1.1.3

## **Supporting Documents-**

## **Department of Electronics & Communication Engineering**

## Mapping of Courses to Employability/ Skill Development



CONO.    CONO.   Conduct investigations of complex problemation   Conduct investigations of complex problemation   Conduct investigations of complex problematical   Conduct investigations   Conduc		Ref No Subject: Wapping of Course Outcomes with Program Outcomes of B
Engineering Knowledge  Problem Analysis  Design/development of solutions  Conduct investigations of complex proble  Modern tool usage  The engineer and society		Subject
Problem Analysis  Design/development of solutions  Conduct investigations of complex proble  Modern tool usage  The engineer and society		ect
Conduct investigations of complex proble  Modern tool usage  The engineer and society	1	
Conduct investigations of complex proble  Modern tool usage  The engineer and society		Napp
The engineer and society	ems	0.8U
		Cou
Environment and sustainability		rse O
		utcor
Ethics		nes v
Individual and team work		vith P
Communication  Project management and finance		rogra
Project management and finance		m O
Life-long Learning		utcon
0		nes of
No N		
Assessment Tools to Measure Attainment of CO  MSTs, ESE, Class/Quiz Tests  MSTs, ESE, Class/Quiz Tests  MSTs, ESE, Class/Quiz Tests		Date:

A Jan

004	003	CO2	001		CO No.	0
requirements for a design application and propose a cost effective solution.	analyze and design various combinational and sequential circuits.  Ability to		0 = =	Have a thorough	(BTEC-302-18: No. Digital System Design)	co4 processes used in fabrication of integrated circuits.
<	<	<	<		PO 1	of d
	<	<	<		PO 2	
					2 PO 3	-
	-				PO 4	<
	<	<	<		PO 5	<
					P06	
					P07	
					B	
				3		
С				PO 10 PO 11 PO 12		<
Understand	Analyze	Understand	Understand	Skill		Apply
N <sub>o</sub>	No Z	Z <sub>o</sub>	No	Entrepreneurs hip	Focus on	8
MSTs, ESE, Class/Quiz Tests	MSTs, ESE, Class/Quiz Tests	MSTs, ESE, Class/Quiz Tests	MSTs, ESE, Class/Quiz Tests	Measure Attainment of CO	Assessment Tools to	MSTs, ESE, Class/Quiz Tests

A AMA

601		0 8	5	2	CO3		C02	001		8	
The mathematical tools needed in evaluating multiple integrals and their usage	Mathematics-		waves at media interface	Calculate reflection and	Characterize uniform plane wave	electromagne	understand Maxwell's		Understand characteristics &	CO No. Electromagnetic Constant Constan	CO5 prevent various hazards and timing problems in a digital design.
۷	PO 1		4	<u>Q. (r)</u>		tic c		<	hand S &		arious nd blems
~	PO 2		<	<		<	-			P01	<
	PO 3					_	-	4		P 0 2	<
4	PO 4		4	<	-					PO 3 P	
	PO 5		<	V	<					PO 4	
	PO 6				+		<			PO 5	<
	P07		T		+		+			PO 6 P	
	P08						+			PO 7 Po	
	PO 9									PO8 P	
	PO 10									PO 9 PC	
	PO 11									fo Po	
	PO 10 PO 11 PO 12	4		4	<		<			11 PO	
Apply	Skill		Apply	Analyze		Apply		Analyze		PO 10 PO 11 PO 12 SKIII	Understand
No	Focus on Employability / Entrepreneurs hip		N <sub>o</sub>	No		No		No	hip	Focus on Employability /	o No
MSTs, ESE, Class/Quiz Tests	Assessment Tools to Measure Attainment of CO		MSTs, ESE, Class/Quiz Tests	Class/Quiz Tests	Tests	MSTs, ESE, Class/Quiz		MSTs, ESE, Class/Quiz Tests		Assessment Tools to Neasure	MSTs, ESE, Class/Quiz Tests

And James

002		CO1	CO No.			CO5						C				T												T		_		Manager, Services	-	-
tran stea resp	Use tran		N		e st		0 =	10	O)	CT.		CO4										င္ပင္သ										CO2		
analyze transient & steady state response of linear networks	Use Laplace transform to	network	(BTEC-304-18: Network Theory)		statistics to	probability and	To provide an	engineering	applications in	Equations with	Differentia	Partial	methodologies	solution	To introduce the	problems	engineering	dealing	techniques	various	that are used in	complex variable	runctions of a	drid integration of	and interest	differentiation	The tools of	processes.	model physical	equations that	differential	Solutions of	roois for the	mathematical
<	<		70 1			ح					~				TD						7	Ф		n of		_	_		al	at .		_		al
<	<		P02								~				+				_			_	_				4				-	<u>.</u>		
			РОЗ				1								+	_			-		<	_		_	_		1	_			~	-		
	<		PO 4		2	-	1				~				+						_					_	+	_		_	_	_	_	
	<		Pos				1								1												+				1		-	
			PO 6 P																			_					+	_				-		
			PO7 PO8		_		-																	Ī			+				_	H		
			8 PO 9	+	_		-			_																								
				+			-		-																							Ī		
			PO 10 PO 11							-				+						_														
	<		1 PO 12											+						_		_		į					_					
Apply	Analyze		SKI		Understandin No					Understandin No									Apply	Apply		H	_							Apply				
N <sub>o</sub>	No	n p	Focus on Employability /		din No					din No									No	No										No				
MSTs, ESE, Class/Quiz Tests	Class/Quiz Tests	CO CO	Assessment Tools to Measure						Tests	Class/Quiz	MSTs. ESE							lesis	Class/Quiz	Clara, EGE,	MOTO ESE								Tests	Class/Quiz	MSTs, ESE,			

JARY I

CO No.		П		Ω	T ,		T			T	_										
	n l	+	S f a	CO4 ciri		3		C02				9	5		CO No.				004		COS
Digital System Design Laboratory)	(BTEC-312-18:		resistors,diodes, transistors and MOSFETs	design working circuits based on	MOSFET in circuits	characteristics &	Understand	working of transistor in different	characteristics &	their working	understanding to	diodes in circuits	Realization using resistors and		Devices Laboratory)	(BTEC-311-18:		Cauer's methods.		analyze two port	
P0 1			<			Qο	<		δο	-	ਰ	its	ng ng			180	П		ising Id	% port	end
P02		H	<							<					PO 1			<		<	
PO 3		H			<					<					PO 2		<			<	
P0.4			4		- Company	-									PO3						
PO 5		\ \					_		-	٠					P 0 4		<			<	
5 PO 6		-			<	-	<		<						PO 5						
6 PO7		+				-			1						P0 6		$\dagger$	-			-
7 PO 8		T				+			+						P07						-
P0 9		-				+			1						PO &						
Manager Committee of the Committee of th						+									Pog				1		
PO 10 PO 11 PO 12 Skill					_	1									PO 10						-
11 PO			100 110	+		-									PO 10 PO 11 PO 12				1		
12 Sk		۷ im		<		4									PO 12		۷		e e		1
		implementatio Yes		Understanding no		Understanding no			Implementati Yes						Skill			Apply		Analyze	
Focus on Employability / Entrepreneurs hip		Yes		no		no			ti Yes					nip	Focus on Employability / Entrepreneurs			No		N <sub>o</sub>	
Assessment Tools to Measure Attainment of		Practical notebooks		Practical notebook		Practical notebook			Practical notebook					CO			Tests	MSTs, ESE, Class/Quiz		MSTs, ESE, Class/Quiz	
		Practical notebooks,Internal viva,End sem external viva		Practical notebooks,Internal viva,End sem external viva		Practical notebooks,Internal viva,End sem external viva			Practical notebooks, Internal viva, End sem external viva												

The Character

-	CO4		CO3	CO2			001	8			0			T		
r	proce during British India.	Knov	300	5 0 =	77 ⊂			CO No.			2	CO3			CO2	8
	process before, during and after British Rule in India.	Know about the Development	Basic concepts of Economic, Barter system and Jajmani system : Socialism, Capitalism, and Marxism.	Democracy, Monocracy, Dictatorship and others	Understand the Forms of	Origin of Family, Clan and Society.	Understand the	Deviopment of Societies)	( HSMC101-18:	projects using digital 74XX lcs	design working	for combinational & sequential circuits.	Write & simulate VHDL programs	logic gates	Sequential	circuits using logic gates
+		+						801		<		< ×		<		۷
+		+						P02		ح		<	+			
+		+						PO 3		<	1		+		1	
-								Po 4		<	-		<	:		
		+						PO			<		<		\ \ \	
_		+						P06								
	4	T	4	4	+			P07 F								
		1				_		PO ®								
					+			P09 P								
								010 PC								
	~		۷.	4				PO 10 PO 11 PO 12			-					
	Understand		Analyze				Skill	2	lm		√ Ur		3		<	
	stand		Ze	Understand		Understand			Implementatio Yes		Understanding Yes		Implementatio no		Implementatio no	
			N <sub>o</sub>	8	1	5	hip	Focus on Employability /	rio Yes		ng Yes		atio no		atio no	
	10 Z		103													
000	MST,s ESE, Class/Quiz		MSTs, ESE, Class/Quiz Tests	MSTs, ESE, Class/Quiz Tests	Tests	MSTs, ESE,	Attainment of CO	Assessment Tools to Measure	Practical notebooks, Internal viva, End sem external viva		Practical notebooks,Internal viva,End sem external viva		Practical notebooks, Internal viva, End sem external viva		Practical notebooks, Internal viva, End sem external viva	
									ks,Interna		ks,Intern		oks,Intern		oks, intern	
									al viva,En		al viva,En		ıal viva,Er		al viva,Er	
									d sem ex		d sem ex		ıd sem e		nd sem e	
					H				ternal		ternal		ternal		xternal	

1

JAK!

CO No.			CO4	Q		,	_	0								
0.5	•	U.		03	5		001	CO No.	1		CO3		C02		601	CO No.
Analog Circuits)		UKIIS	Development of Presentation	Development of Communication Skills	Current affairs & GK	Aptitutde General Awareness both	Overall Personality and	Mentoring and Professional Development)	(BTEC-334-40		on common Electronic components	Think and design working	simple circuits with proper understanding to their working	Realization of common and		
801								P0 1		1	<		<	1		80
PO 2								P02			<			4	<	P01
PO 3								2 PO 3		H		-	4		4	P0 2
PO 4								3 PO 4						+		Po
PO 5								P0 5			<	<		<		004
PO 66		<	4	<		<		5 PO 6			<	<		<		PO 5
P07		<	<	<		4		6 PO 7		+		+		-		PO 6
P0 8		<	<	<	n.	<		7 PO 8		+		+		-		PO7
P0 9		<	4	<		<		P09		<				-		PO 8
PO 10		<	<	<		<				H		<		<		PO9
PO 11 PO 12 Skill								PO 10 PO 11 PO 12				+		-		PO 10 PO 11 PO
PO 12		<	<	<		<		8				+				% 11 P
Skill		Apply	- mariyea	Analyza	Examine	Analyze		2 S		٧	Analyze	<	Apply	۷	Analyze	0 12 Skill
Focus on Too Employability / Mea Atta		Yes	g		Yes	Yes		Focus on Employability / Entrepreneurs hip		Yes		Yes		Yes		Focus on Employability / Entrepreneurs
Assessment Tools to Measure Attainment of CO		Aptitude Skills Tests,	Chinde Onis Tests, Viva	ptii do Chillo Toot	Aptitude Skills Tests, Viva	Aptiitude Skills Tests, Viva	60	Assessment Tools to Measure Attainment of		Practical notebooks		Practical notebooks		Practical notebook	CO	
		s, Viva	S, VIVa	e Vio	is, Viva	sts, Viva				Practical notebooks,Internal viva,End sem external viva		Practical notebooks,Internal viva,End sem external viva		Practical notebooks,Internal viva,End sem external viva		

f

1

03	CO2	001		CO No.			004	CO3			002		CO1
and apply programming aspects of 8051 microcontroller.	different building blocks of 8051 microcontroller.	&functionalities of different building block of 8085 microprocessor. Understand working of	Understand architecture	Microcontrollers)	BTEC And a			non-sinusoidal		rectifier and amplifier circuits		amplifiers	
<	<	4		P <sub>O</sub>		<		4		ts v	25	<	<u>ā</u>
<	<	<		P0 2		<	<					4	
4				Pos					+				
	<	<		704			<		<			<	
		<		PO 5		<	<		~			٤	
				P06 P									
				P07 P08			-						
				)8 PO 9			-						
											-		
				PO 10 PO 11 PO 12 Skill	$\parallel$						-		
>	<			PO 12	-		4		<		<		
Analyze	Apply	Analyze		Skill		Apply	Audiy26	Analyzo		Apply		Analyze	
No	N <sub>o</sub>	No	nip	Focus on Employability /		No	20	3		No		No	
MSTs, ESE, Class/Quiz Tests	MSTs, ESE, Class/Quiz Tests	MSTs, ESE, Class/Quiz Tests	Attainment of CO	Assessment Tools to Measure		MSTs, ESE, Class/Quiz	Tests	MSTs, ESE,	Tests	MSTs, ESE, Class/Quiz		Class/Quiz Tests	MSTs, ESE

