

CHAITANYA BHARATHI INSTITUTE OF TECHNOLOGY (A)
Department of Information Technology

COURSES IDENTIFIED FOR MINORS DEGREE 2021-2022(July-December)

Date: 23-05-2021

Additional Minor Engineering Degree In

- I. Artificial Intelligence
- II. Data Science
- III. Augmented Reality- Virtual Reality
- IV. Information Security

The lists of subjects approved for Information Technology Department AY: 2021-22

List of Swayam/NPTEL courses for the award of Minor Engineering in Artificial Intelligence:

Course Name	No. of weeks	No. of credits	Start and End Date	Date of Exam	Link
The Joy of Computing using Python	12	3	18/01/2021 09/04/2021	24/04/2021	https://onlinecourses.nptel.ac.in/noc21_cs32/preview
Data Analytics with Python	12	3	18/01/2021 09/04/2021	24/04/2021	https://onlinecourses.nptel.ac.in/noc21_cs45/preview
Programming in Java	12	3	18/01/2021 09/04/2021	25/04/2021	https://onlinecourses.nptel.ac.in/noc21_cs03/preview
Discrete Mathematics - IIT Ropar	12	3	18/01/2021 09/04/2021	24/04/2021	https://onlinecourses.nptel.ac.in/noc21_cs34/preview
Introduction to Database Systems	12	3	18/01/2021 09/04/2021	25/04/2021	https://onlinecourses.nptel.ac.in/noc21_cs52/preview
Artificial Intelligence: Knowledge Representation and Reasoning	12	3	18/01/2021 09/04/2021	24/04/2021	https://onlinecourses.nptel.ac.in/noc21_cs26/preview
Introduction to internet of things	12	3	18/01/2021 09/04/2021	24/04/2021	https://onlinecourses.nptel.ac.in/noc21_cs17/preview

Introduction to Soft Computing	8	2	18/01/2021 12/03/2021	21/03/2021	https://onlinecourses.nptel.ac.in/noc21_cs11/preview
AI: Constraint Satisfaction	8	2	18/01/2021 12/03/2021	21/03/2021	https://onlinecourses.nptel.ac.in/noc21_cs27/preview
An Introduction to Artificial Intelligence	12	3	18/01/2021 09/04/2021	25/04/2021	https://onlinecourses.nptel.ac.in/noc21_cs42/preview
Operating System	12	3	18/01/2021 09/04/2021	24/04/2021	https://onlinecourses.nptel.ac.in/noc21_cs44/preview
Advanced Computer Architecture	8	2	15/02/2021 09/04/2021	25/04/2021	https://onlinecourses.nptel.ac.in/noc21_cs47/preview
Deep Learning - IIT Ropar	12	3	18/01/2021 09/04/2021	25/04/2021	https://onlinecourses.nptel.ac.in/noc21_cs35/preview

List of Swayam/NPTEL courses for the award of Minor Engineering in Data Science:

Course Name	No. of weeks	No. of credits	Start and End Date	Date of Exam	Link
The Joy of Computing using Python	12	3	18/01/2021 09/04/2021	24/04/2021	https://onlinecourses.nptel.ac.in/noc21_cs32/preview
Data Science for Engineers	8	2	18/01/2021 12/03/2021	21/03/2021	https://onlinecourses.nptel.ac.in/noc21_cs23/preview
Python for Data Science	4	1	18/01/2021 12/02/2021	21/03/2021	https://onlinecourses.nptel.ac.in/noc21_cs33/preview
Data Analytics with Python	12	3	18/01/2021 09/04/2021	24/04/2021	https://onlinecourses.nptel.ac.in/noc21_cs45/preview
Discrete Mathematics - IIT Ropar	12	3	18/01/2021 09/04/2021	24/04/2021	https://onlinecourses.nptel.ac.in/noc21_cs34/preview
Introduction to Database Systems	12	3	18/01/2021 09/04/2021	25/04/2021	https://onlinecourses.nptel.ac.in/noc21_cs52/preview
Introduction to Machine Learning	12	3	18/01/2021 09/04/2021	25/04/2021	https://onlinecourses.nptel.ac.in/noc21_cs24/preview
Deep Learning - IIT Ropar	12	3	18/01/2021 09/04/2021	25/04/2021	https://onlinecourses.nptel.ac.in/noc21_cs35/preview

