ENVIRONMENTAL SITE PLANNING

ARCH 3373 (3:3:1)

COURSE NUMBER & CATALOG DESCRIPTION

A basic course to develop a working knowledge of the techniques and principles involved in site planning to provide optimum living and working environments.

INTRODUCTION

TOP HAT

This course will be using Top Hat (www.tophat.com) classroom response system in class. You will be able to submit answers to in-class questions using Apple or Android smartphones and tablets, laptops, or through text message.

You can visit the Top Hat Overview (https://success.tophat.com/s/article/Student-Top-Hat-Overview-and-Getting-Started-Guide) within the Top Hat Success Center which outlines how you will register for a Top Hat account, as well as providing a brief overview to get you up and running on the system.

An email invitation will be sent to you by email, but if you don’t receive this email, you can register by simply visiting our course website: Unique Course URL: https://app.tophat.com/e/117034
Note: our Course Join Code is 117034.

Top Hat will require a paid subscription, and a full breakdown of all subscription options available can be found here: www.tophat.com/pricing.

Should you require assistance with Top Hat at any time, due to the fact that they require specific user information to troubleshoot these issues, please contact their Support Team directly by way of email (support@tophat.com), the in app support button, or by calling 1-888-663-5491.

Goals and Objectives:

The course is structured to provide the student with an understanding of how environmental site planning is the basis of all design and how an understanding of the site can be of value in the success or failure of a project. The course is for architecture majors only, or consent of the instructor.

Site Planning is an art and science of arranging uses of parcels of land. It should be a major part of the field of architecture, since it is almost inconceivable that structures can be designed upon the landscape without affecting that landscape. It is but one phase of the planning and design process.

Man alone, of all creatures, is able to, or has the ability to weigh the factors of a problem and reason out a course of action. Man's essential strength, his very reason for survival and the key to all future achievement, is his unique power of perception and deduction. Perception is making oneself aware of all conditions and applicable factors, and deduction is deriving, through reason, an appropriate course of action. Both of these things are the very essence of planning.

This course is directed to opening a door to understanding how important site planning indeed is, and that architects, planners, designers and landscape architects understand the need for coordinated teamwork in the vast area of environmental design; structuring urban growth through building and landscape design is necessary if architecture is to provide optimum living and working environments. A regional design that supports human needs can best be achieved by developing our man-made environment in harmony with the natural environment. Studies show that an integrated approach to site and building design can greatly increase the effectiveness of human performance in both exterior and interior environments. Our goals toward comprehensive land planning and building design can increase our potential for developing environments in accordance with the limits of man and nature.

Proficiency cannot be achieved entirely from this one course. Only a continuing process of education and practice will bring understanding.
The principal goals of environmental site planning are:

1. To develop a respect for the broad significance of the environment and special human and physical characteristics of the site in all planning problems; the simple to the complex and the general to the specific.
2. To indoctrinate a degree of sensitive understanding and comprehension of the topography and land forms as a beginning phase in the planning and design process.
3. To acquaint the student with some fundamental methods and procedures for site analysis, site-structure expression and site-structure plan development.
4. To acquaint the student with some fundamental and technical aspects of site engineering, and methods and procedures in the study of three dimensional character of land and outdoor spaces and forms.
5. To acquaint the student with the fundamental of using landscapes for energy conservation and sustainability.

**COURSE OBJECTIVES**

1. **To expose the student to the site planning process, and to develop a working knowledge of this process as a comprehensive element of the total planning and design approach.**

   **Performance Requirements:**
   A. Understanding and use of the planning and design process.
   B. Know and understand how to use the elements of research, analysis, and synthesis as they relate to the comprehensive design process

2. **To provide the student with a knowledge of environmental and sustainability considerations necessary for the planning and design process.**

   **Performance Requirements:**
   Utilizing the following in determining the optimum planning and design solution:
   A. Topography and orientation.
   B. Specific site considerations.
   C. Effects of geography, geology, hydrology, topography, sunlight, and wind.
   D. Effects of design and orientation on micro-climates.
   E. Control of elements of weather (wind, rain, snow, breeze, etc.) through design.
   F. Design aspects of site orientation to views, forms, and spaces.

