Bournemouth University

Programme Specification – Section 1

KEY PROGRAMME INFORMATION

Originating institution(s) Bournemouth University	**Faculty responsible for the programme** Faculty of Science and Technology
Final award(s), title(s) and credits BSc (Hons) Design Engineering – 120 (60 ECTS) Level 4 / 120 (60 ECTS) Level 5 / 120 (60 ECTS) Level 6 credits	
Intermediate award(s), title(s) and credits Dip HE Design Engineering – 120 (60 ECTS) Level 4 / 120 (60 ECTS) Level 5 credits Cert HE Design Engineering – 120 (60 ECTS) Level 4 credits	
UCAS Programme Code(s) (where applicable and if known) H100	**HECoS (Higher Education Classification of Subjects) Code and balanced or major/minor load** 100048 (20%), 100182 (80%)
External reference points UK Quality Code for Higher Education; Part A: Part A: Setting and Maintaining Academic Standards; Chapter A1: UK and European reference points for academic standards (October 2013) - incorporates the Frameworks for Higher Education Qualifications of UK Degree-Awarding Bodies (Qualification Frameworks), Foundation Degree qualification benchmark, Master's Degree Characteristics and Subject Benchmark Statements; Subject benchmark statements – Art and Design (2016); Subject benchmark statements - Engineering (2015); UK standard for professional Engineering Competence: Engineering Technician, Incorporated Engineer and Chartered Engineer Standard (UK-SPEC) third edition from the Engineering Council UK (January 2014); UK Standard for Professional Engineering Competence: The Accreditation of Higher Education Programmes third edition from the Engineering Council UK (May 2014).	
Professional, Statutory and Regulatory Body (PSRB) links Accreditation by the Institution of Engineering Designers and Institution of Mechanical Engineers to meet in part, the exemplifying academic benchmark requirements for registration as a Chartered Engineer (CEng) will be sought in 2019.	
Places of delivery Bournemouth University, Talbot Campus	
Mode(s) of delivery Full-time/Full-time sandwich	**Language of delivery** English
Typical duration Programme duration: 3 years full-time / 4 years full-time sandwich Level 4: 1 year Level 5: 1 year Optional sandwich placement: 1 year Level 6: 1 year	
Date of first intake September 2019	**Expected start dates** September
Maximum student numbers Not applicable	**Placements** Optional sandwich placement in industry between level 5 and 6 (30 weeks minimum). Students are expected to search for suitable placement opportunities, with the support of the Faculty placements team.
Partner(s) Not applicable	**Partnership model** Not applicable
Date of this Programme Specification March 2019. Applies to level 4 from September 2019.	

Programme Specification – Section 1

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PROGRAMME STRUCTURE

Programme Award and Title: BSc (Hons) Design Engineering								
Year 1/Level 4 Students are required to complete all 6 core units								
Unit Name	**Core/ Option**	**No of credits**	**Assessment Element Weightings**			**Expected contact hours per unit**	**Unit version no.**	**HECoS Code (plus balanced or major/minor load)**
			Exam 1	**Cwk 1**	**Cwk 2**			
Design Communication	Core	20		100		60	v1.1	100048 (major) 100632 (minor)
Engineering Principles A	Core	20	50	50		60	v1.1	100190
Design Engineering Projects 1	Core	20		Pass/ Fail	100		v3.1	100182
Materials with Practice	Core	20	50	50		90	v1.1	100203
Electrical and Electronic Principles	Core	20		50	50	48	v2.1	100163
Team Project	Core	20		100		60	v1.1	100050
Progression requirements: Requires 120 credits at Level 4 **Exit qualification:** Cert HE Design Engineering (requires 120 credits at Level 4)								

Year 2/Level 5
Students are required to complete all 5 core units

Unit Name	Core/ Option	No of credits	Assessment Element Weightings			Expected contact hours per unit	Unit version no.	HECoS Code (plus balanced or major/minor load)
			Exam 1	Cwk 1	Cwk 2			
Manufacturing and Engineering Materials	Core	20		100		48	v1.1	100202 (balanced) 100203 (balanced)
Engineering Design Tools	Core	20		100		60	v1.1	100182
Engineering Simulation	Core	20		50	50	48	v2.1	100182 (balanced) 100163 (balanced)
Design Engineering Projects 2	Core	40		100		96	v1.1	100182
Management and Commercialisation	Core	20		100		48	v1.1	101221

Progression requirements: Requires 120 credits at Level 5
Exit qualification: Dip HE Design Engineering (requires 120 credits at Level 4 and 120 credits at Level 5)

Year 3/Level P - Optional placement year in industry/business
The optional sandwich placement is taken between levels 5 and 6.

