



**Bournemouth
University**

Design Engineering BSc (Hons)

The School of Design, Engineering & Computing

What makes a successful design engineer?

To be a successful design engineer you must be able to solve design problems using engineering and technology in the most effective and efficient manner. Solutions should be reliable, durable, and reach the market place ahead of any competitors.

The ability to integrate technology and design is vital, as is the need to be market aware and be skilled in the use of advanced product development tools. Above all a design engineer must be able to adapt their knowledge and understanding as new technologies and methods emerge, they must see into the future.

Duration:

4 Years with 40 week industrial placement

UCAS:

H100

Entry Requirements:

For 2012 entry: 300 tariff points typically from 3 A-levels or equivalent. A minimum of DMM from a BTEC 18-unit Diploma.

We look at individual applications and make an offer based on your academic achievements, personal statement and relevant selection criteria. Offers may be subject and grade specific.

Preferred subjects:

Physics, Computing, Maths, Electronics

Recommended GCSEs:

4 at grade C minimum including English and Maths

International Baccalaureate:

31 points for 2011 entry (including 5 points from each of the 3 Higher Level subjects).

If English is not your first language:

IELTS (Academic) 6.0 or equivalent

Contact askBU:

Tel: 08456 501501 (BU does not profit from this service)
Tel: +44 (0) 1202 961916 (UK and International/EU alternative number)
Email: askBUenquiries@bournemouth.ac.uk

For more course information

<http://www.bournemouth.ac.uk/courses/BSDES>

Overview

BSc (Hons) Design Engineering aims at developing the ability to analyse engineering design problems and products, as well as planning and implementing appropriate solutions, using modern techniques and tools.

During this course you will develop the flair, creativity and market perception needed for design of successful products and equipment. You will use the latest solid modelling, rendering and product simulation tools to model and evaluate your designs, together with an in-depth understanding of engineering principles. You will learn how to employ design techniques that reduce product development lead times and life cycle costing.

Distinctive Features

- Effective design methodology which encourages creativity
- Project driven application of the design process, principles and tools
- Coverage of mechanical and electronic engineering and human factors
- Appreciation of the market, professional, management and business issues
- Ability to work in both single and multi-disciplinary teams
- Effective and efficient use of modern computer tools in design.

This course has been accredited by the Institution of Engineering Designers (IED).



Course content

Year 1 - Level C

Design Methods and Projects (40 credits)

You will learn how to develop an approach to simple designs that is creative, dynamic and structured. You will develop time and project planning techniques. You will solve a series of design problems using the skills gained from other units from the first year.

Materials and Processing (20 credits)

You will gain the basic knowledge and skills necessary for the intelligent selection and specification of suitable materials and production techniques for design.

You will explore the important properties of various metals, plastics, ceramics and composites. You will understand why and how they are important in selecting materials and processing methods in product design.

You will also learn about the energy and other environmental issues related to materials and their processing.

Design Media (20 credits)

You will learn to present two and three dimensional drawings, renderings and designs using both manual and computer visualisation techniques. Further you will be shown how to present design media at a professional level in an industrial situation.

Technological Principles (20 credits)

You will learn how basic scientific fundamentals can help both in the generation of ideas and the proof of solutions. You will gain a working knowledge and understanding of a range of mathematical, algebraic, physical and technological principles appropriate to the generation and development of realisable solutions of design problems.

Engineering Applications (20 credits)

In this module, you will learn how to develop an understanding and the ability to apply a range of mechanical and electronic engineering principles. You will also be able to identify the issues involved with these and be able to use simulation tools to aide understanding of the principles.

Year 2 – Level I

Design Projects (40 credits)

In this module, you will be able to approach increasingly complex designs in a creative, dynamic and professionally structured manner. It promotes, through project work, the acquisition of knowledge and skills necessary to engage in design.

You will combine techniques, methods and knowledge from a variety of subjects in order to undertake and successfully complete a variety of different projects.

Design for Production (20 credits)

You will further enhance your appreciation of manufacturing and production techniques. This unit covers a broad range of topics from processing considerations to the planning and optimisation of production, and is particularly significant in preparing you for your third year in industry.

Design Visualisation (20 credits)

You will develop further understanding and application of the principles of design visualisation and presentation and use applied 3-D modeling techniques to aid the visualisation, realisation and presentation of your designs.

You will also gain the knowledge to support areas of the design process by use of computer and/or physical modelling and presentation skills and be able to apply an integrated workflow using a balanced range of tools and techniques. Finally, you will develop an understanding and application of colour, texture and light through use of computer and/or manual techniques.

Design Management and Commercialisation (20 credits)

You will be introduced to the aspects of business and management and will conclude in the final year with the Business Development unit. Students will have an understanding of how they can identify and exploit a company's strength and evaluate the external opportunities for competitive products.

Engineering Simulation (20 credits)

In this module, you will be able to function and participate in most engineering design practices. You will be able to perform adequately with minimum levels of dependency and support from others by becoming aware of the new technologies that are available to assist understanding and application of mechanical and electronic concepts.

You will become familiar and equipped with industry standard simulation technologies and tools available for today's design engineers.

Year 3- Level P

Industrial Placement - (minimum 40 weeks)

Year 4 – Level H

Final Design Project (60 credits)

In this module, the main aim is to consolidate the application of design criteria to the design process, through facilitating an individual final design project. You will direct, organise, manage and document your entire final design project.

You will apply, utilise and manage CAD tools throughout a final design project. You will justify design decisions throughout specification, concept and detail design stages.

You will identify design for the needs/requirements of people, technology, industry and society. You will present and communicate design intentions through CAD visualisation media.

