Discipline	MACHINE TOOLS code: 35 **6 semester – summer** МЕТАЛОРЕЖЕЩИ МАШИНИ	
Specialty	MANUFACTURING ENGINEERING AND TECHNOLOGIES COMPUTERIZED TECHNOLOGY IN MECHANICAL ENGINEERING	
ECTS credits: **4**	Form of assessment: exam	
Lecturer	Assistant Prof. PhD /scientific title/ Dimka Vasileva /name/ Room 803M Phone: +359 883 313 325 E-mail: d.vasileva@tu-varna.bg	
Department	Technology of Machine Tools and Manufacturing	
Faculty	Faculty of Manufacturing Engineering and Technologies	

Learning objectives:

- To present the wide range of general and special purpose machines, CNC machines and systems for different processing types;
- To explain their technological application and usage capabilities.

/ANNOTATION/

The Machine Tools discipline aims to present a wide range of machine tool and machine system types by:

- Classification of machine tools;
- Explaining their construction, kinematics and principle of operation;
- Review of capabilities and application field;

The lectures and exercises are arranged according to the technological operations that can be performed with different types of machine tools. General purpose turning, drilling and milling machines, special purpose gear processing and grinding machines, CNC lathe and CNC milling machines, EDM, Plasma and Laser cutting machines are considered.

CONTENTS:

Training Area	Hours lectures	Hours seminar exercises

General characteristics of machine tools	2	-
Lathe machines	2	2
Milling machines	2	2
Drilling machines	2	4
Grinding machines	2	
Machine tools for cylindrical gear processing	4	
Machine tools for cone gear processing	4	
Machine tools for gear - finishing	2	
Construction of CNC machines	2	4
CNC Lathe machines (Turning Centre) 2+2/3+2 axis with two spindles	3	
CNC Milling machines (Machining Centre) with 3/5 axis	3	
Electrical Discharge Machining (EDM), Plasma, Laser and Water jet cutting machines	2	-
CNC machines systems for automatic tool and part change, clamping, cooling, measuring and diagnostic, safety systems	-	2
Machining accuracy requirements. Accuracy and repeatability of CNC axis positioning.	-	1
TOTAL: 45 h	**30**	**15**