Description: Geodetic Surveying A

<table>
<thead>
<tr>
<th>Subject</th>
<th>Cat-Nbr</th>
<th>Class</th>
<th>Term</th>
<th>Mode</th>
<th>Units</th>
<th>Campus</th>
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<tbody>
<tr>
<td>SVY</td>
<td>2106</td>
<td>21120</td>
<td>1, 2003</td>
<td>ONC</td>
<td>1.00</td>
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Academic Group: FOENS
Academic Org: FOES05
HECS Band: 2
ASCED Code: 031101

STAFFING
Examiner: Ivan Wolski
Moderator: Frank Young

PRE-REQUISITES
Pre-requisite: SVY1103 and SVY1104

OTHER-REQUISITES
Prerequisites E4003+E4004

RATIONALE
Surveyors require the knowledge and skills necessary to precisely locate features on the earth's surface. To do this they require an understanding of the equipment and methods used to observe precise angles, and precise differences in level, as well as the determination of azimuth from sun observations and coordinates from GPS equipment.

SYNOPSIS
The purpose of this course is to provide the student with an understanding of the equipment and methods used to carry out precise surveys, including sources of error and the techniques used to minimise or eliminate them. In addition the students are expected to gain the necessary skills to complete these surveys at an appropriate standard.

OBJECTIVES
On completion of this course, students should be able to:

- describe the geodetic relationships of the size and shape of the earth;
- make measurements to the sun and determine the azimuth of a line from those measurements;
- use statistics to analyse geodetic observations values and positional results;
• understand and discuss the principles of GPS surveying and its applications, data acquisition methodologies and accuracies;
• demonstrate a knowledge of the sources of errors in precise angle observations and the techniques used to minimise their effects;
• observe precise horizontal and vertical angles whilst ensuring that the observational requirements for a Class C survey are maintained;
• demonstrate a knowledge of the effects of curvature and refraction on levelling;
• carry out a trigonometrical levelling survey whilst ensuring that the recommended practices of a Class C survey are maintained;
• demonstrate a knowledge of the equipment and methods used in precise levelling and of the sources of error and the techniques used to minimise their effects.

TOPICS

<table>
<thead>
<tr>
<th>Description</th>
<th>Weighting (%)</th>
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<tbody>
<tr>
<td>1. Introduction to Geodesy</td>
<td>5.00</td>
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<tr>
<td>2. Statistical Analysis in Surveying</td>
<td>10.00</td>
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<tr>
<td>3. Geodetic Size and Shape of the Earth</td>
<td>5.00</td>
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<tr>
<td>4. Error Effects on Measurements</td>
<td>5.00</td>
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<tr>
<td>5. Precise Angle Observations</td>
<td>10.00</td>
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<td>6. Precise Horizontal Angle Observations</td>
<td>10.00</td>
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<tr>
<td>7. Precise Vertical Angle Observations</td>
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<td>8. Trigonometrical Observation</td>
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<tr>
<td>9. Precise Levelling and its Applications</td>
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<tr>
<td>10. Sun Observations for Azimuth</td>
<td>15.00</td>
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<tr>
<td>11. Introduction to GPS Surveys</td>
<td>15.00</td>
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</table>

TEXT and MATERIALS required to be PURCHASED or ACCESSED:

Books can be ordered by fax or telephone. For costs and further details use the 'Book Search' facility at http://bookshop.usq.edu.au by entering the author or title of the text.

*The Star Almanac for Land Surveyors for the Year 2003*, HMSO, UK.

*Eton Statistical and Math Tables*, 4th edition, Heinemann, NZ.

*SVY2106 Geodetic Surveying A External Study Package*, USQ Publication,

Microsoft Excel 97 (Students purchasing this software will find it more economical to purchase the Microsoft Office package which includes Excel).

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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.

Other references are provided at specific places in the USQ texts.


STUDENT WORKLOAD REQUIREMENTS

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>HOURS</th>
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</thead>
<tbody>
<tr>
<td>Assessment</td>
<td>20</td>
</tr>
<tr>
<td>Examinations</td>
<td>3</td>
</tr>
<tr>
<td>Laboratory or Practical Classes</td>
<td>26</td>
</tr>
<tr>
<td>Lectures</td>
<td>26</td>
</tr>
<tr>
<td>Private Study</td>
<td>43</td>
</tr>
<tr>
<td>Report Writing</td>
<td>24</td>
</tr>
<tr>
<td>Tutorial</td>
<td>13</td>
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ASSESSMENT DETAILS

<table>
<thead>
<tr>
<th>Description</th>
<th>Marks Out of</th>
<th>Wtg(%)</th>
<th>Required</th>
<th>Due Date</th>
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<tr>
<td>ASSIGNMENT 1</td>
<td>100.00</td>
<td>10.00</td>
<td>Y</td>
<td>24 Mar 2003</td>
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<tr>
<td>ASSIGNMENT 2</td>
<td>200.00</td>
<td>20.00</td>
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<td>28 Apr 2003</td>
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<tr>
<td>ASSIGNMENT 3</td>
<td>150.00</td>
<td>15.00</td>
<td>Y</td>
<td>12 May 2003</td>
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<tr>
<td>ASSIGNMENT 4</td>
<td>150.00</td>
<td>15.00</td>
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<td>3 HOUR CLOSED EXAMINATION</td>
<td>400.00</td>
<td>40.00</td>
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<td>END S1</td>
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NOTES:

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

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 complete each of the assessment items satisfactorily, students must obtain at least 50% of the marks available (or at least a grade of C-) for each assessment item.

3 Penalties for late submission of required work:
   If students submit assignments after the due date without prior approval then a penalty of 20% 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 achieve at least 45% in each of the summative assessments 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 Closed Examination, candidates are allowed to bring only writing and drawing instruments into the examination. The final examination will examine only the following modules: Shape of the Earth-Geoids and Ellipsoids; Review of Statistical Concepts; Precise Levelling; Global Positioning System (GPS) and Surveying and Measurement Techniques.

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 printed version of the current USQ Handbook.

ASSESSMENT NOTES

1 The due date for an assignment is the date by which a student must despatch the assignment to the 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 produced within five days 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 In this course students may submit assignments electronically in the format specified in the assignment requirements.
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).

10 The Faculty of Engineering and Surveying does not offer supplementary
examinations.

OTHER REQUIREMENTS

1 Students will require access to e-mail and internet access to USQConnect for this
course.