

NEHRU INSTITUTE OF ENGINEERING AND TECHNOLOGY (Autonomous)

An ISO 9001 : 2015 and 14001:2015 Certified Institution, Affiliated to Anna University, Chennai (Approved by AICTE, New Delhi and Recognized by UGC with Section 2(f) and 12(B) Re-Accredited by NAAC "A+", NBA Accredited UG Courses : AERO & CSE Nehru Gardens, Thirumalayampalayam, Coimbatore-641 105

DEPARTMENT OF MECHATRONICS ENGINEERING



CURRICULUM

B.E. - MECHATRONICS ENGINEERING

REGULATION - 2023(Revised)

DEPARTMENT OF MECHATRONICS ENGINEERING

VISION AND MISSION OF THE INSTITUTION

VISION

Our Vision is to mould the youngsters to acquire sound knowledge in technical and scientific fields to face the future challenges by continuous upgradation of all resources and processes for the benefit of humanity as envisaged by our great leader Pandit Jawaharlal Nehru.

MISSION

- To build a strong centre of learning and research in engineering and technology.
- To facilitate the youth to learn and imbibe discipline, culture and spirituality.
- To produce quality engineers, dedicated scientists and leaders.
- To encourage entrepreneurship.
- To face the challenging needs of the global industries.

VISION AND MISSION OF THE DEPARTMENT

VISION

• Our Vision is to strive the students to foster rigorous academic emphasis with rich diversity of skills for the ability and passion to work sensibly and ethically for the betterment of humankind

MISSION

- To prepare excellent Mechatronics Engineers with leading edge technology
- To achieve blending of knowledge attainment and application
- To impart value-based training and inculcate socially committed professionalism
- To develop the future engineers with invaluable entrepreneurial skill
- To build a strong integrated team of Mechatronics professionals

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

- Application of mathematical modeling, scientific and automation concepts to formulate engineering problems in mechatronics systems and provide solutions employing modern tools
- Professional practice driven by value based education committed to ethical principles, environmental concerns and social issues
- Ability to work in a team as a member/leader possessing technical and organizational capabilities to manage/initiate an enterprise

PROGRAM OUTCOMES (POs)

- **1. Engineering Knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
- 2. **Problem Analysis:** Identify, formulate, review research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- **3. 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 considerations.
- **4. Conduct Investigations 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.
- **5. 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.
- 6. 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.
- **7. Environment and Sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
- **8. Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
- **9. Individual and Team Work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
- **10. Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
- **11. Project Management and Finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one 's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
- **12.** 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.

PROGRAM SPECIFIC OUTCOMES (PSOs)

- To understand the concepts of engineering fundamentals, design and problem analysts to arrive multiple solutions for the complex problems using classical methods and modern IT tools
- To provide an opportunity to identify the responsibilities of social engineering practices by knowing the ethical and environmental values for the sustainable development
- To persist with life-long learning and effective communication to lead a team to promote managerial skills and entrepreneurship in multidisciplinary environment

SCHEME OF EXAMINATION B.E.- MECHATRONICS ENGINEERING Population 2023 (Povised) - Choice Based Cre

Regulation 2023 (Revised) - Choice Based Credit System (Applicable to students admitted from the year 2023 -2024 onwards)

CENTERE				CONTACT	ЕХ	KAMIN MAR	ATION RKS	
SEMESTER	COURSE CODE	COURSE TITLE	CATEGORY	PERIOD/ WEEK	CIA	ESE	TOTAL	CREDITS
Ι	U23IP100	Induction Programme /Bridge Course	-	-	I	-	-	0
		THEORY INTEGR	REATED LAB					
Ι	U23EN101	English for Engineers	HSMC	4	50	50	100	3
Ι	U23GE102	Problem Solving Using C	ESC	4	50	50	100	3
		THEOI	RY					
Ι	U23MA103	Engineering Mathematics-I	BSC	4	40	60	100	4
Ι	U23PH104	Engineering Physics	BSC	3	40	60	100	3
Ι	U23CY105	Engineering Chemistry	BSC	3	40	60	100	3
Ι	U23GE106	Heritage of Tamils	HSMC	1	40	60	100	1
Ι	U23GE107	Biology for Engineers	BSC	2	40	60	100	2
		PRACTI	CAL					
Ι	U23BS118	Physics and Chemistry Laboratory	BSC	4	60	40	100	2
			TOTAL	25	-	-	-	21

SEMESTER COURSE CODE				CONTACT	EX	AMIN MAR	ATION RKS	
SEMESTER	COURSE CODE COURSE TITLE		CATEGORY	PERIOD/ WEEK	CIA	ESE	TOTAL	CREDITS
		THEORY	Y					
II	U23MA201	Engineering Mathematics-II	BSC	4	40	60	100	4
II	U23MS202	Materials Science	BSC	3	40	60	100	3
II	U23GE203	Tamils and Technology	HSMC	1	40	60	100	1
II	U23ME204	Engineering Graphics	ESC	3	40	60	100	3
II	U23GE205	Basic Electrical and Electronics Engineering	ESC	3	40	60	100	3
		THEORY WITH INTE	EGRATED I	AB				
II	U23EN206	Proficiency in English	HSMC	4	50	50	100	3
II	U23GE207	Problem Solving using Python	ESC	4	50	50	100	3
		PRACTIC	AL					
II	U23GE218	Engineering Practices Laboratory	ESC	2	40	60	100	1
		ENHANCEMENT	COURSES					
II		Skill Enhancement Course – I	SEC	2	100	-	100	1
II		Value Enhancement Course – I	VEC	2	100	-	100	1
			TOTAL	28	-	-	-	23

CURRICULUM

AND

SYLLABUS

B.E.- Mechatronics Engineering Nehru Institute of Engineering and Technology | Curriculum R2023 (Revised)

B.E - Mechatronics Engineering

Regulation 2023 (Revised) - Choice Based Credit System

Semester - I

S. No.	Course Code	Course Title	Category	L	Т	Р	Contact Period	C
1	U23IP100	Induction Programme/Bridge Course	-	-	-	-	-	0
		THEORY WITH INTEGRA	TED LAB			-		1
2	U23EN101	English for Engineers	HSMC	2	0	2	4	3
3	U23GE102	Problem Solving Using C	ESC	2	0	2	4	3
		THEORY					1	
4	U23MA103	Engineering Mathematics-I	BSC	3	1	0	4	4
5	U23PH104	Engineering Physics	BSC	3	0	0	3	3
6	U23CY105	Engineering Chemistry	BSC	3	0	0	3	3
7	U23GE106	Heritage of Tamils	НЅМС	1	0	0	1	1
8	U23GE107	Biology for Engineers	BSC	2	· 0	0	2	2
		PRACTICAL		1		0	L .	
9	U23BS118	Physics and Chemistry Laboratory	BSC	0	0	4	4	2
		1	TOTAL	16	1		25	21

5

Course (Code		Tit	tle	
U23IP100			Induction P	rogramme	
Semeste	r: I	L	Т	P	Credits
Course Co	ontont	;-	-	-	0
Course Co	ontent		D. I.J.		
Th in Th "I of be stu Ch and abo	his is a stitution e indu Engine admis yond. udy. Ho haracte d fulfil ove, se	mandatory 2 wee on. Normal classes action programme eering colleges we ssion, have a holis The graduating s owever, he/she mu r needs to be nurt ll his/her responsi everal meta-skills	Description k programme to be cond s start only after the indu- has been introduced by re established to train gr stic outlook, and have a tudent must have know ust also have broad under ured as an essential qual bility as an engineer, a c and underlying values a	ducted as soon as th action program is ov AICTE with the fol raduates well in the desire to work for ledge and skills in erstanding of society lity by which he/she citizen and a human re needed."	e students enter the /er. llowing objective: branch/department national needs and the area of his/her / and relationships. would understand being. Besides the
"O con rela "H nev as v of t	ne wi nforta npetiti ations ence, t v envi well as he self	Il have to work of ble, allow them ion and make the between teachers the purpose of this ronment, open the between faculty a f, people around th	closely with the newly to explore their acade m work for excellence, and students, give a bro- s programme is to make em up, set a healthy dail and students, develop aw hem, society at large, an	joined students in emic interests and promote bonding v ader view of life, an the students feel co y routine, create bor areness, sensitivity d nature.	making them feel activities, reduce within them, build d build character. omfortable in their nding in the batch and understanding
The be	e follov fully er (i) (ii)	wing are the activ ngaged throughou Physical Activit This would invo yoga, gardening, Creative Arts Every student wou performing arts. The student wou would allow for and also enhance design later. Universal Human This is the ancho to explore onesel to peer pressure, colleagues and su others, etc. A n Methodology of through do's and do	ities under the induction t the day for the entire d y lve a daily routine of ph , etc. ould choose one skill rel Examples are painting, ild pursue it everyday for creative expression. It e creativity which would n Values oring activity of the Indu If and allows one to exp take decisions with cou upporting stay in the hc module in Universal H teaching this content is dont's, but get students to	a program in which a luration of the program ysical activity with a lated to the arts whe sculpture, pottery, a or the duration of the would develop a se ld, hopefully, grow action Programme. In perience the joy of le arage, be aware of re- ostel and departmen Human Values pro- extremely important o explore and think b	the student would am. games and sports, ther visual arts or music, dance etc. e program. These ense of aesthetics into engineering t gets the student earning, stand up elationships with t, be sensitive to wides the base. it. It must not be by engaging them

		rather than lecturing.	
		Discussions would be condu	icted in small groups of about 20 students with a
		faculty 3 mentor each.	
		It would be effective that the	faculty mentor assigned is also the faculty advisor
		for the student for the full du	ration of the UG programme
	(iv)	Literary Activity	programme.
		Literary activity would enco	mpass reading writing and possibly debati
		enacting a play etc.	possibly, debating,
	(v)	Proficiency Modules	
		This would address some l	acupas that students in the top
		English computer familiarity	eta
	(vi)	Lectures by Eminent People	etc.
	(Motivational lectures by am	inant needly Constitution
		arranged to give the students	ment people from all walks of life should be
		public life	exposure to people who are socially active or in
	(vii)	Visits to Local Area	
	(*11)	A couple of wirit deal	
		he organized TL	narks of the city, or a hospital or orphanage could
		them to the	miliarize them with the area as well as expose
	(them to the under privileged.	▲ 17 98 M
	(VIII)	Familiarization to Dept./Brand	ch & Innovations
		They should be told about w	hat getting into a branch or department means
		what role it plays in society,	through its technology. They should also be
		shown the laboratories, works	hops & other facilities.
	(1X)	Department Specific Activitie	S
	1.	About a week can be spent in	introducing activities (games quizzes social
		interactions, small experiment	s, design thinking etc.) that are relevant to the
		particular branch of Engineeri	ng/Technology/Architecture that can serve as a
		motivation and kindle interes	t in building things (become a maker) in that
		particular field. This can be cor	iducted in the form of a workshop. For example
		CSE and IT students may be in	troduced to activities that kindle computational
		thinking, and get them to build	simple games ECE students may be introduced
		to building simple circuits as a	n extension of their knowledge in Seigner
		so on. Students may be asked t	o build stuff using their knowledge in Science, and
		in the second	o build stuff using their knowledge of science.
1 .		Induction Programme is to	stally an activity based
		therefore there shall be no te	sts / assessments during the
		in the shall be no te	assessments during this programme.
		References: Guide to Induction	Discourse for ALCIER
100	Cou	rse designed by	program from AICTE
		se s	Verified by
		0.1	
		King	1 5 12
	Signature of	of the Equilty Mamban	. I Hemmed
	Signature	of the faculty Member	Signature of the Chairperson-Bos
			1.5
			Dr. P.T. HEMAMALINI
		Dr. R. peepa	Head of the Department
			Department of Science & Humanities
		ASD- SRH.	Nehru Institute of Engineering & Technology
			Nehru Gardens, Thirumalayampalayam,
			Coimbatore - 641 105
Name	and Departi	ment of the Faculty Member	Name and Seal of the Chairperson-Bos
			or the champerson-bus

Source Cour				Title		
U23EN101			ENG	LISH FOR ENGINEERS		
Semester: I	L T 2 0	P 2	Credits 3	CIA: 50 Marks	ESE: 50 Mai	·ks
Course pre-requ	isites	Basic	Grammar &	Communication Strategies	s	
Course Objectiv	res					
1 To enable skills in Er	learners o Iglish.	fengin	eering and tec	hnology to develop their b	asic communicatio	n
2 To acquire, productive	, comman skills (wr	d in bo iting ar	th the respecting of the speaking) of the speaking of the speaking of the speaking of the speaking of the speak of the spe	ve skills (listening and rea of the English language.	ding) and the	
3 To understa students to	and the ke look with	ey conc	epts of values create a better	, life skills and business co version of themselves.	mmunication, mot	va
and strength	hening rea	ading a	nd official wr	English, using vocabulary i tten communication skills	n the technical fiel	d,
Course Category	uage erne	Luman	n expressing	their opinions via various r	nedia.	
Jevelonment Ne	eds	Global	Illes, Social So	cience and Management Cou	rse (HSMC)	
Course Descript	ion: To f	Ciocus or	/ INational			
echnical field, an	id strengt	hening	reading and o	ficial written	sing vocabulary in	the
ourse Content		inening.	reading and C	inicial written communica	tion skills.	
Unit			1	Description		
INTROD Reading	UCTION • Reading	TO FU	INDAMENTA	ALS OF COMMUNICATI	ON:	
INTROD Reading - messages Writing - Gramman continuou substitutio	UCTION Reading relevant t Writing c r - Simpl s; Question	TO FU brochu o techn oneself, e prese on type	NDAMENTA res (technical ical contexts. Writing Defin nt tense, Pres es: Wh/ Yes	ALS OF COMMUNICATI context), telephone messag nition; Jumbled sentence. sent continuous, Present p or No/ and Tags; Word	ON: ges / social media erfect, Present per formation, One-w	fectorc
INTROD Reading - messages Writing - Gramman continuou substitutio	UCTION Reading relevant t Writing o r - Simpl s; Question	TO FU brochu o techn oneself, e prese on type	NDAMENTA res (technical ical contexts. Writing Defin nt tense, Pres es: Wh/ Yes	ALS OF COMMUNICATI context), telephone messag nition; Jumbled sentence. ent continuous, Present p or No/ and Tags; Word	ON: ges / social media erfect, Present per formation, One-w	fect
INTROD Reading - messages Writing - Gramman continuou substitutio	UCTION • Reading relevant t Writing c r - Simpl s; Question	TO FU brochu o techn oneself, e prese on type	NDAMENTA res (technical ical contexts. Writing Defin nt tense, Pres es: Wh/ Yes	ALS OF COMMUNICATI context), telephone messag nition; Jumbled sentence. sent continuous, Present p or No/ and Tags; Word Contact	ON: ges / social media erfect, Present per formation, One-w Periods 06	fect
INTROD Reading - messages Writing - Gramman continuou substitutio NARRAT Reading: I Writing - etc.), Grammar Subject-Ve	UCTION - Reading relevant t Writing of r - Simpl s; Question n. ION AND biographic Guided w - Simple erb Agreen	TO FU brochu o techn oneself, e prese on type O SUMI es, trave riting - past ter ment: P	INDAMENTA res (technical ical contexts. Writing Defin nt tense, Pres es: Wh/ Yes MATION: logues, newsp Paragraph write nse, Past cont	ALS OF COMMUNICATI context), telephone messag nition; Jumbled sentence. eent continuous, Present p or No/ and Tags; Word <u>Contact</u> aper reports. ting, Short Report on an ev inuous, Past perfect, Past p	ON: ges / social media erfect, Present per formation, One-w Periods 06 ent (field trip, verfect continuous	fectorc
INTROD Reading - messages Writing - Gramman continuou substitutio NARRAT Reading: Writing - etc.), Grammar Subject-Ve	UCTION Reading relevant t Writing o r - Simpl s; Question s; Question n. ION AND biographic Guided w r - Simple erb Agreen	TO FU brochu o techn oneself, e prese on type O SUMI es, trave riting - past ter ment; P	NDAMENTA res (technical ical contexts. Writing Defin nt tense, Pres es: Wh/ Yes MATION: logues, newsp Paragraph write nse, Past cont repositions, V	ALS OF COMMUNICATI context), telephone messag nition; Jumbled sentence. sent continuous, Present p or No/ and Tags; Word <u>Contact</u> aper reports. ting, Short Report on an ev inuous, Past perfect, Past p Vord forms (prefixes & suff	ON: ges / social media erfect, Present per formation, One-w Periods 06 ent (field trip, erfect continuous ixes); Error Correcti	fect orc
INTROD Reading - messages Writing - Gramman continuou substitutio	UCTION • Reading relevant t Writing o r - Simpl s; Question • . ION AND biographic Guided w • - Simple erb Agreen	TO FU brochu o techn oneself, e prese on type O SUMM es, trave riting - past ter ment; P	NDAMENTA res (technical ical contexts. Writing Defin nt tense, Pres es: Wh/ Yes MATION: logues, newsp Paragraph write nse, Past cont repositions, V	ALS OF COMMUNICATI context), telephone messag nition; Jumbled sentence. sent continuous, Present p or No/ and Tags; Word <u>Contact</u> aper reports. ting, Short Report on an ev inuous, Past perfect, Past p Vord forms (prefixes & suff <u>Contact I</u>	ON: ges / social media erfect, Present per formation, One-w Periods 06 ent (field trip, verfect continuous ixes); Error Correcti Periods 06	fect orc
I INTROD Reading - messages Writing - Gramman continuou substitutio NARRAT Reading: Writing - etc.), Grammar Subject-Ve II DESCRIP Reading - a given tex Writing - I Crammar	UCTION Reading relevant t Writing or r - Simpl s; Question n. ION AND biographic Guided w r - Simple erb Agreen FION OF Reading a t. nstruction	TO FU brochu o techn oneself, e prese on type O SUMM es, trave riting - past ter ment; P PROC dvertise	INDAMENTA res (technical ical contexts. Writing Defin nt tense, Pres es: Wh/ Yes MATION: logues, newsp Paragraph writh nse, Past cont repositions, V ESS/PRODU ements, and gat ess description	ALS OF COMMUNICATI context), telephone messag nition; Jumbled sentence. cent continuous, Present p or No/ and Tags; Word <u>Contact</u> aper reports. ting, Short Report on an ev inuous, Past perfect, Past p Vord forms (prefixes & suff <u>Contact I</u> Contact I CT: udget reviews; finding key i n.	ON: ges / social media erfect, Present per formation, One-w Periods 06 ent (field trip, perfect continuous ixes); Error Correcti Periods 06 information from	on.
I INTROD Reading - messages Writing - Gramman continuou substitutio II NARRAT Reading: Writing - etc.), Grammar Subject-Ve II a given tex Writing - I Grammar continuous	UCTION Reading relevant t Writing co r - Simple s; Question iographic Guided w - Simple crb Agreen FION OF Reading a t. Instruction - Simple ; Imperati	TO FU brochu o techn oneself, e prese on type O SUMP es, trave riting - past ter ment; P PROC dvertise ns; Proc future t ves; Ac	NDAMENTA res (technical ical contexts. Writing Defin nt tense, Pres es: Wh/ Yes MATION: logues, newsp Paragraph write nse, Past cont repositions, W ESS/PRODU ements, and gate ess description ense, Future of ljectives; Degi	ALS OF COMMUNICATI context), telephone messag nition; Jumbled sentence. eent continuous, Present p or No/ and Tags; Word <u>Contact</u> aper reports. ting, Short Report on an ev inuous, Past perfect, Past p Vord forms (prefixes & suff <u>Contact I</u> Contact I CT: adget reviews; finding key i n. continuous, Future perfect, rees of comparison; Compo	ON: ges / social media erfect, Present per formation, One-w Periods 06 ent (field trip, verfect continuous ixes); Error Correcti Periods 06 Information from Future perfect ound Words.	on.

IV	CLASSIFICATION AND RECOMMENDATIONS: Reading - Journal reports, predicting content of reading habits, Reading art (Activity). Writing - Memos to colleagues or friends; Opinion Blogs. Grammar - Articles: Pronouns - Possessive & Relative pronouns, Cause and	ticles d Effect.
Sec.	Contact Periods	06
	EXPRESSION.	
V	Reading - Reading editorials; Poster making (Activity). Writing - Creative Writing, Checklist. Grammar - Punctuation; Compound Nouns, Homonyms; and Homophones, Compound & Complex Sentences.	Simple,
	Contact Periods	06
	Total Periods	30
	LIST OF EXPERIMENTS	
9. Tal 10. Lis	Ik about any great Personalities or Celebrities. tening to Debates & Discussing. Contact Periods	30
	Total Periods	60
ourse O	Putcomes	
pon suc	cessful completion of the course, students will be able to:	
COI	Listen and comprehend complex academic texts.	K2
C02	Understand the denotative and connotative meanings of technical texts.	K3
C04	topics.	K4
0.04	Exprogethein in the second sec	K3
C05	communication.	K6
Remem	bering; K2: Understanding; K3: Applying; K4: Analyzing; K5: Evaluating; K6:	Creating
Text Books	 English for Engineers & Technologists Orient Blackswan Priva Department of English, Anna University, (2020 edition). English for Science & Technology Cambridge University Press, 202 Authored by Dr. Veena Selvam, Dr. Sujatha Priyadarshini, Dr. Deepa Francis, Dr. KN.Shoba, and Dr. Lourdes Joevani, Department of En Anna University. 	te Ltd. 21. Mary Iglish,
eference Books	 Technical Communication – Principles and Practices by Mee Raman & SangeetaSharma, Oxford Univ. Press, 2016, New Delhi. A Course Book on Technical English by Lakshmi Narayanan, Scitech 	nakshi

		3. 4. 5. 1 6. H	Public Englis Viswa Effecti Publis Learni New D Practic	ations (h for mohan ive Co hing H ng to C velhi, 2(al Engl	(India) Tecl n. Mcgr mmuni ouse. Commu)03. ish Usa	Pvt. Ltd hnical raw Hill cation S nicate –	l. Comn Educati Skill, K - Dr. V 6 publis	nunicat on, ISB ulbhus Chella shed by	ion (V N:0070 an Kur ummal, Oxford	With C 264244. nar, R S Allied P	D) By Salaria, Jublishing	Aysha Khanna g House,
]	Fools fo	or Asses	sment	- Theo	ry		i.	
CIA I CIA II CIA III						As	signme Cas	nt/ Sen e Study	Atter	idance	Total	
10 10 10								5		5	5	40
				Т	ools for	Assessi	ment –	Practic	cal			
	Mo	del Exa	am I			M	odel Ex	am II			Total	
		50				A CONTRACTOR OF STREET	50				100	
						Man	ning				100	
CO \ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	DO12
CO1	1	-	-	-	-	-	-	-	3	2	-	2
CO2	1	-	-	-	-	-	-	-	3	2	-	2
CO3	1	-	-	-	-	-	-	-	3	2	-	2
C04	1	-	-	-	-	-		3	2	-	2	
3-High:	1 2-Medi	-	-	-	-	-	-	-	3	2	-	2
g., .		PSO	-LOW		D	201						
	COT	130			P	501		PS	02		PS03	;
	C	01				-			-		2	and the second se
	CO	02				-			-		2	
_	C)3				-		-	-		2	
	CO	04				-		-			2	
	CC)5				-		-			2	
		(Course	design	ied by				Ve	rified by		Warp .
S	ignatur	R. re of th	, Hog e Facu	lty Mer	nber			Signati	J.	-)emi	<u>ا</u>	
	(Dr.	R. d	Oeep	٩		Not	Depart	lead of ment of	the Dep Science	Dartment & Huma	nities
Name a	nd Dep	artmer	nt of th	e Facul	ty Mem	ıber	Nen	ehru G ame an	rdens,	Enginee Thiruma	ring & Te alayampa	chnology layam,

Co	urse Code					Title		enigen († 16
U2	23GE102				PROBLE	M SOLVING USIN	GC	
Sei	mester: I	L	Т	Р	Credits		GC	
50	mester. I	2	0	2	3	CIA: 50 Marks	ESI	E: 50 Marks
Cou	rse pre-requ	lisites	Bas	ic Knowl	edge of Prog	amming Knowledge	e	
Cour	rse Objectiv	'es				<u>8</u>		
1	To understa	and the	cons	tructs of (C Language.			and the second second
2	To apply C	progra	ms u	sing basic	programming	Constructs		
3	To analyse	C prog	rams	using arr	avs and string	, constructs.		
4	To apply m	odular	appli	cations in	C using funct	ions		
5	To create ap	plicati	ons i	n C using	pointers and s	tructures		
Cour	se Category	7	Eng	gineering	Sciences Com	se (FSC)		
Deve	lopment Ne	eds	Glo	obal		50 (ESC)		
Cour	se Descripti	ion: Stu	udy tl	he constru	icts of C Lang	uage		
Cour	se Content				0			
Unit					Desc	ription		
	PROBL	EM S	OLV	ING: Pr	oblem Solvir	g: Introduction to	computer	basad muchle
Ι	solving, I	Program	n des	ign and in	nplementation	issues. Algorithms for	r problem	solving Simple
	problems	based	on	numerical	methods, Or	perations on ordered	set of ele	ments Saluine
	quadratic	equation	ons, (Operation	s on matrices.	on ordered	Set Of the	ments, solving
					_	Conta	ct Periods	06
								00
	dimensior linear and	nal arra binary	ys - S sear	String ope ch.	erations: lengtl	1, compare, concaten	ate, copy –	Selection sort,
						Contac	t Periods	06
III	FUNCTIO definition, Binary Sea Arrays and reference.	ONS A functio arch us d pointe	ND I on ca ing re ers –	POINTEI II, Built-in ecursive fi Array of p	RS: Modular p n functions (st unctions –Poin pointers – Para	programming - Functi ring functions, math nters – Pointer operat ameter passing: Pass I	ion prototy functions) - ors – Pointe by value, Pa	be, function - Recursion, er arithmetic – ass by
						Contact	Periods	06
IV	STRUCTI Array of str list – typed	URES ructure lef – Ui	AND s – Se nion •	UNION elf-referer Storage	S: Structure - ntial structures classes and Vi	Nested structures – – Dynamic memory sibility.	Pointer and allocation -	d Structures – Singly linked
						Contact	Periods	06
V	FILE PRO – Sequentia	OCESS al acces	ING s file	: Files – 7 - Randor	Гуреs of file р n access file -	rocessing: Sequentia Command line argun	l access, Ra nents.	andom access
				100.000		Contact	Periods	06
			ù i					
						Total	Periods	30

