Syllabus

Social Studies Of Science, Technology And Innovation (1 year)

(3 ECTS)

Approved by
Academic Council
of the Master’s Programme
Minutes 05122017/AC1

Author, lecturer (e-mail, web page):
Konstantin Fursov (ksfursov@hse.ru, https://www.hse.ru/en/staff/fursov)

Course director:
Konstantin Fursov

1. Course Description
The course is delivered to master students of The National Research University Higher School of Economics. It is delivered in one module. The course length is 114 academic hours in total of which 34 hours are class room hours for lectures and seminars and 80 hours are devoted to self study.

a. Pre-requisites
Formative reading

b. Abstract
The course provides an overview of theoretical approaches that help in conseptualising scientific and technological development and innovation processes in contemporary societies. During the course students will learn about philosophical background, historical and institutional contexts of STI studies including the analysis of both classical and contemporary theoretical works as well as particular cases that will be used as examples or illustrations of the covered topics. Some or all of the following topics will be covered in the course: the evolution and development of approaches to analyze the phenomena of technoscience and technology, science and society interactions, public engagement in innovation development. The course welcomes all those interested in sociology of science, history and philosophy of science and technology, science, technology and innovation studies.
c. Course language

English

2. Learning objectives

The overall aim of the course is to examine some of the different ways of analysing and understanding social organisation of STI and their role in society. It explores the ways STI are shaped by social, economic, political and organisational factors. The course introduces a range of analytic perspectives on STI – drawing upon history, philosophy, economics and the sociologies of science & technology. In particular, the course is aimed at:

- Understanding of the importance and connectedness of the fields of science, technology and innovation for societal development.
- Clarification of basic concepts used in literature to describe science, technology and innovation as socially shaped phenomena.
- Reflection on key tensions that appear in scientific papers standing for different approaches to conceptualisation and analysis of STI-related issues.

3. Learning outcomes (competencies)

After completing the study of the course "Social Studies of Science, Technology and Innovation" the student should:

- Know main theoretical approaches that help in conceptualizing S&T development and innovation processes in contemporary societies;
- Know philosophical background, historical and institutional contexts of STI studies;
- Be able to explain basic concepts used in literature to explain STI development as socially shaped phenomena;
- Posses abilities to understand and present scientific articles;
- Posses abilities to discuss at highly professional level topics related to the social organization of STI and their role in society;
- Posses abilities to come up with own research proposals.

4. Thematic Plan

The course spans one academic module. The teaching is based on selected writings and experiences of faculty members.

Lectures are organised in order to clarify major concepts and categories used in social sciences to describe STI development processes. The course integrates philosophical, sociological and economic views on growth of knowledge, technology development and diffusion of innovations. Seminars will follow lectures. They are aimed at sharing participant’s reflections on the approaches introduced in the literature and developing analytical abilities required to discuss at highly professional level topics aroused during the course.
a. Lectures

<table>
<thead>
<tr>
<th>Section</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>How to think about STI?</td>
</tr>
<tr>
<td>Science</td>
<td>Social and intellectual organization of the sciences</td>
</tr>
<tr>
<td></td>
<td>Intellectual dynamics and social conditions for scientific change</td>
</tr>
<tr>
<td>Technology</td>
<td>What is social about technology and what is technical about society?</td>
</tr>
<tr>
<td></td>
<td>Design, adoption and reinvention of technologies</td>
</tr>
<tr>
<td>Innovation</td>
<td>From invention to innovation: evolution of innovation studies</td>
</tr>
<tr>
<td></td>
<td>Open-innovation: a theoretical concept or practical imminence</td>
</tr>
<tr>
<td>Conclusion</td>
<td>Ethics, power, and other social drivers of STI</td>
</tr>
</tbody>
</table>

b. Seminars

Seminars are conducted in a form of colloquium and consist of practical sessions and moderated discussions that will provide students with indispensable abilities for social analysis of STI development.

5. Programme Contents

Basic literature for the course:

1. How to think about science, technology and innovation?

Lecture provides critical review of mainstream studies in STI and introduce alternative approaches for description and analysis of “well-developed” issues.

Basic literature:

Additional literature:
2. Social and intellectual organization of the sciences

What is science and what is scientific knowledge? How and by whom science is socially constructed? What are the social factors that shape scientific development?

Basic literature:


Additional literature:


3. Intellectual dynamics and social conditions for scientific change

What is scientific change and why it is important? Where scientific change derives from and how it flows? What are social conditions of scientific change?

Basic literature:


Additional literature:


Mullins, NC. 1975. «Development of scientific disciplines - internal and external origins of change». Sociologie et societes 7(1):133–42.


4. **What is social about technology and what is technical about society?**

How technologies are socially shaped? How technology and society interaction is possible?