My dawar

01	CO No.		CO4		Ω						T	
core		Î	0 -	0 =	CO3		C02	0		CO No.		CO4
core of Universal Human Values.	Universal Human Values- 2) Understand the	(HSMC-122-18:	signals and systems using Discrete-Time Fourier and Z-Transforms and simple Probability concepts.	Investigate discrete-time	Laplace Transforms to analyze continuous-time signals and systems.	Apply concepts	behavior of linear-shift invariant systems.	of signals and systems.	Mathematically characterize	Consumer to the second		different peripherals and devices.
	801		<		<		<	< 8	V		H	and
	PO 2		<	1	4	-				8		<
	တို့			1		+	4	<		PO 2		<
	PO 4		<	4		4				PO 3	$\coprod$	
	PO 5			1		-		<		PO 4		4
	P06			1						P05	4	
	P07					+				P0 6	H	
_	P O ®				-ball R	1				P07 P	H	
	PO 9									PO8		
	PO 10 PO 11				1.1					PO 9 PC	-	
	PO 11					-				010 PO	+	
۷ .	PO 12									PO 10 PO 11 PO	+	
Understand	Skill		Analyze		Apply		Analyze	Understand		12 Skill		Apply
No	Focus on Employability / Entrepreneurs hip		No		Z <sub>o</sub>		No	d No	Ti di	Focus on Employability /		Z o
MSTs, ESE,	Assessment Tools to Measure Attainment of CO		MSTs, ESE, Class/Quiz Tests		MSTs, ESE, Class/Quiz Tests	Tests	MSTs, ESE, Class/Quiz	MSTs, ESE, Class/Quiz	Attainment of CO		I GS IS	MSTs, ESE, Class/Quiz

AN DAME

CO2	CO1	CO No.	004	3	CO3
gain practical knowledge by visiting wildlife areas, environmental institutes and various personalities who have done practical work on various environmental Issues	Students will enable to understand environmental problems at local and national level through literature and general awareness	o. (EVS-101- 18:Environmen tal Sciences)			Harmony and Self Exploration. Understand the CO3 Basic Human
		P01			
		PO 2			
		PO 3			
		PO 4			
		PO 5			
4		PO 6			
	<	P0 7			
		PO 8	~	4	~
		PO 9			
		0 10			
2		PO 10 PO 11 PO 12			
	<u>د</u>	0 12	~	~	4
	Undertsand	Skill	Understand	Analyze	Understand
No P	No	Focus on Employability / Entrepreneurs		No	No O
MSTs, ESE, Class/Quiz Tests	MSTs, ESE, Class/Quiz Tests	Assessment Tools to Measure Attainment of	MST,s ESE, Class/Quiz Tests	MSTs, ESE, Class/Quiz Tests	MSTs, ESE, Class/Quiz Tests

The state of

CO3	CO2	001	CO No.		CO4		0
Understand characteristics & working of different types of Power amplifiers	frequency fresponse & working of various types of Oscillators	the characteristics of BJTs in circuits with proper understanding to their working.			5 = 0 0 0	Reflect critically	apply interdisciplinary approach to understand key environmental issues and critically analyze them to explore the possibilities to mitigate these problems
	<	<	Po		6	ň -	will ary sey like the sey like
<		<	P02				
			PO 3				
<			7				
<	<		PO 5				
			P006				
			P07 P08		4		4
			) 8 PO 9			4	
			PO 10 PO 11				
-	<		1 PO 12		۷.		
Understanding no	Understanding no		Skill	Analyse		Apply	_
			Focus on Employability / Entrepreneurs	No			8
Practical notebooks,	Practical notebooks,		Assessment Tools to Measure Attainment of		MSTs, ESE, Class/Quiz Tests		MSTs, ESE, Class/Quiz Tests
Practical notebooks,Internal viva,End sem external viva	Practical notebooks,Internal viva,End sem external viva						

JAK!

CO No.			0							
3053		$\perp$	C 03		C02		001	CONO		COA
18: Analog and Digital Communication)	(UC-BTEC-501-		generate waveforms and interface ADC and DAC using 8051	Programs to	stepper and DC motors using 8085 Microprocessor(	Programming for controlling	Understanding the architecture &functionalities of different building blocks of 8085 microprocessor.	0 = 7 =	(BTEC-412.40	Design working circuits of oscillators,emitter follower circuit and power amplifier
8			<	<			we'd		è	king
PO 2			<	<		-		P0 1		<
PO 3		$\parallel$		+		+	<	P0 2		<
P0.4			<	+		+		PO S		
P05		Η,				-		704		<
PO		H		<		<		Pos		<
P07		$\vdash$		+		+		P0 6		
P08				+		+		P07		
PO 9		1						Po 8		
		+				+		PO 9		
PO 10 PO 11 PO 12 Ski		+				-		PO 10 PO 11 PO 12		
Po		+				-		0 11		
Skiii		lmp		v in		C.		Ŏ ħ	<	
		Implementatio Yes		implementatio yes		Understanding yes		Skill	Implementatio Yes	
Focus on Employability / Entrepreneurs hip				yes		gyes		Focus on Employability / Entrepreneurs	tio Yes	
Assessment Tools to Measure Attainment of	dime	Practical notebooks,I		Practical notebooks,I		Practical notebooks,		Assessment Tools to Measure Attainment of	Practical noteboo	
		Practical notebooks,Internal viva,End sem external viva		Practical notebooks,Internal viva,End sem external viva		Practical notebooks,Internal viva,End sem external viva			Practical notebooks,Internal viva,End sem external viva	

The Comment

CO3		D				П	_																					
		CO2	CO 1	CO No.					004	3					C03					202	3		T			001		-
of digital filters for various applications	Design of different types	Get the response of an LSI system to	mathematically in continuous and discrete time and frequency domain	Signal Processing) Represent	(UC-BTEC-502		performance.	the bit error	schemes and	modulation	different digital	performance.	system	analyze their	system and	modulation	Investigate	noise.	presence of	system in		Analyze the	And Sulley	and bandwidth	schemes for		different analog	Analyze and
<	<		4	P01			<					<			_	_	1	<	_	011	-		-	\$ Q		g	2	Q
<	<		<	PO2			٧					V	-	-		-	+						<					
				PO 3													-	_				-	<					
				PO 4							1						+				_	+						
<			4	P05		-		Ħ			-	_	_				+				_	+	-			_		-
				P006							1					-	$\vdash$				_	<	_					
	-			P07							+				_		-				_	+	_					_
	-			PO 8																		$\vdash$					_	-
				PO 9																		_	-		_		_	-
				PO 10 PO 11 PO 12												1										_		-
				PO 11												1						_	1113	- 45-		_		
Ar	< _	<		PO 12		<					<				Ī	1		-					_					
ınalyze	Understand		Understand	Skii				Understand					Analyze					Circologo	Understand					0.100.00	Understand			
No	No		No	Focus on Employability / Entrepreneurs hip				No					No					200							N N			
MSTs, ESE, Class/Quiz	Class/Quiz Tests	MSTs, ESE,	MSTs, ESE, Class/Quiz Tests	Assessment Tools to Measure Attainment of			Tests	Class/Quiz	MCT ECE			Tests	Class/Quiz	MSTs, ESE,			i dolo	Tasts	MSIS, ESE,				1000	Tests	MSTs, ESE,			

