

**CHAITANYA BHARATHI INSTITUTE OF  
TECHNOLOGY (A)  
Hyderabad-75**

**Department of Computer Science and Engineering  
Scheme of Additional Minor Engineering Degree in Computer  
Engineering, AI/ML, Cyber Security, IoT**

**Date:10-01-2024**

**Academic Requirements: (Min 20 credits)**

**A) For Engineering (Mechanical, Civil, ECE, EEE, Bio-Tech and Chemical)**

1. Students can choose courses which were not studied earlier in the previous semester. Further the courses should not be present in the curriculum of the forthcoming semesters.
2. This scheme is effective for the batches starting from 2023-24 Academic year

**B) CORE ELECTIVE LIST (Any 3 Courses including mandatory course)- 9 to 12 credits**

SNO	Course Code	Course Title	L:T:P	Credits	Desirable prerequisites	Preferred Semester
1	22CSC15	Operating Systems(mandatory course)	3-0-0	3		4 or above
2	22CSC32	Discrete Mathematics	4-0-0	4		4 or above
3	22CSC03	Object Oriented Programming (OOPs)	2-1-0	4	20CSC01	2 or above
4	22AMC01	Computer Architecture & Micro Processors	3-0-0	3	20CSC01	4 or above
5	22CSC11	Database Management Systems	3-0-0	4	-	3 or above
6	22CSCXX	Design and Analysis of Algorithms	3-0-0	3	20CSO01	5 or above
7	22CSCXX	Data Communications & Computer Networks	3-0-0	3	20CSCOS	5 or above
8	22CSCXX	Artificial Intelligence	3-0-0	3	-	5 or above
9	22CSCXX	Software Engineering	3-0-0	3	20CSC03	5 or above

**Core Elective NPTEL Equivalent courses**

SN O	Course Title	No of Weeks/ Credits	Start and End Date	Enrol l- ment Last date	NPTEL Link
1	Computer Networks And Internet Protocol	12/3	22-01-2024 to 12-04-2024	29-01-2024	<a href="https://onlinecourses.nptel.ac.in/noc24_cs19/preview">https://onlinecourses.nptel.ac.in/noc24_cs19/preview</a>
2	Discrete Mathematics	12/3	22-01-2024 to 12-04-2024	29-01-2024	<a href="https://onlinecourses.nptel.ac.in/noc24_cs58/preview">https://onlinecourses.nptel.ac.in/noc24_cs58/preview</a>

3	Programming In Java	12/3	22-01-2024 to 12-04-2024	29-01-2024	<a href="https://onlinecourses.nptel.ac.in/noc24_cs43/preview">https://onlinecourses.nptel.ac.in/noc24_cs43/preview</a>
4	Data Base Management System	8/2	22-01-2024 to 15-03-2024	29-01-2024	<a href="https://onlinecourses.nptel.ac.in/noc24_cs21/preview">https://onlinecourses.nptel.ac.in/noc24_cs21/preview</a>
5	Design and analysis of algorithms	8/2	22-01-2024 to 15-03-2024	29-01-2024	<a href="https://onlinecourses.nptel.ac.in/noc24_cs23/preview">https://onlinecourses.nptel.ac.in/noc24_cs23/preview</a>

**COMPUTER ENGINEERING: (Any THREE Courses or TWO Courses and Project) – 8 to 11 Credits**

SNO	Course Code	Course Title	L:T:P	Credits	Desirable prerequisites	Preferred Semester
1	22CSCXX	Internet and Web Technologies	3-0-2	4	-	3 or above
2	22CSCXX	Machine Learning	3-0-2	4	-	5 or above
3	22CSCXX	Data Science	3-0-0	3	-	4 or above
4	22CSCXX	Cloud Computing	3-0-0	3	-	6 or above
5	22CSCXX	Free and Open-Source Technologies	3-0-0	3	-	5 or above
6	22CSCXX	Mobile Application Development	3-0-0	3	-	4 or above
7	22CSCXX	Project	0-1-6	4	-	7 or 8
8	22CSCXX	Special Topics Computer Science	2-0-0	2	-	7 or 8
9	22CSCXX	Special Modules in CS	1-0-0	1	-	7 or 8

