

WM9G1-15 Big Data and Analytics for Industry

22/23

Department

WMG

Level

Taught Postgraduate Level

Module leader

Michael Mortenson

Credit value

15

Module duration

2 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.
- Practically implement analytics and optimisation techniques in real-world settings

Indicative reading list

As Above

[View reading list on Talis Aspire](#)

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

Study

Study time

Type	Required
Lectures	12 sessions of 1 hour (8%)
Seminars	8 sessions of 1 hour (5%)
Supervised practical classes	10 sessions of 1 hour (7%)
Online learning (independent)	15 sessions of 1 hour (10%)
Assessment	105 hours (70%)
Total	150 hours

Private study description

No private study requirements defined for this module.

Costs

No further costs have been identified for this module.

Assessment

You do not need to pass all assessment components to pass the module.

Assessment group A1

	Weighting	Study time
Big Data Analytics Presentation	20%	30 hours
A presentation of analyses and visualisations of various datasets and recommendations on business actions from them		
Post Module Assignment	80%	75 hours

Weighting**Study time**

A business-style report discussing core topics in big data and engineering management

Assessment group R1**Weighting****Study time**

Post Module Assignment

100%

A business-style report discussing core topics in big data and engineering management

Feedback on assessment

Verbal and written feedback for in-module element. Written feedback and annotated scripts for post-module element

Availability**Courses**

This module is Optional for:

- Year 1 of TWMS-H1S3 Postgraduate Taught Engineering Business Management (Full-time)