Validation Document		
1	Title of Programme	a. Engineering Top-Up (Mechanical Engineering) b. Engineering Top-Up (Electrical & Electronic Engineering)
2	Award (e.g. FdA, BA)	BSc (Hons)
3	Contained Award	Pass/Ordinary Degree for 60 credits at Level 6
4	Awarding Body	TEC Partnership
5	UCAS code (if applicable)	a. Tbc b. tbc
6	HECOS codes	a. 100190/100184 b. 100163/100184
7	Mode of Study (full and/or part-time)	Full-time and Part-time
8	Duration (total number of years)	1 year full-time 2 years part-time
9	Number of weeks per academic year	31 weeks. Each Trimester consists of 8 weeks of module delivery. Trimester 1 has an extra week in which students are prepared for study at the new level. There are 6 assessment weeks.
10	Accrediting Professional / Statutory Body (if applicable)	
11	Location of delivery and Faculty	Grimsby Institute
12	Entry requirements	

Standard offer

Students enrolling onto the BSc (Hons) Top-up in either Mechanical or Electrical & Electronic Engineering must have achieved on the Higher National Diploma in the respective discipline or on a similar qualification such as a Foundation Degree with appropriate relevance to Engineering, Mathematics and/or science. An entry test could be used to assess the learners to identify any gaps in fundamental prerequisite knowledge to ensure that the student is able to undertake the Level 6 Programme to a sufficient standard.

Accreditation of prior learning

TEC Partnership encourages student transfers from other institutions. Applicants may be admitted with credit for prior certificated learning (APcL) or work/life experience or other uncertificated learning (APeL). Please refer to the HE21 Student Transfer and the Accreditation of Prior Learning.

International admissions

The Institute recognises a wide range of entry qualifications as being equivalent to A' level standard; if students hold a qualification not listed above, please contact the Institute's admissions team on +44 (0) 1472 311222 ext 434.

International students must evidence they possess a satisfactory command of English language in terms of reading, writing, listening and are expected to have achieved Level B2 on the Common European Framework of Reference for Language (CEFR), as defined by UK Visas and Immigration.

13	Minimum number of students required for the programme to run	A minimum of 8 students on both pathways combined

14	Degree classification weighting

The degree classification is awarded based on the average percentage mark achieved at level 6 of the degree.

15	Aims of the programme and distinctive features/fit with existing provision

The BSc (Hons) Top-up Degree aims to provide students on this programme with a high-level of understanding of the use of hi-tech simulation software, as well as direct links to the industry. It will challenge the students and transform the way they learn, harnessing their potential to evaluate and solve the issues faced by industry and society. Use of the Lincolnshire Institute of Technology suite provides high specification computers and various software including MATLAB, COMSOL, MultiSim, FlowCode, MPLABX, AutoCad and CodeBlock to exceed the requirements of the programme. Physical resources include the use of a large Wind Turbine unit, and a Fluid Dynamics station. Existing provision has allowed for excellent features on the programme that are current with the industry and meet the requirements of future industry, including Sustainability and more efficient forms of energy usage.

The BSc programme aims to cater to a wide range of career aspirations. Some students will follow on towards gaining full registration as a Chartered Engineer, while others will pursue careers in the industry in areas such as technical support, engineering design, power systems, electronics, communications, systems or engineering management.

Programme aims - BSc (Hon) Mechanical Engineering

- To enable students to pursue professional careers in Mechanical Engineering at a graduate level which requires the exercise of professional judgement, personal responsibility and initiative, and the ability to make engineering decisions.

- To equip students with a detailed understanding of the principles of Mechanical Engineering, many aspects of which will be at, or informed by, the current boundaries of the discipline.

- To equip students with analytical skills to systematically employ engineering principles to produce original analysis of and solutions using software applications, specific to a Mechanical Engineering context.

- To enable students to carry out independent research and successfully manage projects in a relevant engineering context.

