



AUXILIUM COLLEGE (Autonomous)

(Accredited by NAAC with A+ Grade with a CGPA of 3.55 out of 4 in the 3rd cycle)
Gandhi Nagar, Vellore – 6.

**DEPARTMENT OF
MICROBIOLOGY
LESSON PLAN
2020-2021**

Auxilium College (Autonomous), Gandhi Nagar, Vellore – 632 006.

Lesson Plan for the year 2020 – 2021(odd Semester)

Department of Microbiology

Name of the Staff: Ms. B.V. Gowri

PCMBA20 – GENERAL MICROBIOLOGY (I M.Sc Microbiology)

Week	Portions to be covered	Reference	Platform (LMS)
12.10.2020 To 16.10.2020	Discovery of Microbial world. Controversy over spontaneous generation. Evolutions of Microbiology with its recent developments in Medicine.	1.Microbiology- Michael J Pelczar 2.Microbiology- Lansing M.Prescott	Google Classroom Google Meet
19.10.2020 To 23.10.2020	Role of Microbes in transformation of organic matter. Modern trends in microbial taxonomy.	1.Microbiology- Michael J Pelczar 2.Microbiology- Lansing M.Prescott	Google Classroom Google Meet
27.10.2020 To 29.10.2020	Microscopy - Its principles and applications. Simple - Compound, Dark field, phase contrast, Fluorescent and confocal.	1.Microbiology- Michael J Pelczar 2.Microbiology- Lansing M.Prescott	Google Classroom Google Meet
02.11. 2020 To 06.11.2020	Electron Microscopes - SEM, TEM.	1.Microbiology- Michael J Pelczar 2.Microbiology- Lansing M.Prescott	Google Classroom Google Meet
09.11.2020 To 13.11.2020	Principles, Operation and maintenance of autoclaves, Ovens, Centrifuges - refrigerated & ultra-speed.	1.Biological Instrumentation and Methodology- Bajpai P.K 2.Bioinstrumentation - John G Webster	Google Classroom Google Meet
16.11.2020 To 20.11.2020	Colorimeters, spectrophotometers, lyophilizers, deep freezer.	1.Biological Instrumentation and Methodology- Bajpai P.K 2.Bioinstrumentation - John G Webster	Google Classroom Google Meet
23.11.2020 To 27.11.2020	Staining methods - Gram, Acid Fast, spore, metachromatic granules, capsule and flagella.	1.Microbiology- Michael J Pelczar 2.Microbiology- Lansing M.Prescott	Google Classroom Google Meet
30.11.2020 To 04.12.2020	Sterilization and disinfection methods and their quality control	1.Microbiology- Michael J Pelczar 2.Microbiology- Lansing M.Prescott	Google Classroom Google Meet
07.12.2020 To 11.12.2020	Classification of bacteria and salient features according to Bergey's manual of determinative	Bergey's manual of determinative Bacteriology.	Google Classroom Google Meet

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	Bacteriology.		
14.12.2020 To 18.12.2020	Microbial diversity in different ecosystems. Halophiles, mesophiles, thermophiles. Acidophiles Alkalophiles, barophiles and other extremophiles.	1.Microbiology- Michael J Pelczar 2.Microbiology- Lansing M.Prescott	Google Classroom Google Meet
21.12.2020 To 22.12.2020	Structure and function of viruses. Classification of viruses, replication of viruses and bacteriophages	1.Microbiology- Michael J Pelczar 2.Microbiology- Lansing M.Prescott	Google Classroom Google Meet
23.12.2020 To 03.01.2021	CHRISTMAS HOLIDAYS		
04.01.2021 To 08.01.2021	Bacterial morphology, structure and characterization - cellular components of bacteria. Sporulation and its mechanics.	1.Microbiology- Michael J Pelczar 2.Microbiology- Lansing M.Prescott	Google Classroom Google Meet
11.01.2020 To 13.01.2021	Growth and nutrition - Nutritional requirements - Autotrophs, heterotrophs - enrichment culture	1.Microbiology- Michael J Pelczar 2.Microbiology- Lansing M.Prescott	Google Classroom Google Meet
18.01.2021 To 22.01.2021	Measurement of growth and growth yields - Batch Culture - Synchronous growth. Techniques of pure culture.	1.Microbiology- Michael J Pelczar 2.Microbiology- Lansing M.Prescott	Google Classroom Google Meet
25.01.2021, 27.01.2021 To 29.01.2021	Classification of fungi according to Alexopoulos and Mims. Cell structure, specialized somatic structure. Life cycles and reproduction of fungi - Asexual, sexual and parasexual cycle. Mechanisms of growth in Fungi, Measurement and kinetics of growth, nutritional and environmental requirements; Prevention of fungal growth.	1.Introductory Mycology- Alexopoulos CJ and C W. Mims 2. An Introduction to Mycology- Mehrotra RS and Aneja KR	Google Classroom Google Meet
01.02.2021 To 05.02.2021	Structure and reproduction of <i>Spirogyra</i> , <i>Euglena</i> , <i>Exuviaella</i>	OER: 1. www.gutenberg.org 2. www.free-ebooks.net 3. www.e-booksdirectory.com	Google Classroom Google Meet
08.02.2021	Structure and reproduction	OER:	Google

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To 10.02.2021	of <i>Diatoms, Sargassum</i> and <i>Porphyra</i>	4. www.gutenberg.org 5. www.free-ebooks.net 6. www.e-booksdirectory.com	Classroom Google Meet
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UCMBI18 – MOLECULAR BIOLOGY & rDNA TECHNOLOGY
(III B.Sc Microbiology)

Week	Portions to be covered	References	Platform (LMS)
08.07.2020 To 10.07.2020	Historical perspectives – Plasmids – Vectors.	1. Gene cloning and DNA analysis- An introduction – T A Brown 2. Principles of Gene Manipulation: An introduction to Genetic Engineering - Old R.S and Primrose S.B	Google Classroom Google Meet
13.07.2020 To 17.7.2020	Psc101, pBR ³²² , Ti plasmid. Bacteriophage vectors- λ (lamda) and M 13 phage.	1. Gene cloning and DNA analysis- An introduction – T A Brown 2. Principles of Gene Manipulation: An introduction to Genetic Engineering - Old R.S and Primrose S.B	Google Classroom Google Meet
20.07.2020 To 24.07.2020	cosmid (pJB8), YAC (pYAC3). Introduction to principles and applications of genetic recombinant technology.	1. Gene cloning and DNA analysis- An introduction – T A Brown 2. Principles of Gene Manipulation: An introduction to Genetic Engineering - Old R.S and Primrose S.B	Google Classroom Google Meet
27.07.2020 To 31.07.2020	Strain improvement in the production of biotechnologically useful products (mutational rDNA technology)	1. Gene cloning and DNA analysis- An introduction – T A Brown 2. Principles of Gene Manipulation: An introduction to Genetic Engineering - Old R.S and Primrose S.B	Google Classroom Google Meet
03.08.2020 To 07.08.2020	Restriction endonucleases- nomenclature, its types. Enzyme Ligase and its function. DNA manipulative enzymes-	1. Gene cloning and DNA analysis- An introduction – T A Brown 2. Principles of Gene Manipulation: An introduction to Genetic	Google Classroom Google Meet

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	DNA Polymerases and its types. DNA modifying enzymes- Alkaline phosphatase, polynucleotide kinase, Terminal deoxynucleotidyl transferase.	Engineering - Old R.S and Primrose S.B	
10.08.2020 To 14.08.2020	Gene cloning techniques- Isolation and identification of rDNA clones	1. Gene cloning and DNA analysis- An introduction - T A Brown 2. Principles of Gene Manipulation: An introduction to Genetic Engineering - Old R.S and Primrose S.B	Google Classroom Google Meet
17.08.2020 To 21.08.2020	Genomic and cDNA libraries.	1. Gene cloning and DNA analysis- An introduction - T A Brown 2. Principles of Gene Manipulation: An introduction to Genetic Engineering - Old R.S and Primrose S.B	Google Classroom Google Meet
24.08.2020 To 28.08.2020	Overview on Nucleic acid hybridization. Solution and Filter hybridization - Dot blot.	1. Gene biotechnology - Jogdnand S.N 2. Biotechnology - Satyanarayana U	Google Classroom Google Meet
31.09.2020 To 05.09.2020	Insitu hybridization - colony and plaque hybridization. Southern, northern, western methods of hybridization.	1. Gene biotechnology - Jogdnand S.N 2. Biotechnology - Satyanarayana U	Google Classroom Google Meet
07.09.2020 To 12.09.2020	DNA amplification technique - Polymerase Chain Reaction. Restriction Fragment Length Polymorphism.	1. Gene cloning and DNA analysis- An introduction - T A Brown 2. Principles of Gene Manipulation: An introduction to Genetic Engineering - Old R.S and Primrose S.B	Google Classroom Google Meet
14.09.2020 To 19.09.2020	Enzyme biotechnology - source selection, extraction and purification of enzymes.	1. Biotechnology - Satyanarayana U 2. A Text of Biotechnology - Dubey R.C	Google Classroom Google Meet
21.09.2020 To 26.09.2020	Enzyme immobilization techniques (physical binding, cross linking, entrapment) - their application - products	1. Biotechnology - Satyanarayana U 2. A Text of Biotechnology - Dubey R.C	Google Classroom Google Meet

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	produced.		
28.09.2020 To 01.10.2020 & 03.10.2020	Microbial algal technology – Cultivation methods of <i>Spirulina</i> . Exploitation of microalgae for food and feed. Fuel (Methane, hydrogen) and Drug production from microalgae	1. Biotechnology - Satyanarayana U 2. A Text of Biotechnology - Dubey R.C	Google Classroom Google Meet
05.10.2020 To 10.10.2020	Production of Humulin. Interferon	1. Gene cloning and DNA analysis- An introduction – T A Brown 2. Principles of Gene Manipulation: An introduction to Genetic Engineering - Old R.S and Primrose S.B	Google Classroom Google Meet
12.10.2020 To 17.10.2020	Recombinant Vaccines (HBsAg)	1. Gene cloning and DNA analysis- An introduction – T A Brown 2. Principles of Gene Manipulation: An introduction to Genetic Engineering - Old R.S and Primrose S.B	Google Classroom Google Meet
19.10.2020 To 24.10.2020	Production of antibiotics- Penicillin and Streptomycin	1. Pharmaceutical Microbiology- Hugo W.B and Russell A.D	Google Classroom Google Meet
27.10.2020 To 29.10.2020 & 31.10.2020	Production of tetracycline and Tissue plasminogen Activator	1. Pharmaceutical Microbiology- Hugo W.B and Russell A.D	Google Classroom Google Meet
02.11.2020 To 06.11.2020	Gene therapy- Definition, Gene therapy methods.	1. Pharmaceutical Microbiology- Hugo W.B and Russell A.D 2. Gene cloning and DNA analysis- An introduction – T A Brown 3. Principles of Gene Manipulation: An introduction to Genetic Engineering - Old R.S and Primrose S.B	Google Classroom Google Meet


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Teaching plan for the year 2020 – 2021 (odd Semester)

Name of the Staff: Ms. B.V.Gowri

Date	Class	Portions Covered	References	Methods of Teaching
09.07.2020	III B.Sc Microbiology	Historical perspectives	Gene cloning and DNA analysis- An introduction – T A Brown	Power point presentation.
13.07.2020	III B.Sc Microbiology	Plasmids	Gene cloning and DNA analysis- An introduction – T A Brown	1. Power point presentation 2. Video
14.07.2020	III B.Sc Microbiology	Vectors	Gene cloning and DNA analysis- An introduction – T A Brown	Power point presentation
16.07.2020	III B.Sc Microbiology	Psc101	Gene cloning and DNA analysis- An introduction – T A Brown	Power point presentation
20.07.2020	III B.Sc Microbiology	pBR322	Gene cloning and DNA analysis- An introduction – T A Brown	1. Power point presentation 2. Video
21.07.2020	III B.Sc Microbiology	Ti Plasmids	Gene cloning and DNA analysis- An introduction – T A Brown	Power point presentation
23.07.2020	III B.Sc Microbiology	Bacteriophages as vectors - - λ (lamda) and M 13 phage.	Gene cloning and DNA analysis- An introduction – T A Brown	1.Power point presentation 2.Video
27.07.2020	III B.Sc Microbiology	cosmid (pJB8)	Gene cloning and DNA analysis- An introduction – T A Brown	1. Power point presentation 2. Video
28.07.2020	III B.Sc Microbiology	YAC (pYAC3)	Gene cloning and DNA analysis- An introduction – T A	Power point presentation


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			Brown	
30.07.2020	III B.Sc Microbiology	Introduction to principles and applications of genetic recombinant technology.	Principles of Gene Manipulation: An introduction to Genetic Engineering - Old R.S and Primrose S.B	1.Power point presentation 2.Videos
03.08.2020	III B.Sc Microbiology	Strain improvement in the production of biotechnologically useful products (mutational rDNA technology)	Principles of Gene Manipulation: An introduction to Genetic Engineering - Old R.S and Primrose S.B	1. Power point presentation 2. Video
04.08.2020	III B.Sc Microbiology	Restriction endonucleases- nomenclature, its types.	3. Gene cloning and DNA analysis- An introduction – T A Brown 4. Principles of Gene Manipulation: An introduction to Genetic Engineering - Old R.S and Primrose S.B	Power point presentation
06.08.2020	III B.Sc Microbiology	Enzyme Ligase and its function	1. Gene cloning and DNA analysis- An introduction – T A Brown 2. Principles of Gene Manipulation: An introduction to Genetic Engineering - Old R.S and Primrose S.B	Power point Presentation
11.08.2020	III B.Sc Microbiology	DNA manipulative enzymes- DNA Polymerases and its types. DNA modifying enzymes- Alkaline phosphatase, polynucleotide kinase, Terminal	1. Gene cloning and DNA analysis- An introduction – T A Brown 2. Principles of Gene Manipulation:	Power point presentation

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		deoxynucleotidyl transferase.	An introduction to Genetic Engineering - Old R.S and Primrose S.B	
13.08.2020	III B.Sc Microbiology	Gene cloning techniques	Gene cloning and DNA analysis- An introduction – T A Brown	1.Power point presentation 2.Videos
18.08.2020	III B.Sc Microbiology	Isolation and identification of rDNA clones	Gene cloning and DNA analysis- An introduction – T A Brown	Power point presentation
20.08.2020	III B.Sc Microbiology	Genomic libraries	Gene cloning and DNA analysis- An introduction – T A Brown	Power point Presentation
25.08.2020	III B.Sc Microbiology	cDNA libraries.	Gene cloning and DNA analysis- An introduction – T A Brown	Power point Presentation
27.08.2020	III B.Sc Microbiology	Overview on Nucleic acid hybridization.	Gene biotechnology - Jogdnand S.N	Power point Presentation
31.08.2020	III B.Sc Microbiology	Solution and Filter hybridization	Gene biotechnology - Jogdnand S.N	Power point Presentation
01.09.2020	III B.Sc Microbiology	Insitu hybridization - colony and plaque hybridization.	Gene biotechnology - Jogdnand S.N	Power point Presentation
02.09.2020	III B.Sc Microbiology	Dot blot/slot blot/spot blot	Gene biotechnology - Jogdnand S.N	Powerpoint presentation
03.09.2020	III B.Sc Microbiology	Southern, northern, western methods of hybridization.	3. Gene biotechnology - Jogdnand S.N 4. Biotechnology - Satyanarayana U	1.Power point presentation 2.Video
04.09.2020	III B.Sc Microbiology	DNA amplification technique – Polymerase Chain Reaction.	1. Gene cloning and DNA analysis- <i>Dr. Joga Subashini</i>	1.Power point presentation

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			introduction – T A Brown 2. Principles of Gene Manipulation: An introduction to Genetic Engineering - Old R.S and Primrose S.B	2.Video
05.09.2020	III B.Sc Microbiology	Restriction Fragment Length Polymorphism.	1. Gene cloning and DNA analysis- An introduction – T A Brown 2. Principles of Gene Manipulation: An introduction to Genetic Engineering - Old R.S and Primrose S.B	Power point presentation
07.09.2020	III B.Sc Microbiology	Enzyme biotechnology – source selection	3. Biotechnology - Satyanarayana U 4. A Text of Biotechnology - Dubey R.C	Power point presentation
09.09.2020	III B.Sc Microbiology	Extraction of enzymes	1. Biotechnology - Satyanarayana U 2. A Text of Biotechnology - Dubey R.C	Power point presentation
10.09.2020	III B.Sc Microbiology	Purification of enzymes	1. Biotechnology - Satyanarayana U 2. A Text of Biotechnology - Dubey R.C	Power point presentation
11.09.2020	III B.Sc Microbiology	Enzyme immobilization techniques (physical binding, cross linking, entrapment) - their application – products produced.	1. Biotechnology - Satyanarayana U 2. A Text of Biotechnology - Dubey R.C	Power point presentation
14.09.2020	III B.Sc Microbiology	Microbial algal technology – Cultivation methods of <i>Spirulina</i> .	1. Biotechnology - Satyanarayana U	1.Power point presentation

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			2. A Text of Biotechnology - Dubey R.C	2.Video
15.09.2020	III B.Sc Microbiology	Exploitation of microalgae for food and feed.	1. Biotechnology - Satyanarayana U 2. A Text of Biotechnology - Dubey R.C	Power point presentation
17.09.2020	III B.Sc Microbiology	Fuel (Methane, hydrogen) and Drug production from microalgae	1. Biotechnology - Satyanarayana U 2. A Text of Biotechnology - Dubey R.C	Power point presentation
18.09.2020	III B.Sc Microbiology	Production of Humulin	3. Gene cloning and DNA analysis- An introduction – T A Brown 4. Principles of Gene Manipulation: An introduction to Genetic Engineering - Old R.S and Primrose S.B	1. Power point presentation 2. Video
19.09.2020	III B.Sc Microbiology	Production of interferon	1. Gene cloning and DNA analysis- An introduction – T A Brown 2. Principles of Gene Manipulation: An introduction to Genetic Engineering - Old R.S and Primrose S.B	1.Power point presentation 2.Video
21.09.2020	III B.Sc Microbiology	Recombinant Vaccines (HBsAg)	1. Gene cloning and DNA analysis- An introduction – T A Brown 2. Principles of Gene Manipulation: An introduction	Power point presentation

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			to Genetic Engineering - Old R.S and Primrose S.B	
22.09.2020	III B.Sc Microbiology	Penicillin production	Pharmaceutical Microbiology- Hugo W.B and Russell A.D	Power point presentation
24.09.2020	III B.Sc Microbiology	Streptomycin production	Pharmaceutical Microbiology- Hugo W.B and Russell A.D	Power point presentation
25.09.2020	III B.Sc Microbiology	Tetracycline production	Pharmaceutical Microbiology- Hugo W.B and Russell A.D	Power point presentation
26.09.2020	III B.Sc Microbiology	Tissue plasminogen Activator	1. Gene cloning and DNA analysis- An introduction – T A Brown 2. Principles of Gene Manipulation: An introduction to Genetic Engineering - Old R.S and Primrose S.B	1.Power point presentation 2.Video
28.09.2020	III B.Sc Microbiology	Gene therapy- Definition, Gene therapy methods.	4. Pharmaceutical Microbiology- Hugo W.B and Russell A.D 5. Gene cloning and DNA analysis- An introduction – T A Brown 6. Principles of Gene Manipulation: An introduction to Genetic Engineering - Old R.S and Primrose S.B	1.Power point presentation 2.Video
29.09.2020	III B.Sc Microbiology		Portions Completed	
			Revision - UNIT I	
01.10.2020	III B.Sc Microbiology		Revision - UNIT I	

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05.10.2020	III B.Sc Microbiology	Revision - UNIT I		
06.10.2020	III B.Sc Microbiology	Revision - UNIT II		
07.10.2020	III B.Sc Microbiology	Revision - UNIT II		
12.10.2020	I M.Sc Microbiology	Introduction to Microbiology. Discovery of Microbial world.	1.Microbiology- Michael J Pelczar 2.Microbiology- Lansing M.Prescott	Power point presentation
	III B.Sc Microbiology	Revision - UNIT III		
13.10.2020	I M.Sc Microbiology	Controversy over spontaneous generation. Evolutions of Microbiology with its recent developments in Medicine.	1.Microbiology- Michael J Pelczar 2.Microbiology- Lansing M.Prescott	Power point presentation
	III B.Sc Microbiology	Revision - UNIT III		
14.10.2020	I M.Sc Microbiology	Role of Microbes in transformation of organic matter.	1.Microbiology- Michael J Pelczar 2.Microbiology- Lansing M.Prescott	Power point presentation
	III B.Sc Microbiology	Revision - UNIT III		
15.10.2020	I M.Sc Microbiology	Modern trends in microbial taxonomy.	1.Microbiology- Michael J Pelczar 2.Microbiology- Lansing M.Prescott	Power point presentation
	III B.Sc Microbiology	Revision - UNIT IV		
16.10.2020	I M.Sc Microbiology	Microscopy - Its principles and applications. Simple – Compound.	1.Microbiology- Michael J Pelczar 2.Microbiology- Lansing M.Prescott	Power point presentation
	III B.Sc Microbiology	Revision - UNIT IV		
19.10.2020	I M.Sc Microbiology	Dark field and phase contrast Microscopes	1.Microbiology- Michael J Pelczar 2.Microbiology- Lansing M.Prescott	Power point presentation
20.10.2020	III B.Sc Microbiology	Revision - UNIT V		

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	I M.Sc Microbiology	Fluorescent and confocal.	1.Microbiology- Michael J Pelczar 2.Microbiology- Lansing M.Prescott	Power point presentation
23.10.2020	III B.Sc Microbiology	Revision- UNIT V		
27.10.2020	I M.Sc Microbiology	Electron Microscopes - SEM, TEM.	1.Microbiology- Michael J Pelczar 2.Microbiology- Lansing M.Prescott	Power point presentation
	III B.Sc Microbiology	Revision – UNIT V		
28.10.2020	I M.Sc Microbiology	Principles, Operation and maintenance of autoclaves, Ovens	1.Biological Instrumentation and Methodology- Bajpai P.K 2.Bioinstrumentati on - John G Webster	Power point presentation
29.10.2020	I M.Sc Microbiology	Centrifuges - refrigerated & ultra-speed	1.Biological Instrumentation and Methodology- Bajpai P.K 2.Bioinstrumentati on - John G Webster	1.Power point presentation 2.Video
	III B.Sc Microbiology	Revision – UNIT V		
02.11.2020	I M.Sc Microbiology	Colorimeters, spectrophotometers	1.Biological Instrumentation and Methodology- Bajpai P.K 2.Bioinstrumentati on - John G Webster	1.Power point presentation 2.Video
03.11.2020	I M.Sc Microbiology	Revision of I CA portion		
04.11.2020	I M.Sc Microbiology	Lyophilizers, Deep Freezers	1.Biological Instrumentation and Methodology- Bajpai P.K 2.Bioinstrumentati on - John G Webster	1.Power point presentation 2.Video
05.11.2020	I M.Sc Microbiology	Staining methods - Gram, Acid Fast, Spore	1.Microbiology- Michael J Pelczar	1.Power point presentation

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		staining	2.Microbiology- Lansing M.Prescott	2.Video
06.11.2020	I M.Sc Microbiology	Metachromatic granules, capsule and flagella staining	1.Microbiology- Michael J Pelczar 2.Microbiology- Lansing M.Prescott	1.Power point presentation 2.Video
09.11.2020	I M.Sc Microbiology	Sterilization methods and their quality control	1.Microbiology- Michael J Pelczar 2.Microbiology- Lansing M.Prescott	Power point presentation
10.11.2020	I M.Sc Microbiology	Disinfection methods and their quality control	1.Microbiology- Michael J Pelczar 2.Microbiology- Lansing M.Prescott	Power point presentation
13.11.2020	I M.Sc Microbiology	Classification of bacteria and salient features according to Bergey's manual of determinative Bacteriology.	Bergey's manual of determinative Bacteriology.	Power point presentation
16.11.2020	I M.Sc Microbiology	Microbial diversity in different ecosystems. Halophiles, mesophiles, thermophiles. Acidophiles Alkalophiles, barophiles and other extremophiles.	1.Microbiology- Michael J Pelczar 2.Microbiology- Lansing M.Prescott	Power point presentation
18.11.2020	I M.Sc Microbiology	Structure and function of viruses.	1.Microbiology- Michael J Pelczar 2.Microbiology- Lansing M.Prescott	Power point presentation
20.11.2020	I M.Sc Microbiology	Classification of viruses, replication of viruses and bacteriophages	1.Microbiology- Michael J Pelczar 2.Microbiology- Lansing M.Prescott	Power point presentation
23.11.2020	I M.Sc Microbiology	Bacterial morphology, structure and characterization	1.Microbiology- Michael J Pelczar 2.Microbiology- Lansing M.Prescott	Power point presentation
24.11.2020	I M.Sc Microbiology	cellular components of bacteria	1.Microbiology- Michael J Pelczar 2.Microbiology- Lansing M.Prescott	Power point presentation
26.11.2020	I M.Sc Microbiology	Sporulation and its mechanics.	1.Microbiology- Michael J Pelczar 2.Microbiology- Lansing M.Prescott	Power point presentation
27.11.2020	I M.Sc Microbiology	Growth and nutrition - Nutritional requirements - Autotrophs,	1.Microbiology- Michael J Pelczar 2.Microbiology-	Power point presentation

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		heterotrophs - enrichment culture	Lansing M.Prescott	
30.11.2020	I M.Sc Microbiology	Measurement of growth and growth yields - Batch Culture - Synchronous growth. Techniques of pure culture.	1.Microbiology- Michael J Pelczar 2.Microbiology- Lansing M.Prescott	1.Power point presentation 2.Video
1.12.2020	I M.Sc Microbiology	Classification of fungi according to Alexopoulos and Mims. Cell structure, specialized somatic structure. Life cycles and reproduction of fungi - Asexual, sexual and parasexual cycle.	1.Introductory Mycology- Alexopoulos CJ and C W. Mims 2. An Introduction to Mycology- Mehrotra RS and Aneja KR	Power point presentation
3.12.2020	I M.Sc Microbiology	Mechanisms of growth in Fungi, Measurement and kinetics of growth, nutritional and environmental requirements; Prevention of fungal growth.	1.Introductory Mycology- Alexopoulos CJ and C W. Mims 2. An Introduction to Mycology- Mehrotra RS and Aneja KR	Power point presentation
4.12.2020	I M.Sc Microbiology	Structure and reproduction of <i>Spirogyra</i>	OER: 7. www.gutenberg.org 8. www.free-ebooks.net 9. www.e-booksdirect.org.com	Power point presentation
7.12.2020	I M.Sc Microbiology	Structure and reproduction of <i>Euglena</i> , <i>Exuviaella</i>	OER: 1. www.gutenberg.org 2. www.free-ebooks.net 3. www.e-booksdirect.org.com	Power point presentation
9.12.2020	I M.Sc Microbiology	Structure and reproduction of <i>Diatoms</i> and <i>Porphyra</i>	OER: 1. www.gutenberg.org 2. www.free-ebooks.net 3. www.e-booksdirect.org.com	Power point presentation

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			booksdirect.ory.com	
11.12.2020	I M.Sc Microbiology	Structure and reproduction of <i>Sargassam</i>	OER: 1. www.gutenberg.org 2. www.free-ebooks.net 3. www.e-booksdirect.ory.com	Power point presentation
12.12.2020 to 23.12.2020	I M.Sc Microbiology	Portions completed Revision – UNIT I to UNIT V		

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Lesson Plan for the year 2020 – 2021

Department of Microbiology

Name of the Staff: Ms Malathi.T

UCMBD20 - BASIC IMMUNOLOGY AND MICROBIAL GENETICS- I

Week	Portions to be covered	References	Platform (LMS)
08.07.2020 To 10.07.2020	History of Immunology- contributions of Elie metchnikoff	Kuby J Richard A Ananthanarayan R & Paniker	Google Meet
13.07.2020 To 17.7.2020	Contributions of Louis Pasteur and Edward Jenner Immunohaematology- blood grouping, Rh typing	Kuby J Richard A Ananthanarayan R & Paniker	Google Meet
20.07.2020 To 24.07.2020	Normal Microbial flora of the human body and its function Gnotobiotic animals, their interaction and uses	Kuby J Richard A Ananthanarayan R & Paniker	Google Meet
27.07.2020 To 31.07.2020	Structure and functions of cells of the immune system- B cells, T cells. Functions of NK cells, phagocytic cells, Mast cells.	Kuby J Richard A Ananthanarayan R & Paniker	Google Meet
03.08.2020 To 07.08.2020	Primary Lymphoid organs (Thymus and Bone marrow). Secondary Lymphoid organs (Lymph node and Spleen), MALT, GALT, BALT.	Kuby J Richard A Ananthanarayan R & Paniker	Google Meet
10.08.2020 To 14.08.2020	Immunity – Types of Immunity – Humoral and Cell mediated immunity.	Kuby J Richard A Ananthanarayan R & Paniker	Google Meet

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	Innate and Acquired immunity.		
17.08.2020 To 21.08.2020	Antigens- properties, types of antigen-haptens, adjuvants. Immunoglobulins- General Structure.	Kuby J Richard A Ananthanarayan R & Paniker	Google Meet
24.08.2020 To 28.08.2020	Types of immunoglobulins, properties and its functions. Theories of antibody formation.	Kuby J Richard A	Google Meet
31.09.2020 to 05.09.2020	Monoclonal and polyclonal antibodies. Production of Monoclonal antibodies and their applications.	Kuby J Richard A Ananthanarayan R & Paniker	Google Meet
07.09.2020 to 12.09.2020	Genetics – Historical Introduction – Discovery of DNA Structure, Nucleic acids – DNA & RNA as Genetic Material. Nucleosomes, Repetitive DNA, highly repetitive DNA, Satellite and mini satellite DNA - forms of DNA.	Robert H Tamarin (2002). Principles of Genetics Gardner Simion Snustad	Google Meet
14.09.2020 to 19.09.2020	Types of RNA- mRNA, tRNA, rRNA. Post transcriptional and translational modification.	Robert H Tamarin (2002). Principles of Genetics Gardner Simion Snustad	Google Meet
21.09.2020	Genetic code.		Google Meet

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to 26.09.2020			
28.09.2020 To 01.10.2020 & 03.10.2020	Central Dogma of Molecular biology.	Robert H Tamarin (2002). Principles of Genetics Gardner Simion Snustad	Google Meet
05.10.2020 To 10.10.2020	Organization & functioning of bacterial genetic material.	Robert H Tamarin (2002). Principles of Genetics Gardner Simion Snustad	Google Meet
12.10.2020 To 17.10.2020	Gene and Gene concept.	Robert H Tamarin (2002). Principles of Genetics Gardner Simion Snustad	Google Meet
19.10.2020 To 24.10.2020	Plasmids – characteristics, Structure, types and functions.	Robert H Tamarin (2002). Principles of Genetics Gardner Simion Snustad	Google Meet
27.10.2020 To 29.10.2020 & 31.10.2020	Mechanism of DNA Replication- enzymes involved	Robert H Tamarin (2002). Principles of Genetics Gardner Simion Snustad	Google Meet
02.11.2020 To 06.11.2020	Semi conservative method of replication- experimental proof. Types of replication- rolling circle and theta model of replication.	Robert H Tamarin (2002). Principles of Genetics Gardner Simion Snustad	Google Meet

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Lesson Plan for the year 2020 – 2021

Department of Microbiology

Name of the Staff: Ms Malathi.T

ALLIED MICROBIOLOGY

(B.Sc Biochemistry- Semester III)

