

<b>CSAI 3106</b>	<b>Application of Machine Learning in Industries</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>Version 1.0</b>		0	0	2	1
<b>Pre-requisites/Exposure</b>	Python programming and its libraries.				
<b>Co-requisites</b>	--				

### Course Objectives

1. To gain knowledge of machine learning and applying it to solve various industrial problems.
2. To have understanding of what are the essential steps required to solve any industrial problem with large data such as pre-processing, training, validating etc.
3. To understand the need of using suitable library to solve many industrial problems efficiently.

### Course Outcomes

At the end of this course student should be able

CO1. Students will acquire the knowledge/skill of Python programming skill and applying its appropriate libraries to solve many complex industrial problems.

CO2. Students will have exposure to solve many industrial problems from different sectors/domains such as banking, insurance, healthcare etc.

CO3. Students will be able to develop many real time NLP applications such as Neural Machine Translation, Chat bot etc.

### Catalog Description

The course is to educate the students on the Machine Learning and its application in industries. The course introduces the concept of cyber security in banking sector, sentiment analysis, loan underwriting etc. The purpose of this course is to bring the concept of machine learning approaches in drug discovery, wine quality prediction, analysis of student's feedback data etc.

**List of Experiments:**

S. No	Lab Exercises	Contents
1	Experiment No 1	Introduction to Pandas and Numpy
2	Experiment No 2	Wine quality prediction( <a href="https://www.geeksforgeeks.org/wine-quality-prediction-machine-learning/">https://www.geeksforgeeks.org/wine-quality-prediction-machine-learning/</a> )
3	Experiment No 3	House Price prediction
4	Experiment No 4	Air Quality Prediction
5	Experiment No 5	Credit Card fault prediction
6	Experiment No 6	Liver disease prediction using KNN and other models and comparing different models.
7	Experiment No 7	Case Study : Designing and Evaluating Neural Machine Translation- Over all idea
8	Experiment No 8	Study Literature, Collecting data from various sources, understanding various deep learning frame works
9	Experiment No 9	Data Preprocessing, tokenization, word embedding etc.
10	Experiment No 10	Designing model and Training...
11	Experiment No 11	NMT contd.
12	Experiment No 12	Model Deployment, testing/evaluating, Understanding BLEU

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**TEXT BOOKS:**

- T1. Book provided by IBM- Application of Machine Learning in Industries. (Course code CSAI3106)

## REFERENCES:

- <http://www.statmt.org/moses/>
- <https://github.com/awsmlabs/sockeye>
- <https://opennmt.net/>
- Sockeye
- Neural Monkey

**Continuous Evaluation-** There will be continuous evaluation for all practical subjects of SoCS during the semester. The performance of a student in a Practical subject will be evaluated as per process given below:

- Components of evaluation
  - a. Viva voce / Quiz (60%) + Lab Records and experimentation (14%)+ Case Study: Mini project(Project File+ Project Viva+ Experimentation(26%)
  - b. Lab performance and record evaluation shall be a continuous process throughout the semester.
  - c. Minimum three Viva voce/ Quiz based on practical sessions shall be conducted during the semester. A mini project (case-study)will be the part of lab.

## Relationship between the Program Outcomes (POs), Course Outcomes (COs) and Program Specific Outcomes (PSOs):

Course Outcomes	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	1	1	1										2		3
CO2	1	1	1	2	3								2		2
CO3	1	1	1	2	3								2		3
Average	1	1	1	2	3								2		2.67

1=Weak

2= Moderate

3= Strong