

ES99E-15 Urban Resilience, Disasters and Data

26/27

Department

School of Engineering

Level

Taught Postgraduate Level

Module leader

Evangelos Pitidis

Credit value

15

Module duration

1 week

Assessment

100% coursework

Study location

University of Warwick main campus, Coventry

Description

Introductory description

This is a five-day intensive module.

[Module web page](#)

Module aims

This intensive module is aimed at introducing the topics of disaster risks and urban resilience with emphasis on the use of innovative digital technologies to gather and analyse urban data for improving disaster resilience. It approaches, theoretically and practically, the main issues involved in disaster resilience and the way in which social media, mobile technologies and the web 2.0 are related to our collective experience of disasters and crisis events. By means of a practical project, students will learn how to use Geographic Information Systems and produce digital maps to visualise urban aspects related to disaster resilience.

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 be delivered as in three distinct but interrelated blocks, following the outline described below.

- **Block 1 - Student-led discussions and expert presentations:** During the first three lectures, students will be divided into smaller groups and will be provided with different questions related to the conceptual topics that will be covered during the module, while additional resources will be provided to each group to explore the different questions. Following short peer-peer discussions among them, one group will be chosen by the module leader to present some of their views / answers on the question to instigate a wider discussion. All discussed questions will be followed by an expert presentation during the following day.
- **Block 2 - Practical Labs:** : This block will consist of practical labs to introduce students to mapping and spatial data analysis skills using dedicated software (e.g. QGIS, OpenStreetMap). All material will be available for students to download from the Moodle page, while additional support will be provided to help them familiarise themselves with the introduced tools and techniques for spatial analysis and visualisation at their own pace.
- **Block 3 - Group Projects:** Students will be divided into groups during first day and develop a project idea related to the theoretical topics explored in Block 1, utilising tools and techniques introduced in Block 2. Each group will be asked to develop an initial project proposal prior to the field work (oral or written). Group proposals will be discussed and agreed with the teaching staff . Final presentations will take place during the last day of module delivery and will also provide the basis for the Individual project report.
- **Supporting Live Sessions:** Throughout the whole period of delivery of the three blocks above, regular live sessions on potential difficulties phased by the students on the newly introduced software will be delivered by the teaching staff.

Learning outcomes

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

- Demonstrate an understanding of basic concepts on interdisciplinary disaster risk and resilience scholarship
- Appreciate basic concepts around disaster scholarship such as urban resilience, disaster risk management, disaster risk reduction, disaster risk governance and new urban agendas for sustainable development.
- Highlight the role of urban data in strategies for disaster risk reduction and urban resilience.
- Critically appreciate the potential of participatory digital technologies and crowdsourced geographic information to support disaster risk management efforts.
- Reflect on how new technologies are related to changes in the collective experience of disasters and crisis events and comprehend their potential and limitations.
- Evaluate the role of urban data in strategies for disaster risk reduction and urban resilience.
- Unfold the 'naturalness' of 'natural' disasters and explore their disproportionate effects across various places, infrastructure, communities, and gender groups.
- Use Geographic Information System software (QGIS) to analyse urban data and produce interactive digital maps that visualise urban resilience-related issues;
- Work in interdisciplinary groups to analyse an urban challenge related to disaster resilience

and design strategies for using open source geo-technologies to collect, process and analyse urban data.

Indicative reading list

[Reading lists can be found in Talis](#)

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 and combine their various skills and expertise in providing innovative solutions for existing urban problems. Interdisciplinarity will be a key requirement in the formulation of the groups for the final project, while skills presented and developed throughout the week, mostly related to Geographic Information Systems and its application on real-world case-studies, utilising real-world datasets, will be assessed through the group presentation.

Subject specific skills

Use open-source geotechnologies (KoboToolbox, SketchMapTool) to do conduct urban data collection on the field.

Use Geographic Information System software (QGIS, JOSM) to analyse the urban data collected and produce interactive digital maps that visualise urban resilience -related issues.

Work in interdisciplinary groups to analyse an urban challenge related to disaster resilience, design strategies for using open source geo-technologies to collect, process and analyse urban data.

Transferable skills

Numeracy: apply simple 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

Exercise initiative and personal responsibility, including time management, which may be as a team member or leader

Work in interdisciplinary groups and conceptualise, design and conduct a research project

Overcome difficulties by employing skills, knowledge and understanding in a flexible manner

Appreciation of the global dimensions of sustainability, 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
Lectures	3 sessions of 2 hours (13%)
Seminars	1 session of 1 hour (2%)
Tutorials	2 sessions of 2 hours (9%)
Project supervision	1 session of 4 hours (9%)
Practical classes	2 sessions of 3 hours (13%)
Supervised practical classes	2 sessions of 1 hour (4%)
Online learning (independent)	3 sessions of 4 hours (26%)
Other activity	1 hour (2%)
Private study	11 hours (23%)
Total	47 hours

Private study description

Pre-module preparation and reading.

Other activity description

1 hour preliminary meeting

Costs

No further costs have been identified for this module.

Assessment

You do not need to pass all assessment components to pass the module.

Assessment group A2

Assessment component	Weighting	Study time	Eligible for self-certification
Individual Project Report 2,500-word Individual Project Report	75%		Yes (extension)

	Weighting	Study time	Eligible for self-certification
Reassessment component is the same			
Assessment component			
Group presentation	25%		No
A student-led oral group presentation about the group project the student will be developing throughout the week, with the use of mapping techniques they have learned in the previous days.			
Reassessment component			
Individual Presentation			No
Individual presentation.			

Feedback on assessment

Class / seminar discussion / group presentation

Verbal feedback will be provided in situ in class in response to class discussion and groupwork presentation. Peer feedback will be given via student responses to presentations. This will be followed by detailed feedback provided on Tabula afterwards and which would be the same for all members of the same group, reflecting the quality and depth of the work undertaken.

Summative Essay

Detailed written feedback will be given on all final written assessments and will be provided to each student online via Tabula. Feedback will be given in accordance to the University Policy on the Timing of the Provision of Feedback to Students on Assessed Work. Students will be informed about the assessment criteria prior to joining the module.

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

This module is Option list B for:

- Year 1 of TGDA-L801 Postgraduate Taught Global Sustainable Development