3. **To provide the student with orientation, and knowledge of maps and surveys to enable him/her to develop basic skills in their selection and use.**

   **Performance Requirements:**
   A. Knowledge and understanding of the architectural use of various maps and surveys (presented in class).
   B. Knowledge and ability to use various types of maps and surveys.
   C. Know and understand the definitions related to maps and surveys presented.
   D. Knowledge and ability to use topographic symbols.

4. **To expose the student to, and provide a basic understanding of the three-dimensional character of land.**

   **Performance Requirements:**
   A. Knowledge and understanding of characteristics of contour manipulation.
   B. Understanding and ability to perform basic grading requirements associated with contour manipulation.
   C. Knowledge and the understanding of the relationship of new and existing topographic grades to vegetation, utilities, and architectural structures.
   D. Knowledge and ability to use the comparative factors of earthwork associated with slope and balancing cutting and filling.

5. **To expose the student to, and provide him/her a basic understanding of the design and planning of outdoor circulation.**

   **Performance Requirements:**
   A. Know and understand basic requirements for street and intersection planning and design.
   B. Knowledge and ability to use basic principles of road alignment and design.
   C. Know and be able to use various basic planning guidelines concerning vehicular parking and maneuvering requirements.
   D. Know and be able to use various basic planning and design guidelines concerning pedestrian circulation.
   E. Know and be able to apply basic planning criteria for barrier-free site design.

6. **To provide the student with an orientation and a basic knowledge of drainage, utilities, and underground structures.**
Performance Requirements:
A. Knowledge and understanding of the techniques and methods for determining the best ways to handle surface and subsurface water as a design and planning factor.
B. Knowledge and understanding of drainage systems and the effects of erosion and minimizing same through proper planning and design.
C. Knowledge and understanding of the requirements of other utility systems such as water, electricity, gas, etc.

7. **To expose the student to, and provide a basic knowledge of the use of natural elements in the planning and design process.**

Performance Requirements:
A. Understanding and the ability to apply relationships of sun, soil, and water to a design and planning problem.
B. Knowledge and understanding of the significance of existing vegetation in evaluating a site as a part of the planning and design process.
C. Knowledge and understanding of the basic planning and design considerations related to the selection and location of new plant material.

8. **To expose the student to, and provide a basic knowledge of the legal and political constraints in the planning process.**

Performance Requirements:
A. Knowledge and understanding of zoning codes and property description.
B. Knowledge and understanding of legal documents and restrictions on real property.
C. Knowledge and understanding of floor areas and catchments as fundamental requirements.

9. **To expose the student to, and provide a basic knowledge of the sociological and economic influences of planning.**

Performance Requirements:
A. Knowledge and understanding of the history and theory of the site planning process.
B. Knowledge and understanding of site planning development.

10. **To expose the student to, and provide a background understanding of the history of development of site planning.**

NOTE: Overall Course Requirements: In the course of the semester of study, no student can become proficient in all of the material presented above. Students will, however, be expected to have knowledge and understanding of all topic areas to the extent that their application may be used in the remainder of the professional curriculum course work.

NAAB CRITERIA: This course meets NAAB Criteria B-1, B-2, B-3 and D-4.

Realm B: Building Practiced, Technical Skills and knowledge. Graduates from NAAB-accredited programs must be able to comprehend the technical aspects of design, systems, and materials and be able to apply that comprehension to architectural solutions. In addition, the impact of such decisions on the environment must be well considered.

