The University of Southern Mississippi  
College of Science and Technology - Department of Construction  
IET 409 - Plant Layout

COURSE SYLLABUS

Instructor
• Name: Mohammad A. Rahman  
• Office Address: 248 TEC (Chain) building, Hattiesburg, MS 39406  
• Office Number: 601-266-4902  
• Cell phone: 225-436-5300  
• Fax Number: 601-266-5717  
• E-mail: mohammad.rahman@usm.edu

Office Hours
• Wednesday & Thursday: 2:00 – 4:00 pm; Or by e-mail appointment

Drop Date
• Last day to drop classes with 100% financial credit: January 28, 2014 (Tuesday)  
• Last day to drop full-semester classes without academic penalty: February 24, 2015 (Monday).

Prerequisites
• (Highly Recommended) Calculus I & II; Statistical Method I (CSS-211) or similar course

Credit Hours
• 3 hours

Course Description
• The Plant Layout (IET-409) course focuses on industrial facility planning, the concepts and design methodology that are applicable to different types of facilities and service sectors. The course is designed to provide a comprehensive and a balanced exposure to available methodologies such as factory location, layout planning procedure, material handling, computerized layout procedure, and warehouse layout design. A number of computer software are discussed and used in the layout planning models. The applications are broadly emphasized practical issues, often difficult to capture in quantitative models but are important to consider.

Course Overview
• This course provides an understanding of the fundamental principles, concepts, theory and procedure for effective plant location, layout, and material handling systems design to practice designing facilities. It also covers designing the activities of people, machine, vehicles and processes within a physical environment so that the objectives of the system or enterprise (plant, hospital, bank etc.) can be satisfactorily achieved.
Course Outcome

- Students will learn the foundation of plant layout, planning, principles and design in order to synthesize all the concepts, tools and techniques to address effective managerial decisions with a major emphasis on factory project activities.

Student Learning Outcome(s)

- Students will learn the following from the IET 409 Plant Layout course:
  - Formulations, models, and analytical procedures of facilities planning & Design
  - Understand the logic and foundation of the factory project
  - Design layouts incorporating product, process, and personnel requirements using software tools – process chart, flow pattern, relationship matrices etc.
  - Develop computerized layout planning, and quantitative mathematical models
  - Determine how make parts, machine and material requirements and costs
  - Learn fundamental principles of material handling, equipment and system designs
  - Know dynamic flow models for man, material and machine movement within facility
  - Design random storage policies, model capacity and warehousing systems
  - Evaluate site planning principles, multiple-criteria methods to analyze site selection.

Course Communication

- All class lecture notes and videos to the corresponding lectures will be uploaded in the course webpage via Blackboard. Course communication will be via USM e-mail, Blackboard e-mail, and discussion board. Students can meet the instructor during office hour or by making appointment as needed.

Required Text(s) and Readings

- Reference (optional) Facility Planning by Tompkins, White, Bozer, & Tanchoco. Wiley.

Technology Requirements

- Students will require Computer, internet connection, and headphones/speaker. Students also require software Microsoft Word, Excel, Power Point and scientific calculator to complete the assignments and course exams.

Class Procedures and Requirements

- Students should read all the lecture notes, (power point presentations), text chapters, and listen to recorded audio lectures post in the course website to accomplish the best performance. There will be assignments related to the class lectures in order to test the understanding the subject matters. Assignment will be post in the Assignment box. Assignment should be submitted as a MS Word or Spreadsheet document or a pdf format. If an assignment is hand-written, it should be scanned to one pdf file prior to upload. Scanned document must not be any picture file not as jpg or bmp. All submission should be via Assignment Drop Box within the assignment due date.
Homework can be discussed with other students, but must be compiled by each student individually. The case study, assignment, exams or report should reflect student’s individual style, approach and appeal to solve the problem and report writing. It is recommended that each homework /assignments should contain a title page with student name on it.

A student may (only) re-submit the assignments (in the same week); if he believes he achieved better understanding or better results, after the first submission, within the same week.

Class Participation Policy
- This is an online course, there is no in-class participation needed.

Evaluation Criteria

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<tbody>
<tr>
<td>Midterm exam</td>
<td>20%</td>
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<tr>
<td>Final exam</td>
<td>20%</td>
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<tr>
<td>5 Assignment/Case studies</td>
<td>50%</td>
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<tr>
<td>Term Project</td>
<td>10%</td>
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<td>Total</td>
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Grading Scale
- Total 100-point scale below:

<table>
<thead>
<tr>
<th>Score</th>
<th>Grade</th>
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<tbody>
<tr>
<td>90-100</td>
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<tr>
<td>80-89</td>
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<td>70-79</td>
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<tr>
<td>60-69</td>
<td>D</td>
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<tr>
<td>0-60</td>
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Late Assignments or Projects
- There are penalties for late submissions. A 2-5 days late submission will reduce 25% points from earned grade of an assignment. Solution will be post by the next week. Therefore, assignment will not be graded at all, if it is submitted after one week from due date. Or, a completely different assignment may assign for make-up (if there is a viable reason for being late).

