Course unit title:	Business, Technology and Innovation Management		
Course unit code:	AUTO 210		
Type of course unit:	Compulsory		
Level of course unit:	Bachelor (1st Cycle)		
Year of study:	2		
Semester when the unit is delivered:	4 (Spring)		
Number of ECTS credits allocated :	5		
Name of lecturer(s):	Dr. Michalis Menicou		
Learning outcomes of the course unit:	1. Explain business management principles, such as, managerial functions, roles and skills, alternative organisational structures and individual and group decision making processes. 2. Describe employee motivation processes (process & content theories); Group and team behaviour: types of teams, effective teams and describe how to manage individual differences and team dynamics. 3. Classify engineering cost elements such as variable and fixed costs or product and period cost to estimate average unit cost and analyse decision making (make of buy decision, differential cost, break – even volume analysis) 4. Calculate economic equivalence for single payment series; equal (uniform) payment series; Linear Gradient series; Geometric gradient series; and Irregular payment series. 5. Appraise engineering project proposals by applying Present worth analysis; or Annual worth analysis; or Rate of return analysis. 6. Apply book depreciation methods and Identify factors inherent to asset depreciation; 7. Apply Technology Intelligence to Product Design Process 8. Apply commercial software to model and develop an actual project's cash flow reports and calculate NPV, IRR ect.		
Mode of delivery:	Face-to-face		
Prerequisites:	AMAT 111, AENG 102	Co-requisites:	None
Recommended optional program components:	None		
Course contents:	**Business Management:** • Managerial functions, roles and skills. • Organisational structure and design; • Individual and group decision making; • Employee motivation (process & content theories); • Group and team behaviour: types of teams, effective teams. • Managing individual differences and team dynamics. **Engineering Economic Decisions:** • Classification of Engineering Cost Elements • Average Unit Cost; • Cost concepts relevant to Decision Making (Make of Buy Decision, Differential Cost, Break – even Volume analysis) • Time Value of Money (Interest, economic equivalence, Interest formulas for Single Cash Flows) • Evaluating Business and Engineering Assets (Present-Worth Analysis, Rate-of-Return Analysis) • Accounting Depreciation Techniques • Understanding Financial Statements (Balance Sheet, Cash Flow		

	Statement). **Technology & Innovation Management:** • Technology Evolution: S-curve, industry evolution, disruptive technologies, technology standards, dominant design. • Technology and Innovation: Types of Innovation, sources of innovation, models of innovation, diffusion of innovation, innovation and imitation, creativity and entrepreneurship. • Technology intelligence: sources, tools and forecasting. **Product design processes:** • Cost, manufacturability, and quality; streamlining Product Development Process; Project Lifecycle Management, Kaizen, Benchmarking, Re-engineering.
Recommended and/or required reading:	
Textbooks:	• **Encyclopedia of Technology and Innovation Management** by V. K. Narayanan (Editor) & Gina Colarelli O'Connor (Editor), Wiley, ISBN: 978-1-4051-6049-0, 2010. • **The Handbook of Technology and Innovation Management** by Scott Shane (Editor), Wiley, ISBN: 978-1-4051-2791-2, 2008. • **The Management and Control of Quality** (6th Edition) by James R. Evans, and William M. Lindsay, Thomson: South-Western, ISBN: 0-324-22503-0, 2005. • **Fundamentals of engineering Economics**, by Park Chan, Prentice Hall, 2nd edition 2009, ISBN: 0-13-135457-4/ ISBN: 978-0-13-135457-9. • **Engineering Economy** , by William Sullivan, Elin Wicks, and Patrick Koelling, 14th edition, 2009, ISBN: 978-0-13-208342-3/ ISBN: 0-13-208342-6 • **Managing Engineering and Technology** by Daniel Babcock and Lucy Morse, Prentice Hall, ISBN: 0-13-061978-7, 2002. • **Management**, by Hitt Michael, Black Stewart, Porter Lyman, Prentice Hall, ISBN: 0-13-124851-0, 2005.
References:	• **Management Challenges for Tomorrow's Leaders** by Lewis Pamela, Goodman Stephen and Fandt Patricia, Thomson, ISBN: 0-324-15557-3, 2004.
Planned learning activities and teaching methods:	The taught part of course is delivered to the students by means of lectures, conducted with the help of computer presentations. Lecture notes and presentations are available through the web for students to use in combination with the textbooks. Lectures are supplemented with laboratory work carried out on Microsoft Excel. During laboratory sessions, students learn Engineering Economy functions at Microsoft Excel and develop simple Project Cash flow applications to evaluate critical parameters such as Net Present Worth or Internal Rate of Return of a proposed engineering investment.
Assessment methods and criteria:	• Laboratory Assignment 12% • Tests 28% • Final Exam 60%
Language of instruction:	English
Work placement(s):	No