WARWICKSHIRE COLLEGE
UNIVERSITY
CENTRE

Programme Specification

BEng (Hons) in General Engineering Level 6 (Full-Time)

6th July 2021

Programme Specification

1	**Awarding Institution**	Warwickshire College
2	**Teaching Institution**	Warwickshire College Group
3	**Final Award Title**	BEng (Hons) in General Engineering Level 6
4	**Interim Award Titles**	N/A
5	**Modes of Attendance**	Full time
6	**Pathways available**	'Top Up' Degree at level 6 (120 credits at level 6)
7	**Locations of Study**	Rugby and Warwick Trident Colleges
8	**UCAS Code**	Institution Code: W25 Course Code: To be confirmed
8	**QAA Benchmark Statements**	Engineering October 2019
9	**Accreditations**	Institute of Engineering Technology (IET) application in progress.
10	**Other External Factors**	
11	**Date of Approval**	*6th July 2021*
12	**Date for Next Review**	*June 2025*
13	**Dates of Revision**	

14 Educational Aims of the Programme

The full-time degree in engineering, level 6 'top up' award enables students who have achieved a level 5 engineering course previously to analyse, construct and realise critical thinking and practice. Enabling experimentation with various materials, mathematical skills, and production techniques while developing individual projects and creative practices will provide students with the knowledge and skills, they need to pursue their studies at level 6 (degree level). From concept to realisation, students will participate in theoretical and practical subjects that will encourage collaboration including industry-based projects, developing industry standard practice through recognition of professional industry standards.

Graduates will be engineers that can respond to future trends through an understanding of design, development and manufacture. They will be able to problem solve using the critical thinking skills of analysis, synthesis, and evaluation applying these to engineering based projects. Graduates will have a broad understanding and range of skills and an appreciation of the social, environmental and economic impact of their practice.

The aims of this programme are to:

- Provide a systematic understanding of a broad knowledge of Maths and Science based subjects including acquisition of coherent and detailed knowledge, at least some of which is at, or informed by, the forefront of defined aspects of Manufacturing, Mechanical and Electrification Industries
- Enable students to deploy accurately established techniques of analysis and enquiry within the 40 credit Engineering based Projects / Dissertation
- Provide theoretical understanding that enables the student: use synthesis that will allow them to come to valid conclusions ○ To devise and sustain arguments, and/or solve problems, using ideas and techniques, some of which are at the forefront of the Engineering Sector.
    - ○ To describe and comment on particular aspects of current research, or equivalent advanced scholarship in the Engineering Sector
- Enable students to manage their own learning, and to make use of scholarly reviews and primary sources
- Develop students' ability to apply their knowledge and skills to new situations, including in the workplace
- Develop effective communication skills in a variety of forms and for a range of audiences within Engineering and wider industries.
- Develop students as T-Shaped Learners to prepare them for personal, social and economic success.

Typically, holders of this qualification will be able to:

- Apply the methods and techniques they have learned to review, consolidate, extend and apply their knowledge and understanding, and to initiate and carry out projects
- Critically evaluate arguments, assumptions, abstract concepts and data to make judgements and to frame appropriate questions to achieve a solution – or identify a range of solutions to a problem

- Communicate information, ideas, problems and solutions to both specialist and nonspecialist audiences

And holders will have:

- The qualities and transferable skills necessary for employment.

15 Intended Learning Outcomes of the Programme

The intended learning outcomes for the Degree in General Engineering are shown in sections 15.1 to 15.4 below, grouped under the following headings

- Knowledge and understanding of the subject
- Cognitive skills
- Practical and/or professional subject skills
- T-shaped employability behaviours (transferable skills)
- Professional competencies (set by PSRBs, where relevant)

Warwickshire College Group believes that students should be equipped with an entrepreneurial mind set – to be confident, innovative, resilient, enterprise-aware and willing to 'have a go' – to prepare them for personal, social and economic success. The college uses a T-Shaped employability behaviour model as a framework to develop transferable skills.

The T-Shaped framework connects this breadth of personal capabilities and qualities with a depth of technical competence through the development of three core behaviours: personal development, social skills and enterprise. The core enterprise behaviours include personal qualities for success in the workplace of the future; capacities to find, make and manage networks and collaborations; knowledge and skills in vocational and academic areas and aptitude for driving successful enterprises.

