

Discipline	<i>BREEDING AND SEED PRODUCTION OF CULTIVATED PLANTS</i> code: 23 summer semester		
Specialty	AGRONOMY		
ECTS credits: 6	Form of assessment: Exam		
Lecturer	Assoc. prof. Miglena Drumeva PhD Room NUK 331 Phone: +359 52 385 725 E-mail: m_drumeva@tu-varna.bg		
Department	PLANT PRODUCTION		
Faculty	<i>FACULTY OF MECHANICAL ENGINEERING AND TECHNOLOGIES</i>		
Learning objectives: The curriculum is intended for students of a Bachelor's degree program in Agronomy. The course "Plant Breeding and Seed Production" provides a wide knowledge about the plant populations and the methods for creation of new varieties of agricultural crops. By studying the basic approaches of the plant breeding and the latest advances in the application of plant biotechnology in agriculture, the students gain insight into the processes underlying the reproduction of plant materials, the latest breeding achievements and their use in practice. Breeding and seed production is related to a number of branches of biology: general biology, plant growing, genetics, biochemistry, physiology, plant protection, etc. The knowledge of breeding, based on mitosis and meiosis, gametogenesis and polyploidy, will serve to understand the hybridization and the selection in the decaying generations. Breeding, along with biotechnological methods, is related to other major disciplines such as microbiology, anatomy, botany, histology and phytopathology. The new products of the genetic engineering techniques, known as genetically modified varieties and hybrids (maize, sunflower, rice, potatoes, etc.), represent in practice the achievements of molecular breeding.			
CONTENTS:			
Training Area		Hours lectures	Hours seminar exercises

Subject and essence of selection as a science.	2	
Source selection material.	2	
Selection methods	2	
Methods of selection in self-pollinated plants.	2	
Combinatorial selection in self-pollinated plants. Hybridization.	4	
Methods of selection in cross-pollinated plants	2	
Heterosis selection	4	
Methods of selection in vegetatively propagated plants	2	
Methods of creating genetic diversity	2	
Selection traits and their evaluation.	2	
Nature and tasks of seed production.	2	
Schemes of seed production.	2	
Control of seed production.	2	
Methods of selection in self-pollinated crops.		4
Methods of selection in cross-pollinated crops.		4
Methods of selection in vegetatively propagating plants.		2
Evaluation of the yield components of selection materials from wheat, corn and sunflower.		4
Assessment of breeding material for winter and cold resistance, drought resistance and disease resistance		4
Application of biotechnological methods in breeding.		6
Organization and control in seed production. Varietal and seed control.		6
TOTAL: 60 h	30	30