ES99A-15 Humanitarian Engineering: Ethics, Theory, Practices

26/27

Department
School of Engineering
Level
Taught Postgraduate Level
Module leader
Georgia Kremmyda
Credit value
15
Module duration
1 week
Assessment
40% coursework, 60% exam
Study location
University of Warwick main campus, Coventry

Description

Introductory description

This module is an introduction to humanitarian engineering viewed from ethical, cultural, and practical perspectives. It is designed to enable students to reflect upon the history and meaning of Humanitarianism and Humanitarian Engineering.

Module web page

Module aims

Through this module, students will collectively develop and refine a set of humanitarian engineering ethics criteria (constraints). Students will then critically apply these criteria to specific examples of humanitarian technologies (case-studies in workshops). Students will also interpret multiple career pathways in humanitarian-related organisations and practices and consider potential careers as humanitarian scientists and engineers.

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.

The module will consist of 5 one-days sessions.
The core design is that each day the module leader and subject specialists will choose how they wish to deliver a combination of discipline or application grounded material, with activities that will allow the students (in conjunction with the module leader) to develop their learning in an interdisciplinary style and will help them to explore and deepen their knowledge of that day's theories and set texts/materials. Active learning methods (i.e. Team Based Learning; Open Space Learning) will be implemented in order to heighten student engagement and understanding of the week's topic.

Daily topics
Detailed below are the topics of the daily lectures delivered by the module leader and other invited experts. The second part of each day's session will always be a workshop led by the module leader for facilitating the learning experience of the students.

Day 1: History of Humanitarian Engineering
On the day we will look at the historical context of Humanitarian Engineering and the principles/standards of Humanitarian Engineering. After reflecting on the meanings of engineering and humanitarianism we will seek to imagine what we, along with others, call humanitarian engineering.

Day 2: Humanitarian Engineering ethics criteria
We will look at how humanitarianism can benefit from appreciating what engineers do and the traditions of engineering ethics. We will reflect on the idea that professional engineering ethics can be enhanced by appreciating the role of humanitarianism in a globalised world, increasingly dependent on advances in science and technology. Despite its popular appeal and international importance, humanitarian ethics is underdeveloped in relation to ethics in general and to professional engineering in particular. On the day we will discuss about humanitarian technology and how humanitarian engineers can build community change and development.
Case studies to be discussed may relate to the "motivation of a humanitarian engineer", "who benefits and who pays" and "accountability".

Day 3: Human needs and human rights
On the day we will consider aspects of the international legal framework regulating the protection of people and the conduct of hostilities in armed conflict. Human rights and human needs, spanning from ecological to cultural and anthropological. Humanitarianism typically involves an effort to alleviate human suffering by responding to human needs, but not necessarily on the basis of respect for individual human rights. In this lecture we are going to debate on whether active response to human needs out of compassion for human suffering is seen as more important.
Key questions on the topic will be co-created among students and lecturers. Students will be provoked, questioned and challenged to express arguments on questions such as: What is humanitarianism? Is it limited to the provision of relief to victims of conflict, or does it include broader objectives such as human rights, democracy promotion, development, and peacebuilding?

Day 4: Humanitarian crises. Humanitarianism & sustainable development
This session will focus on the humanitarian crises and how to build resilience against humanitarian challenges. Discussion will unfold on the UN dialogues (i.e. the Hyogo Framework for Action 2005-

2015, Sendai Framework for Disaster Risk Reduction 2015-2030 and the UN Sustainable Development Goals 2030). Building resilience against humanitarian challenges is central to effective global action. UN dialogues highlight the urgency to build resilience to disasters and to ensure it is embedded within education, training, development plans, policies and procedures at all scales – this will complement, not hinder, sustainable development.

Day 5: Practice: working as a Humanitarian Engineer
In this session, the journey towards the career path of the Humanitarian Engineer will be discussed. Key critical figures from NGOs, Industry, and Organisations will deliver seminars sharing their experience and views on available career pathways. In a theoretical context this session will cover the kind of roles that a Humanitarian Engineer can play in real life, drawing out the moral dimensions of humanitarian work.
Building on the content of this day, students will be asked to prepare a reflective report with the title ‘My career path’ demonstrating that they have engaged in the multi-disciplinary nature of Humanitarian Engineering and seriously thought about their future professional career.

Learning outcomes

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

- Demonstrate comprehensive understanding of the concepts and critically interpret the history of humanitarianism and humanitarian action;
- Interpret how humanitarianism is related to engineering history, education, and practice;
- Evaluate and critique how humanitarian constraints and ideals engage with multiple engineering practices and standards of professional conduct;
- Systematically interpret the principles governing the international human needs and rights, including their origins, assumptions, contents, limits and potential;
- Contemplate multiple pathways (industry, NGO, governmental organisations) of professional practice that would benefit from humanitarian engineering knowledge and skills.
- Develop research skills of evidence synthesis and critical appraisal.

Indicative reading list

Reading lists can be found in Talis

Research element

Develop research skills of evidence synthesis and critical appraisal.

Interdisciplinary

The module adopts an interdisciplinary teaching approach. Students from a wide variety of disciplinary and professional backgrounds will attend this module, enabling them to explore topics from a range of different perspectives.

Subject specific skills

Contemplate multiple pathways (industry, NGO, governmental organisations) of professional practice that would benefit from humanitarian engineering knowledge and skills.

Transferable skills

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.

Study

Study time

Type	Required
Lectures	15 sessions of 1 hour (23%)
Seminars	10 sessions of 1 hour (15%)
Practical classes	(0%)
Private study	40 hours (62%)
Total	65 hours

Private study description

Pre-module preparation and reading.
Guided independent learning.

Costs

No further costs have been identified for this module.

Assessment

You must pass all assessment components to pass the module.

Assessment group D1

	Weighting	Study time	Eligible for self-certification
Assessment component			
Reflective Report (1500 words) 'My career path' reflective report.	40%	30 hours	Yes (extension)
Reassessment component is the same			
Assessment component			
Centrally-timetabled examination (On-campus) Central Timetabled January Exam	60%	55 hours	No

- Answerbook Pink (12 page)

Reassessment component is the same

Feedback on assessment

Individualised feedback on the reflective report will be provided via the Tabula (Coursework Management) system, in accordance with the University's guidance on student feedback. Cohort-level feedback will be provided for the written exam.

Past exam papers for ES99A

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)
- Year 1 of TESA-H1C4 Postgraduate Taught in Humanitarian Engineering

This module is Core optional for:

- Year 2 of TESA-H1C1 Postgraduate Taught in Humanitarian Engineering