

## IMMUNOLOGY

Semester	Subject Code	Category	Lecture		Theory		Practical	Credits
			Hrs/ week	Total Hours/ Semester	Hrs/ week	Total Hours/ Semester		
VI	21CZO6B	Core-IX	4	60	4	60	Nil	4

### COURSE OBJECTIVES:

- To understand the advances in serology, immune pathology and immune techniques.
- To Provide an insight to the cellular components involved in the immunity.

### COURSE OUTCOMES (CO)

On the successful completion of the course, students will be able to:

CO Number	CO Statement	Knowledge Level (K1-K4)
CO1	Students will get awareness to maintain their immunity.	K2, K3
CO2	students will understand the different organs and cells of immune system.	K2
CO3	students will be able to understand the principles of self-tolerance and autoimmunity	K2, K3
CO4	students acquire knowledge on the importance of vaccine and immunization.	K3, K4
CO5	Students will apply their knowledge about transplantation while assisting any technical jobs.	K3, K4

**Knowledge Level:** K1- Remember; K2 – Understand; K3 – Apply; K4 – Analyze.

### MAPPING WITH PROGRAMME OUTCOMES

COS	PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	S	S
CO2	S	S	S	M	M
CO3	M	S	S	S	S
CO4	S	S	S	S	S
CO5	S	M	S	S	S

S- Strong; M – Medium; L- Low

Distribution of Marks: Theory 100% and Problems Nil %

## **UNIT - I**

### **INTRODUCTION AND SCOPE OF IMMUNOLOGY (12 Hours)**

History of immunology, Types of immunity – Innate- Natural immunity and Acquired- Adaptive immunity. Morphological, Anatomical, Physiological, Phagocytic (Mechanism of Phagocytosis) and Inflammatory barriers of innate immunity. Humoral and cell Mediated Immunity - their role in microbial infections.

## **UNIT - II**

### **LYMPHOID ORGANS and CELLS OF IMMUNE SYSTEM (12 Hours)**

Primary lymphoid organs- Thymus, Bone marrow, Bursa of Fabricius, Secondary lymphoid organs- lymph node, spleen, MALT- Peyer's patches- structure and functions. Cells of immune system - Myeloid stem cells and Lymphoid stem cells – Monocyte- Macrophage- Granulocyte- T-Lymphocyte- B-Lymphocyte- Plasma Cells- Mast Cell-Dendritic cells- their role in Immune response.

## **UNIT – III**

### **IMMUNOGLOBULINS (12 Hours)**

Structure, Types- Gamma, Alpha, Macro, Delta and Epsilon immunoglobulin (IgG, IgA, IgM, IgD, IgE), Epitopes, Paratopes, Haptens and Adjuvants. Physio-chemical and biological properties of Immunoglobulins- Functions of immunoglobulins - Biosynthesis of antibodies – Types of antibodies- monoclonal and polyclonal antibodies. Antigen - antibody reactions. Immuno deficiency diseases - AIDS.

## **UNIT -IV**

### **VACCINATION AND IMMUNIZATION (12 Hours)**

Vaccination-Properties of Good vaccine- Types of vaccination -Live vaccine, Killed vaccine- Heat killed and Chill Killed, Toxoids and their Properties, Advantages and disadvantages of vaccination-Adjuvants. Immunization in India-Passive immunization and Herd immunity. Vaccination Chart- Immunization schedule of children and Adult- recent trends.

## **UNIT -V**

### **TRANSPLANTATION (12 Hours)**

Transplantation- Introduction-Types of transplantations- Basic concepts of Major Histo Compatibility complex (MHC)-Tissue antigens -HLA and Blood group antigens. Graft rejection-Hyperacute, Acute, Chronic rejection. Immuno prophylaxis and Hypersensitivity reactions and Types of Hypersensitivity.

## TEXT BOOKS

S.No.	Authors	Title of the Book	Publishers	Year of Publication
1	I Kannan	Immunology	MJP Publishers	2007
2	N. Arumugam	Text Book of Immunology	Saras Publications	2015
3	Abul Abbas Andrew H. Lichtman	Basic Immunology	Saunders	2019

## REFERENCE BOOKS:

S. No.	Authors	Title of the Book	Publishers	Year of Publication
1	Roitt.I.M	Essential Immunology	Blackwell Scientific Publishers	2000
2	Paul, W.E.M	Fundamental Immunology	Raven press, New York	1989
3	Kuby, J	Immunology	W.H. Free man and Co. New York	1999
4	Roitt. 1, Brostoff, J. and Male.D	Immunology	Mosby, New York	2002.
5	Richard, A. Golds, Thomas I. Kindt and Barbara. A. Osborne	Kuby Immunology	Freeman and Co. New York	2000
6	Delves PJ, Martin SJ, Burton DR, Roitt IM	Essential immunology	John Wiley and Sons.Ramesh SR	2002

## WEB SOURCES

[www.sciencedirect.co](http://www.sciencedirect.co).  
[www.pebmed.com](http://www.pebmed.com)  
[www.khansacademy.com](http://www.khansacademy.com)  
[www.epatsala.com](http://www.epatsala.com)  
[www.swayam.com](http://www.swayam.com)

## TEACHING METHODOLOGY

- Class room teaching
- Charts/ Models
- Power point Presentations
- Discussions
- Assignments
- Home test

## SYLLABUS DESIGNERS

- Dr. D. Sasikala, Assistant Professor and HOD
- Dr. V. Kiruthiga, Assistant Professor
- Dr. V. Rekha, Assistant Professor
- Dr. A. Vinodhini, Assistant Professor
- Dr. G. Vidhya, Assistant Professor