

# DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING AND INDUSTRIAL SYSTEMS AND TECHNOLOGY

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## Faculty

Dr. J. Ejiwale, Associate Professor  
Dr. J. L. Murphy, Professor  
Dr. H. Shih, Professor  
Dr. F. Tuluri, Professor  
Dr. P. C. Yuan, Adjunct Professor

The Department of Civil and Environmental Engineering and Industrial Systems and Technology offers the Master of Science in Education with Technology Education concentration and the Master of Science in Hazardous Materials Management. The Master of Science in Education degree with a concentration in Technology Education is designed to improve the competencies of technology educators, administrators, and other professionals in secondary and post-secondary schools and contemporary technology-based workforces. The Master of Hazardous Materials Management is designed to prepare individuals for safety or environmental management manager positions in the safe handling, transporting, and managing of hazardous materials and toxic chemicals.

## Masters

- Hazardous Materials Management (M.S.) (<https://jsums-public.courseleaf.com/graduate/college-science-engineering-technology/department-civil-environmental-engineering-industrial-systems-technology/hazardous-materials-management-ms/>)
- Technology Education (M.S.Ed.) (<https://jsums-public.courseleaf.com/graduate/college-science-engineering-technology/department-civil-environmental-engineering-industrial-systems-technology/technology-education-msed/>)

## Course Descriptions

### 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 INTRO TO HAZARDOUS MATERIALS (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 HAZ MATERIALS (3 Hours)

Prerequisite: Chemistry 135 235.

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.

### ITHM 523 STATISTICS/DATA ANALYSIS (3 Hours)

Prerequisite: Math 111, CSC 115, 203.

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.

### ITHM 524 PUBLIC ISSUES/N HAZARDOUS MATR (3 Hours)

This course is an overview of the strategies, tactics and techniques regarding environmental affairs, both public and private.

### ITHM 525 NATURAL RESOURCE & CONSERVATIO (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 REGULATION (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/WASTE WATER TREATMENT (3 Hours)

Prerequisite: BIO 115 and CHEM 142.

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.

### 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 ENV TOXICOLOGY & RISK ASSESSME (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 (3 Hours)

Prerequisite: ITHM 302.

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.

### ITHM 532 EMERGEN MNGT OF HAZA MATER (3 Hours)

### ITHM 533 APPLIC OF GIS IN HAZA MAT MNGT (3 Hours)

### ITHM 534 INDEPENDENT STUDY (1-3 Hours)

### ITHM 535 OCCPTNL SAFETY & INDU HYGIENE (3 Hours)

**ITHM 536 HAZARDOUS RISK MANAGEMENT (3 Hours)**

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-scope, using various hazard models, with a focus on hazard mitigation and emergency management issues. The interdependence of physical, and 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 SOC & ECO IMPACT OF DISASTERS (3 Hours)**

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 Hours)**

This class introduces the students to all kinds of disaster caused by nature, man-made disasters and terrorist attacks. How the different levels of governments handle the disaster. The governments' policy and continue operation. The classes will use different nature and terrorism cases happened in past years for study.

**ITHM 539 RADIATION, PREPAREDNESS & EXERCISE (3 Hours)**

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.

**TE 500 SEMINAR/WORKSHOP (3 Hours)**

) Designed for offering courses on subjects which are current and important to industrial education.

**TE 501 CUR LITERATURE AND RESEARCH (3 Hours)**

Identification, analysis, and discussion of the periodicals, topical books, major issues, and research in the field of industrial education.

**TE 504 LAB PLANNING AND MANAGEMENT (3 Hours)**

Designing various industrial education laboratories and facilities. Includes attention to purpose, recommended sizes and other specifications.

**TE 505 HISTORY AND PHILOSOPHY (3 Hours)**

Factors involved in developing the trends and leaders in industrial and vocational education. Analysis of objectives, current concepts, practices and anticipated policies in industrial education.

**TE 511 TECHNICAL EDUCATION (3 Hours)**

Emphasis on trends, community surveys, curricula, definitions, and needs of post-secondary technical education programs.

**TE 512 ADMINISTRATION & FUNDING (3 Hours)**

Identifying current legislation and funding practices concerning industrial education. Function and relationship of directors, supervisors and instructors in all fields of industrial education.

**TE 513 INSTRUCTIONAL AIDS (3 Hours)**

Studying the many instructional aids available for teaching industrial subjects. The course includes instruction in the common audio-visual aids but also making models, cutaways and other industrial teaching aids.

**TE 515 CAREER EDUCATION (3 Hours)**

Current career education programs and their relationship to industrial education. Emphasis on integrating career education goals in industrial education with attention to the goals of each field.

**TE 516 CURRICULUM DEVELOPMENT (3 Hours)**

Principles and techniques of designing and writing industrial education curricula. Attention will be given to goals, behavioral objectives, designing programs to meet objectives and evaluating results.

**TE 521 PROBLEMS IN ELE/ELECTRONICS (3 Hours)**

Opportunity to study problems related to the area of electricity/electronics. Problems based on needs of students with approval of the advisor and the Dean of the School.

**TE 522 PROBLEMS IN DRAFTING (3 Hours)**

Opportunity to study problems related to the area of drafting. Problems based on needs of students with approval of the Dean of the School and his advisor.

**TE 599 INDEPENDENT RESEARCH (1-3 Hours)**

**TE 601 Selection and Organization of Subject Matter (3 Hours)**

Analysis and selection of materials for junior and senior high school, and also, adult industrial technical education.

**TE 602 EVALUATION OF PROGRAMS (3 Hours)**

Evaluation principles and practices in the specialized areas of industrial arts, technical and industrial education.

**TE 621 COORDINATION IN OCCUP TRNG PRO (3 Hours)**

Analysis of objectives and scope of trade and industrial cooperative education program, apprenticeship, and general education work experiences.