

PROGRAMME SPECIFICATION

Programme Aim and Title	BEng (Hons) Energy and renewable energy
Intermediate Awards Available	BSc
Teaching Institution(s)	Ain Shams University – Faculty of Engineering - CHEP
Alternative Teaching Institutions (for local arrangements see final section of this specification)	
UEL Academic School	
UCAS Code	
Professional Body Accreditation	
Relevant QAA Benchmark Statements	<i>List the title of those QAA Benchmark statement(s) that <u>inform</u> content - there does not have to be an exact match. <u>(Do not provide details of the actual benchmark here).</u></i>
Additional Versions of this Programme	N/A
Date Specification Last Updated	

Programme Aims and Learning Outcomes

This programme is designed to give you the opportunity to:

1. Apply knowledge of mathematics, science and engineering concepts to the solution of engineering problems.
2. Provide the students with opportunities for internships in industry to gain career enhancing experience of the application of engineering principles.
3. Give the students a chance to gain knowledge and develop skills in a range of specialized selective courses covering electrical power or mechanical engineering.
4. Consider the impacts of engineering solutions on society & environment.
5. Design and supervise the construction of systems to generate, transmit, control and use electrical energy.
6. Carry out preliminary designs of fluid transmission and power systems, investigate their performance and solve their essential operational problems.

What you will learn:

Knowledge

- 1.1. List concepts and theories of mathematics and sciences, appropriate to the discipline.
- 1.2. Know Basics of information and communication technology (ICT)
- 1.3. describe Quality assurance systems, codes of practice and standards, health and safety requirements and environmental issues.
- 1.4. Identify business and management principles relevant to engineering.
- 1.5. know professional ethics and impacts of engineering solutions on society and environment.

Thinking skills

- 1.1. Select appropriate mathematical and computer-based methods for modelling and analyzing problems.
- 1.2. Assess and evaluate the characteristics and performance of components, systems and processes.
- 1.3. Select and appraise appropriate ICT tools to a variety of engineering problems.
- 1.4. Integrate electrical, electronic and mechanical components and equipment with transducers, actuators and controllers in creatively computer-controlled systems
- 1.5. Analyze the performance of electric power generation, control and distribution systems
- 1.6. Select appropriate manufacturing method considering design requirements
- 1.7. Evaluate mechanical power and energy engineering designs, processes and performances and propose improvements.
- 1.8. Analyze the performance of the basic types of internal combustion engines and hydraulic machines

Subject-Based Practical skills

- 1.1. Use computational facilities and techniques, measuring instruments, workshops and laboratory equipment to design experiments, collect, analyze and interpret results.
- 1.2. Apply quality assurance procedures and follow codes and standards.
- 1.3. Exchange knowledge and skills with engineering community and industry.

- 1.4. Test and examine components, equipment and systems of electrical power and machines.
- 1.5. Specify and evaluate manufacturing of components and equipment related to electrical power and machines.
- 1.6. Describe the basic Thermal and fluid processes mathematically and use the computer software for their simulation and analysis
- 1.7. Work in mechanical power and energy operations, maintenance and overhaul

Skills for life and work (general skills)

- 1.1. Collaborate effectively within multidisciplinary team.
- 1.2. Demonstrate efficient IT capabilities.
- 1.3. Effectively manage tasks, time, and resources.
- 1.4. Search for information and engage in life-long self-learning discipline.
- 1.5. Acquire entrepreneurial skills.

Learning and Teaching

Knowledge is developed through

- Guided reading
- Knowledge-based activities with feedback
- Online discussions and activities

Thinking skills are developed through

- Reflective activities with feedback
- Online discussions and activities

Practical skills are developed through

- IT activities with feedback
- Research skills-based activities with feedback
- Practical implementation by doing laboratory experiments
- Project work

Skills for life and work (general skills) are developed through

- The demands of the study medium (e.g. distance learning)
- Planning activities with feedback

Assessment

Knowledge is assessed by

- Coursework
- Essays
- Examinations
- Report writing

Thinking skills are assessed by

- Coursework
- Examinations
- Project work

Practical skills are assessed by

- Practical reports
- Portfolio completion
- Oral examination
- Laboratory experiments

Skills for life and work (general skills) are assessed by

- Project work
- Group work
- Presentation and reports

Students with disabilities and/or particular learning needs should discuss assessments with the Programme Leader to ensure they are able to fully engage with all assessment within the programme.

Work or Study Placements

(Include this section only where relevant)

Compulsory and optional work/study placements are essential KIS criteria, this data need to be gathered by the university and displayed to the students.

