

COURSE OUTLINE

1. Data about the study programme

1.1 Higher education institution	Transilvania University of Brasov
1.2 Faculty	Technological Engineering and Industrial Management
1.3 Department	Engineering and Industrial Management
1.4 Field of study ¹⁾	Engineering and Management
1.5 Study level ²⁾	MA
1.6 Study programme/ Qualification	Engineering and Management in Aviation / Master

2. Data about the course

2.1 Name of course	Management of Technology and Innovation							
2.2 Course convenor	Mircea BOȘCOIANU							
2.3 Seminar/ laboratory/ project convenor	Mircea BOȘCOIANU							
2.4 Study year	II	2.5 Semester	1	2.6 Evaluation type	E	2.7 Course status	Content ³⁾	PC
							Attendance type ⁴⁾	CPC

3. Total estimated time (hours of teaching activities per semester)

3.1 Number of hours per week	3	out of which: 3.2 lecture	2	3.3 seminar/ laboratory/ project	0/0/1
3.4 Total number of hours in the curriculum	42	out of which: 3.5 lecture	28	3.6 seminar/ laboratory/ project	0/0/14
Time allocation					hours
Study of textbooks, course support, bibliography and notes					20
Additional documentation in libraries, specialized electronic platforms, and field research					10
Preparation of seminars/ laboratories/ projects, homework, papers, portfolios, and essays					15
Tutorial					10
Examinations					3
Other activities.....					
3.7 Total number of hours of student activity		58			
3.8 Total number per semester		100			
3.9 Number of credits ⁵⁾		4			

4. Prerequisites (if applicable)

4.1 curriculum-related	• Not specified
4.2 competences-related	• Not specified

5. Conditions (if applicable)

5.1 for course development	• not specified
5.2 for seminar/ laboratory/ project development	• Not specified

6. Specific competences and learning outcomes

Professional competences	<p>Cp.1 Applies advanced manufacturing systems L.O. 1.3 The graduate will be able to develop advanced research projects for the purpose of creating new products or improving existing ones or for the purpose of developing/improving production and/or management processes.</p> <p>Cp.4. Adapts to changing situations L.O.4.2. The graduate will be able to adapt to different changing situations regarding the evolution of the market, the technological environment and competition. L.O.4.4. The graduate will be able to provide and analyze scientific data from qualitative and quantitative research, in order to adapt the organization to the dynamics of the external environment.</p>
Transversal competences	<p>Ct.2 Practices results-oriented leadership towards colleagues L.O.2.3. The graduate will be able to provide project management, for the management and planning of material, human, financial and informational resources for a given project as well as for the evaluation of the technical-economic results of that project.</p>

7. Course objectives (resulting from the specific competences to be acquired)

7.1 General course objective	<ul style="list-style-type: none"> to give advanced knowledge in innovation management to give advanced practical tools for high tech project management and modern innovation management
7.2 Specific objectives	<ul style="list-style-type: none"> understanding, applying, analyzing, evaluating and improving specific skills in technology and innovation management to gain ability to apply advanced and innovative ideas, new algorithmic paradigms and to efficient select between alternative solutions to gain competencies in modern innovation dynamics in a disruptive global framework of competitors and stakeholders

8. Content

8.1 Course	Teaching methods	Number of hours	Remarks
Introduction in the management of technology and innovation. Key definitions. Decisions and tools in managing innovation and technology. Social responsibility in innovation	lectures (with peer instructions)	4	
Strategy and the processes of management of technology and innovation. The integration of strategy in innovation and technology. Vision, mission, goals and objectives. Technology and competitive advantage of disruptive innovation. Building dynamic capabilities.	lectures (with peer instructions)	4	
Innovation- planning, implementation, evaluation and control. Innovation project management and new product/ process/ markets development. Developing the climate for innovation.	lectures (with peer instructions)	4	
Technological disruptions. Hedging strategies. Implication for corporate strategy execution.	lectures (with peer instructions)	4	
Management of platforms and portfolios of technological projects.	lectures (with peer instructions)	4	
Organizational management in innovation and	lectures (with peer	4	

