ES2D9-15 Technology in International Development

26/27

Department
School of Engineering
Level
Undergraduate Level 2
Module leader
Modupe Jimoh
Credit value
15
Module duration
22 weeks
Assessment
100% coursework
Study location
University of Warwick main campus, Coventry

Description

Introductory description

ES2D9-15 Technology International Development

Module web page

Module aims

This module aims to examine technology and engineering projects in international development, innovation, and sustainability as aligned with the UN SDGs. It will look at the technologies required for the provision and sustainable management of engineering infrastructures and services. Using case studies, it would also introduce the principles and realities of working in international development. The module is designed to encourage problem-based learning and group-working.

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.

Students will be introduced to the UN sustainable development goals and what it means in reality in the module. Challenges people face around the globe would be discussed with a focus on developing countries. Technologies that can be used to prevent or minimise the impact of the challenges will be examined. This would cover Civil, Mechanical, Electrical and Agriculturally inclined technologies. The students would then be placed in groups where they would choose a particular challenge and design a solution for it. Students would also be encouraged to participate in competitions nationally or internationally organised around problem-based learning.

Key elements of the syllabus are:

1. The nature of International Development and the UN Sustainable Development Goals.
2. Introduction to the problem-based design challenge and the case study.
3. Concepts and technologies for water supply and wastewater management; sanitation and solid waste management; built environment and transportation; land and environmental management; sustainable agriculture; renewable energy; Wireless and Digital Communications.
4. Principles of engineering communication.
5. Participation in a national or international competition (this is an optional add-on based on the availability of competition, slots and student interests)

Learning outcomes

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

- Demonstrate detailed knowledge of the relationship between international development and the UN Sustainable Development Goals (SDGs) in a global context. [M11(M), M15(M)]
- Evaluate current technologies required for the provision and sustainable management of engineering infrastructures and services. [M1(D), M7(M), M11(M)]
- Develop the skills and strategies needed to appropriately apply and critically analyse different technological choices based on economic, social, and environmental criteria. [M5(D), M7(M), M8(M), M9(D)]
- Develop innovation skills applicable to sustainable development and the ability to apply quantitative techniques where appropriate. [M2(D), M5(D), M7(M), M8(M), M9(M)]
- Demonstrate effective communication to a technical and non-technical audience working effectively as a member of a team. [M16(M), M17(M)]

Indicative reading list

Reading lists can be found in Talis

Subject specific skills

1. Knowledge and understanding of the need for a high level of professional and ethical conduct in engineering and the use of technical literature, other information sources including appropriate codes of practice and industry standards
2. Knowledge and understanding of risk issues, including health & safety, environmental and commercial risk, risk assessment and risk management techniques and an ability to evaluate

commercial risk
3. Knowledge of professional codes of conduct, how ethical dilemmas can arise, relevant legal and contractual issues.

Transferable skills

1. Communicate (written and oral; to technical and non-technical audiences) and work with others
2. Plan self-learning and improve performance, as the foundation for lifelong learning/CPD
3. Exercise initiative and personal responsibility, including time management, which may be as a team member or leader
4. Ability to formulate and operate within appropriate codes of conduct, when faced with an ethical issue
5. Appreciation of the global dimensions of engineering, commerce and communication
6. 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
Lectures	12 sessions of 1 hour (8%)
Seminars	18 sessions of 1 hour (12%)
Private study	120 hours (80%)
Total	150 hours

Private study description

120 hours of 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 A4

	Weighting	Study time	Eligible for self-certification
Assessment component			
Group video including peer assessment	40%		No

A short video communicating the particular challenge the group of students have chosen to study and their proposed innovative technologies.

Reassessment component is the same

Assessment component

Online Moodle test, on campus	60%		No

Online test, MCQs and essay based questions related to the content of the group project.

Reassessment component is the same

Feedback on assessment

Group feedback for the video
Cohort-level feedback for the test

Availability

Courses

This module is Optional for:

- Year 2 of UESA-H315 BEng Mechanical Engineering
- Year 2 of UESA-H316 MEng Mechanical Engineering
- Year 2 of UESA-H605 Undergraduate Electrical and Electronic Engineering

This module is Option list A for:

- Year 2 of UESA-H161 BEng Biomedical Systems Engineering
- Year 2 of UESA-H216 BEng Civil Engineering
- Year 2 of UESA-HN15 BEng Engineering Business Management
- Year 2 of UESA-HH75 BEng Manufacturing and Mechanical Engineering
- Year 2 of UESA-HH35 BEng Systems Engineering

- Year 2 of UESA-H112 BSc Engineering
- Year 2 of UESA-HN11 BSc Engineering and Business Studies
- Year 2 of UESA-H163 MEng Biomedical Systems Engineering
- Year 2 of UESA-H217 MEng Civil Engineering
- Year 2 of UESA-HH76 MEng Manufacturing and Mechanical Engineering
- Year 2 of UESA-H316 MEng Mechanical Engineering
- UESA-HH31 MEng Systems Engineering
    - Year 2 of HH31 Systems Engineering
    - Year 2 of HH35 Systems Engineering

This module is Option list B for:

- Year 2 of UESA-H113 BEng Engineering
- Year 2 of UESA-H114 MEng Engineering