- To prepare students for post-graduate study and/or a career in the respective Engineering discipline.

Programme aims - BSc (Hon) Electrical and Electronic Engineering

- To enable students to pursue professional careers in Electrical and Electronic Engineering at a graduate level which requires the exercise of professional judgement, personal responsibility and initiative, and the ability to make engineering decisions.

- To equip students with a detailed understanding of the principles of Electrical and Electronic Engineering, many aspects of which will be at, or informed by, the current boundaries of the discipline.

- To equip students with analytical skills to systematically employ engineering principles to produce original analysis of and solutions using software applications, specific to an Electrical and Electronic Engineering context.

- To enable students to carry out independent research and successfully manage projects in a relevant engineering context.

- To prepare students for post-graduate study and/or a career in the respective Engineering discipline.

16a	Programme Learning Outcomes *Upon successful completion of this programme a student will be able to...*	
	Programme Learning Outcome	Subject Benchmark Reference
1	a,b Critically evaluate technical solutions using mathematical, statistical, and scientific principles	2.3,3.1i,3.1ii,3.1iii
2	a,b Exercise initiative and personal responsibility to develop own engineering skills and knowledge to allow the development of solutions to problems and communicating of the solutions to specialist and non-specialists	2.3,3.1i,3.1iv, 3.1viii

3	a,b Demonstrate the awareness and systematic understanding of legal requirements and professional behaviours including health and safety, diversity, inclusion and ethical concerns and practices	2.1,2.2,2.3,3.1iv,3.1v,3.1vi,3.1vii
4	a,b Deploy accurately established techniques of enquiry, demonstrating the use of appropriate engineering laboratory skills and simulations, by synthesising theory and practice	2.4,3.1ii, 3.1viii,4.1
5	a,b Evidence a broad set of skills transferable to industry, using quantitative and qualitative approaches, demonstrating the ability to solve complex engineering problems using an established engineering management technique with effective communication.	3.1iii,3.1vi, 3.1viii, ,4.3
6	a,b Critically evaluate environmental and social impacts by employing coherent and detailed knowledge whilst appreciating ambiguity within legal and ethical frameworks/concepts	2.1,2.2,2.3,3.1i,3.1iv,3.1v,3.1vi,3.1vii,3.1viii
7	a Critically evaluate analytical and computational techniques to model complex problems in Mechanical engineering	3.1i,3.1ii,3.1iii
8	b Critically evaluate analytical and computational techniques to model complex problems in Electrical/Electronic engineering	3.1i,3.1ii,3.1iii
9	a Devise and formulate complex Mechanical engineering problems through simulations, numerical and computational techniques using appropriate tools in the field of Solid Mechanics, Fluid Flow and Heat Transfer	3.1i,3.1ii,3.1iii

10	b Design, build and test for embedded engineering systems hardware/software using established numerical, computational, and electrical/electronic techniques in the field of automation	3.1i,3.1ii,3.1iii
16b	Additional Outcomes aligned to PSRB or Apprenticeship Standards	
1	N/A	
2		
3		
17	Graduate Attributes and Threshold Characteristics	

A student achieving level 6 of the programme will have demonstrated the following knowledge, skills and threshold characteristics:

- The systematic understanding of key aspects of Engineering, which is informed by the acquisition of coherent and detailed knowledge, at least some of which is at, or informed by, research.
- The ability to deploy accurately established techniques of analysis and enquiry within the Engineering sector.
- The appreciation and understanding of the uncertainty, ambiguity and limits of knowledge.
- The ability to manage their own learning, and to make use of scholarly reviews and primary sources (for example, refereed research articles and/or original materials appropriate to Engineering).
- The analytical techniques and problem-solving skills that can be applied in many types of employment.
- The ability to reach sound ethically based judgements using technical knowledge to communicate effectively to both specialist and non-specialist audiences.

