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| **logoUniversity of Management & Technology**  School of Science  Department of Chemistry | | | |
| CH-207INORGANIC CHEMISTRY-I | | | |
| **Lecture Schedule** | **Sec N**(Tue-Thurs:8:00 am-09:15 am) | **Semester** | -- |
| **Pre-requisite** | Principles of Chemistry-II, III | **Credit Hours** | 4+0 |
| **Instructor** | Shah Muhammad Haroon | **Contact** | [muhammad.haroon@umt.edu.pk](mailto:muhammad.haroon@umt.edu.pk) |
| **Moodle** |
| **Office** | 3S-32 Hall 3rd Floor Main Building | **Office Hours** | Displayed on Office Window as well as on moodle |
| **Course Description** | Introduction to inorganic chemistry of with a focus on descriptive inorganic chemistry, of representative elements including alkali metals, alkaline earth metals, group 14, group 15, group 16 and group 17 elements and their properties as well as applications in industry. This course also concern with synthesis and purification of compounds of representative elements with special focus on metallurgy and chemical extraction methods and their application in industry, medical and daily life. | | |
| **Expected Outcomes** | Upon completion of this course, students will be able to explain the basic concepts and understanding of inorganic chemistry. They will be able to predict the structure, properties and synthesis ofrepresentative elements and their compounds their industrial and medical applications by understanding their properties and structure. This course enables students the selection of right chemicals for research and industrial applications. | | |
| **Text and Reference Books** | Descriptive Inorganic Chemistry , 6thEdition Inorganic Chemistry  Rayner Canham& Tine OvertonHaq Nawaz Bhatti  By: W. Freeman & Company Inc, New York, 2014.By: Caravan Publishers | | |
| **Grading Policy** | * Quizzes :15% * Assignments:5% * Class Participation Activities: 10 % * Midterm: 25% * Final Exam: 45% | | |

**Course Schedule**

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| **Week** | **Lecture #** | **TOPICS** | | **CH** | **SECTIONS** |
| 1 | 1 | Group Trends, solubility and Features of Alkali Metal Compounds and Lithium | 11 | | 11.1-11.5  11.7-11.9 |
| 2 | Sodium, Sodium Hydroxide, Sodium Chloride, Sodium Carbonates And Bicarbonates |
| 2 | 3 | Potassium, PotassiumChloride and Biological Aspects of Alkali Metals | 11 | | 11.10-11.11  11.13 |
| 4 | Group Trends, solubility and Features of Alkaline Earth Metal Compounds and Magnesium | 12 | | 12.1-12.5 |
| 3 | 5 | Calcium and Barium, Cement, Calcium Chloride |
| 6 | Calcium Sulfate, Calcium Carbide and Biological Aspects of Alkaline Earth Metal Compounds | 12.8-12.11 |
| 4 | 7 | Boron, Borides and Aluminum | 13 | | 13.1-13.3 |
| 8 | Aluminum Halides and Aluminum Potassium Sulfate and their Biological Aspects | 13.6-13.10 |
| 5 | 9 | Group Trends, Contrasts in the Chemistry of Carbon and Silicon, Carbon and Carbides | 14 | | 14.1-14.5  14.13-14.16 |
| 10 | Silicon and Silicon Dioxide |
| 6 | 11 | Silicates and Aluminosilicates | 14 | | 14.17-14.19 |
| 12 | Silicones, Tin and Lead and biological Aspects |
| 7 | 13 | Group Trends, Contrasts in the Chemistry of Nitrogen and phosphorous , Nitrogen and Nitrogen Chemistry | 15 | | 15.1-15.4  15.5, 15.8 |
| 14 | Nitrogen Oxides and Nitrogen Halides |
| 8 | 15 | Nitrous Acid, Nitrites, Nitric Acid and Nitrates | 15 | | 15.10-15.11  15.12-15.16 |
| 16 | Overview of Phosphorus Chemistry, Phosphorus Oxides, Phosphorus Chlorides |
| 9 | 17 | **Midterm Exam** | -- | | -- |
| 18 | Phosphorus Oxo-Acids, Phosphates and Biological Aspects of Nitrogen and Phosphorous and their compounds | 15 | | 15.17, 15.19 |

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| **Week** | **Lecture #** | **TOPICS** | | **CH** | **SECTIONS** |
| 10 | 19 | Group Trends, Contrasts in the Chemistry of Oxygen and Sulphur, Oxygen Isotopes in Geology and Mixed Metal Oxides | 16 | | 16.1-16.3  16.6  16.7-16.10 |
| 20 | Water, Hydrogen Peroxide, Hydroxides and Hydroxyl Radical |
| 11 | 21 | Overview of Sulfur Chemistry, Hydrogen Sulﬁde and Sulﬁdes | 16 | | 16.11-16.14  16.15-16.17 |
| 22 | Sulphur Oxides, Sulﬁtes, Sulphuric Acid |
| 12 | 23 | Sulfates and Hydrogen Sulfates, Sulfur-Nitrogen Compounds | 16 | | 16.18-16.23 |
| 24 | Selenium and Biological Aspects |
| 13 | 25 | Group Trends, Contrasts in the Chemistry of Fluorine and Chlorine, Hydrofluoric Acid | 17 | | 17.1-17.8 |
| 26 | Chlorine, Hydrochloric Acid and Halides |
| 14 | 27 | Chlorine Oxides, Chlorine Oxyacids and Oxyanions | 17 | | 17.9-17.13 |
| 28 | Interhalogen Compounds and Polyhalides Ion, Cyanide Ion as a Pseudo-halide Ion and Biological Aspects |
| 15 | 29 | Biological and Pharmaceutical Applications of Inorganic Compounds | -- | | --  -- |
| 30 | Industrial and House hold Applications of Inorganic Compounds |
| 16 | 31 | Revision | -- | | -- |
| 32 | Revision | -- | | -- |