

Semester	Course Code	Course Category	Hours/Week	Credits	Marks for Evaluation		
					CIA	ESE	Total
III	23UMBVAC1	Value added Course - I	30	-	-	-	100

Course Title	PUBLIC HEALTH MICROBIOLOGY
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SYLLABUS		
Unit	Contents	Hours
I	Introduction to Public Health: Definition, scope, concept and health awareness. Role of microbiologist in public health – Health problems - *Disease prevention and Management*- Vaccine and Vaccination schedule	6
II	Air borne infections: Air and its composition – Indoor air – Outdoor air – Air borne diseases (bacterial, fungal and viral) – Methods of enumeration of microorganisms in air – Air sanitation.	6
III	Food borne infections: Definition and importance of food hygiene – types (spoilage of meat and meat products, milk and dairy product, fish and fish products and eggs). Food borne diseases – types of food borne diseases – Food poisoning – *Food borne infection*.	6
IV	Water borne infections: Kinds of water – Water borne diseases (viral, bacterial, protozoan) – Methods of enumeration of microorganisms in water – Indicator organism – Water treatment, *Control of water borne diseases*.	6
V	Hospital acquired infections: Nosocomial infection- source, types, prevention and treatment. Techniques used for the diagnosis of hospital acquired infections, *monitoring of sanitation in community*.	6

*.....*Self-Study

Text Book(s):
T.B-1 R.C. Brownson, E.A. Baker, T.L. Leet, and K.N. Follespie, Evidence Based Public Health, Oxford University Press, 2003.
T.B-2 J.M. Jay, M.J. Loessner, and D.A. Golden, Modern Food Microbiology, 7 th Edn. Springer, 2005.
T.B -3 K. Vijaya Rames, Environmental Microbiology, MJP Publishers, India, 2019.
T.B-4 Ananthanarayan and Panicker’s Text Book of Microbiology 11 th Edition, 2020.
5. A. Irfan , Khan and Atiya Khanum. Fundamental of Biostatistics, Ukaaz publishers, India,1994.
Reference Book(s):
1. K. Park, Parks Text Book of Preventive and Social Medicine, Banarsidas Bhanot Publishers, 2017.
2. P. Ghimire and K. Parajuli, A Text Book of Microbiology, Vidhyarthi Pustak Bhandar Publication, Kathmandu, 2005.
3. David Greenwood, C.B. Richard, J. Slack and F. Peutherer, Medical Microbiology 6 th Edition, Churchill Livingstone, 2003.
Web Resource(s):
1. https://asm.org/Articles/2020/September/Careers-in-Clinical-and-Public-Health-Microbiology
2. https://www.medicalnewstoday.com/articles/3176323 .
3. https://vikaspedia.in/health/nutrition/food-borne-diseases-or-food-poisoning
4. https://www.healthline.com/health/hospital-acquired-nosocomial-infections#risk-factors

Course Coordinator: Dr. N. Reehana

Semester	Course Code	Course Category	Hours/ Week	Credits	Marks for Evaluation		
					CIA	ESE	Total
V	23UMBVAC2	value added course - II	30	-	-	-	100

Course Title	FERMENTED FOOD PRODUCTS AND FOOD SAFETY
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SYLLABUS		
Unit	Contents	Hours
I	Food Fermentation and preservation: Food Fermentation process- Bread, Pickles and Sauerkraut- South indian traditional fermented foods- idli, dosa, appam- Food preservatives, food additives and Natural food colorants.	6
II	Beverages Non-beverages Products: Beer, wine and other alcoholic beverages. Non-beverages plant food products- Tempeh, olives and soy Sauce.	6
III	Fermented Dairy Products: Role of microorganisms in food and dairy industry– Cheese, Yogurt, Cultured buttermilk, *Kefir, Koumiss *. Health benefits of fermented dairy products.	6
IV	Probiotics and Prebiotics: Definition, types and importance of various probiotics and prebiotics; Effect of probiotics, prebiotics and synbiotics on human health. *Postbiotics*.	6
V	Food Safety: Microbial standards for food- FDA, BIS, Food Safety, Guidelines and Standard Act of India. Food certification marks in India- ISI, *Agmark*, FPO, BIS, and FSSAI. Food export control and certification.	6

