

Syllabus

AFFILIATED COLLEGES

Program Code:26B

2020 – 2021 onwards



BHARATHIAR UNIVERSITY

(A State University, Accredited with "A" Grade by NAAC, Ranked 13th among Indian Universities by MHRD-NIRF, World Ranking: Times -801-1000,Shanghai -901-1000, URAP - 982)

Coimbatore - 641 046, Tamil Nadu, India

Program E	Program Educational Objectives (PEOs)								
The B. Sc. 1 describe acc years after g	ELECTRONICS AND COMMUNICATION SYSTEMS program complishments that graduates are expected to attain within five to seven graduation								
PEO1	Provide graduates with a strong foundation in Electronics domain and to enable them to devise and deliver efficient solutions to challenging problems in Electronics, Communications and allied disciplines.								
PEO2	Impart analytic and thinking skills to develop initiatives and innovative ideas for R&D, Industry and societal requirements.								
PEO3	Provide sound theoretical and practical knowledge of Electronics, managerial and entrepreneurial skills to enable students to contribute to the wellbeing of society with a global outlook.								
PEO4	Inculcate qualities of teamwork as well as social, interpersonal and leadership skills and an ability to adapt to evolving professional environments in the domains of engineering and technology.								
PEO5	Motivate graduates to become good human beings and responsible citizens for the overall welfare of the society.								
PEO6	Develop attitude in lifelong learning, applying and adapting new ideas and technologies as their field evolves.								
PEO7	To prepare graduates who will have knowledge, ability and courage to pursue higher studies and research.								



Program Spo	ecific Outcomes (PSOs)							
After the successful completion of B.Sc. ELECTRONICS AND COMMUNICATION								
SYSTEMS p	rogram, the students are expected to							
PSO1 Demonstrate proficiency in use of software and hardware required to practice electronics and communication profession.								
PSO2	Graduates will be able to apply fundamentals of electronics in various domains of analog and digital systems							
PSO3	Apprehend and analyses specific engineering problems of communication, electronic circuits, computer programming, embedded systems, VLSI design and semiconductor technology by applying the knowledge of basic sciences, engineering mathematics and engineering fundamentals.							
PSO4	Ability to communicate effectively with excellent interpersonal skills and demonstrate the practice of professional ethics for societal benefit							
PSO5	Graduates will be able to apply fundamentals of electronics in various domains of analog and digital systems.							
PSO6	Use embedded system concepts for developing IoT applications							



Program O	utcomes (POs)							
On success	sful completion of the B.Sc. ELECTRONICS AND COMMUNICATION							
SYSTEMS	program							
PO1	Engineering knowledge : Apply the knowledge of mathematics, Science, Engineering fundamentals ,and an engineering specialization to the solution of complex engineering problems							
PO2	Problem analysis: Identify, formulate, review research literature and analyses complex engineering problems reaching substantiated conclusion using principles of mathematics and Engineering sciences							
РОЗ	Design/Development of solutions: Design solutions for complex Engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal and environmental conditions.							
PO4	Conduct investigation of complex problems : Use research based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.							
PO5	Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations							
PO6	The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.							
PO7	Environment and Sustainability: Understand the impact of the professional engineering solution in societal and environmental contexts, and demonstrate the knowledge of and need fire sustainable development							
PO8	Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.							
PO9	Individual and team work: Function effectively as an individual, an as a member or leader in diverse teams, and in multidisciplinary settings.							
PO10	Life-Long learning : Recognize the need for and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.							

BHARATHIAR UNIVERSITY: COIMBATORE 641 046 B.Sc. Electronics and Communication Systems Curriculum

(For the students admitted during the academic year 2020 – 21 onwards)

			Но	ours	Ma	ximum	Marks
Course Code	Title of the Course	Credits	Theory	Practical	CIA	ESE	TOTAL
	F	IRST SE	MESTE	R			1
11T	Language –I	4	6	-	25	75	100
12E	English – I	4	6	-	25	75	100
13A	Core Paper I : Basic Electronics	4	5	-	25	75	100
	Core Practical I: Basic Electronics Lab			3	-	-	-
	Core Practical II : Semiconductor Devices Lab	12		3	19. W	-	-
1AA	Allied I Mathematics–I	4	5		25	75	100
1FA	Environmental Studies #	2	2	1- (-	50	50
	Total	18	T		100	350	450
	SE	COND S	EMESTI	ER			
21T	Language – II	4	6	H-Pr-	25	75	100
22E	English – II	4	6		25	75	100
23A	Core Paper II : Semiconductor Devices	4	5	-	25	75	100
23P	Core Practical I: Basic Electronics Lab	4	-	3	40	60	100
23Q	Core Practical II: Semiconductor Devices Lab	4	-	3	40	60	100
2AA	Allied : II Mathematics–II	4	5	-	25	75	100
2FB	Value Education – Human Rights #	2	2	-	-	50	50

	Swatch Bharat- Summer		_	_	_	_	-
	internship **				1.0.0	4 - 0	
	Total	26	-	-	180	470	650
	TI	HIRD SI	EMESTE	R			
33A	Core Paper III :						
	Principles of	4	4	-	25	75	100
	Communication Systems						
33B	Core Paper IV:						
	Digital Principles and	4	4	-	25	75	100
	Applications						
33C	Core Paper V:	4	4		25	75	100
	Electronic Circuits	4	4	-	25	/5	100
	Core Practical III:	-					
	Digital Electronic lab	-	_	3	-	-	-
	Core Practical IV:	1					
	Electronic circuits,			3	-	-	-
	Radio, TV and	7 1			36		
	Instrumentation lab						
3AD	Allied : III	1 de s	1			5 4	
	Programming in C	3	4		20	55	75
	Core Practical V:	a hadde	Contra-	-1-		1 3	
	Computer Programming	10-0	36-	3	200	-	-
	Lab		The		\$	/ /	
	Skill based Subject I :	1.91.0			£ 7	,	
3ZA	Computer Architecture	3	3	- 60	20	55	75
	and organization		18	- AL	and the second second		
	Tamil @ / Advanced	-Westin	Internet S-W	11:21			
	Tamil#(OR)	SOURA T	TO SALAL	a statement			
3FB/	Non-major elective - I						
3FC	(Yoga for Human	2	2	-	-	50	50
	excellence # Womens						
	Rights#)						
	Total	20	-	-	115	385	500
	FO	URTH S	SEMESTI	ER	I	<u> </u>	
43A	Core Paper VI : IC's	4	4	_	25	75	100
	and Instrumentation	•					200
/2D	Core Donor VII .						
430	Modern Talaviaian	4	4	-	25	75	100
	wodern relevision						

	Engineering						
	Core Paper III						
43C	Digital andcellular	1	Λ		25	75	100
	communication	4	4	-	23	15	100
	Core Practical III						
43P	Digital Electronics Lab	4	-	3	40	60	100
	Core Practical IV:						
	Electronic circuits,	4	-	3	40	60	100
43Q	Radio, TV and						
	Instrumentation lab						
	Allied: IV						
4AD	Object Oriented	3	4	-	20	55	75
	Programming using C++						
	Core Practical V :	1285	365				
43R	Computer Programming	2	7.1 198	3	20	30	50
	Lab						
	Skill based Subject II :						
4ZB	Visual Programming	3	3	1-2	20	55	75
	Tamil @ /Advanced	100	mil	13 12	12		
4FB/	Tamil # (OR)	2	2		-	50	50
4FE	Non-major elective -II	a state of	-			61	
	(General Awareness #)	a star	1			24	
	Total	30	Q-	1-1	215	535	750
-		1	1000		2	77	
	F	FTH SE	MESTE	R	197		
		Server a					
53A	Core Paper IX : 8085		18	THE W	Sec. 1		
	microprocessor and	4	6	1996-	25	75	100
	applications	SOURAT	mastal	a contraction			
5EA/							
5EB/	Elective – I	4	6	-	25	75	100
5EC/							
5ED							
5EE/		4	6		25	75	100
5EF/	Elective - II	-	Ŭ	_	-*		
5EG/							
5EH							
	Core Practical VI:	-		2			
	Microprocessor and		-	3	-	-	-
	microcontroller lab						

					r		
	Core Practical VII:	-					
	Industrial and Power		-	3	-	-	-
	Electronics Lab						
	Core Practical VIII :	_	_	3	_	_	_
	Electronics			5			
	communication lab						
5ZC	Skill based subject – III	3	3	_	20	55	75
	Internet and java	5	5		20	55	10
	programming						
	T - 4 - 1	15			05	200	275
	Total	15	-	-	95	280	375
	SI	XTH SE	EMESTE	R			
		12365	100	<u> </u>	1	Γ	[
63A	Core Paper X : 8051	and the second		100			
	Microcontroller and	4	5		25	75	100
(2)	embedded systems	1					
63P	Core Practical VI:		8'E.		10	60	100
	Microprocessor and	4		3	40	60	100
(20	Microcontroller lab	100	An				
03Q	Core Practical VII:		210	2	10	C 0	100
	Electropics Lab	4.04	Loud P.	3	40	60	100
(2D	Care Prostingh VIII	1000	22		- 200		
03K	Core Practical VIII:	and	They				
	communication Lab	4	-	3	40	60	100
67V		6	5		1		150
6FI/	INCOLUI		5 33	10111	and the		150
6FI/	Flective- III	4	IT AS A SUN	1122	25	75	100
6FK/		TRUCAT	TO ELEVIAL	- California	23	15	100
6EL							
6ZP	Skill based Subject –						
	IV Practical Visual &	3	-	3	30	45	75
	java Programming	-		-			
67 \	Extension Activities	2			50		50
07A	Total	2 31	-	-	275	- 375	775
	IUtai	51	-	-	213	575	115
	Grand Total	140	_	_	955	2395	3500

@ No University Examinations. Only Continuous Internal Assessment (CIA)

No Continuous Internal Assessment (CIA). Only University Examinations.

* Swatch Bharat Summer internship- extra 2 credits would be given. It is mandatory

*For Project report 120 marks and viva-voce 30 marks





Course code	13A	BASIC ELECTRONICS	L	Т	Р	С			
Core/Elective/	Supportive	Core	5	0	0	4			
Pre-requ	uisite	Higher secondary Physics	Sylla Vers	bus ion	2020-	2021			
Course Objec	ctives:								
The main obje	ctives of thi	s course are to:							
1. To become familiar with fundamentals of electronic components									
2. To learn to use common electronic components									
5. To design e	lectronic ch	cuits to perform realistic tasks							
Expected Cor	urso Autoor	nos•							
On the succe	ssful comple	etion of the course, student will be able to:							
1 Understa	nd the basic	electronic components			К2				
2 Understar	nd the basic	electronic components			K2				
3 Differenti	iate and dem	constrate the voltage and current source			K3				
4 Apply the	electronic (components in network theorems			K3				
5 Put into p	ractice and	use the electronic components			K4				
K1-Rememb	er;K2- Unde	erstan <mark>d; K3</mark> -Apply;K4-Analyze; K5-Evaluate;K6-C	reate						
Unit:1		Resistors & Inductors		11	hours	5			
Types of Res	istors: Fixe	ed, Variable - Brief mention of their Construction	and C	Chara	octeris	tics -			
Color Coding	of Resistor <mark>s</mark>	- Connecting Resistors in Series and Parallel			_				
Types of Ir	iductors:	Fixed, Variable- Self and Mutual Inductance-	Farada	ay's	Law	and			
Lenz'sLawOf	Electromag	eticInduction-EnergyStoredInAnInductor-Inductanc	eInSe	riesA	nd				
Parallel-Testir	ng of Resista	nce and Inductance using Multimeter.							
Linit.?		Canacitors		11	hom	•6			
Dringinlag of	Conscitones	Parallal Plata Conscitor Permittivity Definition of	Diala	ntria	Cona	tont			
Dielectric Stre	enoth-Energ	v Stored in a Capacitor-Types of Capacitors: Air	Paper	· Mi	ca Te	eflon			
Ceramic. Plas	tic and Elec	trolytic: Construction and Application- Connecting	⁷ Capa	, in acitor	$\frac{1}{5}$ in S	Series			
and Parallel -	Factors Gov	erning the Value of Capacitors- Testing of Capacitor	rs Usii	ng M	illime	ters.			
				-					
	-	Contracting and the second second							
Unit:3		Electrical Elements And Circuits		12	hour	'S			
Potential Diffe	erence- Elec	tric Current-Electromotive Force-Ohms Law- Kirch	off's I	Law-	Kirch	noff's			
Current Law-A	Analysis of I oltage Sour	ce and Current Source Voltage Source in Series a	eries P nd Cu	rran		cuits-			
Parallel-Simpl	e Problems	in DC Circuits.	nu Cu	mem	l Sour				
I I I I I I I									
Unit:4		Network Theorems		12	hour	'S			
Superposition	Theorem -	Thevenin Theorem-Thevenizing a Circuit with Ty	vo Vo	oltage	e Sour	ces -			
Bridge Circu	it - Nort	on's Theorem - Thevenin Norton Conversion	n -	Con	versio	n of			
VoltageandCu	rrentSource	s-Millman's Theorem-StarandDeltaConversion-Max	Imum	Powe	er Tra	inster			
meorem - Sin	ipie Probler								
Unit:5		AC Circuits		12	hour	s			
Introduction t	o Sinusoida	l Wave - RMS Value - Average Value - AC Cir	cuits v	with	Resis	tance-			
CircuitswithX	LAlone–Cir	cuitswithXCAlone-SeriesReactanceAndResistance-	Paral	lel	Read	ctance			
and Resistance	e - Series P	arallel Reactance and Resistance - Real Power -							

Unit:6	Contemporary Issue	2 hours
Group discussion	on on the overall study of Capacitors, resistors and Inductors	

Total Lecture hours

60 hours

1

Text Book(s)

1 S.Salivahanan, N.Suresh Kumar, A.Vallavaraj"Electronic Devices And Circuits"- Tata McGraw-Hill Publishing Company Limited, New Delhi. 1998.

2 B.V.Narayana Rao "**Principles Of Electronics**", Wiley Eastern Limited, 1992

Reference Books

1 BernardGrob"Basic Electronics"-Tata McGraw-Hill Publishing Company Limited, 9thEdition.

² B.L.Theraja, "Basic Electronics-Solid State Devices", S.Chand Company Ltd. 2000

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1 https://nptel.ac.in/courses/108/104/108104139/

2 https://nptel.ac.in/courses/108/101/108101091/

3 https://www.youtube.com/playlist?list=PLFF553CED56CDE25D

4 https://www.youtube.com/watch?v=w8Dq8blTmSA

Course Designed By: K.Manikantan, Assistant Professor, Government Arts College, Ooty& Dr.N Om Muruga, Assistant Professor, Government Arts College, Ooty.

Mapping with Programme Outcomes										
Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	М	L	L	L	L	M	S	М
CO2	L	L	L	L	L	М	M	S	М	S
CO3	М	М	S	L	М	S	L	L	М	М
CO4	М	L	L	L	L	S	L	L	М	S
CO5	L	L	М	М	L	Ľ	S	М	L	М

SUGATE TO ELEVALE



Cou	rse code	23A	SEMICONDUCTR DEVICES	L	Т	Р	С
Cor	e/Elective	/Supportive	Core	5	0	0	4
	Pre-req	luisite	Higher secondary physics	Sylla Ver	abus sion	2020-	2021
Cou	rse Objec	tives:					
The	main obje	ctives of this co	burse are to:				
1. To	enable the	students to un	derstand and gain the knowledge on semiconduc	ctor de	evices	•	
2. To	acquaint t	he students wit	h construction, theory and characteristics of the	electro	onic d	levices	3.
Evn	ootod Cou	ngo Autoomog					
On	the succes	sful completio	• n of the course, student will be able to:				
1	Explain t	he structure of	the basic electronic devices			K1	
$\frac{1}{2}$	Understan	d the character	istics and operations of special diodes			K2	
2	Understan	d the character	istics and operations of transistors			K2 K2	
<u> </u>	Understan	d the character	istics and operations of EET and LUT			K2 K2	
4	Understan	a une character				K2 V2	
J 1/1	D se the sp		$\mathbf{V}_{\mathbf{r}}$	1		КЭ	
K1	-Remembe	er; K2- Underst	and; K3-Apply;K4-Analyze; K5-Evaluate;K6-C	reate			
T	Init•1	4	PN Junction Diode		10	hour	s
Energ	v Band S	structure and	Conduction in Insulator - Semiconductor, Con	nducto	r - I	ntrinsi	c and
Extri	sic Semic	conductor - Dc	pping – P Type – N Type Semiconductor - For	matio	n of]	PN Ju	nction
Diode	e - Forward	d Bias - Revers	e Bias Condition – Characteristics - Clipping an	d Claı	mping	ς.	
				h	1		
τ	J nit:2		Special Diodes	3-49	12	hour	S
Zene	erDiode-V	ICharacteristic	s-Breakdown-BackwardDiode-VaractorDiode-S	StepR	ecove	ry Di	ode
- Po	int Contac	t Diode – Sco	tt key Diode - Tunnel Diode - Gunn Diode –	Impat	tt Dic	de - I	PIN
Diod	le – PNPN	Diode		<u> </u>			
T	Init•3		BIT		12	hom	•6
Intro	duction T	o Bipolar Jun	tion Transistor – Construction - Transistor Biz	asing	- One	eration	of
NPN	and PNP	Transistor - C	B, CE &CC Configuration - Bias Stability - Lo	ad Lii	ne - N	Iethod	l of
Biast	ing:FixedI	Bias-Collectort	oBaseBias-VoltageDividerBias-BiasCompensat	ion-Tl	herma	ıl	
Runa	away – He	at Sink	QUCATE IN ELEVINIE				
	· · ·						
L	Jnit:4		FET and UJT	Daria	$\frac{12}{Clus}$	hou	'S
Intro	duction to) FEI - Cons f ieet & pit	Introduction to MOSEET Enhancement	Drain	Chai	racteri	stics-
MOS	SFET - FE	T as a Voltage	Variable Resistor(VVR) - Introduction to UIT	– Cha	racter	istics	
as Re	elaxation (Oscillator - Intr	roduction to $PUT - SCR - TRIAC - DIAC$	Ciiu	rueter	150105	001
τ	J nit:5		Optoelectronic Devices		12	hour	s
Princ	ciples,Ope	rationandChara	acteristicsOfOptoElectronicDevices:LDR-Photo	Diode	e-Phot	t0	
Tran	sistor – Pl	hoto Voltaic C	ell – Solar Cell – Photo Emissive Sensors – V	acuun	n Pho	to Tu	be-
Gap	Filled Pho	oto Tube – Pho	to Multiplexer – LED – IR Emitter – LCD – Opt	o–Co	uplers		
				I			
<u> </u>	Unit:6		Contemporary Issues		2	hours	5
Diod	es, transist	tors		1			
			Total Lecture he	ours	60	hour	S

Text Book(s)

- 1 S. Salivahanan, N. Suresh Kumar, A. Vallavaraj, **"Electronics Devices And Circuits"**, Tata Mcgraw Hill Publishing Company Limited, New Delhi, 8th Edition.
- **2** B. L. Theraja, "Basic Electronics Solid State Devices", S.Chand& Company Ltd.

Reference Books

- 1 S. L. Kakani, K. C. Bhan Dai "A Text Book Of Electronics". S. Chand& Company Ltd. 2000
- 2 BernardGrob"Basic Electronics"-Tata McGraw-Hill Publishing Company Limited, 9thEdition.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

- 1 https://nptel.ac.in/courses/108/108/108108122/
- 2 https://nptel.ac.in/courses/108/108/108108112/
- 3 https://nptel.ac.in/courses/115/102/115102103/

Course Designed By: K.Manikantan, Assistant Professor, Government Arts College, Ooty& Dr.N Om Muruga, Assistant Professor, Government Arts College, Ooty

Mappin	Mapping with Programme Outcomes										
COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	
CO1	S	S	L	М	L	М	М	М	S	М	
CO2	L	L	L	L	L	М	М	Μ	L	L	
CO3	L	М	L	L	S	М	L	L	M	М	
CO4	L	M	M	L	L	S	М	L	M	S	
CO5	L	L	M	M	S	S	L	М	М	S	

Course code	23P	BASIC ELECTRONICS LAB	L	Τ	P	С
Core/Elective	e/Supportive	Core practical - I	0	0	3	4
Pre-rec	quisite	Higher secondary physics	Sylla Vers	nbus sion	2020-	2021
Course Object	tives:					
The main object	ctives of this cou	irse are to:				
1. To understa 2. To make us	and the fundame se of circuit laws	ntal principles of circuit theory and theorems and measuring the circuit parame	eters.			
Expected Cou	rse Outcomes:					
On the succes	sful completion	of the course, student will be able to:				
1 Apply the	concept of basic	c circuit and theorems			K3	
2 Understan	d the basic princ	ciples of ohms and kirchoff's laws			K2	
3 Simplify tl Norton's e	he circuits using equivalent circui	series and parallel equivalents and using Thever ts.	nin's	and	K3	
4 Design res	onance circuits.				K4	
5 Use the os	cilloscope for th	e display and measurements of signals.			K2	
K1-Remembe	er; K2- Understa	ad; K3-Apply;K4-Analyze; K5-Eva luate; K6- Cr	eate			
1. Study of Mu	Itimeter – Chec	ting of Components				
2. Measuremen	t of Amplitude,	Frequency & Phase Difference using CRO				
3. Verification	of Ohm's <mark>Law</mark>					
4. Voltage sour	ces in Ser <mark>ies, P</mark> a	arallel and Series –Parallel	4			
5. Resistance ir	n Series, Paralle	and Series – Parallel				
6. Voltage and	Current Divid <mark>e</mark> r	s	7			
7. Verification	of Kirchoff's La	w	F			
8. Wheatstone	Bridge					
9. Verification	of Norton's The	eorem				
10. Verification	n of Thevenin's	Theorem				
11. Verification	n of Millman's T	Theorem				
12. Verification	n of Superpositi	on Theorem				
13. LCR Bridge	e					
14. Series Reso	nance Circuit					
15. Parallel Res	sonance Circuit					

- 16. Transient Response of RC Circuit
- 17. Transient Response of RL Circuit
- 18. Capacitors & Inductors in Series & Parallel
- 19. Frequency Response of R, L &C
- 20. Low Pass Filter & High Pass Filter
- 21. Band pass and Band Rejection Filter
- 22. Verification of Maximum Power Transfer Theorem
- 23. Measurement of resistance and capacitance in series and parallel

Course Designed By: K.Manikantan , Assistant Professor, Government Arts College ,Ooty & Dr.N Om Muruga , Assistant Professor, Government Arts College ,Ooty

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1 https://nptel.ac.in/courses/122/106/122106025/

2 https://nptel.ac.in/courses/122/106/122106026/

Mapping with Programme Outcomes

		8	0	•			2			
COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	L	L	M	М	М	L	L	М	S	М
CO2	L	L	L	L	L	М	М	S	Μ	S
CO3	М	M	М	М	L	L	S	L	М	М
CO4	М	L	L	L	L	S	L	L	М	S
CO5	М	М	L	L	М	S	S	L	L	М

Cour	se code	23Q	SE	EMICON	DUCI	FOR DE	EVICES	LAB	L	Τ	Р	С
Core/I	Elective/S	Supportive		С	Core pr	ractical	– II		0	0	3	4
]	Pre-requ	isite		High	er seco	ondary 1	Physics		Sylla Ver	abus sion	2020-	2021
Cours	se Object	tives:							<u>.</u>			
The m	nain objec	ctives of thi	s course a	are to:		_						
1. To	o understa	and and exp	periment t	he basic p	parame	eters of e	electroni	c devices.				
210	<i>construc</i>	t iew appire		sing senne	conduc							
Expe	cted Cou	rse Outcon	nes:									
On t	he succes	sful comple	etion of th	ne course,	, studei	nt will b	e able to):				
1 E d	Experimei levices.	nt the funda	imental of	perations	of the	main se	micondu	ictor electro	nic		K3	
2 I	Design an	d construct	electroni	c circuits	using	semicon	ductor d	levices.			K3	
3 U	Jnderstan	d the transi	stor chara		5	11					K2	
4 U	Understan	d the character	cteristics	of LDR a	d trans	ar cell	Contraction of the second				K2 K4	
5 F K1-I	Remembe	er: K2- Unde	erstand: F	3-Apply	K4- A	nalyze:	K5-Eva	uate: K6- Cr	eate		K 4	
					,							
1. Bar	nd Gap E	nergy of Sil	lic <mark>on / G</mark> e	rmanium	Diode	e 🔨		74				
2. V-I	[Characte	eristics of <mark>Ju</mark>	unction D	viode								
3. V-I	[Characte	eristics of <mark>Z</mark>	ener Dioo	de					1			
4. Tra	unsistor C	haracteristic	cs of CE	Configura	ation	122.7	-7-	7 I				
5. Tra	unsistor C	haracteristi	cs of CB	Configura	ation	-	12	(ph				
6. Tra	unsistor C	haracteristi	cs of CC	Configura	ation			਼ਿੰ	1			
7. Clij	pping Cir	cuits	Con N					S /				
8. Cla	amping Ci	ircuits				38	-					
9. Me	asuremen	nt of Stabili	ty Factor	of Fixed I	Bias	10 s_will	212					
10. M	leasureme	ent of Stabil	lity Facto	r of Self I	Bias	10 MIL						
11. V	-I Charac	teristics of .	JFET									
12. V-	-I Charac	teristics of	UJT									
13. U.	JT as Osc	cillator										
14. FI	ET as Vol	ltage Variał	ole Resist	or(VVR)								
15. Cl 16. Cl	haracteris haracteris	stics of LDF stics of Sola	R ar Cell									
17. St	udy of IR	R (Tx & Rx))									
18. St 19. Te	udy of LI	ED and 7 Se re Co-efficie	egment di ent of Jur	isplay action Dic	ode							
20. Ze	ener as a '	Voltage reg	ulator									
21. O	N / OFF a	control of re	elay using	g Opto –C	Coupler	rs						