Operating System	12	3	18/01/2021 09/04/2021	24/04/2021	https://onlinecourses.nptel.ac.in/noc21_cs44/preview
Machine Learning, ML	8	2	15/02/2021 09/04/2021	25/04/2021	https://onlinecourses.nptel.ac.in/noc21_cs51/preview
Advanced Computer Architecture	8	2	15/02/2021 09/04/2021	25/04/2021	https://onlinecourses.nptel.ac.in/noc21_cs47/preview

List of Swayam/NPTEL courses for the award of Minor Engineering in AR-VR Minors:

Course Name	No. of weeks	No. of credits	Start and End Date	Date of Exam	Link
The Joy of Computing using Python	12	3	18/01/2021 09/04/2021	24/04/2021	https://onlinecourses.nptel.ac.in/noc21_cs32/preview
Data Analytics with Python	12	3	18/01/2021 09/04/2021	24/04/2021	https://onlinecourses.nptel.ac.in/noc21_cs45/preview
Programming in Java	12	3	18/01/2021 09/04/2021	25/04/2021	https://onlinecourses.nptel.ac.in/noc21_cs03/preview
Discrete Mathematics - IIT Ropar	12	3	18/01/2021 09/04/2021	24/04/2021	https://onlinecourses.nptel.ac.in/noc21_cs34/preview
Introduction to Database Systems	12	3	18/01/2021 09/04/2021	25/04/2021	https://onlinecourses.nptel.ac.in/noc21_cs52/preview
Cloud computing	8	2	15/02/2021 09/04/2021	25/04/2021	https://onlinecourses.nptel.ac.in/noc21_cs14/preview
Cloud Computing and Distributed Systems	8	2	18/01/2021 12/03/2021	21/03/2021	https://onlinecourses.nptel.ac.in/noc21_cs15/preview
Operating System	12	3	18/01/2021 09/04/2021	24/04/2021	https://onlinecourses.nptel.ac.in/noc21_cs44/preview
Data Mining	8	2	15/02/2021 09/04/2021	24/04/2021	https://onlinecourses.nptel.ac.in/noc21_cs06/preview
Operating System	12	3	18/01/2021 09/04/2021	24/04/2021	https://onlinecourses.nptel.ac.in/noc21_cs44/preview
Advanced Computer Architecture	8	2	15/02/2021 09/04/2021	25/04/2021	https://onlinecourses.nptel.ac.in/noc21_cs47/preview

List of Swayam/NPTEL courses for the award of Minor Engineering in Information Security:

