KONGU ENGINEERING COLLEGE

(Autonomous Institution Affiliated to Anna University, Chennai)

PERUNDURAI ERODE – 638 060 TAMILNADU INDIA



REGULATIONS, CURRICULUM & SYLLABI – 2024

(CHOICE BASED CREDIT SYSTEM AND OUTCOME BASED EDUCATION)

(For the students admitted from the academic year 2024 - 2025)

BACHELOR OF ENGINEERING DEGREE IN CIVIL ENGINEERING

DEPARTMENT OF CIVIL ENGINEERING



CIVII CDC

B.E. CIVIL ENGINEERING CURRICULUM – R2024 (For the students admitted from the academic year 2024-25 onwards)

SEMESTE	₹1				·								7
			Н	ours /	Seme	ster			Max	Maximum Marks			
Course Code	Course Title	С	I	LI	TW	SL	тн	Cre dit	CA	ESE	Total	Cate gory	Туре
		L	Т	Р	1 4 4	3L			UA	ESE	Total	a	
Theory/Th						<		5 - 1	17 - 1	į.		u u	
24EGT11	English for Effective Communication - I	45	0	0	45	0	90	3	40	60	100	HS	С
24MAC11	Matrices and Ordinary Differential Equations	45	7	16	52	0	120	4	50	50	100	BS	А
24CYT11	Chemistry for Civil Engineering	45	0	0	45	0	90	3	40	60	100	BS	С
24CSC11	Problem Solving and Programming in C	45	0	30	45	0	120	4.	100	0	100	ES	ОТ
24MET11	Engineering Drawing	30	15	, 0	45	0	90	3	40	60	100	ES	Α
24TAM01	Heritage of Tamils	15	0	0	15	0.	30	1	100	0	100	HS	ОТ
Practical /	Employability Enhancement	*				0.7%					4		7
24CYL11	Chemistry Laboratory for Civil Engineering	0	0	30	0	0	30	1	60	40	100	BS	
24GCL12	Foundation Laboratory – Electrical, IoT and Web Technologies	0	0	90	0	0	90	3	100	0	100	ES	
24MNT12	Quantitative Aptitude – I	30	0	0	0	0	30	0	100	o o	100	MC	
24MNT11	Student Induction Program	0	0	90	0	0	90	0	100	0	100	МС	
×	Total Credits to be earned									12		•	

CI – Classroom Instructions, LI – Laboratory Instructions, TW – Term Work, SL – Self Learning, L – Lecture, T – Tutorial, P – Practical, C – Credit, TH – Total Hours, CA – Continuous Assessment, ESE – End Semester Examination.

Type: A - Analytical, D - Design using Hardware, S - Simulation using Coding, C - Concept, OC - Online course, OT - others

Signature of the Chairman

Board of Studies - C1VIL

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B.E. CIVIL ENGINEERING CURRICULUM - R2024 (For the students admitted from the academic year 2024-25 onwards)

SEMESTE	R-II												
_ 2			Н	ours /	Seme	ster			Max	imum N	/larks		£
Course Code	Course Title		CI LI TW		01		Cre dit	0.4	505		Cate gory	Туре	
		L	Т	Р	IW	SL	ŢΗ		CA	ESE	Total		
Theory/The	eory with Practical					7.	4						
24EGT21	English for Effective Communication - II	45	0	0	45	0	90	3	40	60	100	HS	С
24MAC21	Multivariable Calculus and Complex Analysis	45	7	16	52	0	120	4	50	50	100	BS	А
24PHT21	Applied Physics	45	0	0	45	0	90	3	40	60	100	BS	С
24ITC23	Python Programming	45	0	30	45	0	120	4	100	0	100	ES	ОТ
24CET21	Construction Materials and Practices	45	0	0	45	0	90	3	40	60	100	PC	Α
24TAM02	Tamils and Technology	15	0	0	15	0	30	1	100	0	100	HS	ОТ
Practical /	Employability Enhancement												
24PHL21	Applied Physics Laboratory	0	0	30	0	0	30	1	60	40	100	BS	
24GCL11	Foundation Laboratory – Manufacturing, Design and Robotics	0	0	90	0	0	90	3	100	0	100	ES	3
24MNT21	Quantitative Aptitude – II	30	0	0	0	0	30	0	100	0	100	МС	· D
24VEC11	Yoga and Values for Holistic Development	15	0	15	0	0	30	1	100	0	100	HS	
	Total Credits to be e	d					23				er er		

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Type: A - Analytical, D - Design using Hardware, S - Simulation using Coding, C - Concept, OC - Online course, OT - others

Signatur of the Chairman of Studies - CIVIL

Board of Studies -

B.E. CIVIL ENGINEERING CURRICULUM – R2024 (For the students admitted from the academic year 2024-25 onwards)

SEMESTER	R – III	*											
			Н	ours /	Seme	ster			Max	imum N	larks		
Course Code	Course Title	CI		LI	TW	SL	ТН	Cre dit	CA	ESE	Total	Cate gory	Туре
		L	Т	Р	IVV	SL	In		CA	ESE	Total		
Theory/The	eory with Practical								r		-		1
24CEC31	Surveying and Geomatics	30	0	30	30	0	90	3	50	50	100	РС	С
24CEC32	Concrete Technology	30	0	30	30	0	90	3	50	50	100	PC	С
24CET31	Engineering Mechanics	45	15	0	60	0	120	4	40	60	100	ES	А
24CET32	Water Resources and Irrigation Engineering	45	0	0	45	0	90	3	40	.60	100	PC	С
24CET33	Fluid Mechanics and Hydraulics Engineering	45	15	0	60	0	120	4	40	60	100	PC	А
24GET31	Universal Human Values	30	0	0	30	0	60	2	100	0	100	HS	ОТ
Practical /	Employability Enhancement			10									
24CEL31	Computer Aided Building Drawing Laboratory	0	0	30	0	0	30	1	60	40	100	PC	
24CEL32	Fluid Mechanics and Hydraulics Engineering Laboratory	0	0	30	0	0	30	1	60	40	100	PC	
24GEP31	Mini Project - I	0	30	0	0	30	1	100	0	100	EC		
	Total Credits to be earned											<	

CI – Classroom Instructions, LI – Laboratory Instructions, TW – Term Work, SL – Self Learning, L – Lecture, T – Tutorial, P – Practical, C – Credit, TH – Total Hours, CA – Continuous Assessment, ESE – End Semester Examination.

Type: A - Analytical, D - Design using Hardware, S - Simulation using Coding, C - Concept, OC - Online course, OT - others

Signature of the Chairman

Board of Studies - CIVI

CFM

		(Common to all Enginee	ering and Tech	nnology Brand	hes)					
Programm Branch		All B.E/B.Tech Branches	Sem	Category	L	Т	Р	SL*	Total	Credi
Prerequisi	ites	Nil	1	HS	45	0	0	45	90	3
Preamble		s course is designed to enhance the covarious workplace communication and			al apti	ude i	n Eng	glish la	nguage i	required
Unit – I		ammar, Verbal Aptitude, Listening, Sp f Speech – Articles – Determiners – V								9
Building a Pount – II Grammar: T Prefixes and Asking Quest Strategies: A	Grange Suffixed Stions – An Exce	g: Importance of Good Communication Attitude: An Excerpt from You Can Windows Ammar, Verbal Aptitude, Listening, Splan Sentences – Assertive, Interrogative, as – Collocations – Idiomatic Expression Role Play – Reading: Reading for Court from You Can Win-Writing: Descript	 Writing: Empeaking, Read Imperative and Emperative an	nail Etiquette - ding & Writin and Exclamato : Identifying r - Verbal and	– Emai g ory – C nain a d Non-	Uuest nd Se Verba	ing – ion T econd	Respo ags- \ ary Po mmuni	/erbal A ints – Sp	Emails 9 ptitude peaking Winning
Unit – III Grammar: T from a Dis Communicat Writing: Narr Unit – IV Grammar: F Sentence Co Reading: Ct Instructions - Unit – V	Graness cussion—Scrative and Granels completing annels Granes Gra	ermission and Inviting Chief Guest ammar, Verbal Aptitude, Listening, Sp. — Phrasal Verbs— Verbal Aptitude: Jun — Speaking: Retelling an Incider anning - Motivating Yourself and Other and Compare & Contrast ammar, Verbal Aptitude, Listening, Sp. Sp. — Transitional Words/Phrases — on — Listening: Listening for Specific of communication — Building Positive ammar, Verbal Aptitude, Listening, Sp. Aptitude, Listening, Aptitud	peaking, Read mbled Senten nt — Discuss is Every Day: peaking, Read Discourse Mais Information — Self-Esteem as peaking, Read	ding & Writin lices – Senten sing Tourist An Excerpt fr ding & Writin arkers – Verl – Speaking: and Image: And	ice For Destin Com You Ig Bal Ap Small In Exce	matic ations ou Ca otitud Talk erpt fr	e: Oi Teleom Y	istenir Readi n – Wr ne Wo phonic	ng: Takir ng: Pro iting: Pro ord Subs c Conver n Win –	9 ng Note ocess of aragrap 9 titution reations Writing
Unit – III Grammar: T from a Dis Communicat Writing: Narr Unit – IV Grammar: F Sentence Co Reading: Ch Instructions - Unit – V Grammar: S – Cloze Tes Speaking: A Excerpt from Specific Voc	Grand	ermission and Inviting Chief Guest ammar, Verbal Aptitude, Listening, Sp. — Phrasal Verbs— Verbal Aptitude: Jun — Speaking: Retelling an Incider anning - Motivating Yourself and Other and Compare & Contrast ammar, Verbal Aptitude, Listening, Sp. 100 — Listening: Listening for Specific of communication — Building Positive ammar, Verbal Aptitude, Listening, Sp. 100 — Verbal	peaking, Reambled Sentent — Discusses Every Day: peaking, Reambled Sentential Piscourse Mais Information — Self-Esteem and Peaking, Reambled Self-Esteem and Peaking, Reambled Self-Esteeming — Reading to the Peaking of the Peaking	ding & Writin ices – Senten sing Tourist An Excerpt fr ding & Writin arkers – Verl – Speaking: and Image: And ding & Writin Aptitude: Hore Listening and to Summarize	ng Destination Young Small n Exceeding The Small of the S	matic ations ou Ca otitud Talk rpt fr	e: Oi Tele om Y	istenir Readi n – Wr ne Wo phonic ou Car nones :	ng: Takir ng: Pro iting: Pro ord Subs c Conver n Win –	9 ng Notes ocess of aragraph 9 titution reations- Writing 9 nographs cription -
Unit - III Grammar: T from a Dis Communicat Writing: Narr Unit - IV Grammar: F Sentence Co Reading: Ch Instructions - Unit - V Grammar: S - Cloze Tes Speaking: A Excerpt from Specific Voca TEXT BOOK	Grand	ermission and Inviting Chief Guest ammar, Verbal Aptitude, Listening, Sp. – Phrasal Verbs– Verbal Aptitude: Jun – Speaking: Retelling an Incider anning - Motivating Yourself and Other and Compare & Contrast ammar, Verbal Aptitude, Listening, Sp. tions – Transitional Words/Phrases – on – Listening: Listening for Specific of communication – Building Positive ammar, Verbal Aptitude, Listening, Sp. Verb Agreement – Gerunds and Infiniti Verb Forms, Prepositions and Articles grand Disagreeing – Reading: Skimmir Can Win – Writing: Transcoding: Identity of the Agreement of the Agreemen	peaking, Reacmbled Sentent — Discuss s Every Day: peaking, Reac Discourse Mail Information Self-Esteem a peaking, Reacyes—Verbal As—Listening: ng — Reading to tifying Trends	ding & Writing Ices – Sentending Tourist An Excerpt from	ice For Destin Tom Young Small In Exceeding Identification of the International Identification of Iden	maticonstantial material mater	e: Or Yes and Aranda	istenir Readi n – Wr ne Wo ephonic ou Car nones : ts from chievin Expres	ng: Takir ng: Pro iting: Pa ord Subs c Conver n Win –	9 ng Notes ocess of aragraph 9 titution reations Writing 9 nograph cription - ioals: Ai h Graph
Unit - III Grammar: T from a Dis Communicat Writing: Narr Unit - IV Grammar: F Sentence Co Reading: Ch Instructions - Unit - V Grammar: S - Cloze Tes Speaking: A Excerpt from Specific Voca TEXT BOOK 1. Sudh Delh	Grannels - Record Grabulary	ermission and Inviting Chief Guest ammar, Verbal Aptitude, Listening, Sp. – Phrasal Verbs– Verbal Aptitude: Jun – Speaking: Retelling an Incider anning - Motivating Yourself and Other and Compare & Contrast ammar, Verbal Aptitude, Listening, Sp. tions – Transitional Words/Phrases – on – Listening: Listening for Specific of communication – Building Positive ammar, Verbal Aptitude, Listening, Sp. Verb Agreement – Gerunds and Infiniti Verb Forms, Prepositions and Articles grand Disagreeing – Reading: Skimmir Can Win – Writing: Transcoding: Identity of the Agreement of the Agreemen	peaking, Reacmbled Sentent — Discuss s Every Day: peaking, Reac Discourse Mail Information Self-Esteem a peaking, Reacyes—Verbal As—Listening: ng — Reading to tifying Trends	ding & Writing Ices – Sentending Tourist An Excerpt from	ice For Destin Tom Young Small In Exceeding Identification of the International Identification of Iden	maticonstantial material mater	e: Or Yes and Aranda	istenir Readi n – Wr ne Wo ephonic ou Car nones : ts from chievin Expres	ng: Takir ng: Pro iting: Pa ord Subs c Conver n Win –	9 ng Notes ocess of aragraph 9 titution reations Writing 9 nograph cription - ioals: Ai h Graph
Unit – III Grammar: T from a Dis Communicat Writing: Narr Unit – IV Grammar: F Sentence Co Reading: Ch Instructions - Unit – V Grammar: S – Cloze Tes Speaking: A Excerpt from Specific Voc. TEXT BOOK 1. Sudh Delh REFERENC	Grienses cussion—Screative an Grannels—Record Grienses Grannels—Record Grannel	ermission and Inviting Chief Guest ammar, Verbal Aptitude, Listening, Sp. – Phrasal Verbs– Verbal Aptitude: Jun – Speaking: Retelling an Incider anning - Motivating Yourself and Other and Compare & Contrast ammar, Verbal Aptitude, Listening, Sp. tions – Transitional Words/Phrases – on – Listening: Listening for Specific of communication – Building Positive ammar, Verbal Aptitude, Listening, Sp. Verb Agreement – Gerunds and Infiniti Verb Forms, Prepositions and Articles grand Disagreeing – Reading: Skimmir Can Win – Writing: Transcoding: Identity of the Agreement of the Agreemen	peaking, Reading Sentent — Discusses Every Day: peaking, Reading Discourse Mais: Information — Self-Esteem as peaking, Reading Reading — Reading to tifying Trends	ding & Writing Ices – Sentending Tourist An Excerpt from	ice For Desting of Small on Exceeding of Identity of Sin Grid Identity of Sin Grid Identity of Identit	matic ation: bu Ca btitud Talk Talk rpt fr s, Ho tifying araphs	e: Or Yes and Arand Aran	istenir Readi n – Wr ne Wo ephonic ou Car nones : ts from chievin Expres	ng: Takir ng: Pro iting: Pa ord Subs c Conver n Win –	9 ng Notes cocess of aragraph 9 titution reations- Writing 9 nograph cription - foals: Ai th Graph ss, New
Unit – III Grammar: T from a Dis Communicat Writing: Narr Unit – IV Grammar: F Sentence Co Reading: Ch Instructions - Unit – V Grammar: S – Cloze Tes Speaking: A Excerpt from Specific Voc TEXT BOOK 1. Sudf Delh REFERENC 1. Ashr	Grannels - Record Subject tusing abulary (c: marshari, 2016) - Ref Rizv	ermission and Inviting Chief Guest ammar, Verbal Aptitude, Listening, Sp. – Phrasal Verbs– Verbal Aptitude: Jun – Speaking: Retelling an Incider anning - Motivating Yourself and Other and Compare & Contrast ammar, Verbal Aptitude, Listening, Sp. tions – Transitional Words/Phrases – on – Listening: Listening for Specific of communication – Building Positive ammar, Verbal Aptitude, Listening, Sp. Verb Agreement – Gerunds and Infiniti Verb Forms, Prepositions and Articles grand Disagreeing – Reading: Skimmir Can Win – Writing: Transcoding: Identity of the Agreement of the Agreemen	peaking, Readmobled Sentent — Discusses Every Day: peaking, Read Discourse Mail Information Self-Esteem and Peaking, Readwes— Verbal As — Listening: ng — Reading to tifying Trends pinded Communication, McCommunication, McCom	ding & Writin ices – Senten sing Tourist An Excerpt fr ding & Writin arkers – Verl – Speaking: and Image: An ding & Writin Aptitude: Hore Listening an to Summarize and Patterns ication, 2nd Eco	ng Desting Desting Parameter Small In Excession Grant	maticons ations ou Ca bititud Talk rpt fr ss, Ho titifying araphs	e: Or Person of Action of	istenir Readi n – Wr ne Wo phonic ou Cal nones ts from chievin Expres	ng: Takir ng: Pro iting: Pro ord Subs c Conver n Win – and Hom n a Desc g your G ssing wit	9 ng Note ocess of aragrap 9 titution sations Writing nograph cription doals: A ch Grap

^{*} includes Term Work (TW) & Assignments, Tutorials and Case Studies

	SE OUTCOMES: mpletion of the course, the students will be able to	BT Mapped (Highest Level)
CO1	learn and use various aspects of English vocabulary to perform well in verbal aptitude tests of different types	Applying (K3)
CO2	listen and understand different spoken discourses	Applying (K3)
CO3	present ideas clearly and confidently in formal and informal conversations and discussions	Creating (K6)
CO4	comprehend the given text and respond appropriately for technical and professional purposes	Understanding (K2)
CO5	select appropriate words , phrases and grammatical units and apply them in both spoken and written communication	Analyzing (K4)

COs/ POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PS01	PSO2
CO1						1.		1	3	1	.1		
CO2			= ,		-	i i		1	3		1		- 7
CO3								2	3	1	2		
CO4						1			3	1	2		
CO5					. =1				3		2		

1 – Slight, 2 – Moderate, 3 – Substantial, BT- Bloom's Taxonomy

ASSESSMENT PATTERN – THEORY

Test / Bloom's Category*	Remembering (K1) %	Understa nding (K2) %	Applying (K3) %	Analyzing (K4) %	Evaluating (K5) %	Creating (K6) %	Total %
CAT1	-	35	50	=	-	15	100
CAT2		45	35	· - 1	y ee 🛌	20	100
CAT3	-	30	35	35			100
ESE	-	20	40	20	-	20	100

* ±3% may be varied (CAT 1,2& 3 – 50 marks & ESE – 100 marks)

Signature of the Chairman Board of Studies - Sr H (English)



1	(Common to all Eng	ineering and T	echnology	orano	ches)			
Programme & Branch	All B.E/B.Tech Branches	Sem.	Category	L	Т	Р	SL*	Total	Credit
Prerequisites	Nil	. Lize 1.	BS	45	7	16	52	120	4
Preamble	To provide the skills to the stu- and ordinary differential equati	dents for solving	g different re	al tim	ne pr	oblen	ns by a	applying	matrices
Unit – I	Matrices:	The second	plate fer a				9	1-1-7	9
and Eigen vector matrices – Ortho	naracteristic equation – Eigen val ors (without proof) – Cayley H gonal transformation of a symme in of quadratic form to canonical	lamilton theorer etric matrix to dia	m (Statemer agonal form -	t and Qua	d app adrat	olicati	ions or	nly) - Or	thogona
Unit – II	Ordinary Differential Equation				9				9
Introduction – Se	olution of First order differential e	quations: Exac	t differential	equat	tions	– Le	ibnitz's	Linear I	Equation
Unit – III	ation – Clairaut's equation - App Ordinary Differential Equation			wtn a	na a	ecay.			9
	equations of second and higher			ents -	Par	ticula	r Intea	rals for th	e types:
eax - cosax /	sinax – xn – eaxxn, eax sinbx and	eax cosbx - Diff	ferential Equ	ations	s with	n vari	able co	pefficient	s: Euler-
Cauchy's equati	on – Legendre's equation.	, , , , , , , , , , , , , , , , , , ,		1				*	1000
Unit – IV	Applications of Ordinary Dif					111		ls	9
Method of varia	ation of parameters – Simultar differential equations: Simple	neous first ord	er linear ed	uatio	ns \	vith (consta	nt coeffi	cients –
associated cond	itions need to be given).	namonic mone	on – Electric	, Circ	uits	(וווט)	erentia	ıı equatio	ons and
Unit – V	Laplace Transform:			-				-	9
Introduction - Co	onditions for existence - Laplace	transform of ele	amentary fun	atia =					
and intograls of			Silicital y luii	Cuon	s – E	asic	proper	ties – De	rivatives
and integrals of	ransforms – Transform of period	ic functions - Inv	verse Laplace	e tran	sfor	m: Inv	verse L	aplace tr	ansform
of elementary fu	nctions – Partial fraction method	ic functions - Inv	verse Laplace	e tran	sfor	m: Inv	verse L	aplace tr	ansform
of elementary fu	ransforms – Transform of period nctions – Partial fraction methoc th constant coefficients.	ic functions - Inv	verse Laplace	e tran	sfor	m: Inv	verse L	aplace tr	ansform
of elementary fu second order wi	nctions – Partial fraction method	ic functions - Inv	verse Laplace	e tran	sfor	m: Inv	verse L	aplace tr	ansform
of elementary fu second order wi	nctions – Partial fraction method th constant coefficients.	ic functions - Inv	verse Laplace	e tran	sfor	m: Inv	verse L	aplace tr	ansform
of elementary fusecond order with second order w	nctions – Partial fraction method th constant coefficients.	ic functions - Inv	verse Laplace	e tran	sfor	m: Inv	verse L	aplace tr	ansform
LIST OF EXPER 1. Introduct 2. Compute	nctions – Partial fraction method th constant coefficients. RIMENTS / EXERCISES: ction to MATLAB	ic functions - Inv I – Convolution	verse Laplace	e tran	sfor	m: Inv	verse L	aplace tr	ansform
LIST OF EXPER 1. Introduct 2. Comput 3. Solving	nctions – Partial fraction method th constant coefficients. RIMENTS / EXERCISES: etion to MATLAB eation of eigen values and eigen	c functions - Inv I – Convolution vectors	verse Laplace	e tran	sfor	m: Inv	verse L	aplace tr	ansform
cond order with second order w	nctions – Partial fraction method th constant coefficients. RIMENTS / EXERCISES: ction to MATLAB ration of eigen values and eigen first order ordinary differential ed	vectors equations	verse Laplace	e tran	sfor	m: Inv	verse L	aplace tr	ansform
of elementary fusecond order with second order w	nctions – Partial fraction method th constant coefficients. RIMENTS / EXERCISES: ction to MATLAB ration of eigen values and eigen first order ordinary differential echigher order ordinary differential	vectors quations equations	verse Laplace	e tran	sfor	m: Inv	verse L	aplace tr	ansform
of elementary fusecond order with second order w	nctions – Partial fraction method th constant coefficients. RIMENTS / EXERCISES: ction to MATLAB ration of eigen values and eigen first order ordinary differential echigher order ordinary differential n of Simultaneous first order ODE	vectors quations equations soft parameters	verse Laplace Theorem – v	e tran Applio	sfor	m: Inv	verse L	aplace tr	ansform
of elementary fusecond order with second order w	nctions – Partial fraction method th constant coefficients. RIMENTS / EXERCISES: etion to MATLAB ration of eigen values and eigen first order ordinary differential edhigher order ordinary differential of Simultaneous first order ODE second order ODE by variation of the constant of the	vectors quations equations equations for parameters ee transform of	verse Laplace Theorem – /	e tran Applio	sfor	m: Inv	verse L	aplace tr	ansform
of elementary fusecond order will LIST OF EXPER 1. Introduct 2. Compute 3. Solving 4. Solving 5. Solution 6. Solving 7. Determ 8. Solution	nctions – Partial fraction method th constant coefficients. RIMENTS / EXERCISES: Extion to MATLAB ration of eigen values and eigen first order ordinary differential end higher order ordinary differential of Simultaneous first order ODE second order ODE by variation of the control of the co	vectors quations equations equations for parameters ee transform of	verse Laplace Theorem – /	e tran Applio	sfor	m: Inv	verse L	aplace tr	ansform
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of elementary fusecond order with second order w	nctions – Partial fraction method th constant coefficients. RIMENTS / EXERCISES: Extion to MATLAB ration of eigen values and eigen first order ordinary differential end higher order ordinary differential of Simultaneous first order ODE second order ODE by variation of the control of the co	vectors quations equations equations se transform of bying Laplace transavathy K., "En	verse Laplace Theorem – /	ns	esfori	m: Inv	verse L olution	aplace tr of linear	ansform ODE of
of elementary fusecond order will LIST OF EXPER 1. Introduct 2. Compute 3. Solving 4. Solving 5. Solution 6. Solving 7. Determ 8. Solution TEXT BOOK: 1. Kandas Reprint	nctions – Partial fraction method th constant coefficients. RIMENTS / EXERCISES: etion to MATLAB ration of eigen values and eigen first order ordinary differential exhipher order ordinary differential of Simultaneous first order ODE second order ODE by variation of ining Laplace and inverse Laplace of Second order ODE by employed amy P., Thilagavathy K. and Gui	vectors quations equations equations se transform of bying Laplace transavathy K., "En	verse Laplace Theorem – /	ns	esfori	m: Inv	verse L olution	aplace tr of linear	ansform ODE of
of elementary fusecond order with second order w	nctions – Partial fraction method th constant coefficients. RIMENTS / EXERCISES: Etion to MATLAB ration of eigen values and eigen first order ordinary differential ed higher order ordinary differential of Simultaneous first order ODE second order ODE by variation of ning Laplace and inverse Laplace of Second order ODE by employed amy P., Thilagavathy K. and Gui Edition 2016, S.Chand and Co.,	vectors quations equations equations es of parameters e transform of leving Laplace transform navathy K., "En New Delhi.	basic functio ansforms	ns ather	natic	m: Inv	verse L olution	aplace tr of linear	ansform ODE of B.Tech",
of elementary fusecond order with second order w	nctions – Partial fraction method th constant coefficients. RIMENTS / EXERCISES: etion to MATLAB ration of eigen values and eigen first order ordinary differential edhigher order ordinary differential of Simultaneous first order ODE second order ODE by variation of ning Laplace and inverse Laplace and Second order ODE by employed amy P., Thilagavathy K. and Gui Edition 2016, S.Chand and Co., MANUAL / SOFTWARE:	vectors quations equations equations es of parameters ce transform of leving Laplace transform New Delhi.	basic functionansforms Gineering Management	ns Willem	natic:	m: Inv	First Y	ear B.E/	B.Tech",
of elementary fusecond order with second order w	nctions – Partial fraction method th constant coefficients. RIMENTS / EXERCISES: Etion to MATLAB sation of eigen values and eigen first order ordinary differential edhigher order ordinary differential of Simultaneous first order ODE second order ODE by variation of simultaneous first order ODE and inverse Laplace and inverse Laplace and inverse Laplace and of Second order ODE by employed amy P., Thilagavathy K. and Guedition 2016, S.Chand and Co., MANUAL / SOFTWARE: G. E., "Advanced Engineering Mathata B.V., "Higher Engineering Mathata South Programme Second Mathata B.V., "Higher Engineering Mathata B.V., "Higher Engineering Mathata South Programme Second Mathata B.V., "Higher Engineering Mathata B.V., "Higher Engineering Mathata B.V., "Higher Engineering Mathata B.V., "Higher Engineering Mathata B.V.,"	vectors quations equations equations es of parameters e transform of leving Laplace transform New Delhi. hematics ", 10th ematics ", 10th ematics ", 10th	basic functio ansforms gineering Ma	n Wil	natic:	m: Inv ns: S S For New [First Y	ear B.E/	B.Tech",
of elementary fusecond order with second order w	nctions – Partial fraction method th constant coefficients. RIMENTS / EXERCISES: etion to MATLAB ration of eigen values and eigen first order ordinary differential ed higher order ordinary differential of Simultaneous first order ODE second order ODE by variation of simultaneous first order ODE second order ODE by variation of Second order ODE by employing the properties of Second order ODE by employing the pr	vectors quations equations equations equations for parameters se transform of loying Laplace transform of loying L	basic functionansforms Edition, John lition, Tata Mand Suresh Man	n Will cGra	natic: ey, Nw-Hi	m: Inv	First Y Delhi, I	ear B.E/ndia, 201	B.Tech", 6. ny - I", 2 nd

