

WM9N5-15 Product Design

26/27

Department

WMG

Level

Taught Postgraduate Level

Module leader

Dita Amry

Credit value

15

Module duration

4 weeks

Assessment

100% coursework

Study location

University of Warwick main campus, Coventry

Description

Introductory description

The design, development and introduction of new products is essential for the competitiveness of start-ups and corporations. Product design has tremendous bearing in entrepreneurship success, it can imbibe any new business with intellectual property and other key differentiators that create "value". Effective product design knowledge can help entrepreneurs create products that meet the needs of their target customers and differentiate themselves from competitors.

Intensification of competition, rapidly changing technologies and shorter product life cycles, require an integrated approach to the management of product development. Expert designers can create products with the "right" capabilities, at attractive prices while compressing time-to-market cycles.

This module is designed to equip students with the skills and knowledge needed to create innovative and highly functional products. It blends both theoretical and practical instruction, where students will be taken through the various stages of the product design process, including research, ideation, prototyping, and testing. They will also be introduced to design thinking and user-centered design methodologies, ultimately equipping them to create products that are user-friendly and meet the needs of customers.

In addition, students will gain introductory knowledge in material science, manufacturing processes, and engineering principles. This will allow them to make better design choices, where the outcomes would not only be aesthetically pleasing but also functional and efficient.

As a part of the course, students will be required to work on individual and group design tasks. These will allow the application of knowledge and skills to real-world challenges, and gain hands-on experience while designing products following client briefs.

Module aims

This module will provide non-engineering students, and those with little prior background knowledge or experience in the topic, with the knowledge and skills to design innovative and functional products that meet the needs of users. Specifically, its aims include:

1. Understand the product design process – Gain insight into key stages, including research, ideation, prototyping, testing, and design management.
2. Apply design thinking and user-centered approaches – Develop the ability to create products that are functional, meaningful, and contextually relevant.
3. Develop technical skills for product design – Build knowledge of materials, manufacturing processes, and engineering principles to design practical and efficient products.
4. Integrate sustainability and ethical considerations – Learn to design products with environmental and social responsibility in mind.

Outline syllabus

This is an indicative module outline only to give an indication of the sort of topics that may be covered. Actual sessions held may differ.

- Product development process
- Effective Design Management
- Lean New Product Introduction
- The relationship of tangible product and brand
- Management of creativity
- Concurrent Engineering
- Organisation for effective product design and development
- Design protection and intellectual property rights

Learning outcomes

By the end of the module, students should be able to:

- Critically analyse user needs and contextual factors using design thinking and user-centred methodologies to define coherent product requirements.
- Generate innovative product concepts informed by design research and user insights.
- Evaluate and justify product concepts, synthesising feasibility considerations to support design decisions.
- Develop and communicate a functional product prototype using appropriate modelling tools, demonstrating how form, function, materials and manufacturability considerations influence design outcomes.

- Formulate a strategic launch plan for a new product, integrating sustainability, ethical considerations, cost implications and market positioning to support effective introduction through crowdfunding.

Indicative reading list

[Reading lists can be found in Talis](#)

[Specific reading list for the module](#)

Subject specific skills

Ideation and brainstorming: Students will learn how to generate new and innovative product ideas using various ideation and brainstorming techniques.

Research and analysis: Students will learn how to conduct market research, user research, and competitive analysis to identify user needs and market opportunities.

Sketching and prototyping: Students will learn how to create sketches and prototypes of their product ideas using various tools and materials, such as paper, 3D printing, and digital prototyping software.

Design thinking and user-centered design: Students will learn how to apply design thinking and user-centered design methodologies.

Technical design skills: Students will learn how to apply technical design skills in areas such as material science, manufacturing processes, and engineering principles.

Transferable skills

Project management: Students will learn how to manage product design and development projects, including project planning, execution, risk management, and evaluation.

Collaboration and teamwork: Students will learn how to work effectively in teams, including cross-functional teams, multidisciplinary teams, and international teams.

Communication and presentation skills: Students will learn how to effectively communicate and present their design concepts to a variety of audiences, including clients, stakeholders, and users.

Entrepreneurship and business skills: Students will learn how to identify market opportunities, develop business models, and create value propositions, and gain a deep understanding of the product development process from ideation to launch.

Study

Study time

Type	Required
Lectures	6 sessions of 1 hour (4%)
Seminars	16 sessions of 1 hour (11%)
Practical classes	8 sessions of 1 hour (5%)
Online learning (independent)	25 sessions of 1 hour (17%)
Private study	35 hours (23%)
Assessment	60 hours (40%)
Total	150 hours

Private study description

During private study students would need to learn to sketch manually and using the taught software, learn to use the 3D modelling software and go through the assigned, readings, podcasts and videos.

During the 8 hours of practical classes, they will have access to 3D printing facilities in the new WMG Design Innovation Lab. Depending on the complexity of their designs, a print could take between 3-4 hours; hence, access to the above lab would be limited to students simply loading their prints and then periodically checking the 3D printers to ensure that no faults had occurred. If their first print proved "unsuccessful", they would have enough time to iterate and produce another.

Costs

Category	Description	Funded by	Cost to student
Equipment and project costs	There are costs associated with the purchase of illustration stationary and 3D printing.	Department	£0.00

Assessment

You must pass all assessment components to pass the module.

Assessment group A3

Assessment component	Weighting	Study time	Eligible for self-certification
New Product Concept & Prototyping	40%	24 hours	No

Weighting**Study time****Eligible for self-
certification**

In this group-based project assessment, students will design & pitch a new product concept and a corresponding 3D model that communicates the form, function and key design features of the product. Peer adjustment will be used in this assessment to determine final individual marks.

Reassessment component

Product Design Concept

No

For the resit, each student will develop a product concept and produce a 3D model or annotated 3D representation that communicates the key features, form and intended user interactions of the proposed design. If access to modelling software is not possible, a fully annotated set of orthographic sketches or low-fidelity CAD screenshots is acceptable.

Assessment component

Crowdfunding Strategy &
Launch Plan

60%

36 hours

Yes (extension)

The assessment requires students to individually develop a launch plan for bringing a new product concept to market through a crowdfunding campaign. Students are expected to justify their launch decisions with relevant evidence, present a coherent campaign narrative, and articulate how the proposed strategy supports the successful introduction of their product.

Reassessment component

Individual Product Design
Project

No

Students will create a report focused on analysing user needs and translating them into clear product requirements for a proposed new product. The report should also include a launch plan through crowdfunding, justifying their choices using clear evidence.

Feedback on assessment

Summative feedback will be provided after case studies / practical workshops, which will be focused upon the learning targets of each session. Feedback will also be provided to any questions which arise from students with the lecture session.

Written feedback will be provided using the standard WMG feedback templates.

Availability

Courses

This module is Core for:

- Year 1 of TWMS-H1S6 Postgraduate Taught Innovation and Entrepreneurship (Full-time)