



Title:	Emerging Technological Trends APPROVED
Long Title:	Emerging Technological Trends
Module Code:	COMP8045
Duration:	1 Semester
Credits:	5
NFQ Level:	Advanced
Field of Study:	Computer Science
Valid From:	Semester 1 - 2017/18 (September 2017)
Module Delivered in	7 programme(s)
Module Coordinator:	Sean McSweeney
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Module Description:	The digital revolution has impacted our society in many profound ways and increasingly our world is becoming an intelligent, digital mesh of people, things and services. Companies face challenges in maintaining their competitive edge and are constantly revising their long term business strategies bearing in mind emerging technological trends. In this module, students will examine the driving forces behind various trends and predictions and their potential impact on society and business and their chosen field of practice.
Learning Outcomes	
<i>On successful completion of this module the learner will be able to:</i>	
LO1	Critically assess how emerging technological trends has impacted different fields of practice and human society.
LO2	Evaluate the impact of intelligent devices and technology on supporting human endeavours.
LO3	Assess how product perception and innovation renovates the customer experience.
LO4	Examine the benefits of applying data analytics to evaluate product perception and drive innovation.
LO5	Discuss the impact of infrastructure and operations in supporting businesses and driving innovation.
Pre-requisite learning	
Module Recommendations <i>This is prior learning (or a practical skill) that is strongly recommended before enrolment in this module. You may enrol in this module if you have not acquired the recommended learning but you will have considerable difficulty in passing (i.e. achieving the learning outcomes of) the module. While the prior learning is expressed as named CIT module(s) it also allows for learning (in another module or modules) which is equivalent to the learning specified in the named module(s).</i>	
Incompatible Modules <i>These are modules which have learning outcomes that are too similar to the learning outcomes of this module. You may not earn additional credit for the same learning and therefore you may not enrol in this module if you have successfully completed any modules in the incompatible list.</i>	
No incompatible modules listed	
Co-requisite Modules	
No Co-requisite modules listed	
Requirements <i>This is prior learning (or a practical skill) that is mandatory before enrolment in this module is allowed. You may not enrol on this module if you have not acquired the learning specified in this section.</i>	
No requirements listed	

Module Content & Assessment

Indicative Content

Emerging and Technological trends

Digital revolution. The impact of the Internet. Research and Advisory Agencies - Gartner, Forrester. Hype cycles. Information age - computer age, digital age, new media age. Driven forces behind information age - personal computers, storage, speed of transmission, computation power. The future and impact on society.

Technological Opportunities for Business

Disruptive forces to business and new business models. Big Data and analytics - allow business to understand how, when and where people consume goods and services. Impact on data analytics to various industries such as medical or healthcare etc. Cloud - technology enabling business to respond to changing customer requirements. Social Media - new methods to reach and interact with customers. Technology integration. Automation of business processes. Case studies - media company Netflix.

Emerging Technologies in Information Development

Mobile content delivery; Structured information, single source publishing, multi-document/multi-channel delivery (ePub, PDF, Print, HTML); Topic based context specific help; Responsive design and adaptive Web content.

Product Perception and Innovation

User Experience; Social Media; Video; Virtual reality; Tangible UIs; Multi-modal interfaces; Gamification and how gamers are educated. Technology development; Software Development life-cycle; Synthesis of dense content for complex products; Adapt information to a changing audience and user experience.

Intelligent Devices

Internet of Things and the Future Internet. Industries using the IoT - manufacturing, energy, transportation, smart cities etc. Case studies for IoT. Business driving forces behind IoT. Challenges and opportunities in IoT. Fog Computing.

Infrastructure Technological Trends

BYOD. Resource management and virtualisation. Cloud Computing - IaaS, PaaS, SaaS. Fibre. Data Centre technology. Storage - petabyte. Software Defined Networking. Software Defined Data Centres. Network Virtualisation. Lightweight Virtualisation i.e. Docker.

