

## Day 1, Thursday - June 16

9:00-10:00: **Workshop - 1: Student introduction and brief presentation of interviews/work conducted**

10:30-11:30: Lecture 1 - **Anne McCants**

Title: "Introduction to interdisciplinary research methods in technology, innovation and policy studies"

11:30-11:45 Break

11:45-12:45 : Lecture 2 – **Giorgio Sirilli**

Title: "Statistical indicators: their relevance, limitations and use in innovation studies and policy making" (to be confirmed)

13:00-14:00: Lunch

14:00-15:00: Lecture 3 – **Bob Schwartz**

Title: "Big Data in Texts: Essential Aspects of Text Mining using Computer-Assisted Qualitative Data Analysis"

15:00-15:45 Lecture 4 – **to be defined**

Title: "Research design, research questions and research methods?"

15:45-16:00 Break

16:00-17:00: Lecture 5 - **Eduardo Beira**

Title: "Simulation technologies as a research method: economy and public policy in mid 20th century – reflections on *Unemployment and money. The principles involved* by Michael Polanyi (1941)"

17:00-19:00 h: **Workshop - 2: Studio work with students and faculty**

## Day 2, Friday - June 17

9:00-10:00: **Workshop - 3: Discussion with brief presentations by Students**

10:00-11:00: Lecture 6 - **Giorgio Sirilli** and **Eduardo Beira**

Title: "Public speaking and presentations" and "Rhetorics in technology and R&D"

11:00-11:30 Break

11:30-13:00 **Workshop - 3: Studio work with students and faculty**

13:00-14:00: Lunch

14:00-15:00 Lecture 7 – **Teresa Heitor**

Title: "Building a narrative in urban studies: case studies in innovation studies in architecture"

15:00-15:30 Break

15:30-16:30: Lecture 6 - **Eduardo Beira**

Title: "Visual analysis, non-linearities and complexity: from Neurath to modern visualization"

16h30-17:30: Lecture 7 - **Anne McCants**

Title: "Research Ethics and Other Lessons learned from technology, innovation and policy studies"

17:30-17:45 Break

17:45-Lecture 7 - **Bob Schwartz**

Title: "Geography Matters: Discovering Spatial Patterns and Relationships using GIS"

18h00-19h30: **Workshop - 4: Final discussion with students**

20h30: dinner and party in old Lisbon (to be confirmed)

## **Interdisciplinary Research Methods in Technology, Innovation & Policy Studies**

A short intensive Summer School IST, Lisbon, June 16-17

**Overview:** This two days Summer School aims to assist post-grad students in the study of technological change, innovation patterns and related policy research through in-depth discussion and practical validation of *interdisciplinary research methods*. An “Innovation Policy Laboratory” will be established by groups of students working in critical issues of technological innovation across various emerging areas.

The summer school offers a space for interdisciplinary conversations about contemporary issues in Technology and Policy, including the emerging context of uncertainty in urban studies and industrial development at a global level. Emphasis is given to the development of skills for emerging challenges faced by contemporary societies to deal with modern engineering.

**Target Audience:** Post-grad students working in engineering design, technological change and policy, as well as those in the humanities, natural sciences, architecture and business who have serious interest in exploring these areas together with engineers.

A joint organization of:

Doctoral Program in Engineering Design and Advanced Manufacturing, EDAM, at IST Lisbon, University of Porto and University of Minho, with the support of the MIT-Portugal Program.

IN+, Center for Innovation, Technology and Policy Research, at IST Lisbon LARSyS, Robotics and Engineering Systems Laboratory

IDMEC, Institute of Mechanical Engineering, at IST Lisbon, LAETA, Associated Laboratory for Energy, Transports and Aeronautics

**Duration of technical meetings:** two days, June 16-17

Venue: Room EDAM; IST, Mech Eng. II, level -1.

Schedule: Workshops, seminars and other sessions to be defined individually – details to be defined

**Preparatory work:** Prior to the meeting in June 16-17, each student must conduct a series of one to three interviews with actors of cases of innovation and/or policy making and to analyze them in terms of a relevant technical issue to be discussed and solved. A brief 2-page report, with the transcripts of the interviews attached, should be submitted by June 15 for discussion in the Workshops to be included in the Summer School. Terms of reference are enclosed.

