Discipline	**Material science and technology** code: 11 **2 semester – /summer/**	
Specialty	Marine Engineering	
ECTS credits: **5**	Form of assessment: exam	
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	

Learning objectives:

The course examines the basic engineering materials - alloys of iron and non-ferrous metals: aluminum, copper, magnesium, titanium. A substantial section is devoted to non-metallic materials - polymers, ceramics, composites, as well as to some modern materials with specific properties.

/ANNOTATION/

"Materials Science and Technology" is an engineering discipline that serves as the basis of machine building. The course provides basic information on the methods of material processing during extraction, shape change, improvement of properties by heat treatment and complex methods of impact. It examines the foundations of the structure and properties of the metal materials, their interrelation with the ways of their study and modification.

CONTENTS:

Training Area	Hours lectures	Hours seminar exercises
Introduction in materials science.	2	-
Structure and properties of metals and non-metals.	2	4
Solidification of metals. Structures.	3	2
Basic engineering iron alloys.	3	6
Non-ferrous alloys.	3	-
Classical Metallurgy, Metals and Processes.	3	-

Casting of metals.	3	4
Plastic deformation technologies.	3	6
Welding processes.	3	4
Technologies to improve the properties of metallic materials.	3	2
Technology for production of articles made of polymeric materials.	2	2
TOTAL: 60 h	**30**	**30**