

## Annexure-I

**DEPARTMENT OF ELECTRONICS AND COMPUTER ENGINEERING AND  
DEPARTMENT OF ELECTRONICS AND COMPUTER SCIENCE**

**LIST OF ONLINE NPTEL/SWAYAM COURSES FOR EVEN SEMESTER (RC 19-20)  
FOR THE ACADEMIC YEAR 2023-24 (Jan- April 2024)**

Sr ID	Course ID	Course Name	SME Name	Institute	Duration	Credits	Link to Join	Sem
1	noc24-cs03	Linear programming and its applications to computer science	Prof. Rajat Mittal	IITK	8 Weeks	2	<a href="https://onlinecourses.nptel.ac.in/noc24-cs03/preview">https://onlinecourses.nptel.ac.in/noc24-cs03/preview</a>	IV
2	noc24-cs04	Privacy and Security in Online Social Media	Prof. Ponnurangam Kumaraguru	IITH	12 weeks	3	<a href="https://onlinecourses.nptel.ac.in/noc24-cs04/preview">https://onlinecourses.nptel.ac.in/noc24-cs04/preview</a>	IV
3	noc24-cs12	Affective Computing	Prof. Jainendra Shukla Prof. Abhinav Dhall	IITD	12 Weeks	3	<a href="https://onlinecourses.nptel.ac.in/noc24-cs12/preview">https://onlinecourses.nptel.ac.in/noc24-cs12/preview</a>	IV
4	noc24-cs15	Blockchain and its Applications	Prof. Sandip Chakraborty Prof. Shamik Sural	IITKGP	12 Weeks	3	<a href="https://onlinecourses.nptel.ac.in/noc24-cs15/preview">https://onlinecourses.nptel.ac.in/noc24-cs15/preview</a>	IV
5	noc24-cs26	Foundation of Cloud IoT Edge ML	Prof. Rajiv Misra	IITP	8 Weeks	2	<a href="https://onlinecourses.nptel.ac.in/noc24-cs26/preview">https://onlinecourses.nptel.ac.in/noc24-cs26/preview</a>	IV
6	noc24-cs27	Foundations of Cyber Physical Systems	Prof. Soumyajit Dey	IITKGP	12 Weeks	3	<a href="https://onlinecourses.nptel.ac.in/noc24-cs27/preview">https://onlinecourses.nptel.ac.in/noc24-cs27/preview</a>	IV

7	noc24-cs29	Getting Started with Competitive Programming	Prof. Neeldhara Misra	IIT Gandhi nagar	12 Weeks	3	<a href="https://onlinecourses.nptel.ac.in/noc24-cs29/preview">https://onlinecourses.nptel.ac.in/noc24-cs29/preview</a>	IV
8	noc24-cs30	GPU Architectures And Programming	Prof. Soumyajit Dey	IITKGP	12 Weeks	3	<a href="https://onlinecourses.nptel.ac.in/noc24-cs30/preview">https://onlinecourses.nptel.ac.in/noc24-cs30/preview</a>	IV
9	noc24-cs33	Introduction to Embedded System Design	Prof. Dhananjay V. Gadre Prof. Badri N Subudhi	IITD	12 Weeks	3	<a href="https://onlinecourses.nptel.ac.in/noc24-cs33/preview">https://onlinecourses.nptel.ac.in/noc24-cs33/preview</a>	IV
10	noc24-cs35	Introduction To Internet Of Things	Prof. Sudip Misra	IITKGP	12 Weeks	3	<a href="https://onlinecourses.nptel.ac.in/noc24-cs35/preview">https://onlinecourses.nptel.ac.in/noc24-cs35/preview</a>	IV
11	noc24-cs45	Programming, Data Structures And Algorithms Using Python	Prof. Madhavan Mukund	CMI	8 Weeks	2	<a href="https://onlinecourses.nptel.ac.in/noc24-cs45/preview">https://onlinecourses.nptel.ac.in/noc24-cs45/preview</a>	IV
12	noc24-cs48	Systems and Usable Security	Prof. Neminath Hubballi	IIT Indore	4 Weeks	1	<a href="https://onlinecourses.nptel.ac.in/noc24-cs48/preview">https://onlinecourses.nptel.ac.in/noc24-cs48/preview</a>	IV
13	noc24-cs53	Data Science for Engineers	Prof. Rangunathan Rengasamy Prof. Shankar Narasimhan	IITM	8 Weeks	2	<a href="https://onlinecourses.nptel.ac.in/noc24-cs53/preview">https://onlinecourses.nptel.ac.in/noc24-cs53/preview</a>	IV
14	noc24-cs56	Social Networks	Prof. Sudarshan Iyengar Prof. Yayati Gupta	IIT Ropar	12 Weeks	3	<a href="https://onlinecourses.nptel.ac.in/noc24-cs56/preview">https://onlinecourses.nptel.ac.in/noc24-cs56/preview</a>	IV
15	noc24-cs62	Probability for Computer Science	Prof. Nitin Saxena	IITK	8 Weeks	2	<a href="https://onlinecourses.nptel.ac.in/noc24-cs62/preview">https://onlinecourses.nptel.ac.in/noc24-cs62/preview</a>	IV
16	noc24-cs64	Games and Information	Prof. Ankur A. Kulkarni	IITB	12 weeks	3	<a href="https://onlinecourses.nptel.ac.in/noc24-cs64/preview">https://onlinecourses.nptel.ac.in/noc24-cs64/preview</a>	IV
17	noc24-cs65	Business Intelligence & Analytics	Prof. Saji K Mathew	IITM	12 Weeks	3	<a href="https://onlinecourses.nptel.ac.in/noc24-cs65/preview">https://onlinecourses.nptel.ac.in/noc24-cs65/preview</a>	IV

