

Transportation Engineering

(Subject Code: GR18A3065)

III Year B.TECH. (CIVIL ENGINEERING)

II Semester

Mr. T. Srikanth

Associate Professor



Department of Civil Engineering

Gokaraju Rangaraju Institute of Engineering and Technology

Bachupally, Kukatpally, Hyderabad – 500 090. (040) 6686 4440

2021-2022



Gokaraju Rangaraju Institute of Engineering and Technology

Department of Civil Engineering

Transportation Engineering

Course File Check List

S.No.	Name of the Format	Page No.
1	Syllabus	
2	Time Table	
3	Program Educational Objectives	
4	Program Objectives	
5	Course Objectives	
6	Course Outcomes	
7	Students Roll List	
8	Guide lines to study the course books & references, course design & delivery	
9	Course Schedule	
10	Course Plan	
11	Unit Plan	
12	Lesson Plan	
13	Tutorial Sheets	
14	Assignment Sheets	
15	Evaluation Strategy	
16	Assessment in relation to COb's and CO's	
17	Rubric for course	
18	Mappings of CO's and PO's	
19	Model question papers	
20	Mid-I and Mid-II question papers	
21	Mid-I marks	
22	Mid-II marks	
23	Sample answer scripts and Assignments	
24	Course materials like Notes, PPT's, Videos, etc.,	

SYLLABUS

UNIT I

Highway development and planning: Highway development in India – Necessity for Highway Planning- Different Road Development Plans- Classification of Roads- Road Network Patterns – Highway Alignment- Factors affecting Alignment- Engineering Surveys – Drawings and Reports.

UNIT II

Highway geometric design: Importance of Geometric Design- Design controls and Criteria- Highway Cross Section Elements- Sight Distance Elements- Stopping sight Distance, Overtaking Sight Distance and intermediate Sight Distance- Design of Horizontal Alignment- Design of super elevation and extra widening- Design of transition curves-Design of vertical alignment-Gradients and vertical curves

UNIT III

Traffic engineering: Basic Parameters of Traffic-Volume, Speed and Density- Traffic Volume Studies- Data Collection and Presentation-speed studies- Data Collection and Presentation- Parking Studies and Parking characteristics- Road Accidents-Causes and Preventive measures- Accident Data Recording – Condition Diagram and Collision Diagrams.

Traffic regulation and management: Road Traffic Signs – Types and Specifications – Road markings-Need for Road Markings-Types of Road Markings- Design of Traffic Signals –Webster Method –IRC Method.

UNIT IV

Intersection design: Types of Intersections – Conflicts at Intersections- Types of At-Grade Intersections- Channelisation: Objectives –Traffic Islands and Design criteria-Types of Grade Separated Intersections- Rotary Intersection – Concept of Rotary and Design Criteria- Advantages and Disadvantages of Rotary Intersection.

UNIT V

Introduction to railway and airport engineering: Gradients- Grade Compensation- Cant and Negative Superelevation- Cant Deficiency – Degree of Curve – Crossings and Turn outs. Factors affecting Selection of site for Airport – Aircraft Characteristics- Geometric Design of Runway- Computation of Runway length – Correction for runway length – Orientation of Runway – Wind Rose Diagram – Runway Lighting system.

TEXT BOOKS:

1. Highway Engineering – S.K.Khanna & C.E.G.Justo, Nemchand & Bros., 7th edition (2000).
2. Railway Engineering – A text book of Transportation Engineering – S.P.chadula – S.Chand & Co. Ltd. – (2001).
3. Highway Engineering Design – L.R.Kadiyali and Lal- Khanna Publications.
4. Airport Planning and Design- S.K.Khanna and Arora,Nemchand Bros.
5. Railway Engineering – A text book of Railway Engineering – S.C.Saxena – S.P.Arora – (2015).



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING

III YEAR-A SECTION

ROOM NO: 4204

W.E.F: 17-01-2022

	1	2	3		4	5	6
Day/Hour	9:00- 9:55	9:55- 10:50	10:50- 11:45	11:45- 12:25	12:25- 1:15	1:15- 2:05	2:05- 2:55
Monday			TRE	Lunch Break			
Tuesday							
Wednesday	TRE						
Thursday				Lunch Break			
Friday					TRE	TRE	
Saturday			TRE				

CODE	Subject	Faculty
GR18A3065	Transportation Engineering	Mr. T.Srikanth

CLASS COORDINATOR

PROGRAMME COORDINATOR

HOD



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING

III YEAR-B SECTION

ROOM NO: 4208

W.E.F: 17-01-2022

	1	2	3		4	5	6
Day/Hour	9:00- 9:55	9:55- 10:50	10:50- 11:45	11:45- 12:25	12:25- 1:15	1:15- 2:05	2:05- 2:55
Monday		TRE		Lunch Break			
Tuesday							TRE
Wednesday						TRE	TRE
Thursday				Lunch Break			
Friday							
Saturday							

CODE	Subject	Faculty
GR18A3065	Transportation Engineering	Mr. T.Srikanth

CLASS COORDINATOR

PROGRAMME COORDINATOR

HOD



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING

Vision

To become a pioneering centre in civil engineering.

Mission

- To produce well qualified and talented engineers by imparting quality education.
- To enhance the skills of entrepreneurship, innovativeness, management and life-long learning in young engineers.
- To inculcate professional ethics and make socially responsible engineers.

PEOs

1. Graduates of the programme will be successful in technical and professional career.
2. Graduates of the programme will have proficiency in solving real time Civil Engineering projects.
3. Graduates of the programme will continue to engage in life-long learning with ethical and social responsibility.

Programme Outcomes

Graduates of the Civil Engineering programme will be able to

- a. Apply knowledge of mathematics, science and fundamentals of Civil Engineering.
- b. Analyse problem and interpret the data.
- c. Design a system component, or process to meet desired needs in Civil Engineering within realistic constraints.
- d. Identify, formulate, analyse and interpret data to solve Civil Engineering problems.
- e. Use modern engineering tools such as CAD and GIS for the Civil Engineering practice.
- f. Understand the impact of engineering solutions in a global, economic and societal context.
- g. Understand the effect of Civil Engineering solutions on environment and to demonstrate the need for sustainable development.
- h. Understanding of professional and ethical responsibility.
- i. Work effectively as an individual or in a team and to function on multi-disciplinary context.
- j. Communicate effectively with engineering community and society.
- k. Demonstrate the management principles in Civil Engineering projects.
- l. Recognize the need for and an ability to engage in life-long learning.

Program Specific Outcomes (PSO's)

PSO1: Recognize the need for a sustainable environment and design smart infrastructure considering the global challenges.

PSO2: Create and develop innovative designs with new era materials through research and development.



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
COURSE OBJECTIVES

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech Year: III YEAR Section: A & B

Course : Transportation Engineering Course Code: GR18A3065

Name of the faculty : T.Srikanth Dept: Civil Engineering

Designation : Associate Professor

On completion of this Course students shall be able to

S.No.	Objectives
1	Gain a solid understanding of the principles of highway engineering and traffic analysis
2	Develop and interpret design standards for horizontal and vertical geometry.
3	Have a strong analytical and practical knowledge of Planning, Designing and solving transportation problems
4	Understand the type of conflicts that occur at intersection and design the intersection accordingly
5	Gain the knowledge in Railway Engineering and Airport Engineering.

Signature of HOD

Signature of Faculty

Date:

Date:



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
COURSE OUTCOMES

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech

Year: III YEAR Section: A & B

Course Transportation Engineering

Course Code: GR18A3065

Name of the faculty : T.Srikanth

Dept: Civil Engineering

Designation : Associate Professor

The expected Outcomes of this Course are

S.No.	Outcomes
1	Apply basic principles of physics in estimating stopping and overtaking sight distance requirements
2	Compute the geometric features of road like horizontal and vertical alignment
3	Analyze the factors influencing road vehicle performance, characteristics and design.
4	Illustrate the basic traffic stream parameters and perform basic traffic signal phasing and timing plan.
5	Demonstrate the role of intersections and other modes of transportation

Signature of HOD

Signature of Faculty

Date:

Date:



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
Students Roll List

S.No	Roll No	Name of Student Sec-A
1	18241A0151	SOHEB PATEL
2	18241A0152	SRIAM SHIVA ADITYA
3	19241A0101	RUHAIL AHMAD LONE
4	19241A0102	AITHA SAI TEJA
5	19241A0103	BARISSETTY SHIVA KARTHIK
6	19241A0104	BENDHI VARUN THEJA GOUD
7	19241A0105	BHUKYA VAMSHI
8	19241A0106	BOGE VENKAT ROHITH
9	19241A0107	BONTHA PRANEETHKUMAR
10	19241A0108	CHILUKA RAHUL
11	19241A0109	DANDI KIRAN
12	19241A0110	DAYYA RAGNESH
13	19241A0111	E MANISH GOUD
14	19241A0112	ERRAM SAI PRIYA
15	19241A0113	G DEEPIKA
16	19241A0114	GORANTALA SAI
17	19241A0115	GUGULOTHU SANTHOSH
18	19241A0116	GURIJALA SAI KUMAR
19	19241A0117	GURUJALA SRIDHAR
20	19241A0118	IRUVANTI HEMANTH KUMAR
21	19241A0119	JANGITI VYSHNAVI
22	19241A0120	JARUPLA CHERAN
23	19241A0122	JETTI SREEVANI
24	19241A0123	K SOWMYA
25	19241A0124	KADALI KRISHNASRI SAI
26	19241A0125	KAMAREDDY AKSHAY
27	19241A0126	KATTA SAI KUMAR
28	19241A0127	KOLLURI.TEJASWI
29	19241A0128	KONDAPURAM SRIJA
30	19241A0129	KOTTE VIVEK
31	19241A0130	KRUTHIKA VIJAY PALANGE

S.No	Roll No	Name of Student Sec-A
32	19241A0131	MADA AKHIL REDDY
33	19241A0132	MADARAM SHRAVAN KUMAR REDDY
34	19241A0133	MADDIGATLA AJAY SAGAR
35	19241A0134	CHANDANA MALPATEL
36	19241A0135	MANDALA CHINNI
37	19241A0136	MIREGILLA VIJAYAKUMAR
38	19241A0137	MOHD OBAID KASHIF
39	19241A0138	NARAPAKA MADHAV KUMAR
40	19241A0139	NIMMALA ARSHITHA
41	19241A0141	P SIDDARTHA
42	19241A0142	PAGIDIPALLY AJAY KUMAR
43	19241A0143	PALLAPU NAVEEN
44	19241A0144	PALLE SANATH KUMAR
45	19241A0145	PANTANGI PRANAY
46	19241A0146	PATIL SWAPNIL
47	19241A0147	POLISETTY SAAHAS
48	19241A0148	S.SAITEJA
49	19241A0149	SAI NEERAJ M
50	19241A0150	SATYA SAI PRASANNA REDDY SOLIPETA
51	19241A0151	SHAIK BILAL
52	19241A0152	SHAIK FIRDOUS AYESHA
53	19241A0153	SOORA VIKAS
54	19241A0154	TELLAM SRI SAI PAVANA ROSHINI
55	19241A0155	THALLAPALLY SWARANYA
56	19241A0156	THUMATI VENKATA VAYUNANDHAN
57	19241A0157	UDUMULA NIKHIL REDDY
58	19241A0158	VELISHALA GAYATHRI
59	19241A0159	VENKATA SIDDHARTHA RAJU VEGESNA
60	19241A0160	YASWANTH KURUVA

S.No	Roll No	Name of student Sec-B
1	19241A0161	ABDUL RAHEEM
2	19241A0162	ANEMONI MURALI MANOHAR
3	19241A0163	ASKANY HARISH SAGAR
4	19241A0164	BODLA AKSHITH
5	19241A0165	BURRA VAMSHI KRISHNA
6	19241A0166	CHERLAKOLA AKHILA
7	19241A0167	CHINTAPALLI VIKRAM
8	19241A0168	CHIRRIBOYINA DHANYA
9	19241A0169	D SREE MADHURI
10	19241A0170	GADDAM SAHITHI
11	19241A0171	GAJJALA SUKENDHAR REDDY
12	19241A0172	YASHASWI GANGAVARAM
13	19241A0173	GINDHAM ADITYA KUMAR
14	19241A0174	GUDHETI NARENDAR REDDY
15	19241A0175	GUMMADI SAI PRATEEK REDDY
16	19241A0176	HANMAPUR DHEERAJ GOUD
17	19241A0177	JAVVAJI AISHWARYA
18	19241A0178	JULAPALLY NITHIN RAO
19	19241A0179	K NAVEEN
20	19241A0180	K RAJESHWARI
21	19241A0181	KACHAVA SURENDAR
22	19241A0182	KODATHALA INDU
23	19241A0183	KOTARU SRINIVASA VARAPRASAD
24	19241A0184	MALOTH RAHUL
25	19241A0185	MATURI SATHVIK
26	19241A0186	MD ABDUL MAAJID
27	19241A0187	MEDARI DAYANA
28	19241A0188	NARSINGA SANDEEP
29	19241A0189	PALANATI ROHITH
30	19241A0190	PURALASETTY BHAVANA
31	19241A0191	RODDA MALAVIKA REDDY
32	19241A0192	SAPRAM NAGA SRILOWKYA MUKTHA
33	19241A0193	SHAIK PARVEZ ANSARI
34	19241A0194	SIDDELA THARUN KUMAR
35	19241A0195	TALARI CHANDANA SREE
36	19241A0196	VALLEPU KALYAN
37	19241A0197	VRASHAB PATEL
38	19241A0198	YELLAVULA NARENDER
39	19241A0199	BADDELA SAI THARUN
40	20245A0101	Aamanchi Bowmi
41	20245A0102	Aviraboina Sai Chaithanya
42	20245A0103	Bairy B S Anirudh
43	20245A0104	Daddu Tejasree
44	20245A0105	Dopathi Raviteja

S.No	Roll No	Name of student Sec-B
45	20245A0106	Eruventi Niharika
46	20245A0107	Gaddamidi Aanil
47	20245A0108	Gandla Rishik Raj
48	20245A0109	Gone Naveen Kumar
49	20245A0110	Kota Vishal
50	20245A0111	Kummari Mahesh
51	20245A0112	Lakavath Anil
52	20245A0113	Madavaram Rohith
53	20245A0114	Mandala Akshitha
54	20245A0115	M Manjunath
55	20245A0116	Porandla Nababhushanam
56	20245A0117	Pulishetty Bhavani
57	20245A0118	Racha Kranthi Ranadeer
58	20245A0119	S Manoj Kumar
59	20245A0120	Samudrala Manideep
60	20245A0121	Sangepaga Goutham
61	20245A0122	Sodadasi Rahul
62	20245A0123	Vanga Harshith
63	20245A0124	Choleti Vineetha
64	20245A0125	Gangula Grishma
65	20245A0126	Bollampalli Sai Poojith
66	20245A0127	Pamulapati Sumanth
67	20245A0128	T Sanghamithra
68	20245A0129	Abeda Akanksha
69	20245A0130	Doppalapudi Ramvineeth Sai
70	20245A0131	Pilly Uday Kiran



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING

GUIDELINES TO STUDY THE COURSE/SUBJECT

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech

Year: III YEAR Section: A & B

Course : Transportation Engineering

Course Code: GR18A3065

Name of the faculty : T.Srikanth

Dept.: Civil Engineering

Designation : Associate Professor

Guidelines to study the course Transportation Engineering

Transportation is specifically concerned with transportation engineering - traffic engineering, transport and land use planning, highway engineering, pavement materials and management systems, road safety and crash investigation. This programme is focused on developing a sound understanding of fundamental concepts, techniques, and issues. A range of selected topics in highway and pavement engineering which will provide a basis for extension into further studies. traffic signal performance measures (queues, delays, stops), coordination of signals and platoon dispersion. Traffic characteristics, traffic studies, analytical tools in traffic engineering, queuing theory and applications. Traffic impact assessment and parking design. Travel demand management and other intelligent transport systems techniques.

