### Even Sem\_8

Course Nam	ne: Electronic Switching (REC 080 )	Session:2020-21	Sem: Even Semester
S.No	Course Outcomes		
Students wi	ill able to		
1	Describe and apply fundamentals of telecom	nmunication systems a	nd associated technologies.
2	Solve problems and design simple systems re	elated to tele-traffic ar	nd trunking efficiency.
3	Understand and explain the reasons for swit packet and circuit switching.	ching, and the relative	merits of the possible switching modes, e.g.
4	Understand the principles of the internal deserved essence of the key signalling systems that ar	sign and operation of t e used in telecommun	elecommunication switches, and the ication networks.
5	To understand the basics of Data Communic	ation Engineering devi	ces. Design of Banyan Network Switch

Марр	oing of	CO's w	ith Bloo	m's Lev	/el, Ta	rget Lev	el Bloo	m's							
Course	В	L1	BL2	BL	3	BL4	BLS	5	BL6						
CO1	BL	1	BL2	BL3		BL4	BL5	В	L6						
CO2	1		1	1		1	1	1							
CO3	3		2	2		2	1	2							
CO4	2		2	2		2	3	2							
CO5	2		3	3		1	2	3							
AVG.	2		1	2		1	1	1							
				Mappi	ing of	Course o	outcom	es witł	Progra	m Outco	omes				
Course:															CO wise
РО	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	Level
CO1	1	2	1	1	2	2	1	2	2	1	1	1	1	3	
CO2	2	2	2	2	1	1	1	1	1	1	2	2	2	2	
CO3	3	3	2	2	3	1	2	1	1	2	1	1	1	2	
CO4	2	1	2	1	1	3	1	1	3	1	1	2	3	1	
CO5	1	1	3	2	1	1	2	2	1	1	3	1	1	1	
Target Level															

	Course Name:								
Wireless	and Mobile Communication (REC-085) Session:2020-21 Sem: VIII								
S.No.	Course Outcomes								
Students will be able to									
1	Understand the concepts and techniques of mobile radio communication fundamentals like reflection, diffraction, scattering and fading and also cellular design concepts and apply them in wireless communication								
2	Understand the concepts and design techniques of channel modeling and fading models.								
3	Understand Vocoders, diversity, spread spectrum modulation and equalization design concepts and apply them in wireless communication.								
4	Understand and design multiplexing techniques and RAKE receiver in mobile and wireless communication.								
5	Design a 3g AND 4g wireless communication system to meet desired needs within realistic constraints.								

Mapping of CO's with Bloom's Level, Target Level Bloom's											
Course	rse BL1 BL2 BL3 BL4 BL5 BL6										
CO1	3	2	2	1	2	1					
CO2	1	2	3	3	2	2					
CO3	2	3	1	2	1	2					
CO4	1	2	2	1	3	3					
CO5	3	2	1	1	2	1					
AVG.	2	2.2	1.8	1.6	2	1.8					

				Марр	ing of (	Course	outcom	nes with	n Progra	am Outc	omes				
Course: Wireless and Mobile Communication															CO wise
										РО	РО	РО			Target
РО	PO1	PO2	PO3	PO4	PO5	PO6	P07	P08	PO9	10	11	12	PSO1	PSO2	Level
CO1	3			3	2	1	2	1		1	1	2	3	2	
CO2	2	2		3	1		2				3	3	2	3	
СОЗ	3	3	2	3	3	1	1				3	3	2	3	
CO4	2	3	1	2	3	1	1				1	3	2	2	
CO5	3	2	2	3	3	1	1				3	3	2	2	
Target Level															

Course N	Mame:       Machine Learning (ROE-083)       Session:2020-21       Sem: EVEN Semester
S.No	Course Outcomes
Students	will able to
1	Understand the various searching techniques, constraint satisfaction problem and example problems- game playing techniques.
2	Apply these techniques in applications which involve perception, reasoning and learning
3	Explain the role of agents and how it is related to environment and the way of evaluating it and how agents can act by establishing goals.
4	Acquire the knowledge of real world Knowledge representation
5	Use different machine learning techniques to design AI machine and enveloping applications for real world problems

Mapping of	Mapping of CO's with Bloom's Level, Target Level Bloom's										
Course	BL1	BL2	BL3	BL4	BL5	BL6					
CO1	3	3	2	2	3	2					
CO2	2			3		1					
CO3	1	1	2		3						
CO4	1	3	1	3	2	3					
CO5		1	3	1	3	2					
AVG.	1.4	1.6	1.6	1.8	2.2	1.6					

	Mapping of Course outcomes with Program Outcomes														
Course:															CO wise
										РО	РО	РО			Target
РО	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	10	11	12	PSO1	PSO2	Level
CO1	1	3	2	-	1	1	2	1	3	2	-	1	1	1	
CO2	2	3	3	2	-	-	-	3	-	-	1	-	1	-	
CO3	2	2	3	3	2	-	2	-	3	-	-	-	2	1	
CO4	-	3	2	1	2	2	-	-	2	2	-	-	-	1	
CO5	3	3	3	2	3	3	2	2	-	-	-	1	2	3	
Target Level															

Course Na	ame: Project LAB -REC-852	Session:2020-21	Sem: Odd Semester
S.No	Course Outcomes		
Students	will able to		
1	Apply knowledge of fundamentals and design of a given problem.	of Electronics, Programming	g and Communication Engineering to the analysis
2	Identify and formulate the problem	n or project and find its soluti	on which is practically feasible.
3	Use the techniques, skills, and more necessary for engineering practice	dern engineering tools such a	s logic works, VHDL, Cadence, MAT Lab
4	Function on multi-disciplinary tea	ms through effective commun	nication and team behavior.
5	Accomplish the project to meet de manufacturability.	sired needs within realistic co	onstraints of environment, economy and

Mapping of CO's with Bloom's Level, Target Level Bloom's										
Course	BL1	BL2	BL3	BL4	BL5	BL6				
CO1	3	3	2	2	3	2				
CO2	2	3		3		1				
СОЗ	1	1	2	3	3	3				
CO4	1	3	1	3	2	3				
CO5	3	1	3	1	3	2				
AVG.	2	2.2	1.6	2.4	2.2	2.2				

			r	Mapping	g of Cou	rse out	comes v	with Pro	ogram C	outcon	nes				
Course:															CO wise
										PO	PO	PO			Target
РО	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	10	11	12	PSO1	PSO2	Level
CO1	1	3	2	-	1	1	2	1	3	2	3	1	1	1	
CO2	2	3	3	2	-	-	-	3	-	-	1	-	1	-	
CO3	2	2	3	3	2	2	2	-	3	-	-	3	2	1	
CO4	-	3	2	1	2	2	1	-	2	2	2	2	-	1	
CO5	3	3	3	2	3	3	2	2	-	-	1	1	2	3	
Target Level															

### EVEN\_6

Course Nar Semester 6 <sup>t</sup>	Tame: Digital Communication (KEC-601)Session:2026 <sup>th</sup>	20-21 Sem: Even
S.No	Course Outcomes	
Students wi	will able to	
1	Understand the error performance of digital communication and their probabilistic models.	d analyse various types of signals with
2	Design the basic building block of digital communication system schemes.	and analyse various digital modulation
3	To investigate digital receiver with noise analysis and to examine modulation techniques.	e the channel characteristics for digital
4	Understand the concept of spread spectrum communication systoptimum receiver.	em and to discuss the design of digital
5	Apply knowledge of information system to analyse error control	coding techniques.

Mapping of	Mapping of CO's with Bloom's Level, Target Level Bloom's									
Course	BL1	BL2	BL3	BL4	BL5	BL6				
CO1	2	3	1	2	-	-				
CO2	1	1	2	3	2	3				
CO3	2	2	1	1	1	3				
CO4	3	3	1	1		3				
CO5	1	1	3	3	2	2				
AVG.	1.8	2	2	2	1	2.2				

			Ma	pping	of Cou	rse out	tcomes	s with I	Prograi	n Out	tcome	es			
Course:										PO	PO	PO			CO wise
РО	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	10	11	12	PSO1	PSO2	Level
CO1	3	3	1	3	2	-	-	-	-	-	-	1	3	2	
CO2	2	3	1	3	2	-	2	-	-	-	-	1	2	3	
CO3	2	2	2	3	3	-	-	-	-	-	-	1	2	3	
CO4	1	1	2	3	3	-	2	3	3	1	2	1	2	2	
CO5	1	1	3	1	1	2	3	1	-	-	2	2	2	2	
Target Level															

Course Nar 6 <sup>th</sup>	me: Control Systems (KEC-602) Session:2020-21 Sem: Even	Semester
S.No	Course Outcomes	
Students wi	vill able to	
1	Apply knowledge of basic components of control system to the analysis and design of physic such as electrical networks, sensors, mechanical systems, etc.	al systems
2	Identify state variables and analyze the response of various control systems in time domain their steady-state error.	n to obtain
3	Improved transient response of the system in terms of overshoots, settling time and rise time.	
4	Use routh-hurwitz criterion to determine the stability of linear control system to design pract physical systems necessary for engineering practice.	tical stable
5	To design a practical control system in frequency domain with the help of Nyquist stability relative stability, bode plot etc., to meet desired requirements in realistic environment.	criterion,

