

GMAT4400

Land Management Project

Term 1, 2023



Course Overview

Staff Contact Details

Convenors

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Lecturers

Name	Email	Availability	Location	Phone
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School Contact Information

[Engineering Student Support Services](#) – The Nucleus - enrolment, progression checks, clash requests, course issues or program-related queries

[Engineering Industrial Training](#) – Industrial training questions

[UNSW Study Abroad](#) – study abroad student enquiries (for inbound students)

[UNSW Exchange](#) – student exchange enquiries (for inbound students)

[UNSW Future Students](#) – potential student enquiries e.g. admissions, fees, programs, credit transfer

Phone

(+61 2) 9385 8500 – Nucleus Student Hub

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Course Details

Units of Credit 6

Summary of the Course

Design and studio project for a residential neighbourhood development, taking into account a range of issues including: (a) constraint and site analysis: preparation of maps of land use, vegetation, surface and soils, drainage and terrain, slopes, climate and aspect; composite overlay maps; (b) structure plan design: infill subdivisions, residential precincts, schools, commercial areas, industrial areas, active and passive recreation, pedestrian ways and road hierarchy; (c) plan of detailed lot layout: shadow diagrams, consideration of access, grades, drainage reserves, parks and pedestrian ways; (d) engineering design and plans: catchment details, road longitudinal and cross-sections, drainage layout, flow schedule, hydraulic grade line calculations, longitudinal sections of kerb profiles, driveway designs.

Course Aims

This course brings together knowledge gained in several CVEN courses related to water engineering, rainfall/runoff and road design, as well as SAGE courses related to land law, cadastral surveying and land development practices in NSW. It does this via a major group project focusing on the design for a residential neighbourhood development. A number of individual topics are dealt with. The course is run with the assistance of several sessional staff with considerable practical experience in land management/development. The students learn about the following: (a) constraint and site analysis: preparation of maps of land use, vegetation, surface and soils, drainage and terrain, slopes, climate and aspect; composite overlay maps; (b) structure plan design: infill subdivisions, residential precincts, schools, commercial areas, industrial areas, active and passive recreation, pedestrian ways and road hierarchy; (c) plan of detailed lot layout: shadow diagrams, consideration of access, grades, drainage reserves, parks and pedestrian ways; (d) engineering design and plans: catchment details, road longitudinal and cross-sections, drainage layout, flow schedule, hydraulic grade line calculations, longitudinal sections of kerb profiles, driveway designs.

The is a studio type project supplemented with lectures. The CivilCad software is used.

Course Learning Outcomes

After successfully completing this course, you should be able to:

Learning Outcome	EA Stage 1 Competencies
1. Assess an undeveloped parcel of land to determine its suitability for urban development and design a development based on planning and environmental factors	PE1.1, PE1.2, PE1.5, PE2.2, PE2.3, PE3.3, PE3.4

Apply knowledge and understanding of potential site constraints to urban land development in site evaluation and site analysis in contemporary practice

Apply knowledge and understanding of the methodology in the preparation of structure plans

Apply knowledge and understanding of the methodology in the preparation of lot layout

By the end of this term a competent student will be able to assess an undeveloped parcel of land to determine its suitability for urban development and design a development based on planning and environmental factors

Teaching Strategies

Teaching strategies revolve around using a Studio Project (workshop) format, in which groups of 3-4 students work together on a residential plot development. The workshops (and student project work) is guided by sessional staff with experience in land management and development in NSW. Lectures will be linked to workshop and studio activities.

The assessment tasks are broken down into three major submissions, each dealing with a range of issues and competencies as listed in the Short Description. By the end of the course each student should be able to assess an undeveloped parcel of land as to its suitability for urban development (or redevelopment), and to be able to undertake the design process according to planning and environmental guidelines (state and local government).

The student will be able to apply prior knowledge gained from several CVEN and SAGE courses. Use of CAD packages such as CivilCad will ensure high quality project submissions.

