

Program Elective Course Basket : List of PECs (Physics)

Teaching Scheme					Contact Hours/Week			Exam Duration		Relative Weight (%)				
S. No.	Subject Code	Course Title	Subject Area	Credits	L	T	P	Theory	Practical	CWS	PRS	MTE	ETE	PRE
1.	PHN-601	Advanced Condensed Matter Physics	PEC	4	3	0	3	3	0	20	20	20	40	0
2.	PHN-603	Advanced Atmospheric Physics	PEC	4	3	0	3	3	0	20	20	20	40	0
3.	PHN-605	Advanced Laser Physics	PEC	4	3	0	3	3	0	20	20	20	40	0
4.	PHN-607	Advanced Nuclear Physics	PEC	4	3	0	3	3	0	20	20	20	40	0
5.	PHN-602	Nuclear Astrophysics	PEC	4	3	1	0	3	0	25	-	25	50	-
6.	PHN-604	Physics of Nanosystems	PEC	4	3	1	0	3	0	25	-	25	50	-
7.	PHN-606	Superfluidity and Superconductivity	PEC	4	3	1	0	3	0	25	-	25	50	-
8.	PHN-608	Fiber and Nonlinear Optics	PEC	4	3	1	0	3	0	25	-	25	50	-
9.	PHN-610	Quantum Optics	PEC	4	3	1	0	3	0	25	-	25	50	-
10.	PHN-612	Advanced topics in Mathematical Physics	PEC	4	3	1	0	3	0	25	-	25	50	-
11.	PHN-614	Introduction to Superstring theory	PEC	4	3	1	0	3	0	25	-	25	50	-
12.	PHN-616	Advanced Electroceramics Technology	PEC	4	3	1	0	3	0	25	-	25	50	-
13.	PHN-617	Advanced Characterization Techniques	PEC	4	3	1	0	3	0	25	-	25	50	-
14.	PHN-618	Atomic and Molecular Collision Physics	PEC	4	3	1	0	3	0	25	-	25	50	-
15.	PHN-619	A Primer in Quantum Field Theory	PEC	4	3	1	0	3	0	25	-	25	50	-
16.	PHN-620	Advanced Quantum Field Theory	PEC	4	3	1	0	3	0	25	-	25	50	-
17.	PHN-621	Astrophysics	PEC	4	3	1	0	3	0	25	-	25	50	-
18.	PHN-622	Solar Terrestrial Physics	PEC	4	3	1	0	3	0	25	-	25	50	-
19.	PHN-623	General Relativity	PEC	4	3	1	0	3	0	25	-	25	50	-
20.	PHN-624	Computational Nuclear Physics	PEC	4	3	1	0	3	0	25	-	25	50	-
21.	PHN-625	Particle Physics	PEC	4	3	1	0	3	0	25	-	25	50	-
22.	PHN-626	Advanced Atomic and Molecular Physics	PEC	4	3	1	0	3	0	25	-	25	50	-
23.	PHN-627	Quantum Theory of Solids	PEC	4	3	1	0	3	0	25	-	25	50	-
24.	PHN-629	Weather Forecasting	PEC	4	3	1	0	3	0	25	-	25	50	-
25.	PHN-631	Nuclear Instrumentation	PEC	4	3	1	0	3	0	25	-	25	50	-
26.	PHN-633	Physics and Technology of Thin Films	PEC	4	3	1	0	3	0	25	-	25	50	-
27.	PHN-635	Advanced Nuclear reactions	PEC	4	3	1	0	3	0	25	-	25	50	-
28.	PHN-637	Semiconductor Photonics	PEC	4	3	1	0	3	0	25	-	25	50	-

29.	PHN-638	Advanced Light Sources	PEC	4	3	1	0	3	0	25	-	25	50	-
30.	PNN-639	Superconducting Radio Frequency for particle accelerators	PEC	4	3	1	0	3	0	25	-	25	50	-
31.	PHN-715	Analog Integrated Circuit Design	PEC	4	3	1	0	3	0	20-35	0	20-30	40-50	0
32.	PHN-717	Digital Signal Processing	PEC	4	3	1	0	3	0	20-35	0	20-30	40-50	0
33.	PHN-713	Optical Electronics	PEC	4	3	1	0	3	0	20-35	0	20-30	40-50	0

