



THE FEDERAL UNIVERSITY OF TECHNOLOGY, AKURE

Department of Quantity Surveying

QSV 510 - Measurement and Procurement of Industrial Engineering Works

COURSE PARTICULARS

Course Code: QSV 510

Course Title: Measurement and procurement of industrial engineering works

No. of Units: 2

Course Duration: One hour of lecture and one hour of tutorial class per week for 15 weeks.

Status: Compulsory

Course Email Address: qsv510@futa.edu.ng

Course Webpage: <http://www.qsv.futa.edu.ng/courseschedule.php?coursecode=QSV%20510>

Prerequisite: NIL

COURSE INSTRUCTORS

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COURSE DESCRIPTION

This course entails measurement (taking-up and working-up) and procurement of industrial engineering works which is a continuation of QSV 509. The course includes procurement of engineering contracts – technological licensing and patents. Procurements methods. Financing of engineering contracts – feasibility studies, letter of credit, contractor financing. Measurement and control of engineering projects – construction site services, scaffolding, steelwork, plant, ductwork, pipe work, instrumentation etc. Teaching will also include explanations with the aid of annotated and detailed drawings as well as visits to major industry facilities

COURSE OBJECTIVES

The objectives of this course are to:

- introduce students to more industrial construction works; and
- provide students with opportunities to develop basic skills in the measurement and costing of industrial construction works.

COURSE LEARNING OUTCOMES / COMPETENCIES

Upon successful completion of this course, the student will be able to:

(Knowledge based)

- explain industrial construction works;
- identify different industrial facilities ;
- understand the production process, raw materials required for different industrial construction works and their mode of operation;
- use BESMM3 for taking-off and preparation of BOQ for any industrial engineering project

(Skills)

- Take-off complete for any industrial engineering projects;
- Prepare bill of quantities for industrial engineering works;
- Prepare specification and other necessary documents for procurement of industrial engineering works

GRADING SYSTEM FOR THE COURSE

This course will be graded as follows:

Class Attendance	5%
Assignments/Field work reports	20%
Test(s)	15%
<u>Final Examination</u>	<u>60%</u>
<u>TOTAL</u>	<u>100%</u>

GENERAL INSTRUCTIONS

Attendance: It is expected that every student will be in class for lectures as necessary. Attendance records will be kept and used to determine each person's qualification to sit for the final examination. In case of illness or other unavoidable cause of absence, the student must communicate as soon as possible with any of the instructors, indicating the reason for the absence.

Academic Integrity: Violations of academic integrity, including dishonesty in assignments, examinations, or other academic performances are prohibited. You are not allowed to make

copies of another person's work and submit it as your own; that is plagiarism. All cases of academic dishonesty will be reported to the University Management for appropriate sanctions in accordance with the guidelines for handling students' misconduct as spelt out in the Students' Handbook.

Assignments and Group Work: Students are expected to submit assignments as scheduled. Failure to submit an assignment as at when due will earn you zero for that assignment. Only under extenuating circumstances, for which a student has notified any of the instructors in advance, will late submission of assignments be permitted.

Code of Conduct in Lecture Rooms and Laboratories: Students should turn off their cell phones during lectures. Students are prohibited from engaging in other activities (such as texting, watching videos, etc.) during lectures. Food and drinks are not permitted in the laboratories.

READING LIST

⁴Aliyu, A. E. (2006). Estimating and management of power plants in a developing economy. NIQS 22nd Biennial Conference in Calabar Nigeria held between 22nd – 25th November on the theme: "Quantity Surveying in the 21st Century – Agenda for the Future"

⁴Contract for engineering, procurement and construction services between Boise power partners joint venture and Idaho power company

³Massimiliano M. S. (2013). *Operation Management*, First edition, Intech Publisher, USA, 276p

⁵Oforeh C. (2006). *The Cost Management of Heavy Capital Project*, First Edition, Cosine Ltd. Nigeria.

³Ogata (2002). *Modern Control Engineering*, Fifth edition, Prentice-Hall publisher.

³Salvendy, G. (2007). *Handbook of Industrial Engineering: Technology and Operations Management*, Third Edition, USA

³Shtub, Bard and Globerson (1994). *Project Management: Engineering, Technology and Improvement*. First edition, Prentice hall publishers, London

³Sullivan, Wicks, and Luxhoj (2011) *Engineering Economy*, Fifteen edition, Prentice-Hall publisher.

³Watson, J. P. (1994). *Highway construction and maintenance*, Second edition, Longman Scientific & Technical publishers, 236p

¹White (1998). *Principles of Engineering Economic Analysis*, Fourth Edition, Wiley Publishers, USA

Legend

1- Available in the University Library

2- Available in Departmental/School Libraries

- 3- Available on the Internet.
- 4- Available as Personal Collection
- 5- Available in local bookshops.

COURSE OUTLINE

Week	Topic	Remarks
1	Introduction to procurement of engineering contracts	Students will be introduced to this topic
2 & 3	Procurement methods for industrial construction works with emphasis on turnkey method	Different procurement methods will be discussed in class including procurement policies and bidding procedures
4	Technological licensing and patents right	Procedure for securing patent right, industrial design/technological innovation as well as essence and implication of patents right will be discussed
5	Financing of engineering contracts including feasibility studies, letter of credit, contractor financing, etc.	International Development Financing institutions (IDFIs) and their procedures will be discussed in detail
6&7	Introduction to the use of different documents and tools for proper measurement of industrial engineering works	Students will be introduced to the use of SMMIEC and BESMM3 pointing out their differences and similarities
7		MID-SEMESTER TEST
8, 9, 10, 11 & 12	Taking-off for industrial engineering projects such as pylon/transmission line, gas pipeline, precipitator tank, process plants, etc, and other associated works	This will also include site services, scaffolding, steelwork, plant, ductwork, pipe work, instrumentation etc
13	Preparation of bill of quantities for typical industrial engineering project	Typical BOQ will be prepared with necessary and detail description
14	Preparation and understanding of other documents for procurement of industrial engineering works	Documents such as specification, condition of contracts, preambles, etc will be discussed
15	REVISION	This is the week preceding the final examination. At this time, evaluation will be done to assess how far the students' expectations for the course have been met.