ECONOMICS, POLICY AND TECHNOLOGY

BACHELOR IN MANAGEMENT INFORMATION SYSTEMS

Professor: SALVADOR ARAGÓN ALVAREZ
E-mail: SAragon@faculty.ie.edu

Academic year: 17-18
Degree course: FIRST
Semester: 2º
Category: BASIC
Number of credits: 6.0
Language: English

PREREQUISITES
No prior knowledge is assumed or needed for the course.

SUBJECT DESCRIPTION
This course aims to provide a clear perspective about the economic impact of technology through the exploration of the complex interaction among technology, policy and economics.

OBJECTIVES AND SKILLS
Main objectives could be described as follow:

- To provide a good understanding of the concept of technology and the dynamic of technology creation
- To identify the role of technology as a key ingredient in the past, present and future production modes that define economic models
- To get a basic criteria regarding technology policies and to develop a basic capability to understand its economic, social and competitive impact
- To acquire a basic knowledge about how technology could be managed within organizations

METHODOLOGY
The case method of learning requires that each person prepare for the case on his or her own.

<table>
<thead>
<tr>
<th>Teaching methodology</th>
<th>Weighting</th>
<th>Estimated time a student should dedicate to prepare for and participate in</th>
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</thead>
<tbody>
<tr>
<td>Lectures</td>
<td>23.34 %</td>
<td>35 hours</td>
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<tr>
<td>Discussions</td>
<td>13.34 %</td>
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<td>Exercises</td>
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<td>30 hours</td>
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<tr>
<td>Group work</td>
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<tr>
<td>Other individual studying</td>
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<td>TOTAL</td>
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PART #1 THE NATURE OF TECHNOLOGY AS AN ECONOMIC FACTOR
This part explores the mechanisms that drive technological evolution. It examines how new technologies co-evolve with economic systems

SESSION 1 (FACE TO FACE)
Introduction, structure and a preliminary dynamic
- Introduction to the course
- Why economics, policy and technology?
- Preliminary Dynamic: My natural approach to the future
R.A.: The second economy

SESSIONS 2 - 3 (FACE TO FACE)
What Is Technology?: The 7th Kingdom
- What Is Technology?
- Definition of Technology
- Technology and Science
- Types of Technologies
R.A.: The Nature of Technology - What It Is and How It Evolves

SESSION 4 (FACE TO FACE)
The origins of Technologies
- How radically novel technologies arise?
- Darwinian and combinatorial approaches
- The Schumpeterian Model
- Creative Destruction
T.N.: Creative Destruction

SESSIONS 5 - 6
Technology Forecasting
- Can technological future be predicted?
- The Victorian Internet
- Roger and Bass Models
- Adoption/Diffusion Models
- Expectation (Gartner) Mode
- Technology Trayectoires
- The Four Laws of Anderson
SESSION 7
Technology Forecasting: Practice
   - Group Presentation

SESSIONS 8 - 9
Economic and Technological Change
   - Economy and Mode of Production
   - Economy, society and technology
   - The Hunter-Gatherer Model
   - The Agrarian Model
   - The First Industrial Model
   - The Second Industrial Model

SESSIONS 10 - 12 (FACE TO FACE)
The Digital Revolution: Toward a digital economy?
   - Toward a Digital World
   - The relevance of IT technologies
   - The four dynamics of digitalization
   - The three laws of the Digital World

SESSION 13
Digital Business Models
   - What is a mental model?
   - What is a business model?
   - Business Model Portfolio
   - How to create a disruptive business model.

SESSION 14 (FACE TO FACE)
Creating a Disruptive Digital Business Model
   - Group Presentation

SESSION 15
The Future of Technologies
   - Homo Convergens
   - Enhanced Humanity
   - Social Dilemmas
SESSIONS 16 - 17 (FACE TO FACE)
Technology and Economic Growth
- Competitiveness
- The relevance of institutions
- The relevance of coordination
- Networked Readiness

SESSION 18
Technology Policies
- Technological regimes and windows of opportunity
- Technological Catch-up and Technological Leapfrogging
- The Singapore Case
- The Estonian Case

SESSION 19 (FACE TO FACE)
Working with Scenarios
- Scenario Definition
- Scenario Construction
  Scenario Discussion
T.N.: Picture this!. A guide to scenario planning for voluntary organisations

PART #2 TECHNOLOGY POLICY
Technological innovation is associated with adjustments in existing institutions and societies. This part analyzes these co-evolutionary dynamics and lays the groundwork for understanding their policy implications.