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Text Book(s):
Textbooks: T.B-1. Charles W.Bamforph and David J. Cook, Food, Fermentation and Microorganisms, Blackwell Pubs, 2005. T.B-2. Ronald Ross Watson and VictorR. Preedy, Probiotics, Prebiotics and Synbiotics, Academic Press Elesvier,2016. T.B-3. Patel, A.H. Industrial Microbiology. Macmillan India Ltd, 2005. T.B-4. Frazier W.C and Westhoff, D.C, Food Microbiology, Tata McGraw Hill Publishing Ltd, New Delhi, 2014. T.B-5. Moshrafuddin Ahmed S.k Basumatary, Applied Microbiology, MJP Publishers, India, 2006.
Reference Book(s):
1. A. Bohra, Pradeep Parihar, Food Microbiology, Purohit Publications , India, 2008. 2. James M. Jay, Loessner, M. J, and Golden D. A, Modern Food Microbiology, 7th edition, 2005. 3. Adams, M. R, and Moss, M. O, Food Microbiology, 4th edition, New Age International (Rt) Ltd, New Delhi,2016. 4. A.K. Agarwal, Pradeep Parihar, Industrial Microbiology , Purohit Publications , India,2006
Web Resource(s):
1. https://pmj.bmj.com/content/80/947/516 2. https://www.news-medical.net/life-sciences/What-are-Recombinant-Proteins.aspx 3. https://www.mushroomoffice.com/mushroom-cultivation/ 4. https://www.cbd.int/financial/greenmarkets/g-certicodex-fao.pdf

Course Coordinator: Dr. H. Vajiha Banu

Semester	Course Code	Course Category	Hours/Week	Credits	Marks for Evaluation		
					CIA	ESE	Total
III	23PMBVAC1	VALUE ADDED COURSE - I	30	-	-	-	100
Course Title		FORENSIC MICROBIOLOGY					
SYLLABUS							
Unit	Contents						Hours
I	Microbes of forensic importance: Development of forensic microbiology – Types, distribution and identification of microorganisms - Forensic significance of bacteria, algae, fungi and *viruses* - Techniques in forensic microbiology.						6
II	Bioterrorism: Types of biological agent- Categories of biological weapons- Forensic aspects toxins and their mode of action. Planning and response to bioterrorism- Preparedness biosurveillance and biodefence. Epidemiology of bioterrorism. *Role of microbes in food poisoning*.						6
III	Biological Sources as Forensic Indicators: Collection of specimens. Microbial forensic analysis of trace and unculturable specimens. The decay process of biological Sources, body fluids and waste products, blood and blood typing (blood stain pattern analysis) saliva, semen, faeces, urine , vomitus, hair, * bone and wounds*.						6
IV	Principles of DNA typing: DNA as a biological blueprint of life- Extraction of DNA for analysis. Quantitation of DNA- Yield gel quantitation and Slot blot quantitation. Mitochondrial DNA – sequence analysis. *DNA of microbes in soil for crime detection*.						6
V	<i>Methods in DNA Typing: Polymerase chain reaction – historical perspective, sequence polymorphisms, individualization of evidence. Short tandem repeats (STR) – role of fluorescent dyes, nature of STR loci. Restriction fragment length polymorphism (RFLP) – *genetic markers used in RFLP*, typing procedure and interpretation of results.</i>						6

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Text Book(s):
T.B-1 R.Li, Forensic Biology, 2 nd Edition, CRC Press, 2015.
T.B-2 A.Gunn , Essential Forensic Biology, 1 st edition, John Wiley & Sons Ltd, 2006.
T.B-3 A.Jamieson&S.Bader, A Guide to Forensic DNA Profiling, 1 st edition, John Wiley & Sons Ltd, 2016.
Reference Book(s):
1. J.M. Butler, Forensic DNA Typing, Elsevier, 1 st edition, Burlington, 2005.
2. W.J. Tilstone, M.L. Hastrup and C. Hald, Fisher's, Techniques of Crime Scene Investigation, 1 st edition, CRC Press, Boca Raton (2013).
Web Resource(s):
1. https://www.britannica.com/science/forensic-science
2. https://nap.nationalacademies.org/read/1866/chapter/3#28
3. https://www.forensicsciencesimplified.org/csi/how.html

Course Coordinator: Dr. N. Packialakshmi