

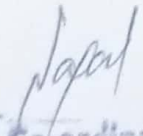


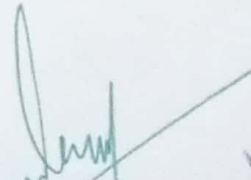
Department of Biotechnology  
Add-On Course Documents

Title: Biotechnology methods and applications

Academic Year:2020-21

S.No	Particulars
1	Declaration
2	Permission letter
3	BOS Request Letter
5	Notice
6	Syllabus
7	Timetable
8	Attendance
9	Summary Report
10	Model certificate

  
Co-ordinator  
Internal Quality Assurance Cell (IQAC)  
Laxmi Venkatesh Desai College, RAICHUR-03.

  
PRINCIPAL  
L.V.D. College RAICHUR



Taranath Shikshana Samsthe



**LAXMI VENKATESH DESAI COLLEGE, RAICHUR-584103.**

(Affiliated to Gulbarga University, Kalaburagi. Re-Accredited by NAAC with "B" Grade)

**Dr. Venkatesh B. Devaru, M.Sc., Ph.D., MBA.**  
**PRINCIPAL**

Office of the Principal  
Ph: (08532)-240286, 240707  
Fax: +918532 240707  
e-mail: lvdrcr@gmail.com  
Website: www.lvdcollege.com

Date: 18/11/2020.

**TO WHOMEVER IT MAY CONCERN**

This is to certify that, the college has introduced the Add\_On/Certificate Course course on, " **Biotechnology Methods and Applications** " with the duration of 30 hours introduced in 2020-21. The said programme is apart from the existing course curriculum.

**Head of the Department**

**Principal**

**PRINCIPAL**  
**L.V.D. College, RAICHUR**

Date:18/11/2020

To,  
The Principal  
L.V.D College,  
Raichur.

Respected Sir,


Sub: Request to permit to start Add on Course in the Department of  
Biotechnology.

As cited above I, the undersigned, **Smt Hemalatha S A**, Head of the Department of Biotechnology, would like to request you to permit to start Add On Course in Biotechnology with title "**Biotechnology methods and applications**" for the academic year **2020-21**. The course may help the students to learn the basic methods in Biotechnology. The details of the course, duration, other required information is enclosed with this letter. And I am looking forward for your response.

Kindly do the needful,

Thanking you,

Yours faithfully



Hemalatha S A  
H.O.D.

Dept. of Biotechnology  
L.V.D. College, RAICHUR.

Permitted  
Principal  
L.V.D. College, RAICHUR  
23/11/20



Taranath Shikshana Samsthe

# LAXMI VENKATESH DESAI COLLEGE, RAICHUR-584103.

(Affiliated to Gulbarga University, Kalaburagi. Re-Accredited by NAAC with "B" Grade)

**Dr. Venkatesh B. Devaru, M.Sc., Ph.D., MBA.**  
**PRINCIPAL**

Office of the Principal

Ph:( 08532)-240286, 240707

Fax:+918532 240707

e-mail: lvdrer@gmail.com

Website: lvdcollege.org

Date: 24/11/2020

## ORDER

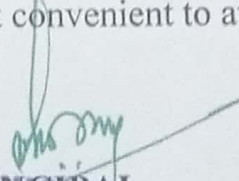
SUB: Meeting of Board of studies.

A meeting of the following BOS constituted is hereby convened on 30/11/2020 at 10:30 AM in the Dept of Biotechnology, LVD College, Raichur.

**Board of appointment of BOS members for Add - On Course Biotechnology methods and applications.**

1.	Smt. Hemalatha S A, Head of the Department, Dept of Biotechnology. LVD College, Raichur.	Chairman
2.	Dr. Vidya Patil, Assistant professor, Department of Microbiology. LVD College, Raichur.	Member

The chairman and the members are requested to make it convenient to attend the BOS Meeting.

  
**PRINCIPAL.**  
L.V.D. College, RAICHUR



Taranath Shikshana Samsthe

**LAXMI VENKATESH DESAI COLLEGE, RAICHUR-584103.**

(Affiliated to Gulbarga University, Kalaburagi. Re-Accredited by NAAC with "B" Grade)

Office of the Principal

Ph:( 08532)-240286, 240707

Fax:+918532 240707

e-mail: lvdrer@gmail.com

Website: lvdcollege.org

**Dr. Venkatesh B. Devaru, M.Sc., Ph.D., MBA.**

**PRINCIPAL**

Date:24/11/2020

To,  
Smt. Hemalatha S A,  
Head of the Department.  
Dept of Biotechnology.  
LVD College, Raichur.