SESSION 20 (FACE TO FACE)
Technology Policy Making: A Country Proposal

SESSION 21
Disruptive Technologies
- The concept of Disruptive Technology
- The dynamic of disuption
- Disruptive niches
- Disruptive behaviors

SESSION 22 (FACE TO FACE)
The dynamics of technology change: A micro approach
- Technology adoption in organizations
- The Technology Change Management
- The Government of Technology

SESSION 23
The Human Side of Technology
- Technological Segmentations
- Creativity and Technology
- The Age of the Nerds?
- Technology and Diversity

PART #3 TECHNOLOGY MANAGEMENT
This part is focused on gaining a deep understanding about how to better select technological opportunities and how to manage organizational challenges that prevent technologies from being successful

SESSIONS 24 - 25
Competing by Technologies
- Technological Standards
- Standard Wars
- The economics of standard wars
- Multisided Platforms: A new kind of standard in the Digital World

SESSION 26
Technology and new product development
- Technological Products
- Basics of Product Development
- The process of Product Development

SESSION 27
Technological Product Prototyping
- The basics of prototyping
- The Waterfall Approach
- The Agile Approach
- Agile Methodologies

SESSION 28
Product development workshop
- In Class Workshop
SESSION 29
Final Conclusions and Wrap Up

SESSION 30 (FACE TO FACE)
Final Presentations
- Final Challenge Presentations
BIBLIOGRAPHY

Recommended References


EVALUATION CRITERIA

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<thead>
<tr>
<th>Criteria</th>
<th>Percentage</th>
<th>Comments</th>
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<tr>
<td>Class Participation</td>
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<tr>
<td>Group Presentations</td>
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<tr>
<td>Individual Presentations</td>
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<tr>
<td>Final Exam</td>
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PROFESSOR BIO

Professor: SALVADOR ARAGÓN ALVAREZ
E-mail: SAragon@faculty.ie.edu

Salvador Aragón combines the practitioner and academic approaches to the world of business innovation. In his roles as Chief innovation Officer and Professor of Information Systems and Innovation at IE Business School, he aims to provide a consistent response to the challenges, problems and opportunities of innovation within the company.

From a research perspective, Salvador Aragón defines innovation as an intersection between market, organization and technology. As a result of this approach, he has published about digital convergence and society, the development of new services based on emerging technologies, innovation governance in the organization and the role of diversity in organizational innovation. Under a teaching perspective, Salvador Aragón has been part of the Business School faculty since 1997.

Salvador Aragon holds a Ph.D. in Innovation Governance and a Master in Business Administration (MBA) and a bachelor in Industrial Engineering.

OTHER INFORMATION

CODE OF CONDUCT IN CLASS

1. **Be on time**: Students arriving more than 5 minutes late will be marked as “Absent”.

Only students that notify in advance in writing that they will be late for a specific session may be granted an exception (at the discretion of the professor).

2. **If applicable, bring your name card and strictly follow the seating chart**. It helps faculty members and fellow students learn your names.

3. **Do not leave the room during the lecture**: Students are not allowed to leave the room during lectures. If a student leaves the room during lectures, he/she will not be allowed to re-enter and, therefore, will be marked as “Absent”.


Only students that notify that they have a special reason to leave the session early will be granted an exception (at the discretion of the professor).

4. Do not engage in side conversation. As a sign of respect toward the person presenting the lecture (the teacher as well as fellow students), side conversations are not allowed. If you have a question, raise your hand and ask it. If you do not want to ask it during the lecture, feel free to approach your teacher after class.

If a student is disrupting the flow of the lecture, he/she will be asked to leave the classroom and, consequently, will be marked as “Absent”.

5. Use your laptop for course-related purposes only. The use of laptops during lectures must be authorized by the professor. The use of Social Media or accessing any type of content not related to the lecture is penalized. The student will be asked to leave the room and, consequently, will be marked as “Absent”.

6. No cellular phones: IE University implements a “Phone-free Classroom” policy and, therefore, the use of phones, tablets, etc. is forbidden inside the classroom. Failing to abide by this rule entails expulsion from the room and will be counted as one absence.

7. Escalation policy: 1/3/5. Items 4, 5, and 6 above entail expulsion from the classroom and the consequent marking of the student as “Absent.” IE University implements an “escalation policy”: The first time a student is asked to leave the room for disciplinary reasons (as per items 4, 5, and 6 above), the student will incur one absence, the second time it will count as three absences, and from the third time onward, any expulsion from the classroom due to disciplinary issues will entail 5 absences.