

Integrated M.Tech- Bio (5-Yr) Programme Course Structure for Odd Sem-2020

1st SEMESTER - BIOTECHNOLOGY (From 2018 Curricula)

S. No.	Course		Contact Hours				Credits
	Course Code	Title	L	T	P	Total	
1	15B11MA112	Basic Mathematics-1	3	1	-	4	4
2	18B11CI111	Fundamentals of Computers & Programming - I	3	1	-	4	4
3	15B11HS112	English	2	1	-	3	3
4	18B15CI111	Computer Programming Lab-I	-	-	4	4	2

3rd SEMESTER - BIOTECHNOLOGY (2018 Curricula)

Sr.No.	Course		Contact Hours				Credits
	Course Code	Title	L	T	P	Total	
1	15B11BT311	Thermodynamics and Chemical Processes	3	1	-	4	4
2	19B13BT211	Environmental Studies	3	-	-	3	Qualifying
3	15B11EC211	Electrical Science-II	3	1	-	4	4
4	15B11HS211	Economics	2	1	-	3	3

5th SEMESTER - BIOTECHNOLOGY (2018 Curricula)

Sr.No.	Course		Contact Hours				Credits
	Course Code	Title	L	T	P	Total	
1	15B11BT511	Cell Culture Technology	3	1	-	4	4
2	15B11BT412	Molecular biology and Genetic Engineering	3	-	-	3	3
3	20M13HS211	Indian Constitution & Traditional Knowledge	3	-	-	3	Qualifying
4	Xxxxx	HSS Elective-2	3	-	-	3	3
5	Xxxxx	Discipline Elective -1	3	-	-	3	3
6	Xxxxx	Science Elective	3	-	-	3	3
7	15B19BT591	Minor Project – 1			4	4	2

HSS Elective-2 for 5th Semester

S.No.	Course Code	Title	Count
1	16B1NHS435	Sociology of Media	60
2	17B1NHS531	Technology and Culture	120
3	19B12HS311	Entrepreneurial Development	120
4	16B1NHS433	Financial Management	180
5	16B1NHS532	Planning and Economic Development	120
6	16B1NHS434	Introduction to Contemporary forms of Literature	60

Discipline Elective-1 (For V Sem)

S.No.	Course Code	Title	Count
1	15B11BT413	Bioprocess Engineering	90

Science Elective (For V Sem)

S.No.	Course Code	Title	Count
1	16B1NPH535	Nuclear Science and Engineering	90
2	16B1NPH534	Biomaterial Science	90
3	16B1NMA531	Discrete mathematics	120
4	17B1NMA531	Basic numerical methods	120

7th SEMESTER - BIOTECHNOLOGY (2015 Curriculum)

Sr.No.	Course		Contact Hours				Credits
	Course Code	Title	L	T	P	Total	
	17M11BT111	Biomolecules and cell communication	3	0	0	3	3
	17M11BT112	Molecular modeling and Drug Design	3	0	0	3	3
1	Xxxxx	BT Elective -3	3	1	-	4	4
2	Xxxxx	BT Elective -4	3	1	-	4	4
3	Xxxxx	BT Elective – 5	3	1	-	4	4

4	Xxxxx	Open Elective – 1	3		-	3	3
5	15B19BT791	Major Project Part-1	-	-			4
6	15B19BT792	Term Paper	-	-	-	-	3
7	15B19BT793	Summer Training Viva	-	-	-	-	2

Open Elective-1 for 7th Semester

S.No.	Course Code	Title	Count
1	17B1NPH732	Nanoscience and Technology	90
2	20B12PH411	Superconducting Materials, Magnets and Devices	90
3	17B1NMA732	APPLIED NUMERICAL METHODS	90
4	17B1NHS731	Customer Relationship Management	60
5	16B1NHS831	Gender Studies	60
6	18B12HS412	Human Resource Analytics	60
7	18B12HS211	Psychology of Personality	60

DE-3 for 7th Sem

S.No.	Course Code	Title	Count
1	17B1NBT734	Stem Cells and Healthcare	60
2	15B1NBT832	Biostatistics and Its Applications	60

DE-4 for 7th Sem

S.No.	Course Code	Title	Count
1	17B1NBT737	Enzymes in food processing	60
2	16B1NBT734	Advanced Cell Biology	60

DE-5 for 7th Sem

S.No.	Course Code	Title	Count
1	17B1NBT739	Biocomputing and Applications	60
3	17B1NBT731	Food biotechnology	60

10th SEMESTER - BIOTECHNOLOGY (2015 Curricula)

