# UNIVERSITY OF NORTHAMPTON

# MODULE SPECIFICATION

This document forms the definitive overview as to the nature and scope of this module and is used in the University’s quality assurance processes. The information in this document cannot be changed without approval (except for the Indicative Content).

[A glossary of key terms is available.](https://www.northampton.ac.uk/ilt/current-projects/defining-contact-time/types-of-student-contact-time/)

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| **FACULTY** | Faculty of Art, Science & Technology |
| **SUBJECT AREA** | Technology |
| **SUBJECT FIELD** | Computing |
| **MODULE TITLE** | Natural Language Processing |

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| **MODULE CODE** | CSY3055 |
| **LEVEL** | 6 |
| **CREDIT VALUE** | 20 |
| **MODULE LEADER** | Mohammed Bahja |

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| **DELIVERY MODE(S)** | Standard |
| **DELIVERY LOCATION(S)** | UON |

**PRE-REQUISITES:**None

**CO-REQUISITES:**   
  
None

**RESTRICTIONS:**   
  
None

**SUPPLEMENTARY REGULATIONS**:

This module has supplementary regulations No

**MODULE OVERVIEW:**

**INDICATIVE CONTENT:**

This module introduces the most recent theories, methods, and tools in Natural Language Processing (NLP) to develop high-performance NLP-driven applications. Students apply traditional and advanced NLP methods to common use-cases, with a focus on establishing successful Machine Learning-based NLP solutions using cutting-edge Deep Learning algorithms and Transfer Learning methods.

**LEARNING OUTCOMES:**

* Introduction to NLP
* Traditional linguistic methods (Regular expressions, word tokenisation, stemming, sentence segmentation)
* Data pre-processing and text analytics
* Classification tasks with classic Machine learning
* Word2Vec algorithm
* Introduction to Neural language models (RNN, LSTM, CNN)
* An overview of recent developments in NLP
* Transformers
  + Understand attention and other key components of transformers
  + Learn about key transformers models such as BERT
* Question Answering and Summarisation
* Topic Modelling
* Deploying and scaling NLP models as web micro-services

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| **Module Learning Outcomes** |
| **On successful completion of the module, with limited guidance students will be able to:** |
| **Subject-Specific Knowledge, Understanding & Application** |
| 1. Explain and justify fundamental concepts and techniques of Natural Language Processing. |
| 1. Analyse, compare and select the most appropriate methods and algorithms for building NLP driven solutions |
| 1. Design, implement, evaluate and deploy NLP-based models for given real-life scenarios |
| 1. Analyse the potential influence of ethical, legal and environmental issues involved in NLP |
| **Employability & Changemaker Skills** |
| 1. Investigate and analyse relevant resources, tools, and background information to be used in solving real-life problems |
| 1. Communicate ideas, concepts, and results effectively in a coherent manner appropriate to the audience |

**Readers are referred to the Programme Specification document for the list of PSRB requirements met by this module.**

**TYPICAL LEARNING, TEACHING AND ASSESSMENT HOURS (for the module as delivered on-site at the University of Northampton):**

[View this table on how learning, teaching and assessment hours map to the KIS Categories.](https://www.northampton.ac.uk/ilt/current-projects/defining-contact-time/kis-guidance/)

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| **Learning and teaching information for this module when delivered off-site by UN partners is available from the partner institution’s NILE site (or equivalent). Any variation in study hours must be approved by the University of Northampton before students are enrolled, ensuring that study hours provision is always appropriate to support student achievement of the module learning outcomes.** |

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| **Learning, Teaching and Assessment activities** | **Study hours** |
| **Contact hours: (total)**  Comprising face-to-face and online contact hours as follows: | **48** |
| * Face-to-face (total) - this may include the following:  (delete any that are not applicable) * F2F (broadcast) Lectures (e.g. guest speaker, cohort induction) * Face to face interactive small group session (generic space in groups of approx. 30 e.g. seminars/workshops/tutorials) | 36 |
| * **Online contact hours** **(total)**  (comprising online activities with mediated tutor input) | 12 |
| **Guided independent study hours**  **(including hours for assessment preparation)** | **152** |
| **Module Total** | **200** |

**ALIGNMENT OF LEARNING OUTCOMES AND ASSESSMENTS:**

**University of Northampton:**

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| **Assessment Activity** | | | **Learning Outcomes** | **Weighting (%)** |
| **Code** | **Assessment Type** | **Assessment Deliverables** |  |  |
| AS1 | Assignment | * A report (1,500 words) | a,b,d,e | 40% |
| PJ1 | Project | * A written report on literature research, design, development, evaluation and deploy of a NLP mode (1,500 words). * Project demonstration | b,c,f | 60% |

The assessment items listed above are graded and contribute to the overall module grade (assessment *of* learning). In addition, there are opportunities for formative assessment (assessment *for* learning), which are ungraded, to support students in achieving the module learning outcomes. These are NOT listed.

**APPROVAL/ REVIEW DATES:**

**Version: 1**

Date of approval: