OXFORD BROOKES UNIVERSITY

PROGRAMME SPECIFICATION

for the award of

BEng" Honours Electrical & Electronic Engineering

Managed by the Faculty of Technology, Design and Environment

delivered by Department of Mechanical Engineering and Mathematical Sciences and Solihull College

Date approved:	Aug. 2017
Applies to students commencing study in:	Sep 2019

RECORD OF UPDATES

Date amended*	Nature of amendment**	Reason for amendment**
02/08/2017	Update from old template	Required for revalidation panel
14/01/2019	Change of course name as per tracked changes	Required for major/minor changes of award type from BSc to BEng and award name from "Electronic" to "Electrical and Electronic" panel
14-01-19	Module name change from Advanced Digital Electronics to Industrial Power Systems	Student feedback stated there was too much emphasis on Automotive Engineering which is not relevant to all students across all programmes.
14-01-19	Updates made to section 2	
14-01-19	Re-wording of section 4.2	
27-09-19	Double coding	Systems update

SECTION 1: GENERAL INFORMATION

Awarding body:	Oxford Brookes University
Teaching institution and location:	Solihull College, Woodlands Campus
Language of study:	English
Final award:	BEng (Honours)
Programme title:	Electrical & Electronic Engineering
Interim exit awards and award titles available:	BEng
Brookes course code:	BENGH-EEE-C
UCAS code:	H611
JACS code:	H600
HECoS code:	100163
Mode of delivery:	Full-time (face to face/on-campus) Part-time (face to face/on-campus)
Mode/s and duration of study:	1 year full time (max 4 years from first registering) 1.5 years part time (max 4 years rom first registering) 2 years part time (max 4 years from first registering) (max 8 years from first registering for the prerequisite FdEng programme)
QAA subject benchmark statement/s which apply to the programme:	QAA Engineering benchmark (revised edition, 2010): http://www.qaa.ac.uk/en/Publications/Documents/Subject-benchmark-statement-Engineering-.pdf Engineering Council UK-SPEC (third edition, 2013): http://www.engc.org.uk/ukspec.aspx
Professional accreditation attached to the programme:	N/A
University Regulations:	The programme conforms to the University Regulations for the year of entry as published/archived at: http://www.brookes.ac.uk/regulations/

SECTION 2: WHY STUDY THIS PROGRAMME?

This course is a one-year top-up programme designed to enable students from Engineering Foundation Degrees in Electrical and Electronic Engineering to obtain a BEng (Hons) in Electrical & Electronic Engineering.
It has been developed within the Oxford Brookes University Modular Programme and has a large project element so that students can tailor their course to the needs of industry. In addition the part-time mode has been designed so that students can continue to work whilst studying for their degree.

The principal aim of this course is to provide an education in electronic engineering, producing graduates who have the necessary range of skills and depth of understanding to successfully pursue careers as Incorporated Engineers working in the industry.
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A distinguishing feature of this course is its practical and applied electronic emphasis, derived from local industry and staff expertise. Graduates should be able to work effectively in industry as part of design, development, research or maintenance teams.

- You will learn the essential computer-based engineering and business skills required by industry and cover a wide range of engineering practice areas.
- You will be studying a programme designed for part-time delivery to support engineers working within the industry.
- You will use a range of industry-standard software and practical resources.
- You will study a curriculum that integrates theory and practice to address industrially relevant problems.
- You will benefit from the fact that we know the ever-changing needs of this field of study, and constantly adapt in order to prepare our students for a fulfilling professional career.

SECTION 3: PROGRAMME LEARNING OUTCOMES

This course, together with the Foundation Degrees in Electrical and Electronic Engineering delivered at Oxford Brookes Partners, have been designed in accordance with the Engineering Council's policy Statement and the QAA Benchmark Statements summarised in UK-SPEC, so that a graduate with Honours in the BENg Electrical and Electronic Engineering will be able to meet the requirements for an Incorporated Engineer.

In particular, the course extends the student's professional knowledge of electrical and electronic engineering by further studies in the areas of analogue and power systems engineering and by applying the theoretical concepts to practical applications in various industries; thereby enabling the students to become members of the professional community in their specialist area. These subject specific outcomes are in addition to the Oxford Brookes University general graduate attributes that all graduates must demonstrate to qualify for a Brookes award namely:

3.1 ACADEMIC LITERACY

a. Critically analyse and design advanced analogue and digital systems.
b. Apply engineering theory to complex analytical and design problems.
c. Synthesise data or concepts to reach novel solutions.
d. Design and critically evaluate systems using Operational Amplifier Architecture.

3.2 RESEARCH LITERACY

a. Undertake and critically evaluate literature surveys for mini-projects and the main project.
b. Formulate procedures to solve novel digital and analogue problems.
c. Evaluate and critically present results of projects using different media.
d. Coordinate and use engineering facilities in order to achieve specified objectives.

e. Apply engineering principles to the solution of complex or novel problems.

