UG Department of Biotechnology
Skill Based Course: Immunodiagnostics
Session 2019-20
Course Coordinator Report

A Skill Based Course for UG students in the Department Biotechnology, Shri Shivaji Education Society Amravati's Science College, Congress Nagar, Nagpur was held from 16th October 2019 to 23rd December 2019. The course title was "Immunodiagnostics". It is the complete beginner to Expert Course was perfect for anyone who wants to learn Immunodiagnostics.

The skill base certificate course syllabus for B.Sc. I, II and III appear students. Eight weeks' certificate course in IMMUNODIAGNOSTICS. A total of 25 students were enrolled to the course. The examination of course shall comprise of one theory paper of three hours carries 50 marks and practical of one-hour duration carries 40 marks. Internal assessment for the course based on one theory paper of 10 marks shall be conducted by university approved teachers. Internal assessment marks should be included in minimum passing marks of the students. Candidates are expected to pass separately in theory, internal assessment and practical examination.

Students require 40 % marks in theory for passing including internal marks. Separate passing in practical examination is required, assignment submission is necessary to get internal marks.

Action Taken- In an Immunodiagnostics course, students gain an understanding of the immune system's structure and function, including the mechanisms of immune responses and diseases. They learn how to apply diagnostic techniques to identify and analyze immune-related conditions, enhancing their practical skills in clinical settings. The course also covers the development and use of immunological assays and tests for disease detection and monitoring. Additionally, students explore the latest advancements in immunotherapy and vaccine development, preparing them for cutting-edge roles in healthcare and research.

Ms. D. Deepthi Hynal
Course- Coordinator
Skill Based Course

Immunodiagnostics Kit based Hands on Training (2019-2020)

RASHTRASANT TUKADOJI MAHARAJ NAGPUR UNIVERSITY

DEPARTMENT OF LIFELONG LEARNING AND EXTENSION
Gurunanak Bhavan, University Campus, Amravati Road, Nagpur - 440 033. Phone : 2530860
E-mail : doll.rtmnu@gmail.com

No.DOLLE237/19
Dated : 16.10. 2019

To,
The Principal
Shivaji Science College,
Nagpur,
9423 to 3043

Subject : Sanction for Conducting Short Term Courses under
Jeevan Shikshan Abhiyan on No Grant Basis.

Sir/Madam,

With reference to your proposal for conducting Short Term courses indicated below under Jeevan Shikshan Abhiyan of this Department, I am to inform you that your proposal has been accepted by the Department and your College has been granted permission to conduct the course on the following conditions:

Details of the Course

Sr. No.	Name of the Course	Duration	No. of Candidates to be admitted	Fees to be Charged per Student	Fees to be Deposited With the Deptt.
1	Diploma Course in Groundwater Exploration	8 Weeks	20	1200/-	10%
2	Diploma Course in Statistical Quality Control	10 Weeks	16	850/-	10%
3	Diploma Course in Immune-Diagnostics	8 Weeks	20	2200/	10%
4	Diploma Course in Environmental and Water Management	6 Weeks	10	1000/	10%
5	Diploma Course in Mushroom Cultivation	8 Weeks		1000/	10%
6	Diploma Course in Biofertilisers and Biopesticides	14 Weeks	20	1500/	10%
7	Diploma Course in Forestry and Wild Life Management	6 Weeks	20	1500/	10%

Rules & Regulations of this Department regarding these courses should be strictly followed.

1. This sanction is valid for this particular Batch only.
2. Fees for the course should be charged as per the norms prescribed.
3. Expenditure on the course should be incurred as per norms.
4. Course should be started within a Month from <u>the date of sanction.</u>
   Please communicate your acceptance within <u>a month and submit Initial Report Along with list of students admitted.</u>

Dr. A.D. Bobdey
for n-a.
Nahore
03-01-2020

Your's faithfully,

Director

SCIENCE COLLEGE, CONGRESS NAGAR, NAGPUR

UG Department of Biotechnology

NOTICE

Date: 23/09/2019

All the **Students of B.Sc-Part I of BIOTECHNOLOGY** are hereby informed that Department of Biotechnology is conducting **8 weeks Certificate course** in **IMMUNO-DIAGNOSTICS** under **RTMNU Skill Based Program**. The fee for Certificate course will be **Rs 2200/- (Two Thousand Two Hundred Rupees Only)**. For further enquiry and form collection contact **Ms. D**. **Deepthi Hynal** in Department of Biotechnology. Interested students can take admission before **1/10/ 2019**.Your registration will be confirmed upon receipt of payment, on a first-come-first serve basis. The registration will end when all 25 seats are filled.

NOTE: Students admitted in other diploma or certificate course should not apply for Immuno-Diagnostics course.

Ms. D. Deepthi Hynal
Coordinator
Certificate Course
Immunodiagnostic

U.G. DEPARTMENT OF BIOTECHNOLOGY, SCIENCE COLLEGE, CONGRESS NAGAR, NAGPUR

AccreditedwithCGPAof3.51at'A+'GradebyNAAC,Bangalore
A College with Potential for Excellence
An Institutional Member of APQN
Recognized Center for Higher Learning & Research
A Mentor College under Paramarsh Scheme of UGC, New Delhi
A Mentor College under Paris Sparsh Scheme of Maharashtra State

Skill Based Course for the Session 2019-20
on
Immunodiagnostics

Skill Based Certificate Course: Immunodiagnostics

Course Co-ordinator: Ms D Deepthi Hynal

Course Introduction

The Immunodiagnostic Introduction course provides a comprehensive overview of immunodiagnostic techniques used to detect and analyze immune responses. It covers fundamental concepts such as antigen-antibody interactions, assay methods, and the role of immunodiagnostics in disease detection. Students will learn about various diagnostic tools including ELISA, Serological Test, Rapid Plasma Reign and Rheumatoid Arthritis Test. The course emphasizes practical applications and recent advancements in the field. By the end, participants will gain foundational skills to apply immunodiagnostic techniques in clinical and research settings.

Course Objectives

- The primary objective of this course is to help students develop the skills necessary for the critical analysis of topics related to health and disease.
- To provide an up to date knowledge of basic and technical immunology.
- An understanding of the characteristics of antigens and antibodies.
- An understanding of the nature of antigen-antibody reactions.
- To understand how the immune system develops, how the body defends itself against disease and what happens when it all goes wrong.
- To provide simple and accurate methods of making a laboratory diagnosis of infectious diseases and immunodeficiency.