Progression requirements: Satisfactory completion of a minimum 30-week placement in industry/business. Students who do not choose to undertake the optional sandwich placement may progress directly from Level 5 to Level 6.

Year 3/4/Level 6 Students are required to complete all 3 core units								
Unit Name	**Core/ Option**	**No of credits**	**Assessment Element Weightings**			**Expected contact hours per unit**	**Unit version no.**	**HECoS Code (plus balanced or major/minor load)**
			Exam 1	**Cwk 1**	**Cwk 2**			
Mechanical and Electronic System Design	Core	40		60	40	96	v1.1	100182 (balanced) 100163 (balanced)
Business Development	Core	20		100		36	v2.1	101221
Design Engineering Project 3	Core	60		100		96	v2.1	100182
Exit qualification: BSc (Hons) Design Engineering **Sandwich UG award:** Requires 120 credits at Level 4, 120 credits at Level 5, 120 credits at Level 6 and successful completion of a placement year. **Full-time UG award:** Requires 120 credits at Level 4, 120 credits at Level 5 and 120 credits at Level 6.								

AIMS OF THE DOCUMENT

The aims of this document are to:

- define the structure of the programme;
- specify the programme award titles;
- identify programme and level learning outcomes;
- articulate the regulations governing the awards defined within the document.

AIMS OF THE PROGRAMME

This programme aims to develop creative, innovative and resourceful graduates, who:

- can employ modern design methodologies and tools to achieve optimum solutions to engineering design problems in an efficient and effective manner, to further develop their design creativity, and to present their design solutions.
- have a thorough understanding and knowledge of engineering principles, analysis, tools and practices, and who have the ability to apply these to the design of manufactured products and technical applications.
- have a broad understanding of business development processes, management techniques, industrial marketing activities, accounting, and the application of business law.
- Are equipped to deal with relevant stakeholders and the social and cultural structures outside of their normal community of practice, recognising that the impacts of their decisions may be global and long-lasting.

Engineering design and its application is at the core of this programme and provides the essence for the integration of units. The catalyst for implementing this is through the programme of projects, which are the major integrating activities in each level. The projects increase in complexity and diversity through the programme addressing a broader scope of perspective at each level. Through their projects, the students will address a variety of scenarios ranging from mass production to niche, one off solutions. Integral to each of the project units, students develop practical understanding and capability through workshop practice, simulation and technical demonstration.

The programme will treat computers and software as a means of achieving the aims of the course, and not as individual elements in which the student would necessarily attain highly specialised expertise.

Students are expected to make real contributions as engineers and designers; becoming recognised by their professional community early after graduation.

The programme seeks to develop global citizens who understand how the world works economically, politically, socially, culturally, technologically and environmentally. Design Engineering students have the opportunity to undertake an overseas work placement within a relevant industry. This helps to promote awareness and tolerance of diversity and allows for cultural exchange.

The programme strives to enhance the students' graduate capabilities so that they can continue to develop the appropriate knowledge, understanding, values and attitudes, cognitive, social and practical skills for continuing employability.

The programme promotes partnerships and collaborations with local, regional, national and international partners (i.e. communities, institutions and companies). This is achieved by promoting and supporting students for their placements (both nationally and internationally), by facilitating widening access and the progression of Top-up students from industry (local and regional) and by supporting the commercialisation of final year projects.

From the perspectives of the graduate and the employer, this route of study is an effective means to gaining the academic requirements for Incorporated Engineering (IEng) status.