Sr.No.	Course		Contact Hours				Credits
	Course Code	Title	L	T	P	Total	
1	xxxxx	Discipline Elective-10 (as in M Tech)	3	0	0	3	3
2	xxxxx	Discipline Elective-11 (as in M Tech)	3	0	0	3	3
3	xxxxx	Discipline Elective-12 (as in M Tech)	3	0	0	3	3
4	xxxxx	M Tech open Elective	3	0	0	3	3
5	xxxxx	M Tech Audit-II				2	Qualifying
7	17M17BT112	PBL-II				8	4
8	17M17BT211	Seminar and Term paper				4	4

Departmental Electives for 10th Semester M.Tech Bio

S.No.	Course Code	Title	Count
DE-10 (as in M.Tech)			
1	17M12BT116	Regulatory affairs	30
DE-11 (as in M.Tech)			
1	18M12BT211	Public Health Economics and Policy	30
2	17M12BT111	Biosensors	30
3	17M12BT118	Product development in Biotechnology	30
DE-12 (as in M.Tech)			
1	17M12BT119	Phytotherapeutics and Pharmacology	30
2	17M1NBT332	Innate Immunology	30

Open Elective

S.No.	Course Code	Title	Count
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1	19M12HS211	Cost accounting for Engineering projects	60
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Audit Course

S.No.	Course Code	Title	Count
1	19M13HS211	Constitution of India	90

Int. M Tech-CSE (5-Yr) Programme Course Structure

1st SEMESTER - CSE (2018 Curricula)

S. No.	Course		Contact Hours				Credits
	Course Code	Title	L	T	P	Total	
1	15B11PH111	Physics-1	3	1	-	4	4
2	15B11CI111	Software Development Fundamentals-I	3	1	-	4	4
3	15B11HS112	English	2	1	-	3	3
4	15B17CI171	Software Development Lab-I	-	-	4	4	2

3rd SEMESTER - CSE (2018 Curricula)

Sr.No.	Course		Contact Hours				Credits
	Course Code	Title	L	T	P	Total	
1	15B11CI312	Database Systems and Web	3	1	-	4	4
2	15B11CI311	Data Structures	3	1	-	4	4
3	15B11EC211	Electrical Science-II	3	1	-	4	4
4	15B11HS211	Economics	2	1	-	3	3

5th SEMESTER - CSE (2018 Curricula)

Sr.No.	Course		Contact Hours				Credits
	Course Code	Title	L	T	P	Total	
1	Xxxxx	HSS Elective-2	3		-	3	3
2	Xxxxx	Discipline Elective -1	3	-	-	3	3
3	Xxxxx	Science Elective	3	-	-	3	3
4	15B11CI313	Computer Organisation and Architecture	3		-	3	3
5	15B11CI412	Operating Systems and Systems Programming	3	1	-	4	4
6	20M13HS211	Indian Constitution & Traditional Knowledge	3	-	-	3	Qualifying
7	15B19CI591	Minor Project – 1			4	4	2

HSS Elective-3 for 5th Semester

S.No.	Course Code	Title	Count
1	16B1NHS435	Sociology of Media	60
2	17B1NHS531	Technology and Culture	120
3	19B12HS311	Entrepreneurial Development	120
4	16B1NHS433	Financial Management	180
5	16B1NHS532	Planning and Economic Development	120
6	16B1NHS434	Introduction to Contemporary forms of Literature	60

Discipline Elective-1 (For V Sem)

S.No.	Course Code	Title	Count
1	20B12CS331	Fundamentals of Machine learning	90
2	20B12CS332	Fundamentals of Computer security	90
3	20B12CS333	Introduction to Big data and Data Analytics	90
4	20B12CS334	Object Oriented Analysis and Design using Java	90
5	20B12CS335	Image Processing and Computer Vision	90
6	20B12CS336	Automata Theory and its applications	90

Science Elective (For V Sem)

S.No.	Course Code	Title	Count
1	16B1NPH535	Nuclear Science and Engineering	90
2	16B1NPH531	Quantum Mechanics for Engineers	90

3	16B1NPH533	Laser Technology and Applications	120
4	16B1NPH532	Materials Science	60
5	16B1NMA533	MATRIX COMPUTATIONS	120
6	17B1NMA531	BASIC NUMERICAL METHODS	120

7th SEMESTER - CSE (2015 Curricula)

Sr.No.	Course		Contact Hours				Credits
	Course Code	Title	L	T	P	Total	
1	17M11CS111	Data Structures and Algorithms for Big Data	3	-	-	3	3
2	17M11CS112	Machine Learning and Data Mining	3	-	-	3	3
3	Xxxxx	CS Elective-4	3	1	-	4	4
4	Xxxxx	CS Elective-5	3	1	-	4	4
5	Xxxxx	CS Elective-6	3	1	-	4	4
6	Xxxxx	Open Elective - 1	3	-	-	3	3
7	15B19CI791	Major Project Part-1	-	-	-	-	4
8	15B19CI792	Term Paper	-	-	-	-	3
9	15B19CI793	Summer Training Viva	-	-	-	-	2

