

Course Outline

Course Code : BSN3701B
Course Title : Technological Innovation
Semester : Semester 1, Academic Year 2026/2027
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Overview

Technology plays a critical role in shaping businesses and society. This course provides students with a strong foundation in technological innovation from a business perspective, focusing on how innovation drives value creation, competitive advantage, and economic growth.

The course also examines how artificial intelligence (AI) and emerging technologies are reshaping industries, business models, decision-making, and society. Students will critically evaluate the opportunities and challenges created by technological innovation in the AI era.

Grounded in theory and research, the course takes a practice-oriented approach through real-world case studies, discussions, and strategic analysis.

Course Objectives

This course develops frameworks for analyzing strategic issues faced by firms in technology-intensive industries. Emphasis is placed on practical business applications rather than technical descriptions of technology.

Students will learn to:

- Analyze technological innovation from a strategic business perspective
- Evaluate how AI and emerging technologies reshape industries and competitive advantage
- Assess opportunities, risks, and ethical implications of AI-enabled innovation
- Examine innovation adoption, disruption, and business model transformation
- Critically evaluate real-world technology strategies through case discussions and projects

No technical background is required. As the course is highly discussion- and case-based, students should come prepared to engage in debates, reflection, and peer learning.

General Guide & Reading (e.g. Case preparation guide, project report guide, main textbook & supplementary materials, etc)

Lecture Notes: Posted on Canvas online before each lecture. Please visit the site regularly and download and review the materials before attending class.

Textbooks:

1. **(Main)** None. Course notes suffice.
2. **(Supplementary)**
 - a. Joshua D. Angrist and Jorn-Steffen Pischke, *Mastering “metrics”: the path from cause to effect*, Princeton University Press, 2015. (Central Library: HB139 Ang 2015)
 - b. Cabral, L. (2017). *Introduction to industrial organization*. MIT Press.

Assessment

Assessment Components	Weightage
Class Participation	20%
Personal Reflection	10%
Individual Assignment	30%
Group Project	40%

1. Class Participation (20%) + Personal Reflection (10%)

This is a case-based course. Students are expected to prepare for each class by reading and reflecting on the assigned materials.

Class Participation (20%) will be assessed based on the quality of contributions during class discussions. Students should offer comments that are insightful, relevant, and advance the discussion. Quality matters more than airtime. A single meaningful contribution may receive the maximum participation grade for that session. Guiding questions will be provided to support preparation. As participation is a significant component of the course grade, attendance is compulsory and recorded weekly.

Personal Reflection (10%) will be assessed through reflection assignments submitted during the semester. Students should demonstrate critical thinking, draw meaningful insights from the course, and apply concepts to real-world situations where appropriate.

2. Individual Assignment (30%)

Each student will select a company to analyze how technology and innovation have disrupted, or are likely to disrupt, the company and its industry. Students are expected to apply the frameworks and models introduced in class to evaluate the company's strategic response, identify opportunities and risks, and develop evidence-based recommendations. The assessment emphasizes critical thinking, strategic analysis, and the ability to integrate course concepts into practical business recommendations.

3. Group Project: Company Assessment (40%)

In groups of five, students will conduct an in-depth analysis of a selected company's technology strategy using concepts and frameworks covered in class.

Deliverables

- Project Report (20%)
- Final Presentation (20%)

The project should critically evaluate the company's strategic position and major technology-related challenges. Analysis may include:

- Industry competition and maturity
- Technology and market shifts

- Sources of innovation
- Intellectual property and core competencies
- Product development and appropriability
- Financial position and access to capital
- Strategic alliances and partnerships
- AI readiness and the impact of emerging technologies

Students should assess the attractiveness and sustainability of the company's position within its industry.

Establishing contact with the company and conducting interviews is strongly encouraged, though not required.

Reflection assignments and selected project components may involve the responsible use of generative AI tools for research support, idea exploration, and strategic analysis. Students remain fully responsible for the accuracy, originality, citation, and critical evaluation of all submitted work.

Students are expected to critically assess AI-generated insights rather than rely on them uncritically.

Academic Honesty & Plagiarism

Academic integrity and honesty is essential for the pursuit and acquisition of knowledge. The University and School expect every student to uphold academic integrity & honesty at all times. Academic dishonesty is any misrepresentation with the intent to deceive, or failure to acknowledge the source, or falsification of information, or inaccuracy of statements, or cheating at examinations/tests, or inappropriate use of resources.

Plagiarism is “the practice of taking someone else’s work or ideas and passing them off as one’s own” (The New Oxford Dictionary of English). The University and School will not condone plagiarism. Students should adopt this rule - You have the obligation to make clear to the assessor which is your own work, and which is the work of others. Otherwise, your assessor is entitled to assume that everything being presented for assessment is being presented as entirely your own work. This is a minimum standard. In case of any doubt, you should consult your instructor.

Additional guidance is available at:

- <http://www.nus.edu.sg/registrar/administrative-policies-procedures/acceptance-record#NUSCodeofStudentConduct>
- <http://nus.edu.sg/osa/resources/code-of-student-conduct>

About me . . .

Hi, I am an Investor-CEO-turned-Professor with a passion for technology and innovation. Known for bringing creativity into things I do, I draw on real-life experience from both multinational corporations and startups to show you how to turn today’s opportunities into successful careers. Join me to learn how technology is reshaping industries—and how you can be part of that change!

Schedule and Outline

Week 1 – Introduction to Technological Innovation

Topics: Overview of technological innovation, definitions, types of innovation (incremental vs. radical), and its importance in business.

Week 2 – Theories and Models of Innovation

Topics: Exploration of key theories (e.g., S-curve, diffusion of innovation) and frameworks (e.g., the Technology Adoption Lifecycle, Open Innovation).

Week 3 – Innovation in Emerging Technologies: BioTech, Climate Tech & Food Tech

Topics: AI-assisted drug discovery and genomics, Climate modelling and food innovation

Week 4 – Innovation in Emerging Technologies: Fintech

- AI in financial services
- AI credit scoring, fraud detection, and algorithmic bias
- Fintech business transformation

Week 5 – Business Models and Technological Innovation

Topics Covered: How technological innovations enable new business models (e.g., platform business models, AI-enabled business models)

Week 6 – Market Strategy and Technological Innovation

Topics Covered: Market entry strategies (Build vs Buy), Partnerships, ecosystems, and competitive positioning, Proprietary data and strategic advantage)

Week 7 – Innovation in Emerging Technologies: Artificial Intelligence

Topics Covered: Generative AI and industry disruption, Human augmentation vs automation & Strategic implications of AI adoption

Week 8 – AI: Sustainability & Safety

Topics Covered: AI governance and regulation, Sustainability impact of AI systems & Human oversight and trust in AI

Week 9 – The Future of Technological Innovation

Topics Covered: Autonomous systems and AI-driven discovery, Ethical and geopolitical implications, Future of work and innovation

Week 10 – Reinvention in the Face of Technology

Topics Covered : The Reinvention of Kodak. Lessons for firms facing AI disruption

Why take this course

This course integrates artificial intelligence (AI) as a strategic lens within technological innovation, focusing on how AI and emerging technologies are reshaping industries, business models, leadership, sustainability, and competitive advantage.

This emphasizes business impact, strategic decision-making, ethics, governance, and the future of work. Through case discussions and real-world analysis, students will critically evaluate both the opportunities and risks created by AI-driven innovation in rapidly changing business environments.