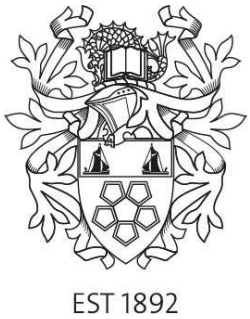

Module Guide

Innovation and Enterprise

MED_6_IAE

School of Engineering

Level 6

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1. MODULE DETAILS

Module Title: Innovation and Enterprise
Module Level: 6
lodule Reference Number: MED_6_IAE
Credit Value: 20 CATS points
Student Study Hours: 200
Contact Hours: 78
Private Study Hours: 122
Pre-requisite Learning (If applicable): Appropriate level 5 modules
Co-requisite Modules (If applicable): It is recommended that students are also taking an appropriate major project module in Engineering or Design

Course(s):

1076	BEng (Hons) Telecommunications and Computer Networks Engineering
4635	BEng (Hons) Telecommunications Engineering PT
501	BEng (Hons) Electrical and Electronic Engineering
591	BEng (Hons) Mechanical Engineering
2134	BEng (Hons) Chemical and Process Engineering
2388	BEng (Hons) Computer Systems and Networks Engineering
3016	BEng (Hons) Petroleum Engineering
4526	MEng(Hons) Electrical and Electronic Engineering
4527	MEng(Hons) Mechanical Engineering
4528	MEng(Hons) Petroleum Engineering
4618	MEng (Hons) Computer Systems and Networks Engineering FT
4620	MEng (Hons) Telecommunications Engineering FT
4622	MEng (Hons) Electrical Engineering and Power Electronics FT
4632	BEng (Hons) Electrical Engineering and Power Electronics FT
4634	BEng (Hons) Telecommunications Engineering FT
4639	MEng (Hons) Computer Engineering FT
502	BEng (Hons) Electrical and Electronic Engineering
592	BEng (Hons) Mechanical Engineering
593	BSc (Hons) Engineering Product Design
2396	BSc (Hons) Computer Aided Design
2419	BEng (Hons) Computer Systems and Networks Engineering
3616	BSc (Hons) Mechanical Engineering Design
3617	BSc (Hons) Mechanical Engineering Design
4529	MEng(Hons) Electrical and Electronic Engineering
4530	MEng (Hons) Mechanical Engineering
4619	MEng (Hons) Computer Systems and Networks Engineering PT
4621	MEng (Hons) Telecommunications Engineering PT
4623	MEng (Hons) Electrical Engineering and Power Electronics PT
4631	BEng (Hons) Computer Engineering PT
4633	BEng (Hons) Electrical Engineering and Power Electronics PT
4635	BEng (Hons) Telecommunications Engineering PT
4640	MEng (Hons) Computer Engineering PT
2192	BSc (Hons) Computer Aided Design
1091	BEng (Hons) Mechatronics
4623	MEng (Hons) Electrical Engineering and Power Electronics PT
4914	MEng(Hons) Chemical and Process Engineering FT

Module Leader:	Dr Safia Barikzai
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Teaching Team & Contact Details (If applicable):	Francis Babayemi, FW109, babayef3@lsbu.ac.uk Clarissa Rocha, T816, rochac2@lsbu.ac.uk Pavan Sala, T816, salap@lsbu.ac.uk Lesley Strachan, eng6422@lsbu.ac.uk
Subject Area:	Engineering & Design
Summary of Assessment Method:	100% Coursework
External Examiner appointed for the module:	Dr Bob Eves, Bournemouth University

2. SHORT DESCRIPTION

In the rapidly changing world around us, it is imperative that students are able to think dynamically to create advantage for themselves (entrepreneurial) and for the businesses they may work for (intrapreneurial). This module encourages students to question what they see and experience around them and in their prospective engineering fields with an aim to enhance their creativity to discover new and improved ways of doing things.

The module aims to equip students with methods and processes to recognise opportunities and to plan on harnessing commercially viable benefits that may exist from exploiting those opportunities in a sustainable fashion.

3. AIMS OF THE MODULE

To give students the experience of innovation processes in business and enterprise and to explore factors which contribute towards successful planning, project management and execution of business concepts.

