

SURV6110: Industrial Surveying

Callaghan

Semester 1 - 2024



THE UNIVERSITY OF
NEWCASTLE
AUSTRALIA

OVERVIEW

Course Description	This course presents applications of surveying field, office and management principles and practices to the specific environment encountered in mining surveys and other industrial surveys.
Academic Progress Requirements	Nil
Requisites	This course has similarities to SURV4110. If you have completed SURV4110 you cannot enrol in this course.
Assumed Knowledge	MATH2310 and Level 1 and 2 surveying courses.
Contact Hours	<p>Callaghan Lecture Face to Face On Campus 2 hour(s) per week(s) for 13 week(s) starting Week 1 The above distribution of contact hours may alter on a weekly basis and will be confirmed in the course outline handed to students in Week 1.</p> <p>Practical Face to Face On Campus 3 hour(s) per week(s) for 13 week(s) starting Week 1 The above distribution of contact hours may alter on a weekly basis and will be confirmed in the course outline handed to students in Week 1.</p> <p>Tutorial Face to Face On Campus 1 hour(s) per week(s) for 13 week(s) starting Week 1 The above distribution of contact hours may alter on a weekly basis and will be confirmed in the course outline handed to students in Week 1.</p>
Unit Weighting Workload	10 Students are required to spend on average 120-140 hours of effort (contact and non-contact) including assessments per 10 unit course.

COURSE OUTLINE

CONTACTS

Course Coordinator	Callaghan Dr Mehdi Khaki Mehdi.Khaki@newcastle.edu.au (02) 4921 6626 Consultation: EA128
Teaching Staff	Other teaching staff will be advised on the course Canvas site.
School Office	School of Engineering EAG02 EA Building Callaghan Seng-admin@newcastle.edu.au 9.00am-1.00pm and 2.00pm-5.00pm (Monday to Friday)

SYLLABUS

Course Content	<ol style="list-style-type: none">1. Characteristics of industrial and mining surveying.2. Aspects of theodolite design, usage and errors in precise surveys.3. Optical intersection techniques.4. Special instruments encountered in industrial and mining surveying.5. Statistical analysis in precise surveys.6. Photogrammetric methods for precise surveys.
Course Learning Outcomes	<p>On successful completion of this course, students will be able to:</p> <ol style="list-style-type: none">1. Understand the peculiarities of the demands and options in industrial and mining surveying2. Apply surveying field skills to industrial and mining surveying3. Become familiar with special equipment typically used in mining and industrial surveys4. Apply surveying office computing and data reduction skills to industrial and mining surveying5. Apply surveying data and information analysis skills to industrial and mining surveying6. Apply surveying management skills to industrial and mining surveying7. Develop capability to conduct advanced research of relevant literature and apply to practical problems.
Course Materials	<p>Lecture Materials:</p> <ul style="list-style-type: none">- A book of Lecture notes, to accompany the lecture sessions, will be made available on the course Canvas site. PDF's of lecture slides will also be made available through Canvas. <p>Other Resources:</p> <ul style="list-style-type: none">- Ogundare, John Olusegun, 2010. Precision Surveying: the Principles and Geomatics Practice, John Wiley and sons.

ASSESSMENTS

This course has 4 assessments. Each assessment is described in more detail in the sections below.

	Assessment Name	Due Date	Involvement	Weighting	Learning Outcomes
1	Mine Surveying Report	As notified on the course Canvas site	Individual	20%	1, 2, 3
2	Major Project	As notified on the course Canvas site	Group	40%	1, 2, 3
3	Quiz	Week 12	Individual	20%	1, 2, 3, 5
4	Research Investigation	As notified on the course Canvas site	Individual	20%	1, 2, 3, 4, 5, 6, 7

Late Submissions The mark for an assessment item submitted after the designated time on the due date, without an approved extension of time, will be reduced by 10% of the possible maximum mark for that assessment item for each day or part day that the assessment item is late. Note: this applies equally to week and weekend days.

Assessment 1 - Mine Surveying Report

Assessment Type Report
Purpose Develop an understanding of, and experience in, the techniques of mine survey traversing.
Description Students will undertake a traverse in an environment replicating an underground mine drive network. The survey will require the establish of azimuth from roof control marks, traversing via resection and azimuth check by Weiss Quadrilateral techniques. Fieldwork will be undertaken in a group, but individual written reports are required.
Weighting 20%
Due Date As notified on the course Canvas site
Submission Method Online
Assessment Criteria
Return Method
Feedback Provided Online - .