Sub: Appointed as Chairman Board of Studies for Add-on Course in  
Biotechnology.

Respected Sir,

With respect to the above cited subject you are appointed as a Chairman, Board of  
Studies for Add-on Course in Biotechnology, Biotechnology Methods and applications.

Kindly accept and do the needful.

  
**PRINCIPAL.**

**L.V.D. College, RAICHUR-03.**



Taranath Shikshana Samsthe



# LAXMI VENKATESH DESAI COLLEGE, RAICHUR-584103.

(Affiliated to Gulbarga University, Kalaburagi. Re-Accredited by NAAC with "B" Grade)

Office of the Principal

Ph:( 08532)-240286, 240707

Fax:+918532 240707

e-mail: lvdrcr@gmail.com

Website: lvdcollege.org

**Dr. Venkatesh B. Devaru, M.Sc., Ph.D., MBA.**  
PRINCIPAL


Date:24/11/2020

To,  
Dr, Vidya Patil,  
Assistant professor,  
Department of Microbiology,  
LVD College, Raichur.

Sub: Request to act as a Member, Board of Studies for Add on  
Course in Biotechnology.

Respected Madam,

With respect to the above cited subject we the staff members of Department of Biotechnology request you to act as a Member, Board of Studies for Add-on Course in Biotechnology, Biotechnology Methods and applications. Kindly accept and do the needful.

  
H.O.D.  
Dept of Biotechnology  
L.V.D. College, RAICHUR.

  
PRINCIPAL  
L.V.D. College, RAICHUR-03.

Date: 26/11/2020

To,  
The Principal,  
LVD College,  
Raichur.

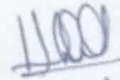
Respected Sir,

Sub: Acceptance to be Chairman of BOS.

With reference to the above cited subject Myself Smt Hemalatha S A, HOD Department of Biotechnology, LVD College, Raichur have received the letter of appointment as Chairman of BOS, for the Add-on Course - Biotechnology Methods and Applications to be conducted by LVD College, Raichur. I hereby accept your request as a BOS Chairman.

Thanking You

Yours truly,



P.S.D. 26/11/20

Dept of Biotechnology  
L.V.D. College, RAICHUR.

Date: 28/11/2020

To,  
The Principal,  
LVD College,  
Raichur.


Respected Sir,

Sub: Acceptance to be Member of BOS.

With reference to the above cited subject Myself Dr, Vidya Patil, Assistant professor in Microbiology, Department of Microbiology, LVD College, Raichur have received the letter of request to be a Member of BOS, for the Add on Course - Biotechnology Methods and Applications to be conducted by LVD College, Raichur. I hereby accept your request as a BOS Member.

Thanking You

Yours truly,

  
28/11/20



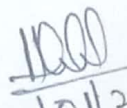
Add on course  
①  
Jan 2021

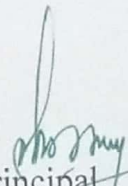
TSS  
Laxmi Venkatesh Desai College, Raichur  
Department of Biotechnology

### NOTICE

All the students of B.Sc. are hereby informed that as **ADD ON COURSE** will be held in the Department of Biotechnology entitled "**Biotechnology methods and applications**", interested students can take admission and get the benefit of the course. The course may start from 21/01/2021.

For more information regarding joining to the course may contact Smt. Hemalatha S A, HOD, Department of Biotechnology, LVD College, Raichur .

  
11/01/21  
H.O.D.  
Dept. of Biotechnology  
L.V.D. College. RAICHUR.

  
Principal  
L.V.D. College. RAICHUR

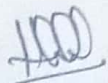
TSS  
Laxmi Venkatesh Desai College, Raichur  
Department of Biotechnology

Title of the course: Biotechnology methods and applications .

Course outcome:

At the end of course student will be able to:

1. Student able to explain the definition of cell, differentiate the prokaryotic and eukaryotic cell, mitosis and meiosis, understand structure function of plasma membrane, understand Biomolecules and their physical and biological properties, learn metabolic pathways, cell cycle programmed cell death and cancer.
2. Discuss the structure function of carbohydrates, lipids, proteins, enzymes, enzyme kinetics; vitamins describe glycolysis and Krebs cycle.
3. Able to understand the types of immunity, antigens, antibodies and explain the basic technique of genetic engineering, concept of fermenter design, upstream and downstream processing, types of culture, production of antibiotics.
4. Learn the diagnostic techniques like PCR and their applications, Technique of plant tissue culture, technique of animal tissue culture and its applications.
5. 5. Understand DNA finger printing technique, health care products through recombinant DNA technology.