18	noc24-de08	Design, Technology and Innovation	Prof. B. K. Chakravarthy	IITB	8 Weeks	2	<a href="https://onlinecourses.nptel.ac.in/noc24-de08/preview">https://onlinecourses.nptel.ac.in/noc24-de08/preview</a>	IV
19	noc24-ee45	Sensors and Actuators	Prof. Hardik Jeetendra Pandya	IISc	12 weeks	3	<a href="https://onlinecourses.nptel.ac.in/noc24_ee45/preview">https://onlinecourses.nptel.ac.in/noc24_ee45/preview</a>	IV
20	noc24-ee70	Physics of Nanoscale Devices	Prof. Vishvendra Singh Poonia	IITR	12 weeks	3	<a href="https://onlinecourses.nptel.ac.in/noc24_ee70/preview">https://onlinecourses.nptel.ac.in/noc24_ee70/preview</a>	IV
21	noc24-hs15	Soft Skill Development	Prof. Priyadarshi Patnaik Prof. V. N. Giri Prof. D. Suar	IITKGP	8 Weeks	2	<a href="https://onlinecourses.nptel.ac.in/noc24-hs15/preview">https://onlinecourses.nptel.ac.in/noc24-hs15/preview</a>	IV
22	noc24-hs07	Introduction On Intellectual Property To Engineers And Technologists	Prof. Tapas Kumar Bandyopadhyay	IITKGP	8 Weeks	2	<a href="https://onlinecourses.nptel.ac.in/noc24-hs07/preview">https://onlinecourses.nptel.ac.in/noc24-hs07/preview</a>	IV
23	noc24-mg35	Leadership and Team Effectiveness	Prof. Santosh Rangnekar	IITR	12 Weeks	3	<a href="https://onlinecourses.nptel.ac.in/noc24-mg35/preview">https://onlinecourses.nptel.ac.in/noc24-mg35/preview</a>	IV
24	noc24-ph02	A Brief Course On Superconductivity	Prof. Saurabh Basu	IITG	4 Weeks	1	<a href="https://onlinecourses.nptel.ac.in/noc24-ph02/preview">https://onlinecourses.nptel.ac.in/noc24-ph02/preview</a>	IV

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Sr ID	Course ID	Course Name	SME Name	Institute	Duration	Credits	Link to join	Sem
1	noc24-cs01	Foundations of Cryptography	Prof. Ashish Choudhury	IIIT Bangalore	12 Weeks	3	<a href="https://onlinecourses.nptel.ac.in/noc24-cs01/preview">https://onlinecourses.nptel.ac.in/noc24-cs01/preview</a>	VI