Students should have the following prerequisites

1. Fundamentals of basic physics
2. Knowledge of levelling
3. Knowledge on setting out the curves

To become expertise in this subject, students need to be perfect with the concepts of sight distances. Traffic stream parameters can be helpful in designing signal timings and intersections. An additional unit is provided for railway engineering and Airport Engineering which deals with the advancement of transportation engineering.

Where will this subject help?

1. Transportation is the major tool for the social, economic, and political development of the country, as the roads are interconnected between major cities of the country.
2. Intersections are the most conflicted areas for the maintenance of traffic in an organized manner. This subject helps into the consideration of the important parameters that are to be considered for intersection designing
3. Volumetric surveys and accidental surveys help in designing the traffic signals and to find the defects of the road which ultimately results in the proper maintenance of the traffic flow.
4. Students learn about the geometric design of the road among which the sight distances are very important for safe operation of vehicles

Books/Material

S.No.	Text Books
1	Highway Engineering S.K.khanna & C.E.G.justo, Nemchand & Bros 7 th edition(2000)
2	Railway Engineering A text book of transportation engineering S.P.Chadula S.Chand & Co.Ltd(2001)
3	Highway Engineering design L.R.Kadiyali and Lal- Khanna publications
4	Airport planning and design- S.K.Khanna and Arora Nemchand Bros
5	Railway Engineering A text book of Railway engineering S.C.Saxena, S.P. Arora (2015)

S.No.	Suggested / Reference Books
1	Highway engineering S.P.Bindra Dhanpat Rai & sons. 4 th Edition (1981)
2	Traffic engineering & Transportation Planning Dr. L.R.Kadiyali, Khanna publications, 6 th Edition 1997
3	Railway Engineering August Prabha &Co. 15 th edition 1994
4	Air Transportation planning and design Virendhra Kumar & satish Chandra Gal Gotila Publishers (1999)

Course Design and Delivery System

1. The course syllabus is written into number of learning objectives and learning outcomes.
2. These learning objectives and outcomes will be achieved through lectures, assessments, assignments, experiments in the laboratory, projects, seminars and presentations, etc.,
3. Every student will be given an assessment plan, criteria for assessment, scheme of evaluation and grading method.
4. The learning process will be carried out through assessment of knowledge, skills and attitude by various methods and the student will be given guidance to refer to the textbooks, reference books, journals etc.,

The faculty be able to -

- Understand the principles of learning
- Understand the psychology of students
- Develop instructional objectives for a given topic
- Prepare course, lesson and unit plan
- Understand different methods of teaching and learning
- Use appropriate teaching and learning aids
- Plan and deliver lectures effectively
- Provide feedback system to students using various methods of assessments and tools of Evaluation
- Act as a guide, advisor, counselor, facilitator, motivator and not just as a teacher alone.

Signature of HOD

Date:

Signature of Faculty

Date:



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING

COURSE SCHEDULE

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech Year: III YEAR SEC-A

Course : Transportation Engineering Course Code: GR18A3065

Name of the faculty : T.Srikanth Dept.: Civil Engineering

Designation : Associate Professor

Schedule for the whole course is:

Unit no.	Description	Duration (Date)		Total No. of Periods
		From	To	
I	Highway development and planning	17-01-2022	31-01-2022	7
II	Highway geometric design	01-02-2022	28-02-2022	15
III	Traffic engineering	02-03-2022	25-03-2022	12
IV	Intersection design	29-03-2022	12-04-2022	7
V	Introduction to Railway and Airport Engineering	13-04-2022	10-05-2022	13

Signature of Faculty

Date:



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING

COURSE SCHEDULE

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech

Year: III YEAR

SEC-B

Course : Transportation engineering

Course Code: GR18A3065

Name of the faculty : T Srikanth

Dept.: Civil Engineering

Designation : Associate Professor

Schedule for the whole course is:

Unit no.	Description	Duration (Date)		Total No. of Periods
		From	To	
I	Highway development and planning	17-01-2022	07-02-2022	8
II	Highway geometric design	08-02-2022	02-03-2022	15
III	Traffic engineering	07-03-2022	29-03-2022	12
IV	Intersection design	30-03-2022	18-04-2022	7
V	Introduction to railway and airport engineering	19-04-2022	11-05-2022	12

Signature of Faculty

Date:



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
COURSE PLAN

Academic Year : 2021-2022

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: A

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: T.Srikanth Dept.: Civil Engineering

Designation: ASSOCIATE PROFESSOR.

Unit No.	Topics/Sub Topics	Date	No. of Periods	Objectives & Outcomes .	References (Text book, Journal...)	Blooms Taxonomy level
1	Introduction to transportation engineering	17-01-2022	1	COb-1 & COt-1	Highway Engineering S.K.khanna & .C.E.G.justo, Page numbers – 15, 35, 25, 24,51,55,61	L1
	Development of highway in India	18-01-2022	1	COb-1 & COt-1		L1
	Road Development Plans	19-01-2022	1	COb-1 & COt-1		L1
	Road network pattern	24-01-2022	1	COb-1 & COt-1		L2
	Highway alignment	25-01-2022	1	COb-1 & COt-1		L2
	Factors affecting alignment	31-01-2022	1	COb-1 & COt-1		L2
	Engineering surveys, Drawings and reports	31-01-2022	1	COb-1 & COt-1		L1
2	Importance of geometric design	01-02-2022	1	COb-2 & COt-2	Highway Engineering S.K.khanna & C.E.G.justo, Page numbers – 71,73,74,89,	L1
	Design controls & criteria	02-02-2022	1	COb-2 & COt-2		L2
	Highway Cross section elements	07-02-2022	1	COb-2 & COt-2		L1

	Sight distances	08-02-2022	1	COb-2 & COt-2	91,98,107,111, 124,129, 145,149,153	L2
	Stopping sight distance	09-02-2022	1	COb-2 & COt-2		L3
	Overtaking sight distance	09-02-2022	1	COb-2 & COt-2		L3
	Problems	14-02-2022	1	COb-2 & COt-2		L3
	Design of horizontal alignment	16-02-2022	1	COb-2 & COt-2		L3
	Super elevation and extra widening	16-02-2022	1	COb-2 & COt-2		L3
	Problems	18-02-2022	1	COb-2 & COt-2		L3
	Design of transition curves	18-02-2022	1	COb-2 & COt-2		L3
	Problems	23-02-2022	1	COb-2 & COt-2		L3
	Design of vertical alignment	25-02-2022	1	COb-2 & COt-2		L3
	Summit curves & Valley curves	25-02-2022	1	COb-2 & COt-2		L3
	Problems	28-02-2022	1	COb-2 & COt-2		L3
3	Basic parameters of traffic	02-03-2022	1	COb-3& COt-3	Highway Engineering S.K.khanna & C.E.G.justo, Page numbers – 169,223,177, 283,201,203,204, 247,263,248,257,260	L1
	Relation between volume, speed and density	04-03-2022	1	COb-3& COt-3		L2
	Traffic volume studies Data collection and presentation	04-03-2022	1	COb-3& COt-3		L2,L4
	Parking studies & characteristics	08-03-2022	1	COb-3& COt-3		L4
	Road accidents & preventative measures	09-03-2022	1	COb-3& COt-3		L4
	Accident data recording	11-03-2022	1	COb-3& COt-3		L4
	Collision diagram	11-03-2022	1	COb-3& COt-3		L4
	Road traffic signs and specifications	15-03-2022	1	COb-3& COt-3		L1

	road markings and their need	16-03-2022	1	COb-3& COt-3		L1
	Design of road signals	22-03-2022	1	COb-3& COt-3		L1
	Webster method, IRC method	23-03-2022	1	COb-3& COt-3		L1,L3
	Problems	25-03-2022	1	COb-3& COt-3		L1,L3
4	Types of intersection	29-03-2022	1	COb-4 & COt-4	Highway Engineering S.K.khanna & C.E.G.justo, Page numbers – 267,269,278,271	L1
	Conflicts at intersection	30-03-2022	1	COb-4 & COt-4		L1
	Types of at grade intersection	01-04-2022	1	COb-4 & COt-4		L1
	Channelization, Traffic islands and design criteria	05-04-2022	1	COb-4 & COt-4		L1
	Grade separated intersection	06-04-2022	1	COb-4 & COt-4		L1
	Rotary intersection, Design criteria	08-04-2022	1	COb-4 & COt-4		L1,L2
	advantages and disadvantages of rotaries	12-04-2022	1	COb-4 & COt-4		L1
5	Introduction to Railway Engineering	13-04-2022	1	COb-5& COt-5	Railway Engineering A text book of transportation engineering S.C.Saxena S.P.Arora Page numbers – 3.1,15.2,15.9,16.1	L1
	Permanent Way, Rail, Sleepers, Ballast	19-04-2022	1	COb-5& COt-5		L2
	Gradients, Grade compensation	20-04-2022	1	COb-5& COt-5		L2
	Cant and negative cant, Cant deficiency, problems	22-04-2022	1	COb-5& COt-5		L1,L2,L3
	Points and Crossings, Turnouts	22-04-2022	1	COb-5& COt-5		L2
	Factors affecting selection of airport site	26-04-2022	1	COb-5& COt-5		L3
	Aircraft characteristics	27-04-2022	1	COb-5& COt-5		L3

	Computation of runway length and problems	29-04-2022	1	COb-5&COt-5	Airport planning and design- S.K.Khanna Page numbers – 129,109,173, 177,164,165	L2, L3
	Correction for runway length and problems	03-05-2022	1	COb-5&COt-5		L2, L3
	Wind rose diagram I and II	04-05-2022	1	COb-5&COt-5		L2
	problems	06-05-2022	1	COb-5&COt-5		L1
	Runway orientation	10-05-2022	1	COb-5&COt-5		L1
	Runway orientation	10-05-2022	1	COb-5&COt-5		L1



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING

COURSE PLAN

Academic Year : 2021-2022

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: B

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: T Srikanth Dept.: Civil Engineering

Designation: ASSOCIATE PROFESSOR.

Unit No.	Topics/Sub Topics	Date	No. of Periods	Objectives & Outcomes .	References (Text book, Journal...)	Blooms Taxonomy level
I	Introduction to transportation engineering	17-01-2022	1	COb-1 & COt-1	Highway Engineering S.K.khanna & .C.E.G.justo, Page numbers – 15, 35, 25, 24,51,55,61	L1
	Development of highway in India	18-01-2022	1	COb-1 & COt-1		L1
	Road Development Plans	19-01-2022	1	COb-1 & COt-1		L1
	Road network pattern	24-01-2022	1	COb-1 & COt-1		L2
	Highway alignment	25-01-2022	1	COb-1 & COt-1		L2
	Factors affecting alignment	01-02-2022	1	COb-1 & COt-1		L2
	Engineering surveys,	02-02-2022	1	COb-1 & COt-1		L1
	Drawings and reports	07-02-2022	1	COb-1 & COt-1		L1
2	Importance of geometric design	08-02-2022	1	COb-2 & COt-2	Highway Engineering S.K.khanna & C.E.G.justo,	L1
	Design controls & criteria	09-02-2022	1	COb-2 & COt-2		L2

	Highway Cross section elements	14-02-2022	1	COb-2 & COt-2	Page numbers – 71,73,74,89, 91,98,107,111, 124,129, 145,149,153	L1
	Sight distances	14-02-2022	1	COb-2 & COt-2		L2
	Stopping sight distance	15-02-2022	1	COb-2 & COt-2		L3
	Overtaking sight distance	15-02-2022	1	COb-2 & COt-2		L3
	Problems	16-02-2022	1	COb-2 & COt-2		L3
	Design of horizontal alignment	16-02-2022	1	COb-2 & COt-2		L3
	Super elevation and extra widening	18-02-2022	1	COb-2 & COt-2		L3
	Problems	18-02-2022	1	COb-2 & COt-2		L3
	Design of transition curves	21-02-2022	1	COb-2 & COt-2		L3
	Problems	21-02-2022	1	COb-2 & COt-2		L3
	Design of vertical alignment	23-02-2022	1	COb-2 & COt-2		L3
	Summit curves & Valley curves	02-03-2022	1	COb-2 & COt-2		L3
	Problems	02-03-2022	1	COb-2 & COt-2		L3
3	Basic parameters of traffic	07-03-2022	1	COb-3& COt-3	Highway Engineering S.K.khanna & C.E.G.justo, Page numbers – 169,223,177, 283,201,203,204, 247,263,248,257,260	L1
	Relation between volume, speed and density	08-03-2022	1	COb-3& COt-3		L2
	Traffic volume studies Data collection and presentation	09-03-2022	1	COb-3& COt-3		L2,L4
	Parking studies & characteristics	11-03-2022	1	COb-3& COt-3		L4
	Road accidents & preventative measures	14-03-2022	1	COb-3& COt-3		L4
	Accident data recording	15-03-2022	1	COb-3& COt-3		L4
	Collision diagram	16-03-2022	1	COb-3& COt-3		L4

	Road traffic signs and specifications	21-03-2022	1	COb-3&COt-3		L1
	road markings and their need	22-03-2022	1	COb-3&COt-3		L1
	Design of road signals	23-03-2022	1	COb-3&COt-3		L1
	Webster method, IRC method	28-03-2022	1	COb-3&COt-3		L1,L3
	Problems	29-03-2022	1	COb-3&COt-3		L1,L3
4	Types of intersection	30-03-2022	1	COb-4 & COt-4	Highway Engineering S.K.khanna & C.E.G.justo, Page numbers – 267,269,278,271	L1
	Conflicts at intersection	04-04-2022	1	COb-4 & COt-4		L1
	Types of at grade intersection	05-04-2022	1	COb-4 & COt-4		L1
	Channelization, Traffic islands and design criteria	11-04-2022	1	COb-4 & COt-4		L1
	Grade separated intersection	12-04-2022	1	COb-4 & COt-4		L1
	Rotary intersection, Design criteria	13-04-2022	1	COb-4 & COt-4		L1,L2
	advantages and disadvantages of rotaries	18-04-2022	1	COb-4 & COt-4		L1
5	Introduction to Railway Engineering	19-04-2022	1	COb-5&COt-5	Railway Engineering A text book of transportation engineering S.C.Saxena S.P.Arora Page numbers – 3.1,15.2,15.9,16.1	L1
	Permanent Way, Rail, Sleepers, Ballast	20-04-2022	1	COb-5&COt-5		L2
	Gradients, Grade compensation	25-04-2022	1	COb-5&COt-5		L2
	Cant and negative cant, Cant deficiency, problems	26-04-2022	1	COb-5&COt-5		L1,L2,L3
	Points and Crossings, Turnouts	27-04-2022	1	COb-5&COt-5		L2
	Factors affecting selection of airport site	02-05-2022	1	COb-5&COt-5		L3

	Aircraft characteristics	03-05-2022	1	COb-5&COt-5	Airport planning and design- S.K.Khanna Page numbers – 129,109,173, 177,164,165	L3
	Computation of runway length and problems	04-05-2022	1	COb-5&COt-5		L2, L3
	Correction for runway length and problems	09-05-2022	1	COb-5&COt-5		L2, L3
	Wind rose diagram I and II	10-05-2022	1	COb-5&COt-5		L2
	Runway orientation	11-05-2022	1	COb-5&COt-5		L1
	Runway lightening	11-05-2022	1	COb-5&COt-5		L1



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
SCHEDULE OF INSTRUCTIONS
UNIT PLAN

Academic Year : 2021-2022

Semester : II

UNIT NO.: I

Name of the Program: B.Tech Civil Engineering

Year: III

Section: A

Course/Subject: Transportation Engineering

Course Code: GR18A3065

Name of the Faculty: T.Srikanth

Dept.: Civil Engineering

Designation: ASSOCIATE PROFESSOR.