3.3 CRITICAL SELF-AWARENESS AND PERSONAL LITERACY

a. Organise, execute and evaluate projects with minimal supervision.
b. Demonstrate and use advanced presentation skills.
c. Plan effective time and workload allocations.
d. Demonstrate initiative and creative ability.

3.4 DIGITAL AND INFORMATION LITERACY

a. Design and critically evaluate analogue and digital systems using simulation software.
b. Undertake and critically evaluate literature surveys.
c. Demonstrate skills of planning and running an effective search strategy to identify and source information resources and documents relevant to a given to obtain the required data and information.

3.5 ACTIVE CITIZENSHIP

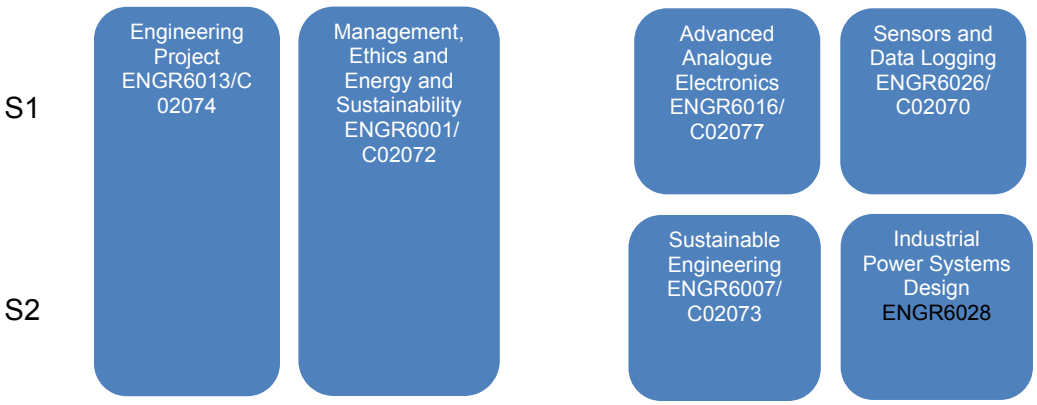
a. Work effectively and creatively with students from different ethnic and cultural backgrounds.
b. Produce sustainable, ethical designs for industrial and commercial use and evaluate their risks.
c. Interface with the global scientific and engineering communities.

SECTION 4: CURRICULUM CONTENT & STRUCTURE

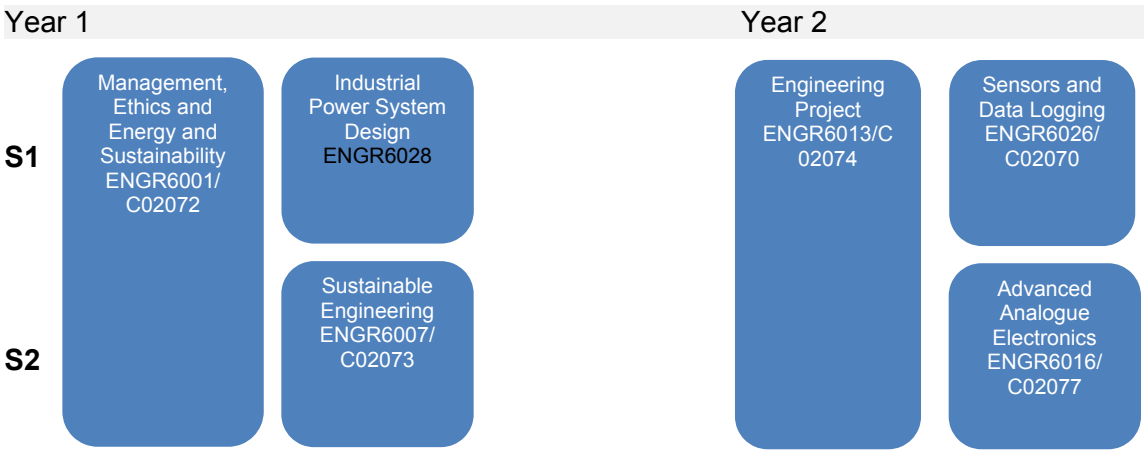
4.1 PROGRAMME STRUCTURE AND REQUIREMENTS:

Code	Module Title	Credits	Level	Status	Coursework: Exam ratio
ENGR6013/C02074	Engineering Project	30	6	compulsory	100:0
ENGR6001/ C02072	Management, Ethics and Energy and Sustainability	30	6	compulsory	50:50
ENGR6007/C02073	Sustainable Engineering	15	6	compulsory	100:0
ENGR6026/C02070	Sensors and Data Logging	15	6	compulsory	50:50
ENGR6028	Industrial Power System Design	15	6	compulsory	100:0
ENGR6016/C02077	Advanced Analogue Electronics	15	6	compulsory	100:0