^{*}includes Term Work (TW) & Online / Certification course hours

	SE OUTCOMES: upletion of the course, the students will be able to	BT Mapped (Highest Level)
CO1	Use the matrix algebra methods and MATLAB for solving practical problems.	Applying (K3) Manipulation (S2)
CO2	Identify the appropriate method for solving first order ordinary differential equations.	Applying (K3) Manipulation (S2)
CO3	Solve higher order linear differential equations with constant and variable coefficients.	Applying (K3) Manipulation (S2)
CO4	Apply the concept of ordinary differential equations for modeling and finding solutions to engineering problems.	Applying (K3) Manipulation (S2)
CO5	Apply Laplace Transform to solve complex engineering problems.	Applying (K3) Manipulation (S2)

Mapping of COs with POs and	d PSOs
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COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PSO1	PSO2
CO1	3	3	2	1	3			1 1 1/10			-	-j .	
CO2	3	3	2		3	200	ation of	Mark Carlo		A 98 40	27 1	1 _ Al	Ή .
CO3	3	3	2		3		- T	F E = 2	= < 1 =				
CO4	3	3	2		3				, =	T = 7 = 5	I =	. 1-	
CO5	3	3	3		3								

1 - Slight, 2 - Moderate, 3 - Substantial, BT- Bloom's Taxonomy

ASSESSME	IT DA	TTERN -	THEODY
ASSESSIVIE	NI FA	I I E KIN -	INCURI

Test / Bloom's Category*	Remembering (K1) %	Understanding (K2) %	Applying (K3) %	Analyzing (K4) %	Evaluating (K5) %	Creating (K6) %	Total %
CAT1		40	60				100
CAT2		40	60	gereich geit	i gran di	1 - 1	100
CAT3		30	70				100
ESE		30	70			1	100

* ±3% may be varied (CAT 1, 2 & 3 – 50 marks & ESE – 100 marks)

Signature of the Chairman Board of Studies - \$4 H



Programme & Branch	BE - CIVIL ENGINEERING	Sem.	Category	L	Т	Р	SL*	Total	Credi
Prerequisites	NIL	1	BS	45	0	0	45	90	3
Al Theological			-1196-14					SAULE C	
Preamble	This course aims to impart sound chem storage devices, also impart the fundar of steel in concrete towards applications	nental knowledg	e of enginee	hnolo ring r	gy, nate	elect rials	rocher and co	mistry and	d energ
Unit – I	WATER TECHNOLOGY		12-11-	Her I	9	5 - W	pr 14 ()	i i i i i i i i i i i i i i i i i i i	9
estimation of hard only) - disadvanta	pes of water - hardness of water- express of water by EDTA method – determinages of using hard water in industry: scale, ate and calgon conditioning - External treat ELECTROCHEMISTRY	nation of alkalini , sludge and boil	ty - DO, BOD er corrosion	and and	COE	(De	finition vater:	and Sigi	nificanc reatmer
	ls - types of cells - representation of galva	ania nell. Elect					1.5		9
EMF) –Reference	e electrodes: standard hydrogen electrode pH - EMF series and its applications-cond	e, calomel elect	rode, glass	electr	ode	– co	nstruct	ion, worl	king and
Unit – III Batteries: Introdi silver button cell vehicles. Fuel Ce of fuel cells: alkal	ells: Introduction - Importance and classification fuel cell, phosphoric acid fuel cell and classification fuel cell, phosphoric acid fuel cell and classification fuel cell, phosphoric acid fuel cell and classification fuel cell.	dern battery: lit cation of fuel cel lirect methanol f	hium-ion bat ls - descripti	tery -	- cho	oice le, c	of bat	primary teries for ents and vith fuel c	electri working
Unit – III Batteries: Introdisilver button cell vehicles. Fuel Celof fuel cells: alkal Unit – IV Introduction- chelowith examples- g	uction - discharging and charging of batter - secondary battery: Ni-Cd battery -mo ells: Introduction - Importance and classific ine fuel cell, phosphoric acid fuel cell and d CORROSION OF STEEL IN CONCRET mical corrosion —electrochemical corrosion alvanic series- factors influencing rate of	dern battery: lit cation of fuel cel lirect methanol f TE n and its types— corrosion -reinfo	hium-ion bat ls - descripti uel cell - com galvanic cor orced cemen	tery -	on of	ice le, co batt liffere	of bat ompon eries v ential a eriorat	primary teries for ents and with fuel c aeration c ion of co	battery electric working ells. orrosion ncrete
Unit – III Batteries: Introdisilver button cell vehicles. Fuel Cells: alkal Unit – IV Introduction- chein with examples- granuses of corrosi	uction - discharging and charging of batter - secondary battery: Ni-Cd battery -mo ells: Introduction - Importance and classific ine fuel cell, phosphoric acid fuel cell and c CORROSION OF STEEL IN CONCRET mical corrosion —electrochemical corrosion	dern battery: lit cation of fuel cel lirect methanol for the carrosion -reinfor sulphonation - e	hium-ion bat ls - descripti uel cell - com galvanic cor orced cemen ettringite form	tery - on, pr parise rosior t cond nation	on of orete	bice le, co batt liffere det	of bat ompon eries w ential a eriorat	primary teries for ents and vith fuel c aeration of ion of co	battery electri working ells. g corrosion ncrete
Unit – III Batteries: Introdusilver button cell vehicles. Fuel Cells: alkal Unit – IV Introduction- chell with examples- grauses of corrosion assessionit – V	uction - discharging and charging of batter - secondary battery: Ni-Cd battery -mo ells: Introduction - Importance and classific ine fuel cell, phosphoric acid fuel cell and d CORROSION OF STEEL IN CONCRET mical corrosion —electrochemical corrosion alvanic series- factors influencing rate of ion: due to carbonation, chlorination and serient method: half cell potential measurement CHEMISTRY OF ENGINEERING MATI	dern battery: lit cation of fuel cel lirect methanol fr TE n and its types— corrosion -reinfo sulphonation — e ent — preventive ERIALS	hium-ion bat ls - descripti uel cell - com galvanic cor proced cemen ettringite form measures form	tery - on, pr parise rosior t cone nation	on of the control of	le, consiste liffered and of se	of battomponeries vential a eriorated ettristeel in	primary teries for ents and vith fuel c eration of ion of co ngite for concrete	battery electric working ells. 9 corrosion ncrete - mation -
Unit – III Batteries: Introdisilver button cell vehicles. Fuel Cels: alkal Unit – IV Introduction- chel with examples- grauses of corrosic corrosion assession unit – V Cement: Introduction of fabricating ceram	uction - discharging and charging of batter - secondary battery: Ni-Cd battery -mo ells: Introduction - Importance and classific ine fuel cell, phosphoric acid fuel cell and de CORROSION OF STEEL IN CONCRET mical corrosion —electrochemical corrosion alvanic series- factors influencing rate of ion: due to carbonation, chlorination and element method: half cell potential measurement CHEMISTRY OF ENGINEERING MATI ction - properties of cement — Portland cer cement — heat of hydration of cement. Cer ic wares - fabrication technique: hydroplas ure content, Calcium, magnesium, pH an	dern battery: lit cation of fuel cel lirect methanol f TE n and its types— corrosion -reinfo sulphonation — e ent — preventive ERIALS ment — chemical ramics: Introduc stic forming and	hium-ion bat ls - description description description bat galvanic correct cementer description description bat composition description de	rosion t condination recorrection mation recorrection mation mation recorrection mation soil	n - checrete in - d osion of ce in face	le, con le	of battomponeries wential aceriorated ettricted in g - chics -garaction-	primary teries for ents and vith fuel c erration of coingite for concrete emistry of eneral me Chemisti	battery electric working ells. 9 corrosion ncrete - mation 9 of setting ethods cry of so
Unit – III Batteries: Introdisilver button cell vehicles. Fuel Celof fuel cells: alkal Unit – IV Introduction- chelowith examples- grouses of corrosion assession unit – V Cement: Introduction of fabricating ceramanalysis - moist function of paints	uction - discharging and charging of batter - secondary battery: Ni-Cd battery -mo ells: Introduction - Importance and classific ine fuel cell, phosphoric acid fuel cell and de CORROSION OF STEEL IN CONCRET mical corrosion —electrochemical corrosion alvanic series- factors influencing rate of ion: due to carbonation, chlorination and element method: half cell potential measurement CHEMISTRY OF ENGINEERING MATI ction - properties of cement — Portland cer cement — heat of hydration of cement. Cer ic wares - fabrication technique: hydroplas ure content, Calcium, magnesium, pH an	dern battery: lit cation of fuel cel lirect methanol fi TE n and its types— corrosion -reinfo sulphonation — e ent — preventive ERIALS ment — chemical ramics: Introduct stic forming and d electrical cond	hium-ion bat Is - descripti uel cell - com galvanic cor preed cemen ettringite form measures for composition tion - compo slip casting. ductivity. Pai	rosion t condination resion t condination recorre	- cho- incipion of or co- control incipion of co- control incipion	le, co f batt liffere - det elaye n of s	of battomponeries vential a eriorated ettricteel in g - chics – geuction-on- co	primary teries for ents and vith fuel c erration of ion of co ngite for concrete emistry of eneral me Chemisti	battery electri workingells. 9 corrosion ncrete mation 9 of settingethods cry of so s and it
Unit – III Batteries: Introdisiver button cell vehicles. Fuel Celof fuel cells: alkal Unit – IV Introduction- chelowith examples- grouses of corrosion assession assession and hardening of fabricating ceramanalysis - moist function of paints IEXT BOOK: Roussak Springer	uction - discharging and charging of batter - secondary battery: Ni-Cd battery -mo ells: Introduction - Importance and classific ine fuel cell, phosphoric acid fuel cell and d CORROSION OF STEEL IN CONCRET mical corrosion —electrochemical corrosion alvanic series- factors influencing rate of ion: due to carbonation, chlorination and sement method: half cell potential measurement CHEMISTRY OF ENGINEERING MATI ction - properties of cement — Portland cer cement — heat of hydration of cement. Cer ic wares - fabrication technique: hydroplas ure content, Calcium, magnesium, pH an , O.V. Gesser, H. D. " Applied Chem , 2013, for Units I, II, III.	dern battery: lit cation of fuel cel lirect methanol fr TE n and its types— corrosion -reinfo sulphonation — e ent — preventive ERIALS ment — chemical ramics: Introduct stic forming and d electrical condi- nistry: A Textbo	hium-ion bat Is - description uel cell - com galvanic cor proced cemen ettringite form measures for composition tion - compo slip casting ductivity. Pai	rosion t condination reservation reservation reservation reservation reservation reservation reservation	- cho	le, con le le, con le le, con le le, con le	of battomponeries vential a eriorated ettricted in ics –ge uction-co-co-	primary teries for ents and with fuel concrete concrete concrete concrete concrete concrete constituents constituents	battery electri workingells. 9 corrosion ncrete mation by f settingethods cry of so s and it
Jnit – III Batteries: Introduction cells alkal Jnit – IV Introduction- chewith examples- grauses of corrosion assession dardening of abricating ceramanalysis - moist function of paints TEXT BOOK: Roussak Springer Palanisar	uction - discharging and charging of batter - secondary battery: Ni-Cd battery -mo ells: Introduction - Importance and classific ine fuel cell, phosphoric acid fuel cell and d CORROSION OF STEEL IN CONCRET mical corrosion —electrochemical corrosion alvanic series- factors influencing rate of ion: due to carbonation, chlorination and serient method: half cell potential measurement CHEMISTRY OF ENGINEERING MATI ction - properties of cement — Portland cer cement — heat of hydration of cement. Cer ic wares - fabrication technique: hydroplas ure content, Calcium, magnesium, pH an	dern battery: lit cation of fuel cel direct methanol fr TE n and its types— corrosion -reinfo sulphonation — e ent — preventive ERIALS ment — chemical ramics: Introduct stic forming and d electrical cond nistry: A Textbo	hium-ion bat Is - description uel cell - com galvanic cor proced cemen ettringite form measures for composition tion - compo slip casting ductivity. Pai	rosion t condination reservation reservation reservation reservation reservation reservation reservation	- cho	le, con le le, con le le, con le le, con le	of battomponeries vential a eriorated ettricted in ics –ge uction-co-co-	primary teries for ents and with fuel concrete concrete concrete concrete concrete constituents concrete constituents concrete concret	battery electri workin ells. 9 corrosio norete mation ethods or y of so s and it
Unit – III Batteries: Introdisilver button cell vehicles. Fuel Celof fuel cells: alkal Unit – IV Introduction- chelowith examples- grauses of corrosion assession and hardening of fabricating ceramanalysis - moist function of paints TEXT BOOK: 1. Roussak ,Springer Palanisar	uction - discharging and charging of batter - secondary battery: Ni-Cd battery -mo ells: Introduction - Importance and classific ine fuel cell, phosphoric acid fuel cell and de CORROSION OF STEEL IN CONCRET mical corrosion —electrochemical corrosion alvanic series- factors influencing rate of ion: due to carbonation, chlorination and element method: half cell potential measuremed CHEMISTRY OF ENGINEERING MATI ction - properties of cement — Portland cer cement — heat of hydration of cement. Cer ic wares - fabrication technique: hydroplas ure content, Calcium, magnesium, pH an , O.V. Gesser, H. D. " Applied Chem , 2013, for Units I, II, III. my P.N., Manikandan P., Geetha A., Manj	dern battery: lit cation of fuel cel direct methanol fr TE n and its types— corrosion -reinfo sulphonation — e ent — preventive ERIALS ment — chemical ramics: Introduct stic forming and d electrical cond nistry: A Textbo	hium-ion bat Is - description uel cell - com galvanic cor proced cemen ettringite form measures for composition tion - compo slip casting ductivity. Pai	rosion t cond nation recorr -mar nents Soil nts:	- cho	le, con le le, con le le, con le le, con le	of battomponeries vential a eriorated ettricted in ics –ge uction-co-co-	primary teries for ents and with fuel concrete concrete concrete concrete concrete constituents concrete constituents concrete concret	battery electri workin ells. 9 corrosio norete mation ethods or y of so s and it

^{*}includes Term Work(TW) & Online / Certification course hours

	SE OUTCOMES: mpletion of the course, the students will be able to	BT Mapped (Highest Level)
CO1	analyze the water quality parameters for suitability of industrial and domestic applications.	Analysing (K4)
CO2	investigate the fundamental principles of electrochemistry for various engineering applications.	Analysing (K4)
CO3	examine the chemistry of energy storing devices and meeting the future prospectus of energy storage.	Analysing (K4)
CO4	apply suitable corrosion control measures to prevent corrosion of steel in concrete.	Analysing (K4)
CQ5	examine the needy engineering materials for betterment of industries.	Analysing (K4)

Mapping	of	COs	with	POs	and	PSOs
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COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PS01	PSO2
CO1	3	2	2	1		1				7 1			
CO2	3	2	1 .	1				a - "		1			
CO3	3	2	1	1		U							ja k
CO4	3	2	1	. 1					*				r.r
CO5	3	2	1	1	A			я	2 -		¥	NT AL	

1 - Slight, 2 - Moderate, 3 - Substantial, BT- Bloom's Taxonomy

ASSESSMENT	PATTERN	- THEORY

Test / Bloom's Category*	Remembering (K1) %	Understanding (K2) %	Applying (K3) %	Analyzing (K4) %	Evaluating (K5) %	Creating (K6)	Total %
CAT1		40	50	10			100
CAT2	S 407 Sh 5	40	50	10	e fict each	year hand	100
CAT3	1 v = =	40	50	10			100
ESE		40	50	10	8		100

* $\pm 3\%$ may be varied (CAT 1, 2 & 3 – 50 marks & ESE – 100 marks)

Signature of the Chairman Board of Studies - 524



Programme & Branch	All BE/BTech Engineering & Technology branches, except CSE, IT,CSD, Al&ML, Al&DS	Sem	Category	L	т	P	SL*	Total	Credit
Prerequisites	Nil	1	ES	45	0	30	45	120	4
Preamble	The course is designed for use by free deals with the techniques needed to p solve problems and the ways the confocuses on developing programming sk	ractice of mputers	computationa can be use	I thinked to s	ing,	the a	art of u	sing con	nputers t
Unit – I	Introduction to Computer and Proble					- 1	W		9
	omputers: Types, Generations, Charact orithms - Flowcharts – Pseudo codes -								
Unit – II	Introduction to C and Control Statem		7.9 10 37 13	100		23.5	THE SH		9
The structure of identifiers- Basic looping stateme Unit – III	a C program – Compiling and executing data Types – Variables – constants – Ints Arrays and Functions:	nput / C	gram – C Tok Output statem	ens – ients –	Cha op	erato	er set in rs - de	n C — Ke cision ma	eywords aking an
	izing and accessing arrays – operations	on arr	ave - Two d	imene	iono	Larra	WC 200	their o	0.000
Functions: Intro	duction- Using functions, function declara nctions: basic data types and arrays – sto	tion and	definition - f	unctio	n ca	II – re			
Unit – IV	Strings and Pointers:		*						9
character maniparithmetic, point	ction – operations on strings : finding I oulation functions, Arrays of strings. Poi ers and 1D arrays , pointers and strings	nters: d							
Unit – V	User-defined Data Types and File Ha								9
unions - enume	ta types: Structure: Introduction – neste erated data type. File Handling: Introduct ng file position indicator : fseek(), ftell() an	ion - op	ening and cl						
LIST OF EXPE	RIMENTS / EXERCISES:								
1 Writing a	algorithms and drawing flowcharts using Financial structures	Raptor T	ool for proble	ms inv	olvi	ng se	quentia	ıl, Select	ion and
	ns for demonstrating the use of different ty	pes of	format Specif	iers	-				
3. Program operator	ns for demonstrating the use of different ty	pes of c	perators like	arithm	etic	, logic	al, rela	itional ar	nd ternar
4. Program	ns for demonstrating using decision maki	ing state	ments	ž.		*		ч	
5. Program	ns for demonstrating using repetitive sta	tements	, e a						
6. Program	ns for demonstrating one-dimensional arra	ay							- \(\frac{1}{2}\)
7. Program	ns for demonstrating two-dimensional arra	ay			1	-		16	with process
8. Program	ns to demonstrate modular programming of	concepts	s using function	ons				=	
9. Program	ns to demonstrate strings (Using built-in a	nd user-	defined funct	ions)					
10. Program	is to illustrate the use of pointers								
11. Program	ns to illustrate the use of structures and ur	nions	les se	dai.		7			
		nions	let's v	áai,		. 7			

^{*}includes Term Work(TW) & Online / Certification course hours

TEXT BO	OOK:						7 10			r V					
1.	Reema TI	nareja,	"Progra	mming i	n C ", 2ı	nd Editio	on, Oxfo	ord Unive	ersity Pr	ess, New	Delhi, 20)18	1		
REFERE	NCES/ MA	ANUAL	/ SOFT	WARE:	Party.	into.		6 (514			1,161	47.5	4-2-1		
1.	Yashavar	t Kanet	tkar, "Le	et us C",	16th Ed	dition, B	PB Pub	lications	, 2018.			te, e pe			
2.	Sumitabh	a Das, '	"Compu	ter Fund	damenta	als and	C Progr	amming	", 1st Ed	dition, Mc	Graw Hill,	2018.			
3.	Balagurus	samy E.	., "Progi	amming	in ANS	SI C", 7t	h Editio	n, McGra	aw Hill E	ducation	, 2017.		- I		
4.	Behrouz / C", 3 rd Ed				F.Gilbe	erg, "Co	mputer	Science	A Struc	ctured Pro	grammin	g Approac	ch Using		
5.	https://ww	w.cpro	grammi	ng.com/	tutorial/	c-tutoria	ıl.html	1.	17.5	17			34.		
	E OUTCOI		urse, th	e stude	ents will	l be abl	e to			2		BT Ma (Highest			
CO1	apply pro							ons for t	he real v	world prob	olems.	Applyin Precisio			
CO2	develop s	simple (C progra	ıms usir	ng appr	opriate l	ooping	and con	trol state	ements		Applyin Precisio	g (K3)		
СОЗ	develop s	simple (C progra	ms usir	g the co	oncepts	of array	s and m	nodular į	orogramm	ning	Applyin Precisio			
CO4	apply the	concep	ots of po	inters a	nd deve	elop C p	rograms	s using s	strings a	nd pointe	rs	Applyin Precisio			
CO5	make use	e of use	r-define	d data t	ypes an	d file co	ncepts	to solve	real wo	rld proble	ms	Applyin Precision			
		2 6		M	anning	of COs	with Po	Os and	PSOs		P 20				
COs/PC	s PO1	PO2	PO3	PO4	PO5	P06	PO7	PO8	PO9	PO10	P011	PSO1	PSO2		
CO1	3	2	1	1			n te a V	- 1,5%	1	1	1	5, 1			
CO2	3	2	2	. 1					1	1	1				
CO3	3	2	2	1					1.	1	1				
CO4	3	2	2	1					1	1	1	-			
CO5	3	2	2	1		. ,		, .	1	1	1				
1 – Sligh	nt, 2 – Mod	erate. 3	B – Subs	stantial.	BT- Blo	om's Ta	xonomy	·		14					