ONE

No. I in the first stability system of control Control Solve I investigation of control Control System its steep behavior of control C	No. Integrated (St. Linear way) Circuits (St			004	CO3	002	C01	CO No.					C03		CO2		0		0	
Lithean By PO1 PO2 PO3 PO4 PO5 PO6 PO7 PO8 PO9 PO10 PO11 PO12 Skill Employability Improvements of some of an interest of an interest of a sing of and find the sing of an interest of a sing of and find the sing of and find the sing of a sing of a sing of and find the sing of a sing o	regrated PO1 PO2 PO3 PO4 PO5 PO6 PO7 PO8 PO9 PO10 PO11 PO12 Skill Employability Indensiand No Po12 Skill Employ		proble	Solve non-li	Desig	Inve stab		2 (0)			+	ap 10		. 0			0 7 7 7		CO No.	
PO1 PO2 PO3 PO4 PO5 PO6 PO7 PO8 PO9 PO10 PO11 PO12 Skill Endployability / Understand No	P01 P02 P03 P04 P05 P06 P07 P08 P09 P010 P011 P012 Skill Employability I Employability I I I I I I I I I I I I I I I I I I I		nal control ems	linear, inear and	rent tests gn various	ility of a	tem and find teady state	stems)	C-BTEC-504			plications	digital filters	esign of	SI system to	Set the	mathematical in continuous and discrete time and frequency tomain	Represent signals	18: Linear Integrated Circuits)	100012000
O1 PO2 PO3 PO4 PO5 PO6 PO7 PO8 PO9 PO10 PO11 PO12 Skill Employability / Understand No	O1 PO2 PO3 PO4 PO5 PO6 PO7 PO8 PO9 PO10 PO11 PO12 Skill Employability / Understand No	H	<	<	<	<		P01			1	<		-					7	203-
02 PO3 PO4 PO5 PO6 PO7 PO8 PO9 PO10 PO11 PO12 Skill Employability / Impressand No	O 2 PO 3 PO 4 PO 5 PO 6 PO 7 PO 8 PO 9 PO 10 PO 11 PO 12 Skill Entropreneurs in process on the process of the p		<	<	<	<					-			+		-				
O 3 PO 4 PO 5 PO 6 PO 7 PO 8 PO 9 PO 10 PO 12 Skill Entropressurs in Employability / Entropressurs in Entrop	PO4 PO5 PO6 PO7 PO8 PO9 PO10 PO11 PO12 Skill Entropreneurs Interpreneurs		<	<	<	<				+	+					-	4			
O4 PO5 PO6 PO7 PO8 PO9 PO10 PO11 PO12 Skill Employability / Understand No  V  Understand No  PO5 PO6 PO7 PO8 PO9 PO10 PO11 PO12 Skill Entrepreneurs hip Possesson Employability / Indeption No  O4  Analyze No  O5  Analyze No  O6  O6  O7  O7  O7  O7  O7  O7  O7  O7	O4 PO5 PO6 PO7 PO8 PO9 PO10 PO11 PO12 Skill Employability / Employability / Employability / Employability / Inderstand No  V Understand No  PO5 PO6 PO7 PO8 PO9 PO10 PO11 PO12 Skill Entrepreneurs Analyze No  PO5 PO6 PO7 PO8 PO9 PO10 PO11 PO12 Skill Entrepreneurs Analyze No  PO5 PO6 PO7 PO8 PO9 PO10 PO11 PO12 Skill Entrepreneurs Analyze No  OANALYZE NO  OA		<	4	4	<				+				+		-				
PO 8 PO 9 PO 10 PO 11 PO 12 Skill    Imployability   Imployabi	OS POG PO 7 PO 8 PO 9 PO 10 PO 11 PO 12 Skill  Understand No  Understand No  Understand No  POG PO 7 PO 8 PO 9 PO 10 PO 11 PO 12 Skill  POG PO 7 PO 8 PO 9 PO 10 PO 11 PO 12 Skill  Entrepreneurs  Analyze  No  Independent of the preneurs  No									H				+		-				
PO7 PO8 PO 9 PO 10 PO 11 PO 12 Skill  Understand No  Understand No  Analyze  No  Cit  Cit  Cit  Cit  Cit  Cit  Cit  Ci	PO7 PO8 PO 9 PO 10 PO 11 PO 12 Skill  Understand No  Understand No  PO7 PO8 PO 9 PO 10 PO 11 PO 12 Skill  Understand No  Analyze  Understand No  Analyze  Analyze  No  Understand No  City  Analyze  No  City  No  City  No  City  No  City  City  No  City							-		H	1			<		<			PO 5	
PO 8 PO 9 PO 10 PO 11 PO 12 Skill Employability / Entrepreneurs hip  Understand No  V  Understand No  Analyze  PO 8 PO 9 PO 10 PO 11 PO 12 Skill  Understand No  Analyze  Analyze  Analyze  No  The Entrepreneurs Analyze  Apply  No  The City on  Entrepreneurs Analyze  No  The City on  Entrepreneurs Analyze  No  The City on  The Cit	PO8 PO9 PO 10 PO 11 PO 12 Skill  Understand No  Understand No  V  Analyze  Analyze  No  Analyze  Apply  No  Analyze  No  A	1						6 PO		+	+			-		-				
PO 9 PO 10 PO 11 PO 12 Skill  Imployability / Employability / hip  Understand No  Understand No  PO 10 PO 11 PO 12 Skill  Implementation No  Imple	PO 9 PO 10 PO 11 PO 12 Skill    Understand   No   Employability							8		1	+					+				
O 9 PO 10 PO 12 Skill    Cocus on Employability / Entrepreneurs hip PO 10 PO 11 PO 12 Skill   Cocus on hip PO 10 PO 11 PO 12 Skill   Cocus on Employability / Manalyze   No   Cocus on Employability / Manalyze   No   Cocus on Televisiand   No   Cocus on Te	O 9 PO 10 PO 12 Skill    Cocus on Employability / Entrepreneurs hip PO 10 PO 11 PO 12 Skill   Cocus on hip   Cocus on Employability / Inderstand   No   Inde										-					+				
Temployability / Entrepreneurs hip  Understand No  Understand No  Understand No  Analyze  Analyze  Apply  Apply  Apply  Analyze  No  Temployability / Entrepreneurs Analyze  No  Temployability /	HO 12 Skill  Understand  Understand  V  Understand  V  Analyze  Analyze  V  Analyze  No  Analyze  No  Tell  No  Tell									+						-				
Temployability / Entrepreneurs hip  Understand No  Understand No  Understand No  Analyze  Analyze  Apply  Apply  Apply  Analyze  No  Temployability / Entrepreneurs Analyze  No  Temployability /	PO 12 Skill  Understand No  Understand No  Understand No  PO 12 Skill  Analyze  Analyze  Analyze  Apply  Analyze  No  Tell  MS  Cla  Tell  MS  Cla  Tell  MS  Cla  Tell							PO		+									010	-
Understand No  Understand No  Understand No  Understand No  Analyze No  Focus on Employability J Independents Analyze No	Understand No  Understand No  Understand No  Understand No  Analyze No  Focus on Employability / Independents on Employability / Independents on Independents on Independents on Independent of Independe	4								+			+						90 11 P	-
Focus on Employability / Entrepreneurs hip Pocus on Employability / Entrepreneurs hip Pocus on Employability / Entrepreneurs hip Pocus on Employability / Entrepreneurs Augustiand No Citation C	Focus on Employability / Entrepreneurs hip Procus on Employability / Entrepreneurs hip Procus on Employability / Indiana No Televisia American Mississippi (Cital Mis		Apply	Analy	Analy	C	Da l	SKII				Ana	-		5	<	C		0 12 8	
Focus on Employability / Entrepreneurs hip No No No Cit	Focus on Employability / Entrepreneurs hip No No No Tentre Preneurs And No Cital No			Ze	Ze	Sistand	retan.					alyze			derstand		nderstar		Ĕ	
			No	No	No	Z		hip Focu				N <sub>o</sub>						=	ע פי פ	
		T	0.8	103	3 HO2													b	cus on nployability /	
		ests	ISTs, ESE, lass/Quiz	lass/Quiz ests	ASTS, ESE, lass/Quiz ests	Class/Quiz Fests	ASTS, ESE,	Assessment Tools to Measure Attainment of			Tests	Class/Quiz		Tests	MSTs, ESE,		MSTs, ESE, Class/Quiz Tests			
				ontrol V V V V A Apply No	ontrol v v v v Analyze No	tests v v v v v Analyze No arious v v v v v Analyze No	ate ate string loof a sing loof a loo	and find wy state wy vy vy vy vy vy vy vy state wy vy state wy state wy state of a sing tests vy vy vy vy wy	nes)  PO 1 PO 2 PO 3 PO 4 PO 5 PO 6 PO 7 PO 8 PO 9 PO 10 PO 11 PO 12 Skill  Focus on Employability / Entrepreneurs in processor of a sing tests  V V V V V V V V A Po 9 PO 10 PO 11 PO 12 Skill  Inip  Focus on Employability / Entrepreneurs in processor of a sing tests  V V V V V V A Po 9 PO 10 PO 11 PO 12 Skill  Focus on Employability / Emtrepreneurs in processor of a point	ntrol PO 1 PO 2 PO 3 PO 4 PO 5 PO 6 PO 7 PO 8 PO 9 PO 10 PO 11 PO 12 Skill Employability / Entrepreneurs and find by state ur v v v v v v v v v v v v v v v v v v	TIEC-504- Introl  PO 1  PO 2  PO 3  PO 4  PO 5  PO 6  PO 7  PO 8  PO 9  PO 10  PO 11  PO 12  Skill  Focus on Employability / Entrepreneurs hip  Focus on Employability / Entrepreneurs hip  Focus on Employability / Entrepreneurs hip  Analyze  No  Po 1  Po 1  Po 12  Analyze  No  Po 15  Po 15  Po 16  Po 17  Po 17  Po 17  Po 18  Po 19  Po 10  Po 17  Po 17  Po 18  Po 19  Po 10  Po 17  Po 17  Po 18  Po 19  Po 10  Po 17  Po 17  Po 18  Po 19  Po 10  Po 17  Po 18  Po 19  Po 10  Po 17  Po 17  Po 18  Po 19  Po 10  Po 17  Po 17  Po 18  Po 19  Po 10  Po 17  Po 18  Po 19  Po 10  Po 17  Po 17  Po 18  Po 19  Po 10  Po 17  Po 17  Po 18  Po 19  Po 10  Po 17  Po 18  Po 19  Po 10  Po 17  Po 17  Po 17  Po 17  Po 18  Po 19  Po 10  Po 17  Po 17  Po 17  Po 17  Po 17  Po 18  Po 19  Po 10  Po 17  Po 18  Po 19  Po 10  Po 17  Po 18  Po 18  Po 19  Po 10  Po 17  Po 17	TTEC-504- Ins)  PO 1 PO 2 PO 3 PO 4 PO 5 PO 6 PO 7 PO 8 PO 9 PO 10 PO 11 PO 12 Skill Entrepreneurs and find by state or far and sing sar, rand on for a par.  To	ations V V V Analyze No and find strice a sar, rand on finds  V V V V V V V V V V V V V V V V V V V	antitions v v v v v v v v v v v v v v v v v v v	and finds  Iffec-sod  Ital filters rious  Analyze  No  Iffec-sod  Ital filters rious  All v  Analyze  No  Iffec-sod  Ital filters rious  All v  Analyze  Iffec-sod  Ital filters rious  Ital filters  Ital filters rious  Ital filters rious  Ital filters  Ital filters rious  Ital filters  It	ent signals v v v v v v v v v v v v v v v v v v v	ine of an ont signals v v v v v v v v v v v v v v v v v v v	discrete and find by state or or and discrete and find or stand and find or	International plants and manufacture in the manufac	grated PO1 PO2 PO3 PO4 PO5 PO6 PO7 PO8 PO10 PO11 PO12 Skill Employability in Employability

A Company

Charle !

001	CO No.					
0 =: 5 0 0		S it a		8	3	CO No.
define basics of Satellite communication, understand the complete link design along with and the interference effects on it	(UC-BTEC. 901C-18: Satellite Communication)	about the fundamentals of Special motors	principle, construction and applications of AC motors	principle, construction and applications of DC motors  Explain the	conversion  Explain the working	
	P0 1	<		ā	<	PO 1
<	PO 2	4		<		
	PO <sub>3</sub>					PO 2 PI
	804	<	<			PO 3 PC
	PO 5	<		<	<	PO 4 PO 5
	P0 6					75 PO 6
	PO 7					)6 PO7
	PO 8					7 P08
	PO 9					8 PO 9
	PO 10 PO 11 PO 12 S					
	11 P					PO 19 PO 11 PO 12 Skill
Unx	O 12 Sk	>				PO 12
Understand	KII	Apply	Analyze	Apply	Analyze	Skill
No	Focus on Employability / Entrepreneurs	No.	No	Z	N <sub>o</sub>	Focus on Employability / Entrepreneurs hip
MSTs, ESE, Class/Quiz Tests	Assessment Tools to Measure Attainment of	MSTs, ESE, Class/Quiz Tests	MSTs, ESE, Class/Quiz Tests	MSTs, ESE, Class/Quiz Tests	MSTs, ESE, Class/Quiz Tests	Assessment Tools to Measure Attainment of CO

AL AND

	3	3	03		C02		C	3	CO No.				0				T		_
r	con	Learn	A II II II	a A									CO4		03			CO2	
	ase	Learn about	Inheritance, Interface, Applets	Ability to learn	of operators and control statements	Demonstrate	concepts and basics of JAVA	Apply the	901F-18: JAVA Programming)	(UC-BTEC		and CATV system.	laser satellite	Have knowledge of	communication satellites.	Understand the	multiple access techniques	and demand assignment	various fixed
	<	4		1			<		PO 1		1	<			×		\ <		-
		+		-	4		۷ .		PO <sub>2</sub>						<		<		
		+		1					PO 3					+		+	_		_
		-		+					PO 4					1		+		_	
	<	+		<		<			PO 5		<			<		4			_
		+		+		1			P06										
		+		$\vdash$		-			807					1		1			
		-		_		-			Po <sub>8</sub>										-
		-							PO 9			h							
-									PO 10 PO 11 PO 12										
									0 11 P										
	Apply		An		A		A		0 12 S										
			Analyze		Apply		Analyze		SKIII			Apply			Analyze		Allalyze	Anaka	
	No		N <sub>o</sub>		No		No	hip	Focus on Employability /			No			No		NO	5	
	MSTs, ESE, Class/Quiz Tests	Tests	MSTs, ESE, Class/Quiz		MSTs, ESE, Class/Quiz Tests	Tests	MSTs, ESE, Class/Quiz	Attainment of CO	Assessment Tools to Measure		1000	Class/Quiz	101	lests	MSTs, ESE, Class/Quiz		Class/Quiz Tests	MSTs, ESE,	

The Other

C02	001	CO No.			CO <sub>4</sub>				COS		T	C02		CO1	00
Configuring Audio Codec of C6xxx Boards	MATLAB program to generate standard sequences and various signals	18: Digital Signal Processing Laboratory)	(UC-BTEC-512-	simulation packages.	using MATLAB (SIMULINK)/ communication	simulation & error estimation	Digital link	and QAM.		Investigate the output	systems	2 compare noise in AM and FM	AM, FM, PCM		CO No. Digital Communication Laboratory)
<	<	801		<				<			<		<	S	0 5 7
<	<	PO <sub>2</sub>						<			4		<b>4</b>		P0 1 P0
		PO 3													PO 2 PO 3
	٤	PO 4		<							<		<u> </u>		)3 PO 4
-		PO 5		<							<	-			4 PO 5
		P0 6 P0 7	$\mathbb{H}$												5 PO 6
		)7 P08	+				+								6 PO 7
		8 PO 9	+				-					1			PO 8
		9 PO 10	+				+			-					PO 9
		0 PO 11	$\parallel$				-					-			0 5
<		1 PO 12	<							+					PO 10 PO 11 PO
implementatio no		Skill	Implementatio yes				v implementatio yes			Understanding no		Understanding			0 12 Skill
		Focus on Employability / Entrepreneurs	yes				o yes			ng no		ng no			Focus on Employability / Entrepreneurs
Practical notebooks,I		Assessment Tools to Measure Attainment of CO	Practical notebooks,				Practical notebooks			Practical notebooks		Practical notebooks			Assessment Tools to Measure Attainment of
Practical notebooks,Internal viva,End sem external viva			Practical notebooks,Internal viva,End sem external viva				Practical notebooks,Internal viva,End sem external viva			Practical notebooks, Internal viva, End sem external viva		Practical notebooks,Internal viva,End sem external viva			

