



FORM

ISO 9001: 2015- KLE TECH
Department of Biotechnology

Document #: FMCD2004

Rev: 1.0

Title: Curriculum Structure-Semester wise (2015-19 batch)

Year:2015-19

KLE Technological University
II Year to IV Year Bachelor of Engineering Biotechnology
Curriculum Structure-2015-19

III Semester

No.	Course Code	Course	Category	L-T-P	Credits	Contact Hours	CIE Marks	SEE Marks	Exam Duration
1	15EMAB205	Numerical Methods and Integral Transforms	BS	4-0-0	4	4	50	50	03 Hours
2	15EBTC201	Microbiology	PC	4-0-0	4	4	50	50	03 Hours
3	15EBTC202	Biochemistry	PC	4-0-0	4	4	50	50	03 Hours
4	15EBTF201	Bioprocess Calculations	ES	4-0-0	4	4	50	50	03 Hours
5	15EBTF202	Heat and Mass Transfer	ES	3-0-0	3	3	50	50	03 Hours
6	15EBTP201	Microbiology Lab	PC	0-0-1	1	2	80	20	03 Hours
7	15EBTP202	Biochemistry Lab	PC	0-0-1	1	2	80	20	03 Hours
8	15EBTP203	Heat and Mass transfer Lab	ES	0-0-1	1	2	80	20	03 Hours
Total				19-0-3	22	25			

Theory = 05
Lab = 03

Beergand

Prasad

REGISTRAR
KLE Technological University
HOBBALI 580 031



FORM
ISO 9001: 2015- KLE TECH
 Department of Biotechnology

Document #: FMCD2004

Rev: 1.0

Title: Curriculum Structure-Semester wise (2015-19 batch)

Year:2015-19

IV Semester

S. No.	Course Code	Course	Category	L-T-P	Credits	Contact Hours	CIE Marks	SEE Marks	Exam Duration
1	15EMAB210	Biostatistics	BS	3-1-0	4	4	50	50	03 Hours
2	15EBTC203	Immunology	PC	3-0-0	3	3	50	50	03 Hours
3	15EBTC204	Enzyme Technology & Metabolism	PC	4-0-0	4	4	50	50	03 Hours
4	15EBTC205	Cell &Molecular Biology	PC	4-0-0	4	4	50	50	03 Hours
5	15EBTF203	Momentum Transfer	ES	3-0-0	3	3	50	50	03 Hours
6	15EBTP204	Enzyme Technology Lab	PC	0-0-1	1	2	80	20	03 Hours
7	15EBTP205	Cell & Molecular Biology Lab	PC	0-0-1	1	2	80	20	03 Hours
8	15EBTP206	Momentum Transfer Lab	PC	0-0-1	1	2	80	20	03 Hours
Total				17-1-3	21	24			

Theory = 05
Lab = 03

Beengend

Preed
REGISTRAR
KLE Technological University
HUBBALLI-580 031



FORM
ISO 9001: 2015- KLE TECH
 Department of Biotechnology

Document #: FMCD2004

Rev: 1.0

Title: Curriculum Structure-Semester wise (2015-19 batch)

Year:2015-19

V Semester

S.No	Course Code	Course Name	Mode	Theory	Practical	Credits	Theory Marks	Practical Marks	Total Marks
1	15EBTC301	Genetic Engineering & Applications	PC	4-0-0		4	4	50	50
2	15EBTC302	Bioinformatics	PC	3-0-0		3	3	50	50
3	15EBTC303	Reaction Engineering	PC	4-0-0		4	4	50	50
4	15EBTC304	Biological Thermodynamics	PC	3-0-0		3	3	50	50
5	15EBTC305	Research Methodology	PC	3-0-0		3	3	50	50
6	15EBTW301	Mini Project	PW	0-0-3		3	9	50	50
7	15EBTP301	Genetic Engineering & Immunotechnology Lab	PC	0-0-1		1	2	80	20
8	15EBTP302	Bioinformatics Lab	PC	0-0-1		1	2	80	20
Total				17-0-5		22	30		

Theory = 05

Lab = 02

Mini Project = 01

Beengal

Pand
 REGISTRAR
 KLE Technological University
 HUBBALLI-580 031



FORM
ISO 9001: 2015- KLE TECH
 Department of Biotechnology

Document #: FMCD2004

Rev: 1.0

Year:2015-19

Title: Curriculum Structure-Semester wise (2015-19 batch)

VI Semester

No.	Course Code	Course Name	Prereq.	Th	L	T	Th	SE	Th
1	15EBTC306	Bioprocess Engineering	PC	4-0-0	4	4	50	50	03 Hours
2	15EBTC307	Bioprocess Control & Automation	PC	3-0.5-0	3.5	4	50	50	03 Hours
3	15EBTC308	Bioanalytical Techniques	PC	3-0-0	3	3	50	50	03 Hours
4	XXEBTE3XX	Programme Elective - 01	EC	3-0-0	3	3	50	50	03 Hours
5	15EHSC301	Humanities – 01 (PALR)	HSC	3-0-0	3	3	50	50	03 Hours
6	15EBTW302	Minor Project	PW	0-0-6	6	18	50	50	03 Hours
7	15EBTP303	Bioprocess Engineering Lab	PC	0-0-1.5	1.5	3	80	20	03 Hours
8	15EBTP304	Bioprocess Control & Reaction Engineering Lab	PC	0-0-1	1	2	80	20	03 Hours
Total				16-0.5-8.5	25	40			

For VI Sem	Programme Electives	
	Vertical I (BPE)	Vertical-II (MBT)
	15EBTE301 Environmental Biotechnology	15EBTE302 Insilico Modeling and Drug Design