50			50	100	
Iviodel E	xam I		Model Exam II	Tota	ıl
N		Tools for	Assessment-Practical	5	40
10	10	10	Case Study	Attendance	Total
CIA I	CIA II	CIA III	Assignment / Seminar/		
		Tools for	Assessment-Theory	<i>))0</i> .	
	Program	nming with C	", McGraw-Hill Education 1	Theory and Pr	roblems of
	5. Byron	S. Gottfried	"Schaum's Outling of "	These	
	4. Anita (C'' let	Joel and Ajay	Mittal, "Computer Fundam	entals and Prog	ramming in
Books	Second	Edition, Oxf	ord University Press, 2013.	and Frogram	uning in C ² ,
Reference	3 Pradip	Dey, Manas (Shosh, "Computer Fundament	als and Drogen	min - to cm
	2 Thaisna Langua	riiya, K. Rai age. 1st Editio	njeet, Programming and Pro	blem Solving T	hrough "C"
	2 Hand	Eighth edition	n, Pearson Education, 2018.	an III	iouuction (o
	1 Paul D	eitel and Har	vey Deitel, "C How to Prog	ram with an Int	roduction to
	2. Yashw	ant Kanetkar,	Let us C, 17th Edition. BPR	Publications 20)20
Text Books	1. Yashw 19th E	ant Kanetkar. dition Panerb	Let Us C: Authentic guide to	o C programmin	g language -
	1 V-1		Applying; K4:Analyzing; K	5:Evaluating; K	6:Creating
K1:Rememb	ering: K2.Unde	erstanding, Va	Anglei		
CO 5	Understand processing	the concepts	of sequential and randor	n-access file	K2
CO 4	Apply applica	ations in C us	ing structures and Unions.		K3 ·
CO 3	Analyze mod	ular application	ons in C using functions with	pointers.	K4
CO 2	Apply applic	ations using a	rrays and strings.		K3
CO 1	Understand b	asic Problem	-solving methodologies.	4	K2
Upon success	sful completion	of the cours	e, Students will be able to:		
Course Oute	omes			Fotal Periods	60
			Co	ntact Periods	30
10. Mini	Project				
15. C pro 16. Mini	gram for operat	tions on Matri	ces		
14. C Pro	gram for Simps	son 1/3 Rule	lou		
13. C Pro	gram for Gauss	s-Jordan Meth	a Iod		
11. C Pro	ogram for Sum	of Taylor Seri	es Program		
10. C Pro	ogram for Gaus	s Elimination	Method	n access, proces	sor directive
9. Files	: reading and w	riting, File po	inters to Structures, Arrays of	Structures and I	Jnions.
8. Struc	tures: Nested S	tunctions, Ai	rays, Strings, Pointers to Poi	nters, Array of F	ointers
6. Recu 7 Point	Irsion	c .		, passing arrays	s to function
5. Func	tions: call, retu	rn, passing pa	rameters by (value, reference) passing array	to for it
4. Strin	gs: operations	wium-umen	sional arrays, traversal, Sortir	ng and Searching	ş
3. Arra	vs: 1D and 2D	0-while Multi dimon			
1. Deci	ision-making co	onstructs: if-e	lse, goto, switch-case, break-	continue	
1. Deci	ision-making co	LIST OF	EXPERIMENTS (Any Ter	1)	

~ ~ ·	1		1	-		Mappi	ng						
PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO8 PO9 PO10 PO11 1 2 - 3				
CO1	1	2	2	1	2	1	1	1					
CO2	2	2	2	1	2	1	1	1	$\frac{1}{1}$ $\frac{2}{2}$ - $\frac{3}{2}$				
CO3	2	3	2	1	2	1	1	1	$\frac{1}{1}$ $\frac{2}{2}$ $ \frac{3}{2}$				
CO4	3	2	2	1	3	1	1	1	2	-	3	1	
CO5	2	3	3	1	2	1	2	1	2	-	3	2	
3 – High	, 2-Med	lium, 1	-Low.		_	1	2	I	2	-	3	1	
	CO\ P	SO		P	SO1		PSO2			PSC)3		
	CO	1			2		1			1	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	ne ndigina	
	CO	2			2		2			1			
	CO.	3		2			2			1	1		
	CO	4		2			2		1				
	CO			2			2 1						
and the second second	0.	5			2		1 1						
	Co	ourse de	esigned	by			Verified by						
S	G	of the	N Faculty	Memb	er		Si	gnature	S - S of the	Chairpers	son-BoS		
JEE COMP	VAN	ANT R SI	HAM	Q, I EFE	Apcson	C) EEHN	9 Con Nets	3. SU ressor an puter So u Institute mbatore.	BASR of Head, of Engine The mole	EE, M Tec no Engine sering and 1 a	sh. Ph.D. ening echnology		
i sume al	iu Depa	innent	of the F	aculty I	viembe	r	Name	e and Se	eal of th	e Chairp	erson-Bo	S	

	Course Code				-	Title	
U2	3MA103			ENG	INFEDINC	MATHEMATICS	
Sor	mostow I	L	T	P P	Cradita	MATHEMATICS-I	
Sei	nester: 1	3	1	0	4	CIA: 40 Marks	ESE: 60 Marks
Coi	irse pre-re	quisites	Hig	gher Sec	ondary Leve	el, Bridge Course	
Сог	irse Objec	tives				<u></u>	
1	To famili methods.	arize the stu	idents to	solve th	e first order l	inear differential equa	tions using numerica
2	To familia methods.	arize the stud	lents to so	olve the	second order	linear differential equa	itions using numerical
3	To acquai applicatio	nt the studer ns.	nt with ma	athemati	cal tools need	led in evaluating multi	ple integrals and their
4	To introd	uce the num	nerical te	chnique	s of interpol	ation in various inter	vale which place
	Important	role in engir	neering ar	nd techno	ology discipli	nes	vais which plays an
5	this concer	and types of	matrices	and the	r properties,	concept of a rank of the	e matrix and applying
Cou	rse Catego	rv	ie consist	ency and	d solving the	system of linear equati	ions.
Deve	lopment N	leeds	Ba	asic Scie	nce Course ()	BSC)	
Cour	se Descrin	tion: The co	Ulrse halr	obal / N	ational		
linea	r ODE's by	numerical	solutions	Studen	idents to deve	elop the fundamentals a	and basic concepts in
appli	cations by i	ising these t	echniques	s.	is will be abl	e to solve problems re	lated to engineering
Cour	se Content	-					
Unit		Charles .			Descriptio)n	
I	equation Numeric approxin order me	s-application al solution nations, orde thod to solv	n to solve of first- er of con e simple	IAL E simple order an vergence engineer	QUATION: engineering a nd linear orc e, Modified E ing and scien	First-order linear o and scientific problems linary differential equilibrium culor's method, and R tific problems.	rdinary differential uations: Errors and unge - Kutta fourth
		Contractory of the second		1	1.5	Contact Peri	ods 12
	SECON	ODDED					
п	– Solutio and L-C- Numerica Corrector	n by Inverse R circuit. I Solution c method to s	different	ODE'S	: Second-ord itor, Application	er linear ODE's with c ion to Oscillations of a unge-Kutta method an	onstant coefficients mass spring system ad Milnes Predictor
			one piou	iems on	oscillations o	f a mass spring system	and L-C-R circuits.
				ille contractor		Contact Perio	ods 12
III	MULTIP integrals - Volume a	LE INTE - Region of nd total mas	GRALS: integratic s by doub	Introduc on - char ole integ	ction of integ nging into po ral.	grals – Evaluation of lar coordinates. Applic	double and triple cation to find Area,
Weissell					AUT -	Contact Perio	ds 12
IV	INTERPO Newton's interpolati	DLATION divided diff on formula,	TECHN ² erence in Newton's	IQUES terpolat 5 Forwar	: Interpolati ion formula. d and Backw	on, Lagrange's inter Newton-Gregory forw ard differences.	polation formula, ard and backward
				Contraction of the local data		Contact Period	ds 12

		Contact Periode	10
		Total Periods	60
Course O	Dutcomes		
Jpon suc	ccessful completion of the course students will be all the		
CO 1	Apply the numerical techniques to the first order ord equations.	: inary differential	K3
CO 2	Understand the numerical techniques to the second differential equations.	l order ordinary	K2
CO 3	Apply multiple integral ideas in solving areas, vol practical problems	К3	
CO 4	Apply the numerical techniques of interpolation in var	ious intervals.	K3
CO 5	Understand the matrix representation of a set of linear analyse the solution of the System of equations.	equations and to	K2
K1: Reme	embering; K2: Understanding; K3: Applying; K4: Analyzing	g; K5: Evaluating: K	6: Creati
	4 th Edition, 2010.	ematics, Pearson Ed	ucation,
Reference Books	 4th Edition, 2010. 3. R.K. Jain and S.R.K. Iyengar, Advanced Engine Publications, 5th Editon, 2016. 1. Grewal.B.S., "Higher Engineering Mathematics" Delhi, 44th Edition, 2018. 2. Bali. N., Goyal. M. and Watkins. C., "Advanced Firewall Media (An imprint of Lakshmi Publication 7th Edition, 2009. 3. Jain. R.K. and Iyengar. S.R.K., "Advanced Engine Publications, New Delhi, 5th Edition, 2016. 4. Narayanan. S. and Manicavachagom Pillai. T. K., S.Viswanathan Publishers Pvt. Ltd., Chennai, 2009. 5. Ramana. B.V., "Higher Engineering Mathematics Pvt. Ltd, New Delhi, 2016. 	ering Mathematics. , Khanna Publisher Engineering Mathen ons Pvt., Ltd.,), New ering Mathematics'', 'Calculus'' Volume I). ", McGraw Hill Edu	Narosa s, New natics", Delhi, Narosa and II, ucation
Reference Books	 4th Edition, 2010. 3. R.K. Jain and S.R.K. Iyengar, Advanced Engine Publications, 5th Editon, 2016. 1. Grewal.B.S., "Higher Engineering Mathematics' Delhi, 44th Edition, 2018. 2. Bali. N., Goyal. M. and Watkins. C., "Advanced Firewall Media (An imprint of Lakshmi Publication 7th Edition, 2009. 3. Jain. R.K. and Iyengar. S.R.K., "Advanced Engineer Publications, New Delhi, 5th Edition, 2016. 4. Narayanan. S. and Manicavachagom Pillai. T. K., S.Viswanathan Publishers Pvt. Ltd., Chennai, 2009. 5. Ramana. B.V., "Higher Engineering Mathematics Pvt. Ltd, New Delhi, 2016. 	eering Mathematics. eering Mathematics. , Khanna Publisher Engineering Mathen ons Pvt., Ltd.,), New ering Mathematics", 'Calculus" Volume I). ", McGraw Hill Edu	Narosa s, New natics", Delhi, Narosa and II, ucation
CIA I	4th Edition, 2010. 3. R.K. Jain and S.R.K. Iyengar, Advanced Engine Publications, 5th Editon, 2016. 1. Grewal.B.S., "Higher Engineering Mathematics" Delhi, 44th Edition, 2018. 2. Bali. N., Goyal. M. and Watkins. C., "Advanced Firewall Media (An imprint of Lakshmi Publication 7th Edition, 2009. 3. Jain. R.K. and Iyengar. S.R.K., "Advanced Engineer Publications, New Delhi, 5th Edition, 2016. 4. Narayanan. S. and Manicavachagom Pillai. T. K., " S.Viswanathan Publishers Pvt. Ltd., Chennai, 2009. 5. Ramana. B.V., "Higher Engineering Mathematics Pvt. Ltd, New Delhi, 2016. Tools for Assessment (40 Marks) CIA III Assignment/ Seminar/ Case Stu	ering Mathematics. ', Khanna Publisher Engineering Mathem ons Pvt., Ltd.,), New ering Mathematics'', 'Calculus'' Volume I). '', McGraw Hill Edu Attendance	ucation, Narosa s, New natics", Delhi, Narosa and II, Ication Total

					Ma	pping						
CO\PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C01	3	3	2	1	-			1		1		
CO2	3	3	2	1	-	_	_	1		1	-	1
CO3	3	3	2	1	-	-	_	1		1	-	1
CO4	3	3	2	1	-	-	-	1	-	1	-	1
C05	205 3 3 2 1 -							1	_	1	-	1
	CO \ PS	50			PSO1			PSO2			PSO3	
	C01		and the second		1 301			1			PSO3	
	CO2				1		1			1		
	CO3				1	-		1		1		
	CO4				1							
	CO5				1		1 1					
	Cou	irse des	igned b	y			Verified by					
Si	K·F gnature	Sange of the Fa	A aculty N	1ember			Si	gnature	of the	1 cm Chairper	so n-Bos	
Dr,	K-Re	fm resi	+lma	them	atros		Dr. p.T. HEMA MALINI Head of the Department Department of Science & Humanitie Nehru Institute of Engineering & Techn Nehru Gardens, Thirumalayampalaya Competere - 641 105					nities chnol alayar
Name and		Name and Seal of the Chairperson Bos					20					

	urse coue					Title		
U	23PH104				ENGIN	NEERING PHYSICS		
Se	emester: I	L 2	T	P	Credits	CIA: 40 Marks	ESE.	60 Marlin
Cor	Irse pre-requ	isites	Highor	· Second	3 Iom I I		LOL.	00 Warks
Cou	irse Objectiv	es	Ingliei	Second	lary Level			
1	To grasp the	fundar	nentals c	of Matter	· Properties a	nd their practical impli	antinun	1.
1	Engineering	fields.			riopenies a	ind then practical impli	cations acros	is diverse
2	To explore t	he appl	ications of	of Lasers	s and Fiber o	ptics in Engineering co	ontexts	
3	To apply pri	nciples	of Ultras	sonics ar	nd Thermal F	Physics to Engineering	challenges	
4	To understar	nd Quar	ntum Phy	sics con	cepts and the	eir applications.		
2	To analyse t	he struc	cture of c	rystals a	nd explore th	neir significance.		
)ev	rse Category	da	Ba	sic Scier	nce Course ()	BSC)		
lou	rse Descripti	on · Eng	Gle	obal / Na	ational	1		
ieoi	ries underlyin	g engin	eering s	, physics tudents a	vill complete	idents with a broad exp	osure to the	basic physic
ood	exposure in	various	direction	is in both	h theoretical	and applied Physics	ysics intende	d to provide
Cour	rse Content				. incoretical	and applied i hysics.		
Uni	t	- 			Desc	ription		
	PROPER	RTIES	OF MA'	TTER:	Introduction	- Elasticity - Stress-sti	ain diaoram	and its uses
	Factors a	ffecting	g elastic	modulus	s - Torsional	stress and deformatic	ons - Torsion	al pendulum
1	theory an	id expe	eriment .	- Bendir	ng of beams	s - Bending moment	- Cantilever	theory an
	Applicati	nt - Un	iform an	id non-u	niform bend	ing, theory and exper-	ment Loho	mod and
	Application	JIIS.				ing. meory and exper	incint - 1-511a	pea girders
							iniciti - 1-5ila	ped girders
				•		Con	tact Periods	09
II	LASER Population lasers - N propagatio (material,	AND n invers Nd-YAO on of li refracti	FIBER sion, pun G, CO ₂ ight - N ve index	OPTIC ping me - Indust umerical , mode)	S: Introduct ethods- Einst trial Applica l aperture ar - Temperatur	Con Con Con – Spontaneous a tein's A and B coeffici ations of Lasers -Fib and Acceptance angle re and displacement set	tact Periods and stimulation ents: derivation er Optics: F - Types of consors	09 ed emission on. Types o Principle and optical fibre
П	LASER Population lasers - M propagation (material,	AND invers Nd-YAO on of li refracti	FIBER sion, pun G, CO ₂ ight - N ve index	OPTIC ping me - Indust umerical , mode)	S: Introduct ethods- Einst trial Applica l aperture ar - Temperatur	Con Con tein's A and B coeffici ations of Lasers -Fib and Acceptance angle re and displacement ser Cont	tact Periods and stimulate ents: derivati er Optics: F - Types of c asors. tact Periods	09 ed emission fon. Types o Principle and optical fibres
II	LASER Population lasers - 1 propagatio (material,	AND n inverse Nd-YAC on of li refracti	FIBER sion, pun G, CO ₂ ight - N ve index	OPTIC pping me - Indust umerical , mode)	S: Introduct ethods- Einst trial Applica l aperture ar - Temperatur	Con Con Con – Spontaneous a tein's A and B coeffici ations of Lasers -Fib and Acceptance angle re and displacement ser Cont	tact Periods and stimulation ents: derivation er Optics: F - Types of consors. tact Periods	09 ed emission on. Types o Principle and optical fibres 09
П III	LASER Population lasers - M propagation (material, ULTRAS piezoelectr Introduction Thermal con heat excha	AND n inverse Nd-YAC on of li refracti ONICS ric gene on to he onducti ngers, r	FIBER sion, pun G, CO ₂ ight - N ve index or endex or and contents of AND erator - V eat - Tran vity - Fo refrigerat	OPTIC ping mo - Indust umerical , mode) THER Velocity r asfer of h orbe's an ors, over	S: Introduct ethods- Einst trial Applica l aperture ar - Temperatur MAL PHY measurement heat energy: ' id Lee's disc ns, and solar	Con ion – Spontaneous a tein's A and B coeffici- ations of Lasers -Fib- nd Acceptance angle re and displacement ser Cont SICS: Introduction t - Acoustic grating - M Thermal conduction, co method: theory and es water heaters.	tact Periods and stimulation ents: derivation er Optics: F - Types of consors. tact Periods - Piezoelect fedical applic ponvection, and operiment - A	09 ed emission on. Types o principle and optical fibre: 09 ric effect - cations. d radiation - Applications:
II	LASER Population lasers - N propagatic (material, ULTRAS piezoelect Introductic Thermal co heat excha	AND inverse Nd-YAO on of li- refracti ONICS ric gene on to he onducti ngers, r	FIBER sion, pun G, CO ₂ ight - N ve index berator - V erator - V	OPTIC: pping me - Indust umerical , mode) THER Velocity r sfer of h orbe's an ors, over	S: Introduct ethods- Einst trial Applica l aperture ar - Temperatur MAL PHY measurement heat energy: ' d Lee's disc ns, and solar	Con cion – Spontaneous a tein's A and B coeffici- ations of Lasers -Fib ad Acceptance angle re and displacement ser Cont SICS: Introduction t - Acoustic grating - M Thermal conduction, co method: theory and ex water heaters. Cont	tact Periods and stimulate ents: derivati er Optics: F - Types of consors. tact Periods - Piezoelect fedical appliconvection, and experiment - A	09 ed emission fon. Types o Principle and optical fibre: 09 ric effect - cations. d radiation - Applications:
II	LASER Population lasers - N propagation (material, ULTRAS piezoelectr Introduction Thermal con heat excha	AND inverse Nd-YAC on of li- refracti ONICS ric gene on to he onducti- ngers, r	FIBER sion, pun G, CO ₂ ight - N ve index ve index 5 AND erator - V eat - Tran vity - Fo efrigerat	OPTIC: ping me - Indust umerical , mode) - THER Yelocity r sfer of h orbe's an ors, over	S: Introduct ethods- Einst trial Applica l aperture ar - Temperatur MAL PHY measurement heat energy: i d Lee's disc ns, and solar	Con tion – Spontaneous a tein's A and B coeffici ations of Lasers -Fib and Acceptance angle re and displacement ser Cont SICS: Introduction t - Acoustic grating - M Thermal conduction, co method: theory and ex water heaters. Cont	tact Periods and stimulation ents: derivation er Optics: F - Types of consors. Exact Periods - Piezoelect fedical appliconvection, and apperiment - A act Periods	09 ed emission fon. Types o Principle and optical fibres 09 ric effect eations. d radiation - Applications: 09
III IIII IV	LASER Population lasers - M propagatic (material, ULTRAS piezoelectr Introductic Thermal c heat excha QUANTU Wien's dis Theory and Schrödinge one-dimensi	AND inverse Nd-YAC on of li- refracti ONICS ric gene on to he onducti ngers, r M PHY splacem l experi er's way	FIBER sion, pun G, CO ₂ ight - N ve index 5 AND erator - V eat - Tran vity - Fo refrigerat YSICS: I tent law imental v ve equati	OPTIC: pping me - Indust umerical , mode) THER Yelocity r asfer of h orbe's an ors, over Introduct and Ray verification: Tim roscope:	S: Introduct ethods- Einst trial Applica l aperture ar - Temperatur MAL PHY measurement heat energy: ' d Lee's disc ns, and solar tion - Black yleigh-Jeans' on - Matter y le independer Scanning Tu	Con tion – Spontaneous a tein's A and B coeffici- ations of Lasers -Fib and Acceptance angle re and displacement ser Cont SICS: Introduction t - Acoustic grating - M Thermal conduction, co method: theory and ex- water heaters. Cont body radiation - Planck Law from Planck's t vaves - Physical signifi- nt and time dependent innelling microscope.	tact Periods and stimulations: derivations: derivations of the second structure of the second	09 ed emission on. Types o Principle and optical fibre 09 ric effect eations. d radiation Applications: 09 Deduction of opton effect: //e function - Particle in a
	LASER Population lasers - N propagatic (material, ULTRAS piezoelectr Introductic Thermal cc heat excha QUANTU Wien's dis Theory and Schrödinge one-dimens	AND inverse Nd-YAC on of li- refracti ONICS ric gene on to he onducti ngers, r M PHY splacem I experi er's way	FIBER sion, pun G, CO ₂ ight - N ve index. 5 AND erator - V eat - Tran vity - Fo refrigerat YSICS: I ent law imental v ve equati	OPTIC: pping ma - Indust umerical (mode) THER Velocity r isfer of h orbe's an ors, over Introduct and Ray verification: Tim roscope:	S: Introduct ethods- Einst trial Applica l aperture ar - Temperatur MAL PHY measurement heat energy: ' d Lee's disc ns, and solar tion - Black yleigh-Jeans' on - Matter v te independer Scanning Tu	Con ion – Spontaneous a tein's A and B coeffici- ations of Lasers -Fib ad Acceptance angle re and displacement ser Cont SICS: Introduction t - Acoustic grating - M Thermal conduction, co method: theory and ex- water heaters. Cont body radiation - Planck Law from Planck's t vaves - Physical signifi- nt and time dependent innelling microscope. Conta	tact Periods and stimulate ents: derivati er Optics: F - Types of consors. tact Periods - Piezoelect fedical appliconvection, and experiment - A act Periods convection, and experiment - A act Periods convections - fect Periods	09 ed emission fon. Types of Principle and optical fibre 09 ric effect cations. d radiation Applications: 09 Deduction of opton effect: /e function - Particle in a
III IIII IV	LASER Population lasers - M propagatic (material, ULTRAS piezoelectr Introductic Thermal c heat excha QUANTU Wien's dis Theory and Schrödinge one-dimens	AND inverse Nd-YAC on of li- refracti ONICS ric gene on to he onducti- ngers, r M PHY placematic er's way sional b	FIBER sion, pun G, CO ₂ ight - N ve index 5 AND erator - V erator - V erat	OPTIC ping ma - Indust umerical , mode) THER Velocity r asfer of h orbe's an ors, over Introduct and Ray verification ton: Tim roscope:	S: Introduct ethods- Einst trial Applica l aperture ar - Temperatur MAL PHY measurement eat energy: ' d Lee's disc ns, and solar tion - Black yleigh-Jeans' on - Matter v te independet Scanning Tu	Con tion – Spontaneous a tein's A and B coeffici- ations of Lasers -Fib- ad Acceptance angle re and displacement ser Cont SICS: Introduction t - Acoustic grating - N Thermal conduction, co- method: theory and ex- water heaters. Cont body radiation - Planck Law from Planck's t vaves - Physical signifi- nt and time dependent innelling microscope. Conta	tact Periods and stimulation ents: derivation er Optics: F - Types of consors. Exact Periods - Piezoelect Iedical appliconvection, and aperiment - A act Periods k's theory - I heory - Com- icance of wave equations -	09 ed emission fon. Types of principle and optical fibre 09 ric effect eations. d radiation Applications 09 Deduction of opton effect: //e function - Particle in a 09