Mapping of	Mapping of CO's with Bloom's Level, Target Level Bloom's										
Course	BL1	BL2	BL3	BL4	BL5	BL6					
CO1	3	1	2	1	-	-					
CO2	1	2	3	3	2	-					
CO3	2	3	1	-	1	2					
CO4	2	2	-	2	3	3					
CO5	3	2	2	2	-	1					
AVG.	2.2	2	1.8	2	2	2					

			Ma	pping	of Cou	rse out	comes	with F	Program	n Out	tcome	es			
Course:															CO wise
										РО	РО	РО			Target
РО	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	10	11	12	PSO1	PSO2	Level
CO1	3	3	3	2	-	2	-	-	1	-	-	-	3	2	
CO2	3	3	3	3	1	-	1	-	-	-	-	1	2	3	
CO3	3	3	3	3	2	3	1	-	3	-	-	2	2	3	
CO4	3	3	3	3	2	-	1	-	2	-	-	2	2	2	
CO5	3	3	3	3	3	2	2	-	2	2	2	2	2	2	
Target Level															

Course Nan Even Seme	ne: Antenna and Wave Propagation (KEC-603) Session:2020-21 Sem: ster 6 <sup>th</sup>
S.No	Course Outcomes
Students wi	ll able to
1	Understand the basics of coordinate systems and del operators.
2	Identify, formulate and analyze Electrostatic fields and Magnetostatic fields.
3	Apply knowledge of basic components of the antenna, working and fundamental parameters of antenna.
4	Identify formulate and analyze different types of antenna and various antenna arrays.
5	Understand the atmospheric effects on radio wave propagation so as to identify radio communication link which is more efficient and effective.

Mapping of	Mapping of CO's with Bloom's Level, Target Level Bloom's									
Course	BL1	BL2	BL3	BL4	BL5	BL6				
CO1	3	1	2	1	-	-				
CO2	1	2	3	3	2	-				
CO3	2	3	1	-	1	2				
CO4	2	2	-	2	3	3				
CO5	3	2	2	2	-	1				
AVG.	2.2	2	1.8	2	2	2				

			Ma	pping	of Cou	rse out	tcomes	with I	Prograi	m Out	come	es			
Course:															CO wise
BO	DO1	<b>DO</b> 2	002	DO4	DOF	DOG	007		DOD	PO 10	PO	PO 12			Target
PU	PUI	PUZ	PU3	P04	PU5	P00	P07	PUo	P09	10	11	12	P301	P302	Level
CO1	3	2	3	2	2	2	1	-	-	-	-	2	3	2	
CO2	3	3	3	3	1	2	1	-	-	-	-	3	2	3	
CO3	3	2	3	3	2	3	1	-	-	-	-	2	2	3	
CO4	3	3	3	3	2	2	1	-	-	-	-	2	2	2	
CO5	3	2	3	3	3	2	1	-	-	-	-	2	2	2	
Target Level															

Course Nar	ne: Data Communication Networks (KEC-063) Session:2020-21
Sem: Even	Semester 6 <sup>th</sup>
S.No	Course Outcomes
Students wi	ll able to
1	Understand knowledge of basic concepts of data communication, OSI Model, TCP/IP model and
	Multiplexing.
2	Understand and analyze the various techniques of error correction and detection and functions of data
	link layer and switching.
3	Identify Multiple Access technique like ALOHA, Controlled Access, Channelization and IEEE Standards
	in order to have sustainable development of data communication.
4	Understand various routing algorithm, subnet masks and IP addresses to fulfill networking requirements.
5	Understand and apply the concept of cryptography and network security for secure data communication
	system

Mapping of CO's with Bloom's Level, Target Level Bloom's									
Course	BL1	BL2	BL3	BL4	BL5	BL6			
CO1	1	3	1	1	1				
CO2	1	3	1	1	1	2			
CO3	1	3	1	1	1	2			
CO4	1	3	1	1	1	2			
CO5	1	3	1	1	1	2			
AVG.	1	3	1	1	1	1.6			

			Мар	ping o	f Cours	se outo	omes	with Pı	rogram	Outo	ome	5			
Course:															CO wise
РО	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	РО 10	PO 11	PO 12	PSO1	PSO2	Target Level
CO1	2	2	3	3	1	2	-	-	-	1	-	1	3	2	
CO2	1	1	2	3	3	1	-	-	-	-	-	1	2	3	
CO3	3	2	1	2	1	1	-	-	-	-	-	1	2	3	
CO4	1	2	3	3	1	1	-	-	-	-	-	1	2	2	
CO5	2	2	2	3	1	1	-	-	-	-	-	1	2	2	
Target Level															

Course National Semester 6	me: Constitution of India (KNC-601) Session:2020-21 Sem: Even
S.No	Course Outcomes
Students w	ill able to
1	Identify and explore the basic features and modalities about Indian constitution.
2	Differentiate and relate the functioning of Indian parliamentary system at the center and state level.
3	Differentiate different aspects of Indian Legal System and its related bodies.
4	Discover and apply different laws and regulations related to engineering practices.
5	Correlate role of engineers with different organizations and governance models.

Mapping of	Mapping of CO's with Bloom's Level, Target Level Bloom's											
Course	BL1	BL2	BL3	BL4	BL5	BL6						
CO1	3	3	-	-	-	-						
CO2	1	3	3	2	3	-						
CO3	2	3	1	-	1	2						
CO4	2	2	3	-	-	-						
CO5	3	3	3	3	-	1						
AVG.	2.2	2.8	2	1	0.8	0.6						

	Mapping of Course outcomes with Program Outcomes														
Course:															CO wise
										PO	PO	PO			Target
PO	PO1	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	10	11	12	PSO1	PSO2	Level
CO1	-	-			-	2	1	-	-	-	-	-	-		
CO2	-	-	-	-	-	-	1	-	-	-	-	-	-	-	
CO3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
CO4	2	2	2	2	2	2	2	2	-	-	2	2	-	-	
CO5	1	-		-	-	-	-	2	2	2	2	2	-	-	
Target Level															

Course Nat Sem: Even	me: Control System Lab(KEC-652) Session:2020-21 Semester 6 <sup>th</sup>
S.No	Course Outcomes
Students w	ill able to
1	Classify different tools in MATLAB along with the basic matrix operations used in MATLAB.
2	Evaluate the poles and zeros on s-plane along with transfer function of a given system.
3	Construct state space model of a linear continuous system
4	Evaluate the various specifications of time domain response of a given system.
5	Appraise the steady state error of a given transfer function.

Mapping of	Mapping of CO's with Bloom's Level, Target Level Bloom's											
Course	BL1	BL2	BL3	BL4	BL5	BL6						
CO1	1	3	1	1	1							
CO2	1	3	1	1	1	2						
CO3	1	3	1	1	1	2						
CO4	1	3	1	1	1	2						
CO5	1	3	1	1	1	2						
AVG.	1	3	1	1	1	1.6						

	Mapping of Course outcomes with Program Outcomes														
Course:															CO wise
РО	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	РО 10	PO 11	PO 12	PSO1	PSO2	Target Level
CO1	2	2	3	3	1	2	-	-	-	1	-	1	3	2	
CO2	1	1	2	3	3	1	-	-	-	-	-	1	2	3	
CO3	3	2	1	2	1	1	-	-	-	-	-	1	2	3	
CO4	1	2	3	3	1	1	-	-	-	-	-	1	2	2	
CO5	2	2	2	3	1	1	-	-	-	-	-	1	2	2	
Target Level															

Course Nar Sem: Even	me: CAD for Electronics Lab(KEC-652) Semester 6 <sup>th</sup>	Session:2020-21
S.No	Course Outcomes	
Students wi	ill able to	
1	Design and analyze the performance of different type of inverters.	
2	Design and analyze the performance of the basic logic gates using CMOS	S inverter circuit.
3	Design and analyze the performance of the memory based digital circuits circuit	using CMOS inverter
4	Analyze the performance of the different configuration of MOS amplifie	r circuits.
5	Design and analyze the performance of BCD to Excess-3 code using VHD	L program module

Mapping of	Mapping of CO's with Bloom's Level, Target Level Bloom's											
Course	BL1	BL2	BL3	BL4	BL5	BL6						
CO1	3	1	2	1	-	-						
CO2	1	2	3	3	2	-						
CO3	2	3	1	-	1	2						
CO4	2	2	-	2	3	3						
CO5	3	2	2	2	-	1						
AVG.	2.2	2	1.8	2	2	2						

	Mapping of Course outcomes with Program Outcomes														
Course:															CO wise
РО	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	РО 10	PO 11	PO 12	PSO1	PSO2	Target Level
CO1	2	2	3	3	1	2	-	-	-	1	-	1	3	2	
CO2	1	1	2	3	3	1	-	-	-	-	-	1	2	3	
CO3	3	2	1	2	1	1	-	-	-	-	-	1	2	3	
CO4	1	2	3	3	1	1	-	-	-	-	-	1	2	2	
CO5	2	2	2	3	1	1	-	-	-	-	-	1	2	2	
Target Level															

