Module Handbook of Entrepreneurship in Microbiology

Module designation	Entrepreneurship in Microbiology course is an elective course for students of Agricultural Microbiology study program, Faculty of Agriculture. This course is designed to provide an in-depth introduction to entrepreneurship, especially for undergraduate microbiology students.
Semester(s) in which the module is taught	Third/Fifth Semester
Person responsible for the module	Ir. Donny Widianto, Ph.D.
Language	Bahasa Indonesia/Indonesian Language
Relation to curriculum	*Elective Course*
Teaching methods	Lecture are conducted in the class with 30-40 students. In every meeting, there will be delivered interactive lecture and discussion. In some topics there will be quizzes, individual and/or group assignment. Details: 1. Lectures 2. Assignment (Individual and Group) 3. Discussion 4. Midterm 5. Final Exam
Workload (incl. contact hours, self-study hours)	- Lectures = 2 SKS x 50 minutes x 16 meetings = 1.600 minutes = 26,67 hours = 26,67 hours/30hours = 0,89 ECTS - Assignment = 2 SKS x 60 minutes x 16 meetings = 1.920 minutes = 32 hours = 32 hours/30hours = 1,07 ECTS - Self Study = 2 SKS x 60 minutes x 16 meetings = 1.920 minutes = 32 hours = 32 hours/30hours = 1,07 ECTS Total Workload = 3,03 ECTS
Credit points	*2/0 Credit Points*
Required and recommended prerequisites for joining the module	*None*

Module objectives/intended learning outcomes	*Program Learning Outcomes (PLO):* *PLO1: Able to explain theoretical concepts of biology microorganism and develop microbial-based technology to increase plant production and environmental services.* *PLO2: Able to describe the latest methodology in the field of microbiology to create environmentally friendly and sustainable agricultural development.* *PLO3: Able to select, utilize and manage the potential of microbes and microbiomes to build industrial and agricultural systems.* *Course Learning Outcomes (CLO):* *CLO1: Able to analyze the market, identify business opportunities in the field of microbiology, and implement appropriate entrepreneurial strategies.* *CLO2: Able to innovate and develop effective startup business plans based on market analysis.* *CLO3: Capable of projecting/calculating long-term profits, analyzing risks, and developing effective business mitigation strategies.*
Content	1. *Introduction: Scope & course plan, potential of microbiology, entrepreneur significance in microbiology (1 meeting)* 2. *Concept Entrepreneurship (1 meeting)* 3. *The use of microbes for business (1 meeting)* 4. *Industrialization of microbial-based processing (1 meeting)* 5. *Business start-up techniques: idea, technology, passion & team (1 meeting)* 6. *Segmentation market theory through Primary Market Research (1 meetings)* 7. *Selection of Beachhead Markets (1 meeting)* 8. *Technique of building the end user and their profile (1 meeting)* 9. *Calculate the total of addressable market and the size of beachhead market (1 meeting)* 10. *Create a persona profile for Beachhead Market (1 meeting)* 11. *Full Life Cycle Analysis of Use Case and product specifications (1 meeting)* 12. *Alignment of product value and Persona needs (1 meeting)* 13. *Determine the core of the business and determine the position of competitive (1 meeting)* 14. *Group presentation (1 meeting)*
Examination forms	*Essay*
Study and examination requirements	*To be able to take the final exams, the minimum of student attendance is 70% out of effective meetings. From 14 meetings, students must take a minimum of 10 meetings to take the exam.*

Reading list	*Main References:* 1. *Bill Aulet. Disciplined Entrepreneurship: 24 Steps to a Successful Startup. 2013. Wiley.* 2. *Bill Aulet. Disciplined Entrepreneurship Workbook. 2017. Wiley.* 3. *Florentina Matei and Daniela Zirra (Eds). 2019. Introduction to Biotech Entrepreneurship: From Idea to Business. A european Perspective. Biological Control: A Global Perspective. Springer Nature Switzerland AG.* 4. *Jose Machado, Filomena Soares, and Germano Veiga (Eds.). 2019. Innovation, Engineering, and Entrepreneurship. Springer International Publishing AG.* *Additional References:* *Bill Aulet tutorial videos accessed via YouTube*