4. LEARNING OUTCOMES

4.1 Knowledge and Understanding

- ✓ Understand and evaluate a variety of creative techniques to overcome everyday problems and develop new products. (D1p, D3p, D4p) (IED – D1i, D1p, D4p, D6p)

4.2 Intellectual Skills

- ✓ Understanding of the need for a high level of professional and ethical conduct in engineering. (ET1p) (IED – S1, S1p, P8p)
- ✓ The ability to recognise and improve the input of engineering and design into commerce. Understanding commercial viability, company structure and the importance of IP. (D2p ET2p, ET5p, EP7p) (IED – US3i, D2i, P5i, S5, S2, S2p, S3p, S5p)
- ✓ Recognise and utilise project management principles. (ET3p) (IED – S3i, S4p)

4.3 Practical Skills

- ✓ Understanding of, and the ability to work in, different roles within an engineering team. (EP9p) (IED – P11i, GS4i, P2p, P8p)

4.4 Transferable Skills

- ✓ Communicate new products and services to technical and non-technical audiences (verbal, written and reflective) (D6p) (IED – D6, P9p)

5. ASSESSMENT OF THE MODULE

100% Coursework and the marks are aggregated to form a single mark for the examination board. The coursework will be a mixture of group and individual work including presentations held during the lecture and tutorial sessions.

Coursework	Additional Information	Issue	Due Date
Coursework 1: Future Engineering Innovation Challenge **(50%)**	This is a group-based assignment, max 4 students in a group	Wk3	Week 8 (Monday, 12th Nov by 10am)
Coursework 2: Business Challenge **(30%)**	This is a group-based assignment, max 4-6 students in a group	Wk9	Week 12, Friday 13th December
Coursework 3: Individual Reflections **(20%)**	This is an individual assignment	Wk9	Monday, 16th Dec by 10am

6. FEEDBACK

You will receive general feedback during the scheduled tutorial sessions. In addition, your tutor will give you formative feedback at regular intervals. Summative feedback will be given within 15 working days of submitting work for assessment.

7. INTRODUCTION TO STUDYING THE MODULE

7.1 Overview of the Main Content

- Development of ideas into what could become viable, money-making or socially beneficial businesses or enterprises.
- Innovation and enterprise processes such as market research and testing, project and operations management, sustainability, and profitability.
- Innovative methods and processes.
- Opportunity specifications.
- Intellectual property and its place in innovation and enterprise.
- Management of innovation and creativity in enterprises.
- Exploration of business topic areas and how they relate.
- The application of project management principles will help to define the critical path of a proposed business and how the many processes involved (planning, market research, market placement, finance, operations, human resources etc.) are interlinked throughout the initial planning exercise and how they can change over time.

7.2 Overview of Types of Classes

The programme will typically be based around the two assignments and relevant weekly topics.

There will be timetabled two I&E classes per week (2 hours duration each):
1. **Lectures** (where many classes will be present in a lecture theatre)
2. **Tutorials** (where each class will be guided by a tutor on different innovative methods and have the opportunity to meet in teams to develop their work.)

Both classes are mandatory to attend.

7.3 Importance of Student Self-Managed Learning Time

The module is written around the student assignments, which are timed to take a total of approximately 200 hours. As some of the class time will be spent discussing the work that you have carried out during the previous week, it is imperative that you take sufficient time to carry this out. The assignment work is designed to be of a practical nature and to be realistic for the amount of time allocated. For the assignments, you should schedule your group meetings during tutorial times.

7.4 Employability

This module will provide students with business skills and enterprise terminology. It should mean they become commercially aware – which is deemed to be extremely important within an industrial setting. Use of business principles will make students more employable than graduates without this knowledge. It may enable students to consider starting in business themselves. However this module is NOT about starting your own business.

