

LAXMI VENKATESH DESAI COLLEGE, RAICHUR-584103.



Re-Accredited by NAAC with B Grade

Department of Biotechnology Add-On Course Documents

Title: Biotechnology methods and applications Academic Year:2022-23

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

Internal Quality Asia College, RAICHUR-03, Laxmi Venkatesh Desai College, RAICHUR-03,

PRINCIPAL RAICHUR





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: 14 08 2022.

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 2022-23 The said programme is apart from the existing course curriculum.

Head of the Department

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

PRINCIPAL L.V.D. College, RAICHUR. To, The Principal LVD College, Raichur.

Date:04/08/2022

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 2022-23. The course may help the students to understand the basic concepts and 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,

Perinted

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

Thanking you,

Yours faithfully

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



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.

Office of the Principal Ph:(08532)-240286, 240707

Fax:+918532 240707

e-mail: lvdrcr@gmail.com Website: lvdcollege.org

Date: 30/08/2022

ORDER

SUB: Meeting of Board of studies.

A meeting of the following BOS constituted is hereby convened on 05/09/22 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. Kamala Navaratna, Head of the Department. Department of Microbiology. LVD College, Raichur.	Member
3.	Smt. Sabiha Zamani, Lecturer in Biotechnology, Department of Biotechnology. GFG College, Raichur.	Member

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

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



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.

Office of the Principal

Ph:(08532)-240286, 240707

Fax:+918532 240707

e-mail: lvdrcr@gmail.com Website: lvdcollege.org

Date:30/08/2022

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,

0

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.



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

Date:30/08/2022

To,
Dr. Kamala Navaratna,
Head of the Department.
Department of Microbiology.
LVD College,
Raichur.

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

PRINCIPAL

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.

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

HOD

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



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

Date:30/08/2022

To, Smt Sabiha Zamani, Lecturer in Biotechnology, Department of Biotechnology, GFG College, Raichur.

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

PRINCIPAL

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.

HOD

mus of Bratechnology V.D. Cull**ege, RAICHUR.** PRINCIPAL.

PRINCIPAL

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

Date:02/09/22

To, The Principal, LVD College, Raichur.

Respected Sir,

F

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 faithfully,

Dept. of Biotechnology L.V.D. College, RAICHUR. To, The Principal, LVD College, Raichur.

Respected Sir,

Sub: Acceptance to be Member of BOS.

With reference to the above cited subject, I Dr. Kamala Navaratna, Head of the Department, Dept of Microbiology, LVD College, Raichur have received the letter of request to be a Member of BOS, for the Add on Course to be conducted by LVD College, Raichur. I hereby accept your request as a BOS Member.

Thanking You

Yours truly,

HEAD OF THE DEPARTMENT

MICROBIOLOGY

The Principal, LVD College, Raichur.

Respected Sir,

Sub: Acceptance to be Member of BOS.

With reference to the above cited subject Myself Smt Sabiha Zamani, Lecturer in Biotechnology, Department of Biotechnology, GFG 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,

Sut. Salosha Zamani GFG C, Raichur.

Taranath Shikshana Samsthe 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 01/12/2022.

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

H.O.D.

Dept. of Biotechnology

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

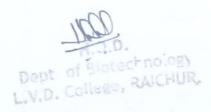
TSS Laxmi Venkatesh Desai College, Raichur Department of Biotechnology

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.



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.

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,

Unit 3. Indusrial 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

6hrs

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.

6hrs

References:

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

HOD,

Dept of Biotechnology.

H.O.D.

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

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

PRINCIPAL



LAXMI VENKATESH DESAI COLLEGE RAICHUR

Time Table with effect from DECEMBER3043Class B.S.C. Department BIDIECHIDDAYSection Time -Days 1 Sat Wed Fin Tue Sydry ULD POPE 8:30 gm 9: 30gm SEC 000 SPC. 38,0 CACO Room No. AB

Name of the Staff: Hemalatha S. A.

