



SCHOOL OF COMPUTING SCIENCE AND ENGINEERING

CURRICULUM & SYLLABUS

of

B.Tech. (COMPUTER SCIENCE AND ENGINEERING - CSE)

(2021-2022) Admitted Students

Course Structure:	Programme Core (PC)	Programme Elective (PE)	University Core (UC)	University Elective (UE)	Total
		55	15	69	21

PROGRAM CORE			55 Credits
Course Code	Course Title	Type	Credit
CSE2002	DATA STRUCTURES AND ALGORITHMS	LTP	4
CSE2003	COMPUTER ARCHITECTURE AND ORGANIZATION	LT	4
CSE3001	DATABASE MANAGEMENT SYSTEMS	LTP	4
CSE2001	OBJECT ORIENTED PROGRAMMING WITH C++	LTP	4
CSE4001	INTERNET AND WEB PROGRAMMING	LTP	4
CSE3003	OPERATING SYSTEMS	LTP	4
CSE3004	DESIGN AND ANALYSIS OF ALGORITHMS	LT	4
CSE3005	SOFTWARE ENGINEERING	LTP	4
CSE3006	COMPUTER NETWORKS	LTP	4
ECE2002	DIGITAL LOGIC DESIGN	LTP	4
ECE3004	MICROPROCESSORS AND MICROCONTROLLERS	LTP	4
CSE3011	PYTHON PROGRAMMING	LP	3
CSE2004	THEORY OF COMPUTATION AND COMPILER DESIGN	LT	4
-	PARALLEL AND DISTRIBUTED COMPUTING	LTP	4
		Credits	55

PROGRAM ELECTIVE			15 Credits
Artificial Intelligence and Data Science			
Course Code	Course Title	Type	Credit
CSA3004	DATA VISUALIZATION	LT	3
CSE4003	BIG DATA ANALYTICS	LP	3
-	SEMANTIC WEB TECHNOLOGIES	LP	3
CSA4003	DATA MINING AND DATA WAREHOUSING	LT	3
CSE3008	SOFT COMPUTING	LT	3
CSE4005	MACHINE LEARNING	LT	3
-	KNOWLEDGE ENGINEERING	LT	3
-	PERVASIVE COMPUTING	LT	3
-	GPU PROGRAMMING AND ARCHITECTURE	LP	3
-	SOCIAL NETWORK ANALYSIS	LT	3
-	INFORMATION RETRIEVAL	LT	3
Cyber Security and Block Chaining			
Course Code	Course Title	Type	Credit
CSD4002	ETHICAL HACKING	LTP	4
CSD4008	CYBER SECURITY FRAMEWORK	LT	3
MAT2009	APPLIED CRYPTOGRAPHY	LT	4
MAT5004	MATHEMATICAL FOUNDATIONS FOR CYBER SECURITY	LT	3
CSD5008	FORENSICS SCIENCE	LT	3

CSE4012	SOFTWARE DEFINED NETWORK	LT	3
-	BLOCK CHAIN TECHNOLOGY	LT	3
-	SECURE CODING	LP	3

Cloud and Health Sciences			
Course Code	Course Title	Type	Credit
-	CLOUD COMPUTING	LT	3
-	HEALTH INFORMATION SYSTEM	LT	3
-	MOBILE HEALTH INFORMATICS	LT	3
-	HEALTH CARE DATA ANALYTICS	LT	3
-	MEDICAL IMAGING	LT	3
CSD5002	VIRTUALIZATION ESSENTIALS	LP	3
-	CLOUD INFRASTRUCTURE AND AUTOMATION	LT	3
-	DEVOPS AND KUBERNETES	LP	3
-	CLOUD ORCHESTRATION	LT	3

Robotics and Automation			
Course Code	Course Title	Type	Credit
-	COMPUTER GRAPHICS	LP	3
CSE3010	COMPUTER VISION	LP	3
ECE6012	PATTERN RECOGNITION AND IMAGE ANALYSIS	LP	3
-	COMPUTER ANIMATION	LP	3
-	INTRODUCTION TO VISION AND ROBOTICS	LP	3
-	ROBOTICS AND CONTROL	LT	3
ECE4011	EMBEDDED SYSTEMS	LTP	4
-	WIRELESS SENSOR NETWORKS	LT	3
-	INTERNET OF THINGS	LT	3