									(Contact P	eriods	09
Con	rse Or	Itcomes								Total P	eriods	45
Upor	n suce	essful con	Inletion	of the	000000							
	0.1	Underste	nd the l	or the	course,	studen	its will	be able	to:			
	01	Rememb	er the co	Dasics o	f proper	rties of	matter a	and its ap	oplicatio	ons.		ŀ
C	02	optics.	for the ex	oncepts	01LAS	CK and	optical	devices	and thei	r applicat	tions in fi	ber k
C	03	Understa their app	nd the blications	oasic co	ncepts ansion i	of ultra	sonics d	& therma	al proper	rties of m	aterials a	and _k
C) 4	Apply k	nowledg	ge of a	advance	ed phys	sics co	exchang	ers,	tum that	1	
		applicatio	ons in tu	inneling	, micros	copes.		acepts (ji quali	tum theo	ory and	its K
CC) 5	Understa	nd the	basics	of crys	tals, the	eir stru	ctures a	nd diffe	erent cry	stal grov	vth
K1: R	emem	bering; K2	2: Under	standin	g: K3: /	Applyin	α· KA·	Analyzir	VE.			K
		1. Bhatta	acharya.	D.K. 8	2 Poon	m T "	Engine	aring Dh	ig; K5: I	Evaluatin	ig; K6: Ci	reating
	~	2015.			e e o c ne	, 1.	Lingine	ching rh	ysics .	Oxford U	niversity	Press,
Te	xt	2. Gaur, 3. Panda	R.K. &	Gupta,	S.L. "E	ngineer	ring Phy	vsics". D	hanpat	Rai Publi	shers, 20	12.
Boo	ks	2012.	y, D.K.	& Cha	aturvedi	, S. "E	ingineer	ing Phy	sics". C	lengage]	Learning	India,
		4. Arthu	r Beiser	, Shobh	it Maha	ajan, S.	Rai Cl	noudhury	Conce	ents of M	Indorn Di	
		McGra	aw-Hill	(Indian	Edition	n), 2020).		, cone			lysics,
Refere	ence	2. Serwa	ay, D., I v. R.A.	& Jev	, R. & V vett IV	Walker, W "Ph	J. "Prin	nciples o	f Physic	s." Wiley	, 2015.	
D00	KS	Learni	ng, 201	0.	ven, s.	··· 111	ysics n	or Scien	tists an	d Engine	eers." Ce	ngage
		3. Palani: 4 Kittle	samy P.	K. "Eng	gineerin	g Physi	cs." SC	ITECH	Publicat	ions, 201	1.	
		5. Mani I	C, mu P. "Engi	neering	n to sol	Id state	Physic.	s," Wiley	y, 2005.			
		6. Senthi	lkumar (G. "Eng	ineering	g Physic	cs I." V	RB Publ	ishers	1. 2011		
	ear ann ann ann	-		Too	ls for A	ssessm	ent (40	Marks)		2011.		
CL	AI	C	IA II		CIA III		As	signmer	it/	Attor	Idanaa	T • • •
1	0		10		10		Semina	ar/Case	Study	Atten	-	Total
								3			5	40
						Mappi	ng					
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	POS	BOO	DOIA	- Contraction	
CO1	3	3	1	-	1	_	1	100	109	1	POII	PO12
02	3	3	1	-	1	-	1	-	-	1	-	1
03	3	3	1	-	1	_	1	-	1	-	-	1
	3	2	1	-	1	-	-		1	-	-	1
04								1.5	-			1
04 05	3	3	1	-	-	_	1		1	1	-	1

CO\PSO	PSO1	PSO2	DCOA
CO1	1	1502	PS03
CO2	1	1	
CO3	1	1	1
CO4	1		1
CO5	1		1
	1	1	1
Signature of the Fac Do-N. Office Alsociale profess Dependent of Pice	inty Member porya, os of physics, na athenancties]	Dr. P. T. HEM Head of the Department of Sc Nehru Institute of Eng Nehru Gardens, Th Coimbato	A MALINI e Department ience & Humanities gineering & Technolog irumalayampalayanı, re - 641 105
Name and Department of th	e Faculty Member	Name and Seal of t	he Chairperson-BoS

	Jourse Code	11 - A.S.				Title		
	U23CY105				ENGINEEI	PINC CHEMISTRY		
	Semester: I	L	Т	Р	Credits	UNG CHEMISTRY		
0	semester. I	3	0	0	3	CIA: 40 Marks	ESE: 6	0 Marks
Co	urse pre-requi	sites	Hig	her Sec	ondary Level			
Co	urse Objective	S						
1	To inculcate a	sound u	understa	anding c	f water treatme	nt techniques.		
2	To understand	the bas	ic conc	epts of e	lectrochemistry	and its applications		
3	To introduce the	ne basic	concer	ots of co	rrosion and its o	Control methods		
4	To facilitate the combustion cha	he unde aracteri	erstandi stics.	ing of c	lifferent types	of fuels, their prepar	ration, prop	perties, an
5	To familiarize engineering ma	the stu terials.	dents w	with the	properties and	applications of differ	ent types o	f advance
Cou	rse Category		Basic	Science	Course (BSC)			
Dev	elopment Need	ls	Glob	al / Nati	onal			
Cou	rse Descriptio	on: Ch	emistry	is req	uired to solve	global problems	nd !	6
engi	neering.					giobal problems a	nd issues	for futur
Cou	rse Content							
Uni	t				Descript	ion		Super States of
I	hardness - E water - Boile	er Qua stimatio	lity Sta on of ha	ardness	- Hardness of of water by ED	s of water - Impurities water - Expression of DTA method - Disadva	s in water f hardness antages of	- Types o - Units o using harc
I	water - Wat hardness - E water - Boile Softening of treatment me Brackish wat	er Qua stimatio er troubl f water ethod - S er by re	lity Sta on of ha les - Sca - Ext Sodium	ardness ale and s ernal tr Alumir	- Hardness of of water by ED sludge. eatment metho hate, Phosphate	o of water - Impurities water - Expression of OTA method - Disadva od - Demineralization and Calgon condition	s in water f hardness antages of n process ing - Desa	 Types of Units of using hard Internal ination of
I	water - Wat hardness - E water - Boile Softening of treatment me Brackish wat	er Qua stimatio er troubl f water ethod - 1 er by re	lity Sta on of ha les - Sc - Ext Sodium everse o	ardness ardness ale and s ernal tr Alumir osmosis	- Hardness of of water by EE sludge. eatment metho hate, Phosphate method.	of water - Impurities water - Expression of DTA method - Disadva od - Demineralization and Calgon condition	s in water f hardness antages of n process ing - Desal	- Types of - Units of using hard - Internal ination of
Ι	water - Wat hardness - E water - Boile Softening of treatment me Brackish wat	er Qua stimatio er troubl f water ethod - S er by re	lity Sta on of ha les - Sca - Ext Sodium everse o	ardness ardness ale and s ernal tr Alumir osmosis	etion - Sources - Hardness of of water by ED sludge. eatment metho hate, Phosphate method.	of water - Impurities water - Expression of DTA method - Disadva od - Demineralization and Calgon condition Contac	s in water f hardness antages of n process ing - Desal et Periods	- Types of - Units of using hard - Internal ination of 09
I	water - Wat hardness - E water - Boile Softening of treatment me Brackish wat ELECTROCI and irreversit hydrogen elec	er Qua stimatio er troubl f water ethod - S er by re HEMIS ble cells ctrode -	lity Sta on of ha les - Sca - Ext Sodium everse of TRY: In Glass e	ardness ale and s ernal tr Alumir ssmosis ntroduct trode po electrode	etion - Sources - Hardness of of water by ED sludge. eatment methon hate, Phosphate method. ion - Cells - Re tential - Nernst e - Electrochem	of water - Impurities water - Expression of DTA method - Disadva od - Demineralization and Calgon condition Contac presentation of a galva equation - Reference ical series and its appl	s in water f hardness antages of n process ing - Desa et Periods anic cell - F electrode - ications	- Types of - Units of using hard - Internal ination of 09 : Reversible Standard
П	water - Wat hardness - E water - Boile Softening of treatment me Brackish wat ELECTROCI and irreversite hydrogen elect Battery: Intr Battery : lead Capacitors, E-	er Qua stimatio er troubl f water ethod - 3 er by re HEMIS ble cells ctrode - roductio d storag -Vehicle	lity Sta on of ha les - Sc. - Ext Sodium everse of TRY: In 5 - Elect Glass e on, Typ e batter e.	andards ardness ale and s ernal tr Alumir psmosis ntroduct trode po electrode pes of b ry and li	etion - Sources - Hardness of of water by EE sludge. eatment methon hate, Phosphate method. 	of water - Impurities water - Expression of DTA method - Disadva od - Demineralization and Calgon condition Contac presentation of a galva equation - Reference ical series and its appl pary Battery: alkaline ry, Flow Battery : H ₂	s in water f hardness antages of n process ing - Desa et Periods anic cell - F electrode - ications. battery, S -O ₂ fuel ce	- Types of - Units of using hard - Internal ination of 09 Reversible Standard Standard Secondary II - Super
І	water - Wat hardness - E water - Boile Softening of treatment me Brackish wat ELECTROCI and irreversib hydrogen elec Battery: Intr Battery : leac Capacitors, E-	er Qua stimatio er troubl f water ethod - 1 er by re HEMIS ble cells ctrode - roductio d storag -Vehicle	lity Sta on of ha les - Sca Sodium everse of TRY: In Glass e on, Typ re batter e.	andards ardness ale and s ernal tr Alumir ssmosis ntroduct trode po electrode res of b ry and li	etion - Sources - Hardness of of water by ED sludge. eatment methon hate, Phosphate method. ion - Cells - Re tential - Nernst e - Electrochem atteries - Prim thium ion batte	of water - Impurities water - Expression of DTA method - Disadva od - Demineralization and Calgon condition Contac presentation of a galva equation - Reference ical series and its appl ary Battery: alkaline ry, Flow Battery : H ₂ Contac	s in water f hardness antages of n process ing - Desal et Periods anic cell - F electrode - ications. battery, S -O ₂ fuel ce	- Types of - Units of using hard - Internal ination of 09 Reversible Standard Standard H - Super 09
П	water - Wat hardness - E water - Boile Softening of treatment me Brackish wat ELECTROCI and irreversite hydrogen elect Battery: Intr Battery : lead Capacitors, E CORROSION and Electroch selection and impressed cu Copper and el	er Qua stimatio er troubl f water ethod - 1 er by re HEMIS ble cells ctrode - roductio d storag -Vehicle NAND I nemical design rrent ca ectroles	lity Sta on of ha les - Sca Sodium everse of TRY: In Glass e on, Typ re batter e. ITS CO - Fact aspect athodic ss platir	andards ardness ale and s ernal tr Alumir ssmosis i ntroduct trode po electrode pes of b ry and li ors influt ts - Elec method	 ction - Sources Hardness of of water by EE sludge. eatment method hate, Phosphate method. ion - Cells - Retential - Nernst e - Electrochem atteries - Primethium ion batte : Corrosion: Influencing rate of ctrochemical production of the second states - constants - c	of water - Impurities water - Expression of DTA method - Disadva and Calgon condition Contac presentation of a galva equation - Reference ical series and its appl ary Battery: alkaline ry, Flow Battery : H ₂ Contact troduction - Types of a f corrosion. Corrosion rotection - sacrificial stituents and function	s in water f hardness antages of n process ing - Desal et Periods anic cell - F electrode - ications. battery, S -O ₂ fuel ce t Periods corrosion: C n control - anode met n. Electrop	- Types of - Units of using hard - Internal ination of 09 Reversible Standard Gecondary II - Super 09 Chemical material hod and ating of
П	water - Wat hardness - E water - Boile Softening of treatment me Brackish wat ELECTROCI and irreversit hydrogen elect Battery: Intr Battery : lead Capacitors, E- CORROSION and Electroch selection and impressed cu Copper and el	er Qua stimatio er troubl f water ethod - S er by re HEMIS ble cells ctrode - roductio d storag -Vehicle NAND I nemical design rrent ca ectroles	lity Sta on of ha les - Sca - Ext Sodium everse of TRY: In Glass e on, Typ te batter e. TTS CO - Fact aspect athodic	ntroduct ardness ale and s ernal tr Alumir psmosis ntroduct trode po electrode es of b ry and li ors influts - Elec method	 ction - Sources Hardness of of water by EE sludge. eatment method ate, Phosphate method. ion - Cells - Retential - Nernste - Electrochem atteries - Primethium ion batte corrosion: Intuencing rate of ctrochemical production in the second state in the second stat	of water - Impurities water - Expression of DTA method - Disadva and Calgon condition Contac presentation of a galva equation - Reference ical series and its appl ary Battery: alkaline ry, Flow Battery : H ₂ Contact troduction - Types of a f corrosion. Corrosion rotection - sacrificial stituents and function	s in water f hardness antages of n process ing - Desal et Periods anic cell - F electrode - ications. battery, S -O ₂ fuel ce t Periods corrosion: C n control - anode met n. Electrop	- Types of - Units of using hard - Internal ination of 09 (Reversible Standard Standard (Recondary II - Super 09 Chemical material hod and lating of 09
П	water - Wat hardness - E water - Boile Softening of treatment me Brackish wat ELECTROCI and irreversite hydrogen elect Battery: Intr Battery : lead Capacitors, E- CORROSION and Electroch selection and impressed cu Copper and el	er Qua stimatio er troubl f water ethod - 1 er by re HEMIS ble cells ctrode - roductio d storag -Vehicle N AND I nemical design rrent ca ectroles	lity Sta on of ha les - Sca Sodium everse of TRY: In Glass e on, Typ e batter e. ITS CO - Fact aspect athodic	ntroduct ardness ale and s ernal tr Alumir osmosis i ntroduct trode po electrode pes of b ry and li NTROL ors influt ts - Elec method	 ction - Sources Hardness of of water by EE sludge. eatment method ate, Phosphate method. ion - Cells - Retential - Nernst e - Electrochem atteries - Primethium ion battee : Corrosion: Intuencing rate of etrochemical production of the second states - constants - co	of water - Impurities water - Expression of DTA method - Disadva and Calgon condition Contac presentation of a galva equation - Reference ical series and its appl ary Battery: alkaline ry, Flow Battery : H ₂ Contact troduction - Types of a f corrosion. Corrosion rotection - sacrificial stituents and function Contact	s in water f hardness antages of n process ing - Desal et Periods anic cell - F electrode - ications. battery, S -O ₂ fuel ce t Periods corrosion: C n control - anode met n. Electrop	- Types of - Units of using hard - Internal ination of 09 (eversible Standard (econdary II - Super 09 Chemical material hod and ating of 09

petrol by Bergius method. Knocking - Octane number - Cetane number - Power alcohol and biodiesel - Gaseous fuel - LPG, CNG. Combustion - Principle of combustion - Calorific value - Gross and net calorific values -Explosive range - Spontaneous ignition temperature - Flue gas analysis-ORSAT method. **Contact Periods** 09 ADVANCED ENGINEERING MATERIALS: Introduction to Polymers - Thermoplastic and Thermosetting. Properties of polymers: Tg, Tacticity, & Molecular weight. Composites -Fibre-reinforced composites and its applications. Abrasives - Moh's scale of hardness - types - natural [Diamond] - synthetic [SiC]; Refractories - characteristics - classifications [Acidic, V basic and neutral refractories] - properties - refractoriness - RUL - porosity - thermal spalling; Lubricants - definition - function - characteristics - properties - viscosity index, flash and fire points, cloud and pour points, oiliness; Nano materials - CNT- synthesis [laser evaporation] - applications. **Contact** Periods 09 **Total Periods** 45 **Course Outcomes** Upon successful completion of the course, students will be able to: Infer the quality of water from quality parameter data and propose suitable CO 1 treatment methodologies to treat water. K1 Understand the basic concept of Electrochemistry for its applications in CO 2 different engineering sectors. K2 CO 3 Reduce corrosion problems by applying appropriate control methods. K3 Recommend suitable fuels for engineering processes and applications. CO 4 K3 Recognize different types of engineering materials and apply them for CO 5 suitable applications in energy sectors. K4 K1: Remembering; K2: Understanding; K3: Applying; K4: Analyzing; K5: Evaluating; K6: Creating 1. P. C. Jain and Monica Jain, "Engineering Chemistry", 17th Edition, Dhanpat Rai Publishing Company (P) Ltd, New Delhi, 2018. 2. Sivasankar B., "Engineering Chemistry", Tata McGraw-Hill Publishing Company Text Books Ltd, New Delhi, 2008. 3. S.S. Dara, "A Text book of Engineering Chemistry", S. Chand Publishing, 12th Edition, 2018. 1. B. S. Murty, P. Shankar, Baldev Raj, B. B. Rath and James Murday, "Textbook of nanoscience and nanotechnology", Universities Press-IIM Series in Metallurgy and Materials Science, 2018. 2. O.G. Palanna, "Engineering Chemistry" McGraw Hill Education (India) Private Limited, 2nd Edition, 2017. 3. Friedrich Emich, "Engineering Chemistry", Scientific International PVT, LTD, New Reference Delhi, 2014. Books 4. Shikha Agarwal, "Engineering Chemistry-Fundamentals and Applications", Cambridge University Press, Delhi, Second Edition, 2019. 5. O.V. Roussak and H.D. Gesser, Applied Chemistry-A Text Book for Engineers and Technologists, Springer Science Business Media, New York, 2nd Edition, 2013. 6. Gowariker V.R., Viswanathan N.V., and Jayadev Sreedhar, "Polymer Science", New Age International P (Ltd.,), Chennai, 2022.

				Tools f	or Asses	sment	(40 M	arks)					
CIA	I	CIA II		CIA I	II	As	signmo Cas	ent/Ser e study	ninar/ y	Atte	ndance	Total	
10		10	10			ł.		5			5	40	
					Ma	pping							
CO\PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	POS	PO9	POIA	PO11	PO12	
CO1	3	1	1	-	-	-	1	-	-	-	POII	POI2	
CO2	3	1	1	_	-	_	1				_		
CO3	3	1	I				1		-	-	-	1	
CO4	3	1	1		-	-	1	-	-	-	-	1	
CO7	5	1	1	-	-	-	1	-	-	-	-	1	
05	3	. 1	1	-	-	-	1	-	-	-	-	1	
3-High; 2-M	Aedium	1; 1-Low		PSOI		-A-THERE IS IN	DC	12		4 .			
				1301			PSC)2			PSO3		
	CO2		14 - E	1	-	- 1					1		
	CO3			1						1			
(CO4			1					-		1		
(05			1			-				1		
		Course d	esigne	d by		in the second			Verif	ied by			
5	Signatur	re of the F	Faculty	Membe	er		Signature of the Chaimarson Das						
A-	Lary	shurt	2 n M	lch	enis	M	DY Dep lehru l Nehr	P.T. Head Dartmen Institute U Gard	HEM d of the nt of Sc e of Eng ens, Th	AMALI e Depart lience & gineering irumalay	Humania With Humania With Humania With Humania	ties inclogy	
Name a	and Dep	artment o	of the F	aculty N	Member		Name	Contend S	eal of the	re - 641	105 Derson T	2 C	

						Title		
U2.	3GE106				Н	ERITAGE OF TAMI	LS	
Sem	ester:I	L	Т	Р	Credits	CIA:40 Marks	DOD	
Com		1	0	0	1	CIA.40 Marks	ESE: 6	50 Marks
Cour	se pre-req	uisite	S	Highe	r Secondary L	evel		
Cour	se Objectiv	ves	1.44					
1	To learn the	e exte	nsive	literatu	ire of classica	l tamil.		
2	To review t	he fir	ne arts	s herita;	ge of Tamil cu	ilture.		
3 '	To realize the	he co	ntribu	ition in	Indian freedo	m struggle.		
4 '	To understa	nd th	e role	of Ten	nple in Sangar	n cities/ports. Chola con	nmest	
5 [To examine	Tam	il cult	tural in	fluence in Ind	a.	iquest.	
Cours	se Category	y		Humar	nities, Social S	Science and Managemen	t Course (HS	SMC)
Devel	opment Ne	eeds		Global	/National		a course (III	SIVIC)
Cours	se Descript	ion: l	Used	to explo	ores the rich c	ulture, linguistic and his	storical aspec	ts of the Tamil
comm	unity.					0	torrour uspec	as of the ranni
Cours	se Content					1.		
Unit						Description		
T	Literature		atuilau	u Lang	uage - Classi	cal Literature in Tamil	- Secular N	ature of Sangar
I	Literature Tamil Ep and Naya Contribut	e - Dis ics ar unmar ion of	stribu nd Im rs - F f Bha	tive Just pact of orms corntration	uage - Classi stice in Sangar Buddhism & of minor Poet and Bharathi	cal Literature in Tamil n Literature - Managem Jainism in Tamil Land ry - Development of M dhasan.	- Secular N nent Principle - Bakthi Lit Modern liter	ature of Sangar es in Thirukural terature Azhwar ature in Tamil
I	Literature Tamil Ep and Naya Contribut	e - Dis ics ar unmar ion of	stribu nd Im rs - F f Bha	tive Just pact of forms of rathiya	uage - Classi stice in Sangar Buddhism & of minor Poet and Bharathi	cal Literature in Tamil n Literature - Managem Jainism in Tamil Land ry - Development of M dhasan. Con	- Secular N nent Principle - Bakthi Lit Modern liter tact Periods	ature of Sangar es in Thirukural terature Azhwar ature in Tamil
I II	Literature Tamil Ep and Naya Contribut HERITA stone to m making Kanyakun Nadhaswa	e - Dis ics ar inmar ion of GE - moder - Ma nari, uram -	stribu nd Im s - F f Bha • RO m scu assive Maki • Role	CK AI CK AI CK AI CK AI	uage - Classi stice in Sangar Buddhism & of minor Poet and Bharathi RT PAINTIN Bronze icon acotta sculpt musical insti- nples in Socia	cal Literature in Tamil n Literature - Managen Jainism in Tamil Land ry - Development of M dhasan. Con GS TO MODERN A s - Tribes and their han sures, Village deities. ruments - Mridhangam Land Economic Life of	- Secular N nent Principle - Bakthi Lit Modern liter tact Periods RT – SCUI ndicrafts - A , Thiruvallu , Parai, Ver	ature of Sangar es in Thirukural terature Azhwar ature in Tamil 03 LPTURE: Hero Int of temple ca Ivar Statue at enai, Yazh anc
I II	Literature Tamil Ep and Naya Contribut HERITA stone to m making Kanyakun Nadhaswa	e - Dis ics ar inmar ion of GE - moder - Mari, uram -	stribu nd Im s - F f Bha • RO m scu assive Maki • Role	CK AI CK AI CK AI CK AI CK AI	uage - Classi stice in Sanga Buddhism & f minor Poet and Bharathi RT PAINTIN - Bronze icon acotta sculpt musical instr nples in Socia	cal Literature in Tamil n Literature - Managem Jainism in Tamil Land ry - Development of N dhasan. Con IGS TO MODERN A s - Tribes and their han sures, Village deities unents - Mridhangam l and Economic Life of Cont	- Secular N eent Principle - Bakthi Lin Modern liter tact Periods RT – SCUI ndicrafts - A , Thiruvallu , Parai, Ver Tamils. act Periods	ature of Sangar es in Thirukural terature Azhwar ature in Tamil 03 LPTURE: Hero ature Statue at uvar Statue at enai, Yazh and
I II	Literature Tamil Ep and Naya Contribut HERITA stone to m making Kanyakun Nadhaswa	e - Dis ics ar inmar ion of GE - moder - Ma nari, uram -	stribu nd Im s - F f Bha - RO m scu assive Maki - Role	CK AI CK AI CK AI CK AI CK AI	uage - Classi stice in Sangar Buddhism & of minor Poet and Bharathi RT PAINTIN Bronze icon acotta sculpi musical insti nples in Socia	cal Literature in Tamil n Literature - Managem Jainism in Tamil Land ry - Development of N dhasan. Con GS TO MODERN A s - Tribes and their har sures, Village deities uments - Mridhangam l and Economic Life of Cont	- Secular N nent Principle - Bakthi Lit Modern liter tact Periods RT – SCUI ndicrafts - A , Thiruvallu , Parai, Ver Tamils. act Periods	ature of Sangar es in Thirukural terature Azhwar ature in Tamil 03 LPTURE: Hero rt of temple ca ivar Statue at enai, Yazh anc 03
I	Literature Tamil Ep and Naya Contribut HERITA stone to m making Kanyakun Nadhaswa FOLK A Oyillattam Tamils.	GE - Dis ics ar inmar ion of GE - moder - Ma nari, uram - ND I a, Lea	stribu nd Im rs - F f Bha • RO m scu assive Maki • Role	CK AI orms of corms of corms of corms of corms of corms of corms of corms of corms of corms of corms of corms o	uage - Classi stice in Sanga Buddhism & f minor Poet and Bharathi RT PAINTIN - Bronze icon acotta sculpt musical instr nples in Socia ARTS: Ther try, Silambatt	cal Literature in Tamil n Literature - Managem Jainism in Tamil Land ry - Development of N dhasan. Con IGS TO MODERN A s - Tribes and their han ures, Village deities unents - Mridhangam l and Economic Life of Cont ukoothu, Karakattam, am, Valari, Tiger dan	- Secular N ent Principle - Bakthi Lit Modern liter tact Periods RT – SCUI ndicrafts - A , Thiruvallu , Parai, Ver Tamils. act Periods VilluPattu, H ce - Sports	ature of Sangar es in Thirukural terature Azhwar ature in Tamil 03 LPTURE: Hero ature Statue a enai, Yazh anc 03 CaniyanKoothu, and Games of
II	Literature Tamil Ep and Naya Contribut HERITA stone to m making Kanyakun Nadhaswa FOLK A Oyillattam Tamils.	GE - Dis ics ar inmar ion of GE - moder - Ma nari, uram - ND I a, Lea	stribu nd Im rs - F f Bha • RO m scu assive Maki • Role	CK AI orms of corms of corms of corms of corms of corms o	uage - Classi stice in Sangar Buddhism & of minor Poet and Bharathi RT PAINTIN Bronze icon acotta sculpt musical instr nples in Socia ARTS: Ther try, Silambatt	cal Literature in Tamil n Literature - Managem Jainism in Tamil Land ry - Development of M dhasan. Con IGS TO MODERN A s - Tribes and their han tures, Village deities, unents - Mridhangam l and Economic Life of Cont ukoothu, Karakattam, am, Valari, Tiger dan Cont	- Secular N nent Principle - Bakthi Lin Modern liter tact Periods RT - SCUI ndicrafts - A , Thiruvallu , Parai, Ven Tamils. act Periods VilluPattu, H ce - Sports act Periods	ature of Sangar es in Thirukural terature Azhwar ature in Tamil 03 LPTURE: Hero ature Statue at enai, Yazh anc 03 KaniyanKoothu, and Games of 03
	Literature Tamil Ep and Naya Contribut HERITA stone to m making Kanyakun Nadhaswa FOLK A Oyillattam Tamils. THINAI Concept fr and Literac Import dur	e - Dis ics ar inmar ion of GE - noder - Ma nari, uram - ND I a, Lea ND I a, Lea CON rom T cy du ing Sa	stribu nd Im rs - F f Bha • RO m scu assive Maki • Role • MAR ather • CEP Tholka uring angar	CK AI orms of corms of corms of crathiyan CK AI allpture e Terr ing of e of Ter TIAL Pupper TOF appiyan Sangan n Age -	uage - Classi stice in Sangar Buddhism & of minor Poet and Bharathi RT PAINTIN Bronze icon acotta sculpt musical instr nples in Socia ARTS: Ther try, Silambatt TAMILS: Fn and Sangar Age - Anci- Overseas Cor	cal Literature in Tamil n Literature - Managem Jainism in Tamil Land ry - Development of N dhasan. Con IGS TO MODERN A s - Tribes and their han tures, Village deities, ruments - Mridhangam l and Economic Life of Cont ukoothu, Karakattam, am, Valari, Tiger dan Conta lora and Fauna of Ta Literature - Aram Cor ent Cities and Ports of nquest of Cholas.	- Secular N hent Principle - Bakthi Lin Modern liter tact Periods RT – SCUI ndicrafts - A , Thiruvallu , Parai, Ver Tamils. act Periods VilluPattu, H ce - Sports act Periods mils & Agancept of Tam Sangam Ag	ature of Sangar ature of Sangar es in Thirukural terature Azhwar ature in Tamil 03 LPTURE: Here ature Statue a anai, Yazh and 03 KaniyanKoothu, and Games of 03 am and Puram ails - Education ye - Export and
	Literature Tamil Ep and Naya Contribut HERITA stone to m making Kanyakun Nadhaswa FOLK A Oyillattam Tamils. THINAI Concept fr and Literac Import dur	GE - Dis ics ar unmar ion of GE - noder - Ma nari, uram - MD I a, Lea CON com T cy du ing Sa	• RO • RO • RO • r scu assive Makie • Role • NAR ather • Role • Role • Role • Role • Role	TIAL Pupper TOF appiyan n Age -	uage - Classi stice in Sangar Buddhism & of minor Poet and Bharathi RT PAINTIN Bronze icon acotta sculpt musical instr nples in Socia ARTS: Ther try, Silambatt TAMILS: F and Sangar Age - Anci Overseas Con	cal Literature in Tamil n Literature - Managem Jainism in Tamil Land ry - Development of N dhasan. Con GS TO MODERN A s - Tribes and their has sures, Village deities, uments - Mridhangam l and Economic Life of Cont ukoothu, Karakattam, am, Valari, Tiger dan Conta lora and Fauna of Ta Literature - Aram Cor ent Cities and Ports of nquest of Cholas.	- Secular N nent Principle - Bakthi Lit Modern liter tact Periods RT – SCUI ndicrafts - A , Thiruvallu , Parai, Ver Tamils. act Periods WilluPattu, H ce - Sports act Periods mils & Aga neept of Tam Sangam Ag	ature of Sangar es in Thirukural terature Azhwar ature in Tamil 03 LPTURE: Hero rt of temple ca ivar Statue a enai, Yazh anc 03 KaniyanKoothu, and Games of 03 am and Puram nils - Education re - Export and

