



1. GENERAL INFORMATION			
1.1 Course teacher	Assoc. Prof. Ivana Steinberg, PhD		1.6 Year of the study
1.2 Name of the course	Technology Management and Innovation		2.(3 rd semester)
1.3 Associate teachers	Petar Kassal, PhD		1.7 ECTS credits
1.4 Study programme (undergraduate, graduate, integrated)	graduate		5
1.5. Status of the course	<input checked="" type="checkbox"/> mandatory	<input type="checkbox"/> elective	1.8 Type of instruction (number of hours L + E + S + e-learning)
			Total: 60 (L: 30, E:15, S:15)
			1.9 Expected enrolment in the course
			20
			1.10 Level of application of e-learning (level 1, 2, 3), percentage of online instruction (max. 20%)
			2 nd
2. COUSE DESCRIPTION			
2.1. Course objectives	To introduce master level students to the concepts of innovation in relation to commercialisation of novel technologies. Adopting basic ideas and conceptual approaches to development of innovative products or services including scientific, technological, organisational, financial and business aspects.		
2.2. Enrolment requirements and/or entry competences required for the course			
2.3. Learning outcomes at the level of the programme to which the course contributes	<ul style="list-style-type: none"> • Compile and apply advanced knowledge of natural and technical sciences, particularly chemical engineering and environmental engineering in solving scientific, professional and general social problems. • Solve engineering problems using the scientific method combining expert knowledge from chemistry, environmental, and chemical engineering as well as material science and engineering. • Correlate expert knowledge from chemistry, chemical engineering and material engineering with awareness of influence on society, economy and environment. • Apply different analytical techniques, analytical and numerical methods, as well as software tools in creative problem solving of engineering challenges, proposing sustainable technological solutions. • Independently organise and plan timelines, apply a general methodology for project planning and management in a business environment • Evaluate technological processes and products from the perspective of high functionality in different conditions and environmental effects. • Create a critical analysis, evaluation and interpretation of personal results, and compare them with existing data in scientific and expert literature • Investigate and analyse implementation of innovative and incoming chemical technologies in multidisciplinary environment 		



	<ul style="list-style-type: none"> • Demonstrate independence and reliability in independent work, as well as effectiveness, reliability and adaptability in team work • Outline results of independent and teamwork in a written and oral form to non-experts and experts in a clear and coherent way. • Communicate with the scientific and professional community, as well as society in general in local and international surroundings • Develop work ethic, personal responsibility and tendency for further skill and knowledge acquisition, according to standards of engineering practice 	
<p>2.4. Expected learning outcomes at the level of the course (3 to 10 learning outcomes)</p>	<ul style="list-style-type: none"> • Explain the role of innovation in the context of research and development in public and private institutions • Identify and distinguish: intellectual property (IP) and intellectual property rights (IPRs) and illustrate them by practical examples • Explain <i>transfer of technology</i> and strategic exploitation of IPR • Define new product development process and identify its steps • Apply methodology of project management • Create and prepare a business plan for a new high-tech start-up company based on a chosen patent 	
<p>2.5. Course content (syllabus)</p>	<p>WEEK 1. Introduction to the TM&I course WEEK 2. Innovation and R&D WEEK 3. Intellectual Property WEEK 4. Technology Transfer & Strategic Exploitation of IP WEEK 5. New product development (NPD) WEEK 6. The Six Phases of NPD WEEK 7. Partial exam WEEK 8. Introduction to Project Management I and II WEEK 9. Introduction to Project Management III WEEK 10. Technology Start-Up Company Funding, Business Plans (BP) WEEK 11. Summary of TM&I course WEEK 12. Final Revision/Instructions for student BP presentation WEEK 13. BP presentations I Q&A session: Discussion WEEK 14. BP presentations II and III Q&A session: Discussion WEEK 15. Partial exam</p>	
<p>2.6. Format of instruction:</p>	<input checked="" type="checkbox"/> lectures <input checked="" type="checkbox"/> seminars and workshops <input checked="" type="checkbox"/> exercises <input type="checkbox"/> online in entirety <input checked="" type="checkbox"/> partial e-learning <input type="checkbox"/> field work	<input checked="" type="checkbox"/> independent assignments <input checked="" type="checkbox"/> multimedia and the internet <input type="checkbox"/> laboratory <input type="checkbox"/> work with mentor <input type="checkbox"/> (other)
		<p>2.7. Comments:</p>



2.8. Student responsibilities	Lectures, seminars and laboratory work - mandatory attendance; regular homework assignments and problem solving exercises, written and oral presentations; mandatory reading for seminar discussions; group presentation of a start-up business plan							
2.9. Monitoring student work	Class attendance	YES		Research	YES		Oral exam	NO
	Experimental work		NO	Report	YES		(other)	
	Essay		NO	Seminar paper	YES		(other)	
	Preliminary exam		NO	Practical work	YES		(other)	
	Project	YES		Written exam		NO	ECTS credits (total)	5
2.10. Required literature (available in the library and/or via other media)	Title						Number of copies in the library	Availability via other media
	1. The Management of Technological Innovation. Strategy and Practice. M. Dodgson, D. Gann, A. Salter. Oxford University Press, 2008.						2	YES
	2. Intellectual Property for Managers and Investors. S.J. Frank. Cambridge University Press, 2006.						2	YES
	3. Project Manager: Mastering the Art of Delivery in Project Management. Richard Newton. Financial Times / Prentice Hall, 2007.						1	YES
2.11. Optional literature	1. Microsoft Office Project 2007 Step by Step. Carl Chatfield and Timothy Johnson. Microsoft Press (2007).							
2.12. Other (as the proposer wishes to add)								