

# HIGHER NITEC IN DATA ENGINEERING

## Core Modules

### Database Concepts

On completion of the module, students should be able to create database objects with and edit data in tables. Students will be able to develop applications that utilise relational database concepts, such as relationships, indexes, and schemes.

### Data Science Programming

On completion of the module, students should be able to apply fundamental programming concepts, computational thinking and data analysis techniques to solve real-world data science problems.

### Data Extraction & Cleansing

On completion of the module, students should be able to apply data mining principles to the dissection of large complex data sets, including those in very large databases or through web mining. Student will also be able to clean data, which includes finding and removing unwanted bits of data in spreadsheets, formatting data correctly, dealing with inconsistencies in the data, and structuring of data for effective use.

### Data Processing

On completion of the module, students should be able to manipulate data into usable and desired form that is suitable for analytics processing. Students will also be able to process using a predefined sequence of operation either manually or automatically.

### Data Preparation for Machine Learning

On completion of the module, students should be able to apply techniques to explore, analyse, and leverage data. Students will be able to apply tools and algorithms to create machine learning models that learn from data, and to scale those models up to big data problems.

### Data Visualisation & Reporting

On completion of the module, students should be able to draw insights from data, deploy storyboards and present their insights using the most effective visual representations.

### Industry Attachment

On completion of the modules, students should be able to integrate and apply a cluster of key technical, social and methodological competencies related to their field of work.