UG

V	CONTRIBUTION OF TAMILS TO INDIAN NATIONAL MOVEM INDIAN CULTURE: Contribution of Tamils to Indian Freedom Struggle - Influence of Tamils over the other parts of India - Self-Respect Movement - Re Medicine in Indigenous Systems of Medicine - Inscriptions & Manuscripts Prin Tamil Books.	IENT AND The Cultura ble of Siddha nt History of
	Contact Periods	03
	Total Periods	15
Course (Dutcomes	10
Upon su	ccessful completion of the course, students will be able to:	
CO 1	Remember the extensive literature of tamil and its classical nature, musical instruments, Folk, thinai concept, Indian Freedom Struggle & Aham, Puram and Aram Concept	K1
CO 2	Remember the principles in Thirukural, Bhakti Literature Azhwars and Nayanmars, heritage of sculpture, painting and musical instruments of ancient people, victory of chozha dynasty	K1
CO 3	Understand on folk and martial arts of tamil people, Justice in Sangam Literature, Development of Modern literature in Tamil, Making of musical instruments	K2
CO 4	Understand the role of Temples in Social and Economic Life of Tamils, Ancient Cities and Ports of Sangam Age, Conquest of Cholas	K2
CO 5	India, contribution of tamils self-esteem movement and siddha medicine, Print History of Tamil Books	K2
K1: Reme	mbering; K2: Understanding; K3: Applying; K4: Analyzing; K5: Evaluating; K6	: Creating
Text Books	 தமிழகவரலாறு – மக்களும் பண்பாடும் – .கே. கேபிள்ளை: தமிழ்நாடு பாட நூல் மற்றும் கல்வியியல் பணிகள் கழகம் பதிப்பு-16, ஆண்டு-2020. கணினித் தமிழ் – முனைவர் இல. சுந்தரம் . (விகடன்பிரசுரம்)பதிப்பு-1, ஆண்டு-2016. கீழடி – வைகை நதிக்கரையில் சங்ககால நகரநாகரிகம் (தொல்லியல்துறை(வெளியீடு),புதிப்பு-1, ஆண்டு 2016. 	,
Reference Books	 Social Life of Tamils (Dr.K.K.Pillay) A joint publication of TNTB and RMRL – (in print) 2016. Historical Heritage of the Tamils (Dr.S.V.Subatamanian, Thirunavukkarasu) (Published by: International Institute of Tamil S 2010. The Contributions of the Tamils to Indian Culture (Dr.M.Vala (Published by: International Institute of Tamil Studies).1995. Keeladi - 'Sangam City Civilization on the banks of river Vaigai' Published by: Department of Archaeology & Tamil Nadu Text Bo Educational Services Corporation, Tamil Nadu).Edition: 1 Year 2016. Porunai Civilization (Jointly Published by: Department of Archaeol Tamil Nadu Text Book and Educational Services Corporation, Tamil 2022. Journey of Civilization Indus to Vaigai (R.Balakrishnan) (Publish RMRL) – Reference Book Edition: 1 Year 2016. 	& ESC Dr.K.D. Studies) rmathi) (Jointly ok and ogy & Nadu). ed by:

		Tools for .	Assessment (40 Marks)		
ÇIAI	CIAII	CIAIII	Assignment/Seminar/ Case Study	Attendance	Tota
10	10	10	5	5	10

						Ma	pping						
CO\PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	POID	POIL	POID	
01	1	-	-	-	-	1	2	2	-	2	TOTT		
CO2	1	-	-	-	-	1	2	2	-	2		1	
CO3	1	-	-	-	-	1	2	2	-	2		1	
C04	1	-	-	-	-	1	2	2		2	_	1	
3-High;2	-Medi	- um:1-1	-	-	-	1	2	2	-	2	-	1	
C	O \PS()		PS	501			DEO					
	COL				1			P30	2		PSC)3	
	COI				1			1	-		1		
	CO2	-		6	1			1			1		
_	CO3				1			1			1		
	CO4				1		1 1						
	C05				1								
	C	ourse d	lesigne	d by				1	\$7	100 1 1	1		
	Ģ	Deg	sale							incu by			
Siį	gnature	of the	Facult	y Mem	ber		Signature of the Chairperson-Bos						
Dr. DEEPAK.A.							Dr. p.T. HEMAMALINI Head of the Department						
Name and	tment	of the	1 D Faculty	Memb	, ber	Nehr Nehr Ne	Departmo u Institu hru Gar C me and	ent of S ite of Er dens, T oimbate Seal of	Cience & Igineerin hirumala pre - 641	Humanit Ig & Tech yampalay 105	ies nology /am,		