List of PECs (Physics): Solid State Electronic Materials

Teaching Scheme			Contact Hours/Week				Exam Duration (Hrs.)		Relative Weights (%)					
S. No.	Subject Code	Course Title	Subject Area	Credits	L	T	P	Theory	Practical	CWS	PRS	MTE	ETE	PRE
1.	PHN-715	Analog Integrated Circuit Design	PEC	4	3	1	0	3	0	20-35	0	20-30	40-50	0
2.	PHN-717	Digital Signal Processing	PEC	4	3	1	0	3	0	20-35	0	20-30	40-50	0
3.	PHN-713	Optical Electronics	PEC	4	3	1	0	3	0	20-35	0	20-30	40-50	0
1.	PHN-718	Thin Film Technology	PEC	4	3	1	0	3	0	20-35	0	20-30	40-50	0
2.	PHN-708	Materials for Renewable Energy and Storage	PEC	4	3	1	0	3	0	20-35	0	20-30	40-50	0
3.	PHN-722	Functional Properties of Materials & Devices	PEC	4	3	1	0	3	0	20-35	0	20-30	40-50	0
4.	PHN-721	Nanoscience and Nanotechnology	PEC	4	3	1	0	3	0	20-35	0	20-30	40-50	0
5.	PHN-723	Engineered materials for Device Application	PEC	4	3	1	0	3	0	20-35	0	20-30	40-50	0
6.	PHN-724	Semiconductor Micro-electronic Technology	PEC	4	3	1	0	3	0	20-35	0	20-30	40-50	0
7.	PHN-725	Nano-electronics and -photonics	PEC	4	3	1	0	3	0	20-35	0	20-30	40-50	0
8.	PHN-726	Solar Photovoltaic and Energy Storage	PEC	4	3	1	0	3	0	20-35	0	20-30	40-50	0
9.	PHN-727	Advance Fuel Cell and Battery Technology	PEC	4	3	1	0	3	0	20-35	0	20-30	40-50	0
10.	PHN-728	MEMS and NEMS	PEC	4	3	1	0	3	0	20-35	0	20-30	40-50	0
12.	PHN-729	Advanced Ceramics and Composites	PEC	4	3	1	0	3	0	20-35	0	20-30	40-50	0

List of PECs (Physics): Photonics

Teaching Scheme					Contact Hours/Week			Exam Duration (Hrs.)		Relative Weights (%)				
S. No.	Subject Code	Course Title	Subject Area	Credits	L	T	P	Theory	Practical	CWS	PRS	MTE	ETE	PRE
1.	PHN-709	Semiconductor Device Physics	PEC	4	3	1	0	3	0	20-35	0	20-30	40-50	0
2.	PHN-715	Analog Integrated Circuit Design	PEC	4	3	1	0	3	0	20-35	0	20-30	40-50	0
3.	PHN-717	Digital Signal Processing	PEC	4	3	1	0	3	0	20-35	0	20-30	40-50	0
1.	PHN-719	Radiation Detection and Measurements	PEC	4	3	0	3	3	0	10-25	25	15-25	30-40	0
2.	PHN-725	Nano-electronics and photonics	PEC	4	3	1	0	3	0	20-35	0	20-30	40-50	0
3.	PHN-726	Solar Photovoltaic and Energy Storage	PEC	4	3	1	0	3	0	20-35	0	20-30	40-50	0
4.	PHN-731	Optical Communication System	PEC	4	3	1	0	3	0	20-35	0	20-30	40-50	0
5.	PHN-732	Optical Networks	PEC	4	3	1	0	3	0	20-35	0	20-30	40-50	0
6.	PHN-733	Solid State Lighting	PEC	4	3	1	0	3	0	20-35	0	20-30	40-50	0
7.	PHN-734	Display Technology	PEC	4	3	1	0	3	0	20-35	0	20-30	40-50	0
8.	PHN-735	Photonic Sensors	PEC	4	3	1	0	3	0	20-35	0	20-30	40-50	0
9.	PHN-736	Photonic Analysis and Design	PEC	4	2	0	4	2	3	10-25	25	15-25	30-40	0
10.	PHN-737	Silicon Photonics	PEC	4	3	1	0	3	0	20-35	0	20-30	40-50	0
11.	PHN-738	Quantum Photonics	PEC	4	3	1	0	3	0	20-35	0	20-30	40-50	0