Signature of the Chairman
Board of Studies - CSE

CADEMIC CELL

P. Malaivam

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	(Common to Civil, Mech, MTS,	Auto, Cl	hem, ECE, EE	EE, EI	E, FT	brar	iches)					
Programme & Branch	BE / BTech – Civil, Mech, MTS, Auto, Chem, ECE, EEE, EIE, FT branches	Sem. Category L T P SL* Total Ci										
Prerequisites	Nil	1 / 2#	ES	30	15	0	45	90	3			
Preamble	To impart knowledge on engineering surfaces, isometric projections and Auto											
Unit – I	Introduction to Engineering drawing	and Eng	ineering Cur	ves		(0	,		6+3			
dimensioning. P (Eccentricity met	nstruments - BIS conventions and speci rojection of pointsin different quadrants thod). Cycloidal Curves- Cycloids and Inv	. Engine	ering Curves	: Cor	ic se				ola, Hyperbola			
Unit – II	Projection of planes and Solids ygonal surface and circular lamina inclin	II	<u> </u>					1	6+3			
pyrailius, cylliu	er and cone when the axis is inclined to o	ile reiere	ence plane by	Chang	ge or p	วบรเน	on mei	noa.				
Unit – III Sectioning of pri to VP - Obtaini	Sectioning of Solids and Developments sms, pyramids, cylinder and cone in simple true shape of section. Development ders and Cones(Cutting planes inclined to	ent of Su ole vertica t of Late	urfaces al position by eral Surfaces	cutting	g plan	es ir	clined	to HP and				
Unit – III Sectioning of pri to VP - Obtaini	Sectioning of Solids and Developments sms, pyramids, cylinder and cone in simple true shape of section. Developments	ent of Su ole vertica t of Late	urfaces al position by eral Surfaces	cutting	g plan	es ir	clined	to HP and	perpendicular			
Unit – III Sectioning of pri to VP - Obtaini Pyramids, Cylinc Unit – IV Principles of ison	Sectioning of Solids and Developments, pyramids, cylinder and cone in simple of section. Development ders and Cones(Cutting planes inclined to Isometric Projection metric projection - Isometric scale - Isometric Projection	ent of Su ble vertica t of Late HP and netric pro	arfaces al position by eral Surfaces perpendicular	cutting of Si	g plan mple only	es ir and).	nclined trunca	to HP and	perpendicular Like Prisms 6+3			
Unit – III Sectioning of pri to VP - Obtaini Pyramids, Cylinc Unit – IV Principles of iso and cylinders. Co	Sectioning of Solids and Developments, pyramids, cylinder and cone in simple of section. Development ders and Cones (Cutting planes inclined to Isometric Projection metric projection - Isometric scale - Isomeonversion of orthographic in to isometric	ent of Su ble vertica t of Late HP and netric pro views	arfaces al position by eral Surfaces perpendicular jections of sir	cutting of Si	g plan mple only	es ir and).	nclined trunca	to HP and	I perpendicular Like Prisms 6+3 sms, pyramids			
Unit – III Sectioning of pri to VP - Obtaini Pyramids, Cylind Unit – IV Principles of iso and cylinders. Co Unit – V Conversion of is Introduction to Co drawing with din	Sectioning of Solids and Developments, pyramids, cylinder and cone in simple of section. Development ders and Cones(Cutting planes inclined to Isometric Projection metric projection - Isometric scale - Isometric Projection	ent of Su ble vertica t of Late o HP and netric pro- views uction to ection (Fro- design a	arfaces al position by eral Surfaces perpendicular jections of sir o AutoCAD eehand sketcl and developmercises manda	cutting of Sir to VI	g plan mple only and tru inly). f new	es ir and). uncat	red soli	to HP and ted Solids like pri	I perpendicular Like Prisms 6+3 Sms, pyramids 6+3 vo-dimensiona			
Unit – III Sectioning of pri to VP - Obtaini Pyramids, Cylind Unit – IV Principles of iso and cylinders. Co Unit – V Conversion of is Introduction to Co drawing with din	Sectioning of Solids and Developments, pyramids, cylinder and cone in simple true shape of section. Development ders and Cones(Cutting planes inclined to Isometric Projection metric projection - Isometric scale - Isometric projection of orthographic in to isometric of Orthographic Projection and Introdometric projection into orthographic projection projection into orthographic projection and Introdometric projection a	ent of Su ble vertica t of Late o HP and netric pro- views uction to ection (Fro- design a	arfaces al position by eral Surfaces perpendicular jections of sir o AutoCAD eehand sketcl and developmercises manda	cutting of Sir to VI	g plan mple only and tru inly). f new	es ir and). uncat	red soli	to HP and ted Solids like pri	I perpendicular Like Prisms 6+3 Sms, pyramids 6+3 vo-dimensiona			
Unit – III Sectioning of pri to VP - Obtaini Pyramids, Cylind Unit – IV Principles of iso and cylinders. Counit – V Conversion of is Introduction to Codrawing with din 3D models of va TEXT BOOK:	Sectioning of Solids and Developments, pyramids, cylinder and cone in simple true shape of section. Development ders and Cones(Cutting planes inclined to Isometric Projection metric projection - Isometric scale - Isometric projection of orthographic in to isometric of Orthographic Projection and Introdometric projection into orthographic projection projection into orthographic projection and Introdometric projection a	ent of Su ble vertica t of Late o HP and netric pro- views uction to ection (Fro- design a um 2 exe- ng softwa	arfaces al position by eral Surfaces perpendicular jections of sir o AutoCAD eehand sketcl and developmercises manda re. (Minimum	cutting of Sir to VI	g planmple only only. Inly). In new only only. Introises	es ir and). uncat proc ducti	ed soli	to HP and ted Solids ds like pri	I perpendicular Like Prisms 6+3 Sms, pyramids 6+3 vo-dimensiona			
Unit – III Sectioning of pri to VP - Obtaini Pyramids, Cylind Unit – IV Principles of iso and cylinders. Counit – V Conversion of is Introduction to Codrawing with din 3D models of va TEXT BOOK:	Sectioning of Solids and Developments, pyramids, cylinder and cone in simple true shape of section. Development ders and Cones(Cutting planes inclined to Isometric Projection metric projection - Isometric scale - Isometric projection - Isometric in to isometric orthographic in to isometric projection into orthographic projection and Introdometric projection into orthographic projection using suitable software (Minimulations components using suitable modelling grawal, Agrawal C.M., "Engineering Drawagrawal, Agrawal C.M.,	ent of Su ble vertica t of Late o HP and netric pro- views uction to ection (Fro- design a um 2 exe- ng softwa	arfaces al position by eral Surfaces perpendicular jections of sir o AutoCAD eehand sketcl and developmercises manda re. (Minimum	cutting of Sir to VI	g planmple only only. Inly). In new only only. Introises	es ir and). uncat proc ducti	ed soli	to HP and ted Solids ds like pri	I perpendicular Like Prisms 6+3 Sms, pyramids 6+3 vo-dimensiona			

*includes Term Work(TW) & Online / Certification course hours

#sem1: Cvil, Mech, MTS, Auto, Chem branches & sem 2: ECE, EEE, EIE, FT branches

	SE OUTCOMES: mpletion of the course, the students will be able to	BT Mapped (Highest Level)
CO1	interpret international standards of drawings and sketch the engineering curves	Applying (K3)
CO2	draw the projection of planes and solids	Applying (K3)
CO3	draw sectioning and developing of 3D primitive objects like prisms, pyramids, cylinders, cones	Applying (K3)
CO4	sketch the isometric projections of simple and truncated solids and convert orthographic projection in to isometric drawing	Applying (K3)
CO5	obtain multi view projections and solid models of objects using CAD tools	Applying (K3)

Mapping	of	COs	with	POs	and	DSOc
Mapping	OI	CUS	with	PUS	anu	POUS

COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PSO1	PSO2
CO1	3	1		,	2		-			3			
CO2	3	1	1	(8	2	_				3	4 mg -		
CO3	3	1	1		2		9(3			
CO4	3	1	1		2					3	<i>z</i> .		
CO5	3	1	1		2		ps.			3			

1 - Slight, 2 - Moderate, 3 - Substantial, BT- Bloom's Taxonomy

ASSESSME	NT I	PATT	FRN.	THEORY
AGGLGGIVIL			LI/14 .	INCORT

Test / Bloom's Category*	Remembering (K1) %	Understanding (K2) %	Applying (K3) %	Analyzing (K4) %	Evaluating (K5) %	Creating (K6) %	Total %
CAT1		-	100			-	100
CAT2	-	-	100	-	* -	. Class a	100
CAT3			100	-	-		100
ESE	-	_	100	-	-	2 ·	100

* $\pm 3\%$ may be varied (CAT 1, 2 & 3 – 50 marks & ESE – 100 marks)

Signature of the Chairman



		- HERITAGE OF						11k (1p!	
	(Common to All Eng	gineering and Tec	hnology Brar	nches)		y == 1		1 - 2 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -
Programme & Branch	All B.E/B.Tech Branches	Sem.	Category	L	Т	Р	SL*	Total	Credit
Prerequisites	NIL	1	HS	15	0	0	15	30	
Preamble	The objective of this course is to impararts, heroic games, doctrines, contribu	rt knowledge abo tion of Tamils to	ut Tamil lang	uage,	liter	ature	, painting	gs, sculptu	ires, folk
UNIT I	Language and Literature	**************************************							3
sangam literatu buddhism & jai	lies in india - dravidian languages – tami ure – distributive justice in sangam litera nism in tamil land - bakthi literature azh nil - contribution of bharathiyar and bhara	ature - managem wars and nayanr	ent principles	s in th	niruk	ural -	tamil ep	oics and in	mpact o
UNIT II	Heritage - Rock Art Paintings to Mo	dern Art – Sculp	ture					: e04	3
sculptures, villa	modern sculpture - bronze icons - tribes age deities, thiruvalluvar statue at kany aswaram - role of temples in social and e	akumari, making	of musical i	temp nstru	le ca	ar ma	king nridhanga	massive to am, parai	erracotta , veenai
UNIT III	Folk and Martial Arts		- 3 -						3
	karagattam - villu pattu - kaniyan kooth		ourner babbe	· · · · ·	Oila		uiii vu	idii agoi	dance
sports and gam	Thinai Concept of Tamils		1,5 to 1,		15				3
UNIT IV Flora and faun education and	Thinai Concept of Tamils a of tamils & aham and puram concep literacy during sangam age - ancient cit	ot from tholkappiy ties and ports of	/am and san sangam age	gam l	litera	iture and ir	- aram c	concept of	tamils ·
UNIT IV Flora and faun	Thinai Concept of Tamils a of tamils & aham and puram concep literacy during sangam age - ancient cit	ties and ports of	sangam age	- exp	ort a	iture and ir	- aram c	concept of ring sanga	tamils -
UNIT IV Flora and faun education and overseas conquents UNIT V Contribution of	Thinai Concept of Tamils a of tamils & aham and puram concep literacy during sangam age - ancient cituest of cholas.	tional Movement	t and Indian e of tamils o	- exp	ire	and in	arts of in	concept of ring sanga andia – sel	tamils am age
UNIT IV Flora and faun education and overseas conquent V Contribution of movement - ro	Thinai Concept of Tamils a of tamils & aham and puram concep literacy during sangam age - ancient cituest of cholas. Contribution of Tamils to Indian Natatamils to indian freedom struggle - the	tional Movement	t and Indian e of tamils o	- exp	ire	and in	arts of in	concept of ring sanga andia – sel	tamils am age
UNIT IV Flora and faund education and overseas conquitation of movement - robooks. TEXT BOOK:	Thinai Concept of Tamils a of tamils & aham and puram concep literacy during sangam age - ancient cituest of cholas. Contribution of Tamils to Indian Natatamils to indian freedom struggle - the	tional Movement cultural influence stems of medicin	sangam age t and Indian e of tamils of the — inscription	- exp Cultu ver th	ire ne ot ma	her p	arts of in	concept of ring sanga ndia – sel int history	tamils am age am age affective for tamils
WNIT IV Flora and faund education and overseas conquitaries UNIT V Contribution of movement - robooks. TEXT BOOK: 1. S.Mu	Thinai Concept of Tamils a of tamils & aham and puram concep literacy during sangam age - ancient cituest of cholas. Contribution of Tamils to Indian Nata tamils to indian freedom struggle - the le of siddha medicine in indigenous systemathuramalingam, M.Saravanakumar, Heritatan description of Tamils to Indian Nata tamils to indian freedom struggle - the le of siddha medicine in indigenous systemathuramalingam, M.Saravanakumar, Heritatan description of Tamils to Indian Nata tamils	tional Movement cultural influence stems of medicin	sangam age t and Indian e of tamils of the — inscription	- exp Cultu ver th	ire ne ot ma	her p	arts of in	concept of ring sanga ndia – sel int history	tamils am age am age affective for tamils
WNIT IV Flora and faund education and overseas conquitation of movement - robooks. TEXT BOOK: 1. S.Mu REFERENCES	Thinai Concept of Tamils a of tamils & aham and puram concep literacy during sangam age - ancient cituest of cholas. Contribution of Tamils to Indian Nata tamils to indian freedom struggle - the le of siddha medicine in indigenous systemathuramalingam, M.Saravanakumar, Heritatan description of Tamils to Indian Nata tamils to indian freedom struggle - the le of siddha medicine in indigenous systemathuramalingam, M.Saravanakumar, Heritatan description of Tamils to Indian Nata tamils	tional Movement cultural influence stems of medicin	t and Indian e of tamils one — inscription	Cultuver thons &	re ot ma	her p nuscr	arts of in ipts – proceedings of the process of the	concept of ring sangarandia – sel rint history	f tamils am age of a frespect of tamil
Sports and game UNIT IV Flora and faund education and overseas conquitaries of the contribution of the co	Thinai Concept of Tamils a of tamils & aham and puram concept literacy during sangam age - ancient cituest of cholas. Contribution of Tamils to Indian National States of Stat	tional Movement cultural influence stems of medicin	t and Indian e of tamils one — inscription es Dee Publi	Culturer thous &	Pvt	her p nuscr	arts of in ipts – pr	concept of ring sanga andia – sel int history Units I,II,I	f tamils am age 3 f-respect of tami

^{*}includes Term Work(TW) & Online / Certification course hours

COUR	SE OUTCOMES:	BT Mapped
படிப்	பை முடித்தவுடன், மாணவர்கள்	(Highest Level)
CO1	explain valuable concepts in language and literature of tamils.	Understanding (K2)
CO2	illustrate about the tamils sculpture and their paintings.	Understanding (K2)
CO3	summarize about the tamils folk and martial arts.	Understanding (K2)
CO4	explain the thinai concept of tamils.	Understanding (K2)
CO5	explain the contribution of Tamils to the Indian National Movement and Indian culture.	Understanding (K2)

COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PSO1	PSO2
CO1	k.ET	1	No.			2	3	2	2	y	3		
CO2	. 1—1					2	3	2	2		3		1 11
CO3						2	3	2	2		3		× ,
CO4						2 .	3	2	2		3		
CO5				J- 17- F		2	3	2	2		3	4 _ 1	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \

1 - Slight, 2 - Moderate, 3 - Substantial, BT- Bloom's Taxonomy

ASSESSMENT PATTERN - THEORY

Test / Bloom's Category*	Remembering (K1) %	Understanding (K2) %	Applying (K3) %	Analyzing (K4) %	Evaluating (K5) %	Creating (K6)	Total
CAT1	40	60	= -	44.	v = e, = _ ==	-	100
CAT2	40	60	н — а				100
CAT3	40	60					100
ESE			1 .	NA	. ,	· · · · · · · · · · · · · · · · · · ·	

* $\pm 3\%$ may be varied (CAT 1, 2 & 3 – 50 marks)

Signature of the Chairman



	24TAM01-தமி <u>ழ</u>	ந் மரபு		*	1			my two	
	(Common to All Engineering and	d Technol	ogy Branches)		-			3.1
Programme & Branch	All B.E/B.Tech Branches	Sem.	Category	L	T	Р	SL*	Total	Credit
Prerequisites	NIL	1	нѕ	15	0	0	15	30	1
Preamble	தமிழர்களின் மொழி, இலக்கியம், ஓவியங் விளையாட்டுக்கள், திணைக் கோட்பாடுகள், (பற்றிய அறிவை வழங்குவதே இந்த பாடத்தில்	இந்திய	பண்பாட்டிற			_		கலைகள பங்கள்	
<mark>அ</mark> லகு <i>-</i> ।	மொழி மற்றும் இலக்கியம்								3 2117
இலக்கியத்தி கருத்துக்கள் ஆழ்வார்கள் இலக்கிய வ	ழிக் குடும்பங்கள் - திராவிட மொழிகள் - தமிழ் ன் சமயச் சார்பற்ற தன்மை - சங்க இலக்கியத் - தமிழ் காப்பியங்கள், தமிழகத்தில் சமண மற்றும் நாயன்மார்கள் - சிற்றிலக்கியங்கள் ளர்ச்சியில் பாரதியார் மற்றும் பாரதிதாசன் ஆகி	த்தில் ப பௌத்த - தமிழீ யோரின்	கிர்தல் அற சமயங்கவ இல் நவீன பங்களிப்பு)ம் - ளின் இல	திரு தாச் க்கிய	க்குர கம் பத்தி	றளில் - பக்	மேலான தி இல ளர்ச்சி -	ன்மைச் க்கியம் தமிழ்
அலகு - ॥	மரபு - பாறை ஓவியங்கள் முதல் நவீன ஓவி ல் நவீன சிற்பங்கள் வரை - ஐம்பொன் சிலை						=		3
தமிழர்களின் அலகு - III தெருக்கூத்து	பில் திருவள்ளுவர் சிலை - இசைக் கருவிகல் சமூக பொருளாதார வாழ்வில் கோவில்களின் நாட்டுப்புறக் கலைகள் மற்றும் வீர் விளையா , கரகாட்டம், வில்லுப்பாட்டு, கணியான் கூத்து ரட்டம், தமிழர்களின் விளையாட்டுகள்.	பங்கு. ட்டுக்கள்	T						3
ച ക്രെ - №	தமிழர்களின் திணைக் கோட்பாடுகள்		<u> </u>	-					3
தமிழகத்தின் கோட்பாடுகள் சங்ககால ந	தாவரங்களும், விலங்குகளும் - தொல்காப்பிய ர - தமிழர்கள் போற்றிய அறக்கோட்பாடு- சங் கரங்களும் துறை முகங்களும் - சங்ககாலத் சாழர்களின் வெற்றி.	. கக்கால	த்தில் தமிழ	ழகத்த	ြိုလ်	எழு	த்தறிவ	பும் கல்	றியும்
	இந்திய தேசிய இயக்கம் மற்றும் இந்திய பண்	TLITLIGA	குத் தமிழ	ர்களி	ன் ட	மங்க	ளிப்பு		
அலகு <i>-</i> ∨						1000	24.57		3
இந்திய விடு சுயமரியாதை	தலைப்போரில் தமிழர்களின் பங்கு - இந்திய ந இயக்கம் - இந்திய மருத்துவத்தில் ப்படிகள் - தமிழ்ப் புத்தகங்கள்களின் அச்சு வரல	ாவின் ப சித்த	பிறபகுதிகள் மருத்துவ <u>த</u>		_	ந் ப		.டின் தா கல்வெ	க்கம்
இந்திய விடு சுயமரியாதை	த இயக்கம் - இந்திய மருத்துவத்தில்	ாவின் ப சித்த	•		_				க்கம்
இந்திய விடு சுயமரியாதை கையெழுத்து TEXT BOOK:	த இயக்கம் - இந்திய மருத்துவத்தில்	ாவின் ப சித்த பாறு	மருத்துவத		_				க்கம்
இந்திய விடு சுயமரியாதை கையெழுத்து TEXT BOOK:	5 இயக்கம் - இந்திய மருத்துவத்தில் ப்படிகள் - தமிழ்ப் புத்தகங்கள்களின் அச்சு வரல ,பாலன், தமிழர் மரபு, VRB Publishers Pvt Ltd, 2022,	ாவின் ப சித்த பாறு	மருத்துவத		_				க்கம்
இந்திய விடு சுயமரியாதை கையெழுத்து TEXT BOOK: 1. ஆ பூ REFERENCES	5 இயக்கம் - இந்திய மருத்துவத்தில் ப்படிகள் - தமிழ்ப் புத்தகங்கள்களின் அச்சு வரல ,பாலன், தமிழர் மரபு, VRB Publishers Pvt Ltd, 2022,	ாவின் । சித்த பாறு அலகு I,	மருத்துவ <u>த</u>	த்தின் 	L	II ங்கு	-	கல்வெ	க்கம் ட்டுகள்
இந்திய விடு சுயமரியாதை கையெழுத்து TEXT BOOK: 1. ஆ பூ REFERENCES 1. தமிழ	த இயக்கம் - இந்திய மருத்துவத்தில் ப்படிகள் - தமிழ்ப் புத்தகங்கள்களின் அச்சு வரல பாலன், தமிழர் மரபு, VRB Publishers Pvt Ltd, 2022, : க வரலாறு- மக்களும் பண்பாடும்- கே கே பிள்ளை	ாவின் । சித்த பாறு. அலகு I, ர (வெளி!	மருத்துவ <u>த</u>	த்தின் 	L	II ங்கு	-	கல்வெ	க்கம் ட்டுகள்
இந்திய விடு சுயமரியாதை கையெழுத்து TEXT BOOK: 1. ஆ பூ REFERENCES 1. தமிழ பணி	த இயக்கம் - இந்திய மருத்துவத்தில் ப்படிகள் - தமிழ்ப் புத்தகங்கள்களின் அச்சு வரல பாலன், தமிழர் மரபு, VRB Publishers Pvt Ltd, 2022, : க வரலாறு- மக்களும் பண்பாடும்- கே கே பிள்ளை கள் கழகம்)	ாவின் ப சித்த பாறு அலகு I, I (வெளி	மருத்துவத் II,III,IV,V. யீடு தமிழ்நா	ந்தின் ரடு பா	ட்டு	ால் ப	-	கல்வெ	க்கம் ட்டுகள்

^{*}includes Term Work(TW) & Online / Certification course hours

SE OUTCOMES:	BT Mapped
ப் முடித்தவுடன், மாணவர்கள்	(Highest Level)
தமிழ் மொழி மற்றும் இலக்கியத்தில் மதிப்புமிக்க கருத்துக்களை விளக்க முடியும்.	Understanding (K2)
தமிழர்களின் சிற்பம் மற்றும் அவர்களின் ஓவியங்கள் பற்றி விளக்க முடியும்.	Understanding (K2)
தமிழர்களின் நாட்டுப்புற மற்றும் தற்காப்புக் கலைகளைப் பற்றி சுருக்கமாகக் கூற முடியும்.	Understanding (K2)
தமிழர்களின் திணைக் கோட்பாடுகளைப் பற்றி விளக்க முடியும்.	Understanding (K2)
இந்திய தேசிய இயக்கம் மற்றும் இந்திய பண்பாட்டிற்குத் தமிழர்களின் பங்களிப்பு பற்றி விளக்க முடியும்.	Understanding (K2)
	ப முடித்தவுடன், மாணவர்கள் தமிழ் மொழி மற்றும் இலக்கியத்தில் மதிப்புமிக்க கருத்துக்களை விளக்க முடியும். தமிழர்களின் சிற்பம் மற்றும் அவர்களின் ஓவியங்கள் பற்றி விளக்க முடியும். தமிழர்களின் நாட்டுப்புற மற்றும் தற்காப்புக் கலைகளைப் பற்றி சுருக்கமாகக் கூற முடியும். தமிழர்களின் திணைக் கோட்பாடுகளைப் பற்றி விளக்க முடியும். இந்திய தேசிய இயக்கம் மற்றும் இந்திய பண்பாட்டிற்குத் தமிழர்களின் பங்களிப்பு பற்றி

COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PSO1	PSO2
CO1			1			2	3	2	2	=	3		
CO2			18	A		2	3	2	2	2 2	3		
CO3	1 . 1 . 1					2	3	2	2		3		
CO4			_			2	3	2	2		3		
CO5						2	3	2	2		3		

1 - Slight, 2 - Moderate, 3 - Substantial, BT- Bloom's Taxonomy

ASSESSMENT	PATTERN -	THEORY
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Test / Bloom's Category*	Remembering (K1) %	Understanding (K2) %	Applying (K3) %	Analyzing (K4) %	Evaluating (K5) %	Creating (K6) %	Total
CAT1	40	60	1/2 35.	d x			100
CAT2	40	60			1	9	100
CAT3	40	60					100
ESE				NA		,	

* $\pm 3\%$ may be varied (CAT 1, 2 & 3 – 50 marks)

Signature of the Chairman
Board of Studies - S& H (Chemistry)