H.O.D.

Dept. of Biotechnology  
L.V.D. College, RAICHUR.

TSS

Laxmi Venkatesh Desai College, Raichur  
Department of Biotechnology

Title of the course: Biotechnology methods and applications .

Learning outcome:

At the end of course student will be able to:

1. Student able to explain the definition of cell, differentiate the prokaryotic and eukaryotic cell, mitosis and meiosis, understand structure function of plasma membrane, cell cycle programmed cell death and cancer.
2. Discuss the structure function of carbohydrates, lipids, proteins, enzymes, describe glycolysis and Krebs cycle.
3. Able to understand the types of immunity, antigens , antibodies and explain the basic technique of genetic engineering , concept of fermenter design , technique of plant tissue culture, biotechnology its applications.

Syllabus

30 hrs .

#### Unit 1. Cell biology and Biochemistry

Discovery of cell , cell theory, ultra structure of prokaryotic and eukaryotic cell ( plant and animal cell) fluid mosaic of plasma membrane, functions of plasma membrane, mitosis and meiosis, cell cycle senescence and programmed cell death, cancer. Carbohydrates classification, structure and function; Proteins: structure and function; structural organization of proteins Amino acids definition and peptide bond; Lipids: structure, function and properties ; Enzymes: Nomenclature, classification of enzymes, enzyme kinetics, factors influencing enzyme activity; Vitamins; water soluble and fat soluble dietary sources and deficiency disorders; Glycolysis, Krebs cycle, Gluconeogenesis, photosynthesis- light reaction and photophosphorylation.

12 hrs

#### Unit 2. Immunology, genetic engineering

Humoral and cell mediated immunity, antigens and antibodies, immunity to infections and immunodeficiency –AIDS, active and passive immunity, vaccines and vaccination, antigen and antibody reactions, recombinant DNA technique, tools and applications of recombinant DNA technology, cloning vectors PUC , pBR 322 and bacteriophage vectors PCR technique and RT PCR, applications of genetic engineering,

10hrs

**Unit 3. Industrial biotechnology, and Microbial technology.**

Design of fermenter, upstream and down stream processing, microbial culture and its growth kinetics, types – batch, fedbatch and continuous culture, industrial production of alcohol, penicillin production in microorganisms in food microbiology

4 hrs

**Unit 4. Biotechnology and its applications.**

Molecular diagnostics – ELISA and PCR, DNA finger printing, animal cell culture, plant tissue culture , applications .Health care products of recombinant DNA technology, gene therapy and DNA finger printing and its applications. Culture media for plant tissue culture, media sterilization, explant sterilization, plant tissue culture ant its applications, animal tissue culture technique and its applications.

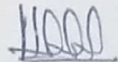
**References:**

4 hrs .

1. Cell Biology C B powar, Himalaya publishers.
2. cell Biology and molecular Biology, Roberties and Roberties.
3. Kubys Immunology by Goldby RA Kind T J Osborne BA, 6 th edition.
4. Industrial Microbiology by L E Casida.



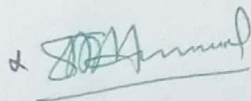
HOD,



H.O.D.

Dept of Biotechnology

Dept of Biotechnology  
L.V.D. College, RAICHUR,



**PRINCIPAL**  
L.V.D. College, RAICHUR-03.



Taranath Shikshana Samsthe

JAN 27 - MAR 03 - 2021

# LAXMI VENKATESH DESAI COLLEGE, RAICHUR

Biotechnology methods and application

Time Table with effect from JANUARY 2021 Class B.Sc Department BIOTECHNOLOGY Section \_\_\_\_\_ Room No. LAB

Time → Days ↓	8:30 am	9:30 Am							
Mon	← B.Sc (AC) →								
Tue	← B.Sc (AC) →								
Wed	← B.Sc (AC) →								
Thu	← B.Sc (AC) →								
Fri	← B.Sc (AC) →								
Sat	← B.Sc (AC) →								

H.D.  
Head of Department  
L.V.D. COLLEGE, RAICHUR

Name of the Staff : Hemalatha S.A

[Signature]  
Principal  
L.V.D. College, RAICHUR

ಶಾಲೆಯ ಹೆಸರು: 202 ತರಗತಿ:

