UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Service Economics

2627-1-F6303M002-F6303M002-1

Learning objectives

This 6-ECTS course aims to provide students with a solid foundation in the economics of innovation and its application within the field of industrial economics. The course explores various types of innovation (strategic, organizational, product and process innovation) and their impact on markets, firms, and economic systems, with a particular focus on competitive dynamics in the service sector.
At the end of the course, students will be able to:
• Knowledge and Understanding: Understand and interpret competition models (perfect competition, monopolistic competition, and oligopoly), with special attention to the role of innovation in dynamic and complex markets.
• Applying Knowledge and Understanding: Analyze the impact of innovation strategies—particularly product differentiation and branding—on market structures and competition; apply theoretical models to assess competitive scenarios and business strategies.
• Making Judgements: Critically evaluate the effectiveness of tools such as R&D, patents, and artificial intelligence within business strategies; distinguish between different innovation approaches in both static and dynamic contexts.
• Communication Skills: Present complex arguments related to industrial economics and innovation using appropriate technical language, both in academic and business settings.
• Learning Skills: Integrate theoretical and empirical tools to develop strategic solutions in high-tech and competitive environments, with attention to efficiency and sustainability

Contents

The module deepens the understanding of innovation dynamics within industrial

economics by analyzing how innovation arises and develops in different forms: strategic, organizational, process, and product innovation. The course begins with a review of microeconomic foundations, covering the basics of perfect competition, monopolistic competition, and monopoly.
Subsequently, the course addresses innovation strategies in oligopolistic markets, focusing on competition models (Bertrand and Cournot) and both horizontal and vertical product differentiation, using the characteristics approach and the Hotelling model.
Special attention is given to the role of R&D and technology trade, including the differences between incremental and radical innovation in both static and dynamic frameworks.
Patent-related issues are explored, such as dormant patents and licensing strategies.
The module also investigates how artificial intelligence is shaping innovation in products, processes, and organizations, and how algorithmic pricing is being used in highly technological markets to optimize pricing strategies and enhance firms' competitiveness in the service sector.

Detailed program

Introduction
• Origins of innovation
• Strategic, organizational, process, and product innovation
• Incremental, adjacent, and radical innovation
• Innovation in industrial economics
• Review of microeconomics
Microeconomics Refresher
• Monopoly
• Perfect competition
• Monopolistic competition
Strategic and Product Innovation in Oligopolistic Competition
• Overview of oligopolistic competition models (Bertrand, Cournot)
• Escaping the Bertrand paradox
• Capacity constraints
• Horizontal and vertical product differentiation
Further Topics in Innovation Strategy
• Characteristics-based approach
• Hotelling model
• Advertising and branding in product differentiation
Research and Development (R&D)
• Role of R&D
• Technology trade
• Incremental vs radical innovation: static analysis
• Incremental vs radical innovation: dynamic analysis
Patents
• What is a patent
• Optimal patent duration
• Dormant patents
• Licensing
Network Economies
• Lock-in and standards
• Achieving critical mass
Artificial Intelligence and the Labor Market
• The role of AI in business
• Applications of AI in product, process, and organizational innovation

Algorithmic Pricing
• The role of prices in high-tech markets

Case studies and speakers speeches are part of the program and of the exam.

Prerequisites

Basic knowledge of Microeconomics is required, as well as a good understanding of competition theory, market equilibrium, and efficiency.
Recommended Texts for Background Preparation:
• (F) Frank R.H. & Cartwright E., Microeconomics, McGraw-Hill, Milan, 2017, 7th Italian Edition.
• (V) Varian H.R., Microeconomics, Cafoscarina, Venice, 1998, 4th Italian Edition (green cover).

Teaching methods

50% face-to-face lectures and 50% online lectures. For attending students: in-class discussion groups and interactive business games. Teaching materials (texts and digital resources) will be made available on the course e-learning platform

Assessment methods

Final written exam (2 or 3 open-ended questions, each divided into sub-questions). The exam is the same for both attending and non-attending students. No midterm exams are planned.

Textbooks and Reading Materials

Cabral, L. (2018). Industrial Organization. Rome: Carocci

Semester

First semester (see calendar and updates on the e-learning page)

Teaching language

Italian

Sustainable Development Goals

NO POVERTY | DECENT WORK AND ECONOMIC GROWTH | INDUSTRY, INNOVATION AND INFRASTRUCTURE