L.V.D. College, RAICHUB

No. Present Daily ದಿನವಹಿ ಹಾಜರಾದವರ ಸಂಖ್ಯೆ

Total No. in the Register ಪುಸ್ತಕದಲ್ಲಿರುವ ಒಟ್ಟು ಸಂಖ್ಯೆ

ಆರಂಭದಲ್ಲಿ	ಘೋಣ	ಷ್ವರು	Abstract in	n the be	ginning
	SC	ST	Minorities	Others	Total
riodo/Boys					
ಹಣ್ಣು/Girls					
ukty/Total					

1) Number at the beginning of the 3) No. left during the month Month ತಿಂಗಳ ಪ್ರಾರಂಭಲ್ಲಿದ್ದವರ ಸಂಖ್ಯೆ:

2) Admission during the month ತಿಂಗಳಿನಲ್ಲಿ ದಾಖಲಾದವರ ಸಂಖ್ಯೆ

ತಿಂಗಳಿನಲ್ಲಿ ಶಾಲೆ ಬಿಟ್ಟವರ ಸಂಖ್ಯೆ :

4) Number at the end of the month ತಿಂಗಳ ಅಂತ್ಯದಲ್ಲಿದ್ದವರ ಸಂಖ್ಯೆ :

ತರಗತಿ ಗುರುಗಳ ಸಹಿ / Class Teacher Signature

STUDENT'S ATTENDANCE REGISTER

ಮೆ।। ಪಿ. ಸಿ. ಶಾಬಾದಿಮಠ ಬುಕ್-ಡಿಪೋ, ಗದಗ

		h c	distant.	_					1	200	2		-1		. 1					Clas	s:						
50/12/2	13 8118	14 18 88 B	M 38 6 1/6 15	-	072 11/S 17	18	介で 1 19	9/01/27	NI 8 10 0 21	11 101 23 35 CM	10 ZI 23	Ex 10/21 24	日本に10141 25	26	6110	18 18 1 18 18 18 CB	19	30 10 00	31	No. of days present ಹಾದರಿದ್ದ ದಿನಗಳ ಸಂಖ್ಯೆ	Total No. of Atten-	dance from the beginning of the Academic year	ಕೈಕ್ಷಗಳ ವರ್ಷಾಗರಂಭದಿಂದ ಇಲ್ಲಿಯ ಪರಗಿಗೆ ಒಟ್ಟು ಪಾವರಿ	Date of original	admission to the	DES OF CASE CLOSED CAREER	म् तीकरमीत्र स्त क्रिक्स
-	0	0	0	0	0	D	13	P	P	P	P	p	A	0	ip	P	0	P	31	9	+	Q	76"			4.8	-
+	P	P	D	Y	K	T	D	P	D	P	P	P	D	P		P	P	0	+	Dr	+			-	-		
+				P	A	A	P	,	0	-	1	A	P	0	P	P	P	0	+	Kruh	1	-		+	-	-	
-		P	P	P	K	0	r.	P	P	P	P	P	P	P	A	P		8	1	Antown		-	_	+		-	
-	A	P	P	A	1	P	A	P	P	PP	P	P	P	P	P	p	A	P		(B)	1	-	-	+	-	-	
1	P	P	L	8	P	P	1	P	A	P	-		P			-	1	++	_	WEST TO	+			+			
4	P	P	P	A	P	A	P	P	A	-	P	P	P	P	P	P	P	P			7	-		+		-	
1	P	P	P	P	A	P	P	A	P	P	P	P	-	-	P	P	P	1		ex.	+	1		+	+	-	-
1	P	P	P	P	1	P	P	P	P	P	P	P	P	P	P	-	11	F	+	Tethe		_	-	+	-		-
2	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	A	IP	10	1	The	8			+	-		-
	P	P	P	A	P	P	P	P	P	P	P	P	P	P	A	P	1p	16	1	Dish	-4			+		_	
	A	P	P	P	p	P	P	P	A	P	P	P	A	P	P	P	10	P	-	Porne	200		4	+	-		-
	P	P	P	p	0	A	P	P	P	P	P	P	P	P	P	P	11	P		62				+	_		
2	P	A	P	A	A	P	P	P	P	A	P	P	P	A	P		P	F	1	100				+			_
0	P	P	P	P	P	P	P	p	A	A	P	P	P	P	P	P	£	10		@				+			
P	P	0	P	P	p	P	A	A	P	A	A	A	P	P	P	B	P	16		(JE)	1			1			
A	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	-	1		1				1	_		
P	P	P	P	P	P	P	P	P	A	P	P	P	P	-	P	P	P			Kent	3	. sl	Jos	0			