Registration Date: 01/10/2019

Prof. Atul Bobdey
Coordinator
Dept. of Biotechnology

Prof. Mahendra Dhore
Principal
Science College, Nagpur

Ms. D. Deepthi Hynal
Course- Coordinator
Skill Based Course

UG Department of Biotechnology

Skill Based Course: Immunodiagnostics (Session 2019-20)
Course Co-ordinator: Ms. D. Deepthi Hynal

Course Introduction

The Immunodiagnostic Introduction course provides a comprehensive overview of immunodiagnostic techniques used to detect and analyze immune responses. It covers fundamental concepts such as antigen-antibody interactions, assay methods, and the role of immunodiagnostics in disease detection. Students will learn about various diagnostic tools including ELISA, Serological Test, Rapid Plasma Reign and Rheumatoid Arthritis Test. The course emphasizes practical applications and recent advancements in the field. By the end, participants will gain foundational skills to apply immunodiagnostic techniques in clinical and research settings.

Course Objectives

1) The primary objective of this course is to help students develop the skills necessary for the critical analysis of topics related to health and disease.
2) To provide an up to date knowledge of basic and technical immunology.
3) An understanding of the characteristics of antigens and antibodies.
4) An understanding of the nature of antigen-antibody reactions.
5) To understand how the immune system develops, how the body defends itself against disease and what happens when it all goes wrong.
6) To provide simple and accurate methods of making a laboratory diagnosis of infectious diseases and immunodeficiency.

Instructional Strategies: Theory class, Practical, Video clips, Models etc.

- **Evaluation Strategies**: Oral discussions, Final MCQ and Practical examination

Course Outcomes: By the end of this course, participants will be able to:
1) **Master Key Techniques**: Proficiency in ELISA, Serological Test, Rapid Plasma Reign and Rheumatoid Arthritis Test.
2) **Interpret Results**: Accurate analysis of test results and troubleshooting.
3) **Apply Knowledge**: Use techniques for disease diagnosis and research.
4) **Understand Immunology**: Grasp antigen-antibody interactions and immune system basics.
5) **Follow Standards**: Knowledge of quality control, standard operating procedures, and ethical considerations relevant to immunodiagnostic practices.

Duration of course: Eight weeks

Ms. D. Deepthi Hynal
Course- Coordinator
Skill Based Course

UG Department of Biotechnology

Skill Based Course: Immunodiagnostics (Session 2019-20)
Module: The Structure of Syllabus and system of evaluation

The structure of syllabus for certificate course along with distribution of marks is displayed in the following table.

Course	Theory papers and Practicals	Marks			Total marks
		Theory	Internal assessment	Practical	
Certificate course in Immunodiagnostics	1. Theory paper - Immunodiagnostics	50	10		100
	2. Practical based on course			40	
		Grand total			100

*Internal assessment –Based on student's attendance and performance during unit test exam and assignment.
Based on assignment plus activity conducted on kit based practical, the Internal Assessment marks are given for theory and practical. Objective mode of examination was conducted.

Ms. D. Deepthi Hynal
Skill Based Course Coordinator

Dr. Amitabh Halder
IQAC Coordinator
Internal Quality Assurance Cell (IQAC)
S. S. E. S. A. Science College
Congress Nagar, Nagpur.

Prof. Mahendra Dhore
Principal
Principal
S. S. E. S. Amravati's
Science College, Nagpur.

UG Department of Biotechnology

Skill Based Course: Immunodiagnostics
(Session 2019-20)
Syllabus of Skill Based Course: Immunodiagnostics

Course Units

Unit 1: Medical Microbiology

- Bacteria -Morphology, Culture, Resistance, Antigenic Structure, Pathogenicity, Lab Diagnosis, Treatment, Prophylaxis of the following Micro-organisms.
- Spirochetes
- Salmonella
- Virus– Morphology, Structure, Resistance, Mode of transmission, Pathogenesis, Clinical Features, Laboratory Diagnosis, Prevention, Prophylaxis.
- Retro Virus (HIV)

Unit 2: Immunology

Immune system Organs and cells of immune system, Immunity, Innate immunity, Acquired Immunity, Antigen, Antigenicity, Humoral Immunity, Antibody Structure and classes.

Unit 3: Immunological Techniques

Antigen-Antibody reactions, precipitation, agglutination, complement fixation, Rheumatoid arthritis Test (RA), Serological Test for Syphilis, Immunological Test for ELISA.

Practicals: Medical Microbiology & Immunology

1) To Perform Widal Test (Tube Test).
2) ELISA
3) To Perform HIV-I (Rapid Tri-dot Method).
4) To Perform RPR Test.
5) To Perform RA Test.
6) To Perform latex agglutination Test.

Ms. D. Deepthi Hynal
Course- Coordinator
Skill Based Course

UG Department of Biotechnology
Skill Based Course: Immunodiagnostics (Session 2019-20)
Week-wise teaching plan:

Weeks	Hrs.	Content
		Theory
1	1	Bacteria -Morphology
	1	Bacteria -Culture,
	1	Growth curve
	1	Types of Culture
	1	Growth media
2	1	Bacteria - Pathogenicity
	1	Bacteria- Reproduction
	1	Bacteria - Lab Diagnosis
	1	Treatment of the Micro-organism, Spirochetes
	1	Salmonella
3	1	Virus– Morphology, Structure
	1	Mode of transmission
	1	Pathogenesis, Clinical Features,
	1	Laboratory Diagnosis, Prevention, Prophylaxis
	1	Retro Virus
4	1	Immune system
	1	Disorders of immune system
	1	Organs
	1	Cells of immune system
	1	Primary lymphoid organ
	1	Secondary lymphoid organ
5	1	Immunity
	1	Defense barriers of Immune system
	1	Innate immunity
	1	Acquired Immunity
	1	Humoral or Antibody mediated Immunity
	1	Cell mediated Immunity