Business Development (20 credits)

You will gain knowledge of the importance of strategic management and how it interacts with the business development process. Your approach to strategic management and thinking will be developed to heighten your entrepreneurial spirit and business acumen.

This will enhance your capacity to recognise and capitalise on competitive and innovative opportunities in a changing business environment.

Advanced Technology and Innovation (40 credits)

You will develop a working knowledge and understanding of engineering techniques and processes. You will explore the analytical tools required to apply these techniques to engineering design and technological problems to a professional level.

You will be introduced to innovative and advanced technologies related to design and engineering in order to promote creativity, efficiency and innovation. Your problem solving skills will be enhanced and you will develop a learning-centred approach to professional life.

Course Structure & Content

During the course, you will acquire knowledge and develop your design abilities through a variety of design projects and other course work. Interpersonal skills, managerial ability and teamwork are also fostered throughout the course. The sandwich placement takes place in a relevant manufacturing company or design consultancy, and the Festival of Design & Innovation concludes the final year project.

In Year 1 you will learn to approach design in a systematic and structured manner. Taught units and practical sessions will provide you with a solid base of fundamental technologies and engineering, as well as human aspects relevant to design.

Year 2 you will continue to develop a deeper understanding and mastery of the design process, as well as learning advanced techniques for more involved products, with more real-life constraints.

You will acquire the skill and knowledge to design and analyse with computer tools. You are encouraged to develop greater responsibility and self-reliance for project work. During year 2 you will be expected to produce realistic models of your designs, which can be tested and verified by the appropriate methods.

Industrial placements are with relevant engineering or manufacturing industries, or design consultancies in this country or abroad. You will benefit from working within a commercial and professional environment, being part of the customer/client relationship and helping to solve design problems.

The final year taught units provide invaluable support for your project work and enhance a professional approach to design and engineering.

You will be assessed through a combination of coursework and examinations.

During the final year of the course you will spend a large amount of time on your Final Design Project. This project encompasses all aspects of design and the manufacture of a well-presented working prototype or model. You will produce a substantial project report describing your approach during the project and to explain and discuss all the research material and analysis used to achieve the solutions.

You will display your final year project at BU's Festival of Design & Innovation alongside our other final year design students. Businesses, placement companies, family and friends are all invited to the four day event. Many of our students have received job offers from the show.

Visit the festival website www.bournemouth.ac.uk/festival to view the type of prototypes that our students have developed.

Career Prospects

There is a heavy and growing demand for graduate designers who possess skills in both design and engineering.

Graduates of this course are well placed for careers as professional design engineers in a wide range of industries, particularly involved within the areas of advanced technology. Furthermore, the industrial placement can often lead to offers of employment upon graduation.

Information on the type of applicant sought

For BSc (Hons) Design Engineering we are looking for applicants who are keen to develop the flair and creativity required for designing successful products.

You should be interested in analysing engineering design problems using the latest solid modelling, rendering and product simulation tools.

We are looking for applicants who have ambitions of becoming Professional Engineers and are interested in the business aspects and market perception needed for designing successful products.

We are looking for applicants who have typically studied Design & Technology, Engineering, Physics, Mathematics, Computing and/or an Electronics subject. You should have a strong desire to make a real contribution as a designer and become recognised by the professional community early after graduation.

You should be interested in gaining employment as a professional design engineer. Our graduates have gone on to work for companies such as Augusta Westland Helicopters and Scuderia Toro Rosso (Formula 1 team).

Entry Requirements

For 2012 entry: 300 tariff points.

We look at individual applications and make an offer based on your academic achievements, personal statement and relevant selection criteria. Offers may be subject and grade specific.

GCSEs

A minimum of 4 GCSEs grades A* - C including a Science, Maths and English or equivalent qualifications

Numeracy and literacy

In order for you to contribute fully to your course and enjoy your learning experience with us, you'll need to have the right skills to study with us. For that reason, we need to be sure that you can express yourself in written English, have basic numeracy skills, and have an understanding of the subject area.

We usually use Level 2 of the National Qualifications Framework as a demonstration of these skills. Level 2 includes GCSEs and Key Skills Level 2. If you are a mature candidate who does not have formal qualifications to this level, we may still be able to consider your application – please contact the askBU enquiry service to find out more.

Advanced/Progression Diplomas

For information on the acceptance of advanced / progression for entry onto this course please visit www.bournemouth.ac.uk/courses/BSDES and view the recommended qualifications.

Excluded Subjects

General Studies is not accepted as one of your A or AS levels. The grade achieved for Critical Thinking however, may be taken into account when considering whether or not to accept a candidate who has marginally failed to meet the conditions of their offer.

Access to Higher Education

BU welcomes Access to HE applicants. This course requires Access to HE normally with 21 Level 3 credits achieved at Merit, and 12 Level 3 credits achieved at Distinction.

Interviews

Applicants for this course are required to attend an informal interview, where you will be asked to show a portfolio of your work to support your application.

Other qualifications

We have outlined the qualifications that we consider for this course. If you are studying a qualification that is not listed, please contact the askBU Enquiry Service – it may be that we can still consider it.

International Students

International students are very welcome at BU – we think that a bustling, cosmopolitan mix of students enhances the learning experience for everybody.

To find out more about how your qualifications relate to those in the UK, take a look at the NARIC website www.naric.org.uk. Your application will be processed by our dedicated International Admissions Team that is familiar with a wide range of international qualifications. We look at your entire application to see how you would benefit from the course, and how able you are to complete it successfully.

You will find our country-specific information www.bournemouth.ac.uk/international which gives you clear advice about the entry requirements from a particular country. If your country is not listed, then contact our askBU Enquiry Service for further information.

Please note:

The University reserves the right to introduce changes to the information given, including the addition, withdrawal, re-location or restructuring of courses.

Last updated August 2011