WM9G1-15 Big Data and Analytics for Industry

26/27

Department
WMG
Level
Taught Postgraduate Level
Module leader
Leonardo Alves Dias
Credit value
15
Module duration
4 weeks
Assessment
Multiple
Study locations
University of Warwick main campus, Coventry Primary
Distance or Online Delivery

Description

Introductory description

This module aims to enable participants to understand the principles, challenges and opportunities that Big Data offers to technology-led (or engineering) organisations. The focus of the module will be primarily on the management implications, rather than technical specifics of a Big Data architecture and/or analytics (both of which are introduced). Following from this, the module will also focus on the visualisation of Big Data, and of the insights derived from Big Data analytics, to support management decision making in engineering contexts.

Module aims

This module aims to enable participants to understand the principles, challenges and opportunities that Big Data offers to technology-led (or engineering) organisations. This incorporates technological developments, strategy and management, as well as analytical methods to derive insights from data at scale. Participants will get the opportunity to develop hands-on experience with the latest technology, current best practices, to critically analyse a range of business scenarios, and implement sophisticated big data and digital analytics solutions

Outline syllabus

This is an indicative module outline only to give an indication of the sort of topics that may be covered. Actual sessions held may differ.

Big Data Technologies

- Core Concepts of Big Data
- Data Warehouse Architecture
- Big Data Architecture
  Analytics
- Core Concepts of Analytics
- Decision Analytics
- Predictive Analytics
- Artificial Intelligence and Machine Learning
  Decision Science & Visualisation
- Key Topics in Decision Science
- Visual Communication
- Data Visualisation
- Data Visualisation Software
  Big Data and Visualisation in Engineering Management
- Practical Simulation of the Above Topics

Learning outcomes

By the end of the module, students should be able to:

- Critically evaluate the key differences between Big Data technologies and analysis methods and traditional approaches in engineering business management.
- Critically evaluate real-world engineering scenarios/case studies and devise appropriate analytical solutions.
- Demonstrate a comprehensive understanding of the core concepts of visual communication and data visualisation.
- Collaboratively analyse engineering business requirements and practically implement analytics and optimisation techniques in real-world settings.

Indicative reading list

Reading lists can be found in Talis

Specific reading list for the module

Interdisciplinary

A mixture of technology/computing topics and business topics

International

Topics are of high demand internationally

Subject specific skills

Big data, analytics, visualisation, artificial intelligence, automation, data architecture

Transferable skills

Computing, statistics and modelling, team work, critical analysis

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Study

Study time

Type	Required
Lectures	20 sessions of 1 hour (13%)
Seminars	10 sessions of 1 hour (7%)
Supervised practical classes	(0%)
Online learning (independent)	30 sessions of 1 hour (20%)
Private study	30 hours (20%)
Assessment	60 hours (40%)
Total	150 hours

Private study description

Private study will include preparing for lectures and seminars, reviewing lecture notes, and engaging with required readings and multimedia resources.

Costs

No further costs have been identified for this module.

Assessment

You must pass all assessment components to pass the module.

Assessment group A4

	Weighting	Study time	Eligible for self-certification
Big Data Analytics Presentation	30%	18 hours	No
A presentation of analyses and visualisations of various datasets and recommendations on business actions from them. The assessment will involve peer review.			
Business Report	70%	42 hours	Yes (extension)
A business-style report discussing core topics in big data and engineering management			

Assessment group R4

	Weighting	Study time	Eligible for self-certification
Big Data Analytics Presentation	30%		No
A presentation of analyses and visualisations of various datasets and recommendations on business actions from them			
Business Report	70%	42 hours	No

Feedback on assessment

Verbal feedback and a written summary will be provided for the group assessment. Written feedback will be provided for the individual assignment.

Availability

There is currently no information about the courses for which this module is core or optional.