The T-Shaped skills are as follows (see the platinum level of the T-Shaped employability framework, available in your Course Handbook, for more information):

T-Shaped Framework		
Personal Development	**Enterprise**	**Social Skills**
• Resilience • Focus and Drive • Reliability • Reflectiveness • Adaptability	• Creativity • Initiative • Problem Solving • Risk taking • Business awareness	• Teamwork • Networking • Empathy • Communication • Leadership

15.1 Knowledge and Understanding of the Engineering Industry	
On successful completion of the programme a student should be able to demonstrate knowledge and understanding of:	
KU1	Apply knowledge of mathematics, statistics, natural science and engineering principles to broadly defined problems using a systematic approach. Some of the knowledge will be informed by current developments in the subject of study by applying their numerical, computational, analytical and technical skills, using appropriate tools
KU2	Evaluate the environmental and societal impact of solutions to broadly defined problems seeking to achieve a sustainable solution to problems and have strategies for being creative, innovative and overcoming difficulties by employing their skills, knowledge and understanding in a flexible manner
KU3	Apply knowledge of engineering management principles, commercial context, project management and relevant legal matters and be risk, cost and value-conscious, and aware of their ethical, social, cultural, environmental, health and safety, and wider professional responsibilities

15.2 Cognitive Skills	
On successful completion of the programme a student should be able to:	
CS1	Analyse broadly defined problems reaching substantiated conclusions using first principles of mathematics, statistics, natural science and engineering principles
CS2	Select and apply appropriate computational and analytical techniques to model broadly defined problems, recognising the limitations of the techniques employed
CS3	Select and evaluate technical literature and other sources of information to address broadly defined problems
CS4	Apply an integrated or systems approach to the solution of broadly defined problems
CS5	Select and apply appropriate materials, equipment, engineering technologies and processes

15.3 Practical and/or Professional Subject Skills	
On successful completion of the programme a student should be able to:	
PS1	Reflect on own reliability in a range of situations and contexts and evaluate how own reliability affects others;
PS2	Create an extensive list of valuable and realistic networking opportunities in own industry sector and evaluate own behaviours in developing an effective professional network;
PS3	Design solutions for broadly defined problems that meet a combination of societal, user, business and customer need as appropriate. This will involve consideration of applicable health & safety, diversity, inclusion, cultural, societal, environmental and commercial matters, business and codes of practice, conduct and industry standards

PS4	Use practical laboratory and workshop skills to investigate broadly defined problems
PS5	Communicate effectively with technical and non-technical audiences
PS6	Plan and record self-learning and development as the foundation for lifelong learning/CPD

15.4 T-Shaped Employability Skills (Transferable Skills)	
On successful completion of the programme a student should be able to:	
TS1	Communicate effectively to a range of audiences using the appropriate format and, following evaluation, identify methods for improvement by demonstrating an appreciation of the global dimensions of engineering, commerce and communication
TS2	Evaluate and, through reflection, improve own confidence to take initiative;
TS3	Evaluate own ability to reflect meaningfully and honestly on personal performance and review strategies for using feedback from self and others to improve;
TS4	Act entrepreneurially to generate, develop and communicate ideas
TS5	Function effectively as an individual, and as a member or leader of a team
TS6	Function as a professional in their outlook, be capable of team working, be effective communicators, and be able to exercise responsibility and sound management approaches.

15.5 Professional Competencies (where linked to PSRB)	
On successful completion of the programme a student should be able to:	
PC1	Identify and analyse ethical concerns and make reasoned ethical choices informed by professional codes of conduct.
PC2	Use a risk management process to identify, evaluate and mitigate risks (the effects of uncertainty) associated with a particular project or activity
PC3	Adopt a holistic and proportionate approach to the mitigation of security risks
PC4	Recognise the responsibilities, benefits and importance of supporting equality, diversity and inclusion
PC5	Recognise the need for quality management systems and continuous improvement in the context of broadly defined problems

16 Relationship with External Reference Points

The aims and outcomes of this award are clearly in alignment with the Framework**s** for Higher Education Qualifications of Degree-Awarding Bodies in England, Wales and Northern Ireland (October 2014) at level 6, as referenced in the QAA's UK Quality Code for Higher Education (October 2013).

This programme is designed for the provision of key understanding, knowledge and skills as identified in the QAA's Subject Benchmark Statement for Engineering (2019). The relevant understanding, knowledge and skills from the Benchmark Statement have been mapped to the core modules at the end of this document.

17 Course Credit and Outcome Requirements

Warwickshire College Group higher education programmes are based on a creditaccumulation system where 1 credit represents 10 hours of student study time. Modules are normally 20 credits or multiples thereof. Modules are at level 6 for this top up award. Courses leading to specific awards include core modules. To achieve a named award, students must pass all core modules.

BEng (Hons) in General Engineering (Honours degree Level 6)
To be awarded an honours degree, students must successfully achieve a total of 120 credits at level 6.