Branch	mme &	E	BE - CIVII	ENGIN	EERING			Sem.	Catego	ry L	Т	Р	SL*	Total	Cred
Prereq		1	Vil					1	BS	0	0	30	0	30	1
Preaml	ole		and pH ralso aims	neter exp s to impar	eriments	for the es lge on wa	stimation	of given sa	etric, conc amples an ers like chl	d there	by, to ir	nprove	the	analytical	skills.
LIST O	F EXPE	RIME	NTS / EXE										<		,
1.	Assess	ment	of the cal	cium cont	tent prese	ent in the	cement by	y EDTA m	ethod.				+ K		
2.	Estima	tion o	f type and	amount o	of alkalinity	y present	in the giv	en river/bo	ore well wa	ter san	nple.			8	
3.	Detern	ninatio	n of chlor	ide conte	nt in the g	jiven wate	er sample	using Arg	entometric	metho	d.				
4.	Perfori	n Win	kler's met	hod for th	ne determi	ination of	dissolved	l oxygen ir	n the given	waste	water sa	mple.			
5.	Detern	ninatio	n of stren	gth and a	amount of	acid in a	given sol	ution using	pH meter						
6.	Detern	ninatio	n of stren	gth and a	amount of	mixture o	of acids pr	esent in th	ne given so	lution (using C	onduct	ivity r	neter.	
7.	Detern	ninatio	n of COD	in the giv	ven water	sample.						. 1			-
8.	Detern	ninatio	n of conc	entration	of Nickel	by Spectr	ophotom	etric metho	od.		>				
9.	Perfor	ming F	Permanga	nometric	titration fo	or the dete	erminatio	n of corros	sion rate of	iron in	acidic r	nedium	١.		
10.					t of a poly						1.		я ,		
11.							-		onstration)						
12.									ter quality	8	eters (D	emons	stratio	on).	
-			£					,							
REFER			IUAL /SO				_ <u>*</u>	,							
1.					n P., Ge de, 2024.		and Mar	njula Ran	i K., "Che	emistry	Labora	tory N	Manu	al", 1 st	Editio
	SE OUT	COME	S:								No.		-	ВТ Мар	
					dents will n. chloride			ion and fin	nd the cond	entrati	on of N	ckel		Highest L Analyzing	
CO1	by Spe	ectropl	notometri	c method.			>		OO, COD f					Precision Analyzing	(S3)
CO2	sample	e and	demonstr	ate the vi	scometer	for the de	eterminati	on of mole	ecular weig	ht of a	polyme	r.		Precision	(S3)
CO3					ount of aci c method.		conductiv	ity meter,	pH meter	and co	rrosion	rate		Analyzing Precision	
	V T				Ma	apping of	COs wit	h POs an	d PSOs					11	
COs/F	Os I	PO1	PO2	PO3	PO4	PO5	P06	P07	PO8	PO9	P010	PC	011	PSO1	PSC
CO		2	· 2	3	2	± .	2	1							
CO		2	2	3	2	*	2	1 1							
100000000000000000000000000000000000000			223		I, BT- Blo	om's Tax					L				
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Prerec		es	Nil				2	1/2	ES	0	0	90	0	90	3
Pream									nowledge		ineerii	100.00	h hand	55050	-
LIST	FFY	PERIM		house wir		net of Th	ings and	Web Te	echnologie	S.	-			7	
LIOT	, LA	LIXIII	LINIO	LALKOR		A – Elec	trical Ins	tallatio	n (30 Hou	rs)					
1.	Dete	erminat	tion of Ic	ad curren	its and se	elect suita	able comp	onents	for Protec	tion					(q)
2.	Dev	elop a	wiring c	ircuit for in	ncandesc	ent lamp	and fluor	escent	lamp using	Simpl	e and	Stair	case W	iring	
3.	Dev	elop ar	nd Inves	tigate wiri	ng circuit	ts for Call	ling Bell S	System :	and Dimm	able Li	ght		d.		
4.	Crea	ate wiri	ng circu	it for sing	e phase	motor	= 6	e e	- 10.00						
5.	Dev	elopme	ent of IC	T based	energy m	onitoring	and contr	rol		()					=
6.	Mea	asurem	ent and	analysis o	of electric	cal param	eters for l	Photovo	oltaic Sola	r Panel	×				
	T						ernet of	Things	(30 Hour	s)					
1.	Des	ign a S	Single la	yer PCB I	ayout des	signing		1	* 1						
2.	Fab	ricate S	Single la	yer PCB	printing							Ģ.	*	D"	
3.	Ass	emblin	g, solde	ring and c	lesolderii	ng practio	e on sing	le layer	PCB					1	
4.	Sen	sor an	d actuat	or interfac	ing with	internet e	nabled m	icrocon	troller						
5.	Sen	isor an	d actuat	or calibrat	tion	ř.					é	<u></u>			7
6.	Inte	gration	of micr	ocontrolle	r based s	system wi	th Cloud	platform	n						
	T				PAR	TC-We	b Techn	ologies	s (30 Hour	s)	-				
1.	Des	ign a s	imple w	eb page ι	sing bas	ic HTML	tags and (CSS pro	perties				× .		
2.	Des	ign a re	esponsiv	e webpag	e using E	Bootstrap	framewor	rk		α <					
3.	Des	sign a v	vebpage	e for signu	p and log	gin valida	tion form	using J	avascript a	and PH	Р			· ·	
4.						PHP, M	ySQL and	d host th	ne website	in the	server				ê do estado
REFE	RENC	ES/ M	ANUAL	/SOFTW	ARE:									-	
1.			/ Manua												
2.		: T.Free Reilly , 2		isabeth R	obson, "I	Head Firs	t JavaScr	ript Prog	gramming	A Brair	-Frier	idly G	iuide",	1st Editio	n,
3.	Eric	T.Free	eman,El	isabeth R	obson, "I	Head Firs	t HTML a	ind CSS	6",2nd Edi	ion, O'	Reilly	, 2012	2	(+)	
4.	Lyn	n Beigl	hley,"He	ad First S	QL",1st	Edition, C	Reilly,20	007.							
COUR				urse, the	studente	، مطالف	abla ta					***		BT Map Highest I	
CO1	1			viring circ				heir rec	uirement					Applying	(K3)
CO2	-													Precision Applying	
	 			d solution:		1		- cases	.	,				Precision Applying	(S3)
CO3	Des	sign an	a nost a	n interact				th BOs	and DSC			_		Precision	
COs/P		P01	PO2	PO3	PO4	PO5	PO6	PO7	PO PO	PO9	PO	10	PO11	PSO1	PSO
/PSC		3	3	3	2	3		1	3	2	2		2	-	
		3	3	3	2	3		1	3	2	2	-	2	-	-
CO						1								1	i





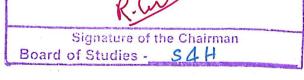


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			(C	ommo	n to all E	nginee	ring and	Techi	nology bra	anche	s)				· · · · · · · · · · · · · · · · · · ·
Program Branch	nme &	All B.	E/B.Tec	h Bran	ches	· ·	S	em.	Category	L	Т	Р	SL*	Total	Credit
Prerequ	isites	Basic	Mather	matical	skills			1	МС	20	0	0	10	30	0
Preamb		T- !		61	f. 3 1-10				1 1 111						
	ie						enhance a	analytic	cal skills.						
Unit – I	eveteme				Equation		divisibilit	v _ B∩	DMAS Rul	о Н	CE /	and I (201	Dooimal	fractions
-Simplif	ication –	Problem	ıs.				•								
									linear equa	ations	with	n two v	/ariabl	es – Ap	plications
Unit - II	aneous li				nd Perce		Simple pi	robiem	S.			***************************************	- î		6
Ratio ar	nd Propo	rtion: T	hird, Fo	ourth an	d mean p	proportio			son of ratio			ound	ratio -	Duplica	
									Simple pro on populat			hlama	d		
Unit - II				ss, Inte		rcentag	jes – Pio	Diems	on populat	1011 —	PIO	biems	on de	preciation	on. 8
Profit ar	nd Loss:	Basic c	oncepts	S – Cost	price – S	Selling p	orice – Pr	ofit an	d Loss – S	imple	pro	blems			-
	and Com - Simple			t: Conc	epts – Pe	ercentag	e of inter	rest – D	Difference b	etwe	en s	imple	intere	st and c	ompound
TEXT B		problem	15.												
		nanwal	"Ouant	titative	Antitude 1	for Com	netitive F	Evamir	nations", R	ovisor	1 =	lition	S Cha	and and	
1.	limited, 2		Quan	illative /	Aptitude i	ioi com	ipetitive i		ialions , N	evised	<i>1</i> EC	illiori,	S.CHa	ina ana	company
REFERI	ENCES/	MANUA	L/SOF	TWAR	E:				_	-	(4)				
1.		uha,"Qı	uantitati	ve Apti	tude for	Compet	titive Exa	aminati	on", 7 th Ed	dition,	Мо	Graw	Hill E	Education	n, India,
	2020. https://w	MAN indis	hiv cor	m/antitu	delauesti	ione and	d answer	· · · · · · · · · · · · · · · · · · ·				30		-	
2.									j.						
3.	https://w		Ksiorge	eks.org	/aptitude-	-questio	ons-and-a	answer	<u>S</u>						
	E OUTCO		nurse 1	the stu	dents wi	ll he ah	le to							BT Map lighest	
CO1					two varia		ne to				-			Applying	
CO2		*			centage		ne								<u> </u>
														Applying	
CO3	Solve p	rotit and	l loss, s	imple in		5.			roblems.			α		Applying	(K3)
			1		Mappin	g of CC	Os with F	POs an	nd PSOs	T					
COs/PO	s PO1	PO2	PO3	PO4	PO5	PO6	P07	POS	PO9	PO	10	PO1	1 P	SO1	PSO2
CO1	2	2													0
CO2	2	2											-		
CO3	3	3											_		-
	nt, 2 – Mc	1	3 Sul	hetantia	L RT- RI	oom's T	avonom	,							
i – Silgi	11, 2 – 1010	derate,	3 – Sui	DStaritia											
T4/5	11	Don.					PATTE				Santa Buran				
	Bloom's gory*		nember (K1) %		Underst (K2)		Apply (K3)		Analyzing (K4) %		valu (K5	ating) %		eating K6) %	Total %
CA	T1				30)	70								100
CA	T2				30)	70								100
CA	AT3		-		30)	70		1				1		100



 * ±3% may be varied (CAT 1, 2 & 3 – 50 marks & ESE – 100 marks) *includes Term Work (TW) & Online / Certification course hours







	(Common to all Eng	ineering and	Technology by	ranches	s)	-			
Programme & Branch	All B.E/B.Tech Branches	Sem	Category	L	T	Р	SL*	Total	Credit
Prerequisités	Nil	2	нѕ	45	0	0	45	90	3
Preamble	This course aims at up skilling the students in practicing the language and academic contexts.	skills to acq	quire verbal an	id com	munic	write a	as well proficie	as to fac ncy in pro	ilitate the ofessiona
sUnit – I	Grammar, Verbal Aptitude, Listen	ing, Speakin	g. Reading &	Writin	a				9
to a Match Comm Etiquette – Readi <i>Atomic Habits</i> Wr i	, Compound, and Complex Sentence entary and Filling in a Table – Listen ng: Scanning a Text, Power Point P ting: Business Letters: Enquiry and C	ng to TED ta resentations omplaint	lks - Speakin – The Best V	g: Apol Vay to	logizir Start	na – T	alking a	about Mar : An Exc	nners and erpt from
Unit – II	Grammar, Verbal Aptitude, Listen and Indirect Speech – Verbal Aptitude	ıng, Speakin	g, Reading &	Writin	g				9
Lecture and Sorti Choices and Profe Your Bad Habits: <i>I</i>	ng Information – Career Related Co essional Skills – Reading: Reading fo An Excerpt from <i>Atomic Habit</i> s - Writ i	onversation – Local and G ng: Job Appl	 Speaking: G lobal Compretication: Cover 	Group (nension r Letter	Discus 1 – Ho	ssion w to l	 Spea Find and 	king about	ut Caree
Unit – III				GRADE VERNING	0.000 T. CO. CO. CO. CO. CO. CO. CO. CO. CO. CO		iic Ott	done i ore	10110
	Grammar, Verbal Aptitude, Listen	ing, Speakin	g, Reading &	Writin	q				9
Grammar: Active	and Passive Voice - Verbal Aptitude	: Error Spottii	g, Reading & ng – Sentence	Writin	g /emer	nt – A	bbreviat	ions and A	9 Acronyms
– Listening: Liste	and Passive Voice – Verbal Aptitude ning to Podcast Interviews and News/	: Error Spottii Motivational S	ig, Reading & ng – Sentence Speeches – Si	Writin Improv	g /emer a: Pre	nt – Al	bbreviat	ions and A	9 Acronyms
– Listening: Liste Opinions about P	and Passive Voice – Verbal Aptitude ning to Podcast Interviews and News/ odcast – Reading: Reading a Proc	: Error Spottii Motivational S edure – Cros	ng, Reading & ng – Sentence Speeches – Spess Cultural Co	Writin Improv peaking	g /emer g: Pre icatio	nt – Al esentii n - H	bbreviating a Poi	ions and A	9 Acronyms / – Giving
– Listening: Liste Opinions about P Inevitable and Bad	and Passive Voice – Verbal Aptitude ning to Podcast Interviews and News/	: Error Spottii Motivational S edure – Cros	ng, Reading & ng – Sentence Speeches – Spess Cultural Co	Writin Improv peaking	g /emer g: Pre icatio	nt – Al esentii n - H	bbreviating a Poi	ions and A	9 Acronyms / – Giving
 Listening: Liste Opinions about P Inevitable and Bac based Essays 	and Passive Voice – Verbal Aptitude ning to Podcast Interviews and News/ odcast – Reading: Reading a Prod I Habits Impossible: An Excerpt from	: Error Spottii Motivational S edure – Cros Atomic Habits	ng, Reading & ng – Sentence Speeches – Spess Cultural Co s – Writing: T	Writin Improverse Deaking Ommun Types o	g /emer g: Pre icatio f Essa	nt – Al esentii n - H	bbreviating a Poi	ions and Ant of View Make Goo	9 Acronyms / – Giving od Habits d Opinior
 Listening: Liste Opinions about P Inevitable and Bac based Essays Unit – IV 	and Passive Voice – Verbal Aptitude ning to Podcast Interviews and News/ odcast – Reading: Reading a Prod I Habits Impossible: An Excerpt from Grammar, Verbal Aptitude, Listen	: Error Spottii Motivational S edure – Cros Atomic Habits ing, Speakin	ng, Reading & ng - Sentence Speeches - Speeches - Cultural Cos - Writing: T	Writin Improved the community of the com	g /emer g: Pre icatio f Essa	nt – Al esentii n - H ays: 7	bbreviating a Poi ow to I Argumei	ions and Ant of View Make Goo ntative and	9 Acronyms / – Giving od Habits d Opinior
 Listening: Liste Opinions about P Inevitable and Bac based Essays Unit – IV Grammar: If/Conc 	and Passive Voice – Verbal Aptitude ning to Podcast Interviews and News/ odcast – Reading: Reading a Prod I Habits Impossible: An Excerpt from Grammar, Verbal Aptitude, Listen litional Clause – Modals Verbs – Con	: Error Spottii Motivational Sedure – Cros Atomic Habits ing, Speakin versational De	g, Reading & ng - Sentence Speeches - Speeches - Speeches - Speeches - Writing: Top, Reading & evices - Verba	Writin Improved Deaking Ommun Types o Writin	g /emer g: Pre icatio f Essa g ude:	nt – Alesentii n - H ays: /	bbreviating a Poi ow to I Argumei	ions and Ant of View Make Goontative and	9 Acronym / – Giving od Habit d Opinion 9
 Listening: Liste Opinions about P Inevitable and Bac based Essays Unit – IV Grammar: If/Conc Selection – Listen 	and Passive Voice – Verbal Aptitude ning to Podcast Interviews and News/ odcast – Reading: Reading a Prod I Habits Impossible: An Excerpt from Grammar, Verbal Aptitude, Listen litional Clause – Modals Verbs – Con ing: Listening and Filling a Mind Map	Error Spottin Motivational Sedure — Cros Atomic Habits ing, Speakin Versational Do — Listening to	g, Reading & ng - Sentence Speeches - Speeches - Speeches - Writing: Tog, Reading & evices - Verbate Interviews, Communication of the sentence	Writin Improve the seaking of the se	g /emer g: Pre icatio f Essa g ude:	nt – Alesentii n - Hays: /	bbreviating a Poi ow to I Argumen nce Cor	ions and Ant of View Make Goontative and	9 Acronym: / – Giving d Habit: d Opinion 9 Sentence
- Listening: Liste Opinions about P Inevitable and Bac based Essays Unit - IV Grammar: If/Conc Selection - Listen Suggestions - Inte Communication: M	and Passive Voice – Verbal Aptitude ning to Podcast Interviews and News/odcast – Reading: Reading a Prod Habits Impossible: An Excerpt from Grammar, Verbal Aptitude, Listen litional Clause – Modals Verbs – Coning: Listening and Filling a Mind Maperviewing Classmates - Reading: Reading: Readings of Technology-based Communications in Particular Particu	Error Spottii Motivational Sedure – Cros Atomic Habits ing, Speakin Versational De – Listening to ading for Info ication – Hov	g, Reading & ng - Sentence Speeches - Speeches - Speeches - Writing: Tag, Reading & evices - Verbaco Interviews, Commation, Resew to Stick with	Writin Improve oeaking ommun ypes o Writin Il Aptit elebrity arching	yemer g: Pre- icatio f Essa g ude: (talks) for S	nt – Alesentiin – Hays: /	bbreviating a Poi ow to I Argument nce Con eaking: rting Every Day	ions and Ant of View Make Goontative and	9 Acronyms 7 – Giving 8 d Habits 9 Sentence dvice and
 Listening: Liste Opinions about P Inevitable and Bace based Essays Unit – IV Grammar: If/Concord Selection – Listen Suggestions – Interpretation: Memory 	and Passive Voice – Verbal Aptitude ning to Podcast Interviews and Newsodcast – Reading: Reading a Production of Habits Impossible: An Excerpt from Grammar, Verbal Aptitude, Listen litional Clause – Modals Verbs – Coning: Listening and Filling a Mind Maperviewing Classmates - Reading: Reading: Reading: Dialogue Writing – Writing Reviewing: Dialogue Writing – Writing Reviewing:	Error Spottii Motivational Sedure – Cros Atomic Habits ing, Speakin versational Do – Listening to ading for Info ication – Hows: Product a	g, Reading & mg - Sentence Speeches - Speeches - Speeches - Speeches - Writing: Tag, Reading & evices - Verbaco Interviews, Commation, Resew to Stick with and Document	Writin Improved the control of the c	yemer g: Pre- icatio f Essa g ude: / talks / for S Habi	nt – Alesentiin – Hays: /	bbreviating a Poi ow to I Argument nce Con eaking: rting Every Day	ions and Ant of View Make Goontative and	9 Acronyms 7 – Giving 8 d Habits 9 Sentence dvice and
 Listening: Liste Opinions about P Inevitable and Back based Essays Unit – IV Grammar: If/Cond Selection – Listen Suggestions – Interest Communication: Natomic Habits Write Unit – V 	and Passive Voice – Verbal Aptitude ning to Podcast Interviews and Newsodcast – Reading: Reading a Production of Habits Impossible: An Excerpt from Habits I	Error Spottii Motivational Sedure — Cros Atomic Habits ing, Speakin versational Do — Listening to ading for Info ication — Howes: Product a ing, Speakin	g, Reading & mg - Sentence Speeches - Speeches - Speeches - Writing: Tag, Reading & evices - Verbaco Interviews, Commation, Resew to Stick with and Document g, Reading & g, R	Writin Improvoeaking mmun ypes o Writin Il Aptit elebrity arching n Good ary film Writin	g /emer g: Pre icatio f Essa g ude: / talks / for S Habi /s/We	nt – Alesentiin – Hays: A	bbreviating a Poi ow to I Argumen nce Cor eaking: rting Every Day	ions and Ant of View Make Goontative and Trection — Giving Addrice — An Exc	9 Acronyms 7 – Giving 8 d Opinior 9 Sentence dvice and Technica erpt from
- Listening: Liste Opinions about P Inevitable and Bac based Essays Unit - IV Grammar: If/Conc Selection - Listen Suggestions - Inte Communication: N Atomic Habits Wri Unit - V Grammar: Comm Listening: Listeni about Gadgets, In Technology-based Habits - Writing:	and Passive Voice – Verbal Aptitude ning to Podcast Interviews and Newsodcast – Reading: Reading a Production of Habits Impossible: An Excerpt from Grammar, Verbal Aptitude, Listen litional Clause – Modals Verbs – Coning: Listening and Filling a Mind Maperviewing Classmates - Reading: Reading: Reading: Dialogue Writing – Writing Reviewing: Dialogue Writing – Writing Reviewing:	Error Spottii Motivational Sedure — Cros Atomic Habits ing, Speaking Versational Do — Listening to ading for Info ication — How ws: Product at ing, Speaking eposition con W Inventions Categorizing Rule: How to	g, Reading & mg - Sentence Speeches - Speeches - Speeches - Speeches - Writing: The management of the	Writin Improved the community of the com	g //emer g: Pre icatio f Essa g ude: / talks j for S Habi is/We g Apti for a	nt – Alesentiin – Hesentiin – Hesentiin – Sentes – Speuppo ts Eventes – Seriend G	bbreviating a Poi ow to I Argumen nce Cor eaking: rting Every Day es Codingiving Penunication	ions and Ant of View Make Goontative and rection — Giving Adidence — : An Exc	9 Acronyms 7 – Giving 8 d Opinior 9 Sentence dvice and Technica erpt from 9 coding – Talking
- Listening: Liste Opinions about P Inevitable and Bace based Essays Unit - IV Grammar: If/Cond Selection - Listen Suggestions - Inte Communication: N Atomic Habits Wri Unit - V Grammar: Comm Listening: Listeni about Gadgets, In Technology-based Habits - Writing: TEXT BOOK:	and Passive Voice – Verbal Aptitude ning to Podcast Interviews and Newslodcast – Reading: Reading a Prod Habits Impossible: An Excerpt from Habits Impossible: An Excerpt from Grammar, Verbal Aptitude, Listen litional Clause – Modals Verbs – Coning: Listening and Filling a Mind Maperviewing Classmates - Reading: Readoes of Technology-based Communiting: Dialogue Writing – Writing Reviewing Dialogue Writing – Writing Reviewing From Tenses – Verb – Prong for key points – Speeches of New Verbions and Technology – Reading Communication – The Goldilocks Freport Writing: IV Report and Case S	Error Spottii Motivational Sedure — Cros Atomic Habits ing, Speaking Versational Deversational Deversational Deversational Deversation — Howas: Product a ing, Speaking Position conversions Categorizing Rule: How to sudy Report	ng, Reading & ng - Sentence Speeches - Speeches - Speeches - Speeches - Writing: Tog, Reading & evices - Verbaco Interviews, Cormation, Resew to Stick with and Documenting, Reading & nbinations - Speaking: g Information - Stay Motivate	Writin Improvocation Improvoca	g yemer g: Pre icatio f Essa g ude: y talks y for S Habi is/We g Apti for a nical (e.e.)	Sentes Supports Evide: In Grant Series Supports Evide: In Grant	bbreviating a Poi ow to I Argumen nce Cor eaking: rting Every Day es Coding iving Penunication k: An E	ions and Ant of View Make Good Intative and Interesting Action Commission - Interesting and Department on Effective Accerpt from	9 Acronyms 7 – Giving 8 d Opinior 9 Sentence dvice and Technica erpt from 9 coding - Talking we use o
- Listening: Liste Opinions about P Inevitable and Bace based Essays Unit - IV Grammar: If/Cond Selection - Listen Suggestions - Inte Communication: N Atomic Habits Wri Unit - V Grammar: Communication: Listening: Listeniabout Gadgets, In Technology-based Habits - Writing: I TEXT BOOK:	and Passive Voice – Verbal Aptitude ning to Podcast Interviews and News/ odcast – Reading: Reading a Prod I Habits Impossible: An Excerpt from I Habits Impossi	Error Spottii Motivational Sedure — Cros Atomic Habits ing, Speaking Versational Deversational Deversational Deversational Deversation — Howas: Product a ing, Speaking Position conversions Categorizing Rule: How to sudy Report	ng, Reading & ng - Sentence Speeches - Speeches - Speeches - Speeches - Writing: Tog, Reading & evices - Verbaco Interviews, Cormation, Resew to Stick with and Documenting, Reading & nbinations - Speaking: g Information - Stay Motivate	Writin Improvocation Improvoca	g yemer g: Pre icatio f Essa g ude: y talks y for S Habi is/We g Apti for a nical (e.e.)	Sentes Supports Evide: In Grant Series Supports Evide: In Grant	bbreviating a Poi ow to I Argumen nce Cor eaking: rting Every Day es Coding iving Penunication k: An E	ions and Ant of View Make Good Intative and Interesting Action Commission - Interesting and Department on Effective Accerpt from	9 Acronyms 7 – Giving 8 d Habits 9 Sentence dvice and Technica erpt fron 9 coding - Talking ve use o
- Listening: Liste Opinions about P Inevitable and Bace based Essays Unit - IV Grammar: If/Conc Selection - Listen Suggestions - Inte Communication: M Atomic Habits Wri Unit - V Grammar: Comm Listening: Listeni about Gadgets, In Technology-based Habits - Writing: TEXT BOOK: 1. Sudharsha Delhi, 2016	and Passive Voice – Verbal Aptitude ning to Podcast Interviews and News/ odcast – Reading: Reading a Prod I Habits Impossible: An Excerpt from I Habits Impossi	Error Spottii Motivational Sedure — Cros Atomic Habits ing, Speaking Versational Deversational Deversational Deversational Deversation — Howas: Product a ing, Speaking Position conversions Categorizing Rule: How to sudy Report	ng, Reading & ng - Sentence Speeches - Speeches - Speeches - Speeches - Writing: Tog, Reading & evices - Verbaco Interviews, Cormation, Resew to Stick with and Documenting, Reading & nbinations - Speaking: g Information - Stay Motivate	Writin Improvocation Improvoca	g yemer g: Pre icatio f Essa g ude: y talks y for S Habi is/We g Apti for a nical (e.e.)	Sentes Supports Evide: In Grant Series Supports Evide: In Grant	bbreviating a Poi ow to I Argumen nce Cor eaking: rting Every Day es Coding iving Penunication k: An E	ions and Ant of View Make Good Intative and Interesting Action Commission - Interesting and Department on Effective Accerpt from	9 Acronyme 7 – Giving 8 d Habit 9 Sentence dvice and Technica erpt fron 9 coding - Talking we use o
- Listening: Liste Opinions about P Inevitable and Bace based Essays Unit - IV Grammar: If/Conc Selection - Listen Suggestions - Inte Communication: M Atomic Habits Wri Unit - V Grammar: Comm Listening: Listeni about Gadgets, In Technology-based Habits - Writing: TEXT BOOK: 1. Sudharsha Delhi, 2016 REFERENCES: 1. Ashraf Rize	and Passive Voice – Verbal Aptitude ning to Podcast Interviews and News/ odcast – Reading: Reading a Proof I Habits Impossible: An Excerpt from I Habits Imposs	Error Spottii Motivational Sedure — Croe Atomic Habits ing, Speakin Versational De Listening to adding for Info ication — Hov ws: Product a ing, Speakin Position cons Versational De Versational Committee Categorizing Rule: How to addy Report Chinical Committee Canada Committee Categorizing	ng, Reading & ng - Sentence Speeches - Speeches - Speeches - Writing: To not see the services - Verbaco Interviews, Commation, Resew to Stick with and Document ng, Reading & not not not not see the	Writin Improved the community of the com	g yemer g: Pre icatio f Essa g ude: / talks g for S Habi iss/We g Apti for a nical (fe and	Sente Sente Serte Supports Events Events Gomm Wor	bbreviating a Poi ow to I Argumen nce Con eaking: rting Every Day es Coding iving Penunication k: An E	ions and Ant of View Make Goothative and Frection — Giving Addidence — An Excorpt and Deermission — Con: Effective excerpt from Fresty Press	9 Acronyme 7 – Giving 8 d Habit 9 Sentence dvice and Technica erpt fron 9 coding - Talking we use o
- Listening: Liste Opinions about P Inevitable and Bace based Essays Unit - IV Grammar: If/Conc Selection - Listen Suggestions - Inte Communication: M Atomic Habits Wri Unit - V Grammar: Comm Listening: Listeni about Gadgets, In Technology-based Habits - Writing: TEXT BOOK: 1. Sudharsha Delhi, 2016 REFERENCES: 1. Ashraf Rize S. P. Dhan	and Passive Voice – Verbal Aptitude ning to Podcast Interviews and News/ odcast – Reading: Reading a Prod I Habits Impossible: An Excerpt from I Habits Impossi	Error Spottii Motivational Sedure — Croe Atomic Habits ing, Speakin Versational De Listening to adding for Info ication — Hov ws: Product a ing, Speakin Position cons Versational De Versational Committee Categorizing Rule: How to addy Report Chinical Committee Canada Committee Categorizing	ng, Reading & ng - Sentence Speeches - Speeches - Speeches - Writing: To not see the services - Verbaco Interviews, Commation, Resew to Stick with and Document ng, Reading & not not not not see the	Writin Improved the community of the com	g yemer g: Pre icatio f Essa g ude: / talks g for S Habi iss/We g Apti for a nical (fe and	Sente Sente Serte Supports Events Events Gomm Wor	bbreviating a Poi ow to I Argumen nce Con eaking: rting Every Day es Coding iving Penunication k: An E	ions and Ant of View Make Goothative and Frection — Giving Addidence — An Excorpt and Deermission — Con: Effective excerpt from Fresty Press	9 Acronyme 7 – Giving 8 d Habit 9 Sentence dvice and Technica erpt fron 9 coding - Talking we use o

^{*} includes Term Work (TW) & Assignments, Tutorials and Case Studies

2020 20 0 0 0 0 0	SE OUTCOMES: npletion of the course, the students will be able to	BT Mapped (Highest Level)
CO1	construct contextual and functional grammar to enhance the linguistic competence	Applying (K3)
CO2	listen, comprehend and infer implied meanings of the given text	Applying (K3)
CO3	speak clearly to develop competence to participate in oral discourses such as discussions / meetings / interviews and deliver presentations	Creating (K6)
CO4	critically read various texts by understanding contextual meanings and respond appropriately	Understanding (K2)
CO5	Analyze different genres of writing and making precise non-technical and technical documents	Analyzing (K4)
, VI	Mapping of COs with POs and PSOs	

COs/ POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PS01	PSO2
CO1	a a mystic	ent.			system in	1 1	ومستهاج	1	3	1	1		
CO2	ie i							2	3	-3,	1		E .
CO3					1 42		1 7	2	3	1	2	i in lega	
CO4						1		. 4.7	3	1	2		er f
CO5	,=								3		2		- p

1 – Slight, 2 – Moderate, 3 – Substantial, BT- Bloom's Taxonomy

ASSESSMENT PATTERN - THEORY

Test / Bloom's Category*	Remembering (K1) %	Understand ing (K2) %	Applying (K3) %	Analyzing (K4) %	Evaluating (K5) %	Creating (K6) %	Total %
CAT1	-	30	70		The State of the S	<u> </u>	100
CAT2		30	35	61	STOR OF S	35	100
CAT3	- 1, 1-	20	45	35	1		100
ESE	-	20	55	10		15	100

* $\pm 3\%$ may be varied (CAT 1, 2& 3 – 50 marks & ESE – 100 marks)

Door.

