Module Title: **Adaptation and Sustainability Concepts and Planning**	**Module Code: EV7102** **Level: 7** **Credit: 30** **ECTS credit: 15**	**Module Leader**: Tim Coleridge **Additional tutors:** Alan Owen Bryce Gilroy-Scott Frances Hill Jane Fisher Louise Halestrap Ruth Stevenson Siobhan Maderson

Pre-requisite: None	**Pre-cursor:** None
Co-requisite: None	**Excluded combinations:** None

Location of delivery: CAT, DL

The main aims of the module are to enable the student to:

Contextualize sustainability and transformational adaptation in view of current environmental changes.

Appreciate the interconnectedness of the factors involved.

Make informed decisions during the adaptation transformation planning process, despite uncertainties.

Discern the wider implications of transformational adaptation on social structures, and land use, trade, resource management, energy provision, governance, health and economic, systems through a critical exploration of the primary considerations related to sustainability and environmental change. This will introduce the students to the subject areas covered in subsequent modules of the MSc suite.

The second half of the module provides an experience of transformational adaptation planning through a facilitated self-reflective practical team exercise, aimed to give the student the opportunity to form a deep appreciation and holistic understanding of adaptation transformation planning.

Main topics of study:

- Environmental change
- Energy provision
- Built environment adaptation possibilities (new build & renovation)
- Ecosystem services and biodiversity enhancement
- Atmospheric carbon reduction
- Mechanisms of environmental change
- Geo-engineering
- Transformational adaptation (vulnerability, risk, resilience and adaptive capacity)
- Health and well-being implications of environmental change.
- Water security and waste
- Food security

- Materials
- Economic fundamentals and non growth economic systems
- Transportation
- Land use
- Adaptations needed for climatic changes and weather extremes
- Population growth and migration implications for transformational adaptation and sustainability
- Communication of environmental change and adaptation
- The transformational adaptation planning process

Learning Outcomes for the module

At the end of this module, students will be able to:

Knowledge

1. Distinguish the urgency, timeframe, scale and cause, of environmental change;
2. Form a synthesis of knowledge related to the current discourse around transformation adaptation and mitigation strategies, vulnerability, adaptive capacity, ecosystem services and resilience-building in relation to current environmental change;

Thinking skills

3. Conceive the nature of the interconnectedness of the numerous interactions related to transformation adaptation, sustainability and environmental change;
4. Critically analyse the implications of transformational adaptation to environmental change in the wider context of sustainability, equity and well-being provision;

Subject-based practical skills

5. Effectively define the vital features that go into creating a transformation adaptation plan;
6. Evaluate the ethical dilemmas when problem-solving and decision-making, in a general context and in relation to current environmental change;
7. Apply critical and holistic thinking to the contemplation of the processes needed to effect transformational adaptation planning;

Skills for life and work

8. Effectively communicate to both peers and a wider audience;
9. Reflect critically on team working experience in order to inform self development and confidence;
10. Show the ability to use IT and computer skills to gather and use evidence and data to find, retrieve, sort and exchange new information.

Teaching/ learning methods/strategies used to enable the achievement of learning outcomes:

The factual content of the module is taught through lectures, seminars, practical workshops, presentations, tutorials, and a scenario-building exercise, and throughout this process an active exchange of views and opinions is encouraged.

Both theoretical and practical aspects are covered.

There is a formative learning element to the module to allow the students to receive critical feedback on their work without the pressure of marked assessment.

For distance learning (DL) students, learning will be supported through Internet-based lectures (of the on-site lectures), practical exercises, seminars and tutorials.

All students will have access to Moodle discussion boards and regular Skype seminars, where they can meet with peers and a tutor to discuss any academic issue.

Lectures on-site and through DL highlight key concepts, models and frameworks, and integrate additional resources (such as journal articles). They encourage deep learning through the use of self-assessment questions which encourage students to engage with the topic, which assists understanding of new topics and skills.

Assessment methods which enable students to demonstrate the learning outcomes for the module:	**Weighting:**	**Learning Outcomes demonstrated:**
1. Reflective Account (500 words max.)	**(10%)**	**8,9**
2. Article (1,000 words max.)	**(15%)**	**1,2,3,4,7,8,10**
3. Adaptation Report (3,000 words max.)	**(50%)**	**1,2,3,4,5,6,7,8,9,10**
4. Critique Review (1,500 words max.)	**(25%)**	**2,3,4,6,7,8**

Reading and resources for the module:

[Also refer to the other modules reading lists as this module introduces the subject areas of all the modules in the MSc suite.]

Core

Pelling M. (2011) *Adaptation to Climate Change, From resilience to transformation*; Routledge, Abingdon. (*)

Recommended

Adger, W.N., Lorenzoni I., and O'Brien K.L., (2010) *Adapting to Climate Change, Thresholds, Values, Governance*, Cambridge University Press, Cambridge.

Adger, W.N., Paavola J., Huq S., and Mace, M.J., (2005) *Fairness in Adaptation to Climate Change*, MIT Press, Cambridge MA.

Ensor J. and Berger R. (2009), *Understanding Climate Change Adaptation, Lessons from community-based approaches*, Practical Action Publishing, Rugby.

Roaf, S. (2009) *Adapting buildings and cities for climate change : a 21st century survival guide.* 2nd ed. Oxford: Elsevier. (*)

Schipper E.L.F., and Burton I., editors. (2008), *The Earthscan Reader on Adaptation to Climate Change*, Earthscan, London.

Further relevant journals, websites and other relevant resources will be provided within reading materials that are made available for the module.

(*) Available as an e-book	
Indicative learning and teaching time **(10 hrs per credit):**	**Activity**
1. Student/tutor interaction, some of which may be online:	Activity Lectures, Seminars, Tutorials, Presentations, Practical 65 hours
2. Student learning time:	Activity Seminar reading and preparation, Assignment preparation, Background reading, On-line research activities. 235 hours
Total hours (1 and 2):	300 hours