U23BS118 PHYSICS AND CHEMISTRY LABORATORY Semester: I L T P Credits CIA: 60 Marks ESE: 40 Marks Course pre-requisites Higher Secondary Level, Physical measurements, Volumetric anal Course Objectives To learn the proper use of various kinds of physics laboratory equipment. 2 To learn problem solving skills related to physics principles and interpretation of experimental data. 3 To determine error in physics experimental measurements and techniques used to minimize suremerro. 4 To induce the students to familiarize with electro analytical techniques such as, pH metry, and potentiometry in the determination of impurities in aqueous solutions. 5 To estimate the amount of mineral acid in the given sample by conductometric method. Course Category Basic Science Course (BSC) Development Needs Global / National Course Content PHYSICS LABORATORY LIST OF EXPERIMENTS (Any Five) 1. 1. Determination of Young's modulus - Von uniform bending method. 3. Determination of Numerical Aperture and acceptance angle using Optical fibre. 7. Determination of Numerical Aperture and acceptance angle using Optical fibre. 8. Determination					Title		Selle-	
Semester: I L T P Credits CIA: 60 Marks ESE: 40 Marks Course pre-requisites Higher Secondary Level, Physical measurements, Volumetric anal Course Objectives 1 To learn the proper use of various kinds of physics laboratory equipment. 2 To learn the proper use of various kinds of physics laboratory equipment. 3 To determine error in physics experimental measurements and techniques used to minimize suceror. 4 To induce the students to familiarize with electro analytical techniques such as, pH metry, and potentiometry in the determination of impurities in aqueous solutions. 5 To estimate the amount of mineral acid in the given sample by conductometric method. Course Category Basic Science Course (BSC) Development Needs Global / National Course Content PHYSICS LABORATORY LIST OF EXPERIMENTS (Any Five) 1. 1. Determination of Young's modulus - Non uniform bending method. 3. Determination of Numerical Aperture and acceptance angle using Optical fibre. 7. Determination of Herwal conductivy of a bad conductor - Lee's Disc method. 8. Determination of Band gap of a semiconductor. 1. 9. Melde's string experiment. 30	U23BS118			PHYSICS A	ND CHEMISTRY LAB	ORATORY		
Course pre-requisites Higher Secondary Level, Physical measurements, Volumetric anal Course Objectives ESE: 40 Marks 1 To learn the proper use of various kinds of physics laboratory equipment. To learn problem solving skills related to physics principles and interpretation of experimental data. 3 To determine error in physics experimental measurements and techniques used to minimize suc- error. 4 To induce the students to familiarize with electro analytical techniques used to minimize suc- error. 5 To estimate the amount of mineral acid in the given sample by conductometric method. Course Category Basic Science Course (BSC) Development Needs Global / National Course Content PHYSICS LABORATORY LIST OF EXPERIMENTS (Any Five) 1. 1. Determination of Young's modulus - Uniform bending method. 3. Determination of Young's modulus - Viniform bending method. 4. Determination of Young's modulus - Viniform bending method. 5. Determination of Voung's modulus - Viniform bending method. 6. Determination of Young's modulus - Viniform bending method. 7. Determination of the wavelength of the laser using grating 8. Determination of the mercelong of a semiconductor. </td <td>Semester: I</td> <td>LI</td> <th>P P</th> <td>Credits</td> <td></td> <td>UNATURY</td> <td></td>	Semester: I	LI	P P	Credits		UNATURY		
Course Pro-requisites Higher Secondary Level, Physical measurements, Volumetric anal Course Objectives 1 To learn problem solving skills related to physics principles and interpretation of experimental data. 3 To determine error in physics experimental measurements and techniques used to minimize suceror. 4 To induce the students to familiarize with electro analytical techniques such as, pH metry, and potentiometry in the determination of impurities in aqueous solutions. 5 To estimate the amount of mineral acid in the given sample by conductometric method. Course Category Basic Science Course (BSC) Development Needs Global / National Course Content PHYSICS LABORATORY LIST OF EXPERIMENTS (Any Five) 1. 1. Determination of Young's modulus - Vorsional pendulum. 2. Determination of Young's modulus - Vorsional pendulum. 3. Determination of the wavelength of the laser using grating 6. Determination of the mall of a dat conductor - Lee's Disc method. 7. Determination of thermal conductivity of a bad conductor - Lee's Disc method. 8. Determination of thermal conductivity of a bad conductor - Lee's Disc method. 9. Melde's string experiment. <td>C. C. C</td> <td>0 0</td> <th>4</th> <td>2</td> <td>CIA: 60 Marks</td> <td>ESE: 4</td> <td>0 Marks</td>	C. C	0 0	4	2	CIA: 60 Marks	ESE: 4	0 Marks	
Course Objectives 1 To learn the proper use of various kinds of physics laboratory equipment. 2 To learn problem solving skills related to physics principles and interpretation of experimental data. 3 To determine error in physics experimental measurements and techniques used to minimize sure error. 4 To induce the students to familiarize with electro analytical techniques such as, pH metry, and potentiometry in the determination of impurities in aqueous solutions. 5 To estimate the amount of mineral acid in the given sample by conductometric method. Course Category Basic Science Course (BSC) Development Needs Global / National Course Description: In depth understanding of Physics and chemistry is needed for the engineer for the more beneficial solutions. Course Content PHYSICS LABORATORY LIST OF EXPERIMENTS (Any Five) 1. 1. Determination of Young's modulus - Uniform bending method. 3. Determination of Numerical Aperture and acceptance angle using Optical fibre. 7. Determination of Voung's output of a bad conductor - Lee's Disc method. 8. Determination of Nancella apt of a semiconductor. 1. Photelextri experiment. 1. Determination of Valge of a semiconductor. 1. Deteremination o	Course pre-requ	lisites	Highe	r Secondary I	Level, Physical measure	ments, Volum	etric analysi	
1 To learn the proper use of various kinds of physics laboratory equipment. 2 To learn problem solving skills related to physics principles and interpretation of experimental data. 3 To determine error in physics experimental measurements and techniques used to minimize suce arror. 4 To induce the students to familiarize with electro analytical techniques such as, pH metry, and potentiometry in the determination of impurities in aqueous solutions. 5 To estimate the amount of mineral acid in the given sample by conductometric method. Course Category Basic Science Course (BSC) Development Needs Global / National Course Content PHYSICS LABORATORY List OF EXPERIMENTS (Any Five) 1. 1 Determination of rigidity modulus - Torsional pendulum. 2. Determination of Young's modulus - Non uniform bending method 3. Determination of voung's modulus - Non uniform bending method 4. Determination of voung's sound and compressibility of liquid - Ultrasonic interferometer. 8. Determination of thermal conductivity of a bad conductor - Lee's Disc method. 9. Determination of thermal conductivity of a bad conductor - Lee's Disc method. 9. Determination of thermal conductivity of a bad conductor - Lee's Disc method. 9. Det	Course Objectiv	/es					erne unurysi	
2 To learn problem solving skills related to physics principles and interpretation of experimental data. 3 To determine error in physics experimental measurements and techniques used to minimize suceror. 4 To induce the students to familiarize with electro analytical techniques such as, pH metry, and potentiometry in the determination of impurities in aqueous solutions. 5 To estimate the amount of mineral acid in the given sample by conductometric method. Course Category Basic Science Course (BSC) Development Needs Global / National Course Content PHYSICS LABORATORY LIST OF EXPERIMENTS (Any Five) 1. 1. Determination of rigidity modulus - Torsional pendulum. 2. Determination of Young's modulus - Vinform bending method. 3. Determination of Young's modulus - Uniform bending method. 3. Determination of Voung's modulus - Uniform bending method. 5. Determination of Voung's modulus - Uniform bending method. 6. Determination of Numerical Aperture and acceptance angle using Optical fibre. 7. Determination of Hermal conductivity of a bad conductor - Lee's Disc method. 9. Melde's string experiment. 10. Determination of Band gap of a semiconductor. 11. Photoele	I To learn the	proper us	e of vario	ous kinds of pl	vsics laboratory equipm	ent		
3 To determine error in physics experimental measurements and techniques used to minimize suce error. 4 To induce the students to familiarize with electro analytical techniques such as, pH metry, and potentiometry in the determination of impurities in aqueous solutions. 5 To estimate the amount of mineral acid in the given sample by conductometric method. Course Category Basic Science Course (BSC) Development Needs Global / National Course Content PHYSICS LABORATORY Course Content PHYSICS LABORATORY LIST OF EXPERIMENTS (Any Five) 1 1 Determination of Young's modulus - Von uniform bending method. 3 Determination of Young's modulus - Uniform bending method. 4 Determination of Numerical Aperture and acceptance angle using Optical fibre. 7 Determination of themal conductivity of a bad conductor - Lee's Disc method. 8 Determination of Band gap of a semiconductor. 11 Photoelectric effect. 12 Michel's string experiment. 10 Determination of Band gap of a semiconductor. 11 Photoelectric effect. 12 Michel's as a primary standard and estimation of acidity of a water sample using the primary standard. 10 Determin	2 To learn prol data.	olem solv	ing skills	related to phy	sics principles and interp	retation of exp	perimental	
To induce the students to familiarize with electro analytical techniques such as, pH metry, and potentiometry in the determination of impurities in aqueous solutions. To estimate the amount of mineral acid in the given sample by conductometric method. Course Category Basic Science Course (BSC) Development Needs Global / National Course Correption: In depth understanding of Physics and chemistry is needed for the engineer for the more beneficial solutions. Course Content PHYSICS LABORATORY LIST OF EXPERIMENTS (Any Five) 1. Determination of rigidity modulus - Torsional pendulum. 2. Determination of Young's modulus - Uniform bending method 3. Determination of the wavelength of the laser using grating 6. Determination of Numerical Aperture and acceptance angle using Optical fibre. 7. Determination of Band gap of a semiconductor. 1. Photoelectric effect. 12. Michelson Interferometer. Contact Periods 30 CHEMISTRY LABORATORY LIST OF EXPERIMENTS (Any Five) 1. Protoclectric effect. 2. Melde's string experiment. 10. Determination of thermal conductivity of a bad conductor - Lee's Disc method. 9. Melde's astring experiment. 10. Determination of Na ₂ CO ₃ as a primary standard and estimation of acidity of a water sample using the pr	To determine error.	error in	physics e	xperimental m	easurements and techniq	ues used to mi	nimize such	
To estimate the amount of mineral acid in the given sample by conductometric method. Course Category Basic Science Course (BSC) Development Needs Global / National Course Description: In depth understanding of Physics and chemistry is needed for the engineer for the more beneficial solutions. Course Content PHYSICS LABORATORY LIST OF EXPERIMENTS (Any Five) 1 1 Determination of rigidity modulus - Torsional pendulum. 2 2 Determination of Young's modulus - Non uniform bending method. 3 3 Determination of Young's modulus - Voinform bending method 4 4 Determination of the wavelength of the laser using grating 6 5 Determination of the wavelength of the laser using grating 6 6 Determination of thermal conductivity of a bad compressibility of liquid - Ultrasonic interferometer. 7 Determination of Band gap of a semiconductor. 1 10 Determination of Naucreatere. 30 7 Determination of Stand gap of a semiconductor. 30 9 Melde's string experiment. 10 Determination of Na ₂ CO ₃ as a primary standard and estimation of acidity of a water sample using the primary standard. <td>To induce the potentiometr</td> <td>e students y in the d</td> <th>to famili eterminat</th> <td>iarize with election of impurit</td> <td>ctro analytical techniques ies in aqueous solutions.</td> <td>such as, pH m</td> <td>netry, and</td>	To induce the potentiometr	e students y in the d	to famili eterminat	iarize with election of impurit	ctro analytical techniques ies in aqueous solutions.	such as, pH m	netry, and	
Course Category Basic Science Course (BSC) Development Needs Global / National Course Description: In depth understanding of Physics and chemistry is needed for the engineer for the more beneficial solutions. Figure Content PHYSICS LABORATORY LIST OF EXPERIMENTS (Any Five) 1. Determination of rigidity modulus - Torsional pendulum. 2. Determination of Young's modulus - Non uniform bending method. 3. Determination of Young's modulus - Von uniform bending method 4. Determination of thickness of a thin wire - Air wedge method 5. Determination of the wavelength of the laser using grating 6. Determination of themal conductivity of a bad conductor - Lee's Disc method. 7. Determination of themal conductivity of a bad conductor - Lee's Disc method. 9. Melde's string experiment. IO. 10. Determination of Band gap of a semiconductor. 11. 11. Photoelectric effect. 30 Contact Periods Outermination of Na ₂ CO ₃ as a primary standard and estimation of acidity of a water sample using the primary standard. 12. Michelson Interferometer. 30	To estimate t	he amoun	t of mine	eral acid in the	given sample by conduct	ometric metho	d	
Development Needs Global / National Course Description: In depth understanding of Physics and chemistry is needed for the engineer for the more beneficial solutions. Course Content PHYSICS LABORATORY LIST OF EXPERIMENTS (Any Five) 1. Determination of rigidity modulus - Torsional pendulum. 2. Determination of Young's modulus - Non uniform bending method. 3. Determination of Young's modulus - Voing method 4. Determination of the wavelength of the laser using grating 6. Determination of Numerical Aperture and acceptance angle using Optical fibre. 7. Determination of the mavelength of the laser using grating 6. Determination of the may enductivity of a bad conductor - Lee's Disc method. 9. Melde's string experiment. 10. Determination of Band gap of a semiconductor. 11. Photoelectric effect. 12. Michelson Interferometer. 30 Contact Periods 30 Chemination of Do content of water sample by Winkler's method. 12. Preparation of DO content of water sample by Winkler's method. 30 Contact Periods 30 Contact Periods 30 <td c<="" td=""><td>Course Category</td><td></td><th>Basic Sci</th><td>ence Course (I</td><td></td><td></td><td>Ju.</td></td>	<td>Course Category</td> <td></td> <th>Basic Sci</th> <td>ence Course (I</td> <td></td> <td></td> <td>Ju.</td>	Course Category		Basic Sci	ence Course (I			Ju.
Course Description: In depth understanding of Physics and chemistry is needed for the engineer for he more beneficial solutions. Course Content PHYSICS LABORATORY LIST OF EXPERIMENTS (Any Five) 1. Determination of rigidity modulus - Torsional pendulum. 2. Determination of Young's modulus - Non uniform bending method. 3. Determination of Young's modulus - Uniform bending method 4. Determination of thickness of a thin wire - Air wedge method 5. Determination of the vavelength of the laser using grating 6. Determination of Numerical Aperture and acceptance angle using Optical fibre. 7. Determination of Network of a semiconductor. 8. Determination of Band gap of a semiconductor. 10. Determination of Band gap of a semiconductor. 11. Photoelectric effect. 12. Michelson Interferometer. Contact Periods 30 CHEMISTRY LABORATORY LIST OF EXPERIMENTS (Any Five) 1. Preparation of Na ₂ CO ₃ as a primary standard and estimation of acidity of a water sample using the primary standard. 2. Determination of DO content of water sample by Winkler's method. 3. Determination of choloride content of water sample by Magentometric method. 4. Determination of strength of given hydrochloric acid using pH meter. 6. Determination of strength o	evelopment Ne	eds (Global / N	Vational	53C)			
he more beneficial solutions. Course Content PHYSICS LABORATORY LIST OF EXPERIMENTS (Any Five) Determination of rigidity modulus - Torsional pendulum. Determination of Young's modulus - Non uniform bending method. Determination of Young's modulus - Uniform bending method Determination of thickness of a thin wire - Air wedge method Determination of the wavelength of the laser using grating Determination of velocity of sound and compressibility of liquid - Ultrasonic interferometer. Determination of themal conductivity of a bad conductor - Lee's Disc method. Melde's string experiment. Determination of Band gap of a semiconductor. Determination of Mag 200 a semiconductor. Determination of Nag-CO3 as a primary standard and estimation of acidity of a water sample using the primary standard. Determination of DO content of water sample by Winkler's method. Determination of DO content of water sample by Winkler's method. Determination of strength of given hydrochloric acid using pH meter. Determination of strength of given solution using potentiometer. Determination of strength of given solution using potentiometer. Determination of strength of given solution using potentiometer. Determination of strength of acids in a mixture of acids using conductivity meter. Determination of iron content of the given solution using potentiometer.	ourse Descripti	on: In de	pth under	rstanding of Pl	aveing and abamint	1.1.0		
Determination of rigidity modulus - Torsional pendulum. 2. Determination of rigidity modulus - Non uniform bending method. 3. Determination of Young's modulus - Uniform bending method 4. Determination of Young's modulus - Uniform bending method 5. Determination of the wavelength of the laser using grating 6. Determination of Numerical Aperture and acceptance angle using Optical fibre. 7. Determination of volocity of sound and compressibility of liquid - Ultrasonic interferometer. 8. Determination of themal conductivity of a bad conductor - Lee's Disc method. 9. Melde's string experiment. 10. Determination of Band gap of a semiconductor. 11. Photoelectric effect. 12. Michelson Interferometer. Contact Periods 30 Certermination of total, temporary & permanent hardness of water by EDTA method. 2 Determination of Band gap of a semiconductor. 11. Photoelectric effect. 12. Michelson Interferometer. Contact Periods 30 Certermination of total, temporary & permanent hardness of water by EDTA method. 2 Determination of strength of acids in a mixture of acids using conductivity meter. </td <td>ne more benefici:</td> <td>al solution</td> <th>1S.</th> <td>istanding of th</td> <td>rysics and chemistry is n</td> <td>eeded for the e</td> <td>ngineer for</td>	ne more benefici:	al solution	1S.	istanding of th	rysics and chemistry is n	eeded for the e	ngineer for	
PHYSICS LABORATORY LIST OF EXPERIMENTS (Any Five) 1. Determination of rigidity modulus - Torsional pendulum. 2. Determination of Young's modulus - Non uniform bending method. 3. Determination of Young's modulus - Uniform bending method 4. Determination of the kness of a thin wire - Air wedge method 5. Determination of the wavelength of the laser using grating 6. Determination of the wavelength of the laser using grating 7. Determination of thermal conductivity of a bad conductor - Lee's Disc method. 8. Determination of thermal conductivity of a bad conductor - Lee's Disc method. 9. Melde's string experiment. 10. Determination of Band gap of a semiconductor. 11. Photoelectric effect. 12. Michelson Interferometer. Contact Periods 30 CHEMISTRY LABORATORY LIST OF EXPERIMENTS (Any Five) 1. Photoelectric effect. 12. Michelson Interferometer. Contact Periods 30 Cheemination of Na ₂ CO ₃ as a primary standard and estimation of acidity of a water sample using the primary standard. 2. Determination of DO content of water sample by Winkler's method. 3. Determination of chloride conte	ourse Content			24				
LIST OF EXPERIMENTS (Any Five) 1. Determination of rigidity modulus - Torsional pendulum. 2. Determination of Young's modulus - Non uniform bending method. 3. Determination of Young's modulus - Uniform bending method 4. Determination of Young's modulus - Viniform bending method 5. Determination of thickness of a thin wire - Air wedge method 6. Determination of the wavelength of the laser using grating 7. Determination of velocity of sound and compressibility of liquid - Ultrasonic interferometer. 8. Determination of thermal conductivity of a bad conductor - Lee's Disc method. 9. Melde's string experiment. 10. Determination of Band gap of a semiconductor. 11. Photoelectric effect. 12. Michelson Interferometer. Contact Periods 30 Chermination of Na ₂ CO ₃ as a primary standard and estimation of acidity of a water sample using the primary standard. 2. Determination of total, temporary & permanent hardness of water by EDTA method. 3. Determination of Chorde content of water sample by Argentometric method. 4. Determination of strength of acids in a mixture of acids using conductivity meter. 7. Estimation of iron content of the given solution using potentiometer.		1. K. (1997)		PHYSICS	ARODATODV			
 Determination of rigidity modulus - Torsional pendulum. Determination of Young's modulus - Non uniform bending method. Determination of Young's modulus - Uniform bending method. Determination of Young's modulus - Uniform bending method Determination of thickness of a thin wire - Air wedge method Determination of the wavelength of the laser using grating Determination of Numerical Aperture and acceptance angle using Optical fibre. Determination of velocity of sound and compressibility of liquid - Ultrasonic interferometer. Determination of thermal conductivity of a bad conductor - Lee's Disc method. Melde's string experiment. Determination of Band gap of a semiconductor. Photoelectric effect. Michelson Interferometer. Contact Periods 30 CHEMISTRY LABORATORY LIST OF EXPERIMENTS (Any Five) Preparation of Na₂CO₃ as a primary standard and estimation of acidity of a water sample using the primary standard. Determination of chloride content of water sample by Winkler's method. Determination of chloride content of water sample by Argentometric method. Determination of strength of given hydrochloric acid using pH meter. Estimation of strength of acids in a mixture of acids using conductivity meter. Testimation of iron content of the given solution using potentiometer. 			LIST	FOFEXPER	IMENTS (Any Fine)			
 2. Determination of Young's modulus - Non uniform bending method. 3. Determination of Young's modulus - Uniform bending method 4. Determination of thickness of a thin wire - Air wedge method 5. Determination of the wavelength of the laser using grating 6. Determination of Numerical Aperture and acceptance angle using Optical fibre. 7. Determination of velocity of sound and compressibility of liquid - Ultrasonic interferometer. 8. Determination of thermal conductivity of a bad conductor - Lee's Disc method. 9. Melde's string experiment. 10. Determination of Band gap of a semiconductor. 11. Photoelectric effect. 12. Michelson Interferometer. 20 Contact Periods 30 CHEMISTRY LABORATORY 14. LIST OF EXPERIMENTS (Any Five) 1. Preparation of Na₂CO₃ as a primary standard and estimation of acidity of a water sample using the primary standard. 2. Determination of total, temporary & permanent hardness of water by EDTA method. 3. Determination of cloride content of water sample by Winkler's method. 4. Determination of strength of given hydrochloric acid using pH meter. 6. Determination of strength of acidis in a mixture of acids using conductivity meter. 7. Estimation of iron content of the given solution using potentiometer. 	1. Determina	tion of rig	gidity mo	dulus - Torsio	nal pendulum			
 3. Determination of Young's modulus - Uniform bending method. 4. Determination of thickness of a thin wire - Air wedge method 5. Determination of the wavelength of the laser using grating 6. Determination of Numerical Aperture and acceptance angle using Optical fibre. 7. Determination of velocity of sound and compressibility of liquid - Ultrasonic interferometer. 8. Determination of thermal conductivity of a bad conductor - Lee's Disc method. 9. Melde's string experiment. 10. Determination of Band gap of a semiconductor. 11. Photoelectric effect. 12. Michelson Interferometer. 14. Preparation of Na₂CO₃ as a primary standard and estimation of acidity of a water sample using the primary standard. 2. Determination of DO content of water sample by Winkler's method. 3. Determination of DO content of water sample by Argentometric method. 4. Determination of strength of given hydrochloric acid using pH meter. 6. Determination of strength of acids in a mixture of acids using conductivity meter. 7. Estimation of iron content of the given solution using potentiometer. 	2. Determina	tion of Y	oung's m	odulus - Non i	iniform bending method			
 4. Determination of thickness of a thin wire - Air wedge method 5. Determination of the wavelength of the laser using grating 6. Determination of Numerical Aperture and acceptance angle using Optical fibre. 7. Determination of velocity of sound and compressibility of liquid - Ultrasonic interferometer. 8. Determination of thermal conductivity of a bad conductor - Lee's Disc method. 9. Melde's string experiment. 10. Determination of Band gap of a semiconductor. 11. Photoelectric effect. 12. Michelson Interferometer. 14. Photoelectric effect. 15. Michelson Interferometer. 16. Determination of Na₂CO₃ as a primary standard and estimation of acidity of a water sample using the primary standard. 2. Determination of total, temporary & permanent hardness of water by EDTA method. 3. Determination of DO content of water sample by Winkler's method. 4. Determination of strength of given hydrochloric acid using pH meter. 6. Determination of strength of acids in a mixture of acids using conductivity meter. 7. Estimation of iron content of the given solution using potentiometer. 	3. Determinat	tion of Yo	oung's m	odulus - Unifo	rm bending method			
 5. Determination of the wavelength of the laser using grating 6. Determination of Numerical Aperture and acceptance angle using Optical fibre. 7. Determination of velocity of sound and compressibility of liquid - Ultrasonic interferometer. 8. Determination of thermal conductivity of a bad conductor - Lee's Disc method. 9. Melde's string experiment. 10. Determination of Band gap of a semiconductor. 11. Photoelectric effect. 12. Michelson Interferometer. 20 Contact Periods 30 21 CHEMISTRY LABORATORY 21 Determination of Na₂CO₃ as a primary standard and estimation of a cidity of a water sample using the primary standard. 2. Determination of total, temporary & permanent hardness of water by EDTA method. 3. Determination of Chloride content of water sample by Winkler's method. 4. Determination of strength of given hydrochloric acid using pH meter. 6. Determination of strength of acids in a mixture of acids using conductivity meter. 7. Estimation of iron content of the given solution using potentiometer. 	4. Determinat	ion of thi	ckness of	f a thin wire -	Air wedge method			
 6. Determination of Numerical Aperture and acceptance angle using Optical fibre. 7. Determination of velocity of sound and compressibility of liquid - Ultrasonic interferometer. 8. Determination of thermal conductivity of a bad conductor - Lee's Disc method. 9. Melde's string experiment. 10. Determination of Band gap of a semiconductor. 11. Photoelectric effect. 12. Michelson Interferometer. 20. CHEMISTRY LABORATORY LIST OF EXPERIMENTS (Any Five) 1. Preparation of Na₂CO₃ as a primary standard and estimation of acidity of a water sample using the primary standard. 2. Determination of total, temporary & permanent hardness of water by EDTA method. 3. Determination of DO content of water sample by Winkler's method. 4. Determination of strength of given hydrochloric acid using pH meter. 6. Determination of strength of acids in a mixture of acids using conductivity meter. 7. Estimation of iron content of the given solution using potentiometer. 	5. Determinat	ion of the	e waveler	igth of the lase	er using grating			
 7. Determination of velocity of sound and compressibility of liquid - Ultrasonic interferometer. 8. Determination of thermal conductivity of a bad conductor - Lee's Disc method. 9. Melde's string experiment. 10. Determination of Band gap of a semiconductor. 11. Photoelectric effect. 12. Michelson Interferometer. 30 CHEMISTRY LABORATORY LIST OF EXPERIMENTS (Any Five) 1. Preparation of Na₂CO₃ as a primary standard and estimation of acidity of a water sample using the primary standard. 2. Determination of total, temporary & permanent hardness of water by EDTA method. 3. Determination of chloride content of water sample by Winkler's method. 4. Determination of strength of given hydrochloric acid using pH meter. 6. Determination of strength of acids in a mixture of acids using conductivity meter. 7. Estimation of iron content of the given solution using potentiometer. 	6. Determinat	ion of Nu	merical /	Aperture and a	cceptance angle using O	ntical fibre		
 8. Determination of thermal conductivity of a bad conductor - Lee's Disc method. 9. Melde's string experiment. 10. Determination of Band gap of a semiconductor. 11. Photoelectric effect. 12. Michelson Interferometer. Contact Periods 30 CHEMISTRY LABORATORY LIST OF EXPERIMENTS (Any Five) 1. Preparation of Na ₂ CO ₃ as a primary standard and estimation of acidity of a water sample using the primary standard. 2. Determination of total, temporary & permanent hardness of water by EDTA method. 3. Determination of Content of water sample by Winkler's method. 4. Determination of strength of given hydrochloric acid using pH meter. 6. Determination of strength of acids in a mixture of acids using conductivity meter. 7. Estimation of iron content of the given solution using potentiometer. 8. Contact Periods 30	7. Determinat	ion of vel	locity of s	sound and com	pressibility of liquid - U	ltrasonic interf	aromatar	
 9. Melde's string experiment. 10. Determination of Band gap of a semiconductor. 11. Photoelectric effect. 12. Michelson Interferometer. Contact Periods 30 CHEMISTRY LABORATORY LIST OF EXPERIMENTS (Any Five) 1. Preparation of Na ₂ CO ₃ as a primary standard and estimation of acidity of a water sample using the primary standard. 2. Determination of total, temporary & permanent hardness of water by EDTA method. 3. Determination of DO content of water sample by Winkler's method. 4. Determination of chloride content of water sample by Argentometric method. 5. Determination of strength of given hydrochloric acid using pH meter. 6. Determination of strength of acids in a mixture of acids using conductivity meter. 7. Estimation of iron content of the given solution using potentiometer. 30	8. Determinat	ion of the	rmal con	ductivity of a	bad conductor - Lee's Di	sc method	erometer.	
10. Determination of Band gap of a semiconductor. 11. Photoelectric effect. 12. Michelson Interferometer. Contact Periods 30 CHEMISTRY LABORATORY LIST OF EXPERIMENTS (Any Five) 1. Preparation of Na ₂ CO ₃ as a primary standard and estimation of acidity of a water sample using the primary standard. 2. Determination of total, temporary & permanent hardness of water by EDTA method. 3. Determination of DO content of water sample by Winkler's method. 4. Determination of chloride content of water sample by Argentometric method. 5. Determination of strength of given hydrochloric acid using pH meter. 6. Determination of strength of acids in a mixture of acids using conductivity meter. 7. Estimation of iron content of the given solution using potentiometer. Contact Periods 30	9. Melde's str	ing exper	iment.			se memou.		
11. Photoelectric effect. 12. Michelson Interferometer. Contact Periods 30 CHEMISTRY LABORATORY LIST OF EXPERIMENTS (Any Five) 1. Preparation of Na ₂ CO ₃ as a primary standard and estimation of acidity of a water sample using the primary standard. 2. Determination of total, temporary & permanent hardness of water by EDTA method. 3. Determination of DO content of water sample by Winkler's method. 4. Determination of chloride content of water sample by Argentometric method. 5. Determination of strength of given hydrochloric acid using pH meter. 6. Determination of strength of acids in a mixture of acids using conductivity meter. 7. Estimation of iron content of the given solution using potentiometer. Contact Periods 30	10. Determinat	ion of Ba	nd gap of	a semiconduc	ctor.			
12. Michelson Interferometer. Contact Periods 30 CHEMISTRY LABORATORY LIST OF EXPERIMENTS (Any Five) 1. Preparation of Na ₂ CO ₃ as a primary standard and estimation of acidity of a water sample using the primary standard. 2. Determination of total, temporary & permanent hardness of water by EDTA method. 3. Determination of DO content of water sample by Winkler's method. 4. Determination of chloride content of water sample by Argentometric method. 5. Determination of strength of given hydrochloric acid using pH meter. 6. Determination of strength of acids in a mixture of acids using conductivity meter. 7. Estimation of iron content of the given solution using potentiometer. Contact Periods 30	11. Photoelectr	ic effect.						
Contact Periods 30 CHEMISTRY LABORATORY LIST OF EXPERIMENTS (Any Five) 1. Preparation of Na2CO3 as a primary standard and estimation of acidity of a water sample using the primary standard. 2. Determination of total, temporary & permanent hardness of water by EDTA method. 3. Determination of DO content of water sample by Winkler's method. 4. Determination of chloride content of water sample by Argentometric method. 5. Determination of strength of given hydrochloric acid using pH meter. 6. Determination of strength of acids in a mixture of acids using conductivity meter. 7. Estimation of iron content of the given solution using potentiometer. 200	12. Michelson	Interferon	neter.					
CHEMISTRY LABORATORY LIST OF EXPERIMENTS (Any Five) 1. Preparation of Na ₂ CO ₃ as a primary standard and estimation of acidity of a water sample using the primary standard. 2. Determination of total, temporary & permanent hardness of water by EDTA method. 3. Determination of DO content of water sample by Winkler's method. 4. Determination of chloride content of water sample by Argentometric method. 5. Determination of strength of given hydrochloric acid using pH meter. 6. Determination of strength of acids in a mixture of acids using conductivity meter. 7. Estimation of iron content of the given solution using potentiometer. Contact Periods 30					Conta	ct Periods	30	
LIST OF EXPERIMENTS (Any Five) 1. Preparation of Na2CO3 as a primary standard and estimation of acidity of a water sample using the primary standard. 2. Determination of total, temporary & permanent hardness of water by EDTA method. 3. Determination of DO content of water sample by Winkler's method. 4. Determination of chloride content of water sample by Argentometric method. 5. Determination of strength of given hydrochloric acid using pH meter. 6. Determination of strength of acids in a mixture of acids using conductivity meter. 7. Estimation of iron content of the given solution using potentiometer. 30			Cl	HEMISTRY	ADODATODX	and the second	50	
 Preparation of Na₂CO₃ as a primary standard and estimation of acidity of a water sample using the primary standard. Determination of total, temporary & permanent hardness of water by EDTA method. Determination of DO content of water sample by Winkler's method. Determination of chloride content of water sample by Argentometric method. Determination of strength of given hydrochloric acid using pH meter. Determination of iron content of the given solution using potentiometer. 30 			1 Colores and the second second		ABURAIORV			
 the primary standard. Determination of total, temporary & permanent hardness of water by EDTA method. Determination of DO content of water sample by Winkler's method. Determination of chloride content of water sample by Argentometric method. Determination of strength of given hydrochloric acid using pH meter. Determination of strength of acids in a mixture of acids using conductivity meter. Estimation of iron content of the given solution using potentiometer. 			LIST	OF EXPERI	MENTS (Any Five)			
 Determination of total, temporary & permanent hardness of water by EDTA method. Determination of DO content of water sample by Winkler's method. Determination of chloride content of water sample by Argentometric method. Determination of strength of given hydrochloric acid using pH meter. Determination of strength of acids in a mixture of acids using conductivity meter. Estimation of iron content of the given solution using potentiometer. 30 	1. Preparation	of Na ₂ CO	LIST D3 as a pr	OF EXPERI	MENTS (Any Five)	v of a water co	mula	
 Determination of DO content of water sample by Winkler's method. Determination of chloride content of water sample by Argentometric method. Determination of strength of given hydrochloric acid using pH meter. Determination of strength of acids in a mixture of acids using conductivity meter. Estimation of iron content of the given solution using potentiometer. Contact Periods 30 	 Preparation the primary 	of Na ₂ CO standard.	LIST D3 as a pr	OF EXPERI	MENTS (Any Five) and estimation of acidit	y of a water sa	mple using	
 Determination of chloride content of water sample by Argentometric method. Determination of strength of given hydrochloric acid using pH meter. Determination of strength of acids in a mixture of acids using conductivity meter. Estimation of iron content of the given solution using potentiometer. Contact Periods 30 	 Preparation the primary Determinati 	of Na ₂ C(standard. on of tota	LIST D3 as a pr l, tempor	OF EXPERI imary standard	MENTS (Any Five) I and estimation of acidit ent hardness of water by	y of a water sa	mple using	
 Determination of strength of given hydrochloric acid using pH meter. Determination of strength of acids in a mixture of acids using conductivity meter. Estimation of iron content of the given solution using potentiometer. Contact Periods 30 	 Preparation the primary Determinati Determinati 	of Na ₂ C(standard. on of tota on of DO	LIST D ₃ as a pr l, tempor content o	OF EXPERI imary standard ary & perman of water sampl	MENTS (Any Five) I and estimation of acidit ent hardness of water by e by Winkler's method	y of a water sa EDTA methoc	mple using I.	
 6. Determination of strength of acids in a mixture of acids using conductivity meter. 7. Estimation of iron content of the given solution using potentiometer. Contact Periods 30 	 Preparation the primary Determinati Determinati Determinati 	of Na ₂ C(standard. on of tota on of DO on of chlo	LIST D ₃ as a pr l, tempor content o pride cont	OF EXPERI imary standard ary & perman of water sampl tent of water sa	MENTS (Any Five) and estimation of acidit and hardness of water by by Winkler's method. ample by Argentometric	y of a water sa EDTA methoc method	mple using I.	
7. Estimation of iron content of the given solution using potentiometer. Contact Periods 30	 Preparation the primary Determinati Determinati Determination 	of Na ₂ CC standard. on of tota on of DO on of chlo on of stree	LIST D ₃ as a pr l, tempor content o pride cont ngth of g	OF EXPERI imary standard ary & perman of water sampl tent of water sa iven hydrochlo	ABORATORY MENTS (Any Five) and estimation of acidit ent hardness of water by be by Winkler's method. ample by Argentometric pric acid using pH meter.	y of a water sa EDTA methoc method.	mple using I.	
Contact Periods 30	 Preparation the primary Determinati Determinati Determination Determination Determination Determination Determination 	of Na ₂ CC standard, on of tota on of DO on of chlo on of stree	LIST D ₃ as a pr l, tempor content o pride cont ngth of g ngth of ac	OF EXPERI imary standard ary & perman of water sampl tent of water sa iven hydrochlo cids in a mixtu	MENTS (Any Five) I and estimation of acidit ent hardness of water by e by Winkler's method. ample by Argentometric oric acid using pH meter. re of acids using conduct	y of a water sa EDTA methoc method. ivity meter	mple using I.	
	 Preparation the primary Determinati Determinati Determinati Determination Determination Determination Determination 	of Na ₂ CC standard. on of tota on of DO on of chlo on of stren on of stren f iron con	LIST D3 as a pr l, tempor content o oride cont ngth of g ngth of ac ntent of th	OF EXPERI imary standard ary & perman of water sampl tent of water sa iven hydrochlo cids in a mixtu ne given soluti	ABORATORY MENTS (Any Five) and estimation of acidit ent hardness of water by be by Winkler's method. ample by Argentometric pric acid using pH meter. are of acids using conduct on using potentiometer.	y of a water sa EDTA methoc method. ivity meter.	mple using I.	
	 Preparation the primary Determinati Determinati Determination Determination Determination Determination 	of Na ₂ C(standard, on of tota on of DO on of chlo on of stree on of stree on of stree	LIST as a pr l, tempor content of pride cont ngth of g ngth of ac ntent of th	OF EXPERI imary standard ary & perman of water sampl tent of water sa iven hydrochlo cids in a mixtu ne given soluti	ABORATORY MENTS (Any Five) I and estimation of acidit ent hardness of water by e by Winkler's method. ample by Argentometric oric acid using pH meter. re of acids using conduct on using potentiometer. Contac	y of a water sa EDTA method method. ivity meter.	mple using I. 30	
	 Preparation the primary Determinati Determinati Determinati Determinati Determination Determination 	of Na ₂ C(standard. on of tota on of DO on of chlo on of strep on of strep of iron con	LIST as a pr l, tempor content of pride cont ngth of g ngth of ac ntent of th	OF EXPERI imary standard ary & perman of water sampl tent of water sa iven hydrochlo cids in a mixtu ne given soluti	ABORATORY MENTS (Any Five) I and estimation of acidit ent hardness of water by e by Winkler's method. ample by Argentometric oric acid using pH meter. re of acids using conduct on using potentiometer. Contac	y of a water sa EDTA methoc method. ivity meter. et Periods	mple using I. 30	

choi	a succe	ssiul con	apietion	of the c	course, s	tudents	will be	able to:				
С	01	Underst	and the j	oroper u	se of var	ious kin	ds of ph	ysics lab	oratory	eauinme	nt	К2
C	0 2	Develop	the pro	blem sol	ving ski	lls relate	ed to phy	sics prin	ciples a	nd		K2
C	0.3	Determi	ne error	in physi	cs exper	ta.	120000		11			K4
	0.5	to minin	nize such	n error.	ror.							
C	D 4	Develop and its m quality in	a strong neasurem n various	, founda nent, ena s setting	indation on water hardness, alkalinity, dissolved oxygen , enabling them to effectively access and manage water ttings.							
CC K1: R) 5 .ememl	Acquire potention pering; K2	the nece netric ar 2: Under	ssary kn 1d condu standing	owledge ictometr g; K3: A	e, skills, ic exper	and attit iments. K4: An	udes rela	ated to the K_5 · Even	ne pH,	V 6. C	K2
				Too	ols for A	ssessme	nt (40 N	larks)	KJ. LVC	inuaning,	NO: Cre	ating
Prep	aratio	1	Conduc Experim	t of ents	Cal	lculatior	is & Res	ult	Viv	a-Voce		Total
4.1	20 30 Te					4	0			10		100
				100	Is for As	ssessme	nt (20 M	larks)		-		
	Γ	Aodel Ex	am I				Mod	el Exam	II			Total
		50			50							100
						Mappin	g					
CO \ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	POI
C O 1	3	2	2	-	2	-	-	1	-	-	-	1
02	3	2	2	-	2	-	-	1	-	-	-	1
CO3	3	2	2	-	2	-	-	1	-	-	-	1
204	3	2	2	-	2	-	-	1	-	-	-	1
High	3	2	2	-	2	-	-	1	-	-	-	1
mgn	, <u>2-ivie</u>	1 = 1	Low		DGO1							
	00	CO1			1		P	SO2		I	PSO3	
		CO2			1		_	1			1	
		C O 3			1			1			1	
	(C O 4	_	-	1			1			1	
		205			1						1	

Course designed by	Verified by
I. N. CRE	
2. Ala Signature of the Faculty Member	Signature of the Chairperson-Bos
1. Dr. N. Ostoge par jer Aup/Augurs,	pr. p. T. HEMAMALINI Head of the Department Department of Science & Humanities
2. A. Lakshmi priya) Chemistry	Nehru Institute of Engineering & Technology Nehru Gardens, Thirumalayampalayam, Coimbatore - 641 105
Name and Department of the Faculty Member	Name and Seal of the Chairperson-BoS

