APPROVED

DUNDALK INSTITUTE OF TECHNOLOGY
INSTITIÚID TEICNEOLAÍOCHTA DHÚN DEALGAN

# Master of Science in Data Analytics

## Informatics and Creative Arts

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| **Programme Short Title** | Master of Science in Data Analytics | | | | |
| **Programme Code** | DK_ICDAN_9 | **Mode of Delivery** | Full-time, Part-time, Full Time Blended, Part Time Blended | **No. of Semesters** | 3 |
| **Semesters Per Stage** | 3 | **NFQ Level** | 9 | **Programme Credits** | 90 |
| **Language of Instruction** | English | | | | |
| **Field of Study** | 0610 - Computing | | | | |
| **Educational Aim of Programme** | The aim of this programme is to produce highly-skilled graduates with expertise that cuts across the core disciplines of Mathematics, Statistics and Computer Science. It emphasises the critical connection from data to information, from information to knowledge, and from knowledge to decision making, encompassed in the Data-Lifecycle. The educational aim is to develop students' analytical, critical thinking, problem-solving and communication skills and to foster their research capabilities and innovation skills in the area of Data Analytics. The programme takes an integrative approach, focusing on the synthesis of knowledge and practice from areas within the Mathematics, Statistics and Computer Science domains. | | | | |
| **External Code** | **Code:** | | | | |

## Programme Learning Outcomes (PLOs)

On successful completion of this programme the learner should be able to :

| # | Description |
|---|---|
| PLO1 | Critically assess, utilise and reframe current and emerging concepts, principles, theories and methods in the field of Data Analytics. |
| PLO2 | Demonstrate expert knowledge and understanding of the essential facts, major concepts, principles and theories associated with the field of Data Analytics. |
| PLO3 | Critically evaluate and synthesis current and emerging developments in data analytics research to build effective data analytics strategies. |
| PLO4 | Develop approaches to acquiring, interpreting and analysing current research in the field of data analytics to inform practice in the identification, definition and resolution of novel, complex data driven research problems. |
| PLO5 | Skill-fully hypothesis, plan, design and implement appropriate programmes of investigation, formulated and built on current research developments and implemented using appropriate new and emerging technologies - with an awareness of the challenges and possible limitations of resulting technological solutions. |
| PLO6 | Expertly employ advanced data analysing, synthesising and summarising skills by effectively and ethically applying a range of statistical and computational tools. Communicate statistical results at a professional standard in a variety of forms to both specialist and non-specialist audiences. |
| PLO7 | Work autonomously in the selection and application of appropriate data analysis skills and techniques across a variety of complex data related scenarios. |
| PLO8 | Independently acquire skill in new and emerging data related knowledge areas and technologies. Integrating such advanced knowledge in the creation of effective solutions to data driven research and applied problems. |
| PLO9 | Apply advanced research and data analytics skills to varied novel and complex data related problems. Interpret results, constructively criticise findings, draw conclusions and offer recommendations within a variety of different domains and contexts. |
| PLO10 | Initiate, lead and manage projects of significant complexity involving multi-disciplinary teams, working strategically to develop innovative solutions, communicating effectively and participating constructively in peer collaborations and evaluation exercises. |
| PLO11 | Assess their own knowledge, identify knowledge gaps, determine appropriate learning paths and undertake self-learning to address these gaps. Possess an awareness of the need for enhanced technical competencies and continuing professional development and a commitment to continuing education and lifelong learning. |
| PLO12 | Act with integrity and independence in making professional judgements - assessing the societal, cultural, environmental, legal and regulatory impact of their own work and that of others. |

## Semester Schedules

### Stage 1 / Semester 1

| Mandatory | |
|---|---|
| **Module Code** | **Title** |
| DATA C9001 | **Data Architecture** |
| PROG C9001 | **Programming for Data Analytics** |
| RESA C9009 | **Research Process for Data Analytics** |
| DATA C9002 | **Statistics** |

### Stage 1 / Semester 2

| Mandatory | |
|---|---|
| | |

| Module Code | Title |
|---|---|
| DATA C9003 | Data Visualisation and Insight |
| DATA C9006 | Ethics in Data Analytics |
| DATA C9004 | Machine Learning |
| DATA C9005 | Time Series Analysis |

### Stage 1 / Semester 3

| Mandatory | |
|---|---|
| **Module Code** | **Title** |
| DISS C9002 | Dissertation |