Theory = 05 Lab = 02 Minor Project =01

Beengend

Qued
REGISTRAR
 KLE Technological University
 HUBBALLI-580 031



FORM
ISO 9001: 2015- KLE TECH
 Department of Biotechnology

Document #: FMCD2004

Rev: 1.0

Year:2015-19

Title: Curriculum Structure-Semester wise (2015-19 batch)

VII Semester

No.	Course Code	Course Name	Prerequisites	Credits	Theory	Practical	Theory Hrs	Practical Hrs	Total Hrs
1	15EBTC401	Downstream Processing Technology	PC	3-0-0	3	3	50	50	03 Hours
2	15EBTC402	Bioprocess Equipment Design	PC	3-0-0	3	3	50	50	03 Hours
3	XXEBTE4XX	Programme Elective - 02	EC	3-0-0	3	3	50	50	03 Hours
4	XXEBTE4XX	Programme Elective - 03	EC	3-0-0	3	3	50	50	03 Hours
5	XXEBTE4XX	Programme Elective - 04	EC	3-0-0	3	3	50	50	03 Hours
6	XXEBTE4XX	Programme Elective - 05	EC	3-0-0	3	3	50	50	03 Hours
7	15EBTO402	Open Elective - 01	OE	3-0-0	3	3	50	50	03 Hours
8	15EHSA401	Humanities - 02 (CIPE & EVS)	HSA	Audit					
9	15EBTP401	Downstream Processing Technology Lab	PC	0-0-1	1	2	80	20	03 Hours
Total				21-0-1	22	23			

For VII Sem		Programme Electives	
Vertical I (BPE)		Vertical-II (MBT)	
15EBTE401	Industrial Biotechnology	15EBTE403	Plant and Animal Biotechnology
15EBTE402	Food Processing Technology	15EBTE404	Biopharmaceuticals
15EBTE406	Bioprocess Plant Design and Economics	15EBTE405	Genomics and Proteomics
18EBTE401	Bioprocess Modeling and simulation	18EBTE403	Quality Assurance and regulations

SL. No.	Course Code	Open Elective - 1
1	15EBTO402	Introductory Bioinformatics

Theory = 08 [7+ 1 CIPE & EVS (Audit)]

Lab = 01

Beegum

Beegum
REGISTRAR
 KLE Technological University
 HUBBALLI-580 031



FORM

ISO 9001: 2015- KLE TECH
Department of Biotechnology

Document #: FMCD2004

Rev: 1.0

Title: Curriculum Structure-Semester wise (2015-19 batch)

Year:2015-19

VIII Semester

No	Course Code	Course Name	EC	OE	PW	TH	TE	TA	Hours
1	XXEBTE4XX	Programme Elective -06	EC	3-0-0	3	3	50	50	03 Hours
2	15EBTO402	Open Elective - 02	OE	3-0-0	3	3	50	50	03 Hours
3	15EBTW402	Project Work	PW	0-0-14	14	42	50	50	03 Hours
Total				06-0-14	20	48			


For VIII Sem		Programme Electives	
Vertical I (BPE)		Vertical-II (MBT)	
18EBTE402	Biological Data Analysis	17EBTE401	NanoBiotechnology

Open Elective - 2	
Sl. No.	Course Code
1	15EBTO402
Introductory Bioinformatics	

Theory = 02 Project Work =01

Beengard

Pooja
REGISTRAR
 KLE Technological University
 HUBBALLI-580 031

	FORM ISO 9001: 2015- KLE TECH Department of Biotechnology	Document #: FMCD2004	Rev: 1.0
	Title: Curriculum Structure-Semester wise (2016-20 batch)		Year: 2016 - 20

KLE Technological University
II Year to IV Year Bachelor of Engineering Biotechnology
Curriculum Structure-2016-20

III Semester

No.	Course Code	Course	Category	L-T-P	Credits	Contact Hours	CIE Marks	SEE Marks	Exam Duration
1	15EMAB205	Numerical Methods and Integral Transforms	BS	4-0-0	4	4	50	50	03 Hours
2	15EBTC201	Microbiology	PC	4-0-0	4	4	50	50	03 Hours
3	15EBTC202	Biochemistry	PC	4-0-0	4	4	50	50	03 Hours
4	15EBTF201	Bioprocess Calculations	ES	4-0-0	4	4	50	50	03 Hours
5	17EBTF201	Unit Operations-I	ES	3-0-0	3	3	50	50	03 Hours
6	15EBTP201	Microbiology Lab	PC	0-0-1	1	2	80	20	03 Hours
7	15EBTP202	Biochemistry Lab	PC	0-0-1	1	2	80	20	03 Hours
8	17EBTP201	Unit Operations-I Lab	ES	0-0-1	1	2	80	20	03 Hours
Total				19-0-3	22	25			

Theory = 05
 Lab = 03

Beenged


REGISTRAR
 KLE Technological University
 HUBBALLI-580 031



FORM
ISO 9001: 2015- KLE TECH
Department of Biotechnology

Document #: FMCD2004

Rev: 1.0

Title: Curriculum Structure-Semester wise (2016-20 batch)

Year: 2016 - 20

IV Semester

S. No.	Course Code	Course	Category	L-T-P	Credits	Contact Hours	CIE Marks	SEE Marks	Exam Duration
1	15EMAB210	Biostatistics	BS	3-1-0	4	4	50	50	03 Hours
2	15EBTC203	Immunology	PC	3-0-0	3	3	50	50	03 Hours
3	17EBTC201	Enzyme Technology	PC	4-0-0	4	4	50	50	03 Hours
4	15EBTC205	Cell &Molecular Biology	PC	4-0-0	4	4	50	50	03 Hours
5	17EBTF202	Unit Operations-II	ES	3-0-0	3	3	50	50	03 Hours
6	15EBTP204	Enzyme Technology Lab	PC	0-0-1	1	2	80	20	03 Hours
7	15EBTP205	Cell & Molecular Biology Lab	PC	0-0-1	1	2	80	20	03 Hours
8	17EBTP202	Unit Operations-II Lab	PC	0-0-1	1	2	80	20	03 Hours
Total				17-1-3	21	24			

