COURSE OUTLINE

(1) GENERAL

SCHOOL	School of Engineering		
ACADEMIC UNIT	Department of Planning and Regional Development – Department of Civil Engineering		
LEVEL OF STUDIES	Postgraduate		
COURSE CODE	MCC101	SEMESTER	Spring
COURSE TITLE	**Project Appraisal**		

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*	WEEKLY TEACHING HOURS	CREDITS
	3	7,5
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Special background, specialization
PREREQUISITE COURSES:	Mathematics, Project Management
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek
IS THE COURSE OFFERED TO ERASMUS STUDENTS	Yes (when there are ERASMUS students)
COURSE WEBSITE (URL)	

(2) LEARNING OUTCOMES

Learning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

Learning Objectives

Upon completion of the course, students will be able to:
1. Determine the importance of the Evaluation of a technical project, a transportation project and an investment in general, describe the concept of the Evaluation of a project, as well as the factors that influence it.
2. Know the basic concepts of project financing and solve corresponding problems using financial mathematics.
3. Know the evaluation methods, the differences between them and apply them to Private-economic and economic-social evaluation.
4. Calculate the direct and indirect impacts of transportation projects, proceed with their evaluation.
5. Know the "Break-even" Analysis, sensitivity analysis, evaluation of projects and investments under uncertainty.
6. Know the risk analysis of an investment decision using the decision tree.
1. Identify the importance of Evaluating a Technical Project, a Transport Project and an Investment in

general, to describe the concept of Evaluating a Project, and the factors that influence it.
2. Know the basic concepts of project financing and solve related problems using mathematical

Course Purpose

The purpose of the course is to contribute to the understanding of the concepts, principles and methods of Project Appraisal and how these principles can be applied to the planning and management of private and public works and investments. The course focuses on the description and analysis of project development and investment objectives, the basic methods of financial analysis and project financing problems, analyzes the methodologies for evaluating private and public projects and investments. In addition, the course focuses on evaluating transport projects, while typical exercises and case studies are presented and discussed. It also includes a series of exercises and practical problems related to the application of the assessment methodologies presented in the theoretical part, with the aim of getting students acquainted with reality and to be able to evaluate and effectively plan projects and investments.

General Competences

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology
Adapting to new situations
Decision-making
Working independently
Team work
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project planning and management
Respect for difference and multiculturalism
Respect for the natural environment
Showing social, professional and ethical responsibility and sensitivity to gender issues
Criticism and self-criticism
Production of free, creative and inductive thinking
……
Others…
…….

The general skills that students should have acquired and that the course aims to achieve concern the development of creative and inductive thinking, through the analysis of project evaluation problems, their correlation or connection with the relevant approaches and the general concerns that arise and are shaped during the semester in which the students participate, and the ability to approach development problems and address future "challenges" in the development of the local or national economy, through the understanding of the relevant concepts and the benefits that the preparation of the work ensures.

(3) SYLLABUS

The main course content includes the following sections:

1. The Concept of Project and Investment Appraisal, Introduction to Mathematical Financing Theory, Basic Concepts Analysis, Project Financing
2. Financing analysis of co-financed projects, sources of financing and financial return on investment, financial viability.
3. Investment in construction companies, description of evaluation methods.
4. Net Present Value (NPV) Method, Internal Interest Rate (IRR) Method, Benefit / Cost Ratio.
5. Private-economic evaluation, economic and social evaluation.
6. Evaluation of transport projects, direct and indirect impacts.
7. Estimation of costs and benefits of transport projects cost of accidents, benefit of users and reduction of transport costs, environmental impacts, quantifiable and non-quantifiable impacts.
8. Break-even point analysis, linear and non-linear model, sensitivity analysis.
9. Specific Project Evaluation Topics, choosing between mutually exclusive projects and investments.

10. The probability distributions for critical variables, expected value, standard deviation, coefficient of variation, risk analysis of a project.
11. Assessment of projects and investments under uncertainty, Assessment of acceptable risk levels.
12. Multi-criteria appraisal methods.
13. Risk analysis and decision making using the "decision tree".
14. Preparation for exams.

(4) TEACHING and LEARNING METHODS - EVALUATION

<table>
<tr><td>DELIVERY
Face-to-face, Distance learning, etc.</td><td>Face-to-face in-classroom and remote courses</td></tr>
<tr><td>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY
Use of ICT in teaching, laboratory education, communication with students</td><td>Computers are used during the lectures of the course, but also in communication with the students. They are used in delivering Power Point lectures, presenting related slides, videos and instructional CDs and providing statistical material and bibliography for the needs of the course and the work being done.</td></tr>
<tr><td>TEACHING METHODS
The manner and methods of teaching are described in detail.
Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.

