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Refer to guidance notes for completion of each section of the specification.

<b>Module Code:</b>	ENG477
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<b>Module Title:</b>	Sustainable Design
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<b>Level:</b>	4	<b>Credit Value:</b>	20
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<b>Cost Centre(s):</b>	GAME	<b>JACS3 code:</b>	H150/100182
		<b>HECoS code:</b>	

<b>Faculty</b>	FAST	<b>Module Leader:</b>	Fatima Mansour
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Scheduled learning and teaching hours	36 hrs
Placement tutor support	0hrs
Supervised learning eg practical classes, workshops	0 hrs
Project supervision (level 6 projects and dissertation modules only)	0 hrs
<b>Total contact hours</b>	<b>36 hrs</b>
Placement / work-based learning	
Guided independent study	164 hrs
<b>Module duration (total hours)</b>	<b>200 hrs</b>

<b>Programme(s) in which to be offered (not including exit awards)</b>	Core	Option
BA(Hons) Product Design	✓	<input type="checkbox"/>
BEng (Hons) Renewable and Sustainable Engineering	✓	<input type="checkbox"/>

<b>Pre-requisites</b>
N/A

**Office use only**

Initial approval: 17/02/2017

Version no:

With effect from: 01/09/2017

Date and details of revision:

Version no:2

Approved on 8/9/20 for addition of BA Product Design

**Module Aims**

To support the development of the student in the following areas:

- To create and develop a preliminary idea for a new product, device, or system and evaluate it in terms of its market potential, technical feasibility, and sustainability.
- To provide an in-depth awareness of the range of issues concerning sustainable development that could relate to designing and to develop an understanding of sustainable design.

**Module Learning Outcomes - at the end of this module, students will be able to**

1	Demonstrate a systematic understanding of the design process from initial idea to final market ready.
2	Analyse the trade-offs that are made in the design of new products to achieve a balance of the technical, market, economic, and environmental constraints.
3	Assess the advanced environmental impacts of existing products and systems.
4	Discuss and present ideas for new products and critically evaluate those ideas.
5	Evaluate and discuss the introduction of new products and how the approval of innovations is shaped by technical, market, social and economic factors.

<b>Employability Skills The Wrexham Glyndŵr Graduate</b>	<b>I = included in module content A = included in module assessment N/A = not applicable</b>
<b>CORE ATTRIBUTES</b>	
Engaged	I
Creative	IA
Enterprising	IA
Ethical	IA
<b>KEY ATTITUDES</b>	
Commitment	I
Curiosity	IA
Resilient	IA
Confidence	I
Adaptability	IA
<b>PRACTICAL SKILLSETS</b>	
Digital fluency	IA
Organisation	IA
Leadership and team working	N/A
Critical thinking	IA
Emotional intelligence	A
Communication	IA

## Derogations

*A derogation from regulations has been approved for BEng programme which means that whilst the pass mark is 40% overall, each element of assessment (where there is more than one assessment) requires a minimum mark of 30%.*

*The derogation doesn't apply to BA (Hons) Product Design*

## Assessment:

Indicative Assessment Tasks:

Students will produce coursework that demonstrates their ability to identify, appreciate and apply prototyping and production methods and techniques with evidence of planning skills through layout studies.

Assessment will be by a combination of group and individual assessments utilising group presentation, production of a clear, critical, and comprehensive group report (1500 words) and a critical reflective report and design diary or logbook (2500 words).

Assessment number	Learning Outcomes to be met	Type of assessment	Weighting (%)
1	1, 2	Presentation	40
2	3, 4, 5	Report	60

## Learning and Teaching Strategies:

Lectures will introduce the module and identify the issues to be addressed. Students will be expected to work from the beginning in their groups to start constructing their proposals for the design project. Learning will be supported by group tutorials, directed reading and other modules. A standard of hand on skills will be required for the working practices of each group.

## Syllabus outline:

**Products:** New Product development and sustainable design: New product development, new product development processes, organisation for new product development, strategies for new product development). Product development and the environment (Environmental context, strategic responses to the environment, designing for the environment, eco-Design processes and organisation, sustainable design and innovation).

**New design and innovation:** Innovation in design, design constraints: market, technical, manufacturing, economic and environmental constraints.

**Sustainable design:** Phases of design. Product life cycle. Reliability. Economics of the design. Environmental impacts of the product.

<b>Indicative Bibliography:</b>
<b>Essential reading:</b>
Stasinopoulos, P. and Smith, M. (2008), <i>Whole System Design: An Integrated Approach to Sustainable Engineering</i> . Routledge.
Thompson, R. (2013), <i>Sustainable Materials, Processes and Production (The Manufacturing Guides)</i> . Thames and Hudson Ltd.
<b>Other indicative reading</b>
Walker, S. (2006), <i>Sustainable by Design Explorations in Theory and Practice</i> . Routledge.