The Carry

8	CO No.			CO4	6	3		CO2	1	001		CO No.			T	0		
the basic elements of Cellular Ra Systems a its design	-	6	Pha	Op Ex	15.0		an		0 1		) (0					CO4		CO3
the basic elements of Cellular Radio Systems and its design	Communication)	(UC-BTEC-601-	Phase lock loop	Examine the operation of a	Design various applications using Op-Amps		an OP-Amp	performance	Determine the	of Differential	Study the	Integrated Circuits Laboratory)	(UC-BTEC-513		Reverberation	Implementation of Audio Delay Line, Echo and Audio		programs to verify convolution and design FIR & IIR filters.
<	PO 1						<		<		1	PO 1	4	+	-	<u>a</u> & g		<del>2</del>
<	P0 2						<		+		1			H	4			<
	PO 3		<				_		~			PO 2			<		<	Ł
<	P0 4		<		<	+	_		-			PO <sub>3</sub> P						
<	PO 5		<	+	4	+			<		-	P0 4		-	4		<	
	P0 6					<		-	<			Pos		<			<	
	P07					+	_	+				P06 F						
	P0 8			+		+		+				P07 P		1				
	PO 9			<		+						PO 8		-				
				+		+		_	-			P0 9 P		<				
	Po			+		-						0 10						
	PO 10 PO 11 PO 12 SI			+			-	+				P0 10 PO 11 PO 12						
Analyze	2 Skiii		<b>√</b> Und	V Imp		Un		V Ur				0 12 S		۷ =			<	
yze			Understanding no	Implementatio yes		Understanding		Understanding no				Ski		Implementatio Yes			implementatio yes	
No	Focus on Employat Entrepren		no	io yes		ng no		ng no			hip	Foc		atio Yes			tatio yes	
	neurs											Focus on Employability /						
MSTs, ESE, Class/Quiz Tests	Assessment Tools to Measure Attainment of CO		Practical notebooks	Practical notebooks		Practical notebooks		Practical notebook		8	Attainment of	Assessment Tools to Measure		Practical notebook			Practical notebool	
			Practical notebooks,Internal viva,End sem external viva	Practical notebooks,Internal viva,End sem external viva		Practical notebooks,Internal viva,End sem external viva		Practical notebooks,Internal viva,End sem external viva						Practical notebooks,Internal viva,End sem external viva			Practical notebooks, Internal viva, End sem external viva	

7

CARY

0								
CO3 pr	CO2	00			004	003		C02
network programming for a given problem related TCP/IP protocol	function of each block of wide- area networks (WANS), local area networks (LANS) and Wireless LANS (WLANS)	functions of the different layer of the OSI Protoco Describe the	Computer Networks)	(BTCS-504-18:	standards and	Multiple Access techniques for Wireless communication Know about	Understand	
			PO 1		<	4	<	
			P02		<	<	V	
			PO <sub>3</sub>				+	
			PO 4		<	<	<	
			PO 5		4	<	<	
			PO 6					
			P07 P08					
			)8 PO9					
			THE REAL PROPERTY AND ADDRESS OF THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS				_	
			PO 10 PO 11 PO 12					
			PO 1		<	<		
Implement	Analyze	Understand	Skill		Apply	Analyze	<	Apply
No.	No	No	Focus on Employability / Entrepreneurs		No	N <sub>0</sub>		No
MSTs, ESE, Class/Quiz Tests	MSTs, ESE, Class/Quiz Tests	MSTs, ESE, Class/Quiz Tests	Assessment Tools to Measure Attainment of CO		MSTs, ESE, Class/Quiz Tests	MSTs, ESE, Class/Quiz Tests		MSTs, ESE, Class/Quiz

The state of the s

	0						
	CO4 S S S S S S S S S S S S S S S S S S S	C <sub>3</sub>	CO <sub>2</sub>	8	CO No.		CO4
	rations optic and and s	Optical sources and detectors and to discuss their principle. Familiar with Design	channel impairments like losses and dispersion and analyze various coupling losses.	structures of Optical fiber and types.		(UC-BTEC-602	Learn about DNS DDNS, TELNET, EMAIL, File Transfer Protocol (FTP), WWW, HTTP, SNMP, Bluetooth, Firewalls using open source available software and tools.
-	<	<	<	<	70		<u>8</u> %
+	<	<	<	<	P02		
+	<				PO <sub>3</sub>		
-	<				PO 4		
-		<		<	POS		
-					PO 6		
					P0 7		
					PO &		
					PO <sub>9</sub>		
I					0 10 P		
	<	< .	<		PO 10 PO 11 PO 12		
	Unde	Analyze		√ Un	) 12 Skill		
	Understand	yze	Understand	Understand	<b>=</b>	Circeistalla	De cettado
	No	No	No	No	Focus on Employability / Entrepreneurs	No	
	MSTs, ESE, Class/Quiz Tests	MSTs, ESE, Class/Quiz Tests	MSTs, ESE, Class/Quiz Tests	MSTs, ESE, Class/Quiz Tests	Assessment Tools to Measure Attainment of CO		MSTs, ESE, Class/Quiz Tests

CAR!

CO No. Power Electronics)		Aperture	Arrays and	CO4 Antenna	conce	important	Desc	Ante		co3 basi	Exp	Ga	that	mea	Mic	CO2 and	Mik	im	val	Qe	Sc	<b>X</b>	T	CO1 M		o o	4		ID. A
TEC- 8:		lie d	s and	ina	concepts of	rtant	Describe the	Antennas and	and types of	basic concepts	Explain the	Carried out	that can be	measurements	Microwave	and the	Microwave	important	various	devices.	Solid-state	Microwave	Tubes and	Microwave	of various	and operation	the working	Understand	Engineering)
PO 1		<					4					~								<						_		+	
PO 2		<										V									-	-	_	_			_		
PO 3		<													-		-			<							-		2
PO 4		٧					<					<									_				_				PO 23
PO 5		<				1									_				4	<_									PO 4
PO 6	1					+					-	<							1	۷									POS
P0 7	$\prod$					+					+		_				_		+	_									PO 6
P08						1					+				-			_	+										P07
PO 9						+					+			_	_			_	+								1		PO 8
PO 10				_		+					+			_					-										PO 9
PO 1	+					+				un's	+						-		+										PO 10
PO 9 PO 10 PO 11 PO 12 Skill	2										+		-						-										PO 10 PO 11 PO 12 Skill
2 Skill	-		Apply					Ana			+				A				<			1	>						0 12
			₹					Analyze							Apply							Analyze	i						SKII
Focus on Lamployability / REntrepreneurs			No					No							No.							No						hip	Employability /
Assessment Tools to Measure Attainment of		Tests	MSTs, ESE, Class/Quiz				lests	Class/Quiz	MSTs, ESE,					Tests	Class/Oniz	101					lesis	Class/Quiz	MSTS, ESE,				CO	Attainment of	Tools to Measure

A THAT

0	8							
CO1	CO No.		004		co co		C02	CO1
principles of mobile ad hoc networks, and their models.	Mobile ADHOC nETWORKS)  Understand the	(UC-BTEC.	converters and their control scheme.	Simulate power	principle and construct a various types of DC-DC converters	Illustrate the	Demonstrate and build a various single phase AC-DC power converter circuits and understand their applications	Attain the ability and to handle the concept of construction and characteristics of Power semiconductor devices and fundamental of thyristors and family
<	PO 1		<		<		ë. er	of of of
<	P0 2		<	1	4	1		
	P03					1		<
<	PO 4		<			<	7.1.7.1.1	<
<	POS			4		<		<
	PO 6			1		+		
	PO 7			+		+		
	P0 8					+		
	PO 9							
	PO 10					-		
	PO 11					-		
	PO 10 PO 11 PO 12 Skill		<	4				
Analyze	Ski		Apply		Analyze		Арру	Analyze
No	Focus on Employability / Entrepreneurs hip		No		Z <sub>o</sub>		No No	N <sub>o</sub>
MSTs, ESE, Class/Quiz Tests	Assessment Tools to Measure Attainment of		MSTs, ESE, Class/Quiz Tests		MSTs, ESE, Class/Quiz Tests		MSTs, ESE, Class/Quiz Tests	MSTs, ESE, Class/Quiz Tests

A DAM

8							
CO No.		CO <sub>4</sub> CO <sub>3</sub>	CO2	8	CO No.		CO2
18: Optical Fibres and Communicatio n Laboratory)	UC-BTEC-844	Fuzzy logic principles and will be able to determine different methods of Defuzzification	foundations of neural network models Have a broad knowledge in	generic machine learning terminology	(UC-BTEC- 902E-18: Artificial Neural Networks)	security mobile networks.	Understan and develo information disseminat protocols fe mobile adh networks Analyze challenges designing,
P0 1		<	× 4,	0 0	<u>a</u>	adhoc	the oc
P0 2		<	<			<	<
PO 3		<	4	<	P0 2	<	<
P0 4		<	<	<	PO <sub>3</sub>		
PO 5		<	4		PO 4 PO		<
PO 6				<	PO 5 Pa	<	<
P07					PO 6 PO 7		
, PO &			I PHE		07 PO 8		
PO 9					8 09		
Po 16							
PO 11					10 PO		
PO 10 PO 11 PO 12 Skill					PO 10 PO 11 PO 12		
SKI		Analyze	Apply	Analyze	12 Skill	Analyze	Apply
Focus on Employability / Entrepreneurs hip		N <sub>o</sub>	No	No	Focus on Employability / Entrepreneurs	N <sub>O</sub>	No
Assessment Tools to Measure Attainment of CO		MSTs, ESE, Class/Quiz Tests	MSTs, ESE, Class/Quiz Tests	MSTs, ESE, Class/Quiz Tests	Assessment Tools to Measure Attainment of	MSTs, ESE, Class/Quiz Tests	MSTs, ESE, Class/Quiz Tests

To the second se

CO2	01	CO No.			CO5			CO4			COS	}			202	3				001	
Measure common parameters related to Microwave Oscillator(s).	Learn about general Microwave components and Microwave bench	18: Microwave and Antenna Engineering Laboratory)	(UC-BTEC-619	sysytem	optical fiber	Design various applications of	in optical fibres	Study different types of losses	optical tibres	techniques of	slicing and	methods of	with the	light detectors		types of optical	Smulator.	factor using	BER and Q		communication
	<	PO 1					<		V				Š	4		<u>n</u> w	+		its		9
< .	<	PO 2		<		1	_		<								<				
		P <sub>0</sub> 3				+							+	<	_		<				
<		P O A		<		<			٧				1.	_		+	_	_			
< <		P0 5		<		<			<				-			+	<		_		
		PO 6					Ī						+			1	< —	_			
		P07 P08											$\dagger$			+	_				-
																1					
		PO 9 PC																			
		PO 10 PO 11	+																		
		11 Po	+					+													
Unde		PO 12 Skill	lmp			√ Un		V Im					<b>ا</b>			۷ اا					
Understanding no			Implementatio yes			Inderstanding no		Implementatio yes					Understanding			Implementatio no					
		Focus on Employability / Entrepreneurs	tio yes			ing no		atio yes					ding no			tatio no					
Practical notebooks, I	8	Assessment Tools to Measure Attainment of	Practical notebooks,			Practical notebooks,		Practical notebooks					Practical notehooks			Practical notebooks					
Practical notebooks,Internal viva,End sem external viva			Practical notebooks,Internal viva,End sem external viva			Practical notebooks,Internal viva,End sem external viva		Practical notebooks,Internal viva,End sem external viva					Practical notebooks Internal viva End sem external viva			Practical notebooks, Internal viva, End sem external viva					

A Char

	004	CO3	CO2	001	CO No.	CO4	CO3
	Preparing a Written Report on the Study conducted for presentation to the Department	preliminary Analysis/Model ling/Simulation/ Experiment/De sign/Feasibility	Working out a preliminary Approach to the Problem relating to the assigned topic	onderstand the Survey and study of published literature on the assigned topic	(UC-BTEC-631- 18: Project-l)	Measure and plot radiation patterns of various types of Antennas	Determine frequency and wavelength of waveguides.
	<	۷	<	<	PO 1		<
	<	۷	<	<	PO 2	<	
					PO <sub>3</sub>		
	<	<	<	<	Po 4	۷	<
	<	<	<	<	P0 5		<
					PO 6		
+					P07		
					PO 8		
	<	<	<	<	8		
					PO 10 PO 11 PO 12 Skil		
					PO 11		
	<		<	<	0 12	<	4
	Implementatio yes	Implementatio Yes	Understanding Yes	Understanding Yes	<b>8</b>	Implementatio yes	Implementatio ves
	yes	Yes	Yes	Yes	Focus on Employability / Entrepreneurs	yes	Ves
	Practical notebooks	Practical notebooks	Practical notebooks	Practical notebook	Assessment Tools to Measure Attainment of	Practical notebook	Practical notebook
	Practical notebooks,Internal viva,End sem external viva	Practical notebooks,Internal viva,End sem external viva	Practical notebooks.Internal viva.End sem external viva	Practical notebooks,Internal viva.End sem external viva		Practical notebooks, Internal viva, End sem external viva	Practical notehooks internal viva End som external viva

