School of Civil and Environmental

Term 3, 2020

GMAT 9600 PRINCIPLES OF REMOTE SENSING

COURSE DETAILS		
Units of Credit	6	
Contact hours	3 hours per week	
Class	Wed 6:00 - 9:00 pm	online
Course Coordinator and Lecturer	Professor Linlin Ge email: l.ge@unsw.edu.au office: CE414 phone: 9385 4177	
Lecturer	Other email: office: phone	

INFORMATION ABOUT THE COURSE

This course will focus on the theory and physics of remote sensing. Various remote sensing techniques such as optical and radar are discussed throughout the course.

This course can be taken in parallel with another postgraduate course GMAT9606 Microwave Remote

	¶ Join Moodle discussions of problems ¶ Reflect on class problems and assignments ¶ Download materials from Moodle ¶ Keep up with notices and find out marks via Moodle
Lectures	¶ Find out what you must learn ¶ See methods that are not in the textbook ¶ Follow worked examples ¶ Hear announcements on course changes
Workshops	¶ Be guided by Demonstrators ¶ Practice solving set problems ¶ Ask questions
Assessments	¶ Demonstrate your knowledge and skills ¶ Demonstrate higher understanding and problem solving
Laboratory Work	¶ Hands-on work, to set studies in context

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:

	Learning Outcome	EA Stage 1 Competencies
1.	Investigate remote sensing options for identified applications,	*PE1.1, PE1.2, PE1.3, PE1.4, PE3.4*
2.	Apply theory to the implementation of the chosen option,	*PE1.5, PE2.1, PE2.3, PE3.3, PE3.5*
3.	Appreciate the complementary nature between remote sensing, GIS and surveying,	*PE1.3, PE1.4, PE1.5*
4.	Undertake basic data analysis, and	*PE1.2, PE2.2*
5.	Create digital maps.	*PE2.2, PE3.2, PE3.4*

For each hour of contact it is expected that you will put in at least 1.5 hours of private study.

COURSE PROGRAM

Term 3 2020

Date	Lecture Content	Demonstration/ lab Content
14/09/2020 (Week 1)	Introduction to Course; Introduction to Earth Observation/Remote Sensing	
21/09/2020 (Week 2)	Electromagnetic Radiation Definition & Physics	Lab demonstration: DInSAR data analysis
28/09/2020 (Week 3)	Spectral Reflectance and Atmospheric Attenuation	
06/10/2020 (Week 4)	Radar Background and Surface Interaction; Interferometric Synthetic Aperture Radar	
12/10/2020 (Week 5)	Electro-optical Sensors (1)	Assignment / lab 1 radar application
19/10/2020		

understanding of concepts, and the students' abilities to make decisions and solve problems within limited time. The final exam will be held under close book conditions. You need to score at least 40% in the final exam to be able to pass the course.

Students who perform poorly in the quizzes and lab assignments are recommended to discuss progress with the lecturer during the term. Note: The lecturer reserves the right to adjust the final scores by scaling if agreed by the Head of School.

2021 (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

All assignments or practical reports are compulsory parts of the course and must be handed in by the due date. A mark of zero will be given for any submission which violates this rule. OR **The marks for late submissions will be reduced as follows:** -20% (of the maximum mark) for up to 24 hours after the scheduled submission time, then -10% (of the maximum mark) for each additional 24 hour period late. (For example, a student submitting a report/assignment 4 days late has his/her mark reduced by 4 if the maximum mark of the submission is 10.) Any late submission must be made before solutions are issued to the class.

If a student is unable to submit on time due to illness or other legitimate reason, then a brief written explanation must be given to the lecturer for consideration as soon as is feasible. In some cases the lecturer may grant an extension to the submission date provided he t

RELEVANT RESOURCES

The course will be mainly based on PDF files of Powerpoint lecture slides available at the course Moodle site.

The material will be uploaded week by week.

The following are recommended reading materials:

1. CCRS website: http://www.nrcan.gc.ca/node/9363
2.
3.
   NY : Cambridge University Press, 2001.
4. The UNSW Library website: http://info.library.unsw.edu.au/web/services/services.html

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

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
- Solutions to Problems,
- Year Managers and Grievance Officer of Teaching and Learning Committee, and
- CEVSOC.

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