ALIGNMENT WITH THE UNIVERSITY'S STRATEGIC PLAN

The BSc (Hons) Design Engineering programme is informed by and aligned with Bournemouth University's 2012-18 strategic plan and the fusion of excellent teaching, world-class research and

professional practice that is at the heart of the institution's visions and values. Students are supported by academics with a wealth of industry experience, many of whom are actively engaged with national professional engineering institutions. Academics delivering the programme are actively engaged in cutting edge research and consultancy projects, while students are encouraged to participate in a range of co-creation and co-publication projects. The programme's innovative pedagogic approach offers students the opportunity to learn by engaging in a series of practical, industry focused projects focused around the newly developed Design and Engineering Innovation Centre. These projects are aimed at equipping students with the full range of skills necessary to succeed in an innovative engineering design environment, and are informed by the academic team's own industrial experience as well as by a network of industry contacts, who may also contribute directly to the programme by delivering guest lectures and providing opportunities for industrial visits.

LEARNING HOURS AND ASSESSMENT

Bournemouth University taught programmes are composed of units of study, which are assigned a credit value indicating the amount of learning undertaken. The minimum credit value of a unit is normally 20 credits, above which credit values normally increase at 20-point intervals. 20 credits is the equivalent of 200 study hours required of the student, including lectures, seminars, assessment and independent study. 20 University credits are equivalent to 10 European Credit Transfer System (ECTS) credits.

The assessment workload for a unit should consider the total time devoted to study, including the assessment workload (i.e. formative and summative assessment) and the taught elements and independent study workload (i.e. lectures, seminars, preparatory work, practical activities, reading, critical reflection).

Assessment per 20 credit unit should normally consist of 3,000 words or equivalent. Dissertations and Level 6 and 7 Final Projects are distinct from other assessment types. The word count for these assignments is 5,000 words per 20 credits, recognising that undertaking an in-depth piece of original research as the capstone to a degree is pedagogically sound.

STAFF DELIVERING THE PROGRAMME

Students will usually be taught by a combination of senior academic staff with others who have relevant expertise including – where appropriate according to the content of the unit – academic staff, qualified professional practitioners, demonstrators/technicians and research students.

INTENDED LEARNING OUTCOMES – AND HOW THE PROGRAMME ENABLES STUDENTS TO ACHIEVE AND DEMONSTRATE THE INTENDED LEARNING OUTCOMES

PROGRAMME AND LEVEL 6 INTENDED PROGRAMME OUTCOMES

A: Subject knowledge and understanding This programme provides opportunities for students to develop and demonstrate knowledge and understanding of*:*	The following learning and teaching and assessment strategies and methods enable students to achieve and to demonstrate the programme learning outcomes:
A1 an increased range of engineering principles and processes; **A2** analytical tools to gain confidence in applying them to engineering design and technological problems at a professional design engineer level; **A3** the use of modern computer tools to model, simulate and analyse complex products and assemblies to achieve optimum solutions; **A4** planning, implementation and presentation of a major individual project; **A5** business situations with respect to strengths and weaknesses, opportunities and threats and develop ways and means to counteract or exploit such aspects; **A6** appropriate modern mechanical and electronic engineering simulation systems.	Learning and teaching strategies and methods (referring to numbered Intended Learning Outcomes): • lectures (A1 – A6); • seminars (A1 – A6); • directed reading (A5); • use of the VLE (A1-A6); • independent research (for project) (A5-A6) Assessment strategies and methods (referring to numbered Intended Learning Outcomes): • examinations and in-class tests (A1, A5); • coursework (A1 – A6)
B: Intellectual skills This programme provides opportunities for students to:	The following learning and teaching and assessment strategies and methods enable students to achieve and to demonstrate the programme outcomes:
B1 approach and implement design in a methodical and disciplined manner; **B2** evaluate critically, and apply scientific knowledge and skills in the development and implementation of practical solutions to engineering problems; **B3** evaluate computer based packages for the integration of design functions from concept to realisation; **B4** plan and implement engineering design projects individually and in a group; **B5** demonstrate a level and type of education to allow the pursuit of postgraduate research in a related discipline.	Learning and teaching strategies and methods (referring to numbered Intended Learning Outcomes): • lectures (B1 - B4); • seminars (B1 – B5); • use of the VLE (B1 – B5); • independent research (for project) (B1 - B5) Assessment strategies and methods (referring to numbered Intended Learning Outcomes): • coursework (B1 - B5); • practical exercises (B3 – B4).

