Module Specification Template

Soran University
Faculty of Engineering

Department Of Civil Engineering

Second-Year

Surveying

2014 - 2015

Soran University

Module Specification Template

1. Module Title : Surveying I & Surveying II

2. Module Code: CING 206 & CING 209

3. Module Level: Undergraduate/ Second level

4. Module Leader: Assistant lecturer Sarah Falih Kamil

5. Teaching Semester: Semester 1 and Semester 2

6. Credit Rating for the module: 4 Units First semester, 3 Units Second Semester

7. Prerequisites and co-requisites: Prerequisites : Engineering Mathematics
No requisites

8. Module Summary

The aim of teaching this course is to provide engineering students with a background in important concepts and principles of surveying as a technique, profession, and science of determining and contour of the Earth's surface. Surveying practice plays a major role in the principal stages of all the engineering projects. During the design, construction, and maintenance stages surveying measurements are needed to achieve the required accurate shape of the structure. Measurements in surveying vary from simple tape measurements to the more complicated GPS photogrammetric, and geodetic measurements. Therefore a high level skill is required by the engineer to deal with such widely complex subject.

In this course the most important basic skills in computation and field work are given to the students. These skills start from the basic tape measurements and ending at the use of the total station and GPS instruments.

9. Module Aims

- Provides a sound understanding of the concepts and applications of surveying in the field of engineering.
- Expose students to fundamental knowledge and practical experience in surveying measurements and computations.

10. Learning Outcomes

- Describe and interpret statements and questions concerning surveying measurements needed to achieve the required accurate shape of the structure
- An ability to use the surveying equipment for determining the dimensions and contour of the Earth's surface and land boundaries, and to work with cartographers to create accurate maps.
- Working with skills to accurately measure flat and three-dimensional points, as well as the distance and angles between them.

11. Syllabus

1-General Introduction

2-Theory of Errors

3-Linear Surveying

4- Leveling

5- Area Measurements

6- Angle and Direction Measurements

7- Traversing and Coordinate Geometry

8-Volume Calculations

9- Distance Measurements

10-Setting Out Of Horizontal And Vertical Curves

Most of the theoretical lectures are accompanied by surveying field practical using variety of instruments.

First semester

1-General Introduction : types of surveying, units of measurements, principals of surveying, and scale

2-Theory Of Errors: types of errors, the random errors, the mean and standard deviation, accuracy and precision, low of propagation of errors

3-Linear Surveying :tape measurements, obstructions, chain surveying

4- Leveling :types of leveling, the level instrument, differential leveling, errors in leveling, profiles and cross sections

5- Area Measurements methods of area measurements from maps and from field notes

Second semester

6- Angle And Direction :types of angles, azimuth computation, the theodolite

7- Traversing And Coordinate Geometry traverse measurements, coordinate computation, intersection calculation, setting out of building plans

8-Volume Calculations: volume from cross sections, from borrow bit, contour lines

9- Distance Measurements : introduction to the EDM principals

10-Setting Out Of Horizontal And Vertical Curves :geometry of the horizontal curves and the vertical curves. Setting out of curve.

13. Summary description of assessment items

Assessment Type	Description of Item	% wt.	Grading	Tariff	Week due
Formal written examination	Final at the end of the course	40%		3 h	End of the course
In-class written examinations	1 after each unit	15 %		1h	One each month
Quizzes Clicker Questions (written) Or mini-quizzes (oral)	Daily short questions Daily	5%	For the oral mini-quizzes: credit will be awarded to everyone who registers a correct response	15 min.	not limited
Problem sets homework	Sheets of critical thinking problems	5%		Home duty	One set each month
Series of Experimental reports	Typical style reports	10%		Home duty	One experiment per week

Field- activities performance	Surveying equipment	5%		During the 3h practical Practice per week	Each week
Practical examination (Final)	Oral and practical	20%		3h	At the course end

14. Learning Session Structure

3 hour lecture, and 3 hour practical (Field work) per week.

15. Learning and Teaching Methods

1. The rated lecture method (lecturing using power point presentation), as the principal time saving teaching method by which the students attentively listen to the lecture and take notes on all knowledge related to topic.
2. Classic teaching method is also used throughout clarification and explanation in details on white board some topic aspects need further discussion and highlighting.
3. Develop creativity among students and enhancing classroom dynamics is carried out by introducing critical thinking questions and asking the students for the answers.
4. Assignments: The method enhances the ability of research on any topic as the students search topic from different books, websites etc.
5. Seminars on certain topics related to course curriculum.

16. Bibliography

1. Elementary Surveying, Wolf, Ghilani, Eleventh Edition, Prentice Hall
2. Surveying For Construction, Irvine, 5th Edition, McGraw Hill2oo6
3. Surveying Davis, Foote Kelly, 5th Edition McGraw Hill
4. Surveying And Leveling, Basak, 2005, McGraw Hill
5. Surveying, Moffit And Bouchard, 6th Edition

The practical part

Exp. 1: Plane table surveying
Exp. 2: Error in surveying
Exp. 3: Linear surveying
Exp. 4 : Leveling
Exp. 5 : Land Surveying
Exp. 6: Setting up of theodolite instrument
Exp. 7: Measuring Horizontal Angles
Exp. 8: Measuring vertical angles and building height
Exp. 9: Setting out a building plan using theodolite and level
Exp.10: Setting out of a Horizontal Curves

17. Authored by
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18. Validated and Verified by