MANIPAL UNIVERSITY JAIPUR

International Summer School- Manipal University Jaipur [ISSMUJ]-2023

[Hybrid Mode]

Course Overview

Name of Course- Principles, Computational tools and Case studies with Data Science and Machine Learning

Name of instructor: Dr. Aprna Tripathi
Session: May-July 2023
Language of instruction: English
Number of contact hours: 16
Credit awarded: 03
Pre-requisite: Basic Programming Knowledge

Objective of Course/Project

This course provides hand on experience to key technologies related to Data Science, Machine Learning and Visualization tools. The curriculum covers all the major concepts data science and machine learning using various case studies enabling participants to become an expert in these two fields.

Syllabus:

Introduction to Data Science and Machine Learning: Introduction, application, Supervised learning: classification, linear and logistic regression, Unsupervised learning: Clustering, Decision tree, SVM, Error metrics. Statistics basics: Central tendency, Bias Variance trade off, outlier analysis. Visualization tools: Tableau, reports, charts, filters and calculation, advanced reports. Case studies.

Organization of Course

Total contact Hours: 36		
1st week:	10 hrs (classes)	2 hrs (self-study/project and Mid-term exam/assessment/discussion)
2nd week:	10 hrs (classes)	2 hrs (self-study/project and End Term Examination)

Mode of lectures: Hybrid mode lecture/videos/case study/ discussion/ workshop/ hands-on

Course/Project Plan

Lecture no.	Topic	Lecture mode	Instructor
L: 1-2	Introduction to Data science and Machine Learning, Supervised vs Unsupervised learning with hands on Case studies	Hybrid	Dr. Aprna Tripathi
L: 3-5	Classification	Hybrid	Dr. Aprna Tripathi
L: 6-8	Regression	Hybrid	Dr. Aprna Tripathi
L: 9-11	Clustering, Decision tree, SVM, error metrics, Case Studies	Hybrid	Dr. Shamik Tiwari
L: 12-14	Tableau: Basic reports, charts, advanced reports, maps, interactive dashboards, filters	Hybrid	Dr. Shamik Tiwari
L: 15-16	Case Studies, CIDCR Lab	Hybrid	Dr. Aprna Tripathi

Brief profile of the instructor:

Dr. Shamik Tiwari

Professor

Department of Computer Science

University of Petroleum and Energy Studies

Dehradun

Dr. Aprna Tripathi

(Ph.D, MNNIT Allahabad)

Assistant Professor,

Manipal University,

Jaipur