### Shri Swami Vivekanand Shikshan Sanstha's

## Vivekanand College, Kolhapur (Empowered Autonomous)

### Department of Microbiology (UG)

Academic Year 2024-25

Sr.No		Syllabus Completed	
i i i i i i i i i i i i i i i i i i i	B.Sc.I Sem I Paper II DSC03MIC 12: Bacteriology Unit I: A. General Principles of Microscopy: 1. Types of microscopes:  B. Stains and Staining procedures 1. Definition of dye and stain 2. Classification of stains. 3. Principles, Procedure, Mechanism of staining procedures a) Monochrome staining b) Negative staining c) Differential staining: 4. Special staining methods Practical Course: I 3. Study of Laboratory instruments used in the microbiology laboratory: a) Laminar air flow, b) autoclave, incubator c) hot air oven d) colorimeter, e) colony counter d) bacteriological filter assembly . Study of compound microscope Catalase, Caseinase & Amylase Production test	Syllabus Completed  B.Sc.I Sem I Paper II DSC03MIC 12: Bacteriology Unit I:  A. General Principles of Microscopy: 1. Types of microscopes:  B. Stains and Staining procedures 1. Definition of dye and stain 2. Classification of stains. 3. Principles, Procedure, Mechanism of staining procedures a) Monochrome staining b) Negative staining c) Differential staining: 4. Special staining methods Practical Course: I 3. Study of Laboratory instruments used in the microbiology laboratory: a) Laminar air flow, b) autoclave, incubator c) hot air oven d) colorimeter, e) colony counter f) bacteriological filter assembly 4. Study of compound microscope. 5. Catalase, Caseinase & Amylase Production test	NIL

Name of Teacher - Ms.V.V.Misal



Dr.G.K. Sontakke

INC MEAD DEPARTMENT OF MICROBIOLOGY VIVERAMAND COLLEGE, KOLHAPUR (EMPOWERED AUTONOMOUS)

### Shri Swami Vivekanand Shikshan Sanstha's

### Vivekanand College, Kolhapur (Empowered Autonomous)

### Department of Microbiology (UG)

Academic Y	ear 2024-25
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Sr.No		Syllabus Completed	Remaining Syllabus
	B.Sc.II Sem III  Paper V DSC 03MIC 21: Microbial Physiology and Metabolism  Unit I:  A] Growth: Growth phases, measurement of growth, continuousgrowth, synchronous growth and diauxic growth  B] Effect of environmental factors on microbial growth:  i) Temperature: -  i) pH  ii) Osmotic pressure – Isotonic, hypotonic and hypertonicenvironments, xerophiles and halophiles.  iii) Heavy metals	B.Sc.II Sem III  Paper V DSC 03MIC 21: Microbial Physiology and Metabolism  Unit I:  C] Growth: Growth phases, measurement of growth, continuousgrowth, synchronous growth and diauxic growth  D] Effect of environmental factors on microbial growth:  i) Temperature: -  v) pH  vi) Osmotic pressure – Isotonic, hypotonic and hypertonicenvironments, xerophiles and halophiles.  vii) Heavy metals	NIL NIL
	iv) Radiations - U. V rays	viii) Radiations - U. V rays	
	C] Transport across cell membrane : Diffusion, active transport	C] Transport across cell membrane : Diffusion, active transport	
	and group translocation.	and group translocation.	
	Practical –  1. Micrometry.  2. Diauxic growth curve	Practical –  1. Micrometry.	
	3. Growth Curve	2.Diauxic growth curve     3. Growth Curve	

Name of Teacher - Ms.V.V.Misal



Dr.G.K. Sontakke

DEPARTMENT OF MICROBIOLOGY VINEKANAND COLLEGE KOLHAPUR (EMPOWERED AUTONOMOUS)

Shikshanmaharshi Dr. Bapuji Salunkhe

### Shri Swami Vivekanand Shikshan Sanstha's

## Vivekanand College, Kolhapur (Empowered Autonomous)

### Department of Microbiology (UG)

Academic Year 2024-25

Syllabus Allotted	Syllabus Completed	Remaining Syllabus
B.Sc.III Sem V Paper V DSE 1010 EI: Immunology and Medical Microbiology SEC-1 Unit I 1.Cells of Immune system — 2. Membrane receptors for antigen and their role in antigen recognition 3. Molecular mechanism of antibody production. 4. Cytokines - 5. Immunological tolerance: 6. Interferon — Unit — II 1. Complement — 2. Monoclonal antibodies - 3. New diagnostic techniques:- 4. Hypersensitivity — 5. Autoimmune disease: Practical — II Food and Industrial Microbiology Bio-assay of Vitamin B12 1. Bio-assay of Penicillin. 2. Microbial testing of Water: a. Presumptive, confirmed and completed test. b. MPN 5. SPC of tomato sauce	B.Sc.III Sem V Paper V DSE 1010 EI: Immunology and Medical Microbiology SEC- I Unit I	NIL

Name of Teacher - Ms. V. V. Misal



Dr.G.K. Sontakke

DEPARTMENT OF MICROBIOLOGY VIVEKANAND COLLEGE KOLHAPUR

## Vivekanand College, Kolhapur (Empowered Autonomous)

### Department of Microbiology

### Syllabus completion report 2024-2025

### Name of Teacher: Mr. S. D. Gabale

Sr. No.	Theory/ Practical	Syllabus Allotted	Syllabus completed	Remaining syllabus
	Theory	B. Sc. I Paper I- Introduction to Microbiology UNIT I A. Introduction to Microbiology i. Spontaneous generation vs biogenesis ii. Contributions of scientists iii. Classification of microorganisms iv. Taxonomic ranks v. Beneficial and harmful activities of microorganisms C. Bacterial systematics	B. Sc. I  Paper I- Introduction to Microbiology UNIT I  A. Introduction to Microbiology i. Spontaneous generation vs biogenesis ii. Contributions of scientists iii. Classification of microorganisms iv. Taxonomic ranks v. Beneficial and harmful activities of microorganisms  C. Bacterial systematics	Nil
	Practicals	1. Gram staining	1. Gram staining	Nil

Mr. S. D. Gabale



Dr. G. K. Sontakke

DEPARTMENT OF MICROBIOLOGY VIVEKANAND COLLEGE KOLHAPUR (EMPOWERED AUTONOMOUS)

### Vivekanand College, Kolhapur (Empowered Autonomous)

### Department of Microbiology

### Syllabus completion report 2024-2025

### Name of Teacher: Mr. S. D. Gabale

Sr. No.	Theory/ Practical	Syllabus Allotted	Syllabus completed	Remaining syllabus
3.	Theory	B.Sc. II Paper VI Applied Microbiology Unit II Applied Microbiology, Biostatistics and Bioinformatics  1) Air Microbiology 2) Bioinstrumentation i. Electrophoresis ii. U.V. Visible spectrophotometer	B.Sc. II Paper VI Applied Microbiology Unit II Applied Microbiology, Biostatistics and Bioinformatics  1) Air Microbiology 2) Bioinstrumentation i. Electrophoresis ii. U.V. Visible spectrophotometer	Nil
		3) Biostatistics i. Introduction ii. Data presentation iii. Central tendency iv. Applications  4) Bioinformatics	3) Biostatistics i. Introduction ii. Data presentation iii. Central tendency iv. Applications  4) Bioinformatics	

Practicals	Effect of pH on the growth of microorganisms     Effect of temperature on the growth of microorganisms     Effect of salt on the growth of microorganisms     Effect of heavy metals on the growth of microorganisms     Flagella staining     Biostatistics	Effect of pH on the growth of microorganisms     Effect of temperature on the growth of microorganisms     Effect of salt on the growth of microorganisms     Effect of heavy metals on the growth of microorganisms     Flagella staining     Biostatistics	Nil
VSC Practical	1.Estimation of amino acids by Ninhydrin method	1.Estimation of amino acids by Ninhydrin method	