22. Characteristics of SCR

23. TRIAC Characteristics



Mapping v	with Prog	gramme (Dutcome	es	un-	-1	1	mard		
COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	L	L	М	L	L	L	/ LAS	М	S	Μ
CO3	L	М	M	М	L	М	L	S	Μ	L
CO3	М	L	S	L	L	S	CL/	L	L	Μ
CO4	М	M	L	L	L	S	Μ	L	Μ	L
CO5	L	L	М	M	aarti 🍨	S	L	L	S	L

WATE TO BESILLS



Course code	33A	PRINCIPLES OF COMMUNICATION SYSTEMS	L	Т	Р	С
Core/Elective/S	Supportive	Core	4	0	0	4
Pre-requ	isite	Higher secondary physics	Sylla Vers	abus sion	2020	-2021
Course Object	tives:					
The main object	ctives of thi	s course are to:				
1. To understa	and the cond	cept of wave propagation and its types.				
2. To acquire	knowledge	on Amplitude and Frequency modulation.				
3. To inculcat	e the princi	ple of radio receivers and its types.				
Expected Cou	rse Outcon	nes:				
On the succes	stul comple	etion of the course, student will be able to:				
1 Understan	d the basic	building blocks of communication systems			K2	
2 Analyze th	ne performa	nce of amplitude and frequency modulation technique	les.		K4	
3 Demonstra	ate the stage	es of radio recei <mark>ver.</mark>			K3	
4 Compare t	the operatio	n of FM and SSB receivers			K4	
5 Analyze th	ne performa	nce of receiver.			K4	
K1-Remembe	er; K2- Unde	ers <mark>tand; K3-Apply;K4-Analyze; <mark>K5-</mark>Evaluate;K6-Cr</mark>	reate			
		A ANE. CA				
Unit:1		Wave Propagation		9	hours	5
EM Waves – F Wave Propagat – MUF – LUF	tion – Tropo – Skip Dist	osphere Scatter Propagation – Sky Wav sphere Scatter Propagation – Structure Of Atmosph ance – OWF – Ionosphere Abnormalities- Duct Prop	e Proj ere – pagati	pagat Virtu on	ion – al Hei	Space ight
Unit:2		Antennas		9	hours	3
Electromagnetic Antennas, Radia Effective Radia Grounded and Matching – Dip Helical Antenna	e Radiations ation Pattern tted Power Ungrounded pole Arrays	s – Elementary Doublet – Current And Voltage D ns and Length Calculations – Non Resonant Antenna – Antenna Resistance – Bandwidth, Beam Wid d Antennas – Effects Of Height – Feed Point – C - Yagi Uda Antenna – Parabolic Antenna – Horr	istribu as – A th and Couple n and	ation Intern d Po ers – Lens	– Res na Ga larizat Impe Ante	sonant in and tion – dance nna –
Unit·3		Modulation Techiniques		10	hom	rs
Introduction to NeedforMod Spectrum of A Block Diagrar Frequency Spe	Communic ulationBand M Wave – 1 n–Frequenc ctrum – Ge	cation Systems – Information – Transmitter – Channe dWidthRequirement–AmplitudeModulation:AMThe Representation of AM – Power Relations In AM Wa cy Modulation–System Description – Mathemati- neration of FM – Direct and Indirect Methods.	el – N ory–F ave – cal R	oise - Freque AM 7 epres	– Rece ency Fransi sentati	eiver nitter on –
TT. •4 4				•	1	
Unit:4	Principles	Single Sideband Modulation Balanced Modulator SSB Conception: Filter	Meth	<u>ع</u> مطت	nour Phase	s Shift
Method and Th Vestigial Sideba	nird Metho	d – SSB Reception: Pilot Carrier SSB and Indep ission – Introduction to PAM, PWM And PPM	bender	nt Si	de Ba	ınd –
T T - * 4 - #				•		
Unit:5		Keceiver		9	nours)

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Introduction - Super Heterodyne Receiver - Choice of IF and Oscillator Frequencies - Image Rejection - Adjacent Channel Selectivity - Spurious Response - Tracking - AGC - Double **Conversion Receiver**

U	nit:	6

Contemporary Issues

2 hours

Seminar on receiver, group discussion on communication systems

Total Lecture hours

48 hours

Text Book(s)

1 Kennedy and Davis "Electronic Communication Systems" Tata McGraw Hill, 8th edition, 1999

2 Dennis Roddy and John Coolen, "Electronic Communications" PHI, 4th edition, 1995.

Reference Books

K.D. Prasad and Satyaprakahan, "Antenna Wave Propagation" 3rd edition. 1

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1 https://swayam.gov.in/nd1_noc20_ee16/preview

2 https://swayam.gov.in/nd1 noc19 ee47/preview

Course Designed By: K.Manikantan, Assistant Professor, Government Arts College, Ooty& Dr.N Om Muruga, Assistant Professor, Government Arts College, Ooty

Mappi	ng with	Program	nme Ou	tcomes	~33	-	1	(a		
COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	L	L	M	L	L	L	L	М	S	М
CO2	L	М	М	М	L	М	L	S	M	L
CO3	Μ	L	S	L	L	S	L	L	L	М
CO4	М	M	L	L	L	S	М	L	Μ	L
CO5	L	M	S	М	М	М	ν ^ω L	L	Μ	М

Co	ourse Code	33B	DIGITAL PRINCIPLES AND APPLICATIONS	L	Т	Р	С		
Core/Ele	ctive/Supportive		Core	4	0	0	4		
Pre	-Requisite:		Higher secondary Physics	Sylla Ver	-2021				
Course O	bjectives:					•			
The Main	Objectives of this	s cours	se are to:						
1 To	acquire the basic l	znowle	dge of Number system Digital logic circuits an	d ite d	nnlic	ation			
1.10	outline the form	al pro	cedures for the analysis and design of comb	u no a	onal	and			
z. re	quential circuits.	ui pio	courses for the unarysis and design of come	mati	onar	und			
3. To	b learn the concep	ots of A	A/D, D/A conversions and their types.						
	•		· · · · · · · · · · · · · · · · · · ·						
Expected	Course Outcomes	5:							
On the suc	ccessful completion	n of the	e course, student will be able to:						
1	Understand the ba	sics of	Number system and gates			K2			
2	Realize the operat	ion of	various logic gates and analyzing the outputs			K1			
3	Analyses and de	sign t <mark>l</mark>	ne combinational logic circuits			K4			
4	Analyses and de	sign tl	ne Sequential logic circuits	K4 S K6					
5	Design various sy	nchron	ous and asynchronous sequential circuits	K					
K1-Reme	mber; K2- Understa	and; K.	3-Apply; K4- Analyze; K5- Evaluate; K6- Create	eate					
TT 1 (4		di.							
Unit:1	Dinamy Oatal and I	Iana D	Number System And Codes	Dam		0 hou	irs		
– Binary A (BCD) – Codes – H	Addition, Subtracti Weighted Codes a Iamming Codes – A	on and nd Nor ASCII	Multiplication – 1's and 2's Compliments - Bi n-weighted Codes – Excess Three – Grey Coc Codes – EBCDIC Codes – Hollerith Code – Par	nary le – I ity A	Codec Error dvant	l Deci Detec ages.	mal tion		
	A V V	- E - C		1					
Unit:2		Boo	lean Algebra And Logic Gates		1	2 ho	ars		
Boolean lo – Sum of NOR, EX	ogic operations – B Products and Proc -OR and EX-NOR	oolean lucts o Gates	functions – Truth Tables – Basic Laws – De M f Sums – Karnaugh map – Logic Gates – OR – Code Conversion – VHDL Coding for Logic (lorgar , AN Gates	ns The D, N(eorem OT, N	AND,		
Unit:3		C	ombinational Logic Circuits		1	2 hor	irs		
Half Adde	er – Full Adder – I	Half Su	ibtractor – Full Subtractor – Parallel Binary A	dder -	- 4 bi	t Bina	ary		
Adder / S	Subtractor – BCD	adder	– Multiplexer – Demultiplexer – Decoders –	Enco	ders	– Par	ity		
Generator	s / Checkers – Mag	gnitude	Comparators - VHDL Coding for Combination	nal Ci	rcuits				
					-				
Unit:4			Sequential Logic Circuits		1	2 hou	irs		
Flip Flops	s - RS, Clocked F	RS, JK,	, JK Master Slave, D and T Flip Flops – Shit	ft Reg	gisters	s and	its		
Types–Kii Counters	ng Counters– i Decade Counter	Apple	counters-SynchronousCounter-UpDowncounte	r–MC	a-3,N	100-	3		
Counters	Decade Counter	тррп							
Unit:5			D/A and A/D Converters		1	2 hou	irs		
Digital to	Analog Converters	: Resis	tive Divider Type - Ladder Type – Accuracy ar	d Re	soluti	on - A	nalog		
to Digital	Converters: Counter	er – Ra	mp Type – simultaneous Conversion – Dual Sl	ope T	ype –	Succ	essive		
Approxim	ation Type – Accu	racy ar	nd Resolution.						
T T •· · ·	l					<u>.</u> .			
Unit:6			Contemporary Issues			2 hou	rs		

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	Total Lastring having (0 having
	1 otal Lecture nours ov nours
ext Bo	ook(s)
1	Malvino & Leech, "Digital Principles And Applications", Tata McGraw Hill Edition V,
	2002.
2	M.MorrisMano, "Digital Logic And Computer Design", PHI2005.
Referen	nce Books
1	Floyd and Jain, Digital Fundamentals, Prentice Hall2010
2	M. Morris Mano Charles Kime, Digital Logic and Computer Design Fundamentals, Pearson
	Education Limited, 2014
Related	l Online Contents [MOOC, SWAYAM, NPEL, Website etc.]
1	https://soaneemrana.org/onewebmedia/DIGITAL%20PRINCIPLES%20AND%20APPLICATION%20
	%20LEACH%20 <u>&%20MALVINO.pdf</u> E book, Malvino & Leech, -Digital Principles And
	Applications, Tata McGraw Hill Edition X!,2011
2	https://nptel.ac.in/courses/117/106/117106086/Introduction to digital circuits
3	https://www.youtube.com/watch?v=CL3ups78jrs/Introduction to digital Design
-	
_	

Mappi	ng with P	rogramm	e Outcom	nes	1		1 1	71		
COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	P10
CO1	S	S	М	М	М	М	S	М	М	S
CO2	S	М	М	М	Μ	М	S	L	L	L
CO3	S	S	S	М	М	L	L	L	М	М
CO4	М	М	М	S	S	S	L	L	М	М
CO5	М	М	S	S	М	L	М	М	S	М

Co	urse Code	33 C	ELECTRONIC CIRCUITS	L	Т	Р	С
Core/Ele	ctive/Supportive		Core	4	0	0	4
Pre	-Requisite:		Basic Electronics	Sylla Vera	abus sion	2020-	·2021
Course O	bjectives:						
The Mair	n Objectives of th	nis co	urse are to:				
1. To	enable the stud	lents	to understand and gain the knowled	ge on	powe	er sup	oplies,
an	plifiers and oscill	lators					
2. To	Acquaint the stu	dents	with construction, theory and characte	eristics	of th	e elec	tronic
an	plifier circuits an	d typ	es of multivibrators.				
Expected	Course Outcom	es:					
On the su	ccessful completion	on of	the course, student will be able to:				
1	Understand the con	ncepts	s of Rectifiers and regulators			K2	
2	Study about Small	signa	l amplifiers			K1	
3	Analyze the functi	ons o	f Power amplifiers			K4	
4	Analyze the perfor	manc	e of negative as well as positive feedba	ck cire	cuits	K4	
5	Design oscillators	and N	Induction			K6	
K1-Rem	ember; K2- Under	rstand	; K3-Apply;K4-Analyze; K5-Evaluate;	K6- C	reate		
Unit:1]	Rectifiers And Regulators			10 ho	ours
Half wave	e, Full waves and	bridg	e Rectifiers – Calculation of RMS Val	ue - A	verag	e Val	ue
– Ripple Inductor	Factor – Efficie	ncy -	- Iransformer Utility Factor – Peak	Inver	se vo	oltage Volta	-
Regulator	– Zener Diode	Shur	t Regulator – Transistor Shunt and	Series	\mathbf{R}	voltag	ge
Overload	Protection – Cons	structi	on of DC Power Supply.	Series	Reg	anator	
		-	11.5				
Unit:2			Small Signal Amplifiers	7		12 ho	ours
CE, CB,	CC amplifiers –	Calcu	lation of I/P Resistance, O/P Resistance	ce – C	Curren	t Gain	1 -
VoltageG	ain–PowerGain–S	Single	StageTransistorAmplifier–DCandAClo	adline	-RC	Couple	ed
Amplifier	- Gain Frequence	cy Re	sponse – Bandwidth – Transformer C	ouple	d Am	plifier	_
Impedanc	e Matching – FET	Г Атј	plifier.				
Unit:3			Power Amplifiers	1.01		12 h	Jurs
Operation	and Graphical Re	eprese	entation of Class A, Class B, Class C an	d Clas	SS AB	Ampl	ifiers
– Maximi	Im Collector Effic	nency	of Class A Power Amplifier – Collecto	or Diss	Sipatic	on Cur	ve –
Harmonic Symposites	Distortion – Clas	S B P	ush Pull Amplifier – Crossover Distorti	on - c	_ompi	ement	lary
Symmetry	⁷ Fusii Fuii Ailipii	nei					
Unit:4			Feedback Amplifiers			12 ho	ours
Basiccor	ceptsoffeedback-	-Posit	iveFeedback–NegativeFeedback–Effect	tsofNe	gative	e	
Feedback	on Gain. Bandwi	dth a	nd Distortion – Noise – Voltage Series	Feedh	ack -	Volta	ge
Shunt Fee	dback – Current S	Series	Feedback – Current Shunt Feedback.				2
Unit:5		Os	cillators And Multivibrators			12 ho	ours

Barkhausen Criterion - Hartley Oscillator - Colpitts Oscillator - Phase Shift Oscillator -Wein Bridge Oscillators – Peizo Electric Crystal and its Effects – Crystal Oscillator - Astable Multivibrator – Monostable multivibrator – Bistable Multivibrator – Schmitt Trigger Unit:6 **Contemporary Issues** 2 hours Webinar program on electronic circuits https://nptel.ac.in/courses/108/102/108102097/#Introduction to Electronic circuits NPTEL. https://nptel.ac.in/courses/108/102/108102095/Analog Electronic circuits NPTEL. **Total Lecture hours** 60 hours Text Book(s) S.K.Sahdev, —Electronic Principles, Dhanpat Rai & Co (P) Ltd, 2nd Edition, 1998 1 B.L.Theraja, -BASIC ELECTRONICS, Chand Company Ltd, 2000 2 **Reference Books** V.K.Metha, Rohit Metha, Principles Of Electronics, S Chand, 2006. 1 2 B.Sasikala, C.Poornachandra, Electronic Devices And Circuits, Scitech 2003. Related Online Contents [MOOC, SWAYAM, NPEL, Website etc.] 1 http://www.ee.iitm.ac.in/~ani/2012/ec5135/lectures.htmlLecture Notes 2 https://nptel.ac.in/courses/108/102/108102097/#Introduction to Electronic circuitsNPTEL. 3 https://nptel.ac.in/courses/108/102/108102095/Analog Electronic circuits NPTEL. Course Designed By: R.Archana, Assistant professor, Nehru Arts and Science College & Dr.N Om Muruga, Assistant Professor, Government Arts College, Ooty.

Mappir	ng with P	rogramn	ne Outo	comes	DUCATE	TO ELEVIN	15000			
COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	P10
CO1	S	S	М	М	М	М	S	М	М	S
CO2	S	М	М	М	М	М	S	L	L	L
CO3	S	S	S	М	М	L	L	L	М	М
CO4	М	М	М	S	S	S	L	L	М	М
CO5	М	М	S	S	М	L	М	М	S	М

Co	urse Code	3ZA	COMPUTER ARCHITECTURE AND ORGANIZATION	L	Т	Р	С		
Core/Ele	ctive/Supportive		Skill Based Subject - I	3	0	0	3		
Pre	-Requisite:	Hi	igher Secondary Computer Science	Sylla Ver	abus sion	2020-	2020-2021		
Course () bjectives:								
The Main 1. To 2. To de	n Objectives of the stude of enable the stude of learn subject pressign, Peripherals	nis co nts to resent and r	burse are to: learn the newest computer technology as the Modern computer organization, ecent system architecture.	and tre Proces	ends. ssor a	nd me	emory		
Expected	Course Outcom	es:							
On the Su	ccessful completi	ion of	f the course, student will be able to:						
1	Demonstrate com processors, memo	nputer ories	r architecture concepts related to design and I/Os.	of mo	dern	K	3		
2	Analyze the perfe	ormai	nce of commercially available computer	s.		Ke	5		
3	Distinguish the o hierarchy	rgani	zation of various parts of a system mem	ory		Ke	5		
4	Understand the design of the various functional units and components of computers.								
5	Identify the elem processor design.	ents o	of modern instructions sets and their imp	bact or	1	K.	5		
K1-Ren	ember; K2- Unde	rstano	d; K3-Apply;K4-Analyze; K5-Evaluate	; <mark>K</mark> 6-C	reate	4			
IInit.1		M	adarn Computer Organization		1	0 h	ours		
Introducti	on – Lavers in M	oderr	Computer - Computer Organization - 1	Main I	Memo	rv	Juis		
– CPU (Performa Structure	Operation – Con nce Techniques – Computer Func	npute – Bo tion -	r Types – System Performance and ooting Sequence – Computer Design - Architecture And Organization – CISC	Meas Proc C Vs R	sureme cess – LISC	ent – - Con	High aputer		
Unit:2		Pr	ocessor Design And Data Path	<i>.</i>		9 h	ours		
Introducti Organizat Instructio	ion–ProcessorRol ion – Main Mer ns	e–Pro nory	ocessorDesignGoals–ProcessorDesignPr Interface – Local Storage Register Fi	ocess- le – I	– E Data I	Data Path S	Path imple		
Unit:3		Me	mory Design And Management			9 h	ours		
Introducti – Main M Memory Principle	on – Memory Par Memory Allocatio Decoding – Mer of Cache – Virtua	ramet on – mory al Me	ers – Classification of Memory – Memo Static RAM IC – Dynamic RAM – H Hierarchy – Main Memory Drawbac mory Concept – Advantage of Virtual M	ory Teo ROM cks –0 Iemor	chnolo Logic Cache y.	ogy – Mu Mem	ultiple ory –		
Unit:4			Computer Peripherals			8 h	ours		
Introducti FloppyDi CD-ROM	ion – Keyboard skDrive–HardDis IDrive–Scanner–I	– CF kDriv Digita	RT Display Monitor – Printer – Mag ve–SpecialTypesofDiskDrives–Mousear lCamera–DVD–SpecialPeripherals.	netic S ndTrac	Storag k Ba	ge Dev lll–Mo	vices– odem–		
Unit:5		A	dvanced System Architecture			8 h	ours		

Introdu – VLIV	ction–Hig / Archited	hPerforn ture – El	nanceCo PIC Arc	omputer hitectur	Architec e –Multi	ture–RIS	SCSystem or System	ns–Supers s.	scalar A	rchitecture	
Unit:(Interact	ion progra	amme on	C compu	ONTE ter arch	MPORA itecture	RY ISS	UES			2 hours	
	F8-										
Toyt D	ook(a)				Tot	tal Lectu	re hours	5		45 hours	
1 ext D	Govind And A	arajalu.B p plicatio	, "Com ns" Tat	puter A a McGr	Architec aw-Hill,	ture And 2006.	l Organi	zation D	esign Pri	nciples	
2	M. Moi 2006.	M. Moris Mano, " Computer System Architecture ", 3rd edition, Pearson/PHI, India, 2006.									
Refere	nce Book	5									
1	Willian India, S	n Stalling lixth Edit	s, " Con ion.	nputer	Organiz	ation Ar	nd Archi	tecture",	Prentice	Hall of	
2	Patterso Kaufma	on & Hen ann, 2007	nessy, ' '.	'Comp	ute <mark>r Or</mark> g	ganizatio	n And D	esign", N	Aorgan		
Polator	l Onling	Contonto		C SW	AVAM	NDFI	Wabsita	ate 1			
1	https://n	ptel.ac.in/	courses/	106/102	/1061020	62/Introdu	uctionto c	omputer	architectu	ire,Nptel	
2	https://p	ntal ag in/	00115000	406/102	/1061020		puter A rol	hitaatura	andOrgan	vization	
2	<u>mips.//1</u>		courses/	100/103	1001030		pulerAic		andOrgai	IIZation	
Course Mappi	Designed ng with P	By: R.A Dr.] rogram r	rchana, N Om N ne Out	Assista /uruga comes	nt profes , Assista	ssor , Neh nt Profes	nru Arts a sor, Gove	ind Scien	ce Colleg Arts Colle	e & ege ,Ooty	
COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	P10	
CO1	S	S	М	М	М	M	S	М	М	S	
CO2	S	М	М	М	М	М	S	L	L	L	
CO3	S	S	S	М	М	L	L	L	М	М	
CO4	М	М	М	S	S	S	L	L	М	М	
CO5	М	М	S	S	М	L	М	М	S	М	





Course Code	43A	IC'S AND INSTRUMENTATION	L	Т	Р	С
Core/Elective/Supportiv	e	Core	4	0	0	4
Pre-Requisite:		Basic ElectronicsSyllabus Version				
Course Objectives:						
 The Main Objectives of 1. To impart the instruments 2. To enable the stud 3. applications in electronic instrum 	this co cnowle ents to ectron ents	burse are to: edge on IC fabrication, Timer, Pl acquire the knowledge of Op-amp., tra ic circuits and know the technique of	LL, nsduce of mea	and ers and asuren	elec d its nents	tronic using
Expected Course Outco	nes:					
On the Successful comple	tion of	the course, student will be able to:				
1 Recognize the sta	andard	s in IC Fabrication Technology.			K1	
2 Understand the v	orkin	g of Timer and PLL			K2	
3 Design simple ci	rcuits	using Op Amp.			K6	
4 Understand the p	rincip	e of various types of transducers	25		K2	
5 Study the constru CRO, Digital Vo	iction lt <mark>me</mark> te	and working of frequently used equipme r etc.	ent's li	ike	K4	
K1-Remember;K2- Und	erstan	d; K3-Apply;K4-Analyze; K5-Evaluate	; K6- C	reate	6	
TT % 4	See.				101	
	1.10	IC Fabrication Technology	2	44	10 h	ours
Fundamentals of Monolit. –EpitaxialGrowth–Oxidat – Metallization – Mono Integrated Inductors - Thi	ion–Pl lithic ' n and '	Technology – Basic Planar Process – W notolithography–DiffusionofImpurities– Transistors – Integrated Resistors – I Thick film Technology.	afer P Isola	tion ted C	Techn apacit	iques cors -
TT A					101	
FunctionalBlockDiagram Generator – Pulse Width FSKGenerator-PhaseLocl Voltage Controlled Osci Division – AM Detection	of555t Modu cedLoc lator -	imer–MonostableOperation–Application lator – Astable Operation – Application pp:FunctionalBlockDiagram–Phase Dete - Low Pass Filter – Applications: Fre	ns:–Li ns: Sch ector / quenc	near nmitt ' Comp y Mu	Ran Ran Frigge Daraton Itiplie	np er- r - r /
Unit:3		Operational Amplifier			12 h	ours
Ideal Characteristics - I Summing Amplifier – Di Amplifier – Voltage to C Wave Rectifiers – Precisi	nvertin fferend urrent on Ful	g and Non-inverting Amplifier – Op ce Amplifier – Integrator – Differentiate Converter – Current to Voltage Conve Wave Rectifiers	-amp or – Ir rter –	Paran Istrum Precis	neters entationsion ha	– on alf
Unit:4		Transducers			12 h	ours

Introduction–ElectricalTransducer–BasicrequirementsofTransducer–Classification of Transducers – Selection of Transducers – Resistive Transducers – Potentiometers – Thermistors – Thermocouple – LVDT – RVDT – Piezoelectric Transducers – Hall Effect Transducers – Photoelectric Transducers – Digital Displacement Transducers

Init.5	Flactronic Instruments	12 hours
		12 nours
Q Meter	s- CRO: Block Diagram – Cathode Ray Tube – Measurement of Freq	uency –
Measure	mentor Voltageand Current–DigitalOscilloscope–Digitalvoltmeter:Ramp Typ	be DVM
– Dual S	Slope Integrating Type $DVM - Digital Multimeter - Humidity and H$	lumidity
Measurei	ment – Measurement of PH.	
Unit:6	Contemporary Issues	2 hours
Seminar	on transducers and operational amplifier	
	Total Lecture hours	60 hours
Text Boo	ok(s)	
1	D.Roy Choudhury and Shahil B Jain, -Linear Integrated Circuits, Second	d Edition
1	New Age International Publishers, 2004	
2	K.R.Botkar, -Integrated Circuits, 10th Edition Khanna Publishers, 2006	
Reference	ce Books	
	J.B.GUPTA-A Course In Electronic and Electrical Measurements And	d
1	Instrumentation, 12th Edition, S.K Kataria & Sons	
•	A.K. Sawhney, Electrical & Electronic Measurements And Instrument	ation,
2	Dhanpath Rai & Co (P) Ltd, 2004.	
Related	Online Contents [MOO <mark>C, SWAYAM, NPEL, Website</mark> etc.]	
1	https://pptel.ac.in/courses/108/108/108108111/Integrated circuits_on-amps a	nd
	their applications	ild.
2	https://pptel.ac.in/courses/117/106/117106030/Analog IC Design	
4		
Course D	Designed By: R.Archana, Assistant professor, Nehru Arts and Science Colle	ege&
	Dr.N Om Muruga, Assistant Professor, Government Arts Col	llege ,Ooty.