Signature of the Chairman Board of Studies - SaH (English) J. Region



The second	24MAC21 - MULTIVARIABLE CAL (Common to CIVIL, MECH, MTS						1		
Programme &	B.E – CIVIL, MECH,MTS, ECE,EEE,EIE	Sem.	Category	L	T	Р	SL*	Total	Credit
Branch	& B.Tech - FT								
Prerequisites	Nil	2	BS	45	7	16	52	120	4
Preamble	To impart the knowledge of partial derivati and analytic functions to the students for so								
Unit – I	Functions of Several Variables:					- 1		11. 12.	9
Functions of two	or more variables – Partial derivatives – Tota nima – Lagrange's multiplier method.	l differentia	I – Application	ns: M	axim	a and	l minim	a – Con	strained
Unit – II	Multiple Integrals:	1844						-	9
	on in cartesian coordinates – Change of order	of integrati	on – Applicat	ion: /	Area	betwe	een two	Curves	
integration in ca	rtesian coordinates – Volume as triple integral	s.	eye, have en		• •			ou. 100	mpic
Unit – III	Vector Calculus:								9
	ative – Gradient of a scalar point function – Div								
	vectors – Vector Integration: Introduction – e above theorems and evaluation of integrals			verge	ence	theo	rems (without	proof) -
Unit – IV	Analytic Functions:	doing thom		-					9
Functions of a	complex variable – Analytic functions – Nec	essary and	sufficient co	nditio	ns (exclu	ding pi	roof) – (
Riemann equation	ons (Statement only) – Properties of analytic f	unction (Sta	atement only)	– Ha	rmor	nic fur	nction -	- Constr	uction c
	- Conformal mapping: w = z + a, az, 1/z - Bil	linear transf	formation.						r =
Unit – V	Complex Integration:		. 0: 1 :		01				9
	auchy's theorem (without proof) – Cauchy's int it proof) – Applications: Evaluation of definite								
1. Finding	RIMENTS / EXERCISES: ordinary and partial derivatives	5 7							£ -
	ng extreme values of function of two variables	5					U		2
3. Evaluati	ng double and triple integrals		<i>a</i> .			18	0 5 4		
4. Finding	the area between two curves								
5. Computi	ng gradient, divergence and curl of point func	tions					_	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	
6. Applying	Milne-Thomson method for constructing anal	lytic function	n			-			2
7. Determin	nation of Mobius transformation for the given s	set of points	3						
8. Finding	poles and residues of an analytic function	A. S. C.							- 1
TEXT BOOK:			<u> </u>	. 7					
	amy P., Thilagavathy K. and Gunavathy K., " 2016, S.Chand and Co., New Delhi.	Engineering	g Mathematic	s Fo	r Firs	st Yea	ar B.E/	B.Tech",	Reprin
REFERENCES/	MANUAL / SOFTWARE:	F - F	, L			6	-80		
1. Kreyszig	E, "Advanced Engineering Mathematics ", 10) th Edition, J	lohn Wiley, N	ew D	elhi,	India	, 2016.		
2. Ramana Delhi, 20	B V, "Higher Engineering Mathematics", 1st	Edition, Ta	ata McGraw-F	Hill Pu	ublisl	hing (Compa	ny Limit	ed, Nev
	ny C., Vengataasalam S., Arun Prakash K. India Education, New Delhi, 2018.	and Sures	sh M., "Engin	eerin	g Ma	athen	natics ·	- II", 2 nd	Edition
4. Grewal E	3.S, "Higher Engineering Mathematics" 44thE	dition, Khar	nna Publisher	s, Ne	w De	elhi, 2	018.	10	
5. Multivari	able Calculus and Complex Analysis Laborate	ory Manual.					J.		

*includes Term Work (TW) & Online / Certification course hours

tel her seriorses	SE OUTCOMES: npletion of the course, the students will be able to	BT Mapped (Highest Level)
CO1	Compute the total derivatives and extreme values of multivariable functions.	Applying (K3) Manipulation (S2)
CO2	Apply multiple integrals to compute the area and volume of the regions.	Applying (K3) Manipulation (S2)
CO3	Apply the concepts of derivatives and line integrals of point functions in engineering problems.	Applying (K3) Manipulation (S2)
CO4	Construct analytic functions and bilinear transformations and determine the image of given region under the given conformal mapping.	Understanding (K2) Manipulation (S2)
CO5	Apply the techniques of complex integration to evaluate real and complex integrals over closed curves.	Applying (K3) Manipulation (S2)

COs/POs	PO1	DO2	DO2	DO4	DOS	DOG	DO7	DOS	POO	DO10	DO11	DCO4	DCCC
CUS/PUS	PO1	PUZ	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
CO1	3	3	2		3			N" ₁₀	-		1.1		11-120-
CO2	3	3	2		3		-	Little					1.01
CO3	3	3		-	3							- 43 ^V	- TI
CO4	3	3			3			- = 80				Y E.	d 2 %
CO5	3	3	3		3				1.				

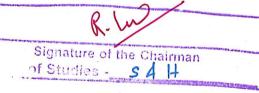
1 - Slight, 2 - Moderate, 3 - Substantial, BT- Bloom's Taxonomy

ASSESSMENT PATTERN - THEORY

Test / Bloom's Category*	Remembering (K1) %	Understanding (K2) %	Applying (K3) %	Analyzing (K4) %	Evaluating (K5) %	Creating (K6) %	Total %
CAT1		40	60		range L	I I I I I I I I I I I I I I I I I I I	100
CAT2	in .	40	60		free will be present take.		100
CAT3		50	50				100
ESE		30	70				100

* ±3% may be varied (CAT 1, 2 & 3 - 50 marks & ESE - 100 marks)







	24PHT21 – APPLIE	ED PHYS	SICS						
	(Common to CIVIL, MECH, MT	S and A	UTO branch	nes)	4.71	7	d.	7 1	1.15
Programme& Branch	BE - CIVIL, MECH, MTS and AUTO branches	Sem.	Category	L	Т	Р	SL*	Total	Credi
Prerequisites	Nil	2	BS	45	0	0	45	90	3
Preamble	This course aims to impart the knowledge on c fiber optics and select materials characterial aforementioned topics in engineering.	rystal ph zation t	ysics, quanti echniques.	um ph It als	nysic so d	s, aco escrib	ustics, es the	ultrasoni applica	cs, lase
Unit – I	Crystal Physics:		7.1.	I tops		197	A Shapping	CARCO	9
U nit – II Blackbody radiat	e, surface and volume imperfections. Quantum Physics and Applications: tion – Planck's theory – Compton scattering – Maine-independent and time-dependent wave equation	tter wave	es – Propert sical significa	ies – nce c	Heis	enber ve fun	g unce	rtainty pr Particle	9 rinciple in a one
Unit – III	Acoustics and Ultrasonics:					ī			9
			oration time	Gra	with	and d	occur of	cound	Cabina!
formula for rever remedies – Ulti	sound – Characteristics of sound – Reverberation ar beration time – Determination of sound absorption rasonics – Properties of ultrasonic waves – Gene lerator – Non-destructive testing – Flaw detection.	coefficie	nt - Factors	affec	ting a	acoust	ics of b	uildings	and the
formula for rever remedies – Ulti Piezoelectric ger Unit – IV	beration time – Determination of sound absorption rasonics – Properties of ultrasonic waves – Genemerator – Non-destructive testing – Flaw detection. Laser and Fiber optics:	coefficie eration of	nt – Factors f ultrasonic v	affec waves	ting a	acoust //agne	ics of b tostricti	ouildings ve gener	and the rator an
formula for rever remedies – Ultrepiezoelectric ger Unit – IV Stimulated absorinversion – Pum optical fibers badisplacement ser Unit – V Importance of m	beration time – Determination of sound absorption rasonics – Properties of ultrasonic waves – Genemerator – Non-destructive testing – Flaw detection. Laser and Fiber optics: rption – Spontaneous emission – Stimulated emission – CO ₂ laser – Holography – Fiber optics – I ased on refractive index, modes and materials	coefficie eration of sion – E Numerica – Fiber Materials er metho	instein's coe al aperture a optic comr s: od) — Scann	affect waves afficier and ad munic	ting a second ation	nd the system	tics of b tostricti eir relat angle - em -	iouildings ve gener ions – P Classifi Tempera	9 opulation cation of ture an
formula for rever remedies — Ultrepiezoelectric ger Unit — IV Stimulated absorinversion — Pum optical fibers badisplacement ser Unit — V Importance of melectron microscadvanced materi	beration time – Determination of sound absorption rasonics – Properties of ultrasonic waves – Generator – Non-destructive testing – Flaw detection. Laser and Fiber optics: reption – Spontaneous emission – Stimulated emission – CO ₂ laser – Holography – Fiber optics – I ased on refractive index, modes and materials rasors. Characterization Techniques and Advanced I staterials characterization – X-ray diffraction (powden)	coefficie eration of sion – E Numerica – Fiber Materials er metho	instein's coe al aperture a optic comr s: od) — Scann	affect waves afficier and ad munic	ting a second ation	nd the system	tics of b tostricti eir relat angle - em -	iouildings ve gener ions – P Classifi Tempera	9 opulation cation of ture an
formula for rever remedies – Ultrepiezoelectric ger Unit – IV Stimulated absorbinversion – Pum optical fibers badisplacement ser Unit – V Importance of melectron microscopadvanced materi	beration time – Determination of sound absorption rasonics – Properties of ultrasonic waves – Generator – Non-destructive testing – Flaw detection. Laser and Fiber optics: rption – Spontaneous emission – Stimulated emission – CO ₂ laser – Holography – Fiber optics – I ased on refractive index, modes and materials rasors. Characterization Techniques and Advanced I raterials characterization – X-ray diffraction (powdrope – UV-visible spectroscopy – Raman spectroscals – Metallic glasses – Shape memory alloys	sion – E Numerica – Fiber Materials er methoscopy –	instein's coe al aperture a optic comr s: od) – Scann Nuclear Ma	affectives afficient and action action and action action action and action ac	ting a second ation	nd the ance syste	croscop	iouildings ve gener ions – P Classifi Tempera	9 opulation cation of ture an
formula for rever remedies – Ultre Piezoelectric ger Unit – IV Stimulated absorition – Pum optical fibers be displacement ser Unit – V Importance of melectron microsorition divanced materi TEXT BOOK: 1. Katiyar A	beration time – Determination of sound absorption rasonics – Properties of ultrasonic waves – Generator – Non-destructive testing – Flaw detection. Laser and Fiber optics: rption – Spontaneous emission – Stimulated emission – CO ₂ laser – Holography – Fiber optics – I ased on refractive index, modes and materials rasors. Characterization Techniques and Advanced I staterials characterization – X-ray diffraction (powderope – UV-visible spectroscopy – Raman spectroscopy	sion – E Numerica – Fiber Materials er methoscopy –	instein's coe al aperture a optic communication s: od) – Scann Nuclear Ma	affective services afficient and acmunic services afficient acmunic services affects a	nts acceptation	nd the sance system	eir relat angle - em -	ouildings ve gener ions – P Classifi Tempera e – Tran tole of p	and the rator and 9 opulation cation of ture and 9 smission hysics i
formula for rever remedies — Ultre Piezoelectric ger Unit — IV Stimulated absorition — Pum optical fibers badisplacement ser Unit — V Importance of melectron microsociad vanced materi TEXT BOOK: 1. Katiyar A 2023(Unit — 2023(Unit — 2023)	beration time – Determination of sound absorption rasonics – Properties of ultrasonic waves – Generator – Non-destructive testing – Flaw detection. Laser and Fiber optics: Introduction – Spontaneous emission – Stimulated emission – CO ₂ laser – Holography – Fiber optics – Nased on refractive index, modes and materials ansors. Characterization Techniques and Advanced Interials characterization – X-ray diffraction (powdrope – UV-visible spectroscopy – Raman spectrosals – Metallic glasses – Shape memory alloys. A.K., Pandey C.K., "Engineering Physics: Theory and asan K and Prabu K, "Physics for Engineering I"	sion – E Numerica – Fiber Materials er methoscopy –	instein's coe al aperture a optic communication s: od) – Scann Nuclear Ma	affective services afficient and acmunic services afficient acmunic services affects a	nts acceptation	nd the sance system	eir relat angle - em -	ouildings ve gener ions – P Classifi Tempera e – Tran tole of p	and the rator an 9 opulatio cation of ture an 9 smissio hysics i
formula for rever remedies — Ultr Piezoelectric ger Unit — IV Stimulated absorbinversion — Pum optical fibers be displacement ser Unit — V Importance of melectron microsorbadvanced materi TEXT BOOK: 1. Katiyar A. Tamilara 2023(Unit — IV) REFERENCES: 1. Malik H.	beration time – Determination of sound absorption rasonics – Properties of ultrasonic waves – Generator – Non-destructive testing – Flaw detection. Laser and Fiber optics: Introduction – Spontaneous emission – Stimulated emission – CO ₂ laser – Holography – Fiber optics – Nased on refractive index, modes and materials ansors. Characterization Techniques and Advanced Interials characterization – X-ray diffraction (powdrope – UV-visible spectroscopy – Raman spectrosals – Metallic glasses – Shape memory alloys. A.K., Pandey C.K., "Engineering Physics: Theory and asan K and Prabu K, "Physics for Engineering I"	sion – E Numerica – Fiber Materials er metho scopy – Practica ", 1st Ed McGraw	instein's coe al aperture a optic common Nuclear Ma I", 2 nd edition lition, McGra	affective waves afficier and ac anunic ing el gnetic , Wile aw Hi	ting : - Note that it is a second content of the co	nd the sance system on microsonan	eir relation angle - croscopice - Rinit I, II).	cuildings ve gener ions – Pr Classifi Tempera e – Tran cole of p	and the rator an 9 opulation cation of ture an 9 asmission hysics i

*includes Term Work (TW) & Online / Certification course hours

	SE OUTCOMES: mpletion of the course, the students will be able to	BT Mapped (Highest Level)
CO1	analyze seven crystal systems, interplanar spacing in cubic lattice, BCC, FCC, HCP crystal systems and the types of crystal imperfections and their impacts.	Analyzing (K4)
CO2	investigate the concepts of quantum mechanics to describe Planck's theory, Compton effect and the behavior of electrons in a metal by solving Schrodinger's wave equations.	Analyzing (K4)
CO3	explore the concepts of growth and decay of sound energy in a hall to compute Sabine's formula and to recognize the requirements of acoustically good buildings and also to describe the production of ultrasonic waves and testing of materials by non-destructive method.	Analyzing (K4)
CO4	examine the concepts of stimulated emission of radiation to explain the working and the applications of laser in engineering and technology. To apply the principle of propagation of light through optical fiber to compute acceptance angle and numerical aperture and also to explain fiber optic communication system and the working of fiber optic sensors.	Analyzing (K4)
CO5	Inspect Raman effect, X-ray diffraction, matter waves, nuclear magnetic resonance, metallic glasses and shape memory alloys.	Analyzing (K4)

COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
CO1	3	2	2				,	1	1		1		2
CO2	3	2	2				-	1	1		1		
CO3	3	2	2					1	1	. , -	1		1 =
CO4	3	2	2					1 .	1		1		
CO5	3	2	2					1	1		1		1 ,51

1 - Slight, 2 - Moderate, 3 - Substantial, BT- Bloom's Taxonomy

ASSESSMENT PATTERN - THEORY

Test / Bloom's Category*	Remembering (K1) %	Understanding (K2) %	Applying (K3) %	Analyzing (K4) %	Evaluating (K5) %	Creating (K6) %	Tota
CAT1	100 Y	40	50	10		sa sarias in i	100
CAT2		40	50	10			100
CAT3		40	50	10			100
ESE		40	50	10			100

* ±3% may be varied (CAT 1,2,3 - 50 marks & ESE - 100 marks)

Signature of the Chairman

Board of Studies - S&H, Physics





	Civil, Mechanical, Mechatronics, Chemica	i, Food Tec	nnology& A	utomo	bile	Eng	neerin	g branc	hes)
Programme & Branch	B. E Civil , Mechanical, Automobile B.Tech Chemical Engineering ,Food Technology	Sem.	Category	L	T	Р	SL*	Total	Credit
Prerequisites	Programming in C	2	ES	45	0	30	45	120	4
Preamble	This course deals with core python programm python constructs and libraries.	ing. It gives	a comprehens	sive in	trodu	ction	to probl	em solvii	ng using
Unit -I	Introduction:							9	F
identifiers - da	ng strategies – program design tools – Types of ata types – input operation – comments – resentents: Introduction – conditional statement – its sein loops.	/ed words -	indentation -	Opera	ators	and I	Express	ions - D	ecision
Unit –II	Lists, Tuples and Dictionary:	×					1 2 6	9	
add and modification unit –III Strings: Conca	ons, assignments, returning multiple values, nes y, delete, sort, looping, nested, built-in methods – Strings and Regular Expressions: atenation, append, multiply on strings – Immutal	list vs tuple ole – formatti	vs dictionary.	- Built-	in str	ing m	nethods	9 and fund	tions –
findall and find	 functions – operators – comparing – iteratiniter functions – flag options. 	g – string m	iodule – Regi	ular Ex	kpres	sions	– mato	ch, searc	h, sub,
Unit –IV	Functions and Modules:	^						9	
 documentation 	oduction – definition – call – variable scope and l on strings – programming practices recursive fun	otion Modul	ırn statement	- tund	tion	argun	nents –	lambda fi	unction
function redefin	nition.	Ction- Modul	es. Modules -	- раска	ages	– sta	ndard III	orary met	nods –
Unit –V	nition. Object Orientation:							9	
Unit –V Class and Obje	nition.	constructor–	class and obje	ct vari	able	s–des	tructor-	9 public an	
Unit –V Class and Obje private data me	nition. Object Orientation: ects: Class and objects–class methods and self–	constructor–	class and obje	ct vari	able	s–des	tructor-	9 public an	
Unit –V Class and Objectivate data me	nition. Object Orientation: ects: Class and objects–class methods and self– ember. NumPy: NumPy Arrays – Computation o	constructor–	class and obje	ct vari	able	s–des	tructor-	9 public an	
Unit –V Class and Objectivate data median LISTOF EXPE	nition. Object Orientation: ects: Class and objects–class methods and self–ember. NumPy: NumPy Arrays – Computation o	constructor–	class and obje	ct vari	able	s–des	tructor-	9 public an	
Unit –V Class and Objectivate data median LISTOF EXPE 1. Program 2. Imp	nition. Object Orientation: ects: Class and objects–class methods and selfember. NumPy: NumPy Arrays – Computation of RIMENTS / EXERCISES: grams using conditional and looping statements	constructor–	class and obje	ct vari	able	s–des	tructor-	9 public an	
Unit –V Class and Objectivate data median LISTOF EXPE 1. Program 2. Imp 3. Imp	nition. Object Orientation: ects: Class and objects–class methods and self–ember. NumPy: NumPy Arrays – Computation of RIMENTS / EXERCISES: grams using conditional and looping statements lementation of list and tuple operations	constructor–	class and obje	ct vari	able	s–des	tructor-	9 public an	
Unit –V Class and Objectivate data media in the control of the con	nition. Object Orientation: ects: Class and objects-class methods and self-ember. NumPy: NumPy Arrays - Computation of RIMENTS / EXERCISES: grams using conditional and looping statements lementation of list and tuple operations	constructor–	class and obje	ct vari	able	s–des	tructor-	9 public an	
Unit –V Class and Objectivate data median data median data median data median data median data data data data data data data da	nition. Object Orientation: ects: Class and objects-class methods and self-ember. NumPy: NumPy Arrays - Computation of RIMENTS / EXERCISES: grams using conditional and looping statements lementation of list and tuple operations lementation of dictionary operations form various string operations	constructor- n NumPy Arr	class and obje ays. Matplotli	ct vari	able	s–des	tructor-	9 public an	
Unit –V Class and Objectivate data media in the control of the con	object Orientation: cets: Class and objects—class methods and self—ember. NumPy: NumPy Arrays—Computation of RIMENTS / EXERCISES: grams using conditional and looping statements lementation of list and tuple operations lementation of dictionary operations form various string operations regular expressions for validating inputs	constructor- n NumPy Arr	class and obje ays. Matplotli	ct vari	able	s–des	tructor-	9 public an	
Unit –V Class and Objectivate data media in the control of the con	nition. Object Orientation: ects: Class and objects—class methods and self—ember. NumPy: NumPy Arrays—Computation of RIMENTS / EXERCISES: grams using conditional and looping statements dementation of list and tuple operations dementation of dictionary operations form various string operations regular expressions for validating inputs monstration of different types of functions and parameters.	constructor- n NumPy Arr	class and obje ays. Matplotli	ct vari	able	s–des	tructor-	9 public an	
Unit –V Class and Objectivate data media in the control of the con	Object Orientation: ects: Class and objects—class methods and self—ember. NumPy: NumPy Arrays — Computation of RIMENTS / EXERCISES: grams using conditional and looping statements lementation of list and tuple operations lementation of dictionary operations form various string operations regular expressions for validating inputs monstration of different types of functions and partelop programs using classes and objects	constructor- n NumPy Arr	class and obje ays. Matplotli	ct vari	able	s–des	tructor-	9 public an	
Unit –V Class and Objectivate data media in the control of the con	Object Orientation: ects: Class and objects—class methods and self—ember. NumPy: NumPy Arrays—Computation of RIMENTS / EXERCISES: grams using conditional and looping statements dementation of list and tuple operations dementation of dictionary operations form various string operations regular expressions for validating inputs and particular programs using classes and objects form computation on Numpy arrays	constructor- n NumPy Arr	class and obje ays. Matplotli	ct vari	able	s–des	tructor-	9 public an	
Unit –V Class and Objectivate data media in the control of the con	Object Orientation: ects: Class and objects—class methods and self—ember. NumPy: NumPy Arrays—Computation of RIMENTS / EXERCISES: grams using conditional and looping statements dementation of list and tuple operations dementation of dictionary operations form various string operations regular expressions for validating inputs and particles programs using classes and objects form computation on Numpy arrays we different types of plots using Matplotlib	constructor— n NumPy Arr ameter pass	class and obje	ect vari	ables	s-des	tructor-catter P	9 public an lots	d
Unit –V Class and Object private data media in the control of the	Object Orientation: ects: Class and objects—class methods and self—ember. NumPy: NumPy Arrays—Computation of RIMENTS / EXERCISES: grams using conditional and looping statements dementation of list and tuple operations dementation of dictionary operations form various string operations regular expressions for validating inputs monstration of different types of functions and particle programs using classes and objects form computation on Numpy arrays we different types of plots using Matplotlib	constructor— n NumPy Arr ameter pass	class and obje	ect vari	ables	s-des	tructor-catter P	9 public an lots	d
Unit –V Class and Objectivate data media in the control of the con	Object Orientation: ects: Class and objects—class methods and self—ember. NumPy: NumPy Arrays—Computation of RIMENTS / EXERCISES: grams using conditional and looping statements lementation of list and tuple operations lementation of dictionary operations form various string operations regular expressions for validating inputs monstration of different types of functions and particle programs using classes and objects form computation on Numpy arrays we different types of plots using Matplotlib	constructor— n NumPy Arr ameter pass	class and objective ays. Matplottiing	ect vari b : Line	ables e plo	s-des	tructor-catter P	9 public an lots	d
Unit –V Class and Objectivate data media in the control of the con	Object Orientation: ects: Class and objects—class methods and self—ember. NumPy: NumPy Arrays—Computation of RIMENTS / EXERCISES: grams using conditional and looping statements dementation of list and tuple operations dementation of dictionary operations form various string operations regular expressions for validating inputs monstration of different types of functions and particle programs using classes and objects form computation on Numpy arrays we different types of plots using Matplotlib	constructor— n NumPy Arr ameter pass vingapproac	class and objective ays. Matplottiing h",3 rd impress Press, New De	ion, O	ables e plo	s-des	tructor-catter P	9 public and lots	d

