Liverpool John Moores University

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Title:	Creative Design Practice
Status:	Definitive
Code:	**4049ENG** (117163)
Version Start Date:	01-08-2016
Owning School/Faculty:	Electronics and Electrical Engineering
Teaching School/Faculty:	Electronics and Electrical Engineering

Team	Leader
Adam Papworth	Y

Academic Level:	FHEQ4	**Credit Value:**	24	**Total Delivered Hours:**	72
Total Learning Hours:	240	**Private Study:**	168		

Delivery Options
Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	12
Practical	36
Tutorial	24

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Portfolio	Port		60	
Artefacts	Art		30	
Self Awareness Statement	Reflection		10	

Aims

To introduce students to the principles of design through history and practice and encourage creative thinking and idea generation and lead to prototype building and

testing via recognized stages in design.

Learning Outcomes

After completing the module the student should be able to:

1	Recognise the contribution to design by a range of famous historic scientists and engineers.
2	Use idea generation techniques to create and refine concept designs.
3	Develop designs from concept to detail to solve a given problem
4	Understand the fundamental concepts behind some commonly used manufacturing processes.
5	Construct and test prototypes of a design solution
6	Identify and reflect upon the following aspects of personal development: strengths and weaknesses, motivations and values, ability to work with others

Learning Outcomes of Assessments

The assessment item list is assessed via the learning outcomes listed:

Design Portfolio	1	2	3	5
Design Artefact	4			
Bronze Statement & Reflection	6			

Outline Syllabus

Classical design and historical perspective::
Classic geometry: golden section; Fibonacci series; 80/20 rule; phi;pi; proportion,principles of thirds; symmetry and disposition, Pythagoras, Fibonacci, Leonardo da Vinci. Design Movements and notable Figures.

Creativity and the design process:
Creative thinking, critical thinking, idea generation, brainstorming, mind mapping, synectics, morphological charts, design evaluation and optimization methods - convergent and divergent approaches. The design brief, product research, reverse engineering, concept designs, material selection, embodiment, detailed design phases.

Form and function in design:
Aesthetics, ergonomics and anthropometrics – fundamental elements of the human form. Using anthropological data. Accessibility for differently abled users.
Performance – what is an artefact designed to do and how well should it be capable of doing it? How can the performance of a product be quantifiably specified and verified? Product design specification (PDS).

Prototypes: Manufacturing and testing:
Health and safety, introduction to basic manufacturing methods, manufacturing

methods for different material groups, manufacturing low fidelity mock-up prototypes, assembly techniques. The experimental method, lab reports, testing to determine if the design meets the requirements of the design brief, ethical considerations, measurement techniques, data collection methods, data analysis methods, presenting results graphically.

Learning Activities

This module will be delivered through an integrated series of lectures, tutorials, practical sessions, guided design activities and case studies. The learning activities are to be student focused and develop the students design knowledge through experiential learning.

Notes

This module provides students with a hands-on design experience and aims to stimulate creative thinking and innovation. The module is also an opportunity for students to learn key skills which will be invaluable throughout their degree.