Dated: 18 July 2023

Curricula of INTEGRATED MTECH (CSE) 5-YEAR PROGRAM

Admitted 2020 onwards

B. Tech(CSE). 160 Credits of New curricula (2020 onwards) +and M. Tech. (CSE) 68 Credits =228 Credits

FIRST SEMESTER

Sr. No.	Course		Contact Hours				Credits
	Course Code	Course Title	L	T	P	Total	
1.	15B11MA111	Mathematics-1	3	1	-	4	4
2.	15B11PH111	Physics-1	3	1	-	4	4
3.	15B11CI111	Software Development Fundamentals-I	3	1	-	4	4
4.	15B11HS112	English*	1	-	2	3	2
5.	15B17PH171	Physics Lab-1	-	-	2	2	1
6.	15B17CI171	Software Development Lab-I	-	-	4	4	2
7	18B15GE112	Workshop	3		3	3	1.5
		TOTAL				24	18.5

*English Literature content will be given as suggestive reading

SECOND SEMESTER

Sr. No.	Course		Contact Hours				Credits
	Course Code	Course Title	L	T	P	Total	
1.	15B11MA211	Mathematics-2	3	1	-	4	4
2.	15B11PH211	Physics-2	3	1	-	4	4
3.	15B11EC111	Electrical Science-I	3	1	-	4	4
4.	15B11CI211	Software Development Fundamentals-II	3	1	-	4	4
5.	15B17PH271	Physics Lab-2	-	-	2	2	1
6.	15B17EC171	Electrical Science Lab-I	-	-	2	2	1
7.	15B17CI271	Software Development Lab-II	-	-	2	2	1
8.	18B15GE111	Engineering Drawing & Design			3	3	1.5
9,	22B12HS111	Life Skills & Professional Communication Lab*			2	2	0
		TOTAL				27	20.5

THIRD SEMESTER

Sr. No.	Course		Contact Hours				Credits
	Course Code	Course Title	L	T	P	Total	
1.	15B11CI212	Theoretical Foundations of Computer Science	3	1	-	4	4
2.	15B11CI312	Database Systems and Web	3	1	-	4	4
3.	15B11CI311	Data Structures	3	1	-	4	4
4.	15B17CI371	Data Structures Lab	-	-	4	4	2
5.	15B17CI372	Database Systems and Web Lab	-	-	2	2	1
6.	15B11EC211	Electrical Science-II	3	1	-	4	4
7.	15B17EC271	Electrical Science Lab-II	-	-	2	2	1
8.	15B11HS211	Economics	2	1	-	3	3
		TOTAL				27	23

FOURTH SEMESTER

Sr. No.	Course		Contact Hours				Credits
	No.	Title	L	T	P	Total	
1.	Xxxxx	HSS Elective – 1	2	1	-	3	3
2.	15B11MA301	Probability and Random Processes	3	1	-	4	4
3.	18B11EC213	Digital Systems	3	1	-	4	4
4.	15B11CI411	Algorithms and Problem Solving	3		-	3	3
5.	15B11GE301	Environmental Science	3	-	-	3	Qualifying
6.	18B15EC213	Digital Systems Lab	-	-	2	2	1
7.	15B17CI471	Algorithms and Problem Solving Lab	-	-	2	2	1
8	XXXXX	Universal Human Values (UHV)*	2	1	-	3	3
		TOTAL				24	19

FIFTH SEMESTER

Sr. No.	Course		Contact Hours				Credits
	No.	Title	L	T	P	Total	
1.	Xxxxx	HSS Elective-2	3		-	3	3
2.	15B11CI313	Computer Organisation and Architecture	3	1	-	4	4
3.	Xxxxx	Discipline Elective -1(#)	3	-	-	3	3
4.	Xxxxx	Science Elective	3	-	-	3	3

5.	15B19CI591	Minor Project – 1			4	4	2
6.	15B17CI373	Computer Organisation and Architecture Lab	-	-	2	2	1
7.	15B17CI472	Operating Systems and Systems Programming Lab	-	-	2	2	1
8.	15B17CI575	Open Source Software lab	-	-	2	2	1
9	15B11CI412	Operating Systems and Systems Programming	3	1	-	4	4
10	15B17CI576	Information Security Lab	-	-	2	2	1
11	18B12HS311	Indian Constitution & Traditional Knowledge	3	-	-	3	Qualifying
		TOTAL				32	23