A OFFI

8	CO No.	CO <sub>4</sub>	CO3	CO2	CO <sub>1</sub>	CO No
Ability to understand basic concept of robotics.	(BTEC-907C- 18: Robotics and Embedded systems)	Conceptual knowledge will help students to build IOT applications	appropriate hardware and software components for IoT applications	Identify issues and design challenges in IoT applications.	Understanding concept of cloud analyze tradeoff between deploying application on cloud anifrastructure	(b) Internet of Things (IOT) & Cloud Computing)
<	PO 1	<	<	<	<	P 01
٧	PO 2	<	<	4	<	PO 2
	PO 3					PO 3
۷ .	PO 4	٧	<	4	<	P 0 4
<	P0 5	4	<	<	<	P 0 5
	PO 6					Pos
	207					P07
	P0 8					P07 P08
	PO 9					PO9
	PO 10 PO 11 PO 12 Skill					PO 9 PO 10 PO 11 PO 12 Skill
	PO 11					PO 11
	00 12 1	<	<	<	<	PO 12
Understand	SKIII	Apply	Analyze	Understand	Understand	Skill
N <sub>o</sub>	Focus on Employability / Entrepreneurs hip	yes	No	No	No	Employability / Entrepreneurs
MSTs, ESE, Class/Quiz Tests	Assessment Tools to Measure Attainment of CO	MSTs, ESE, Class/Quiz Tests	MSTs, ESE, Class/Quiz Tests	MSTs, ESE, Class/Quiz Tests	MSTs, ESE Class/Quiz Tests	Assessment Tools to Neasure Attainment of

A CAR

7	hip Measure Attainment of
Focus or Employa	Focus on Employability /
Describe No	
Learn No	
Understand No	
Understand No	N <sub>o</sub>
PO 9 PO 10 PO 11 PO 12 Skill Entrepre	
Apply Yes	
Analyze No	
Analyze No	

) Desc

CO No.			004	3							CO3					T				-		C					_				_	-
	2	· c			п	3	0)	10	<	0		_		_								CO2					1			CO	Ś	
(BTMC-101-18: Indian Constitution)	MCUS	upon connected	concepts based	Networking	Understand	real world	actuators in	sensors and	with external	communicate	to	microcontroller	by	protocols used	implement the	Reviews and	considerations.		-	sensors while	8	as well as	<u></u>	concepts to	interfacing	hardware	Understand	S	microcontroller	32-bit	nitect	the basic
8						V										1	<			10							12	<	_		Th.	<u>∩</u> ∓
PO 2	<									Ī			Ī	Ī		1												<				
PO 3													Ī		Ī	1			Ī													
P0 4						4										4	4	Ī										<				
POS	<															4	4		Ī	Ī				į				~				
PO 6										Ī						T																
PO 7									ì							T				Ī						-						
PO 8																T			Ī													
PO 9													Ī																			
PO 10									Ī	Ī												T					1					
PO 11													Ì			T											1					
PO 10 PO 11 PO 12 Skill						۷													Ī									<				
Skill			Understand							Gulamana	Doviowoino										Understand									Learning		
Focus on Employability / Entrepreneurs hip			No							NO	N										No									No		
Assessment Tools to Measure Attainment of CO		Tests	Class/Quiz	MSTs ESE					lesis	Class/Quiz	MSTs, ESE,									Idala	Class/Quiz	MSTs, ESE,							Tests	Class/Quiz	MSTs ESE	

A A

JAR.

CO No.	Ω	0		-
	CO <sub>4</sub>	CO <sub>3</sub>	CO <sub>2</sub>	201
CO Statements (BTMC-102-18: Essence of Indian Traditional Knowledge)	The Course will also helpful in prepration of Competitive exams National wide and state level, like IAS, IPS and others.	Examine the Forms of government, Parliamentary form of Govt. & Presidential Form of Govt, powers and position of President and Prime Minister.	Understand the Rights and Duties of Citizens, Fundmantal Rights and Human Rights.	Understand the Philosophy of Indian constitution, like Sovereignty, Secular, Republic, Socialist and Democracy.
PO				
РО-ь				
PO-c				
РО-М				
<b>P</b> 0.				
PO-f				
PO-f PO-g PO-h				
РО-ћ	4	~	4	~
PO				
Poy				
PO-K				
PO-I	4	۷.	4	4
Learning Lev	Understand	Analyze	Understand	Understand
Focus on Employability / Entrepreneurs		No	No	5
Assessment Tools to Measure Attainment of	MST,s ESE. Class/Quiz Tests	MSTs, ESE, Class/Quiz Tests	MSTs, ESE, Class/Quiz Tests	MSTs, ESE, Class/Quiz Tests

The state of the s

CO3 CO No. 002 202 004 COS CO2 8 its applications filter and study response (FIR) impulse of finite basic concepts about the knowledge Attain in-depth its applications response (IIR) filter and study Learn of signal Infinite impulse signal analysis various bioprocessing for fundamentals Understand Signal Processing) 18: Bio Medical different eras. scientists of contrubtion of Culture, Society Tradition. Linguistic areas of Indian and Religion. (BTEC-909E-Know the Examine the Structure. Ancient India Understand the its Basic Indian Knowledge Philosophy of system and and Understand the < PO 1 < PO 2 4 PO3 PO 4 < < < PO 5 < ۷ PO 6 PO 7 P08 1 2 4 PO 9 PO 10 PO 11 PO 12 SKIII 2 4 Understand Learning Understand Analyze Understand Understand Understand No No Focus on Employability / Entrepreneurs hip No No N O S MSTs, ESE, Class/Quiz Tests MSTs, ESE, Class/Quiz Tests Attainment of CO Tools to MST,s ESE, Class/Quiz MSTs, ESE, Class/Quiz Tests Class/Quiz MSTs, ESE, Measure MSTs, ESE, Class/Quiz Tests Assessment MSTs, ESE, Class/Quiz Tests Tests Tests

C Char

	T					
	04	CO	CO <sub>2</sub>	0	CO No.	80
	To understand the concept of radiating systems on environment	To understand the concept of various wave propagation techniques	To analyse the radiation pattern of antenna arrays.	To understand the basic concepts of radiation	(BTEC-907B- 18: Antenna Radiating Systems)	Apply different methods of signal processing techniques in analyzing the various biosignals such as Electro cardiogram (ECG), Electro myogram (EMG) and Phonocardiogram am (PCG)
	<		<	ح	PO 1	<
	<		<	ح	PO 2	
					PO 3	
	<			٧	PO 4	<
	<			4	P0 5	
Ш					PO 6	
H					P07	
		150			P0 8	
					PO9	
1					PO 10 PO 11 PO 12 Skill	
					PO 11	
	<			<	PO 12	<
\	Understand	Understand	Analyze	Understand	Skill	Apply
,	No	No	No	No	Focus on Employability / Entrepreneurs	No
	MSTs, ESE, Class/Quiz Tests	MSTs, ESE, Class/Quiz Tests	MSTs, ESE. Class/Quiz Tests	MSTs, ESE, Class/Quiz Tests	Assessment Tools to Measure Attainment of	MSTs, ESE, Class/Quiz Tests

A COMAC

CO3	C02	001	CO No.		CO3	002	. 001	CO No.
networks methods, operation and parameters	Explain about various types of Artificial Neural Networks & their models	Learn about the basic understanding of Artificial Intelligent system	(BTEC-908A- 18: Artificial Intelligence)		Analyze mobile communication systems for improved performance	relation between the user features and underlying technology	working principles of the mobile communication systems	
<	4	<	PO 1		ح	<	ح	P0 1
<	۷	۷	PO 2		<		<	PO2
3 11 11			PO 3					PO 3
<	<	۷	5		<		۷	PO 4
۷	<	<	PO5		<	4	<	PO 5
			PO 6					POS
			P07					P07
			80					P0 8
			PO9					PO 9
			PO 10					PO 10
			PO 11					801
			PO 10 PO 11 PO 12 S					PO 10 PO 11 PO 12 Skill
Describe	Explain	Learning	Skill		Analyze	Understand	Understand	Skill
N <sub>o</sub>	N <sub>O</sub>	N <sub>O</sub>	Focus on Employability / Entrepreneurs hip		N <sub>0</sub>	No	No	Focus on Employability / Entrepreneurs hip
MSTs, ESE, Class/Quiz Tests	MSTs, ESE, Class/Quiz Tests	MSTs, ESE, Class/Quiz Tests	Assessment Tools to Measure Attainment of CO		MSTs, ESE, Class/Quiz Tests	MSTs, ESE, Class/Quiz Tests	MSTs, ESE, Class/Quiz Tests	Assessment Tools to Measure Attainment of CO

All others

		-					_		5
9	CO No.		CO4	CO3	CO2	601	CO No.		CO4
To learn the difference between optimal reasoning Vs human like	(BTEC-909B- 18: Information Theory and Coding)		Apply coding techniques	Calculation of channel capacity	Understand Shannon's theorem for coding	Understand the concept of information and entropy	(BTEC-909D- 18: Artificial Intelligence and Machine Learning)		explore Neural Network MATLAB Toolbox
4	PO 1		<			٧	PO 1	75 F	<
4	PO 2		۷			<	PO 2		<
	РО 3						PO 3		
<	PO 4				<	<	PO 4		<
<	PO 5		ح		ح	۷	PO 5		۷
	P0 6						P 0 6		
	P0 7						P0 6 P0 7 P0 8		
	P08						PO 8		
	PO 9						PO 9		
	PO 10						PO 10		
	PO 11						PO 11		
<	PO 9 PO 10 PO 11 PO 12 S						PO 9 PO 10 PO 11 PO 12 Skill		
Learning	SKII		Apply	Calculate	Understand	Understand	SKII		Explore
N <sub>0</sub>	Focus on Employability / Entrepreneurs		No	No	Z	Z <sub>o</sub>	Focus on Employability / Entrepreneurs		N <sub>o</sub>
MSTs, ESE, Class/Quiz Tests	Assessment Tools to Measure Attainment of CO		MSTs, ESE, Class/Quiz Tests	MSTs, ESE, Class/Quiz Tests	MSTs, ESE, Class/Quiz Tests	MSTs, ESE, Class/Quiz Tests	Assessment Tools to Measure Attainment of		MSTs, ESE, Class/Quiz Tests

Charles of the Control of the Contro

CO2	CO1	CO No.	CO <sub>4</sub>	CO3	CO2
Develop Python programs with conditionals and loops.	Read and write simple Python programs.	(BTEC-907D- 18: Python Programmimg)	To understand the applications of AI namely, Game Playing, Theorem Proving, Expert Systems, Machine Learning and Natural Language Processing	To learn different knowledge representation techniques	the notions of state space representation, exhaustive search, heuristic search along with the time and space complexities
۷.	<	8	<		<
<	٧	PO 2		<	<
		PO 3			
<	<	PO 4	۷ .	<	۷
<	ح	PO 5	<	<	<
		PO 6			
		P0 7 P			
		P0 8			
		PO 9 PO			
		PO 10 PO 11 PO 12 S			
4	<	1 PO 12	< -	۷ .	<
Develop	Apply	Skii	Understand	Learning	Understand
N <sub>O</sub>	No	Focus on Employability / Entrepreneurs hip	No	No	No
MSTs, ESE, Class/Quiz Tests	MSTs, ESE, Class/Quiz Tests	Assessment Tools to Measure Attainment of CO	MSTs, ESE. Class/Quiz Tests	MSTs, ESE, Class/Quiz Tests	MSTs, ESE, Class/Quiz Tests

The state of the s

CO3 CO No. 02 8 CO5 CQ4 င္ပင္သ systems. requirement. Understand processing the signal and design of the modeling mathematical treatment for (BTEC-907E-18: Adaptive Python. 'adaptability represent the Mathematically situation real-time with respect to control changing the significance of control and the parameters need and the non-linear Processing) Signal sorting and Understand merging in Searching, files in Python. data operations with input/output Perform dictionaries. structures-lists to use Python Define Python functions and Execute tuples, 4 PO 1 < < < 4 4 PO 2 4 < < 4 < PO3 < ح PO 4 < 4 < < PO 5 < 4 < PO 6 PO 7 PO 8 PO 9 PO 10 PO 11 PO 12 Skill < < 4 Apply Analyze Understand Perform Excecute Learning No. S O Yes hip Employability / No Entrepreneurs Focus on No MSTs, ESE, Class/Quiz Tests Class/Quiz Tests Tests Attainment of CO Tools to Class/Quiz MSTs, ESE, Class/Quiz MSTs, ESE, Class/Quiz MSTs, ESE, Class/Quiz Tests MSTs, ESE, Measure Tests MSTs, ESE, Assessment Tests

SHAM!

