

Finishing School Program (Online Internship)-2020

Name of Department	CSE&IT
Module Name	Data science and structures using python
Module Coordinators	Prof. Punit Kumar Johari Prof. Mahesh Parmar Mr. Sheo Kumar Mr. Dheeraj Gurjar
Module Objective	The objective of this online internship is to give the basic idea about Build fundamental knowledge of Data Structures and Distinguish the learning methodology for taking a decision as and when one wants to apply.
Module Content	What is machine learning, Data Science, Deep learning and AI. Supervised and unsupervised learning, ML Techniques overview Linear regression with one variable: model representation, cost function, gradient descent. Introduction of linear algebra for principle component analysis. Relationship between multiple variables: Regression (Linear, Multivariate) in prediction. Link list: Introduction, Implementation of linked list, Operations, Circular link list, Doubly linked list, Polynomial manipulation using linked list. Stacks: concepts and implementation of stacks, Operations on Stack and its application, General Tree to Binary Tree, Binary search tree, Threaded binary tree and Height balanced tree. Searching & Sorting, Graphs: Graph theory Terminology, Representation of graph, Graph Traversal.
Module Methodology	<p>The data science Methodology aims to answer the following From problem to approach: i) What is the problem that you are trying to solve? ii) How can you use data to answer the question?</p> <p>Working with data: i) what data do you need to answer the question? ii) Where is the data coming from and how will you get it? iii) is the data that you collected representative of problem to be solved? iv) What additional work is required to manipulate and work with data? Build fundamental knowledge of Data Structures and Distinguish the learning methodology for taking a decision as and when one wants to apply.</p>
Module Outcome/ Impact	Build fundamental knowledge of Data Structures and Distinguish the learning methodology for taking a decision as and when one wants to apply.
Duration	5 Weeks (30 days)

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Week Wise Schedule

	Date	Day	Module Contents to be covered/Interactive Session/Assignment/Quiz/Exercises/Daily practice sheets (DPP)/Tutorial/Project etc (10:00 AM onward, 2-3 Hrs/ Day)	Faculty
Week 1	19/05/2020-25/05/2020		What is machine learning, Data Science, Deep learning and AI. supervised and unsupervised learning, ML Techniques overview	Mr. Dheeraj Gurjar, Prof. Punit Kumar Johari
Week 2	26/05/2020-01/06/2020		Linear regression with one variable: model representation, cost function, gradient descent.	Mr. Dheeraj Gurjar, Prof. Mahesh Parmar
Week 3	02/06/2020-08/06/2020		Introduction of linear algebra for principle component analysis. Relationship between multiple variables: Regression (Linear, Multivariate) in prediction.	Mr. Dheeraj Gurjar Prof. Punit Kumar Johari
Week 4	09/06/2020-15/06/2020		Link list: Introduction, Implementation of linked list, Operations, Circular link list, Doubly linked list, Polynomial manipulation using linked list. Stacks: concepts and implementation of stacks, Operations on Stack and its application	Mr. Sheo Kumar, Prof. Mahesh Parmar
Week 5	16/06/2020-20/06/2020		Queues: Concept and implementation, operations on queue. General Tree to Binary Tree, Binary search tree, Threaded binary tree and Height balanced tree. Searching & Sorting, Graphs: Graph theory Terminology, Representation of graph, Graph Traversal.	Mr. Sheo Kumar Prof. Mahesh Parmar
Module Coordinators Email Id and Mobile Number		1) Prof. Punit Kumar Johari- pkjohari@mitsgwalior.in , (9425618829) 2) Prof. Mahesh Parmar- maheshparmar@mitsgwalior.in , (7987537703) 3) Mr. Dheeraj Gurjar- dheerajgurjar@mitsgwalior.in , (7987617213) 4) Mr. Sheo Kumar - sheokmr@mitsgwalior.in , (8860313922)		

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Eligibility and Important Instructions :-

1. The Online Finishing School Program (Online training/Internship) is designed only for Pre-final & Final Year students of Electrical Engineering Department.
2. The students may apply online.
3. The Online Finishing School Program/ Summer Internship Program is free for the participants of Pre-final & Final year students of MITS, Gwalior.
4. The participants outside the Institute may also join the Program on payment basis.
5. This online module will be conducted under the Finishing School Program which will be considered equivalent to Online Internship of Pre-final year students who could not get any Internship during this situation.
6. Duration of this program will be of four weeks which is equivalent to summer Internship period as per AICTE and our Institute policy. Daily no. of hours of online training may be flexible.
7. Certificates will be issued to candidates who have attendance 75% or more and also score more than 60% in the test.