Mapping with Programme Outcomes												
COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	P10		
CO1	S	S	М	М	М	М	S	М	М	S		
CO2	S	М	М	М	М	М	S	L	L	L		
CO3	S	S	S	М	М	L	L	L	М	М		

B. Sc. Electronics and Communication Systems 2020-21 onwards - Affiliated Colleges - Annexure No.29A2 SCAA DATED: 23.09.2020

CO4	М	М	М	S	S	S	L	L	М	М
CO5	М	М	S	S	М	L	М	М	S	М



С	ourse Code	43B	MODERN TELEVISION ENGINEERING			Т	Р	С
Core/El	ective/Supportive		Core	4		0	0	4
P	ce-requiste:		Basic Electronics Syllabus Version				2020-2021	
Course	Objectives:							
The Ma	in Objectives of th	his co	urse are to:			_		
1. T	o design of the su	ibject	is to impart the knowledge on	Television	stai	ndar	ds, re	ceiver
S C	ection, and sync se	parato	or color television with advanced	i techniques	nm	onto		
<i>2.</i> 1	o acquire the know	vieugo	e about color television and its re		рш	ents	•	
Expecte	d Course Outcom	es:						
On the S	uccessful completi	ion of	the course, student will be able	to:				
1	Acquire knowleds	ge on	television standards				K	.1
2	Study on Transmi	tter an	d receiver standards				K	2
3	Understand the Pi	cture	tube of color TV				K	2
4	Knowledge on per	rform	ance of Color TV and other mod	ern devices			K	3
5	Familiarize Advar	nced	V Systems	34			K	4
K1-Rei	nember; K2- Unde	rstand	; K3-Apply;K4-Analyze; K5-E	valuate; K6 -	Cre	ate		
		2	AS AN AND	24				
Unit:1 Aspect resolutio Composi verticals	ratio-Image con n-Camera tubes-In ite video signa	F tinuity mage al-	undamentals Of Television -Number of scanning line Orthicon-Videocon-Plumb icon video signal dimension-hori ortical pulse train-Scanning sequer	s-Interlaced - Monochro zontal syr	s ome nc.	cani e pio Co	12 h ning-P cture ompos	ours ficture tubes- sition-
Unit:1 Aspect resolutio Compos verticals Sound si	ratio-Image con n-Camera tubes-In ite video signa ync.Detailsfunction gnal transmission-	F tinuit nage al- v nsofve Stand	undamentals Of Television -Number of scanning line: Orthicon-Videocon-Plumb icon ideo signal dimension-hori erticalpulsetrain-Scanningsequer lard channel bandwidth.	s-Interlaced - Monochro zontal syr acedetails-V	some nc. SB	canı e pio Co tran	12 h ning-P cture ompos smissi	ours ficture tubes- sition- on-
Unit:1 Aspect resolutio Compos verticals Sound si Unit:2 TV trans	ratio-Image con n-Camera tubes-In ite video signa ync.Detailsfunction gnal transmission- Monocl mitter-TV signal F	F tinuit mage al- Stand Stand hrom	undamentals Of Television y-Number of scanning line Orthicon-Videocon-Plumb icon rideo signal dimension-hori erticalpulsetrain-Scanningsequer lard channel bandwidth. E Television Transmitter And I ration- Interference- TV Transm	s-Interlaced - Monochro zontal syr acedetails-V Receiver ission Anter	some ome SB	canı e pic tran s- M	12 h ning-P cture ompos smissi 12 h	ours licture tubes- sition- on- ours nrome
Unit:1 Aspect resolutio Compos: verticals Sound si Sound si Unit:2 TV trans TV recei	ratio-Image con n-Camera tubes-In ite video signa ync.Detailsfunction gnal transmission- <u>Monocl</u> mitter-TV signal F ver- RF tuner- UH	tinuit mage al- بر Stand hrom Propag	undamentals Of Television y-Number of scanning liner Orthicon-Videocon-Plumb icon ideo signal dimension-hori erticalpulsetrain-Scanningsequer lard channel bandwidth. Television Transmitter And I gation- Interference- TV Transm IF tuner-Digital tuning technique	s-Interlaced - Monochro zontal syr acedetails-V Receiver ission Anter es-AFT- IF	some nc. SB	cani e pio tran s- M	12 h ning-P cture ompos smissi 12 h lonoch ems-A	ours licture tubes- sition- on- ours nrome AGC
Unit:1 Aspect resolutio Composiverticals Sound si Sound si Unit:2 TV trans TV recei Noise ca	ratio-Image con n-Camera tubes-In ite video signa ync.Detailsfunction gnal transmission- Monocl mitter-TV signal F ver- RF tuner- UH ncellation-Video a	tinuit mage al- Stand Stand Propag (F, VF nd Sc	undamentals Of Television -Number of scanning line. Orthicon-Videocon-Plumb icon rideo signal dimension-hori erticalpulsetrain-Scanningsequer lard channel bandwidth. E Television Transmitter And E cation- Interference- TV Transm IF tuner-Digital tuning technique und inter-carrier detection-Visio	s-Interlaced - Monochro zontal syr acedetails-V Receiver ission Anter es-AFT- IF on IF subsys	some oc. SB	cani e pio tran s- M osyst	12 h ning-P cture ompos smissi 12 h lonoch ems-A C re-	ours icture tubes- sition- on- on- ours nrome AGC
Unit:1 Aspect resolutio Composiverticals Sound si Sound si Unit:2 TV trans TV recein Noise ca insertion	ratio-Image con n-Camera tubes-In ite video signa ync.Detailsfunction gnal transmission- Monocl mitter-TV signal F ver- RF tuner- UH ncellation-Video a -Video amplifier c	tinuit mage al- Stand Propag IF, VH and Sc ircuit	undamentals Of Television y-Number of scanning liner Orthicon-Videocon-Plumb icon ideo signal dimension-hori erticalpulsetrain-Scanningsequer lard channel bandwidth. E Television Transmitter And I sation- Interference- TV Transm IF tuner-Digital tuning technique und inter-carrier detection-Visico s-Sync operation Line deflecti	s-Interlaced - Monochro zontal syr acedetails-V Receiver ission Anter es-AFT- IF on IF subsys on circuits-l	some nc. SB mass sub tem EH	canı cu tran s- M syst n- D0 T ge	12 h ning-P cture ompos smissi 12 h lonoch ems-A C re- nerati	ours icture tubes- sition- on- ours nrome AGC on-
Unit:1 Aspect resolutio Compos: verticals Sound si Sound si Unit:2 TV trans TV recei Noise ca insertion Receiver	ratio-Image con n-Camera tubes-In ite video signa ync.Detailsfunction gnal transmission- Monocl mitter-TV signal F ver- RF tuner- UH ncellation-Video a -Video amplifier c	tinuit mage al- v nsofve Stand Propag IF, VH ind So ircuit	undamentals Of Television -Number of scanning line: Orthicon-Videocon-Plumb icon ideo signal dimension-hori erticalpulsetrain-Scanningsequer lard channel bandwidth. 	s-Interlaced - Monochro zontal syr acedetails-V Receiver ission Anter es-AFT- IF on IF subsys on circuits-I	some nc. SB nnas sub tem EH	cani e pia Cu tran s- M ssyst h- D0 T ge	12 h ning-P cture ompos smissi 12 h lonoch ems-A C re- nerati	ours icture tubes- sition- on- ours nrome AGC on-
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Unit:1 Aspect resolutic Compos verticals Sound si Unit:2 TV trans TV recei Noise ca insertion Receiver Unit:3 Three co	ratio-Image con n-Camera tubes-In ite video signa ync.Detailsfunction gnal transmission- Monocl mitter-TV signal F ver- RF tuner- UH ncellation-Video a -Video amplifier c - antennas	tinuit mage al- Stand Stand Propag (F, VF and So ircuit Es	undamentals Of Television /-Number of scanning line: Orthicon-Videocon-Plumb icon rideo signal dimension-hori erticalpulsetrain-Scanningsequer lard channel bandwidth. Television Transmitter And E ration- Interference- TV Transm IF tuner-Digital tuning technique und inter-carrier detection-Vision s-Sync operation Line deflection Sentials Of Colour Television e, Hue and saturation- colour	s-Interlaced - Monochro zontal syr acedetails-V Receiver ission Anter es-AFT- IF on IF subsys on circuits-I	since SB SB SB SB SB SB SB SB SB SB SB SB SB	cani e pia Cu tran s- M ssyst a- D T ge	12 h ning-P cture ompos smissi 12 h lonoch ems-A C re- nerati 10 h s-Valu	ours icture tubes- sition- on- ours nrome AGC on- ours nes of
Unit:1 Aspect resolutic Compos: verticals Sound si Sound si Unit:2 TV trans TV recei Noise ca insertion Receiver Unit:3 Three co luminan	ratio-Image con n-Camera tubes-In ite video signa ync.Detailsfunction gnal transmission- Monocl mitter-TV signal F ver- RF tuner- UH ncellation-Video a -Video amplifier c - antennas	tinuit; mage al- v nsofvo Stand Propag IF, VF nd So ircuit: Es	undamentals Of Television -Number of scanning liner Orthicon-Videocon-Plumb icon ideo signal dimension-hori erticalpulsetrain-Scanningsequer lard channel bandwidth. 	s-Interlaced - Monochro zontal syr acedetails-V Receiver ission Anter es-AFT- IF on IF subsys on circuits-I television ay tubes-Do	some nc. SB massub tem EHT cam	canii e pia tran s- M ss- M ssyst h- D0 T ge D0 T ge	12 h ning-P cture ompos smissi 12 h lonoch ems-A C re- nerati 10 h s-Valu n Prec	ours icture tubes- sition- on- ours nrome AGC on- ours nes of ision-
Unit:1 Aspect resolutic Compos: verticals Sound si Unit:2 TV trans TV recei Noise ca insertion Receiver Unit:3 Three co luminand	ratio-Image con n-Camera tubes-In ite video signa ync.Detailsfunction gnal transmission- Monocl mitter-TV signal F ver- RF tuner- UH ncellation-Video a -Video amplifier c - antennas	tinuit mage al- Stance Stance Propag IF, VH and So ircuit Es ninance erence	undamentals Of Television /-Number of scanning line: Orthicon-Videocon-Plumb icon ideo signal dimension-hori erticalpulsetrain-Scanningsequer lard channel bandwidth. e Television Transmitter And E ation- Interference- TV Transm IF tuner-Digital tuning technique und inter-carrier detection-Vision Sentials Of Colour Television e, Hue and saturation- colour signals-Colour television displues ubes-Purityandconvergence-Pur	s-Interlaced - Monochro zontal syr acedetails-V Receiver ission Anter es-AFT- IF on IF subsys on circuits-I television ay tubes-Do ityandstatic	some nc. SB massub tem EH cam	canii e più Cu tran s- M syst n- D T ge T ge mera and	12 h ning-P cture ompos smissi 12 h lonoch ems-A C re- nerati 10 h s-Valu n Prec Dy	ours icture tubes- sition- on- ours nrome AGC on- ours nes of ision- namic
Unit:1 Aspect resolutic Compos: verticals Sound si Sound si Unit:2 TV trans TV recei Noise ca insertion Receiver Unit:3 Three co luminand in-linean converge	ratio-Image con n-Camera tubes-In ite video signa ync.Detailsfunction gnal transmission- Monocl mitter-TV signal F ver- RF tuner- UH ncellation-Video a -Video amplifier c - antennas	tinuit mage al- Stand Stand Propag (F, VF ind So ircuit Es ninand erence icture Pincus	undamentals Of Television V-Number of scanning line Orthicon-Videocon-Plumb icon ideo signal dimension-hori erticalpulsetrain-Scanningsequer lard channel bandwidth. Television Transmitter And I gation- Interference- TV Transm IF tuner-Digital tuning technique und inter-carrier detection-Vision Sentials Of Colour Television e, Hue and saturation- colour e signals-Colour television displutes-Purityandconvergence-Purityandconvergence-Purityandconvergence-Purityandconvergence-Purityandconvergence-Purityandconvergence-Purityandconvergence-Auto	s-Interlaced - Monochro zontal syr acedetails-V Receiver ission Anter es-AFT- IF on IF subsys on circuits-I television ay tubes-De ityandstatic omatic dega	some nc. SB nnas sub tem EHT can elta	cani e pid Cu tran s- M syst a- D T ge nera i-gui and ing d	12 h ning-P cture ompos smissi 12 h lonoch ems-A C re- nerati 10 h s-Valu n Prec Dy circuit	ours icture tubes- sition- on- ours nome AGC on- ours nes of ision- namic
Unit:1 Aspect resolutic Compos. verticals Sound si Unit:2 TV trans TV recei Noise ca insertion Receiver Unit:3 Three co luminand in-linean converge	ratio-Image con n-Camera tubes-In ite video signa ync.Detailsfunction gnal transmission- Monocl mitter-TV signal F ver- RF tuner- UH ncellation-Video a -Video amplifier c antennas	tinuit mage al- Stand Stand Propag IF, VH and So ircuit Es ninance erence icture Pincus	undamentals Of Television /-Number of scanning line: Orthicon-Videocon-Plumb icon ideo signal dimension-hori erticalpulsetrain-Scanningsequer lard channel bandwidth. Television Transmitter And E (ation- Interference- TV Transmiter IF tuner-Digital tuning technique und inter-carrier detection-Vision Sentials Of Colour Television e, Hue and saturation- colour e signals-Colour television displutes-Purityandconvergence-Purity shion-correction techniques-Autor Colour Television Systems	s-Interlaced - Monochro zontal syr acedetails-V Receiver ission Anter es-AFT- IF on IF subsys on circuits-I television lay tubes-Do ityandstatic omatic dega	some nc. SB sub tem EH cam elta	cani e pic C tran s- M osyst h- D0 T ge nera and ing o	12 h ning-P cture ompos smissi 12 h lonoch ems-A C re- nerati 10 h s-Valu n Prec Dy circuit	ours icture tubes- sition- on- ours nome AGC on- ours ies of ision- namic
Unit:1 Aspect resolutic Compos. verticals Sound si Unit:2 TV trans TV recei Noise ca insertion Receiver Unit:3 Three co luminand in-linean converge Unit:4	ratio-Image con n-Camera tubes-In ite video signa ync.Detailsfunction gnal transmission- Monocl mitter-TV signal F ver- RF tuner- UH ncellation-Video a -Video amplifier c - antennas	tinuity mage al- v nsofvo Stand Propag IF, VF nd So ircuits Es ninance erence icture Pincus	undamentals Of Television V-Number of scanning line. Orthicon-Videocon-Plumb icon ideo signal dimension-hori erticalpulsetrain-Scanningsequer lard channel bandwidth. Television Transmitter And I sation- Interference- TV Transm IF tuner-Digital tuning technique und inter-carrier detection-Visic s-Sync operation Line deflection e, Hue and saturation- colour e signals-Colour television displubes-Purityandconvergence-Purity shion-correction techniques-Auto Colour Television Systems CAM system- PAL colour TV s	s-Interlaced - Monochro zontal syr acedetails-V Receiver ission Anter es-AFT- IF on IF subsys on circuits-I television lay tubes-Do ityandstatic omatic dega	some nc. SB nnas sub tem EHT can elta sussi	cani e pic Cran s- M syst a- D T ge nera and ing c	12 h ning-P cture ompos smissi 12 h lonoch ems-A C re- nerati 10 h s-Valu n Prec Dy circuit 12 h on of	ours icture tubes- sition- on- ours nrome AGC on- ours nes of ision- namic ours phase
Unit:1 Aspect resolutic Compos verticals Sound si Unit:2 TV trans TV recei Noise ca insertion Receiver Unit:3 Three co luminand in-linean converge Unit:4 NTSC co errors	ratio-Image con n-Camera tubes-In ite video signa ync.Detailsfunction gnal transmission- Monocl mitter-TV signal F ver- RF tuner- UH ncellation-Video a -Video amplifier c antennas	tinuit mage al- stand Stand Propag IF, VH and So ircuit Es ninance erence icture Pincus	undamentals Of Television /-Number of scanning line: Orthicon-Videocon-Plumb icon ideo signal dimension-hori erticalpulsetrain-Scanningsequer lard channel bandwidth. Television Transmitter And E gation- Interference- TV Transm IF tuner-Digital tuning technique und inter-carrier detection-Vision s-Sync operation Line deflection e, Hue and saturation- colour e signals-Colour television displutes-Purityandconvergence-Purity hion-correction techniques-Autor bion-correction techniques-Autor Colour Television Systems CAM system- PAL colour TV signals- CAM signals- CA	s-Interlaced - Monochro zontal syr heedetails-V Receiver ission Anter es-AFT- IF on IF subsys on circuits-I television lay tubes-Do ityandstatic omatic dega ystems- Cat- colour bur	some nc. SB sub tem EHT can elta ussi nce st s	canii e pia C tran s- M ss- M ssyst h- D0 T ge D0 T ge ing of ing of in	12 h ning-P cture ompos smissi 12 h lonoch ems-A C re- nerati 10 h s-Valu n Prec Dy circuit 12 h on of ration	ours icture tubes- sition- on- ours nrome AGC on- ours nes of ision- namic ours phase -Burst
Unit:1 Aspect resolutic Compos verticals Sound si Unit:2 TV trans TV recei Noise ca insertion Receiver Unit:3 Three co luminand in-linean converge Unit:4 NTSC co errors	ratio-Image con n-Camera tubes-In ite video signa ync.Detailsfunction gnal transmission- Monocl mitter-TV signal F ver- RF tuner- UH ncellation-Video a -Video amplifier c - antennas	tinuity mage al- v nsofvo Stand Propag IF, VF nd So ircuits Es ninance erence icture Pincus - SEC plifier ampli	undamentals Of Television V-Number of scanning line. Orthicon-Videocon-Plumb icon- video signal dimension-hori- erticalpulsetrain-Scanningsequer- lard channel bandwidth. Television Transmitter And E sation- Interference- TV Transm IF tuner-Digital tuning technique- und inter-carrier detection-Visic s-Sync operation Line deflection- sentials Of Colour Television e, Hue and saturation- colour e signals-Colour television displubes-Purityandconvergence-Puri- shion-correction techniques-Auto- Colour Television Systems CAM system- PAL colour TV signals- Fier-Reference Oscillator-Ident a	s-Interlaced - Monochro zontal syr acedetails-V Receiver ission Anter es-AFT- IF on IF subsys on circuits-I television ay tubes-Do ityandstatic omatic dega ystems- Car - colour bur	some nc. SB sub tem EHT can elta sussi ussi nce st s ille	cani e pic Ci tran s- M syst a- D T ge nera and ing ci llati separ r cir	12 h ning-P cture ompos smissi 12 h lonoch ems-A C re- nerati C re- nerati 10 h s-Valu n Prec Dy circuit 12 h on of ration- rcuits-	ours icture tubes- sition- on- ours nrome AGC on- ours nes of ision- namic ours phase -Burst U and
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Satellite TV technology - Geo Stationary Satellites - Domestic Broadcast System - Cable TV-Cable Signal Sources- Cable Signal Processing, Distribution & Scrambling- Video Recording - Video Home Formats -DVD Players - Digital television-Transmission and reception – Projection television-Flat panel display TV receivers-LCD and Plasma screen receivers-3DTV-EDTV.

Unit:6	Contemporary Issues
)	analysis non-out on talevision and its future developments

2 hours

Preparing analysis report on television and its future developments

Total Lecture hours 60 hours

Text Book(s)

1	R.R.Gulati, " Monochrome Television Practice, Principles, Technology And Servicing ." Third Edition 2006, New Age International (P) Publishers.
2	R.R.Gulati, Monochrome & Color Television , New Age International Publisher, 2003.

Reference Books

NCICI CII	LE DOOKS
1	A.M Dhake, " Television And Video Engineering ", 2nd ed., TMH, 2003.
2	2. R.P.Bali, Color Television, Theory And Practice, Tata McGraw-Hill, 1994
	A DE DE
Related	Online Contents [MOOC, SWAYAM, NPEL, Website etc.]
1	https://nptel.ac.in/courses/117/102/117102059/Introduction to communication
2	https://www.youtub <mark>e.com/watch?reload=9&v=EAybxdgS2T4</mark> TV Transmission
	Concerne - 1
Course D	besigned By: R.Archana, Assistant professor, Nehru Arts and Science College.&
	Dr.N Om Muruga, Assistant Professor, Government Arts College, Ooty.

Mappi	Mapping with Programme Outcomes													
COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	P10				
CO1	S	S	М	М	М	М	S	М	М	S				
CO2	S	М	М	М	М	М	S	L	L	L				
CO3	S	S	S	М	М	L	L	L	М	М				
CO4	М	М	М	S	S	S	L	L	М	М				
CO5	М	М	S	S	М	L	М	М	S	М				

C	ourse Code	43 C	DIGITAL AND CELLULAR COMMUNICATIONS	L	Т	Р	С		
Core/El	ective/Supportive		Core	4	0	0	4		
Pro	e-Requisite:		Basic Electronics	Sylla Ver	abus sion	2020-	2020-2021		
Course (Objectives:								
The Mai	n Objectives of th	is cou	urse are to:						
1. T	o enhance the know	vledge	e in communication with digital and ce	llular	syster	ns			
2. T	o learn the digital a	nd ce	llular technology						
Expected	l Course Outcome	·C•							
On the Su	uccessful completion	on of t	the course, student will be able to:						
1	Know the concepts	of da	ta transmission systems			K1			
2	Analyze the Model of Communication system								
3	- Familiarize Digital	carrie	er Modulation Schemes			K4			
4	Understand pulse	modu	lation and quantization techniques			K2	,		
5	Analyze the cellula	r syst	em design and technical challenges.			K4			
K1-Ren	nember; K2- Under	stand;	K3 -Apply; K4- Analyze; K5- Evaluate	; K6- C	reate				
		15		74.					
Unit:1		100	Data Transmission	1		10 h	ours		
and Signa	alling Speed – Nois	se and	Error Analysis – Repeaters.	1		-			
Unit:2			Communication System	ŝ	71	12 h	ours		
Model of	Communication S	ysten	n – Elements of Digital Communication	on Sys	stem:	Inform	nation		
Source, S	Source Encoder/De	coder.	, Communication Channel, Modulator,	Demo	odulat	or, Ch	annel		
Encoder/	Decoder, Other Fu	nctior	nal Blocks – Analysis of Communication	on Sy	stem	– Desi	ign of		
Commun	ication bystem.		Contract Sector						
IInit.3	1	Digita	al Carrier Modulation Schemes			12 h	ours		
Dinomy D	hasa Shift Varina		forential Phase Shift Koving Differe	ntially	Enac		CV		
Ouadratu	re Phase Shift Key	ing –	Base Band Signal Receiver – Phase Sh	ift Ke	ving	ueu r	эк –		
– Frequei	ncy Shift Keying –	Non-	Coherent Detection of FSK.		5 0				
Unit:4		Pulse	Modulation And Quantization			12 h	ours		
Pulse Ai	mplitude Modulati	on -	Pulse Width Modulation - Pulse	Positio	on M	odulat	ion -		
of Binary	Digits-PCM Syste	anuza em_C	ompanding – Multiplexing PCM Signa	lecule ls – D	iffere	ntial P	CM –		
Delta Mo	<u>odulation – Adap</u> tiv	<u>e De</u> l	ta Modulation						
TI						101			
		1 a -1 - 1	Digital Cellular Systems	/1 4!1	la A -	12 h	ours		
– Channe	el Coding Inter Le	viodel	ung – Fransinssion – Data Service – N z – Radio Resource Management – N	100 Iobilit	ie Acc v Ma	ess SC nagem	neme nent –		
Commun	ication Managen	nent	– Network Management –	ГDMA	Ă A	rchited	cture-		
TransmissionandModulation–CDMA–TermsofCDMASystems–Call Processing – Hand Over Procedures

Unit:6	Contemporary Issues	2 hours
Seminar o	on cellular technology	

Total Lecture hours60 hours

Text Boo	bk (s)
1	Sam K.Shanmugam, "Digital And Analog Communication Systems" , John Wiley Publications, 2005
2	John G.Proakis, "Digital Communications" , Tata McGraw Hill International, 2001.