UAMBA20 – ALLIED III: MICROBIOLOGY –I

Week	Portions to be covered	References	Platform (LMS)
08.07.2020 To 10.07.2020	Definition and scope of Microbiology- History and recent Developments, Spontaneous generation and Biogenesis. Contribution of Louis Pasteur, Antony Van Leuwenhoek, Joseph Lister, Robert Koch.	Pelczar T.R, Lansing M. Prescott, John P. Harley., Donald A. Klein	Google Meet
13.07.2020 To 17.7.2020	Edward Jenner, Emil Christian Hansen, Hans Christian Gram, Alexander Fleming.	Pelczar T.R, Lansing M. Prescott, John P. Harley., Donald A. Klein	Google Meet
20.07.2020 To 24.07.2020	Microscopy – Bright field Microscopy, Dark field Microscopy. Phase contrast Microscope and Fluorescence Microscope.	Pelczar T.R, Lansing M. Prescott, John P. Harley., Donald A. Klein	Google Meet
27.07.2020 To 31.07.2020	Electron Microscopy – TEM & SEM.	Pelczar T.R, Lansing M. Prescott, John P. Harley., Donald	Google Meet

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		A. Klein	
03.08.2020 To 07.08.2020	Sterilization of glass wares. Culture media and its types.	Pelczar T.R, Lansing M. Prescott, John P. Harley., Donald A. Klein	Google Meet
10.08.2020 To 14.08.2020	Preparation of basal media. Pure culture techniques – spread plate, pour plate and streak plate techniques.	Pelczar T.R, Lansing M. Prescott, John P. Harley., Donald A. Klein	Google Meet
17.08.2020 To 21.08.2020	Serial dilution and Standard plate count methods. Staining techniques – simple and differential (Grams staining and Acid fast staining).	Pelczar T.R, Lansing M. Prescott, John P. Harley., Donald A. Klein	Google Meet
24.08.2020 To 28.08.2020	Brief outline on bacterial classification- Binomial Nomenclature of Microbes. Morphology of bacteria - size, shape and arrangement of bacteria.	Pelczar T.R, Lansing M. Prescott, John P. Harley., Donald A. Klein	Google Meet
31.09.2020 to 05.09.2020	Anatomy of Bacteria – Cell wall (Gram positive and Gram negative). Cytoplasmic membrane.	Pelczar T.R, Lansing M. Prescott, John P. Harley., Donald A. Klein	Google Meet
07.09.2020 to 12.09.2020	Flagella –structure and arrangement, capsule, pili . Spore and sporulation.	Pelczar T.R, Lansing M. Prescott, John P. Harley., Donald A. Klein	Google Meet

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14.09.2020 to 19.09.2020	Structural characteristics of Microalgae- overview. <i>Oscillatoria, Volvox, Chlorella.</i>	Pelczar T.R, Lansing M. Prescott, John P. Harley., Donald A. Klein	Google Meet
21.09.2020 to 26.09.2020	Structural characteristics of fungi – An overview. Yeast- <i>Saccharomyces</i> and its reproduction.	Pelczar T.R, Lansing M. Prescott, John P. Harley., Donald A. Klein	Google Meet
28.09.2020 To 01.10.2020 & 03.10.2020	Molds - <i>Aspergillus, Penicillium, Rhizopus, Mucor.</i> Protozoa (<i>Entamoeba</i> and <i>Plasmodium</i>).	Pelczar T.R, Lansing M. Prescott, John P. Harley., Donald A. Klein	Google Meet
05.10.2020 To 10.10.2020	Measurement of microbial growth (turbidity, biomass, cell count). Growth curve.	Pelczar T.R, Lansing M. Prescott, John P. Harley., Donald A. Klein	Google Meet
12.10.2020 To 17.10.2020	Preservation of culture (Lyophilization, Liquid)	Pelczar T.R, Lansing M. Prescott, John P. Harley., Donald A. Klein	Google Meet
19.10.2020 To 24.10.2020	Antibiotics – Definition, classification and mode of action	Pelczar T.R, Lansing M. Prescott, John P. Harley., Donald A. Klein	Google Meet
27.10.2020 To 29.10.2020 & 31.10.2020	Antibiotics inhibiting cell wall and cell membrane synthesis	Pelczar T.R, Lansing M. Prescott, John P. Harley., Donald A. Klein	Google Meet
02.11.2020 To 06.11.2020	Antibiotics inhibiting nucleic acid and protein synthesis	Pelczar T.R, Lansing M. Prescott, John P. Harley., Donald A. Klein	Google Meet

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Work done for the year 2020 – 2021

Department of Microbiology

Name of the Staff: Ms. Malathi. T

Date	Class	Portions Covered	References	Methods of Teaching
10-07-2020	II B.sc Microbiology	History of immunology	Kuby J Richard A Ananthanarayan R & Paniker	Power point presentation.
13-07-2020	II B.sc Biochemistry	Definition and scope of Microbiology-History and recent Developments, Spontaneous generation and Biogenesis. Contribution of Louis Pasteur, Antony Van Leuwenhock, Joseph Lister, Robert Koch.	Pelczar T.R, Lansing M. Prescott, John P. Harley., Donald A. Klein	1. Power point presentation 2. Video
17-07-2020	II B.sc Microbiology	Contributions of Elie Metchnikoff, Louis Pasteur and Edward Jenner	Kuby J Richard A Ananthanarayan R & Paniker	Power point presentation
20-07-2020	II B.sc Biochemistry	Edward Jenner, Emil Christian Hansen, Hans Christian Gram, Alexander Fleming Microscopy – Bright field Microscopy, Dark field Microscopy. Phase contrast Microscope and Fluorescence Microscope.	Pelczar T.R, Lansing M. Prescott, John P. Harley., Donald A. Klein	Power point presentation
24-07-2020	II B.sc Microbiology	Immunohaematology- blood grouping Rh typing	Kuby J Richard A Ananthanarayan R & Paniker	1. Power point presentation 2. Video
27-07-2020	II B.sc Biochemistry	Electron Microscopy – TEM & SEM	Pelczar T.R, Lansing M.	Power point presentation

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			Prescott, John P. Harley., Donald A. Klein	
31-07-2020	II B.sc Microbiology	Rh incompatibility HDNB Diseases of the new born	Kuby J Richard A Ananthanarayan R & Paniker	1. Power point presentation 2. Video
29-07-2020	II B.sc Biochemistry	Sterilization of glass wares. Culture media and its types.	Pelczar T.R, Lansing M. Prescott, John P. Harley., Donald A. Klein	1. Power point presentation 2. Video
7-08-2020	II B.sc Microbiology	Normal microbial flora of the human body and its function Gnotobiotic animals, interaction and uses	Kuby J Richard A Ananthanarayan R & Paniker	Power point presentation
10-08-2020	II B.sc Biochemistry	Preparation of basal media.	Pelczar T.R, Lansing M. Prescott, John P. Harley., Donald A. Klein	1. Power point presentation 2. Videos
14-08-2020	II B.sc Microbiology	Structure and functions of the cells of the human system, B cells, T Cells, Mast Cells, phagocytic cells	Kuby J Richard A Ananthanarayan R & Paniker	1. Power point presentation 2. Video
17-08-2020	II B.sc Biochemistry	Pure culture techniques – spread plate, pour plate and streak plate techniques.	Pelczar T.R, Lansing M. Prescott, John P. Harley., Donald A. Klein	Power point presentation
21-08-2020	II B.sc Microbiology	Organs of the immune system, Thymus, Bonemarrow, spleen, and Lymphnode	Kuby J Richard A Ananthanarayan R & Paniker	Power point Presentation
24-08-2020	II B.sc Biochemistry	Serial dilution and Standard plate count methods.	Pelczar T.R, Lansing M. Prescott, John P. Harley., Donald A. Klein	Power point presentation
28-08-2020	II B.sc Microbiology	MALT, BALT, GALT, Imm unity and its types	Kuby J Richard A Ananthanarayan	1. Power point presentation 2. Videos

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			R & Paniker	
02-09-2020	II B.sc Microbiology	Immunity – Types of Immunity – Humoral and Cell mediated immunity.	Kuby J Richard A Ananthanarayan R & Paniker	Google class room
03-09-2020	II B.sc Microbiology	Innate and Acquired immunity	Kuby J Richard A Ananthanarayan R & Paniker	Google class room
04-09-2020	I-B.sc Microbiology	Cleaning of glasswares	Practical Manual by TSR Practical mannul R.C Dubey and Maheswari	Google class room Made them to write observation
07-09-2020	II B.sc Biochemistry	Staining techniques – simple and differential Preservation of culture (Lyophilization, Liquid N ₂).	Pelczar T.R, Lansing M. Prescott, John P. Harley., Donald A. Klein	Google class room
08-09-2020	II B.sc Biochemistry	Brief outline on bacterial classification- Binomial Nomenclature of Microbes	Pelczar T.R, Lansing M. Prescott, John P. Harley., Donald A. Klein	Google class room
09-09-2020	II B.sc Microbiology	Antigens- properties, types of antigen- haptens, adjuvants	Kuby J Richard A Ananthanarayan R & Paniker	Google class room
10-09-2020	II B.sc Microbiology	Immunoglobulins- General Structure	Kuby J Richard A Ananthanarayan R & Paniker	Google class room
11-09-2020	II B.sc Microbiology	Types of immunoglobulins, properties and its functions	Kuby J Richard A Ananthanarayan R & Paniker	Google class room
15-09-2020	II B.sc Biochemistry	Morphology of bacteria - size, shape and arrangement of bacteria.	Pelczar T.R, Lansing M. Prescott, John P. Harley., Donald A. Klein	Google class room
16-09-2020	II B.sc Biochemistry	Anatomy of Bacteria – Cell wall (Gram positive and Gram negative).	Pelczar T.R, Lansing M. Prescott, John P. Harley., Donald A. Klein	Google class room
17-09-2020	II B.sc Microbiology	Theories of antibody formation	Kuby J Richard A Ananthanarayan R & Paniker	Google class room

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18-09-2020	II B.sc Microbiology	Monoclonal and polyclonal antibodies.	Kuby J Richard A Ananthanarayan R & Paniker	Google class room
21-09-2020	II B.sc Microbiology	Production of Monoclonal antibodies and their applications	Kuby J Richard A Ananthanarayan R & Paniker	Google class room Video
23-09-2020	II B.sc Microbiology	Genetics – Historical Introduction – Discovery of DNA Structure, Nucleic acids – DNA & RNA as Genetic Material.	Kuby J Richard A Ananthanarayan R & Paniker	Google class room
24-09-2020	II B.sc Biochemistry	Cytoplasmic membrane. Flagella –structure and arrangement, capsule, pili	Pelczar T.R, Lansing M. Prescott, John P. Harley., Donald A. Klein	Google class room
25-09-2020	II B.sc Microbiology	Nucleosomes, Repetitive DNA, highly repetitive DNA, Satellite and mini satellite DNA - forms of DNA	Kuby J Richard A Ananthanarayan R & Paniker	Google class room
28-09-2020	II B.sc Microbiology	Types of RNA- mRNA, tRNA ,rRNA.	Kuby J Richard A Ananthanarayan R & Paniker	Google class room
29-08-2020	II-B.sc Microbiology	Post transcriptional and translational modification	Kuby J Richard A Ananthanarayan R & Paniker	Google class room
01-10-2020	II B.sc Biochemistry	Spore and sporulation	Pelczar T.R, Lansing M. Prescott, John P. Harley., Donald A. Klein	Google class room
05-10-2020	II B.sc Biochemistry	Structural characteristics of Microalgae- An overview	Pelczar T.R, Lansing M. Prescott, John P. Harley., Donald A. Klein	Google class room
06-10-2020	II-B.sc Microbiology	Genetic code	Kuby J Richard A Ananthanarayan R & Paniker	Google class room
07-10-2020	II-B.sc Microbiology	Revision		
08-10-2020	II-B.sc Microbiology	Central Dogma of Molecular biology	Kuby J Richard A Ananthanarayan R & Paniker	Google class room

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12-10-2020	II-B.sc Microbiology	Organization & functioning of bacterial genetic material	Kuby J Richard A Ananthanarayan R & Paniker	Google class room
13-10-2020	II-B.sc Microbiology	Gene and Gene concept	Kuby J Richard A Ananthanarayan R & Paniker	Google class room
14-10-2020	II-B.sc Microbiology	Plasmids – characteristics, Structure, types and functions.	Kuby J Richard A Ananthanarayan R & Paniker	Google class room
16-10-2020	II B.sc Biochemistry	<i>Oscillatoria, Volvox, Chlorella.</i>	Pelczar T.R, Lansing M. Prescott, John P. Harley., Donald A. Klein	Google class room
19-10-2020	II B.sc Biochemistry	Structural characteristics of fungi – An overview	Pelczar T.R, Lansing M. Prescott, John P. Harley., Donald A. Klein	Google class room
20-10-2020	II-B.sc Microbiology	Mechanism of DNA Replication- enzymes involved	Kuby J Richard A Ananthanarayan R & Paniker	Google class room
21-10-2020	II-B.sc Microbiology	Revision (Central Dogma)	Kuby J Richard A Ananthanarayan R & Paniker	Google class room
22-10-2020	II-B.sc Microbiology	Revision (Central Dogma)	Kuby J Richard A Ananthanarayan R & Paniker	Google class room
27-10-2020	II B.sc Biochemistry	Yeast- <i>Saccharomyces</i> and its reproduction	Pelczar T.R, Lansing M. Prescott, John P. Harley., Donald A. Klein	Google class room
28-10-2020	II B.sc Biochemistry	Molds - <i>Aspergillus, Penicillium, Rhizopus, Mucor</i> Protozoa (<i>Entamoeba</i> and <i>Plasmodium</i>).	Pelczar T.R, Lansing M. Prescott, John P. Harley., Donald A. Klein	Google class room
29-10-2020	II-B.sc Microbiology	Semi conservative method of replication- experimental proof	Kuby J Richard A Ananthanarayan R & Paniker	Google class room
02-11-2020	II-B.sc Microbiology	Types of replication- rolling circle and theta model of	Kuby J Richard A	Google class room

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		replication	Ananthanarayan R & Paniker	
04-11-2020	II B.sc Biochemistry	Measurement of microbial growth (turbidity, biomass, cell count).	Pelczar T.R, Lansing M. Prescott, John P. Harley., Donald A. Klein	Google class room
05-11-2020	II B.sc Biochemistry	Antibiotics – Definition, classification	Pelczar T.R, Lansing M. Prescott, John P. Harley., Donald A. Klein	Google class room
06-11-2020	II-B.sc Microbiology	Revision - Types of replication		
9/11/2020	II-B.sc Microbiology	Revision - Gene and Gene concept		
10/11/2020	II-B.sc Microbiology	Revision -UNIT-1		
11/11/2020	II B.sc Biochemistry	Antibiotics and its mode of action	Pelczar T.R, Lansing M. Prescott John P. Harley., Donald A. Klein	Google class room
12/11/2020	II-B.sc Microbiology	Revision - UNIT-1		
13/11/2020	II-B.sc Microbiology	Revision - UNIT-2		
14/11/2020	II B.sc Biochemistry	Antibiotics inhibiting cell wall	Pelczar T.R, Lansing M. Prescott John P. Harley., Donald A. Klein	Google class room
16/11/2020	II-B.sc Microbiology	Revision - UNIT-2		
17/11/2020	II-B.sc Microbiology	Revision - UNIT-3		
18/11/2020	II B.sc Biochemistry	Antibiotics inhibiting cell membrane synthesis	Pelczar T.R, Lansing M. Prescott John P. Harley., Donald A. Klein	Google class room
27/11/2020	II-B.sc Microbiology	Revision - UNIT-3		
28/11/2020	II-B.sc Microbiology	Revision - UNIT-4		
30/11/2020	II B.sc Biochemistry	Antibiotics inhibiting nucleic acid	Pelczar T.R, Lansing M. Prescott John P. Harley., Donald A. Klein	Google class room
1/12/2020	II-B.sc Microbiology	Revision - UNIT-4		

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2/12/2020	II-B.sc Microbiology	Revision - UNIT-5		
3/12/2020	II B.sc Biochemistry	Antibiotics inhibiting protein synthesis	Pelczar T.R, Lansing M. Prescott John P. Harley., Donald A. Klein	Google class room
4/12/2020	II-B.sc Microbiology	Revision - UNIT-5		
7/12/2020	II-B.sc Microbiology	Revision		
8/12/2020	II-B.sc Microbiology	Revision		

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Lesson Plan for the year 2020 – 2021

Department of Microbiology

Name of the Staff: Ms. Deepa R.

UCMBH18 – FOOD, DAIRY AND INDUSTRIAL MICROBIOLOGY

Week	Portions to be covered	References	Platform (LMS)
08.07.2020 To 10.07.2020	Food as a substrate for microorganisms	1. Food Microbiology by William C. Frazier. 2. Food Microbiology by Adam and Moss.	Google Classroom Google Meet
13.07.2020 To 17.7.2020	Microorganisms important in food microbiology – mold and yeast	Food Microbiology by William C. Frazier	Google Classroom Google Meet
20.07.2020 To 24.07.2020	Bacteria important in food microbiology. Principles of food preservation – asepsis, removal of microorganism and Maintenance of anaerobic conditions	Food Microbiology by William C. Frazier	Google Classroom Google Meet
27.07.2020 To 31.07.2020	High temperature	Food Microbiology by William C. Frazier	Google Classroom Google Meet
03.08.2020 To 07.08.2020	Low temperature	Food Microbiology by William C. Frazier	Google Classroom Google Meet
10.08.2020 To 14.08.2020	Drying and food additives	Food Microbiology by William C. Frazier	Google Classroom Google Meet
17.08.2020 To 21.08.2020	Contamination and spoilage of cereal and cereal products	Food Microbiology by William C. Frazier	Google Classroom Google Meet
24.08.2020 To 28.08.2020	Contamination and spoilage of vegetables and fruits. Contamination and spoilage of meat and meat products	Food Microbiology by William C. Frazier	Google Classroom Google Meet

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31.09.2020 to 05.09.2020	Spoilage of heated canned foods Contamination and spoilage of poultry. Contamination and spoilage of fish and other sea foods. Contamination and spoilage of milk and milk and milk products.	Food Microbiology by William C. Frazier	Google Classroom Google Meet
07.09.2020 to 12.09.2020	Food borne illness – infection and intoxication. Bacterial Food borne diseases. Non-bacterial Food borne diseases – viral and parasitic.	Food Microbiology by William C. Frazier	Google Classroom Google Meet
14.09.2020 to 19.09.2020	Milk borne diseases Mycotoxin and Mycotoxicosis	1. Introductory Dairy Microbiology by Sankara Reddy A. K. Puniya 2. Food Microbiology by William C. Frazier	Google Classroom Google Meet
21.09.2020 to 26.09.2020	Bioreactors – principles, types, design and functional characteristics.	1. Principles of fermentation technology by P.F. Stanbury, A. Whitaker and S. J. Hall. 2. An introduction to industrial microbiology by P.K. Sivakumar, M.M. Joe and K. Suresh.	Google Classroom Google Meet
28.09.2020 To 01.10.2020 & 03.10.2020	Mode of operation and control of bioreactor	1. Principles of fermentation technology by P.F. Stanbury, A. Whitaker and S. J. Hall. 2. An introduction to industrial microbiology by P.K. Sivakumar,	Google Classroom Google Meet

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		M.M.Joe and K.Suresh. 3. Biotechnology by Wulf crueger and Anelieze crueger.	
05.10.2020 To 10.10.2020	Types of fermentation. Primary and secondary metabolites	1.Industrial Microbiology by A.H.Patel. 2. An introduction to industrial microbiology by P.K.Sivakumar, M.M.Joe and K.Suresh.	Google Classroom Google Meet
12.10.2020 To 17.10.2020	Fermented vegetable – Sauerkraut. Fermented dairy product – cheese and yoghurt.	1.Food Microbiology by William C. Frazier 2.Food Microbiology by K.Vijayaramesh 3.Fundamentals of Dairy Microbiology by Prajapati.	Google Classroom Google Meet
19.10.2020 To 24.10.2020	Production of organic solvents - ethanol, acetone	Industrial Microbiology by A.H.Patel.	Google Classroom Google Meet
27.10.2020 To 29.10.2020 & 31.10.2020	Beverages: wine, beer. Organic acid: citric acid, acetic acid	1.Food Microbiology by William C. Frazier 2. Industrial Microbiology by A.H.Patel.	Google Classroom Google Meet
02.11.2020 To 06.11.2020	Production of Vitamins and growth factors: Vitamin B2 (Riboflavin), Vitamin B12, Vitamin C.	1.Industrial Microbiology by A.H.Patel. 2.Industrial Microbiology by J.E. Casida.	Google Classroom Google Meet

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Department of Microbiology

Name of the Staff: Ms. Deepa R.

USMBC518 – SKILL BASED ELECTIVE: MUSHROOM TECHNOLOGY

Week	Portions to be covered	Reference	Platform (LMS)
08.07.2020 To 10.07.2020	Introduction to mushroom. History of mushroom cultivation.	Mushroom Culture by Dr. C. D. Thapa, Dr. V. Prakasam & Sh. Mohinder Singh	Google Classroom Google Meet
13.07.2020 To 17.7.2020	Scope and importance of mushroom cultivation. Present status of mushroom industry in India.	Mushroom Culture by Dr. C. D. Thapa, Dr. V. Prakasam & Sh. Mohinder Singh	Google Classroom Google Meet
20.07.2020 To 24.07.2020	Mushroom Research and Development National and international funding agencies	Mushroom Culture by Dr. C. D. Thapa, Dr. V. Prakasam & Sh. Mohinder Singh	Google Classroom Google Meet
27.07.2020 To 31.07.2020	Pure culture Media Preparation	Mushroom Culture by Dr. C. D. Thapa, Dr. V. Prakasam & Sh. Mohinder Singh	Google Classroom Google Meet
03.08.2020 To 07.08.2020	Maintenance of mother culture in test tube slants, petriplates, saline bottle and polypropylene bags	Mushroom Culture by Dr. C. D. Thapa, Dr. V. Prakasam & Sh. Mohinder Singh	Google Classroom Google Meet
10.08.2020 To 14.08.2020	Spawn production and its Types	Mushroom Culture by Dr. C. D. Thapa, Dr. V. Prakasam & Sh. Mohinder Singh	Google Classroom Google Meet
17.08.2020	Methods of storage	Mushroom Culture by	Google Classroom

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To 21.08.2020	and transportation of spawn – Frequent subculturing, Storage under mineral oil and water storage	Dr. C. D. Thapa, Dr. V. Prakasam & Sh. Mohinder Singh	Google Meet
24.08.2020 To 28.08.2020	Methods of storage of spawn – Lyophilization, Preservation at -70°C and cryopreservation	Mushroom Culture by Dr. C. D. Thapa, Dr. V. Prakasam & Sh. Mohinder Singh	Google Classroom Google Meet
31.09.2020 To 05.09.2020	Cultivation technology – culture rack, thatched house, substrates, vessels and inoculation methods.	Mushroom Culture by Dr. C. D. Thapa, Dr. V. Prakasam & Sh. Mohinder Singh	Google Classroom Google Meet
07.09.2020 To 12.09.2020	Mushroom bed preparation.	Mushroom Culture by Dr. C. D. Thapa, Dr. V. Prakasam & Sh. Mohinder Singh	Google Classroom Google Meet
14.09.2020 To 19.09.2020	Post-harvest handling. Preservation Technology – Long term storage & short term storage.	Mushroom Culture by Dr. C. D. Thapa, Dr. V. Prakasam & Sh. Mohinder Singh	Google Classroom Google Meet
21.09.2020 To 26.09.2020	Types and importance of edible mushroom cultivated in India. <i>Agaricus bisporus</i> , <i>Pleurotus sps.</i> ,	Mushroom Culture by Dr. C. D. Thapa, Dr. V. Prakasam & Sh. Mohinder Singh	Google Classroom Google Meet
28.09.2020 To 01.10.2020 & 03.10.2020	<i>Volvariella volvacea</i> , <i>Calocybe indica</i>	Mushroom Culture by Dr. C. D. Thapa, Dr. V. Prakasam & Sh. Mohinder Singh	Google Classroom Google Meet
05.10.2020 To 10.10.2020	Mushroom contamination	Mushroom Culture by Dr. C. D. Thapa, Dr. V. Prakasam & Sh. Mohinder Singh	Google Classroom Google Meet
12.10.2020 To 17.10.2020	Poisonous Mushroom	Mushroom Culture by Dr. C. D. Thapa, Dr. V. Prakasam &	Google Classroom Google Meet

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		Sh. Mohinder Singh	
19.10.2020 To 24.10.2020	Nutritional and Medicinal values of Mushroom - protein - carbohydrates - vitamins - minerals - fibre content.	Mushroom Culture by Dr. C. D. Thapa, Dr. V. Prakasam & Sh. Mohinder Singh	Google Classroom Google Meet
27.10.2020 To 29.10.2020 & 31.10.2020	Preparation of low calorie foods - the mushroom recipes.	Mushroom Culture by Dr. C. D. Thapa, Dr. V. Prakasam & Sh. Mohinder Singh	Google Classroom Google Meet
02.11.2020 To 06.11.2020	Marketing values in India- export value.	Mushroom Culture by Dr. C. D. Thapa, Dr. V. Prakasam & Sh. Mohinder Singh	Google Classroom Google Meet

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Lesson Plan for the year 2020 – 2021

Department of Microbiology

Name of the Staff: Ms. Deepa R.

PCMBB20 – FOOD, AGRICULTURE AND ENVIRONMENTAL MICROBIOLOGY

Week	Portions to be covered	Reference	Platform (LMS)
12.10.2020 To 16.10.2020	Importance of studying Food microbiology. Primary sources of microorganisms in foods.	1. Fundamentals of Food Microbiology by Bibek Ray and Arun Bhunia 2. Food Microbiology by K. Vijaya Ramesh 3. Food Microbiology by William C. Frazier	Google Classroom Google Meet
19.10.2020 To 23.10.2020	Factors influencing microbial growth in foods - extrinsic and intrinsic	1. Food Microbiology by William C. Frazier 2. Food Microbiology by Adam and Moss.	Google Classroom Google Meet
27.10.2020 To 29.10.2020	Principles of food preservation. Irradiation Drying	1. Food Microbiology by William C. Frazier 2. Food Microbiology by Adam and Moss.	Google Classroom Google Meet
02.11.2020 To 06.11.2020	Heat processing Chilling & freezing	Food Microbiology by William C. Frazier	Google Classroom Google Meet
09.11.2020 To 13.11.2020	High pressure Modification of atmosphere Chemical preservatives	1. Modern Food Microbiology by James M. Jay 2. Food Microbiology by William C. Frazier	Google Classroom Google Meet
16.11.2020 To 20.11.2020	Nutritional value of fermented foods SCP and their uses	Modern Food Microbiology by James M. Jay	Google Classroom Google Meet
23.11.2020 To 27.11.2020	Contamination, preservation and spoilage of fruits, vegetables, meat and poultry products.	Food Microbiology by William C. Frazier	Google Classroom Google Meet
30.11.2020 To 04.12.2020	Microbiology of fermented milk - Starter lactic cultures	Starter Cultures and fermented milk products by	Google Classroom Google Meet

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		J.B.Prajapati, I. Sankara Reddy and V.Sreeja	
07.12.2020 To 11.12.2020	Fermented milk products - cheese, yoghurt, acidophilus milk, kefir and kumis	Introductory Dairy Microbiology by Sankara Reddy and A. K. Puniya	Google Classroom Google Meet
14.12.2020 To 18.12.2020	Food sanitation in food manufacture and in the retail trade. Food control agencies and its regulations - HACCP	1. Food Microbiology by William C. Frazier 2. Microbiological Quality And Safety In Dairy Industry by Naresh Goel & H. V. Raghu, Suja Senan and P. Jayaram	Google Classroom Google Meet
21.12.2020 To 22.12.2020	Food borne disease Milk borne disease	1. Introductory Dairy Microbiology by Sankara Reddy and A. K. Puniya 2. Food Microbiology by William C. Frazier	Google Classroom Google Meet
23.12.2020 To 03.01.2021	CHRISTMAS HOLIDAYS		
04.01.2021 To 08.01.2021	Distribution of soil microorganisms in soil. Factors influencing the soil microflora. Role of microorganisms in soil fertility	1. Soil Microbiology by Subba Rao N.S. 2. Text book of Microbiology by R.C.Dubey 3. Environmental Microbiology by K.Vijaya Ramesh	Google Classroom Google Meet
11.01.2020 To 13.01.2021	Interactions among microorganisms, mutualisms, commensalism, competition, amensalism, parasitism, predation. Interactions between microbes and plants - rhizosphere, phyllosphere. Mycorrhizae and root nodule bacteria	1. Soil Microbiology by Subba Rao N.S. 2. Text book of Microbiology by R.C.Dubey 3. Microbial Ecology, Fundamental and Application by Atlas R.M. and Bartha R	Google Classroom Google Meet
18.01.2021	Carbon cycle, nitrogen	1. Text book of	Google Classroom

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To 22.01.2021	cycle, phosphorous cycle, Phosphorous cycle and Sulphur cycle	Microbiology by R.C.Dubey 2. Microbial Ecology, Fundamental and Application by Atlas R.M. and Bartha R	Google Meet
25.01.2021, 27.01.2021 To 29.01.2021	Biofertilizer for sustainable agriculture Rhizobium, Azospirillum, Azotobacter, Azolla and BGA	Text book of Biotechnology by R.C.Dubey	Google Classroom Google Meet
01.02.2021 To 05.02.2021	Droplet, Droplet nuclei and Aerosol. Assessment of air quality. Airborne diseases and water borne disease	Environmental aspects of Microbiology by Joseph C. Daniel	Google Classroom Google Meet
08.02.2021 To 10.02.2021	Types of water. Assessment of microbiological quality of water. Treatment of municipal water. Types of wastes, characterization of solid and liquid waste. Sewage treatment Composting.	Environmental aspects of Microbiology by Joseph C. Daniel	Google Classroom Google Meet

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Work done for the year 2020 – 2021

Department of Microbiology

Name of the Staff: Ms. Deepa R.

