

Strategic Foresight in Engineering - PhD Course

11 - 15 August 2014 at the Technical University of Denmark

Introduction

We see foresight rooted partly in American experiences on technological forecasting tradition in defence and aerospace from the 1940s and 1950s and partly in European experiences from dealing with grand societal challenges from the 1960s and 1970s.

Today, foresight is widely used internationally in science, technology and innovation policy making all over the world. Foresight is also used in firms and industrial sectors in relation to strategic planning, innovation management, early warning, etc. In addition foresight is used in international organisations such as the European Union, the International Energy Agency and the Intergovernmental Panel on Climate Change.

Consequently, foresight and similar prospective approaches to technology analysis and strategic intelligence are increasingly relevant in areas of technology and engineering such as: Science, technology and innovation policy; Strategic planning of science and technology; Product development; R&D Management; Design engineering; Urban and municipal planning; Energy planning, Future energy technologies; Environmental and climate challenges; etc.

During the recent decades there is published a wealth of academic foresight literature that are mostly reflecting the practice of foresight as it is descriptive or normative. But also more conceptual and theoretical contributions to this literature have been published. This course departs from this rich literature and thrives to present to the participants a selection of both conceptual and practice oriented texts.



General course objectives

The aim of the course is to introduce students to the foundation and methods of strategic foresight. The course is targeting doctoral students within engineering who intent to apply elements of strategic foresight or prospective analyses in their research.

The focus is set on strategic foresight within specific domains of science and technology as well as firms and industrial sectors. Regional foresight and wider national foresight exercises are not dealt with specifically.

The course is assessed to 2.5 ECTS points and a course certificate will be issued by the Technical University of Denmark to each participant after completion of the course.

Learning objectives

A student who has met the objectives of the course will be able to:

- Identify and describe quantitative and qualitative methods of strategic foresight and their foundation.
- Understand the societal context in which strategic foresight is practised.
- Understand foresight's role in public science, technology and innovation policy.
- Understand foresight's role in firm's technology strategy and innovation management.
- Interpret and analyse the relation between context, conditions and outcomes of foresight.
- Compare, select and apply concepts or methods of foresight, e.g. megatrend analyses, simple scenario processes, and simple Delphi surveys.
- Assess and discuss the implementation of strategic foresight in engineering.

Content

The course contains partly discussion of literature and of theoretical perspectives and partly practical and instrumental introduction to strategic foresight methods.

The course comprises five days of lectures combined with plenum and group discussions. More specifically the course will cover the following themes:

- Introduction to foresight and foresight methods
- Long waves in technology & the economy, expectations & visions, trends & megatrends
- Foresight in practice - reflections on practical cases
- Foresight in science, technology and innovation policy
- Foresight in firms in relation to technology strategy and innovation management
- Scenarios and use of scenarios in long term energy and environment planning
- Introduction to Delphi studies
- Design of foresight exercises
- System definition, mapping and scanning
- Facilitating experts and trans-disciplinarity in foresight exercises
- Dialogue and conflicts in foresight

Organiser and lecturers

The lecturers draw on both academic and practise oriented experiences in foresight.

Lecturers

From Technical University of Denmark, Department of Management Engineering:

- Professor
Per Dannemand Andersen
- Senior researcher
Birgitte Rasmussen
- Senior researcher Marie Münster
- Senior researcher Kristian Borch

From Aarhus University, Department for Business Administration:

- Associate professor
René Rohrbeck

From KTH Royal Institute of Technology, Division of Environmental Strategies Research, Sweden:

- Researcher Åse Svenfeldt

Venue

Technical University of Denmark, Building 101, Meeting room S07, DK-2800 Kongens Lyngby, Denmark.

Application and deadline

Applications should be emailed to the course's secretary Monica Krenkel (mkre@dtu.dk). Please write: "Application PhD Course in Strategic Foresight" in the email's subject field.

The application (max 1 page) shall include:

- Name and contact information
- Institutional affiliation
- Brief description of the PhD project

The project description must include project title and description of the project's subject including theoretical-analytical approach, empirical focus and who foresight elements are considered included in the project.

Deadline for applications is June 20th 2014. The applicants will be given notice shortly after their application.

The PhD students are expected to spend approximately one week of getting acquainted with the course's literature before the course. Literature lists and other material will be sent to the students in due time through the course's intranet.

Course fee

For doctoral students the lectures are free of charge, but we charge a small fee of DKK 3000 (approximately EUR 400) covering direct costs such as lunches, coffee/tea, book, and a dinner the first evening.

Accommodation must be arranged by the participants individually and is not included in the course fee.

Additional information

For additional information please contact Per Dannemand Andersen, (+45) 4525 4535, pean@dtu.dk, or Monica Krenkel (+45) 4525 4850, mkre@dtu.dk.

The course has earlier been held in 2009, 2010, and 2012. In the latest version participated 12 doctoral students from universities in Austria, Denmark, Finland, Germany, Iran, Mexico and Spain.

Participants from the latest course in Denmark.

