program to find root of quadratic equation
2. Write a program to find and delete repeating number in Given List
3. Write a program to input and print the element sum of user defined matrix
4. Write a program to input and multiply two different matrices
5. Write a program to compute eigen value and vector of a given 3*3 matrix using NumPy
6. Write a program to find a solution of linear equations in $y=mx+c$
7. Write a program to draw line using equation $y=mx+c$
8. Write the program to determine the intersection point of two line.
9. Draw various types of charts using matplotlib
10. Write a program to perform equations of uniform motion of kinematics : i. $v = u + at$ ii. $s = ut + \frac{1}{2}(at^2)$ iii. $v^2 = u^2 + 2as$
11. Write a menu driven program to perform following properties of thermodynamics as given below: i. First Law of thermodynamics ($\Delta U = Q - W$), where ΔU is the change in the internal energy. Q is the heat added to the system, and W is the work done by the system. ii. Efficiency of Heat Engine = $\frac{T_H - T_C}{T_H}$ where T_H & T_C is the temperature of HOT and COLD Reservoirs.
12. Write the menu program to find the relationship between stress and strain curve as given below: i. Young's Modulus ii. Shear Modulus iii. Poisson Ratio
13. Write the program to determine the shear force and bending moment in beams.
14. Write a program to find maxima/minima of functions of two variables and evaluate some real definite and finite integrals.
15. Write a Program to find out unknown magnitude of TB and TD of unknown tension can be obtained from two scalar equations of equilibrium i.e. $\sum F_x = 0$ and $\sum F_y = 0$.
16. Write a program to perform interpolation of equally and unequally spaced data.
17. Write a program to calculate total pressure exerted in ideal fluid as equation is given below: $p + \frac{1}{2}(\rho v^2) + \rho gh = \text{constant}$ Where P is Pressure, V is Velocity of fluid, ρ is density and h is the height of the container.
18. Write a program to find numerical differentiation using Finite differences Method by importing NumPy and plot the numerical values using matplotlib libraries of python.
19. Write a program for bresenham's line drawing algorithm.
20. Write a program for geometric transformation of a given object.