

Discipline	INDUSTRIAL ENGINEERING      code: 29    semester –winter		
Specialty	INDUSTRIAL MANAGEMENT		
ECTS credits: 6	Form of assessment: Examination		
Lecturer	Assoc. Prof. Eng. PhD Tanya Panayotova, Room 508 Phone: +35952383682. E-mail: t_panayotova@tu-varna.bg		
Department	INDUSTRIAL MANAGEMENT		
Faculty	FACULTY OF MECHANICAL ENGINEERING AND TECHNOLOGIES		
<p>Learning objectives:</p> <p>This subject discusses the main, general and theoretical issues related to engineering processes. The aim is to acquaint students with the characteristic theoretical and methodological problems of the research in the area of engineering of production systems, design of industrial enterprises, organization of auxiliary and servicing processes in one industrial enterprise, management of engineering projects. The possibilities of applying the system approach in production systems design are analyzed, as well as the choice of preferred option in the course of the given engineering process. This provides a foundation on which students can build on their knowledge in organization and management of production in one business unit.</p>			
CONTENTS:			
Training Area		Hours lectures	Hours Laboratory exercises
<b>Topic 1. Object and Subject of Industrial Engineering and Management</b> 1.1. Historical Development and Importance of Industrial Engineering 1.2. Main Functions of Organizations with Production Activities 1.3. Objectives of Industrial Engineering		2 hours	2 hours
<b>Topic 2. Engineering of Production Systems</b> 2.1. Introduction and Meaning 2.2. Main Tasks, Notions and Definitions in Design		2 hours	2 hours
<b>Topic 3. Plant Location and Layout</b> 3.1. Need for Selecting a Suitable Location 3.2. Factors Influencing Plant Location/Facility Location 3.3. General Locational Factors 3.4. Specific Locational Factors for Manufacturing Organisation		2 hours	2 hours
<b>Topic 4. Location Theories</b> 4.1. Location Models 4.2. Factor Rating Method 4.3. Weighted Factor Rating Method		2 hours	2 hours

4.4.Load-distance Method 4.5.Centre of Gravity 4.6.Break Even Analysis		
<b>Topic 5.</b> Strategic Decisions for Location of the Enterprise 5.1. Strategies for Location of the Enterprise 5.2. Selecting the Strategy of Enterprise Location 5.3. Selection of the Enterprise Location 5.4. Identification of the Crucial Factors for Selection	4 hours	4 hours
<b>Topic 6.</b> Production System 6.1. Classification of Production System 6.2. Nature of The Production Process	2 hours	2 hours
<b>Topic 7.</b> Organization of The Production Process in Time 7.1.Production cycle 7.2.Opportunities for Shortening the Production Cycle 7.3.Ways for Combining Operations in Time and Determining the Duration of Technological Cycle for a Batch of Items	2 hours	2 hours
<b>Topic 8.</b> Design of industrial enterprises 8.1.Type variants in design of industrial enterprises 8.2.Main tasks of technological design	2 hours	2 hours
<b>Topic 9. Organization and General Methodology of Industrial Enterprise Design</b> 9.1. Main Stages and General Sequence of Design Work 9.2.Exploration and research 9.3.Perspective researches 9.4.Preliminary researches	4 hours	4 hours
<b>Topic 10.</b> Content and General Methods of Technological Design 10.1.Content and General Methods of Technological Design 10.2.Elaboration of the General Organizational and Technological Foundations of the Enterprise	2 hours	2 hours
<b>Topic 11.</b> Design of Separate Enterprise Production Units (Workshops) 11.1. Organizational and technological development of the production process in the workshop. 11.2. Design of spatial deployment of the production process. 11.3. Workshop transport 11.4. Elaboration of assignments for design of the special parts of the project 11.5.Evaluation of the technical and economic efficiency of the project	2 hours	2 hours
<b>Topic 12.</b> Pre-determining the Production Type and the Basis for Spatial Construction of the Production Units 12.1. Production Type and Form of Organization 12.2. Forms of Spatial Construction of the Manufacturing Process 12.3. Indicators for Determining the Production Type and Form of Spatial Construction of the Production Process	2 hours	2 hours
<b>Topic 13. Design of the Separate Enterprise Production Units</b> 13.1. Determining the Production Structure of the Enterprise 13.2. Determining the Structure of the Separate Production Workshop	2 hours	2 hours
<b>TOTAL:</b> 60. h	<b>30</b>	<b>30</b>