Table Appendix 1: Mahidol University Degree Profile

Bachelor's Degree Program	
1. Name of the program (Thai) หลักสูตรวิศวกรรมศาสตรบัณฑิต สาขาวิชาวิศวกรรมอุตสาหการ (หลักสูตรนานาชาติ) (English) Bachelor of Engineering Program in Industrial Engineering (International Program) 2. Degree Name (Thai) วิศวกรรมศาสตรบัณฑิต (วิศวกรรมอุตสาหการ) (English) Bachelor of Engineering (Industrial Engineering)	
General information of the program	
Type of the program	Bachelor's Degree, Academic Program
Required number of credits	Not less than 148
Studying duration / program round	4-year program
The program's status and opening schedule	Revised program in 2021, 1st Semester, Academic year 2022
Degree granting	Single degree
Degree-granting Institutions	Mahidol University
Organizations certifying the standard	Council of Engineers Thailand
Specific information of the program	
Purpose / Goals / Objectives	**Goals:** To be recognized as the premier undergraduate program in Dairy and Beverage Engineering according to national and international standards to produce industrial engineers with MU graduate attributes **Objectives:** The graduates from this program are expected to: 1) Apply core industrial knowledge with Dairy and Beverage Engineering competencies in engineering professions, start up a new

	business, or pursue advanced studies in related fields 2) Enhance their skills in continuous professional development in response to technological and social challenges 3) Work independently as well as collaboratively in a team, and demonstrate leadership, accountability, initiative, and ethical and social responsibility
Distinctive Features	- First Industrial Engineering program with a specialty in Dairy and Beverage Engineering in Thailand - Industry collaboration and development - Holistic program : Upon the completion of the program, students will have competencies in Industrial Engineering along with microbiology, holistic Dairy and Beverage Engineering process, and the essential skills of collaborative management, leadership, entrepreneurship, morals and ethics.
Educational system	Semester System
Graduates' advancement	
Obtainable jobs	The graduates from this program are able to work in industrial engineering positions with dairy and beverage engineering specialties. Additionally, graduates are able to start up new businesses related to the dairy and beverage industries.
Further fields of study	- Industrial Engineering Program - Food Engineering and Science Program - Engineering Management Program - Business and Administration Program

	- Other related programs
Philosophy in program administration	
Education philosophy	Administering education that focuses on learner's achievements through learning-centered education, outcome-based education, and constructivism for self-development of knowledge, abilities, and new skills with truly embedded industry collaboration.
Strategy / teaching guidelines	**Direct Instruction:** Explicit Teaching, Lecture, Didactic Questions Demonstrations, Laboratory & Practice **Indirect Instruction:** Inquiry, Problem Solving, Case Studies, Concept Formulation **Experiential Learning:** Simulations, Models, Games, Field Trip, Experiment **Interactive Instruction:** Debates, Discussions, Problem Solving, Brainstorming, Peer Learning, Reflection **Independent Study:** Work Assignment, Capstone Projects, Computer-Aided Instruction, Reflection **Workplace based learning:** Internship, On-Job Training
Strategy / student's evaluation guidelines	Formative assessment : Qualitative feedback between student and instructor on details of content and performance by using various assessment tools, e.g., Formative Quizzes, Class Discussions, etc. Summative assessment : Evaluation of student learning using rubrics at the end of an instructional unit, e.g., Written Exam (MCQ, SAQ, MEQ Essay, etc.), Oral Exam, Rubrics for Practice

	Assignment, Assignment Report, Project Presentation, Project Report, Presentation Observation, Individual/Group Observation, Discussion Observation, Practice Observation and Examination, Quiz, Class Attendant and Participation
Competences provided to the students	
Generic Competences	**Ethical reasoning:** Ability to apply principles of ethics, and respect diversity with social responsibility and sustainability **Critical thinking and creativity:** Ability to analyze and evaluate information and ideas from multiple perspectives in making judgments and decisions and creating new ideas **Effective communication:** Ability to communicate effectively with others **Team working**: Work with multidisciplinary teams as a successful member **Digital literacy:** Ability to apply appropriate information and communication technologies to perform work as well as lifelong learning
Subject-specific Competences	**Professional ethics:** Ability to conduct professional engineering ethics **Knowledge:** Ability to possess specific knowledge in Chemistry and Microbiology in dairy and beverage engineering, engineering principles for dairy and beverage engineering (e.g. Thermodynamics, Heat transfer, Refrigeration), Engineering and Technology in Manufacturing, Materials, Quality, Safety, Automation, Operation Management for Dairy

	and Beverage Engineering, Hygienic Design, Industrial Plant Operation for Dairy and Beverage Engineering **Methods:** Ability to design, analyze, develop, implement, operate, and improve integrated systems that produce and/or supply products and/or service in the industrial engineering profession especially in the dairy and beverage business **Application:** Ability to work in dairy and beverage industries with minimum training
Graduates' learning outcomes	
PLOs	The graduates from this program will demonstrate the following abilities : 1. An ability to identify, formulate, and solve complex engineering problems in dairy and beverage industries by applying principles of engineering, science, and mathematics and/or integrating industrial engineering principles. 2. An ability to apply engineering and/or industrial engineering design to produce solutions that meet specified needs to dairy and beverage industries with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors 3. An ability to communicate effectively with a range of audiences to accomplish the assigned engineering and/or industrial engineering work 4. An ability to recognize ethical and professional responsibilities related to industrial

	engineering in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts 5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives 6. An ability to develop and conduct appropriate experimentation related to engineering and/or industrial engineering applications, analyze and interpret data, and use engineering judgment to draw conclusions 7. An ability to acquire and apply new engineering and other related knowledge as needed, using appropriate learning strategies