S. No.	Course Code	Course Title	Category	L	Т	Р	Contact Period	C
	_	THEORY						1
1	U23MA201	Engineering Mathematics-II	BSC	3	1	0	4	4
2	U23MS202	Materials Science	BSC	3	0	0	3	3
3	U23GE203	Tamils and Technology	HSMC	1	0	0	1	1
4	U23ME204	Engineering Graphics	ESC	2	1	0	3	3
5	U23GE205	Basic Electrical and Electronics Engineering	ESC	3	0	0	3	3
		THEORY WITH INTEGRA	TED LAB		1		1	L
6	U23EN206	Proficiency in English	HSMC	2	0	2	4	3
7	U23GE207	Problem Solving using Python	ESC	2	0	2	4	3
		PRACTICAL						
8	U23GE218	Engineering Practices Laboratory	ESC	0	0	2	2	1
		ENHANCEMENT COU	RSES					
9		Skill Enhancement Course - I	SEC	0	0	2	2 .	1
10		Value Enhancement Course - I	VEC	0	0	2	2	1
			TOTAL	16	2	10	28	23

Semester - II

NCC / NSS / YRC / RRC / Sports Credit Course level 1 is offered for students. The grades earned by the students will be recorded in the Mark Sheet, however the same shall not be considered for the computation of CGPA.

	urse Code					Title		
U2	3MA201				ENGINEEF	RING MATHEMATICS	- II	
Ser	nester: II	L	T	P	Credits	CIA: 40 Marks	FSL	. 60 Martin
Cou	rse pre-real	uisites	High	er Seco	4 ndary Loval	Duide C R i	LOI	2: 00 Marks
Cou	rse Objectiv	ves	mgn	er secon	ildary Level,	Bridge Course, Engineer	ring Ma	thematics-I
1	To interpret	the		C 1 1	····			
2	To introduce	a the con	icept o	r probab	ility axioms.			
2	role in engin	e the nu neering	and tec	il techni chnology	ques of differ disciplines	rentiation and integration v	which pla	ays an importar
3	To familiari engineering	ze the s	tudent	with fur	nctions of sev	eral variables. This is nee	ded in m	any branches c
4	To introduce its use in sol	e Fourie Iving bo	er serie oundary	s analys value p	is this is cent problems.	ral to many applications in	n engine	ering apart from
5	To introduce	e the bas	sic con	cepts of	PDE for solv	ing standard partial differ	antial	
Cour	se Category	7		Basic	c Science Cou	urse (BSC)	cittai eqt	lations.
Deve	lopment Ne	eds		Glob	al / National			
Cour	se Descript	ion: Th	e cour	se helns	the students	to develop the first	÷ 1 ·	1 .
oroba	bility axiom	is, Four	ier seri	ies and t	the numerica	l methods are techniques	itals and	basic concepts
probl	ems are form	nulated s	so that	they can	the solved w	ith arithmetic operations	by whic	h mathematica
Cour	se Content			• • • • •	i de solved w	in anumene operations.		1
Unit			Nu _{no} (Cul		Des	aviation		
	BASICS	OF PD	ODAD	II ITY	DIII	·		
I	of total pr	obabilit	y, Bay	es theore	em, independ	ence, random variables	bility, pa	rtitions and law
					-	full full full full fulles.		
						Contact	Periods	12
П	NUMERI INTEGR formula, N double inte	CAL N ATION Newton- egrals).	IETH : Deri Cotes	ODS -] vatives quadratu	NUMERICA using Newto ure formula, T	Contact Contact L DIFFERENTIATION n- Gregory forward and Frapezoidal and Simpson's	Periods N AND I backwar s 1/3 rd ru	12 NUMERICAL d interpolation iles (single and
III History	NUMERI INTEGR formula, N double inte	CAL N ATION Jewton- egrals).	AETH : Deri Cotes	ODS - J vatives quadratu	NUMERICA using Newto Ire formula, T	Contact Contact L DIFFERENTIATION n- Gregory forward and Frapezoidal and Simpson's Contact	Periods N AND I backwar s 1/3 rd ru Periods	12 NUMERICAL d interpolation iles (single and
II	NUMERI INTEGR formula, N double inte	CAL M ATION Newton- egrals).	METH : Deri Cotes	ODS - 1 vatives quadratu	NUMERICA using Newto ure formula, T	Contact L DIFFERENTIATION n- Gregory forward and Trapezoidal and Simpson's Contact	Periods N AND I backwar s 1/3 rd ru Periods	12 NUMERICAL d interpolation iles (single and 12
II	NUMERI INTEGR. formula, N double inte FUNCTIC – Total der Maxima an multipliers	CAL N ATION Newton- egrals). DNS OF rivative nd mini	AETH : Deri Cotes F SEVI – Tayl ma of	ODS - 1 vatives quadratu ERAL V or's seri functior	NUMERICA using Newto ure formula, T VARIABLES ies for functions of two variants	Contact L DIFFERENTIATION n- Gregory forward and Trapezoidal and Simpson's Contact S: Functions of two variables ons of two variables – Jaconia riables and Lagrange's more	Periods N AND I backwar s 1/3 rd ru Periods les – Par obian's – ethod of	12 NUMERICAL d interpolation iles (single and 12 tial derivatives - Applications: undetermined
II	NUMERI INTEGR formula, N double into Mouble into FUNCTIO – Total der Maxima au multipliers	CAL M ATION Vewton- egrals). DNS OF rivative nd mini	AETH Cotes SEVI – Tayl ma of	ODS - 1 vatives quadratu ERAL V or's seri functior	NUMERICA using Newto ure formula, T ARIABLES ies for functions of two van	Contact AL DIFFERENTIATION n- Gregory forward and Trapezoidal and Simpson's Contact I S: Functions of two variables ons of two variables – Jaconia riables and Lagrange's monocolumnation Contact I	Periods NAND I backwar s 1/3 rd ru Periods les – Par obian's – ethod of Periods	12 NUMERICAL d interpolation iles (single and 12 tial derivatives Applications: undetermined 12
II III	NUMERI INTEGR formula, N double inte FUNCTIC – Total der Maxima an multipliers	CAL M ATION Newton- egrals). DNS OF rivative nd mini	AETH : Deri Cotes : SEVI - Tayl ma of	ODS - 1 vatives quadratu ERAL V or's seri functior	NUMERICA using Newto ure formula, T VARIABLES ies for functions of two var	Contact AL DIFFERENTIATION n- Gregory forward and Trapezoidal and Simpson's Contact D S: Functions of two variables ons of two variables – Jaconia riables and Lagrange's monopole Contact I	Periods N AND I backwar s 1/3 rd ru Periods les – Par obian's – ethod of Periods	12 NUMERICAL d interpolation iles (single and 12 tial derivatives - Applications: undetermined 12
	NUMERI INTEGR. formula, N double into FUNCTIC – Total der Maxima an multipliers	CAL M ATION Newton- egrals). DNS OF rivative nd mini	AETH : Deri Cotes F SEVI – Tayl ma of ES: Ex	ODS - 1 vatives quadratu ERAL V or's seri function	NUMERICA using Newto ure formula, T /ARIABLES ies for functions of two van of Fourier Se	Contact Contac	Periods N AND I backwar s 1/3 rd ru Periods les – Par obian's – ethod of Periods	12 NUMERICAL d interpolation iles (single and 12 tial derivatives Applications: undetermined 12 s conditions –
	NUMERI INTEGR. formula, N double into FUNCTIO – Total der Maxima au multipliers FOURIER General Fo	CAL M ATION Newton- egrals). DNS OF rivative nd mini SERII urier se	AETH : Deri Cotes F SEVI - Tayl ma of ES: Ex ries- C	ODS - 1 vatives quadratu ERAL V or's seri function	NUMERICA using Newto ure formula, T VARIABLES ies for function of Fourier Se even function	Contact AL DIFFERENTIATION n- Gregory forward and Trapezoidal and Simpson's Contact I S: Functions of two variables ons of two variables – Jacc riables and Lagrange's me Contact I eries, Periodic functions, I is – Half range sine series a	Periods N AND I backwar s 1/3 rd ru Periods les – Par obian's – ethod of Periods Dirichlet' and cosir	12 NUMERICAL d interpolation iles (single and 12 tial derivatives Applications: undetermined 12 s conditions – ne series.
	NUMERI INTEGR. formula, N double into FUNCTIC – Total den Maxima an multipliers FOURIER General Fo	CAL M ATION Vewton- egrals). DNS OF rivative nd mini	AETH : Deri Cotes : SEVI - Tayl ma of ES: Ex ries- C	ODS - 1 vatives quadratu ERAL V or's seri function	NUMERICA using Newto ure formula, T VARIABLES ies for function of Fourier Se even function	Contact AL DIFFERENTIATION n- Gregory forward and Trapezoidal and Simpson's Contact D S: Functions of two variables ons of two variables – Jaco riables and Lagrange's mo Contact H eries, Periodic functions, D is – Half range sine series a Contact F	Periods N AND I backwar s 1/3 rd ru Periods les – Par obian's – ethod of Periods Dirichlet' and cosir Periods	12 NUMERICAL d interpolation iles (single and 12 tial derivatives Applications: undetermined 12 s conditions – te series. 12
	NUMERI INTEGR. formula, N double into FUNCTIO – Total den Maxima an multipliers FOURIER General Fo PARTIAL of one-dim state solution	CAL M ATION Vewton- egrals). DNS OF rivative nd mini	AETH : Deri Cotes : SEVI - Tayl ma of ES: Ex ries- C CRENT l wave o- dim	ODS - J vatives quadratu ERAL V or's seri function istence Odd and of TIAL EC equationensional	NUMERICA using Newto ure formula, T VARIABLES ies for function of Fourier Se even function QUATIONS: on – One dim equation of l	Contact AL DIFFERENTIATION n- Gregory forward and Trapezoidal and Simpson's Contact I S: Functions of two variables ons of two variables – Jaconia riables and Lagrange's mono- Contact I eries, Periodic functions, I is – Half range sine series a Contact P Contact P Contact P Contact P	Periods N AND I backwar s 1/3 rd ru Periods les – Par obian's – ethod of Periods Dirichlet' and cosin Periods Fourier so t conduc	12 NUMERICAL d interpolation iles (single and 12 tial derivatives Applications: undetermined 12 s conditions – ne series. 12 eries solutions – tion – Steady
	NUMERI INTEGR. formula, N double into FUNCTIO – Total der Maxima au multipliers FOURIER General Fo PARTIAL of one-dim state solution	CAL M ATION Vewton- egrals). DNS OF rivative nd mini	AETH : Deri Cotes : SEVI - Tayl ma of ES: Ex ries- C CRENT l wave o- dim	ODS - 1 vatives quadratu ERAL V or's seri function istence Odd and o FIAL EC equatic ensional	NUMERICA using Newto ure formula, T VARIABLES ies for function s of two var of Fourier Se even function QUATIONS: on – One din equation of l	Contact AL DIFFERENTIATION n- Gregory forward and Trapezoidal and Simpson's Contact I S: Functions of two variables ons of two variables – Jacon riables and Lagrange's mo Contact I eries, Periodic functions, E is – Half range sine series a Contact P eries classification of PDE – F nensional equation of heat heat conduction. Contact P	Periods NAND I backwar s 1/3 rd ru Periods les – Par obian's – ethod of Periods Dirichlet' and cosin Periods Fourier so t conduc Periods	12 NUMERICAL d interpolation iles (single and 12 tial derivatives Applications: undetermined 12 s conditions – ne series. 12 eries solutions tion – Steady 12
	NUMERI INTEGR. formula, N double into FUNCTIC – Total den Maxima an multipliers FOURIER General Fo PARTIAL of one-dim state solutio	CAL M ATION Vewton- egrals). DNS OF rivative nd mini R SERII urier se DIFFE ensiona on of tw	AETH : Deri Cotes : SEVI - Tayl ma of ES: Ex ries- C CRENT l wave o- dim	ODS - 1 vatives quadratu ERAL V for's seri function istence Odd and o FIAL EC equationensional	NUMERICA using Newto ure formula, T VARIABLES ies for function of Fourier Se even function QUATIONS: on – One din equation of l	Contact AL DIFFERENTIATION n- Gregory forward and Trapezoidal and Simpson's Contact D S: Functions of two variables ons of two variables – Jacon riables and Lagrange's mon Contact H eries, Periodic functions, D is – Half range sine series a Contact P eries classification of PDE – F nensional equation of heat heat conduction. Contact P	Periods N AND I backwar s 1/3 rd ru Periods les – Par obian's – ethod of Periods Dirichlet' and cosir Periods Fourier se t conduc Periods	12 NUMERICAL d interpolation iles (single and 12 tial derivatives - Applications: undetermined 12 s conditions – ne series. 12 eries solutions tion – Steady 12

COL	TT								-			
01	Unc	lerstand	the fun	dament	al know	vledge o	of the co	oncepts	of prob	ability.		K2
CO 2	secc	ond orde	r ordina	ous tec ry diffe	chniques erential	s and me equatio	ethods f ns.	for solv	ing firs	t and		K2
CO 3	Ren	nember	the diffe	erential	calculu	s ideas	on seve	ral vari	able fur	nctions.		K1
CO 4	App whice	ly the co ch plays	oncept o a vital i	of differ ole in o	rential e enginee	equation ring app	s using	Fourie 15.	r series	analysis		K3
CO 5	Und	erstand	how to	solve tł	ne giver	ı standa	rd partia	al diffe	rential e	equations		K2
K1: Reme	mberin	g; K2: l	Indersta	nding;	K3: Ap	plving:	K4· Ar	alvzin	T. K 5. E	valuating		IX2
Books	3. 7 1. J 2. H	Wiley In Folimien oublicat lay L. D 2020. Bali. N., Media (A	ndia Pvt ri R, Al ions. evore, F Goyal. An impr	Ltd., I gorithr Probabi M. an int of I	Bangalo ns for I lity and d Watk	Discrete Statisti	2. Fourie cs for E Advar	er Tran Enginee nced Er	sform a ring and	nd Conv d the Scie	olution, ences, 9 th	Spring Editio
e Books	3. J F 4. N 5. S	ain. R. Publicati Narayana Viswar rimanth 015	K. and ons, Ne an. S. nathan F a Pal an	I Iyen w Delh and M Publishe nd Bhu	gar. S. ni, 5 th Eo anicava ers Pvt. nnia. S.(R.K., A dition, 2 achagon Ltd., Cl C, Engin	Advanc 2016. n Pillai hennai, neering	vt., Ltc ed En . T. K 2009. Mathe	l.,), Nev gineerir L., Calc matics,	v Delhi, 7 ng Math culus, Vo Oxford I	th Editio ematics, olume I Jniversit	n, 2009 Naros and I ty Press
e Books	3. J F 4. N S 5. S 2	ain. R. Publicati Narayana Viswai rimanth 015.	K. and ons, Ne an. S. nathan F a Pal an	l Iyeng w Delh and M Publisho nd Bhu Tools	gar. S. ii, 5 th Ec lanicava ers Pvt. inia. S.(R.K., A dition, 2 achagom Ltd., Cl C, Engin	Advanc 2016. n Pillai hennai, neering nt (40 I	vt., Ltc ed En . T. k 2009. Mathe Marks)	I.,), Nev gineerir I., Calc matics,	v Delhi, 7 ng Math culus, Vo Oxford I	^{nth} Editio ematics, blume I Universit	n, 2009 Naros and I ty Press
e Books	3. J F 4. N S 5. S 2	ain. R. Publicati Varayana Viswan rimanth 015.	K. and ons, Ne an. S. nathan F a Pal an	l Iyen w Delh and M Publisha nd Bhu Tools CIA	gar. S. i, 5 th Ec anicava ers Pvt. inia. S.(s for As	R.K., A dition, 2 achagom Ltd., Cl C, Engin	Advanc 2016. n Pillai hennai, neering nt (40 f Assig minar/	vt., Ltc ed En . T. k 2009. Mathe Marks) nment Case S	I.,), Nev gineerir I., Calc matics, / / tudy	v Delhi, 7 ng Math culus, Vo Oxford I Attend	th Editio ematics, blume I Universit	n, 2009 Naros and I ty Press Total
cIA I 10	3. J F 4. N S 5. S 2	ain. R. Publicati Varayana Viswai rimanth 015. CIA II	K. and ons, Ne an. S. nathan F a Pal an	l Iyen w Delh and M Publisha nd Bhu Tools CIA	gar. S. hi, 5 th Ec lanicava ers Pvt. linia. S.(s for As III 0	R.K., A dition, 2 achagom Ltd., Cl C, Engin	Advanc 2016. n Pillai hennai, neering nt (40 I Assig minar/	vt., Ltc ed En . T. k 2009. Mathe Marks) mment Case S 5	I.,), Nev gineerir I., Calc matics, Matics,	v Delhi, 7 ng Math culus, Vo Oxford I Attend	th Editio ematics, olume I Jniversit lance 5	n, 2009 Naros and I ty Press Total 40
cIA I 10	3. J F 4. N S 5. S 2	ain. R. Publicati Varayana Viswar rimanth 015.	K. and ons, Ne an. S. nathan F a Pal an	l Iyen w Delh and M Publisha nd Bhu Tools CIA	gar. S. hi, 5 th Ec lanicava ers Pvt. linia. S.(s for As III 0 M	R.K., A dition, 2 achagom Ltd., Cl C, Engin ssessme Se Se Iapping	Advanc 2016. n Pillai hennai, neering nt (40 I Assig minar/	vt., Ltc ed En . T. k 2009. Mathe Marks) nment Case S 5	I.,), Nev gineerir I., Calc matics, / / tudy	v Delhi, 7 ng Math culus, Vo Oxford I Attend	th Editio ematics, olume I Jniversit Jance 5	n, 2009 Naros and I ty Press Total 40
CIA I 10 20 \ PO	3. J F 4. N S 5. S 2 C PO1	ain. R. Publicati Varayana Viswar rimanth 015. TA II 10	K. and ons, Ne an. S. nathan F a Pal an	Iyen w Delh and M Publisha nd Bhu Tools CIA	gar. S. hi, 5 th Ec lanicava ers Pvt. linia. S.(s for As III 0 M PO5	R.K., A dition, 2 achagom Ltd., Cl C, Engin ssessme Se Se Iapping PO6	Advanc 2016. n Pillai hennai, neering nt (40 f Assig minar/	vt., Ltc ed En . T. k 2009. Mathe Marks) nment Case S 5	,), Nev gineerir , Calc matics, / tudy PO9	v Delhi, 7 ng Math culus, Vo Oxford I Attend PO10	th Editio ematics, olume I Jniversit Jance 5 PO11	n, 2009 Naros and I ty Press Total 40 PO12
CIA I 10 CO\PO CO1	3. J F 4. N S 5. S 2 C PO1 3	ain. R. Publicati Narayana Viswar rimanth 015. CIA II 10 PO2 3	K. and ons, Ne an. S. nathan F a Pal an Pal an PO3	Iyena w Delh and M Publisho nd Bhu Tools CIA 1 PO4	gar. S. hi, 5 th Ec lanicava ers Pvt. inia. S.C s for As III 0 M PO5	R.K., A dition, 2 achagom Ltd., Cl C, Engin ssessme See See Iapping PO6	Advanc Advanc 2016. n Pillai hennai, neering nt (40 I Assig minar/	vt., Ltc ed En . T. k 2009. Mathe Marks) nment Case S 5 PO8	,), Nev gineerir , Calc matics, / / / / / / /	v Delhi, 7 ng Math culus, Vo Oxford I Attend PO10	th Editio ematics, olume I Jniversit Jance 5	n, 2009 Naros and I ty Press Total 40 PO12
CIA I 10 O \ PO CO1 CO2	3. J F 4. N S 5. S 2 C C PO1 3 3	ain. R. Publicati Varayana Viswar rimanth 015. TA II 10 PO2 3 3	K. and ons, Ne an. S. nathan F a Pal an Pal an PO3 2 2	Iyen w Delh and M Publisha nd Bhu Tools CIA 1 1 PO4 1 1	gar. S. hi, 5 th Ec lanicava ers Pvt. linia. S.(s for As III 0 M PO5 - -	R.K., A dition, 2 achagom Ltd., Cl C, Engin ssessme See Iapping PO6	Advanc 2016. n Pillai hennai, neering nt (40 I Assig minar/	vt., Ltc ed En . T. k 2009. Mathe Marks) nment Case S 5 PO8 1 1	<pre>,), Nev gineerir, Calc matics, / .tudy PO9</pre>	v Delhi, 7 ng Math culus, Vo Oxford I Attend PO10	Point	n, 2009 Naros and I ty Press Total 40 PO12
CIA I 10 CO \ PO CO1 CO2 CO3	3. J F 4. N S 5. S 2 C C PO1 3 3 3 3	ain. R. Publicati Narayana Viswar rimanth 015. TA II 10 PO2 3 3 3	K. and ons, Ne an. S. nathan F a Pal an Pos 2 2 2	Iyena w Delh and M Publisho nd Bhu Tools CIA 1 PO4 1 1	gar. S. hi, 5 th Ec lanicava ers Pvt. inia. S.(s for As III 0 M PO5 - - - -	R.K., A dition, 2 achagom Ltd., Cl C, Engin ssessme See Iapping PO6	Advanc Advanc 2016. n Pillai hennai, neering nt (40 f Assig minar/ PO7 - -	vt., Ltc ed En . T. k 2009. Mathe Marks) nment Case S 5 PO8 1 1 1	,), Nev gineerir , Calc matics, / tudy PO9 - -	v Delhi, 7 ng Math culus, Vo Oxford I Attend PO10	Ath Editio ematics, olume I Jniversit Jance 5 PO11	n, 2009 Naros and I ty Pres Total 40 PO12
CIA I 10 CO \ PO CO1 CO2 CO3 CO4 CO4	3. J F 4. N S 5. S 2 C C PO1 3 3 3 3 3 3	ain. R. Publicati Narayana Viswar rimanth 015. TA II 10 PO2 3 3 3 3 3	K. and ons, Ne an. S. nathan F a Pal an PO3 2 2 2 2 2	Iyena w Delh and M Publisho nd Bhu Tools CIA 1 1 PO4 1 1 1 1	gar. S. si, 5 th Ec anicava ers Pvt. inia. S.C s for As III 0 M PO5 - - - - -	R.K., A dition, 2 achagom Ltd., Cl C, Engin ssessme See See Iapping PO6	Advance Advance 2016. n Pillai hennai, neering nt (40 I Assig minar/ PO7 - - -	vt., Ltc ed En . T. k 2009. Mathe Marks) nment Case S 5 PO8 1 1 1 1	PO9	v Delhi, 7 ng Math culus, Vo Oxford I Attend PO10 1 1 1	Ath Editio ematics, olume I Jniversit Jance 5 PO11 - -	n, 2009 Naros and I ty Pres Total 40 PO12

CO \ PSO	PSO1	PSO2	PSO3
CO1	1	1	1303
CO2	1	1	1
CO3	1	1	1
CO4	1	1	1
C05	1	1	1
Course desi	gned by	Ve	rified by
K. Ramy f	culty Member	Signature of th	e Chairperson-Bos
Dr. K. RAMESH /N	athematrus	NT-P. J. HEI Head of Department of Nehru Institute of Nehru Gardens	MA MALINI the Department Science & Humanities Engineering & Technolo
		Coimb	atore - 641 105

