

Discipline	<b>Methods and Means for Non-destructive Testing</b> code: 46a <b>8 semester – / summer/</b>	
Specialty	Industrial Management	
ECTS credits: <b>6</b>	Form of assessment: PA	
Lecturer	assoc. professor / scientific title/ Plamen Petrov /name/ Room 204 M Phone: +359 878148152 E-mail: plpet@tu-varna.bg, petpl@abv.bg	
Department	Material Science and Technology	
Faculty	Faculty of Manufacturing Engineering and Technology	
<p>Learning objectives:</p> <p>Educational issues in the discipline are presented in three separate themes main sections:</p> <ol style="list-style-type: none"> <li>1. Mechanical behavior of materials in operating conditions;</li> <li>2. Mechanical tests of materials;</li> <li>3. Non-destructive methods for testing and checking.</li> </ol> <p style="text-align: center;">/ANNOTATION/</p> <p>The course "Methods and tools for non-destructive testing" is designed to give students "Industrial management " system of knowledge in the field of non-destructive testing methods, control and evaluation of reliability, durability and operating lifetime of machine building materials and related products .</p> <p>Mechanical testing of materials are based on mechanical impacts on articles or specimens made of them leading to plastic deformation or destruction. Most of them are standardized by using them to determine the specific mechanical properties of materials is required. Apply both need a certificate for the mechanical properties of matter, and in repairs, and if necessary, by determining the remaining operational lifetime of the equipment. For the determination of some of them use non-destructive methods.</p> <p>Nondestructive methods are based on the interaction material objects and various forms of energy. They are used to evaluate the defectiveness of the test object, for example, deviations from continuity of the material; variations in the structure; variations in physical and mechanical properties, etc., while they do not damage the research object and not violate his fitness. The main non-destructive test methods are ultrasonic, radiation, optical, radio frequency, eddy current, magneto-electric, non-contact, heat, etc..</p> <p>The course on "Methods and tools for non-destructive testing" is based on the craft of students gained in studying subjects: "Material", "Strength of Materials", "Physics", "Chemistry" and others.</p> <p>The course is provided with the necessary educational and contemporary literature in the field of</p>		

materials science, mechanical testing and nondestructive testing.

CONTENTS:

Training Area	Hours lectures	Hours seminar exercises
Mechanical behavior of materials in operating conditions.	11	-
Methods for mechanical testing of materials	4	6
Non-destructive testing of materials.	15	9
<b>TOTAL: 45h</b>	<b>30</b>	<b>15</b>