6	1	Antigen
	1	Antibody
	1	Antigen-Antibody reactions
	1	Precipitation
	1	Types of precipitation
7	1	Agglutination
	1	Complement fixation
	1	Serological Test for Syphilis
	1	Rheumatoid arthritis Test (RA)
	1	Immunological Test for ELISA
	1	Types of ELISA
8	1	**Practical**
	1	To perform Widal test
	1	To perform RPR test
	1	To perform RA test
	1	To perform Latex agglutination test
	1	To perform ELISA test

Ms. D. Deepthi Hynal
Course- Coordinator
Skill Based Course

UG Department of Biotechnology
Skill Based Course: Immunodiagnostics (Session 2019-20)
Skill Based Course: Immunodiagnostics   w.e.f. 16/10/2019
Time Table

Days	Class	1 9:00-10:00	2 10:00-10:48	3 10:48-11:36	4 11:38-12:26	5 12:44-1:32	6 1:32-2:20	7 2:20-3:08	8 3:08-3:56	9 3:56-4:44	10 4:44-5:32
Monday & Tuesday	I	IDCC Theory Biotech Lab **DH**						BT-A5 **NR**	←-----------BT B6 ---------→ **SS**		
	II		←-----------BT B5 ---------→ **DH**				BT-C7 **NP**				
	III			BT-C9 **DR**							
Wednesday & Thursday	I	IDCC Theory Biotech Lab **DH**					BT-C8 **Wed :NP Thu : DH**				
	II			BT-B4 **Wed :RP Thu : RP**							
	III						BT-C7 **Wed : SK Thu: RP**		←-----------BT B5 ---------→ **RP**		
Friday & Saturday	I	IDCC Practical Biotech Lab **DH**						BT-C7 **SS**	←-----------BT B5 ---------→ **SS**		
	II			BT-C7 **SK**		←-----------BT B6 ---------→ **RP**					
	III		←-----------BT- B6-------------→ **NP**				BT-C9 **DH**				

D. Deepthi Hynal : DH   Shital Khedkar : SK   Raksha Pandit: RP   Nikita Pawar: NP. Namrrata Ruprela: NR   Dr. Sameera Siddique : SS

Ms. D. Deepthi Hynal
Course- Coordinator
Skill Based Course

ATTENDENCE SHEET (2019-20)

S.S.E.S.A`s Science College, Congress Nagar, Nagpur

Skill Course Immunodiagnostics

Class: Immunodiagnostics
Theory/ Practical: ✓

Month: Oct. + Nov. + Dec.
Name of Lecturer: D. Deepthi Mynal

Sr. No	Name of Student	16/10/19	17/10/19	21/10/19	22/10/19	23/10/19	24/10/19	28/10/19	29/10/19	30/10/19	31/10/19	05/11/19	06/11/19	07/11/19	13/11/19	14/11/19	18/11/19	19/11/19	20/11/19	21/11/19	25/11/19	26/11/19	27/11/19	28/11/19	02/12/19	03/12/19	04/12/19	05/12/19	9/12/19	10/12/19	11/12/19	12/12/19
1.	Aayushi R. Umredkar	P	P	A	A	P	P	A	P	A	P	A	A	A	P	A	P	A	P	A	P	A	P	A	A	P	A	A	P	A	P	P
2.	Aditi S. Khode	A	P	A	P	A	P	P	A	P	A	P	P	A	P	A	P	A	P	A	P	A	P	A	A	A	P	A	P	P	A	P
3.	Aishwarya B.Gour	P	P	P	A	A	A	A	P	A	P	A	P	A	A	P	A	P	A	A	P	A	A	P	A	P	A	A	P	A	P	P
4.	Anushri A. Mohod	P	A	A	P	P	P	P	A	P	P	A	A	P	P	P	P	A	P	A	A	A	A	P	A	P	A	P	A	P	P	A
5.	Arati C. Nimbalkar	P	A	P	A	A	P	A	P	A	P	P	A	P	A	P	A	P	A	A	P	A	P	A	A	P	A	P	A	P	A	P
6.	Badal P. Kurheklar	A	P	A	P	P	A	A	P	A	P	P	A	A	A	P	P	A	A	A	P	A	A	P	P	A	A	A	P	P	P	A
7.	Bhavana O. Poddar	P	P	P	A	P	P	P	A	A	P	A	P	P	A	P	A	P	A	P	A	P	P	A	A	P	P	A	A	A	A	P
8.	Bhavesh N Wadiwa	P	A	A	P	A	P	A	A	P	A	P	A	A	P	A	P	A	A	P	A	P	A	P	P	A	P	A	P	A	P	A
9.	Bhavish G Kumar	P	P	P	A	A	P	P	P	A	P	A	P	A	A	P	P	P	A	P	P	A	A	P	A	P	A	A	P	A	P	A
10.	Daksha D Ohri	P	A	A	P	A	P	A	P	A	P	P	A	P	P	A	A	P	P	P	P	P	A	P	P	P	P	A	P	A	P	P
11.	Harsh V Warkade	P	P	P	A	P	A	P	A	A	P	P	P	A	P	A	P	A	A	A	A	P	A	A	P	A	P	A	P	A	P	A
12.	Himanshu V Bhandarge	A	A	P	P	A	P	A	P	P	P	A	A	P	P	P	A	P	A	P	P	A	P	A	A	A	P	A	A	A	P	P
13.	Ishwari N Gawande	P	P	A	P	A	P	A	A	P	P	A	P	A	A	P	A	A	A	P	A	A	A	P	A	A	P	A	P	A	P	A
14.	Janhvi H. Umate	P	A	P	P	A	P	P	A	P	A	P	A	P	P	P	P	A	P	A	P	P	A	P	A	A	A	A	P	A	P	P

Deepthi

#	Name	Attendance
15.	Khushi M. Kothale	A P A A A P A A P P A A P A A A P A A P A A P A A P A A P A A P
16.	Komal R. Waghmare	P A P A P A P A A P A P A P A P A P A A P A A A P A A A P A P A
17.	Manisha D. Wasake	A P A P A A P A A A P A P P A A A P A P A P A A P A P P A P P
18.	Mansi R. Gajbe	P A A P P A P A P A A P A A P A A P A A A P A A A P A P P A P P
19.	Muskan R. Chaure	A A P A P P A P A P A P A P P P A A P A A P A P A P A P A P A
20.	Nazish A. Jeevaji	P A P A P A P A P A A P A P A P A P A A A P A A P A A P A P A P
21.	Pratiksha M. Palandurkar	P P P P A A A A A A P A A A P A A P P A P A P P A P P P A P A P
22.	Priyal A. Dhoke	A A P A P A A P A A P A A P A P A A P A A A P A A A P A P A P
23.	Renuka O. Mishra	P P A P P A A A P A A A P A A P A A A P A A A P A P A P A P A P
24.	Ritika R. Jadhav	A P A A P A P A A A A P P A A P A A P A A A P A P A A A P A P
25.	Sakshi R. Kulkule	P A P A A A P A A P A P A A P A P A A P A A P A A P A P A P A P