Please specify the duration.

Compulsory or optional work placements and compulsory study placements should also be included in the module structure table below. It is assumed that optional study placements will be available through university wide schemes unless forbidden as part of the programmes accreditation requirements.

Types may include - year abroad, work based learning module, art in the community etc...

Are placements guaranteed or selected by a competitive process?

If known please state the 'probable location' of the placement.

Can projects/assignments be work-based? Is there a need for work-based mentors?

Programme Structure

All programmes are credit-rated to help you to understand the amount and level of study that is needed.

One credit is equal to 10 hours of directed study time (this includes everything you do e.g. lecture, seminar and private study).

Credits are assigned to one of 5 levels:

- 3 Equivalent in standard to GCE 'A' level and is intended to prepare students for year one of an undergraduate degree programme.
- 4 Equivalent in standard to the first year of a full-time undergraduate degree programme.
- 5 Equivalent in standard to the second year of a full-time undergraduate degree programme.
- 6 Equivalent in standard to the third year of a full-time undergraduate degree programme.
- 7 Equivalent in standard to a Masters degree.

Programmes are made up of modules that are each credit weighted.

The module structure of this programme:

Level	Module Code	Module Title	Credit Weighting	Core/Option	Available by Distance Learning? Y/N
3	EG9311	Applied Mathematics for Engineering problems	30	Core	
3	EG9312	Electrical circuits, measurements and electro-magnetic fields	30	Core	
3	EG9313	Energy resources and Thermodynamics	30	Core	
3	EG9314	Materials and Mechanical manufacturing Engineering	30	Core	
4	EG9421	Heat transfer and fluid mechanics	30	Core	
4	EG9422	Electrical Machines and power engineering	30	Core	
4	EG9423	Theory of machines and machine construction	30	Core	
4	EG9424	Fundamentals of electronics and control	30	Core	
5	EG9531	Solar energy	30	Core	

Commented [NC1]: Called Materials and Mechanical manufacturing Engineering in module specification

Commented [AM2R1]: ok

Commented [NC3]: Called Technical fundamentals of Solar energy in module specification

Commented [AM4R3]: Corrected in module specification

5	EG9532	Power electronics and Automation systems	30	Core	
5	EG9533	Combustion engines and flow machines	30	Core	
5	EG9534	Machine Design and electromechanical industrial application	30	Core	
6	EG9641	Economics of generation and Distribution network Protection	30	Core	
6	EG9642	Renewable energy and Network interfacing	30	Core	
6	EG9643	Graduation project	30	Core	
6	EG9644	Energy Generation technical studies	30	elective	
6	EG9645	Energy Management technical studies	30	elective	

Please note: Optional modules might not run every year, the programme team will decide on an annual basis which options will be running, based on student demand and academic factors, in order to create the best learning experience.

The Elective modules are specialization tracks where the students can either select one of the two available tracks(Energy generation or Energy management through the selection Elective courses related to the track)

A core module for a programme is a module which a student must have passed (i.e. been awarded credit) in order to achieve the relevant named award. An optional module for a programme is a module selected from a range of modules available on the programme.

The overall credit-rating of this programme is **480** credits. If for some reason you are unable to achieve this credit you may be entitled to an intermediate award, the level of the award will depend on the amount of credit you have accumulated. You can read the University Student Policies and Regulations on the UEL website.

Typical Duration

It is possible to move from full-time to part-time study and vice-versa to accommodate any external factors such as financial constraints or domestic commitments. Many of our students make use of this flexibility and this may impact on the overall duration of their study period.

The expected duration of this programme is 4 years full-time.

A student cannot normally continue study on a programme after 4 years of study in full time mode unless exceptional circumstances apply and extenuation has been granted. The limit for completion of a programme in part time mode is 8 years from first enrolment.

Further Information

More information about this programme is available from:

- The UEL web site (www.uel.ac.uk)
- The programme handbook
- Module study guides
- UEL Manual of General Regulations (available on the UEL website)
- UEL Quality Manual (available on the UEL website)
- School web pages

All UEL programmes are subject to thorough programme approval procedures before we allow them to commence. We also constantly monitor, review and enhance our programmes by listening to student and employer views and the views of external examiners and advisors.

Additional costs:

- Late registration is not final unless there is a vacancy in the courses, and the student should pay late registration fees besides the prescribed academic service fees, in accordance with the recommendations of the Programmes Administration Council and approval of the Council of the Faculty of Engineering regarding this issue.

Students will pay all tuition/study/workshop/course field trip fees directly to ASU.