SIXTH SEMESTER

Sr. No.	Course		Contact Hours				Credits
	Course Code	Course Title	L	T	P	Total	
1.	18B11CS311	Computer Networks and Internet of Things	3	-	-	3	3
2.	Xxxxx	Discipline Elective – 2	3	-	-	3	3
3.	Xxxxx	Discipline Elective - 3	3	-	-	3	3
4.	Xxxxx	Open Elective - 1	3	-	-	3	3
		Selected Value Added Course	2	-	-	2	Audit
5.	18B15CS311	Computer Networks and Internet of Things Lab	-	-	2	2	1
6.	15B19CI691	Minor Project-2	-	-	4	4	2
7	15B11CI513 OR 15B11CI514	Software Engineering OR Artificial Intelligence	3	1	-	4	4
8	15B17CI573 OR 15B17CI574	Software Engineering Lab OR Artificial Intelligence Lab	-	-	2	2	1
9	Xxxxx	HSS Elective - 3	2	1	-	3	3
		TOTAL				27/29	23

1. Students may opt to study Selected Foreign Language during 5th semester as an additional course of 2 credits not to be counted towards CGPA calculation. Those who qualify will be provided with additional certificate.
2. All students will undergo Value Added Course, however it will not count for CGPA calculations and will not be reflected in transcript of those students who fail to qualify. Those who qualify will be provided with additional certificate.
3. Students will undergo 6 weeks Industrial Training during Summer Vacation after 6th Semester.

SEVENTH SEMESTER

Sr. No.	Course		Contact Hours				Credits
	Course Code	Course Title	L	T	P	Total	
1.	Xxxxx	Discipline Elective – 4	3	-	-	3	3
2.	Xxxxx	Discipline Elective – 5	3	-	-	3	3
3.	Xxxxx	Discipline Elective - 6	3	-	-	3	3
4.	Xxxxx	Open Elective – 2	3	-	-	3	3
5.	15B19CI791	Major Project Part-1	-	-	-	8	4
7.	15B19CI793	Summer Training Viva	-	-	-	-	Qualifying
8	17M11CS111	Data Structures and Algorithms for Big Data	3	-	-	3	3
9	17M11CS112	Machine Learning and Data Mining	3	-	-	3	3
		TOTAL				**26**	**22**

EIGHTH SEMESTER

Sr. No.	Course		Contact Hours				Credits
	Course Code	Course Title	L	T	P	Total	
1.	Xxxxx	Open Elective -3	3		-	3	3
2.	15B19CI89 1	Major Project Part-2	-	-			8
3.	17M11CS121	Cloud and Web Services Software Engineering	3	-	-	3	3
4.	17M11CS122	Performance Evaluation of Computing Systems	3	-	-	3	3
5	XXXX	MTech Elective –III	3	-	-	3	3
6	XXXX	MTech Elective – IV	3	-	-	3	3
7	XXXX	MTech Elective – V	3	-	-	3	3
8		Audit-I*	2	-	-	2	Qualifying
		TOTAL				**20**	**26**

Total Credits for B. Tech. –160

NINTH SEMESTER (SUMMER)

Sr. No.	Course		Contact Hours				Credits
	Course Code	Course Title	L	T	P	Total	
1.	18M11GE111	Research Methodology and Intellectual Property Rights	2	-	-	2	2
2.	17M15CS121	Cloud and Web Services Lab	-	-	2	2	1
3.	17M15CS122	Performance Engineering Lab	-	-	2	2	1
4.	17M15CS123	IOT Systems Development Lab	-	-	2	2	1
5.		BTech Elective – 7	3	-	-	3	3
6.		BTech Elective – 8	3	-	-	3	3

		TOTAL				**14**	**11**

TENTH SEMESTER

Sr. No.	Course		Contact Hours				Credits
	Course Code	Course Title	L	T	P	Total	
1.	XXXX	MTech Elective –I	3	-	-	3	3
2.	XXXX	MTech Elective –II	3	-	-	3	3
3.	XXXX	MTech Open Elective	3			3	3
4.	17M17CS121	Project Based Learning-II (Software Development Automation)			8	8	4
5	17M17CS212	Seminar & Term Paper					4
6	17M15CS111	Advanced Algorithms Lab	-	-	2	2	1
7	17M15CS112	Machine Learning and Data Mining Lab	-	-	2	2	1
8	17M15CS113	Cloud Technology Lab	-	-	2	2	1
9		M. Tech. Audit – II *	2	-	-	2	Qualifying
		TOTAL				**25**	**20**