Roll No. ರೋಲ್ ನಂ.	Admission No. ಪ್ರವೇಶ ಸಂಖ್ಯೆ	Date of Birth ಜನ್ಮ ದಿನಾಂಕ	Name of the Student ವಿದ್ಯಾರ್ಥಿಯ ಹೆಸರು	Caste ಜಾತಿ	1	2	3	4	5	6	7	8	9	10	11
1.			Sahana		P	P	P	P	P	P	P	P	P	P	P
2.			Shashank		P	A	P	P	P	P	P	P	P	P	P
3.			Bhagyashree		P	A	P	A	P	P	P	P	P	P	P
4.			Meellana Gowda.		A	D	A	A	A	P	A	X	P	P	A
5.			Shivalinga		P	P	P	A	P	A	P	P	P	P	P
6.			Preele M.		P	P	P	P	A	P	P	P	P	P	P
7.			Mahalaxmi Patil		P	P	P	P	A	P	P	P	P	P	A
8.			Jyothi		P	A	P	P	P	P	P	P	P	P	P
9.			Nirmala		A	P	P	P	P	P	P	P	P	P	A
10.			Prathiba		P	P	P	P	P	P	P	P	P	P	P
11.			Spoothi		D	P	P	P	P	P	P	P	P	P	A
12.			Sumita		A	A	P	P	P	A	P	P	P	P	P
13.			K. Deepa		P	P	P	A	P	P	P	P	P	P	A
14.			N. Soumya.		P	P	P	A	P	P	P	P	P	P	A
15.			Anjali.		A	P	P	A	P	P	P	P	P	P	P
16.			Lakshidevi J.		P	P	P	P	P	P	P	P	P	P	P
17.			Lavanya.		P	A	P	P	P	P	P	P	P	P	P
18.			Revale		A	A	A	A	P	A	A	P	P	P	P
19.			S. Bhagyalaxmi		P	A	P	A	A	A	P	A	A	P	P
20.			Harithika		P	P	P	P	P	P	P	P	P	P	P
21.			Savitri S		A	A	P	P	P	P	P	P	P	P	P
22.			Shabeen Firoz		P	P	P	P	P	P	P	P	P	P	P
23.			Renuka.		P	P	P	P	P	P	P	P	P	P	P
24.			Sangeeta		A	A	P	P	P	P	P	P	P	P	P
25.			Priyanka A.R.		P	P	P	P	P	P	P	P	P	P	A
26.			Padmavathi		P	P	P	P	P	P	P	P	P	P	P

No. Present Daily ದಿನವೂ ಹಾಜರಾದವರ ಸಂಖ್ಯೆ  
 Total No. in the Register ಪುಸ್ತಕದಲ್ಲಿರುವ ಒಟ್ಟು ಸಂಖ್ಯೆ

ಆರಂಭದಲ್ಲಿ ಘಟನೆಗಳು Abstract in the beginning

	SC	ST	Minorities	Others	Total
ಗಂಡು/Boys					
ಹೆಣ್ಣು/Girls					
ಒಟ್ಟು/Total					

1) Number at the beginning of the Month ತಿಂಗಳ ಆರಂಭದಲ್ಲಿರುವ ಸಂಖ್ಯೆ :  
 ತಿಂಗಳ ಪ್ರಾರಂಭದಲ್ಲಿರುವ ಸಂಖ್ಯೆ :  
 2) Admission during the month ತಿಂಗಳಲ್ಲಿ ದಾಖಲಾದವರ ಸಂಖ್ಯೆ :  
 ತಿಂಗಳಲ್ಲಿ ದಾಖಲಾದವರ ಸಂಖ್ಯೆ :  
 3) No. left during the month ತಿಂಗಳಲ್ಲಿ ಬಾಕಿ ಬಿಟ್ಟವರ ಸಂಖ್ಯೆ :  
 ತಿಂಗಳಲ್ಲಿ ಬಾಕಿ ಬಿಟ್ಟವರ ಸಂಖ್ಯೆ :  
 4) Number at the end of the month ತಿಂಗಳ ಅಂತ್ಯದಲ್ಲಿರುವ ಸಂಖ್ಯೆ :  
 ತಿಂಗಳ ಅಂತ್ಯದಲ್ಲಿರುವ ಸಂಖ್ಯೆ :  
 ತರಗತಿ ಗುರುದೇವ ಸಹಿ / Class Teacher Signature

