WM9N0-15 Digital Communication and Interoperability for Healthcare

24/25

Department
WMG
Level
Taught Postgraduate Level
Module leader
Mohannad Alajlani
Credit value
15
Module duration
4 weeks
Assessment
100% exam
Study location
University of Warwick main campus, Coventry

Description

Introductory description

This module covers emerging needs for standards, interoperability types and Health Information Exchange (HIE). To achieve the best care possible, it is critical that high-quality information is securely and confidentially available to those who need it to deliver and improve care, including clinicians, patients, carers, researchers and policy makers. Information must be understood by all stakeholders in order to be utilised effectively.

Module aims

The course aims to provide a solid understanding of standards and interoperability, as well as, the complexity of information exchange and challenges of achieving fully integrated digital systems in healthcare.

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.

- Definition and use of data and clinical coding and terminology
- Types of communication across healthcare systems
- Health Information Exchange
- EHR, EMR and EPR
- Data structures and data security

Learning outcomes

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

- Choose how to use clinical, social, biomedical terminology, language and abbreviations appropriately when contributing to digital healthcare projects
- Appraise the range of technology for transmitting information and clinical standards needed to support the creation of interoperable systems
- Evaluate the application of clinical coding systems, terminologies and classifications.
- Evaluate the appropriate health information standards and clinical coding systems, data structures, data security and privacy and system-to-system messaging to enable the achievement of appropriate systems interoperability.
- Justify an appropriate solution/technology to resolve healthcare problems and contribute to the development of good practice.

Indicative reading list

There are no single text books for this module. A full reading list will be provided at the start of the module. An indicative list is provided below:
Chen, H., Chiang, R. H., & Storey, V. C. (2012). Business Intelligence and Analytics: From Big Data to Big Impact. MIS quarterly, 36(4), 1165-1188.
Fichman, R. G., Dos Santos, B. L., & Zheng, Z. (2014). Digital innovation as a fundamental and powerful concept in the information systems curriculum. Mis Quarterly, 38(2), 329-353.
Jung, C., & Padman, R. (2014). Virtualized healthcare delivery: Understanding users and their usage patterns of online medical consultations. International journal of medical informatics, 83(12), 901-914.
Chawla, N. V., & Davis, D. A. (2013). Bringing big data to personalized healthcare: a patient-centered framework. Journal of General Internal Medicine, 28(3), 660-665.
A.S. Tanenbaum, and D.J. Wetherall: Computer networks, Pearson, 2013, ISBN: 9781292024226.
L.W. Couch: Digital and analog communication systems, Pearson, 2012, ISBN: 9780273774211.
J.H Schiller: Mobile communications, Pearson Education, 2003, ISBN: 9781405890304 (e-book).
G Lee: Cloud networking: understanding cloud-based data center networks, Morgan Kaufmann, 2014, ISBN: 9780128008164 (e-book).
H. Geng (ed.): Internet of Things and Data Analytics Handbook, John Wiley & Sons, 2017, ISBN: 9781119173601 (e-book).
R. Sankarayogi: Software tools for real-time simulation and control: Real-time simulation, hardware-in-the-loop, real-time Linux, Matlab/Simulink/RTAI, VDM Verlag, 2008, ISBN: 9783639112450.

Subject specific skills

- Use of clinical, social, biomedical terminology
- Use and deployment of clinical and data standards.
- Design and recommend the communication across healthcare systems to ensure interoperability

Transferable skills

- Understand issues of data structure and data security.
- Design an effective approach for data exchange among different stakeholders

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Study

Study time

Type	Required
Seminars	30 sessions of 1 hour (20%)
Private study	60 hours (40%)
Assessment	60 hours (40%)
Total	150 hours

Private study description

Directed study based around trigger activities and consolidation to support learning

Costs

No further costs have been identified for this module.

Assessment

You must pass all assessment components to pass the module.

Assessment group B

	Weighting	Study time
Digital Communication and Interoperability for Healthcare Narrated presentation on video 10 minutes	100%	60 hours

Feedback on assessment

written feedback on Tabula

Past exam papers for WM9N0

Availability

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