Faculty: FACULTY OF TELECOMMUNICATIONS AND MANAGEMENT
Department: GENERAL ENGINEERING
Professional Field: 5.13. GENERAL ENGINEERING
Specialty: DIGITAL ENTREPRENEURSHIP AND HIGH TECHNOLOGY
Educational-qualification degree: BACHELOR

LEARNING COURSE DESCRIPTION

1. Course title: *ENGINEERING PROJECT – II*
2. Course code: B.45.037.1
3. Type of the course: *Compulsory*
4. Level: *Bachelor*
5. Year of study: *Second*
6. Semester: *Fourth*
7. Number of credits: *3*
8. Name of the lecturer: *Assoc. Prof. eng. Plamen Pavlov, PhD, Assist. eng. Petya Georgieva, PhD*
9. Course learning outcomes:

The aim of the course is to acquaint students with the main practical aspects of industrial management of enterprises in high-tech industries. The course builds on the subject in the field taught so far.

Students who have completed their training in the discipline must acquire:

Basic knowledge in the field of tools for product modeling, product-technological forecasting, strategic analysis. *Practical skills* for working with modern management tools.

Competences: After completing the course, students should be able to analyze and apply modern management tools in founding and managing a company with high-tech production.

10. Teachingmethods:

Google apps and multimedia resources are used for teaching during lectures to illustrate basic principles, tools and real cases. The above are also applied in the practical exercises.

11. Prerequisites:

Students should have acquired knowledge in Fundamentals of information technology, Enterprise economy, Quality engineering, Production management, Engineering - I, Reversible engineering and modernization.

Courses using the discipline are: Cyberphysical production systems, Additive production, Production logistics, Innovative management of high technologies, Controlling of high-tech productions.

12. Course contents:

The presented material covers the most important and modern practical aspects in the industrial management of high-tech enterprises, as well as modern management tools in the field of product modeling, product-technological forecasting, strategic analysis and others.

13. Bibliography

Basic literature:

1. **Робърт Каплан, Дейвид Нортън**, Стратегически карти, изд. Класика и стил, 2006.
2. **Edelstman, M.,** Business models, financing and procurement, Report on local innovation ecosystems for smart cities, 2016.
3. **Lerdahl E.** "A conceptual model for a visionary approach to design" NordDesign'2018 Conference.
4. **MacCormack A., Verganti R., M.Iansiti** "Developing Products on 'Internet Time': The Anatomy of a Flexible Development Process", Engineering Management Review, 2019.
5. **Malerba, F.,** Sectoral systems of innovation and production, in: Research Policy, 2019.
6. **Marques, P.**, Organizational Creativity: selection and evaluation of tools for the promotion of creative thinking and action, Master Science Thesis in Knowledge and Innovation Management, Aveiro, University of Aveiro, 2018.
7. **Mulas, V. at al**, Boosting tech innovation ecosystems in cities, World Bank, 2020.
8. **Nonaka, I., Takeuchi, H.**, The Knowledge Creating Company: How Japanese Companies Create the Dynasties of Innovation, Oxford University Press, New York, 2018.
9. **O'Rourke, K., at al.,** The Spread of Modern Industry to the Periphery since 1871, Oxford University Press, 2019.
10. **Phaal R., Farrukh C., Mitchell R. and Probert D.,** "Starting- up Roadmapping Fast", IEEE Engineering Management Review, 2019.

Additional literature:

1. **MacCormack A., Verganti R., M.Iansiti** "Developing Products on 'Internet Time': The Anatomy of a Flexible Development Process", Engineering Management Review, 2019.

14. Assessment methods and criteria:

The course ends with an evaluation of a *course project.*

1. Requirements for forming the assessment according to the six-point system

The student's work during the semester is reported through current control during the practical classes.

2. Formation of the final assessment

The grade in the course is formed on the basis of a points system, as the maximum number of points that students can receive is 100. The sum of points in current control is collected by taking into account the participation during the semester and developing modules of a course project. which are added points whose maximum is announced in advance. Table 1 presents the evaluation based on the number of points.

Table 1.

Number of points	**Assessment According to the 6-point Scale System**
0 – 20	Fail 2 **(**F)
20 – 39	Fail 2 (FX)
40 – 49	Satisfactory 3.00 (E)
50 – 59	Satisfactory 3.00 (D)
60 – 69	Good 4.00 (C)
70 – 84	Very good 5.00 (B)
85 – 100	Excellent 6.00 (A)

15. Language of instruction: *Bulgarian*