Student learning aspirations for this realm include

- Creating building designs with well-integrated systems
- Comprehending constructability
- Integrating the principles of environmental stewardship
- Conveying technical information accurately

**B-1 Pre-Design:** Ability to prepare a comprehensive program for an architectural project that includes an assessment of client and user needs; an inventory of spaces and their requirements; an analysis of site conditions (including exiting buildings); a review of the relevant building codes and standards, including relevant sustainability requirements and an assessment of their implications for the project; and a definition of site selection and design assessment criteria.

**B-2 Site Design:** Ability to respond to site characteristics, including urban context and developmental patterning, historic fabric, soil, topography, ecology, climate, and building orientation in the development of a project design.
B-3 Codes and Regulations: Ability to design sites, facilities, and systems that are responsive to relevant codes and regulations and include the principles of life safety and accessibility standards.

**Student Learning Aspirations for NAAB Realm B: Building Practices, Technical Skills, and Knowledge**

- Creating building designs with well-integrated systems
  Students will be introduced to site conditions, analysis of site conditions, review of codes and ordinances and site selection process through lectures and assigned homework.

- Comprehending constructability
  Students will be assigned homework following lectures on soil conditions and soil failures from unstable soil conditions, layouts of workable vehicular circulation systems, utility services and pedestrian circulation systems.

- Integrating the principles of environmental stewardship
  Students will be exposed to the environment through lectures and homework on the natural elements and climate and the effect of the natural elements and climate on site conditions and the impacts those elements make upon the buildings and their orientations, and the environment. They will learn good practices of stewardship of protecting the environment.

- Conveying technical information accurately
  Students will have lectures and homework assignments on how to accurately dimension and develop accurate site plans of various analyses of site conditions, including the understanding of codes and ordinances. They will be expected to develop plans to reflect accurately the requirements of accessibility requirements and life safety.

**Realm D: Professional Practice.** Graduates from NAAB-accredited programs must understand business principles for the practice of architecture, including management, advocacy, and the need to act legally, ethically, and critically for the good of the client, society and the public.

Student learning aspirations for this realm include

- Comprehending the business of architecture and construction
- Discerning the valuable roles and key players in related disciplines
- Understanding a professional code of ethics, as well as legal and professional responsibilities

**D-4 Legal Responsibilities:** Understanding of the architect’s responsibility to the public and the client as determined by regulations and legal considerations involving the practice of architecture and professional service contracts.

**Student Learning Aspirations for NAAB Realm D: Professional Practice**

- Comprehending the business of architecture and construction
  The students will be presented with lectures on the site design process and the building design process, and be introduced to selection of site materials, life cycle costing, and understanding of various codes, easements, restrictive covenants, and other government regulations affecting site design.

- Discerning the valuable roles and key players in related disciplines
  The students are introduced to the profession of landscape architecture in how architects work with them in the selection of plant material for a project. They are introduced to the concept of city officials. The students participate in an exercise whereby they perform in a skit of code regulations. The students elect a mayor, city council, planning and zoning commission members, zoning board of adjustment members, and then have individuals asking for zoning changes from variances to rezoning situations, with other students acting as neighbors to the individuals asking for exceptions to zoning requirements.

- Understanding a professional code of ethics as well as legal and professional responsibilities
  The students are made aware of the legal responsibilities of accurately producing site plans, and emphasizing the professional responsibility of protecting the health safety and welfare of the public.

**CLASS ORGANIZATION**

1. This class will meet one and one-half hours, two times a week, utilizing references, power points presentations, board sketches and handouts.
2. Required reading and homework will be prepared outside of class.
3. Class notes on lectures, hand-out material, etc. will be kept in a notebook, compiled and indexed in a manner to be beneficial to the student following the completion of the course.
4. Late homework will be accepted (within the realm of reasonable and justifiable excuses) with a reduction of one letter grade (10 points). **No homework will be accepted more than one week late.**

5. Four class-period exams will be given during the semester with an assigned value of ten (10%) each for a total of forty (40%) of the final course grade.

