

Kolhapur Institute of Technology's
College of Engineering, Kolhapur
(An Autonomous Institute)



Proposed Curriculum Structure
for
Biotechnology Engineering
(Under Graduate Programme)
Academic Year 2017-2018

Kolhapur Institute of Technology's College of Engineering, Kolhapur
Teaching and Evaluation scheme for

Second Year B. Tech. Programme in Biotechnology Engineering Semester-III

Course Code	Course Name	Hr/Week			Credits	Evaluation Scheme			
		L	T	P		Component	Marks		
Max	Min for passing								
UBIO0301	Applied Mathematics	3	1	-	4	ISE-I	10		40
						MSE	30		
						ISE-II	10		
						ESE	50	20	
UBIO0302	Fluid Mechanics	3	-	-	3	ISE-I	10		40
						MSE	30		
						ISE-II	10		
						ESE	50	20	
UBIO0303	Microbial Technology	3	-	-	3	ISE-I	10		40
						MSE	30		
						ISE-II	10		
						ESE	50	20	
UBIO0304	Biochemistry	4	-	-	4	ISE-I	10		40
						MSE	30		
						ISE-II	10		
						ESE	50	20	
UBIO0305	Cell and Molecular Biology	4	-	-	4	ISE-I	10		40
						MSE	30		
						ISE-II	10		
						ESE	50	20	
UBIO0331	Fluid mechanics (Lab)	-	-	2	1	ISE	50	20	
						ISE	50	20	
						ESE	50	20	
						ISE	50	20	
UBIO0332	Microbial Technology (Lab)	-	-	2	1	ISE	50	20	
						ESE	50	20	
						ISE	50	20	
						ESE	50	20	
UBIO0333	Biochemistry (Lab)	-	-	2	1	ISE	50	20	
						ESE	50	20	
						ISE	50	20	
						ESE	50	20	
UBIO0334	Cell and Molecular Biology (Lab)	-	-	2	1	ISE	50	20	
						ESE	50	20	
						ISE	50	20	
						ESE	50	20	
UBIO0361	#Soft Skills	3	-	-	-	Audit Course-I	100	40	
Total		20	1	8	22	Total Contact hours / Week : 29			

Kolhapur Institute of Technology's College of Engineering, Kolhapur
Teaching and Evaluation scheme for

Second Year B. Tech. Programme in Biotechnology Engineering Semester-IV

Course Code	Course Name	Hr/Week			Credits		Evaluation Scheme			
		L	T	P			Component	Marks		
								Max	Min for passing	
UBIO0401	Bioprocess Calculations	3	-	-	3		ISE-I	10	20	40
							MSE	30		
							ISE-II	10		
							ESE	50		
UBIO0402	Heat Transfer	4	-	-	4		ISE-I	10	20	40
							MSE	30		
							ISE-II	10		
							ESE	50		
UBIO0403	Immunology	4	-	-	4		ISE-I	10	20	40
							MSE	30		
							ISE-II	10		
							ESE	50		
UBIO0404	Genetic Engineering	4	-	-	4		ISE-I	10	20	40
							MSE	30		
							ISE-II	10		
							ESE	50		
UBIO0405	Bioinformatics	3	-	-	3		ISE-I	10	20	40
							MSE	30		
							ISE-II	10		
							ESE	50		
UBIO0431	Heat Transfer(Lab)	-	-	2	1		ISE	50	20	
UBIO0432	Immunology (Lab)	-	-	2	1		ESE	50	20	
UBIO0433	Genetic Engineering (Lab)	-	-	2	1		ISE	50	20	
UBIO0434	Bioinformatics (Lab)	-	-	2	1		ESE	50	20	
UBIO0461	#Environmental Studies	1	1	-	-		ISE	50	20	
Total		19	1	8	22		Total Contact hours /Week : 28			

Kolhapur Institute of Technology's College of Engineering, Kolhapur
Teaching and Evaluation scheme for

Third Year B. Tech. Programme in Biotechnology Engineering Semester-V

Course Code	Course Name	Hr/Week			Credits	Evaluation Scheme			
		L	T	P		Component	Marks		
							Max	Min for passing	
UBIO0501	Mass Transfer	3	1	-	4	ISE-I	10		40
						MSE	30		
						ISE-II	10		
						ESE	50	20	
UBIO0502	Biological Thermodynamics	3	-	-	3	ISE-I	10		40
						MSE	30		
						ISE-II	10		
						ESE	50	20	
UBIO0503	Fermentation Technology	4	-	-	4	ISE-I	10		40
						MSE	30		
						ISE-II	10		
						ESE	50	20	
UBIO0504	Bioreaction Engineering	4	-	-	4	ISE-I	10		40
						MSE	30		
						ISE-II	10		
						ESE	50	20	
UBIO05**	Professional Elective - I	3	-	-	3	ISE-I	10		40
						MSE	30		
						ISE-II	10		
						ESE	50	20	
UBIO0505	Seminar	-	-	2	1	ISE	50	20	
UBIO0531	Fermentation Technology (Lab)	-	-	4	2	ISE	50	20	
						ESE	50	20	
UBIO0532	Bioreaction Engineering (Lab)	-	-	2	1	ISE	50	20	
						ESE	50	20	
UBIO0561	#Basics of Cell Culture	2	-	-	-	Audit Course-III	100	40	
Total		19	1	8	22	Total Contact hours /Week : 28			

