

Inauguration Program - (10th July)

Time	Program
8:30 -13:00	Registration (Reception Desk)
8:30 - 9:30	Tea + Networking among participants (KIST premises)
9:30 - 9:45	Welcome speech (Surya Basnet)
9:45-9:55	Introduction about KIST (Indra Subedi)
10:00-10:15	Introduction to NWMLDSN (Jhanak Parajuli / Tej Shahi)
10:15-11:15	Speech from Chief Guest Dr. Mahabir Pun
11:15-11:25	Closing speech and program details
11:30-13:00	Prof. Dr. Shashidhar Ram Joshi - Machine Learning and Deep Learning
13:00-14:00	Lunch Break

Schedule

Time	10th July	11th July	12th July	13th July	14th July
8:30 - 9:30	Tea + Networking	Tea + Networking (project discussion)	Tea + Networking (project discussion)	Tea + Networking (project discussion)	Tea + Networking (project discussion)
9:30 -12:00 Tea Break 10:45 - 11:00	Inauguration	Natural language processing problems and solutions - A machine learning perspective (BKB)	Supervised machine learning algorithms, core concepts and metrics (TS/AP)	Introduction to NLP, web scraping, unsupervised learning algorithms, practice (TS/AP)	Computer vision, Deep learning, convolutional neural network (BK)
12:00 -13:00		Lunch Break	Lunch Break	Lunch Break	Lunch Break
13:00 - 15:45 Tea Break 14:30 - 14:45 14:45 - 15:45	13:00 - 14:00 Lunch Break 14:00 - 14:30 Promotional video (fuse.ai) 14:30 - 15:45 Overview Data science (JP)	Basic mathematics and probability for ML and DS Data science, data exploration, practice session (JP)	Supervised machine learning algorithms, practice session (JP/AP)	Dimensionality reduction, Neural network (JP/TS) Guest video lecture 3 (SM)	Project presentation 20 mins each group (TS/JP/AP)
16:00 - 17:00	Guest video lecture 1 (BG)	Guest video lecture 2 (SRS)	Project discussion/ practice (JP/TS/AP)	Guest video lecture 4 (BB)	Guest video lecture 5 (RS)
17:00 -17:30	Project discussion/ practice	Project discussion/ practice (JP/TS/AP)	Project discussion/ practice (JP/TS/AP)	practice session (JP/ TS)	Closing session

Guest Speakers

Guest Lectures	Instructors	Topics
Guest Video Lecture 1	Bikash Gyawali	Word embeddings for textual similarity
Guest Video Lecture 2	Sarbagya Ratna Shakya	Human Activity Recognition: A machine Learning approach
Guest Video Lecture 3	Samip Malla	Power optimisation in wireless communication networks
Guest Video Lecture 4	Binod Bhattarai	Photorealistic face synthesis using GAN
Guest Video Lecture 5	Riwaj Sapkota	Security issues in Internet of Things and industrial overview

Introductory lecture

Part I

- Python installation and basic knowledge of python packages such as Numpy, pandas and scikit-learn
- Revision of basic Linear Algebra and Calculus
- Revision of Probability and Statistics
- About Kaggle competition
- Assign data science projects and instructors to a team
- Working on Github
- Big picture of machine learning and real life applications

Part II

- Data handling, data types, SQL queries
- Data exploration and visualisation
- Practice session (pandas, numpy, matplotlib, seaborn using Jupyter lab)

Supervised Learning

- Concept of bias, variance and regularization
- Idea of train, test and validation
- Different metrics for machine learning- Accuracy, confusion matrix, F1 Score etc.
- Supervised machine learning algorithms: Regression and Classification
- Linear Regression using python — mathematical understanding
- Practice session (sklearn using jupyter lab)
- Naive Bayes
- Logistic Regression

- Decision Trees and Random Forest
- Support Vector Machines
- Practice session
- Introduction to Natural language processing
- NLP and web scraping discussion
- NLP problems and ML to solve them (SVM)
- Practice session (jupyter notebook)

Unsupervised Learning

- K Nearest Neighbors
- K Means Clustering
- Dimensionality Reduction (Principal Component Analysis)
- Examples and discussion

Neural Networks

- Introduction to Artificial Neural networks
- Idea of back propagation
- Examples and NN in python
- Practice session

Deep Learning

- Deep learning - short introduction
- Computer Vision
- Convolutional Neural Network with image
- Examples

- Project presentations