## Even Sem\_4

Course N	Jame: Communication Engineering (KEC-401)
S. No.	Course Outcomes
Students	s will be able to
1	Identify the communication system on the basis of type signals and its properties with an explanation of the modulation system.
2	Understand the communication system on the basis of type of modulation.
3	Evaluate the behaviour of random variables and identification of the noise in AM and FM system
4	Analyze the pulse communication system
5	Evaluate and apply the concept of digital baseband transmission on various digital bandpass modulation techniques on the basis of carrier signals

Mapping of CO's with Bloom's Level, Target Level Bloom's										
Course	BL1	BL2	BL3	BL4	BL5	BL6				
CO1	3	2	1	1						
CO2	1	3	3	3	2					
CO3	2	2	1		3	2				
CO4	1	2		2	1	1				
CO5	3	2		1		3				
AVG.	2	2.1	1.66	1.75	2	2				

Mapping of Course outcomes with Program Outcomes															
Course:Electronics															СО
Devices															wise
										PO	PO	PO			Target
РО	PO1	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	10	11	12	PSO1	PSO2	Level
CO1	3	1	3	2	2	2	2	2	1	2	2	2	1	1	
CO2	1	2	1	1	3	2	2	2	3	2	2	2	2	2	
CO3	2	2	2	2	1	3	2	3	2	2	2	3	1	2	
CO4	1	2	2	3	2	1	3	1	2	1	3	1	2	2	
CO5	3	1	2	2	1	2	1	2	2	2	1	2	1	1	
Target Level															

Course Nar	me: Signal Systems (KEC-403)	Session:2020-21	Sem: Even Semester
S.No	Course Outcomes		
Students wi	ill able to		
1	Apply the knowledge of signals properties of linear systems, causa	and transformation of l system, stable system	signals to understand fundamental and their significance
2	Understand the use of signals and complex system with difference an	basic system building ad differential equation	blocks and their roles for design of
3	Identify and apply the role of For and DFT and further be able to filtering, amplitude modulation an	urier series or Fourier tr use the properties and a d sampling	ransform, Laplace transform, DTFT apply them to the analysis of ideal
4	Understand the Z Transform and it interconnections of LTI systems transform domains	s properties, as well the (parallel, series (cascad	analysis and design implications, of de), and feedback) in the time and
5	Understand and Develop mathema solve problems involving modulat	atical skills to Convert a ion and sampling with i	analog signals to discrete signal and ts reconstruction.

Mapping of CO's with Bloom's Level, Target Level Bloom's								
Course	BL1	BL2	BL3	BL4	BL5	BL6		
CO1	3	3	2	2	3	2		
CO2	1	1	3	2	2	3		
CO3	1	2	1	3	1	1		
CO4	3	1	2	2	2	1		
CO5	2	3	1	2	2	1		
AVG.	2	2	1.8	2.1	2	1.6		

	Mapping of Course outcomes with Program Outcomes														
Course:															CO wise
РО	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	РО 10	PO 11	PO 12	PSO1	PSO2	Target Level
CO1	3	3	2	1	2	3	2	2	1	1	1	1	2	1	
CO2	3	3	1	1	3	2	1	1	1	1	1	1	2	2	
CO3	3	3	2	2	3	2	1	1	1	1	1	1	2	2	
CO4	3	1	2	1	1	2	1	1	0	1	1	1	2	2	
CO5	3	2	3	2	2	3	1	1	1	1	0	1	1	2	
Target Level															

Course Nar	ne: Analog Circuits (KEC-402) Session:2020-21 Sem: Even Semester
S. No	Course Outcomes
Students wi	ill able to
1	Identify the applications of diodes and basic knowledge of transistors.
2	Understand the high frequency response of single and multistage transistors and feedback topologies.
3	Design and analyze various RC and LC oscillators.
4	Understand the basics of current mirror and differential amplifiers.
5	Design and analyze the various applications of operational amplifiers, Schmitt trigger and active filters.

Mapping of CO's with Bloom's Level, Target Level Bloom's												
Course	BL1	BL1 BL2 BL3 BL4 BL5 BI										
CO1	2	3	3	3	2							
CO2	2	3	3	3								
CO3	2	3	3	3		1						
CO4	2	3	3	3	3	2						
CO5	2	3	2	2	2	3						
AVG.	2	3	2.8	2.8	1.4	1.2						

	Mapping of Course outcomes with Program Outcomes														
Course:															CO wise
										РО	РО	РО			Target
РО	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	10	11	12	PSO1	PSO2	Level
CO1	3	3	2	3	3						2	2	2		
CO2	3	3	2	3							2	2	2	1	
CO3	3	3	2	3	3						3	3	2	2	
CO4	3	3	2	3	3						2	2	3	1	
CO5	3	3	2	3	1						2	2	3	2	
Target															
Level															

	Course Name: HVPE (KVE-401)	Session:2020-21	Sem: EVEN
S.No.	Course Outcomes		
Studer	nts will be able to		
1	Understand the essential complementarily betw	een 'VALUES" and 'SKILLS'	
2	Understand how to ensure continuity of happin beings.	ess and prosperity which are the	basic aspirations of all human
3	to develop appropriate technologies and manag life.	ement patterns to create harmony	in professional and personal
4	Learn the value-based living in a natural way.		
5	Understand practically the importance of trust, with nature.	mutually satisfying human beha	vior and enriching interaction

Mapping of CO's with Bloom's Level, Target Level Bloom's											
Course	BL1	BL1 BL2 BL3 BL4 BL5 BL6									
CO1	3	2	2	2	2	2					
CO2	3	2	3	3	2	2					
CO3	3	3	1	3	3	3					
CO4	3	2	3	1	3	3					
CO5	3	2	2	1	2	2					
AVG.	3	2.2	2.2	1.6	2.4	2.4					

	Mapping of Course outcomes with Program Outcomes														
Course: Human Values & Professional Ethics															CO wise
										PO	PO	PO			Target
РО	PO1	PO2	PO3	PO4	PO5	PO6	PO7	P08	PO9	10	11	12	PSO1	PSO2	Level
CO1	-	-	-	-	-	-	2	2	3	2	-	2	3	2	
CO2	-	-	-	-	-	-	2	2	2	3	-	2	2	3	
CO3	-	-	-	-	-	-	3	3	2	3	-	3	2	3	
CO4	-	-	-	-	-	-	2	2	2	2	-	2	2	2	
CO5	-	-	-	-	-	-	2	2	2	2	-	2	2	2	
Target Level															

Course Name	e: Signal and Systems Lab (KEC403)	Session:2020-21	Sem: Even Semester								
S.No	Course Outcomes										
Students will	l able to										
1	Implement various matrix operations in MATLAB.										
2	Use Signal System toolbox to various elementar	y signal analysis.									
3	Visualize various time domain and frequency-do	main problems (using plots), acc	urately.								
4	Relate the changes in magnitude, phase and stability of system with change in different parameters.										
5	Study different convolution methods.										

Mapping of CO's with Bloom's Level, Target Level Bloom's								
Course	BL1	BL2	BL3	BL4	BL5	BL6		
CO1	1	1	1	1	1	1		
CO2	3	2	2	2	1	2		
CO3	2	2	2	2	3	2		
CO4	1	3	3	1	2	3		
CO5	1	2	1	2	1	1		
AVG.	1.6	2	1.8	1.6	1.6	1.8		

Mapping of Co	Mapping of Course outcomes with Program Outcomes														
Course:															CO wise
										РО	РО	РО			Target
РО	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	10	11	12	PSO1	PSO2	Level
CO1	1	2	1		2	1		1	2		1		2		
CO2	1	3	2	1	2	1	1					1		3	
CO3	3	1	3	2	3	1	1		2		1		1		
CO4	1	1	2			3	1				1			2	
CO5	1	1		2		1	2	2	1		1	1	1	1	
Target Level															

Course Na	ame: Communication Engineering Lab(KEC-451)
S. No.	Course Outcomes
Students	will be able to
1	Analyze and compare different analog modulation schemes for their modulation factor and power
2	Study pulse amplitude modulation.
3	Analyze different digital modulation schemes and can compute the bit error performance.
4	Study and simulate the Phase shift keying.
5	Design a front end BPSK modulator and demodulator.