The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS</td><td>
<table>
<tr><th>Activity</th><th>Semester Workload</th></tr>
<tr><td>Teaching</td><td>3x13=39 hours</td></tr>
<tr><td>Study & analysis of literature</td><td>40</td></tr>
<tr><td>Homework writing</td><td>21</td></tr>
<tr><td>Total</td><td>100</td></tr>
</table>
</td></tr>
<tr><td>STUDENT PERFORMANCE EVALUATION
Description of the evaluation procedure

Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other

Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</td><td>
<table>
<tr><th>Evaluation process</th><th>Yes/No</th></tr>
<tr><td>Language</td><td>Greek</td></tr>
<tr><td>Problem solving</td><td>Yes</td></tr>
<tr><td>Written work</td><td>Yes</td></tr>
<tr><th>Specified evaluation criteria</th><th>Determination of weight</th></tr>
<tr><td>Understanding concepts</td><td>25%</td></tr>
<tr><td>Use of theories and methods</td><td>25%</td></tr>
<tr><td>Applying theories and methodologies to problems solving</td><td>25%</td></tr>
<tr><td>Problem-solving speed</td><td>25%</td></tr>
</table>

The evaluation criteria used are linked to the learning outcomes, since the students' ability to show their knowledge and depth of understanding of the core content of the course is indirectly assessed.

The assessment system and criteria are familiar to the students, and they are considered sufficient to reflect the degree of understanding of the course and in-depth knowledge of its content.

The examination process is assessed indirectly, since students are asked to comment after the exams are over. In addition students can view their writing if they wish and find out what mistakes they have made and to comment on them.
</td></tr>
</table>

(5) ATTACHED BIBLIOGRAPHY

Suggested Bibliography:

1 Polyzos S., (2018), Project Management, 3rd Edition, Kritiki Publications, Athens.

2 Polyzos S., (2017), *Project Planning and Organization*, 2nd Edition, Tziola Publications, Thessaloniki.

3 Theophanides S. (1985), Handbook of Investment Appraisal, Papazisis Publications, Athens

4 Asian Development Bank, (2002), Handbook of integrating risk analysis in economic analysis of project, Manila.

5 Australian Transport Council, (2007), National Guidelines for Transport System Management in Australia, Volume 2: Project Appraisal

6 Belli, P., Anderson, J. R., Barnum, H.N, Dixon, J. A., Tan, J-P, (2001), Economic Analysis of Investment Operations, Analytical Tools and Practical Applications, WBI, World Bank, Washington D.C.

7 Brown W. Brayan, (1972), Public investment criteria in cost-benefit analysis. A thesis in economics submitted to the Gratuate Faculty of Texas Tech University, AC 805, T3 1072, No 11, Cop. 2

8 Chvanov K., Okladnikov G., Plakhuta D., Stanyakin P., (2009), Issues in Public Investment Evaluation, Public Policy Paper, St. Retersburg State University.

9 Dixit, A.K., Pindyck, R.S., (1994), Investment under uncertainty, Princeton University Press, New Jersey.

10 Economic Development Institute, (1996), The economic evaluation of projects, World Bank, Washington D.C. European Commission, Directorate General Regional Policy (2008), Guide to Cost – Benefit Analysis of investment projects, Structural Funds, Cohesion Fund and Instrument for Pre-Accession, Final Report.

11 EVALSED the resource for the evaluation of socio-economic development (2007), european Commission, Directorate General Regional Policy

12 Florio, M., (2007), Cost-Benefit Analysis and Incentives in Evaluation. The Structural Funds of the European Union, Edward Elgar, Cheltenham.

13 Guide to cost-benefit analysis of investment project, structural funds, cohesion funds and instrument for pre-accession, (2008), European Commission, Directorate General Regional Policy.

14 Guide to cost-benefit analysis of investment project (1997), structural funds – ERDF, cohesion fund and ISPA, European Commission, Directorate General Regional Policy, evaluation unit.

15 HEATCO, (2006) Conference on a Harmonised European Approach for Transport Costing and project assessment, sixth Framework Programme 2002-2006

16 Kirkpatrick, C., Weiss, J., (1996), Cost-Benefit Analysis and Project Appraisal in Developing Countries, Edward Elgar, Cheltenham.

17 Nijkamp P. (1975) A multicriteria analysis for project evaluation: Economic-ecological evaluation of a land reclamation project, Papers in Regional Science Vol. 35(1) pp. 87-111.

18 Lundolm, M., (2005), Cost-benefit analysis and the marginal cost of public funds, Stockholm University, Stockholm.

19 Mishan, E.J., Quah, E., (2007), Cost Benefit Analysis, 5th edition, Routledge, New York.

20 Potts, D., (2002), Project planning and analysis for development, Lynne Rienner Publishers, London.

21 Ray, A. 1984, Cost-benefit analysis. Issues and methodologies, The Johns Hopkins University Press, Baltimore, Maryland.

22 Shofield, J.A., (1989), Cost-benefit analysis in urban and regional planning, Allen & Unwin, London.

23 Transport Economics, Policy and Roverty Thematic Group (2005), Notes on the Economic Evaluation of Transport Project. The World Bank, Washington D.C.

Scientific journals:

1 *Journal of Business Finance & Accounting*,

2 *The Appraisal Journal*,
3 *International Journal of Production Economics*,
4 M*anagement Accounting*,
5 *Journal of Business Finance & Accounting*,
6 *International Journal of Project Management*,
7 Impact Assessment and Project Appraisal
8 Project Appraisal
9 Construction Management and Economics.
10 *Environment and Planning*
11 *Journal of Environmental Planning and Management*
12 *Journal of Environmental Policy & Planning*
13 *Journal of Planning Literature*
14 *Journal of Regional Science*
15 *Topos*
16 *Aeichoros*