2	noc24-cs05	Basics of Computational Complexity	Prof. Nitin Saxena	IITK	12 Weeks	3	<a href="https://onlinecourses.nptel.ac.in/noc24-cs05/preview">https://onlinecourses.nptel.ac.in/noc24-cs05/preview</a>	VI
3	noc24-cs06	Advanced Computer Architecture	Prof. Smruti Ranjan Sarangi	IITD	12 Weeks	3	<a href="https://onlinecourses.nptel.ac.in/noc24-cs06/preview">https://onlinecourses.nptel.ac.in/noc24-cs06/preview</a>	VI
4	noc24-cs07	Secure Computation: Part I	Prof. Ashish Choudhury	IIIT Bangalore	12 Weeks	3	<a href="https://onlinecourses.nptel.ac.in/noc24-cs07/preview">https://onlinecourses.nptel.ac.in/noc24-cs07/preview</a>	VI
5	noc24-cs11	Advanced Computer Networks	Prof. Neminath Hubballi Prof. Sameer Kulkarni	IIT Indore IIT Gandhi nagar	12 Weeks	3	<a href="https://onlinecourses.nptel.ac.in/noc24-cs11/preview">https://onlinecourses.nptel.ac.in/noc24-cs11/preview</a>	VI
6	noc24-cs16	Circuit Complexity Theory	Prof. Raghunath Tewari	IITK	12 Weeks	3	<a href="https://onlinecourses.nptel.ac.in/noc24-cs16/preview">https://onlinecourses.nptel.ac.in/noc24-cs16/preview</a>	VI
7	noc24-cs20	Data Analytics with Python	Prof. A Ramesh	IITR	12 Weeks	3	<a href="https://onlinecourses.nptel.ac.in/noc24-cs20/preview">https://onlinecourses.nptel.ac.in/noc24-cs20/preview</a>	VI
8	noc24-cs22	Data Mining	Prof. Pabitra Mitra	IITKGP	8 Weeks	2	<a href="https://onlinecourses.nptel.ac.in/noc24-cs22/preview">https://onlinecourses.nptel.ac.in/noc24-cs22/preview</a>	VI
9	noc24-cs24	Embedded System Design with ARM	Prof. Indranil Sengupta Prof. Kamalika Datta	IITKGP	8 Weeks	2	<a href="https://onlinecourses.nptel.ac.in/noc24-cs24/preview">https://onlinecourses.nptel.ac.in/noc24-cs24/preview</a>	VI
10	noc24-cs31	Information Security - 5 - Secure Systems Engineering	Prof. Chester Robeiro	IITM	8 Weeks	2	<a href="https://onlinecourses.nptel.ac.in/noc24-cs31/preview">https://onlinecourses.nptel.ac.in/noc24-cs31/preview</a>	VI
11	noc24-cs32	Introduction to Automata, Languages and Computation	Prof. Sourav Mukhopadhyay	IITKGP	12 Weeks	3	<a href="https://onlinecourses.nptel.ac.in/noc24-cs32/preview">https://onlinecourses.nptel.ac.in/noc24-cs32/preview</a>	VI
12	noc24-cs34	Introduction To Industry 4.0 And Industrial Internet Of Things	Prof. Sudip Misra	IITKGP	12 Weeks	3	<a href="https://onlinecourses.nptel.ac.in/noc24-cs34/preview">https://onlinecourses.nptel.ac.in/noc24-cs34/preview</a>	VI

13	noc24-cs39	Natural Language Processing	Prof. Pawan Goyal	IITKGP	12 Weeks	3	<a href="https://onlinecourses.nptel.ac.in/noc24-cs39/preview">https://onlinecourses.nptel.ac.in/noc24-cs39/preview</a>	VI
14	noc24-cs49	Theory of Computation	Prof. Subrahmanyam Kalyanasundaram	IIT Hyderabad	12 Weeks	3	<a href="https://onlinecourses.nptel.ac.in/noc24-cs49/preview">https://onlinecourses.nptel.ac.in/noc24-cs49/preview</a>	VI
15	noc24-cs50	User-centric Computing For Human-Computer Interaction	Prof. Samit Bhattacharya	IITG	8 Weeks	2	<a href="https://onlinecourses.nptel.ac.in/noc24-cs50/preview">https://onlinecourses.nptel.ac.in/noc24-cs50/preview</a>	VI
16	noc24-cs52	Reinforcement Learning	Prof. Balaraman Ravindran	IITM	12 Weeks	3	<a href="https://onlinecourses.nptel.ac.in/noc24-cs52/preview">https://onlinecourses.nptel.ac.in/noc24-cs52/preview</a>	VI
17	noc24-cs54	Python for Data Science	Prof. Ragunathan Rengasamy	IITM	4 Weeks	1	<a href="https://onlinecourses.nptel.ac.in/noc24-cs54/preview">https://onlinecourses.nptel.ac.in/noc24-cs54/preview</a>	VI
18	noc24-cs57	The Joy of Computing using Python	Prof. Sudarshan Iyengar	IIT Ropar	12 Weeks	3	<a href="https://onlinecourses.nptel.ac.in/noc24-cs57/preview">https://onlinecourses.nptel.ac.in/noc24-cs57/preview</a>	VI
19	noc24-cs59	Deep Learning - IIT Ropar	Prof. Sudarshan Iyengar Prof. Sanatan Sukhija	IIT Ropar	12 Weeks	3	<a href="https://onlinecourses.nptel.ac.in/noc24-cs59/preview">https://onlinecourses.nptel.ac.in/noc24-cs59/preview</a>	VI
20	noc24-cs61	Digital Design with Verilog	Prof. Chandan Karfa, Prof. Aryabartta Sahu	IITG	12 Weeks	3	<a href="https://onlinecourses.nptel.ac.in/noc24-cs61/preview">https://onlinecourses.nptel.ac.in/noc24-cs61/preview</a>	VI
21	noc24-cs63	Parallel Computer Architecture	Prof. Hemangee K. Kapoor	IITG	12 Weeks	3	<a href="https://onlinecourses.nptel.ac.in/noc24-cs63/preview">https://onlinecourses.nptel.ac.in/noc24-cs63/preview</a>	VI
22	noc24-cs66	Edge Computing	Prof. Rajiv Misra	IITP	8 Weeks	2	<a href="https://onlinecourses.nptel.ac.in/noc24-cs66/preview">https://onlinecourses.nptel.ac.in/noc24-cs66/preview</a>	VI
23	noc24-ee22	Multirate DSP	Prof. R. David Koilpillai	IITM	12 Weeks	3	<a href="https://onlinecourses.nptel.ac.in/noc24-ee22/preview">https://onlinecourses.nptel.ac.in/noc24-ee22/preview</a>	VI