CO3	CO2	001	CO No.		04	CO3	CO2	CO1	CO No.
Explain the Advanced analytical theory and	Understand the Architecture of Hadoop with its file system and its Programming.	Understand the Evolution and basics of Big Data.	(BTEC-909A- 18: Big Data Fundamentals)		Describe the Fuzzy systems and Swarm Intelligence	the Neural Network models and its applications	Understand Genetic Algorithms with its operators and applications	Understand the concepts of Soft Computing and Algorithms involved therein	(BTEC-908D- 18: Soft Computing)
	<	<	PO 1		<	<		<	P0 1
<		<	PO 2			<	<	<	PO 2
			PO <sub>3</sub>						PO 3
4	<	۷ .	PO 4		<	<		۷	PO 4
4	<		PO os			<	4	<	P0 5
			PO 6						P0 6
			P0 7	-					P0 7
			P 0 8	1					PO 8
			PO 9	1					Pog
			PO 10 PO 11 PO 12 S	+					PO 10 PO 11 PO 12 Skill
			0 11 P	+					0 11
U U	۷	۷	0 12 8		<	<	۷	<	PO 12
xplain	Understand	Understand	XII	And continued and analysis of the continued analysis of the continued and analysis of the continued analysis of the continue	Describe	Applying	Understand	Understand	Skill
No	No	No	Focus on Employability / Entrepreneurs hip		N <sub>0</sub>	Yes	N <sub>O</sub>	No	Focus on Employability / Entrepreneurs
MSTs, ESE, Class/Quiz Tests	MSTs, ESE, Class/Quiz Tests	MSTs, ESE, Class/Quiz Tests	Assessment Tools to Measure Attainment of CO		MSTs, ESE, Class/Quiz Tests	MSTs, ESE, Class/Quiz Tests	MSTs, ESE, Class/Quiz Tests	MSTs, ESE, Class/Quiz Tests	Assessment Tools to Neasure Attainment of

The Star

001	CO No.	CO3	CO2	001	CO No.	CO4
Review and finalization of the Approach to the Problem relating to the assigned topic	(BTEC-731-18: Project-II)	algorithms for image compression and coding.	these images for the enhancement of certain properties or for optimized use of the resources.	ather press rious ima alyz	(BTEC-908E- 18: Digital Image and Video Processing)	Describe the challenges in handling streaming data from the real world.
۷	PO 1	<	<	<	PO 1	<
۷.	PO 2	<	۷	<	PO 2	<
	Pos				PO 3	
<	PO 4	۷	<	<	PO 4	
<	PO 5	<	<	<	PO 5	<
	PO 6				PO	
	PO 7				PO 7	
	PO8				P0 8	
	PO 9				PO 9	
	PO 10 PO 11 PO 12 Skill				PO 10 PO 11 PO 12 Skill	
	PO 11				PO 11	
<	PO 12	<	<	۷	PO 12	<
Review	Skill	Design	Apply	Analyze	Skiii	Describe
Yes	Focus on Employability / Entrepreneurs hip	Yes	Yes	N <sub>O</sub>	Focus on Employability / Entrepreneurs	N <sub>O</sub>
Report Submission, Internal Viva, Project Submission, Semester-End Viva	Assessment Tools to Measure Attainment of CO	MSTs, ESE, Class/Quiz Tests	MSTs, ESE, Class/Quiz Tests	MSTs, ESE, Class/Quiz Tests	Assessment Tools to Measure Attainment of	MSTs, ESE, Class/Quiz Tests

A gran

006	CO5	CO4	CO3	CO2
Preparing a Dissertation in the standard format for being evaluated by the Department	Preparing a paper for Conference presentation/P ublication in Journals;	Prototyping or Product development/P atent and Video demonstration;	Final development of product/proces s, testing, results, conclusions and future directions:	Analysis/Model ing/Simulation/ Design/Proble m Solving/Experi ment as needed
4	<	<	<	<
4	<	<	<	<
		<	<	
۷	<	<	<	<
<		<	<	<
4	<	<	<	۷
	Prepare	Design	Design	Apply
Yes	No	Yes	Yes	Yes
Report Submission, Internal Viva, Project Submission, Semester-End Viva	Report Submission, Internal Viva, Project Submission, Semester-End Viva	Report Submission, Internal Viva, Project Submission, Semester-End Viva	Report Submission, Internal Viva, Project Submission, Semester-End Viva	Report Submission, Internal Viva, Project Submission, Semester-End Viva





## Department of ELE TRONICS & COMMUNICATION EN INEERING

## Master of Technology ECE (Wireless Communication)

Department of E

MTWC-101-18- Wireless Communication	ommu	nicatio	3										Sent to:
Course Outcome	PO 1	PO 2	PO <sub>3</sub>	PO 4	PO 5	PO 6		PO 8	PO 7 PO 8 PO 9	PO 10	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1: Implement physical models of wireless channels	<				<			<	<		Implementation	yes	MSTs, Class Tests, Quizes, ESE
CO 2: Gain knowledge of key concepts of wireless communication	٧	<	<	<	<		<	<	<	<	Understanding	no	MSTs, Class Tests, Quizes,
CO 3:Measure capacity of AWGN channel, LTI Gaussian channels and various fading channels	<	<	<	<	<	<		<	<	<	Analysis	yes	MSTs, Class Tests, Quizes,
CO4: Study uplink and downlink model of AWGN channel, fading channels and multiuser diversity	<	<		ح				<	<	<	Understanding	Yes	MSTs, Class Tests, Quizes,
MTWC-102-18- Information Theory & Coding	n Theo	y & Cc	ding										
Course Outcome	P <sub>0</sub>	PO 2 PO 3	РОЗ	PO 4	5 0d	PO 6		PO 7 PO 8 PO 9	60d	PO 10	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1: Understand the fundamentals of information theory.	<	<		ح	<	<		<		٧	Understanding	Yes	MSTs, Class Tests, Quizes,
CO 2: Encode text, audio, speech, image and video signals through various coding and compression techniques	<	<	<	<	<	<		<	<	<b>~</b>	Implementation	Yes	MSTs, Class Tests, Quizes,

A S JAN

Course Outcome PO 1 PO 2 PO 3 PO 4 PO 5 PO 6 PO 7 PO 8 PO 9 PO 10 Entrepreneurship CO	Wireless Propagation Models and discuss the various MAC protocols, communication protocols and routing protocols are recommended by the routing protocols and routing protocols are recommended by the routing protocols and routing protocols are recommended by the routing protocols and routing protocols are recommended by the r	CO 3: Explain node structure along with the technologies used in WSN. V V V V V V V V V V V No ESE	architecture of WSN and its sub-systems.  V V V V V V V V V V V V V V V V V V V	shts of challenges, g with its	Course Outcome PO 1 PO 2 PO 3 PO 4 PO 5 PO 6 PO 7 PO 8 PO 9 PO 10 Focus on Employability / Measure Atta	signals through error detecting and correcting codes  MTWC-PE1-18- Wireless Sensor Networks  Analysis  Analysis  MSTs, Class Tes
Assessment Tools to Measure Attainment of CO	MSTs, Class Tests, Quizes, ESE	MSTs, Class Tests, Quizes, ESE	MSTs, Class Tests, Quizes, ESE	MSTs, Class Tests, Quizes,	Assessment Tools to Measure Attainment of CO	MSTs, Class Tests, Quizes, ESE

A BY AAR

See concepts in 6 Passed MBAIS wireless CO2. Design RF based MBAIS wireless CO2. Design RF based CO2. Design RF based circuit strough modelling, V V V V V V V V V V V V W V V W V V W V V W V V W V V W V V W V V W V V W V V W V V W V V W W V W	Assessment Tools to Measure Attainment of CO	Employability / Entrepreneurship	Skill	PO 10		PO 7 PO 8 PO 9		PO 6	PO 5	PO 4	PO 3	I PO 2	P01	Course Outcome
ased  Image  Ima									SSING	PROCE	GNAL	DEO SI	ND VI	NTWC-PE1D-18- AUDIO A
Iling V V V V V V V V V V V V V V V Implementation yes  and the line of the content of the conte	MSTs, Class Tests, Quizes,	no	Understanding	<				<	۷	<	<	<	<	CO 4: Handle multirate DSP and use adaptive filters.
d  V V V V V V V V V Implementation  No  CED DIGITAL SIGNAL PROCESSING  PO 1 PO 2 PO 3 PO 4 PO 5 PO 6 PO 7 PO 8 PO 9 PO 10  V V V V V V V V V V V V V V V V V V V	MSTs, Class Tests, Quizes,	yes	Analysis	٧	<	<							12 77/	CO 3: Predict and estimate errors in digital signal processing systems.
RE V V V V V V V V V V W W W W W Implementation yes  ICED DIGITAL SIGNAL PROCESSING  PO 1 PO 2 PO 3 PO 4 PO 5 PO 6 PO 7 PO 8 PO 9 PO 10  W V V V V V V V V V W W W W W Implementation holds a monomorphism of the processing of the	MSTs, Class Tests, Quizes, ESE	yes	Implementation	۷	73		<	<	<	<	<		<	CO 2: Design digital FIR and IIR filters.
Stem. V V V V V V V V W W Implementation yes  the circuit figure V V V V V V V V V W W Implementation yes  ADVANCED DIGITAL SIGNAL PROCESSING  PO 1 PO 2 PO 3 PO 4 PO 5 PO 6 PO 7 PO 8 PO 9 PO 10  Skill Employability / Entrepreneurship	MSTs, Class Tests, Quizes	no	Implementation	٧	<	<	<	<	۷		<		<	CO1: Apply digital transform techniques on signals.
V V V V Implementation yes  Understanding  No  Understanding  No	Assessment Tools to Measure Attainment o CO	Focus on Employability / Entrepreneurship	Skill	PO 10	PO9			Biographic Committee of the Committee of				1 Po	8	Course Outcome
ased  ased  understanding  no  no  understanding  no									ESSING	. PROC	SIGNAL	GITAL	CED DI	NTWC-PE1C-18- ADVANC
F based    V   V   V   V   V   V   V   V   V	MSTs, Class Tests, Quizes ESE	no	Understanding	<					<	<	<	<	<	CO 4: Study various oscillators and filters.
V V V V V W Understanding no limplementation yes	MSTs, Class Tests, Quizes	No	Understanding	۷	<				<		<	<	<	CO 3: Understand the usage of RF based circuit elements to reconfigure the circuit design.
d Understanding no	MSTs, Class Tests, Quizes, ESE	yes	Implementation	<				<	<	<	<	<		CO 2: Design RF based circuits through modelling.
retand the	MSTs, Class Tests, Quizes	no	Understanding	<	۷	<	<		,			<	<	COL: 1. Understand the key concepts in RF based MEMS wireless communication system.

