

# ADHIYAMAAN COLLEGE OF ENGINEERING

(Autonomous Institution Affiliated to Anna University, Chennai)

(Accredited by NAAC)

REGULATION 2018

CHOISE BASED CREDIT SYSTEM

B.Tech BIOTECHNOLOGY

CURRICULUM AND SYLLABI FOR I TO VIII

## SEMESTER I

COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
			L	T	P		
<b>THEORY</b>							
118ENT01	Technical English	HSMC	2	0	2	4	2
118MAT02	Engineering Mathematics-I	BSC	3	0	0	3	3
118PHT03	Engineering Physics	BSC	2	0	0	2	2
118CYT04	Engineering Chemistry	BSC	3	0	0	3	3
118EGT05	Engineering Graphics	ESC	2	0	4	6	4
118ESE0X	Elective (Group I)	ESC	3	0	0	3	3
<b>PRACTICALS</b>							
118CYP07	Engineering Chemistry Laboratory	BSC	0	0	2	2	1
118EPP08	Engineering Practice Laboratory	ESC	0	0	2	2	1
Total			15	0	10	21	19

## ELECTIVE (GROUP1)

COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
			L	T	P		
118ESE01	Basic Civil and Mechanical Engineering	ESC	3	0	0	3	3
118ESE02	Basic Civil Electrical and Electronics Engineering	ESC	3	0	0	3	3
118ESE03	Basic mechanical Electrical and Electronics Engineering	ESC	3	0	0	3	3
118ESE04	Elements of Mechanical Engineering	ESC	3	0	0	3	3

## SEMESTER II

COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
			L	T	P		
<b>THEORY</b>							
218ENT01	Communicative English	HSMC	3	0	2	5	3
218MAT02	Engineering Mathematics-II	BSC	3	1	0	4	4
218GET03	Environmental Science and Engineering	BSC	2	0	0	2	2
218EMT04	Engineering Mechanics	ESC	3	0	0	3	3
218PPT05	Problem Solving and Python Programming	ESC	3	0	0	3	3
218ESE0X	Elective (Group I)	ESC	2	0	0	2	2
<b>PRACTICALS</b>							
218PHP07	Engineering Physics Lab	BSC	0	0	2	2	1
218PPP08	Problem Solving and Python Programming Lab	ESC	0	0	2	2	1
Total			16	1	6	23	19

## ELECTIVE (GROUP II)

COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
			L	T	P		
218BSE01	Material Science	ESC	2	0	0	2	2
218BSE02	Quantum Mechanics For Engineers	ESC	2	0	0	2	2
218BSE03	Chemistry for Technologists	ESC	2	0	0	2	2
218BSE04	Energy Storage Devices and Fuel Cells	ESC	2	0	0	2	2

### SEMESTER III

COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
			L	T	P		
<b>THEORY</b>							
318MAT01	Engineering Mathematics III	BSC	3	1	0	4	4
318BTT02	Biochemistry	PCC	3	0	0	3	3
318BTT03	Cell Biology	PCC	3	0	0	3	3
318BTT04	Microbiology	PCC	3	0	0	3	3
318BTT05	Instrumental Methods of Analysis	PCC	2	0	0	2	2
318BTT06	Basic Industrial Biotechnology	PCC	2	0	0	2	2
<b>PRACTICALS</b>							
318BTP07	Biochemistry Laboratory	PCC	0	0	2	2	1
318BTP08	Cell Biology Laboratory	PCC	0	0	2	2	1
318BTP09	Microbiology Laboratory	PCC	0	0	2	2	1
Total			16	1	6	23	20

### SEMESTER IV

COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
			L	T	P		
<b>THEORY</b>							
418PST01	Probability and Statistics	BSC	3	1	0	4	4
418BTT02	Molecular Biology	PCC	3	0	0	3	3
418BTT03	Stoichiometric and Process Calculations	PCC	3	1	0	4	4
418BTT04	Fundamentals of Unit Operations	PCC	3	0	0	3	3
418BTT05	Enzyme Technology	PCC	3	0	0	3	3
418BTT06	Environmental Biotechnology	PCC	2	0	0	2	2
X18MC01	Indian Constitution	MCC	1	0	0	1	
<b>PRACTICALS</b>							
418BTP07	Molecular Biology Laboratory	PCC	0	0	2	2	1
418BTP08	Instrumental methods of Analysis Lab	PCC	0	0	2	2	1
418BTP09	Enzyme Technology Laboratory	PCC	0	0	2	2	1
Total			18	2		26	22

### SEMESTER V

COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
			L	T	P		
<b>THEORY</b>							
518BTT01	Bioinformatics	PCC	3	0	0	3	3
518BTT02	Genetic Engineering	PCC	3	0	0	3	3
518BTT03	Bioprocess Engineering I	PCC	3	0	0	3	3
518BTT04	Fundamentals of Mass Transfer	PCC	3	1	0	4	4
518BTT05	Chemical Thermodynamics & Biothermodynamics	PCC	3	0	0	3	3
	Open Elective I	OEC	3	0	0	3	3
X18GCT01	Gender, Culture and Development	MCC	1	0	0	1	-
<b>PRACTICALS</b>							
518BTP07	Genetic Engineering Lab	PCC	0	0	2	2	1
518BTP08	Bioprocess Engineering Lab I	PCC	0	0	2	2	1
518BTP09	Chemical Engineering Laboratory for Biotechnologists	PCC	0	0	2	2	1
Total			19	1	6	26	22

