



Dr. J.S. Bhawalkar
Dean
Dr. D.Y. Patil Medical College,
Hospital & Research Centre,
Pimpri Pune - 411018

DPU

Dr. D.Y. PATIL VIDYAPEETH, PUNE
(Deemed to be University)

Department of Microbiology

Dr. D. Y. Patil Medical College, Hospital and Research Centre, Pune.

Sant Tukaram Nagar, Pimpri, Pune 411 018, Maharashtra



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DPU

Dr. D.Y. PATIL VIDYAPEETH, PUNE
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Accredited (3rd Cycle) by NAAC with a CGPA of 3.64 on four point scale at 'A++' Grade



Department of Microbiology
Dr. D. Y. Patil Medical College, Hospital
and Research Centre,
Pimpri Pune.

VALUE ADDED COURSE
"AUTOMATION IN
CLINICAL MICROBIOLOGY"

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☎ Ext.No.5125 / 5183



**DR. D. Y. PATIL MEDICAL COLLEGE, HOSPITAL &
RESEARCH CENTRE, PIMPRI, PUNE 411018**

NABH/NABL ACCREDITED HOSPITAL AND LABORATORY

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ISO 9001 : 2015 AND 14001 : 2015 CERTIFIED UNIVERSITY

Department of Microbiology

Date: 01/04/2024

NOTICE

“Automation in Clinical Microbiology” - A Holistic Approach programme will be conducted from 06/04/24 to 08/06/2024 at 7:00 am to 9:00 am for Second Professional MBBS (2023-24). Programme schedule of 18 hrs will be displayed. Attendance is compulsory.

Dr. Nageswari Gandham

Prof. & HOD

Department of Microbiology

**PROFESSOR & HEAD
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Student Enrollment List for value Added course 2023-2024

SR. No.	Roll No.	Gender	Students Name	Mobile No.	E-mail ID
1	22145	Miss	Nayonika Duneja	9891519519	nayonikadunejaa@gmail.com
2	22082	Mr	Hemang Verma	8920087229	drhemangverma@gmail.com
3	22243	Mr	Vasav Narsibhai Vekariya	8780970110	vasav.vekariya@icloud.com
4	22139	Miss	Mishika Dawani	9425903796	mishikadawani27@gmail.com
5	22246	Miss	Vibhandik Riya Sanjay	9623166901	vedantvaswani19052004@gmail.com
6	22245	Mr	Vedant Vijay Vaswani	9623166901	vedantvaswani19052004@gmail.com
7	22026	Miss	Arkaja Sharma	8826077400	arkaja.sharma1709@gmail.com
8	22184	Miss	Sakshi Bhalotia	6291052950	sakshi.bhalotia2005@gmail.com
9	22218	Miss	Simran Kumari	8252604006	anshikaroy2118@gmail.com
10	22021	Miss	Anushka Gupta	7651900074	anushkagupta7007@gmail.com
11	22073	Miss	Gauri Maheshwari	7318493062	chhaya0506@gmail.com
12	22076	Miss	Gupta Khushboo Ravi	8530122999	khushboogupta959@gmail.com
13	22241	Miss	Vaishnavi Deepak Gote	9325054840	vaish23092004@gmail.com
14	22162	Miss	Pawar Sejal Pravin	9890055533	sejuyash@gmail.com



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Co-ordinator
Dr. Shahzad Mirza
Associate Professor, HICO
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15	22056	Miss	Deveena Dwivedi	8287045596	deveena2003@gmail.com
16	22232	Miss	Tanya Singh	9548895153	tanya.singhnu@gmail.com
17	22172	Mr	Ramesh Kumar Thakur	7319805118	rt3678424@gmail.com
18	22183	Mr	Sagnik Bhunia	9339277300	sagnik.bh01@gmail.com
19	22200	Miss	Sheen Sachdeva	9654366784	sheensachdeva13@gmail.com
20	22058	Miss	Dharwadkar Khushi Purushottam	8625833574	khushi.dharwadkar@gmail.com
21	22244	Mr	Ved Singh	7250140242	ved.is.awsm@gmail.com
22	22053	Miss	Deeksha Bairwa	7982604787	deekshabairwa3@gmail.com
23	22042	Miss	Bhosale Nitya Jiyaji	7057638217	nityab.526@gmail.com
24	22203	Mr	Shivam Balaji Tidke	9284960942	shivamtidke579@gmail.com
25	22234	Mr	Tejas Palagummi	8555065203	tpalagummi@gmail.com



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Course objectives:

- 1) To learn the basic and advanced techniques in clinical Laboratory.
- 2) To learn use of automation while processing clinical samples for microbiological analysis.