T

Co	ourse Code					Title		
U.	23MS202				MATE	RIALS SCIENCE		
Se	mester: II	L	Т	Р	Credits			
Col	Iree pro roa	3	0	0	3	CIA: 40 Marks	ES	E: 60 Marks
Cou	irse Objectiv	lisites	Basic	s of Er	ngineering Phy	sics and Properties o	f Mater	ials
000	To equip t	he stude	nto to k		1 1 1		turse s	
1	quantum m	echanics	and abo	lave a	knowledge on	different types of ele	ectron th	neory, basics o
2	To introduc	ce the pl	ivsics o	f semi	conducting ma	terials and application	C	
	device fabr	ication.			conducting ind	terrais and application	s of ser	niconductors in
	To make t	he stude	ents to	learn	the origin of	magnetism in magnet	ic mate	rials and that
3	classificatio	on; to lea	arn the	physic	s of superconc	luctivity and various t	propertie	es exhibited by
	Supercondu	ctors.	1	2.1		. 1	F	is childred by
4	displays an	1 a sound	d grasp	of kno	owledge on dif	ferent optical propertie	es of ma	aterials, optical
5	To make the	e student	s famili	arizo ir	the medan			
Cou	rse Category		Basic	Scienc	e Course (BSC	igineering materials an	d its app	olications.
Deve	elopment Ne	eds	Globa	l / Nati	onal)		
Cour	rse Descripti	on: The	e course	explor	es the fundame	ental principles of mate	ariale coi	ionos formi
on th	e relationship	os betwee	en the st	trucțure	e, properties, pi	ocessing, and perform	ance of	materials
Cour	se Content							indecidis.
Unit					Descri	otion		
	in a three states.	-dimensi	onal bo	x - deg	generate states	- Fermi- Dirac statistic	Dns in m Ds - Den	etals - Particle sity of energy
	ans ng tigit					Contact	reriods	09
II	SEMICO in intrinsio in n-type a concentrat contacts -	NDUCT c semico and p-typ ion - Ha Schottky	OR PH nductor e semic all effect diode.	IYSIC s - extra conduct ct - De	S: Fundament rinsic semicone tor - variation c etermination o	al of Semiconductors - luctors - Derivation of of Fermi level with tem f Hall coefficient – A	Carrier carrier perature opplicat	concentration concentration e and impurity ions - Ohmic
					and a state of the	Contact]	Periods	09
III	MAGNET classificati antiferrom behavior - II supercor and magne	CISM A on of a agnetism soft and l aductors tic levita	ND SU magneti and fe hard ma - High tion.	PERC c mat rrimag gnetic Tc sup	ONDUCTIVI terials: diamaş netism - Ferro materials - Sup perconductors -	TY: Fundamental of gnetism, paramagnetis magnetism - Domain erconductivity: propert Applications of super	magneti sm, fer theory - ies - Ty conduct	c materials - romagnetism, M versus H pe I and Type ors - SQUID
						Contact P	eriods	09
	OPTICAL	DDODT	DUDE	LOFT				
IV	processes recombinat solar cells -	in semion, opti light em	conduct cal abso nitting d	ors: o orption iode - 1	nATERIALS: ptical absorpt , loss and gair laser diode - or	Classification of optic ion and emission, cl . Optoelectronic devic ganic LED.	al mater narge in ces: ligh	rials - Optical njection and at detectors -
						Contact P	eriods	09
SALE NO.				all destines				

pletion of nowledge s. nd clearly to get kno ons of ferr nd the opt evices. nd the k ons. : Understa ghavan. M ing Privati Kasap, Prin t Singh, So	f the course, s on classical a of semicondu owledge on c comagnetic ma ical properties cnowledge or anding; K3: Ap aterials Science e Limited, 201 nciples of Elece	tudents will be able to: nd quantum electron the uctor physics and functio lassification of magnetic iterials and superconducto s of materials and workin n modern engineering pplying; K4: Analyzing; ce and Engineering: A Fir 15. ctronic Materials and Dev Devices: Basic Principle	Contact Periods Total Periods ories, and energy oning of semicon materials, theorem ors. g principles of v materials and K5: Evaluating; rst Course, Prenti- vices, Mc-Graw H	y band ductor ry and arious their K6: Cre ce Hall Hill, 20	09 45 K3 K2 K4 K2 k2 ating India
pletion of nowledge s. nd clearly to get kno ons of ferr nd the opt evices. nd the k ons. : Understa ghavan. M ing Privata (asap, Prin t Singh, So t Singh, So	f the course, s on classical a of semicondu owledge on c omagnetic ma ical properties cnowledge or anding; K3: Ap aterials Science e Limited, 201 nciples of Elece	tudents will be able to: nd quantum electron the uctor physics and functio lassification of magnetic terials and superconducto s of materials and workin n modern engineering pplying; K4: Analyzing; ce and Engineering: A Fir 15. ctronic Materials and Dev Devices: Basic Principle	Total Periods ories, and energy oning of semicon materials, theorors. g principles of v materials and K5: Evaluating; rst Course, Prenti-	y band ductor ry and arious their K6: Cre ce Hall Hill, 20	45 K3 K2 K4 K2 K2 ating India 18.
pletion of nowledge s. nd clearly to get kno ons of ferr nd the opt evices. nd the k ons. : Understa ghavan. M ing Privata (asap, Prin t Singh, So t Singh, So	f the course, s on classical a of semicondu owledge on c omagnetic ma ical properties knowledge on anding; K3: Ap aterials Science e Limited, 201 nciples of Elece	nd quantum electron the uctor physics and function lassification of magnetic iterials and superconductor s of materials and workin n modern engineering pplying; K4: Analyzing; ce and Engineering: A Fir 15. ctronic Materials and Dev Devices: Basic Principle	ories, and energy ning of semicon materials, theor ors. g principles of v materials and K5: Evaluating; rst Course, Prenti	y band ductor ry and arious their K6: Cre ce Hall Hill, 20	K3 K2 K4 K2 K2 ating India
pletion of nowledge s. nd clearly to get kno ons of ferr nd the opt evices. nd the k ons. : Understa ghavan. M ing Privata (asap, Prin t Singh, So t Singh, So	f the course, s on classical a of semicondu owledge on c comagnetic ma ical properties knowledge or anding; K3: Applied anding; K3: Applied e Limited, 201 nciples of Electer	tudents will be able to: nd quantum electron the uctor physics and function lassification of magnetic iterials and superconductor s of materials and workin n modern engineering pplying; K4: Analyzing; ce and Engineering: A Fir 15. ctronic Materials and Dev Devices: Basic Principle	ories, and energy ming of semicon materials, theor ors. g principles of v materials and K5: Evaluating; rst Course, Prenti	y band ductor ry and arious their K6: Cre ce Hall Hill, 20	K3 K2 K4 K2 K2 ating India
nowledge s. nd clearly to get kno ons of ferr nd the opt evices. nd the k ons. : Understa ghavan. M ing Private (asap, Prin t Singh, So t Singh, So	on classical a of semicondu owledge on c omagnetic ma ical properties cnowledge or anding; K3: A laterials Science e Limited, 201 nciples of Elece	nd quantum electron the uctor physics and functio lassification of magnetic iterials and superconducto s of materials and workin n modern engineering pplying; K4: Analyzing; ce and Engineering: A Fir 15. ctronic Materials and Dev Devices: Basic Principle	ories, and energy ming of semicon materials, theor ors. g principles of v materials and K5: Evaluating; rst Course, Prenti	y band ductor ry and arious their K6: Cre ce Hall Hill, 20	K3 K2 K4 K2 K2 India
nd clearly to get kno ons of ferr nd the opt evices. nd the k ons. : Understa ghavan. M ing Privato (asap, Prin t Singh, So t Singh, So	of semicondu owledge on c omagnetic ma ical properties knowledge or anding; K3: A laterials Science e Limited, 201 nciples of Elece emiconductor	uctor physics and function lassification of magnetic iterials and superconductors of materials and workin medern engineering pplying; K4: Analyzing; ce and Engineering: A Fir 15. ctronic Materials and Dev Devices: Basic Principle	ming of semicon materials, theorors. g principles of v materials and K5: Evaluating; rst Course, Prenti	ductor ry and arious their K6: Cre ce Hall Hill, 20	K2 K4 K2 K2 ating India
to get kno ons of ferr nd the opt evices. nd the k ons. : Understa ghavan. M ing Privata (asap, Prin t Singh, So t Singh, S	owledge on c omagnetic ma ical properties knowledge or anding; K3: A aterials Science e Limited, 201 nciples of Elece emiconductor	lassification of magnetic terials and superconducto s of materials and workin n modern engineering pplying; K4: Analyzing; ce and Engineering: A Fir 15. ctronic Materials and Dev Devices: Basic Principle	materials, theorors. g principles of v materials and K5: Evaluating; rst Course, Prenti	ry and arious their K6: Cre ce Hall Hill, 20	K4 K2 K2 ating India
nd the opt evices. nd the kons. : Understa ghavan. M ing Privato Kasap, Prin t Singh, So t Singh, So	anding; K3: A aterials Science e Limited, 201 nciples of Elece	n modern engineering pplying; K4: Analyzing; ce and Engineering: A Fir 15. ctronic Materials and Dev Devices: Basic Principle	g principles of v materials and K5: Evaluating; st Course, Prenti	arious their K6: Cre ce Hall Hill, 20	K2 K2 ating India
nd the k ons. : Understa ghavan. M ing Privato Kasap, Prin t Singh, So t Singh, S	anding; K3: A aterials Science e Limited, 201 nciples of Elece emiconductor	n modern engineering pplying; K4: Analyzing; ce and Engineering: A Fir 15. ctronic Materials and Dev Devices: Basic Principle	materials and K5: Evaluating; st Course, Prenti vices, Mc-Graw I	their K6: Cre ce Hall Hill, 20	K2 ating India 18.
: Understa ghavan. M ing Privata Kasap, Prin t Singh, So t Singh, S	anding; K3: A aterials Science e Limited, 201 nciples of Elece emiconductor	pplying; K4: Analyzing; ce and Engineering: A Fir 15. ctronic Materials and Dev Devices: Basic Principle	K5: Evaluating; st Course, Prenti vices, Mc-Graw I	K6: Cre ce Hall Hill, 20	ating India
ghavan. M ing Privat Kasap, Prin t Singh, So t Singh, S	aterials Science e Limited, 201 nciples of Elec emiconductor	ce and Engineering: A Fir 15. Ceronic Materials and Dev Devices: Basic Principle	rst Course, Prenti vices, Mc-Graw I	ce Hall Hill, 20	India
idia, 2019 Tanson. Fu	undamentals o	Optoelectronics: Physics	s. Wiley (India), s and Technolog n Education (Ind	2007. y, Mc- ian Edi	Graw tion),
subraman n), 2014. elin Wrig eering, CL F.Pierret, Bhattacha ogers, Jess Systems, C	ht and Dona Engineering, Semiconductorya, Semiconductorya, Semiconductory se Adams and CRC Press, 20	's Materials Science and ld Askeland, Essentials 2013. or Device Fundamentals, ductor Optoelectronic De l Sumita Pennathur, Nan 17.	Engineering. W of Materials S Pearson, 2006. vices, Pearson, 2 otechnology: Un	Viley (In Science 017. derstan	and and
1	Tools for Asse	essment (40 Marks)			
Π	CIA III	Assignment/	Attendance	Tota	ul
)	10	5	5	40	
), 2014. lin Wrig ering, CL F.Pierret, 3hattacha gers, Jes ystems, (in Wright and Dona ering, CL Engineering, F.Pierret, Semiconduct Bhattacharya, Semicond gers, Jesse Adams and ystems, CRC Press, 20 Tools for Asse II CIA III 10	(a), 2014. lin Wright and Donald Askeland, Essentials ering, CL Engineering, 2013. F.Pierret, Semiconductor Device Fundamentals, Bhattacharya, Semiconductor Optoelectronic De gers, Jesse Adams and Sumita Pennathur, Nan ystems, CRC Press, 2017. Tools for Assessment (40 Marks) II CIA III Assignment/ Seminar/Case study 10 5	(a), 2014. In Wright and Donald Askeland, Essentials of Materials Sering, CL Engineering, 2013. F.Pierret, Semiconductor Device Fundamentals, Pearson, 2006. Bhattacharya, Semiconductor Optoelectronic Devices, Pearson, 2 gers, Jesse Adams and Sumita Pennathur, Nanotechnology: Un ystems, CRC Press, 2017. Tools for Assessment (40 Marks) II CIA III Assignment/ Attendance 10 5 5	(a), 2014. In Wright and Donald Askeland, Essentials of Materials Science ering, CL Engineering, 2013. F.Pierret, Semiconductor Device Fundamentals, Pearson, 2006. Bhattacharya, Semiconductor Optoelectronic Devices, Pearson, 2017. gers, Jesse Adams and Sumita Pennathur, Nanotechnology: Understan ystems, CRC Press, 2017. Tools for Assessment (40 Marks) II CIA III Assignment/ Seminar/Case study Attendance Total 10 5 5 40

					N	Iapping	3					
CO \ PO	PO1	PO2	PO3	PO4	PO5	PO6	P O 7	PO8	PO9	PO10	P011	PO12
C01	3	2	1	2	1	1	-	-	-	-		-
CO2	3	2	1	1	2	1	1	-	-	-	_	
CO3	3	2	2	2	2	1	-	_				
CO4	3	2	2	1	2	2	-	_			-	-
C05	3	2	2	1	2	1	_	-	_		-	I
	C0 C	\ PSO 201 202			PSO1 2 2			PSO2 1			PSO3 1	
		03 04 05			2 2 2		<u> </u>					
		Course de	esigned l	by				1	Verifie	ed by	1 .	
A. Depe Name	Signatu Do So and and De	x x x x x x x x x x	Faculty I Faculty I	Member of f af f af f	r Agence, another lember		Sig Dep Nehru II Nehru Name	Head artmen stitute and Sei	f the Cl HEM of the t of Sci of Eng	hairperso AMAL Depart ence & I ineering rumalay BC faitp	ment JNJ Ment Humaniti & Techi ampalay OSon-Bo	ies aciogy iam, oS

Co	urse Code					Title		
U	23GE203				ТАМІ	LS AND TECHNOL	OGY	
Ser	nester:II	L	T	Р	Credits	CIA:40 Marks	ESE. (0)	
Cou	rse pre-requ	l	0	0 Lighe		CIR. 40 Marks	ESE: 60	Warks
Cou	rse Objectiv		1	ngne	r Secondary	Level	State and states from	
1	To explore	the his	torica	al dave	alann at sft		and the second data	
2	To examine	how to	raditie	anal 7		echnology in the Tamil	region.	
	technologic	al adva	incem	nents.	amil practice	s and knowledge syste	ms have influence	ed
3	To promote	inclusi	ivity a	and di	iversity in the	technology sector, enc	ouraging the par	ticipation o
	Tamils in v	arious t	techno	ologic	cal fields.		0 0 m pm	corpation o
4	To provide	a globa	l pers	specti	ve on Tamil c	ontributions to technol	ogy and the role	of Tamils
	in the globa	l techno	ology	lands	scape.			
5	10 explore 1	the role	ofth	ie Tan	nil language i	n technology, including	g the development	nt of
Cour	software, la	nguage	proce	essing	g, and digital c	content in Tamil.		
Deve	lonmont No	oda	H	uman	ities, Social S	cience and Manageme	nt Course (HSM	C)
Cour	se Description	tion:	G	lobal/	National	1		
conte	mporary con	uon: <i>F</i>	A COL	urse (f Tom	on famils a	nd Technology migh	t cover the his	torical and
inters	section of T	amil cu	ulturo	i Tam	is to the field	, exploring advanceme	ents, notable figu	res, and the
techn	ology comm	uting	and d	i with	inneuetie	al developments. Top	ics could includ	e language
have	had on the T	echnold	anu u agy la	ingital	innovations,	providing a holistic u	inderstanding of	the Tamils
Cour	se Content	cennon	Jgy Ia	inusca	ape.			
Unit								
I	WEAVIN	NG AN	DCI	TDAN	D ALC TECUN	escription		
	Age - Cer	amic te	echno	logy .	- Black and R	ology: Weaving In	dustry during Sa	ngam
				108)	Diack and K	Con wate Follenes (BR	W) - Graffiti on	Potteries.
							itact Periods	03
п	DESIGN constructi materials Silapathik and other Temple)- at Madras	N ANI on Hou and H aram - worshi Thirum during	D Co use & Hero Sculj p plao nalaiN Britis	ONST 2 Des stone ptures ces - layaka sh Per	FRUCTION igns in house es of Sangar s and Temple Temples of N ar Mahal - Ch riod.	TECHNOLOGY: I ehold materials during m age - Details of s of Mamallapuram - ayaka Period - Type s netti Nadu Houses, Ind	Designing and Sangam Age - Stage Constru Great Temples tudy (Madurai N o - Saracenic ar	Structural Building ctions in of Cholas Ieenakshi chitecture
						Con	tact Periods	03
III	MANUFA Iron indus Minting of -Shell bea Silapathika	CTUR try - In Coins ds/ bor tram- ke	RING ron s - Bea ne be eezha	TEC meltin ads ma eats - adi.	CHNOLOGY ng, steel - Co aking-industri Archeologica	: Art of Ship Building opper and gold- Coin es Stone beads - Glass al evidences - Gem s	g - Metallurgical is as source of s beads - Terraco stone types deso	studies - history - otta beads cribed in
						Con	tact Periods	03
	ACDICU	THE						
IV	Significant for cattle u Conche div	ce of K se - Ag ving - A	E AN umizl gricult ancier	D IR hiTho ture a nt Kno	RIGATION oompu of Cho nd Agro Proc owledge of Oc	TECHNOLOGY: Da la Period, Animal Hus essing - Knowledge of cean - Knowledge Spec	am, Tank, ponds sbandry - Wells f Sea - Fisheries sific Society.	, Sluice, designed - Pearl -
						~		

Contact Periods 03

V F	CIENTIFIC TAMIL & TAMIL COMPUTING: Development of Scienti Famil computing - Digitalization of Tamil Books - Development of Tamil Famil Virtual Academy - Tamil Digital Library - Online Tamil Dictionaries Project.	fic Tami Software - Sorkuv
	Contact Periods	03
	Total Periods	15
urse O	utcomes	
on suc	Cessful completion of the course, students will be able to:	Bari (
CON	Understand the beritage of sculpture resident	K2
02	of ancient people.	K2
CO 3	Review on folk and martial arts of Tamil people.	K 1
C O 4	Realise Thinai concepts, trade and victory of chozha dynasty.	V 1
20 5	Understand the contribution of Tamils in Indian freedom struggle, self- esteem movement and siddha medicine.	K1 K2
Remem	bering; K2: Understanding; K3: Applying; K4: Analyzing; K5: Evaluating; K6	6: Creati
Text Books	(வௌய்டு): தமிழ்நாடுபாடநூல்மற்றும்கல்வியியல்பணிகள்கழகம். 2. கணினித்தமிழ் – முனைவர்இல. சுந்தரம் . (விகடன்பிரசுரம்).பதிப்பு-1, ஆண்டு-2016. 3. கீழடி – வைகைநதிக்கரையில் சங்ககால நகரநாகரிகம். (தொல்லியல்துறை(வெளியீடு). பதிப்பு-1, ஆண்டு-2016. 4. பொருநை- ஆற்றங்கரை நாகரீகம். (தொல்லியல்துறை (வெளியீடு)ஆண்டு 2022.	
erence ooks	 Social Life of Tamils (Dr.K.K.Pillay) A joint publication of TNTB & ERRMRL – (in print) 2016. Historical Heritage of the Tamils (Dr.S.V.Subatamanian, E Thirunavukkarasu) (Published by: International Institute of Tamil S 2010. National The Contributions of the Tamils to Indian Culture (Dr.M.Valar (Published by: Intel Institute of Tamil Studies),1995. Keeladi - 'Sangam City Civilization on the banks of river Vaigai' (Published by: Department of Archaeology & Tamil Nadu Text Book Educational Services Corporation, Tamil NaduEdition: 1 Year 2016. Porunai Civilization (Jointly Published by: Department of Archaeology & Corporation, Tamil Nadu Text Book and Educational Services Corporation, Tamil 2022. Journey of Civilization Indus to Vaigai (R.Balakrishnan) (Published RMRL) – Reference BookEdition: 1 Year 2016. 	SC and Dr.K.D. tudies) mathi) Jointly k and Dgy & Nadu) d by:
	 Journey of Civilization Indus to Vaigai (R.Balakrishnan) (Publishe RMRL) – Reference BookEdition: 1 Year 2016. 	

		Tools for A	Assessment (40 Marks)		
CIAI	CIAII	CIAIII	Assignment/Seminar/ Case Study	Attendance	Tota
10	10	10	5	5	40

						Map	ping						
CO\PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	POQ	POIA	DO11	DO12	
CO1	2	-	1	-	-	1	2	2	109	2	POIT	PO12	
CO2	2	-	1	-	-	1	2	2		2 -			
CO3	2	-	1	-	-	1	2	2		2	-	1	
CO4	2	-	1	-	-	1	2	2	-	2	-	1	
CO5	2	-	1	-	-	1	2	2	_	2	_	1	
3-High;2	-Medi	um;1-)	Low									1	
C	O \ PS	0		P	801			PSO2			PSO3		
	CO1 1							1			1		
	CO2			1				1			1		
	CO3			1				1		-	1		
	CO4				1			1			1		
	C05				1		. 1				1		
192	C	ourse	lesign	ed by			Verified by						
Signature of the Faculty Member								Signati). ure of th	(-)en ne Chairp	person-Bo	DS.	
Dr. DEEpak: A. 3817 Dept.							Department of Science & Humanities Nehru Institute of Engineering & Technolog Nehru Gardens, Thirumalayampalayam					ities hnology ayani,	
Name and Department of the Faculty Member							Coimbatore - 641 105 Name and Seal of the Chairperson-BoS						

UG

Co	Course Code Title							
U	23ME204				ENGIN	EERING GRAPHI	CS	
Se	mester: II	L 2	T	P	Credits	CIA: 40 Marks	ESE: 60 Marks	
Cou	rse pre-requ	isites	Geor	metry.	S Basic Mather	natios	LSE: 00 Marks	
Cou	rse Objective	es	000	metry,	Dasie Mather	naues		
1	To draw er	ngineer	ing ci	irves				
2	To project	points.	lines	and pla	ane surface			
3	To sketch solids.	the sim	ple ob	ojects ir	1 freehand and	orthographic projecti	on of solids and section of	
4	To represe	nt the c	levelo	pment	of solids.			
5	To draw is	ometrie	c and j	perspec	tive projection	ns of simple solids.		
Cour	se Category	_	Eng	ineerin	g Science Cou	urse (ESC)		
Deve	lopment Nee	ds	Glo	bal / Na	ational			
desig proce	n blends cog sses, goods, a	on: Us nitive and ser	ing a and m vices t	combir nanipula that imp	nation of lines ative skills to prove quality o	, symbols, and signs, communicate graphi of life and promote eco	engineering graphics and cally and create systems, onomic progress	
Cour	se Content						1 - 5. 550	
Uni	t			and the second	Des	cription		
I	specificat PLANE practices: - Constru tangents a	CUR CONIC Conic Inction count	Size, 1 VES: s - Co of cyc mal to	Basic Basic nstruct loid - c o the ab	Geometrical Geometrical ion of ellipse, construction o ove curves.	drawing sheets - Lette constructions, Curv parabola and hyperbo f involutes of square	ering and dimensioning. es used in engineering la by eccentricity method and circle - Drawing of	
						Con	tact Periods 08+04	
п	PROJEC projection Projection planes - E traces. Pro planes by	TION - prin of str Determi ojectior rotatin	OF nciples raight ination n of pl g obje	POIN s-Princi lines (on of tru anes (p ct meth	TS, LINES pal planes-F only First ang e lengths and olygonal and o od	AND PLANE SU irst angle projection le projections) inclin true inclinations by r circular surfaces) incli	RFACE: Orthographic n-projection of points. ed to both the principal rotating line method and ined to both the principal	
						Con	tact Periods 08+04	
	DDC							
III	PROJEC solids like to one of Visualizati Representa multiple vi Practicing examinatio	rion the p ion co ation o iews fro three on)	OF S s, pyra rincipa oncept f Thre om pic dimen	OLIDS mids, c al plan ts and ce Dime ctorial v asional	S AND FREE cylinder, cone les and parall l Free Han ensional objec views of objec modeling of	HAND SKETCHIN and truncated solids we el to the other by f d sketching: Visu ts - Layout of views ts. simple objects by C	G: Projection of simple when the axis is inclined rotating object method. alization principles - - Freehand sketching of CAD Software (Not for	
						Cont	act Periods 08+04	
							00104	

PROJECTION SECTIONED SOLIDS AND OF DEVELOPMENT OF SURFACES: Sectioning of above solids in simple vertical position when the cutting plane is inclined to the one of the principal planes and perpendicular to the other -IV obtaining true shape of section. Development of lateral surfaces of simple and sectioned solids - Prisms, pyramids cylinders and cones. Practicing three dimensional modeling of simple objects by CAD Software (Not for examination) **Contact Periods** 08 ± 04 ISOMETRIC AND PERSPECTIVE PROJECTIONS: Principles of isometric projection - isometric scale - isometric projections of simple solids and truncated solids -Prisms, pyramids, cylinders, cones- combination of two solid objects in simple vertical V positions - Perspective projection of simple solids-Prisms, pyramids and cylinders by visual ray method. Practicing three dimensional modeling of isometric projection of simple objects by CAD Software (Not for examination) **Contact Periods** 08 ± 04 **Total Periods** 60 **Course Outcomes** Upon successful completion of the course, students will be able to: CO 1 Use BIS conventions and specifications for engineering drawing. K1 CO 2 Construct the conic curves, involutes and cycloid. K3 CO 3 Solve practical problems involving projection of lines. K3 Draw the orthographic, isometric and perspective projections of simple CO 4 К2 solids. CO 5 Draw the development of simple solids. K2 K1:Remembering; K2:Understanding; K3:Applying; K4:Analyzing; K5:Evaluating; K6:Creating 1. Bhatt N.D. and Panchal V.M., "Engineering Drawing", Charotar Publishing House, 54th Edition, 2023. 2. Natrajan K.V., "A Text Book of Engineering Graphics", Dhanalakshmi **Text Books** Publishers, Chennai, 2018. 3. Parthasarathy, N. S. and Vela Murali, "Engineering Drawing", Oxford University Press, 2015. 1. Basant Agarwal and Agarwal C.M., "Engineering Drawing", McGraw Hill, 2nd Edition, 2019. 2. Gopalakrishna K.R., "Engineering Drawing" (Vol. I&II combined), Subhas Publications, Bangalore, 27th Edition, 2017. 3. Luzzader, Warren.J. and Duff, John M., "Fundamentals of Engineering Reference Drawing with an introduction to Interactive Computer Graphics for Design Books and Production, Eastern Economy Edition, Prentice Hall of India Pvt. Ltd. New Delhi, 2012. 4. Shah M.B., and Rana B.C., "Engineering Drawing", Pearson Education India, 2nd Edition, 2009. 5. Venugopal K. and Prabhu Raja V., "Engineering Graphics", New Age International (P) Limited, 11th Edition, 2011.