Open Elective-I for 7th Semester

S.No.	Course Code	Title	Count
1	17B1NBT732	Healthcare Marketplace	90
2	17B1NBT733	Stress: Biology, Behaviour and Management	90
3	17B1NPH732	Nanoscience and Technology	90
4	20B12PH411	Superconducting Materials, Magnets and Devices	90
5	17B1NMA732	APPLIED NUMERICAL METHODS	90
6	17B1NHS731	Customer Relationship Management	60
7	16B1NHS831	Gender Studies	60
8	18B12HS412	Human Resource Analytics	60
9	18B12HS211	Psychology of Personality	60

DE-4 for 7th Sem

S.No.	Course Code	Title	Count
2	18B12CS437	Large Scale Database Systems	90
3	17B1NCI731	Machine Learning and NLP	90
4	15B1NCI732	Social Network Analysis	90
5	17B1NCI732	Computer and Web security	90
6	17B1NCI747	Cloud Computing	90

DE-5 for 7th Sem

S.No.	Course Code	Title	Count
1	19B12CS422	Mathematical Foundations for Intelligent Systems	90
2	18B12CS434	Ethical Hacking	90
3	18B12CS436	Software Construction	90
4	19B12CS423	Computing for data science	90
5	16B1NCI733/10B1NCI731	Data Compression Algorithms	90

DE-6 for 7th Sem

S.No.	Course Code	Title	Count
1	19B12CS424	Industrial Automation using IoT	120
2	19B12CS426	IoT Analytics	120
3	19B12CS427	Introduction to DEVOPS	90
4	17B2NCI731	Computer Graphics	90

10th SEMESTER - INTEGRATED M.TECH_CSE

S.No	Course		Contact Hours				Credits
	Code	Title	L	T	P	Total	
1	XxxxxX	DE-7 (as in M.Tech)	3			3	3
2	XxxxxX	DE-8 (as in M.Tech)	3			3	3
3	XxxxxX	DE-9 (as in M.Tech)	3			3	3

4	XxxxxX	M Tech open Elective	3			3	3
5	XxxxxX	M.Tech Audit Course-II	2			2	Qualifying
6	17M17CS212	Seminar and Term paper	0	0	8	4	4
7	17M17CS211	Project Based Learning (PBL-II)	0	0	8	4	4
8	17M15CS111	Advanced Algorithms Lab	0	0	2	2	1
9	17M15CS112	Machine Learning and Data Mining Lab	0	0	2	2	1
10	17M15CS113	Cloud Technology Lab	0	0	2	2	1

Departmental Electives for 10th Semester M.Tech CSE

S.No.	Course Code	Title	Count
DE-7 (as in M.Tech)			
1	15M3NCI231	E-Commerce and Social Web	60
2	19M12CS111	Web Intelligence	60
DE-8 (as in M.Tech)			
1	19M12CS112	Metaheuristic Modelling & Optimization	60
2	17M22CS113	Soft Computing & Applications	60
DE-9 (as in M.Tech)			
1	14M1NCI339	Wireless Sensor and Actuator Networks	60
2	19M12CS113	Advanced Wireless Networks	60

Open Elective

S.No.	Course Code	Title	Count
1	19M12HS211	Cost accounting for Engineering projects	60

Audit Course

S.No.	Course Code	Title	Count
1	19M13HS211	Constitution of India	90

Integrated M.Tech-ECE (5-Yr) Programme Course Structure for Odd Semester 2020

1st SEMESTER - ECE (2018 Curricula)

S. No.	Course		Contact Hours				Credits
	Course Code	Title	L	T	P	Total	
1	15B11MA111	Mathematics-1	3	1	-	4	4
2	15B11CI111	Software Development Fundamentals-I	3	1	-	4	4
3	15B11HS112	English	2	1	-	3	3
4	15B17CI171	Software Development Lab-I	-	-	4	4	2

3rd SEMESTER - ECE (2018 Curricula)

Sr.No.	Course		Contact Hours				Credits
	Course Code	Title	L	T	P	Total	
1	18B11EC214	Signals & Systems	3	1	-	4	4
2	15B11EC211	Electrical Science-II	3	1	-	4	4
3	15B11HS211	Economics	2	1	-	3	3
4	19B13BT211	Environmental Studies	3	-	-	3	Qualifying

5th SEMESTER - ECE (2018 Curricula)