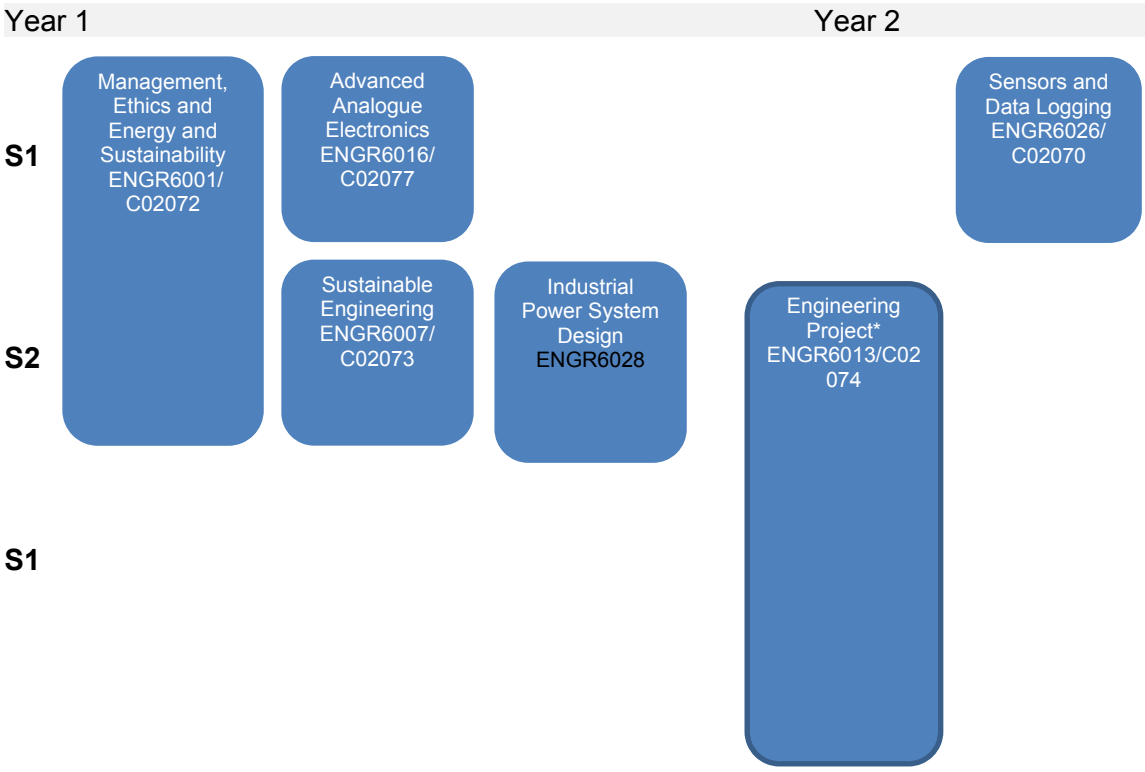
The structure of the full-time course is shown by the following subject diagram:



The structure for the 2 years part-time course is shown by the following diagram:



The structure for the 1.5 years part-time course is shown by the following diagram:



* In this route the Project module would be taken over the summer term in year 1 and semester 1 in year 2, following a similar schedule to the one used when the module runs over semesters 1 and 2.

4.2 PROGRESSION AND AWARD REQUIREMENTS

The progression and award requirements are as specified in section B of the Undergraduate Modular Programme Regulations. The regulations for credit entry students are defined in section B2.14 Admission with Credit and Credit Transfer and they are different to students studying for a three year award. All modules counted for a degree must be acceptable to the LN programme.
An Honours degree will only be awarded if all eight module credits are passed at level six.
A non-Honours degree can be awarded when six of the eight module credits have been passed and at least four are at level six

4.3 PROFESSIONAL REQUIREMENTS

N/A

SECTION 5: TEACHING AND ASSESSMENT

A fundamental philosophy guiding the design of the course is that teaching and learning takes place among a community of students and lecturers together seeking to pass on the principles, skills and knowledge associated with the profession of engineering. In this vein every effort is made to integrate subject material and show its use, effect and application across the course. The descriptions that follow are general and should not be seen as exclusive.

Contact time and student effort

Each single undergraduate module is 150 hours of effort. Modules presently consist of 36 hours contact time and are delivered using a mixture of lectures, tutorial/seminar sessions and laboratories. A student can expect to undertake an additional 114 hours of independent work per module.

Self-study typically consists of solving tutorial problems, writing laboratory reports or group meetings. The strategy for assessment of the learning outcomes is described in each module syllabus where the balance between analytic, design and creative skills as well as personal development and professional skills is outlined.

