

KIET Group of Institutions, Delhi NCR, Ghaziabad
Department of Applied Sciences

(An ISO – 9001: 2008 Certified & ‘A+’ Grade accredited Institution by NAAC)

Session 2023-24 Odd / Even Semester

Date: _____

Program: B.Tech II year	Semester: 3/4
Course : Technical Communication	Course Code: BAS 301/401

Course Objective:

UNDERSTAND the nature and objective of Technical Communication relevant for the work place as Engineers.

Tagging COs with BLs & KCs			
CO No.	Statement of Course Outcome	Bloom’s Cognitive Process Level (BL)	Knowledge Category (KC)
After completion of the course, the student will be able to			
CO1	UNDERSTAND the nature and objective of Technical Communication relevant for the work place as Engineers.	Understand	Conceptual
CO2	DEVELOP an understanding of key concepts of writing, designing and speaking.	Apply	Procedural
CO3	UTILIZE the technical writing skills for the purposes of Technical Communication and its exposure in various dimensions.	Apply	Procedural
CO4	BUILD UP interpersonal communication traits that will make the transition from institution to workplace smoother and help them to excel in their jobs.	Apply	Conceptual
CO5	APPLY technical communication to build their personal brand and handle crisis communication.	Apply	Conceptual

Mapping of Course outcomes with Program outcomes CO-POs Matrix												
Course Name (Course Code)												
Course Code	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12
CO-1							1		2	3		2
CO-2							1		2	3		2
CO-3							1		2	3		2
CO-4							1		2	3		2
CO-5							1		2	3		2
PO Target							1		2	3		2

Name of Faculty	Signature	Name of Faculty	Signature
Dr Babita Tyagi	Babita		

Department of Electronics and Communication Engineering

Program Name: B.Tech

Academic Session: 2023-24

Year:II Semester: III

Course Name:B.Tech

Course Code: BEC301

Course Coordinator:Dr. Pravesh

Course Outcomes

After completion of the course, the student will be able to		Relevant POs/ PSOs/ APOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	Statement of Course Outcome			
CO1	Understand the principles of semiconductor Physics.	PO1. PO2. PO3, PO4,PO11, PO12, PS01	2	Conceptual. Procedural
CO2	Illustrate the Mechanism of Carrier transport in Semiconductors	PO1. PO2. PO3, PO4, PO11, PO12, PS01	3	Conceptual. Procedural
CO3	Analyze the application of special purpose diodes	PO1. PO2. PO3, PO4, PO11, PO12, PS01	4	Conceptual. Procedural
CO4	Analyze the mechanism of Bipolar Junction Transistor.	PO1. PO2. PO3, PO4, PO11, PO12, PS01	4	Conceptual. Procedural
CO5	Analyze the mathematical mode of MOS transistors	PO1. PO2. PO3, PO4, PO11, PO12, PS01	4	Conceptual. Procedural

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
1.Dr. Pravesh		5.	
2. Mr. Satya Prakash		6.	
3.Dr. Neeraj Mehta		7.	

Department of Electronics and Communication Engineering

Program Name: B.Tech

Academic Session: 2023-24

Year:II Semester: III

Course Name:Electronic Devices

Course Code: BEC-301

Course Coordinator : Dr. Pravesh

CO - PO/PSO/APO Matrix

CO No.	Programme Outcome (PO)												PSO/ APO	
	1	2	3	4	5	6	7	8	9	10	11	1 2	1	2
CO1	3	2	3	2	-	-	-	-	-	-	2	2	2	-
CO2	3	2	3	2	-	-	-	-	-	-	2	2	2	-
CO3	3	3	3	2	-	-	-	-	-	-	2	2	1	-
CO4	3	3	3	2	-	-	-	-	-	-	2	2	2	-
CO5	3	3	3	2	-	-	-	-	-	-	2	2	3	-
PO Target	3	2.6	3	2	-	-	-	-	-	-	2	2	2	-

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
1.Dr. Pravesh		5.	
2.Mr. Satya Praksah		6.	
3.Dr. Niraj Mehta		7.	

Department of ECE

Program Name: BTech
Year: 2nd **Semester:** 3rd

Academic Session: 2023-24

Course Name: Digital System Design **Course Code:** BEC-302
Course Coordinator Name: Dr. Abhas Kanungo

Course Outcomes

After completion of the course, the student will be able to		Relevant POs/ PSOs/ APOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	Statement of Course Outcome			
CO1	Apply numerous arithmetic and logic simplification using various methods.	1,2,3,4,5,6	3	Conceptual, Procedural
CO2	Analyze modular combinational circuits with MUX / DEMUX, Decoder & Encoder	1,2,3,4,5,6, PSO1	4	Conceptual, Procedural
CO3	Analyze synchronous sequential logic circuits	1,2,3,4,5,6, PSO1	4	Conceptual, Procedural
CO4	Analyze various logic families and design circuits using PLDs.	1,2,3,4,5,6	4	Conceptual, Procedural
CO5	Apply the knowledge of DAC and ADC in the circuits.	1,2,3,4,5,6, PSO1	3	Conceptual, Procedural

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
1. Dr. Abhas Kanungo		5.	
2. Ms. Shipra Srivastava		6.	

Signature of Course Coordinator Assoc./ Asst. Head DOC

Signature of Addl. HoD

Department of ECE

Program Name: B.Tech
Year: 2nd Semester: 3rd

Academic Session: 2023-24

Course Name: Digital System Design

Course Code: BEC-302

Course Coordinator Name: Dr. Abhas Kanungo

CO - PO/PSO/APO Matrix

CO No.	Programme Outcome (PO)												PSO/ APO	
	1	2	3	4	5	6	7	8	9	10	11	1 2	1	2
CO1	3	3	2	2	1	1	-	-	-				-	-
CO2	3	3	2	3	1	1	-	-	-				1	-
CO3	2	2	2	2	2	1	-	-	-				2	-
CO4	3	3	2	3	1	3	-	-	-				-	-
CO5	1	3	2	2	1	1	-	-	-				2	-
PO Target	2.4	2.8	2	2.4	1.2	1.4	-	-	-				1	-

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
1. Dr. Abhas Kanungo		5.	
2. Ms. Shipra Srivastava		6.	
3.		7.	
4.		8.	

Signature of Course Coordinator Assoc./ Asst. Head DOC

Signature of Addl. HoD

Department of Electronics and Communication Engineering

Program Name: B.Tech.

Academic Session: 2023-24 (ODD)

Year: 2nd Semester: 3rd

Course Name: Network Analysis and Synthesis

Course Code: BEC-303

Course Coordinator Name: Dr. Hunny Pahuja

Course Outcomes

After completion of the course, the student will be able to		Relevant POs/ PSOs/ APOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	Statement of Course Outcome			
CO1	Understand basics electrical circuits with nodal and mesh analysis.	PO1, PO2, PO3, PO4, PO5, PO12, PSO1, and PSO 2	2	Conceptual, Factual
CO2	Apply network theorems on electrical circuit.	PO1, PO2, PO3, PO4, PO5, PO12, PSO1, and PSO 2	3	Conceptual, Factual
CO3	Analyse steady state and transient state using Laplace Transform.	PO1, PO2, PO3, PO4, PO5, PO12, PSO1, and PSO 2	4	Conceptual
CO4	Analysis of various parameter for two port network and filter.	PO1, PO2, PO3, PO4, PO5, PO12, PSO1, and PSO 2	4	Conceptual
CO5	Analysis of series and parallel resonance circuit.	PO1, PO2, PO3, PO4, PO5, PO12, PSO1, and PSO 2	4	Conceptual

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
1. Dr. Hunny Pahuja		5.	
2. Dr. Praveen Kumar		6.	
3.		7.	
4.		8.	