Students who exit the programme before achieving the full level 6 award may be eligible for an interim award as follows:

BEng in General Engineering (non-honours degree level 6)
Students will have obtained a minimum of 100 credits at level 6.

17.1 Course Work-Based and Placement Learning (WBPL) Requirements

There are no work-based and placement learning requirements for the level 6 award.

17.2 Course Structure and Distinctive Features

Students entering onto the programme must have successfully achieved a Higher National Diploma in Engineering or a Foundation Degree in Engineering with level 4 and 5 mathematics modules.

The programme has been designed to meet the needs of the industry by developing advanced technical and managerial skills highlighted as skill gaps within industry employer surveys.

This course provides an excellent opportunity for students wishing to pursue a supervisory, leadership or managerial role within the General Engineering industry or associated allied industries.

Students develop their confidence and abilities in academic study, research and writing as they move to Level 6 modules. These modules include 600 ENG Research Methods, 699 ENG Dissertation or Project.

Previous college graduates have been very successful in their careers, and many have gone onto further study including further degrees and postgraduate study.

This course map at 17.3, below, gives basic details for all modules relating to the award, including module codes for any pre-requisite or co-requisite modules. The course map also states whether each module's status is mandatory (M) or optional (O) for the award.

Level 6

Module Code	Module Title	Credit Value	Pre-req Co-req	Delivery	Module Status
690 ENG	Research Theory and Design	20	None	Year 1	M
691 ENG	Dissertation or Project	40	None	Year 1	M
620 ENG	Engineering in Society	20	None	Year 1	M
621 ENG	Finite Element Analysis and Computational Fluid Analysis	20	None	Year 1	M
623 ENG	Manufacturing Processes and Production Management	20	None	Year 1	M

18 Learning & Teaching Methods

This programme has been designed for students to develop and experience a variety of harmonising approaches to learning and teaching and a good balance of activities. Students will develop a range of academic, cognitive, practical and transferable skills to prepare them for further study and their future employment. The College places emphasis on enabling students to develop the independent learning capabilities that will equip them for lifelong learning and future employment, as well as academic achievement. A mixture of independent study, teaching and academic support from Library Services, and the personal academic tutoring system enables students to reflect on progress and build up a profile of skills, achievements and experiences that will help them to flourish and be successful graduates.

Integration between theory and practice is provided by:

Coursework

Some of the modules will be assessed under classroom timed conditions or through assignments that can be taken away with a specific hand-in date. The subject tutor will set the assessments and will provide dates of when assessment takes place.

Examinations

There are no formal examinations on the course but there are time constrained assessments for which students will be provided with the dates in advance. Students are entitled to special considerations in exams if they have any form of learning difficulty that entitles to support.

Learning and Teaching Methods used will include:

Delivery is coordinated by the module leader but may include lectures, seminars, guest speakers, student-centred research and seminars, visits, etc. In addition to timetables lectures, students need to read around the subject and prepare for the next class, in addition to researching any assigments set.

Contact time

A typical 20-credit module will normally have 60 hours of timetabled teaching in lectures, seminars and practical sessions.

Independent self-study

In addition to contact time, for each module, students are expected to undertake regular self-study plus additional preparation for assessments. Students are expected to work independently for 140 hours per module. Independent learning is supported by the College's virtual learning environment, Google Classroom and the electronic learning resources available from the College libraries

19 Assessment

The approach to assessment has been designed to provide students with a variety of challenges appropriate for undergraduate level work. Assessment is constructed in such a way that a student's knowledge and understanding of each module studied during the course is assessed.

Summative assessment items are scheduled, and students will receive an assessment plan at the beginning of each academic year. Detailed assessment briefs are given to students at the start of a module as part of the module guide.

The modules are integrated into a programme of assessment through formative and summative assessment methods including problem-based assignments, projects requiring oral and written reports, individual exercises, experimental work and time constrained assessments. Assessment is considered an important part of the learning process and, in formulating the forms of assessment for this award, care is taken to ensure that both incourse and end-of-module assessments test the skills and knowledge needed in the Engineering working environment.

The assessment strategy for individual modules is detailed in the module descriptors, located on the Google Classroom and in the Module Handbook. All assessments are supported by teaching staff, and employers who support an individual to create a project that has real value to the employer and employee. These types of projects help to develop a student's career that not only simulates the learning but meet the course learning aims of employability.

Assessment will involve formative assessment both in college and in the workplace, and summative assessment, ensuring all learning outcomes are rigorously tested. Formative and summative assessment will be diverse and vary according to the students, the nature of their work and the module descriptor requirements.