The assessment strategy is guided by “Brookes Assessment Compact” and details may be found at: http://www.brookes.ac.uk/aske/brookes--assessment-compact/

Module assessment has been designed with a division between examination and coursework that suits the subject and the module learning outcomes. All assessment is designed to be aligned with module learning outcomes and the combination of learning outcomes and individual modules combines to provide the graduate attributes for the subject.

The current assessment in the programme is as follow:

Module Code	Module Title	Coursework (KIS 1)	Exam, class test (KIS2)	Practical exam (KIS3)
ENGR6013/C 02074	Engineering Project	85%		15%
ENGR6001/ C02072	Management, Ethics and Energy and Sustainability	50%	50%	
ENGR6007/C 02073	Sustainable Engineering	100%		
ENGR6026/C 02070	Sensors and Data Logging	50%	50%	
ENGR6028	Industrial Power Systems	65%	35%	
ENGR6016/C 02077	Advanced Analogue Electronics	65%	35%	
	Average	**68.5%**	**27.5%**	**4%**

Typically, undergraduate examinations last two hours. Coursework assignments are wide-ranging and invariably challenging, making use of strategies such as:

1. Poster presentations and Oral presentations – sometimes videoed;
2. Reports, Essays and other Descriptive Explanation;
3. Short automotive-based design studies and feasibility studies;
4. Problem sheets;
5. Class tests;
6. Written submissions of laboratory work and practical assessment of laboratory skills;
7. Detailed reports of extended laboratory exercises (mini-projects).

The Project forms a major component of the final year and builds on work undertaken during two previous years of studying electronics. It provides an opportunity for students to demonstrate their understanding of research methods and extend their knowledge of a substantive area of electronics.

All modules in the course conform to the Brookes Assessment Compact, which implies that effective assessment is fundamental to learning and that there is no distinct boundary between learning and assessment and that feedback on assignments will be returned within two weeks of the assignment submission deadline. In all modules the assignments explicitly state the learning outcomes and the manner in which these outcomes will be assessed.

The five graduate attributes are addressed through teaching and assessment across all modules. The development of academic literacy is inherent in the synthesis of relevant theories with existing knowledge and practice in a range of class-based and independent learning experiences. Research literacy also underpins each module at Level 6 and students use a range of research and evaluation strategies in order to produce scientific and engineering solutions to complex problems.
One of the strengths of the course is its emphasis on critical self-awareness and personal literacy. In addition, digital and information literacy is enhanced through the use of practical and problem classes which are undertaken in all the taught elements of the course. Students are also expected to make significant use of online library resources as appropriate to their study topics.

In all modules students will develop an awareness of ethical and diversity issues. This emphasis on global citizenship is supported by an emphasis on the needs of adult learners and learning processes in a variety of contexts, plus a grounding in ethical and value management issues that arise in complex and diverse situations.

Assessment regulations

The programme conforms to the University Regulations for BA, BSc and LLB Degree and Honours Degree, Graduate Diploma, DipHE, CertHE and corresponding regulations which may be found at: https://www.brookes.ac.uk/regulations/current/specific/b1/

SECTION 6: ADMISSION TO THE PROGRAMME

6.1 ENTRY REQUIREMENTS

Foundation Degree (Engineering) in Electrical and Electronic Engineering from Solihull College which include the optional modules Mathematics II and Electronic Design.

Foundation Degrees from other Universities or Colleges will be admitted if their modules are equivalent.

Any other qualification deemed equivalent by the University.

English Language Requirements

Applicants whose first language is not English must also demonstrate that their level of English is acceptable, by achieving a score in a recognised test such as British Council IELTS (normally minimum Level 6.0 overall with a minimum of 6.0 in reading and writing, 5.5 in listening and speaking).

The University's English language requirements can be found at
http://www.brookes.ac.uk/international/how-to-apply/undergraduate/undergraduate-entry-requirements/

6.2 DBS AND OTHER PRE-COURSE CHECKS REQUIRED

If applicable.

SECTION 7: PREPARATION FOR EMPLOYMENT

The College has developed close links with many employers through work experience placements. In addition the Department of Mechanical Engineering and Mathematical Sciences (MEMS) has run successful employer events such as industrial training and promotional enterprises. Throughout the year

the Department may have visiting speakers as part of an “Industrial Lecture Series” to which students are invited to attend.

Solihull College currently works with twenty local engineering companies in supporting training of their employees at levels 4 and 5 within the field of Electrical and Electronic Engineering.

The College works closely with employers to advise and run recruitment events for apprentices. In addition, the College is the Midlands hub for a Royal Academy of Engineering scheme titled “Apprentices: Accessing Untapped Talent” in partnership with WISE and The Technician Apprentice Consortium.

Close links with the Engineering Development Trust have enabled full-time students to gain useful work experience.