Theory = 05
Lab = 03

Beeryard

Quid
REGISTRAR
KLE Technological University
HUBBALLI-580 031



FORM
 ISO 9001: 2015- KLE TECH
 Department of Biotechnology

Document #: FMCD2004

Rev: 1.0

Title: Curriculum Structure-Semester wise (2016-20 batch)

Year: 2016 - 20

V Semester

N. No.	Course Code	Course	Category	L-T-P	Credits	Contact Hours	CIE Marks	SEE Marks	Exam Duration
1	15EBTC301	Genetic Engineering & Applications	PC	4-0-0	4	4	50	50	03 Hours
2	15EBTC302	Bioinformatics	PC	3-0-0	3	3	50	50	03 Hours
3	15EBTC303	Reaction Engineering	PC	4-0-0	4	4	50	50	03 Hours
4	15EBTC304	Biological Thermodynamics	PC	3-0-0	3	3	50	50	03 Hours
5	15EBTC305	Research Methodology	PC	3-0-0	3	3	50	50	03 Hours
6	15EBTW301	Mini Project	PW	0-0-3	3	3	50	50	03 Hours
7	15EBTP301	Genetic Engineering & Immunotechnology Lab	PC	0-0-1	1	2	80	20	03 Hours
8	15EBTP302	Bioinformatics Lab	PC	0-0-1	1	2	80	20	03 Hours
Total				17-0-5	22	24			

Theory = 05
 Lab = 02
 Mini Project = 01

Beengund

Purw
 REGISTRAR
 KLE Technological University
 HUBBALLI-580 031

**FORM**ISO 9001: 2015- KLE TECH
Department of Biotechnology

Document #: FMCD2004

Rev: 1.0

Title: Curriculum Structure-Semester wise (2016-20 batch)

Year: 2016 - 20

VI Semester

No.	Course Code	Course	Category	L-T-P	Credits	Contact Hours	CIE Marks	SEE Marks	Exam Duration
1	15EBTC306	Bioprocess Engineering	PC	4-0-0	4	4	50	50	03 Hours
2	15EBTC307	Bioprocess Control & Automation	PC	3-0.5-0	3.5	4	50	50	03 Hours
3	15EBTC308	Bioanalytical Techniques	PC	3-0-0	3	3	50	50	03 Hours
4	XXEBTE3XX	Programme Elective - 01	EC	3-0-0	3	3	50	50	03 Hours
5	15EHSC301	Humanities – 01 (PALR)	HSC	3-0-0	3	3	50	50	03 Hours
6	15EBTW302	Minor Project	PW	0-0-6	6	18	50	50	03 Hours
7	15EBTP303	Bioprocess Engineering Lab	PC	0-0-1.5	1.5	3	80	20	03 Hours
8	15EBTP304	Bioprocess Control & Reaction Engineering Lab	PC	0-0-1	1	2	80	20	03 Hours
Total				16-0.5-8.5	25	40			

For VI Sem

Programme Electives

Vertical I (BPE)	Vertical-II (MBT)
18EBTE301 Bioprocess Plant Design and Economics	15EBTE302 Insilico Modeling and Drug Design

Theory = 05 Lab = 02 Minor Project = 01

Beengard

Paul
 REGISTRAR
 KLE Technological University
 HUBBALLI-590 031



FORM

ISO 9001: 2015- KLE TECH
Department of Biotechnology

Document #: FMCD2004

Rev: 1.0

Title: Curriculum Structure-Semester wise (2016-20 batch)

Year: 2016 - 20

VII Semester

No.	Course Code	Course	Category	L-T-P	Credits	Contact Hours	CIE Marks	SEE Marks	Exam Duration
1	15EBTC401	Downstream Processing Technology	PC	3-0-0	3	3	50	50	03 Hours
2	15EBTC402	Bioprocess Equipment Design	PC	3-0-0	3	3	50	50	03 Hours
3	XXEBTE4XX	Programme Elective - 02	EC	3-0-0	3	3	50	50	03 Hours
4	XXEBTE4XX	Programme Elective - 03	EC	3-0-0	3	3	50	50	03 Hours
5	XXEBTE4XX	Programme Elective - 04	EC	3-0-0	3	3	50	50	03 Hours
6	XXEBTE4XX	Programme Elective - 05	EC	3-0-0	3	3	50	50	03 Hours
7	15EBTO402	Open Elective - 01	OE	3-0-0	3	3			
8	15EHSA401	Humanities - 02 (CIPE & EVS)	HSA	Audit			80	20	03 Hours
9	15EBTP401	Downstream Processing Technology Lab	PC	0-0-1	1	2			
				Total	21-0-1	22	23		

For VII Sem		Programme Electives		Vertical-II (MBT)	
		Vertical I (BPE)			
15EBTE401	Industrial Biotechnology	15EBTE403	Plant and Animal Biotechnology	15EBTE404	Biopharmaceuticals
15EBTE402	Food Processing Technology	15EBTE405	Genomics and Proteomics	18EBTE403	Quality Assurance and regulations
18EBTE404	Environmental Biotechnology				
18EBTE401	Bioprocess Modeling and simulation				