Formative and summative feedback will be given during assessment encouraging students to reflect on their work and identify areas for improvement. Formative feedback will be given during taught sessions encouraging students to analyse the work they are doing and identify alterative solutions to problems. All assessments will be subjected to internal verification, and final marks are subject to approval at formal Assessment Board.

Feedback on all assessments is given in writing on assessment feedback sheets. In some areas, particularly where presentations are required, peer feedback and self-critical analysis will be used. The purpose of the feedback will be not only to inform students of their performance but to guide them in their study skills and through processes so that their work promotes independent learning and reflection, the aim being to improve the students' skills before further assessments are submitted.

Assessment methods have been mapped across modules and this is included in the module descriptors.

The table below 19.1 shows the weighting of different assessment activities used across the programme(s).

19.1 Assessment Grid

Level 6

Module Code	Module Title	Written Report	Presentation	Exams	
690 ENG	Research Theory and Design	✔			
691 ENG	Dissertation or Project	✔	✔		
620 ENG	Business Management	✔			
621 ENG	Finite Element Analysis and Computational Fluid Analysis	✔	✔		
623 ENG	Manufacturing Processes and Production Management	✔			

20 Regulation of Assessment

This course uses the Warwickshire College Group higher education (HE) academic regulations for bachelor degrees awarded by Warwickshire College. The full Warwickshire College Group HE academic regulations can be found in the HE area of the Warwickshire College Group intranet.

Marks are provided along with coursework feedback within four term-time weeks of submission or before the next assessment in the same subject is due, whichever is the sooner.

All marks remain provisional until they have been ratified by the Subject Assessment Board. The overall grade for a whole module will be determined by the Subject Assessment Board which will consider the overall grade profile of all assessments for that module.

If an overall module grade does not meet the minimum pass grade, then the relevant Assessment Board will decide relating to the student's eligibility to reassess or restudy the module in line with the academic regulations. Individual assessments cannot be resubmitted to improve individual grades. A Course Assessment Board will made decisions about whether students have satisfied all the requirement for progression or final award grades.

Should a student fail a module then the Course Assessment Board will notify the student of their entitlement to be reassessed or to restudy the module in the following year. Students will be advised of the reassessment procedures which normally require students to carry out and resubmit work at the end of the summer. Students should ensure that they are available to carry out reassessments at this time should the need arise.

Inclusion policies and mitigating circumstances procedures are available on the WCG intranet – individual cases are consider based on this framework and passed through a HEQAS board (Higher Education Quality and Academic Standards).

21 Entrance Requirements

The Warwickshire College HE Admissions Policy is available on the College external website.

Applicants for this 'top-up' degree at level 6 will have completed and achieved a Level 5 Higher National Diploma (HND) or a Foundation Degree in Engineering. Students will have completed and passed a level 4 and 5 mathematics module plus a level 5 module in sustainability.

Applicants with international qualifications will be considered on the merits and equivalence of their offered qualifications supported by evidence of competency in written and spoken English (e.g. IELTS score 6.0 or equivalent).

22 Support for Students and their Learning

Equal Opportunities
Student support is consistent with the Warwickshire College Group policy on Equality and Diversity which can be found on the Warwickshire College Group external website. WCG has a proactive Equality and Diversity Committee, plus an Access and Participation Committee to review widening access, student support and progression.

Learning Resources
Warwickshire College Group library service provides a full range of texts, journals, e-books and other online resources. The College virtual learning environment known as the Google Classroom can be accessed via the Internet and holds a wide range of course materials and assessment information.

Inclusion
The HE Inclusion team provides support for students registered with disabilities such as dyslexia. The team will help students access the Disabled Student's Allowance (DSA) funding and ensure that students have the support they require to achieve the course.

Induction
All students will be given a full induction to their course which will include meeting academic staff and non-academic support staff, plus an overview of College services. Students will receive a copy of the HE Student Handbook which provides key information for students.

Tutorials
Students will be allocated an academic tutor who will offer support throughout their studies. Each course has a comprehensive course handbook. Students are entitled to a minimum of two academic tutorials per year on an individual basis with their academic tutor. In addition, students will have a pastoral tutor to support them through their studies and provide a sign-posting service to the other support available in the College.

Study Skills

During their course all students should develop and exercise a range of academic competencies as described in the programme aims and intended learning outcomes, including through the module Academic Study Skills, Employability and T-Shaped, known as ASSET. This module has been developed to help students to plan and carry out their coursework and assessments, making the most of the time available and helping them to achieve their potential.