^{*}includes Term Work(TW) & Online / Certification course hours

	SE OUTCOMES: appletion of the course, the students will be able to	BT Mapped (Highest Level)
CO1	use basic python constructs to build simple programs	Applying(K3), Precision(S3)
CO2	apply list, tuple and dictionary to handle variety of data.	Applying(K3), Precision(S3)
CO3	apply strings and regular expression for searching and retrieval	Applying(K3), Precision(S3)
CO4	solve the problems using functions and modules.	Applying(K3), Precision(S3)
CO5	apply object oriented concepts and perform data science operations using python	Applying(K3), Precision(S3)

COs/Pos	P01	P02	PO3	PO4	PO5	P06	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
CO1	3	2	2	2	1				1	1	1	3	1
CO2	3	2	2	2	1	3 ×			1	1	1	3	1
CO3	3	2	2	2	1				1	1	1	3	1
CO4	3	2	2	2	1			V	1	1	1	3	1
CO5	3	2	2	2	1				1	1	- 1	3	1

1 - Slight, 2 - Moderate, 3 - Substantial, BT- Bloom's Taxonomy

ASSESSME	NT PATTERN	N – THEORY
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Test / Bloom's Category*	Remembering (K1) %	Understanding (K2) %	Applying (K3) %	Analyzing (K4) %	Evaluating (K5) %	Creating (K6) %	Total %
CAT1	v	25	75				100
CAT2		25	75	**			100
CAT3		25	75				100
ESE		25	75		1	7	100

*±3% may be varied (CAT 1,2,3-50marks & ESE-100marks)

Signature of the Chairman Board of Studies - IT



	24CET21 -	CONSTRUCTION	N MATERIAL	S AND PRA	CTIC	ES				
Programme & Branch	B.E & CIVIL ENGINEE	RING	Sem.	Category	L	Т	Р	SL*	Total	Credit
Prerequisites	Nil	2 /	2	PC	45	0	0	45	90	3
Preamble	This course imparts k		materials us	ed for constru	uction	and	the	constru	iction te	chniques
Unit – I	Building Materials									9
Rocks - Qualitie	types of building materials s of good stones – Uses. E alities of good cement - Ty	Bricks: Constituents	- Qualities of							ation of
Unit – II	Mortar, Concrete and	Steel								9
	Mortars – Properties –Use ed concrete. Steel: Steel se								Properti	es –
Unit – III	Timber and Plastics									9
	eristics of timber – Season plastics and Thermosetting		perties and us	ses – Common	forms	of tir	mber	. Plasti	cs: Adva	ntages -
Unit – IV	Substructure and Su	perstructure	1 1					7		9
Failure and remo	pjectives of foundation – Be edial measures. Superstruct brick and stone masonry.	cture: Brick masonr								
Unit – V	Construction Practice	es							-	9
2	, 1.	9			-					ō:
TEXT BOOK:	<u> </u>									
1. Palanici	amy M.S., "Basic Civil Eng	gineering", 4th Editi	on, McGraw-	Hill Education,	New	Delhi,	201	7.		
REFERENCES:		* .	1				×		3	_
1. Navane 2016	ethakrishnan P., "Basic of o	Civil and Mechanica	al Engineering	g", 1st Edition,	McGr	aw-H	ill Ed	ucation	n, New D	elhi,
2. Duggal	S.K., "Building Materials", 5	5th Edition, New Ag	e Publishers,	2021.				-		

200000000000000000000000000000000000000	SE OUTCOMES mpletion of the		the stu	dents v	vill be a	able to				-			BT Ma (Highes	apped st Level)	
CO1	ol identify the role of bricks, stones, cement and rocks in construction											4	Understanding (K2)		
CO2	infer the prope	erties of c	oncrete	and ste	el as co	onstruct	ion mate	erials				1	Applyir	ng (K3)	
CO3	identify the us	age of pla	astics a	nd other	moder	n mater	ials use	d in buil	dings				Understar	nding (K2)	
CO4	classify and co	ompare tl	ne types	of foun	dations	and ma	asonry s	tructure	s in buil	dings			Applyir	ng (K3)	
CO5	interpret the v	arious co	nstructi	on pract	ices an	d techni	ques ac	dopted i	n buildir	g const	ruction		Applyii	ng (K3)	
	a mili wa nga n				Mappir	ng of Co	Os with	POs a	nd PSO	s		To the second			
СО	s/POs/PSOs	PO1	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PSO1	PSO2	
H. T	CO1	2					2	3	= 10		IT.	***	3	2	
	CO2	2	v 18. i		- 1 A		2			100			3	2	
E	CO3	2					2	3		- 4 2			3	2	

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3

1 - Slight, 2 - Modera	e, 3 - Substantial	BT- Bloom's	Taxonomy
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2

2

CO4

CO₅

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	ASSESSM	ENT PATTER	N - THEORY			
Remembering (K1) %	Understanding (K2) %	Applying (K3) %	Analyzing (K4) %	Evaluating (K5) %	Creating (K6) %	Total %
	40	60			. 2 -1 - 1	100
	40	60		V 6/7 = 1.4		100
- ,	40	60				100
_	40	60		_		100
		Remembering	Remembering (K1) % Understanding (K2) % Applying (K3) % 40 60 40 60 40 60	(K1) % (K2) % (K3) % (K4) % 40 60 40 60 40 60	Remembering (K1) % Understanding (K2) % Applying (K3) % Analyzing (K4) % Evaluating (K5) % 40 60 60 40 60	Remembering (K1) % Understanding (K2) % Applying (K3) % Analyzing (K4) % Evaluating (K5) % Creating (K6) % 40 60

±3% may be varied (CAT 1,2,3 - 50 marks & ESE - 100 marks)

of the Chairman

Signature Board of Studies



3

3

2

	24TAM02 - TAMILS								
	(Common to All Engineerin	ng and Techr	ology Branc	hes)				. 12 Ers	
Programme & Branch	All BE/BTech Branches	Sem.	Sem. Category			Р	SL*	тот	Credit
Prerequisites	Nil	2	HS	15	0	0	15	30	1
Preamble	This course aims to impart the essential know	ledge on the	tamil culture a	nd rel	ated	techn	ology		
UNIT – I	WEAVING AND CERAMIC TECHNOLOGY					. 7			3
Weaving Industr	ry during Sangam Age – Ceramic technology – B	lack and Red	Ware Potterie	es (BF	RW) -	- Graf	fiti on P	otteries.	as ler
UNIT – II	DESIGN AND CONSTRUCTION TECHNOLO	GY	1 324	4	-		PWF	14.9	3
stones of Sanga Temples of Cho	Structural construction House & Designs in hous am age – Details of Stage Constructions in Sila las and other worship places – Temples of Naya – Chetti Nadu Houses, Indo – Saracenic archited	ppathikaram aka Period –	 Sculptures Type study (M 	and T ladura	Гетр ai Ме	les of	Mama	llapuram	- Grea
UNIT – III	MANUFACTURING TECHNOLOGY		T = 3			a -		-	3
Minting of Coin	ding – Metallurgical studies – Iron industry – Iron is – Beads making – industries Stone beads vidences – Gem stone types described in Silappa	- Glass bea							
UNIT – IV	AGRICULTURE AND IRRIGATION TECHNO	LOGY	THE RESERVE OF THE PERSON OF T			,	71		3
	nds, Sluice, Significance of Kumizhi Thoompu of Agro Processing – Knowledge of Sea – Fish cific Society.								
UNIT – V	SCIENTIFIC TAMIL & TAMIL COMPUTING								3
	Scientific Tamil – Tamil computing – Digitalizati nil Digital Library – Online Tamil Dictionaries – Sc			pmer	nt of	Tamil	Softwa	re – Tan	nil Virtua
TEXT BOOK:	m - Grand Common		1 ,			, R.			
1. Social Life	e of Tamils (Dr.K.K.Pillay) A joint Publication of T	NTB & ESC a	ınd RMRL – (i	n prin	t)		> -		
2. Social Life	e of the Tamils – The Classical Period (Dr.S.Siga	ravelu) (Publi	shed by: Inter	natior	nal In	stitute	of Tan	nil Studie	s).
REFERENCES:				ar dish	W.	9		-4	
1 1.	வரலாறு - மக்களும் பண்பாடும் - கே ே ில் பணிகள் கழகம்), உலகத் தமிழாராய்				U	ரடு L	ாடநூ	ல் மற்ற	றும்
	ந்தமிழ் முனைவர் இல. சுந்தரம், விகட							1111	
3. கீழடி ை	வகை நதிக்கரையில் சங்ககால நகர நா	ாகரிகம்.(தெ	ால்லியல் த	துறை	၅ ရ	വണി	பீடு)		
	ந ஆற்றங்கரை நாகரிகம் (தொல்லியல்	துறை வெ	பளியீடு	1				17	
4. பொருன	U " (U T " (D 0)/01 () D	r.K.D. Thiruna	avukarasu) (Pi	ublish	ed by	y : Inte	ernation	al Institu	te of
5 Historical	Heritage of the Tamils (Dr.S.V.Subatamanian, D dies)								10 01
5. Historical Tamil Stude. 6. The Control	dies) ribution of the Tamils to Indian Culture (Dr.M.Vala							il Studie	
5. Historical Tamil Stu- 6. The Contract Keeladi –	dies)	aigai; (Jointly	Published by:					il Studie	
5. Historical Tamil Sture 6. The Control Keeladi – Tamilnadi 8. Studies in	dies) ribution of the Tamils to Indian Culture (Dr.M.Vala 'Sangam City Civilzation on the banks of river Va u Text Book and Educational Services Corporatio the History of India with Special Reference to Ta	aigai; (Jointly on, Tamilnadu amilnadu (Dr.l	Published by:) K.K.Pillay) (Pu	Depa ıblishe	rtme ed by	nt of	Archae Autho	il Studie ology & r)	s).
5. Historical Tamil Sture 6. The Control 7. Keeladi – Tamilnado 8. Studies in Porunai C	dies) ribution of the Tamils to Indian Culture (Dr.M.Vala 'Sangam City Civilzation on the banks of river Va u Text Book and Educational Services Corporation	aigai; (Jointly on, Tamilnadu amilnadu (Dr.l	Published by:) K.K.Pillay) (Pu	Depa ıblishe	rtme ed by	nt of	Archae Autho	il Studie ology & r)	s).

*includes Term Work (TW) & Online / Certification course hours

	SE OUTCOMES: mpletion of the course, the students will be able to	BT Mapped (Highest Level)
CO1	explain weaving and ceramic technology in tamil culture and tamil society.	Understanding (K2)
CO2	Illustrate about the design and construction technology.	Understanding (K2)
CO3	summarize about the manufacturing technology.	Understanding (K2)
CO4	explain the agriculture and irrigation technology.	Understanding (K2)
CO5	explain the significance of tamil in scientific and computing.	Understanding (K2)
		A CONTRACT OF THE PERSON

COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
CO1	and a dis		- 6.10.5	S. W.A.TH	-1	3		3	2	2			
CO2	ekinsate.	le de co			18 7	3	in-	3	2	2		Tuest II	al sec
CO3	THES T					3		3	2	2			
CO4						3		3	2	2			
CO5					2	3		3	2	2			

1 - Slight, 2 - Moderate, 3 - Substantial, BT- Bloom's Taxonomy

ASSES	SMENT PA	ATTERN –	THEORY
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Test / Bloom's Category*	Remembering (K1) %	Understanding (K2) %	Applying (K3) %	Analyzing (K4) %	Evaluating (K5) %	Creating (K6) %	Total %
CAT1	40	60					100
CAT2	40	60	2	- 1	- H		100
CAT3	40	60					100
ESE				NA			

* ±3% may be varied (CAT 1,2,3 - 50 marks)

Signature of the Chairman

Board of Studies - 5 & H (Physia)



	(Common to All Engineering and Techi	olog	y Branches)			<i>(</i> -			
Programme & Branch	All BE/BTech Branches Se	m.	Category	L	Т	Р	SL*	тот	Cred
Prerequisites	Nil	2	HS	15	0	0	15	30	1
முன்னுரை	தமிழ் கலாச்சாரத்தோடு ஒன்றிய தொழில் நுட்பா	பகன	ள பற்றிப்	எடுத்	துரை	ரத்த	தல்		ا لبائد.
அலகு - ।	நெசவு மற்றும் பானை தொழில்நுட்பம்		The second second			HE.		3	12
சங்க காலத்த கீறல் குறியீடு	ில் நெசவு தொழில் – பானைத் தொழில்நுட்பம் }கள்	கரு	ப்பு சிவப்பு	ЦП	ன் டர்	រាមខ	т —	பாண்ட	_களி
அ லகு - II	வடிவமைப்பு மற்றும் கட்டிடத் தொழில்நுட்பம்	- Naga		d be		11		3	
– சங்க கால விவரங்கள் – வழிபாட்டுத் மீனாட்சி அப	ில் வடிவமைப்பு மற்றும் கட்டுமானங்கள் & சங்க நத்தில் கட்டுமான பொருட்களும் நடுகல்லும் – மாமல்லபுரச்சிற்பங்களும், கோவில்களும் – சோழ தலங்கள் – நாயக்கர் காலக் கோயில்கள் –மா மமன் ஆலயம் மற்றும் திருமலை நாயக்கர் மஹ	சிலட் ஓர் ச திரிச	பதிகாரத்தி காலத்து டெ கட்டமைப்பு	ல் (பருங் கள்	மேடை கோய பற்றி	ட பில் நி	அரை கள் அறித	மப்பு ப மற்று தல், ப	பற்றி! ம் பி மதுன
	சன்னை இந்தோ-சாரோசெனிக் கட்டிடக் கலை.								
அலகு - III :: ^	<mark>உற்பத்தித் தொழில்நுட்பம்</mark> ம் கலை – உலோகவியல் – இரும்புத் தொழி _!	S						3	<u> </u>
வரலாற்றுச்ச உருவாக்கும்	ான்றுகளாக செம்பு மற்றும் தங்க நாணயங்கள தொழிற்சாலைகள் – கல்மணிகள் – கண்ணாடி மன் ண்டுகள் – தொல்லியல் சான்றுகள் – சிலப்பதிகாரத்	n - னிக	- நாணயா ள் – சுடும	ங்கள் ண் ப	அ ஹிச	ச்சம ள்	டித் த	လ် –	மண
அலகு - ו∨	வேளாண்மை மற்றும் நீர்ப்பாசனத் தொழில்நுட்ப	'n			-				-
	குளங்கள், மதகு – சோழர்கால குமிழித் தூம்பின்	r Ш							
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கால்நடைகளு – கடல்சார் அ அறிவுசார்சமூ அலகு - v அறிவியல் த மென்பொருட் தமிழ் அகராத	குளங்கள், மதகு – சோழர்கால குமிழித் தூம்பின் நக்காக வடிவமைக்கப்பட்ட கிணறுகள் – வேளாண்டை புறிவு – மீன்வளம் – முத்து மற்றும் முத்துக்குளித்த நகம்.	நழ் நிழ்	ற்றும் வேள பெருங்கட நூல்களை	ாண் ல் கு மில்	மை ச ஹித்த நித்த	т ў <u>і</u> 6	ந்த ெ ண்ண	பராம சயல்ப டய அ 3 தல் –	நமி _!
கால்நடைகளு – கடல்சார் அ அறிவுசார் சறு அலகு - V அறிவியல் த மென்பொருட் தமிழ் அகராத TEXT BOOK:	குளங்கள், மதகு – சோழர்கால குமிழித் தூம்பின் நக்காக வடிவமைக்கப்பட்ட கிணறுகள் – வேளாண்டை நிறிவு – மீன்வளம் – முத்து மற்றும் முத்துக்குளித்த நகம். அறிவியல் தமிழ் மற்றும் கணினித்தமிழ் நிழின் வளர்ச்சி – கணினிதத்தமிழ் வளர்ச்சி – த கள் உருவாக்கம் – தமிழ் இணையக் கல்விக்கழ	T பு ல் — மிழ் 6ம்	ற்றும் வேள பெருங்கட நூல்களை – தமிழ் மி	ாண் ல் கு மின்	மை ச ஹித்த ாபதிட் நூலக	6 Ц БЦ	ந்த ெ ண்ை செய் – இ	பராம் சயல்ப டய அ 3 தல் –	நமி நிவு தமி பத்தில்
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		JTCOM		oromo iņ	тċт			=					BT Mapp		
பரிப				மாணவர்		<u> </u>							(Highest L	.evei)	
CO1	தமி! தொ			ம் மற்ற ற்றி வி	• • • • • • • • • • • • • • • • • • • •	•		த்தினு	டைய	ப நெசவு	மற்றும்	பானை	Understanding (K2)		
CO2 தமிழர்களின் வடிவமைப்பு மற்றும் கட்டிடத் தொழில்நுட்ப ஆற்றல் பற்றி விளக்க முடியும்.													Understanding (K2)		
CO3 தமிழர்களின் உற்பத்தித் தொழில்நுட்பம் பற்றி சுருக்கமாகக் கூற முடியும்.													Understandi	ng (K2)	
CO4 தமிழர்களின் வேளாண்மை மற்றும் நீர்ப்பாசனத் தொழில்நுட்பம் பற்றி விளக்க முடியும்.												Understanding (K2)			
CO5	தமி	ழர்களி	ன் அறி	வியல் ந	தமிழ்	மற்றுப்	் கன	ளினித் <u>த</u>	ழ்மி	பற்றி வி	ாக்க முடிய	ம்.	Understandi	ng (K2)	
10.1.1	1000	100	'41 BO	100	20	n de c		OF 71.		97 9	L CL	15611	N LA SA	-10-ja	
		7		s and PS		205	200	D07	DO		D040	D044	5004	T	
COs		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO		PO10	PO11	PS01	PSO2	
CC							3	Δ.	3	2	2	Tar error			
CC		146.				The second	3	10° - 10	3	2	2	442			
CC		Part	- 42		1		3	S 6	3	2	2		7 1 1.	gan .	
CC				1 m	1	, NF 1,	3	1	3	2	2	- ;-	- June	y M	
1 – SI	ight, 2	- Mode	rate, 3 –	Substantia	al, BT- I	3loom's	Taxon	omy	0.	See 1 2 1	Mark 11 de	De la state (1981 F- 7 MILE		
	184			to et		1		10,167		in July 15	/8= _==	1 411.11	0.00	46,	
* 1°F3.	, IEgy	1776		36834	7115 2	ASSE	SSME	NT PATI	ΓERN	- THEORY	910	v 15-11.		E ST	
	st / Bl Categ	oom's ory*	Ren	nemberin (K1) %	g Un	derstan (K2) %		Applyii (K3) %		Analyzing (K4) %	Evaluating	g (K5) %	Creating (K6) %	Total	
(4)	CAT	Γ1		40		60				7			e is Kalas	100	
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Kini.	CAT	3	in me at and	40		60		8 - 1 2					2	100	
	ESI	E		8 5 . 3	plan .				1 18	NA					

Signature of the Chairman
Board of Studies - 5 & H (Physics

* ±3% may be varied (CAT 1,2,3 – 50 marks)



					24	IPHL21	- APF	LIED P	HYSIC	S LABO	RATORY						
	- 1			×I	(Com	mon to	CIVIL,	МЕСН,	MTS a	nd AUT	O branches	5)	-				. 1
Progra Branch			BE - C	CIVIL, N	IECH, I	ITS and	d AUTC) branc	hes	Sem.	Category	L	Т	Р	SL* TOT	тот	Credit
Prereq	uisites	s	Nil							2	BS	0	0	30	0	30	1
Preamb	ole		Young particl thickn	g's mod e size, ess of a	lulus, th accepta	nermal ance ar Im and	conduc gle and	tivity, A d nume	C frequirical ap	uency, o erture c	termination of compressibility of an optical g coding / de	ity o fiber	fal , sp	liquid, ecific	wave resista	length ance, ba	of laser, and gap,
LIST O	F EXP	ERIN	IENTS	EXER	CISES:												
1.	Deter	rmina	tion of t	he You	ng's mo	dulus o	f the ma	aterial o	f a give	n beam	using unifor	m be	endir	ng me	thod.		
2.	Deter	Determination of the thermal conductivity of a bad conductor using Lee's disc.															
3.	Deter	rmina	tion of t	he freq	uency o	f alterna	ating cu	rrent us	ing ele	ctrically	vibrating tun	ing f	ork (Meld	e's app	paratus)	
4.	Deter	rmina	tion of t	he wav	elength	of the g	jiven se	micond	luctor la	ser.	9						*
5.	Dete	rmina	tion of t	he parti	icle size	of the	given p	owder u	sing la	ser.	=		5)				
6.	Dete	rmina	tion the	accept	ance ar	ngle and	l numer	ical ape	erture o	f the giv	en optical fib	er.					
7.	Dete	rmina	tion of t	he spec	cific res	istance	of the g	iven me	etallic w	ire usin	g Carey Fost	ter's	brid	ge.	_		
8.	Dete	rmina	tion of t	he ban	d gap o	f a giver	n semic	onducti	ng mate	erial usi	ng post-office	e box	۲.	-			
9.	Dete	rmina	tion of t	he thick	kness o	f a thin t	īlm usir	ng air-w	edge a	rrangem	nent.					-	-
10.	Writin	ng co	ding for	any on	e of the	above	experin	nents / c	develop	ing a pr	oject / a prod	duct.					
REFER	RENCE	S/ M	ANUAL	/SOFT	WARE	1. 6. 0			ž.								
1.	Labo	ratory	/ Manua	al					, 9								
COUR	SE OU	TCO	MES:											T	E	ВТ Мар	oed
On cor						ents wi										ghest L	
CO1					odulus ating c		terial, th	ne thern	nal con	ductivity	of a bad co	nduc	tor a	and		alyzing ecision	
CO2	deter	mine	the wa	velengt	h of a						e of a powd	er m	ater	ial,	An	alyzing ecision	(K4),
CO3	deter	mine	the sp	pecific	resistar	nce of	a meta	allic wir	re, the	band	gap of sem product.	iicon	duct	ing	An	alyzing	(K4),
								f COs v									
COs/P	Os F	P01	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	T	PO	11	PSC	01	PSO2
CO1		3	2	2	3				3	1			2				4
CO2		3	2	2	3				3	1			2	2			,
CO3	3	3	2	2	3,				3	1	5		2	2			
1 – Sliç	ght, 2 -	- Mod	erate, 3	- Sub	stantial,	BT- Blo	oom's T	axonon	ny								* 1

*includes Term Work (TW) & Online / Certification course hours

Signature of the Chairman
Board of Studies - 5 & H. (Physics)



CPC

		·					I BE/BT		ruring, anches)		· ·			
Programme Branch	&		All BE/	BTech	Branch	es	Se	m. C	ategory	L	ТР	SL*	Total	Credi
Prerequisite	s			Nil			. 1.	/2	ES	0	0 90	0	90	3
Preamble			puter-a	ided De					velop a p s, 3D Pri				basic kn tics and	owledge
LIST OF EXF	PERIM	ENTS /	EXER	CISES:		,			· .		* 7			
				PART	A – Ma	nufactu	iring La	borato	ory (30 H	ours)				
1 Selection	n of pr	oduct, fr	ee han	d sketch	ning and	detailir	ng		o A			4	-	
2 Constru	ction o	f model	using A	rc/TIG/	MIG/Ga	s/Spot	welding	operati	ions				w)	
3 Enhanci	ng the	model	with she	eet meta	al									
4 Creating	the pa	arts of tl	ne mod	el using	lathe						i			
5 Creating	the pa	arts of tl	ne mod	el using	milling	and dril	ling mad	chines	a ·					
		P	ART B	– Produ	uct Des	ign and	l Develo	pmen	t Labora	tory (30	Hours)			
1 Free ha	nd ske	tching a	nd deta	iling of	the com	ponent	}					r.		
2 3D part	modell	ling of th	ne comp	onent u	using CA	AD softv	vare	7			-	_	2.7	_
3 Enginee	ring A	nalysis	of the c	ompone	ent mode	el			is a					
4 Generat	e the o	compon	ent usir	ng 3D pr	inter	4.						4.		
		U		PA	RT C -	Roboti	cs Labo	ratory	(30 Hou	rs)				n e
Design o	of elec	tronic ci	rcuit an	d its de	bugging									
2 Assemb	ly and	interfac	ing of s	ensors,	actuato	ors and	wireless	comm	union mo	odules w	ith audr	no UNC)	-
3 Develop	ment o	of embe	dded p	rogramr	ning and	d interfa	cing for	motion	control	and obs	tacle av	oidance		
4 Demons	stration	and te	sting of	robot in	static e	environn	nent						E.	
	1			R	EFERE	NCES/	MANUA	AL /SO	FTWARE	<u>:</u> :		2		
1 Foundat	tion Er	ngineerii	ng Labo	ratory N	Manual		-			W a			^	*
2 SOLID	WORK	S 2022	Softwa	re		**						ii e		
COURSE OI			ırse. th	e stude	ents wil	l be abl	e to		R 5	,			T Mappe thest Lev	
CO1	develo		rototype	model	using m			ations	like weldi	ing,		Ap	plying (K ecision (S	3),
CO2	sketch	3D mo	del and	develo	p the pr	ototype	using 3	D printe	er	*			plying (K	
CO3	desigr	and de	evelop t	he auto	nomous	robot fo	or real-ti	me apı	olications	· .			plying (K ecision (S	
					Mappin	g of C	Os with	POs a	nd PSOs	S		, ,		
COs/POs /PSOs	PO1	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PSO ²	1 F	PSO2
CO1	3	3	3	2				3	2		2			1
CO2	3	3	3	3				3	2		2			
CO3	3	3	3	2				3	2		2			

