School of Civil and Environmental Engineering

Term3, 202 1

GMAT4150
FIELD PROJECTS 2

COURSE DETAILS	
Units of Credit	6
Contact hours	Average 8rf4(rE (a)-0 q 157.02 566.82 390 M08 [(F)1.2 (r)-1.3 (i)1.5 (da)6.1 (y)-2 (,)3.6

OBJECTIVES

TEACHING STRATEGIES

Different types of projects will be offered each year.

Week 2: Continue literature review and extract relevant sections as pertains to the design of the survey task. Discuss design of various testbeds. Status of sourcing equipment. Develop logistics around testing gear and then transporting between users. Contact relevant surveyors for their experience in developing a testbed. Discuss using Leica Vivas as “control” for this project (or other forms of control).

Week 3: Live online visit of each site by each student (ie walk around site with camera and discuss with team) for reconnaissance. Augment the survey design to ensure all criteria will be tested. Discuss logistics of rotating gear to each student site and access to gear and how it will be transported between students.

Week 4: Prepare a group report detailing the literature review, site design for each site and the criteria to be tested. Report due by Friday of week 4. The report will also include the WH&S documentation, time sheets and a description of each of the tasks.

Week 5: First attempt at field work. Compare and contrast results and discuss successes/failures based on first fieldwork attempt. What can be improved? Make adjustments to the plan and arrange all necessary unfinished logistics.

Week 6: Individual student interviews with supervisor. Re-visit fieldwork with remaining two GNSS devices. Note: all devices should be tested at all 3 student test sites. Process data from field work using Leica Infinity or other software. Each student should individually process their own fieldwork. Prepare for any follow-up field visit. Consider design for “Hyperlocal Navigation Challenge” control survey*. Consider design for tiltable pole testing*.

Week 7: Compare all results and tabulate and compare results. Can you draw any preliminary conclusions? Should other tests be designed to augment/ clarify preliminary results.

Week 8: Report writing. Allocate tasks amongst students to write toward a single report comprising individual parts. Group discussion to distil the outcomes of this testing. What would a professional surveyor want to know as an outcome of your research?

Week 9: Compile a group report detailing the literature review and motivation for the testing, current state of positioning modes, devices tested, test-bed designs, criteria tested, results, discussion, recommendations. Include WH & S documentation and time sheets. (Note: The Hyperlocal Navigation Challenge and tiltable pole tests will manifest as separate and considerably smaller reports.)

Week 10: Project presentations to invited guests. Project group report submission. Time sheets and self-assessment to be provided at a specified date in week 11.

The reports should be in electronic form as a single MS Word format document that includes at least a title page, contents, summary, results, report, plans, input and output files. Spreadsheets, appropriate software output files that support your project. Name the files clearly. Field sheets (if applicable) and any other paper documents should be scanned for submission. The report should be professionally prepared for the client and copies may be adapted for presentation to the Surveying and Spatial profession.

Although the final submission is a group report, there needs to be a breakdown of which individual student performed which task. This will be accompanied by a signed sheet from all group participants agreeing with their specific contribution to the final report and associated time sheets. An individual self-assessment report is required.

ASSESSMENT

There is no final examination in this course.

Details of each assessment component, the marks assigned to it, the criteria by which marks will be assigned, and the dates of submission are set out below for each project separately.

Each student should include a time sheet indicating the time spent on this course – in much the same way as a business would use to charge a client for work on a project. It should include travel and meeting time. Students should not spend more than 150 hours on the course. However students should not 'waste' time doing idle activities merely to accumulate time for the project. Students will be required to submit a formal

RELEVANT RESOURCES

- GMAT3700 notes
- Various documents and tools from NSW Spatial Services and Geoscience Australia
- Additional materials provided on Moodle.

DATES TO NOTE

Appendix A: Engineers Australia (EA) Competencies

Stage 1 Competencies for Professional Engineers

	Program Intended Learning Outcomes
PE1: Knowledge and Skill Base	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
PE2: Engineering Application Ability	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
PE3: Professional and Personal Attributes	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 deme0.44 3213 (oc)4 (m)7.7 (m)1.7 (u)6.4 3288.36 0.48 32.46 re 5 5