**Coordination:** Elsa Henriques, Associate Professor, IST (Mechanical Engineering Dept., IDMEC)

**Faculty:**

**Anne McCants**, Professor of History, Massachusetts Instit. of Technology, USA  
<https://history.mit.edu/people/anne-e-c-mccants>

**Giorgio Sirilli**, IRCrES, Research Institute on Sustainable Economic Growth of National Research Council, CNR, Italy  
<http://www.ircres.cnr.it/index.php/it/staffircres/23-cv>

**Eduardo Beira**, Senior Research Fellow; LARSyS, Center for Innovation, Technology and Policy Research, IN+;  
[http://in3.dem.ist.utl.pt/research\\_team.asp?TeamTipoID=2&TeamID=147](http://in3.dem.ist.utl.pt/research_team.asp?TeamTipoID=2&TeamID=147)

**Teresa V. Heitor**, Full Professor, IST (Architecture)  
<http://www.civil.ist.utl.pt/~teresa/>

**Nuno Arantes e Oliveira**, MIT Portugal Invited Assistant Professor, IST  
<https://pt.linkedin.com/in/nunoarantesoliveira>

**Annex 1: Assignment** (to be submitted by June 15)

**"Interview: tales from the field, anatomy of cases of discovery and innovation"**

Each student is expected to contribute with an interview about technical change, innovation and/or technology policy, especially in an industry or public policy environment. Please avoid, for this exercise, interviews with experts in academy. Rather, the goal is to attempt working on the “anatomy” of a technological innovation case in a social and economic environment.

The written interviews will be additions to a process of oral collection about technical change and innovation. An oral collection is an important resource for innovation studies research (see, for example, the work of Pierre Latour).

In this context, participants in the Summer School should identify a specific case for research and carefully look for the actors (people, institutions, devices) and materials (facts, stories, pictures) that may contribute for the narrative of the case. Avoid speculations and speeches/personal opinions about innovation theories: the focus should be on the anatomy of the innovation process, focusing on the people and their circumstances (social, historical, other) as well as the facts involved and the social and economic circumstances of the developments along a time line.

Each interview should be a deep semi structured interview with duration around 60 minutes.

Personal stories and career paths of people involved / actors are to be covered. Look also for antecedents and post-events. How did the important ideas appeared? What about technology, business and people relationships? What about money? What about the environment? What is the path dependency? Which were the barriers and the

obstacles? Competition and rivalry? What are the networks involved? How did past technological facts, past experiences of the actors and “tradition” influenced the case?

Remember: time is the "glue" of any narrative or story. Things happen along time.

The Case to be selected can be anywhere in the world. If needed, use video interview by Google Talk or Skype and record the interview (there are software tools available for that; easier with audio only, but also feasible with video). But mail / chat interviews based on text will not be accepted.

Final edited interviews should be made available in English language (additional original language versions are optional, for archive). Each participant should also deliver the tape/file record in digital format, for archive, eventually after some basic "cleaning" editing (if needed, but this is always optional).

The interviews should be presented during the Summer School as well as a short analysis grounded on it. Faculty of the summer school will comment and discuss them.

Please consider the following details:

- Try to follow the actors and events as they pop up along the interview.
- Use tripod or have the camera/smartphone well stable over something to avoid “shaking”. Although you will be not producing documentaries, consider recording the conversations for future use and easier transcription.
- Transcript: convert from oral discourse to written one, keeping the meaning and richness of the original discourse. But “exact” transcripts of each word or gesture are not our objective.

Each participant must deliver, by June 14, to Elsa Henriques (elsa.h@tecnico.ulisboa.pt)

1. A short statement with the justification of the case selected (up to a single page, 500 characters).

1. A discussion paper, up to 3 pages long (about 6000 characters, with spaces)
2. An edited transcription of each interview (word file)
3. A file with the video recording of the interview (to be sent by dropbox, ...), if available.