Curriculum Version 1.0

B.Tech. (Computer Science and Engineering-Cloud Computing)

(For AY2026-27 onwards)

Credit distribution among baskets (Minimum credits to be earned = 160)		
Sl. No.	**Baskets**	**Credit Contribution**
1	School Core	59
2	Program Core	42
3	Discipline Elective	41
	Common Electives Basket	8
	Specialized Elective Baskets*	33
4	Open Elective	18
	Total Credits	**160**

Specialized Elective Baskets*		
Sl.No.	**Name of the Basket**	**Minimum Credit Requirement**
1	Artificial Intelligence and Machine Learning	3
2	Cyber Security	3
3	Data Analytics	3
4	IoT	3
5	Cloud Computing	12
6	Robotics	3
7	Big Data	0
8	Fullstack Development	3
9	DevOps	3
Total*		**33**

**** Remaining Credits, if any, to satisfy Specialized Elective Baskets credit requirement, can be taken from any Specialized Elective Basket***

Sl. No.	Course Code	Course Title	T	P	Credits
A. School Core - Minimum Credits to be earned from this basket (A+B+C+D+E+F+G) =					**59**
1	CSE1037	Programming in Python	2	2	**3**
2	CSE1018	Object Oriented Programming with Java	2	4	**4**
3	CSE1017	Programming in C and C++	2	4	**4**
4	CSE2001	Data Structures and Algorithms	3	2	**4**
5	MAT1014	Linear Algebra and Calculus using Matlab	3	2	**4**
6	MAT1002	Differential Equations and Transform Techniques	3	0	**3**
7	MAT1013	Statistics and Probability	2	2	**3**
8	MAT1012	Numerical Techniques	2	2	**3**
9	MGT1101	Digital Entrepreneurship	2	0	**2**
10	BIT1002	Basic Human Nutrition	2	0	**2**
11	ECE1008	Innovation Project Using Arduino	0	2	**1**
12	ECE1009	Innovation Project Using Rasberry Pi	0	2	**1**
13	CSE4001	B.Tech. Capstone Project	-	-	**4**
14	CSE4002	B.Tech. Internship	-	-	**6**
B. Electrical and Electronics Basket - Min. credits to be earned from this basket =					**4**
1	ECE1002	Elements of Electronics Engineering	3	2	**4**
2	ECE1001	Fundamentals of Electrical and Electronics Engineering	3	2	**4**
C. Modern Physics Basket - Min. credits to be earned from this basket =					**3**
1	PHY1001	Physics of Opto-electronic Devices	2	2	3
2	PHY1002	Semiconductor Physics	2	2	3
D. English Basket - Min. credits to be earned from this basket =					**2**
1	ENG1001	Foundational English	0	2	**1**
2	ENG1002	Communicative English	0	2	**1**
3	ENG1003	Professional English	0	2	**1**
E. Foreign Languages Basket - Min. credits to be earned from this basket =					**1**
1	GER1002	Communicative German	0	2	1
2	FRE1002	Communicative French	0	2	1
3	SPA1001	Communicative Spanish	0	2	1
F. Behavioural Science Basket (All Courses in this basket are mandatory) - Minimum Credits to be earned from this basket =					**2**
1	PSY1001	Understanding Self for Effectiveness	0	2	**1**
2	PSY1002	Dynamics of Human Behaviour	0	2	**1**
G. Soft Skills Basket (All Courses in this basket are mandatory) - Minimum Credits to be earned from this basket =					**3**
1	SSK2002	Being Corporate Ready	0	2	**1**
2	SSK3001	Problem Solving through Aptitude	0	2	**1**
3	CSE3050	Programming Skills for Employment	0	2	**1**
Non-Credit Pass/ Fail Type Core Courses					**0**
1	CHE1001	Environmental Studies	2	0	**0**
2	CEA1001	Co-/ Extra-curricular Activities	-	-	0
Program Core (All Courses in this basket are mandatory) - Minimum Credits to be earned from this basket =					**42**
1	CSE1006	Software Engineering	3	0	**3**
2	CSE2002	Web Technology	2	2	**3**