### SEMESTER VI

COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
			L	T	P		
<b>THEORY</b>							
618BTT01	Protein Engineering	PCC	3	0	0	3	3
618BTT02	Chemical Reaction Engineering	PCC	3	1	0	4	4
618BTT03	Bioprocess Engineering – II	PCC	3	1	0	4	4
618BTT04	Health and Pharmaceutical Biotechnology	PCC	3	0	0	3	3
618BTT05	Immunology	PCC	3	0	0	3	3
	Open Elective II	OEC	2	0	0	2	2
<b>PRACTICALS</b>							
618BTP07	Bioprocess Engineering Lab II	PCC	0	0	2	2	1
618BTP08	Health and Pharmaceutical Biotechnology Lab	PCC	0	0	2	2	1
618BTP09	Immunology Lab	PCC	0	0	2	2	1
618BTP10	Analytical Techniques In Biotechnology Lab	PCC	0	0	1	1	-
Total			17	2	7	26	22

### SEMESTER VII

COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
			L	T	P		
<b>THEORY</b>							
718BTT01	Downstream Processing	PCC	3	0	0	3	3
718BTT02	Plant Biotechnology	PCC	3	0	0	3	3
718BTT03	Animal Biotechnology	PCC	3	0	0	3	3
718BTT04	Genomics and Proteomics	PCC	3	0	0	3	3
718BTE_	Professional Elective I	PEC	3	0	0	3	3
718BTE_	Professional Elective II	PEC	3	0	0	3	3
<b>PRACTICALS</b>							
718BTP07	Downstream Processing Lab	PCC	0	0	2	2	1
718BTP08	Plant Biotechnology Lab	PCC	0	0	2	2	1
718BTP09	Entrepreneurship Development Lab	PCC	0	0	2	2	1
718BTP10	Mini Project	PCC	0	0	2	2	1
Total			18	0	8	26	22

### SEMESTER VIII

COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
			L	T	P		
<b>THEORY</b>							
818BTT01	Bioethics, IPR and Entrepreneurship	PCC	3	0	0	3	3
818BTE_	Professional Elective III	PEC	3	0	0	3	3
818BTE_	Professional Elective IV	PEC	3	0	0	3	3
<b>PRACTICALS</b>							
818BTP05	Project Work	PCC	0	0	18	18	9
818BTP10	Industrial Training	PCC	0	0	1	1	
Total			9	0	19	28	18

### OPEN ELECTIVE I

COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
			L	T	P		
518BMO01	Human Anatomy and Physiology	OEC	3	0	0	3	3
518BMO02	Biomedical Instrumentation	OEC	3	0	0	3	3
518BMO03	Bio Control Systems	OEC	3	0	0	3	3
518BMO04	Biomaterials and Artificial Organ	OEC	3	0	0	3	3
518CHO01	Chemical Engineering Modelling and Simulation	OEC					

### OPEN ELECTIVE II

COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
			L	T	P		
618CHO01	Chemical Process Industries	OEC	3	0	0	3	3
618CHO02	Mechanical Operations	OEC	3	0	0	3	3
618CHO03	Process Dynamics and Control	OEC	3	0	0	3	3
518CHO04/ 618CHO04	Chemical Process Plant Safety	OEC	3	0	0	3	3
618BMO05	Biomechanics	OEC	3	0	0	3	3

### PROFESSIONAL ELECTIVE I

COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
			L	T	P		
718BTE01	Clinical Research and Database Management	PEC	3	0	0	3	3
718BTE02	Transport Phenomena In bioprocess	PEC	3	0	0	3	3
718BTE03	Biosimilar Technology	PEC	3	0	0	3	3
718BTE04	Rational Drug Discovery	PEC	3	0	0	3	3
718BTE05	Bioterrorism and National Security	PEC	3	0	0	3	3

### PROFESSIONAL ELECTIVE II

COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIOD	CREDITS
			L	T	P		
718BTE06	Fundamental of Nanotechnology	PEC	3	0	0	3	3
718BTE07	Cancer Biology	PEC	3	0	0	3	3
718BTE08	Disaster Management	PEC	3	0	0	3	3
718BTE09	Process Equipment and Plant Design	PEC	3	0	0	3	3
718BTE10	Principles of Food Processing	PEC	3	0	0	3	3

### PROFESSIONAL ELECTIVE III

COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
			L	T	P		
818BTE01	Tissue Engineering	PEC	3	0	0	3	3
818BTE02	Telemedicine	PEC	3	0	0	3	3
818BTE03	Molecular Pathogenesis	PEC	3	0	0	3	3
818BTE04	Industrial Safety	PEC	3	0	0	3	3
818BTE05	Stem Cells In Healthcare	PEC	3	0	0	3	3

### PROFESSIONAL ELECTIVE IV

COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
			L	T	P		
818BTE06	Total Quality Management	PEC	3	0	0	3	3
818BTE07	Agricultural Biotechnology	PEC	3	0	0	3	3
818BTE08	Computational Biology	PEC	3	0	0	3	3
818BTE09	Medical Coding	PEC	3	0	0	3	3
818BTE10	Biosafety	PEC	3	0	0	3	3

### SYMMARY OF CREDIT ALLOCATION

B. TECH. BIOTECHNOLOGY										
S.NO.	SUBJECT AREA	CREDITS PER SEMESTER								TOTAL CREDITS
		I	II	III	IV	V	VI	VII	VIII	
1	HSMC	2	3							5
2	BSC	9	7	4	4					24
3	ESC	8	9							17
4	PCC			16	18	19	20	16	12	101
5	OEC					3	2			5
6	PEC							6	6	12
8	Non credit/Mandatory	1				1			1	
<b>TOTAL</b>		<b>20</b>	<b>19</b>	<b>20</b>	<b>22</b>	<b>23</b>	<b>22</b>	<b>22</b>	<b>19</b>	<b>164</b>