Course Name	No. of weeks	No. of credits	Start and End Date	Date of Exam	Link for Registration
The Joy of Computing using Python	12	3	18/01/2021 09/04/2021	24/04/2021	https://onlinecourses.nptel.ac.in/noc21_cs32/preview
Computer Organization and Architecture: A Pedagogical Aspect	12	3	18/01/2021 09/04/2021	24/04/2021	https://onlinecourses.nptel.ac.in/noc21_cs37/preview
Introduction to Database Systems	12	3	18/01/2021 09/04/2021	25/04/2021	https://onlinecourses.nptel.ac.in/noc21_cs52/preview
Computer Architecture	12	3	18/01/2021 09/04/2021	25/04/2021	https://onlinecourses.nptel.ac.in/noc21_cs41/preview
Programming in Java	12	3	18/01/2021 09/04/2021	25/04/2021	https://onlinecourses.nptel.ac.in/noc21_cs03/preview
Discrete Mathematics - IIT Ropar	12	3	18/01/2021 09/04/2021	24/04/2021	https://onlinecourses.nptel.ac.in/noc21_cs34/preview
Introduction to Database Systems	12	3	18/01/2021 09/04/2021	25/04/2021	https://onlinecourses.nptel.ac.in/noc21_cs52/preview
Computer Networks and Internet Protocol	12	3	18/01/2021 09/04/2021	24/04/2021	https://onlinecourses.nptel.ac.in/noc21_cs18/preview
Information Security - 5 - Secure Systems Engineering	8	2	18/01/2021 12/03/2021	21/03/2021	https://onlinecourses.nptel.ac.in/noc21_cs30/preview
Social Networks	12	3	18/01/2021 09/04/2021	25/04/2021	https://onlinecourses.nptel.ac.in/noc21_cs31/preview
Foundations of Cryptography	12	3	18/01/2021 09/04/2021	24/04/2021	https://onlinecourses.nptel.ac.in/noc21_cs43/preview
Cryptography and Network Security	12	3	18/01/2021 09/04/2021	24/04/2021	https://onlinecourses.nptel.ac.in/noc21_cs16/preview
Privacy and Security in Online Social Media	8 Weeks(in 12 weeks Duration)	2	18/01/2021 09/04/2021	25/04/2021	https://onlinecourses.nptel.ac.in/noc21_cs28/preview
Operating System	12	3	18/01/2021 09/04/2021	24/04/2021	https://onlinecourses.nptel.ac.in/noc21_cs44/preview
Advanced Computer Architecture	8	2	15/02/2021 09/04/2021	25/04/2021	https://onlinecourses.nptel.ac.in/noc21_cs47/preview

Note: The above semester-wise grouping of courses is only suggestive in nature. Hence, Students can pursue and complete the above courses irrespective of the semester in which they are in.

Coursera Courses:

Artificial Intelligence			
Group – I (Programming – any one - 2/4 credits)	Group – II(Foundation – any three - 2/4 credits)	Group – III (Technology – any Two - 2/6 credits)	Group – IV (Advanced Concepts – any Two - 2/6 credits)
<u>Programming in C++</u>	<u>20CSMCE01 - Data Base Management System</u>	<u>20CSMCE13 - Machine Learning using Python / R</u>	20CSMCE25 - Machine Learning
<u>Programming in Java</u>	<u>20CSMIOT03 - Computer architecture and organization</u>	<u>20CSMCE15 - Data Mining</u>	20CSMCE26 - Genetic Algorithms
<u>Python</u>	20CSMCE03 - Introduction to Operating Systems	20CSMCE13 - Pattern Recognition and Application	20CSMCE27 - Artificial Intelligence
<u>Computational Thinking with Python / C / Java / C++</u>	<u>20CSMCE04 - Data Structures and Algorithms.</u>	20CSMIOT15 - Artificial Intelligence	20CSMCE28 - Computer Vision
<u>Oops - C++/JAVA/Python</u>	<u>Computer networks</u>	<u>20CSMCE17 - Soft Computing using python / MATLAB</u>	20CSMCE30 - Cloud Computing
	<u>IT support for Professional.</u>	<u>Full stack Development</u>	20CSMIOT30 - Data Mining and Predictive Modeling
	<u>Discrete Mathematics</u>	<u>Agile Development methodologies</u>	20CSMIOT25 - Machine Learning
			20CSMCE34 - Open Source Technologies for Engineers
			20CSMIOT30 - Data Mining and Predictive Modeling
			Capstone project

