



COURSE SPECIFICATION 4th SEMESTER

Course Name : Isolation and Cultivation Technique of Biological Agents
Code : KP 241
Credit : (2-2)

Course Description:

The objective of this course is to prepare students to master the application of biotechnology in industrial activities and agricultural business. To study this subject, students must have an understanding on the principles of microorganisms, land and biological resources. This course is very important for introducing technology in agriculture and is very useful in implementing and developing innovative businesses in the field of crop cultivation technology.

References:

Prescott et al. 2000. Microbiology
Brock. 1988. Biology of Microorganism
Ingold, C.T. & H.J. Hudson. 1993. The Biology of Fungi. Chapman & Hall.
Ratna Siri dkk. 1982. Dasar Mikrobiologi
Tortora et al. 2007. Microbiology an Introduction. Pearson Int'l Edition.
Mantell, Mathews dan McHee. 1985. Principles of plant Biotechnology. London
Sardjoko. 1991. Bioteknologi. Gramedia. Jakarta
Yuwono, T. 2006. Bioteknologi Pertanian. Gadjah Mada University Press.
Yogyakarta

Topics:

1. Inoculum development to modern biological fertilizer biotechnology; population of soil microorganisms and soil fertility; biogeochemical cycle; the role of biological agents in the nutrient cycle
2. Decomposition of organic matter; symbiotic and non-symbiotic nitrogen fixation; phosphorous transformation in soil by microbes; role of rhizobacteria in drought stress and plant growth regulator.
3. Biological control; biological control agents; natural enemies
4. Biological control fungi; biological control bacteria; biological control viruses; biological control weeds; biological control vegetable extract
5. GMO; Gene cloning
6. PCR; Transformation of genes into bacteria; Propagation of plasmids in bacteria
7. Isolates & biopesticides and biofertilizer products; GMO Products