Assessment

Late submissions will be penalised at the rate of 10% per day after the due time and date have expired. Submission dates are final. **There is no final exam.** However, the UNSW exams branch will timetable a “school run exam” for GMAT4400. We will use that timeslot to be the deadline for submission of the final assignment (Individual lot layout plan & report) and for each student to present their structure plan and resulting lot plan to the class. This will enable students to have more time to prepare the final assignment than having it due at the end of week 10 or during week 11.

Workshop/Studio and Submissions each student will be a member of a group of 2 to 3 students. Groups will be finalised during the first lecture. Students are free to select their partners. However, students are advised to select their partners very carefully. Obtain the address, phone number, mobile phone number, e-mail address, etc. of your group members immediately after the formation of the group. The joint submission requires considerable interaction between the students.

Assessment task	Weight	Due Date	Course Learning Outcomes Assessed
1. Weekly Progress Inspections/Studio Involvement/Random Quizzes	20%	As advised in class	1
2. Site Analysis	30%	Week 7	1
3. Structure Plan	20%	Week 9	1
4. Lot Layout	30%	exam period, date TBA	1

Assessment 1: Weekly Progress Inspections/Studio Involvement/Random Quizzes

Due date: As advised in class

Continuous assessments

Additional details

Progress inspection on collation of site information, 5%

Show the types of site information the student has assembled for analysis from reputable sources

Moodle quiz 1 Aspects of Planning and site Analysis, 5%

Knowledge of how planning is regulated in NSW and contemporary planning issues in NSW

Moodle quiz 2 Structure Plans, 5%

Purpose of a structure plan, what information is used and how is it shown, understanding of key terms

Moodle quiz 3 Lot Design, 5%

Regulation of lot design, principles of sustainability, understanding of key terms, basic cost estimation.

Assessment 2: Site Analysis

Submission notes: Group site analysis plan, report & presentation

Due date: Week 7

Group site analysis plan, report & presentation

Assessment criteria

Submit a set of plans and report that together constitute a full professional site analysis. All plan sheets will be prepared in a consistent format, with consistent scale, coverage, layout and title blocks, and are to be presented in both A3 hard copy and PDF format. The group will also give a 15 minute PowerPoint presentation.

Additional details

See Moodle

Assessment 3: Structure Plan

Submission notes: Individual structure plan & report

Due date: Week 9

Individual structure plan & report

Assessment criteria

Submit a structure plan prepared to a professional standard that demonstrates a logical response to the site analysis. The Plan is to be supported by a brief written report that outlines the key constraints, opportunities and considerations relevant to the site, and the manner in which the structure plan has been developed to respond to these considerations. The Structure Plan will be prepared in a consistent format to the site analysis plans and presented in both A3 hard copy and PDF format.

Assessment 4: Lot Layout

Submission notes: to be submitted in the exam period, date TBA

Due date: exam period, date TBA

Individual lot layout plan & report.

Presentation of structure plan and resulting lot plan to class

Assessment criteria

Submit a Lot Layout Plan of a high standard that demonstrates consistency with the Structure Plan. The Plan is to be supported by a brief written report that outlines the key constraints, opportunities and statutory planning controls relevant to the site, and the manner in which the layout has been developed to respond to these considerations. The Lot Layout Plan will be prepared in a consistent format to the structure plan and presented in both A3 hard copy and PDF format.

Additional details

Individual lot layout plan & report.

Presentation of structure plan and resulting lot plan to class.

Attendance Requirements

For courses with Workshops and/or Labs, attendance for those classes is a necessary part of the course. You must **attend at least 80% of the workshop/lab** in which you are enrolled for the duration of the session.