ATTENDENCE SHEET (2019-20)

S.S.E.S.A`s Science College, Congress Nagar, Nagpur

Skill Course Immunodiagnostics

Class: Immunodiagnostics
Theory/ Practical: ✓

Month: Oct. + Nov. + Dec.
Name of Lecturer: D. Deepthi rynal

Sr. No	Name of Student	18/10/19	19/10/19	25/10/19	26/10/19	01/11/19	08/11/19	09/11/19	15/11/19	16/11/19	22/11/19	23/11/19	06/12/19	07/12/19	13/12/19	14/12/19	20/12/19	21/12/19	03/01/20	04/01/20	10/01/20	11/01/20	17/01/20	18/01/20	24/01/20	25/01/20	31/01/20	01/02/20	07/02/20	08/02/20	14/02/20	15/02/20
1.	Aayushi R. Umredkar	P	A	P	P	A	P	A	P	P	A	P	P	P	A	P	P	P	P	P	A	P	P	P	A	P	A	P	A	P	P	P
2.	Aditi S. Khode	P	P	P	P	P	P	A	P	P	P	A	P	P	P	A	P	P	A	P	P	A	A	P	P	P	P	P	A	P	P	P
3.	Aishwarya B.Gour	P	P	P	P	P	P	P	P	A	P	P	P	A	P	P	P	A	P	P	A	P	P	P	A	P	P	P	P	P	A	P
4.	Anushri A. Mohod	P	P	P	P	A	P	P	P	P	A	P	P	P	P	A	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P
5.	Arati C. Nimbalkar	P	P	P	P	P	A	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	A	P	P	P	P	A	P	P	P	A
6.	Badal P. Kurheklar	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A
7.	Bhavana O. Poddar	P	P	P	P	P	A	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P
8.	Bhavesh N Wadiwa	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P
9.	Bhavish G Kumar	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P
10.	Daksha D Ohri	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P
11.	Harsh V Warkade	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P
12.	Himanshu V Bhandarge	P	P	P	P	P	A	P	P	P	P	A	P	P	P	P	P	A	P	P	P	P	P	P	A	P	P	P	P	P	P	P
13.	Ishwari N Gawande	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	A	P	P	A	P	P	P	P	P	P	P	P	P	A	P	P
14.	Janhvi H. Umate	P	P	P	P	P	P	P	A	A	P	P	P	P	A	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	A	P

Deephi

No.	Name																																								
15.	Khushi M. Kothale	P	P	P	P	A	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P
16.	Komal R. Waghmare	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	A	P
17.	Manisha D. Wasake	P	A	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P
18.	Mansi R. Gajbe	P	P	P	P	P	P	P	P	A	P	A	P	P	P	A	P	P	P	P	P	P	P	P	A	P	P	P
19.	Muskan R. Chaure	P	P	P	P	A	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	A
20.	Nazish A. Jeevaji	P	P	P	A	P	P	P	P	P	P	P	P	A	P	P	P	P	A	P	P	P	A	P	P	P	P	P
21.	Pratiksha M. Palandurkar	P	P	P	P	P	P	A	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P
22.	Priyal A. Dhoke	A	P	P	P	P	P	P	P	P	P	P	P	A	P	P	A	P	P	P	P	A	P	P	P	P	P
23.	Renuka O. Mishra	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P
24.	Ritika R. Jadhav	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
25.	Sakshi R. Kulkule	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	A	P	P	P	P	P	P	A

Deepthi

SCIENCE COLLEGE, CONGRESS NAGAR, NAGPUR

UG Department of Biotechnology

EXAMINATION NOTICE

Date: 05/03/2020

All the students enrolled for **Skill Based Course: Immunodiagnostics** for the session 2019-20 are informed that Theory and Practical Exam of the course is scheduled on 13/03/2020. All the appearing students are informed to remain present in Biotechnology Laboratory at 10:30 – 11:30AM AM for Theory Exam and at 12:30PM – 5:30PM for Practical Exam.

Ms. D. Deepthi Hynal
Course- Coordinator
Skill Based Course

List of the Students: Skill Based Certificate Course- Immunology & Immunodiagnostics

(Session 2019-20)

Sr. No.	Name of Student	Signature
1)	AAYUSHI R. UMREDKAR	
2)	ADITI S. KHODE	A.Khode
3)	AISHWARYA B.GOUR	
4)	ANUSHRI A. MOHOD	A.mohod
5)	ARATI C. NIMBALKAR	
6)	BADAL P. KURHEKLAR	
7)	BHAVANA O. PODDAR	
8)	BHAVESH N WADIWA	
9)	BHAVISH G KUMAR	
10)	DAKSHA D OHRI	
11)	HARSH V WARKADE	
12)	HIMANSHU V BHANDARGE	
13)	ISHWARI N GAWANDE	
14)	JANHVI H. UMATE	
15)	KHUSHI M. KOTHALE	Khushi.Kothale
16)	KOMAL R. WAGHMARE	
17)	MANISHA D. WASAKE	
18)	MANSI R. GAJBE	
19)	MUSKAN R. CHAURE	
20)	NAZISH A. JEEVAJI	
21)	PRATIKSHA M. PALANDURKAR	
22)	PRIYAL A. DHOKE	
23)	RENUKA O. MISHRA	
24)	RITIKA R. JADHAV	
25)	SAKSHI R. KULKULE	

Ms. D. Deepthi Hynal
Course- Coordinator
Skill Based Course

Rashtrasant Tukadoji Maharaj Nagpur University

Exam Name: Skill based Certificate Course Examination, Summer- 2020

Duration: 1hr

Name of Subject: Immunodiagnostics
Medium: English

Max Marks: 50

Marks Obtained:
Centre Name: Shri Shivaji Science College Congress Nagar, Nagpur
Date: 13/03/2020
Name of Student:

