Course Specification

A. Course Information			
Final award title(s)	MSc Mechanical Engineering		
Intermediate exit award title(s)	PgDip Mechanical Engineering PGCert Mechanical Engineering		
UCAS Code		**Course Code(s)**	4323(FT) 4324(PT)
Awarding Institution	London South Bank University		
School	☐ ASC ☐ACI ☐BEA ☐BUS ☒ENG ☐HSC ☐ LSS		
Division	Mechanical Engineering and Design		
Course Director	Abas Hadawey		
Delivery site(s) for course(s)	☒Southwark ☐Havering ☐ Other: please specify		
Mode(s) of delivery	☒Full time ☒Part time ☐other please specify		
Length of course/start and finish dates			
Is this course generally suitable for Visa Sponsored Students?	Yes		

Mode	Length years	Start - month	Finish - month
Full time	1 year	September	October
Part time	2 years	September	October

	Students are advised that the structure/nature of the course is suitable for Visa Sponsored Students, but other factors will be taken into account before a CAS number is allocated.	
Approval dates:	Course(s) validated / Re-validated	January 2023
	Course Review date	January 2028
	Course specification last updated and signed off	August 2023
Professional, Statutory & Regulatory Body accreditation	Institution of Mechanical Engineers. Accreditation received June 2023 for five years.	
Reference points:	Internal	Corporate Strategy 2020-25 LSBU Mission Statement and Strategic Plan. LSBU Core Skills Policy. LSBU Academic Regulations.
	External	QAA Quality Code for Higher Education 2018 Framework for Higher Education Qualifications QAA Subject Benchmark Statement for Engineering (October 2019) UK Standard for Professional Engineering Competence (UK-SPEC, Third Edition) The Accreditation of Higher Education Programmes (AHEP-4 2021) Competitions and Markets Authority SEEC Level Descriptors 2021

B. Course Aims and Features

Distinctive features of course	MSc in Mechanical Engineering course integrates distinctive features within a modern generic framework. It teaches the theory of solid and fluid mechanics coupled with the required software tools and systems engineering approach to design that enable graduates to tackle complex engineering projects that are common place in our society. For example, advanced dynamics and solid mechanics are set within the context of advanced mathematical modelling to offer a unified approach to real world problem solving. Likewise, virtual instrumentation theory is set within the context of artificial intelligence and electronic computer programming. Together, those approaches provide students with the knowledge and expertise required at the forefront of new technology.

Course Aims	MSc in mechanical Engineering course is aimed at graduates in the science and engineering fields who have prior experience of various technical backgrounds, i.e. mechanical/ mechatronics, manufacture and design who wish to obtain further study and training in mechanical engineering. This course combines the disciplines of mechanical and system engineering together with computer control systems and manufacturing techniques. It offers an integrated systems approach to engineering, incorporating modules in Advanced Thermofluids and energy analysis, Advanced dynamics and solid mechanics, Robotics with digital signal processing and artificial intelligence techniques. The primary aims of the course are: • To produce postgraduates who are critical, creative and who are motivated to pursue continued personal professional development within the framework of a career in engineering. • To produce engineers for industry, commerce and public service who will be able to apply mechanical engineering knowledge and understanding of engineering principles and skills, and a commitment to quality and standards to the practice of mechanical engineering. • To produce postgraduates with the intellectual and practical capacity to have a beneficial impact upon their profession, whether in the industrial or service sectors generally or in the specific engineering discipline in particular. • To produce students with enhanced analytical skills. • To develop a reflective, enquiring, critical and innovative approach to professional engineering practice that takes account of the social, environmental, and ethical contexts of engineering design. • Develop critical understanding of research methods and methodologies for the design and development of engineering solutions and engineering project management. More specifically, Mechanical Engineering aims to provide graduates with enhanced knowledge and understanding of mechanical engineering whilst simultaneously developing skills in modern techniques of engineering analysis. • To provide a deepened understanding of the theory and application of solid and fluid mechanics. • To broaden the knowledge base of mechanics. • To develop the ability to analyse and understand the operation of renewable energy systems and to be able to incorporate sustainability into mechanical engineering manufacture and design. • To further enhance skills in their ability to carry out research and project work in a professional way and to communicate their technical proposals effectively. Additionally, to develop skills to manage complex technical projects in a professional manner. • To develop the ability to evaluate the business opportunity that can be created from a technology's unique advantages.

