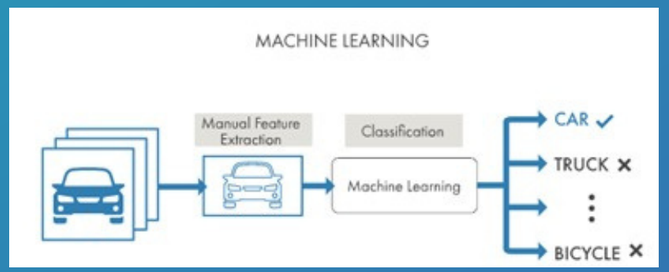
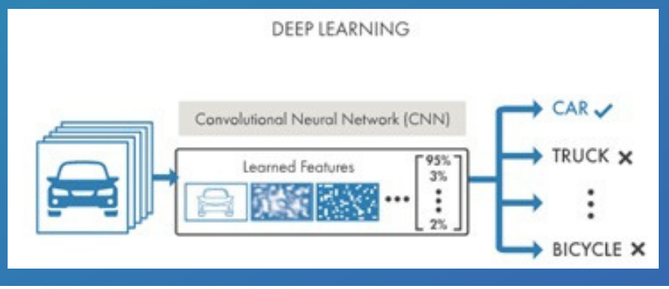
Certification Course
On
Data Analytics & AI Using MATLAB
(Hands-on-Training)
In association with
MathWorks India Pvt. Ltd.
22/3/23 to 26/3/2023
@ VIT Chennai





MathWorks | Training Services

Co-ordinators
Dr. D. Subbulekshmi
Dr. S. Angalaeswari

Organized by
School of Electrical Engineering,
Vellore Institute of Technology (VIT), Chennai
VIT – A place to learn; A chance to grow

ABOUT VIT CHENNAI

VIT, for the past 38 years has made a mark in the field of higher education in India by imparting quality education in a multicultural ambience which is intertwined with extensive application-oriented research. VIT was established with an aim to providing quality higher education in accordance with International Standards. It persistently seeks and adopts innovative methods to improve the quality of higher education on a consistent basis. VIT was established by a well-known educationist and former parliamentarian, Dr. G. Viswanathan, the Founder and Chancellor, a visionary who transformed VIT into a center of excellence in higher technical education. MHRD, Govt. of India ranked VIT No.12 among the Engineering Institutions (NIRF-2021 ranking). VIT has been accredited as A++ grade by NAAC. VIT Chennai is ably spearheaded by Mr. Sankar Viswanathan, Dr.Sekar Viswanathan and Mr.G.V.Selvam, Vice Presidents; Ms. Kadhambari S. Viswanathan, Asst. Vice President; , Dr. Rambabu Kodali, Vice-Chancellor and Dr. V. S. Kanchana Bhaaskaran, Pro Vice Chancellor. They share in the mission to make VIT a global center towards academic and research excellence.

The focus is:
- To maximize the interactive industrial connectivity
- To create centers of excellence in niche areas
- To enrich technological and managerial human capital nurtured in a multicultural ambience
- To provide a common platform for the agglomeration of ideas of personnel from various walks of life for learning enrichment
- To create opportunities and exploit the available resources to benefit industry and society
- To encourage participation in the National Agenda of knowledge building
- To foster international collaborations for mutual benefits in areas of research.

ABOUT SCHOOL OF ELECTRICAL ENGINEERING (SELECT)

The School of Electrical Engineering (SELECT) at VIT was established in 2010 for imparting a state-of-the-art education, training and research in Electrical and Electronics Engineering, and allied areas. It offers B.Tech and PhD program in Electrical Engineering. The program has the credit of being Top 10 in India and 301 – 350 in QS World Ranking by subject. At VIT, knowledge impartment through experiential learning and guidance by highly qualified and experienced faculty member along with state-of-the-art laboratory infrastructure is the key to success. This makes VIT the best place for Electrical and Electronics Engineering in Chennai.

FACULTY COORDINATORS
Dr. D. Subbulekshmi, Professor
Dr. S. Angalaeswari, Assistant Professor (Sr.)
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DURATION
Time: 9:00 a.m. to 5:00 p.m.

COURSE OUTLINE

Day 1 – Data Import & Analysis Using MATLAB

Working with the MATLAB User Interface
- Reading data from files
- Saving and loading variables
- Plotting data
- Customizing plots
- Exporting graphics for use in other applications

Analysis and Visualization with Matrices
- Creating and manipulating matrices
- Performing calculations with matrices
- Calculating statistics with matrix data
- Visualizing matrix data

Tables of Data
- Storing data as a table
- Operating on tables
- Extracting data from tables
- Modifying tables

Conditional Data Selection
- Logical operations and variables
- Finding and counting
- Logical indexing

Day 2 - Data Import & Analysis Using MATLAB

Analyzing Data
- Importing from spreadsheets and delimited text files
- Dealing with missing data
- Plotting functions
- Customizing plots

Increasing Automation with Programming Constructs
- Programming constructs
- User interaction
- Decision branching
- Loops

Increasing Automation with Functions
- Creating functions
- Calling functions
- Setting the MATLAB path
- Debugging
- Using breakpoints
- Creating and using structures

Day 3 - Machine Learning with MATLAB

Finding Natural Patterns in Data
- Unsupervised learning
- Clustering methods
- Cluster evaluation and interpretation

Building Classification Models
- Supervised learning
- Training and validation
- Classification methods

Building Regression Models
- Parametric regression methods
- Nonparametric regression methods
- Evaluation of regression models

Day 4 - Deep Learning with MATLAB

Transfer Learning for Image Classification
- Pretrained networks
- Image data stores
- Transfer learning
- Network evaluation

Interpreting Network Behavior
- Activations
- Feature extraction for machine learning

Creating Networks
- Training from scratch
- Neural networks
- Convolution layers and filters

Training a Network
- Network training
- Training progress plots
- Validation

Day 5 - Deep Learning with MATLAB

Improving Network Performance
- Training options
- Directed acyclic graphs
- Augmented data stores

Performing Image Regression
- Transfer learning for regression
- Evaluation metrics for regression networks

Using Deep Learning for Computer Vision
- Image application workflow
- Object detection

Classifying Sequence Data
- Long short-term memory networks
- Sequence classification
- Sequence preprocessing
- Categorical sequences

Generating Sequences of Output
- Sequence to sequence classification
- Sequence forecasting

WHO SHALL ATTEND?

This course is intended for Students, research scholars and faculty members. Limited seats only. First come first serve basis.

RESOURCE PERSONS

Experts from MATH WORKS and VIT faculty.

REGISTRATION FEE

Registration Fee: Rs. 25,000/- (Inclusive of GST)

Interested participants are requested to register in the below link providing all the correct details and payment details will be sent to those registered participants.

REGISTRATION LINK

https://tinyurl.com/VIT-MATHWORKS-COURSE1

Last date of registration: 08/03/2023