6. Homework Assignments for the course will be fifty five (55%) of the final course grade.

7. Class Attendance will be five (5%) percent of the final course grade.

8. The homework and syllabus are posted on the Web page of the Professor.

Since much material will be presented in a short time span, students are encouraged to further explore a topic of interest.

All of the natural elements of the landscape will be included in the lectures of the semester as part of the comprehensive approach to the planning and design process. The first series of lectures will be dealing with the elements in a general aspect, such as history, and later lectures will introduce more complex and specific factors. The following elements will become a part of the increasingly restrictive and involved problems as the course progresses.

- Effects of climate, general topography, civic, economic, and social trends on the region and the environment.
- Orientation effects of sun, wind, views, vegetation, etc.
- Subterranean features, such as geological, hydrological, etc.
- The use of plant materials (existing or planned) as ecological and design factors.
- The aesthetic relationship of indoor-outdoor forms and spaces, and their contribution to the comprehensive approach to environmental planning and design.

The students need to be sensitive to proper functional and aesthetic integration of all environmental features in the planning and design process. Each lecture will, therefore, emphasize some of the following technical factors, on an increasingly complex scale, to reach that goal. These factors will be presented in lectures, power point presentations, and handouts.

- Techniques of large scale planning. The simplification of complex elements and ideas.
- Basic Criteria for making site analyses, and making decisions on comparable design solutions and ideas.
- Evaluation and application of principles of orientation (sun, wind, noise, view, etc.).
- The use of maps, contour characteristics and manipulation; application of contour lines and spot elevations.
- An introduction to drainage problems; application of basic techniques of handling surface water run-off and the use of storm sewers.
- An introduction to efficient and graceful pedestrian circulation into, out of, and between structures.
- A brief analysis of, and introduction to, vehicular planning and design of parking areas, intersections, streets, and turn-a-rounds.
- Introduction of principles and minimum requirement for making site development barrier-free.
- The use and layout of structures, such as walls, fences, steps, and ramps, emphasizing limitations and functional design attributes as they relate to outdoor movements of people and vehicles around and through landscape spaces, forms, and structures.
- An introduction to the general use of plants (trees, shrubs, and ground cover) for energy conservation, as an integral part of design, as barriers, as design forms, and other related functions.
- The less tangible and psychological factors of animal life, the effects of water, shade and shadow, and seasonal changes in landscape design.
- An introduction to legal and political constraints as an integral part of design.
- An introduction to sociological and economic influences as an integral part of site planning.
- The history of planning.

**REQUIRED TEXT BOOKS AND EQUIPMENT**

TEXT: **SITE PLANNING: SITE DESIGN I. H. Paul Woods, AIA.** Architectural License Seminars, Los Angeles, CA 1997. This text is available at The Copy Outlet, 2402 Broadway.
EQUIPMENT: Architect’s Scale; Engineer’s Scale; Straight Edge or Triangle, Pencils and/or pens, paper, eraser, and CALCULATOR (NOT ON A CELL PHONE).

REFERENCES/RECOMMENDED READING


Reid, Grant. From Concept to Form in Landscape Design. New York. John Wiley and Sons, Inc. 2007.


ATTENDANCE/CLASS PARTICIPATION/CONDUCT

1. Class begins promptly each day. No newspaper reading during class, and no talking to each other or playing computer games. At the beginning of each class, except exam days and in-class homework days, you will sign in on the Top Hat app. To register your attendance. The TA’s will guide you in how to sign in.

2. COA Attendance Policy: Responsibility for class attendance rests with the student. Recording of absences is not a punitive record. Being present is evidence of minimal engagement with the material of the course, which is needed to matriculate and master the content of the course. Disallowing a student to matriculate through a course because of excessive absences is not a punishment, but rather evidence that the student has not been present for classroom instruction for a sufficient amount of time required to engage the material to an expected standard. Therefore, the CoA considers as excessive four (4) absences in a studio, or in a lecture class that meets two or three times per week, and grounds for dropping the student from the course. However, for any CoA course, the College supports the instructor’s absence policy as stated in the course syllabus. See College of Architecture Attendance Policy on the CoA HOME PAGE, scroll to the bottom of the page under ATTENDANCE POLICY.