Professional Elective I	
Course Code	Course Name
UBIO0521	Vaccine Technology
UBIO0522	Animal Biotechnology

Kolhapur Institute of Technology's College of Engineering, Kolhapur
Teaching and Evaluation scheme for

Third Year B. Tech. Program in Biotechnology Engineering Semester-VI

Course Code	Course Name	Hr/Week			Credits	Evaluation Scheme			
		L	T	P		Component	Marks		
							Ma x	Min for passing	
UBIO0601	Bioprocess Equipment Design	4	-	-	4	ISE-I	10		40
						MSE	30		
						ISE-II	10		
						ESE	50	20	
UBIO0602	Bioseparation Processes	3	1	-	4	ISE-I	10		40
						MSE	30		
						ISE-II	10		
						ESE	50	20	
UBIO0603	Techniques in Biotechnology	4	-	-	4	ISE-I	10		40
						MSE	30		
						ISE-II	10		
						ESE	50	20	
UBIO0604	Bioreactor Design and Controls	4	-	-	4	ISE-I	10		40
						MSE	30		
						ISE-II	10		
						ESE	50	20	
UOEL06**	Open Elective -I	3	-	-	3	ISE-I	10		40
						MSE	30		
						ISE-II	10		
						ESE	50	20	
UBIO0631	Bioprocess Equipment Design(Lab)	-	-	2	1	ISE	50	20	
UBIO0632	Bioseparation Processes (Lab)	-	-	2	1	ESE	50	20	
UBIO0633	Techniques in Biotechnology (Lab)	-	-	2	1	ISE	50	20	
						ESE	50	20	
UBIO0661	Microbial Analysis	3	-	-	-	Audit Course-IV	100	40	
Total		20	1	6	22	Total Contact hours / Week : 27			

Open Elective I		Offered by Department
Course Code	Course Name	
UOEL0601	Environmental Biotechnology	Biotechnology Engineering
UOEL0602	Food Technology	Biotechnology Engineering

Kolhapur Institute of Technology's College of Engineering, Kolhapur
Teaching and Evaluation scheme for

Final Year B. Tech. Programme in Biotechnology Engineering Semester-VII

Course Code	Course Name	Hr/Week			Credits	Evaluation Scheme			
		L	T	P		Component	Marks		
							Max	Min for passing	
UBIO0701	Bioprocess Modeling and Simulation	4	1	-	5	ISE-I	10		40
						MSE	30		
						ISE-II	10		
						ESE	50	20	
						MSE	30		
						ISE-II	10		
UBIO0702	Good Manufacturing Practices	4	1	-	5	ESE	50	20	
						ISE-I	10		40
						MSE	30		
						ISE-II	10		
UBIO0703	Process Engineering Costing and Plant Design	4	-	-	4	ESE	50	20	
						ISE-I	10		
						MSE	30		
						ISE-II	10		
UOEL07**	Open elective -II	3	-	-	3	ESE	50	20	40
						ISE-I	10		
						MSE	30		
						ISE-II	10		
UBIO0751	Project Work Phase – I	-	-	4	2	ISE	50	20	40
						ESE	50	20	
UBIO0731	Bioprocess Modeling and Simulation (Lab)	-	-	2	1	ISE	50	20	
						ESE	50	20	
UBIO0761	^Professional certifications	-	-	2	-	Audit Course-V	*	*	
Total		15	2	8	20	Total Contact hours / Week : 25			

Open Elective II-Theory		Offered by Department
Course Code	Course Name	
UOEL0701	Bioinformatics	Biotechnology Engineering
UOEL0702	Biosensors	Biotechnology Engineering

Kolhapur Institute of Technology's College of Engineering, Kolhapur
Teaching and Evaluation scheme for

Final Year B. Tech. Programme in Biotechnology Engineering Semester-VIII

Course Code	Course Name	Hr/Week			Cred its	Evaluation Scheme			
		L	T	P		Component	Marks		
							Max	Min for passing	
UBIO08**	Professional Elective -II	3	-	-	3	ISE-I	10		40
						MSE	30		
						ISE-II	10		
						ESE	50	20	
UBIO08**	Professional Elective - III	3	-	-	3	ISE-I	10		40
						MSE	30		
						ISE-II	10		
						ESE	50	20	
UBIO0851	Project Work Phase-II	-	-	12	6	ISE-I	75	30	
						ISE-II	75	30	
						ESE	150	60	
Total		6	0	12	12	Total Contact hours / Week :18			

Professional Elective II	
Course Code	Course Name
UBIO0821	Biopharmaceuticals
UBIO0822	Plant Biotechnology
UBIO0823	Bioprocesses

Professional Elective III	
Course Code	Course Name
UBIO0824	Industrial Organization Management and Entrepreneurship
UBIO0825	Environmental Biotechnology
UBIO0826	Food Technology

Abbreviations:

L: Lectures, **T:** Tutorial, **P:** Practical,

ISE: In Semester Exam, **MSE:** Mid Semester Exam, **ESE:** End Semester Examination

[#] Audit Course.

[^]Certified Course.

Kolhapur Institute of Technology's College of Engineering, Kolhapur
Proposed Programme Credit Distribution

Curriculum Component	Credits	~Percentage
Humanities and Management	6	7
Basic Science	21	18
Engineering Science	20	17
Professional Courses	49	38
Professional Electives	7	6
Open Electives	7	6
Project/Seminar/Training/Internship	10	8
Total	120	100

