RIMT UNIVERSITY MANDI GOBINDGARH
PUNJAB

Pattern of Course Work & Detailed Syllabus
For
Ph.D Programme

Microbiology

Syllabi Applicable For Admissions in 2017 Onwards

Pattern of Course Work for Ph.D Programme

Name of Course		Contact Hours/Week			Credit	Evaluation Scheme (% of Total Marks)					Exam Duration (Hours)
Code	Title	L	T	P		CWA	LWA	MTE	ETE	Total	
PHDRM 1101	Research Methodology & Statistical Technique	5	0	0	5	16	---	24	60	100	
PHDCA 1102	Computer Applications in Research	3	0	0	3	16	---	24	60	100	
PHDMIB 1103 A	General Microbiology	5	0	0	5	16	---	24	60	100	
PHD 1104	Mini Project/Term Paper	-	-	-	2	---	---	---	100	100	
Total											

L	T	P	CWA	LWA	MTE	ETE
Lecture	Tutorial	Practical	Class Work Assessment	Lab Work Assessment	Mid Term Exam	End Term Exam

SUBJECT TITLE: GENERAL MICROBIOLOGY
SUBJECT CODE: PHDMIB1103A
SEMESTER: I
CONTACT HOURS/WEEK:

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
5	0	0	5

Internal Assessment: 40
End Term Exam: 60
Duration of Exam; 3 Hrs

SECTION-A

1. Microbiology Good Laboratory Practices and Biosafety.
2. Study the principle and applications of important instruments (biological safety cabinets, autoclave, incubator, hot air oven, light microscope, pH meter, spectrophotometer) used in the microbiology laboratory
3. Preparation of general purpose culture media for bacterial cultivation
4. Sterilization of medium using Autoclave and assessment for sterility
5. Sterilization of glassware using Hot Air Oven and assessment for sterility
6. Sterilization of heat sensitive material by membrane filtration and assessment for sterility
7. Demonstration of the presence of microflora in the environment by exposing nutrient agar plates to air

SECTION – B

1. Immune system. Types of immunity. Mediators of immunity.
2. Collection, transport and culturing of clinical samples, principles of laboratory diagnosis of infectious diseases. Staining and microscopy. Isolation and identification of causal organism.
3. Selective and differential medium. Growth mediums specific to isolate or differentiate various pathogenic bacteria. Immunologic tests like ELISA, Immunofluorescence,
4. Agglutination based tests, Complement fixation and western blotting. Nucleic acid analysis based tests like PCR, restriction digestion, northern and southern hybridization.

SECTION – C

1. History of immunology.Three fundamental concepts in immunology: Specificity, discrimination of self from non-self and memory
2.Structure, Functions and origin of Immune Cells – Stem cell, T cell, B cell, NK cell,Macrophage, Neutrophil, Eosinophil, Basophil, Mast cell, Dendritic cell and Immune Organs like Bone marrow, Thymus, Lymph Node, Spleen.
3. Characteristics of an antigen (Foreignness, Molecular size and Heterogeneity); Haptens;Epitopes, Adjuvants, Structure, Types and Functions of antibodies
4.Principles of Precipitation, Agglutination, Immunodiffusion, Immunoelectrophoresis, ELISA

Reference books:

Kuby-Immunology: T. J. Kindt, R. A. Goldsby and B. A. Osborne; W. H. Freeman
Janeway's Immunology: K. Murphy, P. Travers and M. Walport; Garland Sciences
Immunology: Ivan Roitt, J. Brostoff and D. Male; Mosby
Essential immunology: Ivan Roitt; Oxford: Blackwell
Principles of Genetic Manipulation – Old & Primrose