

INDIAN INSTITUTE OF TECHNOLOGY KANPUR
OFFICE OF THE DEAN, ACADEMIC AFFAIRS

No.(U)/UG/ONLINE_COURSE/1086
April 28, 2025

NOTICE

Sub: Guidelines to claim the MOOC/NPTEL course as an Open Elective for Undergraduate students (New UGARC).

As per the recommendations of the New UGARC Implementation Committee (2022-23/4th meeting of the Senate held during May 15-16, 2023), the undergraduate students are permitted to register for at most one 9 credits MOOC (Massive Open Online Courses)/NPTEL course with S/X grade to fulfill their Open Elective (OE) requirement.

In this context, the UG students are advised to note the following guidelines (approved in Senate 2024-25/5th meeting of the Senate held on April 16-17, 2025) before registering for the MOOC/NPTEL course:

- 1) All pre-approved MOOC/NPTEL online courses (refer Appendix-I) of twelve weeks duration with a proctored examination can be considered equivalent to a 9 credit OE of IITK.
- 2) OE credits earned through online MOOC/NPTEL courses will only be counted towards graduation requirements and not for CPI calculation.
- 3) The OE credits earned from MOOC courses be indicated as follows in the transcript. "(Number of Credits) have been earned by the student as open electives from online MOOC courses offered by (Agency Name)".
- 4) The BTH/BSH students are not allowed to claim the MOOC/NPTEL course.
- 5) The students **cannot** claim MOOC/NPTEL courses from their **own departmental courses list**.
- 6) The students can claim MOOC/NPTEL courses only before the last date of classes up to 7th semester through the below mentioned Google form:
<https://forms.gle/BfP9MDt5he6wHvZf6>

As a one-time exception, the Y22 students may claim MOOC/NPTEL courses up to their 8th semester (before the last date of the classes).


Assistant Registrar
(Academic Affairs)

Enclosed: Appendix-I

Copy to:

1. Head of Department(s)
2. Notice Board of All Hall of Residences
3. OARS Section
4. Students list

Appendix-I

S. No.	Dept.	NPTEL Course Id	Course Title	Hours/Weeks
1	CHE	103102211	Fluid Mechanics and Its Applications	30/12
2	CHE	103103153	Chemical Reaction Engineering-I	30/12
3	CHE	103103209	Aspen Plus®(R) Simulation Software - A Basic Course For Beginners	30/12
4	CHE	103104151	Chemical Engineering Thermodynamics	30/12
5	CHE	103105128	Transport phenomena	30/12
6	CHE	103105209	Material & Energy Balance Computations	30/12
7	CHE	103105210	Principles and Practices of Process Equipment and Plant Design	30/12
8	CHE	103105215	Mathematical Modelling and Simulation of Chemical Engineering Process	30/12
9	CHE	103106148	Process Control - Design, Analysis and Assessment	30/12
10	CHE	103107156	Chemical Process Safety	30/12
11	CHE	103108123	Transport Processes I: Heat and Mass Transfer	30/12
12	CSE	106102229	Advanced Computer Architecture	30/12
13	CSE	106102237	Advanced Distributed Systems	30/12
14	CSE	106106140	AI: Knowledge Representation and Reasoning	30/12
15	CSE	106105237	Algorithmic Game Theory	30/12
16	CSE	106105230	Algorithms for protein modelling and engineering	30/12
17	CSE	106106211	Applied Natural Language Processing	30/12
18	CSE	106105471	Approximation Algorithm	30/12
19	CSE	106104221	Arithmetic Circuit Complexity	30/12
20	CSE	106106226	Artificial Intelligence : Search Methods For Problem solving	30/12
21	CSE	106106140	Artificial Intelligence: Knowledge Representation And Reasoning	30/12
22	CSE	110101145	Bandit Algorithm (Online Machine Learning)	30/12
23	CSE	106104357	Basics of Computational Complexity	30/12
24	CSE	106105235	Blockchain and its Applications	30/12
25	CSE	106105184	Blockchain Architecture Design and Use Cases	30/12
26	CSE	106106361	Business Intelligence & Analytics	30/12
27	CSE	106103229	C-Based VLSI Design	30/12
28	CSE	106104241	Circuit Complexity Theory	30/12

For more information about the pre-approved courses, kindly visit the below link:

<https://docs.google.com/spreadsheets/d/1dxJhPTYXBsZaOlvZglbp8n11m8FKWnyut7rQ-8siwjl/edit?gid=970568886#gid=970568886>

