

Centre for Continuing Education of NIT Warangal:

The Centre for Continuing Education of NIT Warangal organizes Continuing Education Programmes and Workshops in the frontier areas of Science, Engineering, Technology, Management, Humanities, Social Science and socially relevant themes on a self-financing basis in three different modes: (i) At NIT Warangal by NIT Warangal (ii) At NIT Warangal in collaboration with other Organizations (iii) By NIT Warangal Faculty at the Host Organization/Institute.

About NIT Warangal:

National Institute of Technology Warangal, formerly known as Regional Engineering College, was established in 1959. Over the years, it has developed into a premier institute of higher learning and is ranked among the top technical education institutions in India. There are 13 Departments, offering eight undergraduate and 32 post-graduate programs besides doctoral programmes. About 5000 students across the country and about 500 international students study in the campus. It is a fully residential campus sprawling over 250 acres with excellent infrastructure, state of the art library, seminar halls, guest houses, and laboratories.



Brief Profile of the Department of CS & E:

The department of Computer Science & Engineering was established in the year 1991. The department offers high-quality undergraduate, postgraduate and doctoral programs. The department has a team of well-experienced faculty, graduated from IIT's, NIT's, Central Universities, and other premier Institutes of higher learning. The department provides state-of-art research facilities to generate knowledge and develop technologies in the thrust areas of Computer Science and Engineering.

Highlights of the Course:

- This short term course will be conducted three hours a day with no overlap to the regular office hours.
- The sessions will begin in the evening time, possibly after 5pm.
- Majority topics will be covered with hands-on using Python.

Benefits:

- ✚ Participants will get an e-certificate upon successful completion of the course.
- ✚ Course material, session recordings will be shared with participants with the consent of the speaker.

For any query regarding this course, please contact the Coordinators.

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Center for Continuing Education

Online Short Term Course on Machine Learning for Data Science using Python

Course Code: DSMLM

19 -28th July, 2021

Call for Registration and Participation

Coordinators

Dr. Venkateswara Rao Kagita
Dr. Balaprakasa Rao Killi

Organized by

Department of Computer Science and Engineering, NIT Warangal

In association with the
Center for Continuing Education



Overview of the Short term course:

This short-term course facilitates upgrading knowledge, skill in the most advanced areas such as Data Science and Machine Learning.

Objectives:

- The program will positively impact the perceived ability to understand recent advances in machine learning and data science.
- Participants will be able to demonstrate knowledge of machine learning techniques to solve real world problems in data science, and various other applications.

Course Content:

✚ Introduction

What is Data Science, Real-life examples and Applications, Data Scientist: The most promising Job of the 21st Century, Machine Learning vs. Data Science vs. AI, Machine Learning types, Generics of machine learning approaches.

✚ Python Essentials

Installation of Anaconda, Python Editors & IDE's (Anaconda, Jupyter), Primitive Data types, lists, tuples, dictionaries, strings, Data manipulation tools (Operators, Functions, Packages, control structures, Loops, arrays), Importing Data from various sources (CSV, txt, excel), Exporting Data to various formats.

✚ Probability and Statistics for Data Science

Basic probability theory, Random variables, Probability distributions, Markov models, Bayesian learning.

✚ Regression

Univariate linear regression, multivariate linear regression, Polynomial Regression.

✚ Classification

Logistic regression, SVM, Multi-class SVM, Decision trees, K-Nearest Neighbors.

✚ Ensemble Approaches

Bagging, Random Forests, Boosting: Adaboost, Gradient boosting.

✚ Optimization

Gradient descent, Stochastic gradient descent, Batch gradient descent.

✚ Clustering

K-means, Hierarchical and other clustering approaches

✚ Feature Engineering

Feature Scaling, Feature Selection: Filter methods, Wrapper methods, Embedded methods.

✚ Dimensionality Reduction

Principal component analysis, Linear discriminative analysis, Multiple discriminant analysis, Independent component analysis.

✚ Neural Networks

Introduction to neural networks, Back propagation algorithm and theory behind, Introduction to deep learning.

✚ Recommendation Systems

Introduction, Types of recommender systems, Content-based, Collaborative filtering: Matrix factorization based approaches, Knowledge-based, and Hybrid techniques, Times series forecasting, multi-criteria decision making, other real time examples.

✚ Hands-on to the majority of the topics using Python, Take-home project.

Resource Persons: Faculty from different departments of NIT Warangal, Industry, R & D will deliver lectures and conduct hands on sessions. Majority of the topics will be covered by the course coordinators.

Registration is open to: Faculty members in all disciplines of Engineering, Sciences, Mathematics, Life sciences, Management, Post-Doctoral Fellows, Research Scholars, PG students, UG students who have an aptitude to work in the areas of data sciences and machine learning.

How to Apply: Eligible candidates may apply by filling the following google form with payment proof on or before 18th July, 2021.

<https://forms.gle/NJMnHoVJPDJdicscA>

Registration fee:

Category	Amount
Faculty, Post doctoral fellows, Research Scholars, PG students, UG students	Rs. 1000 /-
Industry participants	Rs. 2000/-

The registration fee may be remitted Online through NEFT, Quick transfer, Gpay, PhonePe, Paytm, or any other UPI to the Bank account given below and upload the proof of remittance in the google form.

Important Note: Please enter course code **DSMLM** in remarks while doing transaction. This is mandatory.

Account Number	62403680215 (Current Account)
Account Name	Center for Continuing Education NITW
Bank Name	State Bank of India (SBI)
Branch	NIT Warangal
IFSC Code	SBIN0020149
Course Code	DSMLM

Confirmation of Participation:

On receipt of the google form and fee remittance receipt, participants will be sent confirmation of their participation through email by 18th July, 2021. The number of participants in the workshop is limited to 80. **Candidates are advised to register early to avoid disappointment.**