18	Programme Structure				
Module Title		Core/ Option	Credits	Level	Delivery T1/T2/T3
Full Time Mechanical					
Applications of Finite Element Analysis		C	20	6	T1

Engineering Management	C	20	6	T1
Engineering Project	C	40	6	T1, T2 & T3
Thermo-Fluids and Acoustics	C	20	6	T2
Renewable Energy Engineering and Technology	Op	20	6	T3
Advanced Maintenance Techniques	Op	20	6	T3
Part Time Mechanical				
Applications of Finite Element Analysis	C	20	6	Y1 T1
Thermo-Fluids and Acoustics	C	20	6	Y1 T2
Renewable Energy Engineering and Technology	Op	20	6	Y1 T3
Advanced Maintenance Techniques	Op	20	6	Y1 T3
Engineering Management	C	20	6	Y2 T1
Engineering Project	C	40	6	Y2 T1, T2 & T3
Full Time Electrical				
Embedded Systems	C	20	6	T1
Engineering Management	C	20	6	T1
Engineering Project	C	40	6	T1, T2 & T3
Electrical Machines and Power Systems	C	20	6	T2
Communication Engineering	Op	20	6	T3
Renewable Energy Engineering and Technology	Op	20	6	T3
Part Time Electrical				
Embedded Systems	C	20	6	Y1 T1
Electrical Machines and Power Systems	C	20	6	Y1 T2
Renewable Energy Engineering and Technology	Op	20	6	Y1 T3
Communication Engineering	Op	20	6	Y1 T3

Engineering Management	C	20	6	Y2 T1
Engineering Project	C	40	6	Y2 T1, T2 & T3

19	Teaching and Learning Strategy

Methods of learning and teaching are designed to support students in becoming active members of a learning community. Students will be expected to work together in an informal environment as well as in formal classes where a culture of dignity, courtesy and mutual respect with staff and their peers is essential. A variety of methods will be used such as lectures, workshops, student-led seminars and practical sessions. There may be opportunities to integrate a work-based or placement opportunity, for example, within Project based modules.

Lectures and seminars
Face to face. These are the most common techniques used by tutors. They offer an opportunity to engage with a large number of students, where the focus is on sharing knowledge through the use of presentations. Guest speakers and lecturers will be sourced from the local and national area.

Workshops and student led learning
These are used to build on knowledge shared via lecturers and seminars. Teaching can be more in-depth where knowledge is applied, for example to case studies or real-life examples. Workshops could be student-led, where students present, for example, findings from independent study.

Tutorials
These present an opportunity for focused one-to-one support, where teaching is led by an individual student's requirements. These are group tutorials during the standard week timetable.

Virtual Learning Environments (VLEs)
The VLE used is Canvas, already in place and used successfully across the Engineering department. An individual page will be available per module which will include the module structure, resources and assessments to be issued. This will be a place for lecturer/student discussion and collaboration.

Guest speakers
Guest speakers will be experts from industry or visiting academics in the subject area that is being studied. They could be used to present a lecture/seminar, a workshop or to contribute to assessment. The objective is to make the most effective use of an expert's knowledge and skill by adding value to the teaching and learning experience.

20	References used in designing the programme

Subject Benchmark Statement – Engineering 2019

21	Indicators of quality and standards

The programme will follow the QA standards of TEC Partnership. The programme has been written with reference to appropriate external reference points.

TEC Partnership undertakes a number of scheduled internal periodic and thematic reviews throughout each academic year to assure itself of the quality and standards of its provision.

External Examiners reports are received by the HE Quality Office and a copy forwarded to the relevant academic area at TEC Partnership. TEC Partnership requires action plans to be created for any actions recommended as a result of student, tutor, moderator or External Examiner comments. These are reported to our HE Committees. TEC Partnership also monitors External Examiner reports, and these are reported on through faculty self-evaluation and enhancement documents, the quality enhancement report and the External Examiner's institutional analysis report.