De Carre

CO1: Differentiate between analog and digital communication systems. V CO2: Transmit data through various digital modulation techniques v CO3: Understand optical and satellite communication systems. V CO4: Recognize mobile communication systems, access techniques and transmission protocols. V V V V V V V V V V V V V V V V V V V
PO 1 PO 2 PO 3 PO 4 PO 5 PO 6 PO 7 PO 8 PO 9 PO 10   IS.   V   V   V   V   V   V   V   V   V
PO 1 PO 2 PO 3 PO 4 PO 5 PO 6 PO 7 PO 8 PO 9 PO 10  tal  V V V V V V V V V V V V V V V V V V
PO 1 PO 2 PO 3 PO 4 PO 5 PO 6 PO 7 PO 8 PO 9 PO 10  Igital  Is. V  V  V  V  V  V  V  V  V  V  V  V  V
PO 1 PO 2 PO 3 PO 4 PO 5 PO 6 PO 7 PO 8 PO 9 PO 10
PO1 PO2 PO3 PO4 PO5 PO6 PO7 PO8 PO9 PO10
CO 3: Modulate and demodulate digital signal processing systems. V V V V V
eo v

CO 3: Learn how to integrate adhoc networks with mobile-IP networks.	CO 2:Learn the protocols followed in MAC layer, Network layer, Transport layer, Security layer and Cross layer design.	CO1: Know the features, applications, models and characteristics of adhoc networks.	Course Outcome PO 1 PO 2	MTWC-PE2C-18- MOBILE ADHOC NETWORKS	CO 4: Familiarize with the estimation of signal parameters	CO3: Learn the ways to de tect non-parametric, random and deterministic signals.	CO2: Test the data through statistical tools.	COI: Know the barkground of the signals, variables and processes.
<		<	PO 3	ORKS	<		<	
<		<	PO 4		<		<	
	<		PO 5		<			-
	<		PO 6		<		<	<
	<		P0 7			<		
	<	<	PO 8 PO 9			۷	۷.	4
<		<			2	<	2	
			PO 10					<
Understanding	Understanding	Understanding	Skill		Understanding	Understanding	Analysis	Understanding
yes	yes	No	Employability / Entrepreneurship		yes	no	no	no
MSTs, Class Tests, Quizes,	MSTs, Class Tests, Quizes,	MSTs, Class Tests, Quizes,	Assessment Tools to Measure Attainment of CO		MSTs, Class Tests, Quizes,	MSTs, Class Tests, Quizes,	MSTs, Class Tests, Quizes, ESE	MSTs, Class Tests, Quizes,

A W AND

Ccurse Outcome P CC1: Know the optical transmission and reception V	PO 1	PO 2	2 PO 3		PO 4	PO 5	PO 6	P07	7 PC	PO 8 PO 9	9 PO	PO 10	<b>Skill</b> Understanding	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO  MSTs, Class Tests, Quizes, ESE
CO2: Apply the compensation techniques to the lost data/signals.	<	<	<	<		<	<	<	۷	<	<		Implementation	V.A.C.	MSTs, Class Tests, Quizes,
ols	<	<	<	<					< .	۷ .	۷ .		Learning	No	MSTs, Class Tests, Quizes,
CO4: Learn the process of wire line techniques.	<	<	<	<					<	<	<		Understanding	No	MSTs, Class Tests, Quizes,
MTRM-101-18 RESEARCH METHODOLOGY & IPR	METHO	DOI:	9 ABO	IPR											
Course Outcome	PO 1	PO 2	2 PO 3		PO 4 F	PO 5	P0 6	P07		PO 8 PO 9		PO 10	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1: 1. Understand research, research process, define and redefine research problem through literature survey.	<	<	<	<	<		<	<	<	<	<		Understanding	Yes	MSTs, Quizes, ESE
CO 2: Know the primary and secondary sources of data collection and select sample size based on the requirement.		<	<	<	4		•	4	4	4	4		Implementation	Viac	MCTs Ouizes ECE
ze the resources		<	•	<	<		<	<	<	<	<	1	mnlementation	yes	MSTS, Quizes, ESE
efficiently.		<	<	<	<		٧	<	4	<	٧		Implementation	no	MSTs, Quizes, ESE

the way

Assessment Tools to Measure Attainment of	Focus on Employability /	2	3	8	DO 7 DO 8 DO 0 DO 10 Skill		PO 6	PO 5	PO 4	PO 1 PO 2 PO 3	8	8	Course Outcome
											nent	anagei	MTAC-A02-18-Disaster Management
MSTs, Class Tests, Quizes,	No	Implementation	٧	<	<	<	<	<	<	<	<	<	quality of paper at very first-time submission.
MSTs, Class Tests, Quizes,	No	Understanding	۷	<	<	7 2. 7			<	<	<	<	CO 3:Understand the skills needed when writing a Title
MSTs, Class Tests, Quizes, ESE	No	Understanding	7	<	۷	<	<	<	<	<	<	<	write in each section
MSTs, Class Tests, Quizes,	No	Understanding	۷	<					<	<	<	2	CO1: Understand that how to improve your writing skills and level of readability
Assessment Tools to Measure Attainment of CO	Focus on Employability / Entrepreneurship	Skill	PO 10	PO 8 PO 9		PO 7	PO 6	PO 5	PO 4	per writi	rch pape	resean PO 1	MTAC-AO1-18-English for research paper writing  Course Outcome PO 1 PO 2 PO 3 Pu
MSTs, Quizes, ESE	Yes	Implementation	<	<	<		<	<	<	<			CO6:6. Write up the report
MSTs, Quizes, ESE	Yes	Understanding	4	<								5	CO5:5. Know the intellectual property rights
MSTs, Quizes, ESE	Yes	Implementation	<	<	<	<	<	<	<	<	<	(a) (b)	CC 4: Critically analyse the dana through various statistical measures, perform experiment, gar ther data and reach to a conclusion based on some hypothesis.

A Jan

					=
Course Outcome	MTWC-103-18 Advanced Wireless Communication	CO 4: Critically understand the strengths and weaknesses of disaster management approaches, planning and programming in different countries, particularly their home country or the countries they work in.	CO3:Develop an understanding of standards of humanitarian response and practical relevance in specific types of disasters and conflict situations.	CO 2: Critically evaluate disaster risk reduction and humanitarian response policy and practice from multiple perspectives.	demonstrate a critical understanding of key concepts in disaster risk reduction and humanitarian response.
PO 1	Wire	۷	<	<	<
1 PO 2	ess Co	<	<	<	<
2 PO 3	mmun	<	<	<	<
3 PO 4	cation	<	<	<	<
P05		<		<	
P0 6		<		<	
		<		<	
7 PO		<	<	<	
PO 7 PO 8 PO 9		<	<	<	<
PO 10		<	<	<	<
Skill		Understanding	Implementation	Analysis	Understanding
Employability / Entrepreneurship		No	yes	No	No
Assessment Tools to Measure Attainment of CO		MSTs, Class Tests, Quizes,	MSTs, Class Tests, Quizes,	MSTs, Class Tests, Quizes,	MSTs, Class Tests, Quizes,

CO 3: Optimize solutions using Genetic Algorithm	CO 2: Learn various artificial neural network techniques, fuzzy sets, fuzzification and defuzzification.	CO1: Study basic concept of soft computing and differentiate between supervised, unsupervised and reinforced learning methods.	Course Outcome	MTWC-104-18- Soft Computing Techniques	CO 4: Describe OFDMA system, its operation and applications.	CO3: Design OFDM system and data transmission through multicarrier modulation.	CO2: Compare the performance of different digital modulation techniques over wireless channels.	CC1: Review the fundamentals of wireless communication
0,	ork	ed pt		Comp	and	ion.	rent	eless
V	4	<	PO 1	rting T	<	<	<	<
<	<	<	PO 2	echnic	<	<	<	<
<	<	<	PO 3	ues	<	<	<	<
<	<	<	P0 4		<	<	<	<
<	<	<	1 PO 5		<	<	<	<
<			5 PO 6			<	<	
<	<		6 PO 7			<		
<						<	<	
<			PO 8 PO 9			<		
4	4	<	9 PO 10		<	<		۷
Impementation	Understanding	Understanding	Skill		Understanding	Implementation	Understanding	Understanding
yes	yes	No	Employability / Entrepreneurship		No	yes	N <sub>o</sub>	No
MSTs, Class Tests, Quizes, ESE	MSTs, Class Tests, Quizes,	MSTs, Class Tests, Quizes,	Assessment Tools to Measure Attainment of CO		MSTs, Class Tests, Quizes,	MSTs, Class Tests, Quizes,	MSTs, Class Tests, Quizes,	MSTs, Class Tests, Quizes,

The man

CO 2: Know the architecture of Smart antennas, types, applications	co1: Understand the significance of smart antennas and its historical development.	Course Outcome	MTWC-PE3A-18- Smart Antennas	CO 4: Study communication channel models and perform Monte Carlo Simulation.	methods.	through numerical	communication systems	CO3:Model wireless	estimation	CO 2: Review stochastic processes and parameter	and random processes	communication system	CO1: Study the role of simulation in	Course Outcome		MTWC-105-18- SIMULATION OF WIRELESS COMM. SYSTEMS	computing techniques.
<	<	PO 1	itenna	<	<				4		4			PO 1		ON OF	ح
<	<	PO 2	S	<	<				<		<			PO 2		WIRE	<
<		PO 3		<	<				<		<			2 PO 3		LESS C	<
۷		PO 4		<	~				~		<			3 PO 4		OMM.	<
<		PO 5		<	<				<		<			4 PO 5		SYSTE	4
<	7.12.15	5 PO 6			<		Ī		<					5 PO 6		MS	
		6 PO 7			<				<					6 PO 7			
				<	<				<								<
<		PO 8 PO 9		<	<				<					PO 8 PO 9			<
<		9 PO 10		<	<				<		٧			9 PO 10			<
Learning	Understanding	Skill		Understanding	Impementation				Understanding		Understanding			Skill			Impementation
No	No	Focus on Employability / Entrepreneurship		Yes	yes				yes		No			Employability / Entrepreneurship	Focus on		Yes
MSTs, Class Tests, Quizes,	MSTs, Class Tests, Quizes,	Assessment Tools to Measure Attainment of CO		Practical File, Internal Viva, Semester End External Viva	Semester End External Viva	Practical File, Internal Viva,			Semester End External Viva	Practical File, Internal Viva,	Semester End External Viva	Practical File, Internal Viva,		Measure Attainment of CO	Assessment Tools to		MSTs, Class Tests, Quizes, ESE

A To the

L3C	140	Oline Smiles		•			MANAGEMENT OF THE PARTY OF THE		
MSTs, Class Tests, Quizes,	N.	Inderstanding				4		<	CO 2: Know the fundamentals behind Microwave Amplifiers/Oscillators designs.
MSTs, Class Tests, Quizes,	No	Understanding	<				۷ ۷	<	CO1: Understand the significance of Microwave and RF designs
Assessment Tools to Measure Attainment of CO	Focus on Employability / Entrepreneurship	Skill	0 9 PO 10	PO 7 PO 8 PO 9	PO 5 PO 6	PO 4	PO 2 PO 3	P 10	Course Outcome
MSTs, Class Tests, Quizes, ESE	No	Understanding	4	<			V Posign	e and RI	fundamentals of Radio Resource Management  WTWC-PE3C-18 Microwave and RF Design
MSTs, Class Tests, Quizes, ESE	Yes	Understanding	<	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	<	۷	<	2	technologies of WCDMA and GSM
MSTs, Class Tests, Quizes,	No	Understanding					<	<	CO 1: Understand the Radio Network planning and optimization
Assessment Tools to Measure Attainment of CO	Employability / Entrepreneurship	Skill	09 PO 10	PO 7 PO 8 PO 9	PO 5 PO 6	PO 4	PO 2 PO 3	PO 1	Course Outcome
				agement	ion and Man	Optimizat	Planning	Vetwork	MTWC-PE3B-18 Wireless Network Planning, Optimization and Management
MSTs, Class Tests, Quizes,	no	Understanding	<	۷	<	<	<	<	CO4: Explain the Spatial Processing techniques for CDMA Smart Antennas
MSTs, Class Tests, Quizes,	no	Understanding	<	۷			<	<	CC 3: Learn antenna array fundamentals criteria and beam forming basics

\*

۶

- AAA

CO 3: Learn the concepts of Security and threats to wireless systems.	CO 2: Know its Integrity,  Authentication and  Management.  V V V V V V V V V Unders	Significance of V V V V V V V Understand the	Course Outcome PO 1 PO 2 PO 3 PO 4 PO 5 PO 6 PO 7 PO 8 PO 9 PO 10 Skill	design application.  V V V V V V V V V V V V V V V V V V	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	compression and decompression techniques on data.	chniques. V V V V V V V V V	Course Outcome PO 1 PO 2 PO 3 PO 4 PO 5 PO 6 PO 7 PO 8 PO 9 PO 10 Skill	MTWC-PE3D-18- Multimedia Comunication and Technologies	of Microwave and RF antennas concepts. V V V V V V V Under
Understanding	Understanding	Understanding	Skill	Understanding	Understanding	Implementation	Understanding	Skill		Understanding
yes	No	No	Focus on Employability / Entrepreneurship	No	No	yes	No	Employability / Entrepreneurship		yes
MSTs, Class Tests, Quizes, ESE	MSTs, Class Tests, Quizes, ESE	MSTs, Class Tests, Quizes, ESE	Assessment Tools to Measure Attainment of CO	MSTs, Class Tests, Quizes, ESE	MSTs, Class Tests, Quizes,	MSTs, Class Tests, Quizes,	MSTs, Class Tests, Quizes, ESE	Assessment Tools to Measure Attainment of CO		MSTs, Class Tests, Quizes, ESE

A The

Course Outcome PO 1	MTWC-PE4C-18- Wireless and Optical Communication Networks	CO 4: Apply SDR principles to smart antennas.	CO 3: Understand fundamental issues regarding dynamic spectrum access, the radioresource management and trading, as well as a number of optimisation techniques for better spectrum exploitation.	cognitive radio, as well as techniques for spectrum holes detection that cognitive radio takes advantages in order to exploit it.	CO1: Understand the fundamental concepts of software defined radio and cognitive radio networks.	Course Outcome PC
	Optical	<	<	<	<	PO 1 PO 2
	Comm	<		<		2 PO 3
	nunicat	<	<	<	<	3 PO 4
	ion Netv	<				4 PO 5
	vorks	<		<		PO 6
3		<		<		
		<	<	4		7 PO
		<	<	<		PO 7 PO 8 PO 9
		۷	4	<	<	9 PO 10
		Application	Understanding	Implementation	Understanding	Skill
Focus on Employability /		Yes	No	yes	No	Focus on Employability / Entrepreneurship
Assessment Tools to Measure Attainment of		MSTs, Class Tests, Quizes, ESE	MSTs, Class Tests, Quizes,	MSTs, Class Tests, Quizes,	MSTs, Class Tests, Quizes,	Assessment Tools to Measure Attainment of CO