3. Attendance policy for this course: Any unexcused absence over three (3) will result in two (2) points per absence being deducted from the final course grade average. The College supports the definition of four absences being excessive and constitutes cause for having the student drop the course or receive a grade of “F”.
4. There will be no smoking or dipping allowed in the classroom, and no drinks will be allowed in the classroom. (See Building Policy of the Syllabus).

5. Lecture classes with illustrations and class discussion of case studies and lecture material.

6. **CELL PHONES ARE ALLOWED IN CLASS FOR TOP HAT PURPOSES ONLY, AND NO TEXT MESSAGING DURING CLASS OR EXAMS.** If you have a cell phone, please turn it off during class time and exams.

**ASSESSMENT:**
Each student will be assessed on the above performance requirements through graphic homework assignments and through written and graphic exams.

- Four exams valued at 10% each (40%).
- Fourteen Homework assignments (55%).
- Course Attendance at 5%.
- The grading is based on 100 points and all grades during the course of the semester will be number grades. The final average will be converted to letter grades for the course grade.

**GRADE EQUIVALENCES**

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<td>A</td>
<td>94-96</td>
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**Semester's Class Schedule**

**Introduction of Course and Semester Schedule and Review of Syllabus**

**Sequence of lectures**

- Chapter 6, pages 6-3 to 6-9: Historical background
- Chapter 6, pages 6-9 to 6-24: Site Planning Process
- Chapter 1 Climate: Considerations and Climatic Zones
- Chapter 2 Natural Elements

**Exam No. 1:** (covers Chapters 1, 2 & 6 [pages 6-9 to 6-24] and lecture material)

**Exam No. 2:** (covers Chapter 3 and lecture material on topographic elements)

**Exam No. 3:** (covers above Chapters 4 and lecture material on circulation and climatic considerations)

**Exam No: 4** Chapter 5 (Legal and Economic Factors)

*There will be in-class homework exercises during the class periods after Exam No. 4, and on days the Professor may be attending a conference. There will be no makeups for in-class homework. Homework will be interspersed in the semester schedule.*

*The Semester schedule is posted on the Top Hat Site.*

Each student must keep up with all assignments. There will be NO EXTRA CREDIT assignments.

**ETHICAL PRINCIPLES**

**Academic Integrity**

Academic integrity is taking responsibility for one’s own class and/or course work, being individually accountable, and demonstrating intellectual honesty and ethical behavior. Academic integrity is a personal choice to abide by standards of intellectual honesty and responsibility. Because education is shared effort to achieve learning through the exchange of ideas, students, faculty and staff have the collective responsibility to build mutual trust and respect. Ethical behavior and independent thought are essential for the highest level of academic achievement which then must be measured. Academic achievement includes scholarship, teaching and learning. All of which are shared endeavors. Grades are a device used to quantify the successful accumulation of knowledge through learning. Adhering to the standards of academic integrity ensures grades are earned honestly. Academic integrity is the foundation upon which students, faculty, and staff build their educational and professional careers. [Texas Tech University (“University”) Quality Enhancement Plan, Academic Integrity Task Force, 2010]
Civility in the Classroom

Texas Tech University is a community of faculty, students, and staff that enjoys an expectation of cooperation, professionalism, and civility during the conduct of all forms of university business, including the conduct of student-student and student-faculty interactions in and out of the classroom. Further, the classroom is a setting in which an exchange of ideas and creative thinking should be encouraged and where intellectual growth and development are fostered. Students who disrupt this classroom mission by rude, sarcastic, threatening, abusive or obscene language and/or behavior will be subject to appropriate sanctions according to university policy. Likewise, faculty members are expected to maintain the highest standards of professionalism in all interactions with all constituents of the university. (www.depts.tt.edu/ethics/matadorchallenge/ethicalprinciples.php)

