

SASURIE COLLEGE OF ENGINEERING

Approved by AICTE, New Delhi. Affiliated to Anna University, Chennai

Near NH544, Coimbatore Bypass, Near Vijayamangalam Tollgate, Tirupur 638056

NAAC DOCUMENTS

QUALITY INDICATOR FRAME WORK

CRITERION - 1

CURRICULAR ASPECTS



INTERNAL QUALITY ASSURANCE CELL

SASURIE COLLEGE OF ENGINEERING





Criterion 1 Cu	ricular Aspects 100
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1.1 Curricular Planning and Implementation (20)

1.1.1The Institution ensures effective curriculum planning and delivery through a well-planned and documented process including Academic calendar and conduct of continuous internal Assessment

Table of Contents

S.No	Description
1	Contents - Course File
2	Time Table
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8	Result Analysis Of Test
9	Corrective Action Report
10	Quality Objective Monitoring Record
11	Test Marks
12	Internal Test Question Paper
13	Internal Test Paper
14	Assignment Question Paper
15	Assignment Answer Sheet



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Department Subject Code & Name Class & Batch Semester CIVIL ENGINEERING CE8604 HIGHWAY ENGINEERING TH VI CONTENTS COLASETILI

interior interior	TONIENIS COURSE HUI	RI MARKS
S.NO	PARTICULARS	-
1	Time Table	-
2	Student name list	-
3	Subject Information Record	· · ·
4	Syllabus	
5	Lesson Plan	
6	Test Plan for the Subject	~
. 7	Result Analysis	~
8	Corrective Action Report	
9	Quality objective monitoring record	
10	Internal test mark sheet(Consolidated)	
· 11	Internal test question paper -	
12	Model question paper	
- 13	Sample Answer paper for all test(Min-3)	-
14	Content beyond the syllabus	Son copy
15	Lutorial Class schedule and content	\sim
10	Assignment_schedule and paper	Soft copy-
17	pp] - handout	Soft copy
18	Video - Animation - Soft copy	Soft - 45
19	Question bank Sample university question papersimin 5 QP-recent exami	Soll Solls
20	Sample university question paper structure	
21	Personal Log book -1 pdated	Soft core
22	Lecture Note Special Class if any, Approval letter, Schedule, content	Soft copy
23	Special Class II any. Approximately covered.	

Prepared By

Sign:

Name:

Approved By

N. Vellupion Head, Dept. of Civit SASURIE College of Engineering VIJAYANANGALAM

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Dr.M.VIJAYAKUMAR ME., Ph.D., PRINCIPAL SASURE COLLEGE OF ENGINEERING, Vijsymanualani - 638 056, Tirupur (DI).

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COLLEGE OF ENGINEERING VIJAYAMANGALAM

Dr.M.VIJAYAKUMAR ME., Ph.D., PRINCIPAL SASURIE COLLEGE OF ENGINEERING, Vijayamangalam - 638 056, Tirupur (Dt).



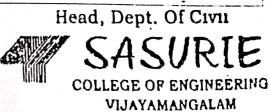
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Department of Civil Engineering STUDENT NAME LIST

Acadamic Year 2021-2022 - I XI N

<u> </u>	•	YEAR/SUM/III/VI
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2	732419103002	H VIPIN -

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Sign	S. benny	N.V.
Name	S. Keerthibalan	N. rellingir .
	Faculty	110



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Dr.M.VIJAYAKUMAR ME., Ph.D., PRINCIPAL SASURIE COLLEGE OF ENGINEERING, Vijayamangalam - 638 056, Tirupur (Dt).



SUBJECT INFORMATION RECORD

S.A. S.I.T. 11

III year

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CIVIL ENGINEEDING

CF 2604 Highway Engineering

Department

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To given a overriew about the highway Engineering with hespect to planning, design, Construction & maintenances of highways as per IFC stordards, Stecifications & mathede.

Releponce Hand

1. Khanna. S. K. Justo - CEG atel : Highway Ergineoring, Hernchand Fublishers. 2. Subsamanian K. P : Highways, Railways, Airport & Harbows,

2. Subramanian K.P. () Erginening, Scitech publication (India) Chunnai (2010)

Sign Name S. Keerthibalan

me Dr.M.VIJAYAKUMAR ME., Ph.D., PRINCIPAL SASURIE COLLEGE OF ENGINEERING, Vijayamangalam - 638 056, Tirupur (Dt).

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CE8604

HIGHWAY ENGINEERING

 To give an overview about the highway engineering with respect to, planning, design, construction and maintenance of highways as per IRC standards, specifications and methods.