SL No.	Course Code	Open Elective - 1
1	15EBTO402	Introductory Bioinformatics

Theory = 08 [7+ 1 CIPE & EVS (Audit)]

Lab = 01

Beengard

Govind
REGISTRAR
KLE Technological University
HUBBALLI

**FORM**

ISO 9001: 2015- KLE TECH

Department of Biotechnology

Document #: FMCD2004

Rev: 1.0

Title: Curriculum Structure-Semester wise (2016-20 batch)

Year: 2016 - 20

VIII Semester

No.	Course Code	Course	Category	L-T-P	Credits	Contact Hours	CIE Marks	SEE Marks	Exam Duration
1	XXEBTE4XX	Programme Elective -06	EC	3-0-0	3	3	50	50	03 Hours
2	19EBTO401	Open Elective - 02	OE	3-0-0	3	3	50	50	03 Hours
3	15EBTW402	Project Work	PW	0-0-14	14	42	50	50	03 Hours
Total				06-0-14	20	48			

For VIII Sem		Programme Electives	
		Vertical I (BPE)	Vertical-II (MBT)
		18EBTE402 Biological Data Analysis	17EBTE401 NanoBiotechnology

		Open Elective - 2
Sl. No.	Course Code	Industrial Waste Management
1	19EBTO401	

Theory = 02 Project Work = 01

Beengund

Prud
REGISTRAR
 KLE Technological University
 BELLARU-560 031

**FORM**ISO 9001: 2015- KLE TECH
Department of Biotechnology

Document #: FMCD2004

Rev: 1.0

Title: Curriculum Structure-Semester wise (2017-21 batch)

Year: 2017 - 21

**KLE Technological University
II Year to IV Year Bachelor of Engineering Biotechnology
Curriculum Structure-2017-21****III Semester**

No.	Course Code	Course	Category	L-T-P	Credits	Contact Hours	ISA Marks	ESA Marks	Exam Duration
1	15EMAB205	Numerical Methods and Integral Transforms	BS	4-0-0	4	4	50	50	03 Hours
2	15EBTC201	Microbiology	PC	4-0-0	4	4	50	50	03 Hours
3	15EBTC202	Biochemistry	PC	4-0-0	4	4	50	50	03 Hours
4	15EBTF201	Bioprocess Calculations	ES	4-0-0	4	4	50	50	03 Hours
5	17EBTF201	Unit Operations-I	ES	3-0-0	3	3	50	50	03 Hours
6	15EBTP201	Microbiology Lab	PC	0-0-1	1	2	80	20	03 Hours
7	15EBTP202	Biochemistry Lab	PC	0-0-1	1	2	80	20	03 Hours
8	17EBTP201	Unit Operations-I Lab	ES	0-0-1	1	2	80	20	03 Hours
Total				19-0-3	22	25			

Theory = 05
Lab = 03*Beengund*
REGISTRAR
KLE Technological University
HUBBALLI-580 031



FORM
ISO 9001: 2015- KLE TECH
Department of Biotechnology

Document #: FMCD2004

Rev: 1.0

Title: Curriculum Structure-Semester wise (2017-21 batch)

Year: 2017 - 21

IV Semester

S. No.	Course Code	Course	Category	L-T-P	Credits	Contact Hours	ISA Marks	ESA Marks	Exam Duration
1	15EMAB210	Biostatistics	BS	3-1-0	4	4	50	50	03 Hours
2	15EBTC203	Immunology	PC	3-0-0	3	3	50	50	03 Hours
3	17EBTC201	Enzyme Technology	PC	4-0-0	4	4	50	50	03 Hours
4	15EBTC205	Cell &Molecular Biology	PC	4-0-0	4	4	50	50	03 Hours
5	17EBTF202	Unit Operations-II	ES	3-0-0	3	3	50	50	03 Hours
6	15EBTP204	Enzyme Technology Lab	PC	0-0-1	1	2	80	20	03 Hours
7	15EBTP205	Cell & Molecular Biology Lab	PC	0-0-1	1	2	80	20	03 Hours
8	17EBTP202	Unit Operations-II Lab	PC	0-0-1	1	2	80	20	03 Hours
Total				17-1-3	21	24			

Theory = 05
Lab = 03

Beengard

Qued
REGISTRAR
KLE Technological University
HUBBALLI-580 031



FORM
ISO 9001: 2015- KLE TECH
 Department of Biotechnology

Document #: FMCD2004

Rev: 1.0

Title: Curriculum Structure-Semester wise (2017-21 batch)

Year: 2017 - 21

V Semester

Sr No	Course Code	Course Name	Mode	Theory	Practical	Credits	Exam	Lab	Project
1	15EBTC301	Genetic Engineering & Applications	PC	4-0-0	4	4	50	50	03 Hours
2	19EBTC301	Bioinformatics	PC	4-0-0	4	4	50	50	03 Hours
3	15EBTC303	Reaction Engineering	PC	4-0-0	4	4	50	50	03 Hours
4	15EBTC304	Biological Thermodynamics	PC	3-0-0	3	3	50	50	03 Hours
5	15EBTC305	Research Methodology	PC	3-0-0	3	3	50	50	03 Hours
6	15EBTW301	Mini Project	PW	0-0-3	3	3	50	50	03 Hours
7	15EBTP301	Genetic Engineering & Immunotechnology Lab	PC	0-0-1	1	2	80	20	03 Hours
8	15EBTP302	Bioinformatics Lab	PC	0-0-1	1	2	80	20	03 Hours
Total				18-0-5	23	25			

Theory = 05
 Lab = 02
 Mini Project = 01

Beengund

Quir
 REGISTRAR
 KLE Technological University
 HUBBALLI-580 031



FORM
ISO 9001: 2015- KLE TECH
 Department of Biotechnology

Document #: FMCD2004

Rev: 1.0

Title: Curriculum Structure-Semester wise (2017-21 batch)