Course Schedule

[View class timetable](#)

Timetable

Date	Type	Content
O-Week: 6 February - 10 February		
Week 1: 13 February - 17 February	Blended	<p>Lecture: Course outline and a brief introduction to Planning, 2 hours</p> <p>Workshop: Project Site selection and sources of information, 1 hour</p> <p>Learning Outcomes</p> <p>Understand the course objectives and assessment process. Appreciate what planning is and its importance in land management and development. Form a group of 2-3 students. Select a development site that meets the project criteria.</p>
Week 2: 20 February - 24 February	Blended	<p>Lecture: NSW Planning System, overview, 2 hours</p> <p>Workshop: Research & collate project site planning information, 1 hour</p> <p>Learning Outcomes</p> <p>Understand how planning is regulated in NSW. Appreciate the main features of the EP&A Act. Grasp the principles of Regional plans, growth centres, local plans, SEPP, LEP, DCP, planning policies & the hierarchy of plans.</p>
Week 3: 27 February - 3 March	Blended	<p>Lecture: Site analysis, 1 hour</p>

		<p>Workshop: Practical site analysis of your project, 2 hours</p> <p>Learning Outcomes</p> <p>Understand the need for and requirements of a site analysis. Obtain the relevant site information. Analyse the information and present the information on a series of plans and an overall plan.</p>
Week 4: 6 March - 10 March	Lecture	<p>Lecture: Road hierarchy & traffic engineering. Stormwater drainage, 3 hours</p> <p>Learning Outcomes</p> <p>Understand the principles of road hierarchy & traffic engineering.</p>
Week 5: 13 March - 17 March	Lecture	<p>Lecture: Roads, lot access & engineering aspects, 3 hours</p> <p>Learning Outcomes</p> <p>Appreciate the principles of road and drainage design in subdivisions, safe access to lots and safe roads. Understand requirements for compliance with council standards. Be able to locate lots, roads and drainage in a subdivision.</p>
Week 6: 20 March - 24 March		Non-teaching week
Week 7: 27 March - 31 March	Blended	<p>Lecture: Structure plans, 2 hours</p> <p>Workshop: Preparation of structure plan, 1 hour</p> <p>Learning Outcomes</p> <p>Understand the purpose of a structure plan.</p>

		Determine the vision and component parts of your site structure plan. Use a site analysis plan to prepare a structure plan.
Week 8: 3 April - 7 April	Blended	<p>Lecture: Urban lot layout, liveability & sustainability, 2 hours</p> <p>Workshop: Preparation of structure plan, 1 hour</p> <p>Learning Outcomes</p> <p>Understand the triple bottom line and the principles of sustainability. Appreciate the environmental constraints and regulatory requirements that determine the location, size and orientation of urban lots. Prepare an urban lot layout based on a structure plan. Comply with regulatory requirements.</p>
Week 9: 10 April - 14 April	Blended	<p>Lecture: Infill subdivisions and the economic feasibility of development, 2 hours</p> <p>Workshop: Preparation of lot layout, 1 hour</p> <p>Learning Outcomes</p> <p>Appreciate the special requirements for the urban redevelopment of existing sites. Know how to research and prepare an economic feasibility for a project.</p>
Week 10: 17 April - 21 April	Blended	<p>Lecture: The Development application and approval process. Brownfield & industrial developments., 2 hours</p> <p>Workshop: Preparation of lot layout, 1 hour</p>

		<p>Learning Outcomes</p> <p>Understand the development application & approval process, Statement of Environmental Effects & certification of development.</p>
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Resources

Prescribed Resources

Lecture notes and suggested additional readings are provided on Moodle.
<http://moodle.telt.unsw.edu.au/>

Lecture Material

Material will be delivered by a lecturer each week followed by studio work in a studio environment focussed on the lecture material. Students are encouraged to discuss their projects.

Text and Reference Books

AMCORD – A National Resource Document for Residential Development

AMCORD - Practice Notes

National Guidelines to Urban Development (available in the UNSW library only)

Various State & Local Government Web-sites

Planning Australia- Thompson & Maginn Cambridge University Press

Computational Aids

Computer software relevant to this course is available in the School's computer lab CE611 and 201.

Magnet Office CAD software is loaded onto the School's computers however there is no restriction on students who may wish to use their own software. Students should make themselves aware of the complications that may occur including where different group members use different software or when hardcopies of plans are required. Students will also be required to have data available for inspections by the lecturer from time to time.