UNIT | HIGHWAY PLANNING AND ALIGNMENT

Significance of highway planning – Modal limitations towards sustainability - History of road development in India – factors influencing highway alignment – Soil suitability analysis - Road ecology - Engineering surveys for alignment, objectives, conventional and modern methods - Classification of highways - Locations and functions - Typical cross sections of Urban and Rural roads

UNIT II GEOMETRIC DESIGN OF HIGHWAYS

Cross sectional elements - Sight distances - Horizontal curves, Super elevation, transition curves, widening at curves - Vertical curves - Gradients, Special consideration for hill roads - Hairpin bends - Lateral and vertical clearance at underpasses.

UNIT III DESIGN OF FLEXIBLE AND RIGID PAVEMENTS

Pavement components and their role - Design principles -Design practice for flexible and rigid Pavements (IRC methods only) - Embankments- Problems in Flexible pavement design.

UNIT IV HIGHWAY CONSTRUCTION MATERIALS AND PRACTICE

Highway construction materials, properties, testing methods - CBR Test for subgrade - tests on aggregate & bitumen – Test on Bituminous mixes-Construction practice including modern materials and methods, Bituminous and Concrete road construction, Polymer modified bitumen, Recycling, Different materials - Glass, Fiber, Plastic, Geo-Textiles, Geo-Membrane (problem not included) - Quality control measures - Highway drainage – Construction machineries.

UNIT V EVALUATION AND MAINTENANCE OF PAVEMENTS

Pavement distress in flexible and rigid pavements – Types of maintenance – Pavement Management Systems - Pavement evaluation, roughness, present serviceability index, skid resistance, structural evaluation, evaluation by deflection measurements – Strengthening of pavements -Highway Project formulation.

OUTCOMES:

Students will be able to

- Get knowledge on planning and aligning of highway.
- · Geometric design of highways
- Design flexible and rigid pavements.
- · Gain knowledge on Highway construction materials, properties, testing methods
- Understand the concept of pavement management system, evaluation of distress and maintenance of pavements.

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Head, Dept. Of Civil SASURIE COLLEGE OF ENGINEERING VIJAYAMANOALAM

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TOTAL: 45 PERIODS

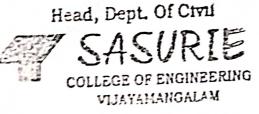
TEXTBOOKS:

- 1. Khanna S. K., Justo C.E.G and Veeraragavan A. "Highway Engineering", Nemchand Publishers, 2014
- 2. Subramanian K.P., "Highways, Railways, Airport and Harbour Engineering", Soltech Publications (India), Chennai, 2010
- 3. Kadiyali L.R. "Principles and Practice of Highway Engineering", Khanna Technical Publications, 8th edition Delhi, 2013.

REFERENCES:

- 1. Indian Road Congress (IRC), Guidelines for the Design of Flexible Pavements, (Third Revision), IRC: 37-2012
- 2. Indian Road Congress (IRC), Guidelines for the Design of Plain Jointed Rigid Pavements for Highways, (Third Revision), IRC. 58-2012
- 3. Yang H. Huang, "Pavement Analysis and Design", Pearson Education Inc, Nineth Impression, South Asia, 2012
- 4. Ian D. Walsh, "ICE manual of highway design and management", ICE Publishers, Ist Edition, USA, 2011
- 5. Fred L. Mannering, Scott S. Washburn and Walter P.Kilareski, "Principles of Highway Engineering and Traffic Analysis", Wiley India Pvt. Ltd., New Delhi, 2011
- 6. Garber and Hoel, "Principles of Traffic and Highway Engineering", CENGAGE Learning, New Delhi, 2010
- 7. O'Flaherty C.A "Highways, Butterworth Heinemann, Oxford, 2006
- 8. IRC-37-2012, The Indian roads Congress, Guidelines for the Design of Flexible Pavements, New Delhi
- 9. IRC 58-2012. The Indian Road Congress, Guideline for the Design of Rigid Pavements for Highways, New Delhi

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LESSON PLAN

Faculty Name : S.Keerthi balan Department

: CIVIL ENGINEERING

Designation: Assistant Professor Semester/ Years VIII /IV

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CE8601/HIGHWAY ENGINEERING

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	Proposed		Details of Topic Covered			Actual	
	Date	Period	Details of Topic Covered	LV	Ref.	Date Period	
			UNIT -I HIGHWAY PLANNING AND ALIGNMENT			0	
	16 03 2022	4	Significance of highway planning	1,2	1	16/3/2 6	
	17 03 2022	1	Modal limitations towards sustainability	1,2	1	17/3/27 1,5	
	17.03.2022	8	History of road development in India	1,2	1	18/3722	
	18 03 2022	1	factors influencing highway alignment	1.2	1	01/3/22 4	
	22 03 2022		Soil suitability analysis	1.2	1	22/3/22 2	
1	23.03.2022	4	Road ecology	1.2	1	22/3/22 5	
	24 03 2022	1	Engineering surveys for alignment, objectives, conventional and modern methods	1.2	I	23/3/20 2	

