Department of Information Technology

COURSES IDENTIFIED FOR ADDITIONAL MINOR ENGINEERING 2022-2023 (January - April)

Date: 06/01/2023

Additional Minor Engineering Degree In

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

The Tentative list of courses for **Additional Minor Engineering** approved by IT Department for AY: 2022-23 (January - April) is as follows:

List of Swayam /NPTEL courses for the award of Additional Minor Engineering-Artificial Intelligence

	I & III Semester											
	Course				Exam	Enrollment						
Course Name	Code	Duration	Start date	End date	date	End date	Click here to join the course					
Problem Solving Through	noc23_cs53											
Programming In C (Only for			January 23,	April 14,	April 29,	January 30,						
R22 Regulation)		12 Weeks	2023	2023	2023	2023	https://onlinecourses.nptel.ac.in/noc23 cs53/preview					
Programming In Modern C++	noc23_cs50	12 Weeks	January 23,	April 14,	April 29,	January 30,						
r rogramming in Wodern C++		12 WEERS	2023	2023	2023	2023	https://onlinecourses.nptel.ac.in/noc23 cs50/preview					
Programming, Data Structures	noc23_cs15	8 Weeks	January 23,	March 17,	March 26,	January 30,						
And Algorithms Using Python		o vveeks	2023	2023	2023	2023	https://onlinecourses.nptel.ac.in/noc23 cs15/preview					
The Joy of Computing using	noc23_cs20		January 23,	April 14,	April 29,	January 30,						
Python		12 Weeks	2023	2023	2023	2023	https://onlinecourses.nptel.ac.in/noc23 cs20/preview					

Discrete Mathematics	noc23_cs22	12 Weeks	January 23, 2023	April 14, 2023	April 29, 2023	January 30, 2023	https://onlinecourses.nptel.ac.in/noc23 cs22/preview
Design and analysis of algorithms	noc23_cs16	8 Weeks	January 23, 2023	March 17, 2023	March 26, 2023	January 30, 2023	https://onlinecourses.nptel.ac.in/noc23 cs16/preview
Programming In Java	noc23_cs49	12 Weeks	January 23, 2023	April 14, 2023	April 30, 2023	January 30, 2023	https://onlinecourses.nptel.ac.in/noc23 cs49/preview
Getting Started with Competitive Programming	noc23-cs30	12 Weeks	January 23, 2023	April 14, 2023	April 29, 2023	January 30, 2023	https://onlinecourses.nptel.ac.in/noc23 cs30/preview

V Semester

Course Name	Course Code	Duration	Start date	End date	Exam date	Enrollment End date	Click here to join the course
Course Name	noc23_cs41	Duration		March 17,	March 26,		Chek here to join the course
Data Base Management System	110023_08+1	8 Weeks	January 23, 2023	2023	2023	January 30, 2023	https://onlinecourses.nptel.ac.in/noc23 cs41/preview
Theory of Computation	noc23_cs31	8 Weeks	January 23, 2023	April 14, 2023	April 29, 2023	January 30, 2023	https://onlinecourses.nptel.ac.in/noc23 cs31/preview
An Introduction to Artificial Intelligence	noc23_cs05	12 Weeks	January 23, 2023	April 14, 2023	April 29, 2023	January 30, 2023	https://onlinecourses.nptel.ac.in/noc23 cs05/preview
Artificial Intelligence : Search Methods For Problem solving	noc23_cs09	12 Weeks	January 23, 2023	April 14, 2023	April 29, 2023	January 30, 2023	https://onlinecourses.nptel.ac.in/noc23 cs09/preview
Machine Learning,ML	noc23_cs11	8 Weeks	January 23, 2023	March 17, 2023	March 26, 2023	January 30, 2023	https://onlinecourses.nptel.ac.in/noc23_cs11/preview
Introduction to Machine Learning	noc23_cs18	12 Weeks	January 23, 2023	April 14, 2023	April 30, 2023	January 30, 2023	https://onlinecourses.nptel.ac.in/noc23 cs18/preview
Reinforcement Learning	noc23_cs23	12 Weeks	January 23, 2023	April 14, 2023	April 30, 2023	January 30, 2023	https://onlinecourses.nptel.ac.in/noc23 cs23/preview
Deep Learning	noc23_cs56	12 Weeks	January 23, 2023	April 14, 2023	April 30, 2023	January 30, 2023	https://onlinecourses.nptel.ac.in/noc23 cs56/preview
Deep Learning For Visual Computing	noc23_ee53	12 Weeks	January 23, 2023	April 14, 2023	April 30, 2023	January 30, 2023	https://onlinecourses.nptel.ac.in/noc23_ee53/preview

