THE FEDERAL UNIVERSITY OF TECHNOLOGY, AKURE

Department of Chemistry

CHE 201 – Inorganic Chemistry I.

COURSE PARTICULARS

Course Code: CHE 201
Course Title: Inorganic Chemistry I.
No. of Units: 2
Course Duration: Two hour of theory per week for 15 weeks.
Status: Compulsory
Course Email Address: che201@gmail.com
Course Webpage: http://www.che.futa.edu.ng/courseschedule.php?coursecode=CHE%20201
Prerequisite: CHE 102

COURSE INSTRUCTORS

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COURSE DESCRIPTION

Chemistry of First row transition metals. Introduction to co ordination chemistry including elementary treatment of crystal field theory. Comparative Chemistry of the followings elements;

(a) Ga, In, TI, (b) Ge, Sn, Pb, (c) As, Sb, Bi, (d) Se, To, Po, electronic configuration of groups IVB to VIB. Semiconductor chemistry, doping and application of semiconductors high-tech industries. Elementary introduction to Organometallic Chemistry. Roles of organometallic compounds in drug, catalysis, and pesticide formulation. Role of metals in biochemical systems.

COURSE OBJECTIVES

The objectives of this course are to:

- Explore the applications of various inorganic compounds and their chemistry.
- Understand the basic method of production of essential compounds from the elements in these groups.
- Introduce the students to semiconductors; theory and principles and application in electronics.

COURSE LEARNING OUTCOMES / COMPETENCIES

Upon successful completion of this course, the student will be able to:
(Knowledge based)

- Students should understand principle of coordination chemistry.
- Extraction and uses of transition metals in period 4.
- Know some basic electronics as pertain to semiconductor, microchips, integrated circuits and solar cells,
- Understand the basis of qualitative and quantitative methods of chemical analysis.

(Skills)

GRADING SYSTEM FOR THE COURSE

This course will be graded as follows:

Class Attendance	5%
Practicals	20%
Test(s)	15%
Final Examination	60%
TOTAL	**100%**

GENERAL INSTRUCTIONS

Attendance: It is expected that every student will be in class for lectures and also participate in all assessment exercises. 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 the concerned student zero for the negligence of refusing to do an 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, fighting, *etc*.) during lectures. Food and drinks are not permitted in the laboratories. Absolute silence should be maintained during lectures except when asking or responding to question.

READING LIST

[1] Brown, T. L., LeMay Jr, Bursten, B. E. and Murphy, C. J. ((2009). *Chemistry: The Central Science 11th Edition.* Pearson Education International, Upper Saddle River, N. J. USA 1117p.

[4] Microsoft Encarta Premium DVD. (2009).

[1]Lee, J. D. (2008). *Concise Inorganic Chemistry.* 5th Edition. Authorized Reprint Published by Blackwell Science Limited, France. 1032p.

[3] Greenwood, N. N. and Earnshaw, A (1998). *Chemistry of Elements*. Butterworth Heinemann, Auckland , New Zealand. 1306p.

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	Course synopsis. Chemistry of First row transition metals.	During this first class, the students will familiarise themselves with extraction, chemistry, uses and catalytic principles of these metals.
2 & 3	Introduction to co ordination chemistry including elementary treatment of crystal field theory.	Students will be familiar with crystal field theory as pertains to formation of ligands in coordination chemistry.
4 & 5	Comparative Chemistry of the followings elements; (a) Ga, In, TI, (b) Ge, Sn, Pb,	Students will be expected to familiarize themselves with the chemistry of these two groups of elements and their compounds.
6	(c) As, Sb, Bi, (d) Se, To, Po, electronic configuration of groups 13 to 16.	Students will be exposed to the chemistry of elements and compounds of these groups
7 & 8	Semiconductor chemistry, doping and application of semiconductors high-tech industries.	Students will be exposed to elementary electronics; integrated circuits, p-type and n-type junctions and solar cells. MID-SEMESTER TEST
9 & 10	Elementary introduction to Organometallic Chemistry. Roles of organometallic compounds in drug, catalysis, and pesticide formulation.	The importance of organometallic compounds in drugs, pesticides and catalysis.
11 & 12	Role of metals in biochemical systems.	The students will be exposed to the importance of metals in protein and protein structures, haemoglobin, chlorophyll, cytochromes.
13 & 14	Appraisal of these topics.	The student will be given an assignment on a topical subject of interest on this course.

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.