9	25.03.2022	1	Typical cross sections of Urban and Rural roads
	~		UNIT-II GEOMETRIC DESIGN OF HIGHWAYS
10	26 03.2022	2	Cross sectional elements
11	26.03.2022	4	Sight distances
12	30 03 2022	1	Horizontal curves,
13	31.03.2022	8	Super elevation,

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Classification of highways - Locations and functions

transition curves, widening at curves

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Pavement components and their role

Design practice for flexible Pavements

Design practice for rigid Pavements

Design practice for rigid Pavements

Problems in Flexible pavement design.

Problems in Elevible pavement design.

Gradients, Special consideration for hill roads

Lateral and vertical clearance at underpasses.

UNIT-III DESIGN OF FLEXIBLE AND RIGID PAVEMENTS

Vertical curves

Hairpin bends

Design principles

Design principles

Embankinents

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LESSON PLAN

Facul	ly Name	1	S.Keerthi balan			Design	ation: A	ssista	nt Professor
Depar	tment	:	CIVIL ENGINEERING						VIII /IV
Code	/ Subject	:	CE86047 HIGHWAY ENGINEERING						
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5.No.	Prope Date	ved Period	Details of Topic Covered	TA	Re	f. Act Date	ual Perior	1	нь
	1	NI1-IN	HIGHWAY CONSTRUCTION MATERIALS AND PL	RACI	ICE				
25	29 04 2022	2	Highway construction materials, properties, testing include	1.2	1	2/5/22	2	1	20
:0	30 04 2022	4	CBR Test for subgrade	1.2	1	415127			9
- 30	02 05 2022	5	tests on aggregate & bitumen	1,2	1	515122	2		/ ·
31	04 05 2022	1	Test on Bituminous mixes-	1,2	1	615/20			1
32	05 05 2022	2	Construction practice including modern materials and methods, Bituminous and Concrete road construction	1,2	1	9/5/22	2		
33	05 05 2022	4	Polymer modified bitumen, Recycling, Different materials	1.2	1	10/5/2	3		*
34	16.05.2022	5	Glass, Fiber, Plastic, Geo-Textiles, Geo-Membrane (problem not included)	1,2	1	1215/22	2		
- 35	17 05 2022	2	Quality control measures -	1,2	1	161502	5	ſ	NIL
36	f8 03 2022	8	Highway drainage — Construction machineries.	1,2	1	2215	2	1	
		UNIT	-V EVALUATION AND MAINTENANCE OF PAVENIE	ENTS		espan	-	~J	
37	19.05.2022	1	Pavement distress in flexible and rigid pavements	1.2		28/5/22	4	$\overline{)}$	
38	20 05 2022	2	Types of maintenance	1.2	1,2	24101-24	2	6	/
39	23 05 2022	4	Pavement Management Systems	1,2	1,2	1/1-100			-
40	24 05.2022	5	Pavement evaluation, roughness, by deflection	12	12	40124	.+-+	-+	

Reference books (Ref):

25 05 2022

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I. Khanna.S. K., Justo C.E.G and Veeraragavan A. "Highway Engineering", Nemchand Publishers, 2014. 2. Subramanian K.P., "Highways, Railways, Airport and Harbour Engineering", Seitech Publications (India). Chennai, 2010

evaluation by deflection measurements

Strengthening of pavements

Highway Project formulation.

present serviceability index, by deflection measurements

skid resistance, structural evaluation by deflection.

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4 Others (Field vists, Charts, Cutset Models)

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Sign:	Scort	N	Authorized by	
Name	S.Keerthi lalan	N.Vellingiri	C.NO.K	
	Faculty	Пр	DR. E.Nandakumar	
	. MALO	Head, Dept. Of Civit	Principal Principal	
SAS	M.VIJAYAKUN PRINCIPAL SURIE COLLEGE OF D	SASURIE	HRINCIPAL SASUIRIE Ils Cullinge of Engineering	-
Vij	ayamangalam - 638 05	6. Tirupur (Dt).		



