

VALUE ADDED COURSES



**THIRD
SEMESTER**

**DEPARTMENT OF MECHANICAL ENGINEERING
FEDERAL INSTITUTE OF SCIENCE AND TECHNOLOGY**

Python

Third Semester - Mechanical Engineering - 2020 Admission

Faculty Information

Instructor

Mr.Srijith Rajeev

Contact Information

srijithrajeev@fisat.ac.in

Mob: 9747691398

Linkedin: srijith-rajeev-427826b9

Area of Interest

Data Analytics, Machine Learning, Supply Chain, Logistics, Finance

General Information

Course Objectives

- a. Students develop competence and confidence in using Python programming language
- b. Understand the various use cases where Python can be used to solve real world problems
- c. Enable students to identify a problem and design a program to solve it.

Course Outcomes

Upon completion of the course, student will be able to effectively use Excel to

- a. Identify a problem
- b. Design a program to solve the problem
- c. Create executable code
- d. Read and modify existing python codes
- e. Automate various processes

Course Materials

Reference Books and Tutorials

- Head First Python: A Brain-Friendly Guide by Paul Barry
- Automate the Boring Stuff with Python, Practical Programming for Total Beginners by Al Sweigart
- The Big Book of Small Python Projects: 81 Easy Practice Programs

Course Contents

Module	Topic	Exercises
Module 1	Introduction to Python, IDE, Writing and running python codes, Data Types, Variables, Getting input from user, Printing output, Conditional and logical operations	Calculator
Module 2	Loops, Dictionaries, Lists, Tuples, Built-in functions, using packages, File I/O operations, Regular Expressions	Retrieve specific items from file and save it in another file
Module 3	Web Scraping - requests module, HTML basics, Parsing HTML with the BeautifulSoup Module	Scrape specific information from a website
Module 4	Manipulating Excel and CSV files, pandas and numpy package, data analytics, data visualizations	Data cleansing, wriggling, obtain actionable insights and data visualization from given data
Module 5	Web development - flask package, decorators, creating and hosting a website	Host a personal website

Evaluation Schedule

Date	Details
	Project: Scrap data from a website, analyze and drive insights from it and present the summary with visualization on your personal website.

Additional Information and Resources

Digital Fabrication for Design and Engineering

Third Semester - Mechanical Engineering - 2020 Admission

Faculty Information

Instructor

Mr. Tom Anto

Contact Information

tomanto@fisat.ac.in

Mob: 9048917395

Area of Interest

Additive manufacturing
,Tribology, digital
fabrication

General Information

Course Objectives

- a. To give a hands-on experience in rapid prototyping using FABLAB facilities.
- b. Enable students to plan and execute a project of technical accomplishment.
- c. To instill a maker mind set and problem solving skills among students.

Course Outcomes

Upon completion of the course, student will be able to

- a. Design and prototype an idea or project.
- b. Apply various stages of design thinking approach in their personal projects.

Course Materials

Reference Books and Tutorials

- Designing Reality: How to Survive and Thrive in the Third Digital Revolution Book by Joel Cutcher-Gershenfeld and Neil Gershenfeld.
- <https://fabacademy.org/>