ES99J-45 Project

22/23

Department
School of Engineering
Level
Taught Postgraduate Level
Module leader
Georgia Kremmyda
Credit value
45
Module duration
12 weeks
Assessment
100% coursework
Study location
University of Warwick main campus, Coventry

Description

Introductory description

Students will study projects individually or as a group depending on their choice, guidance provided by the module leader and discussions with potential project supervisor.

Module web page

Module aims

The group projects aim to give students experience of working within a team, and parallels the way teams formed with people with different background to tackle challenging projects similar to project teams formed in real life situations. Individual projects will be more focussed on in-depth studies in line with the background of the student and in line with the supervisor’s expertise. Projects will vary in nature. Students will integrate their knowledge and understanding in order to specify and solve a substantial problem (or need), through the creation, development and or improvement of a product, process or system of work. The projects also allow students to develop their understanding of project management, time management, ethics, sustainability, health and safety, risk and intellectual property rights. Students will develop effective communication and leadership skills.

The project offered to students are considered a vehicle to allow students to develop their skills and competencies. No two projects may be the same, but all projects will test students in the same

ways. The projects aim to provide essential professional skills that the student needs after graduation; these include communication skills, team work, analytical and problem-solving skills, personal management skills, technical competency in computer skills, leadership, learning skills and strong work values.

Some examples of projects are:
Topic 1. Development of low cost solar energy systems.
Topic 2. Affordable technologies for moving water in any area needed and providing clean drinking water to everyone.
Topic 3. Sustainable bioenergy deployment in developing countries.
Topic 4. Protecting and promoting the international cyberspace security.
Topic 5. Analysis of sourcing practices applied by humanitarian organizations in the field of disaster response.
Topic 6. Effective logistics and supply chains in humanitarian aid.
Topic 7. Addressing the need to decarbonise energy provision whilst simultaneously bringing energy to growing populations.
Topic 8. Access to transportation infrastructure is key to social mobility; access to education, economic opportunities and public infrastructure. Investigate the impact of key infrastructure interventions to societal challenges.
Topic 9. Critical assessment of big infrastructure provisions to accommodate major sporting events.
Topic 10. Study on the education of vulnerable populations to disease outbreaks.
Topic 11. Effects of population growth on public health.
Topic 12. Establishing appropriate statistical analysis for public health data.
Topic 13. Protecting women under the International Humanitarian Law.
Topic 14. International Humanitarian Law and the challenges of contemporary armed conflicts.
Topic 15. Local administrations and disaster risk management.

Outline syllabus

This is an indicative module outline only to give an indication of the sort of topics that may be covered. Actual sessions held may differ.

In the beginning of the term, potential project supervisors will publish a list of possible project short descriptions (250 words). A project topic must be selected from published list or, alternatively, students may themselves propose suitable topics in consultation with module leader or potential supervisors.

In each case the group project will normally involve groups of 2-6 students from a cross section of various backgrounds of students. Tasks will be predetermined by the staff Project Director each year to match the skills and mix of the students. Where possible projects will ideally have industrial or organisational (non-governmental organisations, government organisations) backing or be able to demonstrate applicability in real life cases.

Depending on the product selected, consideration will be given to design, planning and development with focus on economics, needs, scheduling, control and management structure as well as the promotion of the work to a wider public audience or whatever the most suitable vehicle is to measure the stated learning outcome in terms of measuring students’ ability to develop their

skills and competencies.

Each student will have an agreed responsibility within their own specialisation, but will have to interact with other disciplines and hence appreciate the complexities of complete systems from both the technical and organisational point of view. This will develop their ability to think and communicate in terms of integrated systems.

A member of staff is appointed as Project Supervisor and will provide guidance on technical and organisational matters. Regular meetings take place with formal minutes to provide a record of decisions. The project be communicated via an academic poster, testing the students' ability to rapidly communicate complicated ideas, systems, or processes.

Full-time students undertake a group or individual project and should expect to contribute 450 hours of work over a three-month period. The project will require students to integrate their knowledge from the taught modules.

Part-time students undertake an individual project and should expect to contribute 450 hours of work. The project can be started at any time, but must finish by the end date, which for part-time students beginning the course in October of a year will be in September of next year.

The project will require a formal write-up describing its delivery in detail, and a reasoned financial cost-benefit analysis. An oral presentation will take place at the end of the project where students will describe the project to an academic audience and answer question on its delivery.

