DESCRIPTION OF THE COURSE

Name of the course: **Micro- and Nanosystems Technologies**	Code: **MMTN02**	Semester: **1**
Type of teaching: **Lectures and laboratory works**	Lessons per week **L-2 hours LW-2 hours**	Number of credits **6**

LECTURERS:

Assoc. Prof. PhD Krassimir Denishev, 9653185, email: khd@tu-sofia.bg,
Assist. Prof. Ph.D. Mariya Aleksandrova, phone: 9653085, email: m_aleksandrova@tu-sofia.bg,
Technical University of Sofia, Faculty of Electronic Engineering and Technologies (FETT),
Department of Microelectronics.

COURSE STATUS OF THE CURRICULUM:

Compulsory course for the students specialty "Microtechnologies and Nanoingeneering" MEng programme of FETT, Faculty of Industrial Technology (FIT) and Faculty of Telecommunications (FTC) at Technical University of Sofia.

AIMS AND OBJECTIVES OF THE COURSE

The purpose of the education on "Micro- and Nanosystem Technologies" is the students to get knowledge on the technological processes, used for creation of structures, devices and blocks in Microelectronics, Nanoelectronics, Micro Electro Mechanical Systems (MEMS) and Nano Electro Mechanical Systems (NEMS). The Laboratory Works give the students knowledge on deposition and structuring of layers of different materials, the creation of 2D and 3D configurations with high complexity, created in the volume and on top of the substrates. The received knowledge will allow the students to know the main technological processes of Microelectronics and Mechathronics, as well as to be able to define the necessary processes and procedures for designing and producing of Microelectronics and Mechathronics devices.

DESCRIPTION OF THE COURSE:

In the course, the main methods for deposition and structuring of layers of different materials, the creation of 2D and 3D configurations with high complexity, with minimal dimensions in the ranges of micrometers and nanometers, created in the volume and on top of the substrates, are reviewed

PREREQUISITES:

Physics, Chemistry, Microelectronics, Material Science, Nanomaterials.

TEACHING METHODS:

The lectures are conducted with the aim of visual samples. Laboratory works are carried out by "Laboratory Work Guide" and protocols. Optional - choosing and preparation of Course project.

METHOD OF ASSESSMENT:

Written exam at the end of second semester.

INSTRUCTION LANGUAGE:

Bulgarian (English is possible)

BIBLIOGRAPHY: 1. **"Introduction to Microsystem Technology : A Guide for Students"** by Gerald Gerlach, Wolfram Dotzel, Dorte Muller, John Wiley & Sons Inc, ISBN 0470058617, New York, 2008.

2. "Mechatronics: An Introduction" by Robert H. Bishop, CRC Pr I Llc, ISBN 0849363586, New York, 2005.