Mr. S. D. Gabale



Dr. G. K. Sontakke

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### Vivekanand College, Kolhapur (Empowered Autonomous)

### Department of Microbiology

### Syllabus completion report 2024-2025

### Name of Teacher: Mr. S. D. Gabale

Sr. No.	Theory/ Practical	Syllabus Allotted	Syllabus completed	Remaining syllabus
3.	Theory	B.Sc. III	B.Sc. III	Nil
		Paper X	Paper X	
		Medical Microbiology	Medical Microbiology	
		Unit I	Unit I	
		1. Mycobacterium leprae	1. Mycobacterium leprae	
		2. Clostridium perfringens	2. Clostridium perfringens	
	19	3. Treponema pallidum	3. Treponema pallidum	
		4. Pseudomonas aeruginosa	4. Pseudomonas aeruginosa	
		5. Vibrio cholera	5. Vibrio cholera	
		6. Leptospira interrogens	6. Leptospira interrogens	
		7. Helicobacter pylori	7. Helicobacter pylori	

	Unit II	Unit II	
	A. 1. Plasmodium falciparum	A. 1. Plasmodium falciparum	
	2. Hepatitis A and B virus	2. Hepatitis A and B virus	
	3. Rabies virus	3. Rabies virus	
	4. Dengue virus	4. Dengue virus	
	5. Candida albicans	5. Candida albicans	
	B. Chemotherapy	B. Chemotherapy	
	C. Gene therapy	C. Gene therapy	
	D. Immunoprophylaxis	D. Immunoprophylaxis	
Practicals	1. Isolation of Auxotrophic mutants	Isolation of Auxotrophic mutants	Nil
	2. Isolation of streptomycin resistant mutants of E.coli	2. Isolation of streptomycin resistant mutants of E.coli	
	3. Isolation of Chromosomal DNA	3. Isolation of Chromosomal DNA	
	4. Agarose gel electrophoresis	4. Agarose gel electrophoresis	
	5. Study of U.V. survival curve	5. Study of U.V. survival curve	
	6. Isolation of lac negative mutants of E. coli	6. Isolation of lac negative mutants of E. coli	

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Mr. S. D. Gabale



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Dr. G. K. Sontakke

DEPARTMENT OF MICROSIOLOGY VIVEKANAND COLLEGE KOLHAPUR (EMPOWERED AUTONOMOUS) Dissemination of Education for Knowledge, Science and Culture"
- Shikshanmaharshi Dr. Bapuji Salunkhe

### Shri Swami Vivekanand Shikshan Sanstha's

### Vivekanand College, Kolhapur (Empowered Autonomous)

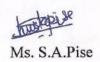
Academic Year 2024-2025 Syllabus Completion Report

### Name of Teacher - Ms.S.A.Pise

Sr.No	Syllabus Allotted	Syllabus Completed	Remaining Syllabus
	B.Sc I Sem I DSC03MIC11	B.Sc I Sem I DSC03MIC11	
1.	Introduction to Microbiology	Introduction to Microbiology	NIL
	Theory	Theory	
	Unit 2 – Bacterial Cell	Unit 2 – Bacterial Cell	The state of the state of
	1.Cell size, shape & arrangement -	1.Cell size, shape & arrangement -	page decretted
	2.Cytology of Bacteria -	2.Cytology of Bacteria -	
	3.Reserved Food material	3.Reserved Food material	
	a.Nitrogenous	a.Nitrogenous	
	b.Non nitrogenase	b.Non nitrogenase	
	Practicals –	Practicals —	
	Microscopic observation of bacteria -	Microscopic observation of bacteria -	Section 19 April 1
	1. Cell wall staining	1. Cell wall staining	NIL
	B.Sc II Sem III Paper V DSC 1010C1	B.Sc II Sem III Paper V DSC 1010C1	
	Microbial Physiology & Metabolism	Microbial Physiology & Metabolism	NIL
1	Theory Unit III – Microbial metabolism	Theory	
	a.Basic concept of metabolism	Unit III – Microbial metabolism	

b.Catabolosm of Glucose -	b.Catabolosm of Glucose –	
a) EMP	a) EMP	
b) HMP	b) HMP	
c) ED	c) ED	
d) TCA	d) TCA	
c.Fementation-	c.Fementation-	
a) Homolactic fermentation	a) Homolactic fermentation	
b) Heterolactic fermentation	b) Heterolactic fermentation	
Practicals –	Practicals –	
Stains and staining procedures:	Stains and staining procedures:	NIL
i) Spore staining (Dorner's method)	i) Spore staining (Dorner's method)	
B.Sc III Sem V DSE 1010 E4	.Sc III Sem V DSE 1010 E4	
Microbial Biochemistry	Microbial Biochemistry	
Theory	Theory	
Unit 1 -A. Enzyme	Unit 1 -A. Enzyme	
a) Definition, properties, structure, specificity, classificati	a) Definition,properties,structure,specificity,classifi	
on,mechanism of action	cation,mechanism of action	NIL
b) Allosteric enzymes	b) Allosteric enzymes	
c) Ribozymes	c) Ribozymes	
d) isozymes	d) isozymes	
e) Factors affecting catalytic efficiency of enzymes	e) Factors affecting catalytic efficiency of enzymes	
f) Enzyme kinetics	f) Enzyme kinetics	
g) Regulation of enzyme synthesis	g) Regulation of enzyme synthesis	
B.Extraction of enzumes	B.Extraction of enzumes	
C. Assay of enzymes	C. Assay of enzymes	
D. Immobilization of enzymesF	D. Immobilization of enzymesF	
F.Confirmation of purified enzymes	F.Confirmation of purified enzymes	

Unit 2 -	Unit 2 -		
A.Basic concepts of –	A.Basic concepts of –		
a) Glyoxylate bypass	a) Glyoxylate bypass		
b) Phosphoketolase pathway	b) Phosphoketolase pathway		
e) Bioluminescence	c) Bioluminescence		
B. Assimilation of –	B. Assimilation of –		
a) Carbon	d) Carbon		
b) Nitrogen,	a) Nitrogen,		
c) Sulfur	b) Sulfur		
C. Prokaryotic Synthesis of—	C. Prokaryotic Synthesis of -		
a) DNA	a) DNA		
b) RNA	b) RNA		
c) Protein	c) Protein		
d) Peptidoglycan	d) Peptidoglycan		
Practicals –	Practicals –		
1. Isolation of Azotobacter from soil.	1. Isolation of Azotobacter from soil.	NIL	
2. Isolation of Xanthomonas from infected citrus fruits.	2. Isolation of <i>Xanthomonas</i> from infected citrus fruits. 3. Isolation of <i>Rhizobium</i> from root nodules		
3. Isolation of <i>Rhizobium</i> from root nodules			
4. Isolation of phosphate solubilising bacteria from soil.	4. Isolation of phosphate solubilising bacteria from soil.		
5.Determination of BOD of sewage	5.Determination of BOD of sewage		





Dr.G.K.Sontakke

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"Dissemination of Education for Knowledge, Science and Culture"

Shikshanmaharshi Dr. Bapuji Salunkhe

Shri Swami Vivekanand Shikshan Sanstha's

### Vivekanand College, Kolhapur (Empowered Autonomous)

Department of Microbiology (UG)

Academic Year 2024-25

### Syllabus completion report

Name of Teacher: Ms. M. M. Nadkarni

Sr. No.	Theory/ Practical	Syllabus Allotted	Syllabus completed	Remaining syllabus
		B.Sc. III	B.Sc. III	
3.	Theory	Paper XI INDUSTRIAL MICROBIOLOGY	Paper XI INDUSTRIAL MICROBIOLOGY	Nil
		Unit I	Unit I	Linear Co
		1. Food Microbiology	1. Food Microbiology	A STORY
		a. Food as a substrate for microorganisms.	a. Food as a substrate for microorganisms.	
	100	b. Food borne diseases –	b. Food borne diseases –	
	2 1 1 1072 (d)	I. Role of microorganisms in food borne diseases	I. Role of microorganisms in food borne	
		II. Food poisoning - i) Staphylococcal ii) Fungal (aflatoxin)	Idiseases	

