

Course Type	Course Code	Name of Course	L	T	P	Credit
DE	NCYD508	Chemistry of f-Block Elements	3	0	0	3

#### Course Objective

- This course contains the chemistry of f-block elements, extraction, fundamental properties and their application. Electronic, magnetic properties, organometallic chemistry f-block elements are explored. Applicability of these elements in organic synthesis, material chemistry are also included.

#### Learning Outcomes

- General synthetic procedures and characterization of f-block elements.
- Structure, binding and reactivity
- Application in multidisciplinary areas.

Unit No.	Topics to be Covered	Lecture Hours	Learning Outcome
1	Introduction of Lanthanides, abundance, ores, extraction, electron configuration, periodic properties, redox properties, energetics,	10L	This part will focus on the extraction and periodic properties of lanthanides.
2	Coordination chemistry, electronic and magnetic properties, lanthanide metal-organic frameworks.	5L	This part will focus on the coordination chemistry, properties and applications of coordination compounds of lanthanides
3	Organometallic chemistry of lanthanides, lanthanide in organic synthesis.	6L	Students will get exposure to organometallic chemistry of lanthanides.
4	Introduction of actinides, occurrence, extraction, characteristics, redox behaviour, binary compounds.	10L	Students will get an idea of extraction and basic properties of actinides.
5	Coordination chemistry, electronic and magnetic properties	6L	This part will focus on the coordination chemistry and magnetic properties of actinides.
6	Organometallic chemistry, Transactinides.	5L	Organometallic chemistry of actinides will be discussed.
<b>Total</b>		<b>42</b>	

#### Text Books:

1. Lanthanide and Actinide Chemistry, Simon Cotton, Wiley & Sons Ltd, 2006.

#### Reference Books:

1. The Rare Earth Elements: Fundamentals and Application, David A. Atwood, Wiley-Blackwell, 2012.
2. Principles in Organolanthanide Chemistry, Reiner Anwander, Springer, 2001.