20%

Storm

Signature of the Chairman Board of Studies - Mechanical

9



				24	MNT21	- QUAN	NTITATIV	VE AP	TITUDE - II					
14 14			(C	ommon	to all E	nginee	ring and	d Tech	nology bra	nches)			
Progra Branch	mme & 1	All B.	E/B.Tec	h Branc	ches		s	Sem.	Category	L	ТР	SL*	Total	Credit
Prereq	uisites	Basic	Mather	natical	skills			2	MC	20	0 0	`10	30	0
Preaml	ble	To imp	art prol	olem sol	ving skil	Is and e	enhance	analyt	ical skills.			1	_	×
Unit – I				ligation										6
Mixture	rule – Ap nd Work:	plication Concep	s – Pro	blems. ork and v					a – Simple Simple prob		ms on	averaç	jes – All	
Time a		ce: Tim	e, spee	d and d				- Aver	age speed -	- Relat	ive spe	ed – F	roblems	on boat
Unit – I							bability:	1						8
	tation and bility: Bas													
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1.	Dr.R.S.A		"Quant	itative A	ptitude 1	for Com	petitive I	Exami	nations", Re	vised	Edition	, S.Ch	and and	compan
REFER	RENCES/	MANUA	L/SOF	TWARE	:				0 40					
REFER 1.						Compe	titive Exa	amina	tion", 7 th Ed	ition, I	/lcGra	w Hill	Education	on, India
	Abhijit G	iuha,"Qu	ıantitati	ve Aptiti	ude for		titive Exa		tion", 7 th Ed	ition, I	ИсGrа	w Hill	Education	on, India
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ASSESSMENT PATTERN - THEORY

Test / Bloom's Category*	Remembering (K1) %	Understanding (K2) %	Applying (K3) %	Analyzing (K4) %	Evaluating (K5) %	Creating (K6) %	Total %
CAT1		30	70				100
CAT2		30	70			2	100
CAT3	-	30	70	-	-		100

 * ±3% may be varied (CAT 1, 2 & 3 – 50 marks & ESE – 100 marks)

*includes Term Work (TW) & Online / Certification course hour

Signature of the Chairman Board of Studies - \$4 H





Prerequisites Nii 1 HS 15 0 15 0 30 Preamble Yoga or yogasanas are considered as art and science of healthy living by our ancient guru is method to bring harmony of body and mind for general wellbeing. Yoga is considered as of the greatest gifts to the world by Indians for healthy living. Students in particular benefitted by learning yoga. Unit - I Introduction: 2 The Origins of Yoga - Definitions - Concepts - Aims and objectives of Yoga - Yoga is a Science and Art - Ri and Regulations of Asanas - Classifications of Yogasanas - Patanjall's Ashtanga Yoga - Pranayama - Muc & Bandhas - Shatkarma (Cleansing Practice) - Streams of Yoga - Modern Trends in yoga. Unit - II Yoga and Mind: 2 The Nature of Mind - Five Elements and the Mind - Meditation and the Mind - Functions of the Mind - Rol Yoga in Psychological problems: Mood Disorders, Major Depressive Disorder, Cyclothymic Disorder. Unit - III Yoga and Values, Diet: 2 Human Values - Social Values - Role of Yoga in Personality Integration - Concepts of Natural Diet - Naturope Diet - Eliminative Diet - Soothing Diet - Constructive Diet. Unit - IV Asanas: 2 Prayer - Starting & Closing - Preparatory practices - Loosening Practices - Meaning, Definitions and Objecti of Asanas - Principles of Practicing Asanas. Asanas: Standing - Sitting - Prone - Supine - Suryanamaskar. Unit - V Pranayama and Meditation: 2 Breathing Practices for awareness - Definitions and Objectives of Pranayama - Principles of Practic Pranayama. Nadi Shuddhi - Kapalabathi - Sitali - Sitkari - Bhranari - Ujjayi - Relaxa Techniques - Meditation. EXTROOK: Swami satyananda saraswathi, "Asana pranayama mudra bandha", Bihar school of yoga, 4 th Edition, 1969. 2. Swami mukthi Bodhanandha, "Hatha yoga pradipika", Bihar school of yoga, 4 th Edition, 1985.	Summer of the same	24VEC11 - YOGA AND VALUE	S FOR H	OLISTIC DE	VELO	OPM	ENT			
Prerequisites Nil	F 74	(Common to All Engineering	ng and Te	chnology B	ranch	es)				
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 1969. Swami mukthi Bodhanandha, "Hatha yoga pradipika", Bihar school of yoga, 4th Edition, 1985. REFERENCES: B.K.S. Iyenkar, "Yoga the path of holistic health", DK Limited, 2nd Edition, 1969. 	TEXT BOOK:									
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	1. B.K.S.	yenkar, "Yoga the path of holistic health	", DK Lim	ited, 2 nd Ed	ition, 1	1969	·			
2. Selvarasu, "Kriya cleansing in yoga", Aruvi yoga, 3 rd Edition, 2002.	2. Selvara	ısu, "Kriya cleansing in yoga", Aruvi yoga	a, 3 rd Edit	ion, 2002.	A T				1	-

	SE OUTCOMES: npletion of the course, the students will be able to	BT Mapped (Highest Level)
CO1	realize the importance of yoga in physical health.	Applying (K3)
CO2	realize the importance of yoga in mental health.	Applying (K3)
CO3	realize the role of yoga in personality development and diet.	Applying (K3)
CO4	do the loosening practices, Asanas and realize its benefits.	Applying (K3)
CO5	do the practice of Pranayama, meditation and realize its benefits	Applying (K3)

Map	ping of	COs	with	POs	and PS	Os

COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	P011
CO1	4 7 20 1			- , .	-2 - 6-	3		2	1		
CO2		-				3		2		4-5	
CO3			7			3	a .	3	- / -	Observation .	
CO4						3		2	3		
CO5	1 1 1 1 1 1 1 1 1					3		. 3			

ASSESSMENT	PATTERN -	THEORY
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Test / Bloom's Category*	Remembering (K1) %	Understanding (K2) %	Applying (K3) %	Analyzin g (K4) %	Evaluati ng (K5) %	Creating (K6) %	Total %
CAT1	e le mari	- <u>-</u>		·	r - Jenny		
CAT2	,		-	-			
CAT3	20	30	50	-	-	-	100
ESE					-	-	-

* ±3% may be varied (CAT3 - 100 marks)

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U Unature of the Chairman
Board of Studies - SAH (modfs)



Programme	R E & CIVIL ENGINEEDING	Com	Coteman	ı	-	Р	61 *	Total	C
& Branch	B.E. & CIVIL ENGINEERING	Sem.	Category	L	Т	P	SL*	Total	A. T.Y
Prerequisites	Nil	3	PC	30	0	30	30	90	. 3
Preamble	This course is designed to impart knowledge on the methods of surveying, type of instruments and co			g and	crea	te awa	areness	s on the	various
Unit – I	Chain and Compass Surveying:	s Gim Liv				: 15			6
	rinciples – Classification – Plan and map – Scale conversions – True and magnetic bearing – Dip an								
Unit – II	Levelling and Contouring:			. 5					6
	lorizontal line – Spirit level – Mean sea level – Ber eduction of levels – Calculation of areas and volum								
Unit – III	Theodolite Surveying and Curve Setting:		4						6
	rvey – Omitted measurements – Curves –types – cond requirements.	omponents a	and elements	of si	mple	curve	e – Trai	nsition c	urves
Unit – IV	Tacheometric and Triangulation Surveying:					(e)			6
	systems – Tangential and stadia methods – Stadia n – Reduction to centre – Trigonometric Levelling	systems –	Anallatic lens	– Tr	iangı	ulation	ı – Cor	rections	
Unit – V	Digital Surveying:								6
	RIMENTS / EXERCISES: ADVANCED SURVEYIN	G, ASTRON	IOMICAL SU	RVEY	/ING			1, 1	
	velling: Determination of elevation of given points							1 170	
8 (evelling: Determination of height difference between	the points b	y conducting	differ	entia	l and	recipro	cal level	ling
	neodolite: Determination of distance and elevation b	2.7							
	neodolite: Determination of distance and elevation by						9		
	etermination of distance and elevation of points by t					•			
6. De	etermination of distance and elevation of points by t	rigonometric	c levelling – c	louble	vert	ical pl	lane me	ethod	- 2
7. Me	easurement of distance, elevation and area using to	tal station				_			
8. Se	etting out works using advanced total station – foun	dation, colu	mn marking	الردريية			e.		
	ontouring using advanced total station	* 1	1						
10. Co	o-ordinate marking with GPS	The second second	171.200.0		4				-
- 2.	15/ 55/ 75/			100 (C)	adit.	oriot			
TEXT BOOK:		LEISTER PRINCE	and designations and religion	YII. I JAPAN		and the		alle ancomi d'An evito e-	1
1. Su	ıbramanian R., "Surveying and Levelling", 2 nd Editi	on, Oxford U	Jniversity Pre	ss, N	oida,	2013			
REFERENCES	6/ MANUAL / SOFTWARE:	1. O						· · · · ·	
1. Pu	ınmia B.C., "Surveying I and II", 7 th Edition, Laxmi I	Publications	, Chennai, 20)16.					1
	boratory Manual								
3. Ex	xperimental videos developed by faculty								. 7
**	dae Tarm Mark/TMA & Online / Contification accuracy	Lancas							<u> </u>

COURSE OUT On completion	TCOMES: on of the course, the students will be able to	BT Mapped (Highest Level)
CO1	carry out the chain and compass surveying	Applying (K3) Manipulation (S2)
CO2	compute the levels and to calculate the area and volume	Applying (K3), Manipulation (S2)
CO3	carry out the adjustments of closed traverse for errors and setting out the simple curves	Applying (K3), Manipulation (S2)
CO4	execute the tacheometric and triangulation Survey	Applying (K3), Manipulation (S2)
CO5	apply the principles, concepts and applications of digital surveying	Applying (K3), Manipulation (S2)

Mapping o	f COs with	POs and	d PSOs
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COs/POs/PSOs	P01	PO2	PO3	PO4	PO5	P06	P07	PO8	PO9	PO10	PO11	PSO1	PSO2
CO1	3	3	3	3	- 4	3	5	1	bejés i ti	3		3	3
CO2	3	3	3	3		2		<u> </u>	3	3		3	3
CO3	3	3	3	3		3			3	3		3	3
CO4	3	3	3	3		2	6		3	3	1794	3	3
CO5	3	3	3	3	3	3		-7-	3	3	1 - 1	3	3

ASSES	SMENT	PATTER	N - THEORY

Test / Bloom's Category*	Remembering (K1) %	Understanding (K2) %	Applying (K3) %	Analyzing (K4) %	Evaluating (K5) %	Creating (K6) %	Total %
CAT1		30	70				100
CAT2		30	70	1			100
CAT3		30	70				100
ESE		30	70				100

* ±3% may be varied (CAT 1,2,3 - 50 marks & ESE - 100 marks)

Signature of the Chairman Board of Studies CIVIL

S. Ventutooholam



	24CEC32 – CONCR (IS 456-2000 and IS 10262-20			itted)					
Programme & Branch	B.E. & CIVIL ENGINEERING	Sem.	Category	L	т	Р	SL*	Total	Credit
Prerequisites	Construction Materials and Practices	3	PC	30	0	30	30	90	3
Preamble	This course imparts knowledge about the variou mix design for concrete.	us ingredients	s and properti	es of	mate	erials (used fo	r concre	te and
Unit – I	Ingredients of Concrete:	×				ar 1 F			6
Aggregates: - C Curve – Interfa	M classification of cement – Chemical compositions – IS Specifications – cial Transition Zone. Water: Quality of water for assifications of admixtures and applications in Civi Concrete Mix Design:	Testing of a	ggregates- Im crete – Use o	porta	nce d	of gra	ding –	Standard	Gradin
	roportioning – Methods – Statistical Quality Cont	rol of Concre	ete- IS concre	ete mi	y nro	nortic	n quid	lelines fo	
	igh Strength Concrete – Sampling and Acceptance		oto 10 concre)(C 1111	x pic	portio	ori guid	ionnos id	n nonne
Unit – III	Fresh and Hardened Concrete Properties:		1						6
	ests for workability of concrete – Segregation and ge and temperature effects – Gain of strength with							rete – El	asticity ·
Unit – IV	Durability Properties of Concrete:								6
	oncrete - Tests for durability - Factors affecting		of concrete- I	Perme	abili	ty- R	CPT- S	Sorptivity	- Alka
Aggregate Read	ction – Chemical attack – Corrosion tests- Cracks Special Concretes:	in Concrete			-	-			6
	ncrete– Self compacting concrete– Fiber reinforder Concrete– Polymer concrete – Geopolymer Co		e – Ferroceme	ent –	SIFC	ON -	- Read	y mix co	oncrete
	RIMENTS / EXERCISES: ific gravity of Cement and Aggregates		*	- Interest		- a			
2. Finer	ness Modulus of Aggregates - Sieve Analysis		* e			41			
3. Finer	ness and Soundness test on cement	- 10)	,				9		al - "_
4. Cons	sistency, Initial and Final setting time of cement				,			. 7	14.14.7
5. Work	sability of fresh concrete –Slump Value, Compacti	on factor and	Vee Bee Co	nsisto	mete	er			
6. Com	pressive Strength of Concrete						-		
7. Split	Tensile Strength of Concrete	garaganish	and the second de-		Ÿ				
8. Flexu	ural Strength of Concrete				17	1	2 _		
9. NDT	on Concrete (Rebound Hammer and UPV test)	2000	a ki na ana		1.	-1			
10. Dura	bility on Concrete - Permeability and RCPT (Dem	no only)	1.18	-15		Pagi		8.)	8
TEXT BOOK:	Section 2								
1. Santi	hakumar A.R., "Concrete Technology", 2 nd Edition	, Oxford Uni	versity Press	India,	202	1.	9	1	1,42.5
REFERENCES	/ MANUAL / SOFTWARE:	П	0		10		V 42		
1. Nevil	le A.M, "Concrete Technology", 27 th Edition, Pear	son India Ed	ucation Servi	ces, 2	020.		4		
2. Shett	ty M.S., "Concrete Technology Theory and Practic	ce", 8 th Editio	n, S.Chand&	Comp	any	Ltd.,	New De	elhi, 201	9.
3. Labo	ratory Manual								
	Vork(TW) & Online / Certification course hours								

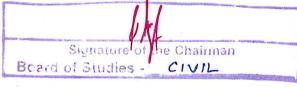
^{*}includes Term Work(TW) & Online / Certification course hours

	OUTCOMES: etion of the course, the students will be able to	BT Mapped (Highest Level)
CO1	explain and assess the properties of the ingredients of concrete	Understanding (K2), Manipulation (S2)
CO2	design mix proportions for concrete with and without admixtures	Applying (K3), Manipulation (S2)
CO3	determine the fresh and hardened properties of concrete	Applying (K3), Manipulation (S2)
CO4	explain and assess the durability performance of concrete	Applying (K3), Manipulation (S2)
CO5	infer the types of special concrete with its characteristics and applications	Applying (K3). Manipulation (S2)

- N					Mappin	g of CO	s with	POs and	I PSOs				
COs/POs /PSOs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
CO1	2		-	3		2			3	3		3	2
CO2	3	2	3	= 7 (0)	- 45	3			×		-	3	2
CO3	3	2	3	3	1-11-7	3	n ·		3	3		3	2
CO4	3	2	3	3	3	2		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	3	3		3	2
CO5	2			3		2	3		. 3	3		3	2

Test / Bloom's Category*	Remembering (K1) %	Understanding (K2) %	Applying (K3) %	Analyzing (K4) %	Evaluating (K5) %	Creating (K6) %	Total
CAT1	* 8	30	. 70			1 1 1 1 1	100
CAT2		30	70		R -	Time .	100
CAT3		30	70			A	100
ESE		30	70	ii =0 ==	*		100

* ±3% may be varied (CAT 1,2,3 - 50 marks & ESE - 100 marks)





	24CET31 - ENGINEE	RING MEC	HANICS						
Programme & Branch	B.E. & CIVIL ENGINEERING	Sem.	Category	L	Т	Р	SL*	Total	Credit
Prerequisites	Nil	3	ES	45	15	0	60	120	4
Preamble	This course provides introduction to the basic co their effects on motion. It introduces the phenom learning in applied mechanics and develops problems.	enon of fricti	on and its eff	ects. I	t fami	liarize	es stud	ents to c	ognitive
Unit – I	Statics of Particles:			1	14			9	+3
 System of force of a particle in s 									
Unit – II	Statics of Rigid Bodies:				-			9	+3
component mor	ent of a force about a point and about an axis ments – Varignon's theorem– Equivalent systems								
method of section	ons – method of joints.								
Unit – III Determination of Angle section –	Properties of Surfaces and Solids: f Areas and Volumes – First moment of area, Ce Hollow section from primary simpler sections	 Second m 	noment of pla	ane a	reas -	- Par	allel a	tion – I s xis theo	rem and
Unit – III Determination of Angle section – Perpendicular a of plane area – Unit – IV	Properties of Surfaces and Solids: of Areas and Volumes – First moment of area, Ce - Hollow section from primary simpler sections xis theorem – T section – I section- Angle section Mass moment of inertia of solids. Friction:	- Second m - Hollow sec	noment of pla tion – Produc	ane a	reas - iertia -	- Paı - Prir	rallel a: ncipal N	tion – I s xis theo Moment o	section – rem and of Inertia
Unit – III Determination of Angle section – Perpendicular a of plane area – Unit – IV Types of friction	Properties of Surfaces and Solids: If Areas and Volumes – First moment of area, Ce Hollow section from primary simpler sections xis theorem – T section – I section- Angle section Mass moment of inertia of solids.	- Second m - Hollow sec	noment of pla tion – Produc	ane a	reas - iertia -	- Paı - Prir	rallel a: ncipal N	tion – I s xis theo Moment o	section – rem and of Inertia
Unit – III Determination of Angle section – Perpendicular a of plane area – Unit – IV Types of friction	Properties of Surfaces and Solids: of Areas and Volumes — First moment of area, Ce Hollow section from primary simpler sections xis theorem — T section — I section— Angle section Mass moment of inertia of solids. Friction: of Laws of dry friction — Angle of friction & Angle	- Second m - Hollow sec	noment of pla tion – Produc	ane a	reas - iertia -	- Paı - Prir	rallel a: ncipal N	tion – I s xis theo Moment of g friction -	section – rem and of Inertia
Unit – III Determination of Angle section – Perpendicular a of plane area – Unit – IV Types of friction friction – Wedge Unit – V Motion – Types	Properties of Surfaces and Solids: If Areas and Volumes – First moment of area, Ce Hollow section from primary simpler sections xis theorem – T section – I section- Angle section Mass moment of inertia of solids. Friction: In – Laws of dry friction – Angle of friction & Angle of friction – Belt and rope friction.	- Second m - Hollow second of repose -	noment of plation – Produce - Sliding fricti f Particles: Ne	ane a ct of Ir	reas - nertia - Static	- Pai - Prir and I	rallel as ncipal M	tion — I s xis theor Moment of g friction — g ergy and	section – rem and of Inertia 0+3 - Ladder 0+3 Impulse
Unit – III Determination of Angle section – Perpendicular a of plane area – Unit – IV Types of friction friction – Wedge Unit – V Motion – Types	Properties of Surfaces and Solids: If Areas and Volumes – First moment of area, Ce Hollow section from primary simpler sections xis theorem – T section – I section- Angle section Mass moment of inertia of solids. Friction: In – Laws of dry friction – Angle of friction & Angle of friction – Belt and rope friction. Kinematics and kinetics of particles: — Rectilinear and Curvilinear motion of particles -	- Second m - Hollow second of repose -	noment of plation – Produce - Sliding fricti f Particles: Ne	ane a ct of Ir	reas - nertia - Static	- Pai - Prir and I	rallel as ncipal M	tion — I s xis theor Moment of g friction — g ergy and	section – rem and of Inertia 0+3 - Ladder 0+3 Impulse
Unit – III Determination of Angle section – Perpendicular a of plane area – Unit – IV Types of friction friction – Wedge Unit – V Motion – Types – Momentum eco	Properties of Surfaces and Solids: If Areas and Volumes – First moment of area, Ce Hollow section from primary simpler sections xis theorem – T section – I section- Angle section Mass moment of inertia of solids. Friction: In – Laws of dry friction – Angle of friction & Angle of friction – Belt and rope friction. Kinematics and kinetics of particles: — Rectilinear and Curvilinear motion of particles -	- Second m - Hollow second repose - Dynamics of ematics of F	noment of plation – Production – Production – Sliding friction fraction fra	ane a ct of Ir on – \$ ewton' anslat	reas - nertia - Static Static s law,	- Par - Prir and I Wor Rotat	rallel a: ncipal N Kinetic k – Ene ion abo	friction -	ection – rem and of Inertia 0+3 – Ladder 0+3 Impulse ed axis.
Unit – III Determination of Angle section – Perpendicular a of plane area – Unit – IV Types of friction friction – Wedge Unit – V Motion – Types – Momentum ed TEXT BOOK: 1. Dubey	Properties of Surfaces and Solids: If Areas and Volumes – First moment of area, Ce Hollow section from primary simpler sections axis theorem – T section – I section- Angle section Mass moment of inertia of solids. Friction: In — Laws of dry friction — Angle of friction & Angle of friction — Belt and rope friction. Kinematics and kinetics of particles: — Rectilinear and Curvilinear motion of particles — quations of particles — Impact of elastic bodies. Kinematics and kinetics — Impact of elastic bodies.	- Second m - Hollow second repose - Dynamics of ematics of F	noment of plation – Production – Production – Sliding friction fraction fra	ane a ct of Ir on – \$ ewton' anslat	reas - nertia - Static Static s law,	- Par - Prir and I Wor Rotat	rallel a: ncipal N Kinetic k – Ene ion abo	friction -	ection – rem and of Inertia 0+3 - Ladder 0+3 Impulse ed axis.
Unit – III Determination of Angle section – Perpendicular a of plane area – Unit – IV Types of friction friction – Wedge Unit – V Motion – Types – Momentum economicum econo	Properties of Surfaces and Solids: If Areas and Volumes – First moment of area, Ce Hollow section from primary simpler sections in theorem – T section – I section – Angle section Mass moment of inertia of solids. Friction: If Laws of dry friction – Angle of friction & Angle of friction – Belt and rope friction. Kinematics and kinetics of particles: Rectilinear and Curvilinear motion of particles – quations of particles – Impact of elastic bodies. Kinematics – Impact of elastic bodies. Kinematics – Impact of elastic section – N.H., "Engineering Mechanics: Statics and Dynamics – Impact of elastics and Dynamics – Impact of elastics of Dynamics – Impact of elastics and Dynamics – Impact of elastics – Impact of elastics and Dynamics – Impact of elastics – Impact of elastics and Dynamics – Impact of elastics – Impac	- Second m - Hollow second e of repose - Dynamics of ematics of F	noment of plation – Production – Production – Production – Sliding friction fraction fraction fraction fraction, McGraw	ane a ct of Ir on — { ewton' anslat	Static Static s law, ion – ducat	- Par - Prir and I Wor Rotat	rallel a: ncipal M Kinetic k – Ene ion abo New De	tion – I s xis theor Moment of g friction – g ergy and out a fixe	ection – rem and of Inertia 0+3 - Ladder 0+3 Impulse ed axis.
Unit – III Determination of Angle section – Perpendicular a of plane area – Unit – IV Types of friction friction – Wedge Unit – V Motion – Types – Momentum ect TEXT BOOK: 1. Dubey REFERENCES: 1. Ferdina Mechai	Properties of Surfaces and Solids: If Areas and Volumes – First moment of area, Ce Hollow section from primary simpler sections - xis theorem – T section – I section- Angle section Mass moment of inertia of solids. Friction: In — Laws of dry friction — Angle of friction & Angle of friction — Belt and rope friction. Kinematics and kinetics of particles: — Rectilinear and Curvilinear motion of particles - quations of particles — Impact of elastic bodies. Kinematics — Impact of elastic bodies. Kinematics — Impact of elastic sand Dynama MANUAL / SOFTWARE: And P. Beer., Russel Johnston E. Jr., David F. Manual P. Beer., Russel Johnston E. Jr., David F. Manual P. Beer., Russel Johnston E. Jr., David F. Manual P. Beer., Russel Johnston E. Jr., David F. Manual P. Beer., Russel Johnston E. Jr., David F. Manual P. Beer., Russel Johnston E. Jr., David F. Manual P. Beer., Russel Johnston E. Jr., David F. Manual P. Beer., Russel Johnston E. Jr., David F. Manual P. Beer., Russel Johnston E. Jr., David F. Manual P. Beer.	- Second m - Hollow second - H	noment of plation – Production – Production – Production – Sliding friction Fracticles: New York, McGraw J. Cornwell, W Hill Educat	ewton' anslat Hill E Brain ion, C	s law, ion – ducat	- Par - Prir and I Wor Rotat	rallel a: ncipal M Kinetic k – Ene ion abo New De	tion – I s xis theor Moment of g friction – g ergy and out a fixe	ection – rem and of Inertia 0+3 - Ladder 0+3 Impulse ed axis.