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TEST PLAN FOR SUBJECT

Nirtin	nem: <u>VI</u> nem: Civil Engi	neering		ear 21-22 (III ye
S. No.	Description	Planued Date/Month	Actual Conducted Date / Month	Remarks
1	INTERNAL TEST-I	04/04/22	20/04/22	College Reopening date 16.03.22 only
2	INTERNAL TEST_I	09/05/22	18/05/22	The to late reopen
3	MODEL EXAM	06/06/22	11.06.22	Que la Latereopa

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Sign:	S. Very
Name:	S. Keenthi Balan
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4	Dr.M.VIJAYAKUMAR ME., Ph.D., PRINCIPAL SASURIE COLLEGE OF ENGINEERING, Vijayamangalam - 638 055. Tiruper (Dt)

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	RES	ULT ANAI	YSIS OF	TEST			
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Dr.M.VIJAYAKUMAR ME., Ph.D., PRINCIPAL SASURIE COLLEGE OF ENGINEERING, Vijayamangalam - 638 056, Tirupur (Dt). Approved By

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Dr.N SASUF	NUJAYAKUM PRINCIFAL RIE COLLEGE OF EN mangalam - 638 056,	AR ME., Ph.D.,	ł	Iead, Dept	OF CIVIL SURIE FENGINEERING



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CORRECTIVE ACTION REPORT

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S.No	Internal Test	Percentage of marks	Root Cause (Metrics)	Corrective Action	Deadline date	Remarks
1	Internal Test-I	100 -1.		· · ·		•
2	Internal Test-II	[00-].	-	_		_
3.	Model Exam	100-1.	•		~ .	

Prepared By	Approved By
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Sign: Skeert Name: S. Keerthibalan	Nivellingir
Laculty MD9	Head Dept. Of Civil
Dr.M.VIJAYAKUMAR ME., Ph.D., PRINCIPAL SASURIE COLLEGE OF ENGINEERING, Vijayamangalam - 638 056, Tirupur (Dt).	COLLEGE OF ENGINEERING

COLLEGE OF ENGINEERING VIJAYAMANGALAM



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Academic Year 2021 - 2022 EVEN Semester

Department of Civil Engineering

III CIVIL - HIGHWAY TEST MARKS

SI. No	Register Number	Student's Name	IT 1	IT 2	MODEL
1	732419103001	V.PRAKASH	68	92	76
2	732419103002	HVIPIN	52	70	64

No of Students Absent	0	0	0
No of Students Present	2	2	2
No of Students Attended	2	2	2
No of Students Pass	2	2	2
No of Students Fail	0	0	0
Pass Percentage	100%	100%	100%

	Prepared By	Verified By
SIGN	S. Keelting	N.V
NAME	S.Keerthibalan	N Vellingiri
	Faculty	HD

PRINCIPAL SASURIE COLLEGE OF ENGINEERING, Vijayamangalam - 638 056, Tirupur (Dt).

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COLLEGE OF ENGINEERIN VIJAYAMANGALAM

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Vijayamangalam - 638 056, Tirupur (Dt).

SASURIE College of Engineering



-	INTERNAL TEST 1			Date/Session	20.04.2022 Ma	rkx 50			
Course e	inte	CESell4	Course Title	Highway Engineering					
Regulatio	MA	2017	Duration	1.5 Hours	Academic Year	2021-2022			
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C604,1	Identify systems.	the various ex- and roadside	imponents of highway features.	s, including pavem	ent structures, should	ers, drainage			
C604.2	Denons	trate knowled	ge of highway plannin	g principles, includ s terrain, environme	ling route selection, the	raffic analysis, a			
C604.3	Apply th	alignment design considering factors such as terrain, environmental impact, and social considerations. Apply the geometric design principles to determine roadway alignments, cross-sections, sight distances, and horizontal and vertical curves, ensuring safety and efficiency for various types of biobways							
0.1.1	Demons pavemen	Demonstrate proficiency in pavement design methodologies, including flexible, rigid, and composite pavement systems,							
C604.5	Learn ab	Learn about various construction methods and practices for highways, including earthwork, sub grade							
C604.6	The prin	preparation, pavement construction, and quality control/quality assurance procedures. The principles behind pavement performance indicators such as roughness, rutting, cracking, and surface distress, and their implications for pavement maintenance							