				Tools	s for As	sessme	nt (40 I	Marks)					
CI	AI	(CIA II		CIA I	П	As Sen	ssignme ninar / Study	ent/ Case	Atten	dance	Total	
1	0		10	-	10		5				5	40	
					Ι	Mappin	g			1			
CO \ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	
C01	3	1	2	2 - 2				-	3	-	2		
CO2	3	1	2	-	2	-	-	-	-	3	-	2	
CO3	3	1	2	-	2	-	-	-	-	3	-	2	
<u>CO4</u>	3	1	2	-	2	-	-	-	-	3	-	2	
C05	3	1	2	-	2	-	-	-	-	3	-	2	
3-High;	2-Medi	um; 1-	Low									-	
(CO/PSO PSO1							PSO ₂			PSO3		
	CO 1			2				2			1		
	CO 2			2				2			1		
	<u>CO 3</u>			2				2		19	1		
	CO 4			2				* 2			1	_	
	05	en alatte tra	General de la Marcel		3			3			1		
 There Each The g The s The e 	e will be questio given an students examina	e five ei n will c swer pa should tion wil	ther or 1 arry 20 per wil use app l be cor	type que marks, l be A3 ropriate nducted	estions, making size. e scale to in FN/A	each of a total o fit the AN sess	coverir of 100. answer ions on	ng all th rs. the san	e units ne day.	in the sy	llabus.		
	(Course	designe	ed by					Veri	fied by			
Signature of the Faculty Member							M.S.						
AP(SG) MECHANICAL ENGINEERING							Dr. M. SANTHOSH Professor and Head Department of Mechanical Engineering Nehru Institute of Engineering and Technology Coimbatore - 641 105, Tamilnadu, India.						
Name	and Dep	partmer	nt of the	Faculty	/ Memb	er	Nam	e and S	eal of tl	ne Chairr	berson -	BoS	

Cou	rse Code Title									
U2.	3GE205		BA	SIC ELE	CTF	RICAL AND I	ELECTRONICS E	NGINEERIN	3	
Sem	ester: II	L 3	T 0	P 0		Credits 3	CIA: 40 Marks	ESE: 60	Marks	
Cour	se pre-req	uisites	Mati	rices and C	Calci	ulus, Engineer	ring Physics			
Cour	se Objecti	ves								
1	To introdu	ice the ba	sics of	electric cir	cuits	s and analysis.				
2	To impart	knowled	ge in th	e basics of	`wor	king principle	s and application of	electrical mach	ines.	
3	To introduce analog devices and their characteristics.									
4	To educate	e on the f	undame	ental conce	nts (of digital electr	onics			
5	To introdu	ce the fu	actiona	l elements	and	working of me	onnes.			
	TO Introdu	ce the ful	lictiona	relements	and	working of me	asuring instruments	S.		
Cour	Engineering Sciences Course (ESC)									
circui eleme Mesh	t analysis, ents of Mea and Nodal	Working suring. S analysis.	g Prine tudents	ciples of swill be at	Elect	trical Machine o solve probler	es, Analog/Digital ns related to electri	Electronics an c circuits' analy	d functional ysis by using	
Cour	se Content	5					-			
Unit					6.8	Descript	ion			
I	ELECT Capacit problem to AC C power,	or – Ohi ns-Nodal Circuits ar reactive p	CIRC m's La Analys nd Para	UITS: Do w - Kirch sis, Mesh a meters: Wa nd apparer	C Ci hoff naly: avefo nt po	rcuits: Circuit 's Laws –Ind sis with indepe orms, Average wer, power fac	Components: Condependent and Dependent sources only (value, RMS Value, etor	ductor, Resistor endent Sources (Steady state) Ir Instantaneous p	. Inductor, – Simple atroduction bower, real	
	1711		1		-	-	Co	ntact Periods	9	
en diet										
Π	ELEC equati Applic Synch	CTRICAL on, Types cations. C ronous m	L MA s and A onstruct otor an	CHINES: pplications ction, work d Alternate	Cor s. Wo ing p or.	nstruction and orking Principl orinciple and A	Working principle e of DC motors, To pplications of Tran	e- DC Genera rque Equation, sformer, Induct	tors, EMF Types and ion Motor,	
							Co	ntact Periods	9	
Ш	ANAI Semic Charao – Type	OG EI onductor cteristics es, I-V Ch	ECTF Mater Applica naracter	CONICS: ials: Silic ations – Bi istics and	Res on pola Appl	istor, Inducto &Germanium r Junction Trar lications, Recti	r and Capacitor – PN Junction sistor-Biasing, JFE fier and Inverters.	in Electronic Diodes, Zener T, SCR, MOSF	Circuits- Diode – TET, IGBT	
							Cor	ntact Periods	9	
IV	DIGIT correct map re	ion codes	E CTR s, Com ions - 1	ONICS: R binational ninimization	levie logic on us	w of number - representations - representations	systems, binary co on of logic functions Simple Problems on	odes, error dete s-SOP and POS ly).	ection and forms, K-	

			Cor	ntact Periods	9						
V	MEASUREMENT Standards and cal Measurement of thr	TS AND INSTRUME libration, Operating Pr ree phase power, Energy	NTATION: Functional ele inciple, types -PMMC an Meter, Instrument Transform	ments of an in d Moving Iron mers-CT and PT	strument, 1 meters, 7.						
	The desired the last		Cor	ntact Periods	9						
			I	otal Periods	45						
Course C Upon suc	Outcomes ecessful completion	of the course, students	will be able to:								
CO 1	Compute th	e electric circuit parame	ters for simple problems.		К3						
CO 2	Explain the	working principle and a	pplications of electrical mac	hines.	K2						
CO 3	Analyze the	Analyze the characteristics of analog electronic devices. K4									
CO 4	Explain the	Explain the basic concepts of digital electronics. K2									
CO 5	Explain the operating principles of measuring instruments. K2										
Text Books	 Kothar Edition S.K.Bh Educati Sedha I James Wiley, A.K. Sa & Instru 	i DP and I.J Nagrath, "Ba n, McGraw Hill Educatio nattacharya "Basic Ele ion, Second Edition, 201 R.S., "A textbook book of A .Svoboda, Richard C 2018. awhney, Puneet Sawhne umentation', Dhanpat Ra	asic Electrical and Electronic on, 2020. ectrical and Electronics F 7. of Applied Electronics", S. C . Dorf, "Dorf's Introduction by 'A Course in Electrical & ai and Co, 2015.	s Engineering", Engineering", 1 Chand & Co., 20 n to Electric Ci Electronic Mea	Second Pearson 08. rcuits", asurement						
eference Books	 Kothari DP and I.J Nagrath, "Basic Electrical Engineering", Fourth Edition, McGraw Hill Education, 2019. Thomas L. Floyd, 'Digital Fundamentals', 11th Edition, Pearson Education, 2017. Albert Malvino, David Bates, 'Electronic Principles, McGraw Hill Education; 7th edition, 2017. Mahmood Nahvi and Joseph A. Edminister, "Electric Circuits", Schaum' Outline Series, McGraw Hill, 2002. H.S. Kalsi, 'Electronic Instrumentation', Tata McGraw-Hill, New Delhi, 2010. 										
		Tools for Assess	sment (40 Marks)								
CIA I	CIA II	CIA III	Assignment/ Seminar/ Case Study	Attendance	Total						

					N	lappin	g					
CO\PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C01	2	2	1	-	-	-	-	-	1	-	-	2
CO2	2	2	1	-	-	-	-	-	1	-	-	2
CO3	CO3 2 2 1		1	-	-	-	-	-	1	-	-	2
CO4	CO4 2 2 1		1	-	-	-	-	-	1	7	-	2
CO5	CO5 2 2 1				-	-	-	-	1	-	-	2
3-High; 2-N	Aedium;	1-Low										
	CO\P	so		Р	SO 1		PSO 2 PSO 2					
	C01			2			1			1		
	CO2			. 2			1			1		
	C03			2			1			1		
	C04				2		1		1			
	C05				2		1 1					
	Co	urse des	signed l	ру		Verified by						
	Signature	of the	3 bet	Marcha		off						
4	\mathcal{O}_{γ}	L Ea	tizo.		hy	PROFESSOR & HEAD Department of Electrical & Electronics Engineering						
Name	and Depa	rtment c	of the Fa	aculty N	le	Nehru Institute of Engineering & Jechnology Name and Seal of the Chairperson-BoS						

Cou	rse Code	e Title								
U2	3EN206				PRO	FICIENCY IN ENG	LISH			
Sem	ester: II	L 2	T 0	P 2	Credits 3	CIA: 50 Marks	ESE: 50 N	Iarks		
Cou	rse pre-req	uisite	s	Basic	Grammar &	Communication Stra	tegies	_		
Cou	rse Objectiv	ves								
1	To engage	learn	ers ir	mean	ingful language	e activities to improve t	heir LSRW skills			
2	2 To identify personality traits and evolve as a better team player.									
3	To develop	anal	ytical	thinki	ng skills for pr	oblem solving in comn	nunicative contex	ts.		
4	4 To demonstrate an understanding of job applications and interviews for internship and placements.									
5	To identify varied group discussion skills and apply them to take part in effective discussions in a professional context.									
Cou	rse Categor	y		Huma	anities, Social S	Science and Managemen	nt Course (HSMC)		
Deve	elopment N	eeds		Globa	al / National					
Cou	rse Descrij	otion	: The	e cours	e emphasis the	learners to develop the	ir skills in technio	cal writing and		
also	develop the	ir con	nmun	ication	ı skills.					
Cour	rse Content									
Uni	t					Description				
Ι	Reading Writing Gramm	g – Re g – Re ar –	eadir eadin Activ	ig adve g Com ve voic	ertisements, Ex prehension, W ce & Passive v	xtensive Reading (Act /riting a review/ summ oice, Prepositional ph Co	ivity). nary of story/arti rases. ontact Periods	cle. 06		
П	EXPRE Reading Writing complai	SSIN g – Re g – Pe nts ar	G CA eadin ersona nd ad	AUSAI g long al letter justme	L RELATION er technical tex r (Inviting you nt letter.	IS IN SPEAKING AN Mats, Reading a short store r friend), Congratulation locals	D WRITING: ory. ng letter, Writing	responses to		
	Grann		111111	itive a	na Gerunas, w	Couris.	ontact Periods	06		
III	PROBLEM SOLVING: Reading – Case Studies, news reports, reading passages with time limit. III Writing – Letter to the Editor, Short report on an event (field trip). Grammar — If conditional sentence, Phrasal Verbs.									
						C	ontact Periods	06		
REPORTING OF EVENTS AND RESEARCH: Reading – Newspaper articles; Reading the job advertisements and the profile of the company. IV Writing – Essay writing and its types (Compare & Contrast, Cause & Effect, Problem & Solution). Grammar – Reported Speech, Conjunctions.										
							under i er lous			
V	 THE ABILITY TO PUT IDEAS OR INFORMATION COGENTLY: Reading – Note making skills – making notes from books. Writing – Email Writing, Biographical sketches of famous personalities. Grammar – Relative Clauses, Collocation, Fixed & Semi-fixed expressions. 									

		06			
	Total Periods	30			
	LIST OF EXPERIMENTS				
1. Liste	en to friend's conversations, responding.				
2. Role 3 List	e play, talk about past events.				
4. Talk	about travel problems & experience				
5. Liste	en to movie scenes and responding				
6. Weld	come address and vote of thanks.				
7. Liste	ening a passage and answering.				
8. Talk	about present, past situations.				
9. Liste	ning to Presentations.				
10. Taik	ing about everyday experiences.				
	Contact Periods	30			
	Total Periods	60			
Course Ou	tcomes				
Jpon succo	essful completion of the course, students will be able to:				
C01	Identify cause and effects in events, industrial processes through technical text.	K2			
CO2	Understand and use tools of structured written communication.	К3			
CO3	Identify individual personality types and role in a team. K3				
04	Understand the basics concepts of morality and diversity.	K1			
CO5	effective resumes in context of job search.	K6			
l: Rememb	pering; K2: Understanding; K3: Applying; K4: Analyzing; K5: Evaluating;	K6: Creating			
	1. English for Engineers & Technologists, Orient Blackswan Private Lt.	Department			
Text	English, Anna University, 2020.	a. Department			
Books	2. Barun.K.Mithra, Personality Development and Soft Skills, OUP In	ndia, 2019.			
	1. Jack C. Richards, "Interchange, Student's Book", 4th Edition, Camb	ridge Universi			
	2. Business Correspondence and Report Writing by Dec D. C. Cl.				
Reference	Mohan, Tata McGraw Hill & Co. Ltd. 2001 New Delbi	rma & Krishi			
Books	3. Muralikrishna & Sunitha Mishra, Communication Skills for Engineer	s and Scientis			
	PH Learning, New Delhi, 2009.	s and selentis			
	4. Developing Communication Skills by Krishna Mohan, Meera Bann	erji- Macmilla			
	India Ltd. 1990, Delhi.				
	1 st Edition Vikas Publishing House Part 141 2014	ə",			
	1 ^{er} Edition, Vikas Publishing House Pvt. Ltd., 2014.				

		Tools fo	r Assessment – Theory		
CIA I	CIA II	CIA III	Assignment/ Seminar / Case Study	Attendance	Total
10	10	10	5	5	40
		Tools for	Assessment – Practical		
Mo	del Exam I		Model Exam II	Tota	1
	50		50	100	

	Mapping											
CO \ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	1	-	-	-	-	-	-	-	3	2	- "	2
CO2	1	-	-	-	-	-	-	-	3	2	-	2
CO3	1	-	~	-	-	-	-		3	2	-	2
CO4	1	-	-	-	-	-		-	3	2	-	2
CO5	1	-	-	-	-	-	-	-	3	2	-	2

3-High; 2-Medium; 1-Low

CO\PSO .	PSO1	PSO2	PSO3
C01	-	-	2
CO2	-	-	2
CO3	-	-	2
CO4	-	_	2
C05	-	-	2
Course d	esigned by		Verified by

R. Ha

Signature of the Faculty Member

Dr. R. Dupa Asp (SXH)

Name and Department of the Faculty Member

Signature of the hairperson-Bos

Head of the Department Department of Science & Humanities Nehru Institute of Engineering & Technology Nehru Gardens, Thirumalayampalayam, Name and Scal of the Chairperson-BoS

Cou	rse Code					Title				
U2.	3GE207				PROBLEM	A SOLVING USING	PYTHON	1		
Sem	ester: II	L 2	T 0	P 2	Credits 3	CIA: 50 Marks	ES	E: 50 Marks		
Cour	se pre-req	uisites	B	asic Kno	wledge of P	vthon Programming	Knowledg	7e		
Cour	se Objecti	ve	1		0			5*		
1	To underst	and an	d de	evelop pr	ograms using	g Python.				
2	To apply th	he cond	cept	s of strin	gs, control fl	ow, data types in pyth	on progran	15.		
3	To apply programs using list, tuples, dictionaries, and files concept in Python.									
4	To analyse image processing, networking and object-oriented programming in Python.									
5	To create new ideas for problems in real world application using python.									
Cour	se Categoi	у	H	Engineeri	ng Sciences	Course (ESC)				
Deve	lopment N	eeds	(Global						
Cour	se Descrip	tion: S	tud	y the con	structs of Py	thon Language				
Cour	se Content									
Unit	INTRO	DUCT	101	U TO	DVTUON	Description				
I	INTRODUCTION TO PYTHON PROGRAMMING: Introduction to Python Programming- Python Interpreter and Interactive Mode -Variables- Numerical types- Arithmetic operators and Expressions- Psuedo Code - Values and types: int, float, Boolean - Variables, Expressions, Statements -Illustrative Problems									
	_					Contac	t Periods	06		
II	DATAT (if-else), Strings: expression	CYPES Chain string on. Pat	s, Co ed c slic tern	ONTRO onditiona es, immu matchin	L FLOW, S' al (if-elif-else tability, string, - Illustrativ	TRINGS: Control Flo e)- Iteration: state, wh ng functions and met ve Problems	w -conditio ile, for, bre hods, strin	onal (if), Alternative eak, continue, pass - g module, Regular		
250			u stat		<u></u>	Contac	t Periods	06		
III	LISTS, list meth assignme processin Mathema	TUPL nods, 1 ent, tuj ng – 1 atical E	ES ist ple ist Built	DICTIO loop, mu as return compreh –in Func	NARIES Al utability, alia n value- Dio ension. Fun tions, Recurs	ND FUNCTIONS: Lasing, cloning lists, ctionaries: operations ctions and User Del sion -Illustrative Probl	ists: list op list parame and meth fined Func ems	erations, list slices, ters- Tuples: tuple ods, advanced list tions: Simple and		
- Spin en						Contac	t Periods	06		
IV	FILES A format op – Basic Creation	AND O perator princip - Inher	OP ; Fil oles	S CONC es and ex of Objec ce, Com	CEPT IN PY Acception hand act-Oriented I position, Ope	THON: Files, Text f dling -Introduction to Programming in Pyth erator Overloading.	iles, readin Object Orie on – Class	g and writing files- ented Programming 5 Definition-Object		
						Contact	t Periods	06		
	DAL OF	DDA								
V	IMAGEBasics ofAlgorithrSockets-	PROC f Image n- Ima Simple	ES pro ige Cli	SING & ocessing- Processir ient/Serv	NETWOR Image File I ng Tools-Fur er Programm	KING WITH PYTH Formats – Introduction damentals of Network ing-Python Application	ON AND And to Classic rking- Intro ons.	APPLICATIONS: c Image Processing oduction to Python		
1						Contact	Periods	06		
						Total	Periods	30		

		LIST	OF EXPERIM	MENTS		Bull Same Statistics
1. Simpl	le programs to	execute the o	concept of pyt	thon for edit	ing, saving ar	nd handling error
2 Dette	ige.					
2. Pytho	n program usu	ng Statements	and Expressi	ons (exchan	ge the values	of two variables,
3. Scient	tific problems i	ising Conditic	mals and Iterat	tive loops (N	umber series	Number pattorns
pyram	nid pattern).	ising condition	mais and iterat	ive loops (iv	uniber series,	Number patterns,
4. Progra	ams for functio	ns using pytho	on (Factorial, la	arger numbe	r in a list).	
5. Imple	menting progra	ms using regu	lar expression	s.		
6. Progra	am for impleme	enting strings ((reverse, paline	drome).		
7. Imple	menting real ti	ne applicatior	ı using List, Tı	uples (Items	present in libra	ary, operations of
list an	d tuples).	naal tima waina	file headline (· · · · · · · · · · · · · · · · · · ·	C1.	
o. Fyuio	n programs for	real time using	g file handling (Coping from	one file to and	other, word count,
ionge	st word)			Conta	et Periods	30
				Tot	al Periods	60
Course Outc	omes					
Upon success	sful completion	n of the cours	e, Students wi	ill be able to	:	
CO 1	Understand th	e concepts of	Python.			K2
CO 2	Apply approp	riate construct	s to represent	data.		K3
CO 3	Apply program	ns using diffe	rent constructs	in Python.		K3
CO 4	Analyse a rea	l-world applic	ation in image	processing a	nd networking	s. K4
CO 5	Analyse varie python.	ous simple pr	ograms for re	al world ap	plication using	g K4
K1: Remembe	ering; K2: Und	erstanding; K3	3: Applying; K	4: Analysing	; K5: Evaluati	ng; K6: Creating
Text Books	 Kit Jack Master F Uncover 2023. Bill Luba 	son, "Python Python in Less Insider Hack anovic, "Introd	Programming than a Week. s, Unlock Nev ducing Python	for Beginne Discover th v Opportuni ² . 2nd Editio	ers: Skyrocket e Foolproof, P ties, and Revo n. O'Reilly Me	Your Code and ractical Route to Jution", 31 May
	1 Narry Pr	ince "Python	Programming	for Reginner	"" ISPN 1'2'0	70 9970975249
	2023.	ince, i yuion	rogramming	tor Deginner	5 ', ISDIN-13-9	//9-00/00/3240,
	2. McKinne	ey, "Python Pr	ogramming", l	ISBN-13-979	9-8870534817.	2023.
Reference	3. Robert C	liver, "Pythor	n Quick Start (Guide: The S	Simplified Beg	inner's Guide to
Books	Python F	rogramming I	Using Hands-O	On Projects a	and Real-Worl	d Applications",
	ISBN-13	-9/8-1636100	137, 2023.			1 1
	framewo	rks for networ	k automation	monitoring	Utilize Pythor	packages and
	Humetro	Tools fo	A conservant	Theorem		agement , 2023.
		1 0015 10	Assessment	- Theory		
CIAI	CIA II	CIA III	Assignment / Case \$	/ Seminar Study	Attendance	Total
10	10	10	5		5	40
		Tools for	Assessment-	Practical		
Model	Exam I	Model	Exam II		Total	
50	0	5	50		100	

						Map	ping						
CO \ PO	PO1	PO2	PO 3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	
CO1	2	-	1	-	-	-	-	-	1	1	-	3	
CO2	2	-	1	-	-	-	0 -	-	1	1	-	3	
CO3	2	-	1	-	-	-	-	-	1	1	-	3	
CO4	2	3	1	-	3	-	-	1	1	1	3	3	
CO5	2	3	1	1	3	-	-	1	3	1	3	3	
3 – Higl	1 2-Me	dium 1	-Low										
	CO	PSO				PSO	PSO2				PSO2		
	C	01				2				2		1	
	C	02				2				2		1	
	C	03			2					2		1	
CO4					2					2		1	
C05					2					2		1	
Course designed by									Ve	rified by	7		
S	lignatu	3. J	e Facu	ا Ity Men	nber			Signat	Br (, ure of t	he Chair	person-Bo	oS -	
JE COM Name a	EVA PVN nd Dep	NAN ER So	THA UENC	MG EFE		(SG) EERVC	l	Dr. 3. Profess Comput Netru In Coimbe	SUBJ for and - ten Scier stitute of I tore The d Seal of	ASREE, lead, ince and El Engineering india	M Tech. Pr ngineering and Techno airperson	logy -BoS	

Cours	se Code					Title	All de former
U230	GE218			ENG	GINEERING	PRACTICES LABOR	ATORY
Seme	ster: II	L	T	P 2	Credits	CIA: 60 Marks	ESE: 40 Marks
Course	pre-requ	isites	Basic	2 s of Me	asurements.	Basics of Simple Draw	ings
Course	Objectiv	es					ings
	To draw	pipe 1	ine pla	n: lavi	ng and conne	ecting various nine fitt	tings used in common
1	household	plumb	oing wo	rk.		tering various pipe nu	ings used in common
2	To weld va	arious .	joints ir	n steel p	plates using are	e welding work.	
3	i o machin household	equipi	nents.	ple pro	cesses and ass	emble simple mechanic	al assembly of common
4	Fo solder a	and tes	t simple	e electri	ical and electro	onic circuits.	
5	Го assemb	le and	test sin	nple ele	etronic compo	onents on PCB.	
Course	Category	7	Eng	ineerin	g Science Cou	rse (ESC)	
Develop	oment Ne	eds	Glo	bal / Na	itional		
Course identific solution	Descript cation, solutions, and solution	tion: E ution d ution c	Enginee esign, 1 ommun	ring pr nodel c ication	actices encon onstruction, te	npass a range of active echnology utilization, te	ities such as problem sting and evaluation of
Course	Content						
					List of Exper	iments	
GROUI	P - A (CIV	/IL &	ELEC	TRICA	AL)	*	
Part I	CIVIL 1 PLUME a) Con- redu b) Layi c) Con- hous WOOD a) Saw b) Mak ELECT a) Intro with b) Fluor c) Ener d) Stud f) Stud	ENGIN BING V necting cers, e ng pip necting schold wo WORF ing ance ing joi RICA duction lamp, rescent gy met y of Irc y of Fa	NEERI VORK: g variou lbows a e conne g pipes o applian K: l Planin nts like L ENG n to swi fan and E Lamp er wirin on Box n Regu	NG PF as basic and othe ection to of diffe ces. T-Join TNEEI itches, i three p wiring and n wiring lator (R y lamp	RACTICES: pipe fittings liter components to the suction size rent materials: t, Mortise join RING PRACT fuses, indicato bin socket. with introduct related calcula and assembly. Resistor type an wiring/Water	ike valves, taps, couplin which are commonly u ide and delivery side of Metal, plastic and flexi t and Tenon joint and D FICES: rs and lamps - Basic sw ion to CFL and LED typ tions/ calibration. nd Electronic type using heater.	g, unions, sed in household. a pump. ible pipes used in ovetail joint. itch board wiring pes. g Diac /Triac /Quadrac).

UG

				T00	ls for A	Assessn	nent (40	Marks)			
		Co Exp	nduct o erimen	of ts	Calculations & Result		Viva-Voce		Tota			
		30				40		10		100		
	_			Tool	ent (20 Marks)			10		100		
		Mod	el Exar	n 1				M	dal E			
			50				and the second se	IVIC	DuelEx	am 2		Tota
			50						50			100
C01	Constant of Constant					Mappi	ng					
PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	POID
<u>CO1</u>	3	1	-	-	1	1	1	-			1011	1012
CO_2	3	1	-	-	1	1	1	_		-	-	2
$\frac{003}{004}$	3	1	-	-	1	1	1	-	_	-	-	2
C04	3	1	-	~	1	1	1	-	-	-	-	2
L III al.	3	1	-	-	1	1	1	-	-	-	-	2
-mgn;	2-Medi	1m; 1-I	20W									
(CO/PSC)	1	PS	01		No.	PSO2	Theorem and a			
	CO 1				2		•	1		PSO3		
	<u>CO 2</u>				2		_	1]		
		-	2			1		1				
	CO 4				2	-	and the second se	1				
Constant Sector	05	Contract of the second		2	3		1					
	Co	urse de	esigned	by					Verifi	ed.by	I	
S	2. Signature	Sha of the	Faculty	Memb	er		Sig	mature	M.S.L	Chaiman		
Name ar	L B 2 D 5 Ind Depar	· · · · · R - le .	AJAN Æd	, ۹۵۵ مردنیا aculty N	Aember	nc bha	De Nehru Coi Name	Dr. M. Profe partment of Institute of mbatore - 6 and Sea	SAN ssor and f Mechanic Engineerii 41 105, Ta I of the	THOSH d Head cal Engineer ng and Tech milnadu, Inde Chairpe	on-BoS	8