



30 Hour Certificate Course on Diagnostic Clinical Microbiology



Offered by the Department of Microbiology:

**DINABANDHU ANDREWS COLLEGE
GARIA, KOLKATA**

Maitreyee Mondal



Title:

Certificate Course on Diagnostic Clinical Microbiology

Course Overview: The Certificate Course in Diagnostic Clinical Microbiology is a specialized online program tailored for individuals seeking advanced knowledge of the methods and techniques used in diagnostic clinical microbiology. This course will impart comprehensive knowledge of diagnostic techniques in clinical microbiology, including specimen collection, cultivation, and identification of pathogenic microorganisms.

Course Duration: 30 hours (6hrs per week x 5weeks)

One Class (Theory): 1 Hour

Lab: 2 Hours

Final Assessment on the Last day

Course Fee: Free of Cost

Pedagogy: Lecture on theory and Practical

Faculty Requirements: Internal – Department of Microbiology

Course Coordinator: Dr. Swapna Mukherjee, Department of Microbiology

Joint Coordinator: Ms. Subhasree Roy Department of Microbiology

SYLLABUS STRUCTURE OF THE ADD-ON COURSE

Module	UNIT TITLE	HOURS
Module -1	Introduction to Diagnostic Methods	3
Module -2	Host-Pathogen Interactions in Infectious Diseases	6
Module -3	Methods of Specimen Collection, Handling & Culture-Base Methods	9
Module -4	Molecular Diagnostic Techniques	9
Module -5	Disposal of biomedical wastes	3
Total		30

Module 1: Introduction to Diagnostic Methods

- Over view of Diagnostic Microbiology
- Role of Diagnostic Microbiology in Patient Care
- Good Laboratory Practices (GLP)
- Compliance with International Standards
- Quality Assurance in Diagnostic Microbiology

Module 2: Host-Pathogen Interactions in Infectious Diseases

- Normal micro-flora of skin, throat, gastrointestinal tract, urogenital tract
- Types of host-pathogen interaction: Infection, Invasion, Pathogen, Pathogenicity, Virulence, Toxigenicity, Carriers and their types, Opportunistic infections, and Nosocomial infections.
- Transmission of infection, Pathophysiologic effects of LPS

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Module 3: Methods of Specimen Collection, Handling & Culture-Based Methods

- Proper Techniques for Sample Collection
- Transport and Storage of Clinical Specimens
- Importance of Timely Processing
- Selective and Differential Media Used for Clinical Samples
- Identification of Bacterial and Fungal Isolates
- Antibiotic Sensitivity Testing

Module 4: Molecular Diagnostic Techniques

- Polymerase Chain Reaction (PCR) and Real-time PCR
- Nucleic Acid Sequencing
- Fluorescent In Situ Hybridization (FISH)
- Transmission and Scanning electron Microscopy
- Enzyme-Linked Immunosorbent Assay (ELISA)
- Western Blotting and Immunofluorescence

Module 5: Disposal of Biomedical wastes

- Types of Biomedical Waste
- Collection and Segregation of Hospital Waste
- Treatment and Disposal Methods

Course Outcome

1. Participants will gain expertise in the latest methodologies for identifying and characterizing microbial pathogens.
2. Proficient skills in performing microbiological tests and analyses to diagnose infectious diseases, utilizing advanced laboratory equipment and methodologies.
- 3.

LEARNING RESOURCES

SL. NO.	TITLE OF THE BOOK	AUTHOR(S)	PUBLISHER
1	Microbial Disease with its Modern Diagnostic Techniques	Dr. Tanmay Ghosh	Kripa Drishti Publications
2	Essentials of medical Microbiology	Apurba S Sastry, Sandhya Bhatt	Diginerve
3	Principles Of Microbiology	Ronald M, Atlas	Brown Publishers
4	Essential and Fundamental Book of Immunology (1 st Edition)	Dr. Tanmay Ghosh	Weser
5	Kuby Immunology	Thomas J. Kindt, Richard A., Goldsby, Barbara A. Osborne	W.H. Freeman and Company
6	Practical Medical Microbiology	Mackie & McCartney	Churchill Livingstone
7	Medical Microbiology and Immunology	Warren Levinson, Peter Chin-Hong, Elizabeth A. Joyce, Jesse Nussbaum, Brain Schwartz	Lange

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EVALUATION POLICY FOR THE ADD-ON COURSE

The basic philosophy behind the Evaluation policy for this 30 Hours Add-on course is to objectively judge the participants (students) whether the concepts were understandable to them or not and whether they could apply these concepts to solve numerical and conceptual problems.

The Evaluation would be done through 2 components –

i) C1 Course-end Assessments (Written Test) [Total Marks: 30]

ii) C2 Practical /LAB [Total Marks: 20]

Total Marks of the Evaluation process would be – 50 Marks

TABLE FOR QUALIFICATION

TOTAL SCORE (OUT OF 50)	GRADE
45 – 50	O – OUTSTANDING
40 – 44	E – EXCELLENT
35 – 39	A – VERY GOOD
30 – 34	B – GOOD
25 -29	C - FAIR
BELOW 25	F - FAILED

GENERAL RULES AND REGULATIONS

1. Students must attend and appear for all the Module-End Assessments. If any student fails to submit any of the Module-End Assignments or fails to attend any of the Module End Assessment examinations , the particular Student would NOT BE ELIGIBLE FOR CERTIFICATE.
2. Students must attend and appear for the Course-End Assessment Examination. If any student fails to submit the Course-End Assessment or fails to attend the Course-End Assessment Examination , the particular Student would NOT BE ELIGIBLE FOR CERTIFICATE.
3. Students must attend and appear for the Course-End Viva. If any student fails to fails to attend the Course-End Viva, the particular Student would NOT BE ELIGIBLE FOR CERTIFICATE.
4. Total Marks of Course Evaluation will be 50 Marks.
5. Minimum 50% Marks has to be scored to receive any Certificate. There will be only ONE Attempt allowed for each of the Module-End Assessments and the Course-End Assessment.
6. There will be NO PROVISION for Backlog Clearance.
7. General Rules and Regulations of the College must be followed without any exception.
8. **Minimum 75% attendance is required to receive the certificate of the course.**

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