Year: 2017 - 21

VI Semester

No.	Course Code	Course Name	Category	Credits	Th	Pr	SA	TA	Hours
1	15EBTC306	Bioprocess Engineering	PC	4-0-0	4	4	50	50	03 Hours
2	19EBTC302	Bioprocess Control & Automation	PC	4-0-0	4	4	50	50	03 Hours
3	XXEBTE3XX	Programme Elective - 01	EC	3-0-0	3	3	50	50	03 Hours
4	XXEBTE3XX	Programme Elective - 02	EC	3-0-0	3	3	50	50	03 Hours
5	16EHSC301	Humanities – 01 (PALR)	HSC	3-0-0	3	3	50	50	03 Hours
6	15EBTW302	Minor Project	PW	0-0-6	6	18	50	50	03 Hours
7	15EBTP303	Bioprocess Engineering Lab	PC	0-0-1.5	1.5	3	80	20	03 Hours
8	19EBTP301	Bioprocess Control & Reaction Engineering Lab	PC	0-0-1.5	1.5	3	80	20	03 Hours
Total				17-0-9	26	41			

For VI Sem		Programme Electives	
Vertical I (BPE)		Vertical-II (MBT)	
18EBTE301	Bioprocess Plant Design and Economics	15EBTE302	Insilico Modeling and Drug Design
18EBTE401	Bioprocess Modeling and simulation	19EBTE301	Bioanalytical Techniques

Theory = 05 Lab = 02 Minor Project = 01

Bengard

Prud
REGISTRAR
 KLE Technological University
 HUBBALLI-560 031

**FORM**

ISO 9001: 2015- KLE TECH
Department of Biotechnology

Document #: FMCD2004

Rev: 1.0

Title: Curriculum Structure-Semester wise (2017-21 batch)

Year: 2017 - 21

VII Semester

No.	Course Code	Course Name	Mode	Cr	Th	Tu	Pr	Cr	Hours
1	19EBTC401	Downstream Processing Technology	PC	4-0-0	4	4	50	50	03 Hours
2	15EBTC402	Bioprocess Equipment Design	PC	3-0-0	3	3	50	50	03 Hours
3	XXEBTE4XX	Programme Elective - 03	EC	3-0-0	3	3	50	50	03 Hours
4	XXEBTE4XX	Programme Elective - 04	EC	3-0-0	3	3	50	50	03 Hours
5	XXEBTE4XX	Programme Elective - 05	EC	3-0-0	3	3	50	50	03 Hours
6	15EHSA401	Humanities – 02 (CIPE & EVS)	HSA	Audit					
7	20EBTW401	Project work	PW	0-0-6	6	18	50	50	03 Hours
8	15EBTP401	Downstream Processing Technology Lab	PC	0-0-1	1	2	80	20	03 Hours
Total				16-0-7	23	36			

For VII Sem		Programme Electives	
Vertical I (BPE)		Vertical-II (MBT)	
20EBTE401	Industrial Biotechnology	15EBTE403	Plant and Animal Biotechnology
15EBTE402	Food Processing Technology	15EBTE404	Biopharmaceuticals
18EBTE404	Environmental Biotechnology	15EBTE405	Genomics and Proteomics
18EBTE403	Quality Assurance and regulations	19EBTE401	Bioethics, safety and IPR

Theory = 06 [5+ 1 CIPE & EVS (Audit)]

Beengent

Lab = 01 Project work = 01

Guin
REGISTRAR
KLE Technological University
MUNDEGALI-580 031



FORM
ISO 9001: 2015- KLE TECH
 Department of Biotechnology

Document #: FMCD2004

Rev: 1.0

Title: Curriculum Structure-Semester wise (2017-21 batch)

Year: 2017 - 21

VIII Semester

No.	Course Code	Course Name	Category	L:T:P	Credits	Credits Hours	ISA	MBT	Total
1	XXEBTE4XX	Programme Elective -06	EC	3-0-0	3	3	50	50	03 Hours
2	19EBTO401	Open Elective	OE	3-0-0	3	3	50	50	03 Hours
3	20EBTW402	Project Work	PW	0-0-11	11	33	50	50	03 Hours
Total				6-0-11	17	39			

For VIII Sem		Programme Electives	
Vertical I (BPE)		Vertical-II (MBT)	
18EBTE402	Biological Data Analysis	20EBTE402	Bio-business and entrepreneurship

Sl. No.	Course Code	Open Elective
1	19EBTO401	Industrial waste management

Theory = 01 Project Work =01

Beengard

Queen
 REGISTRAR
 KLE Technological University
 HUBBALLI-580 031



FORM
ISO 9001: 2015- KLE TECH
Department of Biotechnology

Document #: FMCD2004

Rev: 1.0

Title: Curriculum Structure-Semester wise (2018-22 batch)

Year: 2018 - 22

NOTE: There is NO SIGNIFICANT CHANGES in the Curriculum.