Mapping of CO's with Bloom's Level, Target Level Bloom's										
Course	BL1	BL1 BL2 BL3 BL4 BL5 BL6								
C01	3	2	1	1						
CO2	1	3	3	3	2					
CO3	2	2	1		3	2				
CO4	1	2		2	1	1				
CO5	3	2		1		3				
AVG.	2	2.1	1.66	1.75	2	2				

		ſ	Mappir	ng of C	ourse	outcom	nes wit	h Prog	ram O	utcom	ies				
Course:Electronics															СО
Devices															wise
										РО	РО	PO			Target
PO	PO1	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	10	11	12	PSO1	PSO2	Level
CO1	3	1	3	2	2	2	2	2	1	2	2	2	1	1	
CO2	1	2	1	1	3	2	2	2	3	2	2	2	2	2	
СО3	2	2	2	2	1	3	2	3	2	2	2	3	1	2	
CO4	1	2	2	3	2	1	3	1	2	1	3	1	2	2	
CO5	3	1	2	2	1	2	1	2	2	2	1	2	1	1	
Target Level															

Course Nam	e: Analog Ckt LAB (KEC-452)	Session:2020-21	Sem: EVEN Semester
S.No	Course Outcomes		
Students will	able to		
1	Apply knowledge of electronic and comp various electronic circuits.	onents to analyze and understand th	e characteristics and performance of
2	Identify various parameters and formulat	e applications based on Op-Amp.	
3	Use Field effect transistors and Bipolar tr practical projects, necessary for engineer	ansistors as an amplifier and their vaing practice.	arious configurations to design
4	Design a practical electronics system with differential amplifiers, oscillators etc., to	h the help of components such as tw meet desired needs in realistic const	o stage amplifiers, power amplifiers, raints.
5	Function on multi-disciplinary teams thro	bugh various electronic circuit exper	iments and projects.

Mapping of CO's with Bloom's Level, Target Level Bloom's								
Course	BL1	BL2	BL3	BL4	BL5	BL6		
CO1	2	3	1	2	1	2		
CO2	1	2	1	3	1	2		
СОЗ	3	1	2	0	3	1		
CO4	2	1	3	2	2	3		
CO5	1	3	2	3	2	1		
AVG.	1.8	2	1.8	2	1.8	1.8		

			M	apping	of Cour	rse outo	comes v	with Pro	ogram	Outcon	nes				
Course:	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PO 11	PO 12	PSO1	PSO2	CO wise Target Level
CO1	3	1	1	1	1	1	1	2	1	1	1	1	3	2	
CO2	2	3	3	3	1	1	1	1	2	1	1	1	2	3	
СОЗ	1	2	1	1	3	3	3	1	1	1	1	2	2	3	
CO4	1	1	3	1	1	1	1	3	1	3	2	1	2	2	
CO5	2	1	1	1	1	1	1	3	3	2	2	3	2	2	
Target Level															

# ODD\_7

	Course Name: Data Communication Networks (REC-701)							
	2020-21 (Odd Sem)							
S.No.	Course Outcomes							
Students will be able to								
1	Define and describe the fundamentals of Data Communications and Networks							
2	Understand the various fundamentals and techniques for error correction and							
	detection, switching functions and data link layer.							
3	Evaluation of the Multiple Access Technique and its application in order to							
	have sustainable development of data communication.							
4	Analyze models and functions of routing algorithms, subnet masks and IP							
	addresses to fulfill network requirements.							
5	Evaluate and apply the concepts and modern engineering tools such as							
	cryptography and network security for secure data communication system							

Mapping of CO's with Bloom's Level, Target Level Bloom's											
Course	BL1	3L1 BL2 BL3 BL4 BL5 BL6									
CO1	3	2	2	1							
CO2	1	2	3	3	2						
CO3	2	3	1	1	1	2					
CO4	1	2		1	3	3					
CO5	3	2		1		1					
AVG.	2	2.1	2	1.4	2	2					

	Mapping of Course outcomes with Program Outcomes														
Course:D CN															CO wise
РО	РО	РО	РО	РО	РО	РО	РО	РО	РО	РО	РО	PO	PSO	PSO	Targe
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	t Level
CO1	2	3	3	-	3	2	3	1	-	-	-	3	1	1	
CO2	2	3	3	2	3	2	2	1	-	-	-	3	1	1	
CO3	2	3	3	-	3	2	2	1	-	-	-	3	1	1	
CO4	2	3	3	-	3	2	2	1	-	-	-	3	1	1	
CO5	2	3	3	-	3	3	2	1	-	-	-	3	1	1	
Target Level															

	Course Name: Information Theory and Coding (REC-071)
	2020-21(Odd)
S.No.	Course Outcomes
Students will be able to	
1	Define and describe the fundamentals of information theory and basics of communication systems.
2	Understand the mathematical fundamentals to solve engineering problems in the area of digital communications.
3	Evaluation of the concepts of information theory, channel coding and source coding and to optimize the channel performance.
4	Analyze the mathematical functions on multi – disciplinary teams through projects.
5	Evaluate and apply application of digital communication system using different error control techniques within realistic constraints.

Mapping of CO's with Bloom's Level, Target Level Bloom's									
Course	BL1	BL2	BL3	BL4	BL5	BL6			
CO1	3	2	2	1					
CO2	1	2	3	3	2				
CO3	2	3	1	1	1	2			
CO4	1	2		1	3	3			
CO5	3	2		1		1			
AVG.	2	2.1	2	1.4	2	2			

			Μ	lappin	g of C	ourse	outco	mes w	ith Pr	ogram	Outco	omes			
Cours															CO
e: IIC															wise
РО	PO	PO	PO	PO	PO	PO	PO	PO	PO	РО	РО	PO	PSO	PSO	larget
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	Level
CO1	2	3	1	3	2	-	-	-	-	-	-	1	1	1	
CO2	3	2	1	2	2	-	2	-	-	-	-	1	1	1	
CO3	2	3	2	3	3	-	-	-	-	-	-	1	1	1	
CO4	1	1	2	3	2	-	2	3	2	1	2	1	1	1	
CO5	1	1	3	1	1	2	3	1	-	-	-	2	1	1	
Target Level															

Course Na	me: VLSI Design (REC-702) Session:2020-21 Sem: ODD Semester
S.No	Course Outcomes
Students w	ill able to
1	Understand various VLSI design methodologies and fabrication techniques required for modern VLSI circuits.
2	Apply basic concepts of MOSFETs to analyze the working of various MOS based invertors.
3	Realize and implement various Boolean functions using CMOS invertors
4	Understand the working and design of different types of semiconductor memories to meet needs related to storage of large data in very small area thus helping in economical and manufacturability context.
5	Design of low power CMOS logic circuits to optimize the energy consumption and thus helping in societal and environmental context in order to have sustainable development.

Mapping of CO's with Bloom's Level, Target Level Bloom's										
Course	BL1	BL2	BL3	BL4	BL5	BL6				
CO1	3	3	2	2	3	2				
CO2	2	3		3		1				
CO3	1	1	2							
CO4	1	3	1	3	2	3				
CO5	3	1	3		3	2				
AVG.	2	2.2	1.6	1.6	1.6	1.6				

	Mapping of Course outcomes with Program Outcomes														
Course:															CO wise
										РО	РО	РО			Target
РО	PO1	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	10	11	12	PSO1	PSO2	Level
CO1	1	3	2	-	1	1	2	1	3	2	-	1	1	1	
CO2	2	3	3	2	-	1	-	3	-	-	1	-	1	-	
CO3	2	2	3	-	2	1	2	-	3	-	1	2	2	1	
CO4	-	3	-	1	2	2	-	-	2	2	-	2	-	1	
CO5	3	3	3	2	3	3	2	2	-	-	-	1	2	3	
Target Level															

C	ourse Name: Optical Communication ( REC-075) (2020-21)								
S.No.	Course Outcomes								
Students will be able to									
	To Understand the basic elements of optical fiber transmission link, fiber modes								
1	configurations and structures.								
	To understand the different classifications for optical fibers types, differentiate								
among the losses and calculate the number of guided modes in different optic									
2	fibers.								
	Description of different optical sources with calculation of various power								
3	efficiencies.								
	Description of different optical detectors with calculation of power efficiencies								
4	of various detectors.								
	Design an optical power link and analyze the power budget analysis with								
5	understanding of Homodyne and heterodyne detection.								