Year: B.Sc   Group :
Note:
(1) Each question carries 2 marks
(2) No negative marking

---

1. Special feature of Retro viruses
   a) Reverse transcriptase
   b) RNA directed DNA polymerases
   c) Both a & b
   d) Boils
2. What forms the genome of a virus?
   a) DNA
   b) RNA
   c) Either DNA or RNA
   d) Both DNA and RNA
3. HIV is belonging to
   a) Retro Viridae
   b) Rhabdo Viridae
   c) Toga Viridae
   d) Paramyxo Viridae
4. The motile bacteria is
   a) *Salmonella typhi*
   b) *Klebsiella pneumonia*
   c) *Bacillus anthracis*
   d) *Shigella flexneri*

5. Where is the endoflagella located in Spirochetes?
   a) In the cell membrane
   b) In the cytoplasm
   c) In the peptidoglycan layer
   d) In the periplasmic space
6. Which of the following is a common method used to detect rheumatoid factor (RF) in theblood?
   a) Immunofluorescence
   b) Latex agglutination
   c) Western blotting
   d) ELISA
7. What is an antigen?
   a) A type of white blood cell
   b) A molecule that can induce an immune response
   c) A type of antibody
   d) A cell that engulfs pathogens
8. Complement proteins are heat labile and are destroyed by heating at_.
   a) 58°C
   b) 49°C
   c) 56°C
   d) 54°C
9. First line of Defense includes:
   a) Fever
   b) Inflammation
   c) Skin
   d) Interferon
10. Which of the following is disadvantage of agglutination method
    a) Ease of performance
    b) high degree of sensitivity
    c) the reactions are only semiquantitative
    d) speed of performance, usually requiring few minutes
11. Identify the CORRECT statement from the following sentences given below?
    a) All immunogen are antigens and all antigens are immunogens.
    b) All immunogens are antigens but NOT all antigens are immunogens.
    c) All immunogens are NOT antigens but all antigens are immunogens.
    d) All immunogens are NOT antigens but all antigens are NOT immunogens.
12. The Portion of an Antigen that is recognized and bound by an Ab or TCR/MHCcomplex?
    a) Paratope
    b) Hapten
    c) Epitope
    d) Neoantigens

13. What are the principal cells of immune system?
    a) RBC's
    b) Bone Marrow
    c) Phagocytic
    d) WBC's

14. WBC's are formed by which cells?
    a) Mesenchymal Stem cells
    b) Epithelial Stem cells
    c) Hematopoietic Stem cells
    d) Neural Stem cells

15. The antibody that are made by identical immune cells which are all clones and has thetendency to bind with the same epitope is known as:
    a) Polyclonal antibody
    b) Monoclonal antibody
    c) Pentaclonal antiboy
    d) Heptaclonal antibody

16. The immunodiffusion technique used to detect concentration of antigen by measuring thediameter of the precipitin ring is known as:
    a) Ouchterlony technique
    b) Radial immunodifusion technique
    c) Passive agglutination
    d) Precipitaion test

17. When the form of antigen is_____, the reaction of an antibody with the antigen can bedetected by precipitation.
    a) Soluble
    b) Insoluble
    c) Particulate
    d) all of the above

18. The qualitative immunodiffusion process in which there is movement of both antigen andantibody is called as:
    a) agglutination
    b) single immunodiffusion
    c) double immunodiffusion (Ouchterlony test)
    d) immunoelectrophoresis

19. ELISA can be used to detect which of the following disease:
    a) HIV
    b) Measles
    c) Mumps
    d) all of the above

20. A stimulus that produces a humoral or cell-mediated immune response is called as:

A) paratope

b) epitope
c) hapten
d) immunogen

21. A molecule that can be made immunogenic by conjugation to a suitable carrier:
    a) Hapten
    b) Antigen
    c) Antibody
    d) Immunogen

22. T- lymphocytes, B- lymphocytes and natural killer cells are sub populations of:
    a) Phagocytic cells
    b) Dendritic cells
    c) Lymphocytes
    d) Granulocytic cells

23. Phagocytic cells contain:
    a) Mast cells
    b) Nk cells
    c) Basophils
    d) Monocytes

24. Rheumatoid arthritis is a chronic inflammatory disorder, which can increase the risk ofdeveloping____.
    a) Rheumatoid nodules
    b) Carpal tunnel syndrome
    c) Osteoporosis
    d) All of these

25. What is the role of goat anti-rabbit IgG horseradish peroxidase conjugate in theexperiment?
    a) Antigen
    b) Primary antibody
    c) Secondary antibody
    d) Substrate

Ms. D. Deepthi Hynal
Course- Coordinator
Skill Based Course

UG Department of Biotechnology

Exam Name: Skill Based Course: Immunodiagnostics (Session 2019-20)

Answer key

1) c) Both a & b
2) c) Either DNA or RNA
3) a) Retro Viridae
4) a) *Salmonella typhi*
5) d) In the periplasmic space
6) b) Latex agglutination
7) b) A molecule that can induce an immune response
8) c) 56 ⁰C
9) c) Skin
10) c) the reactions are only semiquantitative
11) b) All immunogens are antigens but NOT all antigens are immunogens
12) c) Epitope
13) d) WBC's
14) c) Hematopoietic Stem cells
15) b) Monoclonal antibody
16) b) Radial immunodifusion technique
17) a) Soluble
18) c) double immunodiffusion (Ouchterlony test)
19) a) HIV
20) d) Immunogen
21) a) Hapten
22) c) Lymphocytes
23) d) Monocytes
24) d) All of these
25) c) Secondary antibody

Ms. D. Deepthi Hynal
Course- Coordinator
Skill Based Course

UG Department of Biotechnology

Skill Based Course: Immunodiagnostics (Session 2019-20)

