



The University of Southern Queensland

## Course specification

<b>Description: Survey Computations A</b>						
Subject	Cat-nbr	Class	Term	Mode	Units	Campus
SVY	1104	44915	2, 2005	EXT	1.00	Toowoomba

<b>Academic group:</b>	FOENS
<b>Academic org:</b>	FOES05
<b>Student contribution band:</b>	2
<b>ASCED code:</b>	031101

### STAFFING

Examiner: Kevin McDougall

Moderator: Shane Simmons

### REQUISITES

Pre-requisite: SVY1102

### RATIONALE

Much of a Spatial Scientist's work involves plane geometry, traverse calculations, area calculations, coordinate calculations, road geometry and circular curve calculations. Spatial Scientists normally work independently and must learn to identify a method of solving a problem, calculate a solution and prove that solution is correct by a different independent calculation. A Spatial Scientist must be able to utilise a modern hand held programmable calculator to obtain solutions. Some calculations are performed before using survey measuring equipment while other calculations are performed after survey observations are carried out. This course will integrate calculation and measurement theory and practice to simulate the workplace practices.

### SYNOPSIS

Society has always needed to be able to measure and map the Earth's surface to plan for the future. Surveying of land and geographic features assists in utilising the Earth's resources for a sustainable future. The role of the Spatial Scientist is fundamental in defining spatial location of the Earth's surface and features. This course expands upon previous surveying theory into increasingly sophisticated surveying technology and methodology. This will include: adjustment of surveying instruments; electronic distance measurement and calibration; specific surveying techniques for traversing, traverse calculations, area calculations, coordinate calculations, road geometry and circular curve calculations. The Spatial Scientist must be familiar with the functions available in a hand held programable calculator, be able to program a calculator and utilize programming to obtain solutions.

### OBJECTIVES

On completion of this course students will be able to:

1. explain the principles of electronic distance measurement;
2. calibrate electronic distance measurement equipment;
3. check and adjust a theodolite/total station;
4. apply suitable traversing methods for specific survey tasks;
5. check and adjust an automatic level;
6. calculate and set out horizontal curves;
7. use a nominated hand held calculator to solve surveying problems; and
8. perform plane surveying calculations.

## TOPICS

	Description	Weighting (%)
1.	Levelling	10.00
2.	Theodolite and total stations	10.00
3.	Theory of EDM	5.00
4.	Calibration of EDM	10.00
5.	Electronic calculations	10.00
6.	Traversing methods and establishing datums	10.00
7.	Calculations involving missing components	15.00
8.	Area and co-ordinate calculations	5.00
9.	Land boundary problems	10.00
10.	Horizontal circular curves	15.00

## TEXT and MATERIALS required to be PURCHASED or ACCESSED

ALL textbooks and materials are available for purchase from USQ BOOKSHOP (unless otherwise stated). Orders may be placed via secure internet, free fax 1800642453, phone 07 46312742 (within Australia), or mail. Overseas students should fax +61 7 46311743, or phone +61 7 46312742. For costs, further details, and internet ordering, use the 'Textbook Search' facility at <http://bookshop.usq.edu.au> click 'Semester', then enter your 'Course Code' (no spaces).

*SVY1104 Survey Computations A External Study Package*, USQ Publication, Toowoomba.

(Hand held battery operated programmable calculator. Surveying programs: surveying application program suitable for the student's programmable calculator. As a minimum the programs must solve; for missing bearing and distance; for two missing distances; for two missing bearings; for missing bearing and distance (different lines); for unadjusted areas; and for Bowditch Adjustment.)

Anderson, J.M. and Mikhail, E.M. 1998, *Surveying, Theory and Practice*, 7th edn, McGraw Hill, Boston.

## REFERENCE MATERIALS

Reference materials are materials that, if accessed by students, may improve their knowledge and understanding of the material in the course and enrich their learning experience.

Brinker, R.C., and Minnick, R. 1995, *The surveying Handbook*, 2nd edn, Chapman and Hall, New York.

Wolf, PR & Ghilani, CD 2002, *Elementary Surveying: an introduction to geomantics*, 10th edn, Prentice Hall, New Jersey.

