Программа дисциплины
«История технологического развития общества»
для направления 38.04.02 «Менеджмент» подготовки магистра

Автор программы:
Томас Тернер, PhD, tthurner@hse.ru

Утверждена академическим советом магистерской программы
«Управление в сфере науки, технологий и инноваций» «5» ноября 2014 г.

Москва, 2014
“The History of Technological Development in Society”

Program author: Thomas W. Thurner

1. General Description of the Program

The course is delivered to master students of the National Research University Higher School of Economics (HSE). It is delivered in one module. The course length is 114 academic hours in total of which 32 hours are classroom hours for lectures and 82 hours are devoted to self study. Academic control form is one written exam.

Pre-requisites

- Basics of management and innovation management
- Creative thinking

Themes:

Humans interact with each other and the world through technology - that is the use of materials, energy, tools, and complex machines. Technology has been designed and created to serve human needs and desires. Also, tough, technology has itself shaped human co-existence and societies and became a defining feature of human existence.

Starting from the Industrial Revolution at the end of the 18th century, this course discusses technology as the outcome of particular technical, historical, cultural, and political efforts in Europe, Russia and the US during the 19th and 20th centuries. The focus rests on societal consequences triggered through technological change and the influence of societal change to technological possibilities due to the bidirectional nature of this relationship.

The course discusses a number of historical examples of technological developments and societal changes, like the introduction of modern means of communication. It also analyzes the emergence of modern management and the creation and development of new professions.

Course objectives:

- Studying episodes of technological and societal development in mechanization, communications, electronics, computers, power & energy, or military technology
- Familiarize students with concepts of “technological lock-in”, serendipity-effects and unintended consequences
- Discuss ethical and moral issues associated with technological choices
Though studying episodes of technological and societal development in mechanization, communications, electronics, computers, power & energy, or military technology, the student will study the interrelatedness of societal and technological processes. Also, the analysis will include how political, military, economic, social, and religious objectives have guided the design and use of technology. The course will also discuss the concept of “technological lock-in”, the importance of serendipity-effects and unintended consequences or ethical and moral issues associated with technological choices.

2. **Thematic Plan**

<table>
<thead>
<tr>
<th>Module</th>
<th>Topic</th>
<th>Total academic hours</th>
<th>Lecture (class hours)</th>
<th>Self study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial Revolution</td>
<td>The social, economic, geographic and technological environment</td>
<td>6</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>The rise of new methods of production</td>
<td>6</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Cotton: the high-tech engine of growth</td>
<td>6</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Resources, energy, limits of growth and technology</td>
<td>6</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Urbanization and the Environment</td>
<td>6</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Technology and War</td>
<td>Technology and War</td>
<td>6</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Technology and accidents</td>
<td>Chernobyl, Challenger and Columbia</td>
<td>6</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Communication and Globalization</td>
<td>Telephony – the individualization of communication</td>
<td>7</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Radio – the communication mass markets</td>
<td>7</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Internet and the rise of social networks</td>
<td>7</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Technology diffusion and Industrial Espionage</td>
<td>7</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>From early main-frames to mobile devices</td>
<td>7</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Computing</td>
<td>The software revolution and the rise of silicon valley</td>
<td>7</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Digital convergence</td>
<td>7</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>The rise of the gaming industry</td>
<td>7</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Course review, synthesis</td>
<td>16</td>
<td>2</td>
<td>14</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>114</strong></td>
<td><strong>32</strong></td>
<td><strong>82</strong></td>
</tr>
</tbody>
</table>

3. **Education control forms**
Final control (F): written exam (60 minutes)

**Summary Table: grading scale**

<table>
<thead>
<tr>
<th>Ten-point scale [10]</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 – unsatisfactory</td>
<td></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></td>
</tr>
<tr>
<td>5 – quite satisfactory</td>
<td></td>
</tr>
<tr>
<td>6 – good</td>
<td></td>
</tr>
<tr>
<td>7 – very good</td>
<td></td>
</tr>
<tr>
<td>8 – nearly excellent</td>
<td></td>
</tr>
<tr>
<td>9 – excellent</td>
<td></td>
</tr>
<tr>
<td>10 – brilliant</td>
<td></td>
</tr>
</tbody>
</table>
4. Programme Contents

Module 1 Industrial Revolution

Topic 1 The social, economic, geographic and technological environment

Topic outline:

The importance of

- Social
- Economic
- Geographic and
- Technological variants are discussed

Main references/books/reading:


Topic 2 The rise of new methods of production

Topic outline:

- Starting from medieval production method, the arrival of revolutionary production methods is discussed.

Main references/books/reading:


Topic 3 Cotton: the high-tech engine of growth

Topic outline:

- raw materials and their massive influence on the production processes

Main references/books/reading:

**Lecture 4: Resources, energy, limits of growth and technology**

**Topic outline:**
- changing patterns of resource utilization and consequent growth limits

**Main references/books/reading:**

**Lecture 5: Urbanization and the Environment**

**Topic outline:**
- urbanization and consequences for the natural environment and agricultural production.

**Main references/books/reading:**
- Buckley at al. (2008), Urbanization and Growth, World Bank.

**Module 2  Technology and War**

**Topic outline:**
- Meaning of technology for military use
- Dual use of technology

**Main references/books/reading:**

**Module 3  Technology and Accidents**

**Topic outline:**
- Dangers of technologies
Module 4  Communication and Globalization

Topic 1  Telephony – the individualization of communication

Topic outline:
- individualization of communication and its consequences for societal development

Main references/books/reading:

Topic 2 Radio – the communication mass markets

Topic outline:
- development of Radio as a tool for mass market communication and its consequences for societal development

Main references/books/reading:

Topic 3  Internet and the rise of social networks

Topic outline:
- development Internet and the rise of social networks

Main references/books/reading:
**Topic 4  Technology diffusion and Industrial Espionage**

**Topic outline:**
- technology diffusion and industrial espionage

**Main references/books/reading:**
No reading required

**Topic 5  From early main-frames to mobile devices**

**Topic outline:**
- evolution of computing hardware

**Main references/books/reading:**

**Topic 6  Computing**

**Topic outline:**
- rise of the gaming industry and virtual realities

**Main references/books/reading:**