Reference Books

1	W.C.Y.Lee, "Mobile Cellular Telecommunication" , McGraw Hill Publications, 1995
2	Ke-Lin Du, M.N.S.Swamy, "Wireless Communication Systems", Cambridge University Press, 2010.

Related Online Contents [MOOC, SWAYAM, NPEL, Website etc.]

1	https://nptel.ac.in/courses/106/106/106106167/Wireless and Cellular Communication
2	https://nptel.ac.in/courses/117/105/117105077/Digital Communication
Course D	asigned Dy: D Archang, Assistant professor, Nahm Arts and Science College &

Course Designed By: R.Archana, Assistant professor, Nehru Arts and Science College.& Dr.N Om Muruga, Assistant Professor, Government Arts College, Ooty.

Mappi	Vapping with Programme Outcomes														
COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	P10					
CO1	S	S	М	М	М	M	S	М	М	S					
CO2	S	М	М	М	М	М	S	L	L	L					
CO3	S	S	S	М	М	L	L	L	М	М					
CO4	М	М	М	S	S	S	L	L	М	М					
CO5	М	М	S	S	М	L	М	М	S	М					

	Course Code	43P																																					,	T]	[']	Г	I		ŀ	C	,	()]	ł	7	7	T]	H	ł	F	E	,	(С	'())]	U	J	R	S	ł	E]	L			r	Г		T		P	•			C	1	
Core	Elective/Supportive																																						I)	iĮ	gi	it	3	l	l]	1		6	9	C	:t	tı	r	0)]	n	i	ic	C	S]	L		a	ł)										(0			(0		T		3)			4	ŀ	
	Pre-Requisite:]	D	i	g	ji	t	ć	l	l]	F	C	l	e	e	ct	tı	r	0)]	n	ŋ	ic	CS	5													S V	y	11 er	a s	b io)U OI	is n	í	2	02	2()-	2	02	2	L
Cours	e Objectives:																																																																																												
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Expec	ted Course Outcome	s:																																																																																											_
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1	Understand the logic	al ope	erati	atio	ic	ıt	a	a	2	6			r	1	r				6	2	2	2	2			2	2	2	a	1	1	l	ľ	l	t	t	1	0	n	1	0	of	' 1	V	a	ľ	i	0)]	l	5	S	2	g	58	at	te	e	S	5	ζ	&	ζ	t	h	10	e	0	r	e	n	15	•															k	2	: 			
2	Analyze the circuit u	sing B	Bool	ole	olo	00	C	C	0	C	0	((((((C	C	0	0	2	C	C	C	C	C	0)))()()(0	0		le	28	ar	1	l	a	V	V	S																																										k	4	٢			
3	Design the Adder and	d subt	otract	acto	cto	lC	a	a	a	2	2	ć				ć	ć	2	Е	a	a	8	г	2	2	г	8	a	l	l	l	l	1	(0	С	t	C	or		c	ir	:C	2	1	li	-	l	1	S	i	ir	n	8	5	1	lo	C	g	gi	i	c	2	g	a	ıt	e	25	3																			k	6)			
4	Design and analyze C	Combi	oinat	atio	ti	a	12	1	1	n	n	n	r	r	r	n	n	n	1	1	1	1	1	1	1	1	1	1	l	2	2	2	2	8	a	1	ti	i	01	n	a	1	a	ır	10	d		5	5	e	•	q	ľ	1	e	er	n	ti	ia	a	1	l	c	i	r	c	ι	i	t	S	5										_							k	6	;			_
5	Acquire knowledge a circuits	bout	VH	HE	H	H	ł	7]	7	1	1	1	V	1	V	1	1	1	1	7	7	7	1	1	1	1	7				ł	ł	H	H	F	-	H	C)]	L	, (C	0	d	e	•	1)	r		0	et.	e	es	si	iĮ	g	n	1	-	a	n	10	ł		S	iı	m	U	1	a	te		0	f	d	i	g	it	al	1	lc	'g	ic	C		k	2	2			
K1- F	Remember; K2- Unders	stand;	; K3	K3 -	3-	1	K	K	K	k	ŀ	ŀ	ł	ŀ	ł	ŀ	ł	F	F	K			k	F	F	k	K		ζ	<	<	2	2	2		1	3	-	A	1	p]	p	ŀ	y	;-	F			Ļ		A	4	1	n	12	al	ly	y:	Z	26	e	;;]	K	ζ.	5	;-	·F	E	Vä	al	u	a	t	e	;]	ζ	6	-	C	re	38	ıt	e	_								
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	2. Verification of De	morga	gan's	ı's	's	ı'	n	n	r	ľ	1	1	11	11	11	1	.1	1	r	r	r	r	r	1	1	r	r	r	1	1	1	1	1	1		,	s	5	T	1	10	e	0	r	e	r	r	L					i		í						1				2													l					ň		ľ								
	3. 2-bit Comparator	using	g Gat	late	ate	a	Ja	J	3	3		2				2		2	3	5	5	5	5	-	-	5	5	5	j	h				-	2	a	ıt	e	s																																						ŝ	5			2			ŗ									
	4. Half Adder and Fu	ıll Ad	dder	er	r	eı	e	e	10	1	1	1	1	1	1	1	1	ł	1	6	((1	l	l	1	(6	e	e	e	2	e	e		ı	r																																			d	ŝ						Ì														
	5. Half Subtractor an	d Full	11 Su	Sut	ul	Sı	S	5	-											-	-							4	5	S	S	5	5	5	5	51	u	ŀ	ot	r	a	с	to	0	r																					¢		ŧ	3							1	p																
	6. 4-bit Binary Adde	r																																							í	Ģ	2																			Ş		1																													
	7. Multiplexer and D	emult	ltiple	plex	le	ol	p	p	F	ł	1	ij	ij	ij	ij	ij	[]	1	ł	F	F	ľ	ł	1	1	ł	ŀ	F	p	0)))))]	1	e	27	K	e	rs	5	4	1					Ĺ				1			3			3	8	L	2	þ	1	20																												
	8. Encoder and Deco	der																																																																																											
	9. BCD to 7-Segmen 10. Study of Flip flop	tDisp s	play	ıy	/	y	a	a	a	8	6	6	ć	ć	ć	6	2	2	a	a	a	a	a	2	2	a	a	a	1	Ľ	Ľ	1			y	y	7																																																								
	11. Binary to Grey an	d Gre	ey to	' to	to	t	1	/	y	y	y	y	5	5	5	y	5	y	y	/	/	1	y	y	y	y	/	/	7						1	t	C)	E	3	iı	18	aı	r	y	,	(2	С	1	n	N	V	e	21	rs	si	i	0)1	n	l																															
	12. Shift Registers a	nd Rin	ing C	g Co	С	ç (5	g	g	g	£	Ę	Ę	Į	Ę	Ę	£	£	g	ρ	2	0	g	Ę	Ę	g	ρ	2	5	5	5	5	5			(С	C	D	u	n	t	e	r																																																	
	 Analog to Digita Digital to Analo 	l Conv g Con	nvert nver	erte	te rt	er ei	e: ve	e /(e	e	'e	'(V	v	V	'(v V	e	e	e	e	e	e 7	e	e	e 7	e 7	e 71	e '(e 6) () (e	e e	1 2	r 21	t r	e te	r E1	r																																																					
	15. Op-Amp: Adder	and S	Subt	btra	tr	b	ŀ	ıł	ıl	1	ı	l	J	l	J	l	1	1	ı	l	1	ıl	l	l	l	l	l	1	ł	ł	t	b	b	b))1	tı	ra	ac	C1	tc	DI	[
	16. Op-Amp: Integra	tor an	nd D	l Di	D	I	ł	1	ł	d	d	d	Ċ	Ċ	Ċ	d	d	d	ł	1	1	1	1	ł	ł	1	1	1	l]	I	D	Di	f	f	e	re	eı	n	t	i	3	t	С	01	r																																										
	17. Current to Voltag	e and	l Vo	/olt	ol	70	V	V	V	5	1	1	١	1	١	1	1	1	Í	v	v	v		1	1		•	V	1	1	7	7	7	7	(c)	lt	ta	۱£	ge	e	t	0	((1	ι	1	1	r	e	e	n	t	; (C	C	0)1	n	11	V	e	r	t	e	r																									
	18. Realize Basic gat	es froi	om u	un	ur	υ	1	1	1	n	n	n	r	r	r	n	1	n	n	ı	1	ı	1	נ	נ	1	1	ı	L					1	ı	u	11	n	iv	v	e	rs	38	al		ę		ı	t	e	s	3																																									

19. Synchronous and Asynchronous Counter

20. Magnitude Comparator.

21. Design and Simulation of Basic Logic Gates using VHDL Coding.

22. Design and Simulation of adder using VHDL Coding.

23..Design and Simulation of Subtractor Circuit using VHDL Coding

Total Lecture hours

90 Hours

Course Designed By: R.Archana, Assistant professor, Nehru Arts and Science College.& Dr.N Om Muruga, Assistant Professor, Government Arts College, Ooty.

Mappir	ng with P	rogram	ne Outo	comes						
COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	P10
CO1	S	S	М	М	М	M	S	М	М	S
CO2	S	М	М	М	М	М	S	L	L	L
CO3	S	S	S	М	М	L	L	L	М	М
CO4	М	М	М	S	S	S	L	L	М	М
CO5	М	М	S	S	М	L	М	M	S	М

			ELECTRONIC CIRCUITS,	_			~
(Course Code	43Q	RADIO, TV AND INSTRUMENTATION LAB	L	Т	Р	С
Core /El	ective / Supportive:		Core Practical IV	0	0	3	4
P	re-Requisite:		Basic Electronics Lab	Sylla Ver	abus sion	202	0-21
Course C)bjectives:						
The Main 1. To an 2. To	n Objectives of this c o understand the conc d oscillators. o experiment the mode	ourse a ept of ulation	are to: working of regulated power supplies, and detection techniques.	, recti	fiers,	amp	lifiers
Expected	Course Outcomes:	fthe	ourse student will be able to				
On the Su	ccessful completion of	of the c	ourse, student will be able to:			V	
	Design power supply a	ind rec)
2	Design Ampimer Circu Design different Oscil	lator ci	rouite) 5
	Design different Modu	ulation	circuits			K	, ;
5	Design circuits with T	ransdu				K	, 5
K1-Rem	ember: K2 - Understar	nd: K3-	Apply: K4-Analyze: K5-Evaluate: K6	-Crea	te	IXC	,
		10, 110		crea			
Part I			Electronic Circuits		1	45 h	ours
I	1. DC Regulated	Power	Supply using Zener Diode		1		
	2. Voltage Double	er	11.5	y,	7		
	3. Feedback Amp	lifier	Allain UNING				
	4. Emitter Follow	er	29 J				
	5. Transformer C	oupled	Amplifier				
	6. Hartley Oscilla	tor	SSULTER SWIPP				
	7. Colpitts Oscilla	ator	QUEATE TO ELEVIALE				
	8. Phase shift Osc	illator					
	9. Wein Bridge O	scillate	or				
	10. RC Counled A	Amnlifi	er				
	11 Half Wave an	d Full	Wave Rectifier				
	12. Filter Circuits	G I UII					
	12. Therefore						
Part II	1	Radio,	TV And Instrumentation			45 h	ours
	13. First IF Ampl	ifier					
	14. AM Modulati	on and	Detection				
	15. FM Modulatio	on and	Detection				
	16. Second IF am	plifier	• • • • •				
	17. Audio amplifi	er usin	g TBA 810				
	18. Alignment of	colour	TV using video pattern generator.				

19. S	ync	sepa	arator
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- 20. Vertical selection and horizontsl selection fault of TV receiver
- 21. Video amplifier fault.
- 22. EHT generation
- 23. Temperature measurement using thermistor.
- 24. Displacement measurement using LVDT.
- 25. Weighing machine using load cell
- 26. Instrumentation amplifier.
- 27. Characteristics of photo voltaic cell (solar cell)

(Any 16 Experiments))
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Total Lecture hours

90 hours

Course Designed By : C.N. Omprakash Anand, Assistant professor, Government Arts College, Ooty, Coimbatore & Dr.N Om Muruga, Assistant Professor, Government Arts College, Ooty.

Mappi	ng with P	rogramn	ne Outo	comes	100	100	2.04			
COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	P10
CO1	S	S	М	М	М	М	S	M	М	S
CO2	S	М	М	М	М	М	S	L	L	L
CO3	S	S	S	М	М	L	L	L	М	М
CO4	М	М	М	S	S	S	L	L	М	М
CO5	М	М	S	S	М	L	М	М	S	М

Course code	4ZB	VISUAL PROGRAMMING	L	Т	P	С
Core/Elective/	Supportive	Skill Based Subject - II	3	0	0	3
Pre-requ	isite	Basic computer skills and familiarity with Microsoft Windows.	Syllah Versi	ous on	2020	-2021
Course Object	tives:		1			
The main obje	ectives of thi	s course are to:				
1. To provi	de fundamer	tal skills in utilizing the tools of a visual environme	ent.			
2. To imple	ement SDI a	and MDI applications while using forms, dialogs,	and oth	her ty	pes c	of GUI
compone	ents					
3. To Appl	y visual pro	ogramming concept in software development by	designi	ing pi	roject	s with
menus ar	nd submenus	3				
4. To use v	isual program	nming environment to create simple visual applicat	ions.			
E	0-4					
Expected Cou	rse Outcom	es:				
On the succes	stut complet	fon of the course, student will be able to:	1		T	2
I Gain the	Knowledge	of different elements of a visual programming	langu	age a	.s K	.2
building b	locks to deve	elop correct, conerent programs.				
2 Ability to	implement t	the event driven programming using Visual Basic	6.0 form	ms an	d K	.3
Controls					1/	6
3 Ability to	create menu	to make the application more interactive			K	.6
4 Gain the	Knowledge	about how to use existing Common Dialog Con	trols lil	ke Fil	e K	4
Dialog box	x, Color Dia	log box, etc. to enhance the functionality				
5 [Testing an	d debug Vis	ual Basic programs		~	K	.5
K1 - Rememb	ber; K2 - Un	der <mark>stand; K3</mark> - Apply; K4 - Analyze; K5 - Evaluate	; K6 – (Create	•	
		Constitutes and the state				
Unit:1		Visual Basic Overview	-	6	hou	rs
Visual Basic: Ge	etting Started	d – Visual Basic Environment: Tool Bars – The Too	ol Box a	und Cu	istom	l I
Controls and Co	mponents –	Using File Menu, Edit Menu, View Menu, Project	Menu, H	Forma	t Mei	nu,
Debug Menu, A	dding Menu	and Window Menu – Customizing a Form and Wri	ting Sir	nple I	Progra	ams
			2			
Unit:2		Visual Basic Objects		7	hou	rs
The Tool Box –	Creating Co	ntrols – Properties Setting – First Steps in Program	ming- C	Code V	Vindo	ow –
Visual Basic's E	Editing Tools	s – Statements in VB – Data Types – Working with	Variabl	es – I	nput	
Boxes and Mess	age Boxes –	Displaying Information				
II ' ' '				-		
Unit:3		Building The User Interface		7	hou	rs
ControllingProg	ramFlow-B	uilt-InFunctions–UserDefinedFunctionsandProcedu	res-Co	ntrolA	rrays	s – List
and Combo Box	es – The Fle	x Grid Control- Finishing the Interface: Frames – C	Option E	Button	s –	
CheckBoxes–Sc	rollBars-Ti	ners-CommonDialogBoxes-TheMicrosoftWindow	sComm	onCo	ntrol	s 6.0 –
Menus – MDI F	orms					
Unit:4		Database With Visual Basic		7	hou	rs
Communicating	with Other	Window Applications – Database Development wit	h Visua	l Basi	с	
(DAO, RDO) –	Building Ac	tive Controls – OLE				
.				_		
Unit:5	utala II.	Debugging And Applications	17	7	hou	rs
VC++ Fundame	ntais - Using	g visual Studio s IDE – Menus – Writing, Compilii	ig and I	Jebug	ging	
Simple Program	s – bullaing	a basic Application – Types – Overview of MFC				

B. Sc. Electronics and Communication Systems 2020-21 onwards - Affiliated Colleges - Annexure No.29A2 SCAA DATED: 23.09.2020

0111.0	Contemporary Issues	2 hours
Vebinar on vis	ual programming	
	Total Lecture hours	36 hours
Text Book(s		
1 Gary Corn	ell, "Visual Basic 6.0 From The Ground Up" , Tata McGraw Hill Con	npany, 1999.
2 Chris H. P	appas & William H. Murray, "The Complete Reference Visual C++ 6	", Tata McGraw
Hill, Delhi	·	
	_	
Reference B	ooks	
1 John Paul	Muller, "Visual C++ From The Ground Up", Tata McGraw Hill, Delh	ni.
2 Richard C.	Leinecker and Tom Archer, "Visual C++ 6 Programming Bible", Wi	ley India Pvt Ltd
Polotod Onl	ing Contents MOOC SWAVAM NDTEL Websites at a 1	
1 https://ww	w.voutube.com/watch?v=5nahofJTOXs	
2 https://ww	w.youtube.com/watch?v=1oGpl6qNKoQ	
3 https://ww	w.youtube.com/watch?v=gcFHyVYdeFU	
ourse Designe	ed By: M.Baskaran, Assistant Professor, KSG College of Arts and Scier	nce&
	Dr N Om Muruga Assistant Professor Government Arts Colleg	o Ootu

Mapping w	apping with Programme Ou <mark>tcomes</mark>												
COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	P10			
CO1	S	S	S	М	М	М	S	LG	L	S			
CO2	S	S	S	М	М	М	S	*°L	L	L			
CO3	S	S	S	М	М		L	S	S	М			
CO4	М	М	М	S	S	S	L	L	М	М			
CO5	М	М	S	S	S	L	М	М	S	S			



Course code53A8085 MICROPROCESSOR AND APPLICATIONSLT						
Core/Elective/S	Supportive	Core	6	0	0	4
Pre-requ	lisite	Requires the basic of Digital circuits and Programming languages	Sylla Vers	bus ion	2020	-202
Course Object	tives:					
The main object	tives of this	course are to:				
1. To enabl	the instruction	ts to learn the Microprocessor Architecture.				
2. To learn 3 To know	various peri	inheral devices and to interface them with 8085				
0 . 10 Miow	various peri	photal devices and to interface them withouts.				
Expected Cou	rse Outcom	es:				
On the succes	sful complet	ion of the course, student will be able to:				
1 Explain th	e 8085 micro	oprocessor architecture and its instruction set.			K	1
2 Understan	d and realize	e the Interfacing of memory & various I/O devices	with 80	85	K	2
Microproc	essor					
3 Interface t	he 8085 mic	roprocessor with various peripheral devices.			K	3
4 Understan	d the operati	on of Programmable Interface Devices and realize	the		K	4
programm	ing & interfa	acing of it with 8085 microprocessor.				
5 Explain th	e need for di	ifferent interfacing devices			K	5
K1 - Rememb	er: K2 - Un	derstand: K3 - Apply: K4 - Analyze: K5 - Evaluate	e: K6 –	Creat	e	
			·			
∐nit•1		Introduction To 8085		14	hou	rs
	CT (''					
Unit:2	- Addressing	 Instruction Timing and Operation Status. Instruction Set And Addressing Modes Modes – Instruction Format – Simple Program – N 	Memory	15 7 Read	hou	rs
nd Execution o Unit:2 Instruction Set – Iachine Cycle–	- Addressing • Memory W	Instruction Timing and Operation Status. Instruction Set And Addressing Modes Modes – Instruction Format – Simple Program – N rite Machine Cycle	Memory	15 Read	hou 1	rs
nd Execution o Unit:2 1struction Set – fachine Cycle–	Addressing Memory W	Instruction Timing and Operation Status. Instruction Set And Addressing Modes Modes – Instruction Format – Simple Program – N rite Machine Cycle	Memory	15 7 Read	hou l	rs
nd Execution o Unit:2 Instruction Set – Aachine Cycle– Unit:3 Peripheral I/O I	- Addressing - Memory W	 Instruction Timing and Operation Status. Instruction Set And Addressing Modes Modes – Instruction Format – Simple Program – Norther Machine Cycle Interfacing Concepts Device Selection and Data Transfer – Input Inter 	Memory	15 7 Read 14 – Pra	hou l hou	rs rs
nd Execution o Unit:2 Instruction Set – Aachine Cycle– Unit:3 Peripheral I/O I Input Interfacin Interfacing Mem	- Addressing - Memory W nstructions - g Using Dec nory – Memo	 Instruction Timing and Operation Status. Instruction Set And Addressing Modes Modes – Instruction Format – Simple Program – Normation Research Program – Normation Prog	Memory rfacing egment	15 Read 14 – Pra Disp	hou l hou ctica lay -	rs rs l
nd Execution o Unit:2 Istruction Set – Iachine Cycle– Unit:3 eripheral I/O I Iput Interfacin Interfacing Men Unit:4	- Addressing - Memory W nstructions - g Using Dec nory – Memo	 Instruction Timing and Operation Status. Instruction Set And Addressing Modes Modes – Instruction Format – Simple Program – Normation Representation Program – Normation Program – Normatio	Memory rfacing egment	15 Read 14 – Pra Disp	hou l hou ctica lay - hou	rs rs l rs
Unit:2 Instruction Set – Iachine Cycle– Unit:3 eripheral I/O I nput Interfacin Interfacing Men Unit:4 htroduction to 1	 Addressing Memory W Instructions – g Using Deatory – Memory Programmab 	 Instruction Timing and Operation Status. Instruction Set And Addressing Modes Modes – Instruction Format – Simple Program – Normation Research Program	Memory rfacing egment hitectur	15 7 Read 14 – Pra Disp 14 re – N	hou l hou ctica lay - hou Iode:	rs 1 - rs
Unit:2 Instruction Set – Iachine Cycle– Unit:3 eripheral I/O I uput Interfacin Interfacing Men Unit:4 htroduction to 1 f Operation: I/O	Addressing - Addressing - Memory W nstructions - g Using Dec nory – Memo Programmab D and BSR –	 Instruction Timing and Operation Status. Instruction Set And Addressing Modes Modes – Instruction Format – Simple Program – Normation Research Program	Memory rfacing egment hitectur	15 7 Read - Pra Disp 14 re – N	hou l hou ctica lay - hou lode:	rs 1 - rs 5
Unit:2 Instruction Set – Machine Cycle– Unit:3 eripheral I/O I nput Interfacing interfacing Men Unit:4 htroduction to I f Operation: I/O nterrupt And	Addressing Addressing Memory W nstructions - g Using Dea ory – Memo Programmab D and BSR – Timer Logi	 Instruction Timing and Operation Status. Instruction Set And Addressing Modes Modes – Instruction Format – Simple Program – Normation Research and Program – Normation Research and Program – Normation Research and Data Transfer – Input Interfaced and Parallel And Serial Interface Parallel And Serial Interface Peripheral Interface 8255 – Pin Diagram – Arc - Architecture and Operation of 8251 (USART) 	Memory rfacing egment hitectur	15 7 Read 14 – Pra Disp 14 re – N	hou l hou ctica lay - hou lodes	rs rs 1 - rs S
Unit:2 hstruction Set – Aachine Cycle– Unit:3 Peripheral I/O I hput Interfacin hterfacing Men Unit:4 htroduction to I f Operation: I/O nterrupt And 1 085 Interrupt	Addressing Addressing Memory W Instructions - g Using Dec ory – Memo Programmab D and BSR – Timer Logic Architecture	 Instruction Timing and Operation Status. Instruction Set And Addressing Modes Modes – Instruction Format – Simple Program – Normation Representation of Status Interfacing Concepts Device Selection and Data Transfer – Input Intercoders – Interfacing O/P Devices: LED and 7 Story Time and Unit States Parallel And Serial Interface Devine Peripheral Interface 8255 – Pin Diagram – Arc - Architecture and Operation of 8251 (USART) e of Programmable Interrupt Controller 8259— 	Memory rfacing egment hitectur Archit	15 Read 14 – Pra Disp 14 re – N	hou l hou ctica lay - hou lodes	rs rs l rs s 825
Unit:2 nstruction Set – Iachine Cycle– Unit:3 'eripheral I/O I nput Interfacin nterfacing Men Unit:4 ntroduction to I f Operation: I/O nterrupt And ' 085 Interrupts rogrammable I [sing8254]	Addressing Addressing Memory W nstructions - g Using Dec ory – Memo Programmab D and BSR – Timer Logic Architecture interval Tim	 Instruction Timing and Operation Status. Instruction Set And Addressing Modes Modes – Instruction Format – Simple Program – Normation and Program – Normation and Program – Normation and Data Transfer – Input Intercoders – Interfacing O/P Devices: LED and 7 Story Time and Unit States Parallel And Serial Interface 	Memory rfacing egment hitectur Archit	15 Read 14 – Pra Disp 14 re – N ecture ng Sq	hou l hou ctica lay - hou lode: e of uare	rs rs l rs s 825 Way
Ind Execution o Unit:2 Instruction Set – Machine Cycle– Unit:3 Peripheral I/O I nput Interfacin Interfacing Mem Unit:4 Introduction to I of Operation: I/O Interrupt And 1 085 Interrupts Programmable I Jsing8254	 Addressing Addressing Memory W Instructions - g Using Deconstructions g Using Dec	 Instruction Timing and Operation Status. Instruction Set And Addressing Modes Modes – Instruction Format – Simple Program – Normation and Program – Normation and Program – Normation and Data Transfer – Input Intercoders – Interfacing O/P Devices: LED and 7 Story Time and Unit States Parallel And Serial Interface Parallel And Serial Interface Parallel And Serial Interface Parallel And Serial Interface Programmable Interrupt Controller 8259—er / Counter – Modes of Operation of 8254 – G 	Memory rfacing egment hitectur Archit	15 Read 14 – Pra Disp 14 re – N ecture ng Sq	hou l hou ctica lay - hou lodes e of uare	rs rs l rs s 825 Way