Q.No.	Question	СО	BTS
	PART A	n han talah menengai kanangan dan dalam talam pertakan ketakan ketakan ketakan dari ketakan dalam ketakan ketak	
	(Answer all the Questions 10 x 2 = 20 Mark	(5)	
1	Write short notes on Highway Research Board.	C604.1	RE
2 3	Write the functions of Indian Road Congress.	C604.1	RE
	Write the functions of Central road research institute (CRRI).	C604,1	RE
4	How are roads classified in Nagpur plan?	C604.1	RE
5	What are the recommendations of Jayakar Committee?	C604.1	RE
6	Define Central Road fund.	C604.1	RE
	What are the objective of Highway planning?	C604.1	RE
8	List four parameters enumerated in traffic, survey for the alignment a		EV
9	What are shoulders?	C604.1	RE
10	Write any four model limitations highways mode towards sustainability	. C604.1	RE
	PART B	an an an ann an an an an an an an ann an a	Const Edition in a section
	(Answer all the Questions 2 x 15 = 30 Marks	;)	
lla	Explain in detail about the classification of roads	C604.1	EV
	OR		
116	Briefly explain the engineering surveys needed for locating a new high	way, C604.1	RE
12a		C60.1.1	EV
	Explain the History of road Construction and its Methods with neat diag	gram,	
Contraction of the second	ÖR		- Nada Service and the second second
12b	Write shorts notes on i) Indian Road Congress 11 Central Road Researc	h Institute C604.1	RE
	(RRI) and in Highway Research Board.		
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<u> </u>	Gourse Filente U HoD	Paincipat	
	(Name /Sign / Date) (Name /Sign / Date)	Name /Sign / D	ate)
	S Madhavan N. Vellingiri	Dr.M.VIJAYAKUMAR	
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	國際的 이 그는 것 같아요. 이 것 ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	Vilavamangalam - 638 056 Tip	mue /Dei

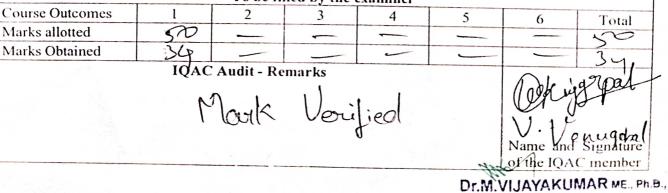


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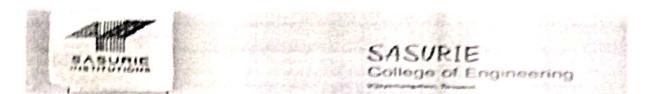
Internal Assessment Test Answer Book

Name	V. Prakash			Year/ Semester/Sec	tion	ín /ir
Register Number	732419103001	Date/Session	20.4.2022	Department		CIVIL
Course code	CE8604	Course Title	Highway.	Engineering	L	
Internal Asses	sment Test	IAT 1		IAT 3	Model	
Name and Sig	nature of the Invigi	lator with date	Manehm	M20/4/22		

Part A			Part B/ Part C						
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			Q. NO.		Marks		Marks		
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PRINCIPAL SASURIE COLLEGE OF ENGINEERING, Vijayamangalam - 638 056, Tirupur (DI).



DEPARTMENT OF CIVIL ENGINEERING

Assignment Question Paper

	Assignmen	1 - 01	Date of Issue:	12 03 2022	Marks 10
Course code	CE8604	Course Title	HIGHWAY ENG	INFERING	And and a second se
Year	111	fiementer/Section	VI/A&B	Date of Submiss	imm: 24.03.2922

Q.No	Questions	со
0	Explain the history of construction	C604.1
2	Explain the tresaguet construction	C604.1

Name and Signatore of the Faculty Incharge

S. Madhavan

N. VIJETS

N Vellingiri

Dr.M. VIJAYAKUMAR ME. Ph.D. PRINCIPAL SASURIE COLLEGE OF ENGINEERING, Vijayamangalam - 638 055, Tirupur (Dt).



SASURIE College of Engineering

DEPARTMENT OF CIVIL ENGINEERING

Assignment Answer Sheet

Name of the Student : H . Vipn

AU Register Number: 73241910 3002

		Assignment – 01		Date of Issue:	12.03.2022	Marks	10
200	Course code	CE8604	Course Title	HIGHWAY ENG	GINEERING		
No.	Jear	111	Semester/Section	VI	Date of Submissio	n: 17.03.	2022

Q.No	Questions	СО
1	Explain the history of construction	C604.1
2	Explain the tresaguet construction	C604.1

Mark Allocation

Rubrics	Marks Allocated	Marks obtained
Content Quality	6	6
Presentation Quality	2	2
Timely submission	2	۵)
Total marks	10	10

Smech 1/22

Name and Signature of the Faculty Incharge

S. Madhavan.

N.V. HoD/Civil N. Vellingiri

Dr.M.VIJAYAKUMAR ME., Ph.D., PRINCIPAL SASURIE COLLEGE OF ENGINEERING, Vijayamangalam - 638 056, Tirupur (Dt).