

WM948-15 Emerging Technologies for Business

21/22

Department

WMG

Level

Taught Postgraduate Level

Module leader

Armaghan Khan

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 address the ever-changing sphere of technology and show how emerging technologies can be applied to different industries and business contexts. The module will offer crucial, advanced theoretical and practical technological foundations to International Technology Management students.

It is clear that there is a need to disseminate this knowledge to students to better help them understand technology and how it fits together within the context of modern systems.

The development and understanding of technological step changes can provide significant advantages to organisations and give them an edge over competitors. Comprehensive knowledge of the limitations and current boundaries of technology enables strong forecasting and synergises with strategic thinking.

This module provides an advanced and comprehensive look at current and future technological trends. It explores how current market leaders use technology to their advantage by providing a broad understanding of computing methods and infrastructures, cutting edge materials, and applications such as artificial intelligence by forming an in-depth knowledge of what is currently

possible and preparing students for technological change. This module will equip the student with the right skills to both explore new technologies, and explore their potential exploitations.

In particular, this module will consider the emerging technology landscape covering technologies such as: artificial intelligence, internet-of-things, VR/AR, data visualisation, new materials, blockchain, cryptocurrencies, and cyber security. We will seek to engage with WMG researchers such as those working in new materials, automation and robotics to incorporate the latest work in these fields.

In addition to introducing students to the technologies themselves, the module aims to enable participants to recognise the opportunities and challenges that emerging technologies may bring, and identify use-cases and industries that could face disruption from new technologies.

Module aims

This module aims to address the ever-changing sphere of technology and show how emerging technologies can be applied to different industries and business contexts. The module will offer crucial, advanced theoretical and practical technological foundations to International Technology Management students.

It is clear that there is a need to disseminate this knowledge to students to better help them understand technology and how it fits together within the context of modern systems.

The development and understanding of technological step changes can provide significant advantages to organisations and give them an edge over competitors. Comprehensive knowledge of the limitations and current boundaries of technology enables strong forecasting and synergises with strategic thinking.

This module provides an advanced and comprehensive look at current and future technological trends. It explores how current market leaders use technology to their advantage by providing a broad understanding of computing methods and infrastructures, cutting edge materials, and applications such as artificial intelligence by forming an in-depth knowledge of what is currently possible and preparing students for technological change. This module will equip the student with the right skills to both explore new technologies, and explore their potential exploitations.

In particular, this module will consider the emerging technology landscape covering technologies such as: artificial intelligence, internet-of-things, VR/AR, data visualisation, new materials, blockchain, cryptocurrencies, and cyber security. We will seek to engage with WMG researchers such as those working in new materials, automation and robotics to incorporate the latest work in these fields.

In addition to introducing students to the technologies themselves, the module aims to enable participants to recognise the opportunities and challenges that emerging technologies may bring, and identify use-cases and industries that could face disruption from new technologies.

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.

- Emerging technology landscape and evaluating emerging technologies
- High Performance Computing (HPC) including Big Data technology, Cloud computing, Blockchain & Cryptocurrencies
- Advanced Computing Techniques including Artificial Intelligence and machine learning
- Cyber-security
- Industry 4.0
- Internet of Things
- New materials
- 3D & 4D printing
- Robotics and virtual assistants
- Visualisation and collaboration including data visualisation, virtual and augmented reality (& mixed reality), crowd sourcing

Learning outcomes

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

- Interpret and evaluate critical business technologies and their application in various industries.
- Review concepts and practicalities of adopting technologies related to high performance computing, and evaluate the implications, technical challenges and benefits of operating in technical environments.
- Appraise the theory and concepts behind the technical deployments of emerging technologies.
- Evaluate and implement new and emerging technologies to specific business contexts.

Indicative reading list

Anderson R (2008). Security Engineering: A Guide to Building Dependable Distributed Systems, 2nd Edition. Hoboken, NJ: John Wiley & Sons. ISBN-13: 978-0470068526

Birch D (2017). Before Babylon, Beyond Bitcoin: From Money that We Understand to Money that Understands Us. London: London Publishing Partnership.

Floyd TL (2013). Digital Fundamentals, 10th Edition. London: Pearson. ISBN-13: 978-0132359238.

Gilchrist A (2016). Industry 4.0: The Industrial Internet of Things. New York, NY: Apress. ISBN-13: 978-1484220467.

Hennig, N (2017), Keeping Up with Emerging Technologies: Best Practices for Information Professionals. Libraries Unlimited. ISBN-13: 978-1440854408

Kavis MJ (2014). Architecting the Cloud: Design Decisions for Cloud Computing Service Models (SaaS, PaaS, and IaaS). Hoboken, NJ: John Wiley & Sons. ISBN-13: 978-1118617618

Kim G, Behr K and Spafford G (2013). The Phoenix Project: A Novel about It, Devops, and Helping Your Business Win. IT Revolution Press. ISBN-13: 978-0988262591

Mayer-Schönberger V and Cukier K (2013). Big Data – A Revolution That Will Transform How We Live, Think and Work. London: John Murray. ISBN-13: 978-184854790

Tanenbaum AS and Van Steen M (2006). Distributed Systems: Principles and Paradigms, 2nd Edition. London: Pearson. ISBN-13: 978-1530281756

[View reading list on Talis Aspire](#)

Subject specific skills

Digital transformation, big data, digitalisation, emerging technologies, Blockchain, 3D printing, IIoT, Crowdsourcing, Cloud.

Transferable skills

Technology analysis, virtual teams, team working

Study

Study time

Type	Required
Lectures	31 sessions of 1 hour (21%)
Seminars	21 sessions of 1 hour (14%)
Demonstrations	3 sessions of 1 hour (2%)
Other activity	5 hours (3%)
Assessment	90 hours (60%)
Total	150 hours

Private study description

No private study requirements defined for this module.

Other activity description

5 hours of pre-work (based on case study analysis). Participation in this activity will be assessed in advance of the class and also during the 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 A2

	Weighting	Study time
Post Module Assessment	80%	80 hours
Essay/report on an emerging technologies topic		
Emerging Technology Presentation	20%	10 hours
Presentation on organisational recommendations for exploring emerging technologies		

Assessment group R1

	Weighting	Study time
Post-Module Assessment	100%	
Essay/report on an emerging technologies topic		

Feedback on assessment

In module work will have feedback provided verbally after assessment. PMA – individual notes and bespoke feedback attributed to each script returned to each student.

Availability

Anti-requisite modules

If you take this module, you cannot also take:

- WM955-10 Emerging Digital Technologies

Courses

This module is Core for:

- Year 1 of TESS-H1PU Postgraduate Taught International Technology Management