Date	Class	Portions Covered	References	Methods of Teaching
09.07.20 20	III B.Sc Microbiology	Food as a substrate for microorganisms	1.Food Microbiology by William C. Frazier. 2.Food Microbiology by Adam and Moss.	Power point presentation.
13.07.20 20	III B.Sc Microbiology	Introduction to cell biology. Cellular organization. Types of cell	Cell biology, Genetics, Molecular Biology, Evolution and Ecology. By Verma.P.S and Agarwal.V.K.	1. Power point presentation 2. Video
14.07.20 20	III B.Sc Microbiology (SBE)	Introduction to mushroom. History of mushroom cultivation.	Mushroom Culture by Dr. C. D. Thapa, Dr. V. Prakasam & Sh. Mohinder Singh	Power point presentation
16.07.20 20	III B.Sc Microbiology	Microorganisms important in food microbiology – Mold and Yeast	Food Microbiology by William C. Frazier.	Power point presentation
20.07.20 20	III B.Sc Microbiology	Prokaryotic cell	Microbiology by Prescott	1. Power point presentation 2. Video
21.07.20 20	III B.Sc Microbiology (SBE)	Scope and importance of mushroom cultivation. Present status of mushroom industry in India.	Mushroom Culture by Dr. C. D. Thapa, Dr. V. Prakasam & Sh. Mohinder Singh	Power point presentation

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23.07.20 20	III B.Sc Microbiology	Bacteria important in food microbiology. Principles of Food Preservation - Asepsis, Removal of Microorganis ms and Maintenance of Anaerobic conditions.	I.Food Microbiology by William C. Frazier.	1.Power point presentation 2.Video
27.07.20 20	III B.Sc Microbiology	Eukaryotic cell. Difference between plant cell and animal cell	Cell biology, Genetics, Molecular Biology, Evolution and Ecology. By Verma.P.S and Agarwal.V.K.	1. Power point presentation 2. Video
28.07.20 20	III B.Sc Microbiology	Mushroom Research and Development National and international funding agencies	Mushroom Culture by Dr. C. D. Thapa, Dr. V. Prakasam & Sh. Mohinder Singh	Power point presentation
30.07.20 20	III B.Sc Microbiology	High Temperature	I.Food Microbiology by William C. Frazier.	1.Power point presentation 2.Videos
03.08.20 20	III B.Sc Microbiology	Virus	Cell biology, Genetics, Molecular Biology, Evolution and Ecology. By Verma.P.S and Agarwal.V.K.	1. Power point presentation 2. Video
04.08.20 20	III B.Sc Microbiology (SBE)	Pure culture Media Preparation	Mushroom Culture by Dr. C. D. Thapa, Dr. V. Prakasam & Sh. Mohinder Singh	Power point presentation
06.08.20 20	III B.Sc Microbiology	Low Temperature	I.Food Microbiology by William C. Frazier.	Power point Presentation
11.08.20 20	III B.Sc Microbiology (SBE)	Spawn production and its Types	Mushroom Culture by Dr. C. D. Thapa, Dr. V. Prakasam &	Power point presentation

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			Sh. Mohinder Singh	
13.08.20 20	III B.Sc Microbiology	Drying and Food additives	1. Food Microbiology by William C. Frazier. 2. https://youtu.be/rqIa7SBeTPU 3. https://youtu.be/vGIQWXPMi4l 4. https://youtu.be/KL4-SpP-Ghk 5. https://youtu.be/vLIURjyoY40	1. Power point presentation 2. Videos
18.08.20 20	III B.Sc Microbiology (SBE)	Methods of storage and transportation of spawn – Frequent subculturing, Storage under mineral oil, water storage, Lyophilization , Preservation at -70°C and cryopreservati on.	Mushroom Culture by Dr. C. D. Thapa, Dr. V. Prakasam & Sh. Mohinder Singh	Power point presentation
20.08.20 20	III B.Sc Microbiology	Contamination and spoilage of cereal and cereal products	Food Microbiology by William C. Frazier.	Power point Presentation
25.08.20 20	III B.Sc Microbiology (SBE)	Revision of Unit I		
27.08.20 20	III B.Sc Microbiology	Contamination and spoilage of vegetables and fruits. Contamination and Spoilage of meat and meat products	1. Food Microbiology by William C. Frazier. 2. Principles Of Meat Technology by V.P Singh 3. Food microbiology by K. Vijaya Ramesh	Power point Presentatio n
31.08.20 20	III B.Sc Microbiology	Spoilage of heated canned foods	Food Microbiology by William C. Frazier.	Power point Presentatio n

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01.09.20 20	III B.Sc Microbiology (SBE)	Revision of Unit II		
02.09.20 20	III B.Sc Microbiology	Contamination and Spoilage of poultry. Contamination and spoilage of fish and other seafoods.	1. Food Microbiology by William C. Frazier.	Power point presentation
03.09.20 20	III B.Sc Microbiology (SBE)	Cultivation technology – culture rack, thatched house, substrates, vessels and inoculation methods.	Mushroom Culture by Dr. C. D. Thapa, Dr. V. Prakasam & Sh. Mohinder Singh	1. Power point presentation 2. Video
04.09.20 20	III B.Sc Microbiology	Contamination and spoilage of milk and milk products	1. Food Microbiology by William C. Frazier and Dennis C. Westhoff. 2. Food Microbiology by K. Vijayaramesh. 3. Introductory Dairy Microbiology by Sankara Reddy A. K. Puniya	Power point presentation.
05.09.20 20	III B.Sc Microbiology	Food Borne Diseases Milk Borne Diseases	1. Food Microbiology by William C. Frazier 2. Introductory Dairy Microbiology by Sankara Reddy A. K. Puniya	Power point presentation
09.09.20 20	III B.Sc Microbiology	Mycotoxins and its mycotoxicoses	Food Microbiology by William C. Frazier	Power point presentation
10.09.20 20	III B.Sc Microbiology (SBE)	Mushroom bed preparation.	Mushroom Culture by Dr. C. D. Thapa, Dr. V. Prakasam & Sh. Mohinder Singh	1. Power point presentation 2. Video
11.09.20 20	III B.Sc Microbiology	Introduction to Industrial	An introduction to industrial microbiology by P.K.Sivakumar,	Power point

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		Microbiology	M.M.Joe and K.Suresh.	presentation
14.09.20 20	III B.Sc Microbiology	Bioreactor – Design, Control and Mode of operation	1. Principles of fermentation technology by P.F. Stanbury, A.Whitaker and S. J.Hall. 2. An introduction to industrial microbiology by P.K.Sivakumar, M.M.Joe and K.Suresh.	1.Power point presentatio n 2.Video
17.09.20 20	III B.Sc Microbiology	Types of fermentation	1. Principles of fermentation technology by P.F. Stanbury, A.Whitaker and S. J.Hall. 2. An introduction to industrial microbiology by P.K.Sivakumar, M.M.Joe and K.Suresh.	Power point presentatio n
18.09.20 20	III B.Sc Microbiology (SBE)	Post-harvest handling. Preservation Technology – Long term storage & short term storage.	Mushroom Culture by Dr. C. D. Thapa, Dr. V. Prakasam & Sh. Mohinder Singh	1. Power point presentatio n 2. Video
19.09.20 20	III B.Sc Microbiology	Types of bioreactor Functions of Bioreactor	1. Principles of fermentation technology by P.F. Stanbury, A.Whitaker and S. J.Hall. 2. An introduction to industrial microbiology by P.K.Sivakumar, M.M.Joe and K.Suresh.	1.Power point presentatio n 2.Video
21.09.20 20	III B.Sc Microbiology	Screening of primary and secondary metabolites	Industrial Microbiology by A.H.Patel.	Power point presentatio n
24.09.20 20	III B.Sc Microbiology	Yoghurt production	1. Food Microbiology by K.Vijayaramesh 2. Fundamentals of Dairy Microbiology by Prajapati. 3. https://youtu.be/SXr0Xi82ea4	1.Power point presentatio n 2.Video
25.09.20 20	III B.Sc Microbiology (SBE)	Types and importance of edible mushroom cultivated in India.	Mushroom Culture by Dr. C. D. Thapa, Dr. V. Prakasam & Sh. Mohinder Singh	Power point presentatio n

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		<i>Agaricus bisporus,</i> <i>Pleurotus spp.,</i> <i>Volvariella volvacea,</i> <i>Calacybe indica</i>		
26.09.20 20	III B.Sc Microbiology	Cheese production	1. Fundamentals of Dairy Microbiology by Prajapati. 2. https://youtu.be/dQ6LZ6MgSck	1. Power point presentation 2. Video
28.09.20 20	III B.Sc Microbiology	Production of Beer Production of Wine	Food Microbiology by William C. Frazier	1. Power point presentation 2. Video
01.10.20 20	III B.Sc Microbiology	Fermented vegetable – sauerkraut	1. Food Microbiology by William C. Frazier 2. Food Microbiology by K. Vijaya Ramesh	1. Power point presentation 2. Video
05.10.20 20	III B.Sc Microbiology (SBE)	Poisonous mushroom Mushroom Contamination	Mushroom Culture by Dr. C. D. Thapa, Dr. V. Prakasam & Sh. Mohinder Singh	Power point presentation
07.10.20 20	III B.Sc Microbiology	Production of Acetone & ethanol	Industrial Microbiology by A.H.Patel.	Power point presentation
12.10.20 20	III B.Sc Microbiology	Production of vitamin B2 & vitamin C	Industrial Microbiology by A.H.Patel.	Power point presentation
13.10.20 20	III B.Sc Microbiology (SBE)	Nutritional and medicinal values of mushroom	Mushroom Culture by Dr. C. D. Thapa, Dr. V. Prakasam & Sh. Mohinder Singh	Power point presentation
14.10.20	III B.Sc	Vitamin B12	Industrial Microbiology by	Power

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20	Microbiology	production	A.H.Patel.	point presentation
15.10.20 20	III B.Sc Microbiology	Production of citric acid	Industrial Microbiology by A.H.Patel.	1. Power point presentation 2. Video
16.10.20 20	I M.Sc Microbiology	Introduction to Food, Agriculture and Environmental Microbiology	Syllabus Booklet	Power point presentation
19.10.20 20	I M.Sc Microbiology	Importance of Studying food microbiology	1. Fundamentals of Food Microbiology by Bibek Ray and Arun Bhunia 2. Food Microbiology by K.Vijaya Ramesh 3. Food Microbiology by William C. Frazier	Power point presentation
20.10.20 20	III B.Sc Microbiology	Production of acetic acid	1. Industrial Microbiology by A.H.Patel. 2. Food Microbiology by William C. Frazier 3. https://youtu.be/b-6tcduhbp8	1. Power point presentation 2. Video
	I M.Sc Microbiology	Primary sources of microorganism s in food	Food Microbiology by William C. Frazier	Power point presentation
21.10.20 20	III B.Sc Microbiology (SBE)	Preparation of low calorie recipes	Mushroom Culture by Dr. C. D. Thapa, Dr. V. Prakasam & Sh. Mohinder Singh	1. Power point presentation 2. Video
23.10.20 20	III B.Sc Microbiology	Portion completed Revision of unit III		

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27.10.20 20	I M.Sc Microbiology	Factors affecting the growth of microorganism in foods: intrinsic & extrinsic factors	1. Food Microbiology by William C. Frazier 2. Food Microbiology by Adam and Moss.	Power point presentation
28.10.20 20	I M.Sc Microbiology	Principles of food preservation - Drying	1. Food Microbiology by William C. Frazier 2. Food Microbiology by Adam and Moss 3. https://youtu.be/rqIa7SBeTPU 3. https://youtu.be/vG1QWXPm4I 4. https://youtu.be/KL4-SpP-Ghk 5. https://youtu.be/vLIURjyoY40	Power point presentation
29.10.20 20	I M.Sc Microbiology	Chemical preservatives	1. Food Microbiology by William C. Frazier 2. Modern Food Microbiology by James M. Jay	Power point presentation
	III B.Sc Microbiology	Revision of unit IV		
02.11.20 20	III B.Sc Microbiology (SBE)	Marketing values in India Export value Portion Completed	Mushroom Culture by Dr. C. D. Thapa, Dr. V. Prakasam & Sh. Mohinder Singh	Power point presentation
03.11.20 20	III B.Sc Microbiology	Revision of unit V		
04.11.20 20	I M.Sc Microbiology	Revision of I CA portion		
05.11.20 20	I M.Sc Microbiology	Chilling & Freezing	Food Microbiology by William C. Frazier	Power point presentation
06.11.20 20	I M.Sc Microbiology	Heat Processing	1. Food Microbiology by William C. Frazier 2. https://youtu.be/rqIa7SBeTPU	Power point presentation
09.11.20 20	I M.Sc Microbiology	Irradiation	1. Food Microbiology by William C. Frazier 2. https://youtu.be/pe6AKh_tLys	1. Power point presentation 2. Video

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	III B.Sc Microbiology	Revision		
10.11.20 20	I M.Sc Microbiology	Modification of Gas Atmosphere	1. Modern Food Microbiology by James M. Jay 2. Food Microbiology by William C. Frazier 3. https://youtu.be/fmSElaXTI-E 4. https://youtu.be/gh8bdeZ_N34	1. Power point presentatio n 2. Video
11.11.20 20	I M.Sc Microbiology	High Pressure Processing of Food	1. Modern Food Microbiology by James M. Jay 2. Food Microbiology by William C. Frazier 3. https://youtu.be/JGnLBScRMA	1. Power point presentatio n 2. Video
12.11.20 20	I M.Sc Microbiology	Contamination , Preservation and spoilage of meat and meat products	Food Microbiology by William C. Frazier	Power point presentatio n
13.11.20 20	I M.Sc Microbiology	Contamination , Preservation and spoilage of vegetables and fruits. Contamination , Preservation and spoilage of poultry.	Food Microbiology by William C. Frazier	Power point presentatio n
16.11.20 20	I M.Sc Microbiology	Starter cultures	1. Applied Dairy Microbiology by Elmer H. Marth and James L. Steele 2. Dairy Microbiology Handbook The Microbiology of Milk and Milk products by Richard K. Robinson 3. Starter Cultures and Fermented Milk Products by J. B. Prajapati , Mrs. V. Sreeja and I. Sankara Reddy	Power point presentatio n
17.11.20 20	I M.Sc Microbiology	Cheese	1. Fundamentals of Dairy Microbiology by J.B.Prajapati. 2. https://youtu.be/dQ6LZ6MgSek	1. Power point presentatio n 2. Video
18.11.20 20	III B.Sc Microbiology	Revision		
19.11.20 20 to 26.11.20 20	Study Holidays			

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27.11.20 20	I M.Sc Microbiology	Yoghurt	1. Starter Cultures and Fermented Milk Products by J. B. Prajapati , Mrs. V. Sreeja and I. Sankara Reddy 2. Fundamentals of Dairy Microbiology by J.B.Prajapati. 3. Food Microbiology by K.VijayaRamesh 3. https://youtu.be/SXr0Xi82ea4	1. Power point presentation 2. Video
	III B.Sc Microbiology	Revision		
28.11.20 20	I M.Sc Microbiology	Kefir	1. Starter Cultures and Fermented Milk Products by J. B. Prajapati , Mrs. V. Sreeja and I. Sankara Reddy 2. Fundamentals of Dairy Microbiology by J.B.Prajapati. 3. https://youtu.be/SH7L_ZfVU3A	1. Power point presentation 2. Video
30.11.20 20	I M.Sc Microbiology	Koumiss Acidophilus Milk	1. Starter Cultures and Fermented Milk Products by J. B. Prajapati , Mrs. V. Sreeja and I. Sankara Reddy 2. Fundamentals of Dairy Microbiology by J.B.Prajapati. 3. Food Microbiology by K.VijayaRamesh	1. Power point presentation 2. Video
	III B.Sc Microbiology	Oral Discussion		
01.12.20 20	I M.Sc Microbiology	Food borne Disease	Food Microbiology by William C. Frazier	Power point presentation
	III B.Sc Microbiology	Oral Discussion		
02.12.20 20	I M.Sc Microbiology	Milk borne Disease	Introductory Dairy Microbiology by Sankara Reddy and A. K. Puniya	Power point presentation
03.12.20 20	I M.Sc Microbiology	Nutritional values of fermented food	Food Microbiology by K.Vijaya Ramesh	Power point presentation.
	III B.Sc Microbiology	Revision of Unit I		
	III B.Sc Microbiology (SBE)	Revision of Unit I & II		
05.12.20 20	I M.Sc Microbiology	SCP and its uses	Text book of Biotechnology by R.C.Dubey	

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07.12.20 20	I M.Sc Microbiology	Food sanitation in food manufacture and in the retail trade.	1. Food Microbiology by William C. Frazier 2. Microbiological Quality And Safety In Dairy Industry by Naresh Goel & H. V. Raghu, Suja Senan and P. Jayaram. 3. https://youtu.be/IRbP6_XNRSY 4.	1. Power point presentation 2. Video
	III B.Sc Microbiology	Revision of Unit II		
08.12.20 20	I M.Sc Microbiology	Food control agencies and its regulations - HACCP	1. Fundamentals of Food Microbiology by Bibek Ray and Arun Bhunia 2. Modern Food Microbiology by James M. Jay	Power point presentation
	III B.Sc Microbiology	Revision of Unit III		
09.12.20 20	I M.Sc Microbiology	Distribution of soil microorganisms in soil. Factors influencing the soil microflora.	Microbial Ecology and Agricultural Microbiology by K.Vijaya Ramesh.	Power point presentation
10.12.20 20	I M.Sc Microbiology	Role of microorganisms in soil fertility	Microbial Ecology and Agricultural Microbiology by K.Vijaya Ramesh.	Power point presentation
11.12.20 20	I M.Sc Microbiology	Microbial interactions Lichens	1. Microbial Ecology and Agricultural Microbiology by K.Vijaya Ramesh. 2. Text book of Microbiology by R.C.Dubey	Power point presentation
14.12.20 20	I M.Sc Microbiology	Antagonistic interactions	Text book of Microbiology by R.C.Dubey	Power point presentation

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15.12.20 20	I M.Sc Microbiology	Mycorrhizae and Root nodule bacteria	1. Text book of Microbiology by R.C.Dubey. 2. https://youtu.be/O8WbVzXdI14 3. https://youtu.be/v88gbtKBTv4	1. Power point presentatio n 2. Video
16.12.20 20	I M.Sc Microbiology	Rhizosphere and Phyllosphere	1. Microbial Ecology and Agricultural Microbiology by K.Vijaya Ramesh. 2. Text book of Microbiology by R.C.Dubey	Power point presentatio n
17.12.20 20	I M.Sc Microbiology	Biogeochemic al cycles – Carbon cycle, Sulfur cycle	1. Text book of Microbiology by R.C.Dubey 2. Microbial Ecology, Fundamental and Application by Atlas R.M. and Bartha R. 3. https://youtu.be/NzxckRZ58JQ 4. https://youtu.be/TNTTJ4N3kIE	1. Power point presentatio n 2. Video
18.12.20 20	I M.Sc Microbiology	Phosphorous cycle and Nitrogen cycle	1. Text book of Microbiology by R.C.Dubey 2. Microbial Ecology, Fundamental and Application by Atlas R.M. and Bartha R 3. https://youtu.be/LbBgPekjiyc 4. https://youtu.be/Cglern-3QBw	1. Power point presentatio n 2. Video
19.12.20 20	I M.Sc Microbiology	Types of water Assessment of microbiologic al quality of water.	1. Text book of Microbiology by R.C.Dubey. 2. https://youtu.be/MeqYGP-U8Ks 3. https://youtu.be/eqoHyIvXpVw 4. https://youtu.be/wRHKO6GHA 5. https://youtu.be/_a8b0EMPDi0	1. Power point presentatio n 2. Video
23.12.20 20	I M.Sc Microbiology	Treatment of municipal water	1. Text book of Microbiology by R.C.Dubey. 2. https://youtu.be/c40yPpQG8e0 3. https://youtu.be/0_ZcCqqS2o	1. Power point presentatio n 2. Video
26.12.20 20	I M.Sc Microbiology	Droplet, Droplet nuclei and Aerosol. Assessment of	1. Environmental aspects of Microbiology by Joseph C. Daniel. 2. https://youtu.be/Na3fJoz2Ytg	1. Power point presentatio n 2. Video

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		air quality.	3. https://youtu.be/SxLoqO8jL4I	
28.12.20	I M.Sc Microbiology	Types of wastes, characterization of solid and liquid waste. Sewage treatment	1. Environmental aspects of Microbiology by Joseph C. Daniel. 2. https://youtu.be/s8IVjQg7yno 3. https://youtu.be/JkpMWjW3wbE 4. https://youtu.be/IA0Mwn8fpD0	1. Power point presentation 2. Video
29.12.20	I M.Sc Microbiology	Composting Airborne Disease and Waterborne Disease	1. Environmental aspects of Microbiology by Joseph C. Daniel. 2. https://youtu.be/FVKFnkeoUq0 3. https://youtu.be/Ujy7CKNsWzk	1. Power point presentation 2. Video
31.12.20	I M.Sc Microbiology	Productions, Field application and crop response of biofertilizers – Rhizobium, Azospirillum, Azotobacter, BGA and Azolla. Portion Completed.	1. Textbook of Biotechnology by R.C.Dubey 2. https://youtu.be/xAwWV6OsZPE	1. Power point presentation 2. Video

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Lesson Plan for the Odd semester 2020 -2021

Department of Microbiology

UCMBG18 – Medical Bacteriology and Mycology

Name of the Staff: Jalaja Priya K.

Week	Portions to be covered	References	Platform (LMS)
08.07.2020 To 10.07.2020	Normal Flora of Human body and Human Parasite relationship	- Textbook of Microbiology by Ananthanarayan and Panicker Medical Microbiology by Jawertz	Google Meet
13.07.2020 To 17.7.2020	Infections and its types and General Introduction about specimen collection	Textbook of Microbiology by Ananthanarayan and Panicker Medical Microbiology by Jawertz	Google Meet
20.07.2020 To 24.07.2020	Collection of specimen and Morphology to treatment of <i>Staphylococcus aureus</i>	Textbook of Microbiology by Ananthanarayan and Panicker Medical Microbiology by Jawertz	Google Meet
27.07.2020 To 31.07.2020	Morphology to treatment of <i>Streptococcus pyogenes</i> and <i>Streptococcus pneumoniae</i>	Textbook of Microbiology by Ananthanarayan and Panicker Medical Microbiology by Jawertz	Google Meet
03.08.2020 To 07.08.2020	Morphology to treatment of <i>Neisseria meningitidis</i> and <i>Neisseria gonorrhoeae</i>	Textbook of Microbiology by Ananthanarayan and Panicker Medical Microbiology by Jawertz	Google Meet
10.08.2020 To 14.08.2020	Morphology to treatment of <i>Mycobacterium tuberculosis</i> and	Textbook of Microbiology by Ananthanarayan and Panicker	Google Meet

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	<i>Mycobacterium leprae</i>	Medical Microbiology by Jawertz	
17.08.2020 To 21.08.2020	Morphology to treatment of <i>Corynebacterium diphtheria</i>	Textbook of Microbiology by Ananthanarayan and Panicker Medical Microbiology by Jawertz	Google Meet
24.08.2020 To 28.08.2020	Morphology to treatment of <i>Clostridium perfringens</i> Morphology to treatment of <i>Clostridium botulinum</i>	Textbook of Microbiology by Ananthanarayan and Panicker Medical Microbiology by Jawertz	Google Meet
31.09.2020 to 05.09.2020	Morphology to treatment of <i>Clostridium tetanus</i> Enterobacteriaceae family	Textbook of Microbiology by Ananthanarayan and Panicker Medical Microbiology by Jawertz	Google Meet
07.09.2020 to 12.09.2020	Morphology to treatment of Various species of <i>Shigella</i> , <i>E.coli</i>	Textbook of Microbiology by Ananthanarayan and Panicker Medical Microbiology by Jawertz	Google Meet
14.09.2020 to 19.09.2020	Morphology to treatment of <i>Salmonella</i> , <i>proteus</i> , <i>Bacillus anthracis</i>	Textbook of Microbiology by Ananthanarayan and Panicker Medical Microbiology by Jawertz	Google Meet
21.09.2020 to 26.09.2020	Morphology to treatment of <i>Vibrio cholerae</i> and <i>Vibrio parahaemolyticus</i> , <i>Pseudomonas aeruginosa</i> ,	Textbook of Microbiology by Ananthanarayan and Panicker Medical Microbiology by Jawertz	Google Meet
28.09.2020 To	Morphology to treatment of <i>Brucella</i>	Textbook of Microbiology by	Google Meet

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01.10.2020 & 03.10.2020	<i>abortus, Bordetella pertussis, Haemophilus influenza and Treponema pallidum,</i>	Ananthanarayan and Panicker Medical Microbiology by Jawertz	
05.10.2020 To 10.10.2020	Morphology to treatment of <i>chlamydiae and Rickettsiae</i> Zoonotic diseases	Textbook of Microbiology by Ananthanarayan and Panicker Medical Microbiology by Jawertz	Google Meet
12.10.2020 To 17.10.2020	- Hospital acquired infection and their control – Hospital waste disposal. General introduction, Morphology and classification of fungi of medical importance –	Textbook of Microbiology by Ananthanarayan and Panicker Medical Microbiology by Jawertz A text book of Medical Mycology by Arora	Google Meet
19.10.2020 To 24.10.2020	Detection and recovery of fungi from clinical specimens. Yeasts of medical importance – <i>Candida albicans, Cryptococcus neoformans.</i>	Textbook of Microbiology by Ananthanarayan and Panicker Medical Microbiology by Jawertz A text book of Medical Mycology by Arora	Google Meet
27.10.2020 To 29.10.2020 & 31.10.2020	Agents of superficial mycosis- <i>Trichophyton, Epidermophyton and Microsporum</i> Histoplasmosis,	. Textbook of Microbiology by Ananthanarayan and Panicker Medical Microbiology by Jawertz A text book of Medical Mycology by Arora	Google Meet

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	Coccidioidomycosis		
02.11.2020 To 06.11.2020	Blastomycosis – Mycetoma. Antifungal agents	Textbook of Microbiology by Ananthanarayan and Panicker Medical Microbiology by Jawertz A text book of Medical Mycology by Arora	Google Meet
09.11.2020 To 13.11.2020	Antifungal agents	Textbook of Microbiology by Ananthanarayan and Panicker Medical Microbiology by Jawertz A text book of Medical Mycology by Arora	Google Meet
16.11.2020. To 17.11.2020	Revision		

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Lesson Plan for the Odd semester 2020 -2021

Department of Microbiology

UGMBA518 – NON MAJOR ELECTIVE: FOOD MICROBIOLOGY


Name of the Staff: Jalaja Priya K.

Week	Class	Topics covered	References	Methodology
02.09.2020 to 05.09.2020	III UG	Food Microbiology- Definition, Scope of Food Microbiology.	Food Microbiology by C.Frazier	Powerpoint Presentation and Video
07.09.2020 to 12.09.2020	III UG	Importance of microbes in food Microbiology: Probiotics, single cell proteins - their health benefits.	Food Microbiology by C.Frazier	Powerpoint Presentation
14.09.2020 to 19.09.2020	III UG	Fermented dairy products: yogurt, acidophilus milk, koumiss,	Food Microbiology by C.Frazier	Powerpoint Presentation and Video
21.09.2020 to 26.09.2020	III UG	kefir, dahi ,cheese- their production.	Food Microbiology by C.Frazier	Powerpoint Presentation and Video
28.09.2020 To 01.10.2020 & 03.10.2020	III UG	soy sauce, sauerkraut, pickle.	Food Microbiology by C.Frazier	Powerpoint Presentation
05.10.2020 To 10.10.2020	III UG	Edible mushroom – their health benefits. Mushroom recipies – indian and western	Food Microbiology - Vijaya Ramesh K	Powerpoint Presentation
12.10.2020 To 17.10.2020	III UG	Food borne illness- food intoxication and food infection	Food Microbiology by C.Frazier	Powerpoint Presentation and Video
19.10.2020 To 24.10.2020	III UG	Etiological agents causing food borne	Food Microbiology by C.Frazier	Powerpoint Presentation and Video

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		diseases – their prevention and control measures.		
27.10.2020 To 29.10.2020 & 31.10.2020	III UG	Indian BT egg plant, Golden Rice - purple tomato.	Genetically Engineered Food by Ronnie Cummins and Ben Lilliston	Powerpoint Presentation and Video
02.11.2020 To 06.11.2020	III UG	tearless onion - rainbow cauliflower - Methionine enriched oil - Calgene FLAVR SAVR tomato	Genetically Engineered Food by Ronnie Cummins and Ben Lilliston	
09.11.2020 To 13.11.2020	III UG	Revision	-	
16.11.2020 & 17.11.2020	III UG	Revision	-	

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Department of Microbiology

USMBD518- SKILL BASED ELECTIVE: Bioinstrumentation

Name of the Staff: Jalaja Priya K.

Week	Portions to be covered	References	Platform (LMS)
13.07.2020 To 17.7.2020	Hot Air oven, Autoclave, Incubator, water bath shaker, laminar air flow- its application and uses	PVSM laboratory manual of Biochemistry	Google Meet
20.07.2020 To 24.07.2020	Buffers, molars and normal solutions	Bioinstrumentation By L.veerakumari	Google Meet
27.07.2020 To 31.07.2020	Centrifuge – Introduction and types of centrifuge	Bioinstrumentation By L.veerakumari	Google Meet
03.08.2020 To 07.08.2020	types of centrifugation.	Bioinstrumentation By L.veerakumari	Google Meet
10.08.2020 To 14.08.2020	Ultracentrifugation Electrophoresis	Bioinstrumentation By L.veerakumari	Google Meet
17.08.2020 To 21.08.2020	SDS PAGE and Southern Blotting	Biotechnology by R.C.Dubey	Google Meet
24.08.2020 To 28.08.2020	Northern Blotting to Dot Blotting	Biotechnology by R.C.Dubey	Google Meet
31.09.2020 to 05.09.2020	Chromatography- Introduction , principle & types	Bioinstrumentation By L.veerakumari Research Methodology by gurumani	Google Meet
07.09.2020 to 12.09.2020	Paper Chromatography, Thin Layer chromatography	Bioinstrumentation By L.veerakumari Research Methodology by	Google Meet

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		gurumani	
14.09.2020 to 19.09.2020	ion exchange,	Bioinstrumentation By L.veerakumari Research Methodology by gurumani	Google Meet
21.09.2020 to 26.09.2020	Gas chromatography	Bioinstrumentation By L.veerakumari Research Methodology by gurumani	Google Meet
28.09.2020 To 01.10.2020 & 03.10.2020	High Pressure Liquid chromatography	Bioinstrumentation By L.veerakumari Research Methodology by gurumani	Google Meet
05.10.2020 To 10.10.2020	Colorimetry- Principle of work	Bioinstrumentation By L.veerakumari	Google Meet
12.10.2020 To 17.10.2020	Spectrometry – Principle of work. Types - UV and visible spectrophotometer,	Bioinstrumentation By L.veerakumari	Google Meet
19.10.2020 To 24.10.2020	Flame photometry, FACS	Bioinstrumentation By L.veerakumari	Google Meet
27.10.2020 To 29.10.2020 & 31.10.2020	Biosensors – its application and uses.	Bioinstrumentation By L.veerakumari Research Methodology by gurumani	Google Meet
02.11.2020 To 06.11.2020	Revision	-	Google Meet

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Department of Microbiology

Name of the Staff: Jalaja Priya K.

USMBB318 – Skill Based Elective: Applied aspects of Microbiology

Week	Portions to be covered	References	Platform (LMS)
02.09.2020 to 05.09.2020	Microbiology – Definition; Microorganism and kinds of microorganisms.	SBE Booklet	Google Meet
07.09.2020 to 12.09.2020	Microscopy, types and uses- Sterilization and disinfection; Culture media and its uses.	SBE Booklet	Google Meet
14.09.2020 to 19.09.2020	Food Microbiology- General Spoilage of food by microorganisms. Principles and methods of food preservation- Asepsis, low temperature,	SBE Booklet	Google Meet
21.09.2020 to 26.09.2020	High temperature (Canning) and food additives. Food borne diseases.	SBE Booklet	Google Meet
28.09.2020 To 01.10.2020 & 03.10.2020	Aeromicrobiology- Definition, Indoor and outdoor microflora- Droplet, Droplet nuclei and Infectious dust. Air borne diseases. Microbiology of water	SBE Booklet	Google Meet
05.10.2020 To 10.10.2020	Types of water - Potability of water – Sources of drinking water.	SBE Booklet	Google Meet
12.10.2020 To 17.10.2020	Treatment of municipal water supplies. Water borne diseases UNIT IV: Mushroom cultivation. Mushrooms- Types of edible mushrooms cultivated in	SBE Booklet	Google Meet

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	India. Agaricus bisporus - its cultivation method.		
19.10.2020 To 24.10.2020	Nutritional and medicinal values of mushrooms.	SBE Booklet	Google Meet
27.10.2020 To 29.10.2020 & 31.10.2020	Composting - Definition. Composting of waste by different method	SBE Booklet	
02.11.2020 To 06.11.2020	windrows, wedges & bin method, harvesting the compost and storage - uses and application	SBE Booklet	Google Meet

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Work done for the year 2020 – 2021

Department of Microbiology

Name of the Staff: Ms. Jalaja Priya K

Date	Class	Portions Covered	Learning Resources	Method of Teaching
08/07/2020 To 10/07/2020	III B.Sc Microbiology	Normal Flora of Human body and Human Parasite relationship	Textbook -Textbook of Microbiology by Ananthanarayan and Panicker Reference-pdf –Medical Microbiology by Jawertz	Powerpoint presentation and video
08/07/2020 To 10/07/2020	III B.Sc Microbiology (SBE)	Hot Air oven, Autoclave, Incubator, water bath shaker, laminar air flow- its application and uses.	PVSM laboratory manual of Biochemistry	Powerpoint Presentation and Video
13/07/2020 to 17/07/2020	III B.Sc Microbiology	Infections and its types and General Introduction about specimen collection	Textbook -Textbook of Microbiology by Ananthanarayan and Panicker Reference-pdf –Medical Microbiology by Jawertz	Powerpoint presentation and video
13/07/2020 to 17/07/2020	III B.Sc Microbiology(SBE)	Buffers, molars and normal solutions	Bioinstrumentation by L.Veerakumari	Powerpoint Presentation
20/07/2020 to 25/07/2020	III B.Sc Microbiology	Collection of specimen and Morphology to treatment of <i>Staphylococcus aureus</i>	Textbook -Textbook of Microbiology by Ananthanarayan and Panicker Reference-pdf –Medical Microbiology by Jawertz	Powerpoint presentation and video
20/07/2020 to 25/07/2020	III B.Sc Microbiology(SBE)	pH meter – Calomel electrode and Glass electrode.	Bioinstrumentation by L.Veerakumari	Powerpoint Presentation and Video

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27/07/2020 to 31/07/2020	III B.Sc Microbiology	Morphology to treatment of <i>Streptococcus pyogenes</i> and <i>Streptococcus pneumonia</i>	Textbook -Textbook of Microbiology by Ananthanarayan and Panicker Reference-pdf –Medical Microbiology by Jawertz	Powerpoint presentation and video
27/07/2020 to 31/07/2020	III B.Sc Microbiology(SBE)	Centrifuge – Introduction and types of centrifuge	Bioinstrumentation by L.Veerakumari	Powerpoint Presentation and Video
03/08/2020 to 07/08/2020	III B.Sc Microbiology	Morphology to treatment of <i>Neisseria meningitidis</i> and <i>Neisseria gonorrhoeae</i>	Textbook -Textbook of Microbiology by Ananthanarayan and Panicker Reference-pdf –Medical Microbiology by Jawertz	Powerpoint presentation and video
03/08/2020 to 07/08/2020	III B.Sc Microbiology(SBE)	Ultracentrifuge & Centrifugation	Bioinstrumentation by L.Veerakumari	Powerpoint Presentation
10/08/2020 to 14/08/2020	III B.Sc Microbiology	Morphology to treatment of <i>Mycobacterium tuberculosis</i>	Textbook -Textbook of Microbiology by Ananthanarayan and Panicker Reference-pdf –Medical Microbiology by Jawertz	Powerpoint presentation and video
10/08/2020 to 14/08/2020	III B.Sc Microbiology(SBE)	Types of centrifugation. Electrophoresis	Bioinstrumentation by L.Veerakumari	Powerpoint Presentation
16/08/2020 to 21/08/2020	III B.Sc Microbiology	Morphology to treatment of <i>Mycobacterium leprae</i>	Textbook -Textbook of Microbiology by Ananthanarayan and Panicker Reference-pdf –Medical Microbiology by Jawertz	Powerpoint presentation and video
16/08/2020 to 21/08/2020	III B.Sc Microbiology(SBE)	SDS PAGE and Southern Blotting	Bioinstrumentation by L.Veerakumari and Biotechnology by R.C Dubey	Powerpoint Presentation and Video
24/08/2020 to 28/08/2020	III B.Sc Microbiology	Morphology to treatment of <i>Corynebacterium diphtheria</i> and <i>clostridium perfringens</i>	Textbook -Textbook of Microbiology by Ananthanarayan and Panicker Reference-pdf –Medical Microbiology by Jawertz	Powerpoint presentation and video
24/08/2020 to 28/08/2020	III B.Sc Microbiology(SBE)	Northern Blotting to Dot Blotting	Biotechnology by R.C Dubey	Powerpoint Presentation and Video

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31/08/2020 and 01/09/2020	III B.Sc Microbiology	Morphology to treatment of Clostridium botulinum and <i>Clostridium tetanus</i>	Textbook -Textbook of Microbiology by Ananthanarayan and Panicker Reference-pdf –Medical Microbiology by Jawertz	Powerpoint presentation and video
31/08/2020 to 05/09/2020	III B.Sc Microbiology(SBE)	Chromatography- Introduction , Paper chromatography	Bioinstrumentation by L.Veerakumari	Powerpoint Presentation and Video
02/09/2020 to 04/09/2020	III B.Sc Microbiology	Enterobacteriaceae Family <i>E.coli</i> , <i>Shigella</i> species.	Textbook -Textbook of Microbiology by Ananthanarayan and Panicker Reference-pdf –Medical Microbiology by Jawertz	Powerpoint presentation and video
02/09/2020 to 05/09/2020	III UG	Food Microbiology- Definition, Scope of Food Microbiology	Food Microbiology by C.Frazier	Powerpoint presentation and Videos
02.09.2020 to 05.09.2020	II UG	Microbiology – Definition; Microorganism and kinds of microorganisms.	SBE Booklet	Powerpoint presentation Video
07.09.2020 to 12.09.2020	II UG	Microscopy, types and uses- Sterilization and disinfection; Culture media and its uses.	SBE Booklet	Powerpoint presentation Video
07/09/2020 to 11/09/2020	III B.Sc Microbiology	<i>Proteus</i> and <i>Salmonella</i> species	Textbook -Textbook of Microbiology by Ananthanarayan and Panicker Reference-pdf –Medical Microbiology by Jawertz	Powerpoint presentation and video
07/09/2020 to 11/09/2020	III UG	Importance of microbes in food Microbiology: Probiotics, single cell proteins - their health benefits.	Food Microbiology by C.Frazier Food Microbiology By Vijaya Ramesh	Powerpoint presentation and Videos
07/09/2020 to	III B.Sc Microbiology(SBE)	Thin layer chromatography	Bioinstrumentation by L.Veerakumari	Powerpoint Presentation and

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11/09/2020				Video
13/09/2020 to 18/09/2020	III B.Sc Microbiology	<i>Bordetella species</i> and <i>Brucella species</i>	Textbook -Textbook of Microbiology by Ananthanarayan and Panicker Reference-pdf –Medical Microbiology by Jawertz	Powerpoint presentation and video
13/09/2020 to 18/09/2020	III UG	Fermented dairy products: yogurt, acidophilus milk, koumiss,	Food Microbiology by C.Frazier Food Microbiology By Vijaya Ramesh	Powerpoint presentation and Videos
13/09/2020 to 18/09/2020	III B.Sc Microbiology(SBE)	Column chromatography	Bioinstrumentation by L.Veerakumari	Powerpoint Presentation and Video
14.09.2020 to 19.09.2020	II UG	Food Microbiology- General Spoilage of food by microorganisms. Principles and methods of food preservation- Asepsis, low temperature,	SBE Booklet	Powerpoint presentation Video
21.09.2020 to 26.09.2020	II UG	High temperature (Canning) and food additives. Food borne diseases.	SBE Booklet	Powerpoint presentation Video
21/09/2020 to 26/09/2020	III B.Sc Microbiology	<i>Pseudomonas aeruginosa</i> <i>Chlamydiae</i>	Textbook -Textbook of Microbiology by Ananthanarayan and Panicker Reference-pdf –Medical Microbiology by Jawertz	Powerpoint presentation and video
21/09/2020 to 26/09/2020	III UG	kefir, dahi ,cheese- their production	Food Microbiology by C.Frazier Food Microbiology By Vijaya Ramesh	Powerpoint presentation and Videos
28.09.2020 To 01.10.2020 & 03.10.2020	II UG	Aeromicrobiology- Definition, Indoor and outdoor microflora- Droplet, Droplet nuclei and Infectious dust. Air borne diseases. Microbiology of water	SBE Booklet	Powerpoint presentation Video

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28/09/2020 to 1/10/2020	III B.Sc Microbiology	<i>Rickettsiae</i> & General Introduction about Mycology	Textbook -Textbook of Microbiology by Ananthanarayan and Panicker Reference-pdf –Medical Microbiology by Jawertz	Powerpoint presentation and video
28/09/2020 to 1/10/2020	III UG	soy sauce, sauerkraut, pickle.	Food Microbiology by C.Frazier	Powerpoint presentation and Videos
05.10.2020 To 10.10.2020	II UG	Types of water - Potability of water – Sources of drinking water.	SBE Booklet	Powerpoint presentation Video
05/10/2020 to 09/10/2020	III B.Sc Microbiology	Lab diagnosis of fungi	Textbook -Textbook of Microbiology by Ananthanarayan and Panicker Reference-pdf –Medical Microbiology by Jawertz	Powerpoint presentation and video
05/10/2020 to 09/10/2020	III UG	Edible mushroom – their health benefits. Mushroom recipes – indian and western	Food Microbiology by C.Frazier	Powerpoint presentation and Videos
12.10.2020 To 17.10.2020	II UG	Treatment of municipal water supplies. Water borne diseases. Mushroom cultivation. Mushrooms- Types of edible mushrooms cultivated in India. <i>Agaricus bisporus</i> - its cultivation method.	SBE Booklet	Powerpoint presentation Video
12/10/2020 to	III B.Sc Microbiology	<i>Candida albicans</i> <i>Cryptococcosis</i>	Textbook -Textbook of Microbiology	Powerpoint presentation and

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16/10/2020		species	by Ananthanarayan and Panicker Reference-pdf – Medical Microbiology by Jawertz	video
12/10/2020 to 16/10/2020	III UG	Food borne illness- food intoxication and food infection	Food Microbiology - Vijaya Ramesh K	Powerpoint presentation and Videos
19.10.2020 To 24.10.2020	II UG	Nutritional and medicinal values of mushrooms.	SBE Booklet	Powerpoint presentation Video
19/10/2020 to 23/10/2020	III B.Sc Microbiology	Coccidiomycosis and Histoplasmosis	Textbook -Textbook of Microbiology by Ananthanarayan and Panicker Reference-pdf – Medical Microbiology by Jawertz	Powerpoint presentation and video
19/10/2020 to 23/10/2020	III UG	Etiological agents causing food borne diseases – their prevention and control measures.	Food Microbiology by C.Frazier	Powerpoint presentation and Videos
27.10.2020 To 29.10.2020 & 31.10.2020	II UG	Composting - Definition. Composting of waste by different method	SBE Booklet	Powerpoint presentation Video
26/10/2020 to 30/10/2020	III B.Sc Microbiology	Dermatophytes	Textbook -Textbook of Microbiology by Ananthanarayan and Panicker Reference-pdf – Medical Microbiology by Jawertz	Powerpoint presentation and video
26/10/2020 to 30/10/2020	III UG	Indian BT egg plant, Golden Rice - purple tomato.	Genetically Engineered Food by Ronnie Cummins and Ben Lilliston	Powerpoint presentation and Videos
2/11/2020 To 06/11/2020	III B.Sc Microbiology	Mycetoma and Antifungal agents	Textbook -Textbook of Microbiology by Ananthanarayan and Panicker Reference-pdf – Medical Microbiology by Jawertz	Powerpoint presentation and video
2/11/2020	III UG	tearless onion -	Genetically Engineered	Powerpoint

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To 06/11/2020		Rainbow cauliflower - FLAVR SAVR tomato	Food by Ronnie Cummins and Ben Lilliston	presentation and Videos
02.11.2020 To 06.11.2020	II UG	windrows, wedges & bin method	SBE Booklet	Powerpoint presentation Video
09.11.2020 To 13.11.2020	III UG	Portions completed Revision		
09.11.2020 To 13.11.2020	II UG	Harvesting the compost and storage - uses and application	SBE Booklet	Powerpoint presentation Video
09/11/2020 to 13/11/2020	III B.Sc Microbiology	Portions completed	-	-
16/11/2020 &17/11/2020	III B.Sc Microbiology	Revision	-	-

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Lesson Plan for the year 2020-2021

Course Name: Immunology and Immunotechnology

Course Code: PCMBC20

Course Instructor/Coordinator: Dr. Kalpana V N

No. of Hours/Week: 5 Hours/Week

Week	Portions to be covered	Reference	Platform (LMS)
12.10.20 to 16.10.20	Introductory Class (i) Welcoming the Students to the class (ii) Discussion about Syllabus	Kuby J Richard A. Goldsby, Thomas J. Kindt (2006). Immunology. Richard M.Hyde (2011).Immunology	Google Meet Google classroom
19.10.20 to 23.10.20	(i) "Introduction: Infection, immunity, types of immunity - innate and adaptive".	Kuby J Richard A. Goldsby, Thomas J. Kindt (2006). Immunology. Richard M.Hyde (2011).Immunology	Google Meet Google classroom
27.10.20 to 29.10.20	(i) "Milestones in immunology - evolution of immunology"	Kuby J Richard A. Goldsby, Thomas J. Kindt (2006). Immunology. Richard M.Hyde (2011).Immunology	Google Meet Google classroom
02.11.20 to 06.11.20	(i) "Phagocytosis and extracellular killing, immunity to specific infection" (ii) "Immune Systems: Anatomy of the lympho - reticular system, primary lymphoid organs - bone marrow & thymus"	Kuby J Richard A. Goldsby, Thomas J. Kindt (2006). Immunology. Richard M.Hyde (2011).Immunology	Google Meet Google classroom
09.11.20 to 13.11.20	(i) "Secondary lymphoid tissues - spleen, lymph nodes & gut associated lymphoid tissue"	Kuby J Richard A. Goldsby, Thomas J. Kindt (2006). Immunology. Richard M.Hyde (2011).Immunology	Google Meet Google classroom
16.11.20 to 20.11.20	(i) "Immuno reactive cells - T and B lymphocytes, macrophages, granulocyte and NK cells"	Kuby J Richard A. Goldsby, Thomas J. Kindt (2006). Immunology. Richard M.Hyde (2011).Immunology	Google Meet Google classroom

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23.11.20 to 27.11.20	Revision for CA I Examination		Google Meet Google classroom
30.11.20 to 04.12.20	Antigens and Major Histocompatibility (i) "Antigens and Immunogenicity: Terminologies and definitions - antigen, immunogen, haptens, superantigens, tolerogen, epitope, paratope and antigenic determinants"	Kuby J Richard A. Goldsby, Thomas J. Kindt (2006). Immunology. Richard M.Hyde (2011).Immunology	Google Meet Google classroom
07.12.20 to 11.12.20	(i) "Features associated with antigenicity and immunogenicity". (ii) "Basis of antigen specificity"	Kuby J Richard A. Goldsby, Thomas J. Kindt (2006). Immunology. Richard M.Hyde (2011).Immunology	Google Meet Google classroom
14.12.20 to 18.12.20	(i) "Antigen receptors: Cell surface proteins of Major Histocompatibility Complex (MHC): types, - class I, II and III distribution and function"	Kuby J Richard A. Goldsby, Thomas J. Kindt (2006). Immunology. Richard M.Hyde (2011).Immunology	Google Meet Google classroom
21.12.20 to 24.12.20	(i) "MHC in relation to transplantation and HLA typing" (ii) "T cell receptor complex"	Kuby J Richard A. Goldsby, Thomas J. Kindt (2006). Immunology. Richard M.Hyde (2011).Immunology	Google Meet Google classroom
28.12.20 to 31.12.20	Immunoglobulin and Complement System. (i) "Antibodies - B cell receptors. Three dimensional structure of immunoglobulin molecule" (ii) "Types of immunoglobulins. Biological and chemical properties of immunoglobulin". (iii) "Antigen, antibody attraction - forces, affinity, avidity and specificity".	Kuby J Richard A. Goldsby, Thomas J. Kindt (2006). Immunology. Richard M.Hyde (2011).Immunology	Google Meet Google classroom
04.01.21 to 08.01.21	(i) "Antibody synthesis and diversity - genetic basis". (ii) "Monoclonal and polyclonal antibody production - Hybridoma technology". (iii) "Complement system: Basics of complement protein - different pathways of complement activation - the pathway of membrane attack (common pathway), classical and alternate".	Kuby J Richard A. Goldsby, Thomas J. Kindt (2006). Immunology. Richard M.Hyde (2011).Immunology	Google Meet Google classroom

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11.01.21 to 14.01.21	Hypersensitivity (i) "Acquired immune response" (ii) "Humoral immune response - various phases of humoral immune response". (iii) "Cell mediated immune response".	Kuby J Richard A. Goldsby, Thomas J. Kindt (2006). Immunology. Richard M.Hyde (2011).Immunology	Google Meet Google classroom
18.01.21 to 22.01.21	Revision for CA II		Google Meet Google classroom
25.01.21 to 29.01.21	(i) "Immune regulation - various events in induction of immune response" (ii) "Hypersensitivity- Type I to IV" (iii) "Means of immunosuppression - physical, chemical and biological".	Kuby J Richard A. Goldsby, Thomas J. Kindt (2006). Immunology. Richard M.Hyde (2011).Immunology	Google Meet Google classroom
01.02.21 to 05.02.21	(i) "Vaccines – Live attenuated and killed inactivated vaccine" (ii) "rDNA vaccine, synthetic peptide vaccine, Plasma derived vaccine, anti - idiotypic vaccine and DNA vaccine". (iii) "Active immunization - vaccines & toxoids – bacterial and viral".	Kuby J Richard A. Goldsby, Thomas J. Kindt (2006). Immunology. Richard M.Hyde (2011).Immunology	Google Meet Google classroom
08.02.21 to 10.02.21	(i) "Immunization Schedule" (ii) "Passive immunization - antitoxins, immunoglobulin, specific immunoglobulin, hyper immune gamma globulin" (iii) "Autoimmune disease "	Kuby J Richard A. Goldsby, Thomas J. Kindt (2006). Immunology. Richard M.Hyde (2011).Immunology	Google Meet Google classroom
From 10.02.21 till semester exam	Revision for Odd semester exam		Google Meet Google classroom

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Lesson Plan for the year 2020-2021

Course Name: Economic Microbiology

Course Code: PEMBB20

Course Instructor/Coordinator: Dr. Kalpana. V N

No. of Hours/Week: 3 Hours/Week

Week	Portions to be covered	Reference	Platform (LMS)
12.10.20 to 16.10.20	(i) Welcoming the Students to the class (ii) Discussion about Syllabus (i) "Production and application of biofertilizers - <i>Rhizobium</i> , <i>Azospirillum</i> , <i>Azotobacter</i> "	Dubey R.C (2005). A Text of Biotechnology. SubbaRao NS (2004). Soil Microbiology	Google Meet Google classroom
19.10.20 to 23.10.20	(i) " <i>Azolla - Anabaena</i> , BGA (ii) Phosphate solubilizing – phosphobacterium and Mycorrhiza (iii) Bacterial Biopesticides.	Dubey R.C (2005). A Text of Biotechnology. SubbaRao NS (2004). Soil Microbiology	Google Meet Google classroom
27.10.20 to 29.10.20	(i) Fungal Biopesticides. (ii) Role of microorganisms in vermicomposting.	Dubey R.C (2005). A Text of Biotechnology. SubbaRao NS (2004). Soil Microbiology	Google Meet Google classroom
02.11.20 to 06.11.20	Microbes in Industries (i) Fermented beverages: wine, beer, whisky, brandy – health benefits and disadvantages. (ii) Organic acids- Citric acid, acetic acid. (iii) Organic solvents- Acetone, butanol, ethanol	Dubey R.C (2005). A Text of Biotechnology. SubbaRao NS (2004). Soil Microbiology	Google Meet Google classroom

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09.11.20 to 13.11.20	(i) Fermented foods- cheese, yoghurt, sauerkraut, bread, sweeteners, flavor enhancers. (ii) Traditional fermented foods- Dhokla, Appam, Churpa/Churpi, Fermented bamboo shoot.	Dubey R.C (2005). A Text of Biotechnology. SubbaRao NS (2004). Soil Microbiology	Google Meet Google classroom
16.11.20 to 20.11.20	(i) Oriental fermented foods- soya sauce, koji&miso	Dubey R.C (2005). A Text of Biotechnology. SubbaRao NS (2004). Soil Microbiology	Google Meet Google classroom
23.11.20 to 27.11.20	Revision for CA I Examination		Google Meet Google classroom
30.11.20 to 04.12.20	Yeast Production (i) Bottom and Top yeast- Baker's yeast. (ii) Food and feed yeasts.	Dubey R.C (2005). A Text of Biotechnology. SubbaRao NS (2004). Soil Microbiology	Google Meet Google classroom
07.12.20 to 11.12.20	(i) Alcohol yeasts. (ii) SCP: <i>Saccharomyces cerevisiae</i> , <i>Pichiapastoris</i> . (i) <i>Candida utilis</i> and <i>Geotrichumcandidum</i>	Dubey R.C (2005). A Text of Biotechnology. SubbaRao NS (2004). Soil Microbiology	Google Meet Google classroom
14.12.20 to 18.12.20	(i) Other yeast products.	Dubey R.C (2005). A Text of Biotechnology. SubbaRao NS (2004). Soil Microbiology	Google Meet Google classroom
21.12.20 to 24.12.20	CA I Examination		Google Meet Google classroom
28.12.20 to 31.12.20	Mushroom (i) Button mushroom (<i>Agaricusbisporus</i>) – composting, spawning	Dubey R.C (2005). A Text of Biotechnology. SubbaRao NS (2004). Soil Microbiology	Google Meet Google classroom

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	(ii) Button mushroom (<i>Agaricusbisporus</i>) – cropping, harvesting and marketing. (iii) Oyster mushroom (<i>Pleurotus</i> sp.), - composting, spawning		
04.01.21 to 08.01.21	(i) Oyster mushroom (<i>Pleurotus</i> sp.), - (ii) Paddy straw mushroom (<i>Volvariellavolvacea</i>) – composting, spawning. (iii) Paddy straw mushroom (<i>Volvariellavolvacea</i>)-cropping, harvesting and marketing	Dubey R.C (2005). A Text of Biotechnology. SubbaRao NS (2004). Soil Microbiology	Google Meet Google classroom
11.01.21 to 14.01.21	i) Cultivation methods of Spirulina (ii) Biotechnological potentials of microalgae- food and feed. (iii) Fuel production from microalgae- Methane and Hydrocarbon.	Dubey R.C (2005). A Text of Biotechnology. SubbaRao NS (2004). Soil Microbiology	Google Meet Google classroom
18.01.21 to 22.01.21	Revision for CA II		Google Meet Google classroom
25.01.21 to 29.01.21	(i) Pharmaceutically valuable compounds from microalgae	Dubey R.C (2005). A Text of Biotechnology. SubbaRao NS (2004). Soil Microbiology	Google Meet Google classroom
01.02.21 to 05.02.21	(i) Food and nutraceuticals of Algae: <i>Cyanophyta, Rhodophyta, Heterokontophyta, Chlorophyta.</i>	Dubey R.C (2005). A Text of Biotechnology. SubbaRao NS (2004). Soil Microbiology	Google Meet Google classroom
08.02.21 to 10.02.21	i) Polysaccharides (Agar Agar, Carageenan and Alginic acid).	Dubey R.C (2005). A Text of Biotechnology. SubbaRao NS (2004). Soil Microbiology	Google Meet Google classroom
From 10.02.21 till semester exam	Revision for Odd semester exam		Google Meet Google classroom

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Work done for the year 2020 - 2021

Name: Dr. V. N. Kalpana

Department: Microbiology

Date	Class	Portions Covered	Reference	Methods of Teaching
12.10.20	I-M.Sc Microbiology (Immunology and Immunotechnology)	Discussion about Syllabus	Syllabus	Lecturing
13.10.12	I. M.Sc Microbiology (Economic Microbiology)	Discussion about Syllabus	Syllabus	Lecturing
14.10.12	I. M.Sc Microbiology (Economic Microbiology)	Introduction to Fertilizers	Dubey R.C (2005). A Text of Biotechnology. SubbaRao NS (2004). Soil Microbiology	Power point presentation
15.10.20	I-M.Sc Microbiology (Immunology and Immunotechnology)	Infection and Immunity, types of immunity - innate and adaptive.	Kuby J Richard A. Goldsby, Thomas J. Kindt (2006). Immunology. Richard M.Hyde (2011).Immunology	Power point presentation
16.10.12	I. M.Sc Microbiology (Economic Microbiology)	Orientation Programme	-	-
20.10.20	I-M.Sc Microbiology (Immunology and Immunotechnology)	Phagocytosis and extracellular killing, immunity to specific infection	Kuby J Richard A. Goldsby, Thomas J. Kindt (2006). Immunology. Richard M.Hyde (2011).Immunology	Power point presentation

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21.10.20	I. M.Sc Microbiology (Economic Microbiology)	P Solubilizing and Mobilizing Biofertilizers Silicate and Zinc Biofertilizers Plant growth promoting Biofertilizers	Dubey R.C (2005). A Text of Biotechnology. SubbaRao NS (2004). Soil Microbiology	Power point presentation
22.10.20	I. M.Sc Microbiology (Economic Microbiology)	Certificate Verification	-	-
23.10.20	I-M.Sc Microbiology (Immunology and Immunotechnology)	Immune Systems: Anatomy of the lympho - reticular system, primary lymphoid organs - bone marrow & thymus	Kuby J Richard A. Goldsby, Thomas J. Kindt (2006). Immunology. Richard M.Hyde (2011).Immunology	Power point presentation
27.10.20	I. M.Sc Microbiology (Economic Microbiology)	Application of Biofertilizers Advantages and Disadvantages - Biofertilizers	Dubey R.C (2005). A Text of Biotechnology. SubbaRao NS (2004). Soil Microbiology	Power point presentation
29.10.20	I-M.Sc Microbiology (Immunology and Immunotechnology)	Secondary lymphoid tissues - spleen, lymph nodes & gut associated lymphoid tissue	Kuby J Richard A. Goldsby, Thomas J. Kindt (2006). Immunology. Richard M.Hyde (2011).Immunology	Power point presentation
02.11.20	I. M.Sc Microbiology (Economic Microbiology)	Introduction to Pesticides, Chemical Pesticides, Biopesticides	Dubey R.C (2005). A Text of Biotechnology. SubbaRao NS (2004). Soil Microbiology	Power point presentation
03.11.20	I. M.Sc Microbiology (Economic Microbiology)	Biopesticides – Its Types and Classification	Dubey R.C (2005). A Text of Biotechnology.	Power point presentation

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	Microbiology)		SubbaRao NS (2004). Soil Microbiology	
04.11.20	I-M.Sc Microbiology (Immunology and Immunotechnology)	Immuno reactive cells - T and B lymphocytes, macrophages, granulocyte and NK cells	Kuby J Richard A. Goldsby, Thomas J. Kindt (2006). Immunology. Richard M.Hyde (2011).Immunology	Power point presentation
05.11.20	I. M.Sc Microbiology (Economic Microbiology)	Bacterial Biopesticides	Dubey R.C (2005). A Text of Biotechnology. SubbaRao NS (2004). Soil Microbiology	Power point presentation
09.11.20	I-M.Sc Microbiology (Immunology and Immunotechnology)	Antigens and Immunogenicity: Terminologies and definitions - antigen, immunogen, haptens, superantigens, tolerogen, epitope, paratope and antigenic determinants	Kuby J Richard A. Goldsby, Thomas J. Kindt (2006). Immunology. Richard M.Hyde (2011).Immunology	Power point presentation
10.11.20	I. M.Sc Microbiology (Economic Microbiology)	Fungal Biopesticides	Dubey R.C (2005). A Text of Biotechnology. SubbaRao NS (2004). Soil Microbiology	Power point presentation
11.11.20	I. M.Sc Microbiology (Economic Microbiology)	Role of Microorganisms in Vermicomposting	Dubey R.C (2005). A Text of Biotechnology. SubbaRao NS (2004). Soil Microbiology	Power point presentation
12.11.20	I. M.Sc Microbiology (Immunology and Immunotechnology)	Features associated with antigenicity and immunogenicity.	Kuby J Richard A. Goldsby, Thomas J. Kindt (2006). Immunology.	Power point presentation

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			Richard M.Hyde (2011).Immunology	
13.11.20	I. M.Sc Microbiology (Economic Microbiology)	Unit:II Beer Production whisky, brandy – health benefits and disadvantages.	Dubey R.C (2005). A Text of Biotechnology. SubbaRao NS (2004). Soil Microbiology	Power point presentation
16.11.20	I. M.Sc Microbiology (Economic Microbiology)	Unit II Organic acids- Citric acid, acetic acid. Organic solvents- Acetone, butanol, ethanol	Dubey R.C (2005). A Text of Biotechnology. SubbaRao NS (2004). Soil Microbiology	Power point presentation
17.11.20	I. M.Sc Microbiology (Immunology and Immunotechnology)	Basis of antigen specificity	Kuby J Richard A. Goldsby, Thomas J. Kindt (2006). Immunology. Richard M.Hyde (2011).Immunology	Power point presentation
18.11.20	I. M.Sc Microbiology (Economic Microbiology)	Fermented foods- cheese, yoghurt. sauerkraut, bread, sweeteners, flavor enhancers	Dubey R.C (2005). A Text of Biotechnology. SubbaRao NS (2004). Soil Microbiology	Power point presentation
27.11.20	I-M.Sc Microbiology (Immunology and Immunotechnology)	Antigen receptors: Cell surface proteins of Major Histocompatibility Complex (MHC): types, - class I, II and III distribution and function”	Kuby J Richard A. Goldsby, Thomas J. Kindt (2006). Immunology. Richard M.Hyde (2011).Immunology	Power point presentation
28.11.20	I. M.Sc Microbiology (Economic Microbiology)	Oriental fermented foods- soya sauce, koji & miso Bottom and Top yeast- Baker’s yeast	Dubey R.C (2005). A Text of Biotechnology. SubbaRao NS (2004). Soil Microbiology	Power point presentation

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30.11.20	I-M.Sc Microbiology (Immunology and Immunotechnology)	MHC in relation to transplantation and HLA typing	Kuby J Richard A. Goldsby, Thomas J. Kindt (2006). Immunology. Richard M.Hyde (2011).Immunology	Power point presentation
01.12.20	I. M.Sc Microbiology (Economic Microbiology)	Food and feed yeasts. Alcohol yeasts. SCP: <i>Saccharomyces cerevisiae, Pichia pastoris.</i>	Dubey R.C (2005). A Text of Biotechnology. SubbaRao NS (2004). Soil Microbiology	Power point presentation
02.12.20	I-M.Sc Microbiology (Immunology and Immunotechnology)	Antibodies - B cell receptors. Three dimensional structure of immunoglobulin molecule	Kuby J Richard A. Goldsby, Thomas J. Kindt (2006). Immunology. Richard M.Hyde (2011).Immunology	Power point presentation
03.12.20	I. M.Sc Microbiology (Immunology and Immunotechnology)	Types of immunoglobulins. Biological and chemical properties of immunoglobulin. (iii) Antigen, antibody attraction - forces, affinity, avidity and specificity	Kuby J Richard A. Goldsby, Thomas J. Kindt (2006). Immunology. Richard M.Hyde (2011).Immunology	Power point presentation
04.12.20	I-M.Sc Microbiology (Immunology and Immunotechnology)	Antibody synthesis and diversity - genetic basis (ii) "Monoclonal and polyclonal antibody production - Hybridoma technology	Kuby J Richard A. Goldsby, Thomas J. Kindt (2006). Immunology. Richard M.Hyde (2011).Immunology	Power point presentation
05.12.20	I. M.Sc Microbiology (Economic Microbiology)	Other yeast products. <i>Candida utilis</i> and <i>Geotrichum candidum</i>	Dubey R.C (2005). A Text of Biotechnology. SubbaRao NS (2004). Soil	Power point presentation

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			Microbiology	
07.12.20	I-M.Sc Microbiology (Immunology and Immunotechnology)	Complement system: Basics of complement protein - different pathways of complement activation - the pathway of membrane attack (common pathway), classical and alternate.	Kuby J Richard A. Goldsby, Thomas J. Kindt (2006). Immunology. Richard M.Hyde (2011).Immunology	Power point presentation
08.12.20	I. M.Sc Microbiology (Economic Microbiology)	Button mushroom (<i>Agaricusbisporus</i>) – composting, spawning cropping, harvesting and marketing.	Dubey R.C (2005). A Text of Biotechnology. SubbaRao NS (2004). Soil Microbiology	Power point presentation
09.12.20	I-M.Sc Microbiology (Immunology and Immunotechnology)	Acquired immune response” Humoral immune response - various phases of humoral immune response. Cell mediated immune response	Kuby J Richard A. Goldsby, Thomas J. Kindt (2006). Immunology. Richard M.Hyde (2011).Immunology	Power point presentation
10.12.20	I. M.Sc Microbiology (Economic Microbiology)	Oyster mushroom (<i>Pleurotus</i> sp.), - cropping, harvesting and marketing. composting, spawning	Dubey R.C (2005). A Text of Biotechnology. SubbaRao NS (2004). Soil Microbiology	Power point presentation
11.12.20	I-M.Sc Microbiology (Immunology and Immunotechnology)	Immune regulation - various events in induction of immune response. Hypersensitivity- Type I to IV. Means of immunosuppression - physical, chemical and biological.	Kuby J Richard A. Goldsby, Thomas J. Kindt (2006). Immunology. Richard M.Hyde (2011).Immunology	Power point presentation
12.12.20	I. M.Sc Microbiology (Economic	Paddy straw mushroom (<i>Volvariella</i>	Dubey R.C (2005). A Text of Biotechnology.	Power point presentation

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	Microbiology)	<i>volvacea</i>)- composting, spawning cropping, harvesting and marketing.	SubbaRao NS (2004). Soil Microbiology	
14.12.20	I-M.Sc Microbiology (Immunology and Immunotechnology)	Vaccines – Live attenuated and killed inactivated vaccine.	Kuby J Richard A. Goldsby, Thomas J. Kindt (2006). Immunology. Richard M.Hyde (2011).Immunology	Power point presentation
15.12.20	I. M.Sc Microbiology (Economic Microbiology)	Cultivation methods of Spirulina Biotechnological potentials of microalgae- food and feed.	Dubey R.C (2005). A Text of Biotechnology. SubbaRao NS (2004). Soil Microbiology	Power point presentation
16.12.20	I-M.Sc Microbiology (Immunology and Immunotechnology)	Fuel production from microalgae- Methane and Hydrocarbon.	Kuby J Richard A. Goldsby, Thomas J. Kindt (2006). Immunology. Richard M.Hyde (2011).Immunology	Power point presentation
17.12.20	I. M.Sc Microbiology (Economic Microbiology)	Pharmaceutically valuable compounds from microalgae. Food and nutraceuticals of Algae: <i>Cyanophyta</i> ,	Dubey R.C (2005). A Text of Biotechnology. SubbaRao NS (2004). Soil Microbiology	Power point presentation
18.12.20	I-M.Sc Microbiology (Immunology and Immunotechnology)	Immunization Schedule	Kuby J Richard A. Goldsby, Thomas J. Kindt (2006). Immunology. Richard M.Hyde (2011).Immunology	Power point presentation
19.12.20	I-M.Sc Microbiology (Immunology and Immunotechnology)	Passive immunization - antitoxins, immunoglobulin, specific immunoglobulin	Kuby J Richard A. Goldsby, Thomas J. Kindt (2006). Immunology. Richard M.Hyde (2011).Immunology	Power point presentation

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21.12.20	I-M.Sc Microbiology (Immunology and Immunotechnology)	hyper immune gamma globulin	Kuby J Richard A. Goldsby, Thomas J. Kindt (2006). Immunology. Richard M.Hyde (2011).Immunology	Power point presentation
22.12.20	I. M.Sc Microbiology (Economic Microbiology)	<i>Rhodophyta</i> , <i>Heterokontophyta</i> , <i>Chlorophyta</i> . Polysaccharides (Agar Agar, Carageenan and Alginic acid).	Dubey R.C (2005). A Text of Biotechnology. SubbaRao NS (2004). Soil Microbiology	Power point presentation
23.12.20	I-M.Sc Microbiology (Immunology and Immunotechnology)	Autoimmune disease	Kuby J Richard A. Goldsby, Thomas J. Kindt (2006). Immunology. Richard M.Hyde (2011).Immunology	Power point presentation
24.12.20	I-M.Sc Microbiology (Immunology and Immunotechnology)	Active immunization - vaccines & toxoids – bacterial and viral	Kuby J Richard A. Goldsby, Thomas J. Kindt (2006). Immunology. Richard M.Hyde (2011).Immunology	Power point presentation
26.12.20	I. M.Sc Microbiology (Economic Microbiology)	Portions Completed		
28.12.20	I. M.Sc Microbiology (Immunology and Immunotechnology)	rDNA vaccine, synthetic peptide vaccine, Plasma derived vaccine, anti - idiotypic vaccine and DNA vaccine	Kuby J Richard A. Goldsby, Thomas J. Kindt (2006). Immunology. Richard M.Hyde (2011).Immunology	Power point presentation
29.12.20	I. M.Sc Microbiology (Immunology and Immunotechnology)	Portions Completed	Kuby J Richard A. Goldsby, Thomas J. Kindt (2006). Immunology. Richard M.Hyde (2011).Immunology	

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30.12.20	I. M.Sc Microbiology (Economic Microbiology)	Revision		
31.12.20	I. M.Sc Microbiology (Immunology and Immunotechnology)	Revision		

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Gandhi Nagar, Vellore - 632 006.
Vellore District, Tamil Nadu.

Auxilium College (Autonomous), Gandhi Nagar, Vellore - 632 006.

Lesson Plan for the year 2020 - 2021

Department of Microbiology

Name of the Staff: Ms. G. Ramya

Course - Fundamentals of cell biology (UEMBA18)

Week	Portions to be covered	Reference	Platform (LMS)
Unit I and half of Unit -II has been covered by Ms. Deepa and Ms. Jalajapriya			
03/09/2020 To 05/09/2020	Unit -II Introduction to cell biology and Lysosomes	Cell Biology (second edition) by Stephen R. Bolsover (et al)	Power point presentation
07.09.2020 to 12.09.2020	Unit -II Peroxisomes, Glyoxysomes, Chloroplast, Extracellular matrix- collagen and microtubules, microfilaments, centrioles and basal bodies, cilia and flagella	Karps Cell and Molecular Biology (8 th Edition) by Janet Iwasa and Wallace Marshall	Power point presentation And video presentations
14.09.2020 to 19.09.2020	Unit -III Nucleus- Nuclear membrane, Nucleolus, Nuclear pore and annulus	Molecular cell biology (5 th edition) by Lodish (et al)	Power point presentation and video presentations
21.09.2020 to 26.09.2020	Unit -III Cytogenetics- Structure of chromosomes, Nucleosomes - Gaint chromosomes- polytene and lamp brush chromosomes.	Karps Cell and Molecular Biology (8 th Edition) by Janet Iwasa and Wallace Marshall	Power point presentation

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28.09.2020 To 01.10.2020 & 03.10.2020	Unit IV Cell cycle, cell division – Mitosis	Molecular cell biology (5 th edition) by Lodish (et al)	Power point presentation
05.10.2020 To 10.10.2020	Unit-IV Meiosis I and II	Molecular cell biology (5 th edition) by Lodish (et al)	Power point presentation
12.10.2020 To 17.10.2020	Unit-IV Protein structure and synthesis	Lehninger Principles of Biochemistry (4 th Edition) by David L Nelson and Michael. M. Cox	PowerPoint presentation and video sessions
19.10.2020 To 24.10.2020	Unit-V Cell biology- molecular organization of animal cell membrane- membrane . lipids, proteins and carbohydrates.	Cell and Molecular Biology Concepts and Experiments by Gerald Karp	Power point presentation
27.10.2020 To 29.10.2020 & 31.10.2020	Unit- V The fluid mosaic model and artificial membranes- mitochondrial and red cell membrane, cell wall components and role of cell wall.	Molecular cell biology (5 th edition) by Lodish (et al)	Power point presentation

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Lesson Plan for the year 2020 – 2021

Department of Microbiology

Name of the Staff: Ms. G. Ramya

Course – Fundamentals of Microbiology (UCMBA20)

Week	Portions to be covered	Reference	Platform (LMS)
09.09.2020 to 12.09.2020	Unit-I History and scopes of microbiology Spontaneous Vs Biogenesis	Alcom's Fundamentals of Microbiology (9 th Edition) by Jeffrey C. Pommerville	Power point presentation And video presentations
14.09.2020 to 19.09.2020	Unit-I Contribution of Louis Pasteur, Robert Koch, Antony Van Leewenhoek Sergei N. Winogradsky, Joseph Lister, Wilkn Beijerink Alexander Flemming, Selman A. Waksman, Emil Christian Hansen, Hans Christian Gram. Impact of Microbiology and the future	Microbiology (5 th Edition) by Lansing M. Prescott	Power point presentation and video presentations
21.09.2020 to 26.09.2020	Unit-II Microscopy and principle of working - Simple, compound, Dark Field, Phase contrast Fluorescent and Electron Microscope - its types (SEM and TEM)	Benson's Microbiological applications (13 th Edition) by Alfred Brown and Haldi Smith	Power point presentation
28.09.2020 To 01.10.2020 &	Unit-II Staining methods: Dyes and its uses – Simple staining. Differential staining - Gram	Benson's Microbiological applications (13 th Edition) by Alfred	Power point presentation

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03.10.2020	staining and Acid fast staining (Zeihl Neelson method). Special staining techniques - Spore staining, Capsule staining (negative staining).	Brown and Heldi Smith	
05.10.2020 To 10.10.2020	Unit-II Flagella staining and Alberts staining for metachromatic granules Unit-III Microbial evolution & diversity - Endosymbiotic theory Binomial Nomenclature of Microbes	1. Benson's Microbiological applications (13 th Edition) by Alfred Brown and Heldi Smith 2. Philosophy of Microbiology by Maureen A. O' Malley	Power point presentation
12.10.2020 To 17.10.2020	Unit-III Classification Five Kingdom concept (Whittaker Classification) - Eight Kingdom concept (Cavalier smith). Prokaryotes and eukaryotes - their differences	Philosophy of Microbiology by Maureen A. O' Malley	PowerPoint presentation and video sessions
19.10.2020 To 24.10.2020	Unit-III Classical techniques of Microbial identification- Morphological, Physiological and biochemical properties General introduction to Fungi, Algae, Virus and protozoa.	1. Microbiology (5 th Edition) by Lansing M. Prescott 2. Benson's Microbiological applications (13 th Edition) by Alfred Brown and Heldi Smith	Power point presentation
27.10.2020 To 29.10.2020 & 31.10.2020	Unit-IV Morphological shape, structure and arrangement of bacteria- Anatomy of Bacteria. Ultrastructure and functions of cell wall (Gram positive and Gram negative cell wall). Cytoplasmic membranes	Microbiology (5 th Edition) by Lansing M. Prescott	Power point presentation
02/11/2020 To 07/11/2020	Unit-IV Flagella- structure and arrangement, Pili / fimbriae	Philosophy of Microbiology by Maureen A. O' Malley	Power point presentation

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	Capsule - Slime layer, cytoplasmic inclusions and granules Spore - process of sporulation		
09/11/2020 To 13/11/2020	Unit-V Overview on Sterilization– Principles and Methods of Sterilization Dry heat sterilization - Incineration and Hot air Oven- principle and uses. Moist heat sterilization – Pasteurization, Tyndallization and Autoclave- principle and uses.	Alcomo's Fundamentals of Microbiology (9 th Edition) by Jeffrey C. Pommerville	Power point presentation
16/11/2020 To 21/11/2020	Unit-V Filtration, Radiation-ionizing and non-ionizing and Sterilization control. Disinfection - Chemical disinfectants and its uses – fumigation Phenol coefficient test.	Alcomo's Fundamentals of Microbiology (9 th Edition) by Jeffrey C. Pommerville	Power point presentation

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Work done for the year 2020 – 2021

Department of Microbiology

Name of the Staff: Ms. G Ramya

Date	Class	Portions covered	References	Methods of teaching
03/09/2020	III B. Sc, Microbiology (Elective)	Unit -II Introduction to cell biology and Lysosomes	Cell Biology (second edition) by Stephen R. Bolsover (et al)	Power point presentation
08/09/2020	III B. Sc, Microbiology (Elective)	Peroxisomes and Glyoxysomes,	Karps Cell and Molecular Biology (8 th Edition) by Janet Iwasa and Wallace Marshall	Power point presentation And video presentations
10/09/2020	III B. Sc, Microbiology (Elective)	Chloroplast	Karps Cell and Molecular Biology (8 th Edition) by Janet Iwasa and Wallace Marshall	Power point presentation
11/09/2020	I B.Sc, Microbiology	Introduction to Microbiology	Alcom's Fundamentals of Microbiology (9 th Edition) by Jeffrey C. Pommerville	Power point presentation
14/09/2020	I B.Sc, Microbiology	History and scopes of microbiology	Alcom's Fundamentals of Microbiology (9 th Edition) by Jeffrey C. Pommerville	Power point presentation
16/09/2020	III B. Sc, Microbiology (Elective)	Extracellular matrix- collagen	Karps Cell and Molecular Biology (8 th	Power point presentation

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		and microtubules,	Edition) by Janet Iwasa and Wallace Marshall	And video presentations
17/09/2020	I B.Sc, Microbiology	Spontaneous Vs Biogenesis	Alcom's Fundamentals of Microbiology (9 th Edition) by Jeffrey C. Pommerville	Power point presentation
18/09/2020	III B. Sc, Microbiology (Elective)	Microfilaments, centrioles and basal bodies, cilia and flagella	Karps Cell and Molecular Biology (8 th Edition) by Janet Iwasa and Wallace Marshall	Power point presentation And video presentations
19/09/2020	I B.Sc, Microbiology	Contribution of Louis Pasteur, Robert Koch, Antony Van Leewenhoek Sergei N. Winogradsky	Microbiology (5 th Edition) by Lansing M. Prescott	Power point presentation
21/09/2020	I B.Sc, Microbiology	Contribution of Joseph Lister, Wilkn Beijerink	Microbiology (5 th Edition) by Lansing M. Prescott	Power point presentation
23/09/2020	III B.Sc, Microbiology	Revision -UNIT-II		
24/09/2020	I B.Sc, Microbiology	Contribution of Alexander Flemming, Selman A. Waksman, Emil Christian Hansen, Hans Christian Gram.	Microbiology (5 th Edition) by Lansing M. Prescott	Power point presentation
25/09/2020	III B.Sc, Microbiology	Nucleus- Nuclear membrane,	Molecular cell biology (5 th edition) by Lodish (et al)	Power point presentation and video presentations

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26/09/2020	I B.Sc, Microbiology	Impact of Microbiology and the future	Microbiology (5 th Edition) by Lansing M. Prescott	Power point presentation
28/09/2020	I B.Sc, Microbiology	Revision -UNIT-I		
30/09/2020	III B.Sc, Microbiology	Nucleolus, Nuclear pore and annulus	Molecular cell biology (5 th edition) by Lodish (et al)	Power point presentation
OCTOBER-2020				
01/10/2020	I B.Sc, Microbiology	Microscopy and principle of working	Benson's Microbiological applications (13 th Edition) by Alfred Brown and Heldi Smith	Power point presentation
05/10/2020	III B.Sc, Microbiology	Revision -UNIT-III		
06/10/2020	I B.Sc, Microbiology	Simple, compound and Dark Field microscope	Benson's Microbiological applications (13 th Edition) by Alfred Brown and Heldi Smith	Power point presentation
07/10/2020	I B.Sc, Microbiology	Phase contrast and Fluorescent Microscope	Benson's Microbiological applications (13 th Edition) by Alfred Brown and Heldi Smith	Power point presentation
09/10/2020	III B.Sc, Microbiology	Cytogenetics- Structure of chromosomes, Nucleosomes	Karps Cell and Molecular Biology (8 th Edition) by Janet Iwasa and Wallace Marshall	Power point presentation
12/10/2020	I B.Sc, Microbiology	Electron Microscope - its types (SEM and TEM)	Benson's Microbiological applications (13 th Edition) by Alfred	Power point presentation

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			Brown and Heldi Smith	
13/10/2020	III B.Sc, Microbiology	Gaint chromosomes-polytene chromosome	Karps Cell and Molecular Biology (8 th Edition) by Janet Iwasa and Wallace Marshall	Power point presentation
14/10/2020	I B.Sc, Microbiology	Staining methods: Dyes and its uses – Simple staining. Differential staining	Benson's Microbiological applications (13 th Edition) by Alfred Brown and Heldi Smith	Power point presentation
15/10/2020	I B.Sc, Microbiology	Gram staining and Acid fast staining (Zeihl Neelson method).	Benson's Microbiological applications (13 th Edition) by Alfred Brown and Heldi Smith	Power point presentation
19/10/2020	III B.Sc, Microbiology	Cell cycle, cell division –Mitosis and Meiosis (I and II)	Molecular cell biology (5 th edition) by Lodish (et al)	Power point presentation
20/10/2020	I B.Sc, Microbiology	Special staining techniques - Spore staining, Capsule staining (negative staining), Flagella staining and Alberts staining for metachromatic granules	Benson's Microbiological applications (13 th Edition) by Alfred Brown and Heldi Smith	Power point presentation
21/10/2020	III B.Sc, Microbiology	Protein structure and synthesis	Molecular cell biology (5 th edition) by Lodish (et al)	Power point presentation
22/10/2020	I B.Sc, Microbiology	Revision-UNIT-II		

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23/10/2020	I B.Sc, Microbiology	Microbial evolution & diversity - Endosymbiotic theory Binomial Nomenclature of Microbes	Philosophy of Microbiology by Maureen A. O' Malley	Power point presentation
28/10/2020	III B.Sc, Microbiology	Cell biology- molecular organization of animal cell membrane- membrane lipids, proteins and carbohydrates.	Cell and Molecular Biology Concepts and Experiments by Gerald Karp	Power point presentation
29/10/2020	I B.Sc, Microbiology	Classification Five Kingdom concept (Whittaker Classification) - Eight Kingdom concept (Cavalier smith). Prokaryotes and eukaryotes – their differences	Philosophy of Microbiology by Maureen A. O' Malley	PowerPoint presentation and video sessions
NOVEMBER- 2020				
02/11/2020	III B.Sc, Microbiology	The fluid mosaic model and artificial membranes- mitochondrial and red cell membrane, cell wall components and role of cell wall.	Molecular cell biology (5 th edition) by Lodish (et al)	Power point presentation
03/11/2020	I B.Sc, Microbiology	General introduction to Microbes (Algae, Fungi, protozoa)	Microbiology (5 th Edition) by Lansing M. Prescott	PowerPoint presentation

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04/11/2020	I B.Sc, Microbiology	General introduction to virus	Microbiology (5 th Edition) by Lansing M. Prescott	PowerPoint presentation
06/11/2020	III B.Sc, Microbiology	Revision- Unit-1		
9/11/2020	I B.Sc, Microbiology	Morphology of bacteria	Microbiology (5 th Edition) by Lansing M. Prescott	Power point presentation
10/11/2020	I B.Sc, Microbiology	Structure and arrangement of bacteria	Microbiology (5 th Edition) by Lansing M. Prescott	Power point presentation
11/11/2020	III B.Sc, Microbiology	Revision- Unit-1		
12/11/2020	I B.Sc, Microbiology	Anatomy of Bacteria.	Microbiology (5 th Edition) by Lansing M. Prescott	Power point presentation
13/11/2020	I B.Sc, Microbiology	Ultrastructure and functions of cell wall	Microbiology (5 th Edition) by Lansing M. Prescott	Power point presentation
14/11/2020	III B.Sc, Microbiology	Revision- Unit-2		
16/11/2020	I B.Sc, Microbiology	(Gram positive and Gram negative cell wall).	Microbiology (5 th Edition) by Lansing M. Prescott	Power point presentation
17/11/2020	I B.Sc, Microbiology	Cytoplasmic membranes	Microbiology (5 th Edition) by Lansing M. Prescott	Power point presentation
18/11/2020	III B.Sc, Microbiology	Revision- Unit-3		
27/11/2020	I B.Sc, Microbiology	Flagella- structure and arrangement	Philosophy of Microbiology	Power point presentation

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			by Maureen A. O' Malley	
28/11/2020	I B.Sc, Microbiology	Pili / fimbriae	Philosophy of Microbiology by Maureen A. O' Malley	Power point presentation
30/11/2020	III B.Sc, Microbiology	Revision- Unit-4		
DECEMBER- 2020				
1/12/2020	I B.Sc, Microbiology	Capsule - Slime layer	Philosophy of Microbiology by Maureen A. O' Malley	Power point presentation
2/12/2020	I B.Sc, Microbiology	Cytoplasmic inclusions and granules	Philosophy of Microbiology by Maureen A. O' Malley	Power point presentation
3/12/2020	III B.Sc, Microbiology	Revision- Unit-5		
4/12/2020	I B.Sc, Microbiology	Spore - process of sporulation	Philosophy of Microbiology by Maureen A. O' Malley	Power point presentation
7/12/2020	I B.Sc, Microbiology	Overview on Sterilization	Philosophy of Microbiology by Maureen A. O' Malley	Power point presentation
8/12/2020	III B.Sc, Microbiology	Revision- Overall units		
9/12/2020	I B.Sc, Microbiology	Principles and Methods of Sterilization	Philosophy of Microbiology by Maureen A. O' Malley	Power point presentation
10/12/2020	I B.Sc, Microbiology	Dry heat sterilization	Philosophy of Microbiology by Maureen A. O' Malley	Power point presentation
11/12/2020	I B.Sc, Microbiology	Moist heat sterilization	Philosophy of Microbiology by Maureen A. O' Malley	Power point presentation
14/12/2020	I B.Sc, Microbiology	Filtration	Philosophy of Microbiology by Maureen A. O' Malley	Power point presentation

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15/12/2020	I B.Sc, Microbiology	Radiation- ionizing and non- ionizing	Alcomo's Fundamentals of Microbiology (9 th Edition) by Jeffrey C. Pommerville	Power point presentation
16/12/2020	I B.Sc, Microbiology	Sterilization control	Alcomo's Fundamentals of Microbiology (9 th Edition) by Jeffrey C. Pommerville	Power point presentation
17/12/2020	I B.Sc, Microbiology	Disinfection - Chemical disinfectants and its uses	Alcomo's Fundamentals of Microbiology (9 th Edition) by Jeffrey C. Pommerville	Power point presentation
18/12/2020	I B.Sc, Microbiology	Fumigation	Alcomo's Fundamentals of Microbiology (9 th Edition) by Jeffrey C. Pommerville	Power point presentation
21/12/2020	I B.Sc, Microbiology	Phenol coefficient test	Alcomo's Fundamentals of Microbiology (9 th Edition) by Jeffrey C. Pommerville	Power point presentation
22/12/2020	I B.Sc, Microbiology	Revision		
23/12/2020	I B.Sc, Microbiology	Revision		


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M. SC. MICROBIOLOGY
LESSON PLAN - ACADEMIC YEAR 2020 - 2021
[EVEN SEMESTER]

PCMBF 20 - MEDICAL MICROBIOLOGY

- Microbiology
- Bacteriology
- Mycology
- Parasitology
- Immunology
- Virology
- Antimicrobial chemotherapy
- Epidemiology
- Hospital infections
- Laboratory diagnosis
- Microbiology in industry

Week/Date	No of Hours	Unit	Topics	Teaching methodology student centric method	Learning Resources	Method of Evaluation
04.01.2021 to 08.01.2021	05	I	Introduction to Medical Microbiology - Basics in Medical Microbiology - Infectious diseases overview - Medically important microbes	- Chalk and talk method - Powerpoint presentation	Text book of Microbiology - Ananthanarayan R & Jayaram Paniker	Questionnaire, Discussions and oral presentation
11.01.2021 to 13.01.2021	05	I	- Microbial diseases - Sources, route of transmission - Pathogenesis - adhesion, invasion, host cell damage, release of pathogens.	- chalk and talk method - powerpoint presentation - video presentation	Medical Microbiology - 8th - Jawetz	Quiz Discussions Case studies.
18.01.2021 to 22.01.2021	05	I	- Microbial virulence and virulence factors - signs and symptoms of microbial diseases. - Treatment, prevention and control of microbial infections	- chalk and talk method - powerpoint presentation	Medical Microbiology - Jawetz	Surveillance study Case study Discussion.
25.01.2021	05	II	Diagnostic Microbiology.	Chalk and talk method	Diagnostic Microbiology	Processing of clinical
27.01.2021 + 29.01.2021			- Diagnosis of microbial diseases - collection and transport of clinical specimens Preliminary processing of clinical samples - identification and cultural characteristics	- Laboratory Demonstration - Powerpoint presentation	- Bailey & Scott	samples in the lab. - observation & interpretation.
01.02.2021 to 05.02.2021	05	II	- Detection of Biochemical properties of pathogens - Immunodiagnosis - Molecular diagnosis of microbial diseases - Modern methods of microbial diagnosis.	Powerpoint presentation Laboratory Demonstration	Diagnostic Microbiology - Bailey & Scott	Processing clinical specimens & Interpretation
08.02.2021 to 12.02.2021	05	III	Medical Bacteriology. - Characteristics, classification, pathogenesis, Pathology, diagnosis, treatment & prevention of diseases caused by - Staphylococci - Streptococci	Chalk and talk method - powerpoint presentation	Textbook of Microbiology Ananthanarayan & C.K.J. Paniker.	Questionnaires.

Week / Date	Nb of Hours	Unit	Topics	Teaching methods by students centric method	Learning Resources	Method of Evaluation
15.02.2021 to 20.02.2021	05	III	- Neisseria - Bacillus - Clostridium	Chalk & Talk method Powerpoint presentation	Textbook of Microbiology Ananthanarayanan & C.K.J. Panicker	Questionnaire
22.02.2021 to 27.02.2021	05	III	- Corynebacterium - Mycobacteria	Chalk & Talk method Powerpoint presentation	Textbook of Microbiology Ananthanarayanan & C.K.J. Panicker	Questionnaire Quiz Case studies
01.03.2021 to 06.03.2021		←	I CA Examination	→		
08.03.2021 to 12.03.2021	05	III	Members of the family Enterobacteriaceae - E. coli - Klebsiella - Proteus - Salmonella - Shigella	Chalk & Talk method Powerpoint presentation	Textbook of Microbiology Ananthanarayanan & C.K.J. Panicker	Quiz Questionnaire
15.03.2021 to 20.03.2021	05	III	- Vibrio, Pseudomonas - Spirochaetes - Rickettsiae, Chlamydiae	Powerpoint presentation	Textbook of Microbiology Ananthanarayanan & C.K.J. Panicker	Quiz Question tags
22.03.2021 to 27.03.2021	05	IV	Medical Mycology and Parasitology - Mycology - Human mycotic infections caused by Dermatophytes - Histoplasma - Cryptosporidium	Powerpoint presentation	A textbook of Medical Mycology - Jagdish chander	Quiz Questionnaire
29.03.2021 to 31.03.2021	05	IV	- Candida - Mycotic mycetoma - Mycetozoa Entamoeba (Parasitology)	Powerpoint presentation	A textbook of Medical Mycology - Jagdish chander Text book of Medical Parasitology - Subash chandra Parija	Questionnaires
07.04.2021 to 10.04.2021	05	IV	- Giardia - Leishmania - Plasmodium - Wuchereria	Powerpoint presentation	Textbook of Medical Parasitology - Subash chandra Parija	Questionnaires
12.04.2021	05	IV	Laboratory diagnosis used in fungal & parasitic disease	Powerpoint presentation	Diagnostic Microbiology - Bailey & Scott	Laboratory Demonstration

Week/Date	No of Hours	Unit	Topic	Teaching methodology student centric method	Learning Resources	Method of Evaluation
15.04.2021 to 17.04.2021	05	IV	- Taenia - Ascari	chalk and Talk method	Textbook of Medical Parasitology - Subash chandra Parija.	Interpretation - Quiz - questionnaire
19.04.2021 to 24.04.2021	05	V	Viruses - structure, multipli- - cation, classification and medical importance of DNA viruses. - Adeno, Pox, Herpes, Hepatitis RNA Viruses - Picorna, Orthomyxo, Paramyxovirus.	Powerpoint presentation	Modern Virology - Dimmock N.J & Purvese S.B	Questionnaire - Quiz.
26.04.2021 to 30.04.2021	05	V	Viruses causing SARS, MERS, & SARS Cov2, Oncogenic virus (Papilloma and Polyoma), Rhabdo & HIV Virus.	Power point presentation	Modern Virology - Dimmock N.J & Purvese S.B.	Questionnaire Case study Quiz.
← PORTIONS TO BE COMPLETED →						

TEACHING PLAN - ACADEMIC YEAR 2020 - 2021 (EVEN SEMESTER)

Week	Class	Topic covered	Learning Resources	methodology.
04.01.2021 to 08.01.2021	I M.Sc Microbiology	Introduction to Medical Microbiology - Basics in Medical Microbiology - Infectious disease overview - Medically important microbes	Textbook of Microbiology - Ananthanarayanan & C.K.J. Penicler	chalk and talk method Discussions.
11.01.2021 to 13.01.2021	I M.Sc Microbiology	- Microbial diseases - Sources, route of transmission - Pathogenesis adhesion, invasion, host cell damage, release of pathogens	Medical Microbiology - Jawetz	Chalk and talk method video presentation
18.01.2021 to 22.01.2021	I M.Sc Microbiology	- Microbial virulence and virulence factors - signs and symptoms of microbial diseases - Treatment, prevention and control of microbial infections	Medical Microbiology - Jawetz	chalk and talk method - powerpoint presentation
25.01.2021, 27.01.2021 to 29.01.2021	I M.Sc Microbiology	Diagnostic Microbiology - Diagnosis of microbial disease - collection and transport of clinical specimens - Preliminary processing of clinical samples - identification and cultural characteristics	Diagnostic Microbiology - Bailey & Scott	Power point presentation Laboratory Practical Demonstration

Week	Class	Topics covered	Learning Resources	methodology.
01.02.2021 to 05.02.2021	I M.Sc Microbiology	Detection of Biochemical properties of pathogens: Immunodiagnosis, Molecular diagnosis - Modern methods of microbial diagnosis	Bailey & Scott's - Diagnostic Microbiology.	Powerpoint presentation Video presentation (Virtual labs)
08.02.2021 to 12.02.2021	I M.Sc Microbiology	Medical Bacteriology - Staphylococci - Streptococci - Neisseria	Textbook of Microbiology Ananthanarayanan & C.K.J. Panicker	chalk and talk method
15.02.2021 to 20.02.2021	I M.Sc Microbiology	- Bacillus - Clostridium - Corynebacterium	Textbook of Microbiology Ananthanarayanan & C.K.J. Panicker	chalk & talk method
22.02.2021 to 27.02.2021	I M.Sc Microbiology	- Mycobacteria - Vibrio - Pseudomonas	Textbook of Microbiology Ananthanarayanan & C.K.J. Panicker	chalk & talk method
01.03.2021 to 06.03.2021	I. M.Sc Microbiology	← I CA Examination	→	
08.03.2021 to 12.03.2021	I. M.Sc Microbiology	Members of the family Enterobacteriaceae - E. coli, Klebsiella, Proteus, Salmonella, Shigella	Textbook of Microbiology Ananthanarayanan & C.K.J. Panicker	Powerpoint presentation
15.03.2021 to 20.03.2021	I. M.Sc Microbiology	- Spirochaetes - Rickettsiae - Chlamydiae	Textbook of Microbiology - Ananthanarayanan & C.K.J. Panicker Medical Microbiology - Jawetz	powerpoint presentation
22.03.2021 to 27.03.2021	I M.Sc Microbiology	Medical Mycology and Parasitology - Mycology - Human mycotic infections caused by Dermatophytes - Histoplasma - Cryptococcus	Powerpoint presentation Video presentation A Textbook of Medical mycology - Jagdish Chander	Powerpoint presentation Virtual Labs on mechanism of pathogenesis
29.03.2021 to 31.03.2021	I M.Sc Microbiology	- Candida - Mycotic mycetozoa - Mycetozoa	A Textbook of Medical Mycology - Jagdish chander	Powerpoint presentation
01.04.2021 to 06.04.2021		← Holidays →		

Week	Class	Topic covered	Learning Resources	Methodology
07.04.2021 to 09.04.2021	I M.Sc Microbiology	- Entamoeba - Giardia - Leishmania - Plasmodium	Textbook of Medical Parasitology - Subash Chandra Parija	powerpoint presentation
12.04.2021, 14.04.2021 to 17.04.2021	I M.Sc Microbiology	- Wuchereria - Taenia - Ascaris Laboratory techniques used in the diagnosis of fungal and parasitic diseases.	Textbook of Medical Parasitology - Subash chandra Parija Diagnostic Microbiology - Bailey & Scott.	powerpoint presentation
19.04.2021 to 24.04.2021	I M.Sc Microbiology	Virus - structure, multiplication, classification and medical importance of DNA viruses - Adeno, Pox, Herpes, Hepatitis	Modern Virology - Dimmock, N.J & Primrose, S.B	powerpoint presentation
26.04.2021 to 30.04.2021	I M.Sc Microbiology	RNA Virus - Picorna, Orthomyxo, Paramyxovirus, Rhabdo virus & HIV virus.	Modern Virology - Dimmock, N.J & Primrose, S.B Medical Virology - Jawetz	powerpoint presentation
03.05.2021 to 05.05.2021	I M.Sc Microbiology	Virus causing SARS, MERS, SARS cov 2 and oncolytic Virus - Papilloma & Polyoma.	Modern Virology - Dimmock, N.J & Primrose, S.B Medical Virology - Jawetz	powerpoint presentation [Portion Completed]

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 [EVEN SEMESTER]

Week/Date	No. of hours	units & Topics	Teaching methodology/ student centric method	Learning Resources	Method of evaluation.
04.01.2021 to 06.01.2021	8 hrs	I II B.sc Micro Ag. Ab rxns Inhibio Direct, indirect Haemagglutination	Black board teaching	Immunology - Jerby	Questionaries
	4 hrs	I II B.sc Bio Microbiology of soil - Nitrifying and denitrifying bacteria	Lecturing and PPT	Soil Microbiology - Subhakar	Questionaries
11.1.2021 to 13.1.2021	7 hrs	II II B.sc Micro Double diffusion in one dimension - Western blotting	Power point presentation	Immunology - Jerby	Ask them to draw a neat diagram and labelled it
	3 hrs	II B.sc Biochemistry Biogeochemical cycle to Bacterial Biofertilizers	power point presentation	Soil Microbiology - subhakar	Schematic diagrammatic representation

Week/Date	No of hours	units and topics	Teaching methodology Student centric method	Learning Resources	Method of evaluation
18.1.2021 to 22.1.2021	7 hrs	II B.sc Micro Complements - Components & Pathways Hypersensitivity RXNS.	Blackboard teaching.	Immunology - Kuby.	Questionaries
	6 hrs	II B.sc Biochem Microbiology of water - Types of water - Municipal Water purification Sewage water treatment.	Blackboard teaching.	Joseph - Daniel - Ecology + Environ- mental Microbiology	Ask them to do chart work
25.1.2021 27.1.2021 to 29.1.2021	6 hrs	II B.sc Micro Autoimmune diseases - Scl10 Thrombocytopenia Hashimoto disease	PPT	Immunology - Kuby	Ask them to write the text on autoimmune diseases.
	3 hrs	II B.sc Biochem	Sewage treatment process and disposal.	Joseph - Daniel - Ecology - Environmental Microbiology	Flow chart - diagrammatic representation to go.
1.2.2021 to 5.2.2021	9 hrs	II B.sc Micro	Water borne diseases. Vaccines - Definition, types and functions - Immunisation schedule.	E-net reference - Latest schedule - Edible vaccines.	Ask them to write text on Vaccines.
	4 hrs	II B.sc Biochem	Microbiology of air - Indoor and outdoor flora	Joseph Daniel - Ecology	Questionaries.

Week/Date	No of hours	units and topics	Teaching methodology Subject content method	Learning Resources	Method of evaluation
8.2.2021 to 12.2.2021	10 hrs	II unit Gene transfer mechanisms. II B.sc Micro Griffith experiment Transformation Transfection Transduction	Black board teaching My notes (written)	Principles of Genetics - Old Primrose	Griffith experiment - chart work
	5 hrs	(III unit) II B.sc Biochem Droplet Diplole nuclei Infectious dust. Methods of purification of air - Air borne disease	Black board teaching	Joseph Daniel - Ecology	Questionnaires
15.2.2021 to 20.2.2021	10 hrs	II B.sc Micro Generalised, Abortive and specialised transduction conjugation, Hfr F ⁺ , F ⁻ cells.	Black board teaching	Microbial Genetics - TA brown	Ask them to write test on conjugation.
	2 hrs	II B.sc Biochem Unit IV Food Microbiology Introduction	Black board teaching	Food Microbiology - Frazier	Questionnaires

Week/date	No of hours	units & Topics	Teaching methodology Student centric method	Learning Resources	Method of evaluation
22.02.2021 to 27.02.2021	11 hrs	Unit III II B.sc Micro Mutation and its types, transition Transversion	Black board teaching.	Molecular biology - T.A brown, Trippel.	Questionnaires.
	6 hrs	II B.sc Biochem Unit V High temperature Low temperature Drying and Radiation.	Black board teaching.	Food Microbiology - Frazier, Nijaya Ramesh.	Ask them to discuss the domestic preservation of food & preservatives.
1.3.2021 to 6.3.2021			I CA Examination		
8.3.2021 to 12.3.2021	8 hrs	Unit (IV) II B.sc Micro Detection and isolation of Auxotrophic mutants.	Black board teaching.	Principles of Microbial Genetics - T.A brown.	Questionnaires.
	6 hrs	II B.sc Biochem Food additives	Black board teaching	Food Microbiology - Frazier.	Questionnaires

Week/Date	No of hours	units and topics	Teaching methodology Student centric methods	Learning Resources	Method of evaluation
15.3.2021 to 20.3.2021	10 hrs	(unit IV) II B-sc Micro Replica plating Ames test DNA repair mechanism	Black board teaching	Principles of Genetics - Old Primrose, T A Brown.	Questionaries
	6 hrs	II B-sc Biochemdy Unit (IV) Microbial spoilage of food. (vegetables and fruits)	Black board teaching	Food Microbiology- Frazier	Questionaries
22.3.2021 to 27.3.2021	8 hrs	(unit IV) II B-sc Micro Photoreactivation, Excision repair and SOS repair mechanisms.	Online teaching - PPT	Principles of Genetics... Old Primrose	Questionaries
	3 hrs	II B-sc Biochem (unit IV) Microbial spoilage of Milk and Milk products	- PPT	Food Microbiology- Frazier	Questionaries Discussion

Week/Date	No of hours	units	Teaching methodology student centric method	Learning Resources	Method of evaluation
29.3.2021 to 31.3.2021	7 hrs	Unit V II B.Sc Micro Protein Synthesis Initiation, elongation and termination	PPT	PDF - From Primrose, T.A brown	Test given
	3 hrs	II B.Sc Biochem (unit V) Fermentation, Types of fermentation	PPT	Industrial Microbiology A.H patel	Questionnaires
7.4.2021 to 10.4.2021	6 hrs	II B.Sc Micro unit (V) Gene expression system, concept of lactose	PPT	Textbook of Principles of Genetics - Old Primrose and T.A brown	Questionnaires
	5 hrs	II B.Sc Biochem (unit V) Industrial Production Antibiotics	PPT	Industrial Microbiology A.H patel	Questionnaires
12.4.2021 15.4.2021 to 17.4.2021	8 hrs	II B.Sc Micro (unit V) Tryptophan operon Concept Attenuation control	PPT	Principles of Genetics PDF - Primrose	Questionnaires
	4 hrs	II B.Sc Biochem Alcohol, Organic acid and Vitamin B12	PPT	Industrial Microbiology A.H patel	Test

Week/date	No of hours	units	Teaching methodology student centric methods	Learning Resources	Method of evaluation
19.4.2021 to 24.4.2021	11 hrs	II B.sc Micro	Question bank analysis	-	Questionaries Discussion
	6 hrs	II B.sc Biochem	Revision	-	Discussion
26.4.2021 to 30.4.2021	9 hrs	II B.sc Micro	Question bank analysis	-	Discussion
	3 hrs	II B.sc Biochem	Revision	-	Discussion

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TEACHING PLAN - ACADEMIC YEAR

2020-2021 [EVEN SEMESTER]

Week	class	Topics covered	Learning Resources	Methodology
04.01.2021 to 08.01.2021	II B.Sc Microbiology Ag-Ab reactions In vitro Direct, Indirect haemagglutination reaction	→	Immunology - kerby	Black board teaching
	II B.Sc Biochemistry	Microbiology of soil Nitrifying and denitrifying bacteria	Soil Microbiology - subha Rao	Lecturing and PPT
11.1.2021 to 13.1.2021	II B.Sc Microbiology	Microdouble diffusion in one dimension - Western blotting	Immunology - kerby	Power point presentation
	II B.Sc Biochemistry	Biogeochemical cycle to bacterial filters.	Soil Microbiology - Subhakar	power point presentation
	II B.Sc Microbiology EVS	Definition of environment - scope and importance, components and segments of environment	Environmental studies - By Dr. V. Balu	power point presentation

Week	Class	TOPICS COVERED	LEARNING RESOURCES	METHODOLOGY
18.1.2021 to 22.1.2021	II B.Sc Microbiology	Complement, Complement pathways and hypersensitivity reactions.	Immunology - Kuby	Lecturing with my ug notes from Kuby
	II B.Sc Biochemistry	Microbiology of water, types of water, municipal water purification, Sewage water treatment.	Environmental Microbiology - Dubey, Joseph Daniel.	Blackboard teaching [Signature]
25.1.2021 27.1.2021 and 29.1.2021	II B.Sc Microbiology	Autoimmune diseases - SCID Thrombocytopenia Hashimoto diseases.	Immunology - Kuby.	Power point presentation
	II B.Sc Biochemistry	Sewage treatment process and disposal.	Joseph Daniel - Ecology and Environmental Microbiology	Black board teaching
	II B.Sc Micro-EVS	Natural resources	College providing booklet-references	Discussion and views [Signature]
1.2.2021 to 5.2.2021	II B.Sc Microbiology	Water borne diseases, vaccines, definitions, types and functions. Immunisation Schedule.	- Epidemic Spreads - Discussion Ecology - Joseph Daniel Immunology - Kuby	Black board teaching

Week	Class	TOPICS COVERED	LEARNING RESOURCES	METHODOLOGY
	II B.Sc Biochemistry	Microbiology of air. Indoor and outdoor flora	Ecology - Joseph Daniel	Black board teaching
	II B.Sc Micro - EVS	Ecosystem, structure and functions of Ecosystem	Environmental studies - EVS	Lecturing A
8-2-2021 to 12-2-2021	II B.Sc Microbiology	Gene transfer mechanisms Griffiths Experiment Transformation	Principles of Genetics, T.A. Brown.	Black board teaching
	II B.Sc Biochemistry	Droplet, Droplet nuclei, Infectious dust, Methods of purification of air, Air borne diseases.	Ecology - Joseph Daniel	Black board teaching
	II B.Sc Micro EVS	Food chain and food Web, Ecological pyramids. Types of Ecosystem Lake ecosystem to ecological Succession.	Environmental studies by Dr. V. Balu	Black board teaching A
15-2-2021 to 20-2-2021	II B.Sc Microbiology	Generalised, Abortive and Specialised transduction conjugation Hfr, F ⁺ , F ⁻ cells	Microbial genetics Brown - T.A	Black board teaching
	II B.Sc Biochemistry	Food Microbiology - Intro	Flaxser - Food Microbiology	Black board teaching

Week	Class	Topics Covered	Learning Resources	Methodology
	I B.Sc Micro EVS	Biodiversity. General terms related to biodiversity	Environmental studies - Dr. V. Balu	Black board teaching
22.02.2021 to 27.02.2021	II B.Sc Microbiology	Mutation and its types transition and transversion	Molecular biology - T.A Brown	Black board teaching
	II B.Sc Biochemistry	High temperature, low temperature, Drying and Desiccation	Frazier - Food Microbiology	Discussed about food preservation techniques carried out at home
	I B.Sc Micro EVS	Biodiversity - General terms related to diversity Types of diversity - India as a megadiversity zone	Environmental studies By. Dr. V. Balu	Black board teaching
1.3.2021 to 6.3.2021	I CA Examinations			
8.3.2021 to 12.3.2021	II B.Sc Microbiology	Detection and isolation of Auxotrophic mutants	Principles of Microbial Genetics - T.A Brown	Black board teaching
	V B.Sc Biochemistry	Food additives	Food Microbiology - Frazier	Black board teaching

Week	Class	TOPICS COVERED	LEARNING RESOURCES	METHODOLOGY
15.3.2021 to 20.3.2021	II B.Sc Microbiology - EXS	Threats to Biodiversity Conservation of Biodiversity Ecological succession.	Environmental Studies By Dr. V. Balu.	Black board teaching.
15.3.2021 to 20.3.2021	II B.Sc Microbiology	Replica plating, Ames test, DNA repair mechanism.	Principles of Genetics, Primrose, T.A Brown.	Black board teaching.
	II B.Sc Biochemistry	Microbial spoilage of food and Vegetables	Food Microbiology - Frazier	Black board teaching Frazier
22.3.2021 to 27.3.2021	II B.Sc Microbiology	Photoreactivation, Excision repair, SOS repair mechanisms	Prescott, Textbook of Microbiology	Power point presentations
	II B.Sc Biochemistry	Microbial spoilage of milk and milk products	Food Microbiology - Frazier	Lecturing
	II B.Sc Microbiology EYS	Environmental pollution Air, Water, Soil, Noise Pollution - causes, effects and Control measures. Rain water harvesting Watershed management Solid waste management	Environmental Studies by Dr. V. Balu College provided - Booklet	Lecturing and Group discussion

Week	CLASS	TOPICS COVERED	LEARNING RESOURCES	METHODOLOGY
29.3.2021 to 31.3.2021	II B.Sc Microbiology	Protein synthesis. Initiation, Elongation and termination	Principles of Genetics T.A. Brown	Lecturing
	II B.Sc Biochemistry	Fermentation and its types.	Industrial Microbiology A.H. Patel	power point presentation
	II B.Sc Micro - EVS	Human population and Environment - Environmental protectional agencies	Environmental studies By Dr. V. Balu	power point presentation <i>Balu</i>
7.4.2021 to 10.4.2021	II B.Sc Microbiology	Gene expression System Concept of Lac operon	Prinrose - principles of Genetics.	power point presentation
	II B.Sc Biochemistry	Industrial Production Antibiotics	Industrial Microbiology A.H. Patel	power point presentation
	II B.Sc Microbiology-EVS	General Environmental issues, Global warming Climate change, Ozone layer, Acid rain Sustainable development - Population Explosion	Environmentā Studies By Dr. V. Balu	Power-point presentation <i>Balu</i>

Week	CLASS	TOPICS COVERED	LEARNING RESOURCES	METHODOLOGY
12.4.2021 15.4.2021 to 17.4.2021	II B.sc Microbiology	Tryptophan operon Concept, Attenuation control	Textbook of Microbiology - Prescott - J.A Brown (Genetics)	power point presentation
	II B.sc Biochemistry	Production of alcohol, organic acid and Vitamin B12	Industrial Microbiology - A.H. Patel	power point presentation
	II B.sc Micro - EVS	Role of It in Environmental Conservation	College booklet	Discussed in Group Points - developed as a summary
19.4.2021 to 24.4.2021	II B.sc Microbiology	Question bank analysis		Questionaries
	II B.sc Biochemistry	Question Bank - Review		Discussion
	II B.sc Microbiology - EVS	Question pattern given		Questions and answers discussion
26.4.2021 to 30.4.2021	II B.sc Microbiology II B.sc Biochemistry II B.sc Microbiology - EVS	Revision Revision Revision	From I unit to V unit	Discussion was carried out from unit I to V

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LESSON PLAN - ACADEMIC YEAR 2020-2021 (EVEN SEMESTER)

week/ Date	No. of Hours	Unit Topics	Teaching methodology Student centric method	Learning Resources	Method of Evaluation
04.01.2021 to 08.01.2021	04	III B.Sc Microbiology 1 Marine environment sea-benthic and littoral zone	powerpoint presentation and video	Marine microbiology Booklets	Questionnaire
	03	I M.Sc Microbiology 1 Introduction to fermentation Range of fermentation process	power point presentation and video	principles of fermentation Technology by Stanbury	Discussion question and answer.
11.01.2021 to 13.01.2021	04	III B.Sc Microbiology 1 Mangrove microbes saltpan microbes Estuarine microbes	powerpoint presentation and video	Environmental Microbiology by k. vijayaramesh	Quiz

Week/ Date	No. of Hours	Units	Topics	Teaching Methodology Student centric method	Learning Resources	Method of Evaluation
13.01.2021 to 15.01.2021	01	I	IM.Sc microbiology Chronological development of Fermentation industry	classroom Discussion	Principles of Fermentation Technology by Stanbury	oral Discussion.
18.01.2021 to 22.01.2021	02	I	III B.Sc microbiology Microbial loop	Diagrammatic representation	Microbiology by Prescott	oral test
	03 04	I	IM.Sc microbiology Components parts of a fermentation process. Isolation and preservation of industrially important microorganisms.	powerpoint presentation video.	Principles of Fermentation Technology by Stanbury Industrial Microbiology by A.H. Patel	Ask the students to isolate and preserve microorganism in the laboratory.
25.01.2021, 27.01.2021 & 29.01.2021	02	01	III B.Sc microbiology Marine microbial communities	powerpoint presentation and video	Environmental aspects of Microbiology by Joseph C. Daniel.	quiz

	02	01	IM-sc microbiology Strain improvement	powerpoint presentation and video	Industrial Biotechnology by Crueger	Questionnaire
01.02.2021 to 05.02.2021	04	02	Extremophiles - Alkalophiles psychrophiles - physiology, adaptive mechanism and Biotechnological applications	black board teaching	Textbook: Microbiology by R.C. Dubey. Ref: Brock's Biology of Microorganisms.	Quiz
	03	02	IM-sc Microbiology Development of inoculum - scale up. upstream processing - media for industrial fermentation. Formulation and sterilization	powerpoint presentation	principles of Fermentation Technology by Stanbury	Ask students to formulate, prepare and sterilize media.

week/ Date	No. of Hours	unit	Topics	Teaching Methodology student centric method	Learning Resources	Method of Evaluation
08.02.2021 to 12.02.2021	04	2	III B-sc Microbiology Halophiles, thermo and hyper thermophiles, barophiles and osmophiles- physiology, adaptive mechanism and biotechnological application	chalk and talk. method video	Textbook: microbiology by R. C. Dubey Ref: Blocks Biology & microorganisms	questionnaire
	03	02	I M-sc Microbiology Microbial growth kinetics. fermentation - types.	powerpoint presentation.	principles of fermentation technology by Stanbury	Ask students to check the various phases of microbial growth.
15.02.2021 to 20.02.2021	04	02	III B-sc Microbiology Revision of unit II	class room discussion	-	
	04	02	I M-sc Microbiology Down stream processing	powerpoint presentation	principles of fermentation technology by Stanbury	questionnaire


22.02.2021 to 27.02.2021	04	01	III B.Sc Microbiology Revision unit,	classroom Discussion			
	04	02	IM.Sc Microbiology Bioreactor - parts, design, instrumentation, control and Types	powerpoint presentation and video	Principles of Fermentation Technology by Starkus An Introduction to Industrial microbiology by Sivakumar.	oral discussion. and quiz.	
01.03.2021 to 06.03.2021			I CA Examination				
08.03.2021 to 12.03.2021	02	03	III B.Sc Microbiology microbial interactions - Lichens.	power point presentation	Microbiology by R.C. Dubey	Questionnaire	
	04	03	IM.Sc Microbiology Production of organic acids -	Flow diagram video	Industrial microbiology by A.H. Patel	Discussion.	

week/ date	no of hours	units	Topics	Teaching methodology Student centric method	Learning Resources	Method of Evaluation
			Acetic acid and Citric acid Alcoholic beverages - wine and beer		Food microbiology by William C. Frazer.	
15-03-2021 to 20-03-2021	04	03	III B.Sc Microbiology Antagonistic interactions - mycoparasitism and Amensalism. Animal-microbe interaction - Ectosymbiosis of protozoa and ruminant Symbiosis	powerpoint presentation	Microbiology by R.C. Dubey. Microbiology by Prescott	Discussion.
	04	03	IV M.Sc Microbiology Production and amino acids - glutamic acid and lysine. enzymes - Amylase, protease and pectinase	flow diagram and video	Industrial Microbiology by A.H. Patel	questionnaire

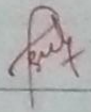


22.03.2021	to	04	03	III B.Sc Microbiology plant to microbe interaction- Rhizobium, mycorrhizae, Anabaena- azolla	powerpoint presentation and video	microbiology by R.C. Dubey	oral discussion.
27.03.2021		04	03	IM.Sc Microbiology Antibiotic- penicillin, streptomycin and tetracycline. vitamins- B ₂ , B ₁₂ & c.	Flow diagram and video	Industrial microbiology by A.H. Patel	questionnaire. and quiz.
29.03.2021	to	04	03	III B.Sc Microbiology sponge- microbe interaction	powerpoint presentation	Marine microbiology booklet	quiz
31.03.2021		02	04	IM.Sc Microbiology production of different types of vaccines	powerpoint presentation	pharmaceutical Microbiology by Hugo and Ruesel	Discussion.

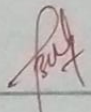
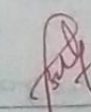
week/ Date	No. of Hours	Unit	Topics	Teaching Methodology Student centric method	Learning Resources	Method of Evaluation
07.04.2021 to 10.04.2021	03	04	I M.Sc Microbiology Toxoid and antiseptics production and their standardisation	Flow diagram	pharmaceutical microbiology by Hugo and Ruel.	quiz
12.04.2021, 15.04.2021 to 17.04.2021	04	04	III B.Sc Microbiology Marine foodborne and waterborne pathogens - Aeromonas, Leptospira, salmonella, vibrio pseudomonas.	powerpoint presentation	Microbiology by paniker.	questionnaire
	02	04	I M.Sc Microbiology Preparation of antiseptics and disinfectants and their standardisation Types of water. pyrogen testing	power point presentation	pharmaceutical microbiology by Hugo and Ruel	slip test

<p>19.04.2021 to 24.04.2021</p>	<p>04</p>	<p>05</p>	<p>III B.Sc Microbiology Production and biotechnological applications of marine microbial products - Enzyme, Antibiotics, polysaccharides.</p>	<p>powerpoint presentation</p>	<p>Marine microbiology booklet</p>	<p>Quiz</p>
<p>26.04.2021 to 30.04.2021</p>	<p>04</p>	<p>05</p>	<p>I M.Sc Microbiology Subculturing and culture suspension preparation microbial assay of antibiotics and vitamins</p>	<p>powerpoint presentation and video</p>	<p>Industrial Microbiology by L.E. Casida.</p>	<p>Oral Test</p>
<p>26.04.2021 to 30.04.2021</p>	<p>04</p>	<p>05</p>	<p>III B.Sc Microbiology Pigments - Astaxanthin and β-carotene sea food preservation methods.</p>	<p>powerpoint presentation</p>	<p>Food Microbiology by William C. Fluzier</p>	<p>Group Discussion.</p>

week/ Date	No of Hours	units	Topics	Teaching methodology student centric method	Learning Resources	Method of Evaluation
	03	05	IM-sc Microbiology sterility testing. Bacterial Endotoxin test Good documentation Practice - SOP, ULP Failure investigation	power point presentation	pharmaceutical Microbiology by Hugo and Ruseel.	Questionnaire 

TEACHING PLAN - ACADEMIC YEAR 2020-2021 (EVEN SEMESTER)

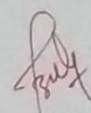
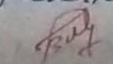
week	class	Topics covered	Learning Resources	Methodology
04.01.2021 to 08.01.2021	III B.Sc Microbiology	Introduction to marine environment zones in marine environment - benthic and littoral zone	Marine microbiology Booklet	powerpoint presentation and video 
11.01.2021 to 13.01.2021	III B.Sc Microbiology	saltpan microbes Mangrove microbes	Environmental microbiology by K. Vijayaramesh.	powerpoint presentation video. 
18.01.2021 to 22.01.2021	III B.Sc Microbiology	Estuarine microbes microbial loop	Environmental Microbiology by K. Vijayaramesh Microbiology by Prescott	powerpoint presentation video 

week	class	Topics covered	Learning Resources	Methodology
25.01.2021, 27.01.2021 and 29.01.2021	III B.Sc microbiology	Marine microbial communities	Environmental aspects of microbiology by Joseph C. Daniel	Powerpoint presentation 
01.02.2021 to 05.02.2021	III B.Sc microbiology	Extremophiles - Alkalophiles, psychrophiles	Marine microbiology Booklet	chalk and talk
	I M.Sc microbiology	Introduction to fermentation. Range of fermentation process. Chemological development of fermentation	principles of fermentation Technology by Stanbury	powerpoint presentation 
08.02.2021 to 12.02.2021	III B.Sc microbiology	Halophiles, Thermophiles and Hyperthermophiles	Marine microbiology Booklet	Black board teaching

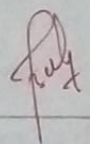

	I M.Sc Microbiology	components parts of fermentation Process. Isolation and preservation of industrially important microorganisms strain improvement	principles of fermentation Technology by Stanbury Industrial Microbiology by A.H. Patel	powerpoint presentation video Rup
15.02.2021 to 20.02.2021	III B.Sc Microbiology	Baerophiles and osmophiles	Marine microbiology booklet	Black board teaching
	I M.Sc Microbiology	Bioreactor - parts, Design, instrumentation and control Types.	principles of fermentation technology by Stanbury	powerpoint presentation video. Rup
22.02.2021 to 27.02.2021	III B.Sc Microbiology I M.Sc Microbiology	Revision of ICA portions Types of fermentation. media for industrial fermentation formulation and sterilization		 Rup

week	class	Topics covered	Learning Resources	Methodology
		Downstream processing Development of inoculum-scaleup	principles of fermentation Technology by Stanbury	powerpoint presentation PPT
01.03.2021 to 06.03.2021		I CA Examination		
08.03.2021 to 12.03.2021	III B.Sc Microbiology	Introduction to microbial interactions	Marine microbiology booklet	Black board teaching
	I M.Sc Microbiology	production of alcoholic beverages- wine and beer	Food microbiology by William C. Frazier	powerpoint presentation and video PPT
15.03.2021 to 20.03.2021	III B.Sc Microbiology	Lichens Amensalism Ruminant symbiosis Ectosymbiosis & protozoa	Marine microbiology booklet	powerpoint presentation

	I M.Sc Microbiology	Production of organic acids - citric acid and acetic acid	Food microbiology by William C. Frazier Industrial microbiology by A.H. Patel	Powerpoint presentation video.
22.03.2021, 24.03.2021 to 27.03.2021	III B.Sc Microbiology	Mycoparasitism Mycorrhizae Rhizobium	Marine microbiology booklet	Powerpoint presentation video
	I M.Sc Microbiology	Production of antibiotics - penicillin, Tetracycline and Streptomycin	Industrial microbiology by A.H. Patel	Powerpoint presentation
29.03.2021 to 31.03.2021	III B.Sc Microbiology	Sponge-microbe association. Anabaena-Azolla interaction	Marine microbiology booklet	Powerpoint presentation.
01.04.2021 to 06.04.2021		Holidays		

week	class	Topics covered	Learning Resources	Methodology
07.04.2021 to 09.04.2021	III B.Sc Microbiology	Production and applications of marine microbial antibiotics, enzymes and polysaccharides	Marine microbiology Booklet	powerpoint Presentation.
	I M.Sc Microbiology	production of amino acids - glutamic acid and L-lysine Production of vitamins - vitamin B ₂ , B ₁₂ and C.	Biotechnology by U. Sathyanarayana Industrial Microbiology by A.H. Patel.	powerpoint Presentation 
12.04.2021, 14.04.2021 to 17.04.2021	III B.Sc Microbiology	Production and applications of marine microbial Pigments - Astaxanthin and β-carotene	Marine microbiology Booklet	Powerpoint Presentation
	I M.Sc Microbiology	Production of Enzymes - Amylase, protease and pectinase	Industrial Microbiology by A.H. Patel	powerpoint Presentation. 

<p>19.04.2021 to 24.04.2021</p>	<p>III B.Sc Microbiology</p>	<p>Marine foodborne and waterborne pathogens - vibrio, salmonella, pseudomonas.</p>	<p>Marine microbiology Booklet</p>	<p>powerpoint presentation.</p>
	<p>IM-Sc Microbiology</p>	<p>Production of vaccine, Toxoid, antisera and their standardi- sation. Preparation of antiseptics, disinfectants and their standardisation. Types of water</p>	<p>Pharmaceutical Microbiology by Hugo and Rued</p>	<p>powerpoint presentation.</p>
<p>26.04.2021 to 30.04.2021</p>	<p>III B.Sc Microbiology IM-Sc Microbiology</p>	<p>Leptospira and Aeromonas seafood preservation methods. pyrogen Testing. sterility Testing</p>	<p>Marine microbiology Booklet</p>	<p>powerpoint presentation.</p>

week	class	Topics covered	Learning Resources	Methodology
		Bacterial Endotoxin Test microbial Assay of antibiotics and vitamins. subculturing and culture suspension preparation.	pharmaceutical microbiology by Hugo and Russel	powerpoint presentation. 
03-05-2021 to 05-05-2021	III B.Sc microbiology I M.Sc microbiology	portion completed Revision GDP, SOP and GLP. Failure Investigation portion completed	pharmaceutical microbiology by Hugo and Russel. pharmaceutical guidelines.	powerpoint presentation. 

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EVEN SEMESTER - 2021 - 2022

Date/Week	No. of hours	Unit	Topic	Teaching Methodology (Student centric Method)	Learning Resource	Method of Evaluation
4/1/21 to 8/1/21		I (3 rd Micro)	General properties of Virus, Detection of Virus - General Introduction	Black board Teaching	Textbook of Microbiology by Paniker	questionnaire
		I (CSBE-3 rd yr)	Hot Air oven, Autoclave Incubator	chalk and Talk Method.	Practical microbiology by Dubey	Discussion
		I (CHR-PA)	Human Rights - Meaning and definitions - Origin and Development.	chalk and talk Method.	Human Rights Booklet	Discussion
11/1/21 to 13/1/21		I (Med)	Detection of viruses and Antigens in clinical diagnosis and Serology and detection	chalk and Talk Method.	Textbook of Microbiology by Paniker Medical Microbiology by Paniker	Quiz

Date/Week	No. of hours	units	Topics	Teaching Method and center Point	Learning Resources	Method of Evaluation
	1	I (3 rd -SBE)	Water bath Shaker PH Meter & its Electrode	Powerpoint Presentation	Bioinstrumentation by L. Veerakumari	Discussions.
	1	I (CHR)	Elements of Human Rights.	Chalk and Talk method.	Human Rights Booklet	Discussion.
18/1/21 to 22/1/21	5	I (3 rd Med)	Cultivation of viruses Properties of viruses, Prions.	Powerpoint Presentation	Microbiology by Paniker Medical Microbio- logy by Jawertz	Questionnaires
	2	I	Buffers, Normal Solution and Molar Solution Preparation	Black board Teaching	Bioinstrumentation by L. Veerakumari	
	2	I (CHR)	Kinds of Human Rights.	Chalk and Talk Method.	Human Rights Booklet	Discussions.
25/1/21 to 27/1/21 to 29/1/21	1	II (SBE - 3 rd yr)	Centrifugation - Principle - types of Centrifuge	Black board Teaching	Bioinstrumentation by L. Veerakumari	Test
	1	III (2nd Unit)	ARBO Viruses - General Introduction -	Microb	Microbiology by Paniker	Quizzes
	1	II Unit (CHR)	Meaning - Feature of Indian Constitution - Federalism.	Chalk and Talk Method.	Human Rights Booklet	Discussions.

Date/Week	No. of hours	UNIT	Topic	TEACHING METHOD by & STUDENT CENTRIC POINT	LEARNING RESOURCE	METHOD OF EVOLUTION
1/2/21 to 5/2/21	4	II (3rd yr)	Chickengunya Virus - West Nile fever and Rabies some viruses.	Power point Presentation & video	Microbiology by Paniker Jawertz - Med -ical Microbiology	Discussions.
	2	II (HR)	Preamble - Fundamental Rights.	Chalk and Talk Method.	HR booklet	Class Discussions
	2	II (3rd yr)	Types of Centrifuge - Low speed to ultra Centrifuge.	Chalk and Talk Method.	Bioinstrumenta- tion by L. Veerakumar	Questionnaires
8/2/21 to 12/2/21	4	II (3rd yr)	Picornavirus - Polio virus, Rhino virus, Rabies virus.	Black board Teaching	Medical Micro- biology by Jawertz & Basic Virology	Class Test
	1	II (3rd yr)	Types of Centrifugation - Differential centrifugation	Power point & Diagrammatic Presentation	Bioinstrumentation by L. Veerakumar	Class Test
	1	II (HR)	Directive principles of state policy.	Powerpoint Presentation & Video.	HR Booklet.	Discussions.
15/2/21 to 20/2/21	V	II (3rd yr)	Hepatitis Virus - A, B, E, C, Orthomyxo virus - SARS.	Black Board Teaching	Medical Micro- biology by Jawertz Microbiology by Paniker	Questionnaires.
	II	II (3rd yr)	Analytical centrifugation Density centrifugation	Chalk & Talk method	Bioinstrumenta- tion by L. Veerakumar	Discussions.
	II	II (HR)	Rights to Constitutional Remedies.	Powerpoint Presentation & Video	HR booklet	Questionnaires

Date/Week	No. of hours	Unit	Topic	Teaching Methods -logy & contri point	Learning Resources	Method of Evaluation
22/2/21 to 27/2/21	5	II, I (III Micro)	Revision	Videos & Power point presentation	Microbiology by Paniker	Class Test
	2	II (3 rd Micro)	Applications and uses of Centrifuge, centrifugation	Powerpoint presentations	Bioinstrumentation by L.veerakumari	Question -cards
	2	II (HR)	General Common Rights - Articles	oral communication	HR Booklet	questionnaire
11/3/21 to 6/3/21			I CA EXAMINATION			
8/3/21 to 12/3/21	5	III (3 rd Micro)	Pox viruses, Adeno viruses and HSV.	chalk and talk method.	Microbiology - paniker. Medical Microbi- ology by Jawertz.	Discussions
	2	III (SBE)	Electrophoresis - General Introduc- tion, types of Electrophoresis Agarose Gel Electrophoresis	Chalk & talk Method, videos	Bioinstrumentation by L.veerakumari	questionnaire.
15/3/21 to 20/3/21	2	III (HR)	Origin of Universal declarations. -provisions - General - Political Rights.	Black board teaching.	Human Rights booklet.	Discussions
22/3/21 to 26/3/21	2	III (3 rd Med)	Reo virus, Rota virus, HIV, Oncogenic viruses.	Black board teaching.	Medical Micro biology by Jawertz.	questionnaire.
	1	III (SBE)	SDS PAGE, Southern Blotting	Powerpoint presentations	Bioinstrumenta- tions by L.veerakumari	questionnaire
	1	III (HR)	Economic rights - Cultural rights - Effects and Influence of Universal declara- -tion.	Black board teaching.	Human rights Booklet	questionnaire

Date/week	No. of hours	Unit	Topics	Teaching Methodology & Centre Method.	Learning Resources	Method of Evaluation
29/3/21 to 31/3/21	3	III Unit (3 rd Med)	Antiviral Agents- Antiviral drugs, Interferons, Antiviral vaccines	Powerpoint presentation, video	Medical Microbiology by Jawertz Microbiology by Paniker	Discussions
	1	III Unit (3 rd -SBE)	Northern Blotting, Dot Blotting Chromatography - General Introduction.	Black board Teaching.	Bioinstrumentation by L. Venkumani	Class Tests.
	1	III Unit (HR)	International Conventions of Human Rights - Economic, Social and cultural Rights.	chalk and Talk Method.	Human Rights Booklet.	Discussions
1/4/21 to 02/4/21, 5	2	IV (3 rd Med) 4	Introduction to parasites, General lab diagnosis of parasites.	chalk and Talk Method.	Medical Microbiology by Jawertz	Question-answers
	1	IV (3 rd -SBE) 4	Paper chromatography, Thin layer chromatography, Ion Exchange chromatography.	chalk and Talk Method.	Bioinstrumentation by L. Venkumani	Class Test.
	1	IV Unit (HR)	Provision relating to human Rights - Role of UN in promotion and protection.	oral Teaching	Human Rights Booklet	Discussion
5/4/21 to 10/4/21	5	IV Unit (3 rd - Med) 4	classification of protozoans - Toxoplasmosis, Trypanosomiasis, Leishmaniasis.	Powerpoint presentation	Medical Microbiology - Jawertz Parasitology - Abhay.	question-answers.
	2	IV Unit (3 rd - SBE) 4	HPLC, Column chromatography	chalk and Talk Method.	Bioinstrumentation by L. Venkumani	Discussions.
12/4/21 to 15/4/21 to 17/4/21	2	IV Unit (3 rd - Med) 4	Amoebiasis, Malaria, Giardiasis.	Powerpoint presentation.	Parasitology - Abhay.	Discussions.
	2	IV HR (IPR)	UN specialised agencies - Domestic Jurisdiction - UN Commission on Human Rights.	oral Teaching	Human Rights Booklet	Discussions.

Date/week	No. of hours	Unit	Topics	Teaching Method & Centre Method	Learning Resources	Method of Evaluation
19/4/21 to 24/4/21	V	V (3rd yr - Med)	Metazoa - Ascariasis, Hookworm, Trichinosis, Hydatidosis.	Powerpoint Presentation.	Parasitology by Abhay.	Discussions
	II	V (3rd yr - SBE)	Spectrophotometry - Colorimeter, Flame photometry.	Chalk and Talk Method.	Bioinstrumentation by L. Veerakumari.	questionnaires.
	II	V (I Pa - HR)	Protection of vulnerable groups - policies and Act children Act, Amendment Act.	Black board Teaching.	Human Rights booklet.	Discussions.
26/4/21 to 30/4/21	V	V (3rd yr - Med)	Filariasis, Fasciolopsis.	chalk and talk Method.	Parasitology by Abhay.	questionnaires.
	II	V (3rd yr - SBE)	FACS and Biosensors.	Power point presentation.	Research Methodology & Bioinstrumentation L. Veerakumari	Discussions.
	II	V (I Pa - HR)	National policy for Empowerment of poor women, violence against women. Rights of the girl child. portions Completed	chalk and Talk Method and videos.	Human Rights booklet.	Discussions.

TEACHING PLAN - ACADEMIC YEAR 2020-2021 [EVEN SEMESTER]

Date/Week	Unit	TOPICS Covered	Teaching Methodology & Student centric method	Learning Resources	Method of Evaluation
4/1/21 to 8/1/21	I (3 rd - Med) 4 th	General Introduction. Detection of virus, properties of virus.	Black-board Teaching.	Microbiology by Paniker	Questionnaires.
	I (3 rd - SBE) 4 th	Buffers, Hot air oven, Autoclave, Incubator.	Chalk and talk Method.	Bioinstrumentation by L. Veerakumari Practical Microbiology by Dubey.	Discussions. <i>ful</i>
11/1/21 to 13/1/21	I (3 rd - Med) 4 th	Detection - Serological diagnosis of viruses.	Chalk and talk Method.	Microbiology by Paniker	class test
	I (3 rd - SBE) 4 th	Water bath shaker, PH meter & electrodes	Powerpoint presentation	Bioinstrumentation by L. Veerakumari.	Discussions.
18/1/21 to 22/1/21	I - Med	Cultivation of viruses properties of virions, proteins, etc.,	Black board Teaching.	Microbiology by Paniker	Class test
	I - SBE (3 rd 4 th)	Normality, Molarity, preparation of solution.	Chalk and talk Method.	Bioinstrumentation by L. Veerakumari.	Questionnaires. <i>ful</i>
25/1/21, 27/1/21 to 29/1/21	II (SBE - 3 rd 4 th)	Centrifuge - principle. Types of centrifuge	Power point presentation, Videos.	Bioinstrumentation by L. Veerakumari	Questionnaires
	II (C Med - 3 rd 4 th)	ARBO viral Diseases.	Chalk and talk Method.	Microbiology by Paniker.	class test. <i>ful</i>

Week	Unit	Topics Covered	Teaching Methodology & Centrics	Learning Resources	Method of Evaluation
1/2/21 to 5/2/21	II (3 rd yr - Med)	Rodent borne virus, Picorna virus, Rhino virus.	Chalk and Talk Method.	Powerpoint presentation	Discussions.
	II (3 rd yr - SBE)	Ultra centrifuge - working principle Types of Centrifugation.	powerpoint presentation & Videos.	Bioinstrumentation by L. Veerakumari	Questionnaires.
	I (CHR - I PA)	Human Rights - Meaning development of Human Rights And its Elements.	Chalk and Talk Method.	Human Rights Booklets	Discussions. PPT
8/2/21 to 12/2/21	II unit	Rabies Virus, polio Virus, Hepatitis Virus A, B, C	Chalk and Talk Method.	Medical Microbiology by Jawetz	Class tests.
	II unit	Differential centrifugation, Analytical centrifugation	power point presentation	Bioinstrumentation by L. Veerakumari.	Questionnaires.
	I unit & II unit	Kinds of Human Rights, Feature of Constitution / Federalism	oral communication.	HR Booklet	Questionnaires. PPT
15/2/21 to 20/2/21	II unit	Orthomyxo viruses - SARS	Black board Teaching	Medical Microbiology by Jawetz.	Discussions.
	II unit	Density Gradient centrifugation	power point presentation	Bioinstrumentation by L. Veerakumari	Class Test
	II unit	Preamble - Fundamental Rights.	oral communication	HR Booklet	Oral Discussions. PPT

Date/Week	Unit	Topics Covered	Teaching Methodology	Learning Resources	Method of Evaluation
22/2/21 to 27/2/21		REVISION			Quiz
1/3/21 to 6/3/21		I CA EXAMINATION			
8/3/21 to 12/3/21	III unit	Pox virus, Adeno virus HIV	Powerpoint presentation	Microbiology by Paniker	Questionnaires
	III unit (SBE)	Electrophoresis - General Introduction, Types of Electrophoresis	Powerpoint presentation	Biinstrumentation by L. Veerakumari	Discussions.
	III unit (HR)	Universal Declaration - General rights	oral communication	HR Booklet	Group Discussions Quiz
15/3/21 to 20/3/21	III unit	International Govern- -nts of Human rights.	Oral Communication	HR Booklet	Discussions.
	III unit	Reo virus, oncogenic viruses, HSV, Rota virus	PPT	Microbiology by Paniker	Questionnaires.
	III unit	SDS PAGE, Southern Blotting, Agarose gel electrophoresis.	PPT	Biinstrumentation by L. Veerakumari	Class Test Quiz

1st to Week	Unit	TOPICS Covered	Teaching Methodology	Learning Resources	Method of Evaluation
22/3/21 to 26/3/21	III Unit	Northern Blotting Dot Blotting.	PPT	Bioinstrumentation by Uveenkumari	Class Test
	IV	Introduction to Parasite - Lab diagnosis of parasite	PPT	Parasitology by Paroja, Abhay.	Questionnaires
	IV	Provisions - Relating to Human Rights	oral Communi- cation	HR Booklet	Discussions. Puff
29/3/21 to 31/3/21	IV unit	Chromatography - paper & TLC	PPT	Bioinstrumentation by veerakumari	Discussions.
	IV unit	Toxoplasmosis Trypanosomiasis.	Chalk and Talk Presentation	Microbiology by :paniker	Class Test Puff
1/4/21 to 6/4/21		HOLIDAY			Puff
7/4/21 to 10/4/21	IV unit	column chromato- graphy, Ion Exchange chromatography.	powerpoint presentation	Bioinstrumenta- tion by veerakumari	Discussions.
	IV unit	Malaria, Leishman- iasis, Giardiasis.	powerpoint presentation	Parasitology by Paroja.	Class Test
	IV unit	UN specialised Agencies - Domestic Jurisdiction	powerpoint presentation	HR Booklet	Discussions. Puff

Date/week	Unit	TOPICS Covered	Teaching Methodology	Learning Resource	Method of evaluation
12/4/21 & 14/4/21 to 17/4/21	IV	Metazoans - Ascariasis Taenia Infection	Powerpoint Presentation	Medical Parasitology by Parija	Class Test
	V	Spectrophotometer, Colorimeter, FACS.	Powerpoint Presentation	Bioinstrumentation by L. Veerakumari	Questionnaires.
	V	Protection of vulnerable groups, policies Children Act.	Powerpoint Presentation	HR Booklet	Discussions Parija
19/4/21 to 26/4/21		II CA EXAMINATION REVISION			 Parija
27/4/21 to 30/4/21	IV	Filariasis, Hook worm disease, Fasciolosis	Powerpoint presentation	Parasitology by Parija	Questionnaires -
	V	FACS and Biosensors	Power point presentation	Bioinstrumentation by Veerakumari	Discussions.
	VI	Empowerment, Women's Rights, Violence against Women.	Powerpoint Presentation	Human Rights Booklet	Questionnaires Parija
3/5/21 to 5/5/21 8.10.2021 10/05/21		Portions Completed Revision			

LESSON PLAN FOR THE YEAR 2020 - 2021 [EVEN SEMESTER]

WEEK / DATE	NO. OF HOURS	UNITS	TOPICS	TEACHING METHODOLOGY & STUDENT CENTRIC METHOD	LEARNING RESOURCES	METHOD OF EVALUATION
04.01.2021 To 08.01.2021	5	I	(i) Discussion about syllabus (ii) Carbohydrate metabolism - Glycolysis. (iii) TCA - ED & other pathways	Lecture Method Power point Presentation	Text Book [Principles of Biochemistry - Lehninger]	E-Assessments
11.01.2021 To 13.01.2021	1	I	(i) Aerobic and Anaerobic respirations - Generation of energy (ii) Substrate level and Oxidation phosphorylation - Electron transport chain	Lecture Method Power point Presentation	Text Books [Lehninger Principles of Biochemistry]	Quiz & Worksheet
18.01.2021 To 22.01.2021	5	I	(i) Proteins - Primary, Secondary, tertiary and quaternary structures (ii) Enzymes nomenclatures, classification and general Properties - Factors affecting Enzyme Synthesis.	Power point Presentation Lecture Method	Freifelder - Molecular Biology	Creating Exams.

DATE	HOURS	UNITS	TOPICS	TEACHING METHODOLOGY & STUDENT CENTRIC METHODS	LEARNING RESOURCES	METHOD OF EVALUATION
25.01.2021 To 29.01.2021	4	I	(i) Allosteric Enzymes (ii) Photosynthesis - cyclic and non-cyclic photophosphorylation	Power point Presentation	Text Books [Molecular Biology - Freifelder]	E-Assessment
01.02.2021 To 05.02.2021	5	II	(i) Microbial pathogenicity - Toxins - characterization (ii) Mechanisms of action	Lecture Method	Microbial Physiology - Moat	Case study Analysis
08.02.2021 To 12.02.2021	3	II	(i) Anti-microbial Chemotherapy (ii) Antibiotics and its classification (iii) Mode of action of antibiotics	Power point Presentation	Microbial Physiology - Moat	Quiz Worksheet
15.02.2021 To 20.02.2021	5	II	(i) Antimicrobial resistance (ii) Tests for sensitivity to antimicrobial agents - Kirby Bauer → MIC.			

22.02.2021 To 27.02.2021	5	II	(i) Metabolic pathways and metabolic control mechanisms.	Lecture Method	Text Book Microbial Physiology	Assignment
01.03.2021 To 06.03.2021	5		CA - I EXAMINATION			
08.03.2021 To 12.03.2021	3	III	(i) Brief idea about classification, structure and properties of carbohydrates. (ii) Nucleic acids - DNA and RNA - their topology and functions.	Power point Presentation Lecture Method	Principles of Biochemistry	Discussion
15.03.2021 To 20.03.2021	5	III	(i) Chromosome organization in microbes (ii) DNA repair - Mechanism of Excision repair, SOS repair and mismatch repair	Lecture with Demonstration method	David White - The Physiology & Biochemistry of Prokaryotes.	Assessing Group works.

22.03.2021 To 27.03.2021	5	<u>IV</u>	(i) Process of Transcription- Initiation, Elongation & Termination (ii) Synthesis of mRNA in Prokaryotes. (iii) Synthesis of mRNA in Eukaryotes.	Power point Presentation	Microbial Physiology - Moat	Quiz & Worksheet
29.03.2021 To 31.03.2021	4	<u>IV</u>	(i) Synthesis of rRNA (ii) Synthesis of tRNA (iii) RNA processing - Capping and polyadenylation	Power point Presentation	The physiology & Biochemistry of Prokaryotes David White	Seminar
07.04.2021 To 10.04.2021	3	<u>V</u>	(i) Post transcriptional modification (ii) Post translational modification	Lecture Method	Microbial physiology - Moat	Creating Exams

12.04.2021 To 17.04.2021	3	<u>V</u>	(i) Protein Synthesis (ii) Genetic Code	Power point Presentation	Microbial Physiology - Moat	Quiz
19.04.2021 To 24.04.2021	5	<u>V</u>	(i) Process of translation Initiation, Elongation, and Termination	Power point Presentation	Microbial Physiology & Principles of Biochemistry	Assignments
26.04.2021 To 30.04.2021	5	<u>V</u>	(i) Signal sequences and Protein transport.	Power Point Presentation	Microbial physiology.	Online Discussion Assessment

July

NME : FOOD MICROBIOLOGY - LESSON PLAN FOR THE YEAR 2020 - 2021

WEEK/ DATE	No. OF HOURS	UNITS	TOPICS	TEACHING METHODOLOGY AND STUDENT CENTRIC METHOD	LEARNING RESOURCES	METHOD OF EVALUATION
04.01.2021 To 08.01.2021	3	I	(i) Food Microbiology - Definition Scope of food microbiology (ii) Importance of microbes in Food Microbiology - Bacteria	Power point Presentation	Food Microbiology - Vijaya Ramesh	Class room Discussion Assessment
11.01.2021 To 13.01.2021	1	I	(i) Importance of microbes in Food Microbiology - Yeast (ii) Importance of microbes in Food Microbiology - Molds	Lecture Method	Food Microbiology - Vijaya Ramesh	Quiz
18.01.2021 To 22.01.2021	3	I	(i) Probiotics - its health benefits (ii) Single cell proteins - its health benefits.	Power point Presentation	Food Microbiology - Vijaya Ramesh	Worksheet
25.01.2021 To 29.01.2021	2	I	Revision - Unit - I	Class Discussion		Creating Exam
01.02.2021 To 05.02.2021	3	II	(i) Fermented dairy products - Yoghurt & Dahi	Lecture Method	Food Microbiology - Vijaya Ramesh	Assignments
08.02.2021 To 12.02.2021	2	II	Acidophilus milk - Koumiss, Kefir	Lecture Method	Modern Food Microbiology - James	Assignments Quiz & Worksheet
15.02.2021 To 20.02.2021	3	II	(i) Cheese - their production (ii) Therapeutic values of Fermented milk.	Power point Presentation	Dairy Microbiology - Robinson	E- Assessment
22.02.2021 To 27.02.2021	3		I - CA - Revision	Class Discussion		Creating Exams
01.03.2021 To 06.03.2021	3		I - CA - EXAMINATION			

WEEK / DATE	NO. OF HOURS	UNITS	TOPICS	TEACHING METHODOLOGY & STUDENT CENTRIC METHOD	LEARNING RESOURCES	METHOD OF EVALUATION
08.03.2021 To 12.03.2021	3	<u>III</u>	(i) Traditional Fermented Foods - Idli / Dosa (ii) papad, bread	Lecture Method	Food Microbiology - Adams	Case study Analysis
15.03.2021 To 20.03.2021	3	<u>III</u>	(i) Soy Sauce (ii) Sauerkraut, Pickle	Lecture Method	Food Microbiology - Vijaya Ramesh	R-Assessment
22.03.2021 To 27.03.2021	3	<u>III</u>	(i) Edible mushroom - their health benefits (ii) Mushroom recipes - Indian Western	Lecture Method	Mushrooms: Cultivation, nutritional value	Assessing Group works
29.03.2021 To 31.03.2021	1	<u>IV</u>	(i) Food borne illness - An Introduction (ii) Food Intoxication - (Staphylococcus & Clostridium)	Lecture Method	Food Microbiology - Adams	Case Study Analysis

07.04.2021 To 10.04.2021	2	<u>IV</u>	(i) Food Infection - Viral (ii) Food Infection - Parasitic (iii) Prevention & Control measures.	Lecture Method	Food Microbiology - Vijaya Ramesh	Quiz
12.04.21, 15.04.21 To 17.04.21	2	<u>V</u>	(i) Genetically modified Foods - Indian BT egg plant	Power point Presentation	Genetically Engineered Food - Knut	E-poster
19.04.21 To 24.04.21	3	<u>V</u>	(i) Golden Rice (ii) Purple tomato - leafless onion	Power point Presentation	Genetically Engineered Food - Knut	Online Discussion Assessment
26.04.21 To 30.04.21	3	<u>V</u>	(i) Rainbow Cauliflower (ii) Methionine enriched oil (iii) Calgene FLAVR SAVR Tomato	Power point Presentation	Genetically Engineered Food - Knut	Quiz.

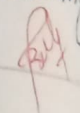
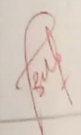
TEACHING PLAN - ACADEMIC YEAR 2020-2021
[EVEN SEMESTER]

WEEK	CLASS	TOPICS COVERED	LEARNING RESOURCES	METHODS
04.01.21 To 08.01.21	I. M.Sc Microbiology	(i) Syllabus Introduction (ii) Carbohydrate Metabolism (iii) TCA, ED pathway.	Principles of Biochemistry	Power Point Presentation
	NME [III-YEAR]	(i) Introduction - Syllabus (ii) Food Microbiology - Scope, Importance	Food Microbiology	PPT Videos
11.01.21 To 13.01.21	I. M.Sc Microbiology	(i) Aerobic and Anaerobic respiration (ii) Electron Transport chain (iii) Substrate level phosphorylation	Principles of Biochemistry	PPT
	NME [III-YEAR]	(i) Importance of microbes - Yeast & Mold	Food Microbiology	You-tube Snippets
18.01.21 To 22.01.21	I - M.Sc Microbiology	(i) Proteins (ii) Enzymes.	Molecular Biology	PPT
	NME [III-YEAR]	(i) Probiotics (ii) SCP	Food Microbiology	PPT

WEEK	CLASS	TOPICS COVERED	LEARNING RESOURCES	METHODS
25.01.21 To 29.01.21	I. M.Sc Microbiology	(i) photosynthesis	Molecular Biology	Lecturing PPT
	NME [III-YEAR]	Unit - I [Revision]		Creating Exam
01.02.21 To 05.02.21	I. M.Sc Microbiology	Microbial pathogen - Toxins	Microbial physiology	PPT
	NME [III-YEAR]	(i) yoghurt & Dahi	Dairy Microbiology	Lecture
08.02.21 To 12.02.21	I. M.Sc Microbiology	Antimicrobial Chemotherapy Classification - Mode of action	Microbial Physiology	PPT
	NME [III-YEAR]	Acidophilus milk Kefir Koumiss	Dairy Microbiology	Lecturing
15.02.21 To 20.02.21	I. M.Sc Microbiology	Kirby Bauer MIC & Metabolic Pathway.	Microbial physiology	PPT
	NME [III-YEAR]	Cheese - their Production Therapeutic Values - Fermented milk	Dairy Microbiology	Lecturing PPT

WEEK	CLASS	TOPICS COVERED	LEARNING RESOURCES	METHODOLOGY
22.02.21 To 27.02.21	I.M.sc Microbiology	CA - I [REVISION]		Discussion
	NME [III YEAR]	CA - I [REVISION]		Discussion PPT
01.03.21 To 06.03.21	I.M.sc Microbiology	CA - I EXAMINATION		
	NME [III YEAR]	CA - I Examination		
08.03.21 To 12.03.21	I.M.sc Microbiology	Carbohydrates, Principles of Classification; Biochemistry DNA, RNA, - Replication.		PPT
	NME [III-YEAR]	Traditional Foods [Idli, dosa, Papad]	Food Microbiology	Lecture PPT
15.03.21 To 20.03.21	I.M.sc Microbiology	Transcription process	Molecular Biology	PPT
	NME [III-YEAR]	Soy Sauce, Pickle Sauerkraut	Food Microbiology	Lecture PPT

WEEK	CLASS	TOPICS COVERED	LEARNING RESOURCES	METHODOLOGY
22.03.21 To 27.03.21	I.M.sc Microbiology	mRNA - Prokaryote * Eukaryotes		Microbial Physiology PPT
	NME [III YEAR]	Mushroom - Health benefits	Mushroom - Cultivation, Nutritional Value	Lecturing PPT
29.03.21 To 31.03.21	I.M.sc Microbiology	rRNA, tRNA Synthesis * Processing		Microbial Physiology PPT
	NME [III YEAR]	Food Borne illness	Food Microbiology	Lecturing PPT
07.04.21 To 10.04.21	I.M.sc Microbiology	Post transcriptional * Translational modification		Microbial physiology PPT
	NME [III-YEAR]	Food Infection Viral, * Parasitic	Food Microbiology	Lecture PPT
12.04.21, 15.04.21 To 17.04.21	I.M.sc Microbiology	Protein Synthesis Genetic code		Microbial Physiology PPT
	NME [III YEAR]	GM Foods B+ Brinjal	Genetically Engineered Foods.	Lecture PPT

WEEK	CLASS	TOPICS COVERED	LEARNING RESOURCES	METHODS
19.04.21 To 24.04.21	I.M.Sc Microbiology	Translation Process	Microbial physiology	PPT
	NMIE [III-YEAR]	Golden Rice Purple tomato	Food Microbiology	PPT Lecturing 
26.04.21 To 30.04.21	I.M.Sc Microbiology	Signal Sequences Protein Transport	Microbial Physiology	PPT
	NMIE [III-YEAR]	Rainbow Cauliflower, Methionine Enriched Oil Calgene FLAVR SAVR Tomato.	Genetically Engineered Food	Lecturing PPT 
88- 10/05/21 ^{8/5/21}				

LESSON PLAN - ACADEMIC YEAR 2020 - 2021 (EVEN SEMESTER)

Week/Date	No. of hours	Unit	Topics	Teaching methodology	Learning Resources	Method of evaluation
4.01.21 to 8.01.21	4	I	I B.sc Microbiology Nutritional requirement of microorganisms - Macro and Micro elements, Nutritional types of microorganisms	Powerpoint presentation	TB: Prescott (2005)	Quiz
	4	I	III B.sc Microbiology Microbes of air, Droplet, droplet nuclei, Aerosol, Assessment of air quality, Solid, liquid impingement method	powerpoint presentation	TB: Subba Rao (2004)	Questionnaire
11.01.21 to 13.01.21	1	I	II - SBE Microbiology - definition and kinds of microorganisms	Powerpoint presentation	Text book: Frazier (2008)	Questionnaires

Week/Date	No. of hours	Unit	Topics	Teaching methodology	Learning Resources	Method of evaluation
	4	I	I B.sc Microbiology Uptake of nutrients into the cell - transport of nutrients by active and passive transport method.	Power point presentation and video demo	TB: Pelczar (2006)	
	4	I	III B.sc Microbiology Brief account of air borne transmission of microbes and diseases.	Power point presentation	TB: Joseph c Daniel (1999)	Questionnaires
18.1.21 to 22.1.21	04	II	I B.sc Microbiology Culture media and its types and preparation of culture media	Video demonstration	TB: Prescott (2005)	
	02	I	II SBE Brief outline on microscopy - types and uses.	Power point presentation	TB: Pelczar (2006)	
	05	I	III B.sc Microbiology Microbiology of water - types of water - potability of water - microbial assessment of water quality	Blackboard teaching	TB: Joseph. c. Daniel (1999)	Questionnaires
25.1.21, 27.1.21 to 29.1.21	04	II	I. B.sc Microbiology Pure culture techniques - Streak, Spread, pour plate technique	Power point presentation and video demo	TB: R.c. Dubey (2012)	
	02	I	II SBE Sterilization and disinfection.	Power point presentation	TB: Pelczar (2006)	Questionnaires
	04	I	II B.sc Microbiology Water purification - Brief account on water borne diseases.	Black board teaching	TB: Vijaya Ramesh (2004)	
1.2.21 to 5.2.21	05	II	I B.sc Microbiology Factors affecting growth of bacteria (pH, temperature, oxygen)	Power point presentation	TB: Sale A.J (1992)	

Week/ Date	no. of hours	Unit	Topics	Teaching methodology	Learning Resources	Method of evaluation.
	05	I	<u>II</u> B.sc Types of waste and Characterization of solid and liquid waste	Black board teaching	TB: Subba Rao (2004)	Quiz
	02	I	<u>II</u> SBE Unit -I Revision.			Test
08.02.21 to 12.2.21	04	II	I B.sc Capnophilic organisms - Preservation of cultures	Powerpoint Presentation (PPT)	TB: Pelczar (2006)	slip test
	04	<u>II</u>	<u>II</u> B.sc solid and liquid waste treatment methods Saccharification - gasification - Composting	Black board teaching	TB: Subba Rao (2004)	Questionair
	02	I	<u>II</u> SBE culture media and its uses.	Video demonst- -ration and PPT	TB: Vijaya Ramesh (2004)	Quiz
15.02.21 to 20.2.21	04	<u>II</u>	I B.sc Aerobic and anaerobic culture technique - lyophiliza- -tion techniques	Black board teaching	TB: Prescott (2005)	slip test
	04	<u>II</u>	<u>II</u> B.sc Liquid waste - solid waste treatment methods Primary and secondary treatment	black board teaching	TB: Vijaya Ramesh (2004)	Quiz
	02	<u>II</u>	<u>II</u> SBE Food microbiology - General Spoilage of food by microorganisms. Principles and methods of food preservation.	Powerpoint presentation	TB: Pelczar (2006)	slip test

Date	No. of hours	Unit	Topics	Teaching methodology	Learning Resources	Method of evaluation
22.2.21 to 27.2.21	05	III	I B.sc Microbial growth (population time (generation time), Growth curve of bacteria.	Black board teaching	TB: Prescott (2005)	Quiz
	04	II	III B.sc Anaerobic - methanogenesis, aerobic - trickling filter, activated sludge, oxidation pond tertiary treatment, Utilization of solid and liquid waste	Powerpoint presentation and video demo	TB: Subba Rao (2004)	Test
	02	II	II SBE Asepsis, low temperature, high temperature and food additives Food borne disease.	Powerpoint presentation	TB: Frazier (2008)	Questionnaire
01/03/21 to 06.03.21			CA - I			
8.03.21 to 12.3.21	04	III	I B.sc Measurement of microbial growth (cell number and cell mass) Batch and continuous culture.	Black board teaching	TB. Prescott (2005)	Quiz
	05	III	III B.sc Bioaugmentation, Recalcitrant and xenobiotic components	Video demonstration	TB: Joseph. C. Daniel (1999)	Quiz
	02	III	II SBE Aeromicrobiology - Definition Indoor and outdoor microflora	Powerpoint presentation	TB: Frazier (2008)	Test
15.3.21 to 20.3.21	04	II	I B.sc Synchronous growth - control of microbial growth by antimicrobial drug and antibiotic, Antimicrobial drug resistance.	Black board teaching	TB: Pelczar (2006)	Quiz

Date/week	No. of hours	Unit	Topics	Teaching methodology	Learning Resources	Method of evaluation
	04	<u>II</u>	<u>II</u> B.sc Bio remediation, Biodegradation - deterioration of paper, leathers, wood, textiles	Powerpoint presentation	TB: Pelezar (2006)	Slip test
	02	<u>III</u>	<u>II</u> - SBE Droplet, Droplet nuclei and infectious dust. Air borne diseases.	Black board teaching	TB: Pelezar (2006)	Questionnaire
21-3-21 to 27-3-21	04	<u>IV</u>	<u>I</u> - B.sc Fungi - morphology, reproduction and cultivation of yeast	Black board teaching	TB: Pelezar (2006)	Quiz
	05	<u>IV</u>	<u>III</u> B.sc Metal corrosion - mode of deterioration - organisms involved and mode of prevention	Powerpoint presentation	TB: Subba Rao (2004)	Quiz
	02	<u>III</u>	<u>II</u> SBE Microbiology of water - types of water - potability of water	Powerpoint presentation	TB: Vijaya Ramesh (2004)	Quiz
29-3-21 to 31/3/21	04	<u>IV</u>	<u>I</u> B.sc Cultivation and reproduction of molds (Aspergillus, Penicillium, Rhizopus, Mucor)	Powerpoint presentation	TB: Prexott (2005)	Slip test
	04	<u>IV</u>	<u>III</u> B.sc Microorganisms in soil - Qualitative and quantitative microflora of different soils: Fertility factors of various soils.	Powerpoint presentation	TB: Joseph. C. Daniel (1999)	Quiz
	02	<u>II</u>	<u>I</u> SBE Source of drinking water - treatment of drinking water - treatment methods - water	Powerpoint and video demo	TB: Frazier (2008)	Questionnaire

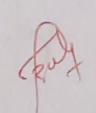
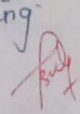
Date/Week	No. of hours	Unit	Topics	Teaching methodology	Learning Resources	Method of evaluation
07.4.21 to 10.4.21	04	<u>II</u>	I B.sc Algae - Morphology and reproduction of Chlamydomonas, Volvox, Chlorella, Ullothrix and Diatoms	Powerpoint Presentation	TB: Pelczar (2006)	Questionnaires
	04	<u>IV</u>	<u>III</u> B.sc Biogeo chemical cycle - Nitrogen, carbon, phosphorus and sulphur.	Powerpoint Presentation	TB: Subba Rao (2004)	Quiz
	02	<u>IV</u>	<u>II</u> SBE Mushrooms and its types	Powerpoint Presentation	TB: Pelczar (2006)	Slip Test
12.4.21, 15.4.21 to 17.4.21	04	<u>II</u>	I B.sc Classification and salient features of cyanobacteria, cultivation of cyanobacteria	Powerpoint Presentation	TB: Dubey R.c (2012)	Questionnaires
	05	<u>V</u>	<u>III</u> B.sc Inter relationship between plant and microorganisms - Rhizosphere, Rhizoplane, Phyllosphere, spermosphere and its importance	Video demo and PPT	TB: Joseph.c.Daniel (1999)	Quiz
	02	IV	<u>II</u> SBE Cultivation of Agaricus bisporus and nutritional and medicinal values.	Powerpoint Presentation	TB: Frazier (2008)	Questionnaires
19.4.21 to 24.4.21	04	<u>I</u>	<u>III</u> B.sc Enzymes. Classification - coenzymes, Functions of (TPP, NAD, NADP, FMN, FAD and	Powerpoint Presentation	TB: R.c. Dubey (2012)	Quiz

Date/week	No. of hours	Unit	Topics	Teaching methodology	Learning resources	Method of evaluation.
	04	I	<u>III</u> B-sc Mycorrhiza - ecto and endo mycorrhiza - Am Fungi - distribution and its importance - Lichens.	Powerpoint presentation	TB: Subba Rao (2004)	Quiz
	02	I	<u>II</u> - SBE Composting - definition, Composting of waste by different methods. Harvesting, storage, uses and application of compost	Video demonstration and PPT	TB: Vijaya Ramesh (2004)	Slip test
26.4.21 to 30.4.21	04	I	<u>I</u> B-sc Basic Concepts of microbial metabolism (Kreb's cycle, Glycolysis - Electron transport	Video demonstration and PPT	TB: Prestott (2005)	Slip test
	05	I	Chain, oxidative phosphorylation Photo phosphorylation and its types <u>III</u> B-sc Nitrogen fixation, Root nodule bacteria.	Powerpoint presentation.	TB: Vijaya Ramesh (2004)	Quiz

TEACHING PLAN - ACADEMIC YEAR 2020-2021 (EVEN SEMESTER)

Weeks	Class	Topics covered	Learning Resource	Methodology
4.1.21 to 8.1.21	I. Bsc	Nutritional requirements of bacteria * Macro * Micro Classification of microbes based on nutritional requirements.	Microbiology - Prescott	Power point presentation (PPT)
	III Bsc	Microbes of air, Droplet, droplet nuclei, Aerosol, Assessment of air Quality * solid impingement * Liquid impingement	Environmental microbiology - vijaya Ramesh	PPT <i>fully</i>
11.01.21 to 13.01.21	IBSBE	Microbiology - Definition Types of microbes.	Microbiology - Pelczar	PPT
11.01.21 to 13.01.21	I B.sc	uptake of nutrients, Transportation Active and passive method	Microbiology - Pelczar	PPT and video demonstration
	III Bsc	Air borne transmission of disease and microbes	Environmental microbiology - Joseph. C. Daniel	PPT <i>fully</i>
18.1.21 to 22.1.21	II-SBE	Microscope - types and uses	Microbiology - Pelczar	PPT
	I B.sc	Culture media and its types Preparation of culture media	Microbiology - Prescott	Power point presenta-tion and video demo
	III B.sc	Microbiology of water, potability of water Microbial assessment of water Quality	Environmental microbiology Joseph. C. Daniel	Blackboard teaching <i>fully</i>

Weeks	Class	Topics	Learning resource	Methodology
25.1.21 to 29.1.21	I-B.sc	Pure culture technique - Spread, pour, streak	Microbiology - Prescott	PPT and video demonstration
	II SBE	Sterilization and disinfectant	Microbiology - Prescott	PPT and video demonstration
	III B.sc	Water purification methods Detailed account on water borne diseases	Environmental microbiology - Joseph. C. Daniel	Black board teaching ful
1.2.21 to 5.2.21	I B.sc	Factors affecting growth of microbes * pH * Temperature * Oxygen	Microbiology - Pelczar	PPT
	II SBE	Unit - I Revision		
	III B.sc	* Types of water and * Characterization of solid and liquid waste * Solid and liquid waste	Environmental microbiology - Vijaya Ramesh	Black board teaching ful
8.2.21 to 12.2.21	I B.sc	Capnophilic Organisms Preservation of cultures Aerobic and anaerobic culture technique Lyophilization technique	Microbiology - Prescott	PPT and video demonstration
	II SBE	Culture media and its uses	Microbiology - Pelczar	PPT and video demonstration
	III B.sc	Saccharification, Gasification, Composting, Liquid waste - solid waste treatment method (Primary & Secondary)	Environmental microbiology - Joseph. C. Daniel	Black board teaching. ful

Weeks	Class	Topics	Learning Resources	Methodology
16-2-21 to 20-2-21	I B.sc	Microbial growth Bacterial growth curve	Microbiology - Prescott	Blackboard teaching
	II SBE	Food microbiology, General spoilage of food by microbes, principles and methods in food preservation	Food microbiology - Frazier	Powerpoint presentation.
	III B.sc	Anaerobic - methanogenesis Aerobic - Trickling filter, activated sludge, oxidation pond and tertiary treatment. Utilization of solid and liquid waste	Environmental microbiology - Joseph. C. Daniel	Black board teaching 
22-2-21 to 27-2-21	I. B.sc	Measurement of microbial growth	Microbiology	Black board
		Batch and continuous culturing	- Pelczar	teaching
	I (SBE)	Asepsis, low temperature, high temperature, food additives and food borne disease	Food microbiology - Frazier	Power point Presentation
	III B.sc	Bioaugmentation, Recalcitrant and xenobiotic components	Environmental microbiology - Joseph. C. Daniel	Blackboard teaching 
01-3-21 to 06-3-21		I CA EXAMINATION		
8-3-21 to 12-3-21	I B.sc	Synchronous growth - Control of microbial growth by antimicrobial drug and antibiotic. Antimicrobial drug resistance	Microbiology - Pelczar	Blackboard teaching

Weeks	Class	Topic	Learning Resources	Methodology
	II (SBE)	Aeromicrobiology - Definition Indoor and outdoor microflora	Microbiology - Prescott	Blackboard teaching
	III B.Sc	Bioremediation, Biodeterioration - Deterioration of paper, leather wood and textiles	Environmental microbiology - Joseph. C. Daniel	Black board teaching put
15.3.21 to 20.3.21	I. B.Sc	Fungi, Morphology and reproduction (Yeast) and molds (Aspergillus, Penicillin, Rhizopus and Mucor)	Microbiology - Pelczar	Black board teaching
	II (SBE)	Droplet, Droplet nuclei and infectious dust. Air borne disease Microbiology of water, Types of water and potability of water	Environmental Microbiology - Joseph. C. Daniel	Power point presentation
	i) B.Sc	Metal corrosion - Mode of deterioration - Organisms involved, mode of prevention	Environmental microbiology Joseph. C. Daniel	PPT and video demonstration put
21.3.21 to 27.3.21	I. B.Sc	Algae morphology and reproduction (Chlamydomonas, Volvox, Chlorella, Ulothrix and diatoms)	Microbiology - Prescott	PPT
	II (SBE)	Source of drinking water - Treatment methods and water borne diseases	Environmental Microbiology Joseph. C. Daniel	PPT
	III B.Sc	Microbes in soil - Qualitative & Quantitative microflora of various soil and its fertility factor	soil microbiology - Subba Rao	PPT put

Weeks	Class	Topic	Learning Resources	Methodology
29.3.21 to 31.3.21	I B.sc	Classification, cultivation and salient features of cyanobacteria	Microbiology - Prescott	PPT
	ii (SBE)	Mushroom cultivation, types and medicinal values of Mushroom	Microbiology - Pelczas	PPT
	iii B.sc	Biogeochemical cycle (Nitrogen, Carbon, phosphorus and sulfur)	Environmental microbiology - Joseph C. Daniel	PPT ful
07.4.21 to 10.4.21	I B.sc	Enzymes, Classifications - coenzymes and its functions	Biochemistry - Lehninger	PPT
	ii (SBE)	Composting - Definition, various methods of composting, Harvesting, Storage and uses.	Environmental Microbiology - Vijaya Ramesh	PPT
	iii B.sc	Inter relationship between plant and microbes, Rhizosphere, Rhizoplane, Phyllosphere, Spermosphere and its importance	Soil microbiology - Subba Rao	PPT ful
12.4.21 16.4.21 to 17.4.21	I.B.sc	Basic concepts of microbial metabolism (Krebs cycle, Glycolysis, Electron Transport chain, Oxidative phosphorylation, Photo phosphorylation and its types)	Microbiology - Prescott	PPT
	ii (SBE)	Revision - Unit - V		
	iii B.sc	Mycorrhiza - Ecto and endo - Mycorrhiza AM Fungi - distribution and its importance - lichens	Soil Microbiology - Subba Rao	PPT ful

Weeks	Class	Topics	Learning Resources	Methodology
19.4.21 to 24.4.21		<u>II</u> CA EXAMINATION		
26.4.21 to	I. Bsc	Revision - UNIT - I		
30.4.21	<u>II</u> (SBE)	REVISION		
	<u>III</u> B.sc	Nitrogen fixation and root nodule bacteria <i>SI - Jyoti Shankar - 2</i> <i>10/05/21</i>	Soil microbiology - Subba Rao	PPT

I M.Sc MICROBIOLOGY
LESSON PLAN - ACADEMIC YEAR 2020-2021 [EVEN SEMESTER]

Week/ Date	No. of hours	Unit	Topics	Teaching methodology Student centric method	Learning Resources	Methods of Evaluation
04.01.2021 to 08.01.2021	3	I	I M.Sc MB - Application of various types of microscopy, Bright field, Dark field, Phase contrast	Lecture method	Bioinstrumentation John G. Webster	Quiz
	4	I	iii B.Sc - purpose and philosophy of diagnostic microbiology, organization of clinical microbiology	ppt	Bailey's and Scott's - Diagnostic microbiology	E-poster.
	3	I	NME - Microbiology of water, types of water, potability of water	ppt	Vijaya Ramesh k - Environmental Microbiology	Quiz.
	2	I	SBE - History - scope and importance of mushroom cultivation	Lecture method	Mushrooms - Shu-Ting Chang	Quiz.
11.01.21 to 13.01.21	3	I	I M.Sc MB - Immunofluorescence - In situ hybridization, Confocal Microscope, Atomic force Microscope	ppt	Bioinstrumentation - John G. Webster	E-poster.
	4	I	III. B.Sc - Laboratory Safety, Biohazards & Classification of Biological agents.	Lecture method	Bailey's and Scott's - Diagnostic microbiology	Skip test
	3	I	NME - Source of drinking water, Municipal water supplies and the treatment method of municipal water supplies.	Lecture method.	Vijaya Ramesh k - Environmental Microbiology	Quiz
	2	I	SBE - Present status of mushroom Industry in India, Mushroom Research and development.	Lecture method.	Mushroom cultivation by Suman B.c and Sharma V.P	Discussion, Work sheet.
18.01.21 To 22.01.21	3	I	I.M.Sc - Electron Microscopy, principle, specimen preparation and application.	ppt	Bioinstrumentation by John G. Webster.	E-assignment

Week/ Date	No. of Hours	Unit	Topics	Teaching methodology Student centric method	Learning Resources	Methods of Evaluation
18-01-21 To 22-01-21	4	II	III B.Sc - Collection of bacterial, viral, fungal and protozoan diseases associated Clinical specimens, oral cavity, throat sample.	Lecture class	District Laboratory Practice in Tropical Countries - by Monica Cheesbrough	Questionnaire
	3	II	NME - Indicators of faecal Contamination, methods to detect portability of water sample	Lecture class	Microbial Ecology by Atlas R.M.	Discussion Quiz
	2	I and II	SBE: National and International agencies in Mushroom cultivation. pure culture for spawn production.	Lecture class	Mushrooms by Shu-Ting Chang	E-assignment.
25-01-21, 27-01-21 To 29-01-21	3	I	I. M.Sc - TEM and SEM Brief account on photomicrography and video micrography	Lecture class	Bioinstrumentation by John-G. Webster	Quiz
	4	II	III-B.Sc - General Safety Consideration, Skin specimen, Blood, CSF Specimen.	Lecture class	Bailey's and Scott's - Diagnostic Microbiology. Monica Cheesbrough	E-assignment
	3	II	NME - Standard qualitative procedure, MPN test, Membrane filter technique.	PPT	Microbial Ecology by Atlas R.M.	Slip test Discussion
	2	II	SBE: preparation and maintenance of mother culture in test tube slants, petriplates, Saline bottle polypropylene bags	PPT	Mushrooms by Shu-Ting Chang.	Discussion Quiz.
01-02-21 To 05-02-21	3	I	I. M.Sc - Developing and Printing of microphotographs.	Lecture class	Bioinstrumentation by John-G. Webster	Assigned Group discussion
	4	II	III B.Sc Wine and Faeces sample - collection, transport and storage, Rejection of specimens	Lecture class	District Laboratory practice in Tropical Countries - by	Slip test

Week/Date	No. of Hours	Unit	Topics	Teaching methodology Student centric method	Learning Resources	Methods of Evaluation
08-02-21 To 12-02-21	3	III	NME: pollution of water bodies by heavy metals and pesticides	PPT	Environmental aspects of Microbiology by Joseph C. Daniel	Case Study Quiz
	2	II	SBE: Spawn production, types, Methods storage and transportation.	Lecture method	Mushroom cultivation by Suman B. c and Sharma.	E-assignment.
15-02-21 To 20-02-21	3	I	I. M.sc - Spectroscopic methods UV-visible, Atomic absorption Spectrophotometer, Atomic Emission Spectroscopy	Lecture method	practical Biochemistry by Wilson and Walker.	Quiz
	4	III	II. B.sc - Examination of Clinical specimen by Gram stain, Ziehl-Neelson staining for tuberculosis, Giemsa staining	PPT	Bailey's and Scott's- Diagnostic Microbiology	Discussion and oral presentation
	3	IV	NME: Removal of heavy metals and pesticides by biosorption.	PPT	Environmental Microbiology by Vijaya Ramesh K.	Discussion Quiz
	2	III	SBE: cultivation technology, Infrastructure, culture rack, thatched house.	PPT	Mushroom cultivation by Suman B. c and Sharma.	Quiz Discussion.
22-02-21 To 27-02-21	3	II	I. M.sc - Centrifugation, Electroanalytical methods, Biosensors.	Lecture method	practical Biochemistry by Wilson and Walker	Assigned group discussion
	4	III	II: B.sc - LPCB, culture based techniques - Processing of various clinical specimen - culture for the growth of fungi	PPT	Diagnostic microbiology by Bailey's and Scott's	Quiz
	3	III	NME: Removal of oil spills by using microorganisms.	PPT	Environmental Microbiology by Vijaya Ramesh K.	Quiz and Work sheet
	2	IV	SBE: Substrates for Mushroom cultivation, vessels, inoculation methods. Mushroom bed preparation	Lecture method PPT	Mushroom cultivation by Suman B. c and Sharma.	Slip test Discussion

Week/Date	No. of Hours	Unit	Topics	Teaching methodology Student centric method	Learning Resources	Methods of Evaluation
29.03.21 To 31.03.21	3	II	I. M.Sc - Radioactive analysis GM counters + LS counter	Lecture method	Bioinstrumentation & Practical Biochemistry	Quiz
	4	IV	III - B.sc - Serological Methods, Agglutination based methods, WIDAL, Immunofluorescence	PPT	Diagnostic Microbiology by Bailey's and Scott's	E-assessment
	3	IV	NME - Water borne diseases, bacterial, viral and protozoan diseases	PPT	Environmental Microbiology by Vijaya Ramesh k	Quiz
	2	III	SBE: post-harvest handling, Preservation technology - Long term storage - Short term Storage	Lecture method PPT	Mushroom cultivation by Tewari and Pankaj	Quiz
	4	IV	III - B.sc - ELISA, Nucleic acid based methods - PCR, Immunodiffusion method	PPT	Medical Microbiology by Brooks	Case study Discussion
07.04.21 To 10.04.21	3	II+III	I - M.sc LS counter, Chromatographic Techniques	Lecture method	Practical Biochemistry by Wilson and Walker	Group discussion
	3	IV	NME - Etiological agents causing water borne diseases, Clinical symptoms, diagnosis, Prevention and control measures	PPT	Environmental Microbiology by Vijaya Ramesh k	Discussion Quiz
	2	IV	SBE: Types and Importance of edible Mushroom cultivated in India	PPT	Mushroom cultivation by Tewari and Pankaj	Discussion Sliptest
12.04.21, 15.04.21 To	3	IV	I. M.sc: Ion exchange Chromatography, Adsorption and gel permeation chromatography HPLC	Lecture method	Practical Biochemistry by Wilson and Walker	E-assessment
17.04.21	4	IV	III - B.sc: Immunoelectrophoresis, Commercial kits for dengue, HIV, and Swine flu identification	PPT	Medical Microbiology by Brooks	Quiz Discussion
	3	V	NME: Characteristics of Sewage and objectives & sewage treatment		Microbial Ecology by Atlas R.M.	Discussion Case study

Week/ Date	No. of Hours	Unit	Topics	Teaching methodology Student centric method	Learning Resources	Methods of Evaluation
12.04.21, 15.04.21 To 17.04.21	2	<u>IV</u>	SBE: Mushroom Contamination, Poisonous Mushroom	PPT	Mushroom cultivation by Tewari and Pankaj	Discussion Quiz
19.04.21 To 24.04.21	3	<u>IV</u>	I-M.Sc Electrophoresis, application, Electrophoresis protein & nucleic acids.	Lecture method.	Electrophoresis in practice by Westermeier R.	Quiz.
	4	<u>V</u>	III-B.Sc: Disc diffusion method, MIC of antibiotic by serial double dilution method and E-test	PPT	Medical Microbiology by Brooks	Discussion Case study
	3	<u>V</u>	NME: Biological treatment of sewage - activated sludge process, Trickling filters.	PPT	Environmental Microbiology by Vijaya Ramesh K	Discussion
	2	<u>V</u>	SBE: Nutritional and Medicinal values of Mushroom	PPT	Mushroom cultivation by Tewari and Pankej	E-Assignment Discussion
26.04.21 To 30.04.21	3	<u>V</u>	I.M.Sc. Isolation of nucleic acid, - plasmid, DNA, Gene cloning, PCR.	PPT	Electrophoresis in practice by Westermeier R	Quiz.
	4	<u>V</u>	III B.sc: Importance of MIC, Antimycotic susceptibility testing, Reporting and resulting, Safe disposal of specimens and biohazards	PPT	Diagnostic microbiology by Bailey and Scott's	Discussion. Case study
	3	<u>V</u>	NME: Anaerobic sludge digestion. Treatment of Industrial effluents using bioreactors and its reuse.	PPT	Environmental Microbiology by Vijaya Ramesh K.	Quiz.
	2	<u>V</u>	SBE: Preparation of low Calorie foods, Mushroom recipes. Marketing values in India - export value.	PPT	Mushroom cultivation by Tewari and pankej	Discussion Quiz.

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TEACHING PLAN - ACADEMIC YEAR 2020-2021
[EVEN SEMESTER]

WEEK	CLASS	TOPICS COVERED	LEARNING RESOURCES	METHODOLOGY
04-01-21 TO 08-01-21	I.M.sc (MB)	(i) Syllabus Introduction. (ii) Application of various types of Microscopy. (iii) Bright field, Dark-field and phase contrast Microscopy	Bio Instrumentation	Lecture method
	III.B.sc (MB)	(i) Syllabus Introduction (ii) Purpose and philosophy of Diagnostic Microbiology (iii) Organization of Clinical Microbiology	Diagnostic Microbiology	PPT
	NME	(i) Syllabus Introduction (ii) Microbiology of water, (iii) Types of water (iv) Portability of water	Environmental Microbiology	PPT
	SBE	(i) Syllabus Introduction (ii) History, Scope and Importance of Mushroom cultivation.	Mushrooms	Lecture method
11-01-21 TO 13-01-21	I.M.sc	(i) Immunofluorescence, (ii) In-site hybridization, (iii) Confocal Microscope (iv) Atomic force Microscope.	Bio-Instrumentation	PPT

WEEK	CLASS	TOPICS COVERED	LEARNING RESOURCES	METHODOLOGY
	III.B.sc	(i) Laboratory safety, (ii) Biohazards (iii) Classification of Biological agents	Diagnostic Microbiology	Lecture method
	NME	(i) Source of drinking water (ii) Municipal water supplies and its treatments	Environmental Microbiology	Lecture method
	SBE	(i) Present status of Mushroom industry in India (ii) Mushroom research and development	Mushroom cultivation	Lecture method
18-01-21 TO 22-01-21	I.M.sc	(i) Electron Microscope (ii) principle, specimen preparation (iii) Its application.	Bioinstrumentation	PPT
	III.B.sc	(i) Collection of bacterial, viral, fungal and protozoan diseases associated with clinical specimens. (ii) Oral cavity (iii) Throat specimen.	District Laboratory practice in Tropical Countries.	Lecture method
	NME	(i) Indicator of faecal contaminants (ii) Method of detection of portability of water samples.	Microbial Ecology	Lecture method

WEEK	CLASS	TOPICS COVERED	LEARNING RESOURCES	METHODOLOGY	WEEK	CLASS	TOPICS COVERED	LEARNING RESOURCES	METHODOLOGY
	SBE	(i) National and International funding agencies (ii) Pure culture & Spawn production	Mushrooms	Lecture method		III B.Sc	(i) Wine sample analysis (ii) Faecal sample analysis (iii) Rejection of specimen	District Laboratory practice in Tropical countries	Lecture method
25-01-21 27-01-21	I.M.Sc	(i) SEM (ii) TEM (iii) Photomicrography (iv) Video Micrography	Bioinstrumentation	Lecture method		NME	(i) pollution of water bodies by heavy metals (ii) Pesticides	Environmental aspects of Microbiology	PPT
29-01-21	II B.Sc	(i) General Safety Consideration (ii) Skin, C.S.F, and Blood specimens analysis.	Diagnostic Microbiology	Lecture method & Video.		SBE	(i) Spawn production (ii) Its types (iii) Methods of storage.	Mushroom Cultivation	Lecture method.
	NME	(i) Standard qualitative procedure, MPN test. (ii) Membrane filtration technique.	Microbial Ecology	PPT		I.M.Sc	(i) photomicrography (ii) Video micrography	Bioinstrumentation	ppt
	SBE	(i) Preparation and maintenance of molto culture in test-tube slants. (ii) Petriplates (iii) Saline bottle, (iv) Polypropylene bags	Mushrooms	PPT	8-02-21 To 12-02-21	III B.Sc	(i) collection, transport and examination of wine sample and Faecal sample	District Laboratory practice in Tropical countries	Lecture method.
	I.M.Sc	(i) Development and printing of Microphotographs	Bioinstrumentation	Lecture class		NME	(i) pollution of waterbodies by pesticides.	Environmental aspects of Microbiology	PPT
01-02-21 To 05-02-21						SBE	(i) Methods of storage and transportation of pure culture	Mushroom cultivation	Lecture method.

WEEK	CLASS	TOPICS COVERED	LEARNING RESOURCES	METHODOLOGY
15-02-21 To 20-02-21	I.M.sc	(i) UV-Visible Spectroscopic method (ii) Atomic absorption Spectrophotometer (iii) Emission spectroscopy	Practical Biochemistry	Lecture method
	III.B.sc	(i) Examination of Clinical specimen by Gram staining, Ziehl-Neelsen staining (ii) Giemsa staining	Diagnostic Microbiology	PPT
	NME	(i) Removal of heavy metals by biosorption	Environmental Microbiology	PPT
	SBE	(i) Cultivation technology, (ii) Infrastructure (iii) culture rack (iv) Thatched house	Mushroom cultivation	PPT
22-02-21 To 27-02-21	I.M.sc	(i) Centrifugation (ii) Electroanalytical methods (iii) Biosensors	Practical Biochemistry	Lecture method
	III.B.sc	(i) LPCB (ii) processing of various Clinical samples (iii) culture for growth of Fungi	Diagnostic Microbiology	PPT
	SBE	(i) Substrate for Mushroom cultivation (ii) Vessels		

WEEK	CLASS	TOPICS COVERED	LEARNING RESOURCES	METHODOLOGY
		(ii) Inoculation method (iv) Mushroom bed production	Mushroom Cultivation	PPT
	NME	(i) Removal of oil spills by using microorganisms	Environmental Microbiology	PPT
08-03-21 To 12-03-21	I.M.sc	(i) Describing about different types of Biosensors (ii) Radioactive analysis an Introduction	Bioinstru-mentation	Lecture method
	III.B.sc	(i) processing of Blood, CSF, Urine, Faecal samples (ii) culture media for growth of various pathogens	Diagnostic Microbiology	PPT
	NME	(i) Contamination of Soil by oil spills, (ii) Biosorption method for the removal of oil spills	Environmental Microbiology	PPT
	SBE	(i) Methods involved in Mushroom bed preparation, (ii) Different types of substrate for mushroom cultivation	Mushroom Cultivation	PPT
15-03-21 To 20-03-21	I.M.sc	(i) Describing in detail about Radioactive analysis methods (ii) Advantages of Radioactive analysis	Bioinstrumentation	Lecture method

WEEK	CLASS	TOPICS COVERED	LEARNING RESOURCES	METHODOLOGY
	III. B.Sc	(i) Processing of wine and faecal sample (ii) Storage and transportation of wine and faecal sample.	Diagnostic microbiology	PPT
	NME	(i) Water borne disease caused by bacteria and fungi	Environmental Microbiology	PPT
	SBE	(i) preservation technology used in mushroom cultivation	Mushroom Cultivation	PPT
22-03-21 to 27-03-21	I.M.Sc	GM- Counter method Introduction and the method of analysis.	practical Biochemistry	Lecture method.
	III. B.Sc	Introduction to Serological method of identification of pathogens	Diagnostic Microbiology	PPT
	NME	Introduction to Water borne diseases and their symptoms after infection.	Environmental Microbiology	PPT
	SBE	post-harvest handling of Mushrooms in Mushroom cultivation	Mushroom Cultivation	PPT

WEEK	CLASS	TOPICS COVERED	LEARNING RESOURCES	METHODOLOGY
29.03.21 To 31.03.21	I.M.Sc	Description about Ls-counter and their limitations	Bioinstrumentation	Lecture method
	III. B.Sc	(i) Agglutination based methods, WIDAL, Immunofluorescence.	Diagnostic Microbiology	PPT
	NME	(i) Water borne disease caused by protozoan.	Environmental Microbiology	PPT
	SBE	Long term and Short term storage of Mushroom	Mushroom Cultivation	Lecture method.
07.4.21 To 10.4.21	I.M.Sc	Introduction to Chromatographic techniques.	practical Biochemistry	Lecture method.
	III. B.Sc	ELISA, Nucleic acid detection by PCR, Immunodiffusion method.	Medical Microbiology	PPT
	NME	Etiological agents responsible for causing water borne diseases, symptoms, diagnosis, prevention and control measures.	Environmental Microbiology	PPT
	SBE	Types and Importance of Edible Mushrooms cultivated in India.	Mushroom Cultivation	PPT

WEEK	CLASS	TOPICS COVERED	LEARNING RESOURCES	METHODOLOGY
12.04.21, 15.04.21 TO 17.04.21	I.M.sc III.B.sc	(i) Ion-Exchange chromatography, (ii) Adsorption and gel permeation chromatography (iii) HPLC (i) Immunelectrophoresis (ii) Commercial kit for Dengue, HIV and Swine flu	Bioinstrumentation Medical Microbiology	Lecture method PPT
	NME	Characteristic of Sewage and its treatment	Microbial ecology	PPT
	SBE	Mushroom contamination, poisonous mushrooms	Mushroom cultivation	PPT

19.04.21 TO 24.04.21	I.M.sc III.B.sc	(i) Electrophoresis and its application. (ii) Electrophoresis of nucleic acid and protein (i) Disc diffusion method (ii) MIC of antibiotic by serial dilution method, E-test	Electrophoresis in practice Medical Microbiology	Lecture method PPT
	NME	(i) Biological treatment of sewage, (ii) Activated sludge digestion.	Environmental Microbiology	PPT
	SBE	Nutrients and medicinal Value of Mushrooms	Mushroom Cultivation	PPT

WEEK	CLASS	TOPICS COVERED	LEARNING RESOURCES	METHODOLOGY
26.04.21 TO 30.04.21	I.M.sc III.B.sc	(i) Isolation of plasmid and chromosomal DNA. (ii) Gene cloning (iii) PCR (i) Importance of MIC (ii) Antimycotic susceptibility testing (iii) Safe disposal of specimens and Biohazard substances	Electrophoresis in practice Diagnostic Microbiology	PPT + Video PPT
	NME	(i) Anaerobic sludge digestion. (ii) Treatment of Industrial effluent by bioreactors	Environmental Microbiology	PPT
	SBE	(i) Preparation of low Calorie foods, (ii) Mushroom recipes. (iii) Marketing values in India - export value	Mushroom Cultivation	PPT

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10/05/21