Unit No.	Topics/Sub Topics	Date	No. of Periods	Objectives & Outcomes .	References (Text book, Journal...)	Blooms Taxonomy level
1	Introduction to transportation engineering	17-01-2022	1	COb-1 & COt-1	Highway Engineering S.K.khanna & .C.E.G.justo, Page numbers – 15, 35, 25, 24,51,55,61	L1
	Development of highway in India	18-01-2022	1	COb-1 & COt-1		L1
	Road Development Plans	19-01-2022	1	COb-1 & COt-1		L1
	Road network pattern	24-01-2022	1	COb-1 & COt-1		L2
	Highway alignment	25-01-2022	1	COb-1 & COt-1		L2
	Factors affecting alignment	31-01-2022	1	COb-1 & COt-1		L2
	Engineering surveys, Drawings and reports	31-01-2022	1	COb-1 & COt-1		L1

Signature of HOD

Signature of faculty

Date:

Date:



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
SCHEDULE OF INSTRUCTIONS
UNIT PLAN

Academic Year : 2021-2022

Semester : II

UNIT NO.: II

Name of the Program: B.Tech Civil Engineering

Year: III

Section: A

Course/Subject: Transportation Engineering

Course Code: GR18A3065

Name of the Faculty: T.Srikanth

Dept.: Civil Engineering

Designation: ASSOCIATE.PROFESSOR.

Unit No.	Topics/Sub Topics	Date	No. of Periods	Objectives & Outcomes No.	References (Text book, Journal...)	Blooms Taxonomy level
2	Importance of geometric design	01-02-2022	1	COb-2 & COt-2	Highway Engineering S.K.khanna & C.E.G.justo, Page numbers – 71,73,74,89, 91,98,107,111, 124,129, 145,149,153	L1
	Design controls & criteria	02-02-2022	1	COb-2 & COt-2		L2
	Highway Cross section elements	07-02-2022	1	COb-2 & COt-2		L1
	Sight distances	08-02-2022	1	COb-2 & COt-2		L2
	Stopping sight distance	09-02-2022	1	COb-2 & COt-2		L3
	Overtaking sight distance	09-02-2022	1	COb-2 & COt-2		L3

	Problems	14-02-2022	1	COb-2 & COt-2		L3
	Design of horizontal alignment	16-02-2022	1	COb-2 & COt-2		L3
	Super elevation and extra widening	16-02-2022	1	COb-2 & COt-2		L3
	Problems	18-02-2022	1	COb-2 & COt-2		L3
	Design of transition curves	18-02-2022	1	COb-2 & COt-2		L3
	Problems	23-02-2022	1	COb-2 & COt-2		L3
	Design of vertical alignment	25-02-2022	1	COb-2 & COt-2		L3
	Summit curves & Valley curves	25-02-2022	1	COb-2 & COt-2		L3
	Problems	28-02-2022	1	COb-2 & COt-2		L3

Signature of HOD

Date:

Signature of faculty

Date:



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
SCHEDULE OF INSTRUCTIONS
UNIT PLAN

Academic Year : 2021-2022

Semester : II

UNIT NO.: III

Name of the Program: B.Tech Civil Engineering Year: III Section: A

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: T.Srikanth Dept.: Civil Engineering

Designation: ASSOCIATE.PROFESSOR.

Unit No.	Topics/Sub Topics	Date	No. of Periods	Objectives & Outcomes No.	References (Text book, Journal...)	Blooms Taxonomy level
3	Basic parameters of traffic	02-03-2022	1	COb-3& COt-3	Highway Engineering S.K.khanna & C.E.G.justo, Page numbers – 169,223,177, 283,201,203,204, 247,263,248,257,260	L1
	Relation between volume, speed and density	04-03-2022	1	COb-3& COt-3		L2
	Traffic volume studies Data collection and presentation	04-03-2022	1	COb-3& COt-3		L2,L4
	Parking studies & characteristics	08-03-2022	1	COb-3& COt-3		L4
	Road accidents & preventative measures	09-03-2022	1	COb-3& COt-3		L4
	Accident data recording	11-03-2022	1	COb-3& COt-3		L4

	Collision diagram	11-03-2022	1	COb-3& COt-3		L4
	Road traffic signs and specifications	15-03-2022	1	COb-3& COt-3		L1
	road markings and their need	16-03-2022	1	COb-3& COt-3		L1
	Design of road signals	22-03-2022	1	COb-3& COt-3		L1
	Webster method, IRC method	23-03-2022	1	COb-3& COt-3		L1,L3
	Problems	25-03-2022	1	COb-3& COt-3		L1,L3

Signature of HOD

Date:

Signature of faculty

Date:



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
SCHEDULE OF INSTRUCTIONS
UNIT PLAN

Academic Year : 2021-2022

Semester : II

UNIT NO.: IV

Name of the Program: B.Tech Civil Engineering

Year: III

Section: A

Course/Subject: Transportation Engineering

Course Code: GR18A3065

Name of the Faculty: T.Srikanth

Dept.: Civil Engineering

Designation: ASSOCIATE.PROFESSOR.

Unit No.	Topics/Sub Topics	Date	No. of Periods	Objectives & Outcomes No.	References (Text book, Journal...)	Blooms Taxonomy level
4	Types of intersection	29-03-2022	1	COb-4 & COt-4	Highway Engineering S.K.khanna & C.E.G.justo, Page numbers – 267,269,278,271	L1
	Conflicts at intersection	30-03-2022	1	COb-4 & COt-4		L1
	Types of at grade intersection	01-04-2022	1	COb-4 & COt-4		L1
	Channelization, Traffic islands and design criteria	05-04-2022	1	COb-4 & COt-4		L1
	Grade separated intersection	06-04-2022	1	COb-4 & COt-4		L1
	Rotary intersection, Design criteria	08-04-2022	1	COb-4 & COt-4		L1,L2
	advantages and disadvantages of rotaries	12-04-2022	1	COb-4 & COt-4		L1

Signature of HOD

Signature of faculty

Date:

Date:



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
SCHEDULE OF INSTRUCTIONS
UNIT PLAN

Academic Year : 2021-2022

Semester : II UNIT NO.: V

Name of the Program: B.Tech Civil Engineering Year: III Section: A

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: T.Srikanth Dept.: Civil Engineering

Designation: ASSOCIATE.PROFESSOR.

Unit No.	Topics/Sub Topics	Date	No. of Periods	Objectives & Outcomes No.	References (Text book, Journal...)	Blooms Taxonomy level
5	Introduction to Railway Engineering	13-04-2022	1	COb-5& COt-5	Railway Engineering A text book of transportation engineering S.C.Saxena S.P.Arora Page numbers – 3.1,15.2,15.9,16.1	L1
	Permanent Way, Rail, Sleepers, Ballast	19-04-2022	1	COb-5& COt-5		L2
	Gradients, Grade compensation	20-04-2022	1	COb-5& COt-5		L2
	Cant and negative cant, Cant deficiency, problems	22-04-2022	1	COb-5& COt-5		L1,L2,L3
	Points and Crossings, Turnouts	22-04-2022	1	COb-5& COt-5		L2
	Factors affecting selection of airport site	26-04-2022	1	COb-5& COt-5		L3

	Aircraft characteristics	27-04-2022	1	COb-5& COt-5	Airport planning and design- S.K.Khanna Page numbers – 129,109,173, 177,164,165	L3
	Computation of runway length and problems	29-04-2022	1	COb-5& COt-5		L2, L3
	Correction for runway length and problems	03-05-2022	1	COb-5& COt-5		L2, L3
	Wind rose diagram I and II	04-05-2022	1	COb-5& COt-5		L2
	problems	06-05-2022	1	COb-5& COt-5		L1
	Runway orientation	10-05-2022	1	COb-5& COt-5		L1

Signature of HOD

Date:

Signature of faculty

Date:



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
SCHEDULE OF INSTRUCTIONS
UNIT PLAN

Academic Year : 2021-2022

Semester : II UNIT NO.: I

Name of the Program: B.Tech Civil Engineering Year: III Section: B

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: T Srikanth Dept.: Civil Engineering

Designation: ASSOCIATE.PROFESSOR.

Unit No.	Topics/Sub Topics	Date	No. of Periods	Objectives & Outcomes No.	References (Text book, Journal...)	Blooms Taxonomy level
1	Introduction to transportation engineering	17-01-2022	1	COb-1 & COt-1	Highway Engineering S.K.khanna & .C.E.G.justo, Page numbers – 15, 35, 25, 24,51,55,61	L1
	Development of highway in India	18-01-2022	1	COb-1 & COt-1		L1
	Road Development Plans	19-01-2022	1	COb-1 & COt-1		L1
	Road network pattern	24-01-2022	1	COb-1 & COt-1		L2
	Highway alignment	25-01-2022	1	COb-1 & COt-1		L2
	Factors affecting alignment	01-02-2022	1	COb-1 & COt-1		L2
	Engineering surveys	02-02-2022	1	COb-1 & COt-1		L1
	Drawings and reports	07-02-2022	1	COb-1 & COt-1		L1

Signature of HOD

Signature of faculty

Date:

Date:



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
SCHEDULE OF INSTRUCTIONS
UNIT PLAN

Academic Year : 2021-2022

Semester : II

UNIT NO.: II

Name of the Program: B.Tech Civil Engineering

Year: III

Section: B

Course/Subject: Transportation Engineering

Course Code: GR18A3065

Name of the Faculty: T.Srikanth

Dept.: Civil Engineering

Designation: ASSOCIATE.PROFESSOR.

Unit No.	Topics/Sub Topics	Date	No. of Periods	Objectives & Outcomes No.	References (Text book, Journal...)	Blooms Taxonomy level
2	Importance of geometric design	08-02-2022	1	COb-2 & COt-2		L1
	Design controls & criteria	09-02-2022	1	COb-1 & COt-2		L2
	Highway Cross section elements	14-02-2022	1	COb-2 & COt- 2		L1
	Sight distances	14-02-2022	1	COb-2 & COt-2		L2
	Stopping sight distance	15-02-2022	1	Cob2- & COt-2		L3
	Overtaking sight distance	15-02-2022	1	COb-2 & COt-2		L3

	Problems	16-02-2022	1	COb-2 & COt-2	Highway Engineering S.K.khanna & C.E.G.justo, Page numbers – 71,73,74,89, 91,98,107,111, 124,129, 145,149,153,	L3
	Design of horizontal alignment	16-02-2022	1	COb-2 & COt-2		L3
	Super elevation and extra widening	18-02-2022	1	COb-2& COt-2		L3
	Problems	18-02-2022	1	COb-2& COt-2		L3
	Design of transition curves	21-02-2022	1	COb-2& COt-2		L3
	Problems	21-02-2022	1	COb-2& COt-2		L3
	Design of vertical alignment	23-02-2022	1	COb-2& COt-2		L3
	Summit curves & Valley curves	02-03-2022	1	COb-2& COt-2		L3
	Problems	02-03-2022	1	COb-2& COt-2		L3

Signature of HOD

Date:

Signature of faculty

Date:



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
SCHEDULE OF INSTRUCTIONS
UNIT PLAN

Academic Year : 2021-2022

Semester : II UNIT NO.: III

Name of the Program: B.Tech Civil Engineering Year: III Section: B

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: T.Srikanth Dept.: Civil Engineering

Designation: ASSOCIATE.PROFESSOR.

Unit No.	Topics/Sub Topics	Date	No. of Periods	Objectives & Outcomes No.	References (Text book, Journal...)	Blooms Taxonomy level
3	Basic parameters of traffic	07-03-2022	1	COB-3 & COt-3	Highway Engineering S.K.khanna & C.E.G.justo, Page numbers – 169,223,177, 283,201,203,204, 247,263,248,257,260	L1
	Relation between volume, speed and density	08-03-2022	1	COB-3 & COt-3		L2
	Traffic volume studies Data collection and presentation	09-03-2022	1	COB-3 & COt-3		L2,L4
	Parking studies & characteristics	11-03-2022	1	COB-3 & COt-3		L4
	Road accidents & preventative measures	14-03-2022	1	COB-3 & COt-3		L4
	Accident data recording	15-03-2022	1	COB-3 & COt-3		L4

	Collision diagram	16-03-2022	1	COb-3 & COt-3		L4
	Road traffic signs and specifications	21-03-2022	1	COb-3 & COt-3		L1
	road markings and their need	22-03-2022	1	COb-3 & COt-3		L1
	Design of road signals	23-03-2022	1	COb-3 & COt-3		L1
	Webster method, IRC method	28-03-2022	1	COb-3 & COt-3		L1,L3
	Problems	29-03-2022	1	COb-3 & COt-3		L1,L3

Signature of HOD

Date:

Signature of faculty

Date:



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
SCHEDULE OF INSTRUCTIONS
UNIT PLAN

Academic Year : 2021-2021

Semester : II UNIT NO.: IV

Name of the Program: B.Tech Civil Engineering Year: III Section: B

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: T.Srikanth Dept.: Civil Engineering

Designation: ASSOCIATE.PROFESSOR.

Unit No.	Topics/Sub Topics	Date	No. of Periods	Objectives & Outcomes No.	References (Text book, Journal...)	Blooms Taxonomy level
4	Types of intersection	30-03-2022	1	COB-4 & COt-4	Highway Engineering S.K.khanna & C.E.G.justo, Page numbers – 267,269,278,271	L1
	Conflicts at intersection	04-04-2022	1	COB-4 & COt-4		L1
	Types of at grade intersection	05-04-2022	1	COB-4 & COt-4		L1
	Channelization, Traffic islands and design criteria	11-04-2022	1	COB-4 & COt-4		L1
	Grade separated intersection	12-04-2022	1	COB-4 & COt-4		L1
	Rotary intersection, Design criteria	13-04-2022	1	COB-4 & COt-4		L1,L2
	advantages and disadvantages of rotaries	18-04-2022	1	COB-4 & COt-4		L1

Signature of HOD

Signature of faculty

Date:

Date:



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
SCHEDULE OF INSTRUCTIONS
UNIT PLAN

Academic Year : 2021-2022

Semester : II

UNIT NO.: V

Name of the Program: B.Tech Civil Engineering Year: III Section: B

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: T.Srikanth Dept.: Civil Engineering

Designation: ASSOCIATE.PROFESSOR.

