

ES2D9-15 Technology in International Development

21/22

Department

School of Engineering

Level

Undergraduate Level 2

Module leader

Modupe Jimoh

Credit value

15

Module duration

9 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 the context of 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. It would also introduce the principles and realities of working in international development and the disaster and humanitarian sector.

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.

Introduction: The nature of International Development and the UN Sustainable Development Goals.

Basic concepts: Frontier technologies; Development; Sustainability; Resilience; Innovation
The relationship between International Development, Disaster Management and Technology Management.

Current technologies: A round-up of technologies required for the provision and sustainable management of (i) Water and sanitation (ii) Inclusive, safe and resilient cities and human settlements (iii) Efficient transportation (iv) Affordable and reliable energy (v) Resilient infrastructures (vi) Climate change and (vii) Circular economy.

Technology choice: The use of economic and other criteria to choose and design technologies appropriate to their use and environment.

Case studies.

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.
- Evaluate current technologies required for the provision and sustainable management of engineering infrastructures and services.
- Develop the skills and strategies needed to appropriately apply and critically analyse different technological choices based on economic, social, and environmental criteria.
- Develop innovation skills applicable to sustainable development and the ability to apply quantitative techniques where appropriate.
- Demonstrate effective communication to a technical and non-technical audience

Indicative reading list

"Sustainable Sanitation for All: Experiences, Challenges and Innovations", 2016, ISBN-13: 9781853399282

"Technologies for Development: What is Essential?", 2015, ISBN 3319162470

"Healthy Homes in Tropical Zones: Improving Rural Housing in Asia and Africa", 2013, ISBN 3936681813

"Ten Frontier Technologies for International Development", 2016, Institute of Development Studies, Brighton. <https://www.ids.ac.uk/publications/ten-frontier-technologies-for-international-development/>

"A better planet: 40 big ideas for a sustainable future", 2019, New Haven: Yale University Press. ISBN 9780300246247.

"Enabling Innovation - A Practical Guide to Understanding and Fostering Technological Change", Douthwaite, B., 2002

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.
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Study

Study time

Type	Required
Lectures	12 sessions of 1 hour (8%)
Seminars	15 sessions of 1 hour (10%)
Private study	123 hours (82%)
Total	150 hours

Private study description

123 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 A2

Assessment component	Weighting	Study time	Eligible for self-certification
Group video including peer assessment A short video that communicates the particular challenge the group of students has chosen to study and their proposed innovative technologies.	30%		No

Reassessment component is the same

Assessment component			
Group project report (6000 words) including peer assessment An academic writing piece on the particular challenge the group of students has chosen to study and their proposed innovative technologies.	70%		No

Reassessment component is the same

Feedback on assessment

Feedback from video submission, feedback from report submission.

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-H113 BEng 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-H114 MEng 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