Practical s	<ol> <li>Isolation of Klebsiella pneumonia mutants</li> <li>Isolation of Candida albicans</li> <li>Isolation of Pseudomonas aeruginosa</li> </ol>	<ul><li>11. Isolation of <i>Klebsiella pneumonia</i> mutants</li><li>2. Isolation of <i>Candida albicans</i></li><li>3. Isolation of <i>Pseudomonas aeruginosa</i></li></ul>	Nil
Practical	2. Industrial Microbiology     a. Strain Improvement     b. Scale up of fermentations     c. Microbiological assays     d. Preservation of industrially important microorganisms - Methods, Culture collection centers	III. Food infections – Salmonellosis.  IV. Food spoilage and its preservation  2. Industrial Microbiology  a. Strain Improvement  b. Scale up of fermentations  c. Microbiological assays  d. Preservation of industrially important microorganisms - Methods, Culture collection centers	
	<ul><li>III. Food infections – Salmonellosis.</li><li>IV. Food spoilage and its preservation</li></ul>	II. Food poisoning - i) Staphylococcal ii) Fungal (aflatoxin)	

Wodkarni Ms. M. M. Nadkarni



Dr. G. K. Sontakke

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## Vivekanand College, Kolhapur (Empowered Autonomous)

Department of Microbiology (UG)

Academic Year 2024-25

### Syllabus completion report

Name of Teacher: Ms. M. M. Nadkarni

Sr. No.	Theory/ Practical	Syllabus Allotted	Syllabus completed	Remaining syllabus
3.	Theory	B.Sc. II Paper VI Applied Microbiology Unit I Water and Food Microbiology	B.Sc. II Paper VI Applied Microbiology Unit I Water and Food Microbiology	Nil
		<ol> <li>A. Water Microbiology:</li> <li>Sources of microorganisms in water.</li> <li>Fecal pollution of water.</li> <li>Indicators of fecal pollution</li> <li>Routine Bacteriological analysis of water.</li> <li>SPC</li> <li>Tests for Coli forms</li> <li>Qualitative test</li> <li>Quantitative test –</li> </ol>	A. Water Microbiology:  1. Sources of microorganisms in water.  2. Fecal pollution of water.  3. Indicators of fecal pollution  4. Routine Bacteriological analysis of water.  a. SPC  b. Tests for Coli forms  i) Qualitative test  ii) Quantitative test —	W-YAV

	<ol><li>Municipal water purification process and its significance.</li></ol>	5. Municipal water purification process and its significance.	
	B. Food Microbiology	B. Food Microbiology	
	a) Principles of microbial spoilage of food	a) Principles of microbial spoilage of food	
	b) Spoilage of fruits, breads and meat	b) Spoilage of fruits, breads and meat	
	c) General principles and methods of food	c) General principles and methods of food	
	preservation	preservation	
	i) Asepsis	i) Asepsis	
	ii) Removal of microorganism – trimming, filtration, centrifugation	ii) Removal of microorganism – trimming, filtration, centrifugation	
	iii)Dehydration method	iii)Dehydration method	
	iv)Irradiation	iv)Irradiation	
	v) Anaerobiosis	v) Anaerobiosis	LINE
Practical	1. Effect of antibiotic on the growth of microorganisms	1. Effect of antibiotic on the growth of microorganisms	Nil
S	2. Screening of antibiotic producing microorganism 3. Micrometry VSC	2. Screening of antibiotic producing microorganism 3. Miloo metry, VSC	
	1.Estimation of DNA by Diphenylamine method.	1.Estimation of DNA by Diphenylamine method.	
	2. Estimation of RNA by Diphenylamine method.	Estimation of RNA by Diphenylamine method.	
	3. Estimation of Protein by Diphenylamine method.	3.Estimation of Protein by Diphenylamine method.	

Ms. M. M. Nadkarni



Dr. G. K. Sontakke

DEPARTMENT OF MICROSIOLOGY VIVEKANAND COLLEGE, KOLHAPUR (EMPOWERED AUTONOMOUS) "Dissemination of Education for Knowledge, Science and Culture"

Shikshanmaharshi Dr. Bapuji Salunkhe

Shri Swami Vivekanand Shikshan Sanstha's

### Vivekanand College, Kolhapur (Empowered Autonomous)

Department of Microbiology (UG)

Academic Year 2024-25

### Syllabus completion report

Name of Teacher: Ms. M. M. Nadkarni

Sr. No.	Theory/ Practical	Syllabus Allotted	Syllabus completed	Remaining syllabus
		Nil	Nil	
1.	Theory			Nil
	Practicals	Capsule staining	Capsule staining	Nil

Ms. M. M. Nadkarni

ESTD JUNE 1964

Dr. G. K. Sontakke

I/C HEAD
DEPARTMENT OF MICROBIOLOGY
VIVEKANAND COLLEGE KOLHAPUR
(EMPOWERED AUTONOMOUS)

## "Dissemination of Education for Knowledge, Science and Culture" - Shikshanmaharshi Dr. Bapuji Salunkhe

# Shri Swami Vivekanand Shikshan Sanstha's VIVEKANAND COLLEGE, KOLHAPUR (EMPOWERED AUTONOMOUS) Department of Microbiology (UG)

Syllabus Completion report 2024-25

Name of Teacher: Ms. S. S. Shaikh

Sr. No.	Theory/ Practical	Syllabus Allotted	Syllabus completed	Remaining syllabus
		B. Sc. I	B. Sc. I	
1.	Theory	Paper II: DSC03 MIC12 Industrial Microbiology	Paper II: DSC03 MIC12 Industrial Microbiology	Nil
		UNIT II Control of Microorganisms	UNIT II Control of Microorganisms	
		1. Definitions	1. Definitions	
		2. Mode of action and application of	2. Mode of action and application of	
		a) Physical agents:	a) Physical agents:	
		(i) Temperature	(i) Temperature	
		(ii) Dessication	(ii) Dessication	
		a) Physical agents	a) Physical agents	
		(iii) Ultrasonication	(iii) Ultrasonication	
		(iv) Radiations	(iv) Radiations	
		(v) Filtration	co(v) Filtration	

	b) Chemical agents:	b) Chemical agents:	
	(i) Phenol and phenolic compounds	(i) Phenol and phenolic compounds	
	(ii) Alcohols	(ii) Alcohols	
	b) Chemical agents:	b) Chemical agents:	
	(iii) Halogen compounds	(iii) Halogen compounds	
	(iv) Heavy metals	(iv) Heavy metals	
	(v) Fumigation by gaseous agents	(v) Fumigation by gaseous agents	
	(vi) Osmotic Pressure	(vi) Osmotic Pressure	
		9	
Practicals	DSC MICRO PR-I MICROBIOLOGY LAB I	DSC MICRO PR-I MICROBIOLOGY LAB I	Nil
	Introduction to Microbiology and Bacteriology	Introduction to Microbiology and Bacteriology	
	1 Preparations of a) stains (0.5% basic fuchsin, 0.5%	1 Preparations of a) stains (0.5% basic fuchsin, 0.5%	
	crystal violet), b) Reagents (phosphate buffer of pH 7, 1	crystal violet), b) Reagents (phosphate buffer of pH 7,	
	N and 1M solutions of HCL and NaOH	1 N and 1M solutions of HCL and NaOH	
	Microscopic observation of bacteria: a) Monochrome staining	Microscopic observation of bacteria: a)     Monochrome staining	
	3. Preparation of liquid and solid culture media a) agar	3. Preparation of liquid and solid culture media a)	
	plates b) slants c) d) nutrient broth e) nutrient agar f)	agar plates b) slants c) d) nutrient broth e) nutrient	
	Sabourauds agar g) starch agar h) milk agar i)	agar f) Sabourauds agar g) starch agar h) milk agar i)	
	MacConkey's agar	MacConkey's agar	
	10 CO	LEGE	
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Detection of enzyme production ability of bacteria - i) Amylase ii) Catalase iii) Caseinase	Detection of enzyme production ability of bacteria - i) Amylase ii) Catalase iii) Caseinase
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Ms. S. S. Shaikh