AUTOMATION IN CLINICAL MICROBIOLOGY
Value Added Course

Subject: Microbiology

Number of Lecture Hours/Week	02	Internal Assessment Marks	30
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Total Number of Lecture Hours	18	Exam Marks	20
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Module 1

Laboratory Safety: Organization of laboratory and safety precautions in clinical laboratory – Personal hygiene and care – General health care – Vaccination Schedule for technicians – Laboratory care and cautions – Do's and Don'ts – lab accidents – Cuts and wounds – Fire Accidents	6 hrs
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Module 2

Clinical Sample Analysis: Sample collection, processing, preservation and transportation of samples Microscopic Analysis Microscopic analysis of clinical specimens – Urine, Stool, Sputum, Pus, Blood, CSF and other body fluids. Culture methods: Culturing and isolation of pathogens from clinical specimens. Culture media – General purpose media – special media – selective media – differential media – transport media. Automation like, BACTEC, Bact/Alert 3D, VITEK 2C	6hrs
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Module 3

Advanced Techniques & Automation: Microscopy – Automated culture systems – Automated Blood culture – Automated Urine culture – Automated Antibiotic Sensitivity testing, Cartridge Based Nucleic acid Amplification Test, PCR.	6hrs
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Course outcomes:

At the end of this course, students will be able to,

- 1) Understand laboratory safety methods.
- 2) Skilled in handling clinical specimens for microbiological analysis
- 3) Gain knowledge about automated techniques in Clinical microbiological techniques

Question paper pattern: MCQs based test

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Date: 01/04/2024

Value Added Course: "Automation in Clinical Microbiology"

Batch: 2023-24

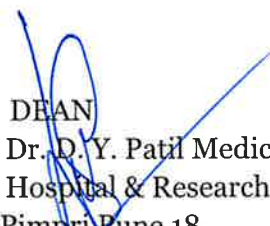
Timetable

Date	Time	No. of hrs (Total 16 hrs)	Module/T opic/ code	Topic
06/04/24	7.00 am to 9.00 am	2	M/1/A	Laboratory Safety: Organization of laboratory and safety precautions in clinical laboratory
20/04/24	7.00 am to 9.00 am	2	M/1/B	Personal hygiene and care – General health care – Vaccination Schedule for technicians
27/04/24	7.00 am to 9.00 am	2	M/1/C	Laboratory care and cautions – Do's and Dont's – lab accidents – Cuts and wounds – Fire Accidents Question paper pattern: MCQs based test- 1
04/05/24	7.00 am to 9.00 am	2	M/2/A	Clinical Sample Analysis: Sample collection, processing, preservation and transportation of samples Microscopic Analysis Microscopic analysis of clinical specimens – Urine, Stool, Sputum, Pus, Blood, CSF and other body fluids.
11/05/24	7.00 am to 9.00 am	2	M/2/B	Culture methods: Culturing and isolation of pathogens from clinical specimens.
18/05/24	7.00 am to 9.00 am	2	M/2/C	Culture media – General purpose media – special media – selective media – differential media – transport media. Automation like, BACTEC, Bact/Alert 3D, VITEK 2C Question paper pattern: MCQs based test- 2
25/05/24	7.00 am to 9.00 am	2	M/3/A	Advanced Techniques & Automation: Microscopy – Automated culture systems
01/06/24	7.00 am to 9.00 am	2	M/3/B	Automated Blood culture – Automated Urine culture – Automated Antibiotic Sensitivity testing
08/06/24	7.00 am to 9.00 am	2	M/3/C	Cartridge Based Nucleic acid Amplification Test, PCR. Question paper pattern: MCQs based test- 3