**Signature of Course Coordinator
Addl. HoD**

**Assoc./ Asst. Head DOC
Signature of HoD**

Signature of

Department of Electronics and Communication Engineering

Program Name: B.Tech.

Academic Session: 2023-24 (ODD)

Year: 2nd Semester: 3rd

Course Name: Network Analysis and Synthesis

Course Code: BEC-303

Course Coordinator Name: Dr. Hunny Pahuja

CO - PO/PSO/APO Matrix

CO No.	Programme Outcome (PO)												PSO/ APO	
	1	2	3	4	5	6	7	8	9	10	11	1 2	1	2
CO1	3	3	2	2	3	-	-	-	-	-	-	1	2	3
CO2	2	2	3	3	2	-	-	-	-	-	-	1	2	2
CO3	2	3	3	3	3	-	-	-	-	-	-	-	1	3
CO4	3	3	3	2	2	-	-	-	-	-	-	-	1	2
CO5	3	2	2	3	3	-	-	-	-	-	-	1	2	3
PO Target	2.6	2.6	2.6	2.6	2.6	-	-	-	-	-	-	0.6	1.6	2.6

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
1. Dr. Hunny Pahuja		5.	
2. Dr. Praveen Kumar		6.	
3.		7.	
4.		8.	

Signature of Course Coordinator

Assoc./ Asst. Head DO
Signature of HoD

Signature of Addl. HoD

Department of Electronics & Communication Engineering

Program Name: B. Tech.

Academic Session: 2023-24

Year: II

Semester: III

Course Name: Electronic Devices Lab

Course Code: BEC-351

Course Coordinator Name: Mr. Paramanand Sharma

Course Outcomes

After completion of the course, the student will be able to		Relevant POs/PSOs/ APOs	Revised Bloom's Level (BL)	Knowledge Category(KC)
CO No.	Statement of Course Outcome			
CO1	Understand working of basic Electronics lab components and equipments.	PO1, PO2, PO3, PO4, PO8, PO9, PO10, PO11, PO12, PSO1, PSO2	Understand	Conceptual, Procedural
CO2	Understand working of PN junction diode and its applications.	PO1, PO2, PO3, PO4, PO8, PO9, PO10, PO11, PO12, PSO1, PSO2	Understand	Conceptual, Procedural
CO3	Understand characteristics of Zener diode and its application as a voltage regulator.	PO1, PO2, PO3, PO4, PO8, PO9, PO10, PO11, PO12, PSO1, PSO2	Understand	Conceptual, Procedural
CO4	Measure various parameters of an amplifier using different transistors as BJT, FET, and MOSFET.	PO1, PO2, PO3, PO4, PO8, PO9, PO10, PO11, PO12, PSO1, PSO2	Evaluate	Conceptual, Procedural
CO5	Simulate an amplifier circuits using simulator software.	PO1, PO2, PO3, PO4, PO8, PO9, PO10, PO11, PO12, PSO1, PSO2	Apply	Conceptual, Procedural

Faculty Members Teaching the Course	Signature
1. Dr. Pravesh Singh	
2. Mr. Paramanand Sharma	
3. Mr. S. P. Singh	
4. Ms. Ritika Sharma	

Signature of Course Coordinator
Addl. HoD

Assoc./ Asst. Head DOC
Signature of HoD

Signature of

Department of Electronics & Communication Engineering

Program Name: B. Tech.

Academic Session: 2023-24

Year: II

Semester: III

Course Name: Electronic Devices Lab

Course Code: BEC-351

Course Coordinator Name: Mr. Paramanand Sharma

CO-PO/PSO/APO Matrix

CO No.	Programme Outcome(PO)												PSO/ APO	
	1	2	3	4	5	6	7	8	9	10	11	1 2	1	2
CO1	1	3	2	1	-	-	-	3	2	3	2	2	3	2
CO2	2	3	2	1	-	-	-	3	2	3	2	2	2	3
CO3	3	2	2	2	-	-	-	3	2	3	3	3	2	3
CO4	2	3	2	1	-	-	-	3	2	3	2	2	2	2
CO5	3	3	2	3	-	-	-	3	2	3	2	2	2	2
PO Target	2.2	2.8	2	1.6	-	-	-	3	2	3	2.2	2.2	2.2	2.4

Faculty Members Teaching the Course	Signature
1. Dr. Pravesh Singh	
2. Mr. Paramanand Sharma	
3. Mr. S. P. Singh	
4. Ms. Ritika Sharma	

Signature of Course Coordinator
Addl. HoD

Assoc./ Asst. Head DOC
Signature of HoD

Signature of

Department of ECE

Program Name: BTECH
Year: 2nd Semester: 3rd

Academic Session: 2023-24

Course Name: DSD LAB
Course Coordinator Name: Dr. Abhas Kanungo

Course Code: BEC-352

Course Outcomes

After completion of the course, the student will be able to		Relevant POs/ PSOs/ APOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	Statement of Course Outcome			
CO1	Apply the basics of digital electronics to hardware.	1,2 3 ,4,5,6	3	Conceptual, Procedural
CO2	Analyze the truth table of different flip flops using hardware.	1,2 3 ,4,5,6, PSO1	4	Conceptual, Procedural
CO3	Analyze combinational logic circuits using hardware.	1,2 3 ,4,5,6, PSO1	4	Conceptual, Procedural
CO4	Analyze sequential logic circuits using hardware.	1,2 3 ,4,5,6	4	Conceptual, Procedural
CO5	Design mini project using digital ICs.	1,2 3 ,4,5,6, PSO1	6	Conceptual, Procedural

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
1.Dr. Abhas Kanungo		5. Ms. Ragini Sharma	
2.Dr. Neeraj Mehta		6.	
3.Mr. Sachin Tyagi		7.	
4. Dr. Narendra Kumar		8.	

Signature of Course Coordinator
Addl. HoD

Assoc./ Asst. Head DOC
Signature of HoD

Signature of

Department of ECE

Program Name: BTech
Year: 2nd Semester: 3rd

Academic Session: 2023-24

Course Name: DSD LAB
Course Coordinator Name: Dr. Abhas Kanungo

Course Code: BEC-352

CO - PO/PSO/APO Matrix

CO No.	Programme Outcome (PO)												PSO/ APO	
	1	2	3	4	5	6	7	8	9	10	11	1 2	1	2
CO1	3	3	2	2	1	1								
CO2	3	3	2	2	1	1							2	
CO3	3	3	2	2	1	1							2	
CO4	3	3	2	2	1	1								
CO5	3	3	3	3	1	1							2	
PO Target	3	3	2.20	2.20	1	1							2	

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
1.Dr. Abhas Kanungo		5. Ms. Ragini Sharma	
2.Dr. Neeraj Mehta		6.	
3.Mr. Sachin Tyagi		7.	
4. Dr. Narendra Kumar		8.	

