

BA 118 – Chemistry**COURSE INFORMATION**

Course Title: Chemistry

Code: BA118.

Contact Hours (hours/week): Lecture – 2 Hrs. Laboratory – 2 Hrs. Credit – 2.

Prerequisite: none

Course Coordinator: Assoc. Prof. Dr. Hani Kaldass

G R A D I N G

Lab., Performance/Attendance: 10%

Midterm # 1/Assignments – (7th Week): 30%Midterm # 2/Assignments – (12th Week): 20%

Final Exam: 40%

COURSE DESCRIPTION

Electrochemical Reactions – Electro chemical cells. Electrochemical Series – Polarization - Passivity. Definition of Corrosion – Metals and Corrosive Environments. Forms of corrosion, uniform, Galvanic and D.A.C. Pitting corrosion, S.C.C and I.G.C. Atmospheric Corrosion Erosion Corrosion. Coating protection and Inhibitors. Cathodic Protection. Classification of Fuel. Properties of liquid fuel. Combustion of fuel Purpose of Lubrication – Classification of Lubricants. Properties of Lubricating Oils – choice of Lubricant – Additives. Introduction – Impurities in Water Purification and Treatment of Water.

T E X T B O O K S

Engineering chemistry

REFERENCE BOOKS

- 1- Material Science and Engineering.
- 2- Corrosion MG Fontana
- 3- Chemistry for Applied Science
- 4- Drew principles of Industrial Water Treatment

COURSE AIM

The Science of chemistry is characterized by its close relation with the other branches of sciences and with the technological applications of these sciences which emerge in the mineral oil, medication, chemical textile and other industries. This course includes topics of specialized chemical engineering technology without going through details.

COURSE OBJECTIVES

Establishing a scientific base for the students. Providing the student with knowledge about the effects of the environment on the material whatever its form is indifferent purposes. Acquiring scientific bases which qualify the student to control dominate and protect the used material. Enabling the student to solve industrial problems in a scientific methods

COURSE OUTLINE

Week Number 1: Lecture Introduction- Electrochemical Reactions-Electro cells.

Lab: Introduction to Volumetric analysis.

Week Number 2: Lecture: Electrochemical Series – Polarization – Passivity.

Lab: Lab Techniques Determination of Acidity.

Week Number 3: Lecture: Definition of Corrosion – Metals and Corrosive Environments.

Lab: Determination of alkalinity, chloride and CO₂.

Week Number 4: Lecture: Forms of corrosion, uniform, Galvanic and D.A.C.

Lab: Determination of Total Hardness and CA- Hardness.

Week Number 5: Lecture: Pitting corrosion, S.C.C and I.G.C.

Lab: Determinate of Dissolved Oxygen – Quiz.

Week Number 6: Lecture: Atmospheric Corrosion Erosion Corrosion.

Lab: Introduction to Spectrophotometry Technique.

Week Number 7: Lecture: Coating protection and Inhibitors – 7th week Exam.

Lab: Determination of Nitrite, Sulphate (Different Anions)

Week Number 8: Lecture: Cathodic Protection.

Lab: Determination of Silica, Phosphate – Quiz.

Week Number 9: Lecture: Classification of Fuel

Lab: Spectrophotometer (DR 2000) det .Of some heavy metals.

Week Number 10: Lecture: Properties of liquid fuel

Lab: Det. Of Florien, Chlorine

Week Number 11: Lecture: Combustion of fuel

Lab: Def. Of Turbidity – Quiz

Week Number 12: Lecture: Purpose of Lubrication – Classification of Lubricants – 12th week Exam.

Lab: Oil analysis, viscosity, TBN. (Insoluble – Salt water)

Week Number 13: Lecture: Properties of Lubricating Oils – choice of Lubricant – Additives.

Lab: Continue oil analysis, viscosity, TBN. (Insoluble – Salt water)

Week Number 14: Lecture: Introduction – Impurities in Water

Lab: Acidity – Water content (PH of different solutions)

Week Number 15: Lecture : Purification and Treatment of Water

Lab: Continue acidity-Water content (PH of different solutions)

Week Number 16: Final Exam.