24	noc24-ee54	Evolution Of Air Interface Towards 5G	Prof. Suvra Sekhar Das	IITKGP	8 Weeks	2	<a href="https://onlinecourses.nptel.ac.in/noc24_ee54/preview">https://onlinecourses.nptel.ac.in/noc24_ee54/preview</a>	VI
25	noc24-hs06	Emotional Intelligence	Prof. Rabindra Kumar Pradhan	IITKGP	8 Weeks	2	<a href="https://onlinecourses.nptel.ac.in/noc24-hs06/preview">https://onlinecourses.nptel.ac.in/noc24-hs06/preview</a>	VI
26	noc24-lw02	IP Management & Technology Transfer	Prof. Gouri Gargate	IITKGP	8 Weeks	2	<a href="https://onlinecourses.nptel.ac.in/noc24-lw02/preview">https://onlinecourses.nptel.ac.in/noc24-lw02/preview</a>	VI
27	noc24-mg61	Technology Forecasting for strategic decision making - An Introduction	Prof. Dmitry Kucharavy Prof. Bala Ramadurai	EM Strasbourg Business School (University of Strasbourg) and IITM	4 Weeks	1	<a href="https://onlinecourses.nptel.ac.in/noc24-mg61/preview">https://onlinecourses.nptel.ac.in/noc24-mg61/preview</a>	VI
28	noc24-mg14	Data Analysis and Decision Making - I	Prof. Raghu Nandan Sengupta	IITK	12 Weeks	3	<a href="https://onlinecourses.nptel.ac.in/noc24-mg14/preview">https://onlinecourses.nptel.ac.in/noc24-mg14/preview</a>	VI
29	noc24-mg47	Principles of Management	Prof. Usha Lenka	IITR	12 Weeks	3	<a href="https://onlinecourses.nptel.ac.in/noc24-mg47/preview">https://onlinecourses.nptel.ac.in/noc24-mg47/preview</a>	VI
30	noc24-mg09	Business Analytics For Management Decision	Prof. Rudra P Pradhan	IITKGP	12 Weeks	3	<a href="https://onlinecourses.nptel.ac.in/noc24-mg09/preview">https://onlinecourses.nptel.ac.in/noc24-mg09/preview</a>	VI
31	noc24-ma11	Applied Linear Algebra in AI and ML	Prof. Swanand Khare	IITKGP	12 Weeks	3	<a href="https://onlinecourses.nptel.ac.in/noc24-ma11/preview">https://onlinecourses.nptel.ac.in/noc24-ma11/preview</a>	VI

**Note:**

1. The credits will be awarded based on scheme proposed above.
2. Students should mandatory undertake ONE NPTEL/SWAYAM course of 3 CREDITS from the above list between 5<sup>th</sup> to 7<sup>th</sup> semester against 8th-semester course i.e. ECOMP830/ECS830 Elective –NPTEL/MOOC/SWAYAM.
3. The student shall submit the NPTEL/SWAYAM certificates to Goa University through Heads of Department while applying for the degree.

\*Based on level of difficulty and pre-requisites required, appropriate courses are suggested for students of Semester IV and Semester VI.