5	Understanding DNA and Gene Cloning: A Guide for the Curious by Drlica, K. 4TH Ed. Wiley

Bioenergy and Biofuels

Details of course: -

Course Title	Course Structure			Pre-Requisite
	L	T	P	
Bioenergy and Biofuels(BT316)	3	1	0	Nil

Course Objective:
To impart basic understanding of renewable energy resources

Course Outcome:

1. Discuss biofuels production process, importance and knowing status of research in India.
2. Summarize process technology for bioethanol production using sugars, starch, and lignocellulose.
3. Identify lipids as a source of biodiesel its methods of production from microalgae and future prospect.
4. Discuss the production of biohydrogen by anaerobic bacteria and photosynthetic algae, also about the factors affecting it.
5. Explain microbial fuel cell development their design and performance.

S. No.	Content	Contact Hours
1.	**Introduction to Biofuels**: Global energy outlook,,Biofuel Production Process and technology, ; Importance of biofuel feed stocks; Cellulose, starch, sugar, Lignocellulosic, Agro and Industrial by-products, Current status of research in India.	8
2.	**Production of Bio-ethanol**: Process Technology for Bioethanol production using Sugar; Starch and Lignocellulosic. Selection of micro-organisms and raw materials; Unit Operations in Alcohol production.	9
3.	**Production of Biodiesel:** Lipids as a source of biodiesel; Methods of Biodiesel Production, Quality Control Aspects. Biodiesel production from microalgae and future prospects	9
4.	**Production of Biohydrogen: Biohydrogen** Production by anaerobic bacteria and photosynthetic algae**,** Enzymes involved in biohydrogen	8