

	Government College (Autonomous) Rajamahendravaram	Program & Semester			
Course Code Major-4	TITLE OF THE COURSE Course -4: INORGANIC CHEMISTRY	I B.Sc. Chemistry (H) (II Semester)			
Teaching	Hours Allocated: 45 (Theory)	L	T	P	C
Pre-requisites	Basics in inorganic chemistry and elements	3		-	3

Course Objectives:

1. To learn the preparation and structure and Diborane and Borazole.
2. To provide knowledge about different types of Interhalogen compounds.
3. To provide basic knowledge on d-block elements and f-block elements.
4. To learn the synthetic applications of Grignard reagents.

Course Outcomes:

On Completion of the course, the students will be able to	
CO1	Acquire knowledge on preparation and structure and Diborane and Borazole.
CO2	Identify the importance of Interhalogen compounds and pseudo halogens.
CO3	Comprehend the applications of d-block elements and f-block elements.
CO4	Identify the importance of Organo metallic compounds in Organic synthesis.

Course with focus on employability / entrepreneurship / Skill Development modules

Skill Development		Employability		Entrepreneurship	
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Syllabus:

UNIT –I Chemistry of p-block elements – I

9 h

Group 13: Preparation & structure of Diborane, Borazine and $(\text{BN})_x$

Group 14: Preparation, classification and uses of silicones and Silanes.

Group 15: Preparation & structure of Phosphonitrilic Chloride $\text{P}_3\text{N}_3\text{Cl}_6$

Unit II Chemistry of p-block elements – II

9 h

Group 16: Classification of Oxides, structures of oxides and Oxoacids of Sulphur

Group 17: Preparation and Structures of Interhalogen compounds. Pseudo halogens,.

UNIT-III Chemistry of d-block elements:

9 h

Characteristics of d-block elements with special reference to electronic configuration, variable valence, color, magnetic properties, catalytic properties and ability to form complexes. Stability of various oxidation states of 3d series-Latimer diagrams.

UNIT-IV Chemistry of f-block elements:

9 h

Chemistry of lanthanides - electronic configuration, oxidation states, lanthanide contraction, consequences of lanthanide contraction, color, magnetic properties. Separation of lanthanides by ion exchange method. Chemistry of actinides - electronic configuration, oxidation states, actinide contraction, comparison of lanthanides and actinides.

UNIT-V: ORGANOMETALLIC CHEMISTRY

Definition - classification of Organometallic compounds - nomenclature, preparation, properties and applications of alkyls of Li and Mg.

List of Reference Books:

1. Inorganic Chemistry by J.E.Huheey
2. Basic Inorganic Chemistry by Cotton and Wilkinson
3. A textbook of qualitative inorganic analysis by A.I. Vogel
4. Concise Inorganic Chemistry by J.D.Lee