Mapping of	Mapping of CO's with Bloom's Level, Target Level Bloom's										
Course	BL1	BL2	BL3	BL4	BL5	BL6					
CO1	2	3	2	1							
CO2	2	3	3	3	1						
CO3	3	3	3	1		2					
CO4	3	3	3	2	2	2					
CO5	3	2		3	2	3					
AVG.	2.6	2.8	2.2	2	1.6	2.3					

#### **Optical Communication (REC-075)**

	РО													
CO	PO-	PO-	PO-	PO-	PO-	<b>P0-</b>	PO-	PO-	PO-	PO-	PO-	<b>PO-</b>		
	1	2	3	4	5	6	7	8	9	10	11	12	PSO-	PSO-
													1	2
CO-1	-	3	3	1	-	3	3	2	1	1	2	-	2	2
CO-2	3	3	3	1	2	1	3	-	2	3	-	-	1	3
CO-3	2	1	3	3	2	-	2	3	-	-	-	2	2	3
CO-4	3	2	-	3	2	2	-	1	-	-	-	2	2	1
CO-5	2	1	2	3	3	-	2	3	-	-	-	1	3	2

Optical Communication Lab (REC 751)	Session:2020-21	Sem: Odd Semester
Course Outcomes		
ble to		
Understand the establishment of analog link and d	igital link using Optical Fiber.	
Identify Propagation loss in optical fiber and bend	ing loss in optical fiber.	
Measurement of measure Numerical Aperture in o	ptical fiber.	
*	•	
Understand Time Division Multiplexing of signals	using optical fiber	
	Optical Communication Lab (REC 751) Course Outcomes ble to Understand the establishment of analog link and d Identify Propagation loss in optical fiber and bend Measurement of measure Numerical Aperture in o Understand Time Division Multiplexing of signals Understand the Voice Digitization: A Law using o	Optical Communication Lab (REC 751)       Session:2020-21         Course Outcomes       Session:2020-21         ble to       Session:2020-21         Understand the establishment of analog link and digital link using Optical Fiber.       Session:2020-21         Identify Propagation loss in optical fiber and bending loss in optical fiber.       Session:2020-21         Measurement of measure Numerical fiber and bending loss in optical fiber.       Session:2020-21         Understand Time Division Multiplexing of signals using optical fiber       Session:2020-21         Understand the Voice Digitization: A Law using optical fiber link and Electromagnetic       Session:2020-21

Mapping of CO's with Bloom's Level, Target Level Bloom's										
Course	BL1	BL2	BL3	BL4	BL5	BL6				
CO1	1	1			2	3				
CO2	1	1			2	3				
СОЗ	1	1			2	3				
CO4	1	1			2	3				
CO5	1	1			2	3				
AVG.	1	1			2	3				

	Mapping of Course outcomes with Program Outcomes														
Course:															CO wise
										PO	РО	РО			Target
РО	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	10	11	12	PSO1	PSO2	Level
CO1	1	2	3	3	1	2	-	-	-	-	-	1	2	2	
CO2	1	1	2	3	3	1	-	-	-	-	-	1	3	2	
CO3	3	2	1	2	1	2	-	-	-	-	-	1	2	2	
CO4	1	2	3	3	1	1	-	-	-	-	-	1	3	2	
CO5	2	2	2	3	2	2	-	-	-	-	-	1	2	2	
Target Level															

Course Nam	e: ECD Lab (REC752)	Session:2020-21	Sem: Odd Semester
S.No	Course Outcomes		
Students will	l able to		
1	Analyze, simulate and test the var	ious op-amp based analog circ	uits.
2	Simulate the given circuit using ic practical circuits.	leal elements and analyze the c	leviation in result due to non-idealities in
3	Design a complete electronic circu	uit system using a top-down ap	pproach which starts from system specifications.
4	Relate physical observations and	measurements involving electr	ical circuits to theoretical principles.
5	Understand and compare the perfe	ormance of circuits using discr	ete components as well as op-amp ICs.

Mapping of CO's with Bloom's Level, Target Level Bloom's									
Course	BL1	BL2	BL3	BL4	BL5	BL6			
CO1	3	3	2	2	3	2			
CO2	2	3		3		1			
соз	1	1	2	3	3	3			
CO4	1	3	1	3	2	3			
CO5	3	1	3	1	3	2			
AVG.	2	2.2	1.6	2.4	2.2	2.2			

	Mapping of Course outcomes with Program Outcomes														
Course:															CO wise
<b>DO</b>	<b>DO1</b>	003	003	004	DOL	DOC	007	000	<b>D</b> O0	PO	PO	PO	0001	0500	Target
PU	POI	POZ	PU3	P04	P05	P06	P07	P08	P09	10	11	12	P201	PSUZ	Level
CO1	1	3	2	-	1	1	2	1	3	2	3	1	1	1	
CO2	2	3	3	2	-	-	-	3	-	-	1	-	1	-	
CO3	2	2	3	3	2	2	2	-	3	-	-	3	2	1	
CO4	-	3	2	1	2	2	1	-	2	2	2	2	-	1	
CO5	3	3	3	2	3	3	2	2	-	-	1	1	2	3	
Target Level															

Course Nam	ame: Project LAB -REC754 Session:2020-21	Sem: Odd Semester
S.No	Course Outcomes	
Students will	will able to	
1	Apply knowledge of fundamentals of Electronics, Programming and and design of a given problem.	l Communication Engineering to the analysis
2	Identify and formulate the problem or project and find its solution v	which is practically feasible.
3	Use the techniques, skills, and modern engineering tools such as log necessary for engineering practice.	zic works, VHDL, Cadence, MAT Lab
4	Function on multi-disciplinary teams through effective communicat	ion and team behavior.
5	Accomplish the project to meet desired needs within realistic constr manufacturability.	aints of environment, economy and

Mapping	g of CO's v	vith Bloon	n's Level, 1	Farget Lev	el Bloom'	s
Course	BL1	BL2	BL3	BL4	BL5	BL6
CO1	3	3	2	2	3	2
CO2	2	3		3		1
CO3	1	1	2	3	3	3
CO4	1	3	1	3	2	3
CO5	3	1	3	1	3	2
AVG.	2	2.2	1.6	2.4	2.2	2.2

	Mapping of Course outcomes with Program Outcomes														
Course:															CO wise
РО	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PO 11	PO 12	PSO1	PSO2	Target Level
CO1	1	3	2	-	1	1	2	1	3	2	3	1	1	1	
CO2	2	3	3	2	-	-	-	3	-	-	1	-	1	-	
СОЗ	2	2	3	3	2	2	2	-	3	-	-	3	2	1	
CO4	-	3	2	1	2	2	1	-	2	2	2	2	-	1	
CO5	3	3	3	2	3	3	2	2	-	-	1	1	2	3	
Target Level															

Course Nam	e: Industrial Training Viva (REC-753)	Session:2020-21	Sem: Odd Semester
S.No	Course Outcomes		
Students wil	l able to		
1	Adapt readily to real life working environment	and practice the right work attitu	ude.
2	Apply knowledge learnt, gain new skills and be	e aware of current technologies.	
3	Provide opportunities for organization to assess	s them as prospective employees	
4	Explain industrial problems and suggest possib	le solutions	
5	Present a proper report, both orally and in writi	ng on their work experience.	

Mapping of CO's with Bloom's Level, Target Level Bloom's												
Course	BL1	BL2	BL3	BL4	BL5	BL6						
CO1	3	3	2	2	3	2						
CO2	2	3		3		1						
соз	1	1	2	3	3	3						
CO4	1	3	1	3	2	3						
CO5	3	1	3	1	3	2						
AVG.	2	2.2	1.6	2.4	2.2	2.2						

			Ν	/lapping	g of Cou	rse out	comes v	with Pro	ogram C	outcon	nes				
Course:															CO wise
										РО	РО	РО			Target
РО	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	10	11	12	PSO1	PSO2	Level
CO1	1	3	2	-	1	1	2	1	3	2	3	1	1	1	
CO2	2	3	3	2	-	-	-	3	-	-	1	-	1	-	
CO3	2	2	3	3	2	2	2	-	3	-	-	3	2	1	
CO4	-	3	2	1	2	2	1	-	2	2	2	2	-	1	
CO5	3	3	3	2	3	3	2	2	-	-	1	1	2	3	
Target Level															

### Odd Sem\_5

Course Nan 5 <sup>th</sup>	ne: Digital Signal Processing (KEC-503) Session:2020-21 Sem: Odd Semester
S.No	Course Outcomes
Students will	able to
1	Understand, Identify, formulate and solve engineering problems related to the FIR (Finite Impulse Response) & IIR (Infinite Impulse Response) Filters and various realizations
2	Evaluate the Analog Filters as Butterworth and Chebyshev, Design of Digital Butterworth and Chebyshev Filters required for Electronics Engineering practice.
3	Analyze the various windowing techniques required for designing of filter for Electronics Engineering practices.
4	Applying knowledge of Fourier & Discrete Fourier Transform to the analysis and design complex signals & systems and Analyze the Fast Fourier Transform both in time & frequency domain
5	Understanding and analyze the Multi rate digital signal processing and its application for engineering practices.