3	CSE2045	Algorithmic Design and Analysis	3	2	**4**
4	ECE2006	Computer Architecture and Organization	3	0	**3**
5	CSE2046	Operating Systems with Linux Internals	2	2	**3**
6	CSE2006	Communication Networks	2	2	**3**
7	CSE2007	Relational Database Management System	2	2	**3**
8	CSE2008	Cloud Computing	2	2	**3**
9	CSE2009	Data Analytics and Visualization	2	2	**3**
10	CSE1035	Fundamentals of Artificial Intelligence and Machine Learning	2	2	**3**
11	CSE3003	Cryptography and Network Security	3	0	**3**
12	MAT2002	Discrete Mathematics and Graph Theory	3	0	**3**
13	CSE2015	Source Code Management	0	2	**1**
14	ECE1003	Digital Design, Microprocessors and Microcontrollers	3	2	**4**
Discipline Electives - Minimum Credits to be earned from both Common and Specialized elective baskets =					**41**
Common Electives Basket - Minimum Credits to be earned from this basket =					**8**
1	CSE1007	Programming in C# and .NET Framework	0	4	**2**
2	CSE1009	Linux Internals	2	2	**3**
3	CSE2044	Computer Graphics with OpenGL	2	2	**3**
4	CSE3016	Object Oriented Modelling and Design using UML	3	0	**3**
5	CSE2011	Advanced Java	0	4	**2**
6	CSE2012	Advanced Database Management System	2	2	**3**
7	CSE2013	Mobile Adhoc Networks	3	0	**3**
8	CSE2014	Compiler Design	2	2	**3**
9	CSE2016	Software Quality Assurance	2	2	**3**
10	CSE2017	UI/UX	2	2	**3**
11	CSE2018	Service-oriented Architecture	3	0	**3**
12	CSE2019	Wearable Computing	2	2	**3**
13	CSE2020	IT Infrastructure Management	3	0	**3**
14	CSE2021	Data Mining and Data Warehousing	3	0	**3**
15	CSE3005	Wireless Sensor Network	3	0	**3**
16	CSE3006	Quantum Computing	2	0	**2**
17	CSE3007	AR/ VR/ XR	2	2	**3**
18	CSE3008	Human computer Interaction	3	0	**3**
19	CSE3009	Digital Imaging	2	2	**3**
20	CSE2010	Mobile Application Development	2	2	**3**
21	CSE3004	Parallel and Distributed Computing	2	2	**3**
22	CSE3001	Theory of Computation	3	0	**3**
23	MAT2001	Advanced Statistics	2	2	**3**
Specialized Electives Baskets - Minimum Credits to be earned from these baskets (H+I+J+K+L+M+N+O+P)=					**33**
H. AI & ML Basket - Minimum Credits to be earned from this basket =					**3**
1	CSE3010	AI & ML Applications	2	2	**3**
2	CSE3011	Machine Learning Techniques	2	2	**3**
3	CSE3015	Natural Language Processing	2	2	**3**
4	CSE3013	Deep Neural Networks	2	2	**3**
5	CSE3012	Optimization Techniques in Machine Learning	3	0	**3**
6	CSE3014	Reinforcement Learning Techniques	2	2	**3**
7	CSE4005	Industrial Applications of AI & ML	3	0	**3**

