WM193-15 Digital Technology Fundamentals

24/25

Department
WMG
Level
Undergraduate Level 1
Module leader
Mir Seyedebrahimi
Credit value
15
Module duration
14 weeks
Assessment
40% coursework, 60% exam
Study locations
University of Warwick main campus, Coventry Primary
Distance or Online Delivery

Description

Introductory description

This module will provide an introduction to the fundamental concepts of digital technologies and their evaluation. You will explore the history of digital systems and how they have evolved over time. You will also learn about the basic building blocks of digital technologies, such as number systems and computer organization. This module will equip you with the essential knowledge and skills you need to succeed in the field of digital technology solutions.

Module web page

Module aims

The principal aim of this module is to provide you with a strong foundation in the fundamental concepts of digital technologies. You will gain an understanding of the history of digital systems, the basic building blocks of digital technologies, and how to evaluate digital systems.

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.

Introduction to Digital Technologies
-- What are digital technologies?
-- The history of digital systems
-- The impact of digital technologies on society
-- Case studies of real-world examples
Number Systems
-- Binary, octal, decimal, and hexadecimal number systems
-- Converting between number systems
-- Representing data in digital systems
-- Basic arithmetic and binary logical operations
Computer Organization
-- The basic components of a computer
-- The role of software and hardware
-- Data storage and processing methods
Evaluating Digital Systems
Applying knowledge to solve practical problems

Learning outcomes

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

- Describe the history and evolution of digital systems. [AHEP:4 - C7] [CITP: 2.1.3]
- Explain the basic concepts of number systems and computer organisation. [AHEP:4 - C1] [CITP: 2.1.1, 2.1.2]
- Evaluate basic digital systems using a variety of criteria. [AHEP:4 - C16] [CITP: 2.1.2]
- Apply your knowledge of digital technologies to solve practical problems. [CITP: 2.1.8]

Indicative reading list

Floyd, T.L. 2015, Digital fundamentals, Eleventh, Global edn, Pearson Education Limited, Harlow.
Deschamps, J., Valderrama, E. & Terés, L. 2016, Digital systems: from logic gates to processors, Springer, Switzerland.

Subject specific skills

This module covers the following Knowledge and Skills based on the latest published DTS DA standard:
K5: A range of digital technology solution development techniques and tools.
K7: The roles, functions and activities within digital technology solutions within an organisation.
K16: Fundamental computer networking concepts in relation to digital and technology solutions. For example, structure, cloud architecture, components, quality of service.
S1: Analyse a business problem to identify the role of digital and technology solutions.
S3: Analyse a business problem in order to specify an appropriate digital and technology solution.
S14: Research, investigate, and evaluate innovative technologies or approaches in the

development of a digital and technology solution.

Transferable skills

Problem-solving
Critical thinking
Communication
Teamwork
Time management

Study

Study time

Type	Required
Lectures	15 sessions of 1 hour (10%)
Seminars	15 sessions of 1 hour (10%)
Online learning (independent)	5 sessions of 1 hour (3%)
Other activity	5 hours (3%)
Private study	50 hours (33%)
Assessment	60 hours (40%)
Total	150 hours

Private study description

Self-guided study: revision on module contents, solution of additional seminar-type questions, video tutorials and supplementary materials.
Study and advanced use of simulation software.
Analyzing datasheets of components.
Online forum forum for discussing queries with course peers and tutors. (asynchronous).

Other activity description

- Pre-module reading list given on Moodle to encourage flipped learning approach.
- Preparation for the practical activities.
- Online consulting session for providing one to one support to help struggling students.

Costs

No further costs have been identified for this module.

Assessment

You must pass all assessment components to pass the module.

Assessment group D

	Weighting	Study time	Eligible for self-certification
Coursework	40%	24 hours	Yes (extension)
This assessment focuses on examining the progression of digital technologies. Apprentices are tasked with choosing a digital system/technology and delving into its historical journey and evolution/development. This assessment component will incorporate a digital artifact illustration.			
Exam	60%	36 hours	No
Combination of multiple-choice and short answer questions that covers main learning outcomes with varying depth and emphasis.			

Feedback on assessment

Feedback given as appropriate to the assessment type:

- Verbal feedback given during seminar/tutorial sessions.
- Written cohort level feedback on the exam.
- Written individual feedback on the written report.

Past exam papers for WM193

Availability

Courses

This module is Core for:

- Year 1 of DWMS-H655 Undergraduate Digital and Technology Solutions (Cyber) (Degree Apprenticeship)
- Year 1 of DWMS-H652 Undergraduate Digital and Technology Solutions (Data Analytics) (Degree Apprenticeship)
- Year 1 of DWMS-H653 Undergraduate Digital and Technology Solutions (Network Engineering) (Degree Apprenticeship)
- Year 1 of DWMS-H654 Undergraduate Digital and Technology Solutions (Software Engineering) (Degree Apprenticeship)