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Batch: 2023-24

Attendance

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1	22145	Miss	Nayonika Duneja	P	P	P	P	P	A	A	A	P
2	22082	Mr	Hemang Verma	P	P	P	P	P	P	A	A	P
3	22243	Mr	Vasav Narsibhai Vekariya	P	P	P	P	A	P	P	P	P
4	22139	Miss	Mishika Dawani	A	P	P	A	P	P	P	P	A
5	22246	Miss	Vibhandik Riya Sanjay	P	A	P	P	A	P	P	P	A
6	22245	Mr	Vedant Vijay Vaswani	P	P	P	P	P	P	A	P	A
7	22026	Miss	Arkaja Sharma	P	P	A	P	P	P	A	A	P
8	22184	Miss	Sakshi Bhalotia	P	P	P	A	P	A	P	P	P
9	22218	Miss	Simran Kumari	P	P	P	P	P	P	P	P	P
10	22021	Miss	Anushka Gupta	P	P	P	P	P	P	P	P	A
11	22073	Miss	Gauri Maheshwari	P	P	P	P	P	A	P	A	P
12	22076	Miss	Gupta Khushboo Ravi	P	P	P	A	P	P	A	P	A
13	22241	Miss	Vaishnavi Deepak Gote	P	P	P	P	A	P	A	P	P
14	22162	Miss	Pawar Sejal Pravin	P	P	P	A	P	A	A	A	P


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16	22232	Miss	Tanya Singh	P	A	P	P	A	P	P	P	P
17	22172	Mr	Ramesh Kumar Thakur	P	P	P	P	P	P	P	P	A
18	22183	Mr	Sagnik Bhunia	P	P	P	P	P	P	P	A	A
19	22200	Miss	Sheen Sachdeva	P	P	P	A	P	P	P	P	A
20	22058	Miss	Dharwadkar Khushi Purushottam	P	P	P	P	A	A	A	P	P
21	22244	Mr	Ved Singh	A	P	P	P	P	A	P	A	P
22	22053	Miss	Deeksha Bairwa	P	P	P	P	A	P	P	A	P
23	22042	Miss	Bhosale Nitya Jiyaji	P	P	P	A	P	P	P	A	A
24	22203	Mr	Shivam Balaji Tidke	P	P	P	A	P	P	P	P	P
25	22234	Mr	Tejas Palagummi	P	P	P	P	P	P	P	P	P


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Value Added Course: "Automation in Clinical Microbiology"

Batch: 2023-24

Question Paper-1

Date: 27/04/2024

Time: 8.30 am to 09:00 am

1. Why is handwashing important in maintaining a safe and healthy work environment in a clinical laboratory?
 - A. To minimize the risk of fire accidents
 - B. To prevent contamination
 - C. To avoid chemical exposure
 - D. To protect against biohazards

2. What is a key aspect of organizing a clinical laboratory to minimize hazards and promote efficient workflow?
 - A. Properly labeling containers
 - B. Using appropriate PPE
 - C. Clutter-free workstations
 - D. Installing emergency equipment

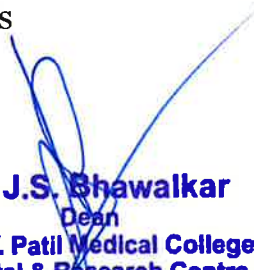
3. What is a recommended precaution for handling volatile chemicals in a clinical laboratory?
 - A. Use a fume hood
 - B. Wear a lab coat
 - C. Use bare hands
 - D. Dispose of it in regular trash

4. What should technicians do if they are feeling ill?
 - A. Take over-the-counter medication
 - B. Report it to the appropriate authority
 - C. Keep it to themselves
 - D. Continue working as usual

5. What should technicians do before using a new chemical?
 - A. Dispose of it immediately
 - B. Use it without any precautions
 - C. Store it in a designated area
 - D. Familiarize themselves with its properties and hazards


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6. What is a recommended precaution for handling electrical equipment in a clinical laboratory?
 - A. Use damaged equipment
 - B. Wear gloves
 - C. Overload power outlets
 - D. Inspect cords and plugs regularly
7. What is a recommended precaution for handling infectious materials in a clinical laboratory?
 - A. Use bare hands
 - B. Wear a lab coat
 - C. Dispose of it in regular trash
 - D. Use a biological safety cabinet
8. What is a recommended precaution for handling pipettes in a clinical laboratory?
 - A. Use fingers to fill or empty pipettes
 - B. Mouth pipette
 - C. Use bare hands
 - D. Use mechanical pipettes
9. What is a recommended precaution for handling infectious materials in a clinical laboratory?
 - A. Use bare hands
 - B. Wear a lab coat
 - C. Dispose of it in regular trash
 - D. Use a biological safety cabinet
10. What is a recommended precaution for handling pipettes in a clinical laboratory?
 - A. Use fingers to fill or empty pipettes
 - B. Mouth pipette
 - C. Use mechanical pipettes
 - D. Use bare hands