Essentials Of Data Science With R Software - 1: Probability And Statistical Inference	noc23_ma39	12 Weeks	January 23, 2023	April 14, 2023	April 30, 2023	January 30, 2023	https://onlinecourses.nptel.ac.in/noc23 ma39/preview
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VII Semester

	Course			End		Enrollment	
Course Name	Code	Duration	Start date	date	Exam date	End date	Click here to join the course
	noc23_cs45		January 23,	April 14,	April 29,	January 30,	
Natural Language Processing		12 Weeks	2023	2023	2023	2023	https://onlinecourses.nptel.ac.in/noc23 cs45/preview
	noc23_cs19		January 23,	April 14,	April 29,	January 30,	
Social Networks		12 Weeks	2023	2023	2023	2023	https://onlinecourses.nptel.ac.in/noc23 cs19/preview
	noc23_cs24		January 23,	April 14,	April 29,	January 30,	
Deep Learning - IIT Ropar		12 Weeks	2023	2023	2023	2023	https://onlinecourses.nptel.ac.in/noc23 cs24/preview
Business analytics and data	noc23_mg14		January 23,	April 14,	April 30,	January 30,	
mining Modeling using R		12 Weeks	2023	2023	2023	2023	https://onlinecourses.nptel.ac.in/noc23 mg14/preview
	noc23_cs42		January 23,	April 14,	April 30,	January 30,	
Cloud Computing		12 Weeks	2023	2023	2023	2023	https://onlinecourses.nptel.ac.in/noc23 cs42/preview

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

	I & III Semester											
	Course					Enrollment						
Course Name	Code	Duration	Start date	End date	Exam date	End date	Click here to join the course					
Problem Solving Through	noc23_cs53											
Programming In C (Only for R22			January 23,	April 14,	April 29,	January 30,						
Regulation)		12 Weeks	2023	2023	2023	2023	https://onlinecourses.nptel.ac.in/noc23 cs53/preview					
Programming In Modern C++	noc23_cs50	12 Weeks	January 23,	April 14,	April 29,	January 30,	https://onlinecourses.nptel.ac.in/noc23 cs50/preview					
1 Togramming in Wodern C++		12 WCCRS	2023	2023	2023	2023						
Programming Data Structures	noc23_cs15		January 23,	March 17,	March 26,	January 30,						
Programming, Data Structures And Algorithms Using Python		8 Weeks	2023	2023	2023	2023	https://onlinecourses.nptel.ac.in/noc23_cs15/preview					

The Joy of Computing using Python	noc23_cs20	12 Weeks	January 23, 2023	April 14, 2023	April 29, 2023	January 30, 2023	https://onlinecourses.nptel.ac.in/noc23 cs20/preview
Fundamental Algorithms: Design And Analysis	noc23_cs39	4 Weeks	January 23, 2023	February 17, 2023	March 26, 2023	January 30, 2023	https://onlinecourses.nptel.ac.in/noc23_cs39/preview
Discrete Mathematics	noc23_cs22	12 Weeks	January 23, 2023	April 14, 2023	April 29, 2023	January 30, 2023	https://onlinecourses.nptel.ac.in/noc23 cs22/preview
Programming In Java	noc23_cs49	12 Weeks	January 23, 2023	April 14, 2023	April 30, 2023	January 30, 2023	https://onlinecourses.nptel.ac.in/noc23 cs49/preview
Getting Started with Competitive Programming	noc23-cs30	12 Weeks	January 23, 2023	April 14, 2023	April 29, 2023	January 30, 2023	https://onlinecourses.nptel.ac.in/noc23_cs30/preview