Unit No.	Topics/Sub Topics	Date	No. of Periods	Objectives & Outcomes No.	References (Text book, Journal...)	Blooms Taxonomy level
5	Introduction to Railway Engineering	19-04-2022	1	COb-5 & COt-5	Railway Engineering A text book of transportation engineering S.C.Saxena S.P.Arora Page numbers – 3.1,15.2,15.9,16.1	L1
	Permanent Way, Rail, Sleepers, Ballast	20-04-2022	1	COb-5 & COt-5		L2
	Gradients, Grade compensation	25-04-2022	1	COb-5 & COt-5		L2
	Cant and negative cant, Cant deficiency, problems	26-04-2022	1	COb-5 & COt-5		L1,L2,L3
	Points and Crossings, Turnouts	27-04-2022	1	COb-5 & COt-5		L2
	Factors affecting	02-05-2022	1	COb-5 & COt-5		L3

selection of airport site					Airport planning and design- S.K.Khanna Page numbers – 129,109,173, 177,164,165	
Aircraft characteristics	03-05-2022	1	COb-5 & COt-5			L3
Computation of runway length and problems	04-05-2022	1	COb-5 & COt-5			L2, L3
Correction for runway length and problems	09-05-2022	1	COb-5 & COt-5			L2, L3
Wind rose diagram I and II	10-05-2022	1	COb-5 & COt-5			L2
Runway orientation	11-05-2022	1	COb-5 & COt-5			L1
Runway lightening	11-05-2022	1	COb-5 & COt-5			L1

Signature of HOD

Date:

Signature of faculty

Date:



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
LESSON PLAN

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: A

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: Mr.T.Srikanth Dept.: Civil Engineering

Designation: Associate Professor

Lesson No: 1. Duration of Lesson: 1hr

Lesson Title: Introduction to transportation engineering

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

- Gain a solid understanding of the principles of highway engineering and traffic analysis

TEACHING AIDS: White board, Marker pens and Code book

TEACHING POINTS :

Introduction to transportation systems and engineering aspects

Assignment / Questions:

1. What are the factors influencing the Highway Alignment? COB-1 & COt-1

Signature of faculty



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
LESSON PLAN

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: A

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: Mr.T.Srikanth Dept.: Civil Engineering

Designation: Associate Professor

Lesson No: 2. Duration of Lesson: 1hr

Lesson Title: Development of highway in India

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

- Gain a solid understanding of the principles of highway engineering and traffic analysis

TEACHING AIDS: White board, Marker pens and Code book

TEACHING POINTS :

Highway Development in India and its significance

Assignment / Questions:

1. Write down the recommendations of Jayakar Committee and discuss about the implementation of recommendations. COB-1 & COt-1

Signature of faculty



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
LESSON PLAN

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: A

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: Mr.T.Srikanth Dept.: Civil Engineering

Designation: Associate Professor

Lesson No: 3. Duration of Lesson: 1hr

Lesson Title: Road Development Plans

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

- Gain a solid understanding of the principles of highway engineering and traffic analysis

TEACHING AIDS: White board, Marker pens and Code book

TEACHING POINTS :

Different Road Development Plans and salient features

Assignment / Questions:

1. Briefly Compare the salient features of three Road development plans. COB-1 & COt-1

Signature of faculty



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
LESSON PLAN

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: A

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: Mr.T.Srikanth Dept.: Civil Engineering

Designation: Associate Professor

Lesson No: 4. Duration of Lesson: 1hr

Lesson Title: Road network pattern

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

- Gain a solid understanding of the principles of highway engineering and traffic analysis

TEACHING AIDS: White board, Marker pens and Code book

TEACHING POINTS :

Different Road network patterns and their performance

Assignment / Questions:

1. Briefly explain with sketches about different road network patterns. COB-1 & COt-1

Signature of faculty



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
LESSON PLAN

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: A

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: Mr.T.Srikanth Dept.: Civil Engineering

Designation: Associate Professor

Lesson No: 5. Duration of Lesson: 1hr

Lesson Title: Highway alignment

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

- Gain a solid understanding of the principles of highway engineering and traffic analysis

TEACHING AIDS: White board, Marker pens and Code book

TEACHING POINTS :

Basic understanding of Highway alignment and its importance

Assignment / Questions:

1. Briefly explain the necessity of Highway planning and list the classification of roads. COB-1 & COt-1

Signature of faculty



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
LESSON PLAN

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: A

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: Mr.T.Srikanth Dept.: Civil Engineering

Designation: Associate Professor

Lesson No: 6. Duration of Lesson: 1hr

Lesson Title: Factors affecting alignment and Engineering Surveys

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

- Gain a solid understanding of the principles of highway engineering and traffic analysis

TEACHING AIDS: White board, Marker pens and Code book

TEACHING POINTS :

Various types of factors which are affecting highway alignment

Assignment / Questions:

1. Describe about the various Engineering Surveys associated in defining the highway alignment. COB-1 & COt-1

Signature of faculty



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
LESSON PLAN

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: A

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: Mr.T.Srikanth Dept.: Civil Engineering

Designation: Associate Professor

Lesson No: 7. Duration of Lesson: 1hr

Lesson Title: Engineering surveys, Drawings and reports

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

- Gain a solid understanding of the principles of highway engineering and traffic analysis

TEACHING AIDS: White board, Marker pens and Code book

TEACHING POINTS :

The significance of Engineering surveys, Drawings and reports in developing a highway

Assignment / Questions:

1. Write briefly on the Drawings and reports associated with the highway COB-1 & COt-1

Signature of faculty



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
LESSON PLAN

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: A

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: Mr.T.Srikanth Dept.: Civil Engineering

Designation: Associate Professor

Lesson No: 8. Duration of Lesson: 1hr

Lesson Title: Importance of geometric design

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

- Develop and interpret design standards for horizontal and vertical geometry.

TEACHING AIDS: White board, Marker pens and Code book

TEACHING POINTS :

The Importance of geometric design elements in a Highway

Assignment / Questions:

Signature of faculty



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
LESSON PLAN

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: A

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: Mr.T.Srikanth Dept.: Civil Engineering

Designation: Associate Professor

Lesson No: 9. Duration of Lesson: 1hr

Lesson Title: Design controls & criteria

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

- Develop and interpret design standards for horizontal and vertical geometry.

TEACHING AIDS: White board, Marker pens and Code book

TEACHING POINTS :

Design controls & criteria which influence the geometric elements

Assignment / Questions:

Signature of faculty



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
LESSON PLAN

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: A

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: Mr.T.Srikanth Dept.: Civil Engineering

Designation: Associate Professor

Lesson No: 10. Duration of Lesson: 1hr

Lesson Title: Highway Cross section elements

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

- Develop and interpret design standards for horizontal and vertical geometry.

TEACHING AIDS: White board, Marker pens and Code book

TEACHING POINTS :

Highway Cross section elements and their role in the highway alignment

Assignment / Questions:

Signature of faculty



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
LESSON PLAN

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: A

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: Mr.T.Srikanth Dept.: Civil Engineering

Designation: Associate Professor

Lesson No: 11. Duration of Lesson: 1hr

Lesson Title: Sight distances

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

- Develop and interpret design standards for horizontal and vertical geometry.

TEACHING AIDS: White board, Marker pens and Code book

TEACHING POINTS :

Introduction to various Sight distances and their role in highway geometric design

Assignment / Questions:

1. Derive an expression to calculate the overtaking sight distance on a highway. support your derivation with neat sketch showing the overtaking operation and various distance components involved. COB-2 & COt-2
2. Define stopping sight distance and derive an expression to calculate the stopping sight distance for a level road. COB-2 & COt-2

Signature of faculty



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
LESSON PLAN

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: A

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: Mr.T.Srikanth Dept.: Civil Engineering

Designation: Associate Professor

Lesson No: 12. Duration of Lesson: 1hr

Lesson Title: Stopping sight distance

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

- Develop and interpret design standards for horizontal and vertical geometry.

TEACHING AIDS: White board, Marker pens and Code book

TEACHING POINTS :

Stopping sight distance and their role in highway geometric design

Assignment / Questions:

1. Define stopping sight distance and derive an expression to calculate the stopping sight distance for a level road. COB-2 & COt-2
2. Calculate the Safe Stopping Sight Distance and Intermediate sight distance required for design speed of 120kmph on a road following a rolling terrain with a decreasing gradient of 1 in 150. Assume suitable data COB-2 & COt-2

Signature of faculty



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
LESSON PLAN

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: A

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: Mr.T.Srikanth Dept.: Civil Engineering

Designation: Associate Professor

Lesson No: 13. Duration of Lesson: 1hr

Lesson Title: Overtaking sight distance

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

- Develop and interpret design standards for horizontal and vertical geometry.

TEACHING AIDS: White board, Marker pens and Code book

TEACHING POINTS :

Overtaking sight distance and their role in highway geometric design

Assignment / Questions:

1. Derive an expression to calculate the overtaking sight distance on a highway. Support your derivation with neat sketch showing the overtaking operation and various distance components involved. COB-2 & COt-2

Signature of faculty



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
LESSON PLAN

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: A

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: Mr.T.Srikanth Dept.: Civil Engineering

Designation: Associate Professor

Lesson No: 14. Duration of Lesson: 1hr

Lesson Title: Problems

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

- Develop and interpret design standards for horizontal and vertical geometry.

TEACHING AIDS: White board, Marker pens and Code book

TEACHING POINTS :

Problems solving of SSD and OSD

Assignment / Questions:

1. Calculate the safe overtaking sight distance required for a design speed of 100kmph by considering the acceleration as 2.5kmph/sec. Assume suitable data.
COB-2 & COt-2

Signature of faculty



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
LESSON PLAN

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: A

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: Mr.T.Srikanth Dept.: Civil Engineering

Designation: Associate Professor

Lesson No: 15. Duration of Lesson: 1hr

Lesson Title: Design of horizontal alignment

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

- Develop and interpret design standards for horizontal and vertical geometry.

TEACHING AIDS: White board, Marker pens and Code book

TEACHING POINTS :

Introduction to the design of horizontal alignment and its role in highway performance

Assignment / Questions:

Signature of faculty



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
LESSON PLAN

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: A

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: Mr.T.Srikanth Dept.: Civil Engineering

Designation: Associate Professor

Lesson No: 16. Duration of Lesson: 1hr

Lesson Title: Super elevation and extra widening

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

- Develop and interpret design standards for horizontal and vertical geometry.

TEACHING AIDS: White board, Marker pens and Code book

TEACHING POINTS :

Super elevation and extra widening and their role in highway geometric design

Assignment / Questions:

1. What is super elevation? With the help of neat sketch derive the expression for calculating the super elevation for a highway facility COB-2 & COT-2

Signature of faculty



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
LESSON PLAN

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: A

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: Mr.T.Srikanth Dept.: Civil Engineering

Designation: Associate Professor

Lesson No: 17. Duration of Lesson: 1hr

Lesson Title: Problems

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

- Develop and interpret design standards for horizontal and vertical geometry.

TEACHING AIDS: White board, Marker pens and Code book

TEACHING POINTS :

Problems solving on the design of Superelevation and extrawidening

Assignment / Questions:

1. For a design speed of 50 kmph and a radius of 170m considered for a 2-lane divided highway calculate the super-elevation, extra-widening and length of transition curve. Assume suitable data COb-2 & COt-2

Signature of faculty



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
LESSON PLAN

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: A

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: Mr.T.Srikanth Dept.: Civil Engineering

Designation: Associate Professor

Lesson No: 18. Duration of Lesson: 1hr

Lesson Title: Design of transition curves

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

- Develop and interpret design standards for horizontal and vertical geometry.

TEACHING AIDS: White board, Marker pens and Code book

TEACHING POINTS :

The role of transition curves and its design in horizontal alignment

Assignment / Questions:

1. For a design speed of 50 kmph and a radius of 170m considered for a 2-lane divided highway calculate the super-elevation, extra-widening and length of transition curve. Assume suitable data COb-2 & COt-2

Signature of faculty



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
LESSON PLAN

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: A

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: Mr.T.Srikanth Dept.: Civil Engineering

Designation: Associate Professor

Lesson No: 19. Duration of Lesson: 1hr

Lesson Title: Problems

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

- Develop and interpret design standards for horizontal and vertical geometry.

TEACHING AIDS: White board, Marker pens and Code book

TEACHING POINTS :

Problems solving of transition curves

Assignment / Questions:

1. For a design speed of 50 kmph and a radius of 170m considered for a 2-lane divided highway calculate the super-elevation, extra-widening and length of transition curve. Assume suitable data COb-2 & COt-2

Signature of faculty



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
LESSON PLAN

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: A

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: Mr.T.Srikanth Dept.: Civil Engineering

Designation: Associate Professor

Lesson No: 20. Duration of Lesson: 1hr

Lesson Title: Design of vertical alignment

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

- Develop and interpret design standards for horizontal and vertical geometry.

TEACHING AIDS: White board, Marker pens and Code book

TEACHING POINTS :

Introduction to the design of vertical alignment and its role in highway performance

Assignment / Questions:

Signature of faculty



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
LESSON PLAN

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: A

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: Mr.T.Srikanth Dept.: Civil Engineering

Designation: Associate Professor

Lesson No: 21. Duration of Lesson: 1hr

Lesson Title: Summit curves & Valley curves

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

- Develop and interpret design standards for horizontal and vertical geometry.

TEACHING AIDS: White board, Marker pens and Code book

TEACHING POINTS :

the role of Summit curves & Valley curves design in the highway performance and safety

Assignment / Questions:

Signature of faculty



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
LESSON PLAN

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: A

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: Mr.T.Srikanth Dept.: Civil Engineering

Designation: Associate Professor

Lesson No: 22. Duration of Lesson: 1hr

Lesson Title: Problems

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

- Develop and interpret design standards for horizontal and vertical geometry.

TEACHING AIDS: White board, Marker pens and Code book

TEACHING POINTS :

Problems solving on design of summit and valley curves

Assignment / Questions:

Signature of faculty



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
LESSON PLAN

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: A

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: Mr.T.Srikanth Dept.: Civil Engineering

Designation: Associate Professor

Lesson No: 23. Duration of Lesson: 1hr

Lesson Title: Basic parameters of traffic

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

- Have a strong analytical and practical knowledge of Planning, Designing and solving transportation problems

TEACHING AIDS: White board, Marker pens and Code book

TEACHING POINTS :

Basic parameters of traffic which would be influencing the traffic performance

Assignment / Questions:

Signature of faculty



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
LESSON PLAN

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: A

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: Mr.T.Srikanth Dept.: Civil Engineering

Designation: Associate Professor

Lesson No: 24. Duration of Lesson: 1hr

Lesson Title: Relation between volume, speed and density

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

- Have a strong analytical and practical knowledge of Planning, Designing and solving transportation problems

TEACHING AIDS: White board, Marker pens and Code book

TEACHING POINTS :

Relation between volume, speed and density and their influence on the performance of a road network system
--

Assignment / Questions:

1. With the help of sketches, explain the relation between speed, volume and density
COB-3 & COt-3

Signature of faculty



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
LESSON PLAN

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: A

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: Mr.T.Srikanth Dept.: Civil Engineering

Designation: Associate Professor

Lesson No: 25. Duration of Lesson: 1hr

Lesson Title: Traffic volume studies Data collection and presentation

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

- Have a strong analytical and practical knowledge of Planning, Designing and solving transportation problems

TEACHING AIDS: White board, Marker pens and Code book

TEACHING POINTS :

Introduction to various traffic surveys- Traffic volume studies Data collection and presentation
--

Assignment / Questions:

1. What is the significance and importance of Traffic volume studies and discuss on the presentation of data. COb-3 & COt-3

Signature of faculty



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
LESSON PLAN

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: A

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: Mr.T.Srikanth Dept.: Civil Engineering

Designation: Associate Professor

Lesson No: 26. Duration of Lesson: 1hr

Lesson Title: Parking studies & characteristics

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

- Have a strong analytical and practical knowledge of Planning, Designing and solving transportation problems

TEACHING AIDS: White board, Marker pens and Code book

TEACHING POINTS :

The need of Parking studies & characteristics in understanding the supply and demand gap of the facility
--

Assignment / Questions:

1. What is the significance of Parking studies COB-3 & COt-3

Signature of faculty



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
LESSON PLAN

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: A

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: Mr.T.Srikanth Dept.: Civil Engineering

Designation: Associate Professor

Lesson No: 27. Duration of Lesson: 1hr

Lesson Title: Road accidents & preventative measures

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

- Have a strong analytical and practical knowledge of Planning, Designing and solving transportation problems

TEACHING AIDS: White board, Marker pens and Code book

TEACHING POINTS :

The need of Road accidents studies & preventative measures for achieving the reduction of accident rate

Assignment / Questions:

1. Discuss about Road accidents & preventative measures COB-3 & COt-3

Signature of faculty



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
LESSON PLAN

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: A

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: Mr.T.Srikanth Dept.: Civil Engineering

Designation: Associate Professor

Lesson No: 28. Duration of Lesson: 1hr

Lesson Title: Accident data recording

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

- Have a strong analytical and practical knowledge of Planning, Designing and solving transportation problems

TEACHING AIDS: White board, Marker pens and Code book

TEACHING POINTS :

