

Lecture in “Economics of Technical Change“ (V2/Ü2,15ss-19317)

Prof. Dr. Reinhard Madlener

Description

“Economics of technical change” addresses technological and organizational improvements at the core of economic growth. Following a micro- and macroeconomic approach, this course will shed light on basic concepts at the root of technical change as well as traditional economic theories and methods related to this phenomenon. Thus, emphasis will be placed on the dynamics behind investments in R&D, innovation adoption (mainly taking place at firm level) and diffusion as well as organizational and institutional changes. Examples and empirical evidence will be provided in support of the theory. Among other, the course tackles industrial measures designed to enhance knowledge protection and transfer – such as standardization, intellectual property and patent– path dependence and lock-in effects, endogenous growth theories, and structural change. In this context, policies and their implications are also illustrated.

Organization

Date and place: Mondays, 18:15 – 19:45 p.m., TEMP 2, (Building 1515). Successful participation in this course requires registration via CAMPUS and passing of a written exam¹ (60 minutes) at the end of the course. Exercise units will accompany the lecture (Wednesdays, 17:15-18:45 p.m., Room 0024, Mathieustrasse 10, Building E.ON ERC, EG). Powerpoint slides and additional material will be provided via the e-Learning platform (L²P).

Time schedule and contents

Unit	Date	Topic	Textbook chapters
1	April 13	Introduction, basic definitions and concepts	[1] Ch. 1; [4] Ch.3
2	April 20	Knowledge as a public good	[8] Ch. 4
3	April 27	Intellectual property, patents and open technologies	[1] Ch. 9
4	May 4	Standardisation & competition; Adoption of technology	[3] Ch. 3, 4, 14; [7] Ch.4
5	May 18	Diffusion of technology	[1] Ch. 16; [8] Ch. 7
6	June1	Regional aspects of innovation and diffusion	[6] Ch. 61; [4] Ch.3
7	June 15	Financing aspects of investments in R&D	[8] Ch. 8
8	June 22	Path dependence and lock-in	[1] Ch. 3,5; [5] Ch. 1,4,10
9	June 29	Innovation, structural change, GPTs and economic growth	[1] Ch. 14; [2] Ch. 1
10	July 6	Policy considerations	[8] Ch. 12

¹ Dates: July 31, 2015 from 13:30 to 14:30 hrs, and Sep. 22, 2015 from 14:30 to 15:30 hrs.

Preparation for the exam

We recommend reading the above-mentioned textbook chapters for a basic understanding of each lecture topic. However, a preparation exclusively based on textbooks is NOT sufficient for the successful overcoming of the exam. To this purpose, lecture slides and topic-specific papers (uploaded in L²P) will also have to be covered by students.

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 literature on the economics of technical change for their 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 open to students of business administration, economics, and students with double-degree in economics, industrial engineering and related fields. Please get in touch with your study advisor to know whether you can follow this course.

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*; 5th Edition

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

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

[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

Information

For further info, kindly visit the FCN Website (www.eonerc.rwth-aachen.de/fcn).

For additional questions, please write an e-mail to Veronica Galassi (vgalassi@eonerc.rwth-aachen.de;
Office hours: Wed 18:45-19:45 hrs).