technology. The adaptation of Kotter model of organizational transformation. Knowledge management. Mergers and acquisition of technology.	instructions)		
Investments in innovation and technology. Alternative investment vehicles for innovation (AIV-Is). Venture capital and Private equity.	lectures (with peer instructions)	4	
Bibliography Amit, R. H., Zott, C., 2010, Business model innovation: Creating value in times of change Baden-Fuller, C., Morgan, M. S., 2010, Business models as models. Long Range Planning Barsh, J., Capozzi, M., Davidson, J., 2008, Leadership and innovation, The McKinsey Quarterly Galasso, A., The management of innovation: managing and creating technology capital, 2024 Kuratko, D, Corporate innovation: disruptive thinking in organizations, 2018 Tidd, J., Strategic innovation management, 2014 Trott, P., Innovation management and new product development, 2021			
8.2 Seminar/ laboratory/ project	Teaching-learning methods	Number of hours	Remarks
Technology development- stages and planning. Cycle of technology development. Interventions on Hype- cycle	Seminars+ project	2	
Planning processes in innovation. Critical stages. Impact. Forecasting models. Tools for managing innovation.	Seminars+ project	2	
Management of innovation and technology- case studies (Nvidia, Amazon, Google, Microsoft, Meta, Tesla).		4	
Project management and new product/ process/ markets development- solution and methods for different case studies.	Seminars+ project	2	
Platform models. Key implementation aspects	Seminars+ project	2	
Portfolios of innovation projects. Risk diversification by project interactions.	Seminars+ project	2	
Bibliography Amit, R. H., Zott, C., 2010, Business model innovation: Creating value in times of change Baden-Fuller, C., Morgan, M. S., 2010, Business models as models. Long Range Planning Galasso, A., The management of innovation: managing and creating technology capital, 2024 Kuratko, D, Corporate innovation: disruptive thinking in organizations, 2018 McGrath, R., MacMillan., I., 2000. Assessing technology projects using real options reasoning, Research Technology Management 43(4) Tidd, J., Strategic innovation management, 2014 Trott, P., Innovation management and new product development, 2021 Tushman, M. P., Anderson, P., 2007, Managing Strategic Innovation and Change: A Collection of Readings, Oxford Zott, C., Amit, R. H., 2010, Business model design: An activity system perspective. Long Range Planning, 43 (2) Zott, C., Amit, R. H., 2011, The business model: Recent developments and future research. Journal of Management, 37(4)			

9. Correlation of course content with the demands of the labor market (epistemic communities, professional associations, potential employers in the field of study)

The contents have been developed in relation to the requirements of employers, so that the learning outcomes can be applied in industrial environment and research.

10. Evaluation

Activity type	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Percentage of the final grade
10.4 Course	Ability to understand the concepts and to identify the responses based on the knowledge	Testing knowledge	50%
10.5 Seminar/ laboratory/ project	Valuation of the capacity to implement the practical elements	Testing practical abilities	50%
10.6 Minimal performance standard			
<ul style="list-style-type: none"> • minimum 50% theoretical valuation • minimum 50% seminar valuation • minimum 70% course project valuation 			

This course outline was certified in the Department Board meeting on 17/09/2024 and approved in the Faculty Board meeting on 26/09/2024.

Prof. Eng Tudor Ion DEACONESCU, PhD Dean	Assoc.Prof. Eng Flavius SÂRBU, PhD Head of Department
Prof.dr.ing. Boscoianu Mircea Course holder	Prof.dr.ing. Boscoianu Mircea Holder of seminar/ laboratory/ project

Note:

- 1) Field of study – select one of the following options: Bachelor / Master / Doctorat (to be filled in according to the forceful classification list for study programmes);
- 2) Study level – choose from among: Bachelor / Master / Doctorat;
- 3) Course status (content) – for the Bachelor level, select one of the following options: **FC** (fundamental course) / **DC** (course in the study domain)/ **SC** (speciality course)/ **CC** (complementary course); for the Master level, select one of the following options: **PC** (proficiency course)/ **SC** (synthesis course)/ **AC** (advanced course);
- 4) Course status (attendance type) – select one of the following options: **CPC** (compulsory course)/ **EC** (elective course)/ **NCPC** (non-compulsory course);
- 5) One credit is the equivalent of 25 study hours (teaching activities and individual study).