Signature of Course Coordinator
Addl. HoD

Assoc./ Asst. Head DOC
Signature of HoD

Signature of

Department of Electronics and Communication Engineering

Program Name: B.Tech.
Year: 2nd Semester: 3rd

Academic Session: 2023-24 (ODD)

Course Name: Network Analysis and Synthesis Lab Course Code: BEC-353

Course Coordinator Name: Dr. Hunny Pahuja

Course Outcomes

After completion of the course, the student will be able to		Relevant POs/ PSOs/ APOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	Statement of Course Outcome			
CO1	Understand basics electrical circuits with nodal and mesh analysis.	PO1, PO2, PO3, PO4, PO5, PO12, PSO1, and PSO 2	2	Conceptual, Factual
CO2	Apply network theorems on electrical circuit.	PO1, PO2, PO3, PO4, PO5, PO12, PSO1, and PSO 2	3	Conceptual, Factual
CO3	Analyses of RLC circuits and their stability	PO1, PO2, PO3, PO4, PO5, PO12, PSO1, and PSO 2	4	Conceptual

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
1. Dr. Hunny Pahuja		5.	
2.		6.	
3.		7.	
4.		8.	

Signature of Course Coordinator
Addl. HoD

Assoc./ Asst. Head DOC
Signature of HoD

Signature of

Department of Electronics and Communication Engineering

Program Name: B.Tech.

Academic Session: 2023-24 (ODD)

Year: 2nd Semester: 3rd

Course Name: Network Analysis and Synthesis Lab Course Code: BEC-353

Course Coordinator Name: Dr. Hunny Pahuja

CO - PO/PSO/APO Matrix

CO No.	Programme Outcome (PO)												PSO/ APO	
	1	2	3	4	5	6	7	8	9	10	11	1 2	1	2
CO1	3	3	2	2	3	-	-	-	-	-	-	1	2	3
CO2	2	2	3	3	2	-	-	-	-	-	-	1	2	2
CO3	2	3	3	3	3	-	-	-	-	-	-	-	1	3
PO Target	2.3	2.6	2.6	2.6	2.6	-	-	-	-	-	-	0.6	1.6	2.6

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
1. Dr. Hunny Pahuja		5.	
2.		6.	
3.		7.	
4.		8.	

**Signature of Course Coordinator
Addl. HoD**

**Assoc./ Asst. Head DOC
Signature of HoD**

Signature of

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Electronics and Communication Engineering

Program Name: B. Tech
Course Name: Integrated Circuits
Course Outcomes

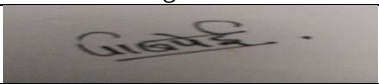
Course Code: KEC-501

Academic Session: 2023-24

Course Coordinator Name:

Year: III Semester:
Mr. Vipin Kumar Verma

After completion of the course, the student will be able to		Relevant POs/ PSOs/ APOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	Statement of Course Outcome			
CO1	Analyze complete internal Circuitry of Op-amp 741-IC	PO-1, 2,3,4,5,13	4	Conceptual, Procedural
CO2	Examine Op-amp based circuits & basic components of ICs such as various types of filters	PO-1, 2,3,4,5,13	4	Conceptual, Procedural, Fundamental Design
CO3	Implement the concept of Op-Amp to design Op-amp based non - linear applications and wave shaping circuits	PO-1, 2,3,4,5,13	3	Conceptual, Procedural
CO4	Analyze basic digital IC circuits using CMOS technology	PO-1, 2,3,4,5,13	4	Conceptual, Procedural, Fundamental Design
CO5	Analyze the functioning of application specific ICs such as 555 timer, VCO IC 566 and PLL.	PO-1, 2,3,4,5,13	4	Conceptual, Procedural

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
1.Dr. Rochak Bajpai			
2.Mr. Vipin kumar Verma			


Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

- ❖ The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 3 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
- ❖ The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Program Name: B. Tech
Course Name: Integrated Circuits

Department of Electronics and Communication Engineering

Academic Session: 2023-24

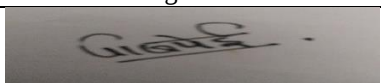
Course Code: KEC-501

Course Coordinator Name:

Year: III Semester:
Mr. Vipin Kumar Verma

CO - PO/PSO/APO Matrix

CO No.	Programme Outcome (PO)												PSO/ APO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	3	3	2	1	1								2	
CO2	3	3	2	1	1								2	
CO3	3	3	2	1	1								2	
CO4	3	3	2	1	1								2	
CO5	3	3	2	1	1								2	
PO Target	3	3	2	1	1								2	

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
1.Dr. Rochak Bajpai			
2.Mr. Vipin kumar Verma			



Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

- ❖ The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 3 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
- ❖ The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Electronics & Communication Engineering

Program Name: B. Tech

Academic Session: 2023-24

Year: 3rd

Semester: 5th

Course Name: Microprocessor and Microcontrollers

Course Code: KEC-502

Course Coordinator Name: N. R. Srivastava

Course Outcomes

After completion of the course, the student will be able to		Relevant POs/ PSOs/ APOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	Statement of Course Outcome			
CO1	Understand the basic architecture of 8085 and basic interfacing devices	PO1, PO2, PO3, PO4	2	F/C
CO2	Analyze the programming model of 8085 to write basic assembly language programs	PO1, PO2, PO3, PO4	4	C/P
CO3	Understand the basic architecture of 8086 and different peripheral Devices	PO1, PO2, PO3, PO4	2	F/C/P
CO4	Understand the architecture and assembly language programming of 8051 microcontroller	PO1, PO2, PO3, PO4	2	F/C
CO5	Apply the assembly programming to program interrupts, timers, serial ports in 8051	PO1, PO2, PO3, PO4	3	F/C/P

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
1. Mr. Neelesh Ranjan Srivastava		5.	
2. Mr. Sharad Gupta		6.	

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

- ❖ The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 3 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
- ❖ The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Electronics & Communication Engineering

Program Name: B. Tech

Academic Session: 2023-24

Year: 3rd

Semester: 5th

Course Name: Microprocessor and Microcontrollers

Course Code: KEC-502

Course Coordinator Name: N. R. Srivastava

CO - PO/PSO/APO Matrix

CO No.	Programme Outcome (PO)												PSO/ APO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	3	1	3	1										
CO2	3	1	3	1										
CO3	3	1	3	1										
CO4	3	1	3	1										
CO5	3	1	3	1										
PO Target	3	1	3	1										

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
1. Mr. N R Srivastava		5.	
2. Mr. Sharad Gupta		6.	
3.		7.	
4.		8.	

