



NATURAL LANGUAGE PROCESSING (NLP)

Tokenisation . Embeddings .
Classification . NER . Summarisation
NLTK . Spacy . Hugging Face

DURATION	LEVEL	MODULES	MODE
50 Hours	Intermediate to Advanced	8	Classroom · Online · Hybrid

01 COURSE OVERVIEW

A natural language processing course from text cleaning to transformer fine-tuning. Classical text processing and vectorisation are covered first so learners understand what transformer models replaced, then BERT-family models are fine-tuned for classification, named entity recognition, summarisation and question answering.

Build exercises include a resume classifier, a sentiment dashboard and a document question-answering service.

WHO IT IS FOR

Data scientists and ML engineers

Developers building search or chat features

Analysts working with survey and review text

Postgraduate students

PREREQUISITES

Python and machine learning fundamentals.

02 LEARNING OUTCOMES

01 Clean, tokenise and normalise text at scale.

03 Train classifiers for sentiment and topic tasks.

05 Fine-tune transformer models with Hugging Face.

07 Evaluate NLP systems with task-appropriate metrics.

02 Vectorise text with TF-IDF and word embeddings.

04 Extract entities and relationships from documents.

06 Build summarisation and question-answering pipelines.

03 MODULE STRUCTURE

8 MODULES

01 TEXT PROCESSING

Corpora

Stop words

Lemmatisation

TOOLS

NLTK

SPACY

Tokenisation

Stemming

Regular expressions

02 VECTORISATION

Bag of words

N-grams

GloVe

LAB

SIMILARITY SEARCH

TF-IDF

Word2Vec

FastText

03 TEXT CLASSIFICATION

Feature pipelines

Linear models

Metrics

LAB

RESUME CLASSIFIER

Naive Bayes

Class imbalance

Error analysis

04 SEQUENCE LABELLING

Part-of-speech tagging

Custom entity training

Rule-based patterns

LAB

INVOICE ENTITY EXTRACTION

Named entity recognition

Dependency parsing

05 TRANSFORMERS FOR NLP

Attention recap

Tokenizers

Inference cost

TOOLS

HUGGING FACE TRANSFORMERS

BERT and variants

Fine-tuning

06 GENERATION TASKS

Summarisation

Question answering

ROUGE and BLEU

LAB

DOCUMENT QUESTION ANSWERING

Translation

Retrieval-augmented answering

07 CONVERSATIONAL SYSTEMS

Intent and entity design

Retrieval chatbots

Fallback handling

Dialogue state

LLM chatbots

LAB

SUPPORT CHATBOT

08 DEPLOYMENT

Serving models

Caching

Multilingual considerations

Batch vs real time

Monitoring

PROJECT

NLP SERVICE OF THE LEARNER'S CHOICE

04 ASSESSMENT & CERTIFICATION

Module assignments and labs	25%
Mini projects	20%
Internal assessments	15%
Final project and review	40%

CERTIFICATION

Learners who complete all modules, submit the final project and clear the review receive a course completion certificate from Kaizen Infinities Private Limited. Project work is documented for the learner's portfolio, and interview preparation is included in the closing sessions.

05 CAREER OUTCOMES

ROLES THIS PROGRAMME PREPARES FOR

NLP ENGINEER

AI ENGINEER

DATA SCIENTIST

CHATBOT DEVELOPER

SEARCH RELEVANCE ENGINEER

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