Assessment 2 - Major Project

Assessment Type Project
Purpose Develop an understanding of, and experience in, the techniques of industrial surveying, as they apply to a specific industrial measurement problem.
Description Students will be provided with an industrial measurement problem. They will be required to analyse the problem, assess the measurement equipment and techniques that may be used to solve the problem, develop a plan to acquire suitable measurement data, and then undertake necessary calculation, adjustments, and analysis to derive the required results. Planning and field work will be undertaken in a group structure. Each individual student will be required to provide a professional written report detailing the planning, fieldwork, and results of the survey.
Weighting 40%
Due Date As notified on the course Canvas site
Submission Method Online
Assessment Criteria
Return Method
Feedback Provided Online - .

Assessment 3 - Quiz

Assessment Type Quiz
Description
Weighting 20%
Due Date Week 12
Submission Method In Class
Assessment Criteria
Return Method
Feedback Provided Online - .

Assessment 4 - Research Investigation

Assessment Type	Report
Purpose	Develop advanced research, analytical, writing and presentation skills.
Description	Students will research a specific topic related to the field of industrial measurement. The lecturer will provide a topic for the research task, but in consultation with the lecturer, the student can propose an alternative topic. Any alternative topic must be agreed and approved by the lecturer prior the end of Week 3 of semester. The student will then investigate the topic, which may include conducting literature reviews, analysing data, examination of case studies, etc. Through this process, the student will gain specific knowledge of current measurement equipment and procedures and develop an understanding of future trends in this area of measurement and analysis.
Weighting	20%
Due Date	As notified on the course Canvas site
Submission Method	Online Specific Location
Assessment Criteria	
Return Method	
Feedback Provided	Online - .

ADDITIONAL INFORMATION

Grading Scheme

This course is graded as follows:

Range of Marks	Grade	Description
85-100	High Distinction (HD)	Outstanding standard indicating comprehensive knowledge and understanding of the relevant materials; demonstration of an outstanding level of academic achievement; mastery of skills*; and achievement of all assessment objectives.
75-84	Distinction (D)	Excellent standard indicating a very high level of knowledge and understanding of the relevant materials; demonstration of a very high level of academic ability; sound development of skills*; and achievement of all assessment objectives.
65-74	Credit (C)	Good standard indicating a high level of knowledge and understanding of the relevant materials; demonstration of a high level of academic achievement; reasonable development of skills*; and achievement of all learning outcomes.
50-64	Pass (P)	Satisfactory standard indicating an adequate knowledge and understanding of the relevant materials; demonstration of an adequate level of academic achievement; satisfactory development of skills*; and achievement of all learning outcomes.
0-49	Fail (FF)	Failure to satisfactorily achieve learning outcomes. If all compulsory course components are not completed the mark will be zero. A fail grade may also be awarded following disciplinary action.

*Skills are those identified for the purposes of assessment task(s).

Communication Methods

Communication methods used in this course include:

- Canvas Course Site: Students will receive communications via the posting of content or announcements on the Canvas course site.

Course Evaluation

Each year feedback is sought from students and other stakeholders about the courses offered in the University for the purposes of identifying areas of excellence and potential improvement.

- Oral Interviews (Vivas)** As part of the evaluation process of any assessment item in this course an oral examination (viva) may be conducted. The purpose of the oral examination is to verify the authorship of the material submitted in response to the assessment task. The oral examination will be conducted in accordance with the principles set out in the [Oral Examination \(viva\) Procedure](#). In cases where the oral examination reveals the assessment item may not be the student's own work the case will be dealt with under the [Student Conduct Rule](#).
- Academic Misconduct** All students are required to meet the academic integrity standards of the University. These standards reinforce the importance of integrity and honesty in an academic environment. Academic Integrity policies apply to all students of the University in all modes of study and in all locations. For the Student Academic Integrity Policy, refer to <https://policies.newcastle.edu.au/document/view-current.php?id=35>.
- Adverse Circumstances** The University acknowledges the right of students to seek consideration for the impact of allowable adverse circumstances that may affect their performance in assessment item(s). Applications for special consideration due to adverse circumstances will be made using the online Adverse Circumstances system where:
1. the assessment item is a major assessment item; or
 2. the assessment item is a minor assessment item and the Course Co-ordinator has specified in the Course Outline that students may apply the online Adverse Circumstances system;
 3. you are requesting a change of placement; or
 4. the course has a compulsory attendance requirement.
- Before applying you must refer to the Adverse Circumstance Affecting Assessment Items Procedure available at: <https://policies.newcastle.edu.au/document/view-current.php?id=236>
- Important Policy Information** The Help button in the Canvas Navigation menu contains helpful information for using the Learning Management System. Students should familiarise themselves with the policies and procedures at <https://www.newcastle.edu.au/current-students/respect-at-uni/policies-and-procedures> that support a safe and respectful environment at the University.

This course outline was approved by the Head of School on the 29/01/2024. No alteration of this course outline is permitted without Head of School approval. If a change is approved, students will be notified and an amended course outline will be provided in the same manner as the original.

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