Companies. Emerging Trends in Financial Management: FinTech and Its Applications in Financial Management, Financial Impact of AI, Big Data, and Cloud Computing, ESG (Environmental, Social, and Governance) Factors in Financial Decision-Making.

(10 hours)

Essential/recommended readings

Pandey, I. M. (2021). *Financial management* (12th ed.). McGraw-Hill Education.
Chandra, P. (2022). *Financial management: Theory & practice* (11th ed.). McGraw Hill.

Generic Elective: (GE)

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)	Department offering the course
		Lecture	Tutorial	Practical/ Practice			
Biodefense and Bioengineering	**4**	**2**	**0**	**2**	**12th Pass**	**Nil**	**Biology faculty of CIC**

Learning Objectives

This module is designed to:

- Introduce students to the complexity of the immune system, infections
- Introduce students to tools and techniques related to immunity including the development of vaccines and immunological tests.

Learning outcomes

After studying this course, the students will be able to:

- Comprehend the complexity of the immune system
- Develop an understanding of the basis of functioning the immune system against infections and cancer
- Develop skills in immunological techniques such as ELISA, DOPE test, simulated pregnancy test etc.

SYLLABUS

Unit I: Overview of Immune system (6 hours)

Immune system and its classifications, types of immunity, cells and organ of the immune system

Unit II: Mechanisms of immunity (8 hours)

Humoral and cell-mediated immunity, antigen and antibody interaction, antibody structure and classification, Ag-Ab complex and clearing

Unit III: Tools and Techniques related to Immunology (8 hours)

Western blotting, Immunoprecipitation, Immunolocalization, ELISA, Immunodiffusion, Rocket Electrophoresis, DOPE test, production and purification of monoclonal and polyclonal antibodies, applications.

Unit IV: Emerging pathogens and host-pathogen interactions (8 hours)

New pathogens and diseases, single chain antibody engineering, AIDS, cancer and other disease immunity

Practical components **(30 hours)**

1. Blood smear preparation and staining
2. Immunodiffusion demonstration
3. ELISA test
4. Western blotting
5. Immunoprecipitation
6. Pregnancy test (Simulation experiment)

Essential/recommended readings

1. *Kuby Immunology*, Owen and Punt, W. H. Freeman & Company, 7 edition, 2013.
2. *Microbiology: an introduction*, Tortora et al., Benjamin Cummings, 11 edition 2012.
3. *Immunology and Immunotechnology*, Ashim K Chakravarty, , O.U. P, 1 edition, 2006.
4. *The Biology of Cancer*, Robert Weinberg, Garland Science

Generic Elective: (GE)

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)	Department offering the course
		Lecture	Tutorial	Practical/ Practice			
Devices and Nanotechnology (GE)	**4**	**3**	**1**	**0**	**Class XII pass**	**Functional knowledge on electronics and**	**Physics/Electronics faculty of CIC**