

Rajarshi Shahu Mahavidyalaya(Autonomous), Latur

Department of Microbiology

Program: B.Sc and MSc

Teaching Plan

Academic year: 2019-20

Class :BSc.II

Semester: III

Course Title : Fundamentals of Immunology

Course code :U-MIB-360

Course Teacher: Dr.K.G.Maske

Unit	Unit and Chapter to be covered	No. of Lectures	Date	Academic activities to be organized	Test/Assignment
I	Microbial interactions with humans	10	04/07/2019 to 27/07/2019	Seminar	Assignments
II	Antigen and Antibody and complement	12	01/08/2019 to 29/08/2019		Class test
III	Immunity and Immune response	11	31/08/2019 to 28/09/2019	Seminar	Class test
IV	Serological reactions	12	26/9 /2019 to 24/10/2019	Seminar	Class test

Class: B.Sc. III, Semester: V ,

Course : Biocatalyst and microbial metabolism

Course Teacher: Dr.K.G.Maske

Unit	Unit and Chapter to be covered	No. of Lectures	Date	Academic activities to be organized	Test/Assignment
I	Enzymes, enzyme kinetics and immobilization	12	24/06/2019 to 24/07/2019	Seminar	Assignments
II	Enzyme inhibition and Regulation	11	29/07/2019 to 29/08/2019	Training program	Class test
III	Chemoheterotropic Microbial Metabolism: Aerobic respiration	12	01/09/2019 to 28/09/2019	Seminar	Class test
IV	Chemoheterotropic Microbial Metabolism Anaerobic respiration and Fermentations	10	01/10/2019 to 24/10/2019	Seminar	Class test


Teacher

Dr. K.G. Maske


Dept. Head: microbiology
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Department of Microbiology

Teaching Plan : 2019-20

Semester: IV and VI

Name of the Faculty: Dr. K. G. Maske

Sr. No.	Class	Name of Asso. Prof.	Subject	Paper
1	B.Sc. II	Dr. K.G.Maske	Microbiology	Lab course V and VI
2	B.Sc. II			VIII
3	B.Sc. III			XII

Class : B.Sc. II

Course Title :Medical Microbiology Course code : U-MIB-460

Unit	Unit and Chapter to be covered	No. of Lectures	Date	Academic activities to be organized	No. of Test/Assignment with topic and date
I	Types of infections and disease process 1.1 Sources of infection 1.3 Methods of transmission of infections 1.4 Epidemiology 1.5 Disease process	08	14/12/19 to 03/01/19		Assignments
II	Study of bacterial infections 1. Cholera 2. Typhoid 3. Bacillary Dysentery	15 07 06 02	04/01/20 to 22/01/20	Microbial techniques competition	Class test

III	Study of following diseases 1. Pulmonary Tuberculosis 2. Pneumonia 3. Malaria 4. Candidiasis	12 04 04 02 02	25/01/2020 to 22/02/20	Seminar	Class test
IV	Study of following diseases 1. Chikungunya 2. Dengue 3. Hepatitis A and B 4. Swine Influenza	10 02 02 04 02	06/03/20 to 25/03/2010	Hands on training on clinical methods	Unit test

Class : B.Sc. III

Semester : VI

Course : Industrial Microbiology , Course code :U-MIB-666

Unit	Unit and Chapter to be covered	No. of Lectures	Date	Academic activities to be organized	No. of Test/Assignment with topic and date
I	<p>Definition and Scope of Industrial Microbiology</p> <p>1.1. Introduction, Definition, Scope and Development of Industrial Microbiology.</p> <p>1.2. Role of microbiologist in biopharma technology.</p> <p>1.3. Bioprocess technology</p> <p>1.4. In vitro- Fermentors</p> <p>1.5. Types of Fermentor: laboratory fermentor, pilot plant fermentor, industrial fermentor, Horton sphere., Tubular, fed batch, fluidised bed reactor, tower fermentor (In brief).</p> <p>1.6. Types of fermentation: Batch, continuous,SSF,surface, submerged fermentations</p> <p>1.7 Automation in bioprocess technology.</p>	09 01 01 05 02	14/12/19 to 04/01/2020	Seminar	Assignments
II	<p>Methods in Industrial Microbiology</p> <p>12</p> <p>2.1 Introduction, Screening Techniques (Primary and secondary), Strain improvement (Basic idea in brief),</p> <p>2.2. Stock culture and its maintenance (serial subculture, overlaying with mineral oil, lyophilization, liquid nitrogen, soil stock).</p> <p>2.3. Inoculum development</p>	12 03 03 03	09/01/20 to 31/01/ 20	Hands on training on fermentation technology	Class test

	<p>, Fermentation media, (substances used as raw materials for formulation of fermentation media) and its sterilization (batch and continuous). 2.6. Quality Control • Quality control tests- purity testing, Microbial Limit Test (MLT). Pyrogen testing (LAL test), Minimum Inhibitory Concentration(MIC)</p> <p>2.7.FDA and Good Manufacturing Practices</p> <p>2.4. Bioassays • Bioassay of - Amino acids, vitamins.</p> <p>2.5. Bioassay - Antibiotics.</p>	03			
III	<p>Down stream processing</p> <p>3.1 Introduction, Recovery and purification of fermentation products</p> <p>3.2 Solids (Insolubles) removal (Filtration, centrifugation, coagulation and flocculation, foam fractionation),Cell disruption.</p> <p>3.3 Recovery of product (liquid extraction, ion exchange adsorption, precipitation), Purification (Chromatography, carbon decolorization, crystallization),</p> <p>3.4Product Isolation (Crystalline processing, drying, packing etc).</p>	12 04 04 02 02	01/02/20 to 27/02/20	Seminar	Class test
IV	<p>Typical Bioprocess production</p> <p>4.1 Beverages (Beer, Wine),</p> <p>4.2 Organic acid (Citric acid, lactic acid),</p> <p>4.3Antibiotics (Penicillin,Cephalosporein)</p> <p>4.4 Therapeutic proteins- anticancer products.</p>	10 02 02 04 02	12/03/20 to 31/03/2020	Industrial visit seminar	Unit test

	<p>4.5 Bioinsecticide (Thuricide), Amino acids (Lysine), 4.6 Enzyme (Amylase). Neutraceuticals. (Production strain, Fermentation media, Fermentation conditions, metabolic pathway involved in synthesis of the product, Product recovery operations, Uses).</p>				
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Teacher

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