P	P	0	P	P	+	A	P	0	P	A	P		P	P	4	P		i		S. C.	-	1 6	Nie	0	Ju	(2)	hi
P	P	0	P	P	P	P	P	10	P	P	P	P	F	P	0		1.1	1		a de	42	1	5	0	-	,	
2	P	0	P	0	0	P	P	0	A	P	P	P	P	P	0	F	A	1	A	Same	2	4	WOH	400			
0	Δ	0	P	0	A	P	P	A	P	P	P	P			P	5	1		P	(all)			0				T.
P	P	0	P	P	6	P	P	0	P	F	P	P	P	1	10	F	P	2	D	na	2+	219	int	11	2	olo	B.
2	P	10	P	0	1	P	P	1	P	P	P	P	P			F	2	2	0	13	2			20			
	P	1	P	0	1 8		TP	10	P	A	1		-			10	-	7	A	0	2		70				
A P	P	1	D	P	10		P	0	P			1.7		-	0 4	F		0	P	1200	Lair			7	J.C	1.	
	P	A	P	1	0		1	0	A	++	+	10		-	2	1			p	Rak	-	Dei	12 0	1 0	Oto	NCF I	10
P	D	10	P	K	1	1	1	1	P	1	1	1	-	1			-	2	P	Ton	io	L.V.	12, 1	-14	-15	-	U.E.
P	F	P	1	A	-	9 6	-	1	1	1	+	1	1	1	-	1	+	+	+	11	7	1	-	-		-	
	-	+	P	-	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	17	70					-	-
_	-	+	+	+	+	+	+	+	+	+	+	+	+	-	70	N R	+	-	+	+			-			-	-
_	-	+	-	-	-	+	+	-	-	-	+	+	+	1	4		-		1			-	_			-	-
				1	1				1	1	1	1	1		PR	IN	CII	A	L	0.02						-	
•				ol w		ng c	lays	7					edfa		iogl	esg e	noh	mil	ITU,	808 3	_	-	-	-	-	-	-
- 2	360	NOC	(Q)	A WO	8-		n		80	16/0	0,00	Unite	coetal	-		-				o/Boys	SC	S1	Mir	ontie	os O	thers	T

during the month ತಿಂಗಳಿನಲ್ಲಿ ಪುಸ್ತಕದಲ್ಲಿರುವ ಸರಾವರಿ ಸಂಖ್ಯೆ:

(6) ಮತ್ತು (7)ರ ಶೇಕಡಾ ಸರಾಸರಿ : __ ಮುಖ್ಯ ಗುರುಗಳ ಸಹಿ / Head Master Signature

		SC	ST	Minorities	Others	Total							
	riodu/Boys												
	ಹಣ್ನು/Girls												
	LASS /Total												

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

(10

1

Started on: 15/12/2022

Completed on: 20/01/2023

Name of the Faculty: Smt Hemalatha S. A. And Miss Jyothi

Total No of students admitted: 27
Total No of classes taken: 30

Total No of students benefited: 22

H.O.D

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

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

to the second of the second of







aranath Shikshana Samsthe

LAXMI VENKATESH DESAI COLLEGE RAICHUR

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



This is to Certify that Miss. / Mr. Siddartha	
of B.5c 2022-23 has completed the	Certificate Course in
"Biotechnology methods and applica	rtions"
Conducted by the Department of Biolechnology	pfrom
15-12-2022 to 20-01-2023	
TOLLEG	DO WATERY
Dept. of Biotechnology Head of the Department CHU	L.V.D. College RAIL et al