Practical Exam Question Paper:
Subject   **: Immunodiagnostics**

Center   **:** S.S.E.S. A's Science College, Nagpur

Time   **:** 5 hrs per day

Dates   **:** 13/03/2020

                                         Max. Marks: 40

Q.1   To Perform Widal Test (Tube Test).   10

Q.2   To Perform Rheumatoid Arthritis (RA) Test   10

Q.4   Viva-Voce   10

Q.5   Practical Record   10

                                     Total Marks   40

Ms. D. Deepthi Hynal
Course- Coordinator
Skill Based Course

UG Department of Biotechnology

Skill Based Course: Immunodiagnostics (Session 2019-20)
OMR Answer Sheet

Shri Shivaji Education Society, Amravati's

SCIENCE COLLEGE

Congress Nagar, Nagpur-12 (M.S.), India

Accredited with CGPA of 3.51 at 'A+' grade by NAAC, Bangalore
A "College with Potential for Excellence" identified by UGC New Delhi.
Institutional Member of APQN
Recognized Centre for Higher Learning and Research
Mentor College under 'PARAMARSH Scheme', UGC, New Delhi

U.G. DEPARTMENT OF BIOTECHNOLOGY

Skill Based Course	
Course Exam Name: Immunodiagnostics	
Name of Student: Adyuli R. Umredkar.	**INSTRUCTIONS FOR FILLING THE SHEET** 1. This sheet should not be folded or crushed. 2. Use only blue/ black ball point pen to fill the circles. 3. Use of pencil is strictly prohibited. 4. Circles should be darkened completely and properly. 5. Cutting and erasing on this sheet is not allowed. 6. Do not use any stray marks on the sheet. 7. Do not use marker or white fluid to hide the mark.
Roll No.: **Session: 2019-20**	
Test Date: 13/03/2020 **Max. Marks:** 50	
Invigilator Signature **Obtained Marks:** 46	**WRONG METHODS** **CORRECT METHOD**

#	A B C D	#	A B C D	#	A B C D	#	A B C D	#	A B C D
1	○○●○	11	○●○○	21	●○○○	31	○○○○	41	○○○○
2	○○●○	12	○○●○	22	○○●○	32	○○○○	42	○○○○
3	●○○○	13	●○○○	23	○○○●	33	○○○○	43	○○○○
4	●○○○	14	○○●○	24	○○○●	34	○○○○	44	○○○○
5	○○○●	15	●○○○	25	○○●○	35	○○○○	45	○○○○
6	○●○○	16	○●○○	26	○○○○	36	○○○○	46	○○○○
7	○●○○	17	●○○○	27	○○○○	37	○○○○	47	○○○○
8	○○●○	18	○○●○	28	○○○○	38	○○○○	48	○○○○
9	○○●○	19	●○○○	29	○○○○	39	○○○○	49	○○○○
10	○○●○	20	○○○●	30	○○○○	40	○○○○	50	○○○○

UG Department of Biotechnology

Mark List: Skill Based Course: Immunodiagnostics (Session 2019-20)

Sr. No	Name of the Student	Marks obtained out of 50 (Theory)	Marks obtained out of 10 (Theory Internals)	Marks obtained out of 40 (Practical)	Total marks out of 100	Grade
1.	Aayushi R. Umredkar	46	06	28	80	A
2.	Aditi S. Khode	44	10	30	84	A+
3.	Aishwarya B.Gour	44	09	35	88	A+
4.	Anushri A. Mohod	40	10	35	85	A+
5.	Arati C. Nimbalkar	46	10	30	86	A+
6.	Badal P. Kurheklar	46	10	32	88	A+
7.	Bhavana O. Poddar	40	09	30	79	A
8.	Bhavesh N Wadiwa	40	10	35	85	A+
9.	Bhavish G Kumar	38	09	34	81	A+
10.	Daksha D Ohri	40	09	35	84	A+
11.	Harsh V Warkade	38	09	36	83	A+
12.	Himanshu V Bhandarge	46	09	35	90	A+
13.	Ishwari N Gawande	42	10	36	88	A+
14.	Janhvi H. Umate	42	10	30	82	A+
15.	Khushi M. Kothale	30	09	34	73	A
16.	Komal R. Waghmare	40	09	30	79	A
17.	Manisha D. Wasake	36	10	35	81	A+
18.	Mansi R. Gajbe	26	09	30	65	B+

19.	Muskan R. Chaure	36	09	35	80	A
20.	Nazish A. Jeevaji	40	10	36	86	A+
21.	Pratiksha M. Palandurkar	42	09	34	85	A+
22.	Priyal A. Dhoke	28	09	35	72	A
23.	Renuka O. Mishra	30	09	35	74	A
24.	Ritika R. Jadhav	36	09	35	80	A
25.	Sakshi R. Kulkule	28	09	36	73	A

Ms. D. Deepthi Hynal
Course- Coordinator
Skill Based Course

Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur

[Established by Government of Central Provinces Education Department by Notification No. 513 dated the 1st of August, 1923 & presently a State University governed by Maharashtra Public Universities Act, 2016(Mah. Act No. VI of 2017)]

University Skill Development Centre
(under Board of Lifelong Learning and Extension)

Certificate

No. ....

Shri/Smt./Ku. ......*Ayushi Umredkar*................ is

awarded with Certificate on successful completion of the course titled

.......*Immunology and Immunodiagnostics*...... in

session ..*2019-20*.... under **Jeevan Shikshan Abhiyan** conducted for

45 hours from ..*16/10/2019*.. to ..*23/12/2019*.. by the **Board of Lifelong**

Learning & Extension in collaboration with Department of Botany,

S.S.E.S. Amt's Science College Congress Nagar, Nagpur, 440012.

He/She has passed the Examination with ....*A*...... Grade

Total Credits Earned : 01

Principal
SSES Amt's Science College
Congress Nagar, Nagpur-12

Course Co-ordinator
SSES Amt's Science College
Congress Nagar, Nagpur-12

Director
Board of Lifelong Learning
and Extension, RTMNU, Nagpur

UG Department of Biotechnology

Skill Based Course: Immunodiagnostics (Session 2019-20)

Feedback form

Thank you for participating in our Immunodiagnostics course. Your feedback is crucial in helping us improve the course and enhance your learning experience. Please take a few moments to complete this feedback form.