EQUAL OPPORTUNITY AND ACCESS TO FACILITIES

ADA Statement

Any student, who, because of a disability, may require special arrangements in order to meet course requirement, should contact the instructor as soon as possible to make any necessary arrangements. Students should present appropriate verification from Student Disability Services during the instructor’s office hours. Please note: instructors are not allowed to provide classroom accommodations to a student until appropriate verifications from Student Disability Services has been provided. For additional information, please contact Student Disability Services in West Hall or call (806)-742-2405.

Religious Holy Day

“Religious Holy Day” means a holy day observed by a religion whose places of worship are exempt from property taxation under Texas Tax Code § 11.20. A student who intends to observe a religious holy day should make the intention known in writing to the instructor prior to the absence. A student who is absent from classes for the observance of a holy day shall be allowed to take an examination or complete an assignment scheduled for that day within a reasonable time after the absence. A student who is excused under Section 2 may not be penalized for the absence; however, the instructor may respond appropriately if the student fails to complete the assignment satisfactorily.

Discrimination, Harassment and Sexual Violence

Texas Tech University is committed to providing and strengthening an educational, working, and living environment where the students, faculty, staff, and visitors are free from gender and/or sex discrimination of any kind. Sexual assault, discrimination, harassment and other Title IX Violations are not tolerated by the University. Report any incidents to the Office of Student Rights & Resolution, (806-742-SAFE, (7233) or file a report online at titleix.ttu.edu/students. Faculty and staff members at TTU are committed to connecting you to resources on campus. Some of those available resources are: TTU Student Counseling Center, (806)-742-3634, https://www.depts.ttu.edu/scc/ (provides confidential support on campus.), TTU 24-hour Crisis Helpline, (806)-742-5555, (assists students who are experiencing a mental health or interpersonal violence crisis. If you call the helpline, you will speak with a mental health counselor.) Voice of Hope Lubbock Rape Crisis Center, (806)-763-7273, voiceofhopelubbock.org. (24-hour hotline that provides support for survivors of sexual violence). The Risk, Intervention, Safety and Education (RISE) Office (806)-742-2110. https://www.depts.ttu.edu/riso/ (Provide a range of resource and support options focused on prevention, education and student wellness.) Texas Tech Police Department (806)-742-3031, https://www.depts.ttu.edu/ttpd/ (To report criminal activity that occurs on or near Texas Tech Campus.

LGBTQIA Support

Office of LGBTQIA Student Union Building, Room 201, www.lgbtqia.ttu.edu, (806)-742-5433. Within the Center for Campus Life, the office serves the Texas Tech community through facilitation and leadership of programming and advocacy efforts. This work is aimed at strengthening the lesbian, gay, bisexual, transgender, queer, intersex, and asexual (LGBTQIA) community and sustaining an inclusive campus that welcomes people of all sexual orientation, gender identities, and gender expressions.
BUILDING POLICY

The studios and classrooms are a tobacco-free environment. Sound devices (TV and radios) require headphones at all hours in studios, and are not permitted in the lecture classrooms.
For more information on the Building Policy, go to the College Home page, click on Resources, and go to Building Policies.

No food or drinks are allowed in the lecture classrooms.

Smoking or other uses of tobacco, the use of spray paint or aerosol products of any kind are not permitted anywhere in the Architecture Building. There is a designated smoking area outside in the courtyard near the bridge. The stairwells are not to be used for smoking or spray painting.

PROJECT/HOMEWORK REQUIREMENTS

“The College of Architecture reserves the right to retain, exhibit, and reproduce work submitted by students. Work submitted for grade is the property of the college and will remain such until it is returned to the student”. The Professor will retain examples of “High Pass” and “Low Pass” work when required for accreditation visits.