

B Tech Curriculum – 2022

Flexible Total Credits: 160/168/180/188

Mandatory Learning Courses (MLC): 12 Credits (2+9+1)

Flexible Core - Choice Based Credit System (CBCS)

Provisions for awarding credits to students for their performance in NCC and Major Projects (optional) - OEs

Scope for Component level Self Directed Learning (SDL) in a few courses

Mandatory Mini Project for Minor Specialization

ACADEMIC YEAR	NO. OF CREDITS	REMARKS
FIRST	22 + 22 = 44	EG-I & EG-II – 1 credit each Universal Human Values & professional ethics– 1 credit Human Rights and Constitution – 1 credit
SECOND	22 + 21 = 43	ODD SEM: Core + Labs EVEN SEM: Core + Labs
THIRD	21 + 21 = 42	ODD SEM: FLEXIBLE Core + Labs + OE EVEN SEM: FLEXIBLE Core + OE + PEs + Labs CHOICE BASED CREDIT SYSTEM FOR CORE COURSES MANDATORY OE – CPI
FOURTH	18 + 13 = 31	ODD SEM: PEs + OE EVEN SEM: Project Work/Practice School, Industrial Training

FIRST YEAR B Tech CURRICULUM 2022 (Common to all branches)

PHYSICS CYCLE

Year	FIRST SEMESTER						SECOND SEMESTER					
	Sub. Code	Subject Name	L	T	P	C	Sub. Code	Subject Name	L	T	P	C
I		Engineering mathematics - I	3	1	0	4		Engineering mathematics - II	3	1	0	4
		Engineering Physics	2	1	0	3		Engineering Chemistry	2	1	0	3
		Mechanics of Solids	2	1	0	3		Biology for Engineers	3	0	0	3
		Basic Electronics	2	1	0	3		Basic Electrical Technology	2	1	0	3
		Basic Mechanical Engineering	2	1	0	3		Problem Solving Using Computers	2	1	0	3
		Communication Skills in English	2	0	0	2		Environmental Studies	2	0	0	2
		Universal Human Values and Professional Ethics (MLC)	1	0	0	1		Human Rights and Constitution (MLC)	1	0	0	1
		Engineering Physics Lab	0	0	3	1		Engineering Chemistry Lab	0	0	3	1
		Workshop Practice	0	0	3	1		PSUC Lab	0	0	3	1
		Engineering Graphics - I	0	0	3	1		Engineering Graphics - II	0	0	3	1
		Creativity, Problem Solving & Innovation*(MLC)	1	0	0	--*		Creativity, Problem Solving & Innovation* (MLC)	1	0	0	--*
			15	5	9	22			16	4	9	22
	Total Contact Hours (L + T + P)		29				Total Contact Hours (L + T + P)		29			

*After completing a project work along with other activities which are assessed periodically the students would earn 3 credits which would be considered in lieu of an open elective for Fifth semester B Tech

FIRST YEAR B Tech CURRICULUM 2022 (Common to all branches)

CHEMISTRY CYCLE

Year	FIRST SEMESTER						SECOND SEMESTER					
	Sub. Code	Subject Name	L	T	P	C	Sub. Code	Subject Name	L	T	P	C
I		Engineering mathematics - I	3	1	0	4		Engineering mathematics - II	3	1	0	4
		Engineering Chemistry	2	1	0	3		Engineering Physics	2	1	0	3
		Biology for Engineers	3	0	0	3		Mechanics of Solids	2	1	0	3
		Basic Electrical Technology	2	1	0	3		Basic Electronics	2	1	0	3
		Problem Solving Using Computers	2	1	0	3		Basic Mechanical Engineering	2	1	0	3
		Environmental Studies	2	0	0	2		Communication Skills in English	2	0	0	2
		Human Rights and Constitution (MLC)	1	0	0	1		Universal Human Values and Professional Ethics (MLC)	1	0	0	1
		Engineering Chemistry Lab	0	0	3	1		Engineering Physics Lab	0	0	3	1
		PSUC Lab	0	0	3	1		Workshop Practice	0	0	3	1
		Engineering Graphics – I	0	0	3	1		Engineering Graphics - II	0	0	3	1
		Creativity, Problem Solving & Innovation (MLC)*	1	0	0	--*		Creativity, Problem Solving & Innovation (MLC)*	1	0	0	--*
			16	4	9	22			15	5	9	22
	Total Contact Hours (L + T + P)		29				Total Contact Hours (L + T + P)		29			

