Course Type	Course Code	Name of Course		Т	Р	Credit
DE	NCYD516	Advanced Heterocyclic Chemistry		0	0	3

Course Objective					
٠	The subject offers the readers a fundamental understanding of the basics of heterocyclic chemistry				
	and their occurrence in bioactive molecules in advanced level.				
Learning Outcomes					

• Acquire knowledge about importance of heterocyclic molecules relevant to pharmaceutical chemistry

Unit No.	Topics to be Covered	Lecture Hours	Learning Outcome
1	Synthesis and reactions of heteroaromatics containing one hetero atom like indole, quinoline and isoquinoline.	12L	Students should understand the synthesis of heterocycles with one heteroatom by cycloaddition and cyclisation techniques.
2	Different types of strains, interactions synthesis and conformational aspects of non-aromatic 3-and 4-membered heterocycles: aziridine, azetidine; Azirines, Oxaranes, Thiiranes, Diazirenes, Diaziridines, Azetidines and Oxetane.	10L	All these heterocycles discussed in this chapter have different kinds of medicinal aspects. It will be exciting to have an idea on these molecules.
3	<ul> <li>5- and 6-Membered heterocyles containing two hetero atoms: Synthesis and reactivity of oxazole, thiazole, imidazole, iso-oxazole, isothiazole.</li> <li>Heterocyles with Nitrogen-ring-junction: Synthesis and reactivity of Quinolizines, Indolizines and Imidazopyridines.</li> </ul>	10L	All these heterocycles discussed in this chapter have different kinds of medicinal aspects. It will be exciting to have an idea on these molecules.
4	Synthesis of Drugs: Ranitidine, Lansoprazole and/or recently discovered molecules containing multiple hetero atoms and rings. Synthesis of few heterocyclic novel natural products.	10L	In this unit, we discussed the synthesis of a few drugs and heterocyclic natural products which are commonly used.
TOTAL		42	

## **Text Books:**

1. Modern Heterocyclic Chemistry, Julio Alvarez-Builla, Juan Jose Vaquero, José Barluenga, Wiley-VCH, 2011.

## **Reference Books:**

- 1. Heterocyclic Chemistry J. A. Joule and K. Mills, 5<sup>th</sup> Edition, Wiley-Blackwell publishing, 2010.
- 2. Heterocyclic Chemistry T. Gilchrist 3<sup>rd</sup> edition, Prentice Hall, 1997.