STUDENT AND ACADEMIC SERVICES

MODULE SPECIFICATION

Part 1: Information			
Module Title	Industrial Applications of Vision and Automation		
Module Code	UFMFCC-15-M	Level	Level 7
For implementation from	2018-19		
UWE Credit Rating	15	ECTS Credit Rating	7.5
Faculty	Faculty of Environment & Technology	Field	Engineering, Design and Mathematics
Department	FET Dept of Engin Design & Mathematics		
Contributes towards	Mechanical Engineering [Sep][FT][Frenchay][1yr] MSc 2018-19 Mechanical Engineering [Sep][PT][Frenchay][2yrs] MSc 2018-19		
Module type:	Standard		
Pre-requisites	None		
Excluded Combinations	None		
Co- requisites	None		
Module Entry requirements	None		

Part 2: Description

Educational Aims: See Learning Outcomes

Outline Syllabus: The syllabus includes:

General introduction, lectures and workshops on relevant technical aspects of automation and vision.

Guest lectures and component inspection in practice.

Guest lectures and student-led workshops about self-directed research on technical topics and

their application to industry.

Guest lectures and component inspection in practice.

Project in pairs on a theoretical problem in the field.

Teaching and Learning Methods: Scheduled Learning:

After a few introductory lectures/discussions, the module will assume a range of modern teaching styles, including:

Student-led workshops where the students work in teams to research a particular topic and present the results to the rest of the group via a presentation and workshop session.

Guest lectures from industry experts and technical lectures from UWE staff.

Tutorials using computer rooms.

Independent learning:

Written assignment.

Small project in pairs (partly supervised, but mainly independent).

Background reading and literature surveying.

Self-study in preparation for all areas covered in scheduled learning in addition to preparation of workshops.

Work-based learning is applicable to those students enrolled on the course via the work-based learning scheme. The precise nature of the learning methods in this case will depend on the current experience and expertise of the student and the nature of the employer. It will be expected that one or more coursework elements may be substituted by reports on relevant work in practice and oral presentations. This work will be completed individually, but with a small amount of input from the students' employers where necessary.

Contact: 44 hours
Self-directed learning: 36 hours
Course work: 70 hours
Exam preparation: 0
Total hours: 150

Part 3: Assessment

Component A

EX1: Group student workshops for Automation, Vision and Management

Component B
CW1: Industry assignment (individual written report, 1,500 words)
CW2: Technical project in groups of two (via technical report, 2,000 words)
EX1 is aimed to assess the students' research skills, technical competence, presentation skills and group work. Controlled conditions will be applied in that the assessment is based entirely on what is observed in the scheduled time period (1hr). While students will be working as a group, only the part of the presentation/workshop delivered by the individual will be assessed.

CW1 assesses the students' understanding of applications of automation and vision and the various approaches to solving problems in the field. It also assesses the written presentational skills in a substantial written piece.

CW2 assesses the overall technical, project, research and presentational skills of the student. Again this will involve

a substantial individual report. One or more coursework elements may be substituted for work-based learning reports as described in the Teaching and Learning section above.

Second assessment opportunity.
Coursework may be re-submitted with workshops replaced by presentations to staff only.

First Sit Components	Final Assessment	Element weighting	Description
Report - Component B		30 %	Industry assignment (individual written report) (CW1) 1,500 words
Project - Component B	✓	45 %	Technical project in groups of two (CW2) 2,000 words
Group work - Component A		25 %	Group workshop: Students' research skills, technical competence, presentation skills and group work.
Resit Components	Final Assessment	Element weighting	Description
Report - Component B		30 %	Industry assignment (individual written report) (CW1) 1,500 words
Project - Component B	✓	45 %	Individual technical project (CW2) 2,000 words
Presentation - Component A		25 %	Individual presentation (EX1)

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Part 4: Teaching and Learning Methods	
Learning Outcomes	On successful completion of this module students will be able to:

	Module Learning Outcomes
MO1	Apply ideas from machine vision and automation to real-world industrial problems in manufacturing and quality control
MO2	Develop software based on image analysis and computer vision to solve industrial component inspection problems
MO3	Critically analyse potential solutions (each with pros and cons) to automation problems and apply financial and technical arguments to each
MO4	Research novel methods for automation and vision and organise findings into both written and oral forms
MO5	Effectively distribute workloads between members of a small team and manage projects accordingly

Contact Hours	**Contact Hours**	
	Independent Study Hours:	
	Independent study/self-guided study	106
	Total Independent Study Hours:	106
	Scheduled Learning and Teaching Hours:	
	Face-to-face learning	44
	Total Scheduled Learning and Teaching Hours:	44
	Hours to be allocated	150
	Allocated Hours	150
Reading List	*The reading list for this module can be accessed via the following link:* https://uwe.rl.talis.com/modules/ufmfcc-15-m.html	