

Prof. Dr. Reinhard Madlener, Chair of Energy Economics and Management, Head FCN

Lecture: “Economics of Technical Change“ (V2/Ü2, 81.19317)

Description

This course addresses technological and organizational improvements at the core of economic growth. Following a micro- and macroeconomics approach, this course sheds light on basic concepts at the root of technical change and traditional economic theories. Thus, emphasis is put on the dynamics behind investments in R&D, innovation adoption and diffusion as well as organizational, institutional and structural change. Examples and empirical evidence are provided in support of the theory. Among other topics, the course tackles industrial measures designed to enhance knowledge protection and transfer – such as standardization, intellectual property and patenting –, but also path dependence and lock-in effects, endogenous growth theories, and structural change. In this context, policy perspectives and implications are addressed as well.

Organization

Successful participation in this course requires registration via CAMPUS and passing of a written exam (60 minutes) at the end of the course. Weekly exercise units will accompany the lecture. Slides and additional material will be provided via the e-Learning platform (RWTHmoodle). Date and venue of lectures and exercise units are available on CAMPUS as well as under the [“Teaching” section of the FCN website](#).

Preparation for the exam

For a good understanding of each lecture topic, we recommend you to base your preparation on lecture slides as well as on the material contained in the RWTHmoodle. Compulsory literature comprises the textbook chapters mentioned above and selected seminal papers. Although recommended, attendance of the lectures and exercise units is of course useful, but not a prerequisite for successfully accomplishing the course.

Learning goals

- Getting a sound understanding of definitions and concepts characterizing the economics of technical change
- Being able to clearly illustrate economic theories and policies presented during the course with the provision of *ad-hoc* examples
- Being able to take part in interdisciplinary discussions
- Being able to screen and use the literature on the economics of technical change for your own purposes
- Being able to apply the knowledge gained during the course to the analysis of real-world problems

Group of participants

Enrolment to this course is mainly open to master’s students from business administration, economics, as well as students with double-degree in economics, industrial engineering and related fields. In order to know whether you are allowed to take this course, please get in touch with your study advisor.

Prerequisites

Basic knowledge of microeconomics.

Textbooks

[1] Antonelli, C. et al. (Eds.) (2006). *New Frontiers in the Economics of Innovation and New Technology. Essays in Honor of Paul A. David*, Edward Elgar, Cheltenham, UK and Northampton, Mass., USA.

[2] Barro, R.J and Sala-i-Martin, X. (2004). *Economic growth*. The MIT Press, Second Edition, Cambridge, Massachusetts.

[3] Blind (2004). *The Economics of standards: theory, evidence, policy*. Edward Elgar, Cheltenham, UK; and Northampton, Mass., USA

[4] Dicken, P. (2007). *Global shift. Mapping the changing contours of the world economy*; SAGE Publications, 5th Edition, London

[5] Garud, R. and Karnøe, P. (2001) *Path dependence and creation*. Psychology Press; 1st edition (Feb. 2001), East Sussex

[6] Handerson, J. V. and Thisse, J.F. (2004) *Handbook of Regional and Urban Economics*, Elsevier, Vol.4 : 2063-3073, North Holland

[7] Shy, O. (2001). *The Economics of Network Industries*. Cambridge University Press.

[8] Stoneman, P. (Ed.) (1995). *Handbook of the Economics of Innovation and Technological Change*, Blackwell, Oxford, UK and Cambridge, USA

Further information

For questions concerning topics, please write an e-mail to Siamak Sheykhha (siamak.sheykhha@eonerc.rwth-aachen.de, Office hours by arrangement, E.ON Energy Research Center, Room 10.21). For general information about the Chair of Energy Economics and Management please visit the [FCN Website](#).