COURSE DETEAL

Master' Degree

50797 Independent Study (Industrial Environment Management)* (6 credits) *Course Learning Outcomes*

- 1. To acquire skills in applying concepts, theories, and methodologies studied from various courses for study and analysis.
- To study industrial environment management problems in topics important for development of industrial environment management work, and/or any topics that students have special interest.

Course Description

Problem selections for studying, analysis or research; studied proposal writing; studied proposal presentation; literature review and/or relevant tentative topics for studying, analysis or research; result collection of studying, analysis or research; report presentation of studying, analysis or research.

50798 Thesis (Industrial Environment Management) Course Learning Outcomes

(12 credits)

- 1. To be able to select research problems for a thesis.
- 2. To be able to survey and analyze literature related to the thesis.
- 3. To be able to design research for the thesis.
- 4. To gain knowledge and skill in writing and presenting the thesis proposal.
- 5. To be able to develop quantitative research tools.
- 6. To be able to develop qualitative research tools.
- 7. To be able to collect, analyze, and present data for the thesis.
- 8. To be able to present and defend the thesis examination.
- 9. To be able to write the complete thesis report.
- 10. To be able to write the research report for publication.

Course Description

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

50799 Graduate Professional Experience in

Industrial Environment Management*

Course Learning Outcomes

- 1. To develop professional academic leadership in industrial environment management.
- 2. To promote human relationship and skills in teamwork.
- 3. To enhance self-moral, ethics, and professional ethics.
- 4. To present concrete industrial environment management guidelines.

Course Description

Knowledge and experiences exchange using seminar, discussion or other suitable means; self-development to improve personality for professional academic leadership in industrial environment management; human relationship promotion; skills in teamwork; skill development for effectively problem solving in industrial environment management; enhancing appropriately self-moral, ethics, and professional ethics among academicians in industrial environment management.

59713 Systems and Tools for Industrial Environmental Management* (6 credits) *Course Learning Outcomes*

- 1. To elucidate standards on environment management system.
- 2. To elucidate standards on corporate social responsibility.
- 3. To elucidate environmental health risk assessment and management.
- 4. To elucidate environmental health impact analysis.

Course Description

Standards on environment management system; corporate social responsibility; environmental health risk assessment and management; fundamental knowledge and laws regarding environment impact analysis, and health impact assessment; system and techniques for analysis of environment impact and environmental health impact assessment; participatory process of stakeholders; inspection process of operations based on measures on environment and health of projects in construction and on-going phase; and assessment of management results in projects based on reports on environmental impact analysis and health impact assessment.

59714 Industrial Water Quality and Wastewater Control and Management* (6 credits) Course Learning Outcomes

- 1. To elucidate principles of water quality and wastewater management, prevention of water pollution, and clean technology.
- 2. To elucidate laws and standards regarding industrial water and wastewater management and control.
- 3. To elucidate management of industrial water used activities.
- 4. To elucidate wastewater management and control of wastewater from industrial activities.
- 5. To elucidate mathematics model in water pollution management and control.

Note: Work in process of School of Health Science

Course Description

Principles of industrial water quality and wastewater management; prevention of water pollution and clean technology; laws and relevant standards; water resource, quantity and quality of water used; water treatment process; water distribution system in industrial plants; wastewater source, quantity, and characteristics; wastewater sampling and analysis; wastewater collection systems; treatment and disposal of industrial wastewater and sludge; mathematics model in water pollution management and control.

59715 Industrial Air Pollution Control and Management*(6 credits)

Course Learning Outcomes

- 1. To elucidate principles and concepts in management and control of air pollution.
- 2. To elucidate relevant laws and standards in management and control of air pollution.
- 3. To elucidate sample collection, analysis, quality control, and report system of air monitoring, investigation, and quality assessment from stack, workplace, and ambient air quality.
- 4. To elucidate principle of application of meteorological knowledge and mathematical model in order to manage air pollution.
- 5. To elucidate principles of system design, control, correction, and maintenance of ventilation, treatment, and odor removal systems, as well as air pollution treatment system.

Course Description

Principles and concepts in industrial management and control of air pollution; types and impact of air pollution; relevant laws and standards in management and control of air pollution; air quality monitoring, investigation, and assessment from stack, workplace, and ambient air; application of meteorological knowledge and mathematical model in order to manage and control of air pollution; system design, control, correction, and maintenance of ventilation, treatment and r removal systems, and air pollution treatment system.

59716 Industrial Solid and Hazardous Waste Management*

(6 credits)

Course Learning Outcomes

- 1. To elucidate sources, types, characteristics of industrial wastes, and health and environmental impacts.
- 2. To elucidate principles of industrial waste classification for administration and industrial waste collection, and transport systems.
- 3. To elucidate principles and selective consideration of proper treatment and disposal of industrial wastes.
- 4. To elucidate use of clean technology in order to manage industrial wastes and laws relating to industrial waste management.
- 5. To elucidate risk assessment, impact monitoring and inspection, and administration of industrial waste management system.

Note: Work in process of School of Health Science

Course Description

Sources and characteristics of industrial wastes; health and environmental impact of industrial wastes; industrial waste classification for administration, collection, transport, treatment, and disposal; waste reduction; application of clean technology in industrial waste management, risk assessment, monitoring and inspection, administration of industrial wastes; and relevant laws.

59717 Research Methodology and Statistics for Industrial Environment* (6 credits) Course Learning Outcomes

- 1. To elucidate research planning and application of research methodology in industrial environmental works.
- 2. To provide research proposals in industrial environmental works.
- 3. To select statistical methods in industrial environmental works.
- 4. To present research results on industrial environment.

Course Description

Research principles; research process; research design; randomization and research sampling collection; research planning; general statistical knowledge, probability and sample randomization; hypothesis testing; multiple correlation and regression equation; analytical statistics; selection of statistics for data analysis; ethics and professional ethics in research conduction; provision of research proposals and reports on industrial environment; and research result presentation.

59718 Industrial Noise and Vibration Control and Management* (6 credits) Course Learning Outcomes

- 1. To elucidate fundamental Physics knowledge of noise and vibration.
- 2. To elucidate situation of noise and vibration pollution.
- 3. To elucidate laws and standards relating to noise and vibration pollution.
- 4. To elucidate measurement and assessment of noise and vibration.
- 5. To elucidate principle of control and prevention of noise and vibration.
- 6. To elucidate design of control and prevention system of noise and vibration as well as inspection and correction methods.

Course Description

Fundamental Physics knowledge of noise and vibration; situation of noise and vibration pollution; laws and standards relating to noise and vibration pollution; measurement and assessment of noise and vibration; principles of control and prevention of noise and vibration; design of control and prevention system of noise and vibration as well as inspection and correction methods, mathematical models in management and control of noise and vibration pollution.

Note: Work in process of School of Health Science