Module specification

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

Module code	ENG430
Module title	Engineering Design
Level	4
Credit value	10
Faculty	FAST
Module Leader	Mr M. Jones
HECoS Code	100182
Cost Code	GAME

Programmes in which module to be offered

Programme title	Is the module core or option for this programme
HNC Electrical & Electronic Technology	Core
HNC Mechanical Technology	Core

Pre-requisites

L3 Engineering Design (or similar).

Breakdown of module hours

Learning and teaching hours	30 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	**30** hrs
Placement / work based learning	0 hrs
Guided independent study	70 hrs
Module duration (total hours)	100 hrs

For office use only	
Initial approval date	August 2016

For office use only	
With effect from date	September 2021
Date and details of revision	6 July 2021, revalidated
Version number	Version 2

Module aims

To equip students with the design skills and knowledge required to undertake an industrial project.

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

1	Interpret a design brief and produce a design specification through researching and synthesising alternatives.
2	Analyse the range of solutions identified in outcome 1 and decide a suitable solution.

Assessment

Indicative Assessment Tasks:

Assessment is 100% in-course.

Assessment One: Working in groups, students will work on a 'real' industrial problem producing individual reports on their findings (2000 words).

Assessment number	Learning Outcomes to be met	Type of assessment	Weighting (%)
1	1, 2	Group Project	100%

Derogations

None.

Learning and Teaching Strategies

Students will be guided through the design specification by means of keynote lectures and case studies. Brainstorming will be used in teams to develop design skills and reportage. Students will also become familiar with the current software packages that they can apply in the design process.

Indicative Syllabus Outline

Meaning of Design: Phases of design, Evaluation, Design considerations, Codes and standards. Ethical considerations.

Customer Requirements: Define the task to be carried out, develop a specification.

Cost Effective Design: Reliability. Economics of the design. Apply static and dynamic analysis.

Design Solutions: Team work: From a specific design brief (a 'real' industrial problem) work as part of a small team, analyse problem and using 1 and 2 propose various designs. Choose one cost effective design and produce a design study with full documentation.

Computer Simulation in Design: Understand how computers can aid the designer in the design process. Introduction to various simulation packages such as linkage simulations, optimisation design process etc.

Stages in the development of a project: relate the design process to the requirements and stages of a student's individual project - in preparation for level 3 main project.

Indicative Bibliography:

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

Essential Reads

Tool, M., Dingle, L. (2009) Higher National Engineering. Butterworth-Heinemann.
Bstrom, M. (2017) Practical Engineering Design. London, CRC Press.
Michael, F. (2012) Materials & Design. Oxford UK, Butterworth Heinemann.

Other indicative reading

Swift, KG. (2003) Process Selection from Design to Manufacture. Oxford UK. Butterworth Heinemann.

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
Enterprising
Creative
Ethical

Key Attitudes
Commitment
Curiosity
Resilience
Confidence

Practical Skillsets
Digital Fluency
Leadership and Team working
Critical Thinking
Communication