V Semester

	Course					Enrollment	
Course Name	Code	Duration	Start date	End date	Exam date	End date	Click here to join the course
Data Base Management System	noc23_cs41	8 Weeks	January 23, 2023	March 17, 2023	March 26, 2023	January 30, 2023	https://onlinecourses.nptel.ac.in/noc23 cs41/preview
An Introduction to Artificial Intelligence	noc23_cs05	12 Weeks	January 23, 2023	April 14, 2023	April 29, 2023	January 30, 2023	https://onlinecourses.nptel.ac.in/noc23 cs05/preview
Artificial Intelligence : Search Methods For Problem solving	noc23_cs09	12 Weeks	January 23, 2023	April 14, 2023	April 29, 2023	January 30, 2023	https://onlinecourses.nptel.ac.in/noc23 cs09/preview
Data Science for Engineers	noc23_cs17	8 Weeks	January 23, 2023	March 17, 2023	March 26, 2023	January 30, 2023	https://onlinecourses.nptel.ac.in/noc23 cs17/preview
Machine Learning,ML	noc23_cs11	8 Weeks	January 23, 2023	March 17, 2023	March 26, 2023	January 30, 2023	https://onlinecourses.nptel.ac.in/noc23 cs11/preview
Introduction to Machine Learning	noc23_cs18	12 Weeks	January 23, 2023	April 14, 2023	April 30, 2023	January 30, 2023	https://onlinecourses.nptel.ac.in/noc23 cs18/preview
Python for Data Science	noc23_cs21	4 Weeks	January 23,	February 17,	March 26,	January 30,	https://onlinecourses.nptel.ac.in/noc23 cs21/preview

			2023	2023	2023	2023	
Reinforcement Learning	noc23_cs23	12 Weeks	January 23, 2023	April 14, 2023	April 30, 2023	January 30, 2023	https://onlinecourses.nptel.ac.in/noc23 cs23/preview
Cloud Computing	noc23_cs42	12 Weeks	January 23, 2023	April 14, 2023	April 30, 2023	January 30, 2023	https://onlinecourses.nptel.ac.in/noc23 cs42/preview
Natural Language Processing	noc23_cs45	12 Weeks	January 23, 2023	April 14, 2023	April 29, 2023	January 30, 2023	https://onlinecourses.nptel.ac.in/noc23_cs45/preview
Business analytics and data mining Modeling using R	noc23_mg14	12 Weeks	January 23, 2023	April 14, 2023	April 30, 2023	January 30, 2023	https://onlinecourses.nptel.ac.in/noc23 mg14/preview

VII Semester

	Course					Enrollment	
Course Name	Code	Duration	Start date	End date	Exam date	End date	Click here to join the course
	noc23_cs19		January 23,	April 14,	April 29,	January 30,	
Social Networks		12 Weeks	2023	2023	2023	2023	https://onlinecourses.nptel.ac.in/noc23 cs19/preview
	noc23_cs24		January 23,	April 14,	April 29,	January 30,	
Deep Learning - IIT Ropar		12 Weeks	2023	2023	2023	2023	https://onlinecourses.nptel.ac.in/noc23_cs24/preview
Deep Learning For Visual	noc23_ee53		January 23,	April 14,	April 30,	January 30,	
Computing		12 Weeks	2023	2023	2023	2023	https://onlinecourses.nptel.ac.in/noc23_ee53/preview

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

	I & III Semester											
	Course				Exam	Enrollment						
Course Name	Code	Duration	Start date	End date	date	End date	Click here to join the course					
Problem Solving Through	noc23_cs53	12 Weeks	January 23,	April 14,	April 29,	January 30,	https://onlinecourses.nptel.ac.in/noc23 cs53/preview					
Programming In C (Only for			2023	2023	2023	2023						
R22 Regulation)												

