

CVEN 454 – Section 500
Urban Planning for Engineers (2-3)

Elective

Description: Urban planning from an engineering point of view; determinants of land use patterns, planning data collection and analysis; location and design requirements for various land uses; interrelationship of transportation and land use; and methods of plan development.

Prerequisite: CVEN 307.

Text: The ‘textbook’ for this course is available online:

- Travel Demand Forecasting: Parameters and Techniques, NCHRP Report 716, Transportation Research Board. Download it before they move it!
http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_716.pdf
- There will be many class handouts

Course

Objectives: Develop a basic understanding of urban planning, traffic impact analysis, and subdivision design. By the end of the course the student should understand factors precipitating land development. Then be able to take an underdeveloped tract of land and design engineering plans for its development (residential, commercial, industrial or mixed use) plus estimate the traffic impacts of the development.

Instructor: Dr. Mark Burris
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Class website: Google Drive. I will share the folder at
<https://drive.google.com>

Lecture: Tuesday 8 - 9:50 a.m. & Thursday 8 – 10:50 am
Room: CVLB 421

Office Hours: TR: 2:30 p.m. - 4:30 p.m. Other times by appointment.

Evaluation: Labs: 20%
Term Project: 35%
Assignments: 20%
Mid-Term: 25%

Grading Policy: A = 90+; B = 80 to 89.9, C= 70 to 79.9; D = 60 to 69.9; F = below 60.

Professional Content: Preparation for engineering practice
Design experience
Incorporation of engineering standards and realistic constraints that include most of the following considerations: economic; environmental; sustainability; manufacturability; ethical; health and safety; social; and political.

Outcomes Addressed:

1. Ability to apply knowledge of basic mathematics, science, and engineering
2. Ability to design a civil engineering system to meet desired needs
3. Ability to formulate and solve civil engineering problems

Topics Covered: Note: this list is tentative.

Date	Class	Topic	Guest Lecture/ Reading	Labs
8/29/17	1	Course Introduction		
8/31/17	2	Urban Development Theories <ul style="list-style-type: none"> ▪ Hotelling's Ribbon Community / Von Thunen / Other Urban Forms / Portland ▪ Sprawl 	NCHRP 716 Ch. 1 & 2	
9/5/17	3	Comprehensive Planning <ul style="list-style-type: none"> ▪ Overview (video) ▪ History of Planning ▪ Zoning 		
9/7/17	4	Transportation Planning – Trip Generation – Productions. Discussion of counts/safety.	NCHRP 716 Ch. 3 + 4.4	
9/7/17		6 pm – College Station Council Chambers, 1101 Texas Avenue (across from New Main)	P&Z Committee	
9/12/17	5	Comprehensive Planning (Overview, Zoning...)	Jane Key	
9/14/17	6	Transportation Planning – Trip Generation – In-field vehicle counts.		Lab # 1
9/19/17	7	Transportation Planning – Trip Generation – Productions		Lab # 2
9/21/17	8	Changes in Land Use – Market Forecasts, Population Changes		
9/26/17	9	Environmental Planning		
9/28/17	10	Transportation Planning – Trip Generation – Attractions & Balancing	NCHRP 716 Ch. 4.6	Lab # 3
10/3/17	11	Transportation Planning – Trip Distribution	NCHRP 716 Ch. 4.5	
10/5/17	12	Impact Analysis & HCS		
10/10/17	13	Traffic Impact Analysis – Traditional method with Glory Park plus Synchro. Mixed Use Development with Legacy Town Center Traffic		
10/12/17	14	Transportation Planning – Trip Distribution		Lab # 4
10/17/17	15	Transportation Planning – Mode Split and Surveying Travelers	NCHRP 716 Ch. 4.7	

Date	Class	Topic	Guest Lecture/ Reading	Labs
10/19/17	16	Transportation Planning – Mode Split		Lab # 5
10/24/17	17	Mode Split / Access Management / Road Design		
10/26/17	18	Introduction to AutoDesk Civil 3D with Transportation Applications		
10/31/17	19	Parking and Turning – Autodesk / Hydrology – Runoff and Detention Pond Sizing		
11/2/17	20	Transportation Planning – Traffic Assignment	NCHRP 716 Ch. 4.11	Lab # 6
11/7/17	21	Midterm		
11/9/17	22	Field Trip – Carters Creek Waste Water Treatment Facility, 8 to 10 am, end of N Forest Drive	David Coleman &	Fred Surovik
11/14/17	23	Solid Waste / Landfills	Bryan Griesback	
11/16/17	24	Subdivision Layout – Lots & Theory – Autodesk		
11/21/17	25	Traffic counts at your MXD sites		Field Work
11/28/17	26	Road Design / Group Work		
11/30/17	27	Work on term projects in lab		
12/5/17	28	Work on term projects in lab		
12/11/17	29	Term Project, Dec 11 at 1:00 – 3:00 pm		

Homework and Labs: There will be approximately 15 work assignments, split between homework and labs. They will be *due at the beginning of the class*. Homework and lab assignments may be handed in late with the following penalties: anytime after the beginning of class up to 1 class late -20%; 2 classes late -40%; 3 or more classes late and not excused by the University — not accepted.

Homework and labs should be presented in a professional manner. Each should have a title page indicating name, date, course and assignment number. The problem statement should be provided. Solutions should show all work neatly and in organized steps. Partial credit will be awarded for solving the problem using the correct method. Final answers should be clearly identified. Solutions should be done on unfolded paper and page numbers should be clearly indicated. The pages should be stapled together.

Group

Project: The group project will be in the form of a design project. Additional information will be supplied shortly and will be posted on the web.

Scholastic

Honesty: *“An Aggie does not lie, cheat, or steal or tolerate those who do.”*

The purpose of homework is to help you learn the course material - so doing it on your own or in groups is permitted. However, each person must turn in a separate write-up and solution prepared by his/her own hand. This means that the problem description, steps taken to solve the problem, and computer input and output must be generated by each person individually. By University regulations, copying another person's homework is considered plagiarism, and is not permitted. Please refer to <http://aggiehonor.tamu.edu>

Conversely, your labs and your group project are team efforts. You are expected to work together as a team to solve these problems. If a team member is not participating or doing their share of the work please let me know.

Also, plagiarism is commonly defined as the passing off as one's own the ideas, thoughts, writings, etc. which belong to another person. In accordance with this definition, you are committing plagiarism if you copy the work of another person and hand it in as your own – even if you have the other person's permission. This includes copying information from books, journals, websites, reports, etc. if it is not properly referenced or, if taken word for word, put in quotations and properly referenced. Plagiarism will not be tolerated.

The handouts used in this course are copyrighted. "Handouts" means all materials generated for this class, which include but are not limited to syllabi, quizzes, exams, lab problems, in-class materials, review sheets, and additional problem sets. Because these materials are copyrighted, a student does not have the right to copy the handouts unless the instructor expressly grants permission.

Attendance: Regular attendance and class participation are expected. Seats will be assigned the second day of class.

Americans with Disabilities Act (ADA):

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, currently located in the Disability Services building at the Student Services at White Creek complex on west campus or call 979-845-1637. For additional information, visit <http://disability.tamu.edu>

Prepared by: Dr. Mark Burriss

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