Student Services

The college's Student Services department provides a range of support and guidance services for students as described in the HE Student Handbook and Warwickshire College Group intranet. This includes residential accommodation at three of the college sites: Leamington, Moreton Morrell and Pershore Colleges. The Student Engagement Officer ensures that students have the opportunity to elect Student Representatives to sit on the HE Student Council and Course Consultative Committees.

Careers Advice

Students will meet for careers talks and common topic discussions allowing for closer support and exploration of your job opportunities. The Career Launchpad online employability portal offers the opportunity for students prepare for job interviews and give tips for CV writing in addition to keeping students up to date with current affairs and updates from their chosen profession or sector.

23 Evaluating and Enhancing the Quality and Standards of Teaching & Learning

Quality and standards at Warwickshire College Group are monitored and maintained through a wide range of processes, including those relying upon contributions from the student body. The Quality and Enhancement Manual on the college intranet provides details of the regulations, policies and procedures used. The Higher Education Quality Team (HEQT) oversee the monitoring of quality and standards.

The HE Subject Leader completes an Annual Course Report (ACR) at the end of each academic year. This report enables the evaluation of many aspects of the course management including the quality of assessment and employer engagement. The ACR is scrutinised at an annual validation event where the resulting quality improvement plan is approved.

One key piece of information that feeds into the Annual Course Report is the External Examiner (EE) Report. The EE looks at the quality of assessment on the course and sits on the Assessment Board that confirms grades and progression.

The annual programme of lesson observations undertaken within Warwickshire College Group assesses the standard of teaching in the classroom.

Student-focused quality mechanisms and student engagement mechanisms are as follows:

- The Students' Union has a series of approaches to Student Voice with details on the Warwickshire College Group intranet.
- A range of surveys allow students to comment formally on their programmes including the nationally administered National Student Survey (NSS), the HE First Impressions and HE Course Surveys.
- Course Consultative Committees are held three times a year to ensure that student representatives have an input to course management issues including reviewing ACRs, EE reports and HE Course Survey results.
- Students are represented on several Warwickshire College Group meetings including the Higher Education Student Experience Committee, Higher Education Academic Board and Academic Standards and Quality Assurance (ASQA) Committee (Governors).

24 Indicators of Quality and Standards

This award is designed with reference to the UK Quality Code for Higher Education as described in section 16. This includes the Frameworks for Higher Education Qualifications (FHEQ) (which provides details of the academic level expected within each year of the course) and Subject Benchmark Statements (which describe the content expected in courses in particular subjects).

Indicators of annual quality and standards include annual reports that are considered carefully by the course team and any actions are responded to:

● Annual External Examiners' reports; and ●
Annual Industry Adviser reports.

In April 2021, Warwickshire College Group was granted Bachelor Degree Awarding Powers (BDAP) via an Order from the Office for Students (Regulator of Higher Education awards) following an in-depth scrutiny of quality and standards by the Quality Assurance Agency (as the designated quality body) during 2020.

25 Progression

Successful completion of the BEng (Hons) Engineering ensures that graduates are eligible to apply to suitable post graduate programmes such as Masters level study. Progression routes are available at universities across the UK.

26 Further Information

This programme specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate by taking full advantage of the learning opportunities provided.

More detailed information relating to this programme can be found in the Course Handbook and Module Descriptors collated in the Module Handbook.

The language of study is English.

27 Curriculum Map

The curriculum map, over the page, identifies where the intended learning outcomes of the programme are covered within the modules. A box is ticked where an outcome is demonstrated to a significant extent in each module. The coded columns relate to the intended learning outcomes within the four categories described in sections 15.1 to 15.4:

KU Knowledge and understanding of the subject
CS Cognitive skills
PS Practical and/or professional subject skills TS
T-shaped employability framework

Level 6

Module Codes	Module Titles	KU1	KU2	KU3	CS1	CS2	CS3	CS4	CS5	PS1	PS2	PS3	PS4	PS5	PS6	TS1	TS2	TS3	TS4	TS5	TS6	PC1	PC2	PC3	PC4	PC5
690 ENG	Research Theory and Design	✔	✔	✔			✔			✔	✔			✔	✔	✔	✔	✔			✔					
691 ENG	Dissertation or Project		✔				✔			✔	✔			✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
620 ENG	Engineering in Society			✔			✔			✔					✔	✔			✔		✔	✔				✔

621 ENG	Finite Element Analysis and Computational Fluid Analysis					✔		✔	✔			✔	✔	✔		✔	✔	✔		✔	✔						
623 ENG	Manufacturing Processes and Production Management			✔					✔																		