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# Shri Swami Vivekanand Shikshan Sanstha's VIVEKANAND COLLEGE, KOLHAPUR (EMPOWERED AUTONOMOUS) Department of Microbiology (UG)

Academic Year 2024-25

Name of Teacher: Ms. S. S. Shaikh

Sr. No.	Theory/ Practical	Syllabus Allotted	Syllabus completed	Remaining syllabus
		BS.c II  DSC03 MIC39 Microbiology lab 3  1, Study of Diauxic growth  2. Stains and staining procedures: i) Nuclear staining (Giemsa's method) using Yeast cells  VSC 03 MIC39 Analytical Microbiology	BS.c II  DSC03 MIC39 Microbiology lab 3  1, Study of Diauxic growth  2.Stains and staining procedures: i) Nuclear staining (Giemsa's method) using Yeast cells  VSC 03 MIC39 Analytical Microbiology	Nil
		<ol> <li>Preparation of molar and normal solutions of HCl and NaOH</li> </ol>	Preparation of molar and normal solutions of HCl and NaOH	

Ms. S. S. Shaikh



Dr. G. K. Sontakke

DEPARTMENT OF MICROBIOLOGY VIVEKANAND COLLEGE KOLHAPUR (EMPOWERED AUTOMOMOUS)

## "Dissemination of Education for Knowledge, Science and Culture" - Shikshanmaharshi Dr. Bapuji Salunkhe

### Shri Swami Vivekanand Shikshan Sanstha's

## VIVEKANAND COLLEGE, KOLHAPUR (EMPOWERED AUTONOMOUS)

## Department of Microbiology (UG)

Syllabus Completion report 2024-25

Name of Teacher: Ms. S. S. Shaikh

Sr. No.	Theory/ Practical	Syllabus Allotted	Syllabus completed	Remaining syllabus
2.	Theory	B. Sc. III  Paper XI- DSE:1010 E3 Industrial Microbiology  UNIT II  1. Industrial production of - a. Amylase production b. Grape wine Production c. Penicillin production d. Citric acid production e. SCP by using yeast 2. Microbial production of a. Vitamins	B. Sc. III  Paper XI- DSE:1010 E3 Industrial Microbiology  UNIT II  1. Industrial production of - a. Amylase production b. Grape wine Production c. Penicillin production d. Citric acid production e. SCP by using yeast 2. Microbial production of a. Vitamins	Nil
	4	b. Amino acids 3.Probiotics 4.Downstream processing and Product Recovery a. Centrifugation	b. Amino acids 3. Probiotics 4. Downstream processing and Product Recovery College a. Centrifugation	

	b. Flocculation c. Filtration d. Solvent Extraction e. Distillation f. Precipitation g. Crystallization h. Chromatography  5. Testing of sterility, pyrogen, carcinogenicity, toxicity and allergens	b. Flocculation c. Filtration d. Solvent Extraction e. Distillation f. Precipitation g. Crystallization h. Chromatography  5.Testing of sterility, pyrogen, carcinogenicity, toxicity and allergens	
Practical	Immunology and Medical Microbiology	Immunology and Medical Microbiology	Nil
	1.Determination of sensitivity of common pathogens to antibiotics by paper disc method	1Determination of sensitivity of common pathogens to antibiotics by paper disc method	.5.375

Ms. S. S. Shaikh



Dr. G. K. Sontakke

DEPARTMENT OF MICROBIOLOGY VIVEKANAND COLLEGE, KOLHAPUR (EMPOWERED AUTONOMOUS)

### Shri Swami Vivekanand Shikshan Sanstha's

### Vivekanand College, Kolhapur (An Empowered Autonomous Institute ) Department of Microbiology Syllabus completion report 2024-2025

Sr.No	Syllabus Allotted	Syllabus Completed	Remaining Syllabus
	B.Sc.I Sem II Paper IV2DSC03MIC22:  Microbial Nutrition & Technique  A. Microbial Nutrition:  i) Nutritional requirement of microorganism  ii) Concept of auxotroph Prototroph and fastidious organisms based on growth factor.  from natural environment.  iii) Nutritional types of microorganism based on carbon and energy source.  B. Culture Media:  i) Components of Media  ii) Types of Media based on —  Physical state Chemical nature Function  C. Cultivation of Microorganisms  i) Use of culture media for cultivation  iii) Conditions required for growth of Microorganisms  Practical —  1. Study of Staphylococcus aureus.  2. Serial dilution technique	B.Sc.I Sem II Paper IVDSC03MIC22: Microbial Nutrition & Technique A. Microbial Nutrition:  i) Nutritional requirement of microorganism ii) Concept of auxotroph Prototroph and fastidious organisms based on growth factor. from natural environment. iii) Nutritional types of microorganism based on carbon and energy source. B. Culture Media: i) Components of Media ii) Types of Media based on — Physical state Chemical nature Function C. Cultivation of Microorganisms i) Use of culture media for cultivation ii) Conditions required for growth of Microorganisms Practical — 1. Study of Staphylococcus aureus. 2. Serial dilution technique	NIL

Name of Teacher - Ms.V.V.Misal -



Dr.T.C. Goupale

VIVEKANAND COLLEGE, KOLMAP (EMPOWERED AUTONOMOUS)

Shikshanmaharshi Dr. Bapuji Salunkhe

### Shri Swami Vivekanand Shikshan Sanstha's

## Vivekanand College, Kolhapur (An Empowered Autonomous Institute )

### Department of Microbiology Syllabus completion report 2024- 2025

Sr.No	Syllabus Allotted	Syllabus Completed	Remaining Syllabus
1	B.Sc.II Sem IV	B.Sc.II Sem IV	
	Paper VII DSC03MIC42: Microbial Genetics and Molecular Biology	Paper VII DSC03MIC42:	NIL
	A) Basic concepts of genetics –	Microbial Genetics and Molecular Biology	The second second
	ii)Forms of DNA iii) Genetic code –	A) Basic concepts of genetics – ii)Forms of DNA	
	iv) Organization of Chromosomal DNA in <i>E.coli</i> . B) Mutation: -	<ul> <li>iii) Genetic code –</li> <li>iv) Organization of Chromosomal DNA in <i>E.coli</i>.</li> <li>B) Mutation: -</li> </ul>	
	Basic Concepts of Mutation     Spontaneous mutation – Definition and basic concepts.	i) Basic Concepts of Mutation     ii) Spontaneous mutation – Definition and basic concepts.	a.Au
	iii) Induced mutations – iv) Mutagens that distort DNA –	iii) Induced mutations – iv) Mutagens that distort DNA –	
	Practical –	Practical –	Section 1
171	Preparation of phenyl alanine media     Phenyl alanine deamination test	Preparation of phenyl alanine media     Phenyl alanine deamination test	
	Preparartion of Arginine broth     Arginine hydrolysis test	Preparartion of Arginine broth     Arginine hydrolysis test	
-	5. Study of Staphylococcus aureus	5. Study of Staphylococcus aureus	

Name of Teacher - Ms.V.V.Misal



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### Shri Swami Vivekanand Shikshan Sanstha's

## Vivekanand College, Kolhapur (An Empowered Autonomous Institute ) Department of Microbiology Syllabus completion report 2024- 2025