Name of the School: \_\_\_\_\_  
 Month of: Jan 2024 to Feb 2024  
 Class: Add on course

Month of	10/1/24	11/1/24	12/1/24	13/1/24	14/1/24	15/1/24	16/1/24	17/1/24	18/1/24	19/1/24	20/1/24	21/1/24	22/1/24	23/1/24	24/1/24	25/1/24	26/1/24	27/1/24	28/1/24	29/1/24	30/1/24	31/1/24	No. of days present	Total No. of Attendance	Date of original admission to the class / promotion
12	P	P	P	P	A	P	P	P	A	A	P	P	P	P	P	P	P	P	P	P	P	P	30		
13	P	A	A	A	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30		
14	P	P	P	A	A	P	A	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	30		
15	A	P	A	P	A	A	P	A	P	A	P	P	A	P	P	A	P	P	P	P	P	P	30		
16	P	P	P	P	P	P	P	P	A	P	A	P	P	P	P	P	P	P	P	P	P	P	30		
17	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	30		
18	P	A	A	A	P	A	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30		
19	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30		
20	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30		
21	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30		
22	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30		
23	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30		
24	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30		
25	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30		
26	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30		
27	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30		
28	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30		
29	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30		
30	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30		
31	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	30		

5) No. of School working days ತಿಂಗಳಲ್ಲಿ ಶಾಲೆ ಕಾರ್ಯನಿರ್ವಹಿಸಿದ ದಿನಗಳ ಸಂಖ್ಯೆ :  
 ತಿಂಗಳಲ್ಲಿ ಶಾಲೆ ಕಾರ್ಯನಿರ್ವಹಿಸಿದ ದಿನಗಳ ಸಂಖ್ಯೆ :  
 6) Average number on the roll during the month ತಿಂಗಳಲ್ಲಿ ಪುಸ್ತಕದಲ್ಲಿರುವ ಸಂಖ್ಯೆಯ ಸರಾಸರಿ :  
 ತಿಂಗಳಲ್ಲಿ ಪುಸ್ತಕದಲ್ಲಿರುವ ಸಂಖ್ಯೆಯ ಸರಾಸರಿ :  
 7) Average attendance during the month ತಿಂಗಳಲ್ಲಿ ಸರಾಸರಿ ಹಾಜರಿ :  
 ತಿಂಗಳಲ್ಲಿ ಸರಾಸರಿ ಹಾಜರಿ :  
 8) Percentage of [6] and [7] (6) ಮತ್ತು (7)ರ ಶೇಕಡಾ ಸಂಖ್ಯೆ :  
 (6) ಮತ್ತು (7)ರ ಶೇಕಡಾ ಸಂಖ್ಯೆ :  
 ಶಾಲೆಯ ಗುರುದೇವ ಸಹಿ / Head Master Signature

Principal  
 H.S.D.  
 Dept. of State  
 L.V.D. College, BACHUR.


# Laxmi Venkatesh Desai College, Raichur

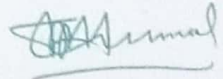
Department of Biotechnology

Report of Add on course

"Biotechnology methods and applications"

Title of add on course:	Biotechnology methods and applications
Duration:	30 days
Started on:	27/01/2021
Completed on:	03/03/2021
Name of the Faculty:	Smt Hemalatha S. A.
Total No of students admitted:	26
Total No of classes taken:	30
Total No of students benefited:	24

  
H.O.D.  
Dept. of Biotechnology  
L.V.D. College, RAICHUR.

  
PRINCIPAL  
L.V.D. College, RAICHUR-03.



Taranath Shikshana Samsthe

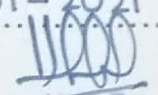
# LAXMI VENKATESH DESAI COLLEGE RAICHUR

(Re-Accredited by NAAC with 'B' Grade)

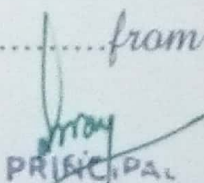
## Certificate

This is to Certify that Miss. / Mr. Mahalakshmi Patil  
of Bsc. 2020-21 has completed the Certificate Course in  
"Biotechnology methods and applications"

Conducted by the Department of Biotechnology  
27-01-2021 to 03-03-2021 from

  
H.O.D.  
Dept. of Biotechnology  
L.V.D. College, RAICHUR,  
Head of the Department



  
PRINCIPAL  
L.V.D. College RAICHUR

Principal