

Curriculum

Hazardous Materials Management

Master of Science: Hazardous Materials Management					
<u>Course</u>	<u>Title</u>	<u>Semester Hours</u>	<u>Elective Courses</u>		<u>Semester Hours</u>
ITHM 520	Intro to Hazardous Mat. Mgmt	3	ITHM 521	System Modeling	3
ITHM 523	Statistics/Data Analysis	3	ITHM 522	Chemistry of Hazardous Materials	3
ITHM 524	Public Issues in Hazardous Materials	3	ITHM 526	Environmental Regulations	3
ITHM 525	Natural Resources & Conservation	3	ITHM 527	Water & Wastewater Treatment	3
ITHM 529	Env. Toxicology and Risk Assess.	3	ITHM 528	Waste Minimization	3
			ITHM 530	Industrial Waste Treatment and Tech.	3
Total Hours		15	Total Hours		30, 33, or 36

DESCRIPTION OF COURSES

Hazardous Materials Management

ITHM 500 Graduate Research/Thesis. (1-4 hours)

The student is required to select an appropriate topic with approval from advisor and do a presentation.

ITHM 520 Introduction of Hazardous Materials Management. (3 Hours) (For Non-hazardous Materials Management Majors). An introduction to contemporary national problems of air and water pollution, environmental monitoring, toxicology, hazardous waste; general problems of environmental contamination; legal and political aspects of current regulations; general scientific principles applied to the evaluation and control of specific problems.

ITHM 521 System Modeling. (3 Hours) Practical application of simulation to diverse environmental systems including air, land, surface, sub-surface, water systems and also, the hazardous materials management models.

ITHM 522 Chemistry of Hazardous Materials. (3 Hours) This course shows how chemistry can be applied to hazardous materials. The course is designed to introduce and train students' awareness of the unique requirements involved in handling hazardous materials when they are encountered in different situations, thus reducing the loss of lives and property. Prerequisite: Chemistry 135 & 235.

ITHM 523 Statistics/Data Analysis. (3 Hours) This course is designed for the development and maintenance of proficiency in statistical interface. It contains a comprehensive overview of how statistics work in actual cases and how it can be applied in hazardous materials management. Prerequisite: Math 111, CSC 115, & 203.

ITHM 524 Public Issues In Hazardous Materials/Waste. (3 Hours) This course is an overview of the strategies, tactics and techniques regarding environmental affairs, both public and private.

ITHM 525 Natural Resources and Conservation. (3 Hours) This course is designed to give students pertinent information of our natural resources with emphasis on their origin, properties, use, misuse and conservation practices.

ITHM 526 Environmental Regulations. (3 Hours) A study of Federal Laws and Regulations concerning hazardous materials and wastes. This course will introduce students to laws and regulations in Mississippi and the nation. The course emphasizes how to implement and comply with laws.

ITHM 527 Water and Wastewater Treatment. (3 Hours) Students will be given an overview on waste/wastewater treatment through discussions of various selected topics. The primary focus of these topics will be to introduce students to treatment methods. Prerequisite: BIO 115 and CHEM 142.

ITHM 527 Water and Wastewater Laboratory. (1 hour) This course is the supplementary course of ITHM 527; laboratory activities which develop techniques for testing water and wastewater. This will involve tests for COD, BOD, Alkalinity, Nitrogen, Colonial Count, TCLP and several other tests. Prerequisite: Bio 101, CHEM 135 & 235, and ITHM 401.

ITHM 528 Waste Minimization. (3 Hours) This course is designed to make students aware of the vast number of problems encountered as a result of disposing waste. Also, students will be given lectures on methods of recycling, reuse and reducing our waste.

ITHM 529 Environmental Toxicology and Risk Assessment. (3 Hours) This course will involve studying chemicals and harmful actions of chemicals on biological issues. This will include understanding chemical reactions and interactions of biological organisms. Students will also be introduced to scientific data and methods currently used to assess human risk to environmental chemicals.

ITHM 530 Industrial Waste Treatment and Technology. (3 Hours) This course is an advanced course for hazardous waste treatment technology. It includes training in pretreatment of hazardous materials, chemical/physical process, stabilization, recovery processes, final disposal of, and secured landfill stabilization. EPA requirements for each process will be addressed in this class. Prerequisite: ITHM 302.

ITHM 532 Emergency Management for Hazardous Materials. (3 Hours) This is an overview of emergency management concepts for commercial wastes and hazardous materials. It will also discuss emergency management concepts of the four phases of Emergency Management.

ITHM 533 Application of GIS in Hazardous Materials Management. (3 Hours) This course provides a survey of the fundamentals of Geographic College of Science, Engineering and Technology / 201 Information Systems. The course will provide hands on experience with hardware and software using ArcInfo developed by Environmental System Research Institute.

ITHM 534 Independent Study. (1-3 Hours) This course will provide the student the opportunity to work on special topics of interest with private companies, state and federal agencies related to the hazardous materials management field as approved by the advisor from the department.

***ITHM 535 Occupational Safety & Industrial Hygiene.** (3 Hours) This course provides an introduction to industrial hygiene and to occupational safety and health. It is designed to provide students with basic skills and knowledge on the science and art of identifying, evaluating and controlling workplace hazards.

ITHM 536 (3) Hazards Risk Management. This course will introduce students to the basic models, theories, and concepts that underlie modern emergency management's understanding of hazards and disasters. Students will examine the hazard-scape, using various hazard models, with a focus on hazard mitigation and emergency

management issues. The interdependence of physical, social and economic characteristics in determining vulnerability will be considered in past disasters and for future planning. The importance of hazard and risk management in a comprehensive emergency management program will also be presented.

ITHM 537 Introduction to Social and Economic Impact of Disasters (3) this course is to introduce key terms associated with sustainable disaster recovery, describe the individual, social economic and environmental impacts of disasters, and begin to describe the complexities of recovery utilizing case studies

ITHM 538 Nature Hazards and Terrorism (3) this course introduces the students to the various disasters caused by nature, man-made and forms of terrorism. It evaluates how the different levels of governments manage and respond to disasters, governments' policy and continuity plans. There will be a study of different nature and terrorism cases that happened in past years, and discussion and demonstration of "lessons learned and best practices.

ITHM 539 Radiation, Preparedness and Exercises (3) this class introduces the students to the radiation safety, preparedness and emergency response, principles of probabilistic risk assessment. The exercises include case studies, survey, detection and population monitoring.