Sr.No.	Course		Contact Hours				Credits
	Course Code	Title	L	T	P	Total	
1	18B11EC312	Electromagnetic Field Theory	3	1	-	4	4
2	15B11CI518	Data Structures and Algorithms	3	-	-	3	3
3	20M13HS211	Indian Constitution & Traditional Knowledge	3	-	-	3	Qualifying
4	Xxxxx	HSS Elective-2	3	-	-	3	3
5	Xxxxx	Discipline Elective -1	3	-	-	3	3
6	Xxxxx	Science Elective	3	-	-	3	3
7	15B19EC591	Minor Project – 1			4	4	2

HSS Elective-2 for 5th Semester

S.No.	Course Code	Title	Count
1	16B1NHS435	Sociology of Media	60
2	17B1NHS531	Technology and Culture	120
3	19B12HS311	Entrepreneurial Development	120
4	16B1NHS433	Financial Management	180
5	16B1NHS532	Planning and Economic Development	120
6	16B1NHS434	Introduction to Contemporary forms of Literature	60

Discipline Elective-1 for 5th Semester

S.No.	Course Code	Title	Count
1	15B11EC313	Microprocessors and Microcontrollers	120
2	20B12EC211	Introduction to Digital Image and Video Processing	60
3	17B1NEC735	Information Theory and applications	60

Science Elective-1 for 5th Semester

S.No.	Course Code	Title	Count
1	16B1NPH535	Nuclear Science and Engineering	90
2	16B1NPH531	Quantum Mechanics for Engineers	90
3	16B1NPH533	Laser Technology and Applications	120
4	16B1NPH532	Materials Science	60
5	16B1NMA531	DISCRETE MATHEMATICS	120
6	16B1NMA533	MATRIX COMPUTATIONS	120
7	17B1NMA531	BASIC NUMERICAL METHODS	120

7th SEMESTER - ECE (2015 Curricula)

Sr.No.	Course		Contact Hours				Credits
	Course Code	Title	L	T	P	Total	
1	Xxxxx	FLEXI-CORE	3	1	-	4	4
2	17M11EC118	Advanced Digital Signal Processing	3	0	-	3	3
3	20M41EC117	Advanced Digital Communication System	3	0	-	3	3
4	Xxxxx	DE -1	3	1	-	4	4
5	Xxxxx	DE -2	3	1	-	4	4
6	Xxxxx	Open Elective – 1	3	3	-	3	3
7	15B19EC791	Major Project Part-1	-	-	-	3	4
8	15B19EC792	Term Paper	-	-	-	-	3
9	15B19EC793	Summer Training Viva	-	-	-	-	2

Flexi-core

S.No.	Course Code	Title	Count
1	17B11EC731	Mobile Communication (Not for students who have	150
2	17B11EC733	Optical Communication	90

DE-1 & 2 for 7th Semester

S.No.	Course Code	Title	Count
DE-1			
1	17B1NEC735	Information Theory and applications	90
2	17B1NEC734	RF and Microwave Engg.	90
3	18B12EC412	Multimedia Communications	90
DE-2			
1	15B1NEC733	Fundamental of Embedded Systems	120
2	17B1NEC736	Essentials of VLSI Testing	120

Open elective (7th Semester)

S.No.	Course Code	Title	Count
1	17B1NBT732	Healthcare Marketplace	90
2	17B1NBT733	Stress: Biology, Behaviour and Management	90
3	17B1NPH732	Nanoscience and Technology	90
4	20B12PH411	Superconducting Materials, Magnets and Devices	90
5	17B1NMA732	APPLIED NUMERICAL METHODS	90
6	17B1NHS731	Customer Relationship Management	60
7	16B1NHS831	Gender Studies	60
8	18B12HS412	Human Resource Analytics	60

9	18B12HS211	Psychology of Personality	60
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10th SEMESTER - INTEGRATED M.TECH_ECE

S.No	Code	Course Title	Contact Hours				Credits
			L	T	P	Total	
1	xxxx	DE-7 (as in M.Tech)	3			3	3
2	xxxx	DE-8 (as in M.Tech)	3			3	3
3	xxxx	DE-9 (as in M.Tech)	3			3	3
4	xxxx	M Tech open Elective	3			3	3
5	xxxx	M.Tech Audit Course-II	2			2	Qualifying
6	17M17EC218	Seminar and Term paper	0	0	8	4	4
7	17M17EC330	Project Based Learning-2	0	0	8	4	4
		Total					23

Departmental Electives for 10th Semester M.Tech ECE

S.No.	Course Code	Title	Count
DE-7 (as in M.Tech)			
1	17M22EC116	DSP Architecture	20
DE-8 (as in M.Tech)			
1	17M22EC113	HDL Based System Design	20
DE-9 (as in M.Tech)			
1	20M11EC111	Advanced RF and Microwave Engineering	20
2	20M11EC112	Photonics Material and Devices for Communication	20

Open Elective

1	19M12HS211	Cost accounting for Engineering projects	60
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Audit Course

1	19M13HS211	Constitution of India	90
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