



NATIONAL INSTITUTE OF TECHNOLOGY WARANGAL

Center for Continuing Education & Department of Computer Science & Engg

Two Months Professional Certificate Course Machine Learning & Deep Learning

1st APRIL-2021 – 30th MAY-2021

About NIT Warangal

National Institute of Technology, Warangal is the first among 17 RECs setup as joint venture of the Government of India and the state government. Over the years the college has established itself as a premier Institute imparting technical education of a very high standard leading to the B.Tech degrees in various branches of engineering, M.Tech. and PhD programs in various specializations. All B. Tech and M. Tech programmers of NIT Warangal are NBA accredited. The Institute currently has thirteen academic departments and a few advanced research centres in various disciplines of engineering, pure sciences and management, with nearly 100 laboratories organized in a unique pattern of functioning, Central Library with state of the art facilities, Auditorium, Student Activity Centre, Mega Computer Centre, Indoor Games Complex, big stadium, Seminar Halls with required infrastructure.,

About Center for Continuing Education

This Centre 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 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 Department of Computer Science & Engg

The Department of Computer Science and Engineering (CSE) offers B.Tech course in CSE, M.Tech courses in CSE, Information Security (IS) and Master of Computer Applications (MCA). The Department has experienced faculty with good publications and well-established laboratories. The Department has liaison with reputed industries and R&D organizations like Microsoft, IBM, Oracle, Accenture, Infosys, TCS, EMC2, C-DAC, Motorola, NIC, Sun Micro Systems, SPSS and tie up with IISc in certain areas. Department conducts various sponsored programmes like GIAN, International and national conferences throughout the year.

Course Objectives

This Certificate Course is designed with the state-of-the-art concepts of Artificial Intelligence, Machine Learning, and Deep learning technology that comprises of theory as well as hands-on sessions. The objective is to address modern trends in the field of Artificial Intelligence, Machine Learning and Deep Learning with real time problem. This Certificate Course focused on hands-on implementation of Detailed Course of AI, ML, and DL to the participants

Target Participants

Any Engineering/M.Tech/MCA/MBA/ PG Diploma in MBA/ PG in Science. Total number of Candidates is 50.

**Registration Fee Rs 20,000. INR (Indian),
\$ 300. USD (Foreigner).**

A soft copy of the filled registration form should be Uploaded in Google Forms & email to cce@nitw.ac.in, raju@nitw.ac.in on or before March 31, 2021.

Bank Details ,

Name: CCE NITW ,
Account Number: 62403680215,
Bank Name: SBI bank;
Branch: NIT Warangal.
IFSC Code: **SBIN0020149.**

Online Registration Link:

<https://forms.gle/JjHsqWnnZbzD4uhf9>

Registration Deadline: March 31, 2021

Mode Of The Program: Online Mode

Resources Persons:

The Sessions will be handled by the experts From **IITs/NITs/ Central University/Industry.**

Course Module

This is an active and industry based learning course that comprises lectures and Practical sessions.

Day Wise Program Details ,

Timings 5pm to 7pm.

Theory 30 Min, Practical's- 90 Min.

Module 1: Artificial Intelligence (AI)

The Role of AI and Neural Networks, Machine Learning and Deep Learning Applications.

Module 2: Machine Learning (ML)

Introduction to ML: Machine learning (ML) examples, Overview of supervised and unsupervised learning, Machine Learning vs Statistical Modelling, Data Preprocessing, Feature Engineering.
Regression: Linear Regression, Non-linear Regression Model evaluation methods, Logistic Regression, Decision Trees learning, Overfitting, Naive Bayes: Conditional Independence, Naive Bayes: why and how, Support Vector Machines (SVM), kernels, Unsupervised Learning: Mixture of Gaussian clustering, K-means clustering, Agglomerative Clustering, Dimensionality Reduction, Feature Extraction & Selection, ML project to product.

Module 3: Deep Learning

Introduction to Neural Networks, Multi Layered Perceptron(MLP), Training MLP: Chain Rule. Non-Linear Activation Functions, Vanishing and Exploding Gradient Problem, Weight Initialization and Optimization Techniques. Convolutional Neural Networks (CNN), Pooling, Padding Operations, Interpretability in CNNs, Limitations in CNN.

Recurrent Neural Networks (RNN): Long-Short Term Memory (LSTM), Machine Translation Problem, Gated Recurrent Units, Bi-directional LSTM, Transfer Learning, Mini Project (Deep neural networks to predict regulatory genome signals), Mini Project Non-Linear Activation Functions, Vanishing and Exploding Gradient Problem, Weight Initialization and Optimization Techniques.

Certificate

Participants will be awarded the course Completion Certificate Subject to the Condition of maintaining 80% attendance.

Address For Correspondence,

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