List of PECs (ECE): Microelectronics & VLSI

Teaching Scheme					Contact Hours/Week			Exam Duration		Relative Weight(%)				
S. No.	Subject Code	Course Title	Sub Credits	L	T	P	Theory	Practical	CW	PS	MT	ET	PE	
1	ECN-524	Power Electronic Devices, Circuits and Systems	PEC 4	3	1	0	3	0	20-35	-	20-30	40-50	-	
2	ECN-525	Hardware Architecture for Deep- Learning	PEC 4	3	1	0	3	0	20-35	-	20-30	40-50	-	
3	ECN-526	Statistical Machine Learning for Variation-Aware Electronic Device and Circuit Simulation	PEC 4	3	1	0	3	0	20-35	-	20-30	40-50	-	
4	ECN-561	Compact Modeling of Semiconductor Devices	PEC 4	3	1	0	3	0	20-35	-	20-30	40-50	-	
5	ECN-571	Semiconductor Device Modeling	PEC 4	3	1	0	3	0	20-35	-	20-30	40-50	-	
6	ECN-572	MOS Device Physics	PEC 4	3	1	0	3	0	20-35	-	20-30	40-50	-	
7	ECN-581	Analog VLSI Circuit Design	PEC 4	3	1	0	3	0	20-35	-	20-30	40-50	-	
8	ECN-582	Semiconductor Microwave Devices & Applications	PEC 4	3	1	0	3	0	20-35	-	20-30	40-50	-	
9	ECN-583	Optoelectronic Materials & Devices	PEC 4	3	1	0	3	0	20-35	-	20-30	40-50	-	
10	ECN-584	Mixed Signal Circuit Design	PEC 4	3	1	0	3	0	20-35	-	20-30	40-50	-	
11	ECN-585	VLSI System Design	PEC 4	3	1	0	3	0	20-35	-	20-30	40-50	-	
12	ECN-586	Device & Circuit Interaction	PEC 4	3	1	0	3	0	20-35	-	20-30	40-50	-	
13	ECN-587	Nano Scale Devices	PEC 4	3	1	0	3	0	20-35	-	20-30	40-50	-	
14	ECN-588	Performance and Reliability of VLSI Circuits	PEC 4	3	1	0	3	0	20-35	-	20-30	40-50	-	
15	ECN-589	Advanced VLSI Interconnects	PEC 4	3	1	0	3	0	20-35	-	20-30	40-50	-	
16	ECN-590	Organic Electronics	PEC 4	3	1	0	3	0	20-35	-	20-30	40-50	-	
17	ECN-591	VLSI Physical Design	PEC 4	3	1	0	3	0	20-35	-	20-30	40-50	-	
18	ECN-592	Compound Semiconductors and RF Devices	PEC 4	3	1	0	3	0	20-35	-	20-30	40-50	-	
19	ECN-593	CAD for VLSI	PEC 4	3	1	0	3	0	20-35	-	20-30	40-50	-	
20	ECN-594	VLSI Digital Signal Processing	PEC 4	3	1	0	3	0	20-35	-	20-30	40-50	-	
21	ECN-595	VLSI Testing and Testability	PEC 4	3	1	0	3	0	20-35	-	20-30	40-50	-	
22	ECN-596	MEMS and NEMS	PEC 4	3	1	0	3	0	20-35	-	20-30	40-50	-	
23	ECN-597	MicroelectronicsLab.-2	PEC 2	-	-	2	-	-	-	100	-	-	-	
24	ECN-598	SimulationLab.-2	PEC 2	-	-	2	-	-	-	100	-	-	-	
List of PECs (ECE): Terahertz Communication and Sensing														
25	ECN-554	Microwave and Millimeter-Wave Circuits	PEC 4	3	1	0	3	0	20-35	-	20-30	40-50	-	
26	ECN-603	Millimeter-Wave & Terahertz Antenna Design	PEC 4	3	1	0	3	0	20-35	-	20-30	40-50	-	
27	ECN-604	High Speed Semiconductor Devices	PEC 4	3	1	0	3	0	20-35	-	20-30	40-50	-	
28	ECN-605	Surface Electromagnetics	PEC 4	3	1	0	3	0	20-35	-	20-30	40-50	-	
29	ECN-637	Microwave Photonic ICs	PEC 4	3	1	0	3	0	20-35	-	20-30	40-50	-	