Accident data recording and presentation of data

Assignment / Questions:

1. How to record road accidents data COb-3 & COt-3

Signature of faculty



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
LESSON PLAN

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: A

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: Mr.T.Srikanth Dept.: Civil Engineering

Designation: Associate Professor

Lesson No: 29. Duration of Lesson: 1hr

Lesson Title: Collision diagram

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

- Have a strong analytical and practical knowledge of Planning, Designing and solving transportation problems

TEACHING AIDS: White board, Marker pens and Code book

TEACHING POINTS :

Collision diagram and its role in understanding the accident data presentation

Assignment / Questions:

1. Explain various measures that may be taken to prevent accidents. Write about condition and collision diagrams COB-3 & COt-3

Signature of faculty



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
LESSON PLAN

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: A

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: Mr.T.Srikanth Dept.: Civil Engineering

Designation: Associate Professor

Lesson No: 30. Duration of Lesson: 1hr

Lesson Title: Road traffic signs and specifications

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

- Have a strong analytical and practical knowledge of Planning, Designing and solving transportation problems

TEACHING AIDS: White board, Marker pens and Code book

TEACHING POINTS :

The role of Road traffic signs in highway furniture and specifications

Assignment / Questions:

1. Discuss about various types of traffic signages COB-3 & COt-3

Signature of faculty



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
LESSON PLAN

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: A

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: Mr.T.Srikanth Dept.: Civil Engineering

Designation: Associate Professor

Lesson No: 31. Duration of Lesson: 1hr

Lesson Title: road markings and their need

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

- Have a strong analytical and practical knowledge of Planning, Designing and solving transportation problems

TEACHING AIDS: White board, Marker pens and Code book

TEACHING POINTS :

The role of Road markings and their need

Assignment / Questions:

1. Discuss about various road markings COB-3 & COt-3

Signature of faculty



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
LESSON PLAN

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: A

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: Mr.T.Srikanth Dept.: Civil Engineering

Designation: Associate Professor

Lesson No: 32. Duration of Lesson: 1hr

Lesson Title: Design of road signals

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

- Have a strong analytical and practical knowledge of Planning, Designing and solving transportation problems

TEACHING AIDS: White board, Marker pens and Code book

TEACHING POINTS :

Design of road signals as part of traffic regulation and its role in controlling traffic conflicts and accidents
--

Assignment / Questions:

1. Write the design steps involved in the Webster's method and IRC method of design of traffic signals COB-3 & COt-3

Signature of faculty



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
LESSON PLAN

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: A

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: Mr.T.Srikanth Dept.: Civil Engineering

Designation: Associate Professor

Lesson No: 33. Duration of Lesson: 1hr

Lesson Title: Webster method, IRC method

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

- Have a strong analytical and practical knowledge of Planning, Designing and solving transportation problems

TEACHING AIDS: White board, Marker pens and Code book

TEACHING POINTS :

Webster method, IRC method of signal design

Assignment / Questions:

1. Write the design steps involved in the Webster's method and IRC method of design of traffic signals COB-3 & COt-3

Signature of faculty



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
LESSON PLAN

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: A

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: Mr.T.Srikanth Dept.: Civil Engineering

Designation: Associate Professor

Lesson No: 34. Duration of Lesson: 1hr

Lesson Title: Problems

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

- Have a strong analytical and practical knowledge of Planning, Designing and solving transportation problems

TEACHING AIDS: White board, Marker pens and Code book

TEACHING POINTS :

Problems solving on traffic signal design using Webster method, IRC method
--

Assignment / Questions:

1. The approach volumes of a major road are 1400 and 1100 PCU/hr and of minor road are 840 and 800 PCU/hr respectively. The major road is a 4-lane road having a width of 12.5m and minor road is a 2-lane road having a width of 7.5m. Design the traffic signal timings for the intersection formed by the above major and minor roads COb-3 & COt-3

Signature of faculty



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
LESSON PLAN

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: A

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: Mr.T.Srikanth Dept.: Civil Engineering

Designation: Associate Professor

Lesson No: 35. Duration of Lesson: 1hr

Lesson Title: Types of intersection

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

- Understand the type of conflicts that occur at intersection and design the intersection accordingly

TEACHING AIDS: White board, Marker pens and Code book

TEACHING POINTS :

Introduction to Intersections and types of intersection

Assignment / Questions:

1. What is the classification of Intersections and list out the examples for each.
COB-4 & COt-4

Signature of faculty



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
LESSON PLAN

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: A

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: Mr.T.Srikanth Dept.: Civil Engineering

Designation: Associate Professor

Lesson No: 36. Duration of Lesson: 1hr

Lesson Title: Conflicts at intersection

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

- Understand the type of conflicts that occur at intersection and design the intersection accordingly

TEACHING AIDS: White board, Marker pens and Code book

TEACHING POINTS :

Understanding the types of Conflicts at intersection

Assignment / Questions:

1. What is the classification of Intersections and list out the examples for each. COB-4 & COt-4

Signature of faculty



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
LESSON PLAN

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: A

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: Mr.T.Srikanth Dept.: Civil Engineering

Designation: Associate Professor

Lesson No: 37. Duration of Lesson: 1hr

Lesson Title: Types of at grade intersection

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

- Understand the type of conflicts that occur at intersection and design the intersection accordingly

TEACHING AIDS: White board, Marker pens and Code book

TEACHING POINTS :

Types of at grade intersection and their role in highway performance

Assignment / Questions:

1. With the help of sketches, indicate the traffic movements of diamond and trumpet interchange. COB-4 & COt-4

Signature of faculty



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
LESSON PLAN

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: A

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: Mr.T.Srikanth Dept.: Civil Engineering

Designation: Associate Professor

Lesson No: 38. Duration of Lesson: 1hr

Lesson Title: Channelization, Traffic islands and design criteria

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

- Understand the type of conflicts that occur at intersection and design the intersection accordingly

TEACHING AIDS: White board, Marker pens and Code book

TEACHING POINTS :

Traffic management measures using Channelization, Traffic islands and design criteria

Assignment / Questions:

1. Explain the difference between a channelized and unchanneled intersection with suitable sketch COB-4 & COt-4
- 2.

Signature of faculty



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
LESSON PLAN

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: A

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: Mr.T.Srikanth Dept.: Civil Engineering

Designation: Associate Professor

Lesson No: 39. Duration of Lesson: 1hr

Lesson Title: Grade separated intersection

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

- Understand the type of conflicts that occur at intersection and design the intersection accordingly

TEACHING AIDS: White board, Marker pens and Code book

TEACHING POINTS :

Grade separated intersections and their role in highway performance

Assignment / Questions:

1. With the help of sketches, indicate the traffic movements of diamond and trumpet interchange COB-4 & COt-4

Signature of faculty



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
LESSON PLAN

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: A

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: Mr.T.Srikanth Dept.: Civil Engineering

Designation: Associate Professor

Lesson No: 40. Duration of Lesson: 1hr

Lesson Title: Rotary intersection, Design criteria

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

- Understand the type of conflicts that occur at intersection and design the intersection accordingly

TEACHING AIDS: White board, Marker pens and Code book

TEACHING POINTS :

Rotary intersection, Design criteria and their role in highway performance

Assignment / Questions:

1. Explain the concept of rotary intersection and its design criteria as per IRC standards. COb-4 & COt-4

Signature of faculty



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
LESSON PLAN

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: A

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: Mr.T.Srikanth Dept.: Civil Engineering

Designation: Associate Professor

Lesson No: 41. Duration of Lesson: 1hr

Lesson Title: advantages and disadvantages of rotaries

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

- Understand the type of conflicts that occur at intersection and design the intersection accordingly

TEACHING AIDS: White board, Marker pens and Code book

TEACHING POINTS :

advantages and disadvantages of rotaries

Assignment / Questions:

1. Brief out the advantages and disadvantages of a Rotary Intersection COB-4 & COt-4

Signature of faculty



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
LESSON PLAN

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: A

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: Mr.T.Srikanth Dept.: Civil Engineering

Designation: Associate Professor

Lesson No: 42. Duration of Lesson: 1hr

Lesson Title: Introduction to Railway Engineering

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

- Gain the knowledge in Railway Engineering and Airport Engineering

TEACHING AIDS: White board, Marker pens and Code book

TEACHING POINTS :

Introduction to Railway Engineering and its role in transportation systems

Assignment / Questions:

1. Briefly discuss about Railway Engineering COb-5& COt-5

Signature of faculty



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
LESSON PLAN

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: A

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: Mr.T.Srikanth Dept.: Civil Engineering

Designation: Associate Professor

Lesson No: 43. Duration of Lesson: 1hr

Lesson Title: Permanent Way, Rail, Sleepers, Ballast

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

- Gain the knowledge in Railway Engineering and Airport Engineering

TEACHING AIDS: White board, Marker pens and Code book

TEACHING POINTS :

the details of a Permanent Way, Rail, Sleepers, Ballast and their role in performance

Assignment / Questions:

1. With the help of neat sketch, explain the components of a permanent way and discuss about their functions in the railway track COB-5& COt-5

Signature of faculty



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
LESSON PLAN

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: A

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: Mr.T.Srikanth Dept.: Civil Engineering

Designation: Associate Professor

Lesson No: 44. Duration of Lesson: 1hr

Lesson Title: Gradients, Grade compensation

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

- Gain the knowledge in Railway Engineering and Airport Engineering

TEACHING AIDS: White board, Marker pens and Code book

TEACHING POINTS :

The importance of Gradients, Grade compensation and specifications

Assignment / Questions:

1. With the help of neat sketch, explain the components of a permanent way and discuss about their functions in the railway track COB-5& COt-5

Signature of faculty



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
LESSON PLAN

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: A

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: Mr.T.Srikanth Dept.: Civil Engineering

Designation: Associate Professor

Lesson No: 45. Duration of Lesson: 1hr

Lesson Title: Cant and negative cant, Cant deficiency, problems

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

- Gain the knowledge in Railway Engineering and Airport Engineering

TEACHING AIDS: White board, Marker pens and Code book

TEACHING POINTS :

About Cant and negative cant, Cant deficiency, problems associated with superelevation

Assignment / Questions:

1. Derive the expression for providing the super elevation on broad gauge track and support the same with a neat sketch. COB-5& COt-5

Signature of faculty



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
LESSON PLAN

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: A

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: Mr.T.Srikanth Dept.: Civil Engineering

Designation: Associate Professor

Lesson No: 46. Duration of Lesson: 1hr

Lesson Title: Points and Crossings, Turnouts

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

- Gain the knowledge in Railway Engineering and Airport Engineering

TEACHING AIDS: White board, Marker pens and Code book

TEACHING POINTS :

Points and Crossings, Turnouts in a railway track system and its importance

Assignment / Questions:

1. Draw the sketch of a right-hand turnout and list out the various components. COB-5 & COt-5

Signature of faculty



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
LESSON PLAN

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: A

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: Mr.T.Srikanth Dept.: Civil Engineering

Designation: Associate Professor

Lesson No: 47. Duration of Lesson: 1hr

Lesson Title: Factors affecting selection of airport site

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

- Gain the knowledge in Railway Engineering and Airport Engineering

TEACHING AIDS: White board, Marker pens and Code book

TEACHING POINTS :

introduction to airport engineering and various factors affecting selection of airport site

Assignment / Questions:

1. What are the factors considered in the site selection for an Airport? COB-5& COt-5

Signature of faculty



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
LESSON PLAN

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: A

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: Mr.T.Srikanth Dept.: Civil Engineering

Designation: Associate Professor

Lesson No: 48. Duration of Lesson: 1hr

Lesson Title: Aircraft characteristics

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

- Gain the knowledge in Railway Engineering and Airport Engineering

TEACHING AIDS: White board, Marker pens and Code book

TEACHING POINTS :

Aircraft characteristics and its influence on the airport infrastructure

Assignment / Questions:

1. Describe the Characteristics of an Aircraft which are considered for the Runway requirements at an Airport COB-5& COt-5

Signature of faculty



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
LESSON PLAN

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: A

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: Mr.T.Srikanth Dept.: Civil Engineering

Designation: Associate Professor

Lesson No: 49. Duration of Lesson: 1hr

Lesson Title: Computation of runway length and problems

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

- Gain the knowledge in Railway Engineering and Airport Engineering

TEACHING AIDS: White board, Marker pens and Code book

TEACHING POINTS :

Computation of runway length and problems associated with arriving at a basic runway length

Assignment / Questions:

1. Why the corrections are required to basic runway length? How do you compute the airport reference temperature? COB-5& COt-5

Signature of faculty



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
LESSON PLAN

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: A

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: Mr.T.Srikanth Dept.: Civil Engineering

Designation: Associate Professor

Lesson No: 50. Duration of Lesson: 1hr

Lesson Title: Correction for runway length and problems

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

- Gain the knowledge in Railway Engineering and Airport Engineering

TEACHING AIDS: White board, Marker pens and Code book

TEACHING POINTS :

Correction for runway length and problems associated with arriving at a basic runway length

Assignment / Questions:

1. Why the corrections are required to basic runway length? How do you compute the airport reference temperature? COB-5& COt-5

Signature of faculty



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
LESSON PLAN

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: A

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: Mr.T.Srikanth Dept.: Civil Engineering

Designation: Associate Professor

Lesson No: 51. Duration of Lesson: 1hr

Lesson Title: Wind rose diagram I and II

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

- Gain the knowledge in Railway Engineering and Airport Engineering

TEACHING AIDS: White board, Marker pens and Code book

TEACHING POINTS :

Introduction to Wind rose diagram Type I and Type II

Assignment / Questions:

1. Discuss briefly about wind rose diagram COB-5& COt-5

Signature of faculty



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
LESSON PLAN

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: A

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: Mr.T.Srikanth Dept.: Civil Engineering

Designation: Associate Professor

Lesson No: 52. Duration of Lesson: 1hr

Lesson Title: problems

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

- Gain the knowledge in Railway Engineering and Airport Engineering

TEACHING AIDS: White board, Marker pens and Code book

TEACHING POINTS :

problems solving on Wind rose diagram Type I and Type II

Assignment / Questions:

1. Discuss about wind rose diagram Type 1 COB-5& COt-5

Signature of faculty



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
LESSON PLAN

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: A

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: Mr.T.Srikanth Dept.: Civil Engineering

Designation: Associate Professor

Lesson No: 53. Duration of Lesson: 1hr

Lesson Title: Runway orientation

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

- Gain the knowledge in Railway Engineering and Airport Engineering

TEACHING AIDS: White board, Marker pens and Code book

TEACHING POINTS :

Runway orientation using Wind rose diagram Type I and Type II

Assignment / Questions:

1. Discuss about wind rose diagram II

COb-5& COt-5

Signature of faculty



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
LESSON PLAN

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: A

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: Mr.T.Srikanth Dept.: Civil Engineering

Designation: Associate Professor

Lesson No: 54. Duration of Lesson: 1hr

Lesson Title: Runway lightening

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

- Gain the knowledge in Railway Engineering and Airport Engineering

TEACHING AIDS: White board, Marker pens and Code book

TEACHING POINTS :

Runway lightening and its role in safe aircraft landing and takeoff operations

Assignment / Questions:

1. Discuss about Airport runway lighting COB-5& COt-5

Signature of faculty



**Gokaraju Rangaraju Institute of Engineering and
Technology (Autonomous)
Bachupally, Kukatpally, Hyderabad – 500 090.**

TUTORIAL SHEET - 1

Academic Year : 2021-2022

Semester : I

Name of the Program : B. Tech Civil

Year: III

Section: A

Course/Subject: Transportation Engineering

Course Code: GR18A3065

Name of the Faculty: T.Srikanth

Dept.: Civil Engineering

Designation: ASSOCIATE.PROFESSOR.

This Tutorial corresponds to Unit No. / Lesson: One

Q1. Compare the significance of three Road development plans.