B. Sc. Electronics and Communication Systems 2020-21 onwards - Affiliated Colleges - Annexure No.29A2 SCAA DATED: 23.09.2020

Unit:6	Contemporary Issues	2 hours
Seminar on mic	roprocessor and its applications	
	Total Lecture hours	72 hours
	· · ·	
Text Book(s)		
1 R.S.Gaonk	ar, "Microprocessor Architecture, Program And Its Applicati	ion With 8085",
New Age I	International (P) Ltd,	
2 S.Malarviz	thi, "Microprocessor and Its Application", - Anuradhe Agencie	es Publications – I
edition, Ma	arch 1999.	
Reference B	ooks	
1 DoughlasV	7.Hall, "Microprocessors and Interfacing, Programming and I	Hardware",
TMH,2012		
2 M. Rafi Qu	uazzaman, "Microprocessors Theory and Applications: Intel a	nd Motorola", :
Prentice H	all of India, Pvt. Ltd., New Delhi, 2003.	
Related Onli	ine Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1 https://npte	el.ac.in/courses/108/10 <mark>3/108103157/</mark>	
2 https://ww	w.youtube.com/watch?v=t0Z8P_hpbFk&vl=en	
3 https://ww	w.youtube.com/watch?v=fS7FFOaC_iQ	
Course Designe	ed By: M.Baskar <mark>an, Assi</mark> stant Professor , KSG Colle <mark>g</mark> e of Arts and	d Science&
	Dr.N Om Muruga, Assistant Professor, Government Arts	College ,Ooty.
		M

Mapping wi	th Program	nme Outo	comes		and a	h	1		-	
COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	P10
CO1	S	S	S	М	М	М	S	L	L	S
CO2	S	S	S	М	М	М	S	L	L	L
CO3	S	S	S	М	М	IO EFERT	L	S	S	М
CO4	М	М	М	S	S	S	L	L	М	М
CO5	М	М	S	S	S	L	М	М	S	S

Course code	5ZC	INTERNET AND JAVA PROGRAMMING	L	Т	Р	С		
Core/Elective/S	Supportive	Skill Based Subject - III	3	0	0	3		
Pre-requ	ıisite	This course requires that the students are familiar with programming language such as C/C++ and data structures, algorithms	Sylla Versi	bus ion	202	0-2021		
Course Object	tives:							
The main obje1.To desig2.To learn	ectives of the n of the subj the internet	is course are to: ect is to provide knowledge about internet, Java dat concept and Java programming systems.	a types	, class	ses a	nd files.		
Expected Cou	rse Outcom	es:						
On the succes	sful complet	tion of the course, student will be able to:						
1 Gain know application	vledge about ns using Java	the concepts of Internet and able to program the a.			K	1		
2 Design, cr	eate, build, a	and debug Java applications and applets			K	2		
3 Implement	t object oriei	nted programming concepts in Java.			K	3		
4 Demonstra	ate use of M	ultithreading in Java application.			K	4		
5 Enhance lo	ogical reasor	ning an <mark>d program</mark> ming skills.			K	5		
K1 - Rememb	oer; K2 - Un	derstand <mark>; K3</mark> - Apply; K4 - Analyze; K5 - Evaluate	; K6 –	Creat	e			
		E I Show L E F						
Unit:1		Introduction To Internet			7 ho	ours		
Internet – Introd Connect to the I	luction- Und nternet.	erstanding Internet- Internet Addressing - Hardward	e Requi	remei	nts to)		
TI			and the second	1	7 1.			
Unit:2	1	Basics OI JAVA	6	-	/ 10	ours		
Data Types, Arr	ays, Operato	ors, Flow Control – Branching, Looping		r				
			1					
Unit:3		Inheritance And Interfaces			7 ho	ours		
Classes – New C	Operator, Do	t Operator, Method Declaration and Calling, Constr	ructors,	This	in			
Constructors, In	heritance, Su	uper, Method Overriding Final, Finalize, Static, Pac	kage ar	nd Imj	port			
Statement, Inter	face and Imp	blements						
∐nit•4		Exception Handling And Multithreading			7 h	urs		
Exception Hand	ling – Excer	ption Types, Uncaught and Calling, Nested Try State	ements	Java	Thre	ad		
Model, and Thre	ead, Runnab	le, Thread Priorities, Synchronization, Deadlock		,				
Unit:5	Unit:5 Managing I/O Operation And Applet							
File – Input Stre	am, Output	Stream, and File Stream. Applets-Tag, Order of Ap	plet Ini	tializa	tion			
Repainting, Sizi	ng Graphics	- Introduction to AWT Programming						
Unit:6		Contemporary Issues			2 ho	ours		
Webinar on prog	gramming us	sing java, seminar on internet and its uses		1				
	-							
		Total Lecture hours			36 h	ours		

Text Book(s)	

1 Harley Hahn, **"The Internet Complete Reference"**, Tata McGraw publicity, 2nd Edition ,1997

² Patrick Naughton., " **Patrick Naughton**", Then Java hand book, Tata McGraw, 1997

Reference Books

1 Herbert Schildt, "The Complete Reference, Java", McGraw-Hill.

2 E.Balaguruswamy, "Programming with Java A Primer", McGraw-Hill.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1 https://www.youtube.com/watch?v=pWusFlk747Y

2 https://www.youtube.com/watch?v=M9G_VeQgy7I

3 https://www.youtube.com/watch?v=3u1fu6f8Hto

Course Designed By: M.Baskaran, Assistant Professor, KSG College of Arts and Science& Dr.N Om Muruga, Assistant Professor, Government Arts College, Ooty.

apping	with Prog	ramme O	outcome	S			1			
Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	P10
CO1	S	S	S	М	М	М	S	L	L	S
CO2	S	S	S	М	М	М	S	L	L	L
CO3	S	S	S	М	М	L	L	S	S	М
CO4	М	М	М	S	S	S	L	L	М	М
CO5	М	М	S	S	S	L	М	М	S	S



Course code	63A	8051 MICROCONTROLLER AND EMBEDDED SYSTEMS	L	Т	P	С
Core/Elective/	Supportive	Core	5	0	0	4
Pre-requ	isite	Digital Electronics8085 Microprocessor	Sylla Vers	bus sion	2020	-2021
Course Object	tives:					
The main obje	ectives of thi	is course are to:				
1. Study the	e architectur	e and addressing modes of 8051.				
2. Impart k	nowledge ab	bout assembly language programs of 8051.				~ 1
3. Helps to	understand	the importance of different peripheral devices & their i	nterf	acing	t080	051.
4. Impart k	nowledge of	different types of external interfaces including LEDS	,LCL),		
5. Keypad	Matrix, Swit	cches & Seven segment display.				
E A LO	0.4					
On the succes	rse Outcom	tion of the course, student will be able to:				
1 Describe a	rchitecture a	and operation of Microcontroller 8051			K	1
2 Foster abi	lity to under	stand the design concept of Microcontroller			K	2
3 Design var	rious applica	ations using its peripherals.			K	3
4 Analyze th	ne data trans	fer through serial and parallel ports.			K	4
5 Learn basic	hardware of	various microcontrollers.			K	2
K1 - Rememb	oer; K2 - Un	de <mark>rstand; K3 - Apply; K4 - Analyze; K5 - Ev</mark> aluate; H	<u> X6 – (</u>	Create	e	
	·					
Unit:1		Overview And Instruction Set	4	14 h	ours	5
Microcontroller Overview of 80:	s and Embe <mark>c</mark> 51 Family –	Ided Processors – Microcontrollers for Embedded Sys 8051 Instruction Set and Registers.	tems	_		
		North And	3			
Unit:2	Asse	mb <mark>ly Programming And Addressing M</mark> odes		14 h	ours	6
Introductionto8(Directives–Flag – I/O Port Progr)51Assembl BitsandPSW amming – A	yProgramming-TheProgramCounterandROM-DataTy Register-RegisterBankandStack-LoopandJumpInstru Addressing Modes.	ypesa iction	nd Is		
Unit:3	Arith	metic And Logical Operations In AIP And C		14 h	our	2
Arithmetic Inst Multiplication a Programming.Pr – Logic Operation	ructions and and Division rogramming ons Arithme	d Programs – Unsigned Addition and Subtraction n – Logic Instructions and Programs – Single Bit I withC:DataTypes–TimeDelayProgramming–I/OProgr tic Operations	and nstrue amm	Unsi ctions ing	gnec anc	1
Unit:4		8051 Interrupts And Peripherals		14 h	ours	5
Basic Registers Communication Interrupts – Prog	of Timer – I –8051Conne gramming E	Programming 8051 Timer – Counter Programming – ectiontoRS232–8051SerialCommunicationProgrammi xternal Hardware Interrupts	Basic ng–8	s of S 051	Seria	1
Unit:5		Real World Applications		14 h	ours	5
InterfacingLCD – 8051 Interfaci	tothe8051–I ng to the Ke	nterfacingADC–InterfacingSensorsto8051–Interfacing yboard – Interfacing DAC to the8051	gStep	per M	lotor	

Unit:6	it:6 Contemporary Issues 2 hours								
An overall discu	n overall discussion on embedded systems and microcontrollers								
	Total Lecture hours	72 hours							

Text	Book(s)
IUAL	DUUK(S)

 Muhammad Ali Mazidi, Janice GillispieMazidi and Rolin D. McKinlay, "The 8051 Microcontroller And Embedded Systems Using Assembly And C", PHI, 2nd edition 2006.

2 Ayala J.K., **The 8051 Microcontroller: Architecture, programming and applications**, Penram International (2005) 3rd ed.

Reference Books

- 1 Mazidi,E. and Mazidi,F., **The 8051 Microcontroller And Embedded Systems**, Prentice-Hall of India (2004) 2nd ed.
- 2 Peatman J., Embedded System Design Using Pic18fxxx, Prentice Hall, 2003.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1 https://www.youtube.com/watch?v=84YUQu8tE4w

2 https://www.youtube.com/watch?v=GPz_mR7Flas

3 https://www.youtube.com/watch?v=uFhDGagZzjs

Course Designed By: M.Baskaran, Assistant Professor, KSG College of Arts and Science& Dr.N Om Muruga, Assistant Professor, Government Arts College, Ooty.

Mappi	ng with P	rogramme	Outcom	es	Street a	2				
COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	P10
CO1	S	S	S	М	М	М	S	L	L	S
CO2	S	S	S	М	М	М	S	L	L	L
CO3	S	S	S	М	М	L	L	S	S	М
CO4	М	М	М	S	S	S	L	L	М	М
CO5	М	М	S	S	S	L	М	М	S	S

Course code	63P	Microprocessor a	and Microcontroller Lab	L	Т	P	С
Core/Elective/	Supportive	Core -	-Practical-VI	0	0	3	4
Pre-real	usite	Requires the bas	ic of Digital circuits and	Syllab	ous	2020	-2021
		Program	ming languages	Versi	on	2020	-2021
Course Object	tives:						
1 To intro	cuves of the	course are to: mbly language progr	camming of Microprocessor a	nd Mici	ocor	ntrolle	⊃r
1. 2. It dev	elops the stu	ent's Assembly lang	uage programming skills and	gives r	oracti	ical tr	raining
of interfa	acing the per	pheral devices with the	he Microprocessor and Micro	controll	er.		0
Expected Cou	rse Outcom	s:					
On the succes	sful complet	on of the course, stud	lent will be able to:				
1 Learn assembly language programming of Microprocessor and Microcontroller with							
interfacing	g the periphe	al devices.					
2 Learn asse	embly langua	e programme of mic	rocontroller				K1
3 Understan	d the basic c	ncepts of interfacing	and peripheral devices				$\frac{K2}{K2}$
4 Apply the	Knowledge	microprocessor and	microcontroller				K3 K4
K1 - Rememb	per: K2 - Un	erstand: K3 - Apply:	merocontroner				<u>N4</u>
	,	11.57	C PPA				
 Addit Multij Block Small Small To arr Sum o 1's an UP/D Traffi Data Squa ADC ADC 	ion / Subtrac plication / D Data Transf est / largest o range in asce of N 8 bit Nu d 2's Compl OWN Count c Light Cont Transfer usi re wave gene Interface er Motor inte	ion of 8 / 16 bit Data vision 8 bit Data r f N Numbers ding / Descending O nbers ment of an Array (8b r using 7 Segment D ol Interface g 8255 (PPI) ator using8255 face	rder it) isplays	X			
		8051 MICRO	CONTROLLER LAB				
15.Arithr	netic and Lo	ical Programs					
16.Key Iı	nterface						
17.LED 18. Solid	Interface l State Relay	Interface					
19. Squa	re Wave Ger	eration					

20. ADC Interface

21. DAC Interface

22.Stepper Motor Interface

23.LCD Interface

Course Designed By: M.Baskaran, Assistant Professor, KSG College of Arts and Science& Dr.N Om Muruga, Assistant Professor, Government Arts College, Ooty.

Mappi	Mapping with Programme Outcomes										
COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	P10	
CO1	М	М	S	S	S	М	S	М	М	S	
CO2	S	S	S	M	М	М	S	М	L	L	
CO3	S	S	М	М	М	L	L	L	S	М	
CO4	S	S	М	S	S	S	L	L	S	М	
CO5	М	М	S	S	S	L	Ĺ	L	S	М	

Course code 63Q	INDUSTRIAL AND POWER ELECTRONICS	L	Т	P	С		
Core/Elective/Supportive	Core – Practical- VII	0	0	3	4		
Pre-requisite	Basic knowledge of Electronic Circuits or permission of instructor	Syllal Versi	ous on	2020-	-2021		
Course Objectives:							
The main objectives of the	is course are to:						
3. To understand the ch	aracteristics of power electronic devices.						
Expected Course Outcom	es:						
On the successful complet	ion of the course, student will be able to:						
1 Design triggering circu	iits of SCR			K.	2		
2 Understand the characteristics of power electronic devices.							
3 Design and study of D	IAC and TRIAC circuits			K.	3		
4 Understand the basic k	nowledge of PCB			K	2		
5 Analyse the parameter	s of vaious components of electronic circuits			K	4		
K1 - Remember; K2 - Un	derstand; K3 - Apply;						
 Triggering of SCF Design of snubber Fan regulator usin Thyristor chopper TRIAC Flasher. Commutation Tec Speed control of I Automatic street I Burglar Alarm Sequencer Circuit Power Inverter Switching Regular Automatic Battery AON / OFF relay co Servo stabilizer Layout and Art W etching Drilling an Temperature control Construction of E Phase Control Cir Cyclo converter Thyristor protection 	k by R, C and Diac. circuit. g Triac. hniques. OC motor using SCR. ight controller tors v Charger Fire alarm ontrol using opto – coupler fork preparation for PCB nd Component mounting of PCB roller using AD 590/ LM 35. mergency Lamp. cuit	M					

Course Designed By: M.Baskaran, Assistant Professor, KSG College of Arts and Science& Dr.N Om Muruga, Assistant Professor, Government Arts College, Ooty.

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	P10
CO1	М	М	S	S	S	М	S	М	М	S
CO2	S	S	S	М	М	М	S	М	L	L
CO3	S	S	М	М	М	L	L	L	S	М
CO4	S	S	М	S	S	S	L	L	S	М
CO5	М	М	S	S	S	L	L	L	S	М



Coi	irse code	63R	Elec	tronic Comm	unication Lab		L	Т	P	C
Core	e/Elective/	Supportive		Core – Practi	cal- VIII		0	0	3	4
	Pre-requ	isite	Basic knowl	ledge of Elect	ronic Communic	ation	Syllal Versi	ous on	2020-	·2021
	Irse Object	tives:								
The 1	main object	ctives of this	course are to	: ital Communic	vation					
2	. To exper	riment the M	odulation and	l Detection tec	hniques					
3.	. To study	about wirele	ess communic	cation technolo	ogies.					
Exp	ected Cou	rse Outcom	es:							
On	the succes	stul complet	$\frac{100}{100}$ of the cou	arse, student w	ill be able to:				17/	
I	Understan	d the concep	ot of Digital C	ommunication	and wireless com	imuni	cation		K.	2
2	2 Obtain experiment knowledge about the Modulation and Detection techniques								K	3
2	Understan	d the practic	al component	s involved in l			Jues		K'	, ,
4	Apply the	principles in	to practical e	xperience					K	3
5	Analyse th	ne practical e	exposre over t	he PAM and P	WM, PCM				K4	1
K 1	- Rememb	ber; K2 - Uno	derstand; K3	- Apply; K4 -	Analyze; K5 - Eva	aluate	; K6 – (Creat	te	
				100	NA 18-					
	 Pulse Pulse Gener Gener Gener Gener Gener Frequ Frequ Phase QPSK DPSK Study Full 	Amplitude N Width Modu ration and De ration of delta itude Shift K ency Shift K Shift Keying Shift Keying of TDM/FI duplex comr	Modulation (P alation (PWM etection of PC a and Adaptiv Ceying g DM nunication me	PAM) and Dete I) and Pulse Po CM ve delta modul	ection osition Modulation ation	(PPM				
	 12.Align 13.Study 14. Stud 15. PIN 16. Lase 17. Fiber 18.Signal 	iment of sate of GPS Har y of GSM M Diode Chara r Diode Char r Optics TX a Sampling an	ellite receiver ndset lodule acteristics racteristics and Rx nd Reconstruct	ction						

- 19. GUNN diode Oscillator
- 20. Reflex Klystron Characteristics using microwave bench 21.Radiation pattern HORN antenna.
- 22. Radiation pattern of Dipole & Yagi Uda antennas
- 23. Radiation pattern Loop & array antennas

Course Designed By: M.Baskaran, Assistant Professor, KSG College of Arts and Science& Dr.N Om Muruga, Assistant Professor, Government Arts College, Ooty.

Mappi	ng with P	rogramn	ne Outco	omes						
COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	P10
CO1	М	М	S	S	S	М	S	М	М	S
CO2	S	S	S	М	М	М	S	М	L	L
CO3	S	S	М	М	М	L	L	L	S	М
CO4	S	S	М	S	S	S	L	L	S	М
CO5	М	М	S	S	S	L	Ĺ	L	S	М

-								
Cou	irse code 6ZD	VISUAL AND JAVA PROGRAMMING	LAB	L	Т	P	С	
Core	e/Elective/Supportive	Skill Based Subject - V –Practical.		0	0	3	3	
	Pre-requisite	Basic computer skills and familiarity w Microsoft Windows. students are familiar programming language such as C/C++ and structures, algorithms	ith ' with 1 data	Syllat Versi	ous on	2020	-2021	
Cou	rse Objectives:							
The main objectives of this course are to:								
 To design and develop Windows-based business applications using Visual Basic Emphasis on the fundamentals of structured design, development, implementation, and documentation. Gain knowledge about basic Java language syntax and semantics to write Java programs 								
Exp	ected Course Outcon	es:						
On	the successful comple	ion of the course, student will be able to:						
1	Develop Windows-ba	ed business app <mark>lications us</mark> ing Visual Basic					K6	
2	Understand the fundat documentation.	entals of structured design, development, im	pleme	ntation,	and		K2	
3	Gain knowledge abou Programs	basic Java language syntax and semantics to	write.	Java			K2	
4	Create own programm	e on visual programming					K6	
5	Create own programm	ng on java programming					K6	
K1	Remember; K2 - Ur	lerstand; K3 - Apply; K4 - Analyze; K5 - Ev	aluate	; K6 – (Creat	e		
	N.A.	Realized States		2007				



Visual Programming (any 8 experiments)

- 1. Building Simple Applications using Basic Tools.
- 2. Working with Intrinsic Control and Active X controls.
- 3. Create an Application with multiple forms and dialogs.
- 4. Write a VB program to design an e-mail registration form.
- 5. Create an Application with Menu editor.
- 6. Create an Application with DAO controls
- 7. Create an Application using Common dialogs.
- 8. Write a program for Drag and Drop Events.
- 9. Create a Database for library management using ADD controls.
- 10. Creating an application using Active X control.
- 11. Create a Scientific calculator in VB.
- 12. Develop a VB application to either link or embed MS Word document to an OLE control.
- 13. Display Student information using Grid control.
- 14. Create an Application using RDO controls.
- 15. Develop an application to perform the following operation in the Employee table using DAO.
- i) Add a new Record.
- ii) Delete a Record.
- ii) Modify a Record.

JAVA Programming (Any 8 Experiments)

1. Program to print the following triangle of numbers 1 12 1231234

- 2. Definingaclasswiththefollowingattributes1.xname2.DateofBirth3.Dateonwhich leg injection has to be given (sixty days from date of birth) 4. X date on which polio drops is to be given (45 days from Date of birth). Write a constructor to construct the baby object. The constructor must find out the leg and polio drops dates from the date of birth. In the main program define a baby and display its details.
- 3. Program to create and display a message on the window
- 4. Program to draw several shapes in the created window.
- 5. Program to create an applet and draw gridlines.
- 6. Java program to create a frame with two buttons called father and mother. When we click the father button the name of the father, his age and designation must appear. When we click mother similar details of mother appear.
- 7. Java program to create a frame with four text fields for name, age and qualification and a text field of multiple lines for address.
- 8. Program to draw circle, ellipse, square and rectangle at the mouse click position.
- 9. Java program to create four text fields for the name, street, city and pin code with suitable labels. Also add a button called my details, when you click the button your name, street, city and pin code must appear in the text fields.
- 10. Java program to demonstrate the multiple selection list boxes.
- 11. Program to create a canvas which displays a clock with hour hand and a minute hand depending upon an int variable minutes. Write another program with a frame, which displays the clock canvas. It must also have three buttons, tick, reset and close. When we click reset, the clock must reset to 12 hrs. When we click close, the frame closes.
- 12. Java program to create a menu bar and pull down menus.
- 13. Java program to create a window when we press M or m the window displays Good MorningAorthewindowdisplaysGoodAfternoonEorethewindowdisplaysGood Evening N or n the window displays Good Night.
- 14. Java program to move different shapes (Circle, Ellipse, Square, and Rectangle) according to the arrow key pressed.
- 15. Program to handle the divide by zero exception.
- 16. Program to explain the multithreading with the use of multiplication tables. Three threads must be defined and each one must create one multiplication table; they are 5 tables, 7 tables and 13table.
- 17. Program to illustrate thread priority. Create three threads and assign three different priorities.

