Module Specification

Signal Theory

Version: 2026-27, v3.0, Approved

Contents

Part 1: Information

Module title: Signal Theory

Module code: UFMFNT-15-2

Level: Level 5

For implementation from: 2026-27

UWE credit rating: 15

ECTS credit rating: 7.5

College: College of Arts, Technology and Environment

School: CATE School of Engineering

Partner institutions: None

Field: Engineering, Design and Mathematics

Module type: Module

Pre-requisites: Mathematical Modelling for Electronics and Robotics 2025-26

Excluded combinations: None

Co-requisites: None

Continuing professional development: No

Professional, statutory or regulatory body requirements: None

Part 2: Description

Overview: This module will cover the fundamentals of signals and signal processing, in continuous and discrete time, and shall focus on their applications in robotics. Mathematical theory will be supplemented with computer-based tools and laboratory problems.

Features: Not applicable

Educational aims: This module equips students with the knowledge and skills necessary to solve a range of engineering, electronics and robotics problems which involve signals and signal processing.

Outline syllabus: This module will cover the following topics:

Introduction to Signals

Fourier Series

Continuous-time Fourier transform

Sampling Theorem and Reconstruction

Discrete-time Fourier transform (DTFT)

Laplace transform

Applications of signal processing techniques in robotics

Part 3: Teaching and learning methods

Teaching and learning methods: This module will combine lectures, class-based tutorials/computer workshops to ensure that students develop an understanding of theory, analytical techniques and real applications in robotics.

Module Learning outcomes: On successful completion of this module students will achieve the following learning outcomes.

MO1 Apply mathematical and computational concepts of signal theory to understand ranging problems in robotics and general engineering.

MO2 Evaluate the strengths and limitations of a variety of mathematical methods for solving signal theory problems.

Hours to be allocated: 150

Contact hours:

Independent study/self-guided study = 114 hours

Face-to-face learning = 36 hours

Reading list: The reading list for this module can be accessed at readinglists.uwe.ac.uk via the following link https://rl.talis.com/3/uwe/lists/AF23A85B-50C0-E6FF-0561-868BC94F8DB7.html

Part 4: Assessment

Assessment strategy: The assessment for this module consists of:

A written examination that assesses the students' understanding of mathematical concepts and techniques as applied to problems in the field of signal theory. The examination provides an appropriate mechanism to assess mathematical concepts and techniques learned throughout the module.

Resit is the same as the first sit

Assessment tasks:

Examination (Online) (First Sit)
Description: Online exam: 2 hours (+ 2 for scanning and upload)
Weighting: 100 %
Final assessment: Yes
Group work: No
Learning outcomes tested: MO1, MO2

Examination (Online) (Resit)
Description: Online exam: 2 hours (+ 2 for scanning and upload)
Weighting: 100 %
Final assessment: Yes
Group work: No

Learning outcomes tested: MO1, MO2

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Robotics {Foundation} [Frenchay] BEng (Hons) 2024-25

Robotics {Foundation} [Frenchay] BEng (Hons) 2024-25

Robotics {Foundation} [Frenchay] BEng (Hons) 2024-25

Robotics [Frenchay] BEng (Hons) 2025-26

Robotics [Frenchay] BEng (Hons) 2025-26

Robotics {Foundation} [Frenchay] BEng (Hons) 2024-25