C: Practical skills This programme provides opportunities for students to:	The following learning and teaching and assessment strategies and methods enable students to achieve and to demonstrate the programme learning outcomes:
C1 identify, understand and employ the appropriate mathematical models to solve engineering design problems; **C2** use highly specialised manual and computer-based methods for engineering communication and product presentation; **C3** be able to employ efficiently advanced modelling, simulation and analysis packages in engineering design; **C4** critically review and select engineering materials and material processing methods for the design of components; **C5** design and use a range of electronic system modules in the process of product design; **C6** use basic workshop-based material processing tools and machines, safely and effectively; **C7** use basic electrical and electronic components, safely and effectively; **C8** identify and safely use appropriate laboratory methods.	Learning and teaching strategies and methods (referring to numbered Intended Learning Outcomes): • coursework (C1 – C8); • group exercises (C8). Assessment strategies and methods (referring to numbered Intended Learning Outcomes): • coursework (C1- C8); • project (C1, C2, C5).
D: Transferable skills This programme provides opportunities for students to:	The following learning and teaching and assessment strategies and methods enable students to achieve and to demonstrate the programme learning outcomes:
D1 communicate effectively by oral, written and visual means; **D2** select and employ communication and information technologies; **D3** solve numerical and statistical problems using appropriate techniques; **D4** work effectively in collaboration with others, including staff and students; **D5** demonstrate creativity in problem solving and the application of knowledge across discipline areas; **D6** identify and work towards targets for personal, career, and academic development; **D7** be independent and reflective learners.	Learning and teaching strategies and methods (referring to numbered Intended Learning Outcomes): • seminars (D1- D7); • use of the VLE (D1 – D7); • directed reading (D6). Assessment strategies and methods (referring to numbered Intended Learning Outcomes): • coursework (D1 – D7).

LEVEL 5/DipHE INTENDED LEVEL OUTCOMES

<table>
<tr><td>A: Knowledge and understanding

This level provides opportunities for students to develop and demonstrate knowledge and understanding of:</td><td>The following learning and teaching and assessment strategies and methods enable students to achieve and to demonstrate the level learning outcomes:</td></tr>
<tr><td rowspan="2">A1 their abilities in identifying and applying engineering principles and analysis to the solution of design problems;

A2 the fundamentals of the underlying principles embedded in the modelling and analysis software packages;

A3 the limitations and potentials of these tools, and be able to evaluate the solutions;

A4 marketing, financial and management techniques and strategies within engineering and manufacturing industries;

A5 increasingly complex engineering designs in a creative, dynamic and professionally structured manner.</td><td>Learning and teaching strategies and methods (referring to numbered Intended Learning Outcomes):

• lectures (A1- A5);

• seminars (A1 – A5);

• directed reading (A4);

• use of the VLE (A1-A5).</td></tr>
<tr><td>Assessment strategies and methods (referring to numbered Intended Learning Outcomes):

• examinations and in-class test (A1);

• coursework (A1 – A5).</td></tr>
<tr><td>B: Intellectual skills

This level provides opportunities for students to:</td><td>The following learning and teaching and assessment strategies and methods enable students to achieve and to demonstrate the level learning outcomes:</td></tr>
<tr><td rowspan="2">B1 approach and implement design in a methodical and disciplined manner;

B2 critically evaluate, and apply scientific knowledge and skills in the development and implementation of practical solutions to engineering problems;

B3 evaluate computer based packages for the integration of design functions from concept to realisation;

B4 plan and implement engineering design projects individually and in a group.</td><td>Learning and teaching strategies and methods (referring to numbered Intended Learning Outcomes):

• lectures (B2 - B4);

• seminars (B1 – B4);

• use of the VLE (B1 – B4).</td></tr>
<tr><td>Assessment strategies and methods (referring to numbered Intended Learning Outcomes):

• coursework (B1 – B4).</td></tr>
</table>

<table>
<tr><td>C: Practical skills

This level provides opportunities for students to:</td><td>The following learning and teaching and assessment strategies and methods enable students to achieve and to demonstrate the level learning outcomes:</td></tr>
<tr><td rowspan="2">C1 identify, understand and employ the appropriate mathematical models to solve engineering design problems;

C2 learn manual and computer-based methods for engineering communication and product presentation;

