

## Annexure–A

### ELECTRONICS AND TELECOMMUNICATION ENGINEERING and ELECTRONICS AND COMMUNICATION ENHINEERING

#### LIST OF ONLINE NPTEL/SWAYAM COURSES (RC 19-20)

( January 2022 to June 2022)

Sr. No	Course Id	Course Name	SME Name	Institute	Duration	Credit	Click here to join the course
1	noc22-cs01	Fundamental Algorithms: Design and Analysis	Prof. Sourav Mukhopadhyay	IITKGP	4 Weeks	1	<a href="https://onlinecourses.nptel.ac.in/noc22_cs01/preview">https://onlinecourses.nptel.ac.in/noc22_cs01/preview</a>
2	noc22-cs02	Artificial Intelligence: Knowledge Representation And Reasoning	Prof. Deepak Khemani	IITM	12 Weeks	3	<a href="https://onlinecourses.nptel.ac.in/noc22_cs02/preview">https://onlinecourses.nptel.ac.in/noc22_cs02/preview</a>
3	noc22-cs08	Data Analytics with Python	Prof. A. Ramesh	IITR	12 Weeks	3	<a href="https://onlinecourses.nptel.ac.in/noc22_cs08/preview">https://onlinecourses.nptel.ac.in/noc22_cs08/preview</a>
4	noc22-cs09	GPU Architectures and Programming	Prof. Soumyajit Dey	IITKGP	12 Weeks	3	<a href="https://onlinecourses.nptel.ac.in/noc22_cs09/preview">https://onlinecourses.nptel.ac.in/noc22_cs09/preview</a>
5	noc22-cs13	Ethical Hacking	Prof. Samit Bhattacharya	IITKGP	12 Weeks	3	<a href="https://onlinecourses.nptel.ac.in/noc22_cs13/preview">https://onlinecourses.nptel.ac.in/noc22_cs13/preview</a>
6	noc22-cs16	User-centric Computing for Human-Computer Interaction	Prof. Samit Bhattacharya	IITG	8 Weeks	2	<a href="https://onlinecourses.nptel.ac.in/noc22_cs16/preview">https://onlinecourses.nptel.ac.in/noc22_cs16/preview</a>
7	noc22-cs17	Advanced Graph Theory	Prof. Rajiv Misra	IIT Patna	8 Weeks	2	<a href="https://onlinecourses.nptel.ac.in/noc22_cs17/preview">https://onlinecourses.nptel.ac.in/noc22_cs17/preview</a>

8	noc22-cs18	Cloud Computing and Distributed Systems	Prof. Rajiv Misra	IIT Patna	8 Weeks	2	<a href="https://onlinecourses.nptel.ac.in/noc22_cs18/preview">https://onlinecourses.nptel.ac.in/noc22_cs18/preview</a>
9	noc22-cs26	Programming, Data Structures And Algorithms Using Python	Prof. Madhavan Mukund	CMI	8 Weeks	2	<a href="https://onlinecourses.nptel.ac.in/noc22_cs26/preview">https://onlinecourses.nptel.ac.in/noc22_cs26/preview</a>
10	noc22-cs27	Design and analysis of algorithms	Prof. Madhavan Mukund	CMI	8 Weeks	2	<a href="https://onlinecourses.nptel.ac.in/noc22_cs27/preview">https://onlinecourses.nptel.ac.in/noc22_cs27/preview</a>
11	noc22-cs28	Data Science for Engineers	Prof. Rangunathan Rengasamy Prof. Shankar Narasimhan	IITM	8 Weeks	2	<a href="https://onlinecourses.nptel.ac.in/noc22_cs28/preview">https://onlinecourses.nptel.ac.in/noc22_cs28/preview</a>
12	noc22-cs30	Social Networks	Prof. Sudarshan Iyengar	IIT Ropar	12 Weeks	3	<a href="https://onlinecourses.nptel.ac.in/noc22_cs30/preview">https://onlinecourses.nptel.ac.in/noc22_cs30/preview</a>
13	noc22-cs32	Python for Data Science	Prof. Rangunathan Rengasamy	IITM	4 Weeks	1	<a href="https://onlinecourses.nptel.ac.in/noc22_cs32/preview">https://onlinecourses.nptel.ac.in/noc22_cs32/preview</a>
14	noc22-cs37	Online Privacy	Prof. Ponnurangam Kumaraguru	IITH	12 Weeks	3	<a href="https://onlinecourses.nptel.ac.in/noc22_cs37/preview">https://onlinecourses.nptel.ac.in/noc22_cs37/preview</a>
15	noc22-cs39	Software Conceptual Design	Prof. Sridhar Iyer Prof. Prajish Prasad Prof. T. G. Lakshmi	IITB	4 Weeks	1	<a href="https://onlinecourses.nptel.ac.in/noc22_cs39/preview">https://onlinecourses.nptel.ac.in/noc22_cs39/preview</a>
16	noc22-cs44	Blockchain and its Applications	Prof. Sandip Chakraborty Prof. Shamik Sural	IITKGP	12 Weeks	3	<a href="https://onlinecourses.nptel.ac.in/noc22_cs44/preview">https://onlinecourses.nptel.ac.in/noc22_cs44/preview</a>