Annual course reviews (AMRs) will take place in line with the requirements of TEC Partnership and actions planned to rectify any weaknesses and further develop the quality of the provision. These AMRs are moderated internally by the Curriculum Manager (or equivalent) and then submitted to the HE Quality Office to ensure key sources such as External Examiner reports are fully reflected upon before being published and also to reduce variability in the quality of information presented.

22	Particular support for learning

The needs of disabled learners are taken into account in the design of all learning programmes.

Students will be screened at induction to identify those with individual learning support needs. TEC Partnership has well-established procedures in place to support all identified students through the application and assessments for the Disabled Students' Allowance to secure any specialist equipment or tuition which is required.

Students will also be invited in for advice and support through the DSA procedure.

Each student is entitled to one tutorial per semester with the programme leader to discuss individual issues relating to both modules and the programme overall.

In addition to study skills embedded in the programme, TEC Partnership employs an Academic Achievement Coach. The Academic Achievement Coach is responsible for working with students to support them in the development of their study skill abilities and includes interventions such as support towards use of ICT, giving presentations, using formal writing and appropriate academic conventions, avoiding plagiarism, analytical and critical writing skills. Students have access to one support and also timetabled study skill workshops.

The support services include differentiated pastoral care for all students throughout the academic year, student counselling, health & well-being sessions and employability services such as CV writing and interview techniques.

23	Methods for evaluating and improving the quality of learning

All students will have the opportunity to comment on the quality of the learning experience on each module. Staff will also be expected to complete module evaluations for each module that they deliver. This feedback must be analysed by the module leader and the results fed into the annual monitoring report, faculty self-evaluation document and subsequent year's module handbook. Programme and module leaders must give consideration to modification to improve the delivery of any module and this should be recorded in the annual monitoring report and carried forward for minor or major modifications as appropriate.

TEC Partnership's policy requires that all teaching staff should be observed delivering learning at least annually. Teaching and learning that does not reach the minimum expected standard will result in an action plan agreed between the line manager and the member of staff.

Student satisfaction is measured by student surveys on larger courses, on the smaller courses student opinion may be gathered by other survey means. Student representatives are invited to course team meetings and additionally have the opportunity to raise items with the course leader at individual meetings outside the course team.

Further, TEC Partnership facilitates the Student Senate, which consists of student representatives from each HE department. The Student Senate meets on a monthly basis and their remit is to:

- Consider matters relating to the student experience within Higher Education.
- Enhance the Student Voice within TEC Partnership's Higher Education strategic and operational agenda.
- Provide feedback on areas of good practice.
- Put forward suggestions of the development of Institutional policy and strategy.
- Enhance the student learning experience by promoting academic and research events and cultural events on campus.
- Increase student engagement in all aspects of Higher Education quality processes.

24	Identify any ethical issues that relate to this programme's teaching and assessment

The assessments are secondary research only and if completed as such contains no ethical issues and can be completed without an ethics proposal as the work of others and/or intellectual property is clearly identified in the submission. Any research project undertaken by staff and students which involves human or animal participants or human subjects must have received ethical approval. This may be given at 'local' and or 'committee', level, depending on the nature of the research proposal.

The programme team will give advice and guidance to students on engineering ethics. This will ensure that the research undertaken meets legal and health and safety aspects in line with industry standards. Ethical information can also be accessed on the Institute's Higher Education Quality and Standards page on the Institute's web site.

(https://grimsby.ac.uk/documents/highereducation/quality/HE09/HE09 Assessment-of-Students.pdf and https://grimsby.ac.uk/quality-and-standards handbook-home/) or VLE.

25	For Foundation Degrees is the programme Work Based or Work Related?	N/A

26	How are WBL/WRL opportunities managed, monitored and reviewed, and what particular arrangements are there for student support

N/A

27	Resources Supplied to the Student

Software: MATLAB, COMSOL, MultiSim, FlowCode, MPLABX, AutoCad, AutoSim and CodeBlock

Hardware: Electrical/Electronic test equipment and components for circuit design, Microcontroller Interface board and its associated components, Smart Factory, Electric Motors and 3D printer.

