

School of Civil and Environmental Engineering Term 3, 2020

GMAT2120 Surveying and Geospatial Technology

COURSE DETAILS

Units of Credit 6 UoC

Contact hours 5 hours per week

Class/Workshop Monday, 10:00 – 12:00

Field pracs

Dr Craig Roberts

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Lecturer Rod Eckels (external lecturer)

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INFORMATION ABOUT THE COURSE

This course is a part of a three year streeam of spir,

Co requisite: MATH2019

HANDBOOK DESCRIPTION

See link to virtual handbook:

www.handbook.unsw.edu.au/undergraduate/courses/2020/GMAT2120.html

precise horizontal and zenith angle measurement, observation procedures and elimination of errors. This theory will be exercised with a larger field project and some minor exercises. Robotic total stations and newer ATR technology will be presented. Leap frog EDM ht traversing will be introduced and a prac exercise will be run. Finally, principles and applications of EDM, phase and pulse measurement techniques, wave propagation in atmosphere, measurement of

atmospheric parameters, coefficient of refraction, velocity corrections, geometric reductions, reductions of distances to the ellipsoid and analysis of errors will be exercised with a field prac exercise. At the conclusion of this course students gain an understanding of the impact specific field techniques and instrumentation have on the attainable precision when conducting terrestrial surveys.

During this course the following attributes will be exercised:

- the skills involved in scholarly enquiry
- > an in-depth engagement with relevant disciplinary knowledge in its interdisciplinary context
- > the capacity for analytical and critical thinking and for creative problem solving
- the ability to engage in independent and reflective learning
- > the skills to locate, evaluate and use relevant information (Information Literacy)
- > the

COURSE PROGRAM

Week start	Monday 10 12 noon CLB 08	Wednesday 1 - 6pm CE G7 Survey store	Thursday 9 11 am CLB 06
1 14/9	L1: Intro to Course (C) L2: Levelling revision, digital levels (R) T: Prac 1 briefing and prep. (R)	P1: Collimation Test mini prac & rotating laser levelling of grid (R) Practice precise level run around campus (R)	L3A: Precise levelling, reduction of precise levelling data
2 21/9	L3B: Error analysis, std & specs (R) T: Prep for prac. Booking, recording of precise levelling (R) (Levelling Assignment)	P2: Precise level run prac around campus (R) (Level Prac due 9/10)	L4: Data Analysis in precise levelling

L5: Intro to Elec Theods, u

3 T: Statistics of precise level reductions (R)

SUMISSION OF REPORTS ON PRACTICAL FIELD CLASSES

Time: Reports will generally be submitted as per the assessment timetable. Note this could change depending on circumstances. Please come to lectures and read emails in case of changes. Late submissions will be penalised, unless accompanied by an appropriate reason

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