

<b>Module Code</b>	QMTM
<b>Module Title</b>	Quantitative Methods in Technology Management
<b>Credit</b>	20 (10 ECTS)
<b>Module Leader</b>	Prof. dr Maja Levi Jaksic

### **Aims**

The aim of this module is to enable future managers of technology and innovations to work productively in international environment by using available quantitative methods. Particular aims of the module are to:

- Systematic understanding of quantitative and analytical methods in the field of technology and innovations management
- Practical understanding of selecting and applying quantitative methods in variety of decision making contexts
- Critical awareness in providing international perspective in applying available techniques and methods
- Develop students' abilities for interpretation and validity of obtained results according to international business environment

### **Learning Outcomes**

#### *Knowledge*

On successful completion of this module, the student will be able to demonstrate a systematic understanding informed by current research and relevant professional practice of:

1. the purpose, application and limitations of range of quantitative methods used in technology and innovation management
2. advantages and limitations in applying forecasting methods
3. generating, evaluating and implementing ideas in global market
4. available methods for technology evaluation and selection
5. specific nature of risk and success measures in innovation process

#### *Skills*

On successful completion of this module, the student will be able to:

6. Apply quantitative method on relevant problem and to analyse and critically evaluate results in order to support decision making in international context.
7. Work efficiently, cooperatively and creatively within a group in applying the method.
8. Analyse the data obtained from methods applied and learn through feedback.

### **Syllabus**

- Forecasting technology development in global environment
- Forecasting the diffusion of innovations
- Generating, evaluating and implementing ideas in global market
- Creative problem solving in global product/service development
- Technology evaluation and selection
- Indicators of technological progress
- Productivity of new technologies
- Indicators and measures of innovativeness and innovation performances

### **Learning, Teaching and Assessment Strategies**

Lectures, case studies, selected readings and discussions will be used to demonstrate possibilities and limitations in applying different quantitative methods in technology and innovation management. Team research will be used to develop teamwork and analytical skills

in applying the method. Workshops/exercises will be used to access and develop individual skills in quantitative method application.

### **Assessment Scheme**

This module is assessed using coursework and examination.

30% Individual coursework (learning outcomes 1, 2,) where students are expected to develop a model for implementing technology forecasting method. Students will get assignment due week 3, deadline for final versions is week 7)

20% Group coursework (learning outcomes 3, 4, 6, 7, 8) where students are expected to implement creative problem solving method with quantitative elements as a support in decision making Students get assignments due week 6, deadline for final versions is week 10)

50% Examination (learning outcomes 1, 2, 4, 5, 6, 8) occurs during the university examination period and is a 2-hour examination. Students are expected to answer closed and open ended questions, combination of quantitative exercises and theoretical questions.

Student need to pass coursework and examination and have minimum 50% in order to pass the module according to the following structure: individual coursework (minimum 15%), group coursework (minimum 10%) and examination (minimum 25%).

### **Assessment Weighting**

Individual coursework 30%,

Group coursework 20%

Examination 50%

### **Learning Materials**

#### ***Essential***

- Oakshott, L: Essential Quantitative Methods: For Business, Management and Finance, Palgrave Macmillan; 4th edition, 2009
- Yu, O: Technology Portfolio Planning and Management, Practical Concepts and Tools, Springer's International Series, 2006

#### ***Recommended***

- Ghauri, P, Gronhaug, K: Research Methods in Business Studies, Prentice Hall, 2010
- Proctor, T, Creative Problem Solving for Managers: Developing Skills for Decision Making and Innovation, Routledge, 3rd edition, 2009
- Bettina, S: Managing innovation: Design and Creativity, John Wiley and Sons Chichester, 2003
- Porter A.L, Roper A.T, Mason, T. W, Rossini F, A, Banks, J: Forecasting and Management of Technology, John Wiley & Sons, 1991
- Levi Jaksic, M, Marinkovic S, Petkovic, J: Menadzment inovacija i tehnoloskog razvoja, FON, Beograd, 2011
- Stosic, B: Menadzment inovacija: ekspertni sistemi, modeli i metode, FON, Beograd, 2007

Total Notional Learning Hours

200