CEE 4803C
FREEWAY AND INTERCHANGE PLANNING AND DESIGN
SPRING 2009

DESCRIPTION:	Provide an introduction to the planning and design of freeways and interchanges
CREDIT:	3 semester hours
FACULTY:	John Z. Luh, Ph.D., P.E., PTOE, AICP, AVS Georgia Tech Part-Time Associate Professor PBS&J Senior Transportation Engineer (678) 247-2606 fax (770) 933-1920 e-mail jzluh@pbsj.com or jl418@mail.gatech.edu
CLASS HOURS:	Monday and Wednesday 17:35 – 18:55 pm
CLASS ROOM:	SEB 316
OFFICE HOUR:	Monday and Wednesday 17:00 – 17:30 pm or by appointment Office: SEB 228
CLASS WEBSITE:	Located at http://t-square.gatech.edu LOGIN ID: gt123i (as an example, if your email address is gt123i@mail.gatech.edu) PASSWORD: same password you use for your PRISM account. If you do not know your password, please contact the Office of Information Technology.

PERFORMANCE EVALUATION:		
	1 Exam	30%
	Participation	10%
	Homework	30%
	1 Project	30%

GRADING: 90-100 A 80-89 B 70-79 C 60-69 D < 60 F

TEXTBOOK: ITE "Freeway and Interchange Geometric Design Handbook"
(The textbook is available at Engineer's Bookstore)

CLASS POLICY: It is the responsibility of the student who misses a class to obtain any assignments, class notes, or materials from classmates. The student is responsible for obtaining all information covered in class.

HOMEWORK POLICY: Homework will be assigned frequently throughout the semester and is an essential part of understanding the lecture material. Homework will be collected. The due date will be shown on each homework assignment. Late homework will not be accepted. There will be two types of homework assignments: one being group assignments and one being individual assignments. **Students must do individual assignments by themselves.** A grade of zero will be assigned for missed homework.

The collected homework will be randomly selected and the selected homework will be graded. Homework solutions will be posted on T-Square. Students whose homework is not graded should check their homework against the solutions by themselves.

EXAM POLICY: The exam will cover material given in the class (lecture, notes, handouts, overheads, etc.), homework, and project. The exam is a closed book and closed note exam. A formula sheet is allowed. The instructor will provide any supplementary tables/charts etc. in the exam. The exact date for the exam will be given in the class lecture. The approximate date is listed in the Tentative Schedule but is only for planning purposes. **Only university excused circumstances will be considered.** A grade of zero will be assigned for missed exam.

FIELD WORK: Always wear an orange safety vest when conducting a field work. Professionalism is also important in the field.

HONOR CODE: Students are expected to perform class activities in keeping with standards outlined in the Georgia Tech Academic Honor Code. Each submitted homework must reflect the individual student's efforts. Appropriate action will be taken towards any student suspected of violation of the Honor Code.

REFERENCE BOOKS:

1. A Policy on Geometric Design of Highways and Streets, 2004 (5th Edition), American Association of State Highway & Transportation Officials, Washington, DC
2. Highway Capacity Manual (HCM 2000), 2000 Edition, Transportation Research Board – National Research Council, Washington, DC
3. Manual on Uniform Traffic Control Devices (MUTCD), US Department of Transportation, Federal Highway Administration, Millennium Edition
   http://mutcd.fhwa.dot.gov

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Class Project Policy

DR. JOHN Z. LUH

1. You are required to form a team for the class project.

   There is one class project. The project will consist of three stages.

   Stage 1: Prepare a Roadway Design Report. Upon completion, make two copies of the report.

   Stage 2: Review a Roadway Design Report prepared by another team and prepare a Review Report.

   Stage 3: Make a presentation of the project.

2. The grade for the project will not be given until all the work has been completed. The grade will consist of

   60% for the Roadway Design Report
   30% for the Review Report
   10% for the presentation

3. The grade for the project will be solely based on the instructor's judgment. It will not be affected by the review comments made by other teams. The grade for the Review Report will be based on the thoroughness of the review efforts. The Review Report will be returned to the review team, and the comments will not be released to the team that produced the Roadway Design Report.

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Tentative Schedule

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Updated: 2-27-2009

Monday Class			**Wednesday Class**		
Date	Coverage	Activity	Date	Coverage	Activity
1-5	Traffic assignment Interchange forms		1-7	HCS freeway analysis HCS ramp analysis (SEB 121)	Form HW Groups
1-12	Overpass versus underpass Drivers expectations Screening of interchange forms Alternative ranking		1-14	HCS weaving analysis	Form Project Teams Project assignment
1-19		Holiday No class	1-21	Synchro intersection analysis	
1-26	Diamond interchanges Single point interchanges PARCLO interchanges		1-28	Synchro Single Point analysis	
2-2	Freeway cross-sections Basic # of lanes Lane balancing Auxiliary lanes Ramp spacing		2-4	Synchro Compressed Diamond analysis	
2-9	Recap of vertical curves, horizontal curves and super-elevation transition One-way street super-elevation transition		2-11	Synchro Tight Diamond analysis	
2-16	Ramp design		2-18	Queuing analysis	
2-23	Ramp design Toll collection		2-25	Interchange observations	
3-2	Toll plaza design Ramp metering		3-4	Interchange intersection observations	
3-9	HOV ramps Truck by-pass lane		3-11	Presentation of interchange observations	
3-16		Spring Break	3-18		Spring Break
3-23	Interchange and intersection design power point		3-25	Presentation of intersection observations	

	presentation				
3-30	Interchange and intersection design power point presentation (continued) Freeway Networks		4-1	Backup time for interchange or intersection presentations	Or work on project
4-6	Roadway Design Report due		4-8		Work on Review Report and presentation
4-13	Project presentation	Review Report due	4-15	Project presentation	
4-20	Backup time for project presentation		4-22	Backup time for project presentation	Project review Class evaluation Self Assessment
			4-29 (Wed)	Final Exam (11:30 am to 1:30 pm)	