B.Sc.III Sem VI	Syllabus Completed	Remaining
Paper XIII DSE 1010 F 2	B.Sc.III Sem VI	Syllabus
Microbial Genetics	Paper XIII DSE 1010 F 2	
SEC- I Unit I	Microbial Genetics	
1. One cistron - one polypeptide hypothesis.	SEC- I Unit I	
Molecular mechanism of gene expression     Mutations	One cistron - one polypeptide hypothesis.	
3. Mutations	Molecular mechanism of gene expression	
4 Methods of inclosi-	3. Mutations	16.4
4. Methods of isolation and detection of mutants Unit – II	4 Methods of inclusion 1 1	
	4. Methods of isolation and detection of mutants Unit – II	
1.Genetic complementation - Cis-trans test     2.Extrachromosomal inheritance:	1 Genetic complement d	
3 Techniques in M. I	1.Genetic complementation - Cis-trans test	
3. Techniques in Molecular Biology –	2. Extrachromosomal inheritance:	2
4. Genetic engineering	3. Techniques in Molecular Biology –	NIL
b. Tools of genetic engineering – c. Techniques –	4. Genetic engineering	
d Application C	b. Tools of genetic engineering –	
d. Application of genetic engineering .  Practical –I	c.Techniques –	20
	d. Application of genetic engineering .  Practical –I	
FOOD AND INDUSTRIAL MICROBIOLOGY		
1. Bio-assay of Vitamin B12	FOOD AND INDUSTRIAL MICROBIOLOGY	
2.Bio-assay of Penicillin.	1. Bio-assay of Vitamin B12	
3 Citrio and for	2.Bio-assay of Penicillin.	
3. Citric acid fermentation, recovery and estimation by titration.	3 Citrio acid formation	
and the production by lising Racillag appairs	3. Citric acid fermentation, recovery and estimation by titration.	
J. Isolation of lactic acid bacteria from fermented food	in this lase production by using Racillus species	
Sauerkraut production.	3.Isolation of lactic acid bacteria from fermented food	
	Sauerkraut production.	

Name of Teacher - Ms. V.V.Misal



Dr.T.C. Goupale

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### Vivekanand College, Kolhapur (An Empowered Autonomous Institute)

### Department of Microbiology

Syllabus completion report (Term II) 2024-2025

### Name of Teacher: Mr. S. D. Gabale

Sr. No.	Theory/ Practical	Syllabus Allotted	Syllabus completed	Remaini ng syllabus
1.	Theory	B. Sc. I	B. Sc. I	
		2DSC03MIC21 Basic Biochemistry-I	2DSC03MIC21 Basic Biochemistry-I	Nil
		Unit III Carbohydrates	Unit III Carbohydrates	
	I TO STATE	A. Monosaccharides:	A. Monosaccharides:	Basic
		Classification based on aldehyde and ketone groups; structure of Ribose, Deoxyribose, Glucose, and Fructose.	Classification based on aldehyde and ketone groups; structure of Ribose, Deoxyribose, Glucose, and Fructose.	
	0.00	2) Disaccharides: Glycosidic bond, structure of lactose and sucrose.	2) Disaccharides: Glycosidic bond, structure of lactose and sucrose.	
UOMON UOMON	RYMERE OF HID MAJANG COLLEGE POMERED AUTO	3) Polysaccharides: Structure of starch, glycogen and cellulose.	3) Polysaccharides: Structure of starch, glycogen and cellulose.	
		Unit IV Lipids and nucleic acid	Unit IV Lipids and nucleic acid	
		B. Lipids:	B. Lipids:	
		1) Simple lipids – Fats, oils and waxes.	1) Simple lipids – Fats, oils and waxes.	
		2) Compound lipids – Phospholipid, Glycolipids	2) Compound lipids – Phospholipid, Glycolipids	ESTD

	3) Derived lipids - Cholesterol	3) Derived lipids - Cholesterol	
	C. Nucleic Acids:	C, Nucleic Acids:	
	1) DNA – Structure (Watson and Crick Model) and function.	1) DNA – Structure (Watson and Crick Model) and function.	
	2) RNA – Types (m-RNA, t-RNA, r-RNA), structure & functions.	2) RNA - Types (m-RNA, t-RNA, r-RNA), structure & functions.	
Practicals	Isolation of Actinomytes by slide culture technique	I. Isolation of Actinomytes by slide culture technique	Nil
	2. Motility of bacteria	2. Motility of bacteria	
	3. Determination of standard plate count of milk	3. Determination of standard plate count of milk	

Mr. S. D. Gabale

Dr. T. C. Gaupale

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### Vivekanand College, Kolhapur (An Empowered Autonomous Institute)

### Department of Microbiology

Syllabus completion report (Term II) 2024-2025

### Name of Teacher: Mr. S. D. Gabale

Sr. No.	Theory/ Practical	Syllabus Allotted	Syllabus completed	Remaining syllabus
3.	Theory	B.Sc. II	B.Sc. II	Nil
		Paper VII DSC03 MIC41 : Medical Microbiology -I	Paper VII DSC03 MIC41 : Medical Microbiology -I	
		Unit III Immunology	Unit III Immunology	
		A] Immunity i) Definition ii) Innate Immunity-	A] Immunity i) Definition ii) Innate Immunity-	
		types, factors influencing innate immunity iii)	types, factors influencing innate immunity iii)	
		Acquired Immunity-Active & passive	Acquired Immunity-Active & passive	
	STORY OF STREET	B] Non-Specific defence mechanisms of the	B] Non-Specific defence mechanisms of the	
		vertebrate body i) First line of defence ii) Second	vertebrate body i) First line of defence ii) Second	
		line of defence C] Organs of Immune System-	line of defence C] Organs of Immune System-	
	Sydene	Types of Primary and secondary lymphoid	Types of Primary and secondary lymphoid	
		organs	organs	
			ESTD ESTD	

	Unit IV Antigens and Antibodies	Unit IV Antigens and Antibodies	
	A] Antigen-Chemical nature, types of antigens, factors affecting antigenicity.	A] Antigen-Chemical nature, types of antigens, factors affecting antigenicity.	
	B] Antibody-Structure, properties and functions, types of antibodies.	B] Antibody-Structure, properties and functions, types of antibodies.	
	C] Theories of antibody production.	C] Theories of antibody production.	
	D] Mechanism of antigen-antibody reaction-	D] Mechanism of antigen-antibody reaction-	
	E] Types of antigen antibody reaction- Agglutination & Precipitation. Immune Response: Primary & secondary immune responses	E] Types of antigen antibody reaction- Agglutination &Precipitation. Immune Response: Primary & secondary immune responses	
Practicals	Oxidase test     Preparation of peptone nitrate broth     Nitrate reduction test	Oxidase test     Preparation of peptone nitrate broth     Nitrate reduction test	Nil
VSC Practical	Enrichment of coliform bacteria by using MacConkeys broth     Determination of standard plate count of water	Enrichment of coliform bacteria by using MacConkeys broth     Determination of standard plate count of water	
	3. Sterilization of air by fumigation	3. Sterilization of air by fumigation	

Mr. S. D. Gabale

Dr. T. C. Gaupale

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## Vivekanand College, Kolhapur (An Empowered Autonomous Institute)