Course Learning Outcomes	The defined learning outcomes used in this course specification are those published by the Engineering Council in the UK Standard for Professional Engineering Competence (UK-SPEC): a) Students will have knowledge and understanding of **A1-** A comprehensive understanding of the relevant scientific principles of the specialization. **A2-** A critical awareness of current problems and/or new insights most of which is at, or informed by, the forefront of the specialization **A3-**The ability to evaluate critically the current problems and to apply them effectively, including in engineering projects.

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A4- Ability both to apply appropriate engineering analysis methods for solving complex problems in engineering and to assess their limitations

A5- Ability to use fundamental knowledge to investigate new and emerging technologies

A6- Ability to collect and analyse research data and to use appropriate engineering analysis tools in tackling unfamiliar problems, such as those with uncertain or incomplete data or specifications, by the appropriate

b) Students will develop their intellectual skills such that they are able to:

B1- Knowledge, understanding and skills to work with information that may be incomplete or uncertain, quantify the effect of this on the design and, where appropriate, use theory or experimental research to mitigate deficiencies

B2- Knowledge and comprehensive understanding of design processes and methodologies and the ability to apply and adapt them in unfamiliar situations

B3- Ability to generate an innovative design for products, systems, components, or processes to fulfil new needs

B4- Awareness of the need for a high level of professional and ethical conduct in engineering

B5- Awareness that engineers need to take account of the commercial and social contexts in which they operate

B6- Knowledge and understanding of management and business practices, their limitations, and how these may be applied in the context of the particular specialization

B7- Awareness that engineering activities should promote sustainable development and ability to apply quantitative techniques where appropriate

B8- Awareness of relevant regulatory requirements governing engineering activities in the context of the particular specialization **B9-** Awareness of and ability to make general evaluations of risk issues in the context of the particular specialisation, including health & safety, environmental and commercial risk

c) Students will acquire and develop practical skills such that they are able to:

C1- A thorough understanding of current practice and its limitations, and some appreciation of likely new developments

C2- Ability to apply engineering techniques, taking account of a range of commercial and industrial constraints

C3- Understanding of different roles within an engineering team and the ability to exercise initiative and personal responsibility, which may be as a team member or leader

C4- Advanced level knowledge and understanding of a wide range of engineering materials and components

	d) Students will acquire and develop transferrable skills such that they are able to: **D1-** Apply their skills in problem solving, communication, information retrieval, working with others, and the effective use of general IT facilities **D2-** Plan self-learning and improve performance, as the foundation for lifelong learning/CPD **D3-** Monitor and adjust a personal programme of work on an on- going basis **D4-** Exercise initiative and personal responsibility, which may be as a team member or leader

C. Teaching and Learning Strategy

Knowledge and Understanding:
Graduates must be able to demonstrate their knowledge and they must have an appreciation of the wider multidisciplinary engineering context and its underlying principles. They must appreciate the social, environmental, ethical, economic, and commercial considerations affecting the exercise of their engineering judgement.

Intellectual Abilities:
Graduates must be able to apply appropriate quantitative science and engineering tools to the analysis of problems. They must be able to demonstrate creative and innovative ability in the synthesis of solutions and in formulating designs. They must be able to comprehend the broad picture and thus work with an appropriate level of detail.

Practical skills:
Graduates must possess practical engineering skills acquired through, for example, work carried out in laboratories and workshops; in industry through supervised work experience; in individual and group project work; in design work; and in the development and use of computer software in design, analysis and control. Evidence of group working and of participation in a major project is expected. However, individual professional bodies may require particular approaches to this requirement.

General transferable skills:
Graduates must have developed transferable skills that will be of value in a wide range of situations. These are exemplified by the Qualifications and Curriculum Authority Higher Level Key Skills and include problem solving, communication, and working with others, as well as the effective use of general IT facilities and information retrieval skills. They also include planning self-learning and improving performance, as the foundation for lifelong learning/CPD.

Overview of teaching and learning activities:
This includes lectures, guest lectures from industry, tutorials, practical workshop classes, practical laboratory experiments and field trips. The course is made up of several modules (see section G below) and each module is delivered through a combination of lectures, tutorials, practical workshops, etc. all of which amounts to directed teaching (classroom contact). There is a variance in the makeup of the number of hours dedicated to lectures, workshops etc. but the total number of study hours attached to each module is dependent on the module weighting in credits. Typically, a 20-credit module is attached to 200 hours of learning which constitutes both directed learning and independent learning (1 credit is equal to 10 hours). This is split between contact time and independent learning. Generally, this equates to a maximum of 78 hours of contact time per module, and 122 hours of independent learning time.