Que. 1 **How would you rate the overall quality of the Certificate Course – Immunodiagnostics**

    a) Excellent
    b) Good
    c) Average

Que. 2 **How well did the Certificate Course - Immunodiagnostics meet your expectations?**

    a) Exceeded expectations
    b) Met expectations
    c) Below expectations

Que. 3 **How effective were the course instructors in delivering the Certificate Course - Immunodiagnostics**

    a) Very effective
    b) Effective
    c) Ineffective

Que. 4 **How likely are you to recommend the Certificate Course – Immunodiagnostics to others?**

    a) Very Likely
    b) Likely
    c) Unlikely

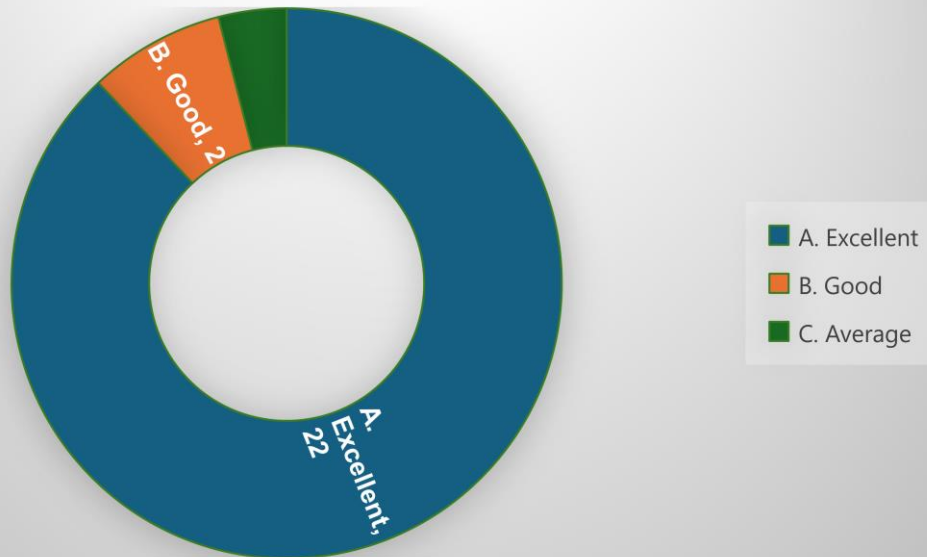Que. 5 **How satisfied are you with the practical sessions of the Certificate Course - Immunodiagnostics?**

    a) Very Satisfied
    b) Satisfied
    c) Dissatisfied

UG Department of Biotechnology

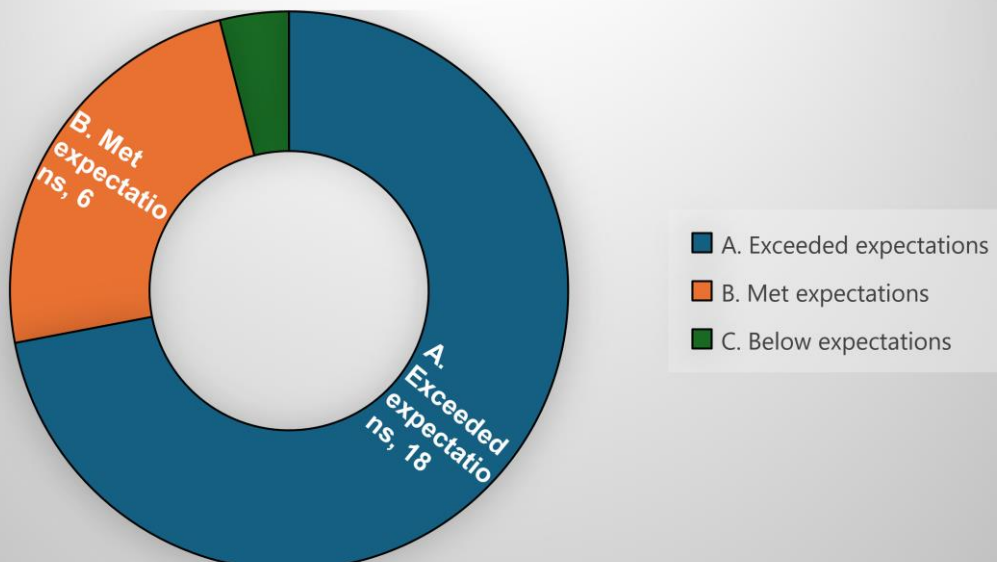## Skill Based Course: Immunodiagnostics (Session 2019-20)
Feedback Response