## STUDENT WORKLOAD REQUIREMENTS

ACTIVITY	HOURS
Directed Study	52.00
Examinations	3.00
Private Study	60.00
Report Writing	40.00

## ASSESSMENT DETAILS

Description	Marks out of	Wtg(%)	Due date
ASSIGNMENT 1	200.00	20.00	29 Aug 2005
ASSIGNMENT 2	200.00	20.00	10 Oct 2005
3 HOUR RESTRICTED EXAMINATION	600.00	60.00	END S2 (see note 1)

### NOTES

1. Student Administration will advise students of the dates of their examinations during the semester.

## IMPORTANT ASSESSMENT INFORMATION

- 1 Attendance requirements:  
There are no attendance requirements for this course. However, it is the student's responsibility to study all material provided to them or required to be accessed by them to maximise their chance of meeting the objectives of the course and to be informed of course-related activities and administration.
- 2 Requirements for students to complete each assessment item satisfactorily:  
(i) To complete each of the assignments satisfactorily, students must obtain at least 50% of the marks available (or at least a grade of C-) for each assignment. (ii) To complete the examination satisfactorily, students must obtain at least 50% of the marks available (or at least a grade of C-) for the examination.
- 3 Penalties for late submission of required work:  
If students submit assignments after the due date without prior approval then a penalty of 10% of the total marks available for the assignment will apply for each working day late.
- 4 Requirements for student to be awarded a passing grade in the course:

To be assured of receiving a passing grade, a student must attempt all of the summative assessment items, achieve at least 45% in the examination, achieve an aggregated mark of at least 45% in the total marks allocated for the assignments, and at least 50% of the available weighted marks for the summative assessment items.

- 5 Method used to combine assessment results to attain final grade:  
The final grades for students will be assigned on the basis of the weighted aggregate of the marks (or grades) obtained for each of the summative assessment items in the course.
- 6 Examination information:  
In a Restricted Examination, candidates are allowed access to specific materials during the examination. The only materials that candidates may use in the restricted examination for this course are: writing materials (non-electronic and free from material which could give the student an unfair advantage in the examination); a hand held programmable calculator which cannot hold textual information (students must indicate on their examination paper the make and model of any calculator(s) they use during the examination).
- 7 Examination period when Deferred/Supplementary examinations will be held:  
Any Deferred or Supplementary examinations for this course will be held during the examination period at the end of the semester of the next offering of this course.
- 8 University Regulations:  
Students should read USQ Regulations 5.1 Definitions, 5.6 Assessment, and 5.10 Academic Misconduct for further information and to avoid actions which might contravene University Regulations. These regulations can be found at the URL <http://www.usq.edu.au/SECARIAT/Calendar/Part5/> or in the current online Handbook.

## **ASSESSMENT NOTES**

- 1 The due date for an assignment is the date by which a student must despatch the assignment to USQ. The onus is on the student to provide proof of the despatch date, if requested by the Examiner.
- 2 Students must retain a copy of each item submitted for assessment. This must be despatched to USQ within 24 hours if required by the Examiner.
- 3 In accordance with University's Assignment Extension Policy (Regulation 5.6.1), the Examiner of a course may grant an extension of the due date of an assignment in extenuating circumstances.
- 4 The Faculty will normally only accept assessments that have been written, typed or printed on paper-based media.
- 5 The Faculty will NOT accept submission of assignments by facsimile.
- 6 Students who do not have regular access to postal services or who are otherwise disadvantaged by these regulations may be given special consideration. They should contact the Examiner of the course to negotiate such special arrangements.
- 7 In the event that a due date for an assignment falls on a local public holiday in their area, such as a Show holiday the due date for the assignment will be the next day. Students are to note on the assignment cover the date of the public holiday for the Examiner's convenience.
- 8 Students who have undertaken all of the required assessments in a course but who have failed to meet some of the specified objectives of a course within the normally prescribed time may be awarded the temporary grade: IM (Incomplete - Make up). An IM grade will only be awarded when, in the opinion of the Examiner, a student will be able to

achieve the remaining objectives of the course after a period of non-directed personal study.

- 9 Students who, for medical, family/personal, or employment-related reasons, are unable to complete an assignment or to sit for an examination at the scheduled time may apply to defer an assessment in a course. Such a request must be accompanied by appropriate supporting documentation. One of the following temporary grades may be awarded IDS (Incomplete - Deferred Examination; IDM (Incomplete Deferred Make-up); IDB (Incomplete - both Deferred Examination and Deferred make-up).