Further, teaching and learning in this course ensures that graduates have the capacity to meet the needs of employers, producing graduates who are prepared to move into employment with skills and expectations that benefit their employers. Graduates must be able to keep abreast with changes, and a key requirement of this course is equipping students with the mechanisms for achieving this. Lifelong learning is considered in this course, which can foster such attitudes with novel approaches to teaching and learning that continually question and challenge situations and by highlighting opportunities for advances.

Subject-related and Generic Resources:
These include the Library in the LSBU Hub building, the metalwork and woodwork workshops, the rapid prototyping laboratories, the thermodynamics laboratory, the solid mechanics laboratory, the advanced vehicle engine test laboratory, and computer labs.

The core and optional reading lists are supplied at the end of each module guide produced by the module leader. A copy of the module guide will be made available on the Virtual Learning Environment, VLE (Moodle) and the reading lists can also be accessed through LSBU's Library website.

Overview of learning support:
To support students in their learning, academic and support staff are available during the normal operating hours of the University via prior appointment. Academic staff also operate surgery hours where no prior appointments are needed. The University buildings and library are open from 8am to 9pm during term time, while the library operates for an extended period during examinations. Some specialist workshops/computing spaces etc. are not accessible outside the normal operating hours of 9am to 5pm, unless timetabled for use in a module. Teaching sessions for PT students may run until 9pm at the latest and the relevant and required areas are open for access as timetabled.

The LSBU Skills for Learning Centre offers students a range of interactive workshops, one-to-one tutorials and drop-in sessions delivered by experienced learning developers. It also offers Language support for international students. Students who struggle to understand some of the basics, or feel they need additional support in understanding fundamentals of mathematics, are advised to use the drop-in sessions where they can provide comprehensive advice and guidance.

Teaching Staff:
Most modules are delivered by full-time academic staff from within the parent division where the course resides and or sometimes by staff from other areas within the School of Engineering or University where expertise lies. The primary aim is that each module is taught by a single member of staff, which most likely is the module leader (support teaching may be needed depending on the nature/size of the module etc. where students are sub grouped into multiple tutorials or laboratory sessions). Occasionally, PG students or part-time teaching or research staff may support certain sessions, and, in such cases, the relevant tutors are trained, and care is taken to ensure the quality of the provision.

Virtual Learning Environment (VLE):
Each course has a course site on the VLE, where relevant information is posted by the respective Course Director. Each module on the course has a Module site on the VLE and all relevant teaching and learning material such as module guides, lecture notes, teaching slides, tutorial and seminar sheets, workshop exercises, past exam papers, assignments, supplement material etc. are made available by the module leader. The virtual learning environment (Moodle) can be accessed using the Windows OS login credentials and can be accessed from any Internet connected PC inside or outside of the LSBU campus.

D. Assessment

Assessment is through examinations and also practical work and assignments using logbooks and formal reports.

Assessment is through presentations and formal reports at various stages of project work including a feasibility study. Innovation and design skills are assessed by group work as well as a formal report.

Assessment Overview:
University keeps an assessment and examinations procedure; a current version can be accessed at http://www.lsbu.ac.uk/__data/assets/pdf_file/0010/84349/assessment-and-examination-procedure.pdf. Coursework in modules can be either formative or summative and the details are usually made available in the module guide and explained to students by the module leader at the beginning of the semester. The module guide will also provide details about the weightage of these assessment components and when the relevant brief will be made available, including submission instructions and deadlines.

Formative assessment and feedback is part of the learning process on the course that provides constructive feedback to the learner. This allows students to improve their quality of work. It does not contribute towards a final module grade. All modules will provide students opportunities to receive formative assessment and feedback. Formative assessment typically includes discussions in the classroom, during tutorial exercises, simulation exercises, workshop or computing exercises, questions and answer sessions, peer discussions, observations, reflection on learning, presentation rehearsals.

Summative assessment and feedback is the process of evaluating learning at the conclusion of a module. Summative assessments include standardised tests delivered by examination, and coursework submissions. The course delivers both types of assessment used by the course. Normally, as a summative assessment, Students sit an end-of-semester examination in the form of a 2 or 3-hour unseen paper, or coursework assignments. Approximately 50% of the assessment on the course is via coursework. See Section H for individual modules. To pass a module, students must obtain an overall module mark of no less than 50% and a minimum threshold mark of 40% in each component.