# Above list is tentative and can be suitably updated based on needs of the Industry and availability of relevant course

**NPTEL equivalent courses**

SNO	Course Title	No of Weeks/Credits	Startand end dates	Enroll ment last date	Nptel link
1	Machine Learning for Engineering and science applications	12/3	22-01-2024 to 12-04-2024	29-01-2024	<a href="https://onlinecourses.nptel.ac.in/noc24_cs38/preview">https://onlinecourses.nptel.ac.in/noc24_cs38/preview</a>
2	Data Science for Engineers	8/2	22-01-2024 to 15-03-2024	29-01-2024	<a href="https://onlinecourses.nptel.ac.in/noc24_cs53/preview">https://onlinecourses.nptel.ac.in/noc24_cs53/preview</a>

3	Cloud Computing	12/3	22-01-2024 to 12-03-2024	29-01-2024	<a href="https://onlinecourses.nptel.ac.in/noc24_cs17/preview">https://onlinecourses.nptel.ac.in/noc24_cs17/preview</a>
4	Introduction To Game Theory And Mechanism Design	NA			

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#### AI & ML(Any THREE Courses or TWO Courses and Project) – 8 to 11 Credits

SNO	Course Code	Course Title	L:T:P	Credits	Desirable prerequisites	Preferred Semester
1	20CAE05	Image Processing and Applications	2-0-1	3	20CSC05	3 or above
2	20CSE02	Data Science	3-0-0	3	-	4 or above
3		Introduction to Logic and Functional Programming	2-0-1	3	20CSC09	4 or above
4	20CSE11	Natural Language Processing	2-0-1	3	20CSE26	5 or above
5	20CSE06/20CAC04	Machine Learning	3-0-2	4	20CSE26	6 or above
6	20CAE03	Computer Vision	2-0-1	3	20CAE05	6 or above
7	20CSE16/20CAC07	Deep Learning	3-0-2	4	20CSE06/20CAC04	6 or above
8	20CSC34	Project	0-1-4	4	-	7 or 8
9	20CSCxx	Special Topics on AI	2-0-0	2	-	7 or 8
10	20CSC33	Special modules in AI	1-0-0	1	-	7 or 8

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#### NPTEL equivalent courses

SN O	Course Title	No of Weeks/Credits	Startand end dates	Enrollment last date	Nptel link
1	Natural Language Processing	12/3	22-01-2024 to 12-04-2024	29-01-2024	<a href="https://onlinecourses.nptel.ac.in/noc24_cs39/preview">https://onlinecourses.nptel.ac.in/noc24_cs39/preview</a>
2	Introduction to Machine Learning	12/3	22-01-2024 to 12-04-2024	29-01-2024	<a href="https://onlinecourses.nptel.ac.in/noc24_cs51/preview">https://onlinecourses.nptel.ac.in/noc24_cs51/preview</a>
3	Computer	NA			

	vision				
4	Deep learning	12/3	22-01-2024 to 12-04-2024	29-01-2024	<a href="https://onlinecourses.nptel.ac.in/noc24_cs59/preview">https://onlinecourses.nptel.ac.in/noc24_cs59/preview</a>

**CYBER SECURITY (Any THREE Courses or TWO Courses and Project) – 8 to 11 Credits**

SNO	Course Code	Course Title	L:T:P	Credits	Desirable prerequisites	Preferred Semester
1	20CSC05	IT 4.0	2-0-1	3	--	2 or above
2		Wireless and Sensor Networks	2-0-2	3	--	3 or above
3	20CSC15	Internet and Web Technologies	2-0-2	3	20CSO01	4 or above
4	20CSE17	Internet of Things	2-0-1	3	20CSC13	5 or above
5	20CSE02	Data Science	3-0-0	3	-	4 or above
6	20CSC27	Applied Cryptography	2-0-1	3	20CSC21	6 or above
7		Wireless and Mobile Systems	2-0-1	3	20CSEWSN	6 or above
8	20CSC34	Capstone Project	0-1-3	4	-	7 or 8
9	20CSCxx	Special Topics in Cyber Systems	2-0-0	2	-	7 or 8
10	20CSC33	Special modules in Systems	1-0-0	1	-	7 or 8