Q2. Discuss the necessity of Highway planning.

.

Please write the Questions / Problems / Exercises which you would like to give to the students and also mention the Objectives/Outcomes to which these Questions / Problems / Exercises are related.

Objective Nos.: 1

Outcome Nos.: 1

Signature of HOD

Signature of faculty

Date:

Date:



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Kukatpally, Hyderabad – 500 090.

TUTORIAL SHEET - 2

Academic Year : 2021-2022

Semester : I

Name of the Program : B. Tech Civil

Year: III

Section: A

Course/Subject: Transportation Engineering

Course Code: GR18A3065

Name of the Faculty: T.Srikanth

Dept.: Civil Engineering

Designation: ASSOCIATE.PROFESSOR.

This Tutorial corresponds to Unit No. / Lesson: Two

Q1. Calculate the Safe Stopping Sight Distance and Intermediate sight distance required for a design speed of 120kmph on a road following a rolling terrain with a decreasing gradient of 1 in 150. Assume suitable data.

Q2. For a design speed of 50 kmph and a radius of 170m considered for a 2-lane divided highway calculate the super-elevation, extra-widening and length of transition curve. Assume suitable data

Please write the Questions / Problems / Exercises which you would like to give to the students and also mention the Objectives/Outcomes to which these Questions / Problems / Exercises are related.

Objective Nos.: 2

Outcome Nos.: 2

Signature of HOD

Date:

Signature of faculty

Date:



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Kukatpally, Hyderabad – 500 090.

TUTORIAL SHEET - 3

Academic Year : 2021-2022

Semester : I

Name of the Program : B. Tech Civil

Year: III

Section: A&B

Course/Subject: Transportation Engineering

Course Code: GR18A3065

Name of the Faculty: T.Srikanth

Dept.: Civil Engineering

Designation: ASSOCIATE.PROFESSOR.

This Tutorial corresponds to Unit No. / Lesson: Three

Q1. Explain the importance of Traffic volume studies and How data is presented

Q2. The approach volumes of a major road are 1400 and 1100 PCU/hr and of minor road are 840 and 800 PCU/hr respectively. The major road is a 4-lane road having a width of 12.5m and minor road is a 2-lane road having a width of 7.5m. Design the traffic signal timings for the intersection formed by the above major and minor roads.

.Please write the Questions / Problems / Exercises which you would like to give to the students and also mention the Objectives/Outcomes to which these Questions / Problems / Exercises are related.

Objective Nos.: 3

Outcome Nos.: 3

Signature of HOD

Signature of faculty

Date:

Date:



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Kukatpally, Hyderabad – 500 090.

TUTORIAL SHEET - 4

Academic Year : 2021-2022

Semester : I

Name of the Program : B. Tech Civil

Year: III

Section: A

Course/Subject: Transportation Engineering

Course Code: GR18A3065

Name of the Faculty: T.Srikanth

Dept.: Civil Engineering

Designation: ASSOCIATE.PROFESSOR.

This Tutorial corresponds to Unit No. / Lesson: Four

Q1. Discuss the traffic movements of diamond and trumpet interchange.

Q2. Identify the number of conflict points for a 4- legged and 3 legged intersections.

Please write the Questions / Problems / Exercises which you would like to give to the students and also mention the Objectives/Outcomes to which these Questions / Problems / Exercises are related.

Objective Nos.: 4

Outcome Nos.: 4

Signature of HOD

Date:

Signature of faculty

Date:



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Kukatpally, Hyderabad – 500 090.

TUTORIAL SHEET - 5

Academic Year : 2021-2022

Semester : I

Name of the Program : B. Tech Civil

Year: III

Section: A

Course/Subject: Transportation Engineering

Course Code: GR18A3065

Name of the Faculty: T.Srikanth

Dept.: Civil Engineering

Designation: ASSOCIATE.PROFESSOR.

This Tutorial corresponds to Unit No. / Lesson: Five

Q1. Discuss the components of a permanent way and their functions

Q2. What are the corrections required to arrive at basic runway length

Please write the Questions / Problems / Exercises which you would like to give to the students and also mention the Objectives/Outcomes to which these Questions / Problems / Exercises are related.

Objective Nos.: 5

Outcome Nos.: 5

Signature of HOD

Signature of faculty

Date:

Date:



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
ASSIGNMENT 1

Academic Year : 2021-2022

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: T.Srikanth Dept.: Civil Engineering

Designation: ASSOCIATE.PROFESSOR.

This assignment corresponds to Unit No. I

1. What are the factors influencing the Highway Alignment?
2. Write down the recommendations of Jayakar Committee and discuss about the implementation of recommendations.
3. Briefly Compare the salient features of three Road development plans.
4. Briefly explain the necessity of Highway planning and list the classification of roads.
5. Describe about the various Engineering Surveys associated in defining the highway alignment.
6. Write briefly on the Drawings and reports associated with the highway

Objective Nos.: 1

Outcome Nos.: 1

Signature of HOD

Signature of faculty

Date:

Date:



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
ASSIGNMENT 2

Academic Year : 2021-2022

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: T.Srikanth Dept.: Civil Engineering

Designation: ASSOCIATE.PROFESSOR.

This assignment corresponds to Unit No. II

1. Derive an expression to calculate the overtaking sight distance on a highway. support your derivation with neat sketch showing the overtaking operation and various distance components involved.
2. Define stopping sight distance and derive an expression to calculate the stopping sight distance for a level road.
3. What is super elevation? With the help of neat sketch derive the expression for calculating the super elevation for a highway facility
4. Explain the concept of extra widening on a horizontal curve with the help of sketch and expression for calculating the extra widening.
5. Calculate the Safe Stopping Sight Distance and Intermediate sight distance required for a design speed of 120kmph on a road following a rolling terrain with a decreasing gradient of 1 in 150. Assume suitable data.
6. For a design speed of 50 kmph and a radius of 170m considered for a 2-lane divided highway calculate the super-elevation, extra-widening and length of transition curve. Assume suitable data.
7. Calculate the safe overtaking sight distance required for a design speed of 100kmph by considering the acceleration as 2.5kmph/sec. Assume suitable data.

Objective Nos.: 2

Outcome Nos.: 2

Signature of HOD

Signature of faculty

Date:

Date:



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
ASSIGNMENT 3

Academic Year : 2021-2022

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: T.Srikanth Dept.: Civil Engineering

Designation: ASSOCIATE.PROFESSOR.

This assignment corresponds to Unit No. III

1. With the help of sketches, explain the relation between speed, volume and density
2. Briefly explain the significance of spot speed data with suitable diagrams
3. What is the significance and importance of Traffic volume studies and discuss on the presentation of data.
4. Write the design steps involved in the Webster's method and IRC method of design of traffic signals
5. Explain various measures that may be taken to prevent accidents. Write about condition and collision diagrams.
6. The approach volumes of a major road are 1400 and 1100 PCU/hr and of minor road are 840 and 800 PCU/hr respectively. The major road is a 4-lane road having a width of 12.5m and minor road is a 2-lane road having a width of 7.5m. Design the traffic signal timings for the intersection formed by the above major and minor roads.

Objective Nos.: 3

Outcome Nos.: 3

Signature of HOD

Date:

Signature of faculty

Date:



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
ASSIGNMENT 4

Academic Year : 2021-2022

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: T.Srikanth Dept.: Civil Engineering

Designation: ASSOCIATE.PROFESSOR.

This assignment corresponds to Unit No. IV

1. What is the classification of Intersections and list out the examples for each.
2. Explain the difference between a channelized and unchanneled intersection with suitable sketch
3. With the help of sketches, indicate the traffic movements of diamond and trumpet interchange.
4. With the help of a neat sketch, identify the number of conflict points for a 4- legged and 3 legged intersections.
5. Explain the concept of rotary intersection and its design criteria as per IRC standards.
6. Brief out the advantages and disadvantages of a Rotary Intersection

Objective Nos.: 4

Outcome Nos.: 4

Signature of HOD

Date:

Signature of faculty

Date:



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
ASSIGNMENT 5

Academic Year : 2021-2022

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: A & B

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: T.Srikanth Dept.: Civil Engineering

Designation: ASSOCIATE.PROFESSOR.

This assignment corresponds to Unit No. V

1. With the help of neat sketch, explain the components of a permanent way and discuss about their functions in the railway track
2. Derive the expression for providing the super elevation on broad gauge track and support the same with a neat sketch.
3. Draw the sketch of a right-hand turnout and list out the various components.
4. What are the factors considered in the site selection for an Airport?
5. Describe the Characteristics of an Aircraft which are considered for the Runway requirements at an Airport
6. Why the corrections are required to basic runway length? How do you compute the airport reference temperature?

Objective Nos.: 5

Outcome Nos.: 5

Signature of HOD

Date:

Signature of faculty

Date:



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
EVALUATION STRATEGY

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech

Year: III YEAR Section: A & B

Course: Transportation Engineering

Course Code: GR18A3065

Name of the faculty : T.Srikanth

Dept: Civil Engineering

Designation : Associate Professor

1. Target:

A. Percentage for pass : 100%

B. Percentage of the class : 77%

Total Strength of the class: 130

S.No.	Class / Division	No. of students
1	First class with distinction	66
2	First class	18
3	Pass class	16

2. COURSE PLAN & CONTENT DELIVERY

S.No.	Plan	Brief Description
1	Practice classes	54 classes for A section and 54classes for B section
2	Design of Lecture classes	Theoretical classes are entirely descriptive and some of the images can be shown in power point presentation. Design problems are solved in classes
3	Design of Practice classes	New scenarios will be given to the students and they are able to apply the design methods to solve the problems
4	Assignments	Presentations on topics like 1) Remembering topics like 20 year plans 2) Application topics like designing of S.E, road widening, curve designs 3) Understanding topics like airport site selection 4) Analyzing topics like wind rose diagram
5	Demonstration	Demonstration can be directly done on white board and power point presentation

3. METHOD OF EVALUATION

3.1. Continuous Assessment examinations (CAE-I, CAE-II)

- 1. Assignments:** Assignments are mainly regarding problems on corrections of airport runway length, design of summit and valley curves
- 2. Practical projects:** Assessing the skills of the students in during various studies like volumetric, parking and accident studies
- 3. Viva:** Assessing the overall knowledge of the student in Transportation Engineering
- 4. Internal Examination:** Internal Examination to assess their overall knowledge on highway, traffic and railway engineering

3.2. Semester / End Examination: To test their abilities in applying the principles and design methodologies that were taught during theory classes

Signature of HOD

Signature of Faculty

Date:

Date:



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING

Assessments in Relation to CO's and COB's

Assessments: 1. ASSIGNMENT

2. INTERNAL EXAMINATION

3. EXTERNAL EXAMINATION

4. PRACTICAL PROJECTS

5. VIVA

Mappings of COBs, COs vs POs, POBs

GR18A3065/ Transportation Engineering	Course Outcomes				
	1	2	3	4	5
Course Objectives					
1	X				
2		X			
3			X		
4				X	
5					X

GR18A3065/ Transportation Engineering	Course Outcomes				
	1	2	3	4	5
Assessments					
1	X				
2		X			
3			X		
4				X	
5					X

GR18A3065/ Transportation Engineering	Course Objectives				
Assessments	1	2	3	4	5
1	X				
2		X			
3			X		
4				X	
5					X

Course Code	Course Title	Course Outcomes	Programme Outcomes											PO S1	PS O2	
			a	b	c	d	e	f	g	h	i	j	k			l
GR18 A3065	Transportation Engineering	1. Apply basic principles of physics in estimating stopping and overtaking sight distance requirements	H	H	M	H		M		H		M		H	M	
		2. Compute the geometric features of road like horizontal and vertical alignment	H	H		H	M	H	M	H		M		H	M	
		3. Analyze the factors influencing road vehicle performance, characteristics and design.	M	M				M				M			M	
		4. Illustrate the basic traffic stream parameters and perform basic traffic signal phasing and timing plan.	H	H	M	H		M		H		M		M		M
		5. Demonstrate the role of intersections and other modes of transportation	H	H	M	H		M	H	H		M		H		M

Course Objectives – Program Outcomes (POs) Relationship Matrix

Program -Outcomes Course Objectives	a	b	c	d	e	f	g	h	i	j	k	l	POS1	PSO2
1				X					X				X	
2		X	X								X		X	
3						X		X					X	
4	X									X		X		X
5					X		X							X

Course Outcomes – Program Outcomes (POs) Relationship Matrix

Program -Outcomes Course-Outcomes	a	b	c	d	e	f	g	h	i	J	k	L	POS1	PSO2
1		X				X				X			X	
2				X				X					X	
3						X						X	X	
4		X						X			X			X
5									X	X				X

Courses – Program Outcomes (POs) Relationship Matrix

Course: Transportation engineering

Program -Outcomes Courses	a	b	c	d	e	f	g	h	i	J	k	L	POS1	PSO2
1	X				X		X		X			X	X	X

Program Educational Objectives (PEOs) – Program Outcomes Relationship Matrix

PEOs Course Outcomes	1	2	3
1	X		
2	X		X
3		X	
4	X		
5			X



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
Rubrics

Academic Year : 2021-2022

Semester : II

Name of the Program : B. Tech Civil

Year: III

Section: A&B

Course/Subject: Transportation Engineering

Course Code: GR18A3065

Name of the Faculty: Mr. T.Srikanth

Dept.: Civil Engineering

DESIGNATION: ASSOCIATE PROFESSOR

Name of the Student	Performance Criteria	Beginning (1)	Developing (2)	Reflecting (3)	Development Accomplished (4)	Exemplary (5)	Score
19241A01 58 Velishala Gayatri	Level of knowledge on Highway development in India	Basic knowledge on the historical development	Able to understand the definition of highway engineering	Able to remember the points submitted by Jayakaar committee	Able to understand the points mentioned in three 20 year plans.	Able to apply the different road patterns to the corresponding areas or places.	4
	Level of knowledge on highway geometric	Identifying the geometric design elements	Notice the factors affecting geometric design	Able to derive the formulae for geometric elements	Applying the formulae to get the accurate results	Analyzing the results for different real world scenarios	5
	Level of knowledge on Traffic Engineering	Able to Identify the traffic parameters	Able to relate the traffic parameters with each other	Able to identify all the commuter problems	Able to do traffic studies to collect the data to analyse	To analyze the collected data that can solve commuter problems	4



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Kukatpally, Hyderabad – 500 090.

COURSE COMPLETION STATUS

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: A

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: Mr.T.Srikanth Dept.: Civil Engineering

Designation: Associate Professor

Actual Date of Completion & Remarks, if any

Units	Remarks	Objectives Achieved	Outcomes Achieved
Unit I	31-01-2022 Unit covered on time	1	1
Unit II	28-02-2022 Unit covered on time	2	2
Unit III	25-03-2022 Unit covered on time	3	3
Unit IV	12-04-2022 Unit covered on time	4	4
Unit V	10-05-2022 Unit covered on time	5	5

Signature of HOD

Signature of faculty

Date:

Date:

Note: After the completion of each unit mention the number of Objectives & Outcomes Achieved.



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Kukatpally, Hyderabad – 500 090.

COURSE COMPLETION STATUS

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech Civil Engineering Year: III Section: B

Course/Subject: Transportation Engineering Course Code: GR18A3065

Name of the Faculty: Mr.T.Srikanth Dept.: Civil Engineering

Designation: Associate Professor

Actual Date of Completion & Remarks, if any

Units	Remarks	Objectives Achieved	Outcomes Achieved
Unit I	07-02-2022 Unit covered on time	1	1
Unit II	02-03-2022 Unit covered on time	2	2
Unit III	29-03-2022 Unit covered on time	3	3
Unit IV	18-04-2022 Unit covered on time	4	4
Unit V	11-05-2022 Unit covered on time	5	5

Signature of HOD

Signature of faculty

Date:

Date:

Note: After the completion of each unit mention the number of Objectives & Outcomes Achieved.