Course Designed By: M.Baskaran, Assistant Professor, KSG College of Arts and Science& Dr.N Om Muruga, Assistant Professor, Government Arts College, Ooty.

Mapping with Programme Outcomes

B. Sc. Electronics and Communication Systems 2020-21 onwards - Affiliated Colleges - Annexure No.29A2 SCAA DATED: 23.09.2020

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	P10
CO1	М	М	S	S	S	М	S	М	М	S
CO2	S	S	S	М	М	М	S	М	L	L
CO3	S	S	М	М	М	L	L	L	S	М
CO4	S	S	М	S	S	S	L	L	S	М
CO5	М	М	S	S	S	L	L	L	S	М





С	ourse Code	5EA	ASIC DESIGN	L	T	P	C
Core/El	ective/Supportive		Elective I - A	6	0	0	4
Pı	e-requiests		Basic Electronic	Syll Ver	abus sion	2020-	·2021
Course (Objectives:						
The Mai	n Objectives of thi	s cour	se are to:				
1. T	o prepare the studer	nt to be	an entry-level industrial standard	ASIC or	FPG	A desi	gner.
2. T	o understand the is	sues a	nd tools related to ASIC/FPGA de	esign an	d imp	lemen	tation
ar	nd basics of System	on Ch	ip and Platform based design.				
Expected	Course Outcome	د.					
On the Su	accessful completio	on of th	e course, student will be able to:				
1	Know the concepts	of data	a transmission systems			K1	
2	Analyze the Model	of Cor	munication system			K6	
3	Familiarize Digital carrier Modulation Schemes .						
4	Understand pulse n	nodulat	ion and quantization techniques			K2	
5	Analyze the cellula	r syste	m design and technical challenges.			K4	
K1 - Re	member; K2 - Und	erstand	; K3 - Apply; K4 - Analyze; K5 -	Evaluat	e; K6	– Crea	ite
		12					
Unit:1		AC I	ntroduction To ASICS	36		16 h	ours
Unit:2 CMOS T Strength- Path Log	Fransistors –Design Transmission Gate ic Cells: Data Path	Rules s–EX- Elemer	CMOS Logic – Combinational Logic Cells: F OR Cell, Sequential Logic Cells: F hts	Pushing F–Cloc	Bubb ked In	18 h les – verter	ours Drive , Data
		2	South Contract	<u>8 /</u>			
Unit:3			ASIC Design	EEDD		18 H	ours
Programi Programi Programi Logic Sy	nable ASIC Logic nable ASIC L/O Ce nable ASIC I/O Ce	Cells: Cells: ells: DC nthesis	– Static RAM–EPROM and Actel ACT - Xilinx LCA and Alt COutput –DC Input, Programmabl	era FLE e ASIC	X Ard Desig	chitect n Soft	ures tware
Unit:4			VHDL			18 h	ours
Introduct Objects -	ion to VHDL – B Data Types - Desig	ehavio gn Exai	ral, Data Flow and Structural M nples	odel -	Opera	tors –	Dat
Unit:5			VERILOG			18 h	ours
Introduct Modeling	ion - Language Ele g – Modeling Exam	ments- ples	Gate-Level modeling- Data Flow-	Behavi	oral- S	structu	ral
Unit:6			Contemporary Issues			2 ho	ours
Seminar	on ASIC design. C	MOS 1	ogic. Demo programme on VHDL	Verilo	<u>y</u>		
			Total I	ecture	hours	90 ha	ours

ext B	ook(s)									
1	Michael	John Se	bastian	Smith,	"Applica	ation Sp	ecific Int	egrated	Circuits'	,
	Additio	n-Wesley	y, 2nd re	eprint, 2	000.					
2	Bhasker	: J, ''VH	DL Pri	mer'', I	3S Public	cations, 2	2001			
3	Bhasker	·.J. "A V	erilog H	IDL Pr	imer ", B	S Public	ations, 20	001		
efere	nce Books	6								
1	Charles	.J.Roth,	"Digita	l Syster	n Desigr	u Using V	VHDL",	PWS Pul	olishing	
1	(Thoms	on learni	ng), 200)2.						
2	Stephen	Brown,	Zvonko	Vranes	ic, "Fun	daments	Of Digit	tal Logic	With VI	HDL
4	Design'	' Tata M	cGraw-1	Hill, 20	02					
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С	ourse Code	5EB	REMOTE SENSING	L	Т	Р	С
Core/El	ective/Supportive	-	Elective I - B	6	0	0	4
Pı	re-requiest:		Basic Electronics	Sylla Ver	abus sion	2020-	·2021
Course (Objectives:	J					
The Mai	n Objectives of thi	s coui	rse are to:				
1. T	o design fully equi	ipped	with concepts, methodologies and a	applica	ations	of Re	emote
Se	ensing Technology.						
2. To el	o Define and de ectromagnetic spec	scribe	remote sensing and explain its and interactions with various types of	appl media	icatioi	ns, hi	story,
Evnoctor	Course Outcome	c •					
On the Si	iccessful completio	s. m of th	be course, student will be able to:				
1	Know the concepts	$\frac{1001}{100}$	ta transmission systems			K1	
2	Analyze the Mode	l of Co	ommunication system			K6	
3	Familiarize Digital	l carrie	er Modulation Schemes .			K4	
4	Understand pulse r	nodul	ation and quantization techniques			K2	
5	Analyze the cellula	ar syst	em design and technical challenges.			K4	
K1:Ren	nember; K2 -Unde	erstan	d; K3 -Apply; K 4-Analyze; K5 -Ev	aluate	; K	6-Cre	ate
		12		26			
Unit:1		Pri	nciples Of Remote Sensing			16 h	ours
Remote	Sensing System ar	nd its	Components - Electromagnetic Spo	ectrun	1 - D	efiniti	on of
Emissivit	y - Reflectance - A	Absort	Sance and Transmittance - Spectral S	ignatu	re - P	Atmosp	oneric
window Energy w	- Active and Past with Atmosphere and	d Earth	r Features - Factors Affecting the Ref	on of lectan	ce	tromag	gnetic
Unit•2		2	Platforms And Sensors	1	99	18 h	ours
Airborne	and Space Platfo	orms	- Advantages and Disadvantages	of eac	h Pr	inciple	e and
Functioni	ing of Camera - Fi	lms, N	Aulti-Spectral, Thermal & Line Scan	ners,	Side I	Lookin	g Air
Borne R	adars – Hyper sp	ectral	Sensors - Different Satellite and	Sense	or Co	mbina	tions:
LANDSA	AT – SPOT - IRS Se	eries o	f Satellites and Sensors.				
			SSULITONI S-WIND				
Unit:3	Ima	ge Ch	aracteristics And Interpretation			18 h	ours
Differenc Radiomet	esbetweenAerialan tric Processing In	dSpac Icludii	eBorneImagery-ElementsofVisualIntentsofVisualIntentsofVisualIntentsof Correction of Instrumental Ar	erpreta tifacts	tion (- A	of Ima Atmosp	iges - pheric
Correctio	ns; Geometric Cor	rection	ns - Registration. Geometric Enhance	ement	inclu	ding S	patial
Filtering	- Edge Detection ar	nd Enh	nancement.				
Unit:4		Ι	Digital Image Processing			18 h	ours
Image T	Fransformations -	Subt	raction – Rationing - NDVI a	nd P	CA -	- The	matic
Classifica	ationandClusteringto	oInclu	deUnsupervisedandSupervisedClassif	ficatio	nBase	ed	on
Minimun	n Distance and M	faxim	um Likelihood Classification - Ac	curacy	/ Ass	essme	nt of
Classifica	ation - Concepts of	нурег	spectral image Analysis				
Unit:5	ANCILLA	RY D.	ATA SOURCES AND INTEGRAT	ION		18 h	ours
GroundT	ruth-Geographicanc	dRadio	ometric-IntroductionofGIS-Integration	ofRei	note S	Sensin	g and
013 -Dig	ital Terrain Models	- GPS	and its Kole to Remote Sensing Data	l			

Unit:6	Contemporary Issues	2 hours
Group dis	cussion on Digital Image Processing, Image interpretation	
	Total Lecture hours	90 hours
Fext Boo	k(s)	
1	Lillesand, T.M. and Kiefer, R.W., REMOTE Sensing And Image Interp	retation.
2	Curran, Paul J., Principles Of Remote Sensing	
3	Campbell, J.B., Introduction Of Remote Sensing	
Referenc	e Books	
1	Sabins, F.F., Remote Sensing: Principles And Interpretations	
2	Reddy, M. Anji, Remote Sensing And Geographic Information System	
Related	Online Contents [MOOC, SWAYAM, NPEL, Website etc.]	
1	https://www.coursera.org/lecture/gis-applications/remote-sensing-basics-wr6KdR	emote
	sensing Basics	
~ ~		

Course Designed By:

R.Archana, Assistant professor, Nehru Arts and Science College.&

Dr.N Om Muruga, Assistant Professor, Government Arts College, Ooty,

C. N Omprakash Anand, Assistant Professor, Government Arts College, Ooty

2016

Mappi	ng with P	rogramn	ne Outo	comes	and a second	3	1			
COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	P10
CO1	S	S	М	М	М	М	S	М	М	S
CO2	S	М	М	М	М	М	S	L	L	L
CO3	S	S	S	М	М		L	L	М	М
CO4	М	М	М	S	S	S	L	L	L	L
CO5	М	L	S	S	М	L	L	L	S	М

Core/Elective/Supportive Elective I - C 6 0 0 4 Pre-Requisite: Basic Electronics Syllabus Version 2020-202 Course Objectives: The Main Objectives of this course are to: 1. To Learn the context of wireless network systems such as2G/3G/4G mobile telephon Data networks, and other wireless networks and infrastructure. 2. To emphasize the interface between mobile computing devices and programming tho devices Expected Course Outcomes: Nt 1 Mobile environments and communications systems. K1 2 Hardware devices and interacting with these devices. K6 4 Programming applications on a mobile system. K2 5 Data and knowledge management K4 K4 K4 K1:Remember; K2-Understand; K3-Apply; K4-Analyze; K5-Evaluate; K6-Create Unit:1 Introduction 16 hours 16 hours Wireless LAN: Infrared VS Radio Transmission = Infrastructure Networks. 18 hours Wireless LAN: Infrared VS Radio Transmission = Infrastructure Networks. 18 hours Mobile Quality of Service- Access Point Control Protocol 18 hours Mobile RP: Goals – Assumptions and Req	Co	ourse Code	5EC	MOBILE CO	MPUTING	L	Т	Р	C
Pre-Requisite: Basic Electronics Syllabus Version 2020-202 Course Objectives: The Main Objectives of this course are to: 1. To Learn the context of wireless networks and infrastructure. 2. To emphasize the interface between mobile computing devices and programming tho devices Z. To emphasize the interface between mobile computing devices and programming tho devices K1 Mobile environments and communications systems. K1 1 Mobile operating systems available. K6 3 Mobile operating systems available. K4 K1:Remember; K2-Understand; K3-Apply; K4-Analyze; K5-Evaluate; K6-Create Unit:1 Introduction 16 hours Mobile for Mobile Computing Vireless LAN: Infrared Vs Radio Transmission - Multiplexing - Spread. Spectrum and Cellular Systems-Mediu Access Control SDMA FDMA TDMA CDMA-Comparison of Access Mechanisms 18 hours Unit:2 Wireless Networks 18 hours Wireless LAN: Infrared Vs Radio Transmission - Infrastructure Networks. Ad hoc Network EEE 802.11 - HIPERLAN - Bluetooth- Wireless ATM: Working Group- Services - Referen Mobile Quality of Service - Access Point Control Protocol 18 hours Mobile Perior - Adcess Point Control Protocol 18 hours Mobile Creation - Spreat	Core/Ele	ective/Supportive		Elective I -	6	0	0	4	
Course Objectives: The Main Objectives of this course are to: 1. To Learn the context of wireless network systems such as2G/3G/4G mobile telephon Data networks, and other wireless networks and infrastructure. 2. To emphasize the interface between mobile computing devices and programming tho devices Expected Course Outcomes: Dath the Successful completion of the course, student will be able to: 1 Mobile environments and communications systems. 2 Hardware devices and interacting with these devices. 4 Programming applications on a mobile system. 5 Data and knowledge management K1:Remember; K2-Understand; K3-Apply; K4.Rinemember; K2-Understand; K3-Apply; Mobile and Wireless Devices – Simplified Reference Model – Need for Mobile Computing Wireless LAN: Infrared Vs Radio Transmission – Infrastructure. 18 hours Wireless LAN: Infrared Vs Radio Transmission – Infrastructure. 18 hours Wireless LAN: Infrared Vs Radio Transmission – Infra	Pre	Pre-Requisite:Basic ElectronicsSyllabus Version							
The Main Objectives of this course are to: 1. To Learn the context of wireless network systems such as2G/3G/4G mobile telephon Data networks, and other wireless networks and infrastructure. 2. To emphasize the interface between mobile computing devices and programming tho devices Expected Course Outcomes: Dn the Successful completion of the course, student will be able to: 1 Mobile environments and communications systems. 2 Hardware devices and interacting with these devices. 3 Mobile operating systems available. 4 Programming applications on a mobile system. K2 5 Data and knowledge management K4 K1:Remember; K2-Understand; K3-Apply; K4-Analyze; K5-Evaluate; K6-Create Unit:1 Introduction 16 hours Mobile Computing Mireless Transmissions – Multiplexing – Spread Spectrum and Cellular Systems-Mediu Access Control-SDMA-FDMA-TDMA-CDMA-Comparison of Access Mechanisms Unit:2 Wireless Networks 18 hours Wireless LAN: Infrared Vs Radio Transmission – Infrastructure Networks- Ad hoc Network EEE 802.11 – HIPERLAN – Bluetooth- Wireless ATM: Working Group- Services- Referen Model – Functions – Radio Access Point Control Protocol 18 hours Wobile Quality of Service - Access Point Control Protocol Unit:3 Mobile Transport Layer 18 hours	Course (Objectives:							
1. To Learn the context of wireless network systems such as2G/3G/4G mobile telephon Data networks, and other wireless networks and infrastructure. 2. To emphasize the interface between mobile computing devices and programming tho devices Expected Course Outcomes: Data networks, and other wireless networks and infrastructure. 2. To emphasize the interface between mobile computing devices and programming tho devices Expected Course Outcomes: Data networks, and other wireless network systems. K1 2. Hardware devices and interacting with these devices. K6 3. Mobile operating systems available. K6 4. Programming applications on a mobile system. K2 5. Data and knowledge management K4 K1:Remember; K2-Understand; K3-Apply; K4-AtiRemember; K2-Understand; K3-Apply; Wireless Transmissions – Multiplexing – Spread Spectrum and Cellular Systems-Mediu Access Control–SDMA–FDMA–TDMA–CDMA-Comparison of Access Mechanisms Unit:2 Wireless Networks Wireless LAN: Infrared Vs Radio Transmission – Infrastructure Networks- Ad hoc Network EEE 802.11 – HIPERLAN – Bluetooth- Wireless ATM: Working Group-Services- Referen Model – Seevices- Referen Model – Seevice – Access Point Control Protocol Unit:3 Mobile Network Layer 18 hours	The Mai	n Objectives of tl	his cou	irse are to:					
Data networks, and other wireless networks and infrastructure. 2. To emphasize the interface between mobile computing devices and programming tho devices Expected Course Outcomes: Data Buccessful completion of the course, student will be able to: 1 Mobile environments and communications systems. K1 2 Hardware devices and interacting with these devices. K6 3 Mobile operating systems available. K6 4 Programming applications on a mobile system. 5 Data and knowledge management K1:Remember; K2-Understand; K3-Apply; K4-Analyze; K5-Evaluate; K6-Create Unit:1 Introduction Mobile and Wireless Devices – Simplified Reference Model – Need for Mobile Computing Wireless Transmissions – Multiplexing – Spread Spectrum and Cellular Systems-Mediu Access Control-SDMA-FDMA-TDMA-CDMA-COPMA-Comparison of Access Mechanisms Unit:2 Wireless Networks Nireless LAN: Infrared Vs Radio Transmission – Infrastructure Networks- Ad hoc Network EEE 802.11- HIPERLAN – Bluetooth- Wireless ATW: Working Group-Services- Referen Mobile Quality of Service- Access Point Control Protocol Unit:3 Mobile Network Layer 18 hours	1. T	o Learn the conter	xt of v	vireless network syst	ems such as2G/30	G/4G 1	mobil	e telep	hony,
2. To emphasize the interface between mobile computing devices and programming the devices 2 Spected Course Outcomes: Dn the Successful completion of the course, student will be able to: 1 Mobile environments and communications systems. 2 Hardware devices and interacting with these devices. 3 Mobile operating systems available. K6 4 Programming applications on a mobile system. K2 5 Data and knowledge management K4 K1:Remember; K2-Understand; K3-Apply; K4-Analyze; K5-Evaluate; K6-Create Unit:1 Introduction 16 hours Mobile and Wireless Devices – Simplified Reference Model – Need for Mobile Computing Wireless Transmissions – Multiplexing – Spread Spectrum and Cellular Systems – Mediu Access Control - SDMA - FDMA - TDMA - CDMA - Comparison of Access Mechanisms 18 hours Wireless LAN: Infrared Vs Radio Transmission – Infrastructure Networks - Ad hoc Network 18 hours Mobile Quality of Service- Access Point Control Protocol 18 hours Mobile Quality of Service- Access Point Control Protocol 18 hours Mobile P: Goals – Assumptions and Requirement – Entities – IP Packet Delivery- Age Advertisement and Discovery – Registration – Tunneling and Encapsulation – Optimization <	D	ata networks, and	other	wireless networks an	d infrastructure.	1			.1
Expected Course Outcomes: On the Successful completion of the course, student will be able to: 1 Mobile environments and communications systems. 2 Hardware devices and interacting with these devices. 3 Mobile operating systems available. 4 Programming applications on a mobile system. 5 Data and knowledge management K1 K4 K1:Remember; K2-Understand; K3-Apply; K4-Analyze; K5-Evaluate; K6-Create Introduction Unit:1 Introduction Mobile and Wireless Devices – Simplified Reference Model – Need for Mobile Computing Wireless Transmissions – Multiplexing – Spread Spectrum and Cellular Systems–Mediu Access Control–SDMA–FDMA–TDMA–CDMA-Comparison of Access Mechanisms Unit:2 Wireless Networks Unit:2 Wireless Networks Vireless LAN: Infrared Vs Radio Transmission – Infrastructure Networks- Ad hoc Network Mobile Quality of Service- Access Point Control Protocol Unit:3 Mobile Network Layer Mobile IP: Goals – Assumptions and Requirement – Entities – IP Packet Delivery- Age Mobile IP: Goals – Assumptions and Requirement – Entities – IP Packet Delivery- Age Mobile IP: Goals –	2. T	o emphasize the in	nterfac	e between mobile co	omputing devices	and pi	ogran	nming	those
Expected Course Outcomes: Image: Construction of the course, student will be able to: 1 Mobile environments and communications systems. K1 2 Hardware devices and interacting with these devices. K6 3 Mobile operating systems available. K6 3 Mobile operating systems available. K6 4 Programming applications on a mobile system. K2 5 Data and knowledge management K4 K1:Remember; K2-Understand; K3-Apply; K4-Analyze; K5-Evaluate; K6-Create Mobile and Wireless Devices – Simplified Reference Model – Need for Mobile Computing Mobile and Wireless Devices – Simplified Reference Model – Need for Mobile Computing Neecess Control-SDMA-FDMA-TDMA-CDMA-Comparison of Access Mechanisms Unit:2 Wireless Networks 18 hours Wireless LAN: Infrared Vs Radio Transmission – Infrastructure Networks- Ad hoc Network EEE 802.11 – HIPERLAN – Bluetooth- Wireless ATM: Working Group- Services- Referen Model – Functions – Radio Access Layer – Handover- Location Management - Addressi Mobile Quality of Service- Access Point Control Protocol I8 hours Mobile IP: Goals – Assumptions and Requirement – Entities – IP Packet Delivery- Age Advertisement and Discovery – Registration – Tunneling and Encapsulation – Optimization Reverse Tunneling – Ipv6 – DHCP-Ad Hoc Networks I8 hours Unit:1<	Ű	evices							
Drithe Successful completion of the course, student will be able to: Image: Successful completion of the course, student will be able to: 1 Mobile environments and communications systems. K1 2 Hardware devices and interacting with these devices. K6 3 Mobile operating systems available. K6 4 Programming applications on a mobile system. K2 5 Data and knowledge management K4 K1:Remember; K2-Understand; K3-Apply; K4-Analyze; K5-Evaluate; K6-Create Unit:1 Introduction 16 hours Mobile and Wireless Devices – Simplified Reference Model – Need for Mobile Computing Wireless Transmissions – Multiplexing – Spread Spectrum and Cellular Systems-Mediu Access Control -SDMA -FDMA -TDMA -CDMA -Comparison of Access Mechanisms Unit:2 Wireless Networks 18 hours Wireless LAN: Infrared Vs Radio Transmission – Infrastructure Networks- Ad hoc Network EEE 802.11 – HIPERLAN – Bluetooth- Wireless ATM: Working Group- Services- Referen Model – Functions – Radio Access Point Control Protocol 18 hours Mobile Quality of Service- Access Point Control Protocol Unit:3 Mobile Network Layer 18 hours Mobile D: Goals – Assumptions and Requirement – Entities – IP Packet Delivery- Age Advertisement and Discovery – Registration – Tunneling and Encapsulation – Optimizati	Expected	l Course Outcom	nes:						
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2 Hardware devices and interacting with these devices. K6 3 Mobile operating systems available. K6 4 Programming applications on a mobile system. K2 5 Data and knowledge management K4 K1:Remember; K2-Understand; K3-Apply; K4-Analyze; K5-Evaluate; K6-Create Unit:1 Introduction 16 hours Mobile and Wireless Devices – Simplified Reference Model – Need for Mobile Computing Wireless Tashmissions – Multiplexing – Spread Spectrum and Cellular Systems-Mediu Access Control-SDMA-FDMA-TDMA-CDMA-Comparison of Access Mechanisms 18 hours Wireless LAN: Infrared Vs Radio Transmission – Infrastructure Networks- Ad hoc Network 18 hours Wireless LAN: Infrared Vs Radio Transmission – Infrastructure Networks- Ad hoc Network 18 hours Mobile Quality of Service- Access Point Control Protocol 18 hours Unit:3 Mobile Network Layer 18 hours Mobile IP: Goals – Assumptions and Requirement – Entities – IP Packet Delivery- Age Advertisement and Discovery – Registration – Tunneling and Encapsulation – Optimization Reverse Tunneling – Ipv6 – DHCP-Ad Hoc Networks 18 hours Unit:4 Mobile Transport Layer 18 hours Transmission/Timeout Freezing – Select	1	Mobile environm	nents a	nd communications s	systems.			K1	
3 Mobile operating systems available. K6 4 Programming applications on a mobile system. K2 5 Data and knowledge management K4 K1:Remember; K2-Understand; K3-Apply; K4-Analyze; K5-Evaluate; K6-Create Unit:1 Introduction 16 hours Mobile and Wireless Devices - Simplified Reference Model – Need for Mobile Computing Wireless Transmissions – Multiplexing – Spread Spectrum and Cellular Systems-Mediu Access Control-SDMA-FDMA-TDMA-CDMA-Comparison of Access Mechanisms 18 hours Unit:2 Wireless Networks 18 hours Wireless LAN: Infrared Vs Radio Transmission – Infrastructure Networks- Ad hoc Network 18 hours Wireless LAN: Infrared Vs Radio Transmission – Infrastructure Networks- Ad hoc Network 18 hours Wodel – Functions – Radio Access Layer – Handover- Location Management- Addressin Mobile Quality of Service- Access Point Control Protocol Unit:3 Mobile Network Layer 18 hours Mobile IP: Goals – Assumptions and Requirement – Entities – IP Packet Delivery- Age Advertisement and Discovery – Registration – Tunneling and Encapsulation – Optimization Reverse Tunneling – Ipv6 – DHCP-Ad Hoc Networks 18 hours Unit:4 Mobile Transport Layer 18 hours Transmission/Timeout Freezing – Selective Retransmis	2	Hardware device	es and i	nteracting with these	devices.			K6	
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Unit:3Mobile Network Layer18 hoursMobile IP: Goals – Assumptions and Requirement – Entities – IP Packet Delivery- Age Advertisement and Discovery – Registration – Tunneling and Encapsulation – Optimization Reverse Tunneling – Ipv6 – DHCP-Ad Hoc Networks18 hoursUnit:4Mobile Transport Layer18 hoursTraditional TCP- Indirect TCP- Snooping TCP- Mobile TCP - Fast Retransmit/ Fast Recover Gransmission/Timeout Freezing – Selective Retransmission- Transaction Oriented TCP18 hoursUnit:5WAP18 hoursArchitecture – Datagram Protocol- Transport Layer Security- Transaction Protocol- Session Protocol-Application Environment-Wireless Telephony Application2 hoursUnit:6Contemporary Issues2 hoursWorkshop on wireless networks, mobile network90 hours						9			
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Unit:4 Mobile Transport Layer 18 hours Traditional TCP- Indirect TCP- Snooping TCP- Mobile TCP - Fast Retransmit/ Fast Recover Transmission/Timeout Freezing – Selective Retransmission- Transaction Oriented TCP Unit:5 WAP 18 hours Architecture – Datagram Protocol- Transport Layer Security- Transaction Protocol- Session Protocol-Application Environment-Wireless Telephony Application Unit:6 Contemporary Issues 2 hours Workshop on wireless networks, mobile network 90 hours	Advertise Reverse	ement and Discov Funneling – Ipv6 -	rery – ¹ – DHC	Registration – Tunne P-Ad Hoc Networks	eling and Encapsu	lation	– Op	timiza	tion -
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Architecture – Datagram Protocol- Transport Layer Security- Transaction Protocol- Session Protocol-Application Environment-Wireless Telephony Application Unit:6 Contemporary Issues 2 hours Workshop on wireless networks, mobile network Total Lecture hours 90 hours	Unit:5			WAP	a b m			18 h	ours
Unit:6 Contemporary Issues 2 hours Workshop on wireless networks, mobile network Total Lecture hours 90 hours	Architect	ure – Datagram	Protoc	01- Transport Layer	Security- Transa	ction	Proto	col- S	essior
Unit:6 Contemporary Issues 2 hours Workshop on wireless networks, mobile network Total Lecture hours 90 hours	1010001				y approation				
Workshop on wireless networks, mobile network Total Lecture hours 90 hours	Unit:6			Contemporary Iss	ues			2 ho	ours
Total Lecture hours 90 hours	Worksho	p on wireless netv	vorks,	mobile network					
					Total Lect	ure h	ours	90 ha)))rs

1

Text Book(s)								
1	J.Schiller, Mobile Communication, Addison Wesley, 2000.							
2	William Stallings, Wireless Communication And Networks , Pearson Education, 2003.							