Assessment is through examinations and also practical work and assignments using logbooks and formal reports.

Assessment is through presentations and formal reports at various stages of project work including a feasibility study. Innovation and design skills are assessed by group work as well as a formal report.

E. Academic Regulations

The University's Academic Regulations apply for this course.

School specific protocols apply, including compliance with professional, statutory and regulatory bodies' requirements. These local protocols can be viewed here: Link to local protocols

F. Entry Requirements

In order to be considered for entry to the course applicants will be required to have the following qualifications:

- A degree equivalent to UK Honours degree (minimum 2nd class) in Mechanical Engineering; or
- Professional qualifications (e.g. CEng) along with several years of relevant industrial experience (should include analytical work). The relevant industrial experience is to be assessed by the Course Director.

Overseas applicants are required to have a minimum English language IELTS score of 6.5 with no less than 5.5 in any of the components.

G. Course structure(s)

Course overview

The course is delivered over two semesters per academic year. Three modules run each semester on the full-time mode. The part-time curriculum consists of the same modules, spread over two years.

MSc Mechanical Engineering – **Full time**

	Semester 1		**Semester 2**	
Level 7 Year 1	Engineering Design, Analysis and Manufacture	20 Credits	Technology Evaluation and commercialisation	20 Credits
	Technical, Research and Professional Skills	20 Credits	Advanced Solid Mechanics and Dynamics	20 Credits
	Robotics	20 Credits	Advanced Thermofluids and Energy Analysis	20 Credits
Summer period	MSc Project	60 Credits		

MSc Mechanical Engineering – **Part time**
Modules offered on the PT course are: (2 years, 1 day per week)

	Semester 1		**Semester 2**	
Level 7 Year 1	Engineering Design, Analysis and Manufacture	20 Credits	Technology Evaluation and commercialisation	20 Credits
	Robotics	20 Credits	Advanced Solid Mechanics and Dynamics	20 Credits
Level 7 Year 2	Technical, Research and Professional Skills	20 Credits	Advanced Thermofluids and Energy Analysis	20 Credits
	MSc Project			60 Credits

Placements information

Since it is one year course there is no placement option is available.

H. Course Modules

Module Code	Module Title	Level	Semester	Credit value	Assessment	
					CW %	EX %
EEE_7_TRP	Technical, Research and Professional Skills	7	1	20	100	
MED_7_TEC	Technology Evaluation and commercialisation	7	2	20	100	
MED_7_ASM	Advanced Solid Mechanics and Dynamics	7	2	20	30	70
MED_7_ATE	Advanced Thermofluids and Energy Analysis	7	2	20	30	70
EEE_7_ROB	Robotics	7	1	20	30	70
MED_7_EDA	Engineering Design, Analysis and Manufacture	7	1	20	100	
EEE_7_PRO	Project	7	Full time: Summer period Part time: 1&2	60	100	

CW - Course Work
EX - Examination

I. Timetable information

The timetable will be issued to students during the induction/enrolment process. The timetable will show the day and time and location of your lectures, tutorials and workshops.

All students are provided with access to our range of web-based learning support resources. This system has the most up-to-date version of your personal timetable and can be accessed at www.lsbu.ac.uk/vle

J. Costs and financial support

Tuition fees/financial support/accommodation and living costs

- Information on tuition fees/financial support can be found by clicking on the following link - http://www.lsbu.ac.uk/courses/undergraduate/fees-and-funding or
- http://www.lsbu.ac.uk/courses/postgraduate/fees-and-funding

Information on living costs and accommodation can be found by clicking the following link- https://www.lsbu.ac.uk/student-life/our-campuses/southwark/cost-of-living-in-london https://www.lsbu.ac.uk/admin/backups/accommodation

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Appendix A: Curriculum Map

This map provides a design aid to help course teams identify where course outcomes are being developed, taught and assessed within the course. It also provides a checklist for quality assurance purposes and may be used in validation, accreditation and external examining processes. Making the learning outcomes explicit will also help students to monitor their own learning and development as the course progresses.