Software Application and Game Development			
Course Code	Course Title	Type	Credit
CSE4016	SOFTWARE PROJECT MANAGEMENT	LT	3
CSE4017	SOFTWARE TESTING	LT	3
-	SOFTWARE QUALITY AND RELIABILITY	LT	3
-	OBJECT ORIENTED SYSTEM ENGINEERING	LT	3
-	USER INTERFACE DESIGN	LT	3
-	AGILE SOFTWARE DEVELOPMENT	LT	3
CSE3012	MOBILE APPLICATION DEVELOPMENT	LP	3
CSG2001	AUGMENTED REALITY AND VIRTUAL REALITY	LTP	4
-	GAME PROGRAMMING USING PYTHON	LP	3
-	GAMIFICATION IN INDUSTRY 4.0	LT	3
-	MULTIMEDIA TOOLS AND APPLICATIONS	LT	3

Future Skills			
Course Code	Course Title	Type	Credit
NAS1001	NASSCOM FUTURE SKILLS - ASSOCIATIVE DATA ANALYST	LTP	4
NAS2001	NASSCOM FUTURE SKILLS – ADVANCED DATA ANALYST	LTP	4
NAS1002	NASSCOM FUTURE SKILLS – SECURITY ANALYST I	LTP	4
NAS2002	NASSCOM FUTURE SKILLS – SECURITY ANALYST II	LTP	4
-	C# AND .NET PROGRAMMING	LP	3
-	ADVANCED PYTHON PROGRAMMING	LP	3
CSE4019	ADVANCED JAVA PROGRAMMING	LP	3
-	GO PROGRAMMING	LP	3

-	R PROGRAMMING	LP	3
-	SCALA PROGRAMMING	LP	3
-	DEEP LEARNING WITH PYTHON	LP	3
-	UML PROGRAMMING	LP	3

Independent Study Elective			
Course Code	Course Title	Type	Credit
-	Design Project/ Simulation Project/ Product Development/ Special Project	PJ	3

University Core			69 Credits
DSN2098	Project Exhibition - I	PJ	1
DSN2099	Project Exhibition - II	PJ	1
DSN3099	Engineering Project in Community Service	PJ	2
-	Summer Industrial Internship	PJ	1
-	Semester Internship	PJ	4
DSN4099	Capstone Project	PJ	5
PHY1001	Engineering Physics	LTP	4
CHY1001	Engineering Chemistry	LTP	4
MAT1001	Calculus and Laplace Transforms	LT	4
MAT3002	Applied Linear Algebra	LT	3
MAT3003	Probability, Statistics and Reliability	LT	4
MAT2002	Discrete Mathematics and Graph Theory	LT	4
-	Engineering Design and Modelling	LTP	4
EEE1001	Electric Circuits and Systems	LTP	4
CSA2001	Fundamentals of AI and ML	LTP	4
-	Effective Technical Communication	LT	2
-	Advanced Technical Communication	LT	2
-	Environmental Sustainability	LT	2
CSE1021	Introduction to Problem Solving and Programming	LTP	4
-	Programming in Java	LP	3
-	Competitive Coding Practice	LP	3
-	Professional Communication Skills for Engineers	P	1
-	Dynamics of Workplace Communication	P	1
-	Lateral Thinking	LT	2
Total Credits			69