Learning outcomes

By the end of the module, students should be able to:

- Extrapolate existing knowledge and experience and apply them in an integrated systems approach to solve a complex and unfamiliar problem;
- Apply and integrate knowledge and principles from a range of disciplines including quantitative and computational where appropriate to model, analyse and solve problems communicating implementation of appropriate actions to technical and non-technical audiences.
- Extract and critically evaluate relevant data in order to apply systematic analysis and advanced problem solving skills, in order to complete the project to the satisfaction of an end user.
- Use innovative techniques, materials or methods in delivering the project.
- Understand and evaluate requirements and constraints incorporating business, customer and user needs, wider context, public perception, health and safety and aesthetics where appropriate demonstrating quality management.
- Consider the wider context of the project including, risk, ethics, environmental and sustainability limitations, intellectual property rights, codes of practice and standards, product safety and liability, to inform the project specification (problem brief) as relevant to the project.
- Plan and manage a project from the design process to a deliverable outcome, including managing a budget and costs, and understanding the commercial, economic and social environment of the project.
- Demonstrate effective communication, both verbal and written, to a technical and non-

technical audience.
- Demonstrate the ability to work individually or as a member of a team to achieve shared objectives within the scope of the project and monitor and adjust a personal programme of work on an on-going basis.
- Plan and carry out a personal programme of work, adjusting where appropriate and exercising initiative and personal responsibility to perform a complex project autonomously
- Reflect on the project and evaluate lessons learned and the part of the project in skills development, and so lifelong learning.

Indicative reading list

As dictated by the subject of the project.

Research element

- Advanced understanding of techniques applicable to own research.

Interdisciplinary

The group project will normally involve groups of 6 students from a cross section of various backgrounds of students.

Subject specific skills

Autonomous application of knowledge, together with a practical understanding of how established techniques of research and enquiry are used to create and interpret knowledge in the discipline.
Extrapolate existing knowledge and experience and apply them in an integrated systems approach to solve a complex and unfamiliar problem

Transferable skills

Numeracy: apply mathematical and computational methods to communicate parameters, model and optimize solutions
Apply problem solving skills, information retrieval, and the effective use of general IT facilities
Communicate (written and oral; to technical and non-technical audiences) and work with others
Plan self-learning and improve performance, as the foundation for lifelong learning/CPD
Exercise initiative and personal responsibility, including time management, which may be as a team member or leader
Awareness of the nature of business and enterprise in the creation of economic and social value
Overcome difficulties by employing skills, knowledge and understanding in a flexible manner
Ability to formulate and operate within appropriate codes of conduct, when faced with an ethical issue
Appreciation of the global dimensions of engineering, commerce and communication
Be professional in their outlook, be capable of team working, be effective communicators, and be able to exercise responsibility and sound management approaches.

Study

Study time

Type	Required
Seminars	1 session of 2 hours (0%)
Project supervision	20 sessions of 1 hour (4%)
Practical classes	3 sessions of 1 hour (1%)
Private study	10 hours (2%)
Assessment	415 hours (92%)
Total	450 hours

Private study description

Preparation for supervision sessions.

Costs

No further costs have been identified for this module.

Assessment

You must pass all assessment components to pass the module.

Assessment group A

	Weighting	Study time	Eligible for self-certification
Assessment component			
Oral Presentation	15%	60 hours	No
Reassessment component is the same			
Assessment component			
Poster Presentation	5%	20 hours	No

	Weighting	Study time	Eligible for self-certification
Reassessment component is the same			
Assessment component			
Log Book	10%	40 hours	No
Reassessment component is the same			
Assessment component			
Report	70%	295 hours	No

70% written report (10,000 words). A journal type paper with appendices could be submitted as an option instead of a traditional dissertation.
Marks moderated by dual assessment.

Reassessment component is the same

Feedback on assessment

Written feedback on poster, written report, and oral presentation
Verbal feedback during supervisor meetings;
Verbal feedback through advertised Office Hours;
The written report will be marked with feedback to the students by two assessors (one being the Project Supervisor), and a third academic will act as the moderator. Detailed comments will be given in support of project marks.

Availability

Courses

This module is Core for:

- TESA-H1C1 Postgraduate Taught in Humanitarian Engineering
  - Year 1 of H1C1 Humanitarian Engineering
  - Year 1 of H1C3 Humanitarian Engineering (with Management)
  - Year 1 of H1C2 Humanitarian Engineering (with Sustainability)
  - Year 2 of H1C1 Humanitarian Engineering
  - Year 2 of H1C3 Humanitarian Engineering (with Management)