Submission of Assessment Tasks

Please refer to the Moodle page of the course for further guidance on assessment submission.

UNSW has a standard late submission penalty of:

- 5% per day, for all assessments where a penalty applies, capped at five days (120 hours), after which a student cannot submit an assessment, and no permitted variation.

Academic Honesty and Plagiarism

Beware! An assignment that includes plagiarised material will receive a 0% Fail, and students who plagiarise may fail the course. Students who plagiarise are also liable to disciplinary action, including exclusion from enrolment.

Plagiarism is the use of another person's work or ideas as if they were your own. When it is necessary or desirable to use other people's material you should adequately acknowledge whose words or ideas they are and where you found them (giving the complete reference details, including page number(s)). The Learning Centre provides further information on what constitutes Plagiarism at:

<https://student.unsw.edu.au/plagiarism>

Academic Information

Final Examinations:

Final Exams in T1 2023 will be held on campus between the 28th of April and the 11th of May, and Supplementary Exams between the 22nd of May and the 26th of May. You are required to be available on these dates. Please do not make any personal or travel arrangements during this period.

ACADEMIC ADVICE

- Key Staff to Contact for Academic Advice (log in with your zID and password): <https://intranet.civeng.unsw.edu.au/key-staff-to-contact-during-your-studies-at-unsw>
- [Key UNSW Dates](#) - eg. Census Date, exam dates, last day to drop a course without academic/financial liability etc.
- CVEN Student Intranet (log in with your zID and password): <https://intranet.civeng.unsw.edu.au/student-intranet>
- Student Life at CVEN, including Student Societies: <https://www.unsw.edu.au/engineering/civil-and-environmental-engineering/student-life>
- Special Consideration: <https://student.unsw.edu.au/special-consideration>
- General and Program-Specific Questions: [The Nucleus: Student Hub](#)
- Book an Academic Advising session: <https://unswengacademicadvising.as.me/schedule.php>

Disclaimer

This course outline sets out description of classes at the date the Course Outline is published. The nature of classes may change during the Term after the Course Outline is published. Moodle should be consulted for the up to date class descriptions. If there is any inconsistency in the description of activities between the University timetable and the Course Outline (as updated in Moodle), the description in the Course Outline/Moodle applies.

Image Credit

Mike Gal.

CRICOS

CRICOS Provider Code: 00098G

Acknowledgement of Country

We acknowledge the Bedegal people who are the traditional custodians of the lands on which UNSW Kensington campus is located.

Appendix: Engineers Australia (EA) Professional Engineer Competency Standard

Program Intended Learning Outcomes	
Knowledge and skill base	
PE1.1 Comprehensive, theory based understanding of the underpinning natural and physical sciences and the engineering fundamentals applicable to the engineering discipline	✓
PE1.2 Conceptual understanding of the mathematics, numerical analysis, statistics, and computer and information sciences which underpin the engineering discipline	✓
PE1.3 In-depth understanding of specialist bodies of knowledge within the engineering discipline	
PE1.4 Discernment of knowledge development and research directions within the engineering discipline	
PE1.5 Knowledge of engineering design practice and contextual factors impacting the engineering discipline	✓
PE1.6 Understanding of the scope, principles, norms, accountabilities and bounds of sustainable engineering practice in the specific discipline	
Engineering application ability	
PE2.1 Application of established engineering methods to complex engineering problem solving	
PE2.2 Fluent application of engineering techniques, tools and resources	✓
PE2.3 Application of systematic engineering synthesis and design processes	✓
PE2.4 Application of systematic approaches to the conduct and management of engineering projects	
Professional and personal attributes	
PE3.1 Ethical conduct and professional accountability	
PE3.2 Effective oral and written communication in professional and lay domains	
PE3.3 Creative, innovative and pro-active demeanour	✓
PE3.4 Professional use and management of information	✓
PE3.5 Orderly management of self, and professional conduct	
PE3.6 Effective team membership and team leadership	