1. **Course Title: Microbiology for Nurses II**
2. **Course Number**: MBN2 224
3. **Credit Hours**: Total of (3) credits :
   Theory (2) credits.
   Practical (1) credits.
4. **Course Calendar**: Total (4) hours weekly of (13) weeks :
   Theory: (2) hrs.
   Practical in the lab: (2) hrs .
5. **Placement: Second years /Second Semester**

6- Course Description

Microbiology II course provides nursing students with the skills and knowledge about the principles of microorganism's reproduction, morphology, method of transmissions, diagnosis, prevention, control and treatment. Students also learn the most important fungal, parasitical and viral infections types. in order to manage and prevent infectious diseases.

7- Course Objective:

a- Cognitive objective

1- The student's knowledge of the different types of microorganisms and their scientific classification
2- understanding the physiological and nutritional requirements of these microorganisms in addition to the different environments in which these microorganisms may live
3- State the sources and modes of transmission of pathogenic and opportunistic organisms including vectors and their role in transmission of diseases.
4- Learn about the life cycle, types of reproduction and transmission of microorganisms (parasites and viruses) and the optimal conditions for their living
5- The student’s knowledge of the infections and diseases that can be caused by these microorganisms (parasites and viruses) and thus identifying how to prevent or reduce the occurrence of these diseases
6- Identify the different microorganisms that cause hospital acquired infections and how to control them and limit their spread

b- Skills objective

1- The student will be able to use the microscope to view and diagnose microorganisms
2- The student can diagnose pathogenic microorganisms
3- The student will be able to differentiate between the different microscopic types through his knowledge of the phenotypic characteristics and their internal structures, as he will be able to diagnose them and determine their scientific name.
4- Knowing how to diagnose the microorganisms that cause various diseases and how to avoid infection with these pathogens by knowing the ways of transmitting them
5- Avoid infection by knowing the ways of transmission of microorganisms

Weeks	Topics
1.	*Introduction to Parasitology *Some terms of parasitology, types of parasites, Routes and modes of infections, types of hosts, relationships between parasite and host, some epidemiological terms,
2.	*Classification of Protozoa *General characters of protozoa **Entamoeba histolytica, Entamoeba coli* (Stages, life cycle. Symptom, pathology, diagnosis prevention and control, and treatment) **Balantidium coli* (life cycle. Symptom, diagnosis prevention and control, and treatment)
3.	* Intestinal Flagellates/ Giardia lamblia (Life cycle. Symptom, pathology, methods of diagnosis, prevention and control, and treatment) *Luminal and Atrial flagellates *Trichomonas spp (T. hominis, T. tenax*) *Trichomonas vaginalis* (life cycle. Symptom, pathology, diagnosis, and treatment)
4.	*Blood and Tissue flagellates (*Leishmania spp. and Trepanosoma spp.)* 1- Tissue flagellate (*Leishmania donovani and Leishmania tropica*) (stages, life cycle. Symptoms, pathology, diagnosis, and treatment) function and types of macrophages. 2- Blood flagellates - African trypanosomiasis - American trypanosomiasis (Stages, life cycle, symptoms, diagnosis, Method of transmission)
5.	*Apicomplexa general characters 1-*Plasmodium* four species and diseases caused by each one (Life cycle and stages. Symptom, pathology, diagnosis, global malaria prevention and control and treatment) 2-*Toxoplasmas gondii* (Life cycle and stages. Symptom, diagnosis, control and treatment)
6.	*Helminthes (metazoan) general structure

	Classification of helminths a. Phylum: Platyhelminthes (flatworms) Class I: Cestoda (Tapeworms). general structure (*Taenia saginata, Taenia solium, Hymenoleps nana and Echinococcus granulosus*) (Life cycle and stages. Symptom, diagnosis, control and treatment)
7	Class II: Trematoda (Flukes). general structure *Fasciola hepatica* (Life cycle and stages. Symptom, diagnosis, control and treatment) *Schistosoma haematobium, Schistosoma mansoni, Schistosoma japonicum* (Life cycle and stages. Symptom, diagnosis, control and treatment)
8	b. Phylum: Aschelminthes or Nemathelminthes general structure *Ascaris lumbreciod, Anchylostoma duodenale, Enerobius vermicularis, Trichuris trchiura* Life cycle and stages. Symptom, diagnosis, control and treatment
9	* Virology - General properties of viruses (virus componants) - A virus like particles (VLPs) and Subviral particles (viroid and prions) - Classification types - Viral replication - Viruses effects on cells - Persistent viral infections - Common routes of viral infection in human
10	*Measles, AIDS, Influenza virus (general structure of virus, symptoms, method of transmissions and prevention)
11	* Hepatitis A, B, C, D, E (general structure of virus, method of transmissions and prevention) * Corona virus - General structure - Three types of human coronavirus cause severe symptoms - Coronavirus disease 2019 (COVID-19) - Prevention and treatment - How does it spread - Prevention and control - Diagnosis
12	* Hospital acquired infection - Introduction to Hospital acquired infection (nosocomial infection) - Factors influencing the development of nosocomial infections - Microorganisms cause nosocomial infection - Nosocomial infection sites - Sources and transmission of nosocomial infection - Mode of transmission of nosocomial infection - Duration of transmission

13	Mycology - Introduction to mycology - General differences between fungi, bacteria and other eukaryotes - Morphological Classification of fungi - Fungi reproduction (asexual and sexual) - Classification of fungal diseases - Laboratory diagnosis - Antifungal Therapy

1- Louise Hawley, Richard J. Ziegler& Benjamin L. Clarke (2014): Microbiology and immunology, 6th edition. Lippincott Williams & Wilkins co. USA. 2- Patrick R. Murray (2018): Basic Medical Microbiology, Elsevier. 3- Essential of medical microbiology, Apurbs et al., second edition (2019)	المراجع

Practical Microbiology for Nurses (II)

1-	Introduction to Parasitology Protozoa and flagellates
2-	Classification of human parasites Protozoa Phylum: sarcomastigophora Subphylum: sarcodina *Entamoeba histolytica* Subphylum: mastigophora *Giardia lamblia* Phylum: Ciliaphora/ *Balantidium coli* Phylum: Apicomlexa
3-	Entamoeba histolytica Entamoeba coli Small amoebiasis *Endolimax nana* *Entamoea ginigivalis* *Iodamoeba butschlii*
4-	Phylum: Mastigophora 1- Atrial and intestinal flagellates *Trichomonas vaginalis and Trichomonas spp* *Giardia lamblia*
5-	2- Blood and tissue flagallates *Leishmania* spp. and *Trepanosoma* spp.
6-	Apicomplexa: include 1-*Plasmodium Spps* *2- Toxoplasma gondii*

7-	Helminthes Phylum: platyhelminthes Class: Cestode Class: Trematoda Phylum: Nemathelminthes Class: Nematoda Cestoda *Taenia solium,*
8-	*T. Saginata* Cestoda *Echinococcus granulosus* *Hymenoleps nana*
9-	2-Trematoda *Fasciola hepatica* *Schistosoma haematobium* *Schistosoma mansoni* *Shistosoma japonicum*
10-	Nematoda -٢ Ascaris lumbreciod, Anchylostoma duodenale, Enerobius vermicularis, Trichuris trchiura