

COURSE DETAILS

Master' Degree

97701 Research, Development and Innovation

(6 credits)

Course Learning Outcomes

1. To enable students to gain knowledge and insight in the concept of statistics and research methods and innovation process.
2. To enable students to apply knowledge of research methodology and research instruments in planning and designing research methods in science, engineering, and technology.

Course Description

Knowledge regarding research methodology, statistics, research models, research process, identification of population and sample, research tool preparation, tool quality test, data collection, data errors control, statistics selection for data analysis, experimental design, research methodology, preparation of research protocols in science, engineering, and technology, principles of critical analysis for a research paper, how to create innovation, innovative organization model, frugal innovation concept, research risk management, and benefiting from technology and innovation.

97702 Smart Manufacturing and Intelligence Machine

(6 credits)

Course Learning Outcomes

1. To provide students with knowledge and understanding of elements and the concept of smart manufacturing systems and intelligent machines.
2. To enable students to select smart manufacturing systems and intelligent machines.

Course Description

Analysis of the needs for an automation system, the rate of production, the function and specifications of manufacturing machines, conceptual designs for machine operations, investigations of potential alternative designs, designs for machinery details, choices of machine components and parts, designs for easy maintenance, designs for automation systems and automatic machinery control, manufacturing robot systems, controls in industrial production, and the assembly and testing of manufacturing machinery.

97703 Sustainable Packaging Production System

(6 credits)

Course Learning Outcomes

1. To enable students to analyze and design packaging production system.
2. To enable students to select materials for packaging and for value added products.
3. To enable students to integrate packaging production system in sustainable way.

Course Description

Materials production technology, materials processing for sustainable packaging production, factors affecting selection of packaging materials including mechanism of gas and liquid permeability, analysis of marketing concepts and consumers' psychology to seek opportunity for sustainable packaging design covering Ergonomics, universal design covering various groups of consumers including senior people, packaging design with the life circle concept and life circle assessment as guideline, printing-packaging production technology and production line, clean technology, industrial ecosystem, production control, increasing efficiency and effectiveness in the supply chain, traceability technology, factors affecting packaging quality in goods distribution system, dynamics packaging, relationship between printing-packaging production technology and filling.

97704 Technology and Quality System in Food Industry (6 credits)***Course Learning Outcomes***

1. To enable students to gain insight and understanding in concepts, principles and regulations related to technology and quality system in food industry.
2. To enable students to analyze and apply technology and innovation in food industry.
3. To enable students to apply principles and quality management standards, hygiene and food safety in food industry.

Course Description

Concepts and principles related to technology and innovation for work development in food industry covering post-harvest process, converting, packaging and distribution with emphasis upon production application and products development in food industry, concepts regarding quality, hygiene and food safety as well as related international concepts and application of international management related with quality, hygiene and safety of products in production industry and food services.

97705 Innovative Material Technology (6 credits)***Course Learning Outcomes***

1. To enable students to understand the properties of materials.
2. To enable students to design and analysis of new materials in industries.
3. To enable students to understand materials applications.

Course Description

Types and properties of materials, Analytical techniques and design of materials, System and technology in manufacturing industry, Reverse engineering, New materials manufacturing, Nanomaterials, Quality control system and manufacturing standards, Factor affecting material applications, New materials design technology, Smart materials, Bio materials, Advanced Materials, Material design and Application integration.

97706 Engineering Management and Process Development (6 credits)

Course Learning Outcomes

1. To enable students to understand how to manage engineering and the development of manufacturing processes in the industry.
2. To enable students to apply concepts in the process improvements of industrial production systems.

Course Description

Production process design, type of production system, production planning, and production control the logistics and supply chain Management-related production choices Utilizing production techniques to control variation Steps for troubleshooting in production improvement of production productivity through the development of production systems study and analysis of issues with industrial production Lean manufacturing system approach to waste management in production systems utilizing the Six Sigma technique to regulate production variability concept of management and the production system in the era of Industry 4.0. Management and development of industrial production systems in terms of morals and ethics.

97707 Sustainable Product Design and Manufacturing System (6 credits)

Course Learning Outcomes

1. To enable students to gain knowledge in sustainable product design and manufacturing system.
2. To enable students to analyze the needs of product design and sustainable manufacturing systems.

Course Description

Sustainable product design principles, engineering design processes and techniques, design for manufacturing and assembly, quality function deployment, Kansai engineering design, ergonomics design, universal design, sustainable manufacturing system concept, circular economy concept, process design and sustainable production systems, analyzing marketing concepts and consumer behavior to identify potential for sustainable product design, life cycle assessment, usage of clean technology in production, life cycle cost analysis, industrial ecosystem, and industrial waste management systems.

97708 Strategic Management and Decision Making for Engineering (6 credits)

Course Learning Outcomes

1. To enable students to understand strategy and management in industries.
2. To enable students to use and analysis of the decision-making tools.

Course Description

Business Policy and Strategy, Strategy planning & Operation planning, Business factor analysis, Strategic business management, Quality and Risk management, Problem and Decision-making, Decision making components, Decision making for business, Process and techniques of decision-making, Analytical skills and Decision-making, Big data analytics and Decision-making.

97797 Independent Study (Engineering Management Technology) (6 credits)

Course Learning Outcomes

1. To provide students with skills and experience in acquiring knowledge through the educational process from various courses in the curriculum and other benefits related to engineering management technology.
2. To enable students to study and research problems in engineering management technology. And/or topics that students are particularly interested in and related to the work performed.

Course Description

The selection of challenges in engineering management technology for the purposes of analysis or research. Developing independent research projects, writing an independent research proposal, doing an examination of relevant literature or documents, conducting data gathering, analysis, and synthesis, as well as writing independent research reports.

97798 Thesis (Industrial Technology) (12 credits)

Course Learning Outcomes

1. To enable students to select problems for research thesis.
2. To enable students to survey and analyze literature related to thesis title.
3. To enable students to design research thesis.
4. To acquire knowledge and skills in writing and submitting a research project.
5. To enable students to develop instrument for quantitative research.
6. To enable students to develop instrument for qualitative research.
7. To enable students to collect, analyze and submit data for thesis.
8. To enable students to present and defense thesis.
9. To enable students to write a complete thesis report.
10. To enable students to write a research report for publication.

Course Description

Selection of problems for research thesis, survey, analysis of literature review, research design, writing and submitting thesis project, development of instrument for thesis in both quantitative and qualitative research, data collection, data analysis, submission of thesis data, presentation and defense in thesis examination, writing a complete thesis report and writing a research report for publication.

97799 Graduate Professional Experience in Engineering Management Technology (6 credits)

Course Learning Outcomes

1. To enable students to gain more knowledge and share professional experience.
2. To enable students to enhance positive attitude towards profession.
3. To enable students to develop leadership in profession.
4. To enable students to develop skills in problems solving and team work.
5. To enable students to promote morals, ethics and professional code of ethics.

Course Description

Sharing knowledge and experience in industrial technology, self-development for proper personality as academic leader in profession, promoting human relations, skill development in solving problems and team work, development of morals, ethics as well as appropriate professional code of conducts in industrial technology.

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