Key:

1b,2c,3a,4b,5d,6d,7d,8d,9d,10c


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Question Paper-2

Date: 18/05/2024

Time: 8.30 am to 09:00 am

1. Which of the following is NOT a type of sample commonly analyzed in clinical laboratories?
 - A. Saliva
 - B. Sputum
 - C. Urine
 - D. Blood

2. Which of the following is NOT a type of staining method used in microscopic analysis?
 - A. Hematoxylin and eosin staining
 - B. Acid-fast staining
 - C. Gram staining
 - D. Antibiotic staining

3. What is the first step in clinical sample analysis?
 - A. Sample Processing
 - B. Sample Collection
 - C. Sample Transportation
 - D. Sample Preservation

4. Which type of culture media supports the growth of a broad range of microorganisms?
 - A. General purpose media
 - B. Differential media
 - C. Special media
 - D. Selective media

5. What is the purpose of transport media?
 - A. To enhance the visibility of microorganisms
 - B. To differentiate between different types of microorganisms
 - C. To support the growth of microorganisms


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-
- D. To preserve the sample during transportation
6. Why is it important to use aseptic techniques during sample collection?
- A. To reduce the risk of contamination
 - B. To minimize the presence of external contaminants
 - C. To ensure accurate test results
 - D. All of the above
7. What is the purpose of centrifugation in sample processing?
- A. To remove debris and larger particles
 - B. To separate cellular components from liquid samples
 - C. To preserve the sample
 - D. To dilute the sample
8. What is the purpose of proper sample transportation?
- A. To prevent growth of microorganisms
 - B. To maintain sample quality and integrity
 - C. To prevent degradation of samples
 - D. All of the above
9. Which of the following is NOT a preservation method for clinical samples?
- A. Anticoagulants
 - B. Centrifugation
 - C. Fixatives
 - D. Dilution
10. What type of microorganisms can be detected through microscopic analysis?
- A. Viruses
 - B. Bacteria
 - C. Fungi
 - D. All of the above

Key: 1a,2d,3b,4a,5d,6d,7b,8d,9b,10d


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Question Paper-3

Date: 08/06/2024

Time: 8.30 am to 09:00 am

1. How does the BacT/ALERT® System detect the presence of pathogens in blood samples?
 - A. By continuously monitoring CO₂ production
 - B. By utilizing individualized identification cards
 - C. By using a robotic arm to streak samples onto culture plates
 - D. By employing fluorescent sensors
2. What is the purpose of automated culture systems in microscopy?
 - A. To increase the size of microscopic structures
 - B. To decrease the speed of results
 - C. To increase the risk of contamination and human error
 - D. To reduce the risk of contamination and human error
3. Which of the following is an example of an automated urine culture system?
 - A. BD BACTEC™ Blood Culture System
 - B. BacT/ALERT® System
 - C. VITEK® 2 System
 - D. Kiestra™ Urine Culture System
4. Which of the following is an example of an automated culture system used for blood culture analysis?
 - A. BacT/ALERT® System
 - B. BD BACTEC™ Blood Culture System
 - C. VITEK® 2 System
 - D. Kiestra™ Urine Culture System
5. What is the significance of automated urine culture systems in the diagnosis of urinary tract infections?
 - A. They decrease the speed of results
 - B. They increase the risk of contamination


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-
- C. They reduce the risk of contamination and human error
D. They provide faster and more objective results
6. What is the benefit of the Cartridge-Based Nucleic Acid Amplification Test (CBNAAT)?
A. It reduces the risk of contamination and human error
B. It provides a comprehensive antibiotic susceptibility profile
C. It decreases the risk of contamination and human error
D. It increases the speed of results
7. What is the role of automated antibiotic sensitivity testing?
A. To decrease the speed of results
B. To guide appropriate antimicrobial therapy
C. To reduce the risk of contamination and human error
D. To increase the risk of contamination and human error
8. What is the benefit of automated blood culture systems in the early detection of bloodstream infections?
A. Increased risk of contamination
B. Reduced risk of contamination
C. Faster and more accurate results
D. Decreased speed of results
9. Which of the following is an example of an automated platform for antibiotic sensitivity testing?
A. BacT/ALERT® System
B. BD BACTEC™ Blood Culture System
C. VITEK® 2 System
D. Kiestra™ Urine Culture System
10. VITEK 2C is used for:
A. Identification
B. ABST
C. Both of the above
D. None of the above

