

Course descriptor F21DV

Course code	F21DV
Course title	Data Visualisation Analytics
Credits	15
School	Mathematical and Computer Sciences
SCQF Level	11
Semester	2
Aims	<p>To provide students with the theory, principles and tools to enable them:</p> <ul style="list-style-type: none"> • To create engaging and intuitive graphical and interactive applications that allow users to search, explore, reveal, partition, understand, discover and communicate the structure and information in large data sets; • To convey ideas effectively, considering both aesthetic form and required functionality that will provide insights into different types of dataset (big data, complex data, heterogeneous data, linked data, dynamic data, dirty data); • To stimulate user engagement, attention and discovery; • To elicit main requirements of such systems; • To be able to implement interactive web-based visualisation systems and assess their effectiveness
Syllabus	<p>Overall aims:</p> <ul style="list-style-type: none"> • Use case scenarios (browsing, search, engagement, summarisation, brain storming) • Example data sets and visualisations, problems of big data • Data source types • Design principles • Visualisation toolkits and programming • Data, information and display/infographic types • Abstraction methods including clustering, topic modelling, dimensional reduction • Interaction (exploration, browsing, filtering, focussing) <p>NOTE: A pre-requisite of this course is numeracy and basic OO programming ability, (3rd year CS).</p>

Learning Outcomes	
Subject Mastery	<ul style="list-style-type: none"> • A detailed and integrated knowledge and understanding of the data visualisation and data analysis processes. • Extensive knowledge of different infographic types, interactivity and design choices. • Extensive knowledge of different information and data types. • Demonstrate a critical awareness of the main types of information and the appropriateness and effectiveness of associated visualisation and analysis techniques
Personal Abilities	<p>The students will be expected to:</p> <ul style="list-style-type: none"> • Rational problem identification, conceptualisation and definition. • Ability to deal with complex issues and apply critical analysis and solution selection. • Exercise substantial autonomy, initiative, and creativity in the application of data visualisation & analysis techniques. • Demonstrate critical reflection on system development and performance (PDP). • Communicate with peers, senior colleagues and specialists (PDP).

Assessment method	70% course work 30% examination
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