ELEVENTH SEMESTER

Sr. No.	Course		Contact Hours				Credits
	Course Code	Course Title	L	T	P	Total	
1.	17I17CS511/ 17I17CS512/ 17I17CS513	Dissertation		-	-		20
2.	17M17CS111	Project Based Learning-I (Open Source Software Development)		-	4	4	2
		TOTAL					**22**

Total Credits : 127 + 22 + 26 + 11 + 20 + 22 = 228 Credits

*Courses for Audit-I and II:

1. English for Research Paper Writing
2. Disaster Management
3. Sanskrit for Technical Knowledge
4. Value Education
5. Constitution of India
6. Pedagogy Studies
7. Stress Management by Yoga
8. Personality Development through life enlightenment skills

BTech Electives:

Discipline Elective -1(#)

1. 20B12CS333 Fundamentals of Machine learning
2. 20B12CS332 Fundamentals of Computer security
3. 20B12CS333 Introduction to Big data and Data Analytics
4. 20B12CS334 Object Oriented Analysis and Design using Java
5. 20B12CS335 Image Processing and Computer Vision
6. 20B12CS336 Automata Theory and its applications

Discipline Elective – 2(##)

1. 21B12CS312 Sensor Technology & Android Programming
2. 21B12CS313 Fundamentals of Distributed and Cloud Computing
3. 21B12CS314 Introduction to Large Scale Database Systems
4. 21B12CS315 Web Technology and Cyber Security
5. 21B12CS316 Introduction to Compiler Design

Discipline Elective – 3(###)

1. 15B22CI521 Cloud based Enterprise Systems (IT core offered to CSE as elective)
2. 21B12CS317 Introduction to Blockchain Technology
3. 21B12CS318 Big Data Ingestion
4. 21B12CS319 Fundamentals of Soft Computing
5. 21B12CS320 Open source software development
6. 21B12CS321 Concepts of Graph theory

Selected Value Added Course (*)

1. 20B16CS322 Java Programming
2. 20B16CS323 Problem Solving using C and C++
3. 20B16CS324 Non-linear Data Structures & problem solving
4. 20B16CS325 Game Development: Fundamentals and practices
5. 20B16CS326 Front End Programming

Discipline Elective – 4

1. 19B12CS425 Advanced Blockchain : A game theoretic view
2. 21B12CS411 Big Data with Hadoop and Spark
3. 18B12CS428 Introduction to Deep Learning
4. 21B12CS412 Cryptography and its Applications
5. 16B1NCI648 Information Retrieval and Semantic Web

Discipline Elective – 5

1. 19B12CS426 IoT Analytics
2. 21B12CS417 Machine Learning and Big Data

3. 21B12CS415 Secure Design of Software Systems
4. 19B12CS423 Computing for data science
5. 21B12CS413 Fog and Edge Computing

Discipline Elective – 6

1. 21B12CS414 Smart Systems and IOT
2. 17B1NCI731 Machine Learning and Natural Language Processing
3. 19B12CS427 Introduction to DEVOPS
4. 15B1NCI732 Social Network Analysis
5. 21B12CS418 Ethical Hacking and Prevention

Discipline Elective – 7

TBD

Discipline Elective – 8

TBD

MTech Electives

1. 15M3NCI231 E-Commerce and Social Web
2. 19M12CS111 Web Intelligence
3. 19M12CS112 Metaheuristic Modelling & Optimization
4. 17M22CS113 Soft Computing & Applications
5. 14M1NCI339 Wireless Sensor and Actuator Networks
6. 19M12CS113 Advanced Wireless Networks
7. 18M12CS117 Blockchain Technology and Applications
8. 17M12CS115 3D Graphics and Animations
9. 18M12CS115 Internet of Things
10. 19M12CS211 Nature Inspired Computing and Applications
11. 14 M1NCI231 Cryptography and Computer Security
12. 17M22CS115 Large Scale Graph Algorithms & Analytics