**KLE Technological University
II Year to IV Year Bachelor of Engineering Biotechnology
Curriculum Structure-2018-22**

III Semester

No.	Course Code	Course	Category	L-T-P	Credits	Contact Hours	ISA Marks	ESA Marks	Exam Duration
1	15EMAB205	Numerical Methods and Integral Transforms	BS	4-0-0	4	4	50	50	03 Hours
2	15EBTC201	Microbiology	PC	4-0-0	4	4	50	50	03 Hours
3	15EBTC202	Biochemistry	PC	4-0-0	4	4	50	50	03 Hours
4	15EBTF201	Bioprocess Calculations	ES	4-0-0	4	4	50	50	03 Hours
5	17EBTF201	Unit Operations-I	ES	3-0-0	3	3	50	50	03 Hours
6	15EBTP201	Microbiology Lab	PC	0-0-1	1	2	80	20	03 Hours
7	15EBTP202	Biochemistry Lab	PC	0-0-1	1	2	80	20	03 Hours
8	17EBTP201	Unit Operations-I Lab	ES	0-0-1	1	2	80	20	03 Hours
Total				19-0-3	22	25			

Theory = 05
Lab = 03

Beengard

Prasad
REGISTRAR
KLE Technological University
HUBBALLI-590 031



FORM
ISO 9001: 2015- KLE TECH
Department of Biotechnology

Document #: FMCD2004

Rev: 1.0

Title: Curriculum Structure-Semester wise (2018-22 batch)

Year: 2018 - 22

IV Semester

S. No.	Course Code	Course	Category	L-T-P	Credits	Contact Hours	ISA Marks	ESA Marks	Exam Duration
1	15EMAB210	Biostatistics	BS	3-1-0	4	4	50	50	03 Hours
2	15EBTC203	Immunology	PC	3-0-0	3	3	50	50	03 Hours
3	17EBTC201	Enzyme Technology	PC	4-0-0	4	4	50	50	03 Hours
4	15EBTC205	Cell &Molecular Biology	PC	4-0-0	4	4	50	50	03 Hours
5	17EBTF202	Unit Operations-II	ES	3-0-0	3	3	50	50	03 Hours
6	15EBTP204	Enzyme Technology Lab	PC	0-0-1	1	2	80	20	03 Hours
7	15EBTP205	Cell & Molecular Biology Lab	PC	0-0-1	1	2	80	20	03 Hours
8	17EBTP202	Unit Operations-II Lab	PC	0-0-1	1	2	80	20	03 Hours
Total				17-1-3	21	24			

Theory = 05
Lab = 03

Signature

Signature
REGISTRAR
KLE Technological University
HUBBALLI-580 031



FORM
 ISO 9001: 2015- KLE TECH
 Department of Biotechnology

Document #: FMCD2004

Rev: 1.0

Title: Curriculum Structure-Semester wise (2018-22 batch)

Year: 2018 - 22

V Semester

1	15BVTCA01	Genetic Engineering & Applications	PC	4-0-0	4	4	50	50	03 Hours
2	19BVTCA01	Bioinformatics	PC	4-0-0	4	4	50	50	03 Hours
3	15EBTC303	Reaction Engineering	PC	4-0-0	4	4	50	50	03 Hours
4	15EBTC304	Biological Thermodynamics	PC	3-0-0	3	3	50	50	03 Hours
5	15EBTC305	Research Methodology	PC	3-0-0	3	3	50	50	03 Hours
6	15EBTW301	Mini Project	PW	0-0-3	3	3	50	50	03 Hours
7	15EBTP301	Genetic Engineering & Immunotechnology Lab	PC	0-0-1	1	2	80	20	03 Hours
8	15EBTP302	Bioinformatics Lab	PC	0-0-1	1	2	80	20	03 Hours
Total				18-0-5	23	25			

Theory = 05
 Lab = 02
 Mini Project = 01

Beengal

Beengal
 REGISTRAR
 KLE Technological University
 HUBBALLI-589 031



FORM
ISO 9001: 2015-KLE TECH
Department of Biotechnology

Document # BWT/03/0018

Rev: 1.0

Title: Curriculum Structure - Semester wise (2018-22 batch)

Year: 2018 - 22

VI Semester

S.No	Course Code	Course Name	Category	Credits	Theory	Lab	Practical	Project	Hours
1	15EETC306	Bioprocess Engineering	PC	4.0-0	1	1	20	20	03 Hours
2	19EETC302	Bioprocess Control & Automation	PC	4.0-0	1	1	20	20	03 Hours
3	XXEETC1XX	Programme Elective - 01	EC	3.0-0	3	3	30	30	03 Hours
4	XXEETC1XX	Programme Elective - 02	EC	3.0-0	3	3	30	30	03 Hours
5	16EETC301	Humanities - 01 (PAIR)	HSE	3.0-0	3	3	30	30	03 Hours
6	15EETW302	Minor Project	PW	0.0-6	6	18	30	30	03 Hours
7	15EETP303	Bioprocess Engineering Lab	PC	0.0-1.5	1.5	3	30	20	03 Hours
8	19EETP301	Bioprocess Control & Reaction Engineering Lab	PC	0.0-1.5	1.5	3	30	20	03 Hours
				Total	17.0-9	26	41		

For VI Sem		Programme Electives	
Vertical-I (BEE)		Vertical-II (MRD)	
18EETC301	Bioprocess Plant Design and Economics	15EETC302	Insilico Modeling and Drug Design
18EETC401	Bioprocess Modeling and simulation	19EETC301	Bioanalytical Techniques


Theory - 05

Lab - 02

Minor Project -01

Manager

Registrar
REGISTRAR
KLE Technological University
HUBBALLI - 586 191

	FORM ISO 9001: 2015- KLE TECH Department of Biotechnology	Document #: FMCD2004	Rev: 1.0
	Title: Curriculum Structure-Semester wise (2018-22 batch)		Year: 2018 - 22

