



The University of Southern Queensland

Course specification

The current and official versions of the course specifications are available on the web at <http://www.usq.edu.au/coursespecification/current>.
Please consult the web for updates that may occur during the year.

Description: Survey Computations A

Subject	Cat-nbr	Class	Term	Mode	Units	Campus
SVY	1104	90553	2, 2009	ONC	1.00	Toowoomba

Academic group:	FOENS
Academic org:	FOES05
Student contribution band:	2
ASCED code:	031101

STAFFING

Examiner: Zhenyu Zhang
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. Measurement 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 programmable calculator, be able to program a calculator and utilise programming to obtain solutions.

OBJECTIVES

The course objectives define the student learning outcomes for a course. The assessment item(s) that may be used to assess student achievement of an objective are shown in parenthesis. On completion of this course, students should be able to:

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

TOPICS

	Description	Weighting (%)
1.	Levelling	10.00
2.	Theodolite and total stations	10.00
3.	Theory of EDM/total stations	5.00
4.	Calibration of EDM/total stations	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 (HP49 recommended). Surveying Programs: survey 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 distances (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
Examinations	2.00
Laboratory or Practical Classes	40.00
Lectures	26.00
Private Study	47.00
Report Writing	40.00

ASSESSMENT DETAILS

Description	Marks out of	Wtg (%)	Due date
ASSIGNMENT 1	50.00	5.00	07 Aug 2009
ASSIGNMENT 2	100.00	10.00	28 Sep 2009
ASSIGNMENT 3	150.00	15.00	19 Oct 2009
2 HOUR RESTRICTED EXAMINATION	700.00	70.00	END S2 (see note 1)

NOTES

1. Student Administration will advise students of the dates of their examinations during the semester. Exam may assess all objectives.

IMPORTANT ASSESSMENT INFORMATION

- 1 Attendance requirements:

It is the students' responsibility to attend and participate appropriately in all activities (such as lectures, tutorials, laboratories and practical work) scheduled for them, and 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:
To satisfactorily complete an individual assessment item a student must achieve at least 50% of the marks or a grade of at least C-. (Depending upon the requirements in Statement 4 below, students may not have to satisfactorily complete each assessment item to receive a passing grade in this course.)
 - 3 Penalties for late submission of required work:
If students submit assignments after the due date without extenuating circumstances then a penalty of 5% of the assigned mark may apply for each working day late up to a maximum of ten working days at which time a mark of zero can be recorded for that assignment.
 - 4 Requirements for student to be awarded a passing grade in the course:
To be assured of receiving a passing grade in a course a student must obtain at least 50% of the total weighted marks for the course.
 - 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).