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

- ❖ The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 3 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
- ❖ The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of ECE

Program Name: BTech
Course Name: Digital Signal Processing
Course Outcomes

Academic Session: 2023-24
Course Code: KEC-055
Course Coordinator Name:

Year: 3rd **Semester:** 5th
Dr. Abhas Kanungo

After completion of the course, the student will be able to		Relevant POs/ PSOs/ APOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	Statement of Course Outcome			
CO1	Understand different types of realizations of digital systems (IIR and FIR) and their utilities	1,2,3,4,5,6,11	2	Conceptual, Procedural
CO2	Analysis of digital IIR filters.	1,2,3,4,5,6, PSO1	4	Conceptual, Procedural
CO3	Analysis of digital FIR filters.	1,2,3,4,5,6, PSO1	4	Conceptual, Procedural
CO4	Compute DFT, FFT & its Inverse transform.	1,2,3,4,5,6,11	3	Conceptual, Procedural
CO5	Implement Decimation & Interpolation with its applications.	1,2,3,4,5,6, PSO1	3	Conceptual, Procedural

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
3. Dr. Abhas Kanungo		5.	
4. Mr. Balram Tamrakar		6.	
3.		7.	
4.		8.	

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

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KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of ECE

Program Name: B.Tech

Academic Session: 2023-24

Year: 3rd

Semester: 5th

Course Name: Digital Signal Processing

Course Code: KEC-055

Course Coordinator Name:

Dr. Abhas Kanungo

CO - PO/PSO/APO Matrix

CO No.	Programme Outcome (PO)												PSO/ APO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	3	3	2	2	1	1	-	-	-		1		-	-
CO2	3	3	2	3	1	1	-	-	-				1	-
CO3	2	2	2	2	2	1	-	-	-				2	-
CO4	3	3	2	3	1	3	-	-	-		2		-	-
CO5	1	3	2	2	1	1	-	-	-				2	-
PO Target	2.4	2.8	2	2.4	1.2	1.4	-	-	-		1.5		1	-

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
3. Dr. Abhas Kanungo		5.	
4. Mr. Balram Tamrakar		6.	
3.		7.	
4.		8.	

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

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KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Electronics and Communication Engineering

Program Name: B.Tech
CourseName: VLSI Technology

Academic Session: 2023-24
CourseCode: KEC053

Year: 3rd Semester: 5th
Course Coordinator Name: Dr. Praveen Kumar

CourseOutcomes

After completion of the course, the student will be able to		RelevantPOs/PSOs/ APOs	Revised Bloom'sLevel(BL)	KnowledgeCategory(KC)
CONo.	StatementofCourseOutcome			
CO1	Understand the basics of crystal growth, wafer preparation, wafer cleaning and correlate it with SSI, MSI, LSI and VLSI.	PO1, PO2, PO3, PO4, PO12, PSO1	2	Factual, Conceptual
CO2	Analyze the epitaxy and oxidation process.	PO1, PO2, PO3, PO4, PO12, PSO1	4	Conceptual
CO3	Analyze the lithography, etching and deposition process.	PO1, PO2, PO3, PO4, PO12, PSO1	4	Conceptual, Proceedural
CO4	Analyze the process of diffusion and ion implantation.	PO1, PO2, PO3, PO4, PO12, PSO1	4	Conceptual
CO5	Outline the basic process involved in metallization and packaging.	PO1, PO2, PO3, PO4, PO12, PSO1	4	Conceptual, Proceedural

Faculty Members Teaching the Course	Signature
1. Dr. Praveen Kumar	
2. Ms. Ragini Sharma	

Signature of CourseCoordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

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KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Electronics & Communication Engineering

Program Name: B.Tech
Course Name: VLSI Technology

Academic Session: 2023-24
Course Code: KEC053

Year: 3rd Semester: 5th
Course Coordinator Name: Dr. Praveen Kumar

CO - PO/PSO/APO Matrix

CO No.	Programme Outcome (PO)												PSO/ APO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	2	2	1	1	-	-	-	-	-	-	-	2	2	-
CO2	2	2	1	1	-	-	-	-	-	-	-	2	2	-
CO3	2	2	1	1	-	-	-	-	-	-	-	2	2	-
CO4	2	2	1	1	-	-	-	-	-	-	-	2	2	-
CO5	2	2	1	1	-	-	-	-	-	-	-	2	2	-
PO Target	2.0	2.0	1.0	2.0	-	-	-	-	-	-	-	2.0	2.0	-

Faculty Members Teaching the Course	Signature
1. Dr. Praveen Kumar	
2. Ms. Ragini Sharma	

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

- ❖ The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 3 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
- ❖ The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Electronics & Communication Engineering

Program Name: B.Tech

Academic Session: 2023-24

Year: 3rd

Semester: V

Course Name: Advanced Digital Design Using Verilog

Course Code: KEC 054

Course Coordinator Name:

Mr Sachin Tyagi

Course Outcomes

After completion of the course, the student will be able to		Relevant POs/ PSOs/ APOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	Statement of Course Outcome			
CO1	Describe mixed logic circuits and their implementation.	PO1, PO2, PO3, PO4, PO5, PO6, PO11, PO12	2	F/C
CO2	Implement combinational circuits using mixed logic and Verilog.	PO1, PO2, PO3, PO4, PO5, PO6, PO11, PO12, PSO1, PSO2	4	C/P
CO3	Design sequential circuits using mixed logic and Verilog with mapping of Algorithm.	PO1, PO2, PO3, PO4, PO5, PO6, PO11, PO12, PSO1, PSO2	2	F/C/P
CO4	Understand faults and its elimination in sequential and combinational circuits.	PO1, PO2, PO3, PO4, PO5, PO6, PO11, PO12, PSO1, PSO2	2	F/C
CO5	Understand the working of programmable logic families.	PO1, PO2, PO3, PO4, PO5, PO6, PO11, PO12, PSO1, PSO2	3	F/C/P

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
1. Mr Sachin Tyagi		5.	
2.		6.	

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

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KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Electronics & Communication Engineering

Program Name: B.Tech

Academic Session: 2023-24

Year: 3rd

Semester: V

Course Name: Advanced Digital Design Using Verilog

Course Code: KEC 054

Course Coordinator Name:

Mr Sachin Tyagi

CO - PO/PSO/APO Matrix

CO No.	Programme Outcome (PO)												PSO/ APO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	3	2	2	1	2	2	-	-	-	-	2	2	-	-
CO2	3	3	3	2	2	2	-	-	-	-	1	2	1	1
CO3	3	3	3	2	1	2	-	-	-	-	2	3	1	1
CO4	3	3	2	3	2	2	-	-	-	-	1	3	2	2
CO5	3	3	3	2	1	2	-	-	-	-	2	3	1	1
PO Target	3	2	2	2	2	2	-	-	-	-	2	3	2	2

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
1. Mr Sachin Tyagi		5.	
2.		6.	
3.		7.	
4.		8.	

