



MARRI LAXMAN REDDY INSTITUTE OF TECHNOLOGY AND MANAGEMENT

(AN AUTONOMOUS INSTITUTION)

(Approved by AICTE, New Delhi & Affiliated to JNTUH, Hyderabad)

Accredited by NBA and NAAC with 'A' Grade & Recognized Under Section 2(f) & 12(B) of the UGC act, 1956

DEPARTMENT OF MECHANICAL ENGINEERING

2030575 PYTHON PROGRAMMING LAB

B.Tech.II Year-I Sem

L/T/P/C
0/0/2/1

VISION

The Mechanical Engineering Department strives for immense success in the field of education, research and development by nurturing the budding minds of young engineers inventing sets of new designs and new products which may be envisaged as the modalities to bring about a green future for humanity”

MISSION

Equipping the students with manifold technical knowledge to make them efficient and independent thinkers and designers in national and international arena. Encouraging students and faculties to be creative and to develop analytical abilities and efficiency in applying theories into practice, to develop and to disseminate new knowledge. Pursuing collaborative work in research and development organizations, industrial enterprises, research and academic institutions of national and international standards, to introduce new knowledge and methods in engineering teaching and research in order to orient young minds towards industrial development.

COURSE OUTCOMES

CO	Course outcome
ME 575.1	Student should be able to understand the basic concepts scripting.
ME 575.2	Student should be able to understand the contributions of scripting language.
ME 575.3	Ability to create practical and contemporary applications such as Web applications.
ME 575.4	Implement object oriented concepts,
ME 575.5	Implement database and GUI applications.
ME 575.6	Understand the high-performance programs designed to strengthen the practical expertise.

PROGRAM EDUCATIONAL OBJECTIVES

PEO1	Graduates shall emerge as successful Mechanical engineer's as their career progress
PEO2	Graduates apply fundamentals of engineering, in practical applications and engage in active research.
PEO3	Mechanical Graduates shall have the ability to design products with interdisciplinary skills.
PEO4	Graduates will serve the society with their professional skills

PROGRAM SPECIFIC OUTCOMES

PSO1- Students acquire necessary technical skills in mechanical engineering that make them employable graduate.

PSO2- An ability to impart technological inputs towards development of society by becoming an entrepreneur.



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Do's

- Enter laboratory with appropriate laboratory uniform and shoes.
- Keep all your belongings in the book rack or at the place suggested by lab instructor.
- Bring the laboratory manual, observation and record without fail.
- Students must attend the lab with ID cards and in the prescribed uniform.
- Report any broken plugs to your lecturer or laboratory technician immediately.
- Switch off the computers after use and arrange the chairs properly before leaving the lab.

Don'ts

- Do not operate the computers without the permission of the staff.
- Don't let water drip onto power strips.
- Do not use the pendrives in the laboratory without permission.
- Don't use mobile phones during laboratory hours.
- Don't fool around in the laboratory.
- Don't come with long hair, dangling jewelry and loose or baggy clothing which are a hazard in the laboratory.



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LIST OF EXPERIMENTS

Exercise 1 - Python Numbers

1. Write a programme to determine whether the given year is leap year, using the following formula: a leap year is one that is divisible by four, but not by one hundred, unless it is also divisible by four hundred. For example, 1992, 1996 and 2000 are leap years, but 1967 and 1900 are not. The next leap year falling on a century is 2400
2. Write a program to determine the greatest common divisor and least common multiple of a pair of integers.
3. Create a calculator application. Write a code that will take two numbers and operator in the format. N1 OP N2, where N1 and N2 are floating point or integer values, and OP is one of the following: +, -, *, /, %, **, representing addition, subtraction, multiplication, division, modulus / remainder, and exponential, respectively, and displays the result of carrying out that operation of the input operands.

Exercise 2 –Control Flows

1. Write a programme for checking whether the given number is prime or not?
2. Write a program to print Fibonacci series up to given n values?
3. Write a program to calculate factorial of given integer number

Exercise – 3- Control Flows – Continued

1. Write a program to calculate value of the following series $1 - x + x^2 - x^3 + x^4 - \dots + x^n$
2. Write a program to print pascal triangle.

Exercise 4 – Python Sequences.

1. Write a program to sort the numbers in ascending order and strings in reverse alphabetical orders.
2. Given an integer value, return a string with the equivalent English text of each digit. For example, an input of 89 results in “eight – nine” being returned. Write a program to implement it.

Exercise – 5 - Python Sequences - Continued

1. Write a python program to create a function that will return another string similar to the input string, but with its case inverted. For example, input of “Mr.Ed” will result in “mR.eD” as the output string
2. Write a program to take a string and append a backward copy of that string, making a palindrome



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Exercise – 6 - Python Sequences – Continued

1. Write a program to create dictionary and display its key alphabetically
2. Write a program to take a dictionary as input and return one as output, but the values are the keys and vice versa

Exercise – 7- Files

1. Write a program to compare two text files. If they are different, give the line and column numbers in the files where the first difference occurs.
2. Write a program to compute the number of characters, words and lines in a file

Exercise - 8 – Files-Continued

1. Write a function ball collide that takes two balls as parameters and computes if they are colliding. your function should return a Boolean representing whether or not the balls are colliding
3. Find mean, median, mode for the given set of numbers in a list.
4. Write a simple functions max2() and min2() that take two items and return the larger and smaller item, respectively. They should work arbitrary Python objects. For example max2(4,8) and min2(4,8) would each return 8 and 4 respectively

Exercise - 9 – Files-Continued

1. Write a function nearly equal to test whether two strings are nearly equal. Two strings a and b are nearly equal when a can be generated by a single mutation on b
2. Write a function to find dups to find all the duplicates in the list
3. Write a function unique to find all the unique elements in a list

Exercise - 10 – Functions-Problem Solving

1. Write a function to cumulative_product to compute cumulative product of a list of numbers
2. Write a function reverse to reverse a list. Without using the reverse function
3. Write function to compute gcd, lcm of two numbers. Each function shouldn't exceed one line

Exercise - 11 – GUI, Graphics

1. Write a GUI for an Expression Calculator usingtk
2. Write a program to implement the following figures using turtle

LIST OF SOFTWARES

1. Software: PYTHON IDLE