VII Semester

No.	Course Code	Course Name	Prerequisites	Credits	Theory	Practical	Theory Marks	Practical Marks	Total Marks
1	19EBTC401	Downstream Processing Technology	PC	4-0-0	4	4	50	50	03 Hours
2	15EBTC402	Bioprocess Equipment Design	PC	3-0-0	3	3	50	50	03 Hours
3	XXEBTE4XX	Programme Elective - 03	EC	3-0-0	3	3	50	50	03 Hours
4	XXEBTE4XX	Programme Elective - 04	EC	3-0-0	3	3	50	50	03 Hours
5	XXEBTE4XX	Programme Elective - 05	EC	3-0-0	3	3	50	50	03 Hours
6	15EHSA401	Humanities – 02 (CIPE & EVS)	HSA	<i>Audit</i>					
7	20EBTW401	Project work	PW	0-0-6	6	18	50	50	03 Hours
8	15EBTP401	Downstream Processing Technology Lab	PC	0-0-1	1	2	80	20	03 Hours
Total				16-0-7	23	36			

For VII Sem		Programme Electives	
Vertical I (BPE)		Vertical-II (MBT)	
20EBTE401	Industrial Biotechnology	15EBTE403	Plant and Animal Biotechnology
15EBTE402	Food Processing Technology	15EBTE404	Biopharmaceuticals
18EBTE404	Environmental Biotechnology	15EBTE405	Genomics and Proteomics
18EBTE403	Quality Assurance and regulations	19EBTE401	Bioethics, safety and IPR

Theory = 06 [5+ 1 CIPE & EVS (Audit)]

Lab = 01 Project work = 01

Beungeend

Prasad
 REGISTRAR
 KLE Technological University
 HUBBALLI-560 031



FORM

ISO 9001: 2015- KLE TECH
Department of Biotechnology

Document #: FMCD2004

Rev: 1.0

Title: Curriculum Structure-Semester wise (2018-22 batch)

Year: 2018 - 22

VIII Semester

No.	Course Code	Course Name	Category	Theory	Practical	Credits	Contact Hour	ISA	MBT	Hours
1	XXEBTE4XX	Programme Elective -06	EC	3-0-0		3	3	50	50	03 Hours
2	19EBTO401	Open Elective	OE	3-0-0		3	3	50	50	03 Hours
3	20EBTW402	Project Work	PW	0-0-11		11	33	50	50	03 Hours
Total				6-0-11		17	39			

For VIII Sem

Programme Electives

Vertical I (BPE)

18EBTE402 Biological Data Analysis

Vertical-II (MBT)

20EBTE402 Bio-business and entrepreneurship

Sl. No.

Course Code

Open Elective

1


19EBTO401

Industrial waste management

Theory = 01 Project Work =01

Beengend

Green
REGISTRAR
KLE Technological University
HUBBALLI-580 031

	FORM ISO 9001: 2015- KLE TECH Department of Biotechnology	Document #: FMCD2004	Rev: 1.0
	Title: Curriculum Structure-Semester wise (2019-23 batch)		Year: 2019 - 23

KLE Technological University
II Year to IV Year Bachelor of Engineering Biotechnology
Curriculum Structure-2019-23

III Semester

No.	Course Code	Course	Category	L-T-P	Credits	Contact Hours	ISA Marks	ESA Marks	Exam Duration
1	20EMAB205	Numerical Methods and Differential Equations	BS	4-0-0	4	4	50	50	03 Hours
2	15EBTC201	Microbiology	PC	4-0-0	4	4	50	50	03 Hours
3	15EBTC202	Biochemistry	PC	4-0-0	4	4	50	50	03 Hours
4	15EBTF201	Bioprocess Calculations	ES	4-0-0	4	4	50	50	03 Hours
5	17EBTF201	Unit Operations-I	ES	3-0-0	3	3	50	50	03 Hours
6	15EBTP201	Microbiology Lab	PC	0-0-1	1	2	80	20	03 Hours
7	15EBTP202	Biochemistry Lab	PC	0-0-1	1	2	80	20	03 Hours
8	17EBTP201	Unit Operations-I Lab	ES	0-0-1	1	2	80	20	03 Hours
Total				19-0-3	22	25			

Theory = 05
 Lab = 03

Bhargava


 REGISTRAR
 KLE Technological University
 HUBBALLI-580 031

**FORM**

ISO 9001: 2015- KLE TECH

Department of Biotechnology

Document #: FMCD2004

Rev: 1.0

Title: Curriculum Structure-Semester wise (2019-23 batch)

Year: 2019 - 23

IV Semester

S. No.	Course Code	Course	Category	L-T-P	Credits	Contact Hours	ISA Marks	ESA Marks	Exam Duration
1	20FMAB210	Biostatistics	BS	3-1-0	4	4	50	50	03 Hours
2	15EBTC203	Immunology	PC	3-0-0	3	3	50	50	03 Hours
3	17EBTC201	Enzyme Technology	PC	4-0-0	4	4	50	50	03 Hours
4	15EBTC205	Cell & Molecular Biology	PC	4-0-0	4	4	50	50	03 Hours
5	17EBTF202	Unit Operations-II	ES	3-0-0	3	3	50	50	03 Hours
6	15EBTP204	Enzyme Technology Lab	PC	0-0-1	1	2	80	20	03 Hours
7	15EBTP205	Cell & Molecular Biology Lab	PC	0-0-1	1	2	80	20	03 Hours
8	17EBTP202	Unit Operations-II Lab	PC	0-0-1	1	2	80	20	03 Hours
Total				17-1-3	21	24			

Theory = 05

Lab = 03

Blumgard

Prud
REGISTRAR
KLE Technological University
HOSUR HALLI-580 031



FORM
ISO 9001: 2015- KLE TECH
 Department of Biotechnology

Document #: FMCD2004

Rev: 1.0

Title: Curriculum Structure-Semester wise (2019-23 batch)