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
MODEL PAPER

SET – 1

CODE: GR18A3065

II B Tech II Semester Regular Examinations, May 2021
Model Question Paper
Transportation Engineering
(Civil Engineering)

Time: 3 hours

Max Marks: 70

PART-A

Answer ALL questions, All questions carry equal marks

10*2 Marks=20 Marks

1). a	What is the target road density proposed for each of the three-road development plans	[2]
b	What are the key recommendations of Jayakar Committee that are implemented and when	[2]
c	With the help of a neat sketch, indicate the various cross section elements of a four-lane divided highway	[2]
d	Briefly discuss the importance of superelevation and extra widening on horizontal curves	[2]
e	What is the importance of spot speed studies and how the data is presented	[2]
f	With the help of a neat sketch, describe any two mandatory sign boards	[2]
g	Describe the importance of traffic islands at intersections	[2]
h	With the help of a neat sketch, determine the number of conflict points for a three-arm intersection	[2]
i	What is grade compensation in railways and what are the standard recommendations	[2]
j	List out the characteristics of an aircraft to be considered in the planning of a new airport	[2]

PART-B

Answer any FIVE questions, All questions carry equal marks

5*10 Marks=50 Marks

1). a	Explain the salient features of Bombay Road Development Plan and Lucknow Road Development Plan?	[5]
b	What factors influence the final alignment of a highway? Explain with the support of suitable sketches.	[5]
2). a	Derive an expression for overtaking sight distance on a two-lane two-way road. Support for your derivation with a neat sketch showing the overtaking operation and various distance components involved	[5]
b	Calculate the OSD required on a National Highway with a design speed of 100kmph. Consider the rate of acceleration as 1.75kmph/sec and assume any other data required suitably.	[5]
3).	Explain the classification of Traffic Signs. Give the specifications of each type with suitable sketches and give at least two examples for each type.	[10]
4). a	With the help of a neat sketch, indicate the traffic movements of a Trumpet interchange and Diamond interchange	[5]
b	The average normal flow of traffic on cross roads A and B are 500 and 350 PCU per hour; the saturation flows on these roads are estimated at 1450 and 1200 PCU per hour respectively. The all red time required for pedestrian is 12 seconds. Design two phase signal by Webster's method	[5]
5). a	Explain the necessity of sleepers in Railway Track? What are the desirable qualities of good sleepers?	[5]
b	The length of a runway under standard conditions is 1540m. The airport site has an elevation of 280m and its reference temperature is 33.50 C. If the runway is to be constructed with an effective gradient of 0.2 percent, determine the corrected runway length	[5]
6). a	Define Stopping Sight Distance. Derive an expression for computing SSD on a level road	[5]
b	What are the objectives of road markings? Explain briefly about the types of markings used in highways.	[5]
7). a	What are the advantages of Channelized Intersections?	[5]
b	What are the advantages and disadvantages of rotary intersections?	[5]



GOKARAJU RANGARAJU INSTITUTE OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF CIVIL ENGINEERING
III B.Tech. II Sem., I- Mid-Term Examination
TRANSPORTATION ENGINEERING (Sub Code: GR18A3065)

Time: 30 Minutes

Date of Exam:16/03/2022

Max.Marks:15

Answer any three from the following

Q No.		Blooms Levels*	Course Outcome
1	a) What are the recommendations of Jayakar Committee? b) Summarize the Salient features of First 20-year Road development Plan?	BL1 & BL2	CO1
2	Solve the requirement of length of Transition Curve on a horizontal curve to be designed for a design speed of 65kmph, radius of circular curve being 220m.The pavement shall be rotated with respect to center line. Consider the total pavement width as 7.8m Assume the allowable rate of introduction of superelevation as 1 in 150.	BL3	CO2
3	a) Appraise the relationship between basic traffic characteristics with the help of suitable diagrams? b) Elaborate the objectives and uses of Traffic volume studies along with the presentation of traffic data.	BL5 & BL6	CO3
4	a) List out the various factors controlling highway alignment. b) Explain the necessity of Superelevation on a horizontal alignment and derive the expression for superelevation with the help of a neat sketch?	BL2 & BL4	CO1 & CO2



GOKARAJU RANGARAJU INSTITUTE OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF CIVIL ENGINEERING
III B.Tech. II Sem., I- Mid-Term Examination
TRANSPORTATION ENGINEERING (Sub Code: GR18A3065)
Objective Exam

Time: 10 Minutes

Date of Exam:16/03/2022

Max.Marks:10

Answer All Questions

All Questions Carry Equal Marks

I Choose the correct Answer

- 1 The Bombay road development plan is for the period []
a) 1961-1981 b) 1963-1983 c) 1943-1961 d) 1981-2001
- 2 Which one of the following factors influences the Highway alignment. []
a) obligatory points b) center line c) road markings d) signages
- 3 Contrast the other name of First 20-year road development plan []
a) Lucknow RDP b) Bombay RDP c) Nagpur RDP d) Calcutta RDP
- 4 1600km of Expressways are proposed in _____ Road development Plan. []
a) Lucknow b) Bombay c) Nagpur d) Calcutta
- 5 Solve the lag distance for a design speed of 60kmph? []
a) 39m b) 42m c) 44m d) 40m
- 6 Identify, which of the following is NOT a terrain condition _____ []
a) Plain b) Sloping c) Hilly d) Rolling
- 7 Select expression corresponding to Centrifugal acceleration in transition curves []
a) $80/(75+V^2)$ b) $80/(75+2V)$ c) $80*(75+V)$ d) $80/(75+V)$
- 8 Calculate the deviation angle when $n_1=-5\%$ and $n_2=-6\%$ is _____ []
a) 11% b) 1% c) -1% d) -11%
- 9 Choose odd one of the following Traffic Characteristic. []
a) Speed b) Density c) Distance d) Flow
- 10 The supported Traffic regulation measures include _____ []
a) Signages b) Traffic signals c) Road Markings d) All



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
I- Mid Examination (March 16th 2022)

Mid-I Marks – A&B

S.No	Roll No	Name	Objective (5M)	Subjective (15M)	Total (20M)
1	18241A0151	SOHEB PATEL	1.5	6.5	8
2	18241A0152	SRIAM SHIVA ADITYA	AB	AB	AB
3	19241A0101	RUHAIL AHMAD LONE	AB	AB	AB
4	19241A0102	AITHA SAI TEJA	4	14.0	18
5	19241A0103	BARISSETTY SHIVA KARTHIK	3	10.0	13
6	19241A0104	BENDHI VARUN THEJA GOUD	3	9.0	12
7	19241A0105	BHUKYA VAMSHI	2.5	7.0	10
8	19241A0106	BOGE VENKAT ROHITH	1	1.5	3
9	19241A0107	BONTHA PRANEETHKUMAR	1.5	9.5	11
10	19241A0108	CHILUKA RAHUL	1.5	2.0	4
11	19241A0109	DANDI KIRAN	3.5	9.5	13
12	19241A0110	DAYYA RAGNESH	3	6.5	10
13	19241A0111	E MANISH GOUD	3.5	4.0	8
14	19241A0112	ERRAM SAI PRIYA	2.5	10.5	13
15	19241A0113	G DEEPIKA	2.5	14.0	17
16	19241A0114	GORANTALA SAI	4	14.5	19
17	19241A0115	GUGULOTHU SANTHOSH	4	10.5	15
18	19241A0116	GURIJALA SAI KUMAR	1	0.0	1
19	19241A0117	GURUJALA SRIDHAR	AB	AB	AB
20	19241A0118	IRUVANTI HEMANTH KUMAR	3	9.5	13
21	19241A0119	JANGITI VYSHNAVI	3.5	12.5	16
22	19241A0120	JARUPLA CHERAN	4	12.0	16
23	19241A0122	JETTI SREEVANI	2.5	15.0	18
24	19241A0123	K SOWMYA	2	15.0	17
25	19241A0124	KADALI KRISHNASRI SAI	2.5	9.0	12
26	19241A0125	KAMAREDDY AKSHAY	AB	AB	AB
27	19241A0126	KATTA SAI KUMAR	3.5	10.0	14
28	19241A0127	KOLLURI.TEJASWI	3.5	12.5	16
29	19241A0128	KONDAPURAM SRIJA	3	13.0	16
30	19241A0129	KOTTE VIVEK	3	6.0	9
31	19241A0130	KRUTHIKA VIJAY PALANGE	5	14.5	20
32	19241A0131	MADA AKHIL REDDY	2.5	6.0	9
33	19241A0132	MADARAM SHRAVAN KUMAR REDDY	3.5	14.5	18

S.No	Roll No	Name	Objective (5M)	Subjective (15M)	Total (20M)
34	19241A0133	MADDIGATLA AJAY SAGAR	1.5	2.5	4
35	19241A0134	CHANDANA MALPATEL	3	11.0	14
36	19241A0135	MANDALA CHINNI	2.5	2.0	5
37	19241A0136	MIREGILLA VIJAYAKUMAR	4	8.0	12
38	19241A0137	MOHD OBAID KASHIF	3.5	10.0	14
39	19241A0138	NARAPAKA MADHAV KUMAR	3	2.5	6
40	19241A0139	NIMMALA ARSHITHA	2.5	8.0	11
41	19241A0141	P SIDDARTHA	AB	AB	AB
42	19241A0142	PAGIDIPALLY AJAY KUMAR	3	11.0	14
43	19241A0143	PALLAPU NAVEEN	5	7.0	12
44	19241A0144	PALLE SANATH KUMAR	3	10.0	13
45	19241A0145	PANTANGI PRANAY	2.5	9.5	12
46	19241A0146	PATIL SWAPNIL	2	3.0	5
47	19241A0147	POLISSETTY SAAHAS	2.5	8.5	11
48	19241A0148	S.SAITEJA	3	5.0	8
49	19241A0149	SAI NEERAJ M	3	8.0	11
50	19241A0150	SATYA SAI PRASANNA REDDY SOLIPETA	AB	AB	AB
51	19241A0151	SHAIK BILAL	2	4.0	6
52	19241A0152	SHAIK FIRDOUS AYESHA	3.5	13.0	17
53	19241A0153	SOORA VIKAS	3	6.5	10
54	19241A0154	TELLAM SRI SAI PAVANA ROSHINI	3	15.0	18
55	19241A0155	THALLAPALLY SWARANYA	3	13.0	16
56	19241A0156	THUMATI VENKATA VAYUNANDHAN	3	5.5	9
57	19241A0157	UDUMULA NIKHIL REDDY	2.5	9.0	12
58	19241A0158	VELISHALA GAYATHRI	3.5	15.0	19
59	19241A0159	VENKATA SIDDHARTHA RAJU VEGESNA	1	2.5	4
60	19241A0160	YASWANTH KURUVA	3.5	11.0	15
61	19241A0161	ABDUL RAHEEM	3	10.0	13
62	19241A0162	ANEMONI MURALI MANOHAR	3	4.5	8
63	19241A0163	ASKANY HARISH SAGAR	2.5	4.0	7
64	19241A0164	BODLA AKSHITH	3	7.5	11
65	19241A0165	BURRA VAMSHI KRISHNA	5	14.0	19
66	19241A0166	CHERLAKOLA AKHILA	4	14.5	19
67	19241A0167	CHINTAPALLI VIKRAM	2.5	14.0	17
68	19241A0168	CHIRRIBOYINA DHANYA	3	15.0	18
69	19241A0169	D SREE MADHURI	2.5	7.5	10
70	19241A0170	GADDAM SAHITHI	2	6.0	8
71	19241A0171	GAJJALA SUKENDHAR REDDY	2	6.0	8
72	19241A0172	YASHASWI GANGAVARAM	1.5	3.5	5
73	19241A0173	GINDHAM ADITYA KUMAR	4	12.0	16
74	19241A0174	GUDHETI NARENDAR REDDY	3	13.0	16

S.No	Roll No	Name	Objective (5M)	Subjective (15M)	Total (20M)
75	19241A0175	GUMMADI SAI PRATEEK REDDY	1	4.0	5
76	19241A0176	HANMAPUR DHEERAJ GOUD	2	3.0	5
77	19241A0177	JAVVAJI AISHWARYA	3.5	12.0	16
78	19241A0178	JULAPALLY NITHIN RAO	2.5	4.5	7
79	19241A0179	K NAVEEN	3	6.0	9
80	19241A0180	K RAJESHWARI	5	12.0	17
81	19241A0181	KACHAVA SURENDAR	2	12.0	14
82	19241A0182	KODATHALA INDU	4	10.5	15
83	19241A0183	KOTARU SRINIVASA VARAPRASAD	3	7.0	10
84	19241A0184	MALOTH RAHUL	2	6.0	8
85	19241A0185	MATURI SATHVIK	4	14.0	18
86	19241A0186	MD ABDUL MAAJID	1.5	4.0	6
87	19241A0187	MEDARI DAYANA	3	14.5	18
88	19241A0188	NARSINGA SANDEEP	1.5	6.0	8
89	19241A0189	PALANATI ROHITH	AB	AB	AB
90	19241A0190	PURALASETTY BHAVANA	3	12.0	15
91	19241A0191	RODDA MALAVIKA REDDY	2.5	12.0	15
92	19241A0192	SAPRAM NAGA SRILOWKYA MUKTHA	3	10.5	14
93	19241A0193	SHAIK PARVEZ ANSARI	AB	AB	AB
94	19241A0194	SIDDELA THARUN KUMAR	1.5	3.5	5
95	19241A0195	TALARI CHANDANA SREE	4.5	4.5	9
96	19241A0196	VALLEPU KALYAN	4.5	6.0	11
97	19241A0197	VRASHAB PATEL	5	11.0	16
98	19241A0198	YELLAVULA NARENDER	2.5	11.0	14
99	19241A0199	BADDELA SAI THARUN	1.5	6.5	8
100	20245A0101	Aamanchi Bowmi	4.5	15.0	20
101	20245A0102	Aviraboina Sai Chaithanya	4.5	12.0	17
102	20245A0103	Bairy B S Anirudh	3.5	9.5	13
103	20245A0104	Daddu Tejasree	3.5	15.0	19
104	20245A0105	Dopathi Raviteja	5	14.0	19
105	20245A0106	Eruventi Niharika	4.5	14.5	19
106	20245A0107	Gaddamidi Aanil	3	7.5	11
107	20245A0108	Gandla Rishik Raj	3	14.0	17
108	20245A0109	Gone Naveen Kumar	4.5	10.5	15
109	20245A0110	Kota Vishal	3.5	11.5	15
110	20245A0111	Kummari Mahesh	2.5	9.5	12
111	20245A0112	Lakavath Anil	3.5	8.5	12
112	20245A0113	Madavaram Rohith	4	6.5	11
113	20245A0114	Mandala Akshitha	2	13.5	16
114	20245A0115	M Manjunath	3	9.5	13
115	20245A0116	Porandla Nababhushanam	3.5	12.5	16
116	20245A0117	Pulishetty Bhavani	2.5	4.5	7
117	20245A0118	Racha Kranthi Ranadeer	4	11.0	15
118	20245A0119	S Manoj Kumar	4.5	13.5	18
119	20245A0120	Samudrala Manideep	4	13.5	18

S.No	Roll No	Name	Objective (5M)	Subjective (15M)	Total (20M)
120	20245A0121	Sangepaga Goutham	2	6.5	9
121	20245A0122	Sodadasi Rahul	4.5	15.0	20
122	20245A0123	Vanga Harshith	3	11.0	14
123	20245A0124	Choleti Vineetha	2.5	11.0	14
124	20245A0125	Gangula Grishma	4	13.0	17
125	20245A0126	Bollampalli Sai Poojith	3.5	7.5	11
126	20245A0127	Pamulapati Sumanth	2.5	7.5	10
127	20245A0128	T Sanghamithra	4	10.5	15
128	20245A0129	Abeda Akanksha	1.5	11.0	13
129	20245A0130	Doppalapudi Ramvineeth Sai	2	5.0	7
130	20245A0131	Pilly Uday Kiran	1.5	5.0	7



