

CTC 440
Highway Design
Jayne Baran

Time: M/W 9:20-10:30 am; Lab M Noon-2 pm
Classroom: G225
Semester: Fall 2015

Course Description:

Course emphasizes the highway design process using conventional and computer methods. In particular, industry standard design and engineering handbooks and software are used to complete a number of highway design projects involving site planning, earthwork, geometric design, pavement design, and project management. Course consists of three hours of lecture and two hours of lab per week.
Prerequisite: CTC 340

Credit Hours: 4

Learning Outcomes:

1. Gain factual knowledge about the field (trends, terminology).
2. Learn fundamental principles of highway design and apply technical concepts to the solution of problems.
3. Develop skills working as part of a team.
4. Develop skills in oral and written communication.
5. Improve proficiency through the use of word processing, spreadsheet, and presentation software.

Required Text :

Highway Design Manual (HDM), Facilities Design Division, New York State Department of Transportation, Latest Revision. Available in .PDF format at
<https://www.dot.ny.gov/divisions/engineering/design/dqab/hdm>

Appropriate sections of the above document will be printed and handed out in class. Please don't use SUNY Poly printers to print out large sections of the HDM.

Reference:

[A Policy on Geometric Design of Highways and Streets, American Association of State Highway and Transportation Officials \(AASHTO\), Washington, D.C., 2011, 6th ed.](#)

Office Hours and Contact Info:

See Website for Office Hours
(Or by appointment)
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Topics and Projects:

Topics:	Description	Hrs	Projects
1	Basic Design and Design Criteria	3.0	Civil Web Site
2	Horizontal Design	3.0	Design Criteria
3	Vertical Design and Superelevation	3.0	Horizontal and Vertical (Inroads)
4	Pavement Thickness Design	1.5	Template Design (Inroads)
5	Typical Sections / Cross Sections	3.0	Report on Design-Report
6	Interchanges/3R Standards	3.0	Report on Design-Oral Presentation
7	Drainage Design	4.5	
8	Soils/Guide Railing/MPT	4.5	
9	Estimating	4.5	
	Quizzes/Mid-Term/Final	4.5	

Methods of Evaluation:

Homework:

Homework shall be typed or neatly handwritten in pencil on engineering graph paper. There is no provision for make-up of homework assignments. A missed homework assignment is a zero and will be factored into the final grade.

Examinations:

There will be one midterm and one final exam scheduled during the semester. Students are expected to take the exams at the scheduled times. Generally, no make-up test will be given except for medical emergencies or other valid reasons for which prior approval has been obtained.

Projects:

Applied design projects and reports emphasize teamwork and communication, as well as the application of industry-standard word-processing and spreadsheet software.

Accommodations for Students with Disabilities:

In compliance with the Americans with Disabilities Act of 1990 and with Section 504 of the Rehabilitation Act, SUNYIT is committed to ensuring educational access and accommodations for all its registered students, in order to fully participate in programs and course activities or to meet course requirements. SUNYIT's students with documented disabilities and medical conditions are encouraged to access these services by contacting the Disability Services Office (http://www.sunyit.edu/disability_services) to discuss their particular needs for accommodations. For information or an appointment, contact Suzanne Sprague at 315-792-7165 or email suzanne.sprague@sunyit.edu.

Attendance/Participation:

Students are expected to attend every class period and have homework and project assignments completed and ready to present. The need for professionalism and excellence is reinforced through the requirement for assignments to be completed on time and in a neat and well-organized manner. A missed class does not excuse responsibility for the work covered in class and the homework assignments. Students will be held to the standards set forth in the *Student Handbook*, stated as the College's "Code of Academic Conduct."

Homework	25%
Labs	25%

Mid-Term Exam	25%
Final Exam	25%
TOTAL	100%