Entrepreneurship CO

CO 3: Learn CDMA, OFDM,	CO 2: Explain the usage of Multiuser detection.	CO1: Understand Wireless Signaling Environment.	Course Outcome PO 1 P	MTWC-PE5C-18- Advanced Techniques for Wireless Reception	Spread Spectrum.	Channels. V V	Multiple Antenna	Characterization. V V	Time Channel	CO1:Understand Space	Course Outcome PO 1 P	MTWC-PE5B-18- Space Time Wireless Communication	multiple antennas.	millimeter wave with	budget. V	millimeter wave link	antennas.	in millimeter wave	performance parameters	CO 7. Calculate the
	<	<	PO 2 PO	ues for V		~		~			PO 2 PO	ess Comr							_	
	<	<	3 PO 4	Vireless R	<	<		<			3 PO 4	nunicatio	٧		<		<			
	<	<	PO 5	leception		V					PO 5	5					< <			
			PO 6 PO			<		-			PO 6 PO						<			
	2		7 PO 8		۷.	4					7 PO 8						~			
	<	<	PO 9		۷	V V		~			P09		<		٧ ٧		<			
			PO 10								PO 10				- SHOW		~			
	Explain	Understanding	Skill		Learning	Understanding		Understanding			Skill		Implementation		Implementation		Analysis			
	No	No	Employability / Entrepreneurship		No	yes		No			Focus on Employability / Entrepreneurship		No		No		yes			
MSTs, Class Tests, Quizes,	MSTs, Class Tests, Quizes, ESE	MSTs, Class Tests, Quizes, ESE	Assessment Tools to Measure Attainment of CO		MSTs, Class Tests, Quizes, ESE	ESE	MSTs, Class Tests, Quizes,	ESE	MSTs, Class Tests, Quizes,		Assessment Tools to Measure Attainment of CO		ESE	MSTs, Class Tests, Quizes,	ESE	MSTs, Class Tests, Quizes,	ESE	MSTs, Class Tests, Quizes,		

A M

JAR.

ty/ urship	MTWC-PE5D-18- Emerging Technologies of Wireless Communication	g Techi	nologie	s of W	ireless	Comn	nunicat	tion						
V V V V V V V V V V V V V V V V V V V	Course Outcome	PO1	P02	PO 3	8	Pos	8	8		8 PO			Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
V V V V V V V V V V V V V V V V V V V	CO1: Understand the concept of cellular/wireless													MSTs, Class Tests, Quize
S  V  V  V  V  V  V  V  V  V  V  Learning  No  No  PO 1 PO 2 PO 3 PO 4 PO 5 PO 6 PO 7 PO 8 PO 9 PO 10 Skill  Employability / Employability / Employability / Employability / Employability / Employability / V  V  V  V  V  V  V  V  V  V  V  V  V	CO 2: Explain the Mobile Radio Propagation and	<	<	<	<	<				<	<	Understanding	No	MSTs. Class Tests. Ouize:
trip Antennas  Of  V V V V V V V Learning Ni Focus on Employability / Employability / Entrepreneurship No V V V V V V V V V V V V V V V V V V	Multiuser systems.	<	<		<	<	<			<	<	Explain	No	ESE
trip Antennas  Of  Of  V  V  V  V  V  V  V  V  V  V  V  V  V	CO 3: Learn technologies of GPRS, UMTS, WiFi, WiMAX, Ultra Wideband	11												
trip Antennas  PO 1 PO 2 PO 3 PO 4 PO 5 PO 6 PO 7 PO 8 PO 9 PO 10 Skill  Focus on Employability / Employability / Entrepreneurship  No  V V V V V V V V V V V Understanding No	communications, 4G and													MSTs, Class Tests, Quizes,
of V V V V V V V V V V V V V V V V V V V	MTWC-PE5E-18- Microstri	p Ante	nas					<	2	<	2	Learning	2	EDE
PO 1         PO 2         PO 3         PO 4         PO 5         PO 6         PO 7         PO 8         PO 9         PO 10         Skill         Entrepreneurship           of         V         V         V         V         V         V         V         V         Understanding         No           V         V         V         V         V         V         Understanding         no													Focus on Employability /	Assessment Tools to Measure Attainment of
of V V V V V V V Understanding No No V V V V V V Understanding no	Course Outcome	PO 1	PO 2		PO 4		200110001111	NAME OF THE PARTY OF	Commence of the last of the la	8 PO 9	-	100000	Entrepreneurship	6
V V V V V V Understanding No  V V V V V V Understanding No  O-  O-  O-  O-  O-  O-  O-  O-  O-  O	CO1: Understand the basic concept of micro-strip antennas, methods of			- 13										
V V V V Explain No  V V V Understanding no	analysis and	<	<	<	<	<				<	<	Understanding	No	MSTs, Class Tests, Quizes, ESE
V V V V V Explain No  V V V V Understanding no	John Burguons.									1				MSTs, Class Tests, Quizes,
O- V V V Understanding no	CO 2: Explain micro-strip	ح				<	<	<	<	<	2	Explain	No	ESE
O- V V V Understanding no	CO 2: Explain micro-strip antennas arrays.	4												MSTs Class Tasts Ouiza
· ·	CO 2: Explain micro-strip antennas arrays.  CO 3: Understand the obysical significance of					<	<			<	<	Understanding		ESE
	CO 2: Explain micro-strip antennas arrays. CO 3: Understand the physical significance of discontinuities	۷ .				Ì	1	1	1	1		-	no	
	CO 2: Explain micro-strip antennas arrays. CO 3: Understand the physical significance of discontinuities CO 4: Learn coupled micro-	< .						77					no	

The Manney

CALL C

MTOE-301A-18- Cost Management of Engineering Projects	ageme	nt of E	nginee	ring Pr	ojects								
Course Outcome	PO 1	PO 2	PO 3	PO 4	Salting to the salt of the sal	P06	PO 7	6 Od 8 Od		PO 10	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1: Understand the cost													
making about an													
engineering research													MSTs, Class Tests, Quizes,
project	2	<	<	<	~				۷	<	Understanding	No	ESE
CO 2: Able to define Role													
of each member in the													MSTs, Class Tests, Quizes,
project team	<					V	4	~	<	V	Describe	No	ESE
CO 3:Manage the project													
by applying Quantitative													
techniques for cost													MSTs, Class Tests, Quizes,
management	<			4	<	٧			<	V	Management	Yes	ESE
MTWC-111-18-Wireless Communication Lab	mmur	nicatio	n Lab										
												Focus on	Assessment Tools to
Course Outcome	PO 1	P02	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8 PO 9		PO 10	Skill	Employability / Entrepreneurship	Measure Attainment of CO
CO1:To design Path-			4	4								V	Practical File, Internal Viva,
JOSS IIIOGCIS	_	<	<	<	<	<			<	<	IIIIpieiileiilatioii	Tes	Selliestel Ella External viva
CO2:To investigate Fading environments in													Practical File, Internal Viva,
wireless channels	۷	<		<	<	۷	<	<	<	<	Understand	No	Semester End External Viva
CO3:To develor													
dore to the contract					ľ								
[ATLAB codes for													
IATLAB codes for lock codes, Cyclic													Practical File, Internal Viva,
MATLAB codes for Block codes, Cyclic codes and Convolutional					4	4			4	<	Coding	Yes	Semester End External Viva

MTWC-112-18-Information Theory and Coding Lab

5

CHANGE OF THE PARTY OF THE PART

		1										
Practical File, Internal Viva, Semester End External Viva	yes	Impementation	ح	<	<b>V</b>	<	<	<	<	<	<	To find the vacant spaces for secondary users in Cognitive Radio Networks
Practical File, Internal Viva, Semester End External Viva	yes	Implementation	<	<	<	<	<	<	<	<	<	To learn and practice MATLAB programming for implementing Digital modulation techniques.
Practical File, Internal Viva, Semester End External Viva	No	Understanding	<				<	<	<	<	<	To understand the programming of OFDM based Transmitter & Receiver.
Assessment Tools to Measure Attainment of CO	Employability / Entrepreneurship	Skill	PO 10	PO 8 PO 9	PO7 P	PO 6	PO 5	PO 4	PO 3	PO 2	PO 1	Course Outcome
					tory	Labora	STEMS	MM. S	ESS CO	WIREL	ON OF	MTWC-105-18- SIMULATION OF WIRELESS COMM. SYSTEMS Laboratory
Practical File, Internal Viva, Semester End External Viva	Yes	Coding	<	<	<	<	<	<	<	<	<	MATLAB codes for Block codes, Cyclic codes and Convolutional codes
Practical File, Internal Viva, Semester End External Viva	Yes	Implementation	<		<	<	<	<		<	<	practice programming for generation and evaluation of various codes
Practical File, Internal Viva, Semester End External Viva	No	Understand	<			<	4	<	<	<	<	CO1:To understand the programming of Entropies and Mutual Information
Assessment Tools to Measure Attainment of CO	Focus on Employability / Entrepreneurship	Skill	9 PO 10	PO 8 PO 9	P07 P	PO 6	PO 5	PO 4	PO 3	P02	PO 1	Course Outcome

A CHARLE

CO1: Critically analyse and evaluate existing knowledge about the	Course Outcome PO 1	MTWC-DS1-18 DISSERTATION PHASE I	co4: Develop communication skills for the presentation of project related activities.	cos: Contribute as a team leader in the development of technical projects.	coz Identify, analyze, formulate & handle programming projects with systematic approach.	cor Acquire practical knowledge of the chosen field.	Course Outcome PC
		PHAS	<	<	<	<	PO 1 P
	PO 2 PO 3	E	<	<	<	<	PO 2
	03						PO 3
	PO 4		<	<	<	<	PO 4
	PO 5		<	<	<	<	P05
4	PO 6				<	<	PO 6
4	PO 7			THE STATE OF	<	<	PO 7
	8		<	<	<		
<	PO 8 PO 9			8 1	<	<	PO 8 PO 9
<	PO 10		<	<	<	<	PO 10
Understanding	Skill		Implementation	Implementation	Analysis	Acquire	Skill
N <sub>O</sub>	Employability / Entrepreneurship		yes	yes	yes	No	Focus on Employability / Entrepreneurship
Report,Internal viva-voce	Assessment Tools to Measure Attainment of CO		Report,Internal viva-voce and external viva-voce.	Report,Internal viva-voce and external viva-voce.	Report,Internal viva-voce and external viva-voce.	Report,Internal viva-voce and external viva-voce.	Assessment Tools to Measure Attainment of CO

The state of the s

4

JAR.

CO 3: Write-up the proposed work, results with conclusion and future work in the form of thesis	CO 2: Gather the results and publish in the research articles.	CO1: Implement the proposed framework practically or through simulation	Course Outcome	MTWC-DS2-18- DISSERTATION PHASE II	CO 4: Construct the research proposal.	CO 3:Design the framework to optimize the solution for the problem	CO 2: Find the gaps and motivation through literature survey.
<	<	<	PO 1	ON F	<	2	<
<	<	<	. PO 2	HASE	<	<	<
<	<	<	2 PO3		<	<	<
<	<	<	ω - Ε		<	<	<
			PO 4				
<	<	<	PO 5		<	<	<
	<	<	PO 6				<
	<	<	P07				<
<	<				<	<	<
	<	<	PO 8 PO 9				<
2	2	2	PO 10		2	ح	2
Implementation	Implementation	Implementation	Skill		Implementation	Implementation	Analysis
yes	yes	yes	Employability / Entrepreneurship		yes	yes	yes
Report, Internal viva-voce and external viva-voce.	Report, Internal viva-voce and external viva-voce.	Report, Internal viva-voce and external viva-voce.	Assessment Tools to Measure Attainment of CO		Report, Internal viva-voce and external viva-voce.	Report, Internal viva-voce and external viva-voce.	Report,Internal viva-voce and external viva-voce.

7

OFF.

work before a committee.  $\vee$ CO4: Present the research < < < Presentation yes and external viva-voce. Report,Internal viva-voce

7

8

Signature of Head of Department