Reference Books

1	William C.Y.Lee, Mobile Communication Design Fundamentals , John Wiley, 1993.

2 Singhal, **WAP-Wireless Application Protocol**, Pearson Education, 2003.

Related Online Contents [MOOC, SWAYAM, NPEL, Website etc.]

https://nptel.ac.in/courses/106/106/106106147/Mobile Computing

Course Designed By:

1

R.Archana, Assistant professor, Nehru Arts and Science College.&

Dr.N Om Muruga, Assistant Professor, Government Arts College, Ooty,

C. N Omprakash Anand , Assistant Professor, Government Arts College, Ooty

Mapping with Programme Outcomes											
COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	P10	
CO1	S	S	M	М	М	М	S	М	М	S	
CO2	S	L	М	L	М	М	S		L	L	
CO3	S	L	S	L	М	L	L	L	L	М	
CO4	М	L	М	S	L	S	L	L	М	L	
CO5	М	М	S	S	М		L	М	S	М	

Course code SED INDESTRIAL AND FOWER ELECTIVES L I I Core/Elective/Supportive ELECTIVE 1-D 6 0 0 Pre-requisite Basic knowledge of Electronic Circuits or permission of instructor Syllabus Version 2020-2 Course Objectives: The main objectives of this course are to: E E E							
Core/Elective/Supportive ELECTIVE TD 0 0 0 Pre-requisite Basic knowledge of Electronic Circuits or permission of instructor Syllabus Version 2020-2 Course Objectives: The main objectives of this course are to: Image: Course of this course are to: Image: Course of this course are to:							
Pre-requisite Dask knowledge of Electronic Circuits of Version Synabus Version Course Objectives: The main objectives of this course are to:							
Course Objectives: Version The main objectives of this course are to: Image: Course of this course are to:							
The main objectives of this course are to:							
1. To presents the principles and applications of industrial and power electronics.							
2. To enable the students to learn and design industrial & power electronic circuits.							
Expected Course Outcomes:							
On the successful completion of the course, student will be able to:							
1 Developed the Circuit designing skills power electronics. Understood the concept K							
industrial electronics system design.							
2 Acquire knowledge about fundamental concepts and techniques used in power K							
electronics.							
3 Ability to analyze various single phase and three phase power converter circuits and K							
understand their applications.							
4 Foster ability to identify basic requirements for power electronic based design							
application.							
5 To develop skills to build and troubleshoot power electronics circuits							
5 10 develop skins to build, and nodoleshoot power electronics circuits. K5							
KI :Remember; K2 -Onderstand; K3 -Apply; K4 -Analyze; K5 -Evaluate; K0 -Create							
Unit:1 Introduction 14 hours							
Circuit Procker – Pattery Charging Circuit – SCP Current Limiting Circuit Procker – Static AC							
DC Switches ElasherCircuits TimeDelayCircuits EanRegulatorusingTRIAC Thyristor Protec							
Circuits: Over Current Protection – Over Voltage Protection – Gate Protection							
circuits. Over current riotection Over voltage riotection Gate riotection							
Unit:2 Welding And Heating 14 hour							
Resistance Welding – Types of Resistance Welding – Electronic Control in Resistance Weld							
Ignitron Contractor – Heat Control – Non Synchronous Timer Synchronous Weld Timer – Sequ							
Timer – Energy Storage Welding Systems – Induction Heating – Applications of Induction Heati							
Dielectric Heating – Application of Dielectric Heating							
Unit:3 Waves And Measurement 14 hour							
Generation of Ultrasonic Waves – Applications of Ultrasonic – Production of X Rays – Application							
Measurement of Non-Electrical Quantities: Pressure Measurements – Displacement Measuremen							
Level Measurements – Flow Measurements – Measurement of Thickness							
Unit:4 Application In Industrial Systems 14 hours							
I nermistor Control Of Quench Off Temperature – Proportional Mode Pressure Control System – S							
Moistening Process Warehouse Humidity Controller							
Thermistor Control Of Quench Oil Temperature – Proportional Mode Pressure Control System – S Tension Controller – Automatic Weighing System – Control Of Relative Humidity In A Te							

Unit:5	Industrial Robotic Systems	14 hours
Parts of Robo	tic Systems – Classifications of Robotic Systems – Robotic System Confi	igurations
Degrees of F	reedom of Robotic System - Programming Robotic Systems - Mot	ions of Robotic
Systems- Sei	nsor for Robotic Systems - Mechanical Parts - Control Systems.	Microprocessor
BasedIndustri	alApplications: SpeedControl of DCM otor-Measurement of Physical Quantity and the second statement of the second statement o	ties
Water Level I	ndicator – Firing Angle Control of Thyristor	
Unit:6	Contemporary Issues	2 hours
Seminar on R	obotics and its applications	
		521
	I otal Lecture nours	72 nours
Text Book(s)		
1 Harish C	Rai, "Industrial and Power Electronics" 10th edition, Umesh publicati	ons 2002
2 Timothy	J Maloni, "Industrial Solid State Electronic Devices and Circuits" 2nd	d edition 1986
Reference	Books	
1 P S Bimb	bhra,"Power Elec <mark>tronics", Khanna Publishers.</mark>	
2 M.H. Ras	shid, "Power Electronics Circuits, Devices & Applications, Pearson Educa	ation.
Related Or	lline Conten <mark>ts [MO</mark> OC, SWAYAM, NPTEL, Websites etc.]	
1 https://ww	/w.youtube.co <mark>m/watch</mark> ?v=1Auay7ja2oY	
2 https://ww	/w.youtube.com/watch?v=oqnLQVFaqYI	
3 https://ww	/w.youtube.com/watch?v=naxnRkOfh2Q	
Course Design	ned By:	
M.Ba	skaran, Assistant Professor, KSG College of Arts and Science&	
Dr.N	Om Muruga, Assistant Professor, Government Arts College, Ooty,	

C. N Omprakash Anand, Assistant Professor, Government Arts College, Ooty.

Mappi	Mapping with Programme Outcomes											
COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	P10		
CO1	S	S	S	М	М	М	S	L	L	S		
CO2	S	S	S	М	М	М	S	L	L	L		
CO3	S	S	S	М	М	L	L	S	S	М		
CO4	М	М	М	S	S	S	L	L	М	М		
CO5	М	М	S	S	S	L	М	М	S	S		

Co	ourse Code	5EE ROBOTICS AND AUTOMATION	L	Т	Р	C			
Core/Ele	ctive/Supportive	Elective II - E	6	0	0	4			
Pr	Syllabus Version 2020-202								
Course C	bjectives:								
The Mai	n Objectives of th	is co <mark>urse are to:</mark>							
1. To	e learn the concept	s o <mark>f Robots.</mark>							
2. To	how about the s	ensors, actuators used in Robots designing.							
3. To	o familiarize the st	udents with the applications of Robots.	24						
Expected	Course Outcom	es:	1						
On the St	ccessful completion	on of the course, student will be able to:							
1	Study the fundam	entals of robots and components		<u>k</u>	K 1				
2	Illustrate sensors	and vision systems.		200	K3				
3	Apply programming techniques in Automation.								
4	Familiarize programmable Logic Controllers.								
5	5 Analyze Computer Numerical Control K4								
K1:Rem	ember; K2-Und	lerstand; K3 -Apply; K 4-Analyze; K5 -Ev	aluate	; K	K6-Cre	ate			
			1						
Unit:1		Classification Of Robotic Systems	1		10 ho	ours			
Basic Str Articulate Manufact Assembly Cylinders	ucture of a Robert ed Accuracy, F uring: Material Tr andInspection.Dri , Control Valves, 1	ot - Classification of Robots: Cartesian, Cartesian, Cartesian, Cartesian, Cartesian, Cartesian, Cartesian, Cartesian, and Cartesian and Cartesian Control Systems: Hydraulic and Hydro Moto - Robot End Effectors.	Cylind Robo Proce Pneur	drical, t App essing natic	Sphe plicatio Operat Sys	rical, on in tions- tems:			
Unit:2		Sensors And Vision Systems			9 ho	urs			
TypesofS	ensors:TactileSens	sors-ProximitySensors-SpeedSensors-Encod	er,Re	solver	s. V	√ision			
Systems:	Image Processin	g And Analysis – Segmentation - Featur	e Ex	tractio	on - (Object			
Recogniti	on.								
TT U A	-			r	40.1				
Unit:3		Robot Programming & Automation			10 ho	ours			
Lead thro Economic Automat Lines - Intelligen	bugh Programmin c Aspects of ion: Advantagesof. Material-Handling t Automation. Intr	g - Textual Programming -Programming E Robots - Typical Layouts of Ro Automation-BuildingBlocksofAutomation.A Devices – ASRS - Transfer Lines - A oduction to Artificial Intelligence	Examp obots utoma utom	oles – in atic atic I	Socia Indu Fe	ıl and stries. eding tion -			

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Unit:4	4	P	rogram	mable	Logic Co	ontroller	s (PLC)			9 hours
Basics Simple Introdu	of PLC ProcessCo action to H	Architect ontrolProg MI - DCs	ure of l gram'sU s and SO	PLC – A JsingRe CADA	Advantag layLadde Systems	ges - Typ erLogic.I	es of PL ntroducti	C - Type on to P	es of Prog LC Net	gramming- working -
IInite	5		Comp	ton Nu	monical	Control	(\mathbf{CNC})			0 hours
Unit:: Block	5 Diagram d	of ACNO	Compt Contr	iler Nu	em Adv	ontages_I	$\frac{(UNC)}{2000}$	upply CI		and PLC
Interfac System	cing - Con as - Introdu	trol Loop	ps - Fee FMS	edback	Devices	in CNC	Machine	- Analog	g and Di	gital CNC
Unit:	:6 Contemporary issues 2 hours									
Worksł	hop on Ro	botic auto	omation	l						
					12355	83	Total	Lecture	hours	48 Hours
				den 1	dia 13	3	23 May			
Text B	ook(s)		, A		-	-		Sec.		
1	MikellP Integra Educati	Groover ted Man on, New	; " ufactu Delhi	Automa ring", P	ation Pro Prentice-H	o duction Hall India	a Syste a, New D	ms And elhi, 198	Compu 7. / Pears	ter son
2	K.S. Fu Intellig	, R.C. Go ence", M	onzalez CGraw	and C S Hill,Ne	5 G Lee, w Delhi,	" Robotic 1987	cs: Conti	ol, Sensi	ing, Visi	on And
			2	100	100		2.	- 19-1	24	
Refere 1	W. Bolt	s on, " Me	chatror	ni <mark>cs"</mark> , P	earson E	ducation	Asia, 20)2.		
					D. L. d	T			77	
2	Applica	P. Groove ations", N	er, "Ind AcGraw	v Hill,N	ew Delhi	s - Tech i i, 1986	iology, F	rogram	ming An	d
		~					-			
Related 1	d Online (HTTPS:/	Contents //NPTEL.A	[MOO AC.IN/CO	OURSES	AYAM, 5/112/101	NPEL, V /1121010	Vebsite 98/ROBO	etc.] TICS		
Course	Designed R.Archar Dr.N Om C. N Om	By: na, Assist Muruga prakash A	ant prof , Assist Anand ,	fessor , tant Pro Assista	Nehru A fessor, G int Profes	rts and S overnme ssor, Gov	cience Co ent Arts C	ollege& College ,0 Arts Col	Doty, lege, Oo	ty.
Mappi	ng with P	rogramn	ne Outo	comes						
COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	P10
CO1	S	S	L	М	L	М	S	L	М	S
CO2	S	L	М	М	L	М	S	L	L	L
CO3	L	S	S	L	М	L	L	L	М	М
CO4	М	L	М	S	S	S	L	L	M	М
CO5	М	М	S	s Pa	age _M 71 c	of 88	М	М	S	М


Course code 5EF	PROGRAMMARLE LOGIC CONTROL	T.	Т	Р	С
Core/Elective/Supportive	Elective II - F	6	0	0	4
Pre-requisite	Digital Electronics and computer Architecture and Organization	Sylla Vers	bus ion	2020-	2021
Course Objectives:		•		•	
 The main objectives of thi 1. To provide knowled modules. 2. To train the stude understand various to 3. Apply PLC Timers 	s course are to: dge levels needed for PLC programming and oper ents to create ladder diagrams from process co types of PLC registers and Counters for the control of industrial process	ating i ontrol es, PL	input desc C fu	and or an	output n and is and
Data Handling Func	ctions.				
Expected Course Outcon	nes:				
On the successful comple	etion of the course, student will be able to:				
1 Gain knowledge on P different types of Dev	rogrammable Logic Controllers and will understand	[K	1
2 Gain knowledge abou control descriptions	it various types of PLC registers, ladder diagrams fr	om pro	ocess	K	2
3 Develop a coil and co	ntact control system and analog PLC operations			K	4
4 Apply time delay on 1	PLC operations			K	3
5 Analyze the PLC con	nponents			K	4
K1:Remember; K2-U	<pre>Jnderstand; K3-Apply; K4-Analyze; K5-Evaluate</pre>	; K6	-Cre	ate	
	The second second second	9-47			
Unit:1	Introduction To PLC	3	9	hours	5
(PLAS), Programmable Programmable Gate Arrays (PLDs) -Design of Sequent	Array Logic (Pals), Programmable Gate Array Logic (Pals), Programmable Gate Array (FPGAS) - Sequential Network Design with Progra	rrays mmabl Contro	(PG) (PG) le Lo oller	AS), gic D Using	Field evices PAL
Unit:2	Hardware And Software Components		9	hours	5
Programmable Logic Cont PLC Sizes - PLC Hardwar Digital I/O Modules CPU PLCS with Computers	rollers (PLCS) - Introduction Parts Of PLC - Pr e Components - I/O Section - Analog I/O Section - Processor Memory Module - Programming De	inciple - Anal vices	s of og I/ - Dia	Opera O Mo agnost	tion - dules, ics of
Unit:3	Instructions And Relays		9	hours	5
PLC Programming -Simpl Instructions -Electromagne -Mechanically Operated an Ladder Diagram - Converti	e Instructions - Programming EXAMINE ON A tic Control Relays -Motor Starters -Manually Opera d Proximity Switches - Output Control Devices - I ng Simple Relay Ladder Diagram into PLC Relay L	And I ted Sw Latchin adder	EXA vitche ng Re Diag	MINE es elays ram	OFF - PLC
Unit:4	Counter And Timer		9h	ours	
Timer Instructions ON DE Counters -Timer and Cou Instructions - Math Instruct	LAY Timer And OFF DELAY Timer - Counter In Inter Applications - Program Control Instructions ions	nstruct	ions ta N	- Up/ Ianipu	Down Ilating

Unit:5	Applications	9hours
Applications of	PLC - Simple Materials Handling Applications - Automatic	Control of Warehouse
Door - Automat	ic Lubricating Oil Supplier Conveyor Belt - Motor Control Au	utomatic Car Washing
Machine - Bottle	e Label Detection - Process Control Application	
Unit:6	Contemporary Issues	2 hours
Workshop on Pl	C and its applications	
	Total Lecture hours	48hours

Text Book(s)

1 Charles H. Roth, Jr **"Fundamentals of Logic Design ",** Fourth Edition, Jaico Publishing house, 1999,

2 Frank D. Petruzella'' Programmable Logic Controllers '', McGraw- Hill book, company, 1989
 3 Siemens "PLC Handbook ''.

Reference Books

1 1. William I. Fletcher **"An Engineering Approach to Digital Design "**, Prentice, Hall of India Ltd., New Delhi, 1999.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1 https://unitronicsplc.com/what-is-plc-programmable-logic-controller/

Course Designed By:

K.Manikantan, Assistant Professor, Government Arts College, Ooty& Dr.N Om Muruga, Assistant Professor, Government Arts College, Ooty, C. N Omprakash Anand, Assistant Professor, Government Arts College, Ooty

Mapping with Programme Outcomes												
COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10		
CO1	S	S	M	M	М	М	S	M	М	S		
CO3	S	М	М	М	М	М	S	L	L	L		
CO3	S	S	S	М	М	L	L	L	М	М		
CO4	Μ	М	Μ	S	S	S	L	L	М	М		

Course code	5EG	AUTOMOTIVE ELECTRONICS	L	Т	Р	С				
Core/Elective/S	Supportive	Elective II –G	6	0	0	4				
Pre-requ	isite	Concepts of Automotive Electronics	Syllal Versi	ous on	2020-	2021				
Course Object	tives:									
The main obje	ectives of th	his course are to:								
1. To unde	erstand the	concepts of Automotive Electronics and its e	volutic	on a	and 7	rends				
automoti	ive systems	& subsystems overview.	,	<i>.</i> .	C					
2. To unde	rstand sens	ors and sensor monitoring mechanisms aligned to	auton	1011	ve sy	stems,				
3 To unde	signal condes	ign and model various automotive control system	aloi s lisin	σ λ /	Iodel	based				
J. TO unde developr	nent techni	ue	s using	g 1v.	Iouei	Daseu				
developi		400.								
Expected Co	urse Outco	mes:								
On the succes	sful comple	etion of the course, student will be able to:								
1 Obtain a	n overvie	ew of automotive components and subsystems.			K2					
2 Interface a	utomotive	sensors and actuators with microcontrollers			K3					
3 Understan	d the design	a cycles communication protocols and safety system	s		K2					
employed	in today's a	automotive industry.	5		112					
4 Understan	d the engine	e management systems			K4					
5 Apply the	knowledge	of electronic instrument systems			K3					
K1:Remember: K2-Understand: K3-Apply: K4-Applyze: K5-Evaluate: K6-Create										
Unit.1		Introduction			0 hou	IFC				
Automotive Co	mponent (Deration Electrical Wiring Terminals and Switching	a Mul	tinle	yed V	115 Viring				
Systems Circ	nit Diagrar	ns and Symbols Charging Systems and Starting	$S_{\rm Vit}$	ems	Ch:	aroino				
Systems, Princi	ples. Alter	nations and Charging Circuits. New Developments.	Reau	iren	ients	of the				
Starting System	n, Basic Sta	rtin <mark>g Circuit</mark>	1.1.							
			\$							
Unit:2		Ignition Systems		1	0 ho	urs				
Ignition Fundation	mental, Ele	ctronic Ignition Systems. Programmed Ignition, Dist	ributio	n Le	ess Ig	nition,				
Direct Ignition	, Spark Plu	gs. Electronic Fuel Control: Basics of Combustion,	, Engir	ne F	Fuellin	g and				
Exhaust Emiss	ions, Electr	onic Control of Carburetion Petrol Fuel Injection, Di	esel Fu	iel I	njecti	on				
		IE IU BASILIAN								
Unit:3	_	Instrumentation Systems]	<u>0 ho</u>	urs				
Introduction to	Instrument	ation Systems, Various Sensors Used for Different P		ers,	Sens	ing				
Driver Instrum	entation Sy	stems, venicle Condition Monitoring Trip Computer	, Diffe	rent	Гуре	S OI				
visual Display										
∐nit•4		Electronic Control Of Braking And Traction			9 hou	rs				
Introduction ar	nd Descript	ion Control Elements and Control Methodology Fl	ectron	ic (² ontro					
AutomaticTran	smission:Ir	troduction and Description Control of Gear Shift and Tor	aueCo	nve	rter	1 01				
Lockup, Electric Power Steering, Electronic Clutch										
<u> </u>										
Unit:5		Engine Management Systems		1	0 ho	urs				

Combined Ignition and Fuel Management Systems, Exhaust Emission Control, Digital Control Techniques, Complete Vehicle Control Systems, Artificial Intelligence and Engine Management, Automotive Microprocessor Uses. Lighting and Security Systems: Vehicles Lighting Circuits, Signaling Circuit, Central Locking and Electric Windows Security Systems, Airbags and Seat Belt Tensioners, Miscellaneous Safety and Comfort Systems

Unit:6Contemporary Issues2 hours

An interactive session on ignition system, engine management systems

48 hours

Text Book(s)

1 TOM DENTON, Automobile Electrical and Electronic Systems, Edward Arnold pb., 1995

Total Lecture hours

Reference Books

1 1.DON KNOWLES, Automotive Electronic and Computer controlled Ignition Systems, Don Knowles, Prentice Hall, Englewood Cliffs, New Jersey 1988.

2 WILLIAM, T.M., Automotive Mechanics, McGraw Hill Book Co.,

- 3 WILLIAM, T.M., Automotive Electronic Systems, Heiemann Ltd., London, 1978.
- 4 Ronald K Jurgen, Automotive Electronics Handbook, McGraw Hill, Inc, 1999.

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

1 https://nptel.ac.in/courses/107/103/107103084/

2 https://nptel.ac.in/courses/107/106/107106088/

3 https://www.youtube.com/watch?v=vJ4EfyGXehg

4 https://www.youtube.com/watch?v=BG4N2dBgJrQ

Course Designed By: K.Mnikantan, Assistant Professor, Government Arts College, Ooty& Dr.N Om Muruga, Assistant Professor, Government Arts college, Ooty.

