

## Natural Language Processing (NLP)

**Duration:** 2 Months (Mon–Fri, ~90 Hours)

**Mode:** Live Online / Classroom

**Tools & Technologies:** Python, NLTK, SpaCy, HuggingFace, Transformers

### Syllabus

#### Week 1

- Text preprocessing basics
- Tokenization, stemming, lemmatization
- Assignment at end of week

#### Week 2

- Bag of Words, TF-IDF
- Hands-on with Scikit-learn
- Assignment at end of week

#### Week 3

- Sentiment analysis project
- Assignment at end of week

#### Week 4

- Word embeddings: Word2Vec, GloVe
- Assignment at end of week
- Mock Interview 1

#### Week 5

- Intro to Transformers: BERT, GPT overview
- Assignment at end of week

#### Week 6

- NER (Named Entity Recognition)
- Assignment at end of week

#### Week 7

- Building a chatbot with Python
- Assignment at end of week

**Week 8**

- Final NLP Project presentation
- Mock Interview 2
- Assignment at end of week

**Learning Outcomes**

- Preprocess and clean text data
- Implement sentiment analysis and text classification
- Use word embeddings and vectorization techniques
- Understand transformers and modern NLP
- Build a chatbot or text AI project