### Department of Microbiology

### Syllabus completion report (Term II) 2024-2025

### Name of Teacher: Mr. S. D. Gabale

Sr. No.	Theory/ Practical	Syllabus Allotted	Syllabus completed	Remaining syllabus
3.	Theory	Paper XIII Virology	Paper XIII Virology	
		Unit I	Unit I	Nil
		1. a. The Structural properties of viruses:	1. a. The Structural properties of viruses:	
		Capsids, Nucleic acids and envelope.	Capsids, Nucleic acids and envelope.	Late 2 miles
		b. Structure of T4 bacteriophage, TMV and HIV,	b. Structure of T4 bacteriophage, TMV and	Sheet
		Viroid's & prions.	HIV, Viroid's & prions.	
		c. One step growth experiment.	c. One step growth experiment.	
		2. Isolation, cultivation and Purification of	2. Isolation, cultivation and Purification of	
		viruses	viruses	
		a. Isolation and cultivation of viruses	a. Isolation and cultivation of viruses	
		i. Animal virus - Tissue culture, chick embryo and	i. Animal virus - Tissue culture, chick embryo	
		live animals.	and live animals.	
		ii. Plant virus -Protoplasts culture technique,	ii. Plant virus -Protoplasts culture technique,	and the latest section to the latest section
		Insect tissue culture	Insect tissue culture	WAND COLL
		iii. Bacteriophages - Plaque method.	iii. Bacteriophages - Plaque method.	EST

	b. Purification of viruses using physico-	b. Purification of viruses using physico-
	chemical properties	chemical properties
	i. Density gradient centrifugation	i. Density gradient centrifugation
	ii. Precipitation	ii. Precipitation
	Unit II	Unit II
	1. a) Lysogeny - Definition of lysogeny and	1. a) Lysogeny - Definition of lysogeny and
	temperate phage, types, lysogeny by lambda	temperate phage, types, lysogeny by lambda
	phage - adsorption & penetration, genetic map	phage - adsorption & penetration, genetic map
	for lysogenic interaction, expression of $\lambda$ genes,	for lysogenic interaction, expression of $\lambda$ genes,
3446	establishment of repression, maintenance of	establishment of repression, maintenance of
	repression, integration of $\lambda$ genome in host	repression, integration of λ genome in host
	chromosome.	chromosome.
	b. Reproduction of animal viruses - Adenovirus	b. Reproduction of animal viruses -
	c. Reproduction of plant viruses - TMV	Adenovirus
	d. ReproductionofT4phage.	c. Reproduction of plant viruses - TMV
	2. Oncogenesis: a. Definition of oncogenesis	d. ReproductionofT4phage.
	b. Types of cancer	2. Oncogenesis: a. Definition of oncogenesis
	c. Characteristics of cancer cells.	b. Types of cancer
	d. Tumor suppressor genes and protooncogenes	c. Characteristics of cancer cells.
	e. Hypothesis about cancer. I. Somatic mutation	d. Tumor suppressor genes and
	hypothesis II. Viral gene hypothesis	protooncogenes e. Hypothesis about cancer. I.

	i. Role of DNA viruses with special emphasis on Papovaviruses. ii. Role of RNA tumor viruses iii. Provirus theory, Protovirus theory, Oncogene theory. III . Defective immunity hypothesis	Somatic mutation hypothesis II. Viral gene hypothesis  i. Role of DNA viruses with special emphasis on Papovaviruses. ii. Role of RNA tumor viruses iii. Provirus theory, Protovirus theory, Oncogene theory. III. Defective immunity hypothesis		
Practicals	Isolation of coliphages from sewage     Genetic transformation	Isolation of coliphages from sewage     Genetic transformation	Nil	

Mr. S. D. Gabale

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#### Shri Swami Vivekanand Shikshan Sanstha's

### Vivekanand College, Kolhapur (An Empowered Autonomous Institute)

### Academic Year 2024-2025 Syllabus Completion Report

### Name of Teacher - Ms.S.A.Pise

Sr.No	Syllabus Allotted	Syllabus Completed	Remaining Syllabus
100	B.Sc I Sem II 2DSC03MIC21	B.Sc I Sem II 2DSC03 MIC21	- mode
1.	Basic Biochemistry	Basic Biochemistry	
	Theory	Theory	
	Unit 1 – Protein	Unit 1 – Protein	
	A. Proteins	A. Proteins	
	1.introduction to amino acid, peptide bond	1.Introduction to amino acid, peptide bond	NIL
	2.Types of amino acids	2.Types of amino acids	
	3Stryctural levels of protein	3Stryctural levels of protein	
	B. Enzyme	B. Enzyme	
	1.Defonation & types of enzymes	1.Defonation & types of enzymes	
	2.Concept of apoenzyme, coenzyme, cofactor & active site	2.Concept of apoenzyme, coenzyme, cofactor & active site	
	3.Mechanism of enzyme action	3.Mechanism of enzyme action	

Practicals –	Practicals –	
Isolation of pure culture of bacteria by four quadrant	Isolation of pure culture of bacteria by four quadrant	
streaking method & studies of colony characteristics,	streaking method & studies of colony characteristics,	
Gram Staining & motility of –	Gram Staining & motility of –	
Escherichia coli	Escherichia coli	NIL
B.Sc II Sem IV Paper VIII DSC 03 MIC 42	B.Sc II Sem IV Paper VIII DSC 03 MIC 42	
Microbial Genetics - I	Microbial Genetics - I	
Theory	Theory	
Unit -I	Unit -I	
1. Transfer of gene in bacteria	1.Transfer of gene in bacteria	
i. Fate of Exogenote in recipient cell	i. Fate of Exogenote in recipient cell	
2.Modes of gene transfer	2.Modes of gene transfer	
a. Transformation	a. Transformation	NIL
b. Conjugation	b. Conjugation	
c. Transduction	c. Transduction	
Unit II – DNA Repair & Plasmid	Unit II – DNA Repair & Plasmid	
1.DNA repair –	1.DNA repair –	
i. Photo reactivation	i. Photo reactivation	
ii. Dark repair mechanism	ii. Dark repair mechanism	ILES
2.Plasmid –	ii. Dark repair mechanism  2.Plasmid –  i. Natural	TO FOR
i. Natural	i. Natural	NE NE

iii.	Phosphorous	iii. Phosphorous	
iv.	Sulphur	iv. Sulphur	
3.Manure	& Compost –	3.Manure & Compost –	NIL
I. Methods	s of production of	I. Methods of production of	
i.	Green manure & farm yard manure	i. Green manure & farm yard manure	
ii.	City compost	ii. City compost	
iii.	Vermicompost	iii. Vermicompost	
II. Optima	I Conditions for composting	II. Optimal Conditions for composting	
Unit 2 –		Unit 2 –	
1.Types, proof -	roduction, Methods of applications & uses	1. Types, production, Methods of applications & uses of -	
i.	.Biofertilizers-Azotobacter,	iBiofertilizers-Azotobacter,	
	Azospirillum, Rhizobium, Phosphate	Azospirillum, Rhizobium, Phosphate	
	solubilizing bacteria	solubilizing bacteria	
ii.	Biopesticides – Bacillus thuringensis,	ii. Biopesticides – Bacillus thuringensis,	
	Trichoderma	Trichoderma	NIL
2.Biodegrae	dation by bacteria & fungi –	2.Biodegradation by bacteria & fungi –	
i.	Cellulose	i. Cellulose	
ii.	Pesticides	ii. Pesticides	
3. Plant pat	hology –	3. Plant pathology –	
i.	Common symptoms produced by plant	Common symptoms produced by plant	
	pathogens	pathogens	
ii.	Modes of transmission of plant diseases	ii. Modes of transmission of plant diseases iii. Plant diseases	LEGE
	Plant diseases	iii. Plant diseases	TD INE

6.	Practicals –	Practicals –	NIL
	1. Estimation of Calcium and Magnesium from soil	Estimation of Calcium and Magnesium from soil	
	(EDTA method)	(EDTA method)	
	2.Determination of organic carbon content of soil (Walkley	2.Determination of organic carbon content of soil (Walkley	
	and Black method)	and Black method)	
	3.Determination of COD	3.Determination of COD	

Ms. S.A. Pise



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"Dissemination of Education for Knowledge, Science and Culture"

- Shikshanmaharshi Dr. Bapuji Salunkhe

Shri Swami Vivekanand Shikshan Sanstha's

# Vivekanand College, Kolhapur (An Empowered Autonomous Institute)

Department of Microbiology (UG)