8. THE PROGRAMME OF TEACHING, LEARNING AND ASSESSMENT

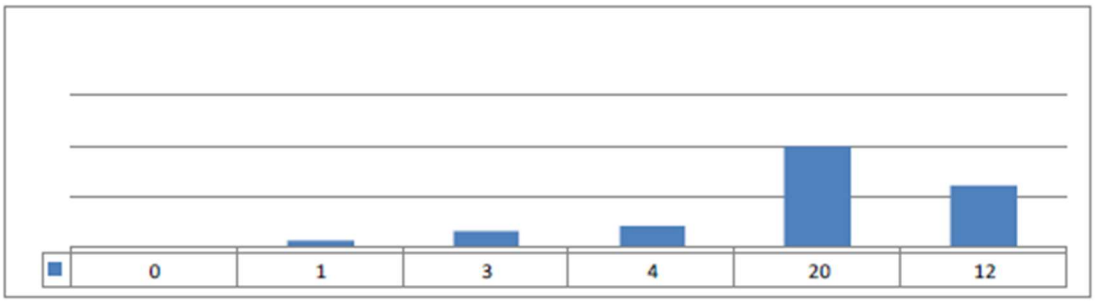
Week	Week beginning	Content
1	**23rd Sept Lecture**	Introduction to the assignments. Ways of working. Tools to use for the assignments.
2	**30th September Lecture**	Project Management week 1 (Francis Babayemi)
	Tutorial/Group Work + Students' own time	Belbin - carrying out individual inventories for group members.
3	**7th Oct Lecture**	Creativity and Innovation
	Tutorial/Group Work + Students' own time	Coursework 1 starts – problem definitions The creative search for many ideas to solve your chosen problem
4	**14th Oct Lecture**	Simventure Introduction by Lesley Strachan
	Tutorial/Group Work + Students' own time	Assessing the search question: Defining and choosing which problem to focus on.
5	**21st Oct Lecture**	Project Management week 2 (Francis Babayemi)
	Tutorial/Group Work + Students' own time	Assessing the many ideas and choosing your best solution. Intro to PechaKucha & Presentation planning.
6	**28th Oct Lecture**	Intellectual Property – protecting your research and developments Guest Lecture by Syeda Rahimunessa (LSBU IP Manager)
	Tutorial/Group Work + Students' own time	Development of your solution and how it could be put into action. Relevance of IP. Preparing and rehearsing your PechaKucha presentation.
7	**4th Nov Lecture**	Nathu Puri Institute Lecture by Professor Simon Philbin
	Tutorial/Group Work + Students' own time	Coursework Workshop
8	**11th Nov Lecture**	Nathu Puri Institute Research Panel by research experts
9	**18th Nov Lecture**	Entrepreneur Panel (To Be Confirmed)
	Tutorial/Group Work + Students' own time	Defining new groups. Discussions around Assignment 2
10	**25th Nov Lecture**	No Formal Lecture
	Tutorial/Group Work + Students' own time	Student team meetings. Support from tutor
11	**2nd Dec Lecture**	No Formal Lecture
	Tutorial/Group Work + Students' own time	Student team meetings. Support from tutor
12	**9th Dec Lecture**	**Coursework 2 Team Presentations**
Xmas Break		

9. STUDENT EVALUATION

Overall, students were satisfied with the module and found the module interactive, engaging and of value. The area that raised concerns for some students were the allocation of groups and the reflections/weekly logs.

This year, we will allow students to select their own groups for the assignments and have addressed the workload issues by reducing the coursework components significantly.

1.1 I found the teaching on the module engaging



1.2 I have a good understanding of the learning outcomes for the module

10. LEARNING RESOURCES

10.1 Core Materials

Mike Baxter Artesis University College	Product Design Innowiz.be	Chapman & Hall	1995 2011
Allen, Kathleen	Entrepreneurship For Dummies	John Wiley Publishing	2005
Tiffany, Paul & Peterson, Steven D.	Business Plans For Dummies, 2nd Edition	John Wiley Publishing	2004
Senge, Peter M	The fifth discipline : the art and practice of the learning organization	Century Business	1997
Meredith, Jack & Mantel, Samuel	Project Management	Wiley	2003

Hunt, Rikki & Buzan, Tony	Creating a thinking organisation	Gower	1999
Koch, Richard	The 80 / 20 principle	Nicholas Brealey	2002
Alan Mumford	Management development: strategies for action	Institute of Personnel & Development	1997
Buzan, Tony, Dottino, Tony & Israel, Richard	The brainsmart leader	Gower	1999
Clayton Christensen	The innovator's dilemma : when new technologies cause great firms to fail	Harvard Business School	1997
Berkum, Scott	The myths of innovation	O'Reilly	2007

10.2 Optional Materials

Templar, Richard	The Rules of Work	Pearson Education International	2002
Templar, Richard	Rules of Management	Pearson Education International	2004
Van Dulken, Stephen	Inventing the 20th Century: 100 inventions that shaped the world	The British Library	2002
Anna Triflova and Bettina von Stamm	The future of innovation	Gower	2009
Megginson, David & Whitaker, Vivien	Continuing Professional Development	CIPD	2007
British Board Agrement	Hydrobrake certificate	BBA	2008
Childs, Peter	Commercivity	E&PDE 2011: Design education for creativity and business innovation, City University, London	2011
Peter Cochrane	http://www.cochrane.org.uk/		
Ideo	Ideo cards		
Geoffrey Petty	How to be better at … creativity	Kogan Page	1997
Rogers, R	How to make money from ideas and inventions	Kogan Page	1992
Hurson, Tim	Think Better: An Innovator's Guide to Productive Thinking	McGraw Hill	2007
Petroski, Henry	To engineer is human: the role of failure in successful design	Macmillan	1985

11. NOTES

Academic Integrity: Work that is identified as non-original (in respect of another student or any other source) will be subject to investigation in accordance with University Regulations on academic integrity. This is not intended to discourage you from discussing your work with other students. In fact such discussion may well be beneficial provided that the final work is clearly original.