Programming In Modern C++	noc23_cs50	12 Weeks	January 23, 2023	April 14, 2023	April 29, 2023	January 30, 2023	https://onlinecourses.nptel.ac.in/noc23_cs50/preview
Programming, Data	noc23_cs15	8 Weeks	January 23,	March 17,	March 26,	January 30,	https://onlinecourses.nptel.ac.in/noc23 cs15/preview
Structures And Algorithms			2023	2023	2023	2023	
Using Python							
The Joy of Computing using	noc23_cs20	12 Weeks	January 23,	April 14,	April 29,	January 30,	https://onlinecourses.nptel.ac.in/noc23_cs20/preview
Python			2023	2023	2023	2023	
Fundamental Algorithms:	noc23_cs39	4 Weeks	January 23,	February	March 26,	January 30,	https://onlinecourses.nptel.ac.in/noc23_cs39/preview
Design And Analysis			2023	17, 2023	2023	2023	
Discrete Mathematics	noc23_cs22	12 Weeks	January 23,	April 14,	April 29,	January 30,	https://onlinecourses.nptel.ac.in/noc23 cs22/preview
			2023	2023	2023	2023	
Programming In Java	noc23_cs49	12 Weeks	January 23,	April 14,	April 30,	January 30,	https://onlinecourses.nptel.ac.in/noc23 cs49/preview
			2023	2023	2023	2023	
Getting Started with	noc23-cs30	12 Weeks	January 23, 2023	April 14, 2023	April 29, 2023	January 30, 2023	https://onlinecourses.nptel.ac.in/noc23 cs30/preview
Competitive Programming							1

V & VII Semester

	Course					Enrollment	
Course Name	Code	Duration	Start date	End date	Exam date	End date	Click here to join the course
Data Base Management	noc23_cs41	8 Weeks	January 23,	March 17,	March 26,	January 30,	https://onlinecourses.nptel.ac.in/noc23 cs41/preview
System			2023	2023	2023	2023	
Deep Learning For Visual	noc23_ee53	12 Weeks	January 23,	April 14,	April 30,	January 30,	https://onlinecourses.nptel.ac.in/noc23_ee53/preview
Computing			2023	2023	2023	2023	
Cloud Computing	noc23_cs42	12 Weeks	January 23,	April 14,	April 30,	January 30,	https://onlinecourses.nptel.ac.in/noc23_cs42/preview
			2023	2023	2023	2023	
Computer Vision and Image	noc23_ee39	12 Weeks	January 23,	April 14,	April 29,	January 30,	https://onlinecourses.nptel.ac.in/noc23_ee39/preview
Processing - Fundamentals			2023	2023	2023	2023	
and Applications							
Modern Computer Vision	noc23_ee78	12 Weeks	January 23,	April 14,	April 29,	January 30,	https://onlinecourses.nptel.ac.in/noc23_ee78/preview
			2023	2023	2023	2023	
Natural Language Processing	noc23_cs45	12 Weeks	January 23,	April 14,	April 29,	January 30,	https://onlinecourses.nptel.ac.in/noc23_cs45/preview
			2023	2023	2023	2023	
User-centric Computing for	noc23_cs25	8 Weeks	January 23,	March 17,	March 26,	January 30,	https://onlinecourses.nptel.ac.in/noc23 cs25/peview
Human-Computer			2023	2023	2023	2023	
Interaction							

Social Networks	noc23_cs19	12 Weeks	January 23,	April 14,	April 29,	January 30,	https://onlinecourses.nptel.ac.in/noc23_cs19/preview
			2023	2023	2023	2023	