Key: 1b, 2d, 3d, 4b, 5d, 6b, 7b, 8c, 9c, 10


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DR. D. Y. PATIL VIDYAPEETH, PUNE

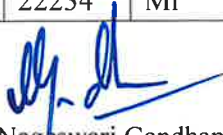
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Accredited (3rd Cycle) by NAAC with a CGPA of 3.64 on four-point scale at 'A++' Grade
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Department of Microbiology

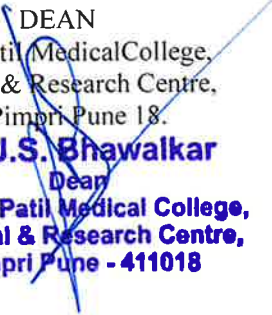
Value Added Course: "Automation in Clinical Microbiology"
Batch: 2023-24

SR. No.	Roll No.	Gender	Students Name	Remarks
1	22145	Miss	Nayonika Duneja	Successful
2	22082	Mr	Hemang Verma	Successful
3	22243	Mr	Vasav Narsibhai Vekariya	Successful
4	22139	Miss	Mishika Dawani	Successful
5	22246	Miss	Vibhandik Riya Sanjay	Successful
6	22245	Mr	Vedant Vijay Vaswani	Successful
7	22026	Miss	Arkaja Sharma	Successful
8	22184	Miss	Sakshi Bhalotia	Successful
9	22218	Miss	Simran Kumari	Successful
10	22218	Miss	Simran Kumari	Successful
11	22073	Miss	Gauri Maheshwari	Successful
12	22076	Miss	Gupta Khushboo Ravi	Successful
13	22241	Miss	Vaishnavi Deepak Gote	Successful
14	22162	Miss	Pawar Sejal Pravin	Successful
15	22056	Miss	Deveena Dwivedi	Successful
16	22232	Miss	Tanya Singh	Successful
17	22172	Mr	Ramesh Kumar Thakur	Successful
18	22183	Mr	Sagnik Bhunia	Successful
19	22200	Miss	Sheen Sachdeva	Successful
20	22058	Miss	Dharwadkar Khushi Purushottam	Successful
21	22244	Mr	Ved Singh	Successful
22	22053	Miss	Deeksha Bairwa	Successful
23	22042	Miss	Bhosale Nitya Jiyaji	Successful
24	22203	Mr	Shivam Balaji Tidke	Successful
25	22234	Mr	Tejas Palagummi	Successful


Dr. Nageswari Gandham
Prof. & HOD
Dr. D. Y. Patil Medical College,
Hospital & Research Centre,
Pimpri Pune 18.

PROFESSOR & HEAD
DEPARTMENT OF MICROBIOLOGY
Dr. D. Y. Patil Medical College & Hospital
Pimpri, Pune-411 018.


Dr. Shahzad Mirza
Associate Professor, HICO
Dept. of Microbiology
DYPMC, Pimpri, Pune- 18.


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Dr. D. Y. Patil Medical College,
Hospital & Research Centre,
Pimpri Pune 18.
Dr. J.S. Bhawalkar
Dean
Dr. D.Y. Patil Medical College,
Hospital & Research Centre,
Pimpri Pune - 411018



**DR. D. Y. PATIL MEDICAL COLLEGE, HOSPITAL &
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Department of Microbiology

Ref: DYPMC/Micro/97(a)/2024

Date: 15/06/2024

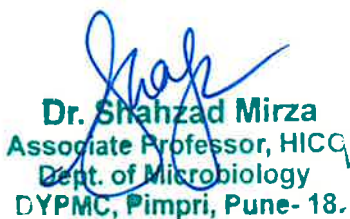
Report For Value Added Course

The Value-Added Course: "Automation in Clinical Microbiology" for the batch: 2023-24 was conducted by Department of Microbiology Dr. D. Y. Patil Medical College, Hospital & Research Centre, Pimpri Pune. in Lecture Hall 1. The module was prepared for duration of 18 hrs. & was conducted from 06/04/2024 to 08/06/2024 at 7.00 am. This course was conducted by Dr Shahzad Mirza Associate Professor Department of Microbiology. On the first day introduction & use and implications of the value-added course was explained to all students. The course was completed by the Second Professional MBBS (AY 2023-24) students. At the end of the course examination was conducted & on successful completion certificates were awarded to the students.



HOD

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