

<b>Title of the course:</b> <b>Basic Biotechnology</b>	<b>NEPTUN-code:</b> RKWBI1ABNE	<b>Weekly teaching hours:</b> $l+cw+lb$ 2+0+0	<b>Credit:</b> 3 <b>Exam type:</b> tm
<b>Course leader:</b> Hosam, Bayoumi Dr	<b>Position:</b> university private professor, associate professor	<b>Required preliminary knowledge:</b> None	
<b>Curriculum:</b>			
Introduction; The concept of biotechnology; Definitions of Biotechnology; Scientific integration in the area of biotechnology; applications of biotechnology. General overview of biotechnology; Processing methods in biotechnology. Definitions, the main areas of bioinformatics and their subsectors. Red Biotechnology: Red biotechnology major global development trends decisive. The biotechnology and cell therapy. The basic types of biocatalysts. Bioreactors. Application of microorganisms. Construction work for industrial microbiological (fermentation) operations. The end products of the industrial biotechnology. White Biotechnology: Environmental biotechnology. Bio-based materials, bioinformatics, Bioenergy, Bioremediation. Green Biotechnology: Technical conditions for plant biotechnology methods. Plant cells based on biotechnological processes. Biotechnology of Food Industry. Molecular Biotechnology. Genetic engineering. Nanobiotechnology: using for detection and construction of biological macromolecules.			
<b>Professional competencies:</b>			
Knowledge of general and specific mathematical, natural and social scientific principles, rules, relations, and procedures as required to pursue activities in the special field of environment protection. Knowledge of the learning, knowledge acquisition, and data collection methods of the special fields of environment protection, their ethical limitations and problem solving techniques. Comprehensive knowledge of the basic features and interrelations of environmental elements and systems, as well as of the environmentally harmful substances affecting them. Able to cooperate with engineers involved in the development and application of production and other technologies to develop the given technology in terms of environment protection. Able to participate creatively in engineering work based on their multidisciplinary skills, as well as to adapt to continuously changing circumstances. Collaboration with civil organizations engaged in environment protection, but willing to argue in order to develop optimal solutions. Constantly upgrading their knowledge of environment protection by attending organized professional development training courses. Sharing experiences with colleagues, thus promoting their development. Taking responsibility towards society for their decisions made in the scope of environment protection.			
<b>Literature:</b>			
♦ Lectures PPT			
♦ Hallam Stevens (2016): Biotechnology and Society: An Introduction. University of Chicago Press. ISBN 022604615X, 9780226046150			
♦ David P. Clark, Nanette J. Pazdernik (2015): Biotechnology. Second Edition Newnes.			