Module Specification

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Module code	ENG4AU
Module title	Introduction to 3D Printing – Practical
Level	4
Credit value	20
Faculty	FAST
Module Leader	Martyn Jones
HECoS Code	101217
Cost Code	GAME

Programmes in which module to be offered

Programme title	Is the module core or option for this programme
Standalone module aligned to BEng (Hons) Production Engineering	Option

Pre-requisites

N/A

Breakdown of module hours

Learning and teaching hours	20 hrs
Placement tutor support	0 hrs
Supervised learning e.g. practical classes, workshops	0 hrs
Project supervision (level 6 projects and dissertation modules only)	0 hrs
Total active learning and teaching hours	**20** hrs
Placement / work based learning	0 hrs
Guided independent study	180 hrs
Module duration (total hours)	200 hrs

For office use only	
Initial approval date	28/10/2021
With effect from date	October 2021
Date and details of revision	

Module Aims

This short course aims to:

- To deliver an overview of the safety implication of 3D printing.
- To introduce the different types of materials that can be used.
- To be able to identify what the different types of software are used in the process of 3D printing.
- To understand the benefit of using 3D printing over other prototyping, machining, resin and casting methods.
- To understand what post processing curing and work is required post 3D printing.
- To understand the H&S implications of 3D printers

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

1	Evaluate the different types of 3D printing technologies.
2	Describe the benefits of using a 3D printing method over another manufacturing method.
3	Identify the issues in designing parts for 3D printing.
4	Outline the risks in working with 3D printers and be able to formulate a risk assessment for a printing task

Assessment

Indicative Assessment Tasks:

Assessment 1 will be a multiple choice VLE quiz covering the types of 3D printers and materials available, design for 3D printing and the benefits of using this technology
Assessment 2 requires the student to create a risk assessment for operating a given 3D printer to ensure safe use.

Assessment number	Learning Outcomes to be met	Type of assessment	Weighting (%)
1	1,2,3	In-class test	60
2	4	Coursework	40

Derogations

None

Learning and Teaching Strategies

The module will be delivered through a combination of formal lectures, tutorials, practical demonstrations and student workshops. All the materials delivered formally will be made available to participants through MOODLE or other sharing platforms.

Indicative Syllabus Outline

1. Introduction to the course
2. Overview of different 3D printing methods and materials
3. Understanding the design software
4. Part design for 3D printing
5. Understanding the 3D printing workflow
6. Understanding the benefits of 3D printing over other methods
7. Issues in manufacture and machine fall down
8. Handling, fabrication and clean up of printed parts
9. H&S implications of using a 3D printer

Indicative Bibliography:

Please note the essential reads and other indicative reading are subject to annual review and update.

Essential Reads

Horne, Richard, and Kalani Kirk Hausman. 3d Printing for Dummies. Second edition. Hoboken, New Jersey: For Dummies, 2017. Print

Other indicative reading

https://3dprintingindustry.com/3d-printing-basics-free-beginners-guide/

Employability Skills – the Glyndŵr Graduate

Each module and programme is designed to cover core Glyndŵr Graduate Attributes with the aim that each Graduate will leave Glyndŵr having achieved key employability skills as part of their study. The following attributes will be covered within this module either through the content or as part of the assessment. The programme is designed to cover all attributes and each module may cover different areas. Click here to read more about the Glyndwr Graduate attributes

Core Attributes
Engaged
Creative

Key Attitudes
Commitment
Confidence
Curiosity
Resilient
Adaptability

Practical Skillsets
Critical Thinking
Leadership & Team working
Communication