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

I & III Semester										
Course Name	Course Code	Duration	Start date	End date	Exam date	Enrollment End date	Click here to join the course			
Problem Solving Through Programming In C (Only for R22 Regulation)	noc23_cs53	12 Weeks	January 23, 2023	April 14, 2023	April 29, 2023	January 30, 2023	https://onlinecourses.nptel.ac.in/noc23 cs53/preview			
Programming In Modern C++	noc23_cs50	12 Weeks	January 23, 2023	April 14, 2023	April 29, 2023	January 30, 2023	https://onlinecourses.nptel.ac.in/noc23_cs50/preview			
Programming, Data Structures And Algorithms Using Python	noc23_cs15	8 Weeks	January 23, 2023	March 17, 2023	March 26, 2023	January 30, 2023	https://onlinecourses.nptel.ac.in/noc23 cs15/preview			
The Joy of Computing using Python	noc23_cs20	12 Weeks	January 23, 2023	April 14, 2023	April 29, 2023	January 30, 2023	https://onlinecourses.nptel.ac.in/noc23_cs20/preview			
Fundamental Algorithms: Design And Analysis	noc23_cs39	4 Weeks	January 23, 2023	February 17, 2023	March 26, 2023	January 30, 2023	https://onlinecourses.nptel.ac.in/noc23 cs39/preview			
Discrete Mathematics	noc23_cs22	12 Weeks	January 23, 2023	April 14, 2023	April 29, 2023	January 30, 2023	https://onlinecourses.nptel.ac.in/noc23 cs22/preview			
Programming In Java	noc23_cs49	12 Weeks	January 23, 2023	April 14, 2023	April 30, 2023	January 30, 2023	https://onlinecourses.nptel.ac.in/noc23 cs49/preview			
Getting Started with Competitive Programming	noc23-cs30	12 Weeks	January 23, 2023	April 14, 2023	April 29, 2023	January 30, 2023	https://onlinecourses.nptel.ac.in/noc23 cs30/preview			
V & VII Semester										
Commo Nomo	Course	D	C44 - J - 4 -	E., J. J. 4.	E J. (.	Enrollment				
Course Name Data Base Management System	Code noc23_cs41	Duration 8 Weeks	Start date January 23, 2023	End date March 17, 2023	Exam date March 26, 2023	End date January 30, 2023	Click here to join the course https://onlinecourses.nptel.ac.in/noc23 cs41/preview			
Cloud Computing and Distributed Systems	noc23_cs27	8 Weeks	January 23, 2023	March 17, 2023	March 26, 2023	January 30, 2023	https://onlinecourses.nptel.ac.in/noc23 cs27/preview			
Cloud Computing	noc23_cs42	12 Weeks	January 23, 2023	April 14, 2023	April 30, 2023	January 30, 2023	https://onlinecourses.nptel.ac.in/noc23 cs42/preview			
Foundations of Cryptography	noc23_cs03	12 Weeks	January 23,	April 14,	April 29,	January 30,	https://onlinecourses.nptel.ac.in/noc23_cs03/preview			

			2023	2023	2023	2023	
Ethical Hacking	noc23_cs44	12 Weeks	January 23,	April 14,	April 30,	January 30,	https://onlinecourses.nptel.ac.in/noc23_cs44/preview
_			2023	2023	2023	2023	
Information Security - 5 -	noc23_cs10	8 Weeks	January 23,	March 17,	March 26,	January 30,	https://onlinecourses.nptel.ac.in/noc23_cs10/preview
Secure Systems Engineering			2023	2023	2023	2023	
Privacy and Security in	noc23_cs13	12 Weeks	January 23,	April 14,	April 29,	January 30,	https://onlinecourses.nptel.ac.in/noc23 cs13/preview
Online Social Media			2023	2023	2023	2023	
Blockchain and its	noc23_cs47	12 Weeks	January 23,	April 14,	April 29,	January 30,	https://onlinecourses.nptel.ac.in/noc23 cs47/preview
Applications			2023	2023	2023	2023	
Computer Networks And	noc23_cs48	12 Weeks	January 23,	April 14,	April 29,	January 30,	https://onlinecourses.nptel.ac.in/noc23_cs48/preview
Internet Protocol			2023	2023	2023	2023	
Hardware Security	noc23_cs59	12 Weeks	January 23,	April 14,	April 29,	January 30,	https://onlinecourses.nptel.ac.in/noc23 cs59/preview
			2023	2023	2023	2023	
Foundations of Cyber	noc23_cs62	12 Weeks	January 23,	April 14,	April 29,	January 30,	https://onlinecourses.nptel.ac.in/noc23_cs62/preview
Physical Systems			2023	2023	2023	2023	

Note:

- 1. Student has to choose the course if and only if the course is not studied in their respective B.E. Program.
- 2. 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.
- 3. Student has to take permission from coordinator before choosing a course.



Dr. K. Radhika Professor & HoD-IT