Mapping	Mapping with Programme Outcomes													
COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10				
CO1	S	S	L	L	Sti Low	М	S	М	М	S				
CO3	S	L	М	L	М	М	S	L	L	L				
CO3	L	S	L	М	М	L	L	L	М	М				
CO4	М	L	М	S	S	S	L	L	М	М				
CO5	М	М	S	S	М	L	М	М	S	М				

Course Code	5EH	SATELLITE COMMUNICATIONS	L	Т	Р	С
Core/Elective/Su	ipportive:	Elective II-H	6	0	0	4
Pre-requis	site:	PRINCIPLES OF COMMUNICATION	Sylla vers	ibus ion	202	0-21
Course Objectives:						
The objectives of	this course a	re:				
1. To provide	knowledge of	n fundamentals of Advanced Computer design.				
2. To understa	and the conce	pt of instruction level parallelism, pipelining a	and me	emory	hiera	urchy
associated v	with it.	1 1				
3. To enhance	the knowled	ge on advanced processors.				
Expected Course	Outcomes:					
On successful com	pletion of the	course, student will be able to:				
1 Gain the know	wledge on adv	vanced computer design principles.				K1
2 Able to analy	ze the paralle	el computer model with instruction level paralle	lism.			K4
3 Gain the know	wledge on pip	pelining.				K2
4 Understand th	ne memory hi	erarchy in developing an advanced computer.				K2
5 Apply the mu	ltiprocessor o	concepts in advanced processors.				K3
K1:Reme	mber; K2 -Uno	derstand; K3-Apply; K4-Analyze; K5-Evalua	te; K6 -	Creat	e	
TT . •4 . 1			2.	•	TT	
Unit: 1	a acreante	Satellite communications Engueney all	opotio	9	Hou	
systems Advantage	e concepts	ations of satellite communications over other or		ns 10 nicoti	r sat	enne
systems. Auvantag	es and apprica	ations of saterine communications over other co		mean	5115	
Unit: 2		Orbital Aspects Of Satellite Systems		9	Нош	rs
Orbital Mechanics	- look angle	determination- orbit perturbations- Orbital de	termir	ation	- laur	nches
and launch vehicle	s- orbital effe	cts in communication systems performance.	8 1	11		
	1	CALL TOTALS INNE	1			
Unit: 3	1	The Space Segment	1	10) Hou	irs
Introduction- spac	ecraft subsys	tems- attitude and orbit control systems- Tel	lemetr	y- tra	cking	and
command- power s	ystems- com	munication subsystems.				
T T 1 / A						
Unit: 4	(1	Satellite Link Design	£ 1	9	Hou	rs
design design of a	theory-syste	em noise temperature and $G/1$ ratio- Design of C/N	or dow	n nnk	.s- up	IIIIK
ucsign- ucsign of s						
Unit: 5		Applications Of Satellite Systems		9	Нош	rs
INTELSAT Series	- INSAT- V	SAT- GSM- GPS- INMARSAT-Direct Broad	cast s	atellit	es (D	BS)-
Direct to home Br	oadcast (DTH	H)- Digital audio broadcast (DAB)- World spa	ace ser	vices	Bus	iness
TV(BTV)- GRAM	SAT.					
Unit: 6		Contemporary Issues		2	Hour	S
Seminar on satellit	e communica	tion, satellite systems				
			<u> </u>			
		Total Lecture Ho	urs	48	Hou	rs
Tart Dealer						
Text Books						

	willey, 2006.
2	W. L. Pritchard, H. G. Suyderhoud and R. A. Nelson, Satellite Communication systems
2	Engineering, 2 nd edition, Pearson educational pblishers, New Delhi, 2003.
Refe	erence Books
1	Dennis Roddy, Satellite Communications , 3 rd edition, Mc Graw Hill, International, 2001.
r	Dr D.C. Agrwal, Satellite Communications, 4 th edition, Khanna Publications, New Delhi,
2	2001.
Rela	ted Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]
1	https://nptel.ac.in/courses/117/105/117105131/
2	https://www.youtube.com/watch?v=hXa3bTcIGPU
3	https://www.youtube.com/watch?v=BvjlBpP4zU8

Course Designed by:

Dr.S.Vijayakumar, Associate Professor in ECE, Sreenivasa Institute of Technology and Management Studies, Autonomous, Chittoor.&

Dr.N Om Muruga, Assistant Professor, Government Arts College, Ooty,

C. N Omprakash Anand , Assistant Professor, Government Arts College ,Ooty.

Mappin	Mapping with Program Outcomes													
COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10				
CO1	S	L	L	L	L	L	L	L	L	L				
CO2	S	М	L	М	M	L	L	L	L	М				
CO3	S	М	M	L	L	L	L	L	L	L				
CO4	S	S	М	M	М	М	L	L	L	М				
CO5	S	L	L	L	L	L	L	📐 L 🔔	L	М				

Co	urse Co	ode :	6EI	INTERNET OF THINGS	L	Т	Р	C
Core/	/Electiv	ve/Supp	portive:	Elective III-I	4	0	0	4
	Pre-R	equisit	æ:	Basic Electronics	Sylla Vers	bus ion	202	0-21
Cour	se Obj	ectives	:					
The N	Main O	bjectiv	ves of thi	s course are to:				
1.	To e	nable t	he stude	nts to learn about IoT and also to understand the o	concep	ot of	embe	edded
	devic	tes and	Interfaci	ng sensors.				
Expe	cted C	ourse (Dutcome	s:				
On th	e Succe	essful c	ompletio	on of the course, student will be able to:				
1	Study	the cor	ncept of t	pasic IoT			K1	
2	Famili	arize th	ne princir	ble of connected devices			K2	
3	Gain k	nowled	lge about	embedded devices			K3	
4	Analy	ze diffe	erent sens	sor Interface technology			K4	
5	Analy	ze the I	oT appli	cations			K4	
K1 :	Remem	ber;K2	-Underst	tand; K3 -Apply; K 4-Analyze; K5 -Evaluate; K6-C reate				
		,						
Un	it:1			IOT Fundamentals			16 h	ours
in IoT Uni	it:2	s for fo)1 – Dev	Design Principles For Connected Devices			– Se 18 h	ours
Introd	luction	-IoT/M	2m syste	ms - Communication Technologies - Data managemen	it, data	con	solida	ition
and D	Device r	nanage	ment - E	ase of Designing and Affordability.	1			
Uni	it.3	D	rogromn	ning Fundamentals With C Using Arduine IDE			18 h	ours
Ardui	ino IDF	E – Basi	c Syntax	- Data Types/ Variables/ Constant – Operators – Con	dition	al Sta	teme	nts
and L String	oops – gs and M	Using Anthem	Arduino atics Lib	C Library Functions for Serial, delay and other invoking a series for Serial and the series of the s	ng Fur	an out oction	1S —	
Uni	it•4			Sensors And Actuators			18 h	ours
Analo	og and l	Digital	Sensors -	- Interfacing temperature sensor, ultrasound sensor and	1		10 1	Juis
infrar	red (IR)	sensor	with Arc	duino – Interfacing LED and Buzzer with Arduino.				
Uni	it:5			Sending Sensor Data Over Internet			18 h	ours
Introd Using platfo	luction g WiFi a orm .	to ESP and NO	8266 NC DEMCU	DEMCU WiFi Module – Programming NODEMCU u J to transmit data from temperature sensor to Open Sou	using A urce Ic	Ardui oT clo	no II oud	DE –
Uni	it:6			Contemporary Issues			2 h	ours
Wo	rkshop	on IoT	and its a	pplications			- 110	
	- P							

							To	otal Lectu	ire hours	90 hours
Text Bo	ok(s)									
1 A ¹ 20	rshdeep 1)14. ISB	Bahga, V N: 978-09	ijay Mad 99602551	isetti, " In 5	ternet of '	Things: A	Hands-C	On Appro	ach",	
2 B	oris Adry	yan, Dom	inik Ober	rmaier, Pa	ul Fremar	ntle, " The	Technica	l Founda	tions Of	
² Io	ot", Arteo	ch House	r Publishe	ers, 2017.						
Referen	ce Rook	c								
1 M	lichael N	s Iargolis, '	"Arduino	Cookbo	ok ". O"Re	eilly, 2011				
2 M	larco Sch	wartz, "]	Internet o	of Things	with ESF	P8266 °°, Pa	ckt Publis	shing, 201	.6	
I		,		0		,		6,		
Related	Online	Contents	[MOOC	, SWAY	AM, NPE	L, Websit	te etc.]			
1 ht	tps://npt	el.ac.in/c	ourses/10	6/105/106	6105166/ I	Introductio	on to IoT I	Part I – Le	ecture 1	
2 - <u>h</u>	ttps://oc	w.cs.pub.	ro/course	<u>s/iot/cour</u>	ses/02Ele	ctronics fo	r Internet	of Things	s – Lecture	e II
3 ht	tps://npt	el.ac.in/c	ourses/10	6105166/	Introducti	ion to Ard	uino – I –	Lecture 2	22	
~ -				je je			10			
Course I	Designed R Archar	By:	ant profe	ssor Neb	ru Arte ar	d Science	College	Coimbato	ro &	
]	Dr.N On	n Muruga	, Assista	nt Profess	or, Gover	nment Art	s College,	Ooty.	ic. a	
				-	1 3	in it	YS I	2 30		
Mappin	g with P	rogram	ne Outco	mes	1	A				
COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	P10
CO1	S	S	М	М	М	М	S	М	М	S
CO2	S	М	М	М	М	М	S	L	L	L
CO3	S	S	S	М	М	L	L	L	М	М
CO4	М	М	М	S	S	S S	unt	L	М	Μ
CO5	М	М	S	S	М	L	М	М	S	М

Course code	6EJ	VIRTUAL INSTRUMENTATION	L T P C						
Core/Elective/S	Supportive	Elective III –J	4	0	0	4			
Pre-requ	isite	Digital Electronics, Microprocessor and	Sylla	abus	2020.	2021			
11c-requ		Computer fundamentals	Vers	sion	2020-	2021			
Course Object	tives:	•							
The main obje	ctives of the	us course are to:							
2. To prove 3 To know	about the r	recepts in virtual instruments	rume	ntatio	n				
4. To famil	iarize the st	udents with the applications of virtual instrumentatic	n	mano	11				
Expected Cou	rso Autoon	1051							
On the succes	sful comple	tion of the course, student will be able to:							
1 Understan	d the basics	concepts and programming in virtual instrumentation	n		к?				
2 Apply virt	ual instrum	entation tool set for a given problem	-11		K3				
2 Apply virt	ual instrum	entation concert for a given problem							
3 Appry Vitt					КЭ КЭ				
4 Understand	$\frac{d \text{ the Lab V}}{\cdot}$	IE w concepts			K2 1/1				
5 Learn the		ng structure	176	0	KI				
KI - Rememb	KI - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Creat								
		A Large Star							
Unit:1	1.0.	Introduction	T 7 • .	9	nours				
General Function	nal Descrip	otion of a digital instrument - Block Diagram of a	Virt focos	ual Ir	istrum	ient -			
Filysical qualitit	ents Over	Conventional Instruments - Architecture of a Virtu	al Ing	- Au	ant ar	d ite			
Relation to the C	Departing S	vstem		struitt	cint ai	iu no			
	· · · · · · · · · · · · · · · · · · ·		1						
Unit:2	1.32	Software Overview	1	9 ł	nours				
Lab VIEW - Gra	aphical Use	r interfaces - Controls and Indicators - 'G' programm	ing –	Label	s				
and Text - Shaj	pe, Size an	d Color - Owned and Free Labels - Data Type, I	Forma	t, Pre	cisior	n and			
Representation	- Data Typ	bes - Data flow programming - Editing - Debugg	ging	and	Runni	ing a			
VirtualInstrume	nt-Graphica	llProgrammingPalettesandtools-FrontPanelObjects-F	unctio	onsan	d Libr	aries			
				10					
Unit:3	III E Loope	Programming Structure	1400	10	hours	5			
FOR Loops, wr and Clusters - A	IILE LOOPS	tions - Bundle - Bundle/Unbundle by Name Graph	ires -	Affay I Cha	S rte - S	tring			
and File I/O - F	figh level a	and Low Level File I/O's - Attribute Modes Local	and G	lobal	Varia	ables.			
OPERATING	SYSTEM	AND HARDWARE OVERVIEW: PC Architec	ture,	Curre	nt Tr	ends,			
Operating Syste	em Requir	ements, Drivers - Interface Buses - PCI Bus	– Int	erface	e Car	ds –			
Specification – A	Analog and	Digital Interfaces - Power, Speed and timing Consid	leratio	ons					
Unit:4		Hardware Aspects		9 ł	nours				
Installing hardy	ware, Install	ing Drivers - Configuring the Hardware - Addressin	g the l	hardw	vare				
in LabVIEW -	Digital and	Analog I/O function - Data Acquisition - Buffered I/	′O - R	eal ti	ne				
Unit:5		LABVIEW Applications		<u>91</u>	nours				
Data logging (I	DAQ) – OF	C -Hardware in loop -Data base system -user int	erface	for	the co	ontrol			
applications									
L'nit.6		Contemporary Issues		21	ourc				
0111.0		Contemporary 1550C5		41	iours				

Analysis over the software and hardware on virtural instrumentation

Total Lecture hours

48 hours

Text Book(s)

1 Garry M Johnson, "**Labview Graphical Programming**", Tata McGraw Hill, New Delhi, 2nd Edition, 1996

2 Labview : Basics I & II Manual, National Instruments, 2005

Reference Books

1 Lisa K Wells, "Labview for Everyone", Prentice Hall of India, New Delhi, 1996

2 Barry Paron, "Sensor, Transducers and Labview", Prentice Hall, New Delhi, 2000

Course Designed By: K.Manikantan, Assistant Professor, Government Arts College, Ooty& Dr.N Om Muruga, Assistant Professor, Government Arts College, Ooty.

Mapping	g with P	rogram	me Outo	comes	-	-	2.5-4	1.		
COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	L	L	М	М	М	Le	L	M	S	М
CO3	L	М	M	L	L	М	L	S	L	S
CO3	L	L	S	L	M	L	L	M	Μ	L

Course code 6EK			BIOMEDICAL INSTRUMENTATION	L	Т	Р	С		
Core/Elective/Supportiv			Elective III – K	4	0	0	4		
	Pre-requ	isite	Higher secondary biology	Sylla Vers	bus sion	2020	-2021		
Cou	rse Object	tives:							
The	main obje	ectives of th	is course are to:						
1.	To prese	nts various e the studer	bio-potentials and working principles of medical instruments to learn about bio-potentials and medical instruments	trume	nts				
2.		e me studer	its to rear about bio-potentials and medical instant	51115					
Exp	ected Cou	rse Outcon	nes:						
On	the succes	sful comple	etion of the course, student will be able to:						
1	1Understand t h e Concept of bio-potentialK2								
2	Understan	d the conce	ept of medical instruments			K	4		
3	Develop tl	ne troublesh	nooting Skills of medical instruments			K	3		
4	Understar	nd the conce	epts of signal conditioners & diagnostic equipments			K	2		
5	Apply the	knowledge	gained on transducers and electrodes			K	3		
K1	- Rememb	ber; K2 - Ui	nderstand; K3 - Apply; K4 - Analyze; K5 - Evaluate:	; K6 -	- Cre	ate			
τ	Unit:1		Basic Physiology		9	hours	5		
Syste	m - Physio U nit:2	logy of Mu	scles - Heart and Blood Circulation Electrodes And Transducers	4	9	hours	5		
Basic Circu Blooc	Electrode it - Electro d Gas Elect	Theory - M ode Materia trode - Activ	licro Electrodes - Skin Surface Electrodes - Needle E als - Chemical Electrodes - Reference Electrodes ve Transducers and Passive Transducers - Strain Gau	lectro - The ges –	odes - pH Thei	- Equi Elect rmisto	valent rode - or		
J	U nit:3	Sig	gnal Conditioners & Diagnostic Equipments		9	hours	5		
Instru Pass, DIAC Unipo (EEG	Instrumentation Amplifiers - Current Amplifiers - Isolation Amplifier - Need for Filters - Low Pass, High Pass and Band Pass Active Filters - Notch Filters - Heated Stylus and Ink Pen Recorders. DIAGNOSTIC EQUIPMENTS: Typical Electrocardiogram (ECG) - Electrocardiograph - Bipolar and Unipolar Leads - Einthoven Triangle - Electrical Activities of the Brain - Electroencephalogram (EEG) - Muscle Response - Electromyograph(EMG)								
τ	U nit:4		Diagnostic Equipments & Biotelemetry		10	hour	'S		
X-ray Imaging - Radio Fluoroscopy - Image Intensifiers - Angiography - Endoscopy – Diathermy. BIOTELEMETRY AND PATIENT SAFETY: Need for Biotelemetry - Elements of Telemetry System - Radio Telemetry System - Physiological Signals used in Telemetry - TDM and FDM – Implantable Units									
T	Unit:5		Physiological Assist Devices		9	hours			
Need DC Artii Acq - Ult	d for Pacer Defibrillat ficial Kidn uisition Sy trasonic Sc	nakers - Pao or - Artific ey Machino stems - Ana anner - Mag	cemaker Parameters and Circuits - Different Modes of tial Heart Valves - Heart Lung Machines - Artific e - Nerve and Muscle Stimulator. COMPUTER Al alysis of ECG signals - Computerized Axial Tomogra gnetic Resonance Imaging - Computer Based Patien	of Ope ial Lu PPLIC aphy (t Mon	ratio ung l CATI CAT	n - Machi ONS:) Scan	ines - Data nner stem		

Unit:6	Contemporary Issues	2 hours
Seminar of	n diagnostic equipments and physiological assist devices	
	Total Lecture hours	48 hours
Text Bo	k(s)	
1 Jose	h J. Carr and John M. Brown, "Introduction to Biomedical Equipment	Technology",
Pears	n EducationAsia,New Delhi, 4th Education, 2001	
2 Lesli	Cromwell., FredJ. Webell., Erich A. Pfeffer.,"Bio-medical In	strumentation
andM	easurements", PrenticeHall of India, New Delhi, 1990	
Referen	e Books	
1 Khar	lpur, "Handbook on Biomedical Instrumentation", Tata McGraw Hill	Company, New
Delhi	1989	
2 Ohn	B Webster, Ed., "Medical Instrumentation Application and Design", T	Third Edition,
John '	/iley & Sons, Singapore, 1999	
3 Arun	agam. M. "Biomedical Instrumentation". Anuradha Agencies Publisher	s. Chennai.
1992		, ,
Related	Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1 https:/	www.youtube.com/watch?v=i2mZylgP1Fk	
2 https:/	www.youtube.com/watch?v=4ldv98F7Zng	
3 https:/	nptel.ac.in/courses/108/105/108105101/	
4 https:/	nptel.ac.in/courses/108/105/108105091/	
Course De	igned By: K.Manikantan, Assistant Professor, Government Arts College	e,Ooty&
	Dr.N Om Muruga, Assistant Professor, Government Arts Col	llege ,Ooty.
	DI:N OII Muluga, Assistant Floressor, Oovernment Arts Co.	liege ,00ty.

Mapping with Programme Outcomes										
COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	L	L	М	М	М	L	L	Μ	S	М
CO2	L	М	М	L	L	М	L	S	L	S
CO3	М	L	S	L	М	L	L	Μ	Μ	L
CO4	L	L	S	М	S	S	L	S	М	L

Course Code 6EL	VLSI DESIGN	L	Т	Р	С			
Core/Elective/Supportive:	Elective –III-L	4	0	0	4			
Pre-requisite:	Digital Principles and Applications	Syll: ver:	abus sion	202	20-21			
Course Objectives:								
The objectives of this cours	e are:							
1. To provide knowledg	e on Fabrication Process of NMOS, PMOS, CM	OS ANE) BICI	MOS, S	Super			
integration concepts.	to analyze the electrical properties of MO	C tranci	ton	lacion	atick			
2. To develop the skill diagrams and layout of	liagrams for MOS transistors contacts and wires	5 transis	stor, c	lesign	SUCK			
3. To investigate the ef	3. To investigate the effect of floor planning, placement, routing and power delay estimation in							
physical design of dig	physical design of digital circuits and memory design.							
4. To apply the concept	of Combinational and Sequential Circuit Testing	5.						
	A A STREET AND A STREET							
Expected Course Outcomes	5:							
On successful completion of	the course, student will be able to:							
1 Gain the knowledge of	on fabrication principles.				K1			
2 Able to analyze the el	lectrical properties of MOS transistors.	design			K4			
<u>S</u> Apply the appropriate	e layout design rule to create a vLSI layout for a	design.	Idagi	an	K0 K2			
4 styles.	cal design steps and gain the knowledge on type			gn	K2			
5 Gain the knowledge,	analyze and apply test principles to evaluate the	VLSI de	signs.		K5			
K1 – Remember; K2 – U	Inderstand; K3 – Apply; K4 – Analyze; K5 – I	Evaluat	e; K6	– Crea	nte			
TT 14 4			11	0.1				
Unit: I	VLSI Technology	onto I	ntogra	9 nou tod De	rs			
components = MOS Resiston	rs and capacitors $-$ Crossovers $-$ NMOS $-$ PM	cos - c	MOS	= BIC	MOS			
fabrication processes – com	parison.	05 0		DIC	MOD			
		9. M.						
Unit: 2	Electrical Properties Of MOS Devices			9 hou	rs			
Drain to source current (I_{ds}) versus Drain to source voltage ($V_{ds})$ relation	onships -	- MOS	S tran	sistor			
threshold voltage $(V_t) - MO$	S transistor trans-conductance g_m and output c	onductar	nce g _d	, – figu	are of			
merit (ω_0) – pass transistor- p	oull – up to pull – down ratio.							
Unit: 3	Design Processes				irs			
VLSI design flow - stick dia	agram design rules with examples - Design rule	es for La	vout	diagra	ns of			
digital circuits- sheet resistance R_s -standard unit of capacitance – Inverter delays – Propagation								
delays- scaling of MOS circu	uits – limitations of scaling.		-					
Unit: 4	VLSI Physical Design And Styles			9 hou	rs			
PHYSICAL DESIGN:			•	р /'				
Floor Planning – Placement -	- Routing – Power Delay Estimation – Clock Ro	uting – I	Power	Koutii	ıg.			
Full Custom – Semi custom -	– Standard Cells – Gate Arrays – FPGAs – CPLI	Ds.						
i un custom benn custom	Standard Cons Succrantys 11 Ons CI El	- 0.						
Unit: 5	Testing Of VLSI Circuits			9 Hou	rs			
	~ ~ ~		<u> </u>					

B. Sc. Electronics and Communication Systems 2020-21 onwards - Affiliated Colleges - Annexure No.29A2 SCAA DATED: 23.09.2020

Bench	Techniques									
U	Unit: 6 Contemporary Issues 2 Hours Seminar on VLSL system and technology									
Semin	ar on VLSI	system and technology								
	Total Lecture Hours48 Hours									
Text I	Books									
1	Basic VLS	I Design , Douglas ,3rd Edition, A. Pucknell, Kamran Eshraghian, PH	I, New Delhi,							
1	2011.									
2	Modern V	LSI design, Wayne Wolf, 3rdEdition, Pearson Education, New Delhi	, 4th							
2	impression	2008.								
Refer	ence Books									
1	Introduction to VLSI Circuits and Systems, John .P. Uyemura, John Wiley, Student Edition,									
1	New Delhi, Reprint 2006.									
n	Principles	of CMOS VLSI Design, N.H.E Weste, K.Eshraghian, Adisson	n Wesley, 2nd							
Δ	Edition, New Delhi.									
2	Applicatio	n Specific Integrated Circuits, Michel John Sebastian Smith, Addison	Wesley, Indian							
5	Edition, 4th Indian Reprint 2001, New Delhi.									
Relate	ed Online C	ontents [MOOC, SWAYAM, NPTEL, Websites etc.]								
1	https://npte	el.ac.in/courses/117/101/117101058/								
2	https://www.youtube.com/watch?v=9SnR3M3CIm4									
3	3 https://www.youtube.com/watch?v=Y8FvvzcocT4									
	•									
Course	e Designed l	oy: Dr.S.Vijayakumar, Associate Professor in ECE, Sreenivasa Institut	te of							
	-	Technology and Management Studies, Autonomous, Chittoor.&								
		Dr.N Om Muruga, Assistant Professor, Government Arts College	,Ooty.							

Mapping with Program Outcomes										
COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	L	L	L	L	ten Le-V	L	L	L	L
CO2	S	S	L	S	М	TO LIN	М	L	L	L
CO3	S	М	S	L	S	L	М	М	L	S
CO4	S	L	М	L	S	L	L	L	М	L
CO5	S	S	М	М	S	L	L	L	М	S



BHARATHIAR UNIVERSITY: COIMBATORE 641046 DEPARTMENT OF ELECTRONICS AND COMMUNICATION SYSTEMS

MISSION

- To develop appropriate facilities for promoting research activities
- To inculcate leadership qualities among students for self and societal growth
- To nurture students on emerging technologies for serving industry needs through industry institute interface
- To enrich teaching learning process by transforming young minds to be resourceful engineers

List of Elective	paper	s (Colleg <mark>es can choose any one of the p</mark> aper as electives)
	А	ASIC Design
Elective – I	В	Remote Sensing
	С	Mobile Computing
	D	Industrial and Power Electronics
	E	Robotics and Automation
Elective – II	F	Programmable Logic Control
	G	Automotive Electronics
	Н	Satellite Communications
	Ι	Internet of Things
Elective – III	J	Virtual Instrumentation
	K	Biomedical Instrumentation
	L	VLSI Design