Academic Honesty

The following is from the USM Undergraduate Bulletin:

“When cheating is discovered, the faculty member may give the student an F on the work involved or in the course. If further disciplinary action is deemed appropriate, the student should be reported to the Dean of Students. In addition to being a violation of academic honesty, cheating violates the Code of Student Conduct and may be grounds for probation, suspension, and/or expulsion. Students on disciplinary suspension may not enroll in any courses offered by The University of Southern Mississippi.”
This is optional: Students must send the instructor an e-mail using the course web site e-mail stating that they understand USM’s academic honesty policy and also understand that if they do not uphold the standards of academic honesty, the instructor will enforce all applicable punishment.

ADA Policy—Pick one of these.

ADA Syllabus Statement for the Hattiesburg Campus

If a student has a disability that qualifies under the American with Disabilities Act (ADA) and requires accommodations, he/she should contact the Office for Disability Accommodations (ODA) for information on appropriate policies and procedures. Disabilities covered by ADA may include learning, psychiatric, physical disabilities, or chronic health disorders. Students can contact ODA if they are not certain whether a medical condition/disability qualifies.

Address:

The University of Southern Mississippi
Office for Disability Accommodations
118 College Drive # 8586
Hattiesburg, MS 39406-0001

Voice Telephone: (601) 266-5024 or (228) 214-3232
Fax: (601) 266-6035

Individuals with hearing impairments can contact ODA using the Mississippi Relay Service at 1-800-582-2233 (TTY) or email Suzy Hebert at Suzanne.Hebert@usm.edu.

ADA Syllabus Statement for the Gulf Coast Campus

If a student has a disability that qualifies under the American with Disabilities Act (ADA) and requires accommodations, he/she should contact the Office for Disability Accommodations (ODA) for information on appropriate policies and procedures. Disabilities covered by ADA may include learning, psychiatric, physical disabilities, or chronic health disorders. Students can contact ODA if they are not certain whether a medical condition/disability qualifies.

Address:

The University of Southern Mississippi on the Gulf Coast
Office for Disability Accommodations
730 East Beach Blvd
Long Beach, MS 39560

Voice Telephone: (228) 214-3232 or (601) 266-5024
Fax: (601) 266-6035

Individuals with hearing impairments can contact ODA using the Mississippi Relay Service at 1-800-582-2233 (TTY) or email Suzy Hebert at Suzanne.Hebert@usm.edu.
## Class Schedule**

<table>
<thead>
<tr>
<th>Module</th>
<th>Topic</th>
<th>Chapter</th>
<th>Assignment</th>
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<tbody>
<tr>
<td>1</td>
<td>Course overview; Fundamental Principles of Facility Planning</td>
<td>Ch 1</td>
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<tr>
<td>2</td>
<td>Factory Layout and Material Handling Project</td>
<td>Ch 2</td>
<td>Assignment 1</td>
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<tr>
<td>3</td>
<td>Project Design and Process Planning-I</td>
<td>Ch 3</td>
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<tr>
<td>4</td>
<td>Project Design and Process Planning-II</td>
<td>Ch 3</td>
<td>Assignment 2</td>
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<tr>
<td>5</td>
<td>Layout Planning Procedures</td>
<td>Ch 4</td>
<td>Assignment 3</td>
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<tr>
<td>6</td>
<td>Layout Planning Procedures and FLAP software</td>
<td>Ch 4</td>
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### Midterm

*Course project discussion*

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<th>Module</th>
<th>Topic</th>
<th>Chapter</th>
<th>Assignment</th>
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<tr>
<td>7</td>
<td>Computerized Layout Procedure-I</td>
<td>Ch 6</td>
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<tr>
<td></td>
<td>Computerized Layout Procedure-II</td>
<td>Ch 6</td>
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*Assignment for Project*

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<th>Module</th>
<th>Topic</th>
<th>Chapter</th>
<th>Assignment</th>
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<tbody>
<tr>
<td>8</td>
<td>Material Handling Principles, Equipment, &amp; Design</td>
<td>Ch 7</td>
<td>Assignment 4</td>
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<tr>
<td>9</td>
<td>Storage and Warehouse Systems-I</td>
<td>Ch 8</td>
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<tr>
<td></td>
<td>Storage and Warehouse Systems-II</td>
<td>Ch 8</td>
<td>Assignment 5</td>
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<tr>
<td>10</td>
<td>Site-Planning Design, Part I</td>
<td>Ch 10</td>
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<tr>
<td></td>
<td>Site-Planning Design, Part II</td>
<td>Ch 10</td>
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**Project Assignment Due: Last day of class**

### Final Exam

**Schedule may be revised if necessary. Students will be notified if this is the case.**