Modules																							
Title	Code	Knowledge and Understandin						Intellectual skills									Practical Skills				Transferrable Skills			
		A1	A2	A3	A4	A5	A6	B1	B2	B3	B4	B5	B6	B7	B8	B9	C1	C2	C3	C4	D1	D2	D3	D4
Technical, Research and Professional	EEE_7_TRP	T A D		T A D	T A D	T A D	T A D	T D		T D	T D						T A	T A D	T A D	T A D	T A	T A D	T A	T A D
Technology Evaluation and commercialisatio n	MED_7_TEC	T A	T A D	T A D	T A D	A		T D	T A D		T A D						T A	T A D	T A D	T A	T A D	T A	T A D	T A D
Advanced Solid Mechanics	MED_7_ASM	T A D	T A D	T A D	T D	T A D	T A D													T A	T A D			
Advanced Thermo fluids and Energy	MED_7_ATE	T A D	T A	T A D	T A D	T A	T A D	T A D			T A D	T D		T A D	T D	T A	T A D	T A D	T A D	T A	T A D		T D	
Robotics	EEE_7_ROB	T A D	T A D					T A D	T A	T A D									T A D		T A D			T A D
Engineering Design, Analysis and Manufacture	MED_7_EDA			T A D	T A D		T A D	T A D	T A D	T A D									T A					
Project	EEE_7_PRO	D A	D	D A	D A	D A	D A	D A	D	D A	D	D A	D	D A	D	D	D A	D A	D A	D A	D A	D A		D A

Key to abbreviations used in the above table:
T-Taught;
A- Assessed;
D-Developed.

Appendix B: Personal Development Planning

Personal Development Planning (PDP) is a structured process by which an individual Reflects upon their own learning, performance and/or achievement and identifies ways in which they might improve themselves academically and more broadly. Course teams are asked to indicate where/how in the course/across the modules this process is supported.

Approach to PDP	Level 7
1 Supporting the development and recognition of skills through the personal tutor system.	Personal Tutor open surgeries – 2 hours/week on demand – all members of staff allocate 2 hours/week for bookable PT sessions. Induction programme, including: Meeting with personal tutor Use of library and learning resources (LIS) Use of University IT facilities/Virtual Learning Environment Study skills Access to University support facilities At semester 2 the project Supervisor acts as personal tutor for the student that the staff member supervises.
2 Supporting the development and recognition of skills in academic modules/modules.	Student requires continue to keep logbooks as logbooks provide a platform for further skills development. Additional transferable skills are developed by workshops, assignments and mini-projects involving information selection, retrieval and evaluation, IT skills, team working, planning and managing study. For example: • Literature research assignment in Technical, Research and Professional Skills. • Formal laboratory reports in Robotics, and other modules. • Engineering Design, Analysis and Manufacture
3 Supporting the development and recognition of skills through purpose designed modules/modules.	The Technical, Research and Professional Skills module aims to introduce and develop the skills needed by professional engineers to enable them to make use of their technical knowledge, in particular:

	• Develop students' technical communications, basic report-writing and team-working skills • Develop students' skills in project planning and management • Develop students' confidence in undertaking self-managed practical projects. Technology Evaluation and Commercialisation module increases student awareness of the commercial aspects of their design and innovative work that is embedded in their MSc project.
4 Supporting the development and recognition of skills through research projects and dissertations work.	The main MSc Project module enhances the student's ability: • to apply knowledge gained during the course to new problems • to innovate and solve problems of above average difficult • to utilize time and effort effectively for purposeful and sustained independent work • prepare technical reports • plan and manage project and time effectively The project also imparts to students the supervisor's experience of effective project management and research methods. The module on Technical, Research and Professional Skills is a precursor to the MSc project in developing these skills.
5 Supporting the development and recognition of career management skills.	Students have an introduction to the engineering profession and professional bodies in the Technical, Research and Professional Skills module, Technology evaluation and commercialisation module. Students also attend the annual IMechE events and lectures.
6 Supporting the development and recognition of career management skills through work placements or work experience.	Students are encouraged to take industry-based MSc projects, where they can learn more career management skills. Students are also introduced to the IMechE and encouraged to join the IMechE. Students are encouraged to join Mechanical society club. LSBU's Job shop, seminars and employers fair assists students to obtain job.
7 Supporting the development of skills by recognising that they can be developed through extra curricula activities.	The department maintains a course VLE site including information about professional bodies and this is open to all students throughout their course. Students are encouraged to start their own 'clubs' and laboratory facilities and specific notice-boards are made available for this. Students can study a language to prepare for exchange courses with overseas links.