Guest Speakers

As part of the module the lecturer will invite guest speakers who work in the field of information development and experts in the areas presented as part of the module (for example the Internet of Things) to present and discuss the emerging technologies that will impact their role as an information developer.

Assessment Breakdown

	%
Course Work	100.00%

Course Work

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Essay	The student will be expect to write an essay on a given subject reflecting on a topic presented by a guest lecturer or subject set by the lecturer of the module.	1,2,3,4	60.0	Week 13
Reflective Journal	As part of this activity the student will be expected to reflect on the topics referred to in class and the guest lectures presented by experts across various fields of expertise.	1,2,3,4	40.0	Every Second Week

No End of Module Formal Examination

The institute reserves the right to alter the nature and timings of assessment

Module Workload

Workload: Full Time				
<i>Workload Type</i>	<i>Workload Description</i>	<i>Hours</i>	<i>Frequency</i>	<i>Average Weekly Learner Workload</i>
Lecture	Lecture delivering theory underpinning learning outcomes.	2.0	Every Week	2.00
Tutorial	Tutorial to support learning outcomes.	1.0	Every Week	1.00
Independent & Directed Learning (Non-contact)	Independent Study.	4.0	Every Week	4.00
Total Hours				7.00
Total Weekly Learner Workload				7.00
Total Weekly Contact Hours				3.00

Workload: Part Time				
<i>Workload Type</i>	<i>Workload Description</i>	<i>Hours</i>	<i>Frequency</i>	<i>Average Weekly Learner Workload</i>
Lecture	Lecture delivering theory underpinning learning outcomes.	2.0	Every Week	2.00
Tutorial	Tutorial to support learning outcomes.	1.0	Every Week	1.00
Independent & Directed Learning (Non-contact)	Independent Study.	4.0	Every Week	4.00
Total Hours				7.00
Total Weekly Learner Workload				7.00
Total Weekly Contact Hours				3.00

Module Resources

Recommended Book Resources

- Greenfield, Adam 2006, *Everyware: The dawning age of ubiquitous computing*, New Riders Publishing [ISBN: 0321384016]
- Baesens, Bart 2014, *Analytics in a big data world: The essential guide to data science and its applications.*, Wiley [ISBN: 1118892704]
- Farmer, Randy, and Bryce Glass 2010, *Building web reputation systems.*, O'Reilly Media [ISBN: 0-596-15979-X]

Supplementary Book Resources

- Halvorson, Kristina, and Melissa Rach 2012, *Content strategy for the web*, New Riders [ISBN: 0321808304]
- Brusilovsky, Peter, Alfred Kobsa, and Wolfgang Nejdl 2007, *The adaptive web: methods and strategies of web personalization*, Springer [ISBN: 3540720782]

This module does not have any article/paper resources

Other Resources

- Website: *List of emerging technologies*
https://en.wikipedia.org/wiki/List_of_emerging_technologies
- Website: *MIT Technology Review*
<http://www.technologyreview.com/>
- Website: *GizMag*
<http://www.gizmag.com/>

Module Delivered in

Programme Code	Programme	Semester	Delivery
CR_KSDEV_8	<u>Bachelor of Science (Honours) in Software Development</u>	6	Group Elective 3
CR_KDNET_8	<u>Bachelor of Science (Honours) in Computer Systems</u>	6	Group Elective 3
CR_KITMN_8	<u>Bachelor of Science (Honours) in IT Management</u>	6	Group Elective 3
CR_KITSP_7	<u>Bachelor of Science in Information Technology</u>	6	Group Elective 3
CR_KCOMP_7	<u>Bachelor of Science in Software Development</u>	6	Group Elective 3
CR_KINDD_9	<u>Master of Science in Information Design and Development</u>	2	Elective
CR_KIDDE_9	<u>Postgraduate Diploma in Science in Information Design and Development</u>	2	Elective