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

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KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Electronics & Communication Engineering

Program Name: B. Tech.
Course Name: Electronic Switching
Course Outcomes

Academic Session: 2023-24
Course Code: KEC-055

Year: III
Course Coordinator Name:

Semester: V
Ms. Ragini Sharma

After completion of the course, the student will be able to		Relevant POs/PSOs/ APOs	Revised Bloom's Level (BL)	Knowledge Category(KC)
CO No.	Statement of Course Outcome			
CO1	Understand fundamentals of telecommunication systems and associated technologies.	PO1, PO4, PO6, PO12, PSO1, PSO2	Understand	Factual, Conceptual
CO2	Analyze Digital Switching in multidimensional space.	PO1, PO2, PO3, PO6, PO11, PO12, PSO1, PSO2	Analyze	Conceptual, Procedural
CO3	Analyze different parameter for improvement of switching system in telecommunication.	PO1, PO2, PO3, PO4, PO5, PO6, PO11, PO12, PSO1, PSO2	Analyze	Conceptual
CO4	Analyze the principles of the internal design and operation of telecommunication switches, and the essence of the key signalling systems.	PO1, PO2, PO3, PO4, PO5, PO6, PO11, PO12, PSO1, PSO2	Analyze	Conceptual, Procedural
CO5	Apply signalling system in application of telecommunication as Packet switching and ATM.	PO1, PO2, PO3, PO4, PO5, PO6, PO11, PO12, PSO1, PSO2	Apply	Conceptual, Procedural

Faculty Members Teaching the Course	Signature
1. Ms. Ragini Sharma	
2. Mr. Paramanand Sharma	

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

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KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Electronics & Communication Engineering

Program Name: B. Tech.
Course Name: Electronic Switching

Academic Session: 2023-24
Course Code: KEC-055

Year: III
Course Coordinator Name:

Semester: V
Ms. Ragini Sharma

CO-PO/PSO/APO Matrix

CO No.	Programme Outcome(PO)												PSO/ APO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	1	-	-	2	-	1	-	-	-	-	-	1	1	1
CO2	1	2	1	-	-	1	-	-	-	-	1	1	2	2
CO3	2	3	2	3	1	2	-	-	-	-	1	2	2	2
CO4	2	2	2	3	1	2	-	-	-	-	2	2	2	2
CO5	2	2	3	3	2	3	-	-	-	-	2	2	3	3
PO Target	1.6	2.25	2	2.75	1.33	1.8	-	-	-	-	1.5	1.6	2	2

Faculty Members Teaching the Course	Signature
1. Ms. Ragini Sharma	
2. Mr. Paramanand Sharma	

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

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KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of ECE

Program Name: B.Tech
Course Name: Optical Communication
Course Outcomes

Academic Session: 2023-24 **Year:** 3rd **Semester:** 5th
Course Code: KEC-058 **Course Coordinator Name:** Dr Parvin Kumar

After completion of the course, the student will be able to		Relevant POs/ PSOs/ APOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	Statement of Course Outcome			
CO1	Analyze the basic concepts of optical fiber communication along with ray propagation.	PO	BL-4	Conceptual
CO2	Apply the knowledge of basic optical communication to understand the losses in an optical Fiber.	PO	BL-3	Factual, Conceptual
CO3	Analyze the structure, working principle and parameters of optical sources.	PO	BL-3	Conceptual
CO4	Analyze the structure, working principle and parameters of optical detectors.	PO	BL-5	Conceptual
CO5	Integrate knowledge of optical communication systems to analyze the optical receivers structure and performance.	PO	BL-5	Conceptual, Procedural

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
1. Dr Parvin Kumar		5.	
2.		6.	

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

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KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of ECE

Program Name: B.Tech
Course Name: Optical Communication

Academic Session: 2023-24 **Year:** 3rd **Semester:** 5th
Course Code: KEC-058 **Course Coordinator Name:** Dr Parvin Kumar

CO - PO/PSO/APO Matrix

CO No.	Programme Outcome (PO)												PSO/ APO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	3	3	2	1	1	-	-	-	-	1	-	1	1	2
CO2	3	3	3	1	2	-	-	-	-	2	-	1	2	3
CO3	3	3	2	2	1	-	-	-	-	1	-	1	2	3
CO4	3	3	3	1	2	-	-	-	-	2	-	1	3	3
CO5	3	2	1	2	1	-	-	-	-	1	-	1	2	3
PO Target	3	2.8	2.4	1.4	1.4	-	-	-	-	1.4	-	1	2	2.8

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
1. Dr Parvin Kumar		5.	
2.		6.	
3.		7.	
4.		8.	

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

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KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Electronics & Communication Engineering

Program Name: B. Tech.

Academic Session: 2023-24

Year: III

Semester: V

Course Name: Indian Traditions, Culture and Society

Course Code: KNC-502

Course Coordinator Name: Dr. Himanshu Chaudhary

Course Outcomes

After completion of the course, the student will be able to		Relevant POs/PSOs/ APOs	Revised Bloom's Level (BL)	Knowledge Category(KC)
CO No.	Statement of Course Outcome			
CO1	Analyze the basic principles of thought process, reasoning and inference to identify the roots and details of some of the contemporary issues faced by our nation.	PO6, PO10, PO12	Analyze	Conceptual
CO2	Analyze the importance of our surroundings and encourage the students to contribute towards sustainable development.	PO6, PO10, PO12	Analyze	Conceptual
CO3	Analyze the issues related to 'Indian' culture, tradition and its composite character.	PO6, PO10, PO12	Analyze	Conceptual
CO4	Understand holistic life-styles of Yogic-science and wisdom capsules in Sanskrit literature that are important in modern society with rapid technological advancements and societal disruptions.	PO6, PO10, PO12	Understand	Factual
CO5	Analyze the Indian Knowledge System, Indian perspective of modern scientific world-view and basic principles of Yoga and holistic health care system.	PO6, PO10, PO12	Analyze	Conceptual

Faculty Members Teaching the Course	Signature
1. Dr. Himanshu Chaudhary	
2. Mr. Paramanand Sharma	

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

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KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Electronics & Communication Engineering

Program Name: B. Tech.

Academic Session: 2023-24

Year: III

Semester: V

Course Name: Indian Traditions, Culture and Society

Course Code: KNC-502

Course Coordinator Name: Dr. Himanshu Chaudhary

CO-PO/PSO/APO Matrix

CO No.	Programme Outcome(PO)												PSO/ APO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	-	-	-	-	-	2	-	-	-	2	-	1	-	-
CO2	-	-	-	-	-	2	-	-	-	2	-	1	-	-
CO3	-	-	-	-	-	2	-	-	-	2	-	1	-	-
CO4	-	-	-	-	-	2	-	-	-	2	-	1	-	-
CO5	-	-	-	-	-	2	-	-	-	2	-	1	-	-
PO Target	-	-	-	-	-	2	-	-	-	2	-	1	-	-

Faculty Members Teaching the Course	Signature
1. Dr. Himanshu Chaudhary	
2. Mr. Paramanand Sharma	

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

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KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Electronics and Communication Engineering
Academic Session: 2023-24
Program Name: B. Tech **Year: III Semester: V**
Course Name: Integrated Circuits Lab **Course Code: KEC-551** **Coordinator Name: Mr. Vipin Kumar Verma**

After completion of the course, the student will be able to		Relevant POs/ PSOs/ APOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	Statement of Course Outcome			
CO1	Demonstrate different non-linear applications of operational amplifiers such as log, antilog amplifiers and voltage comparators.	PO-1, 2,3,4,5,9,10,11,12,13	3	Conceptual, Procedural
CO2	Analyze different linear applications of operational amplifiers such as filters.	PO-1, 2,3,4,5,9,10,11,12,13	4	Conceptual, Procedural,
CO3	Demonstrate the function of waveforms generator using op-Amp.	PO-1, 2,3,4,5,9,10,11,12,13	3	Conceptual, Procedural
CO4	Analyze multivibrator and oscillator circuits using IC555 and IC566 and perform measurements of frequency and time.	PO-1, 2,3,4,5,9,10,11,12,13	4	Conceptual, Procedural,
CO5	Demonstrate the Schmitt trigger, Voltage Controlled Oscillator and Ramp generator based on IC555 and IC566.	PO-1, 2,3,4,5,9,10,11,12,13	3	Conceptual, Procedural

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
1. Mr. Vipin kumar Verma		5. Dr. Himanshu Chaudhary	
2. Dr. Abhishek Sharma		6.	
3. Dr. Parvin Kaushik		7.	
4. Ms. Shipra Srivastava		8.	



Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

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KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Electronics and Communication Engineering

Program Name: B. Tech
Course Name: Integrated Circuits Lab

Academic Session: 2023-24
Course Code: KEC-551 Course Coordinator Name: Mr. Vipin Kumar Verma

Year: III Semester: V

CO - PO/PSO/APO Matrix

CO No.	Programme Outcome (PO)												PSO/ APO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	3	2	1	2	3	-	-	-	1	2	1	1	2	-
CO2	3	2	1	2	3	-	-	-	1	2	1	1	2	-
CO3	3	2	1	2	3	-	-	-	1	2	1	1	2	-
CO4	3	2	1	2	3	-	-	-	1	2	1	1	2	-
CO5	3	2	1	2	3	-	-	-	1	2	1	1	2	-
PO Target	3	2	1	2	3	--	--	-	1	2	1	1	2	-

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
1. Mr. Vipin kumar Verma		5. Dr. Himanshu Chaudhary	
2. Dr. Abhishek Sharma		6.	
3. Dr. Parvin Kaushik		7.	
4. Ms. Shipra Srivastava		8.	



Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

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KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Electronics & Communication Engineering

Program Name: B. Tech

Academic Session: 2023-24

Year: 3rd

Semester: 5th

Course Name: Microprocessor and Microcontrollers Lab

Course Code: KEC-552

Lab Incharge Name: Sharad Gupta

Course Outcomes

After completion of the course, the student will be able to		Relevant POs/ PSOs/ APOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	Statement of Course Outcome			
CO1	Demonstrate the use of 8085 and 8051 trainer kits and generate the hex code of assembly language programs	PO1, PO2, PO3, PO4, PO9, PSO2	3	P
CO2	Analyze and create 8085 microprocessor based assembly language programs to generate correct output	PO1, PO2, PO3, PO4, PO9, PSO2	4	P
CO3	Analyze and create 8051 microcontroller based assembly language programs to generate correct output	PO1, PO2, PO3, PO4, PO9, PSO2	4	P
CO4	Interface basic peripheral ICs with 8085 microprocessor	PO1, PO2, PO3, PO4, PO9, PSO2	4	P
CO5	Interfacing basic sensor and display devices with different microcontrollers	PO1, PO2, PO3, PO4, PO5, PO9, PSO2	6	P

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
1.		5.	
2.		6.	
3.		7.	
4.		8.	

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

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KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Electronics & Communication Engineering

Program Name: B. Tech

Academic SSession: 2023-24

Year: 3rd

Semester: 5th

Course Name: Microprocessor and Microcontrollers

Course Code: KEC-502

Course Coordinator Name: N. R. Srivastava

CO - PO/PSO/APO Matrix

CO No.	Programme Outcome (PO)												PSO/ APO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	3	1	3	1										
CO2	3	1	3	1										
CO3	3	1	3	1										
CO4	3	1	3	1										
CO5	3	1	3	1										
PO Target	3	1	3	1										

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
1. Mr. N R Srivastava		5.	
2. Mr. Sharad Gupta		6.	
3.		7.	
4.		8.	

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

- ❖ The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 3 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
- ❖ The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department ofECE.....

Program Name: B.Tech. **Academic Session:** 2023-24 Year: 2023 **Semester:** 5th
Course Name: DSP Lab **Course Code:** KEC-553 **Course Coordinator Name:** Mr. Balram Tamrakar
Course Outcomes

After completion of the course, the student will be able to		Relevant POs/ PSOs/ APOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	Statement of Course Outcome			
CO1	Create and visualize various discrete/digital signals using MATLAB/Scilab.	PO6, PO7, PO9	2	Factual
CO2	Implement and test the basic operations of Signal processing	PO6, PO7, PO8	3	Conceptual, Procedural
CO3	Examine and analyze the spectral parameters of window functions	PO6, PO7, PO8, PO9	2	Factual, Conceptual
CO4	Design IIR and FIR filters for band pass, band stop, low pass, and high pass filters	PO6, PO7, PO9	3	Conceptual, Procedural
CO5	Design the signal processing algorithms using MATLAB/Scilab.	PO6, PO7	4	Conceptual, Procedural

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
1. Mr. Balram Tamrakar		5.	
2.		6.	
3.		7.	
4.		8.	

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

- ❖ The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 3 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
- ❖ The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Program Name: B.Tech. **Academic Session:** 2023-24 Year: 2023 **Semester:** 5th
Course Name: DSP Lab **Course Code:** KEC-553 **Course Coordinator Name:** Mr. Balram Tamrakar

CO - PO/PSO/APO Matrix

CO No.	Programme Outcome (PO)												PSO/ APO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	2	1	2	1	1	1				2	1		-	-
CO2	3	2	1	2	3	2				-	1	1	-	1
CO3	2	3	2	1	2	1				-	2		1	-
CO4	1	3	3	3	1	3				1	1	3	2	1
CO5	1	1	1	2	2	2				2	1	1	3	-
PO Target	1.8	1.8	1.8	1.8	1.8	1.8				1.67	1.2	1.67	2.0	1.0

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
1. Mr. Balram Tamrakar		5.	
2.		6.	
3.		7.	
4.		8.	

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

- ❖ The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 3 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
- ❖ The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of ECE

Program Name: B.TECH.

Academic Session: 2023-24

Year: IV

Semester: VII

Course Name: VLSI DESIGN

Course Code: KEC-072

Course Coordinator Name: Dr. Richa Srivastava

Course Outcomes

After completion of the course, the student will be able to		Relevant POs/PSOs/ APOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	Statement of Course Outcome			
CO1	Understand the basics of CMOS logic circuits and various steps involved in the design of Integrated circuits	PO-1, 2, 3, 4, 5,10,12 / PSO-1	2	C, P
CO2	Analyze delay models, logical effort of path and scaling	PO-1, 2, 3, 4, 5,10,12 / PSO-1	4	C, P
CO3	Analyze the concept of Dynamic, Domino and low-power CMOS logic circuits	PO-1, 2, 3, 4, 5,10,12 / PSO-1	4	C, P
CO4	Analyze different types of semiconductor memories	PO-1, 2, 3, 4, 5,10,12 / PSO-1	4	C, P
CO5	Analyze faults in digital circuits, Fault Models and Testing Methodologies.	PO-1, 2, 3, 4, 5,10,12 / PSO-1	4	C, P

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
1. Dr. Richa Srivastava		5.	
2. Mr. Neelesh Ranjan Srivastava		6.	
3.		7.	
4.		8.	