Year: 2019 - 23

V Semester

1	15EBTC301	Genetic Engineering & Applications	PC	4-0-0	4	4	50	50	03 Hours
2	19EBTC301	Bioinformatics	PC	4-0-0	4	4	50	50	03 Hours
3	15EBTC303	Reaction Engineering	PC	4-0-0	4	4	50	50	03 Hours
4	15EBTC304	Biological Thermodynamics	PC	3-0-0	3	3	50	50	03 Hours
5	15EBTC305	Research Methodology	PC	3-0-0	3	3	50	50	03 Hours
6	15EBTW301	Mini Project	PW	0-0-3	3	3	50	50	03 Hours
7	15EBTP301	Genetic Engineering & Immunotechnology Lab	PC	0-0-1	1	2	80	20	03 Hours
8	15EBTP302	Bioinformatics Lab	PC	0-0-1	1	2	80	20	03 Hours
Total				18-0-5	23	25			


Theory = 05

Lab = 02

Mini Project =01

Beengard

Beengard
 REGISTRAR
 KLE Technological University
 HIRBALLI-580 031

	FORM ISO 9001: 2015- KLE TECH Department of Biotechnology	Document #: FMCD2004	Rev: 1.0
	Title: Curriculum Structure-Semester wise (2019-23 batch)		

VI Semester

VI Semester									
1	15EBTC306	Bioprocess Engineering	PC	4-0-0	4	4	50	50	03 Hours
2	19EBTC302	Bioprocess Control & Automation	PC	4-0-0	4	4	50	50	03 Hours
3	XXEBTE3XX	Programme Elective - 01	EC	3-0-0	3	3	50	50	03 Hours
4	XXEBTE3XX	Programme Elective - 02	EC	3-0-0	3	3	50	50	03 Hours
5	16EHSC301	Humanities – 01 (PALR)	HSC	3-0-0	3	3	50	50	03 Hours
6	15EBTW302	Minor Project	PW	0-0-6	6	18	50	50	03 Hours
7	15EBTP303	Bioprocess Engineering Lab	PC	0-0-1.5	1.5	3	80	20	03 Hours
8	19EBTP301	Bioprocess Control & Reaction Engineering Lab	PC	0-0-1.5	1.5	3	80	20	03 Hours
Total				17-0-9	26	41			

For VI Sem		Programme Electives	
Vertical I (BPE)		Vertical-II (MBT)	
18EBTE301	Bioprocess Plant Design and Economics	15EBTE302	Insilico Modeling and Drug Design
18EBTE401	Bioprocess Modeling and simulation	19EBTE301	Bioanalytical Techniques

Theory = 05

Lab = 02 Minor Project = 01

Beengard


REGISTRAR
 KLE Technological University
 HIRBALLI-580 031

**FORM**

ISO 9001: 2015- KLE TECH
Department of Biotechnology

Document #: FMCD2004

Rev: 1.0

Title: Curriculum Structure-Semester wise (2019-23 batch)

Year: 2019 - 23

VII Semester

No.	Code	Name of the Course	Mode	Prerequisites	Credits	Lab Credits	Theory Marks	Lab Marks	Total Marks
1	19EBTC401	Downstream Processing Technology	PC	4-0-0	4	4	50	50	03 Hours
2	15EBTC402	Bioprocess Equipment Design	PC	3-0-0	3	3	50	50	03 Hours
3	XXEBTE4XX	Programme Elective - 03	EC	3-0-0	3	3	50	50	03 Hours
4	XXEBTE4XX	Programme Elective - 04	EC	3-0-0	3	3	50	50	03 Hours
5	XXEBTE4XX	Programme Elective - 05	EC	3-0-0	3	3	50	50	03 Hours
6	15EHSA401	Humanities – 02 (CIPE & EVS)	HSA	<i>Audit</i>					
7	20EBTW401	Project work	PW	0-0-6	6	18	50	50	03 Hours
8	15EBTP401	Downstream Processing Technology Lab	PC	0-0-1	1	2	80	20	03 Hours
Total				16-0-7	23	36			

For VII Sem		Programme Electives	
Vertical I (BPE)		Vertical-II (MBT)	
20EBTE401	Industrial Biotechnology	15EBTE403	Plant and Animal Biotechnology
15EBTE402	Food Processing Technology	15EBTE404	Biopharmaceuticals
18EBTE404	Environmental Biotechnology	15EBTE405	Genomics and Proteomics
18EBTE403	Quality Assurance and regulations	19EBTE401	Bioethics, safety and IPR

Theory = 06 [5+ 1 CIPE & EVS (Audit)]

Lab = 01 Project work = 01

Praveen

Praveen
REGISTRAR
KLE Technological University
HUBBALLI-580 031

**FORM**

ISO 9001: 2015- KLE TECH
Department of Biotechnology

Document #: FMCD2004

Rev: 1.0

Title: Curriculum Structure-Semester wise (2019-23 batch)

Year: 2019 - 23

VIII Semester

Sl. No.	Course Code	Course Name	Category	Credits	Theory	Practical	ISA Marks	SA Marks	Hours
1	XXEBTE4XX	Programme Elective -06	EC	3-0-0	3	3	50	50	03 Hours
2	19EBTO401	Open Elective	OE	3-0-0	3	3	50	50	03 Hours
3	20EBTW402	Project Work	PW	0-0-11	11	33	50	50	03 Hours
Total				6-0-11	17	39			

For VIII Sem

Programme Electives**Vertical I (BPE)**

18EBTE402 Biological Data Analysis

Vertical-II (MBT)

20EBTE402 Bio-business and entrepreneurship

Sl. No.

Course Code

Open Elective

1

19EBTO401

Industrial waste management

Theory = 01 Project Work =01

Beeryand

Prasad
REGISTRAR
KLE Technological University
HUBBALLI-580 031