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|---------------------------------|------------------------------------|
| <b>Subject Code: 1NR1010105</b> | <b>Subject Title: Microbiology</b> |
| <b>Pre-requisite</b>            | -----NA-----                       |

### Course Description

This course is designed to enable students to acquire understanding of fundamentals of Microbiology and identification of various microorganisms. It also provides opportunities for practicing infection control measures in hospital and community setting.

| Teaching Scheme (Total Hours) |          |           |             | Evaluation Scheme (Marks) |                       |                       |                       |       |
|-------------------------------|----------|-----------|-------------|---------------------------|-----------------------|-----------------------|-----------------------|-------|
| Lecture                       | Tutorial | Practical | Total Hours | Theory                    |                       | Practical             |                       | Total |
|                               |          |           |             | University Assessment     | Continuous Assessment | University Assessment | Continuous Assessment |       |
| 45                            | -        | 15        | 60          | 75                        | 25                    | -                     | -                     | 100   |

### Course Content

| U<br>nit | Time<br>(Hrs) |    | Learning<br>Objectives                                                                                                                                  | Content                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Teaching<br>Learning Activity                                                                                                | Assessment<br>Method                                                                    |
|----------|---------------|----|---------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
|          | Th            | PR |                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                              |                                                                                         |
| 1        | 5             |    | <ul style="list-style-type: none"> <li>Explain concept and principles of microbiology and their importance in nursing</li> </ul>                        | <b>Introduction:</b> <ul style="list-style-type: none"> <li>Importance and relevance to nursing</li> <li>Historical perspective</li> <li>Concepts and terminology</li> <li>Principles of microbiology</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                        | <ul style="list-style-type: none"> <li>Lecture</li> <li>Discussion</li> </ul>                                                | <ul style="list-style-type: none"> <li>Short answers</li> <li>Objective type</li> </ul> |
| 2        | 10            | 5  | <ul style="list-style-type: none"> <li>Describe structure, classification morphology and growth of bacteria</li> <li>Identify Microorganisms</li> </ul> | <b>General characteristics of Microbes</b> <ul style="list-style-type: none"> <li>Structure and classification of Microbes</li> <li>Morphological types</li> <li>Size and form of bacteria</li> <li>Motility</li> <li>Colonization</li> <li>Growth and nutrition of microbes               <ul style="list-style-type: none"> <li>□ Temperature</li> <li>□ Moisture</li> <li>□ Blood and body fluids</li> </ul> </li> <li>Laboratory methods for Identification of microorganisms</li> <li>Staining techniques, Gram staining, Acid fast staining, Hanging drop preparation</li> <li>Culture; various medias</li> </ul> | <ul style="list-style-type: none"> <li>Lecture</li> <li>Discussion</li> <li>Demonstration</li> </ul>                         | <ul style="list-style-type: none"> <li>Short answers</li> <li>Objective type</li> </ul> |
| 3        | 10            | 2  | <ul style="list-style-type: none"> <li>Describe the methods of infection control</li> </ul>                                                             | <ul style="list-style-type: none"> <li>Infection: Sources, portals of entry and exit, transmission</li> <li>Asepsis</li> <li>Disinfections; Types and methods</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                | <ul style="list-style-type: none"> <li>Lecture</li> <li>Discussion</li> <li>Demonstration</li> <li>Visits to CSSD</li> </ul> | <ul style="list-style-type: none"> <li>Short answers</li> <li>Objective type</li> </ul> |

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|---|----|---|-----------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
|   |    |   | <ul style="list-style-type: none"> <li>Identify the role of nurse in hospital infection control programme</li> </ul>  | <ul style="list-style-type: none"> <li>Sterilization; Types and Methods</li> <li>Chemotherapy and antibiotics</li> <li>Standard safety measures</li> <li>Biomedical waste management</li> <li>Role of nurse</li> <li>Hospital acquire infection</li> <li>Hospital infection control programme</li> </ul> <p>Protocols, collection of samples, preparation of report and status of rate of infection in the unit/hospital, nurse's accountability, continuing education etc.</p>                                                                                                                                                                                            | <ul style="list-style-type: none"> <li>Clinical practice</li> </ul>                                                    |                                                                                         |
| 4 | 12 | 4 | <ul style="list-style-type: none"> <li>Describe the different disease producing organisms</li> </ul>                  | <p><i>Pathogenic organisms</i></p> <ul style="list-style-type: none"> <li>Microorganisms               <ul style="list-style-type: none"> <li>Cocci– gram positive and gram negative</li> <li>Bacilli - gram positive and gram negative</li> <li>Spirochaete</li> <li>Mycoplasma</li> <li>Rickettsiae</li> <li>Chlamydiae</li> </ul> </li> <li>Viruses</li> <li>Fungi – Superficial and deep mycoses</li> <li>Parasites</li> <li>Rodents &amp; vectors characteristics, Source, portal of entry, transmission of infection</li> <li>identification of disease producing micro – organisms</li> <li>collection, handling and transportation of various specimens</li> </ul> | <ul style="list-style-type: none"> <li>Lecture Discussion</li> <li>Demonstration</li> <li>Clinical practice</li> </ul> | <ul style="list-style-type: none"> <li>Short answers</li> <li>Objective type</li> </ul> |
| 5 | 8  | 4 | <ul style="list-style-type: none"> <li>Explain the concept of immunity, hyper sensitivity and immunization</li> </ul> | <ul style="list-style-type: none"> <li>Immunity – Types, classification</li> <li>Antigen and antibody reaction</li> <li>Hypersensitivity – skin test</li> <li>Serological tests</li> <li>Immunoprophylaxis               <ul style="list-style-type: none"> <li>Vaccines &amp; sera – Types &amp; classification, storage and handling, cold chain</li> <li>Immunization for various diseases</li> </ul> </li> </ul> <p>Immunization schedule</p>                                                                                                                                                                                                                          | <ul style="list-style-type: none"> <li>Lecture Discussion</li> <li>Demonstration</li> <li>Clinical practice</li> </ul> | <ul style="list-style-type: none"> <li>Short answers</li> <li>Objective type</li> </ul> |