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

- ❖ The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 3 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
- ❖ The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of ECE

Program Name: B.TECH.
Course Name: VLSI DESIGN

Course Code: KEC-072

Academic Session: 2023-24

Course Coordinator Name: Dr. Richa Srivastava

Year: IV

Semester: VII

CO-PO/PSO/APO Matrix

CO No.	Programme Outcome (PO)												PSO/ APO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	2	2	2	2	2	-	-	-	-	1	-	1	3	-
CO2	3	3	2	2	3	-	-	-	-	1	-	1	3	-
CO3	2	2	2	2	2	-	-	-	-	1	-	1	3	-
CO4	2	2	2	2	2	-	-	-	-	1	-	1	3	-
CO5	3	3	2	2	3	-	-	-	-	1	-	1	3	-
PO Target	2.4	2.4	2	2	2.4	-	-	-	-	1	-	1	3	-

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
1. Dr. Richa Srivastava		5.	
2. Mr. Neelesh Ranjan Srivastava		6.	
3.		7.	
4.		8.	

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

- ❖ The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 3 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
- ❖ The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Electronics and Communication Engineering

Program Name: B.Tech
Course Name: Wireless & Mobile Comm.

Academic Session: 2023-24
Course Code: KEC076

Year: 4th Semester: 7th
Course Coordinator Name: Dr. Abhishek Sharma

Course Outcomes

After completion of the course, the student will be able to		Relevant POs/PSOs/ APOs	Revised Bloom's Level(BL)	Knowledge Category(KC)
CONo.	Statement of Course Outcome			
CO1	Understand the cellular concept to get insight of mobile radio communication and its evolution.	PO-1, 2, 3, 4, 5, 12 / PSO-2	Understand	Factual, Conceptual
CO2	Analyse the working of vocoders and spread spectrum modulation for mobile radio communication.	PO-1, 2, 3, 4, 5, 12 / PSO-2	Analyse	Conceptual
CO3	Analyse the Equalization techniques of noise rejection and various multiple access techniques	PO-1, 2, 3, 4, 5, 12 / PSO-2	Analyse	Conceptual, Procedural
CO4	Understand the various 2G and 3G standards of mobile communication with proper block diagram.	PO-1, 2, 3, 4, 5, 12 / PSO-2	Understand	Conceptual
CO5	Apply the basic concepts of mobile communication to get insight of networking in mobile communication.	PO-1, 2, 3, 4, 5, 12 / PSO-2	Apply	Conceptual, Procedural

Faculty Members Teaching the Course	Signature
3. Dr. Abhishek Sharma	
4. Mr. Mohit Tyagi	

Signature of CourseCoordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

- ❖ The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 3 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
- ❖ The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Electronics & Communication Engineering

Program Name: B.Tech
Course Name: Wireless & Mobile Comm.

Academic Session: 2023-24
Course Code: KEC076

Year: 4th Semester: 7th
Course Coordinator Name: Dr. Abhishek Sharma

CO - PO/PSO/APO Matrix

CO No.	Programme Outcome (PO)												PSO/ APO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	3	3	2	1	1	-	-	-	-	-	-	1	-	2
CO2	3	3	3	1	1	-	-	-	-	-	-	2	-	2
CO3	3	3	2	2	2	-	-	-	-	-	-	2	-	2
CO4	3	3	3	3	3	-	-	-	-	-	-	2	-	2
CO5	3	2	1	2	1	-	-	-	-	-	-	2	-	3
PO Target	3.0	2.8	2.2	1.8	1.6	-	-	-	-	-	-	1.8	-	2.2

Faculty Members Teaching the Course	Signature
1. Dr. Abhishek Sharma	
2. Mr. Mohit Tyagi	

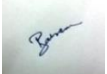
Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

- ❖ The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 3 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
- ❖ The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Program Name: B.Tech. **Academic Session:** 2023-24 Year: 2023 **Semester:** 7th
Course Name: PM&E **Course Code:** KHU 702 **Course Coordinator Name:** Mr. Balram Tamrakar
Department ofECE.....
Course Outcomes

After completion of the course, the student will be able to		Relevant POs/ PSOs/ APOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	Statement of Course Outcome			
CO1	Understand the theories of entrepreneurship and Entrepreneurial Development Programs.	PO6, PO7, PO9	2	Factual
CO2	Create innovative business ideas and market opportunities.	PO6, PO7, PO8	5	Conceptual, Procedural
CO3	Understand the importance of Project Management and Project's life cycle	PO6, PO7, PO8, PO9	2	Factual, Conceptual
CO4	Analyze Project Finance and project report.	PO6, PO7, PO9	4	Conceptual, Procedural
CO5	Analyze Social Sector Perspectives and Social Entrepreneurship.	PO6, PO7	4	Conceptual, Procedural

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
1. Mr. Balram Tamrakar		5.	
2.		6.	
3.		7.	
4.		8.	

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

- ❖ The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 3 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
- ❖ The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Program Name: B.Tech. **Academic Session:** Department ofECE..... **Semester:** 7th
Course Name: PM&E **Course Code:** KHU 702 **Course Coordinator Name:** Mr. Balram Tamrakar

CO - PO/PSO/APO Matrix

CO No.	Programme Outcome (PO)												PSO/ APO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	-	-	-	-	-	1	1	2	2	-	3	1	-	-
CO2	-	-	-	-	-	2	2	3	3	-	3	2	-	-
CO3	-	-	-	-	-	3	3	2	3	-	3	2	-	-
CO4	-	-	-	-	-	2	3	2	3	-	3	2	-	-
CO5	-	-	-	-	-	2	3	3	2	-	3	3	-	-
PO Target	-	-	-	-	-	2	2.4	2.4	2.6	-	3	2	-	-

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
1. Mr. Balram Tamrakar		5.	
2.		6.	
3.		7.	
4.		8.	

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

- ❖ The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 3 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
- ❖ The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Electronics and Communication Engineering

Program Name: B.Tech **Academic Session:** 2023-24 **Year:IV Semester: VII**

Course Name: Vision for Human Society **Course Code:** KEC076 **Course Coordinator:** Dr. Rochak Bajpai

Course Outcomes

After completion of the course, the student will be able to		Relevant POs/ PSOs/ APOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	Statement of Course Outcome			
CO1	To explain the significance of relationships in various contexts and recognize the different types of relationships, including personal, societal, and cultural.	PO6, PO7. PO8, PO12,	2	Conceptual.
CO2	To critically understand the conceptual framework of an undivided society, considering factors such as inclusivity, diversity, social justice, and equitable distribution of resources	PO6, PO7. PO8, PO12	2	Conceptual.
CO3	To apply their understanding of relationships and expressions to the concept of universal human order	PO6, PO7. PO8, PO12	3	Conceptual.
CO4	To formulate strategies for transitioning from the current state of societal divisions to an undivided society and universal human order.	PO6, PO7. PO8, PO12	3	Conceptual.
CO5	To assess the ethical implications of fostering relationships and promoting a universal human order.	PO6, PO7. PO8, PO12	3	Conceptual.