# Above list is tentative and can be suitably updated based on needs of the Industry and availability of relevant course

**NPTEL equivalent courses**

SNO	Course Title	No of Weeks/Credits	Start and end dates	Enrollment last date	Nptel link
1	Introduction To Industry 4.0 And Industrial Internet Of Things	12/3	22-01-2024 to 12-04-2024	29-01-2024	<a href="https://onlinecourses.nptel.ac.in/noc24_cs34/preview">https://onlinecourses.nptel.ac.in/noc24_cs34/preview</a>
2	Introduction To Internet Of Things	12/3	22-01-2024 to 12-04-2024	29-01-2024	<a href="https://onlinecourses.nptel.ac.in/noc24_cs35/preview">https://onlinecourses.nptel.ac.in/noc24_cs35/preview</a>
3	Data Science for Engineers	8/2	22-01-2024 to 15-03-2024	29-01-2024	<a href="https://onlinecourses.nptel.ac.in/noc24_cs53/preview">https://onlinecourses.nptel.ac.in/noc24_cs53/preview</a>
4	Privacy and Security in Online Social Media	12/3	22-01-2024 to 12-04-2024	29-01-2024	<a href="https://onlinecourses.nptel.ac.in/noc24_cs04/preview">https://onlinecourses.nptel.ac.in/noc24_cs04/preview</a>
5	Ethical Hacking	NA			

6	Privacy and Security in Online Social Media	12/3	22-01-2024 to 12-04-2024	29-01-2024	<a href="https://onlinecourses.nptel.ac.in/noc24_cs04/prereview">https://onlinecourses.nptel.ac.in/noc24_cs04/prereview</a>

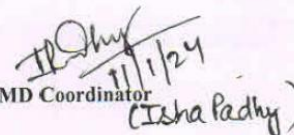
**INTERNET OF THINGS (Any THREE Courses OR TWO Courses and Project) 8 to 11 Credits**

SNO	Course Code	Course Title	L:T:P	Credits	Desirable prerequisites	Preferred Semester
1	20CSC05	IT 4.0	2-0-1	3	--	2 or above
2		Wireless and Sensor Networks	2-0-2	3	--	3 or above
3	20CSE17	Internet of Things	2-0-1	3	20CSC13	4or above
4	20CSE02	Data Science	3-0-0	3	-	4 or above
5	20CSE18	Mobile Application Development	3-0-0	3	20CSC15	4 or above
6		IoT Architectures and Protocols	2-0-1	3	20CSCOS	5or above
7		IoT Security	2-0-1	3	20CSC21	6 or above
8	20CSC34	Capstone Project	0-1-3	4	--	7 or 8
9	20CSC32	Foundation of Cloud IoT Edge ML	2-0-0	2	--	7 or 8
10	20CSC33	Special modules in Systems	1-0-0	1	--	7 or 8

# Above list is tentative and can be suitably updated based on needs of the Industry and availability of relevant course

**NPTEL equivalent courses**

SNO	Course Title	No of Weeks/Credits	Start and end dates	Enrollment last date	Nptel link
1	Introduction To Industry 4.0 And Industrial Internet Of Things	12/3	22-01-2024 to 12-04-2024	29-01-2024	<a href="https://onlinecourses.nptel.ac.in/noc24_cs34/prereview">https://onlinecourses.nptel.ac.in/noc24_cs34/prereview</a>
2	Introduction To Internet Of Things	12/3	22-01-2024 to 12-04-2024	29-01-2024	<a href="https://onlinecourses.nptel.ac.in/noc24_cs35/prereview">https://onlinecourses.nptel.ac.in/noc24_cs35/prereview</a>
3	Data Science for Engineers	8/2	22-01-2024 to 15-03-2024	29-01-2024	<a href="https://onlinecourses.nptel.ac.in/noc24_cs53/prereview">https://onlinecourses.nptel.ac.in/noc24_cs53/prereview</a>


  
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