



VIVEKANANDHA COLLEGE OF ENGINEERING FOR WOMEN
(Autonomous Institution, Affiliated to Anna University, Chennai)
Elayampalayam, Tiruchengode – 637 205



DEPARTMENT OF BIOTECHNOLOGY

Course Code / Name : U15BT303 - Microbiology

Class (Year / Programme / Department / Section): II / B.TECH / BT

UNIT I - INTRODUCTION

| S.No | Topics To Be Covered | Duration in Minutes | Teaching Aid | Books Referred |
|------|--|---------------------|--------------|----------------|
| 1. | History of microbiology | 45 | BB | T1 |
| 2. | Classification and nomenclature of microorganism | 45 | BB | R1 |
| 3. | microscopic examination of microorganisms | 45 | PPT | T1 |
| 4. | light and electron microscopy | 45 | BB | R1 |
| 5. | principles of different staining techniques like gram staining | 45 | BB | T1 |
| 6. | acid fast | 45 | PPT | R1 |
| 7. | capsular staining | 45 | BB | R1 |
| 8. | flagellar staining. | 45 | PPT | T1,R1 |

UNIT-II - MICROBES STRUCTURE AND MULTIPLICATION

| S.No | Topics To Be Covered | Duration in Minutes | Teaching Aid | Books Referred |
|------|----------------------------------|---------------------|--------------|----------------|
| 9. | Structural organization Bacteria | 45 | BB | T1 |
| 10. | Structural organization Virus | 45 | ppt | R1 |
| 11. | Structural organization Algae | 45 | PPT | T1,R1 |
| 12. | Structural organization Fungi | 45 | BB | T1 |

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|-----|----------------------------|----|-----|-------|
| 13. | Multiplication of Bacteria | 45 | PPT | R1 |
| 14. | Multiplication of Virus | 45 | BB | R1 |
| 15. | Multiplication of Algae | 45 | PPT | T1 |
| 16. | Multiplication of Fungi | 45 | BB | T1,R1 |
| 17. | life history yeast | 45 | BB | R1 |
| 18. | life history bacteriophage | 45 | PPT | T1 |

UNIT-III- MICROBIAL NUTRITION,GROWTH AND METABOLISM

| S.No | Topics To Be Covered | Duration in Minutes | Teaching Aid | Books Referred |
|------|--|---------------------|--------------|----------------|
| 19. | Nutritional requirements of bacteria | 45 | PPT | T1 |
| 20. | different media used for bacterial culture | 45 | BB | R1 |
| 21. | different media used for bacterial culture | 45 | BB | R1 |
| 22. | growth curve | 45 | BB | R1,T1 |
| 23. | growth curve | 45 | BB | T1 |
| 24. | growth kinetics | 45 | BB | T1 |
| 25. | Factors affecting growth | 45 | PPT | R1 |
| 26. | different methods to quantitate bacterial growth | 45 | BB | R1 |
| 27. | Host-microbe interactions | 45 | PPT | T1 |

UNIT-IV - CONTROL OF MICROORGANISMS

| S.No | Topics To Be Covered | Duration in Minutes | Teaching Aid | Books Referred |
|------|---|---------------------|--------------|----------------|
| 28. | Physical and chemical control of microorganisms | 45 | PPT | T1 |
| 29. | Sterilization | 45 | BB | R1 |
| 30. | disinfection | 45 | PPT | T1,R1 |
| 31. | Dry heat, Moist heat | 45 | BB | R1 |

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|-----|--|----|-----|-------|
| 32. | Filtration | 45 | PPT | T1 |
| 33. | Pasteurization | 45 | BB | R1 |
| 34. | Radiation and Various chemical agents | 45 | BB | T1,R1 |
| 35. | Anti-bacterial, anti-fungal | 45 | BB | T1 |
| 36. | anti-viral agents, mode of action and resistance | 45 | BB | R1 |

Unit – V - INDUSTRIAL AND ENVIRONMENTAL MICROBIOLOGY

| S.No | Topics To Be Covered | Duration in Minutes | Teaching Aid | Books Referred |
|------|--------------------------------------|---------------------|--------------|----------------|
| 37. | Production of penicillin alcohol | 45 | BB | T1 |
| 38. | Production of vit.b-12 | 45 | BB | R1 |
| 39. | Biogas; bioremediation | 45 | BB | T1,R1 |
| 40. | Leaching of ores by microorganisms | 45 | PPT | T1 |
| 41. | Preservation of food | 45 | BB | T1,R1 |
| 42. | Bio-fertilizers and bio-pesticides | 45 | PPT | R1 |
| 43. | Microorganisms and pollution control | 45 | BB | T1 |
| 44. | Biosensors. | 45 | BB | T1,R1 |
| 45. | Recent advances in microbiology | 45 | PPT | R1 |

TEXT BOOKS:

1) Darnell J., Lodish, H. and Baltimore, D., “Molecular Cell Biology”, W.H. Freeman & Co, 4th edition 2000

REFERENCE:

1) Pelczar, M.J Chan and Krein Microbiology McGraw Hill 2007, 5th edition