Mapping of CO's with Bloom's Level, Target Level Bloom's													
Course	BL1	BL2	BL3	BL4	BL5	BL6							
CO1	3	3	2	2	3	2							
CO2	1	1	3	2	2	3							
CO3	1	2	1	3	1	1							
CO4	3	1	2	2	2	1							
CO5	2	3	1	2	2	1							
AVG.	2	2	1.8	2.1	2	1.6							

				Map	ping of	Course	outcom	es with	Progran	n Outc	omes				
Course:															СО
РО	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PO 11	PO 12	PSO1	PSO2	wise Target Level
CO1	3	3	3	3	1	1	0	0	0	0	3	3	2	3	
CO2	3	3	3	2	1	1	0	0	0	0	2	3	3	2	
CO3	3	3	3	2	1	2	0	0	0	0	1	2	2	2	
CO4	3	3	3	1	1	2	0	0	0	0	1	3	2	2	
CO5	3	2	2	1	1	1	0	0	0	0	0	0	2	2	
Target Level															

Cour	se Name	: MICR	ROPRO	CESSO	RS & IV	IICROC	ONTR	OLLERS	6 (KEC-!	502) Se	ssion	: 202	0-21 9	Semeste	r: Odd	
S. No.	Course	Outcor	nes													
At th	e end of	this co	urse st	tudent	s will d	emons	trate t	he abi	lity to							
1	Demons	strate t	he bas	ic arch	itectur	e of 80	85.									
2	Illustrat micropr	e the p ocesso	rograr r.	nming	model	of micr	roproce	essors	& write	e progra	am us	sing 8	085			
3	Demons	strate t	rate the basics of 8086 Microprocessor and interface different external Peripheral ike timer, USART etc. with Microprocessor (8085/8086).													
	Devices	like tin	ike timer, USART etc. with Microprocessor (8085/8086).													
4	Compar microco	e Micro ntrolle	Microprocessors & Microcontrollers, and comprehend the architecture of 8051 troller													
5	lllustrat problem	rate the programming model of 8051 and implement them to design projects on real time ems.														
	Mapping	of CO	s with	Bloom	's Leve	el, Targ	et Leve	el Bloo	m's							
Cou	rse	BL		BL2	BL3	BL	4	BL5	BL6							
	•	2		2	3	3		2								
CO3	 }	2		2	3	3		2	2							
CO4	L .			2	3	3		3	3							
CO5	5			2	3	3		3	3							
AVG	<b>.</b>	1.4	Ļ	2	2.4	2.4	4	2	1.6							
				Мар	ping o	f Cours	se outo	omes	with Pı	rogram	Outo	omes	5			
Cou & N	rse: MP 1C															CO wise
PO		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	РО 10	РО 11	PO 12	PSO1	PSO2	Leve
CO1	L	1	1			2							1	1	1	
CO2	2	2	2	1	2								1	2	2	
CO3	}	3	2	3	2	1							1	3	2	
CO4	<u>ا</u>	1	3	3	2	1	2	2	3	1			2	1	3	
COS	5	2	2	2	3	2	2	2	2	1			3	2	2	
Т	arget Level															

Course Na	me: Integrated Circuits (KEC 501)	Session: 2020-21	Sem: Odd
Students w	ill be able to:		
1	Explain complete internal analysis of Op	o-Amp 741-IC.	
2	Examine and design Op-Amp based circ	uits and basic components of IC	's such as various types of filter
3	Implement the concept of Op-Amp to de circuits.	sign Op-Amp based non-linear	applications and wave-shaping
4	Analyze and design basic digital IC circu	uits using CMOS technology	
5	Describe the functioning of application s	specific ICs such as 555 timer, V	CO IC 566 and PLL.

#### Mapping of CO's with Bloom's Level, Target Level Bloom's

Course	BL1	BL2	BL3	BL4	BL5	BL6
CO1	3	3	2	1	1	1
CO2	2	2	1	2	1	3
CO3	1	1	2	3	2	2
CO4	2	2	3	1	2	1
CO5	1	1	2	1	2	1
AVG.	1.8	1.8	2	1.6	1.6	1.6

Mapping	of Cour	rse outco	mes wit	h Progra	m Outco	omes									
Course															
РО	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PO11	PO12	PSO1	PSO2	CO Wize Target Level
CO1	3	2	3	3	3	0	2	1	2	0	2	2	1	1	
CO2	2	3	2	2	2	0	0	2	2	0	1	1	1	1	
CO3	2	3	2	2	2	0	0	0	0	0	2	1	1	1	
CO4	3	3	3	3	3	2	0	0	0	0	2	2	1	1	
CO5	3	3	3	3	1	2	0	0	0	0	2	2	1	1	
Target level															

Course Nan 5 <sup>th</sup>	ne: VLSI Technology (KEC-053) Session:2020-21	Sem: Odd Semester
S.No	Course Outcomes	
Students wi	ll able to	
1	Interpret the basics of crystal growth, wafer preparation and wafer cleaning.	
2	Evaluate the process of Epitaxy and oxidation.	
3	Differentiate the lithography, etching and deposition process.	
4	Analyze the process of diffusion and ion implantation	
5	Express the basic process involved in metallization and packaging	

Mapping of CO's with Bloom's Level, Target Level Bloom's										
Course	BL1	BL2	BL3	BL4	BL5	BL6				
CO1	2	3	2	1	1	1				
CO2	2	2	3	3	2	1				
CO3	1	3	2	1	1	2				
CO4	2	2	1	2	1	1				
CO5	1	2	2	2	3	2				
AVG.	1.6	2.4	2	1.8	1.6	1.4				

	Mapping of Course outcomes with Program Outcomes														
Course:															CO wise
										РО	РО	РО			Target
РО	PO1	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	10	11	12	PSO1	PSO2	Level
CO1	3	1	3	2	1	2	-	-	1	2	-	-	3	1	
CO2	1	3	2	3	1	-	1	2	-	1	-	1	2	3	
CO3	3	1	2	3	2	3	1	3	3	-	2	2	1	2	
CO4	2	3	1	3	2	-	1	2	2	-	-	2	2	1	
CO5	3	2	1	3	3	2	2	-	2	2	2	2	2	2	
Target Level															

Course Nam	e: Electronic Switching (REC 080)	Session:2020-21	Sem: v Semester
S.No	Course Outcomes		
Students will	l able to		
1	Describe and apply fundamentals of teleco	mmunication systems and associat	ed technologies.
2	Solve problems and design simple systems	related to tele-traffic and trunking	efficiency.
3	Understand and explain the reasons for swipacket and circuit switching.	itching, and the relative merits of the	he possible switching modes, e.g.
4	Understand the principles of the internal de the key signalling systems that are used in	esign and operation of telecommun telecommunication networks.	ication switches, and the essence of
5	To understand the basics of Data Commun	ication Engineering devices. Desig	n of Banyan Network Switch

Mapping of CO's with Bloom's Level, Target Level Bloom's									
Course	BL1	BL2	BL3	BL4	BL5	BL6			
CO1	1	1	1	1	1	1			
CO2	3	2	2	2	1	2			
CO3	2	2	2	2	3	2			
CO4	2	3	3	1	2	3			
CO5	2	1	2	1	1	1			
AVG.	2	1.8	2	1.4	1.6	1.8			

Mapping of Co	ourse ou	tcomes	with Pro	ogram ()	outcome	s									
Course:															CO wise
										PO	PO	PO			Target
РО	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	10	11	12	PSO1	PSO2	Level
CO1	1	2	1	1	2	2	1	2	2	1	1	1	1	3	
CO2	2	2	2	2	1	1	1	1	1	1	2	2	2	2	
CO3	3	3	2	2	3	1	2	1	1	2	1	1	1	2	
CO4	2	1	2	1	1	3	1	1	3	1	1	2	3	1	
CO5	1	1	3	2	1	1	2	2	1	1	3	1	1	1	
Target Level															

Course Name	e: Constitution of India (KNC-501)	Session:2020-21	Sem: Even Semester 6 <sup>th</sup>
S.No	Course Outcomes		
Students will	able to		
1	Identify and explore the basic features and	modalities about Indian constitution.	
2	Differentiate and relate the functioning of	Indian parliamentary system at the cer	nter and state level.
3	Differentiate different aspects of Indian Le	egal System and its related bodies.	
4	Discover and apply different laws and reg	ulations related to engineering practice	żs.
5	Correlate role of engineers with different of	organizations and governance models.	

Mapping of CO's with Bloom's Level, Target Level Bloom's										
Course	BL1	BL2	BL3	BL4	BL5	BL6				
CO1	3	3	-	-	-	-				
CO2	1	3	3	2	3	-				
соз	2	3	1	-	1	2				
CO4	2	2	3	-	-	-				
CO5	3	3	3	3	-	1				
AVG.	2.2	2.8	2	1	0.8	0.6				

	Mapping of Course outcomes with Program Outcomes														
Course:															CO wise
	<b>DO1</b>	000	000	004	DOF	DOC	007	0.00	000	PO	PO	PO 12	DC 01	<b>DCO2</b>	Target
PU	POI	POZ	PU3	P04	P05	P06	P07	P08	P09	10	11	12	PS01	PS02	Level
CO1	-	-			-	2	1	-	-	-	-	-	-		
CO2	-	-	-	-	-	-	1	-	-	-	-	-	-	-	
CO3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
CO4	2	2	2	2	2	2	2	2	-	-	2	2	-	-	
CO5	1	-		-	-	-	-	2	2	2	2	2	-	-	
Target Level															

Course Nar	ne: Integrated Circuits LAB (KEC 551)	Session: 2020-21	Sem: Odd
Students w	ill be able to:		
1	Identify the various applications of analog voltage	e multiplier IC MPY634KP	
2	Design and applications of negative feedback.		
3	Identify the various linear and non linear applica	tions of operational amplifier.	
4	Identify the various linear and non linear applica	tions of operational amplifier.	
5	learn to determine capture range, lock in range a	and free running frequency of PLL and	d will
	be able to understand and design voltage regula	tion methods.	

