



# THE FEDERAL UNIVERSITY OF TECHNOLOGY, AKURE

## *Department of Quantity Surveying*

### QSV 509 - Introduction to Industrial Construction Works

#### COURSE PARTICULARS

**Course Code:** QSV 509

**Course Title:** Introduction to Industrial Construction Works

**No. of Units:** 2

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

**Status:** Compulsory

**Course Email Address:** qsv509@futa.edu.ng

**Course Webpage:** <http://www.qsv.futa.edu.ng/courseschedule.php?coursecode=QSV%20509>

**Prerequisite:** NIL

#### COURSE INSTRUCTORS

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and

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#### COURSE DESCRIPTION

This course includes description of the production process, raw materials, equipment/components and supporting ancillaries in the following industrial facilities: Liquefied Natural Gas (LNG) plant (train) and Liquefied Petroleum Gas (LPGD) Refinery and petrochemical plant, Tank farms (oil depots). Flow stations and oil pipeline, Light and heavy engineering manufacturing e.g. machine tools, tractors, equipment, Power plant/station (hydro/thermal /gas/wind/solar/etc). Canning and bottling plant, Iron and steel plant, Aluminum smelting and production plant, Paper and pulp manufacturing plant Ginnery and textile plant, Electronic and computer production factory, Pharmaceutical production factory, Chemical and paint manufacturing, Airplane hanger and helipad construction, Sugar and salt refinery, Water

treatment plant, Flexible manufacturing systems (FMS), and Mining & quarrying. 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 the industrial construction works; and
- provide students with opportunities to develop basic skills in the measurement, costing and procurement 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;

*(Skills)*

- explain the relevance of quantity surveyors to industrial construction works;
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## 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>
<b><u>TOTAL</u></b>	<b><u>100%</u></b>

## 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

- <sup>4</sup>Aliyu, 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"
- <sup>4</sup>Contract for engineering, procurement and construction services between Boise power partners joint venture and Idaho power company
- <sup>3</sup>Massimiliano M. S. (2013). *Operation Management*, First edition, Intech Publisher, USA, 276p
- <sup>5</sup>Oforeh C. (2006). *The Cost Management of Heavy Capital Project*, First Edition, Cosine Ltd. Nigeria.
- <sup>3</sup>Ogata (2002). *Modern Control Engineering*, Fifth edition, Prentice-Hall publisher.
- <sup>3</sup>Salvendy, G. (2007). *Handbook of Industrial Engineering: Technology and Operations Management*, Third Edition, USA
- <sup>3</sup>Shtub, Bard and Globerson (1994). *Project Management: Engineering, Technology and Improvement*. First edition, Prentice hall publishers, London
- <sup>3</sup>Sullivan, Wicks, and Luxhoj (2011) *Engineering Economy*, Fifteen edition, Prentice-Hall publisher.
- <sup>3</sup>Watson, J. P. (1994). *Highway construction and maintenance*, Second edition, Longman Scientific & Technical publishers, 236p
- <sup>1</sup>White (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	An overview of industrial construction (or industrial / heavy engineering) works.	Students will be introduced to the course with emphasis on key characteristics of industrial construction works. This will also be compared to building and civil engineering works. Facilities required for a typical industrial construction works shall be discussed.
2	Liquefied Natural Gas (LNG) plant (train) and Liquefied Petroleum Gas (LPGD)	Production process, raw materials, equipment/components and supporting ancillaries will be discussed
3	Refinery and petrochemical plant, Tank farms (oil depots).	Production process, raw materials, equipment/components and supporting ancillaries will be discussed
4	Flow stations and oil pipeline	Production process, raw materials, equipment/components and supporting ancillaries will be discussed
5	Light and heavy engineering manufacturing e.g. machine tools, tractors, equipment	Production process, raw materials, equipment/components and supporting ancillaries will be discussed
6	Power plant/station with emphasis on different types available (hydro/thermal /gas/wind/solar/etc).	Production process, raw materials, equipment/components and supporting ancillaries will be discussed
7	Canning and bottling plant	Production process, raw materials, equipment/components and supporting ancillaries will be discussed
<b>MID-SEMESTER TEST</b>		
8	Iron and steel plant as well as Aluminum smelting and production plant.	Production process, raw materials, equipment/components and supporting ancillaries will be discussed
9	Paper and pulp manufacturing plant, Ginnery and textile plant.	Production process, raw materials, equipment/components and supporting ancillaries will be discussed
10	Electronic and computer production factory	Production process, raw materials, equipment/components and supporting ancillaries will be discussed
11	Pharmaceutical production factory, Chemical and paint manufacturing.	Production process, raw materials, equipment/components and supporting ancillaries will be discussed
12 &	Airplane hanger and helipad	Production process, raw materials,

13	construction, Sugar and salt refinery and Water treatment plant.	equipment/components and supporting ancillaries will be discussed
14	Flexible manufacturing systems (FMS) and Mining & quarrying.	Production process, raw materials, equipment/components and supporting ancillaries 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.