4

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
1.Dr. Pravesh		5.	
2 Dr. Rochak Bajpai		6.	
3.		7.	
4.		8.	

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

- ❖ The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 3 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
- ❖ The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Electronics and Communication Engineering

Program Name: B.Tech

Academic Session: 2023-24

Year: IV

Semester: VII

Course Name: Vision for Human Society

Course Code:

KEC-076

Course Coordinator : Dr. Roachak

Bajpai.

CO - PO/PSO/APO Matrix

CO No.	Programme Outcome (PO)												PSO/ APO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	-	-	-	-	-	3	3	3	-	-	3	-	-	-
CO2	-	-	-	-	-	3	3	3	-	-	3	-	-	-
CO3	-	-	-	-	-	3	3	3	-	-	3	-	-	-
CO4	-	-	-	-	-	3	3	3	-	-	3	-	-	-
CO5	-	-	-	-	-	3	3	3	-	-	3	-	-	-
PO Target	-	-	-	-	-	3	3	3	-	-	3	-	-	-

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
1.Dr. Pravesh		5.	
2.Dr. Rochak		6.	
3.		7.	
4.		8.	

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

- ❖ The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 3 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
- ❖ The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Program Name: B.Tech
Course Name: VLSI Design Lab

Academic Session: 2023-24
Course Code: KEC751B

Year: 4th
Course Coordinator Name: Mr. Amit Kumar

Semester: 7th

Course Outcomes

After completion of the course, the student will be able to		Relevant POs/ PSOs/ APOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	Statement of Course Outcome			
CO1	Design logic gates.	PO1, PO2, PO3, PO4, PO5, PO10, PO12, PSO1	6	Conceptual, Procedural
CO2	Implement combinational and sequential circuits using CMOS logic.	PO1, PO2, PO3, PO4, PO5, PO10, PO12, PSO1	4	Conceptual, Procedural
CO3	Analyze amplifier circuits.	PO1, PO2, PO3, PO4, PO5, PO10, PO12, PSO1	4	Conceptual, Procedural
CO4	Design sequential circuits such as flip flop	PO1, PO2, PO3, PO4, PO5, PO10, PO12, PSO1	6	Conceptual, Procedural
CO5	Design layout for physical analysis of the MOS transistor and MOS based circuits.	PO1, PO2, PO3, PO4, PO5, PO10, PO12, PSO1	6	Conceptual, Procedural

Faculty Members Teaching the Course	Signature
1. Dr Praveen Kumar	
2. Mr. N R Srivastava	

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

Department of Electronics & Communication Engineering

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

- ❖ The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 3 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
- ❖ The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Program Name: B. Tech
Course Name: VLSI Design Lab

Academic Session: 2023-24
Course Code: KEC751B

Year: 4th Semester: 7th
Course Coordinator Name: Mr. Amit Kumar

CO - PO/PSO/APO Matrix

CO No.	Programme Outcome (PO)												PSO/ APO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	2	1	2	2	2	-	-	-	-	1	-	2	2	-
CO2	2	2	2	2	2	-	-	-	-	1	-	2	3	-
CO3	2	2	2	2	2	-	-	-	-	1	-	2	3	-
CO4	2	2	2	2	2	-	-	-	-	1	-	2	3	-
CO5	2	2	2	3	3	-	-	-	-	1	-	2	3	-
PO Target	2	1.8	2	2.2	2.2	-	-	-	-	1	-	2	2.8	-

Faculty Members Teaching the Course	Signature
1. Dr. Praveen Kumar	
2. Mr. N R Srivastava	

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

Department of ECE

Program Name: B.TECH.

Academic Session: 2023-24

Year: IV

Semester: VII

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

- ❖ The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 3 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
- ❖ The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Course Name: Project I Course Code: KEC-753 Course Coordinator Name: Dr. Richa Srivastava

Course Outcomes

After completion of the course, the student will be able to		Relevant POs/PSOs/ APOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	Statement of Course Outcome			
CO1	Identify the problem for the project through available literature survey.	PO-1, 2, 3, 4, 5,6,7,8,9,10,11,12 / PSO-1, PSO-2	2	Conceptual, Procedural
CO2	Analyze the problem and find the appropriate solution for the selected project	PO-1, 2, 3, 4, 5,6,7,8,9,10,11,12 / PSO-1, PSO-2	4	Conceptual, Procedural
CO3	Apply the knowledge of Electronics, Programming and Communication Engineering for the design of project	PO-1, 2, 3, 4, 5,6,7,8,9,10,11,12 / PSO-1, PSO-2	3	Conceptual, Procedural
CO4	Develop solutions for the problem by using the techniques, skills, and modern engineering tools.	PO-1, 2, 3, 4, 5,6,7,8,9,10,11,12 / PSO-1, PSO-2	6	Conceptual, Procedural
CO5	Function on multi-disciplinary teams through effective communication skill and team behavior.	PO-1, 2, 3, 4, 5,6,7,8,9,10,11,12 / PSO-1, PSO-2	4	Conceptual, Procedural
CO6	Understand the basics of engineering, finance, and management principles.	PO-1, 2, 3, 4, 5,6,7,8,9,10,11,12 / PSO-1, PSO-2	2	Conceptual, Procedural
CO7	Accomplish the project to meet desired needs within realistic constraints of ethics, environment, economy, and society	PO-1, 2, 3, 4, 5,6,7,8,9,10,11,12 / PSO-1, PSO-2	6	Conceptual, Procedural

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

- ❖ The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 3 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
- ❖ The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
3. Dr. Richa Srivastava		5.	
4. Dr. Chirag Arora		6.	
5. Dr. Ajeet Pratap Singh		7.	
4.		8.	

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

- ❖ The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 3 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
- ❖ The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of ECE

Program Name: B.TECH.

Academic Session: 2023-24

Year: IV

Semester: VII

Course Name: Project I Course Code: KEC-753

Course Coordinator Name: Dr. Richa Srivastava

CO-PO/PSO/APO Matrix

CO No.	Programme Outcome (PO)												PSO/ APO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	2	3	1	2	1	1	2	2	2	2	2	1	1	1
CO2	2	3	3	2	2	2	2	1	2	2	2	2	2	2
CO3	3	2	2	2	2	2	1	2	2	2	2	2	3	2
CO4	2	2	3	2	2	2	1	1	2	2	2	2	3	3
CO5	2	2	3	2	2	2	1	1	3	3	2	3	-	3
CO6	2	2	2	2	1	1	1	2	2	2	2	2	-	3
CO7	2	2	2	2	2	3	3	3	2	2	2	3	-	-
PO Target	2.14	2.29	2.29	2.00	1.71	1.86	1.57	1.71	2.14	2.14	2.00	2.14	2.25	2.33

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
3. Dr. Richa Srivastava		5.	
4. Dr. Chirag Arora		6.	
5. Dr. Ajeet Pratap Singh		7.	
4.		8.	

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

- ❖ The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 3 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
- ❖ The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.