^{*}includes Term Work(TW) & Online / Certification course hours



CO4

CO5

	SE OUTCO		ourse, tl	ne stude	ents wil	l be abl	e to	ı			2		BT Ma (Highes	
CO1	compute equilibrium of particles using vector resolution, free body diagrams, and laws o mechanics											laws of	Applyir	ıg (K3)
CO2 determine moments and resultants of force systems and analyse pin-jointed trusses using appropriate methods												es using	Analysi	ng (K4)
CO3 compute the centroid, centre of gravity and moment of inertia of geometrical shapes and solids respectively											nd solids	Applyir	ng (K3)	
CO4	analyse limiting equilibrium conditions in mechanical systems involving sliding, wedges, and belts											ges, and	Analysing (K4)	
CO5	apply the		ent prin	ciples to	study	the mo	otion of	a body	and a	inalyse	their co	nstitutive	Applyir	ng (K3)
-					Марр	ing of C	Os wit	h POs a	and PS	Os		11		
COs/P	Os/PSOs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8.	PO9	PO10	PO11	PSO1	PSO2
	CO1	3	3	2	2	7 7					_		3	3
(CO2	3	3	2	2								3	3
(CO3	3	3	2	2			_	,== 5	1 A 1	11		3	3

1 -	Slight.	2 -	- Modera	te. 3	 Substa 	ntial.	BT-	Bloom's	Taxonomy	

		– THEORY	

Test / Bloom's Category*	Remembering (K1) %	Understanding (K2) %	Applying (K3) %	Analyzing (K4) %	Evaluating (K5) %	Creating (K6) %	Tota %
CAT1		20	60	20		2	100
CAT2		20	60	20		,	100
CAT3		20	60	20			100
ESE	,,	20	60	20			100

^{*} $\pm 3\%$ may be varied (CAT 1,2,3 – 50 marks & ESE – 100 marks)





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Programme & Branch	24CET32 - WATER RESOURCES B.E. & CIVIL ENGINEERING	Sem	Categor	L	Т	Р	SL*	Total	Credi
Prerequisites	Nil	3	PC	45	0	0	45	90	3
Preamble	This course aims to expose civil engineerin Engineering concepts, and National Water Po management and Irrigation management practic	licy. Further, t	a clear kr they will imp	nowled part th	ige o e req	f Wat uired	er Res knowle	ources, dge on R	Irrigatior Reservoi
Unit – I	Water Resources:								9
for drinking and i	esources – water resources of Tamil Nadu and Ind irrigation purposes – reservoirs – single and mul ation strategies – design flood level – levees and flo	tipurpose rese						and the second s	
Unit – II	Water Resource Management:	1							9
	s of water resources planning – National Water Po s of the master plan – idea of the basin as a unit fo								
Unit – III	Irrigation Engineering:								9
Unit – IV Types of impoun	cies – problems – seasonal crops of India – crop w Canal Irrigation: ding structures: Gravity dam – diversion headwork	s – canal drop	– cross dra	inage	works	s – hea	ad regul	lators – c	
theory).	al outlets – types of canals – alignment of canals	– river training	works – Ke	nneay	's and	Lace	y's Reg	ime theo	ry (Only
Unit – V	Irrigation Methods and Management:								9
merits and deme participatory irrig	n – lift irrigation – tank irrigation – well irrigation – i erits – irrigation scheduling – water distribution – so ation management with a case study – on farm de ures– case study.	il-plant relation	nship – mois	ture c	onten	t at fie	ld capa	city –	
TEXT BOOK:									
1. Asawa	a G.L., "Irrigation and Water Resources Engineerin	g", 2 nd Edition,	New Age In	ternat	tional	Publis	hers, N	ew Delhi,	2008.
REFERENCES/	MANUAL / SOFTWARE:			1			7.00	5	-
	S.K., "Water Resources Engineering Vol. II Irrigation hers, New Delhi, 2016.	n Engineering	& Hydraulic	Struc	tures"	, 34th	Edition	, Khanna	
2. Miche	A.M, "Irrigation Theory and Practice", 2nd Edition	, Vikas Publish	ning House F	Pvt. Lte	d., No	ida, 20	009.		

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1000

	E OUTCOMES: pletion of the course, the students will be able to	BT Mapped (Highest Level)			
,CO1	identify the components of water storage structures along with its functions	Understanding (K2)			
CO2	infer the importance of water resource management	Understanding (K2)			
CO3	compute the delta, duty relationship and irrigation efficiency	Applying (K3)			
CO4	identify the types of canal irrigation and analyze the functions of diversion head works	Applying (K3)			
CO5	apply participatory irrigation management and infer the types of irrigation methods	Applying (K3)			
	Mapping of COs with POs and PSOs				

COs/POs /PSOs	PO1	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PSO1	PSO2
CO1	3	2	2			3						3	3
CO2	2	1				3			0			3	2
CO3	3	2	2			3						3	3
CO4	. 3	2	2			3						3	3
CO5	3	2	2			3					= =	3	3

ASSES	CME	IT DAT	TTERN.	- THEORY
A.J.J.	-21A1C1	II FA		- 10000

Test / Bloom's Category*	Remembering (K1) %	Understanding (K2) %	Applying (K3) %	Analyzing (K4) %	Evaluating (K5) %	Creating (K6) %	Total %
CAT1	4 = y =	40	60			X = 1 1	100
CAT2		40	60		T	*	100
CAT3		40	60				100
ESE	n	40	60	x** 1			100

* ±3% may be varied (CAT 1,2,3 – 50 marks & ESE – 100 marks)

Signature of the Chairman Board of Studies - CIVIL



3 1			ALTH ABA					* * 7	77.75
Programme & Branch	B.E. & CIVIL ENGINEERING	Sem.	Category	L	Т	Р	SL*	Total	Credi
Prerequisites	Nil	3	PC	45	15	0	60	120	4
Preamble	This course provides knowledge about flunderstanding of flow through pipes and hydraulics.								
Unit – I	Fluid Properties & Fluid Statics			500	-	-			9+3
· ·	luids – Types of fluids- Hydrostatic law – F tal pressure – Centre of pressure – Buoya		•				ssure -	- Hydros	tatic
Unit – II	Fluid Dynamics:								9+3
	and types of flow –flow lines and Path line net – Euler's equation of motion – Bernor				poten	tial f	unction	and Str	eam
Unit – III	Flow through Pipes & Boundary Lay	er Theory:			Gu		V		9+3
	Pipes- Pipes in series and parallel – Major ndary layer thickness.	and Minor losse	es in pipes	Mood	y dia	gram	. –. Bo	undary l	ayer
Unit – IV	Open Channel Flow:								9+3
	Specific energy and Critical flow – Chezy and Trapezoidal)- Types of flow profiles –								1.2-21
Unit – V	Dimensional and Model Analysis:							1,1	9+3
	nalysis – Dimensional parameters – Buck d undistorted models.	ingham 's Pi the	eorem –Mode	l anal	ysis –	Sim	ilitude	– Scale	effect
TEXT BOOK:						- E	- 5	" vita Elli	7127
	lodi P.M., and Seth S.M., "Hydraulics & F tandard Book House, New Delhi, 2017.	Tuid Mechanics	including Hyd	Iraulio	Mac	hines	s", 21 st	Edition,	
REFERENCES			Dicensi ed T						
1. V	A STATE OF THE STA	edford K.W., "Flu	A STATE OF THE STATE OF	th	45 - 107	-1114			

^{*}includes Term Work(TW) & Online / Certification course hours

f the course, the students will be able to	BT Mapped (Highest Level)
the properties and characteristics of fluids	Applying (K3)
te the velocity and discharge of flow	Applying (K3)
te the characteristics of pipe flow	Applying (K3)
the most economical channel sections	Applying (K3)
omplex fluid problems	Applying (K3)
ı	the course, the students will be able to the properties and characteristics of fluids te the velocity and discharge of flow te the characteristics of pipe flow the most economical channel sections complex fluid problems

- 24	_				Ma	pping o	of COs	with PC	s and P	PSOs			
COs/POs /PSOs	P01	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PSO1	PSO2
CO1 ·	3	2		Ч.,	1	3	3	2	1 χ = .			3	3
CO2	3	2				3	3	2			L7 , / - 1	3	3
CO3	3	. 2			- 17	3	3	2				3	3
CO4	3	3	2	11 - =		3	3	2		* *	-6:	3	3
COS	2	3				3	2	2			- 1 11	3	3

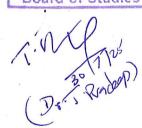
1 – Slight, 2 – Moderate, 3 – Substa	intial, B1- Bloom's Taxonomy
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		ASSESSMI	ENT PATTERN	I – THEORY	. 4 .		
Test / Bloom's Category*	Remembering (K1) %	Understanding (K2) %	Applying (K3) %	Analyzing (K4) %	Evaluating (K5) %	Creating (K6) %	Total %
CAT1		30	70	- n	- 2		100
CAT2	,	30	70		Chy cen		100
CAT3		30	70			-5 to 6 kg	100
ESE		30	70	18 12			100

* ±3% may be varied (CAT 1,2,3 - 50 marks & ESE - 100 marks)

Signature of the Chairman

Board of Studies - CIVIL





	24GET31- UNIV (Common to All Engine					es)			
Programme & Branch	All B.E & B.Tech Branches	Sem.	Category	L	T	P	SL*	Total	Credit
Prerequisites	Nil.	3/6	HS	30	0	0	30	60	0
At a series A	on that and other grades.					1 1	•		V
Preamble	To make the student to know what t	hey 'rea	ally want to	be' in	their	life a	nd profess	sion, unde	erstand the
	meaning of happiness and prosperit	ty for a	human bein	g. Als	o to f	acilita	ite the stu	dents to u	ınderstand
	about harmony at all the levels of hu	ıman liv	ing, and live	e acc	ording	gly			
Unit – I	Introduction				-			190	6
Need and Basic	Guidelines of Value Education - Conto	ent and	Process of	Value	e Edu	catior	ı – Self E	ploration	– purpose
of self-Exploration	on – Content and Process of Self explo	oration -	 Natural A 	ccept	ance	– Rea	alization a	nd Under	standing -
	Aspirations – Continuous Happiness								
	Fulfillment of Human Aspirations – Re	elations	hips – Phys	ical F	aciliti	es –	Right Un	derstandir	ng.
Unit – II	Harmony in the Self and Body				•				6
	nd Body – Understanding Myself as C								
Activities in the	Self and Body, Self ('I') as the Consciou	us Entity	y, the Body	as th	e Mat	erial E	Entity – Ex	ercise – E	Body as ar
Instrument_ Har	mony in the Self ('I) - Understanding N	Avealf	I launa a access	:41- D					
monument nat	mony in the och (1) onderstanding it	iyseli —	Harmony w	ith B	oay.				
Unit – III	Harmony in the Family and Socie		нагтопу м	/ith B	oay.	Mo	4-1		6
Unit – III		ty		1-62		lation	ship from	Family to	
Unit – III Harmony in the	Harmony in the Family and Socie	ty in Huma	an Relation	1-62		lation	ship from	Family to	
Unit – III Harmony in the	Harmony in the Family and Socie Family – Justice – Feelings (Values)	ty in Huma nan Enc	an Relation	1-62		lation	ship from	Family to	
Unit – III Harmony in the Identification of I Unit – IV	Harmony in the Family and Socie Family – Justice – Feelings (Values) Human Goal – Five dimensions of Hum	ty in Huma nan End	an Relation	ships	– Re			<	Society -
Unit – III Harmony in the Identification of I Unit – IV Order of Nature Activity – Conformation	Harmony in the Family and Socie Family – Justice – Feelings (Values) Human Goal – Five dimensions of Hum Harmony in Nature and Existence – Interconnectedness – Understandir rmance – Introduction to Space – Co–	ty in Huma nan Ence ng the F	an Relation deavour.	ships - Inna	– Re	ss – N	Natural Cl	naracteris	Society - 6 tic - Basic
Unit – III Harmony in the Identification of I Unit – IV Order of Nature Activity – Conford No-activity – Ex	Harmony in the Family and Socie Family – Justice – Feelings (Values) Human Goal – Five dimensions of Hum Harmony in Nature and Existence – Interconnectedness – Understandir rmance – Introduction to Space – Co- istence is Co-existence.	ty in Huma nan End e ng the F existend	an Relation deavour. Four order - ce of units o	ships - Inna of Spa	– Re	ss – N Limite	Natural Cl	naracteris	Society – 6 tic – Basic Active and
Unit – III Harmony in the Identification of I Unit – IV Order of Nature Activity – Confor No–activity – Ex Unit – V	Harmony in the Family and Socie Family – Justice – Feelings (Values) Human Goal – Five dimensions of Hum Harmony in Nature and Existence – Interconnectedness – Understandir rmance – Introduction to Space – Co- istence is Co-existence. Implications of the above Holistic Professional Ethics	ty in Huma nan End e ng the F existen c Under	an Relation deavour. Four order - ce of units o	ships Inna of Spa	- Re	ss – N Limite	Natural Cl ed and ur	naracteris ilimited –	Society - 6 tic - Basic Active and
Unit – III Harmony in the Identification of I Unit – IV Order of Nature Activity – Conford No-activity – Extended To IIII – V Values in differe	Harmony in the Family and Socie Family – Justice – Feelings (Values) Human Goal – Five dimensions of Hum Harmony in Nature and Existence – Interconnectedness – Understandir rmance – Introduction to Space – Co- cistence is Co-existence. Implications of the above Holistic Professional Ethics Int dimensions of Human Living – Defin	ty in Huma nan End ng the F existend Under	an Relation deavour. Four order ce of units of standing of standi	ships - Inna of Spa f Har	– Reateneace –	ss - N Limite y on	Natural Cl ed and ur t –Implica	naracteris ilimited –	6 tic – Basic Active and
Unit – III Harmony in the Identification of I Unit – IV Order of Nature Activity – Confor No-activity – Ex Unit – V Values in differe Living – Identific	Harmony in the Family and Socie Family – Justice – Feelings (Values) Human Goal – Five dimensions of Hum Harmony in Nature and Existence – Interconnectedness – Understandir rmance – Introduction to Space – Co- istence is Co-existence. Implications of the above Holistic Professional Ethics Int dimensions of Human Living – Definication of Comprehensive Human Goal	ty in Huma nan End ng the F existend Under	an Relation deavour. Four order ce of units of standing of standi	ships - Inna of Spa f Har	– Reateneace –	ss - N Limite y on	Natural Cl ed and ur t –Implica	naracteris ilimited –	6 tic – Basic Active and
Unit – III Harmony in the Identification of I Unit – IV Order of Nature Activity – Conford No-activity – Ex Unit – V Values in different Living – Identificant Issues in Prince In the IIII Unit – V	Harmony in the Family and Socie Family – Justice – Feelings (Values) Human Goal – Five dimensions of Hum Harmony in Nature and Existence – Interconnectedness – Understandir rmance – Introduction to Space – Co- cistence is Co-existence. Implications of the above Holistic Professional Ethics Int dimensions of Human Living – Defin	ty in Huma nan End ng the F existend Under	an Relation deavour. Four order ce of units of standing of standi	ships - Inna of Spa f Har	– Reateneace –	ss - N Limite y on	Natural Cl ed and ur t –Implica	naracteris ilimited –	6 tic – Basic Active and
Unit – III Harmony in the Identification of I Unit – IV Order of Nature Activity – Confor No-activity – Ex Unit – V Values in differe Living – Identificand Issues in Pr TEXT BOOK:	Harmony in the Family and Socie Family – Justice – Feelings (Values) Human Goal – Five dimensions of Hum Harmony in Nature and Existence – Interconnectedness – Understandir rmance – Introduction to Space – Co- istence is Co-existence. Implications of the above Holistic Professional Ethics ent dimensions of Human Living – Definitation of Comprehensive Human Goal - ofessional Ethics.	ty in Huma nan End e ng the F existend c Under itivenes – Huma	an Relation deavour. Four order ce of units of the ce of units of the ce of	ships Inna of Spa f Har Hum	– Reateneace – mony	ss – N Limite / on onductiversal	Natural Cl ed and ur t –Implica Human (naracteris ilimited – tions of Va Order – Co	6 tic – Basic Active and 6 alue based
Unit – III Harmony in the Identification of I Unit – IV Order of Nature Activity – Confor No–activity – Ex Unit – V Values in differe Living – Identific and Issues in Pr TEXT BOOK: 1. Gaur editic	Harmony in the Family and Socie Family – Justice – Feelings (Values) Human Goal – Five dimensions of Hum Harmony in Nature and Existence – Interconnectedness – Understanding remance – Introduction to Space – Co- cistence is Co-existence. Implications of the above Holistic Professional Ethics ent dimensions of Human Living – Definition of Comprehensive Human Goal - crofessional Ethics. R.R., Sangal R., Bagaria G.P., "A Foundary Excel Books Pvt. Ltd., New Delhi, 2	ty in Huma nan End e ng the F existend tunder itivenes - Huma	an Relation deavour. Four order ce of units of the ce of units of the ce of	ships Inna of Spa f Har Hum	– Reateneace – mony	ss – N Limite / on onductiversal	Natural Cl ed and ur t –Implica Human (naracteris ilimited – tions of Va Order – Co	6 tic – Basic Active and 6 alue based
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Unit – III Harmony in the Identification of I Unit – IV Order of Nature Activity – Confor No-activity – Ex Unit – V Values in differe Living – Identificand Issues in Pr TEXT BOOK: 1. Gaur editic REFERENCES: 1. Ivan	Harmony in the Family and Socie Family – Justice – Feelings (Values) Human Goal – Five dimensions of Hum Harmony in Nature and Existence – Interconnectedness – Understanding remance – Introduction to Space – Co- cistence is Co-existence. Implications of the above Holistic Professional Ethics ent dimensions of Human Living – Definition of Comprehensive Human Goal - crofessional Ethics. R.R., Sangal R., Bagaria G.P., "A Foundary Excel Books Pvt. Ltd., New Delhi, 2	ty in Huma nan End ng the F existend titivenes - Huma undation 2009.	an Relation deavour. Four order ce of units of standing of Ethical inistic Education Course in EA, 1974.	ships Inna of Spa f Har Hum ation	- Reateneace - mony an Co	ss – N Limite y on onductiversal	Natural Cled and ur t –Implica Human C	naracteris ilimited – tions of Va Order – Co	6 tic – Basic Active and 6 alue based ompetence

^{*}includes Term Work(TW) & Online / Certification course hours

	E OUTCOMES: pletion of the course, the students will be able to	BT Mapped (Highest Level)
CO1	identify the meaning of happiness and prosperity and do a correct appraisal of the current scenario in the society	Applying (K3)
CO2	interview between the Self and the Body, understand the meaning of Harmony in the Self, the Co–existence of Self and Body	Applying (K3)
CO3	build harmonious relationship based on trust, respect and other naturally acceptable feelings in human-human relationships and explore their role in ensuring a harmonious society	Applying (K3)
CO4	experiment with themselves to co-exist with nature by realising interconnectedness and the four orders of nature	Applying (K3)
CO5	identify the differences between ethical and unethical practices, and apply ethical and moral practices for a better living	Applying (K3)

Mapping of COs with POs and PSOs

COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
CO1	3	2	2	2	L 11 ==	1	2	16		, i i	2	3	2
CO2	3	2	2	2		1	2	LK 1 TENG	e praeki.	i estano	2	3	2
CO3	3	2	2	2		1	2	1		~ £1	2	3	2
CO4	3	2	2	2		1	2		. 4		2	3	2
CO5	3	2	2	2	e ence	1	2	-		e Carple	2	3	2

1 – Slight, 2 – Moderate, 3 – Substantial, BT- Bloom's Taxonomy

ASSESSMENT PATTERN – THEORY

Test / Bloom's Category*	Remembering (K1) %	Understanding (K2) %	Applying (K3) %	Analyzing (K4) %	Evaluating (K5) %	Creating (K6) %	Total
CAT1		80	20			edunani.	100
CAT2	7 6 7 7 10 4	80	20	rpeg in region	in the second of the	- m 3	100
CAT3		80	20				100
ESE	6		1	۱A			

* ±3% may be varied (CAT 1, 2 & 3 – 50 marks)

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Signature of the Chairman

Board of Studies -



Programm	e& Branc	h p	. & CIVIL	ENGINE	EDING	_	Sam	Coto	naca:	LT		61 *	Tetal	0		
		D.L		ENGINE	EKING		Sem		gory		P	SL*	Total	Credi		
Prerequisi	tes	NIL			100		3	_ F	C	0 0	30	0	30	1		
Preamble		This	s course t	acilitates ugh mode	efficient elling prod	design, de ess.	ocumenta	tion, bet	ter coord	dination,	simul	ation ar	nd visualiza	ition of a		
LIST OF E	XPERIME	NTS / E	XERCISE	S:												
1.	Introduc	tion to A	utoCAD a	and basic	drafting	tools /con	nmands						-	-		
2.	Building	Plannin	g - NBC p	orovisions	& Bye-la	aws -Term	ninologies	, Orienta	ation, Ve	ntilation	& Ligi	hting				
3.	Prepara	tion of k	ey plan &	site plan												
4.	Introduction to Building Elements-Foundations, Super structure, Roof, Staircase, Doors and Windows															
5.	Drawing the Plan, Elevation & Section of a residential Building with Load Bearing Wall															
6.	Drafting a Single floor residential building - Plan, Section and Elevation															
7.	Drafting a Multi-Storied residential building - Plan, Section and Elevation															
8.	Drafting a Public Building - Plan, Section and Elevation															
9.	Drafting a Primary Health Center- Plan, Section and Elevation															
10.	Drafting	an Indu	strial build	ding - Pla	n, Sectio	n and Ele	vation						,			
11.	Drafting	a comm	nercial bui	ilding (fra	med Stru	cture) - F	Plan, Sect	ion and	Elevatio	n						
12.	Prepare	a bluep	rint for bu	ilding app	oroval	rice.		91								
REFEREN	CEC/MAI		OFTMA)		6		***************************************				-	1			
1.			ual for A			<i>10</i>										
2.					peering D	rawing" 4	1th Edition	SKK	ataria ar	d Sone	2015					
3.		tti, S.S a		_		200							g House Pv	t. Ltd. Ne		
COURSE (o the st	udonte w	rill bo ab	lo to							BT Mappe			
CO1							ding bye-l	aws				(Highest Level) Applying (K3) Manipulation (S2)				
CO2	Prepare plan, section & elevation for different types of buildings											Applying (K3) Manipulation (S2)				
CO3	Prepare	approva	al plan for	building	3							Applying (K3) Manipulation (S2)				
					Mappin	g of COs	with PO	s and P	SOs			191	anpulation	(02)		
COs/POs /PSOs	PO1	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10) F	2011	PSO1	PSO		
CO1	3	2		3	3				3	3			3	3		
001									0	1 0						
CO2	3	3	3	3	3	3			3	3			3	3		

B.E. – Civil Engineering, Regulation, Curriculum and Syllabus – R2024

Board of Studies

the Chairman

Shiplar 3017/27 (Dr. C. Karthikeyan)

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,-			24C	EL32 -	FLUID	MECH	ANICS	'H DNA	/DRAU	LICS EN	GINE	ERING LA	3OR	ATC	RY			
Progra & Bran		B.E.	& CIVI	L ENG	INEERI	NG		h .		Sei	m.	Category	L	т	Р	SL*	Total	Cree
Prerequisites		Nil			1			l.		3	3	PC	0	0	30	0	30	1
Preaml	reamble This course assists students in understanding the different flow patterns, losses, a machines.												and	char	acteris	tics of I	nydrai	
List of	Exercis			ents:								*						,
1.	Deterr	minatio	n of c	o-effic	ent of	dischar	ge of o	orifice /	mouth	piece								
2.	Determination of co-efficient of discharge of rectangular / triangular notches Determination of co-efficient of discharge of venturimeter																	
3.	Deterr	minatio	n of c	o-effic	ent of	dischar	ge of v	/enturir	neter									
4.	Deterr	minatio	n of c	o-effic	ient of	dischar	ge of o	orificem	eter						1			-
5.	Determination of co-efficient of Impact of jet on vanes																	
6.	Determination of friction loss in pipes																	
7.	Determination of minor losses in pipes																	
8.	Evaluation of the performance characteristics of Pelton turbine																	
9.	Evaluation of the performance characteristics of Francis turbine																	
10.	Evaluation of the performance characteristics of centrifugal pump																	
11.	Evalua	ation o	f the p	perform	nance	charact	eristics	of rec	iprocat	ing pum	p	040						3
12.	Evalua	ation o	f the p	erform	nance (charact	eristics	s of sub	mersib	ole pump)				Œ.			
REFER	RENCES	/ MAN	UALS	/ SOFT	WARE	S:		:			-						9	1
1.	Labor	atory M	lanual			*						12.00				-		
2.	Modi Editio	P.N. an n, 2017	d Seth	n, S.M.,	"Hydra	ulics an	d Fluid	Mechar	nics incl	uding Hy	drauli	ic Machines	", R	ajsor	ns Pul	blicatio	ns Pvt. l	_td., 2
	SE OUT			se, the	studen	ts will b	oe able	to	11 25		6			•	(apped st Level)
CO1	Deter	mining	the flo	w rate a	across v	/arious 1	flow cor	nditions.	e e						N		ng (K3) ation (S2	2)
CO2	Calcu	lating b	oth ma	ajor and	d minor	losses i	n pipe 1	flow.							N	Analyz	ing (K4) ation (S2	21
CO3	Deter	mine th	e perf	ormanc	e chara	cteristic	of pum	nps and	turbine	S				-		Analyz	ing (K4) ation (S2	7
		-			4."	М	apping	of COs	with P	Os and F	PSOs	5				•	,	
COs/F		PO1	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PC	O10	PO1	1		PSO1	ı	PSO
СО	01	3 -	2	1	2		3			1		3	_ 3			3		3
CO2		3	2	1	2		3			1						3		3
CO	CO3																	

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