8 Supporting the development of the skills and attitudes as a basis for continuing professional development.	Students are encouraged to join the relevant professional body for the course. A Moodle site is maintained to support activities and disseminate resources. Students are made aware of the need for CPD in the semester 1 module Technical, Research and Professional Skills.
9 Other approaches to personal development planning.	The department maintains active industry links through our industrial panel. With regular meetings this panel ensures that industry requirements and needs are fed back into the teaching on our courses and the preparation of our graduates for the workplace. This also improves personal development planning.
10 The means by which self-reflection, evaluation and planned development is supported e.g. electronic or paper-based learning log or diary.	The department has a long established practice where students must keep a personal technical logbook for each module with a laboratory or computer workshop component. The logbook sometimes forms part of the coursework assessment with other assessment methods used such as assignments, design reports, mini-projects providing a platform for skills development. Project students meet their supervisors at least once/fortnight where progress is monitored and objectives are discussed. The student's project logbook, which is an informal record of work, is signed off during these sessions. The project logbook is marked and forms part of the project assessment.

Appendix C: Terminology

[Please provide a selection of definitions according to your own course and context to help prospective students who may not be familiar with terms used in higher education. Some examples are listed below]

awarding body	a UK higher education provider (typically a university) with the power to award higher education qualifications such as degrees
bursary	a financial award made to students to support their studies; sometimes used interchangeably with 'scholarship'
collaborative provision	a formal arrangement between a degree-awarding body and a partner organisation, allowing for the latter to provide higher education on behalf of the former
compulsory module	a module that students are required to take

contact hours	the time allocated to direct contact between a student and a member of staff through, for example, timetabled lectures, seminars and tutorials
coursework	student work that contributes towards the final result but is not assessed by written examination
current students	students enrolled on a course who have not yet completed their studies or been awarded their qualification
delivery organisation	an organisation that delivers learning opportunities on behalf of a degree-awarding body
distance-learning course	a course of study that does not involve face-to-face contact between students and tutors
extracurricular	activities undertaken by students outside their studies
feedback (on assessment)	advice to students following their completion of a piece of assessed or examined work
formative assessment	a type of assessment designed to help students learn more effectively, to progress in their studies and to prepare for summative assessment; formative assessment does not contribute to the final mark, grade or class of degree awarded to students

higher education provider	organisations that deliver higher education
independent learning	learning that occurs outside the classroom that might include preparation for scheduled sessions, follow-up work, wider reading or practice, completion of assessment tasks, or revision
intensity of study	the time taken to complete a part-time course compared to the equivalent full-time version: for example, half-time study would equate to 0.5 intensity of study
lecture	a presentation or talk on a particular topic; in general lectures involve larger groups of students than seminars and tutorials
learning zone	a flexible student space that supports independent and social earning
material information	information students need to make an informed decision, such as about what and where to study
mode of study	different ways of studying, such as full-time, part-time, e-learning or work-based learning
modular course	a course delivered using modules
module	a self-contained, formally structured unit of study, with a coherent and explicit set of learning outcomes and assessment criteria; some providers use the word 'course' or 'course unit' to refer to individual modules
national teaching fellowship	a national award for individuals who have made an outstanding impact on student learning and the teaching profession
navigability (of websites)	the ease with which users can obtain the information they require from a website
optional module	a module or course unit that students choose to take
performance (examinations)	a type of examination used in performance-based subjects such as drama and music
professional body	an organisation that oversees the activities of a particular profession and represents the interests of its members
prospective student	those applying or considering applying for any programme, at any level and employing any mode of study, with a higher education provider

regulated course	a course that is regulated by a regulatory body
regulatory body	an organisation recognised by government as being responsible for the regulation or approval of a particular range of issues and activities
scholarship	a type of bursary that recognises academic achievement and potential, and which is sometimes used interchangeably with 'bursary'
semester	either of the parts of an academic year that is divided into two for purposes of teaching and assessment (in contrast to division into terms)
seminar	seminars generally involve smaller numbers than lectures and enable students to engage in discussion of a particular topic and/or to explore it in more detail than might be covered in a lecture
summative assessment	formal assessment of students' work, contributing to the final result
term	any of the parts of an academic year that is divided into three or more for purposes of teaching and assessment (in contrast to division into semesters)
total study time	the total time required to study a module, unit or course, including all class contact, independent learning, revision and assessment
tutorial	one-to-one or small group supervision, feedback or detailed discussion on a particular topic or project
work/study placement	a planned period of experience outside the institution (for example, in a workplace or at another higher education institution) to help students develop particular skills, knowledge or understanding as part of their course
workload	see 'total study time'
written examination	a question or set of questions relating to a particular area of study to which candidates write answers usually (but not always) under timed conditions

Appendix D: Compliance with PSRB Requirements

Teaching and Learning Strategy

A1: The is gained through lectures, small group seminars and tutorials of specific modules, e.g. Advanced Solid Mechanics and Dynamics, Advanced Thermofluids and Energy Analysis and other relevant modules.

