

Program Code: BB5

***Bachelor of Technology in Biochemical Engineering and Biotechnology, and
Master of Technology in Biochemical Engineering and Biotechnology***

The Overall Credit Structure

Undergraduate Core (UC)		Undergraduate Elective (UE)	
Category	Credits	Category	Credits
DC	66	DE	6
BS	22	OC	4
EAS	29		
HU	15		
Total	132	Total	10

Program Core (PC)		Program Elective (PE)	
Category	Credits	Category	Credits
PC	32	PE	16

Total Credits = 190

Engineering Arts and Sciences (EAS) Core

Sl.	Old Course Number	New Course Number	Course Title	L-T- P Structure			Credits
				L	T	P	
1	AML120	APL102	Introduction to Material Science and Engineering	3	0	2	4
2	CHL110	CLL110	Transport Phenomena	3	1	0	4
3	MAL235	MTL102	Differential Equations	3	0	0	3
Total EAS Core							11

Departmental Core (DC)

SI	Old Course Number	New Course Number	Course Title	L - T - P Structure			Credits
				L	T	P	
1	BEL101	BBL131	Principles of Biochemistry	3	0	3	4.5
2	BEL103	BBL132	General Microbiology	3	0	3	4.5
3	BEL102	BBL133	Mass and Energy Balances in Biochemical Engineering	3	0	0	3
4	BEL204	BBL231	Molecular Biology and Genetics	3	0	3	4.5
5	BEL301	BBL331	Bioprocess Engineering	3	0	0	3
6	BEL401	BBL431	Bioprocess Technology	2	0	0	2
7	BEL302	BBL432	Fluid Solid Systems	2	0	0	2
8	BEL403	BBL433	Enzyme Science and Engineering	3	0	2	4
9	BEL418	BBL434	Bioinformatics	2	0	2	3
10	BEL703	BBL731	Bioseparation Engineering	3	0	3	4.5
11	BEL702	BBL732	Bioprocess Plant Design	3	0	2	4
12	BEL711	BBL733	Recombinant DNA Technology	2	0	3	3.5
13	BEP303	BBP332	Bioprocess Engineering Laboratory	0	0	3	1.5
14	CHL122	CLL122	Chemical Reaction Engineering (CRE) – I	3	1	0	4
15	CHL231	CLL231	Fluid Mechanics for Chemical Engineers	3	1	0	4
16	New course	CLL251	Heat Transfer for Chemical Engineers	3	1	0	4
17	New course	CLL252	Mass Transfer - 1	3	0	0	4
18	New course	CLP301	Chemical Engineering Laboratory – I	0	0	3	1.5
19	New course	CLL???	Chemical Engineering Laboratory – II	0	0	3	1.5
20	CHL261	CLL261	Process Dynamics and Control	3	1	0	4
Total DC							66

Departmental Electives (DE)

SI	Old Course Number	New Course Number	Course Title	L - T - P Structure			Credits
				L	T	P	
1	BED350	BBD351	Mini Project (BB)	0	0	6	3
2		BBL341	Environmental Biotechnology	3	0	0	3
3	BEL311	BBL342	Physical and Chemical Properties of Biomolecules	2	1	0	3
4	BEL312	BBL343	Carbohydrates and Lipids in Biotechnology	2	1	0	3
5	BEL411	BBL441	Food Science and Engineering	3	0	0	3
6	BEL412	BBL442	Immunology	3	0	2	4
7	BEL413	BBL443	Modeling and Simulation of Bioprocesses	3	0	2	4
8	BEL415	BBL444	Advanced Bioprocess Control	3	0	0	3
9	BEL416	BBL445	Membrane Applications in Bioprocessing	3	0	0	3
10	BEL417	BBL446	Biophysics	3	0	0	3
11	BEL419	BBL447	Enzyme Catalyzed Organic Synthesis	2	0	2	3
12	BEV330	BBV350	Special Module in Biochemical Engineering and Biotechnology	1	0	0	1
13	CHL277	CLL???	Materials of Construction	3	0	0	3
14	New course	CLL???	Biomass Conversion and Utilization	3	0	0	3

Program Core (PC)

SI	Old Course Number	New Course Number	Course Title	L - T - P Structure			Credits
				L	T	P	
1	BED851	BBD851	Major Project Part 1 (BB5)	0	0	12	6
2	BED852	BBD852	Major Project Part 2 (BB5)	0	0	28	14
3	BED853	BBD853	Major Project Part 1 (BB5)	0	0	8	4
4	BED854	BBD854	Major Project Part 2 (BB5)	0	0	32	16
5	BEL421	BBL734	Metabolic Regulation and Engineering	3	0	0	3
6	BEL722	BBL735	Genomics and Proteomics	2	0	2	3
7	BEL713	BBL736	Dynamics of Microbial Systems	3	0	0	3
8	BEL420	BBL737	Instrumentation and Analytical Methods in Bioengineering	2	0	2	3
Total PC							32

* BED853 and BED854 together are alternatives to BED851 and BED852

Program Electives (PE)

SI	Old Course Number	New Course Number	Course Title	L - T - P Structure			Credits
				L	T	P	
1	BEL712	BBL740	Plant Cell Technology	2	0	2	3
2	BEL714	BBL741	Protein Science and Engineering	3	0	0	3
3	BEL715	BBL742	Biological Waste Treatment	3	0	2	4
4	BEL716	BBL743	High Resolution Methods in Biotechnology	2	0	2	3
5	BEL717	BBL744	Animal Cell Technology	3	0	2	4
6	BEL718	BBL745	Combinatorial Biotechnology	3	0	0	3
7	BEL719	BBL746	Current Topics in Biochemical Engineering and Biotechnology	3	0	0	3
8	BEL721	BBL747	Bionanotechnology	3	0	0	3
9	BEL723	BBL748	Data Analysis for DNA Microarrays	3	0	2	4
10	New course	BBL749	Cancer Cell Biology	3	0	3	4.5
11	New course	BBL750	Genome Engineering	2	0	2	3