Data Science			
Group – I (Programming – any one - 2/4 credits)	Group – II(Foundation – any three - 2/4 credits)	Group – III (Technology – any Two - 2/6 credits)	Group – IV (Advanced Concepts – any Two - 2/6 credits)
<u>Programming in C++</u>	<u>20CSMCE01 - Data Base Management System</u>	20CSMCE20 - Data Science using Python / R	20CSMCE30 - Cloud Computing
<u>Programming in Java</u>	<u>20CSMIOT03 - Computer architecture and organization</u>	20CSMCE13 - Pattern Recognition and Application	Satellite Data· 20CSMCE18- Deep Learning for Visual Computing.
<u>Python</u>	20CSMCE03 - Introduction to Operating Systems	<u>20CSMCE17 - Soft Computing using python / MATLAB</u>	20CSMCE19 – Medical Image Analysis
<u>Computational Thinking with Python / C / Java / C++</u>	<u>20CSMCE04 - Data Structures and Algorithms.</u>	<u>Full stack Development</u>	20CSMCE34 - Open Source Technologies for Engineers
<u>Oops - C++/JAVA/Python</u>	<u>Computer networks</u>	<u>Agile Development methodologies</u>	20CSMIOT30 - Data Mining and Predictive Modeling
	<u>IT support for Professional.</u>		20CSMIOT26 - Data Science for Engineers
	<u>Discrete Mathematics</u>		20CSMIOT25 - Machine Learning
			20CSMIOT30 - Data Mining and Predictive Modeling
			Capstone project

AR-VR			
Group – I (Programming – any one - 2/4 credits)	Group – II(Foundation – any three - 2/4 credits)	Group – III (Technology – any Two - 2/6 credits)	Group – IV (Advanced Concepts – any Two - 2/6 credits)
<u>Programming in C++</u>	<u>20CSMCE01 - Data Base Management System</u>	Virtual Reality	20CSMCE30 - Cloud Computing
<u>Programming in Java</u>	<u>20CSMIOT03 - Computer architecture and organization</u>	20CSMCMV15 - Augmented reality	20CSMCMV21- Computer Vision object detectionwith OpenCV Python
<u>Python</u>	20CSMCE03 - Introduction to Operating Systems	20CSMCMV20 - ComputerVision	
<u>Computational Thinking with Python / C / Java / C++</u>	<u>20CSMCE04 - Data Structures and Algorithms.</u>	<u>Full stack Development</u>	
<u>Oops - C++/JAVA/Python</u>	<u>Computer networks</u>	<u>Agile Development methodologies</u>	20CSMCE34 - Open Source Technologies for Engineers
	<u>IT support for Professional.</u>		Capstone project
	<u>Discrete Mathematics</u>		

Information Security			
Group – I (Programming – any one - 2/4 credits)	Group – II(Foundation – any three - 2/4 credits)	Group – III (Technology – any Two - 2/6 credits)	Group – IV (Advanced Concepts – any Two - 2/6 credits)
<u>Programming in C++</u>	<u>20CSMCE01 - Data Base Management System</u>	<u>20CSMCS13 - Introduction To Cyber Security</u>	20CSMCE30 - Cloud Computing
<u>Programming in Java</u>	<u>20CSMIOT03 - Computer architecture and organization</u>	<u>20CSMCS14 - Linux Operating System</u>	20CSMCS21-Industry 4.0 and Security challenges
<u>Python</u>	20CSMCE03 - Introduction to Operating Systems	20CSMCS17 - Cyber security tools in kali linux	20CSMCS22-IT infrastructure and emerging trends
<u>Computational Thinking with Python / C / Java / C++</u>	<u>20CSMCE04 - Data Structures and Algorithms.</u>	20CSMCS18 - Linux fundamentals	20CSMCS23- Information Security - 5 - Secure Systems Engineering.
<u>Oops - C++/JAVA/Python</u>	<u>Computer networks</u>	<u>20CSMCS20 - Block chain and Smart contract</u>	20CSMCS23- Information Security - 5 - Secure Systems Engineering.
	<u>IT support for Professional.</u>	Cyber laws.	Capstone project
	<u>Discrete Mathematics</u>	Vulnerability	
	<u>Foundation course on cyber security</u>	Network Security.	
		<u>Full stack Development</u>	
		<u>Agile Development methodologies</u>	

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