National Research University Higher School of Economics

Syllabus

Science, Technology and Innovation Policy (1 year)

(6 ECTS)

Approved by
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1. Course Description

The course is delivered to master students of The National Research University Higher School of Economics. It is delivered in two modules. The course length is 228 academic hours in total of which 72 hours are class room hours for lectures and seminars and 156 hours are devoted to self study.

a. Pre-requisites

- Basics of Economics of Innovation

b. Abstract

Science, Technology and Innovation (STI) Policy is a key pillar of government strategy to promote sustainable socio-economic development. An area in which decisions today have an important and long lasting impact on the future competitiveness and prosperity of nations. After a brief introduction on the past, current and prospective place of STI policy within the overall economic development policy agenda, the course starts with the definition of the basic concepts, including that of a national innovation system as an integrative analytical framework. It then reviews in detail how STI policy main objectives are defined and specific STI measures to achieve them are designed and implemented in different national contexts and through international co-operation. Then, it reviews the general approaches and specific methodologies that are used to evaluate the efficiency and impact of individual policy measures, as well as of the overall STI policy.

2. Learning Objectives

- theoretical frameworks and international experiences in STI Policy
- new approaches to understand and further develop different facets of innovation thinking and to provide participants with ready to use state of the art knowledge as well as academic training

3. Learning Outcomes

- Ability to analyze STI policy mixes
- Ability to understand the relationships between different policy measures
- Ability to interpret policy measures in a national context

4. Course Plan

a. Lectures

Module	Topic
STI policy making and mix	Subject overview and definition of basic concepts and their interrelations
	Knowledge Triangle – the concept
	STI policy making process
	STI policy mix
Framework for STI	Transformation Economics
	Public sector research
	Business Enterprise Research
	STI policy - responses to global challenges
	Strategic intelligence for policy and planning
	STI policy in transition countries
Evaluation of STI policy	STI policy effectiveness and efficiency
	Principles of STI policy evaluation
	Global governance of STI

b. seminars

The seminar consists of an introductory session which highlights the phenomena in discussion, introduces the theoretical background and practical applicability. Supervision of students will be offered using a mid term interim presentation of additional information and facts by the supervisor and individual consultations during the seminar. Following these introductory session students will develop a practical applicable concept for a given problem which is based on sound scientific grounds. The session ends with the introduction of core themes for which the students are asked to prepare a presentation. Finally these concepts are introduced in a concluding session which is devoted to presentations of concepts developed by students and a concluding discussion of these concepts from both a scientific and a practical view. Students will develop concepts in teams and be supervised during development of their concepts

5. Reading List

a. Required

1) Organisation for Economic Co-operation and Development: OSLO MANUAL - THE Measurement Of Scientific And Technological Activities: Proposed Guidelines For Collecting And Interpreting Technological Innovation Data
2) Edquist, C. 1997 (edt.), Systems of Innovation: Technologies, Institutions and Organizations, London 1997
3) Freeman, C.: Technology and Economic Performance: Lessons from Japan, Pinter, London.1987

4) Lundvall, B. A. (edt.): National Systems of Innovation: Towards a Theory of Innovation and Interactive Learning. London, NewYork: Pinter 1995
5) OECD: Managing National Innovation Systems. Organisation for Economic Co-Operation and Development, Paris 1999
6) Nelson, R. N. 1993: National Systems of Innovation: A Comparative Analysis. NewYork: Oxford: Oxford University Press 1993
7) Schibany, A.; Jörg, l.; Polt, W.: Towards realisitc expectations: The science system as contributor to industrial innovation. Seibersdorf: Österreichisches Institut für Wirtschaftsforschung 1999
8) Atkinson, R. D.: Innovation policy making in a federalist system: Lessons from the states for U.S. federal innovation policy making. Research Policy 20, 1991, S. 559-577
9) Bartholomew, S.: National systems of biotechnology innovation: complex interdependence in the global system. Journal of International Business Studies, 1197, 2nd quarter, Vol. 28, issue 2, S. 241-267
10) Conceicao, P.; Heitor, M. V.; Gibson, D.; Shariq, S. S.: The emerging importance of knowledge for development: Implications for technology policy and innovation. Technological Forecasting and Social Change, Vol. 58, 1998, S. 181-202
11) Debackere, K.; Rappa, M. A.: Technological communities and the diffusion of knowledge: an application and validation. R&D Management 24, 4, 1994, S. 355-371
12) Etzkowitz, H.; Leydesdorff, L.: The dynamics of innovation: From national Systems and "Mode 2" to a Triple Helix of university-industry-government relations. Research Policy 29 (2000), S. 109-123
13) Gregersen, B.; Johnson, B.; Kristensen,A.: Comparing National Systems of Innovation: The Case of Finland, Denmark and Sweden. in: Vuori, S.; Vuorinen, P. (Hrsg.): Explaining Technical Change in a Small Country: The Finnish National Innovation System. Heidelberg 1994, S. 116 ff.
14) Hahn, Y.-H.; Yu, P.-I.: Towardas a new technology policy: the integration of generation and diffusion. Technovation, 19, 1999, S. 177-186
15) Lundvall, B.: National Business Systems and National Systems of Innovation. International Studies of Management and Organization, Summer 99, Vol. 29, Issue 2, S. 60-78
16) Myers, M. B.; Rosenbloom, R. S.: Rethinking the role of research – leadership in innovation requires mastering ‚radical incrementalism'. Research, Technology, Management, May / June 1996, S. 14-18

b. Optional

Announced in the lecture / seminar

6. Grading System

Final control (F): written exam (90 minutes exam)
Seminar: Essay (E) and Defence (D) at the end of the seminar.
The overall course grade (10-point scale) is calculated as a sum of
$G = 0{,}5\ F + 0{,}5\ (0{,}5E + 0{,}5\ D)$
The overall course grade *G* (10-point scale) includes results achieved by students in their exam *F*, seminar *(S)*; it is rounded up to an integer number of points.

Summary Table: Correspondence of ten-point marks

Ten-point scale [10]
1 – unsatisfactory 2 – very bad 3 – bad
4 – satisfactory

5 – quite satisfactory
6 – good 7 – very good
8 – nearly excellent 9 – excellent 10 – brilliant

7. **Course Assignments**

   Essays and projects are prepared in the seminar. Form and topic of essays and projects are announced in the seminar.

8. **Examination Type**

   Written examination 90 minutes.

9. **Methods of Instruction**

   Lecture and seminar

10. **HSE Library E-resources**

OECD iLibrary. URL: https://www.oecd-ilibrary.org/

11. **Software Support, including Open-Source Database Software**

- Microsoft Windows 7 Professional RUS: internal university network (agreement)
- Microsoft Windows 10: internal university network (agreement)
- Microsoft Windows 8.1 Professional RUS: internal university network (agreement)
- Microsoft Office Professional Plus 2010: internal university network (agreement)

12. **Special Equipment**

Classrooms for lectures provide proper use and presentations of particular topics, specifically:

- PC with internet access and office software or laptop
- multimedia projector
- screen
- flipchart