**Basic literature:**


**Additional literature:**


5. Design, adoption and reinvention of technologies

How technologies are designed and disseminated in society? What social factors are shaping technology adoption processes? Why some technologies are accepted and others are put aside?

Basic literature:


Additional literature:


6. From invention to innovation: evolution of innovation studies

What is innovation and how it differs from technologies and inventions? What is needed for innovation to start? How innovation succeed?

Basic literature:
Cahill, Geraldine. 2010. «Primer on Social Innovation A Compendium of Definitions Developed by Organizations Around the World». The Philanthropist 23(3).


Additional literature:


7. Open-innovation: a theoretical concept or practical imminence

What are the latest news from innovation studies? Open-innovation: a buzz-word or a new paradigm? How to deal with open-innovation concept?

Basic literature:


Additional literature:


8. Ethics, power, and other social drivers of STI

Can STI exist without interventions from other social institutions? Is it free from ethical and political motives? How different factors influence STI development?

Basic literature:


Additional literature:


6. Grading system

The overall course grade (10-point scale) is calculated as a sum of

\[ G = 0.7W + 0.1C + 0.2E \]

The overall course grade \( G \) (10-point scale) includes results achieved by students in their written exam \( (W) \), colloquium \( (C) \) and one essay \( (E) \); it is rounded up to an integer number of points.

Summary Table: Correspondence of ten-point to five-point system’s marks

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 – unsatisfactory</td>
<td>Unsatisfactory – 2</td>
</tr>
<tr>
<td>2 – very bad</td>
<td></td>
</tr>
<tr>
<td>3 – bad</td>
<td></td>
</tr>
<tr>
<td>4 – satisfactory</td>
<td>Satisfactory – 3</td>
</tr>
<tr>
<td>5 – quite satisfactory</td>
<td></td>
</tr>
<tr>
<td>6 – good</td>
<td>Good – 4</td>
</tr>
<tr>
<td>7 – very good</td>
<td></td>
</tr>
<tr>
<td>8 – nearly excellent</td>
<td>Excellent – 5</td>
</tr>
<tr>
<td>9 – excellent</td>
<td></td>
</tr>
<tr>
<td>10 – brilliant</td>
<td></td>
</tr>
</tbody>
</table>

7. Course assignments

a. Essay (E)

During the course, students will be asked to write one short essay of around 3000 words developing a particular topic covered by the course. Essay is a piece of written work focused on a suggested or selected topic and considering one particular case of user innovation. Essay should answer the following criteria:
1) Aims and objectives – research question, aims and objectives are concisely elaborated. Significance emerges logically from construction of argument and clearly articulated.

2) Background and literature review – creative and organised literature review that outlines the background and context for the research project.

3) Methodology – creative and appropriate methodology is clearly articulated and justified.

4) Presentation – proposal is logical in its construction with minimal spelling, punctuation or grammatical errors. In-text and reference list consistently adhere to a single Author-date system throughout.

**Lateness penalties**

If there is good reason for not meeting a coursework deadline, a student may request an extension from one of the course organisers (for extensions of up to five working days). Extension requests should normally be made before the deadline. A good reason is illness, or serious personal circumstances, but not pressure of work or poor time management. The course organiser must support the request in writing (email), and extensions over five working days may require supporting evidence. If you think you will need a longer extension, or your reasons are particularly complicated or of a personal nature, you should discuss the matter with the Academic supervisor and Coordinator of your Master’s program.

There are formal procedures for requesting an extension and penalties for late submission. The penalty will be a reduction of two marks per working day (i.e. excluding weekends) for up to five days. For work handed in more than five days late a mark of zero will be recorded.

**a. Colloquium (C)**

During colloquiums, students will discuss problems introduced in the papers included to the essential reading list for each lecture (marked as basic literature). Students are welcome to undertake a broader optional reading that may assist in building up stronger argumentation and help greatly both in writing an essay and in the examinations. Questions for discussion will be send in advance therefore all participant are expected to get prepared for the seminar.

**8. Examination type**

During the exam (60 min) students will be asked to write 2 short essays on topics covered by the course. Available topics will be divided into two blocks each consisting of 5-6 topics. Students will have to choose at least one topic from each block. Prior to examinations, all students will be issued with anonymous candidate codes which should be written in the appropriate space on answer booklets during the exam.

**9. Methods of instruction**

The course combines lectures and seminars through a participatory sessions and group work. Lectures are designed to clarify major theoretical concepts and international experiences employed in regional STI policy studies. Seminars are aimed at sharing the students’ reflections on the approaches introduced in the literature and developing analytical and practical abilities required to professionally discuss topics aroused during the course. The students are expected to be ready for discussions using the recommended readings and lecture materials.

**10. HSE Library e-resources**

HSE Library e-resources: [https://library.hse.ru/en/e-resources](https://library.hse.ru/en/e-resources)
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