28	Resources needed to pass the programme

Programme Handbooks and/or Handouts
Students will be given these during induction and throughout lectures.

Appropriate Software and Hardware

Students will be given access to all the necessary and required software and access to Hi spec computer labs during their studies. However, students are highly recommended to have access to their own laptop/PC with MS Office.

29	Revision History	
Version	Details of major modification	Date of approval
1		
2		
3		
4		
5		

Key	Work – State WB or WR or blank Comp = Compensatable Y or N

Module name	Level	Work	Module Leader	Assessment and Weighting	Comp	1	2	3	4	5	6	7	8	9	10
Applications of Finite Element Analysis	6		Sheikh Firoz	Assignment - 40% Experimental Report – 60%	N	F			F	F		F		F	
Engineering Management	6		Eric Agyei	Presentation (30%) Report (70%)	N		F	F		F					
Engineering Project	6		Channa Ranatunga	Report (70%) Presentation (30%)	N	F	F	F	F	F	F	P		P	
Thermo-Fluids and Acoustics	6		Sheikh Firoz	Assignment (40%) Experimental report (60%)	N	F			F	F		F		F	
Renewable Energy Engineering and Technology	6		Eric Agyei	Exam (50%) Report (50%)	N	F	P				F				
Advanced Maintenance Techniques	6		Eric Agyei	Assignment (100%)	N	F	F	F	P						
Embedded Systems	6		Sheikh Firoz	Report (60%) Exams (40%)	N				F	F			F		F
Engineering Management	6		Eric Agyei	Presentation (30%) Report (70%)	N			F		F					
Engineering Project	6		Channa Ranatunga	Report (70%) Presentation (30%)	N	F	F	F	F	F	P		F		P
Electrical Machines and Power Systems	6		Sheikh Firoz	Exam (60%) Report (40%)	N	F			F		F		F		F
Communication Engineering	6		Channa Ranatunga	Exam (60%) Simulations exercises (20%) Modulation lab (20%)	N		F		F				F		

Renewable Energy Engineering and Technology	6		Eric Agyei	Exam (50%) Report (50%)	N	F	P				F				

TEC Partnership Graduate Mapping				
TEC Partnership Graduate Attributes		Assessment References	Module References	To be covered in tutorial
Fortitude and Criticality	• Adaptability to changing situations	The Project presentation and the dissertation requires of novelty of work that will reflect skills of adaptability of new thought/technology		
	• Being productively disruptive	The report of Engineering Management and the dissertation of project require use of new technologies, cost effectiveness and time management.		
	• Resilience	Most of the assignments and lab reports involve intense research and evidence with a sound knowledge of professional and personal resilience.		
	• Preparing for unknown futures	Project dissertation assessment deals with extensive research background and a sound knowledge of findings involve future development of work		
	• Finding alternative solutions to problems	The theory behind the predicted behaviour of a product in real-life application for simulation in FEA, Embedded systems and communication systems		

		always demand alternative solution to a problem.		
Teamwork	• Human interaction skills	Engineering Management and project presentation require verbal, textural and visual communication skills.		
	• Leadership and followership skills	Leadership theory is assessed in Engineering Management.		
	• Project development and/or management	This is assessed in the Engineering Project		
Presentation	• Confidence in communication	Communication skills are assessed in Engineering Project and Engineering Management		
	• Digital skills and adaptability	Assessed is FEA, Embedded Systems, Communication Engineering, Electrical Machines and Thermo-Fluids and Acoustics		
	• Time Keeping	This is assessed in the Engineering Project		
	• Self-Presentation	This is assessed in the Engineering Project		
Personal Values	• Professional attitudes and values	This is assessed in the Engineering Project		
	• Ethics and morals	This is assessed in the Engineering Project		
	• Self-Care and care of others	Assessed in Engineering Management		