MODULE SPECIFICATION

Part 1: Information			
Module Title	Physical Computing		
Module Code	UBLF9A-15-2	Level	Level 5
For implementation from	2018-19		
UWE Credit Rating	15	ECTS Credit Rating	7.5
Faculty	Faculty of Environment & Technology	Field	Architecture and the Built Environment
Department	FET Dept of Architecture & Built Environ		
Module type:	Standard		
Pre-requisites	Design Communication 2018-19, Product Design Studio 1 2018-19		
Excluded Combinations	None		
Co- requisites	None		
Module Entry requirements	None		

Part 2: Description

Overview:
Pre-requisites: students must take UBLFEA-30-1 Product Design Studio 1 and UBLFC8-30-1 Design Sketching, Modelling and CAD

Educational Aims: See Learning Outcomes.

Outline Syllabus: This module is an introduction to the integration of robotics- "smart technology" into product design. The subject matter will cover a range as follows:

Embedded intelligence in society:
Socio-cultural impact from technology-embedded products.

Basic Electronic Engineering:
Principles and communication practices – operational rules for hardware.

Basic Programming:
Principles and operational practices – reading and understanding code, and operational rules for linking, hacking and tweaking code.

Basic Robotic Engineering:

Principles and communication practices – motors, sensors, actuators.

Introduction to Open Source platforms:
Ardunio community.

Project development methodology:
Bring all of the elements together to solve a defined design brief.

Note: all elements are not weighted equally in study or assessment time.

The structure of this module is to apply the gained skills and knowledge throughout Level 2 in applied contextual themes.

Teaching and Learning Methods: Teaching and Learning Strategy for this module is applied exercise and project based learning in which a topic lecture will introduce the students to the assigned or up coming up contextual information which supports and frames their acquisition of topic specific knowledge, skills and supports their project work in other modules, principally Product Design Technology Design Studio 2 and Mechanical Engineering Design.

The exercises and projects are designed to facilitate competency acquisition through applied and indirect learning, building knowledge through the introduction of new subject matter and reinvestment of gained knowledge and skills. The tutorial portion of the studio time is designed for the learner to have access to tutorial support, work in the close proximity of classmates and to self-assess his/her progress through the exercises and/or projects.

Exercise and Project work outside of scheduled hours is an essential component to the successful completion of the assigned work with an average time investment of 6+ hours per week. Students will be expected to come prepared for the module sessions with in-process or completed work and supplies.

Course work is assessed through in class and/or digital BlackBoard submissions.

Feedback will be in the form of direct verbal and/or written. Marking criteria and assessment format will be clearly indicated on the Project Brief made accessible to the students at the beginning of each project.

Knowledge and Skills reinvestment from parallel running modules are formative and essential for progression through the curriculum.

Additional tutorial support is offered through individual appointments with the module tutors and through PAL.
Activity Approx. Time in Hours
Contact 36
Prep for lecture 12
Assimilation 24
Project 78
Total 150

Part 3: Assessment

The assessment strategy in this standard module is based upon evaluations of the exercises, quizzes, projects and examination.

To best mimic professional practice the following assessment strategy has been adopted.

Summative Assessment: Coursework is evaluated on subject specific criteria clearly stated on each project brief at the outset of each exercise or project:

Project Presentations [A]
Exercises and/or projects are evaluated in direct submissions. [A]

Submission of a process log that demonstrates the iterative process of developing a solution. [B]
Group/Team work is based on an overall group score and an individual mark. [A]
An overall mark percentage of professionalism is allotted to assess aspects of participation and engagement. [A]

Formative Assessment: Coursework is given direct assessment during tutorials.

Feedback: Tutor feedback is provided during tutorials as formative feedback and on submitted exercises and/or projects.

First Sit Components	**Final Assessment**	**Element weighting**	**Description**
Project - Component B		25 %	Mini project
Final Project - Component A	✓	75 %	Project, presentation, exhibition and logbook
Resit Components	**Final Assessment**	**Element weighting**	**Description**
Project - Component B		25 %	Mini project
Final Project - Component A	✓	75 %	Project, presentation, exhibition and logbook

Part 4: Teaching and Learning Methods

Learning Outcomes

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

Module Learning Outcomes	**Reference**
Employ Critical Analysis	MO1
Apply creative and logical thinking processes as well as design methodologies to the creation of design solutions	MO2
Communicate one's design development process	MO3
Integrate principles of Design Thinking into one's own work	MO4
Consideration and apply the appropriate mathematical and engineering principles to a particular design problem	MO5
Select and use various 2D, 3D and CAD techniques to design intent and detail	MO6

Contact Hours

Independent Study Hours:	
Independent study/self-guided study	114
Total Independent Study Hours:	114
Scheduled Learning and Teaching Hours:	
Face-to-face learning	36

	Total Scheduled Learning and Teaching Hours:	36
	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/ublf9a-15-2.html	

Part 5: Contributes Towards
This module contributes towards the following programmes of study: