

Affiliated to Bengaluru City University

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RV Road, Basavanagudi
Bangalore – 560004
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Email:vijayadegree@gmail.com
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Website: www.vijayacollege.ac.in

ACADEMIC PLANNER & UNITIZATION OF SYLLABUS

ACAD	EMIC	YEAR/SEMESTER	2023-24	I Semester
DEPARTMENT		MICROBIOLOGY		
SUBJECT/PAPER			MBL 101 - General Microbiology	
		MONTH -	1 (August)	
WEEK	DAY	PORTIONS PLAN	NED FOR 1 HOUR	FACULTY
	1	Orientation & Department a	activities (PPT)	KM
1	2	Bridge course		MS
-	3	Bridge course		KM
	4	Bridge course		MS
2	1	Bridge course		KM
	2	Bridge course (test)		MS
4	3	History of Microbiology, Origin of life		KM
	4	Stains, Physical and chemic	MS	
	1	Abiogenesis v/s biogenesis, important landmarks	end of the debate, other	KM
3	2	Stains and Staining Technic	ques-Nature of Dyes	MS
	3	Contribution of Scientists to Antony Van Leewenhock,L	_	gy - KM
	4	Classification of staining		MS
	1	Robert Koch		KM
4	2	Staining Techniques-Simple negative)	e Staining (positive,	MS
4	3	Alexander Fleming, Lazzar	o Spallanzani	KM
	4	Differential Staining – Gran staining	m Staining, Acid fast	MS
TES	T 1			I



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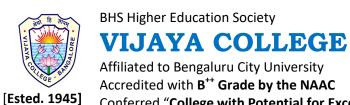
MONTH -2 (October)			
WEEK	DAY	PORTIONS PLANNED FOR 1 HOUR	FACULTY
	1	Edward Jenner, Joseph Lister	KM
1	2	Structural staining –endospore, capsule, inclusion bodies	MS
	3	Principles of Microscopy	KM
	4	Sterilization – principles & types	MS
	1	Photomicrography, Dark field microscopy	KM
	2	Physical methods of sterilization - heat	MS
2	3	Phase contrast microscopy , Fluorescence microscopy	KM
	4	Physical methods of sterilization – radiation, filtration	MS
	1	Electron Microscopy- TEM, SEM	KM
3	2	Chemical methods of sterilization	MS
3	3	Overview of prokaryotic cell structure Size, shape and arrangement of prokaryotic cells	KM
	4	Preservation of Microorganisms	MS
	1	Cell wall and cell membrane	KM
4	2	Structure and functions of organelles	MS
4	3	Components external to cell wall	KM
	4	Structure and functions of organelles	MS
TES	T 2		



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	MONTH -3 (November)			
WEEK	DAY	PORTIONS PLANNED FOR 1 HOUR	FACULTY	
	1	Components internal to cell wall	KM	
1	2	Structure and functions of organelles	MS	
•	3	Bacterial endospore – structure & formation	KM	
	4	Structure and functions of organelles	MS	
	1	Reproduction in bacteria	KM	
	2	Reproduction in fungi	MS	
2	3	Reproduction in bacteria	KM	
	4	Reproduction in fungi	MS	
	1	Discussion of old question papers	KM	
3	2	Revision 1	MS	
	3	Revision 2	KM	
	4	Question bank	MS	
	1	Open book writing of University questions and answers	KM	
4	2	Class test 1	MS	
4	3	Class test 2	KM	
	4	Revision	MS	



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		MIC 2023-24 III Ser		nester					
DEPA			MICRO	Y					
SUBJE	ECT/	PAPER	MBL 103 – Microbial Diversity						
	MONTH -1 (October)								
WEEK	DAY	PORTIONS PLA	NNED FOR 1 HO	UR	FACULTY				
	1	Syllabus Discussion			KM				
•	2	Basic concepts, Definition at	nd levels of biodiversi	ty	MS				
1	3	General characteristics, classification, Economic importance, Distribution and factors regulating distribution of Archaea			KM				
	4	Biosystematics – classification			MS				
	1	Archaeal type study – Metha	anogens, Thermus aqua	aticus	KM				
2	2	General characteristics, class Distribution and factors regu		-	MS				
	3	Numerical classification & C	Chemotaxonomy		KM				
	4	Bergey's manual			MS				
	1	Bacterial type study $-E$. col	i, Bacillus, Staphyloco	occus	KM				
	2	Study & measures of Microb	oial diversity		MS				
3	3	Conservation & Economic V	Value of Microbial Div	ersity	KM				
	4	General characteristics, clas Distribution and factors regu Cyanobacteria		importance,	MS				
	1	General characters, classifications.	ation & economic imp	ortance of	KM				
	2	Cyanobacteria type study – I	Nosctoc, Microcystis, S	Spirulina	MS				
4	3	Salient features and reproduc	ction - Rhizopus		KM				
	4	General characteristics, class Distribution & factors regula		-	MS				
TEST	۲1				1				



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WEEK	DAY	PORTIONS PLANNED FOR 1 HOUR	FACULTY
	1	Salient features and reproduction - Saccharomyces	KM
	2	Actinomycetes type study –Streptomyces, Nocardia, Frankia	MS
1	3	Salient features and reproduction – Aspergillus, Fusarium	KM
	4	General characteristics, classification, Economic importance, Distribution and factors regulating distribution of Rickettsiae – <i>Rickettsia rickettsi</i>	MS
	1	Salient features and reproduction - Agaricus	KM
	2	General characteristics, classification, Economic importance, Distribution and factors regulating distribution of Chlamydiae – <i>Chlamydia trachomatis</i>	MS
2	3	General characters, classification & economic importance of algae	KM
	4	General characteristics, classification, Economic importance, Distribution and factors regulating distribution of Spirochetes – <i>Treponema pallidum</i>	MS
	1	Lichens	KM
3	2	General properties and structure of viruses	MS
3	3	Algal type study – <i>Chlorella</i> , <i>Cosmarium</i>	KM
	4	Isolation, purification, assay of viruses	MS
	1	Algal type study – Diatoms, Gracilaria	KM
	2	Viral taxonomy, Capsid symmetry	MS
4	3	General characters, classification & economic importance of protozoa	KM
	4	Animal viruses – HIV, Corona	MS
TES	T 2		



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	MONTH -3 (December)			
WEEK	DAY	PORTIONS PLANNED FOR 1 HOUR	FACULTY	
	1	Type study of protozoa – <i>Amoeba, Euglena, Paramoecium</i>	KM	
1	2	Animal viruses – Ortho & Paramyxoviruses	MS	
	3	Type study of protozoa – <i>Trichomonas, Trypanosoma</i>	KM	
	4	Animal viruses - Oncogenic viruses	MS	
	1	Plant viruses – TMV, ring spot virus	KM	
	2	Microbial viruses – T4, T7	MS	
2	3	Viroids & Prions	KM	
	4	Microbial viruses – Lambda	MS	
	1	Microbial viruses –Cyanopahges	KM	
3	2	Microbial viruses –Mycophages	MS	
	3	Revision	KM	
	4	Revision	MS	
	1	Question Bank distribution	KM	
4	2	Discussion of University question papers	MS	
4	3	Class Test I	KM	
	4	Class Test II	MS	



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ACADEMIC YEAR/SEMESTER			2023-24	V Semester
DEPARTMENT		MICROBIOLOGY		
SUBJECT/PAPER			MBL 105-I MOLECULAR BIOLOGY	
		MONTH -	-1 (October)	
WEEK	DAY	PORTIONS PLAI	NNED FOR 1 HOUR	FACULTY
	1	Central dogma of molecular	ar biology,	MS
1	2	Introduction to transcription	on	KM
_	3	Structure and types of DNA		MS
	4	Transcription bubble, Stages of transcription		KM
0	1	Structure and types of DNA		MS
	2	Bacterial RNA polymerase	e - structure	KM
2	3	Structure and types of RN.	A	MS
	4	Bacterial RNA polymerase	e - mechanism	KM
	1	Structure and types of RN.	A	MS
3	2	Recognition of promoters	and DNA melting	KM
	3	Gene, Genetic code		MS
	4	Transcription Initiation		KM
	1	DNA Replication: Bacteria	al Cell cycle	MS
	2	Transcription Elongation &	& Termination	KM
4	3	Types of DNA replication model	- Rolling. Circle and the	eta MS
	4	Abortive transcription, Tra	anscription inhibitors	KM
TES	T 1			



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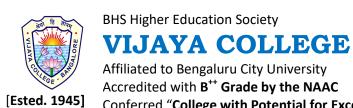
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MONTH -2 (November)				
WEEK	DAY	PORTIONS PLANNED FOR 1 HOUR	FACULTY	
	1	Modes of DNA replication- Conservative, Semi-Conservative and dispersive.	MS	
1	2	Eukaryotic Transcription	KM	
1	3	Steps in Initiation of replication, Enzymes in DNA replication,	MS	
	4	RNA polymerases in Eukaryotes- Types and Mechanism of RNA polymerase	KM	
	1	Replicon, OriC. Replication fork, replisome, Okazaki fragments, Termination of replication.	MS	
_	2	Promoters, Transcription factors, basal apparatus,	KM	
2	3	RNA splicing and Processing: mRNA capping, polyadenylation,	MS	
	4	Enhancers & silencers	KM	
	1	Pre-mRNA splicing, snRNPs, spliceosome, typesof splicing	MS	
3	2	Transcription Initiation, elongation, termination in eukaryotes	KM	
	3	RNA maturation, Catalytic RNAs - auto splicing, ribozymes, RNA editing	MS	
	4	Transaltion - structure tRNA, rRNA and ribosome	KM	
	1	Regulation of gene expression in eukaryotes co-activators and repressors, enhancers and insulators	MS	
4	2	Charging of tRNA, differences between initiator tRNA and elongator tRNA.	KM	
	3	DNase I, histone	MS	
	4	Steps in translation- Initiation, elongation, and termination	KM	
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	1	Regulation through modification of gene structure- DNA methylation.	MS
	2	Role of initiation factors in bacterial translation	KM
1	3	Regulation through transcriptional activators	MS
	4	Formation of initiation complex, polypeptide, peptide bond formation, peptidyl transferase activity, translocation, termination	KM
	1	Co-activators and repressors,	MS
2	2	Differences between prokaryotic and eukaryotic translation. Regulation of translation. Post translational modifications of proteins	KM
	3	Enhancers and insulators	MS
	4	Protein maturation and secretion. Protein translocation and inhibitors.	KM
	1	Regulatory mechanisms in bacteria- Positive and negative regulation	MS
3	2	Operon concept, polycistronic mRNA. lac operon, trp operon	KM
3	3	Catabolic repression and attenuation	MS
	4	Regulation of lytic & lysogenic life cycle in bacteriophage (λ page). Control of lytic cycle by regulatory proteins	KM
	1	Revsion	MS
4	2	Distribution of question bank	KM
7	3	Discussion of university papers	MS
	4	Class Test	KM



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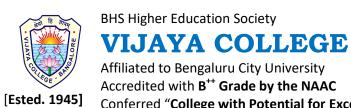
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DEPARTMENT			MICROBIOLOGY		
SUBJECT/PAPER MBL 105-II F MICROBIOL					
		MONTH -	·1 (October)		
WEEK	DAY	PORTIONS PLAI	NNED FOR 1 HOUR	FACULTY	
	1	Introduction to Dairy Micr revolution	obiology, History of white	MS	
1	2	Introduction, Food as a subst	rate for microorganisms	KM	
_	3	Properties of milk	MS		
	4	Intrinsic and extrinsic pogrowth of microbes	KM		
	1	Nutritional value of milk.	MS		
0	2	Types of microorganisms in bacteria.	KM		
2	3	Types of milk- dried, liquid,	MS		
	4	Food borne infections and food poisoning, Botulism	cal KM		
	1	Normal and contaminant mic microbes inmilk.	MS		
3	2	Salmonellosis, Brucellosis, L	KM		
	3	Starter culture and its types	MS		
	4	General account of Myco	toxins and Phycotoxins.	KM	
	1	Sources of contamination of	milk	MS	
4	2	Fermented vegetable- saud	erkraut, pickles	KM	
•	3	Microbiological analysis of a	milk- Rapid platform tests	MS	
	4	Fermented Meat- sausage. F Sourdough	ermented Beverages- kombi	ucha. KM	
TES	Т 1				

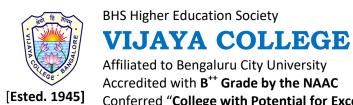


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_	1		
_		Microbiological analysis of milk- Rapid platform tests	MS
1	2	Principles of food spoilage, Sources of food contamination,	KM
	3	Microbiological analysis of milk- Rapid platform tests	MS
	4	Types of food spoilage	KM
	1	Preservation of milk- Pasteurization.	MS
2	2	Spoilage of Meat, Poultry, Fish and Sea foods	KM
4	3	Preservation of milk- Dehydration, sterilization	MS
	4	Spoilage of cereals, fruits and vegetables	KM
	1	Packingof milk and dairy products.	MS
3	2	Spoilage of canned food	KM
	3	Fermentation in milk: Lactic acid, gassy fermentation, souring, ropiness	MS
	4	Principles of food Preservation.	KM
	1	Cheese- Types and production (Cheddar),	MS
	2	Methods of preservation- Physical (temperature,)	KM
4	3	Tofu, Yoghurt, Acidophilus milk	MS
	4	Methods of preservation- Physical (Drying, irradiation)	KM



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WEEK	DAY	PORTIONS PLANNED FOR 1 HOUR	FACULTY
1	1	Prebiotics, Probiotics.	MS
	2	Methods of preservation - chemical (Class I)	KM
	3	Quality testing of food - Rapid microbiological methods. Examination of fecal contamination	MS
	4	Methods of preservation – chemical (Class II)	KM
2	1	Food sanitation and control - Good Hygiene practices, GLP, GMP	MS
	2	Bio preservation, Food additives	KM
	3	HACCP and Food control agencies and their regulation.	MS
	4	Canning	KM
3	1	Bacterial indicator organisms in food contamination	MS
	2	Food Packaging- Types of packaging materials, properties and benefits.	KM
	3	Food Safety -risk and hazards	MS
	4	Food SafetyLaws and Regulations- BIS, FSSAI, Codex Alimentarius.	KM
4	1	Revsion	MS
	2	Distribution of question bank	KM
	3	Discussion of university papers	MS
	4	Class Test	KM