S. No.	Dept.	NPTEL Course Id	Course Title	Hours/Weeks
29	CSE	106105167	Cloud Computing	30/12
30	CSE	106105190	Compiler Design	30/12
31	CSE	106104469	Computational Arithmetic - Geometry for Algebraic Curves	30/12
32	CSE	106104227	Computational Complexity Theory	30/12
33	CSE	106102011	Computational Geometry	30/12
34	CSE	106105183	Computer Networks And Internet Protocol	30/12
35	CSE	106105216	Computer Vision	30/12
36	CSE	106105162	Cryptography and Network Security	30/12
37	CSE	106106248	Cyber Security and Privacy	30/12
38	CSE	106107220	Data Analytics with Python	30/12
39	CSE	106106093	Database Design	30/12
40	CSE	106105215	Deep Learning	30/12
41	CSE	106106224	Deep Learning for Computer Vision	30/12
42	CSE	106103237	Design & Implementation of Human-Computer Interfaces	30/12
43	CSE	106103358	Digital Design with Verilog	30/12
44	CSE	106101466	Distributed Optimization and Machine Learning	30/12
45	CSE	106105159	Embedded Systems Design	30/12
46	CSE	106103182	Embedded Systems-Design Verification and Test	30/12
47	CSE	106105217	Ethical Hacking	30/12
48	CSE	106106221	Foundations of Cryptography	30/12
49	CSE	106105241	Foundations of Cyber Physical Systems	30/12
50	CSE	106106197	Foundations to Computer Systems Design	30/12
51	CSE	106101360	Games and Information	30/12
52	CSE	106106231	Getting Started with Competitive Programming	30/12
53	CSE	106105220	GPU Architectures And Programming	30/12
54	CSE	106105194	Hardware Security	30/12
55	CSE	106105162	Internetwork Security	30/12
56	CSE	106106220	Introduction to Database Systems	30/12
57	CSE	106101237	Introduction To Game Theory And Mechanism Design	30/12
58	CSE	106105166	Introduction to Internet of Things	30/12

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S. No.	Dept.	NPTEL Course Id	Course Title	Hours/Weeks
59	CSE	106106139	Introduction to Machine Learning	30/12
60	CSE	106106167	Introduction to Wireless and Cellular Communications	30/12
61	CSE	106101224	Learning Analytics Tools	30/12
62	CSE	106108482	Linear Algebra Through Geometry	30/12
63	CSE	106106198	Machine Learning for Engineering and science applications	30/12
64	CSE	106106147	Mobile Computing	30/12
65	CSE	106106136	Model Checking	30/12
66	CSE	106103184	Multi-Core Computer Architecture	30/12
67	CSE	106105158	Natural Language Processing	30/12
68	CSE	106105224	Object Oriented System Development Using UML, Java And Patterns	30/12
69	CSE	106106235	Online Privacy	30/12
70	CSE	106102132	Operating System	30/12
71	CSE	106105214	Operating System Fundamentals	30/12
72	CSE	106103188	Parallel Algorithms	30/12
73	CSE	106103359	Parallel Computer Architecture	30/12
74	CSE	106106230	Parameterized Algorithms	30/12
75	CSE	106104467	Practical Cyber Security for Cyber Security Practitioners	30/12
76	CSE	106106146	Privacy and Security in Online Social Media	30/12
77	CSE	106106241	Quantum Algorithms and Cryptography	30/12
78	CSE	106103187	Randomized Algorithms	30/12
79	CSE	106104228	Randomized Methods in Complexity	30/12
80	CSE	106105229	Real-Time Systems	30/12
81	CSE	106106143	Reinforcement Learning	30/12
82	CSE	106106472	Responsible & Safe AI Systems	30/12
83	CSE	106104118	Riemann Hypothesis and its Applications	30/12
84	CSE	106108229	Secure Computation: Part I	30/12
85	CSE	106108237	Secure Computation: Part II	30/12
86	CSE	106105242	Selected Topics in Algorithms	30/12
87	CSE	106106239	Social Network Analysis	30/12
88	CSE	106106169	Social Networks	30/12