*After completing a project work along with other activities which are assessed periodically the students would earn 3 credits which would be considered in lieu of the open elective for Fifth semester B Tech

B Tech in Information Technology

Year	THIRD SEMESTER						FOURTH SEMESTER					
	Sub. Code	Subject Name	L	T	P	C	Sub. Code	Subject Name	L	T	P	C
II	MAT ****	Engineering Mathematics – III	2	1	0	3	MAT ****	Engineering mathematics – IV	2	1	0	3
	*** ****	Data Structures	3	1	0	4	ICT ****	Database Systems	3	1	0	4
	ICT ****	Object Oriented Programming	3	1	0	4	*****	Design and Analysis of Algorithms	3	1	0	4
	*** ****	Digital Systems and Computer Organization	4	0	0	4	*** ****	Embedded Systems	4	0	0	4
	ICT ****	Principles of Data Communication	3	0	0	3	*** ****	Computer Networks	4	0	0	4
	*** ****	Data Structures Lab	0	0	3	1	*****	Database Systems Lab	0	0	3	1
	ICT ****	Object Oriented Programming Lab	0	0	3	1	ICT ****	Embedded Systems Lab	0	0	3	1
	*** ****	Digital Systems Lab	0	0	3	1	ICT ****	Network Programming and Simulation Lab	0	0	3	1
			15	3	9	21			16	5	9	22
	Total Contact Hours (L + T + P)						Total Contact Hours (L + T + P)					

*The departments may interchange the credits of Third and Fourth semesters based on need

B Tech in Information Technology

Year	FIFTH SEMESTER						SIXTH SEMESTER					
	Sub. Code	Subject Name	L	T	P	C	Sub. Code	Subject Name	L	T	P	C
III		HUM - 1	3	0	0	3		HUM – 2	3	0	0	3
	ICT ****	Information Security	3	0	0	3	ICT ****	Flexible Core – 2 (A/B/C)*	3	0	0	3
	ICT ****	Operating Systems	4	0	0	4	ICT ****	Data Mining	4	0	0	4
	ICT ****	Software Engineering	3	0	0	3	ICT****	PE – 1 / Minor Specialization	3	0	0	3
	ICT ****	Flexible Core – 1 (A/B/C)*	3	0	0	3	ICT****	PE – 2 / Minor Specialization	3	0	0	3
		OE – Creativity, Problem Solving and Innovation** (MLC) - mandatory	3	0	0	3		OE – 1** (MLC)	3	0	0	3
	ICT ****	Information Security Lab	0	0	3	1	ICT ****	Advanced Technology Lab	0	0	3	1
	ICT 3165	Operating systems lab	0	0	3	1	ICT ****	Data Mining Lab	0	0	3	1
			19	0	6	21			19	0	6	21
	Total Contact Hours (L + T + P)						Total Contact Hours (L + T + P)					

*Courses of three independent tracks A, B, C to be identified by the department

** Performance of students to be recorded in Eighth semester grade sheet?

B Tech in Information Technology

Year	SEVENTH SEMESTER						EIGHTH SEMESTER					
	Sub. Code	Subject Name	L	T	P	C	Sub. Code	Subject Name	L	T	P	C
IV	*****	PE – 3 / Minor Specialization	3	0	0	3		Industrial Training (MLC)				1
	*****	PE – 4 / Minor Specialization	3	0	0	3	*****	Project Work				12
	*****	PE – 5	3	0	0	3	*****	Project Work (B Tech – honours)* (V - VIII sem)				20
	*****	PE – 6	3	0	0	3	*****	B Tech – honours Theory – 1* (V semester)				4
	*****	PE - 7	3	0	0	3	*****	B Tech – honours Theory – 2* (VI semester)				4
		OE – 2** (MLC)	3	0	0	3	*****	B Tech – honours Theory – 3* (VII semester)				4
	*****	Mini Project (Minor specialization)***				8						
			18	0	0	18/26***						13/33*
	Total Contact Hours (L + T + P)						Total Contact Hours (L + T + P)					

*Applicable to eligible students who opted for and successfully completed the B Tech – honours requirements

** Performance of students to be recorded in Eighth semester grade sheet?

***Applicable to students who opted for minor specialization

V SEMESTER Flexible CORE

1) [Data Structures for Databases](#)/[Software Project Management](#)/[Theoretical Foundations of Computer Science](#)