Academic Year 2024-25

### Syllabus completion report

Name of Teacher: Ms. M. M. Nadkarni

Sr. No.	Theory/ Practical	Syllabus Allotted	Syllabus completed	Remaining syllabus
1.	Theory	Nil	Nil	Nil
2.	Practicals	<ol> <li>Sugar fermentation test (Glucose &amp; Lactose)</li> <li>Isolation of <i>Bacillus spp</i>.</li> <li>Isolation of <i>Staphylococcus aureus</i>.</li> </ol>	Sugar fermentation test (Glucose & Lactose)      Isolation of Bacillus spp.      Isolation of Staphylococcus aureus.	Nil

Ms. M. M. Nadkarni

ESTD JUNE 1964

Dr. T. C. Gaupale

DEPARTMENT OF MICROBIOLOGY VIVEKAMAND COLLEGE, KOLHAPUR (EMPOWERED AUTONOMOUS) "Dissemination of Education for Knowledge, Science and Culture"

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# Vivekanand College, Kolhapur (An Empowered Autonomous Institute)

Department of Microbiology (UG)

Academic Year 2024-25

### Syllabus completion report

Name of Teacher: Ms. M. M. Nadkarni

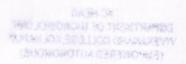
Sr. No.	Theory/ Practical	Syllabus Allotted	Syllabus completed	Remaining syllabus
1.	Theory	B.Sc. II Paper VII Medical Microbiology UNIT I – Medical microbiology	B.Sc. II Paper VII Medical Microbiology	Nil
	V <sub>1</sub> ms)	A. Definitions— Host, Parasite, Saprophytes, Commensal, Infection, Etiological agent, Disease, Pathogen, Opportunistic pathogen, True pathogen, Virulence, Pathogenicity, Fomite, Incubation period, Carriers, Morbidity rate, Mortality rate, epidemiology, etiology, Prophylaxis, Antigen, Antibody, Hapten, Vaccine, Immunity.	UNIT I – Medical microbiology  A. Definitions— Host, Parasite, Saprophytes, Commensal, Infection, Etiological agent, Disease, Pathogen, Opportunistic pathogen, True pathogen, Virulence, Pathogenicity, Fomite, Incubation period, Carriers, Morbidity rate, Mortality rate, epidemiology, etiology, Prophylaxis, Antigen, Antibody, Hapten, Vaccine, Immunity.	

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- B. Virulence factors-production of endotoxins, exotoxins, enzymes, Ability to escape from phagocytosis.
- C. Types of infections— Chronic, acute, primary, secondary, reinfection, Iatrogenic, congenital, local, generalized, Covert, Overt, Simple, Mixed, Endogenous, Exogenous, Latent, Pyogenic, Nosocomial.
- D. Types of diseases—i) Epidemic—e.g. Influenza, Cholera ii) Endemic—E.g. Common cold, Typhoid iii) Pandemic—E.g. SARS, Corona iv) Sporadic—E.g. Polio
- E. Modes of transmission of diseases
  - A. Air-borne transmission,
  - B. Vehicle transmission
  - C. Contact transmission
  - D. Vector borne transmission
- F. General principles of prevention and control of microbial diseases.

- B. Virulence factors-production of endotoxins, exotoxins, enzymes, Ability to escape from phagocytosis.
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- A. Air-borne transmission,
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- D. Vector borne transmission
- F. General principles of prevention and control of microbial diseases.





	G. Normal flora of human body& its significance - (Flora of skin, throat, GI tract & Urogenital tract). Concept of antibiosis.	G. Normal flora of human body& its significance - (Flora of skin, throat, GI tract & Urogenital tract). Concept of antibiosis.	
2. Practicals	<ol> <li>To prepare Christensen's medium</li> <li>To prepare Hugh and Leifson's medium</li> <li>Urea hydrolysis test</li> <li>Hugh and Leifson's test</li> <li>Isolation and identification of Salmonella species from clinical sample.</li> <li>Isolation and identification of S. aureus from clinical sample.</li> <li>Determination of Blood groups –ABO and Rh.</li> <li>Serological tests-Widal test-qualitative slide test.</li> <li>VSC</li> <li>Demonstration of presence of microflora in air by exposure of N.A plates to the air.</li> <li>Sterilization of air by fumigation.</li> </ol>	<ol> <li>To prepare Christensen's medium</li> <li>To prepare Hugh and Leifson's medium</li> <li>Urea hydrolysis test</li> <li>Hugh and Leifson's test</li> <li>Isolation and identification of Salmonella species from clinical sample.</li> <li>Isolation and identification of S. aureus from clinical sample.</li> <li>Determination of Blood groups –ABO and Rh.</li> <li>Serological tests-Widal test-qualitative slide test.</li> </ol> VSC <ol> <li>Demonstration of presence of microflora in air by exposure of N.A plates to the air.</li> <li>Sterilization of air by fumigation.</li> </ol>	Nil

Ms. M. M. Nadkarni



Dr. T. C. Gaupale

DEPARTMENT OF MICROSIOLOGY VIVEKAMAND COLLEGE, KOLHAPUR (EMPOWERED AUTONOMOUS) "Dissemination of Education for Knowledge, Science and Culture"

Shikshanmaharshi Dr. Bapuji Salunkhe

Shri Swami Vivekanand Shikshan Sanstha's

# Vivekanand College, Kolhapur (An Empowered Autonomous Institute)

Department of Microbiology (UG)

Academic Year 2024-25

### Syllabus completion report

Name of Teacher: Ms. M. M. Nadkarni

Sr. No.	Theory/ Practical	Syllabus Allotted	Syllabus completed	Remaining syllabus
		B.Sc. III	B.Sc. III	
1.	Theory	Paper XVI Environmental Microbiology	Paper XVI Environmental Microbiology	Nil
		Unit II	Unit II	
		1. Biological safety in laboratory	1. Biological safety in laboratory	
		a. Good Laboratory Practices	a. Good Laboratory Practices	
		b. Bio safety levels (BSL)	b. Bio safety levels (BSL)	
		2. Environmental monitoring	2. Environmental monitoring	
		a. Definition and purpose	a. Definition and purpose	



- b. Cleanroom- Concept, classification, prevention of contamination in clean rooms
- c. Routine Environmental monitoring programme in pharmaceutical industries- Air monitoring, Surface monitoring and Personnel monitoring.
- d. Bioburden test

### 3. Environmental Impact Assessment-

Concept and Brief introduction

#### 4. Bioremediation

- i. Definition
- ii. Types
- iii. Applications.

### 5. Bioleaching

- i. Introduction
- ii. Microorganisms involved
- iii. Chemistry of Microbial leaching
- iv. Laboratory scale and pilot scale leaching
- v. In situ leaching Slope, heap
- vi. Leaching of Copper and Uranium

- b. Cleanroom- Concept, classification, prevention of contamination in clean rooms
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- 4. Bioremediation
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### 5. Bioleaching

- i. Introduction
- ii. Microorganisms involved
- iii. Chemistry of Microbial leaching
- iv. Laboratory scale and pilot scale leaching
- v. In situ leaching Slope, heap
- vi. Leaching of Copper and Uranium



2.	Practicals	Urine analysis	Urine analysis	Nil
		a. Physical and chemical examination of urine.	a. Physical and chemical examination of urine.	
		b. Test for protein (Acetic acid test)	b. Test for protein (Acetic acid test)	
		c. Test for ketone bodies (Rothra's test)	c. Test for ketone bodies (Rothra's test)	
		d. Test for bile salt.	d. Test for bile salt.	