C3 be able to employ efficiently advanced modelling, simulation and analysis packages in engineering design;

C4 understand engineering materials and material processing methods, and intelligently select materials and manufacturing processes;

C5 design and use a range of electronic system modules in the process of product design;

C6 identify and safely use appropriate laboratory methods.</td><td>Learning and teaching strategies and methods (referring to numbered Intended Learning Outcomes):

• lectures (C1 – C6);

• coursework (C1 – C6);

• group exercises (C3, C5).</td></tr>
<tr><td>Assessment strategies and methods (referring to numbered Intended Learning Outcomes):

• coursework (C1-C6).</td></tr>
<tr><td>D: Transferable skills

This level provides opportunities for students to:</td><td>The following learning and teaching and assessment strategies and methods enable students to achieve and to demonstrate the level learning outcomes:</td></tr>
<tr><td rowspan="2">D1 be reflective learners;

D2 communicate and argue effectively in both written and verbal form;

D3 work effectively in teams;

D4 demonstrate problem-solving skills;

D5 apply a range of statistical tests to laboratory work.</td><td>Learning and teaching strategies and methods (referring to numbered Intended Learning Outcomes):

• seminars (D1- D5);

• use of the VLE (D1 - D5);

• directed reading (D1).</td></tr>
<tr><td>Assessment strategies and methods (referring to numbered Intended Learning Outcomes):

• coursework (D1 - D5).</td></tr>
</table>

LEVEL 4/Cert HE INTENDED LEVEL OUTCOMES

A: Knowledge and understanding This level provides opportunities for students to develop and demonstrate knowledge and understanding of*:*	The following learning and teaching and assessment strategies and methods enable students to achieve and to demonstrate the level learning outcomes:
A1 the scientific foundations of a range of engineering principles and apply them to the solution of appropriate engineering design problems; **A2** the problem in a design task and the appropriate engineering techniques for its solution; **A3** mathematical fundamentals, models and processes and their application to a range of engineering principles and processes; **A4** project planning and the product development process.	Learning and teaching strategies and methods (referring to numbered Intended Learning Outcomes): • lectures (A1- A4); • seminars (A1 – A4); • directed reading (A4); • use of the VLE (A1-A4).
	Assessment strategies and methods (referring to numbered Intended Learning Outcomes): • examinations and in-class tests (A1); • coursework (A1 – A4).
B: Intellectual skills This level provides opportunities for students to:	The following learning and teaching and assessment strategies and methods enable students to achieve and to demonstrate the level learning outcomes:
B1 approach and implement design in a methodical and disciplined manner; **B2** evaluate, and apply scientific knowledge and skills in the development and implementation of practical solutions to engineering problems; **B3** plan and implement engineering design projects individually and in a group.	Learning and teaching strategies and methods (referring to numbered Intended Learning Outcomes): • lectures (B1 – B3); • seminars (B1 – B3); • use of the VLE (B1 – B3).
	Assessment strategies and methods (referring to numbered Intended Learning Outcomes): • examinations and in-class tests (B2); • coursework (B1 – B3).

<table>
<tr><td>C: Practical skills

This level provides opportunities for students to:</td><td>The following learning and teaching and assessment strategies and methods enable students to achieve and to demonstrate the level learning outcomes:</td></tr>
<tr><td rowspan="2">C1 identify, understand and employ the appropriate mathematical models to solve engineering design problems;

C2 learn manual and computer-based methods for engineering communication and product presentation;

C3 understand engineering materials and material processing methods, and intelligently select materials and manufacturing processes;

C4 use basic workshop-based material processing tools and machines, safely and effectively;

C5 use basic electrical and electronic components, safely and effectively;

C6 identify and safely use appropriate laboratory methods.</td><td>Learning and teaching strategies and methods (referring to numbered Intended Learning Outcomes):

• lectures (C1 - C3);

• seminars (C1 – C6);

• group exercises (C4, C6).</td></tr>
<tr><td>Assessment strategies and methods (referring to numbered Intended Learning Outcomes):

• examinations and in-class tests (C1, C3);