VI Semester Flexible CORE

2) [DDBMS\(NOSQL\)](#)/[Software verification and validation](#)/[Compiler Constructions](#)

Core A: Database Systems: Data Structures for Databases, DDBMS(NOSQL)

Core B: Software Management: Software Project Management, Software verification and validation

Core C: System software: Theoretical Foundations of Computer Science, Compiler Constructions

Minor Specializations	Other Program Electives	Coursera Programme Electives Offered
I. Computational Intelligence ICT ****: Artificial Intelligence ICT ****: Machine Learning ICT ****: Pattern recognition ICT ****: Neural Computation and Applications	ICT ****: Cloud Computing ICT ****: Deep Learning ICT ****: Game Theory and Applications ICT ****: High Performance Computing ICT ****: Human Computer Interaction ICT ****: Internet of Things ICT ****: Software Reliability ICT ****: Evolutionary Computing and Swarm Intelligence ICT ****: Mobile Computing ICT ****: Explainable AI	Offered in 6th semester: CRA **** Data Scientists Toolbox And R Programming CRA **** Introduction To Data Science Offered in 7th semester: CRA **** Data Science - Part Ii-Fundamental Techniques Of Data Science CRA **** Advanced Data Science - Part III
II. Computer Graphics and Visualization ICT *****: Computer Graphics ICT *****: Digital Image Processing ICT *****: Augmented and Virtual Reality ICT *****: Computer Vision		
III. Data Analytics ICT *****: Information Retrieval ICT *****: Big Data Analytics ICT *****: Social Network Analysis ICT *****: Semantic Web		

<p>IV. Software System Design</p> <p>ICT **** : Advanced Software Engineering</p> <p>ICT **** : Software Architecture</p> <p>ICT ****: Software Quality Management</p> <p>ICT **** : Software Construction</p> <p>V. Cyber Security</p> <p>ICT ****: Cyber Forensics and Cyber laws</p> <p>ICT ****: Ethical hacking</p> <p>ICT ****: Blockchain Technology</p> <p>ICT ****: Artificial Intelligence in Cyber security</p>	<p>Open Electives</p> <p>ICT ****: Computer Graphics and Animation</p> <p>ICT ****: Design and Development of Web Applications</p> <p>ICT ****: Fundamentals of Data Structures and Algorithms</p> <p>ICT ****: Machine Learning Tools and Technologies</p> <p>ICT ****: Networking with TCP/IP</p> <p>ICT **** : Fundamentals of Cyber Security</p> <p>ICT **** : Game Theory & Applications</p>	<p>Financial Technology</p> <p>HUM **** Financial Management</p> <p>HUM **** Fintech Services</p> <p>HUM****:Financial Econometrics</p> <p>HUM ****Technologies For Finance</p> <p>Entrepreneurship Development</p> <p>HUM 4051: Financial Management</p> <p>HUM ****: Entrepreneurship</p> <p>HUM ****: Design Thinking</p> <p>HUM ****: Intellectual Property Management</p> <p>Business Management</p> <p>HUM 4051: Financial Management</p> <p>HUM ****:Human Resource Management</p> <p>HUM 4053:Marketing Management</p> <p>HUM 4054:Operations Management</p> <p>People Management</p> <p>HUM****:Organizational Behaviour</p> <p>HUM****:Human Resource Management</p>
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		<p>HUM****: Professionalism & Ethics</p> <p>HUM****:Leadership & Decision Making</p> <p>Finance and Investments</p> <p>HUM 4051: Financial Management</p> <p>HUM ****:Financial System</p> <p>HUM****:Security Analysis & Portfolio Management</p> <p>HUM ****: Project Finance</p> <p>Modern Literature</p> <p>HUM****:Understanding Literature</p> <p>HUM****:Twentieth Century Literature</p> <p>HUM****:Comparative Literature</p> <p>HUM****:Modern Indian Literature</p> <p>Professional Communication</p> <p>HUM****: Public Speaking I (VI Sem.)</p> <p>HUM****:Intercultural Communication II (VI Sem.)</p> <p>HUM****: Corporate Communication III (VII Sem.)</p> <p>HUM ****: Technical and Business Writing</p>
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BTech Honors additional Subjects

1. Advanced Data Structures and Algorithms (5th semester)
2. Software Architecting and Testing(6th semester)
3. Advanced Communication Network Technologies(6th semester)
4. Advanced Operating Systems(7th semester)