I. Cyber Security Basket - Minimum Credits to be earned from this basket =					**3**
1	CSE3022	Intrusion Detection and Prevention System	2	2	**3**
2	CSE3021	Ethical Hacking	2	2	**3**
3	CSE3025	Networking and System Administration	2	2	**3**
4	CSE3020	Social Media Privacy and Security	3	0	**3**
5	CSE3023	Fundamentals of Cloud Security	3	0	**3**
6	CSE3024	Penetration Testing and Incident Response	2	2	**3**
7	CSE3026	Blockchain and Distributed Ledger Technology	3	0	**3**
8	CSE4009	Industrial Applications of Cyber Security	3	0	**3**
J. Data Analytics Basket - Minimum Credits to be earned from this basket =					**3**
1	CSE1008	Statistical Foundations of Data Analytics	2	2	**3**
2	CSE1012	R Programming for Data Analytics	2	2	**3**
3	CSE1013	Exploratory Data Analysis	2	2	**3**
4	CSE2024	Web Data Analytics	2	2	**3**
5	CSE2025	Predictive Analytics	2	2	**3**
6	CSE2026	Social Media Analytics	2	2	**3**
7	CSE2027	Healthcare Analytics	2	2	**3**
8	CSE2028	Big Data Analytics	2	2	**3**
9	CSE2029	Business Analytics Fundamentals	3	0	**3**
10	CSE4010	Industrial Applications of Data Analytics	3	0	**3**
K. IoT Basket - Minimum Credits to be earned from this basket =					**3**
1	ECE2004	Sensor Technology, Embedded Systems and User Interface	2	2	**3**
2	ECE2002	IoT Platforms and Application Development	2	2	**3**
3	CSE2031	Wireless Communication in IoT	3	0	**3**
4	ECE2001	IoT Architecture and Protocols	3	0	**3**
5	CSE2032	Mobile Application for IoT	2	2	**3**
6	CSE2033	Cloud Computing for IoT	3	0	**3**
7	CSE2030	Big Data Analytics for IoT	2	2	**3**
8	ECE2003	Industrial Internet of Things	3	0	**3**
9	ECE2005	Internet of Medical Things	3	0	**3**
L. Cloud Computing Basket - Minimum Credits to be earned from this basket =					**12**
1	CSE2037	Database and Network Management	2	2	**3**
2	CSE2036	Cloud Services and APIs	2	2	**3**
3	CSE2034	Design and Operation of Data Center	3	0	**3**
4	CSE2076	System Provisioning and Monitoring	2	2	**3**
5	CSE2038	Cloud Computing Platforms	2	2	**3**
6	CSE3028	Edge Computing Paradigms	3	0	**3**
7	CSE2039	Middleware Technologies	3	0	**3**
8	CSE4003	Industrial Applications of Cloud Computing	3	0	**3**
M. Robotics Basket - Minimum Credits to be earned from this basket =					**3**
1	ECE5002	Principles of Robotics and RoS	2	2	3
2	ECE2037	Drone Technology	2	2	3
3	CSE5096	Robotic Process Automation	2	2	3
4	CSE5099	Robot Motion Planning	2	2	3
5	ECE5005	Robot Kinematics	2	2	3
6	ECE3002	Mechatronic System Design	2	2	3

7	CSE5098	Computer Vision	2	2	3
8	ECE3026	Building Robots	0	6	3
9	CSE3031	Autonomous Mobile Robots	2	2	3
10	CSE3032	Human-robot Interaction	2	2	3
11	CSE3033	Microrobotics	3	0	3
12	CSE4004	Industrial Applications of Robotics	3	0	3
N. Big Data Basket - Minimum Credits to be earned from this basket =					**0**
1	CSE3019	Big Data Security and Privacy	3	0	**3**
2	CSE1011	Information Visualization	2	2	**3**
3	CSE2080	Data Engineering Pipelines	2	2	**3**
4	CSE3034	Data Ingestion Techniques	2	2	**3**
5	CSE4011	Industrial Applications of BigData	3	0	**3**
0. Full Stack Basket Basket - Minimum Credits to be earned from this basket =					**3**
1	CSE2022	Front End Engineering	2	2	**3**
2	CSE2023	Backend Engineering	2	2	**3**
3	CSE2041	NoSQL Data Bases and Retrieval Augmented Generation	2	2	**3**
4	CSE3017	Java, Springboot and Microservices	2	2	**3**
5	CSE3018	MEAN/ MERN Stack	2	2	**3**
6	CSE4008	Industrial Applications of Full Stack Development	3	0	**3**
7	CSE4012	Cross Plateform Mobile App Development	2	2	**3**
8	CSE4013	Full Stack AI	2	2	**3**
P. DevOps Basket Basket - Minimum Credits to be earned from this basket =					**3**
1	CSE2035	DevOps	3	0	**3**
2	CSE2042	Development Automation	2	2	**3**
3	CSE2043	Advanced Linux and Shell Scripting	2	2	**3**
4	CSE2040	Continuous Integration and Continuous Deployment	2	2	**3**
5	CSE2048	Microservices and Service Oriented Architecture	2	2	**3**
6	CSE2077	Infrastructure Provisioning	2	2	**3**
7	CSE2078	Build and Release Management	2	2	**3**
8	CSE2079	Containerization and Orchestration	2	2	**3**
9	CSE4007	Industrial Applications of DevOPs	3	0	**3**

Open Elective basket - Minimum Credits to be earned from this basket = 18

Any course from another 'eligible'curriculum

Any unused Discipline Elective from his/ her 'own' curriculum

Any stand-alone course declared as "Open Elective" by School/ Dept. for a specific 'eligible' degree program

School approved NPTEL/ Swayam courses for a maximum of 6-credits