

# GMAT4400 LAND MANAGEMENT AND DEVELOPMENT PROJECTS I

## COURSE DETAILS

<b>Units of Credit</b>	6		
<b>Contact hours</b>	3 hours per week		
<b>Class</b>	Wednesday,	10:00 – 13:00	Room EE G03
<b>Course Coordinator</b>	Bruce Harvey	email: <a href="mailto:b.harvey@unsw.edu.au">b.harvey@unsw.edu.au</a>	office: CE 207 phone: 9385 4178
<b>Lecturers</b>	Aaron Gray (AG)	email: <a href="mailto:aaron.gray@unsw.edu.au">aaron.gray@unsw.edu.au</a>	
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## INFORMATION ABOUT THE COURSE

This course is an important course for students in the Surveying degree and in the Civil+Surveying degree. This is a project-based course that has fewer lectures than standard courses and more design elements. The lecturers in this course are professionals with valuable experience and knowledge in this field. The course is beneficial for graduates who may wish to become Registered Surveyors in the future. A good understanding of title systems from GMAT3420 Cadastral Surveying and Land Law and of terrain modelling, together with road design from GMAT2500 Survey Computations & CAD will help learning this course.

## HANDBOOK DESCRIPTION

See handbook: <https://www.handbook.unsw.edu.au/undergraduate/courses/2020/GMAT4400/>

## OBJECTIVES

To design a residential neighbourhood development commencing with a green field site analysis and a Structure Plan design. The design process continues with a plan of a detailed lot layout.

List of programme attributes:

- An in-depth engagement with the relevant disciplinary knowledge in its inter-disciplinary context
- Capacity for analytical and critical thinking and for creative problem solving
- Ability to engage independent and reflective learning
- Information literacy
- Skills for collaborative and multi-disciplinary work
- A respect for ethical practice and social responsibility
- Skills for effective communication

## TEACHING STRATEGIES

A lecture will be given in most weeks on a different topic. The lectures are linked to studio workshops where students continue their learning by applying the lecture material to their analysis and designs.

A continual level of research and plan development is required to appreciate the impact of various environmental and design factors on the project. Use of the recommended references is extremely

beneficial. The course requires a considerable amount of student input outside of the class environment.

<b>Private Study</b>	<ul style="list-style-type: none"> <li>• Review lecture material and textbook</li> <li>• Do set problems and assignments</li> <li>• Join Moodle discussions of problems</li> <li>• Reflect on class problems and assignments</li> <li>• Download materials from Moodle</li> <li>• Keep up with notices and find out marks via Moodle</li> </ul>
<b>Lectures</b>	<ul style="list-style-type: none"> <li>• Find out what you must learn</li> <li>• See methods that are not in the textbook</li> <li>• Follow worked examples</li> <li>• Hear announcements on course changes</li> </ul>
<b>Workshops</b>	<ul style="list-style-type: none"> <li>• Be guided by Demonstrators</li> <li>• Hands-on work, to set studies in context</li> <li>• Ask questions</li> </ul>
<b>Assessments</b>	<ul style="list-style-type: none"> <li>• Demonstrate your knowledge and skills</li> <li>• Demonstrate higher understanding and problem solving</li> </ul>

#### EXPECTED LEARNING OUTCOMES

*This course is designed to address the learning outcomes below and the corresponding Engineers Australia Stage 1 Competency Standards for Professional Engineers as shown. The full list of Stage 1 Competency Standards may be found in Appendix A.*

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

<b>Learning Outcome</b>		<b>EA Stage 1 Competencies</b>
1.	<i>Apply knowledge and understanding of potential site constraints to urban land development in site evaluation and site analysis in contemporary practice</i>	<i>PE1.1, PE1.5, PE2.3</i>
2.	<i>Apply knowledge and understanding of the methodology in the preparation of structure plans.</i>	<i>PE1.2, PE2.2, PE2.3</i>
3.	<i>Apply knowledge and understanding of the methodology in the preparation of lot layout</i>	<i>PE1.2, PE2.2, PE2.3</i>
4.	<i>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</i>	<i>PE2.2, PE2.3, PE3.3, PE3.4</i>

**COURSE PROGRAM Term 1 2020**

Date	Topic	Workshop	Assessment Due	Learning Outcomes
19/02 Wk 1 AG	Course outline and a brief introduction to Planning 2 hours	Project Site selection and sources of information 1 hour		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.
26/02 Wk 2 AG	NSW Planning System, overview 2 hours	Research & collate project site planning information 1 hour		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.
04/03 Wk 3 AG	Site analysis 1 hour	Practical site analysis of your project 2 hours	Progress inspection on collation of site information	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.
11/03 Wk 4 BL	Road hierarchy & traffic engineering. Stormwater drainage. 3 hours		Moodle quiz 1 Aspects of Planning and site Analysis	Understand the principles of road hierarchy & traffic engineering.
18/03 Wk 5 BL	Roads, lot access & engineering aspects 3 hours			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.
25/03 Wk 6	<b>Non-teaching week</b>			
01/04 Wk 7 AG	Structure plans 2 hours	Preparation of structure plan 1 hour	Group site analysis plan, report & presentation	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.
08/04 Wk 8 AG	Urban lot layout, liveability & sustainability 2 hours	Preparation of structure plan 1 hour	Moodle quiz 2 Structure Plans	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.