• coursework (C1-C6).</td></tr>
<tr><td>D: Transferable skills

This level provides opportunities for students to:</td><td>The following learning and teaching and assessment strategies and methods enable students to achieve and to demonstrate the level learning outcomes:</td></tr>
<tr><td rowspan="2">D1 communicate effectively by oral, written and visual means;

D2 use IT including the Web, spreadsheets and word-processing;

D3 apply a range of basic statistical tests to laboratory work, and understand other relevant mathematical procedures in the processing of data;

D4 work in collaboration with others, including staff and students;

D5 demonstrate problem solving skills and the application of knowledge across discipline areas;

D6 be independent and reflective learners.</td><td>Learning and teaching strategies and methods (referring to numbered Intended Learning Outcomes):

• lectures (D1, D3);

• seminars (D1- D6);

• use of the VLE (D1 – D6).</td></tr>
<tr><td>Assessment strategies and methods (referring to numbered Intended Learning Outcomes):

• coursework (D1 – D6).</td></tr>
</table>

ADMISSION REGULATIONS

The regulations for this programme are the University's Standard Undergraduate Admission Regulations (https://intranetsp.bournemouth.ac.uk/pandptest/3a-undergraduate-admissions-regulations.pdf).

PROGRESSION ROUTES

None

ASSESSMENT REGULATIONS

The regulations for this programme are the University's Standard Undergraduate Assessment Regulations (https://intranetsp.bournemouth.ac.uk/pandptest/6a-standard-assessment-regulations-undergraduate.pdf) with the following exceptions:

COMPENSATION (Section 7)
Compensation may only be applied for up to 20 credits across all levels of the programme.

PLACEMENT ELEMENT

This programme offers students, under the guidance of the Placement Tutor and the Placement Coordinator, the opportunity to complete a sandwich year with a minimum 30 week placement before level 6.

Successful completion of the 30 week placement is optional. The placement is assessed on a pass/fail basis using a 3000 word reflective report. The 30 week sandwich placement must be completed between levels 5 and 6 and is a requirement for progression to level 6 for the successful completion of the sandwich mode award.

Placement draws on some or all of the units studied on the first two levels of the programme. It provides the opportunity for the student to develop their abilities and understanding of design engineering and related subjects, as well as providing a platform for successful entry into the profession following graduation. It applies and develops understanding and skills acquired in Levels 4 and 5, makes a major contribution to the understanding of the final level units, further develops final projects by utilising the context of the work experience as appropriate and enhances students' prospects of future employment.

http://intranetsp.bournemouth.ac.uk/pandptest/4k-placements-policy-and-procedure.pdf

Programme Skills Matrix

Units		Programme Intended Learning Outcomes																								
		A 1	A 2	A 3	A 4	A 5	A 6	B 1	B 2	B 3	B 4	B 5	C 1	C 2	C 3	C 4	C 5	C 6	C 7	C 8	D 1	D 2	D 3	D 4	D 5	D 6	D 7
LEVEL 6	Mechanical and Electronic System Design	x	x	x			x	x	x	x	x	x	x	x	x		x		x		x	x	x	x	x		x
	Business Development					x						x									x	x		x			x
	Design Engineering Projects 3				x		x	x	x	x	x	x	x			x	x	x		x	x	x	x	x	x	x	x
LEVEL 5	Engineering Design Tools	x							x				x							x		x	x	x			
	Engineering Simulation	x					x		x				x				x			x		x	x	x			
	Management and Commercialisation					x																					
	Manufacturing and Engineering Materials	x							x				x			x				x		x	x	x			
	Design Engineering Projects 2		x		x		x	x	x	x	x		x	x	x	x	x	x		x	x	x	x	x	x	x	x
LEVEL 4	Design Communication		x						x				x									x	x				
	Engineering Principles A	x	x						x				x						x	x		x	x	x			
	Electrical and Electronic Principles	x	x						x				x						x	x		x	x	x			
	Materials with Practice	x							x				x			x		x		x		x	x	x			
	Design Engineering Projects 1				x		x	x	x	x	x		x	x		x		x	x	x	x	x	x	x	x	x	x
	Team Project			x				x	x		x		x	x	x	x		x		x	x	x		x	x	x	x

A – Subject Knowledge and Understanding

This programme provides opportunities for students to develop and demonstrate knowledge and understanding of:

1. an increased range of engineering principles and processes;
2. analytical tools to gain confidence in applying them to engineering design and technological problems at a professional design engineer level;
3. the use of modern computer tools to model, simulate and analyse complex products and assemblies to achieve optimum solutions;
4. planning, implementation and presentation of a major individual project;
5. business situations with respect to strengths and weaknesses, opportunities and threats and develop ways and means to counteract or exploit such aspects;
6. appropriate modern mechanical and electronic engineering simulation systems.