iviapping	g of CO's	S WITH BI	oom's Le	evel, Tar	get Leve	el Bloom	1'S								
Course		BL1		BL2		BL3		BL	4		BL5		BL6		
CO1		2		3		3		3			2	:	3		
CO2		1		3		3		2			2				
CO3		2		2		2		3			-	:	1		
CO4		2		2		3		2			3	:	2		
CO5		3		3		2		2			-				
AVG.		2		2.6		2.6		2.4	ļ		1.4		1.2		
Mapping	of Cour	rse outco	omes wit	h Progra	am Outc	omes									
Course															
РО	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PO11	PO12	PSO1	PSO2	CO Wize Target Level
CO1	3	3	2	3	3						2	2	2	1	
CO2	3	3	2	3	2						2	2	2	1	
CO3	3	3	2	3	3						3	3	2	2	
CO4	3	3	2	3	3						2	2	3	1	
CO5	3	3	2	3	1						2	2	3	2	
Target level															

Course Nan	ne: B. Tech. (Electronics and Communication Engineering)
Course Na	me: Digital Signal Processing Lab (KEC-553-A) Session:2020-21
Sem: Odd	Semester 5 <sup>th</sup>
S. No. :	Course Outcome
Student wil	Il be able to
1	Understand the handling of discrete/digital signals using MATLAB/Scilab.
2	Implement and understand the basic operations of Signal processing
3	Analyse the spectral parameter of window functions
4	Design IIR, and FIR filters for band pass, band stop, low pass and high pass filters.
5	Design the signal processing algorithm using MATLAB/Scilab.

Mapping	Mapping of CO's with Bloom's Level, Target Level Bloom's													
Course	BL1	BL2	BL3	BL4	BL5	BL6								
CO1	3	3	2	2	3	2								
CO2	1	1	3	2	2	2								
CO3	1	2	1	2	1	1								
CO4	3	1	2	2	2	1								
CO5	2	3	1	2	2	1								
AVG.	2	2	1.8	2	2	1.4								

	Mapping of Course outcomes with Program Outcomes														
Course:															CO wise
РО	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PO 11	PO 12	PSO1	PSO2	Target Level
CO1	3	3	3	3	1	1	0	0	0	0	3	3	2	2	
CO2	3	2	3	2	2	1	0	0	0	0	2	3	3	2	

CO3	3	3	3	2	1	1	0	0	0	0	1	2	2	2	
CO4	3	3	2	1	1	2	0	0	0	0	1	1	2	2	
CO5	3	2	3	1	1	1	0	0	0	0	0	0	2	2	
Target Level															

S. No.	Course Outcomes
At th	e end of this course students will demonstrate the ability to
1	Use techniques, skills, modern engineering tools, instrumentation and software/hardware appropriately to list and demonstrate arithmetic and logical operations on 8-bit data using microprocessor 8085.
2	Examine 8085 & 8086 microprocessor and its interfacing with peripheral devices.
3	State various conversion techniques using 8085 & 8086 and generate waveforms using 8085.
4	Implement programming concept of 8051 Microcontroller.
5	Design concepts to Interface peripheral devices with Microcontroller so as to design Microcontroller based projects.

Mapping of CO's with Bloom's Level, Target Level Bloom's													
Course	BL1	BL2	BL3	BL4	BL5	BL6							
CO1	3	2											
CO2	2	2	3	3	2								
СОЗ	2	2	3	3	2	2							
CO4		2	3	3	3	3							
CO5		2	3	3	3	3							
AVG.	1.4	2	2.4	2.4	2	1.6							

				Mappir	ng of Co	urse out	comes v	vith Pro	gram Ou	tcome	s				
Course: MP & MC															CO wise
РО	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	РО 10	PO 11	РО 12	PSO1	PSO2	Target Level
CO1	1	1			2							1	1	1	
CO2	2	2	1	2								1	2	2	
CO3	3	2	3	2	1							1	3	2	
CO4	1	3	3	2	1	2	2	3	1			2	1	3	
CO5	2	2	2	3	2	2	2	2	1			3	2	2	
Target Level															

## ODD\_3

Course Na Semester	me: Network Analysis and Synthesis (KEC-303)	Session:2020-21	Sem: Even
S.No	Course Outcomes		
Students w	vill able to		
1	Understand and Apply knowledge of node, mesh a networks.	and matrix approach for the	analysis of
2	Identify and formulate engineering problems relat theorems.	ed to the networks using ne	etwork
3	Create and analyse Trigonometric and exponentia parameters of the networks.	l Fourier series to calculate	the various
4	List and understand Laplace transform and apply i without initial conditions.	t to solve complex networks	s with and
5	Analyze and evaluate two and four port networks filters.	and study the behavior of d	ifferent

Mapping of CO's with Bloom's Level, Target Level Bloom's														
Course	e BL1 BL2 BL3 BL4 BL5 BL6													
CO1	BL1	BL2	BL3	BL4	BL5	BL6								
CO2	2	3	3											
CO3	3	3	3	3	2	3								
CO4	1	3	3	2	2	3								
CO5	3	3	2	2	2									
AVG.	3	2	2	2										

	Mapping of Course outcomes with Program Outcomes														
Course:							507			5040	5044	5043	<b>DCO1</b>	<b>D</b> CO2	CO wise Target
PO	P01	POZ	P03	P04	P05	P06	P07	P08	P09	PO10	P011	P012	PS01	PSOZ	Level
CO1	3	3	2	3	3						2	2	3	2	
CO2	3	3	2	3							2	2	2	3	
СО3	3	3	2	3	3						3	3	2	3	
CO4	3	3	2	3	3						2	2	2	2	
CO5	3	3	2	3	1						2	2	2	2	
Target Level															

Course Na	me: Electronic Devices(KEC-301 )	Session:2020-21	Sem: Even Semester
S.No	Course Outcomes		
Students w	vill able to		
1	Understand the fundamentals of elect	ronics devices.	
2	Use mathematical fundamental model	s to design semiconducto	r junctions.
3	Understand the carrier transport in ser	miconductors and design	resistors.
4	Use mathematical model of MOS and I	BJT to design circuits.	
5	Analyze and find application of special	purpose diodes.	

Mapping of CO's with Bloom's Level, Target Level Bloom's												
Course	BL1	BL2	BL3	BL4	BL5	BL6						
CO1	BL1	BL2	BL3	BL4	BL5	BL6						
CO2	2	3	3									
CO3	3	3	3	3	2	3						
CO4	1	3	3	2	2	3						
CO5	3	3	2	2	2							
AVG.	3	2	2	2								
Manning of Course outcomes with Program												

	Mapping of Course outcomes with Program Outcomes														
Course:															CO wise Target
РО	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	Level
CO1	3	3	2	3	3						2	2	3	2	
CO2	3	3	2	3							2	2	2	3	
CO3	3	3	2	3	3						3	3	2	3	
CO4	3	3	2	3	3						2	2	2	2	
CO5	3	3	2	3	1						2	2	2	2	
Target Level															

Course Na	me: Digital System Design (KEC-302)	Session:2020-21	Sem: Odd Semester
S. No	Course Outcomes		
Students v	vill able to		
1	Understand basics of number system an	d codes, minimization tech	niques.
2	Design and analyze the combinational ci	rcuits.	
3	Design and analyze the sequential circuit	ts, basics of FSM.	
4	Understand the logic families and progra	ammable logic devices.	
5	Identify the various ADC & DAC.		

Mapping of CO's with Bloom's Level, Target Level Bloom's										
Course	BL1	BL2	BL3	BL4	BL5	BL6				
CO1	3	3	1	1	3	2				
CO2	1	2	3	3	1					
СОЗ	1		2	3		3				
CO4	3	3	3	1	1	2				
CO5	1	1		3	3	2				
AVG.	1.8	2.25	2.25	2.2	2	2.25				

Mapping of Course outcomes with Program Outcomes															
Course:NAS															CO wise
РО	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PO 11	PO 12	PSO1	PSO2	Target Level
C01	3	3	3	3	1	1	0	0	0	0	3	3	2	2	
CO2	3	3	3	2	1	1	0	0	0	0	2	3	1	3	
СО3	3	3	3	2	1	2	0	0	0	0	1	2	2	1	
CO4	3	3	3	1	1	2	0	0	0	0	1	3	2	2	
CO5	3	3	2	1	1	1	0	0	0	0	0	1	1	0	
Target Level															

Course Nam	e: Digital System Design Lab (KEC352	Session:2020-21	Sem: Even Semester
S.No	Course Outcomes		
Students wil	able to		
1	Understand the fundamental properties of line	ear systems, causal system, st	able system and their significance
2	Use signals and basic system building blocks	and their roles for design of	complex system
3	Identify the role of Fourier series or Fourier t apply them to the analysis of ideal filtering, a	ransform, Z-transform, and for modulation and san	or the roperties and appling
4	Understand the properties, as well the analysis systems(parallel, series (cascade), and feedba	is and design implications, of ck) in the time and transform	interconnections of LTI domains
5	Develop mathematical skills to solve problen	ns involving convolution, filte	ering, modulation and sampling