15/04 Wk 9 AG	Infill subdivisions and the economic feasibility of development 2 hours	Preparation of lot layout 1 hour	Individual structure plan & report	Appreciate the special requirements for the urban redevelopment of existing sites. Know how to research and prepare an economic feasibility for a project.
22/04 Wk 10 AG	The Development application and approval process. Brownfield & industrial developments. 2 hours	Preparation of lot layout 1 hour	Moodle quiz 3 Lot Design	Understand the development application & approval process, Statement of Environmental Effects & certification of development.
Exam period AG & BRH	Final presentation by each student to explain how they used the site analysis to prepare a structure plan and then the lot layout 3 hours		Individual lot layout plan, report & presentation of structure and lot plans	Final assessments.  Create a Lot layout plan and report. Create a professional power point presentation and explain to the class the process and outcome of creating a lot layout from the site analysis and structure plan. Explain the salient features of the plan and how it meets the objectives of sustainability and liveability.

## ASSESSMENT

The subject is assessed on three Moodle quizzes and three major submissions in the session. The three major submissions are Site Analysis, Structure Plan and Lot Layout. The site analysis is a group submission and the structure plan and lot plans are individual submissions.

Marks and feedback for all assessment items will be within two weeks of the submission deadline.

The assessment structure is shown in the table below.

Item	Due Date	Assessment due	Group Mark %	Individual Mark %	Assessment Criteria
<b>1. Continuous assessments</b>					
	4-Mar Week 3	Progress inspection on collation of site information		5	<i>Show the types of site information the student has assembled for analysis from reputable sources</i>
	11-Mar Week 4	Moodle quiz 1 Aspects of Planning and site Analysis		5	<i>Knowledge of how planning is regulated in NSW and contemporary planning issues in NSW</i>
	8-Apr Week 8	Moodle quiz 2 Structure Plans		5	<i>Purpose of a structure plan, what information is used and how is it shown, understanding of key terms</i>
	22-Apr Week 10	Moodle quiz 3 Lot Design		5	<i>Regulation of lot design, principles of sustainability, understanding of key terms, basic cost estimation.</i>
<b>2. Site Analysis</b>					
	1-Apr Week 7	Group site analysis plan,	30		<i>Submit a set of plans and report that together constitute a full professional site analysis. All plan sheets will be prepared in a consistent</i>

		report & presentation			<i>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.</i>
<b>3. Structure Plan</b>					
	15-Apr Week 9	Individual structure plan & report		20	<i>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.</i>
<b>4. Lot Layout</b>					
	Exam period, date TBA	Individual lot layout plan & report. Presentation of structure plan and resulting lot plan to class		30	<i>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.</i>
	Totals		30	70	

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.

Supplementary Examinations for Term 1 2020 will be held on Monday 25<sup>th</sup> May – Friday 29<sup>th</sup> May (inclusive) should you be required to sit one. You are required to be available during these dates. Please do not to make any personal or travel arrangements during this period.

#### **PENALTIES**

*Late work will be penalised at the rate of 10% per day (or part thereof) after the due time and date have expired.*

#### **RELEVANT 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.

### DATES TO NOTE

Refer to MyUNSW for Important Dates available at: <https://student.unsw.edu.au/dates>

### 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 ADVICE

(Formerly known as Common School Information)

For information about:

- Notes on assessments and plagiarism,
- School policy on Supplementary exams,
- Special Considerations: [student.unsw.edu.au/special-consideration](https://student.unsw.edu.au/special-consideration)
- Solutions to Problems,
- Year Managers and Grievance Officer of Teaching and Learning Committee, and
- CEVSOC and SURVSOC

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>

## Appendix A: Engineers Australia (EA) Competencies

### Stage 1 Competencies for Professional Engineers

	<b>Program Intended Learning Outcomes</b>
<b>PE1: Knowledge and Skill Base</b>	PE1.1 Comprehensive, theory-based understanding of underpinning fundamentals
	PE1.2 Conceptual understanding of underpinning maths, analysis, statistics, computing
	PE1.3 In-depth understanding of specialist bodies of knowledge
	PE1.4 Discernment of knowledge development and research directions
	PE1.5 Knowledge of engineering design practice
	PE1.6 Understanding of scope, principles, norms, accountabilities of sustainable engineering practice
<b>PE2: Engineering Application Ability</b>	PE2.1 Application of established engineering methods to complex 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
<b>PE3: Professional and Personal Attributes</b>	PE3.1 Ethical conduct and professional accountability
	PE3.2 Effective oral and written communication (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