25 responses

Que. 1 How would you rate the overall quality of the Certificate Course - Immunodiagnostics
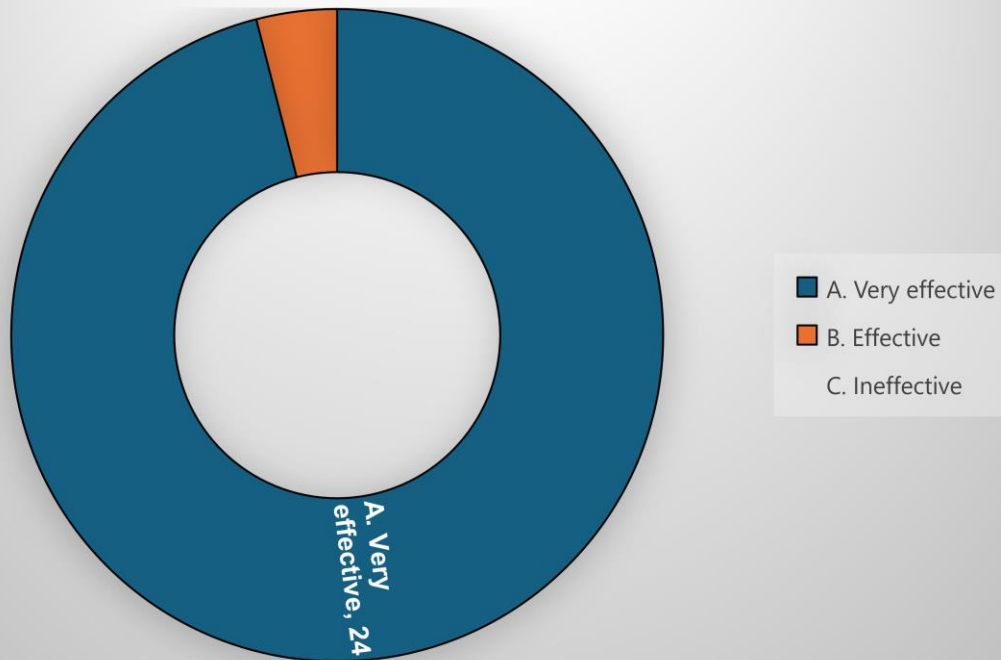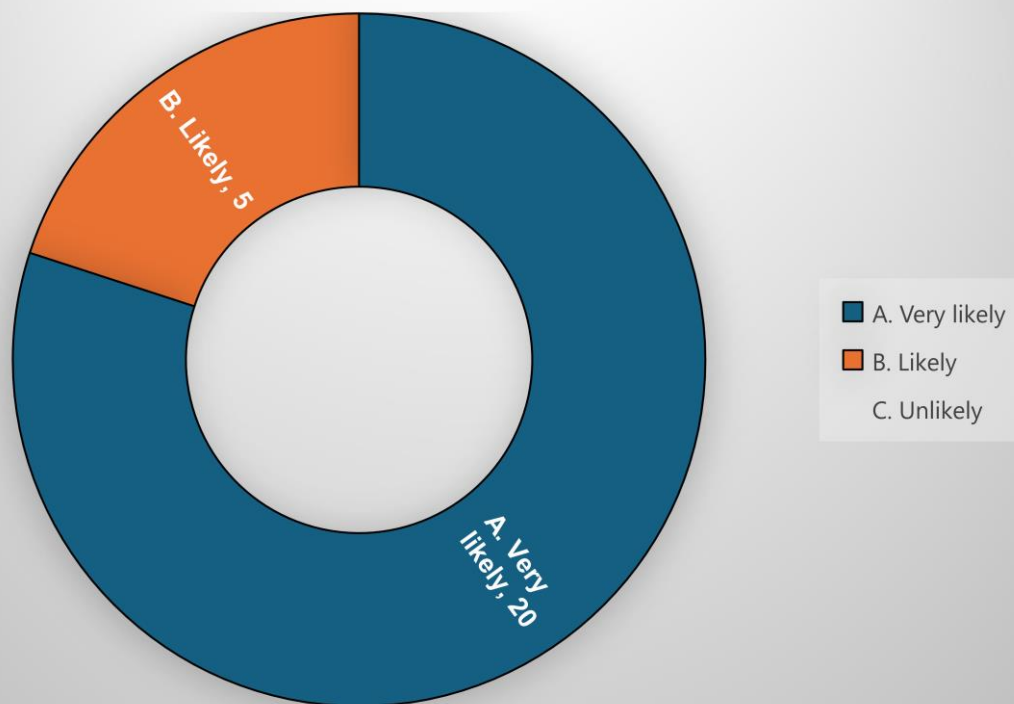

- A. Excellent
- B. Good
- C. Average

B. Good, 2
A. Excellent, 22

25 responses

Que. 2 How well did the Certificate Course - Immunodiagnostics meet your expectations?

- A. Exceeded expectations
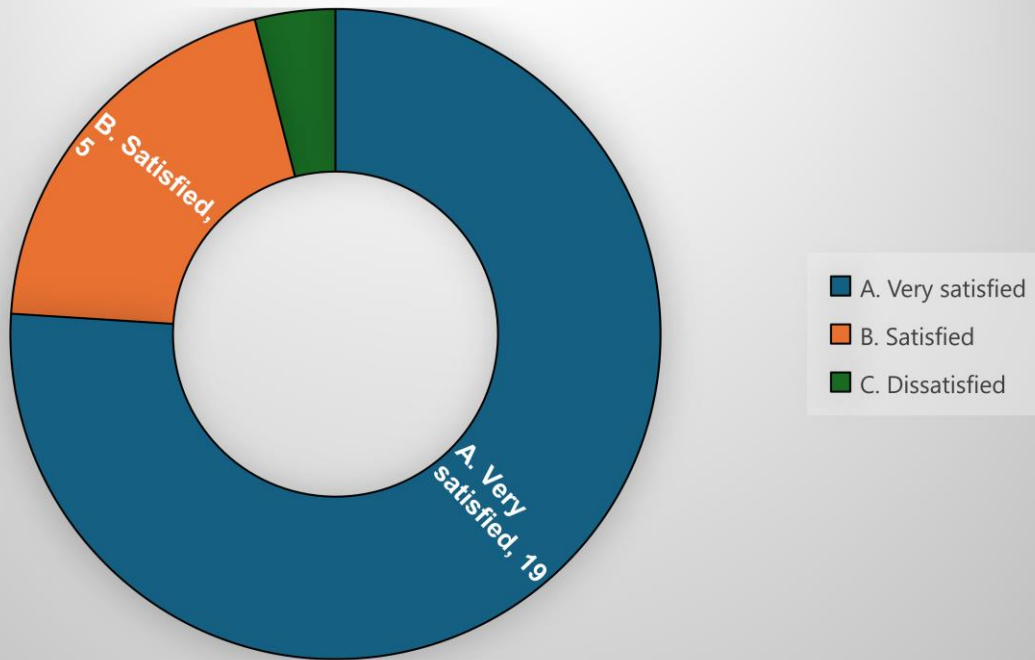- B. Met expectations
- C. Below expectations

B. Met expectations, 6
A. Exceeded expectations, 18

Que. 3 How effective were the course instructors in delivering the Certificate Course - Immunodiagnostics

Legend:
- A. Very effective
- B. Effective
- C. Ineffective

A. Very effective, 24

Que. 4 How likely are you to recommend the Certificate Course - Immunodiagnopstics to others?

B. Likely, 5

Legend:
- A. Very likely
- B. Likely
- C. Unlikely

A. Very likely, 20

Que. 5. How satisfied are you with the practical sessions of the Certificate Course - Immunodiagnostics

Legend:
- A. Very satisfied
- B. Satisfied
- C. Dissatisfied

B. Satisfied, 5
A. Very satisfied, 19

Ms. Deepthi Hynal
Course- Coordinator
Add on Course

Dr. Amitabh Halder
IQAC Coordinator
Internal Quality Assurance Cell
(IQAC)
S. S. E. S. A. Science College
Congress Nagar, Nagpur.

Prof. Mahendra Dhore
Principal
Principal
S. S. E. S. Amravati's
Science College, Nagpur.