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S. No.	Dept.	NPTEL Course Id	Course Title	Hours/Weeks
89	CSE	106105182	Software Engineering	30/12
90	CSE	106105218	Software Project Management	30/12
91	CSE	106101163	Software Testing	30/12
92	CSE	106105239	Statistical Learning for Reliability Analysis	30/12
93	CSE	106105185	Switching Circuits and Logic Design	30/12
94	CE	105106465	An Introduction to Climate Dynamics, Variability and Monitoring	30/12
95	CE	105105161	Computational hydraulics	30/12
96	CE	105101215	Rural Water Resources Management	30/12
97	CE	105101214	Groundwater hydrology and management	30/12
98	CE	105101213	Microwave Remote Sensing in Hydrology	30/12
99	AE	112106196	Gas dynamics	30/12
100	AE	101108086	Gasdynamics: Fundamentals and Applications	30/12
101	AE	101108068	Combustion in air breathing aero engines	30/12
102	AE	101106082	Rocket Propulsion	30/12
103	AE	101105333	Fundamentals of Supersonic and Hypersonic Flow	30/12
104	AE	101105091	Aeroengine Gas Turbine Cycles	30/12
105	AE	101105090	Smart Structures	30/12
106	AE	101105089	Aerodynamic Design Of Axial Flow Compressors & Fans	30/12
107	AE	101105088	Fundamentals of Theoretical and Experimental Aerodynamics	30/12
108	AE	101105085	Introduction to CFD	30/12
109	AE	101105083	Space Flight Mechanics	30/12
110	AE	101105077	Satellite Attitude Dynamics and Control	30/12
111	AE	101104450	Applied Computational Fluid Dynamics	30/12
112	AE	101104330	Introduction to Aircraft Control System	30/12
113	AE	101104084	Introduction to Airbreathing Propulsion	30/12
114	AE	101104078	Introduction to Rocket Propulsion	30/12
115	AE	101104069	Aircraft Design	30/12
116	AE	101104063	Engineering Thermodynamics	30/12
117	AE	101104062	Aircraft Stability and Control	30/12
118	AE	101104018	Introduction to Propulsion	30/12

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S. No.	Dept.	NPTEL Course Id	Course Title	Hours/Weeks
119	AE	101102090	Elements of Mechanical Vibration	30/12
120	AE	101101087	Lighter than Air Systems	30/12
121	AE	101101083	Introduction to Aircraft Design	30/12
122	AE	101101079	Introduction To Aerospace Engineering - Flight	30/12
123	CHM	104108363	One and Two dimensional NMR Spectroscopy: Concepts and Spectral Analysis	30/12
124	CHM	104108132	Time Dependent Quantum Chemistry	30/12
125	CHM	104108124	One And Two Dimensional Nmr Spectroscopy For Chemists	30/12
126	CHM	104108118	Ultrafast Optics and Spectroscopy	30/12
127	CHM	104108098	Symmetry and Structure in the Solid State	30/12
128	CHM	104106128	Symmetry and Group Theory	30/12
129	CHM	104106127	Symmetry, Stereochemistry and Applications	30/12
130	CHM	104106122	Fundamentals of Spectroscopy	30/12
131	CHM	104106107	Basic thermodynamics: Classical and Statistical Approaches	30/12
132	CHM	104106107	Chemical Principles II	30/12
133	CHM	104106106	Medicinal Chemistry	30/12
134	CHM	104106105	Electrochemical impedance Spectroscopy	30/12
135	CHM	104106096	Chemistry: Atomic Structure and Chemical Bonding	30/12
136	CHM	104106094	Advanced Chemical Thermodynamics and Kinetics	30/12
137	CHM	104106093	Chemical Crystallography	30/12
138	CHM	104106089	Introduction To Chemical Thermodynamics And Kinetics	30/12
139	CHM	104105462	Molecular Rearrangements and Reactive Intermediates in Organic Synthesis	30/12
140	CHM	104105365	Elementary Thermodynamics for All	30/12
141	CHM	104105139	Overview and Integration of Cellular Metabolism	30/12
142	CHM	104105130	Biological Inorganic Chemistry	30/12
143	CHM	104105120	Organic Chemistry in Biology and Drug Development	30/12
144	CHM	104105103	Industrial Inorganic Chemistry	30/12
145	CHM	104105102	Experimental Biochemistry	30/12
146	CHM	104105087	A Study Guide in Organic Retrosynthesis: Problem Solving Approach	30/12
147	CHM	104105085	Co-Ordination Chemistry (Chemistry Of Transition Elements)	30/12
148	CHM	104105084	Analytical Chemistry	30/12