Ms. M. M. Nadkarni



Dr. T. C. Gaupale

DEPARTMENT OF MICROBIOLOGY VIVEKAMAND COLLEGE, KOLIMPUR (EMPOWERED AUTONOMOUS) "Dissemination of Education for Knowledge, Science and Culture" - Shikshanmaharshi Dr. Bapuji Salunkhe

Shri Swami Vivekanand Shikshan Sanstha's

# VIVEKANAND COLLEGE, KOLHAPUR (AN EMPOWERED AUTONOMOUS INSTITUTE)

## Department of Microbiology (UG)

Syllabus Completion report 2024-25

Sr. No.	Theory/ Practical	Syllabus Allotted	Syllabus completed	Remaining syllabus
HE THE		B. Sc. I	B. Sc. I	
1.	Theory	Paper IV: 2 DSC03 MIC22 Microbial Nutrition and Techniques	Paper IV: 2 DSC03 MIC22 Microbial Nutrition and Techniques	Nil
		UNIT II	UNIT II	
		A.Enrichment and Isolation Of Micro-	A.Enrichment and Isolation Of	
		organisms from natural environment. 1. Pure	Microorganisms from natural	
		culture techniques-	environment. 1. Pure culture techniques-	
		a. Streak plate	a. Streak plate	
		b. Spread plate	b. Spread plate	
		c. pour plate	c. pour plate	
		2.Isolation and Cultivation of anaerobic organisms	2.Isolation and Cultivation of anaerobic organisms	
		by using media components by exclusion of air.	by using media components by exclusion of air.	
		B.Preservation of microbial culture by-	B.Preservation of microbial culture by-	
		1.Subculturing	1.Subculturing	
		2.Overlaying cultures with mineral oils	2.Overlaying cultures with mineral oils	
		3.Storage at low temperatures	3.Storage at low temperatures	
		4.Lyophilization.	4.Lyophilization	DUEGE
		C. Systematic study of pure cultures:  1.Morphological Characteristics		STD JNE

Cultural Characteristics –
 Colony on solid media, growth in liquid media.

3. Biochemical Characteristics-

i) Sugar fermentation

ii) H2S gas production

iii)Detection of enzyme activity-

Amylase

Caseinase

Catalase

4. Serological characters

D. Concept of Culture collection centres.

Cultural Characteristics –
 Colony on solid media, growth in liquid media.

3. Biochemical Characteristics-

i) Sugar fermentation

ii) H2S gas production

iii)Detection of enzyme activity-

Amylase

Caseinase

Catalase

4. Serological characters

D. Concept of Culture collection centres.





Practicals	DSC MICRO PR-I MICROBIOLOGY LAB II	DSC MICRO PR-I MICROBIOLOGY LAB II	Nil
	Introduction to Microbiology and Bacteriology	Introduction to Microbiology and Bacteriology	
	Isolation of pure cultures of bacteria by four quadrant streaking method and study of Colony characteristics, Gram staining and motility of- i) Escherichia coli.	Isolation of pure cultures of bacteria by four quadrant streaking method and study of Colony characteristics, Gram staining and motility of-  i) Escherichia coli.	
	Biochemical tests:     i)Detection of H2S production of ability of	2. Biochemical tests:	
	bacteria  3. Isolation of actinomycetes from soil by slide	i)Detection of H2S production of ability of bacteria	
	culture technique.	3. Isolation of actinomycetes from soil by slide culture technique.	

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DEPARTMENT OF MICROBIOLOGY VIVEKAMAND COLLEGE, KOLHAPUR (EMPOWERED AUTONOMOUS)

### "Dissemination of Education for Knowledge, Science and Culture" - Shikshanmaharshi Dr. Bapuji Salunkhe

## Shri Swami Vivekanand Shikshan Sanstha's VIVEKANAND COLLEGE, KOLHAPUR (AN EMPOWERED AUTONOMOUS INSTITUTE)

## Department of Microbiology (UG) Syllabus Completion report 2024-25

Sr. No.	Theory/ Practical	Syllabus Allotted	Syllabus completed	Remaining syllabus
	Practical	BS.c II	BS.c II	Nil
	S	DSC03 MIC49 Microbiology lab 4	DSC03 MIC49 Microbiology lab 4	
	100	1.Preparation of media:Peptone nitrate broth,	1.Preparation of media:Peptone nitrate broth,	
	4	Egg-Yolk agar, Mannitol salt agar.	Egg-Yolk agar, Mannitol salt agar.	
	eres ov	1.Biochemical tests:	1.Biochemical tests:	
SON S	COLLEG COLLEG COLLEG	(i) Nitrate reduction test	· (i) Nitrate reduction test	100
MOUNT	TALL STREET, STREET,	(ii) Oxidase test	(ii) Oxidase test	
		(iii) Lecithinase test	(iii) Lecithinase test	
		(iv) Lipase activity	(iv) Lipase activity	
		2.Isolation and identification of pathogenic	2.Isolation and identification of pathogenic	
		microorganisms from clinical sample.	microorganisms from clinical sample.	THE STATE
		(a)Proteus species	(a)Proteus species	W COLLEGE
		VSC03MIC49 Microbial Analysis of Air and Water	VSC03MIC49 Microbial Analysis of Air and Water	ESTD JUNE 1964

Determination of dissolved oxygen concentration of water.  2 Tatal vishle count of migrographicms present in	Determination of dissolved oxygen concentration of water.  3. Total viable count of microorganisms present in
3. Total viable count of microorganisms present in water by membrane filter techniques.	water by membrane filter techniques
Detection of coliform in water by using biochemical test. (IMViC)	Detection of coliform in water by using biochemical test. (IMViC)

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ESTD JUNE 1964

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DEPARTMENT OF MICROSIGLOGY VIVEKANAND COLLEGE, KOLHAPUR (EMPONUTED STITCHIOMOUS)



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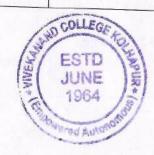
## Department of Microbiology (UG) Syllabus Completion report 2024-25

Sr. No.	Theory/ Practical	Syllabus Allotted	Syllabus completed	Remaining syllabus
		B. Sc. III	B. Sc. III	1-6-1
2.	Theory	Paper XVI Environmental Microbiology UNIT I	Paper XVI Environmental Microbiology UNIT I	Nil
		1.General characteristics of waste-	1.General characteristics of waste-	
		a. Liquid waste - pH, electrical	a. Liquid waste - pH, electrical	
		conductivity, COD, BOD, total solids, total	conductivity, COD, BOD, total solids, total	
		dissolved solids, total suspended solids, total	dissolved solids, total suspended solids,	
		volatile solids, chlorides, sulphates, oil &	total volatile solids, chlorides, sulphates, oil	
		grease.	& grease.	
		b. Solid waste- pH, electrical	b. Solid waste- pH, electrical	
		conductivity, total volatile solids, ash.	conductivity, total volatile solids, ash.	DLLEGEKO
		c. Standards as per MPCB 2.Sewage Microbiology	c. Standards as per MPCB 2.Sewage Microbiology	ESTD JUNE 1964

a.	Physico-chemical ar	nd Biological
char	racteristics	

- b. Treatment methods
  - i. Physical treatment: Screening,Sedimentation
  - ii. Biological treatment: Trickling filter, Activated sludge process,Oxidation ponds, Anaerobic digestion (Biomethanation), Septic tank.
  - iii. Chemical treatment Chlorination
- 3. Characteristics of waste generated by
  - a. Sugar Industry
  - b. Dairy Industry
- 4. Characteristics and treatment of waste generated by Hospitals
- 5. Eutrophication
  - a. Classification of lakes
  - b. Sources
  - c. Consequences
  - d. Control

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	Immunology and Medical Microbiology  1. Serological tests:  a. WIDAL test- Quantitative  2. Haematology:  a. Estimation of haemoglobin by Sahli's method.  b. Total and differential blood cell count.	Immunology and Medical Microbiology  1. Serological tests:  a. WIDAL test- Quantitative  2. Haematology:  a. Estimation of haemoglobin by Sahli's method.  b. Total and differential blood cell count.	Nil
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