C – Subject-specific/Practical Skills

This programme provides opportunities for students to:

1. identify, understand and employ the appropriate mathematical models to solve engineering design problems;
2. use highly specialised manual and computer-based methods for engineering communication and product presentation;
3. be able to employ efficiently advanced modelling, simulation and analysis packages in engineering design;
4. critically review and select engineering materials and material processing methods for the design of components;
5. design and use a range of electronic system modules in the process of product design;
6. use basic workshop-based material processing tools and machines, safely and effectively;
7. use basic electrical and electronic components, safely and effectively;
8. identify and safely use appropriate laboratory methods.

B – Intellectual Skills This programme provides opportunities for students to: 1. approach and implement design in a methodical and disciplined manner; 2. evaluate critically, and apply scientific knowledge and skills in the development and implementation of practical solutions to engineering problems; 3. evaluate computer based packages for the integration of design functions from concept to realisation; 4. plan and implement engineering design projects individually and in a group; 5. demonstrate a level and type of education to allow the pursuit of postgraduate research in a related discipline.	**D – Transferable Skills** This programme provides opportunities for students to: 1. communicate effectively by oral, written and visual means; 2. select and employ communication and information technologies; 3. solve numerical and statistical problems using appropriate techniques; 4. work effectively in collaboration with others, including staff and students; 5. demonstrate creativity in problem solving and the application of knowledge across discipline areas; 6. identify and work towards targets for personal, career, and academic development; 7. be independent and reflective learners.

PSRB Output Standard Matrix

This course has been developed to meet in part, the exemplifying academic benchmark requirements for registration as a Chartered Engineer (CEng) and students will need to complete an approved format of further learning pursuant to the requirements of UK-SPEC. See the Engineering Council UK website for more information on the learning outcomes.

Name of Educational Establishment:	**Bournemouth University**
Programme Title:	BSc (Hons) Design Engineering (FT/SW)

Specified Learning Outcomes	Year 1						Year 2					Year 3		
	Module numbers (where the output criteria statements are addressed)													
	Design Communication	Design Engineering Project 1	Electrical and Electronic Principles	Engineering Principles A	Materials with Practice	Team Project	Design Engineering Projects 2	Engineering Design Tools	Engineering Simulation	Management and Commercialisation	Manufacturing and Engineering Materials	Business Development	Mechanical and Electronic System Design	Design Engineering Project 3
Science and Mathematics														
US1P			✓	✓	✓				✓		✓		✓	
US2P				✓										
US3P			✓			✓							✓	
Engineering Analysis														
E1P			✓	✓					✓				✓	
E2P								✓	✓				✓	
E3P		✓					✓	✓	✓				✓	✓
E4P						✓			✓				✓	
Design														
D1P		✓				✓	✓			✓		✓		✓
D2P		✓				✓	✓							✓
D3P													✓	✓
D4P														✓
D5P		✓				✓	✓							✓
D6P	✓	✓				✓	✓	✓						✓
Economic, legal, social, ethical & environmental context														
S1P						✓	✓			✓		✓		✓
S2P										✓		✓		
S3P							✓			✓				✓
S4P							✓				✓			
S5P										✓		✓		✓
S6P	✓									✓		✓		
Engineering Practice														
P1P							✓						✓	✓
P2P					✓						✓		✓	
P3P	✓		✓	✓	✓			✓					✓	✓
P4P	✓	✓				✓	✓						✓	
P5P										✓		✓		
P6P										✓	✓	✓	✓	✓
P7P							✓	✓						
P8P													✓	✓
P9P		✓				✓	✓							
Additional General Skills														
GS1P	✓	✓	✓	✓		✓	✓	✓	✓				✓	✓
GS2P												✓		✓
GS3P		✓					✓							✓
GS4P	✓					✓								✓