



# GMAT4400

## Land Management Project

Term One // 2021

## Course Overview

### Staff Contact Details

#### Convenors

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#### Lecturers

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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

(+61 2) 9385 7661 – Engineering Industrial Training

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## Course Details

### Credit Points 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	

*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 (tutorial) format, in which groups of 3-4 students work together on a residential plot development. The tutorials (and student project work) is guided by sessional staff with experience in land management and development in NSW. Lectures will be linked to tutorial 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 Tasks

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

## Assessment Details

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

**Details:**Progress Inspections and 3 quizzes

#### 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**

**Details:** *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.*

### **Assessment 3: Structure Plan**

**Details:** *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**

#### **Details:**

Individual lot layout plan & report.

Presentation of structure plan and resulting lot plan to class.

#### **Additional details:**

Individual lot layout plan & report.

Presentation of structure plan and resulting lot plan to class.

*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.*

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

## Attendance Requirements

Students are strongly encouraged to attend all classes and review lecture recordings.

## Course Schedule

[View class timetable](#)

### Timetable

Date	Type	Content
O Week: 8 February - 12 February		
Week 1: 15 February - 19 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><b>Learning Outcomes</b></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: 22 February - 26 February	Blended	<p>Lecture: NSW Planning System, overview, 2 hours</p> <p>Workshop: Research &amp; 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&amp;A Act. Grasp the principles of Regional plans, growth centres, local plans, SEPP, LEP, DCP, planning policies &amp; the hierarchy of plans.</p>
Week 3: 1 March - 5 March	Blended	<p>Lecture: Site analysis, 1 hour</p> <p>Workshop: Practical site analysis of your project, 2 hours</p> <p>Learning Outcomes</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.
Week 4: 8 March - 12 March	Lecture	Lecture: Road hierarchy & traffic engineering. Stormwater drainage, 3 hours  Learning Outcomes  Understand the principles of road hierarchy & traffic engineering.
Week 5: 15 March - 19 March	Lecture	Lecture: Roads, lot access & engineering aspects, 3 hours  Learning Outcomes  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.
Week 6: 22 March - 26 March		<b>Non-teaching week</b>
Week 7: 29 March - 2 April	Blended	Lecture: Structure plans, 2 hours  Workshop: Preparation of structure plan, 1 hour  Learning Outcomes  Understand the purpose of a structure plan. Determine the vision and component parts of your site structure plan. Use a site analysis plan to prepare a structure plan.
Week 8: 5 April - 9 April	Blended	Lecture: Urban lot layout, liveability & sustainability, 2 hours  Workshop: Preparation of structure plan, 1 hour



		<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: 12 April - 16 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: 19 April - 23 April	Blended	<p>Lecture: The Development application and approval process. Brownfield &amp; industrial developments., 2 hours</p> <p>Workshop: Preparation of lot layout, 1 hour</p> <p>Learning Outcomes</p> <p>Understand the development application &amp; approval process, Statement of Environmental Effects &amp; certification of development.</p>

## **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.

### **Recommended Resources**

### **Course Evaluation and Development**

## **Submission of Assessment Tasks**

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

## 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

[Key UNSW Dates](#) - eg. Census Date, exam dates, last day to drop a course without academic/financial liability etc.

### Final Examinations:

Final exams in Term 1 will be held online between 30th April - 13th May inclusive. You are required to be available on these dates. Please do not to make any personal or travel arrangements during this period.

### Supplementary Examinations:

Supplementary Examinations for Term 1 2021 will be held on 24th - 28th May inclusive should you be required to sit one. You are required to be available on these dates. Please do not to make any personal or travel arrangements during this period.

## ACADEMIC ADVICE

For information about:

- Notes on assessments and plagiarism;
- Special Considerations: [student.unsw.edu.au/special-consideration](https://student.unsw.edu.au/special-consideration);
- General and Program-specific questions: [The Nucleus: Student Hub](#)
- Year Managers and Grievance Officer of Teaching and Learning Committee, and
- CEVSOC/SURVSOC/CEPCA

Refer to Academic Advice on the School website available at:

<https://www.engineering.unsw.edu.au/civil-engineering/student-resources/policies-procedures-and-forms/academic-advice>

## Image Credit

Synergies in Sound 2016

## 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

<b>Program Intended Learning Outcomes</b>	
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	