17	noc22-cs48	Hardware Security	Prof. Debdeep Mukhopadhyay	IITKGP	12 Weeks	3	<a href="https://onlinecourses.nptel.ac.in/noc22_cs48/preview">https://onlinecourses.nptel.ac.in/noc22_cs48/preview</a>
18	noc22-cs51	Data Base Management System	Prof. Partha Pratim Das Prof. Samiran Chattopadhyay	IITKGP	8 Weeks	2	<a href="https://onlinecourses.nptel.ac.in/noc22_cs51/preview">https://onlinecourses.nptel.ac.in/noc22_cs51/preview</a>
19	noc22-cs57	Introduction to Database Systems	Prof. Sreenivasa Kumar	IITM	12 Weeks	3	<a href="https://onlinecourses.nptel.ac.in/noc22_cs57/preview">https://onlinecourses.nptel.ac.in/noc22_cs57/preview</a>
20	noc22-ee16	High Power Multilevel Converters - Analysis, design and operational issues	Prof. Anandarup Das	IITD	12 Weeks	3	<a href="https://onlinecourses.nptel.ac.in/noc22_ee16/preview">https://onlinecourses.nptel.ac.in/noc22_ee16/preview</a>
21	noc22-ee17	Power System Engineering	Prof. Debapriya Das	IITKGP	12 Weeks	3	<a href="https://onlinecourses.nptel.ac.in/noc22_ee17/preview">https://onlinecourses.nptel.ac.in/noc22_ee17/preview</a>
22	noc22-ee25	Electronics equipment integration and Prototype building	Prof. N.V Chalapathi Rao	IISc	8 Weeks	2	<a href="https://onlinecourses.nptel.ac.in/noc22_ee25/preview">https://onlinecourses.nptel.ac.in/noc22_ee25/preview</a>
23	noc22-ee50	Sensors and Actuators	Prof. Hardik Jeetendra Pandya	IISc	12 Weeks	3	<a href="https://onlinecourses.nptel.ac.in/noc22_ee50/preview">https://onlinecourses.nptel.ac.in/noc22_ee50/preview</a>
24	noc22-ee53	Electric Vehicles - Part 1	Prof. Amit Jain	IITD	4 Weeks	1	<a href="https://onlinecourses.nptel.ac.in/noc22_ee53/preview">https://onlinecourses.nptel.ac.in/noc22_ee53/preview</a>
25	noc22-ee56	Evolution Of Air Interface Towards 5G	Prof. Suvra Sekhar Das	IITKGP	8 Weeks	2	<a href="https://onlinecourses.nptel.ac.in/noc22_ee56/preview">https://onlinecourses.nptel.ac.in/noc22_ee56/preview</a>
26	noc22-ee65	Fundamentals of MIMO Wireless Communication	Prof. Suvra Sekhar Das	IITKGP	8 Weeks	2	<a href="https://onlinecourses.nptel.ac.in/noc22_ee65/preview">https://onlinecourses.nptel.ac.in/noc22_ee65/preview</a>
27	noc22-ee67	Optical Fiber Sensors	Prof Balaji Srinivasan	IITM	12 Weeks	3	<a href="https://onlinecourses.nptel.ac.in/noc22_ee67/preview">https://onlinecourses.nptel.ac.in/noc22_ee67/preview</a>

28	noc22-hs07	Soft Skill Development	Prof. Priyadarshi Patnaik Prof. V.N. Giri Prof. D. Suar	IITKGP	8 Weeks	2	<a href="https://onlinecourses.nptel.ac.in/noc22_hs07/preview">https://onlinecourses.nptel.ac.in/noc22_hs07/preview</a>
29	noc22-hs08	Enhancing Soft Skills and Personality	Prof. T. Ravichandran	IITK	8 Weeks	2	<a href="https://onlinecourses.nptel.ac.in/noc22_hs08/preview">https://onlinecourses.nptel.ac.in/noc22_hs08/preview</a>
30	noc22-mg09	Business analytics and data mining Modeling using R	Prof. Gaurav Dixit	IITR	12 Weeks	3	<a href="https://onlinecourses.nptel.ac.in/noc22_mg09/preview">https://onlinecourses.nptel.ac.in/noc22_mg09/preview</a>
31	noc22-mg11	Business Analytics For Management Decision	Prof. Rudra P Pradhan	IITKGP	12 Weeks	3	<a href="https://onlinecourses.nptel.ac.in/noc22_mg11/preview">https://onlinecourses.nptel.ac.in/noc22_mg11/preview</a>
32	noc22-ph08	A brief course on Superconductivity	Prof. Saurabh Basu	IITG	4 Weeks	1	<a href="https://onlinecourses.nptel.ac.in/noc22_ph08/preview">https://onlinecourses.nptel.ac.in/noc22_ph08/preview</a>
33	noc22-me61	Electronic Packaging and Manufacturing	Prof. Anandaroop Bhattacharya Prof. Goutam Chakraborty	IITKGP	8 Weeks	2	<a href="https://onlinecourses.nptel.ac.in/noc22_me61/preview">https://onlinecourses.nptel.ac.in/noc22_me61/preview</a>

**Note:**

1. The credits will be awarded based on scheme proposed above.
2. Students should mandatory undertake one NPTEL/SWAYAM course of only 3 credits from the above list between 5<sup>th</sup> to 7<sup>th</sup> semester against 8<sup>th</sup>-semester course i.e. CE820 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.