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S. No.	Dept.	NPTEL Course Id	Course Title	Hours/Weeks
149	CHM	104105076	Biochemistry	30/12
150	CHM	104105033	Coordination Chemistry	30/12
151	CHM	104104101	Solid State Chemistry	30/12
152	CHM	104104086	Advanced Mathematical Methods for Chemistry	30/12
153	CHM	104104082	Quantum Computing	30/12
154	CHM	104103121	Essentials Of Biomolecules : Nucleic Acids And Peptides	30/12
155	CHM	104103112	Thermodynamics: Classical To Statistical	30/12
156	CHM	104103111	Reagents in Organic Synthesis	30/12
157	CHM	104103110	Principles of Organic Synthesis	30/12
158	CHM	104102113	Spectroscopic Techniques for Pharmaceutical and Biopharmaceutical Industries	30/12
159	CHM	104102009	Biophysical chemistry	30/12
160	CHM	104101366	Many body methods in quantum chemistry	30/12
161	CHM	104101362	Interpretative molecular spectroscopy	30/12
162	CHM	104101139	Fundamentals of Statistical Thermodynamics	30/12
163	CHM	104101137	Nuclear and Radiochemistry	30/12
164	CHM	104101136	Advanced Transition Metal Chemistry	30/12
165	CHM	104101135	NMR spectroscopy for Structural Biology	30/12
166	CHM	104101134	Circular Dichroism (CD) and Mossbauer Spectroscopy for Chemists	30/12
167	CHM	104101133	Classics in Total Synthesis - I	30/12
168	CHM	104101133	Classics in Total Synthesis-I	30/12
169	CHM	104101130	Concepts of Chemistry for Engineering	30/12
170	CHM	104101127	Essentials of Oxidation, Reduction and C-C Bond Formation. Application in Organic Synthesis	30/12
171	CHM	104101125	Basic Statistical Mechanics	30/12
172	CHM	104101124	Quantum Chemistry of Atoms and Molecules	30/12
173	CHM	104101123	Transition Metal Organometallics in Catalysis and Biology	30/12
174	CHM	104101122	Ultrafast laser spectroscopy	30/12
175	CHM	104101117	NMR spectroscopy for Chemists and Biologists	30/12
176	CHM	104101100	Advanced Transition Metal Organometallic Chemistry	30/12
177	CHM	104101099	Molecular Spectroscopy: A Physical Chemist's perspective	30/12
178	CHM	104101094	Symmetry and Group Theory	30/12

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S. No.	Dept.	NPTEL Course Id	Course Title	Hours/Weeks
179	CHM	104101093	Inorganic Chemistry of Life: Principles and Perspectives	30/12
180	CHM	104101091	Transition Metal Organometallic Chemistry: Principles to Applications	30/12
181	CHM	104101090	Chemistry Of Main Group Elements	30/12
182	CHM	104101084	Chemical and biological thermodynamics: principles to applications	30/12
183	CHM	103106119	Computational Fluid Dynamics	30/12
184	EE	108108147	Sensors and Actuators	30/12
185	EE	108106374	State space Approach to Control System Analysis and Design	30/12
186	EE	108105186	Digital Control in Switched Mode Power Converters and FPGA-based Prototyping	30/12
187	EE	108101185	Stochastic Control and Communication	30/12
188	EE	117105136	Spread Spectrum Communications and Jamming	30/12
189	EE	108108185	Real-Time Digital Signal Processing	30/12
190	EE	108106179	Stochastic Modeling and the Theory of Queues	30/12
191	EE	108106136	Multirate DSP	30/12
192	EE	108105101	Biomedical Signal Processing	30/12
193	EE	108101373	Digital Communication using GNU Radio	30/12
194	EE	108101185	Stochastic Control and Communication	30/12
195	EE	108106191	VLSI Design Flow: RTL to GDS	30/12
196	EE	108105102	Microprocessors and Microcontrollers	30/12
197	EE	108108113	Fabrication Techniques for MEMs-Based Sensors : Clinical Perspective	30/12
198	EE	108107380	VLSI Physical Design with Timing Analysis	30/12
199	EE	108106184	Phase-Locked Loops	30/12
200	EE	108102169	Introduction to Embedded System Design	30/12
201	ECO	109104125	An introduction to microeconomics	30/12
202	BSBE	102106082	Thermodynamics for Biological Systems : Classical and Statistical Aspects	30/12
203	BSBE	102106083	Transport Phenomena in Biological Systems	30/12
204	BSBE	102106069	Material and Energy Balances	30/12
205	BSBE	127106019	Numerical Methods for Engineers	30/12
206	BSBE	103108220	Transport Processes	30/12
207	BSBE	103108123	Transport Processes I: Heat and Mass Transfer	30/12
208	BSBE	103107207	Process Equipment Design	30/12

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S. No.	Dept.	NPTEL Course Id	Course Title	Hours/Weeks
209	BSBE	103106162	Environmental Quality Monitoring & Analysis	30/12
210	BSBE	103106148	Process Control - Design, Analysis and Assessment	30/12
211	BSBE	103106118	Matlab Programming for Numerical Computation	30/12
212	BSBE	103105210	Principles and Practices of Process Equipment and Plant Design	30/12
213	PHY	115108129	Advanced NMR Techniques in Solution and Solid-State	30/12
214	PHY	115106125	Quantum Transport	30/12
215	PHY	115105451	Fundamentals of Attosecond Science and Technology (FAST)	30/12
216	PHY	115105134	Physics of Functional Materials & Devices	30/12
217	PHY	115101132	Accelerator Physics	30/12
218	PHY	115101131	Neutron Scattering for Condensed Matter Studies	30/12
219	PHY	115101121	Physics of Biological Systems	30/12

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