A2: This is covered in Technology Evaluation and Commercialisation module through lectures, small group seminars, in Robotics module through laboratory works and other relevant modules

A3: This is gained normally through the modules Engineering, Design, Analysis and Manufacture module, Technical Research and Professional Skills, and other relevant modules.

A4: This is developed by tutorials and workshops of most modules through Advanced Solid Mechanics and Dynamics, Advanced Thermo fluids and Energy Analysis, where the trends in technological advances are introduced. Project based modules focus on new developments and how these impact engineering practice. In particular Engineering Design, Analysis and Manufacture module considers novel designs for problem solving.

A5: Unfamiliar problem solving is covered in Technology Evaluation and Commercialisation module and other more technical aspects are done in Robotics module and software tools are used to aid analysis of new designs.

A6: This is gained through lectures, workshops, small group seminars and tutorials of most modules. This is taught and assessed in Advanced Thermofluids and Energy Analysis module and Engineering Design, Analysis and Manufacture module.

B1: This is covered through lecture, tutorials and individual project of modules: Technology Evaluation and Commercialisation and Engineering Design, Analysis and Manufacture

B2: This is gained through lecture, tutorials and individual project of modules: Engineering Design, Analysis and Manufacture, Advanced Solid Mechanics and Dynamics and Technical, Research and Professional Skills.

B3: This is mainly achieved through the individual project and mini design projects of the laboratory work of modules: Robotics, additionally the module on Engineering Design, Analysis and Manufacture and also the MSc project develops and assesses these.

B4-B9: Acquisition of these are primarily achieved through the lectures and workshops of the two core modules, Technology Evaluation and Commercialisation and Technical, Research and Professional Skills along with other relevant modules and the project

C1: Acquisition of this is normally covered through lectures, experimental work and

practical demonstrations in modules: Robotics and Advanced solid mechanics and Dynamics as well as the MSc project.

C2: This is gained through lectures, workshops and tutorials of module: Technology Evaluation and Commercialisation, Advanced Thermofluids and Energy Analysis, and advanced solid mechanics and Dynamics

C3: This is covered through lectures, tutorials and laboratory works of module: Engineering Design, Analysis and Technology Evaluation and Commercialisation and other relevant modules.

C4: This is covered through lectures, workshops and project works of modules: Technical, Research and Professionals skills, Robotics and MSc project.

D1, D2, D3, and D4: Acquisition of these are primarily developed through the lectures, tutorials and workshops of three core modules: Research and Professional Skills, Technology Evaluation and Commercialisation and Technical, MSc project along with other relevant modules.

Assessment

A1: Assessment of the relevant scientific principles is through examinations, and assignments, which frequently demand that the student extend knowledge of a subject by self-learning.

A2: is assessed by assignments, presentations, and viva as well as written examinations.

A3: Ability to apply and integrate knowledge is assessed by larger scale project work, assignments and presentations as well as written examinations.

A4: Ability to apply appropriate engineering analysis methods for solving complex problems in engineering is accessed through laboratory reports, project report and presentations as well as written examinations.

A5: is accessed through assignments, seminars and presentations as well as written examination.

A6: is assessed by assignments, logbooks, workshops as well as written examinations.

B1: This is assessed through formal report, group projects, examination and laboratory report and also the final project reports.

B2: is accessed through examinations, logbooks, formal reports and group project assignments

B3: This is assessed through formal report, examination and laboratory works and also the final project report.

B4 – B9: All are assessed by formal reports on assignments, seminars and

presentations in the relevant modules.

C1: is assessed by formal reports on assignments, examinations as well as the final MSc project report and presentations.

C2: This is assessed by lab reports, formal reports on assignments as well as examinations

C3: This is assessed by reports on assignments, presentations and project works.

C4: This is assessed in formal reports, project work, and individual presentation.

D1, D2, D3, and D4: All are these assessed by formal reports on assignments, dissertation, presentations and project viva voce examinations.