Мар	ping of	CO's w	ith Bloo	m's Lev	vel, Ta	rget Lev	el Bloo	m's							
Course	В	L1	BL2	BL	.3	BL4	BL	5	BL6						
CO1	2		3	1		3									
CO2	1		2	2		2	2								
CO3	2		2	1			1	3							
CO4	1			2		2	3	2							
CO5	2		1			1	2	3							
AVG.	2		1.7	2		1.6	2	2	.6						
				Mappi	ing of	Course o	outcom	es with	Progra	am Outco	omes				
															CO
Course:															Target
РО	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	Level
CO1	3	2	2	1	1	2	-	-	-	-	-	1	3	2	
CO2	1		-	2	-	-	-	-	-	-	-	1	2	3	
CO3	1	3	3	-	-	3	-	-	-	-	-	1	2	3	
CO4	3	1	2	-	1	-	-	-	-	-	-	1	3	2	
CO5	3	2	2	-	1	-	-	-	-	-	-	1	2	2	
Target Level															

Course Nam Sem: Odd Se	ee: MINI PROJECT OR INTERNSHIP ASSESSMENT (KEC-354) Semester	Session:2020-21
S.No	Course Outcomes	
Students will	l able to	
1	To understand the requirements of Industry, in which internship undertaken.	
2	To analyze the basic hierarchy structure of the company.	
3	To understand and analyze the company profile and its product portfolio.	
4	To understand and analyze the human resource requirement of company.	
5	To create innovation in the existing structure of company and its product.	

Mapping of CO's with Bloom's Level, Target Level Bloom's											
Course	BL1	BL2	BL3	BL4	BL5	BL6					
CO1	2	3	1	2	1	2					
CO2	1	2	1	3	1	2					
CO3	3	1	2	0	2	1					
CO4	2	1	3	2	2	3					
CO5	1	3	1	3	2	1					
AVG.	1.8	2	1.6	2	1.6	1.8					

Mapping of Course outcomes with Program Outcomes															
Course:										PO	PO	PO			CO wise
РО	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	10	11	12	PSO1	PSO2	Level
C01	2	3	3	3	3	2	2	2	1	1	1	1	3	2	
CO2	2	2	1	1	2	1	1	2	1	1	1	2	2	3	
CO3	3	3	3	1	1	1	1	2	1	1	1	2	2	3	
CO4	2	2	1	1	2	1	1	2	1	1	2	3	2	2	
CO5	3	2	2	2	2	1	2	2	1	1	2	1	2	2	
Target Level		1	1		1										

Course Nam	e: NAS Lab (KEC-353)	Session:2020-21	Sem: Odd Semester
S.No	Course Outcomes		
Students will	l able to		
1	Understand basics of electrical circuits wit	h nodal and mesh analysis.	
2	Appreciate electrical network theorems.		
3	Analyse RLC circuits.		
4	Determine the stability of an electrical circ	cuit.	
5	Design network filters		

Mapping of CO's with Bloom's Level, Target Level Bloom's											
Course	BL1	BL2	BL3	BL4	BL5	BL6					
CO1	3	3	2	2	3	2					
CO2	2	3		3		1					
соз	1	1	2	3	3	3					
CO4	1	3	1	3	2	3					
CO5	3	1	3	1	3	2					
AVG.	2	2.2	1.6	2.4	2.2	2.2					

	Mapping of Course outcomes with Program Outcomes														
Course:															CO wise
										РО	РО	РО			Target
РО	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	10	11	12	PSO1	PSO2	Level
CO1	1	3	2	-	1	1	2	1	3	2	3	1	1	1	
CO2	2	3	3	2	-	-	-	3	-	-	1	-	1	-	
CO3	2	2	3	3	2	2	2	-	3	-	-	3	2	1	
CO4	-	3	2	1	2	2	1	-	2	2	2	2	-	1	
CO5	3	3	3	2	3	3	2	2	-	-	1	1	2	3	
Target Level															

Course Nam	e: KEC351 Electronics Devices Lab	Session:2018-19	Sem: Even Semester
S.No	Course Outcomes		
Students wil	l able to		
1	Apply knowledge of basic electronics and comp	ponents to understand various electr	onic instruments.
2	Identify and formulate various applications base electronics.	ed on P-N junction diode and Zener	diode in the area of basic
3	Use BJT and FET characteristics to design prac	tical projects, necessary for enginee	ring practice.
4	Design a practical electronics system with the h to meet desired needs in realistic constraints.	elp of components such as BJT, FE	T, SCR, DIAC, TRIAC etc.,
5	Function on multi-disciplinary teams through ba	asic electronic experiments and proj	ects.

g of CO's v	with Bloon	n's Level, T	arget Leve	el Bloom's	
BL1	BL2	BL3	BL4	BL5	BL6
2	3	1	3		
1	2	2	2	2	
2	2	1		1	3
1		2	2	3	2
2	1		1	2	3
2	1.7	2	1.6	2	2.6
	g of CO's v BL1 2 1 2 1 2 2 2	BL1         BL2           2         3           1         2           2         2           1         2           2         1           2         1           2         1           2         1           2         1.7	g of CO's with Bloom's Level, T           BL1         BL2         BL3           2         3         1           1         2         2           2         2         1           1         2         2           2         1         2           2         1         2           2         1         2           2         1         2           2         1         2           2         1         2           2         1.7         2	BL1         BL2         BL3         BL4           2         3         1         3           1         2         2         2           2         2         1         1           1         2         2         2           2         1         2         2           2         1         1         2           2         1         1         1           2         1         1         1           2         1         1         1           2         1         1         1           2         1         1         1	BL1         BL2         BL3         BL4         BL5           2         3         1         3         3           1         2         2         2         2           2         2         1         1         1           1         2         2         2         2           2         1         1         1         1           1         2         2         3         3           2         1         1         2         3           2         1         1         2         2           2         1         1         2         2         3           2         1         1         2         2         3           2         1.7         2         1.6         2

				Mappi	ng of C	ourse o	utcom	es with	Progra	m Outco	mes				
Courses															CO wise
PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	Target Level
CO1	3	2	2	1	1	2	-	-	-	-	-	1	3	2	
CO2	1		-	2	-	-	-	-	-	-	-	1	2	3	
СО3	1	3	3	-	-	3	-	-	-	-	-	1	2	3	
CO4	3	1	2	-	1	-	-	-	-	-	-	1	3	2	
CO5	3	2	2	-	1	-	-	-	-	-	-	1	2	2	
Target Level															

### First Year

Course Name: Emerging Domain in Electronics Engineering (KEC101T/ECE201T)

Session: 2020-21

Semester: Odd (1<sup>st</sup>)

	Course Outcome	Bloom's Level
At the en	d of this course, the students will be able to:	
CO1	<b>Remember</b> and <b>Understand</b> the concept of PN Junction Diodes, BJT, FET and MOSFET, ICs and OPAMP, numbers systems Boolean Functions and logic gates, components of IoT, principles of sensors and fundamentals of Communication system.	BL1 & BL2
CO2	<ul> <li><b>i.</b> Apply the concept of Number system and Boolean Functions to minimise them using K-Map.</li> <li><b>ii.</b> Analyse and implement Boolean functions using Basic and universal gates.</li> </ul>	BL3 & BL4
CO3	<ul> <li><b>i.</b> Apply the concept of Diodes and Transistors to study rectifiers, clippers clampers, regulators and amplifiers.</li> <li><b>ii.</b> Analyse the circuits based on diodes, BJTs and FETs.</li> </ul>	BL3 & BL4
CO4	<ul> <li><b>i.</b> Apply the concept of OPAMP to study the operation of amplifiers, summers, differentiators, integrators etc.</li> <li><b>ii.</b> Analyse the circuits based on OPAMPs.</li> </ul>	BL3 & BL4
CO5	<b>Compare</b> and <b>Design</b> different types of circuits based on Diodes, Transistors and OPAMPs.	BL5

Mapping of	CO's wit	th Bloom	's Level,	Target I	Level Blo	om's
Course	BL1	BL2	BL3	BL4	BL5	BL6
CO1	3	3	-	-	-	-
CO2	2	2	3	3	-	-
CO3	2	2	3	3	-	-
CO4	2	2	3	3	-	-
CO5	1	1	2	2	3	-
AVG.	2	2	2.2	2.2	0.6	0.0

			N	<b>Aappin</b>	g of Co	urse ou	itcomes	s with F	rogran	n Out	comes				
Course:															CO wise
РО	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PO 11	PO 12	PSO1	PSO2	Target Level
CO1	3	3	3	2	2	-	-	-	-	-	-	2	1	1	
CO2	3	3	3	2	2	1	1	-	-	-	-	2	1	2	
CO3	3	3	3	2	2	1	1	-	-	-	-	3	1	2	
CO4	3	3	3	2	2	1	1	-	1	-	-	3	2	1	
CO5	2	2	2	3	3	3	3	1	2	2	2	3	1	1	

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