University Elective			21 Credits
NATURAL SCIENCE ELECTIVES (Select any 2 Subject)			06 Credits
MAT2003	Applied Numerical Methods	LT	3
MAT3008	Computational Game Theory	LT	3
MAT2004	Operations Research	LT	3
MAT2001	Differential and Difference Equations	LT	3
MAT3004	Random Process	LT	3
-	Modelling and Simulation of Biological System	LP	3
PHY2011	Biophysics	LT	3
MULTIDISCIPLINARY ELECTIVES (Select any 2 Subject)			06 Credits
-	Human-Computer Interaction	LT	3
-	Biometric and Security Systems	LT	3
-	Sensor and IoT	LP	3
-	Unmanned Aerial Vehicles	LT	3
-	Body Area Network	LT	3
-	Digital Fabrication/Mems	LT	3
-	Bio Inspired Designs	LT	3
-	Cyber Physical Systems	LT	3
-	Foundations of Data Science	LP	3
-	Introduction to Linguistics	LT	3
-	MOOC Courses	LT	3
HUMANITIES, SOCIAL SCIENCES AND MANAGEMENT ELECTIVES (Select any 1 Subject)			03 Credits
HUM1002	Emotional Intelligence	LT	3
HUM2001	Behavioural Science	LT	3
MGT1001	Principles of Management And Organizational Behaviour	LT	3
BMT2017	International Business	LT	3
MGT2003	Technology Entrepreneurship	LT	3
BMT1013	Human Resource Management	LT	3
FREE ELECTIVES			06 Credits
-	Elective / Specialization Courses from other Schools	LT	3
-	MOOC Courses	LT	3

Minor [18 credits (6 subjects) from any one Minor Basket]				
Computational Intelligence and Knowledge Management	CSE4002	Data Visualization	LP	3
	CSE4003	Big Data Analytics	LP	3
	CSE4004	Semantic Web Technologies	LP	3
	CSE3007	Artificial Intelligence	LT	3
	CSE3008	Soft Computing	LT	3
	CSE4005	Machine Learning	LP	3
	CSE4006	Knowledge Engineering	LT	3
	Future Skill	Data Analytics /Security Analyst	LP	3
	-	Minor / Research Project	PJ	3
Block Chain	CSD3007	Block chains and Crypto currencies	LT	3
	CSD4008	Cyber Security Framework	LT	3
	CSD4009	Enterprise Cyber Security	LT	3
	CSD4003	Network and System Security	LP	3
	CSE4008	Applied Cryptography	LP	3
	CSE4009	Cyber Security	LT	3
	-	Block Chain for Businesses	LT	3
	-	Minor / Research Project	PJ	3
Computer Vision and Animation	CSE3009	Computer Graphics	LP	3
	ECE4012	Digital Image Processing	LP	3
	CSE3010	Computer Vision	LP	3
	CSE4013	Pattern recognition and Image analysis	LP	3
	CSE4014	Computer Animation	LP	3
	CSE4015	Introduction to Vision and Robotics	LP	3
	EEE3006	Robotics and Control	LT	3
	-	Minor / Research Project	PJ	3
Cyber Security	CSE4007	Wireless Networks	LP	3
	CSE4008	Applied Cryptography	LP	3
	CSE4009	Cyber Security	LT	3
	CSD1001	Principles of Digital Forensics	LT	3
	CSD4002	Ethical Hacking	LP	3
	CSE4011	Network Security	LP	3
	CSD4012	Web Security	LP	3
	-	Minor / Research Project	PJ	3
System and Software Engineering	CSE4016	Software Project Management	LT	3
	CSE4017	Software Testing	LT	3
	CSE4018	Software Quality and Reliability	LT	3
	CSE4019	Advanced Java Programming	LP	3
	CSE3011	Python Programming	LP	3
	CSE3012	Mobile Application Development	LP	3
	CSE4020	Agile Software Development	LT	3
	-	Minor / Research Project	PJ	3
Artificial Intelligence and Machine Learning	CSA6003	Algorithm for Intelligent Systems	LP	3
	CSA2002	Applied Machine Learning	LP	3
	CSA4001	Artificial Neural Networks	LT	3
	CSA3012	Cognitive Analytics	LT	3
	CSA3013	Computer Vision	LT	3
	CSA 2001	Fundamentals of AI and ML	LT	3
	CSA6002	Deep Learning	LT	3
	CSA3001	Expert Systems And Fuzzy Logic	LT	3
	-	Minor / Research Project	PJ	3