GOKARAJU RANGARAJU INSTITUTE OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF CIVIL ENGINEERING
III B.Tech. II Sem., II- Mid-Term Examination
TRANSPORTATION ENGINEERING (Sub Code: GR18A3065)

Time: 30 Minutes

Date of Exam:14/05/2022

Max.Marks:10

Answer any two from the following

Q No.		Blooms Levels*	Course Outcome
1	a) What are the Causes and Preventive measures of Road Accidents? b) Summarize the steps involved in the Webster's method of design of traffic signals	BL1 & BL2	CO 4
2	a) Appraise the objectives of channelization using traffic islands at intersections? b) Elaborate the advantages and disadvantages of a Rotary Intersection	BL5 & BL6	CO 3
3	Solve for the corrected runway length based on the given data Basic Runway length – 1700m Reference Temperature – 33°C Elevation of Airport – 280m Effective Gradient – 0.22 percent	BL3	CO5
4	a) List out the types of At-Grade intersections with suitable sketches. b) Explain Grade compensation? In a section of Broad Gauge track the ruling gradient is 1 in 150 and a curve of 4° is present, what should be the allowable ruling gradient.	BL2 & BL4	CO 5



GOKARAJU RANGARAJU INSTITUTE OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF CIVIL ENGINEERING
III B.Tech. II Sem., II- Mid-Term Examination
TRANSPORTATION ENGINEERING (Sub Code: GR18A3065)
Objective Exam

Time: 10 Minutes
Answer All Questions

Date of Exam:14/05/2022

Max.Marks:10
All Questions Carry Equal Marks

I Choose the correct Answer

- 1 What is the shape of a Mandatory Sign board []
(a) Trapezoid (b) Circle (c) Triangle (d) Rectangle
- 2 Which one of the following is not a traffic signal aspect. []
a) Red b) Yellow c) Green d) Amber
- 3 Contrast on the reasons for causes of accidents []
(a) Drivers (b) Pedestrians (c) Passengers (d) All
- 4 Solve for the radius of a curve, when degree is 2θ []
a) 860m b) 425m c) 744m d) 640m
- 5 Corrections for Runway length include []
a) Elevation b) Gradient c) Temperature d) All
- 6 Identify, which of the following is NOT a Gradient in Railways []
a) Pusher b) Sloping c) Ruling d) Momentum
- 7 Select the width of the broad gauge track from below []
(a) 1.575m (b) 1.354m (c) 1.676m (d) 1.767m
- 8 When a track moves in the longitudinal direction the condition is called as []
(a) Cant (b) Creep (c) Crap (d) Crip
- 9 _____ is an example of At grade intersection []
(a) Rotary (b) Cloverleaf (c) Diamond (d) Trumpet
- 10 The process of using traffic islands at intersection is called _____ []
(a) Dividing (b) Crossing (c) Channelizing (d) Designing



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Bachupally, Hyderabad-500090

DEPARTMENT OF CIVIL ENGINEERING
II- Mid Examination (14th May 2022)

S.No	Roll No	Name	Objective (5M)	Subjective (15M)	Total (20M)
1	18241A0151	SOHEB PATEL	2	6	8
2	18241A0152	SRIAM SHIVA ADITYA	AB	AB	AB
3	19241A0101	RUHAIL AHMAD LONE	AB	AB	AB
4	19241A0102	AITHA SAI TEJA	2	13	15
5	19241A0103	BARISSETTY SHIVA KARTHIK	0.5	10	11
6	19241A0104	BENDHI VARUN THEJA GOUD	2	7	9
7	19241A0105	BHUKYA VAMSHI	3	11	14
8	19241A0106	BOGE VENKAT ROHITH	2.5	3	6
9	19241A0107	BONTHA PRANEETHKUMAR	2.5	9	12
10	19241A0108	CHILUKA RAHUL	1.5	2	4
11	19241A0109	DANDI KIRAN	2	13	15
12	19241A0110	DAYYA RAGNESH	1.5	6	8
13	19241A0111	E MANISH GOUD	2	3	5
14	19241A0112	ERRAM SAI PRIYA	3.5	9	13
15	19241A0113	G DEEPIKA	3.5	13	17
16	19241A0114	GORANTALA SAI	3.5	14	18
17	19241A0115	GUGULOTHU SANTHOSH	1.5	8	10
18	19241A0116	GURIJALA SAI KUMAR	AB	AB	AB
19	19241A0117	GURUJALA SRIDHAR	1.5	4	6
20	19241A0118	IRUVANTI HEMANTH KUMAR	1.5	5	7
21	19241A0119	JANGITI VYSHNAVI	4	8	12
22	19241A0120	JARUPLA CHERAN	4.5	14	19
23	19241A0122	JETTI SREEVANI	4.5	13	17
24	19241A0123	K SOWMYA	3	15	18
25	19241A0124	KADALI KRISHNASRI SAI	4	8	12
26	19241A0125	KAMAREDDY AKSHAY	AB	AB	AB
27	19241A0126	KATTA SAI KUMAR	3.5	12	16
28	19241A0127	KOLLURI.TEJASWI	3	15	18
29	19241A0128	KONDAPURAM SRIJA	3	13	16
30	19241A0129	KOTTE VIVEK	1.5	5	6
31	19241A0130	KRUTHIKA VIJAY PALANGE	4.5	15	19
32	19241A0131	MADA AKHIL REDDY	1	7	8
33	19241A0132	MADARAM SHRAVAN KUMAR REDDY	3.5	15	19

S.No	Roll No	Name	Objective (5M)	Subjective (15M)	Total (20M)
34	19241A0133	MADDIGATLA AJAY SAGAR	1.5	5	7
35	19241A0134	CHANDANA MALPATEL	2.5	15	18
36	19241A0135	MANDALA CHINNI	1.5	2	4
37	19241A0136	MIREGILLA VIJAYAKUMAR	3.5	8	12
38	19241A0137	MOHD OBAID KASHIF	3.5	10	14
39	19241A0138	NARAPAKA MADHAV KUMAR	2.5	5	8
40	19241A0139	NIMMALA ARSHITHA	1.5	15	16
41	19241A0141	P SIDDARTHA	AB	AB	AB
42	19241A0142	PAGIDIPALLY AJAY KUMAR	1	8	9
43	19241A0143	PALLAPU NAVEEN	2	4	6
44	19241A0144	PALLE SANATH KUMAR	3	14	17
45	19241A0145	PANTANGI PRANAY	2	8	10
46	19241A0146	PATIL SWAPNIL	2.5	4	7
47	19241A0147	POLISETTY SAAHAS	3	8	11
48	19241A0148	S.SAITEJA	3	4	7
49	19241A0149	SAI NEERAJ M	3	8	11
50	19241A0150	SATYA SAI PRASANNA REDDY SOLIPETA	AB	AB	AB
51	19241A0151	SHAIK BILAL	AB	AB	AB
52	19241A0152	SHAIK FIRDOUS AYESHA	2.5	12	15
53	19241A0153	SOORA VIKAS	2.5	9	12
54	19241A0154	TELLAM SRI SAI PAVANA ROSHINI	3.5	15	19
55	19241A0155	THALLAPALLY SWARANYA	3	15	18
56	19241A0156	THUMATI VENKATA VAYUNANDHAN	1.5	4	6
57	19241A0157	UDUMULA NIKHIL REDDY	2	8	10
58	19241A0158	VELISHALA GAYATHRI	4	15	19
59	19241A0159	VENKATA SIDDHARTHA RAJU VEGESNA	1	2	3
60	19241A0160	YASWANTH KURUVA	2	8	10
61	19241A0161	ABDUL RAHEEM	3.5	10	14
62	19241A0162	ANEMONI MURALI MANOHAR	3.5	6	10
63	19241A0163	ASKANY HARISH SAGAR	0	4	4
64	19241A0164	BODLA AKSHITH	3	7	10
65	19241A0165	BURRA VAMSHI KRISHNA	4	12	16
66	19241A0166	CHERLAKOLA AKHILA	3.5	12	16
67	19241A0167	CHINTAPALLI VIKRAM	3	15	18
68	19241A0168	CHIRRIBOYINA DHANYA	3	13	16
69	19241A0169	D SREE MADHURI	3	10	13
70	19241A0170	GADDAM SAHITHI	2.5	3	6
71	19241A0171	GAJJALA SUKENDHAR REDDY	2	7	9
72	19241A0172	YASHASWI GANGAVARAM	3	7	10
73	19241A0173	GINDHAM ADITYA KUMAR	2	6	8

S.No	Roll No	Name	Objective (5M)	Subjective (15M)	Total (20M)
74	19241A0174	GUDHETI NARENDAR REDDY	3.5	7	10
75	19241A0175	GUMMADI SAI PRATEEK REDDY	2	3	5
76	19241A0176	HANMAPUR DHEERAJ GOUD	AB	AB	AB
77	19241A0177	JAVVAJI AISHWARYA	4	10	14
78	19241A0178	JULAPALLY NITHIN RAO	1.5	5	6
79	19241A0179	K NAVEEN	3	3	6
80	19241A0180	K RAJESHWARI	3	11	14
81	19241A0181	KACHAVA SURENDAR	4	10	14
82	19241A0182	KODATHALA INDU	3.5	12	15
83	19241A0183	KOTARU SRINIVASA VARAPRASAD	3.5	9	13
84	19241A0184	MALOTH RAHUL	AB	AB	AB
85	19241A0185	MATURI SATHVIK	4	13	17
86	19241A0186	MD ABDUL MAAJID	1.5	5	6
87	19241A0187	MEDARI DAYANA	3	13	16
88	19241A0188	NARSINGA SANDEEP	2.5	6	8
89	19241A0189	PALANATI ROHITH	AB	AB	AB
90	19241A0190	PURALASETTY BHAVANA	3	11	14
91	19241A0191	RODDA MALAVIKA REDDY	4	11	15
92	19241A0192	SAPRAM NAGA SRILOWKYA MUKTHA	AB	AB	AB
93	19241A0193	SHAIK PARVEZ ANSARI	AB	AB	AB
94	19241A0194	SIDDELA THARUN KUMAR	2.5	5	8
95	19241A0195	TALARI CHANDANA SREE	2	2	4
96	19241A0196	VALLEPU KALYAN	2.5	10	12
97	19241A0197	VRASHAB PATEL	4.5	14	18
98	19241A0198	YELLAVULA NARENDER	3	12	15
99	19241A0199	BADDELA SAI THARUN	4	6	10
100	20245A0101	Aamanchi Bowmi	5	15	20
101	20245A0102	Aviraboina Sai Chaithanya	4	5	9
102	20245A0103	Bairy B S Anirudh	2.5	7	10
103	20245A0104	Daddu Tejasree	3	13	16
104	20245A0105	Dopathi Raviteja	4.5	14	19
105	20245A0106	Eruventi Niharika	3.5	12	16
106	20245A0107	Gaddamidi Aanil	5	8	13
107	20245A0108	Gandla Rishik Raj	3	14	17
108	20245A0109	Gone Naveen Kumar	4	8	12
109	20245A0110	Kota Vishal	2.5	13	15
110	20245A0111	Kummari Mahesh	2	11	13
111	20245A0112	Lakavath Anil	3	11	14
112	20245A0113	Madavaram Rohith	4.5	14	18
113	20245A0114	Mandala Akshitha	3	15	18
114	20245A0115	M Manjunath	2.5	13	15
115	20245A0116	Porandla Nababhushanam	3	13	16
116	20245A0117	Pulishetty Bhavani	2.5	8	11
117	20245A0118	Racha Kranthi Ranadeer	3.5	12	16
118	20245A0119	S Manoj Kumar	3.5	14	18
119	20245A0120	Samudrala Manideep	3.5	13	17

S.No	Roll No	Name	Objective (5M)	Subjective (15M)	Total (20M)
120	20245A0121	Sangepaga Goutham	2	8	10
121	20245A0122	Sodadasi Rahul	4	15	19
122	20245A0123	Vanga Harshith	2.5	13	16
123	20245A0124	Choleti Vineetha	2	11	13
124	20245A0125	Gangula Grishma	4.5	12	17
125	20245A0126	Bollampalli Sai Poojith	3	13	16
126	20245A0127	Pamulapati Sumanth	2	9	11
127	20245A0128	T Sanghamithra	3	9	12
128	20245A0129	Abeda Akanksha	2	11	13
129	20245A0130	Doppalapudi Ramvineeth Sai	1	5	6
130	20245A0131	Pilly Uday Kiran	1.5	8	10

Sample of Answer Scripts -MID II EXAM



(5)

GOKARAJU RANGARAJU INSTITUTE OF ENGINEERING AND TECHNOLOGY
(AUTONOMOUS)
DEPARTMENT OF CIVIL ENGINEERING
III B.Tech. II Semester Mid - II Examinations
TRANSPORTATION ENGINEERING

A. Bowmi

Subject Code: GR18A3065

Date: 14/05/2022

Duration: 10 Min

OBJECTIVE

Max Marks: 5M

Name: *A. Bowmi*

Roll No:

2	0	2	4	5	A	0	1	0	1
---	---	---	---	---	---	---	---	---	---

1. What is the shape of a Mandatory Sign board
(a) Trapezoid (b) ~~Circle~~ (c) Triangle (d) Rectangle [b]
2. Which one of the following is not a traffic signal aspect.
a) Red (b) ~~Yellow~~ (c) Green (d) Amber [b]
3. Contrast on the reasons for causes of accidents
(a) Drivers (b) Pedestrians (c) Passengers (d) ~~All~~ [d]
4. Solve for the radius of a curve, when degree is 2°
a) ~~860m~~ (b) 425m (c) 744m (d) 640m [a]
5. Corrections for Runway length include
a) Elevation (b) Gradient (c) Temperature (d) ~~All~~ [d]
6. Identify, which of the following is NOT a Gradient in Railways
a) Pusher (b) ~~Sloping~~ (c) Ruling (d) Momentum [b]
7. Select the width of the broad gauge track from below
(a) 1.575m (b) 1.354m (c) ~~1.676m~~ (d) 1.767m [c]
8. _____ is an example of At grade intersection
(a) ~~Rotary~~ (b) Cloverleaf (c) Diamond (d) Trumpet [a]
9. Choose the odd one of the Windrose diagram types.
a) Type 1 (b) Type 2 (c) ~~Type 3~~ [c]
10. The process of using traffic islands at intersection is called _____
(a) Dividing (b) Crossing (c) ~~Channelizing~~ (d) Designing [c]



Gokaraju Rangaraju Institute of Engineering & Technology

(Autonomous College Affiliated to JNTUII)

(12 Pages)

Bachupally, Kukatpally, Hyderabad - 500090

I II MID TERM EXAMINATION

A. B. B. B. B.

No.

139922

H.T. No.

2 0 2 4 5 A 0 1 0 1

Name of the Examination IIIrd year II sem Mid-Term Examination, Transportation Engineering

Course B.Tech

Branch civil

Date 14/5/2022

Signature of the Invigilator

Q.NO.	1		2		3		4		5		6		TOTAL
	a	b	a	b	a	b	a	b	a	b	a	b	
MARKS	2	3	2	3	5	-	M	M					15

START WRITING FROM HERE

1 (a) Causes of Road Accidents

- Over speed driving
- Drunken driving
- Not following any traffic signals properly
- Jumping the Red signal
- Not wearing safety precautions like helmet, seat belt etc
- Overtaking in a wrong way
- Not paying Attention over the road
- Covered with full of distractions like Music, Talking in Mobile phone etc..

Preventive Measures of Road Accidents :-

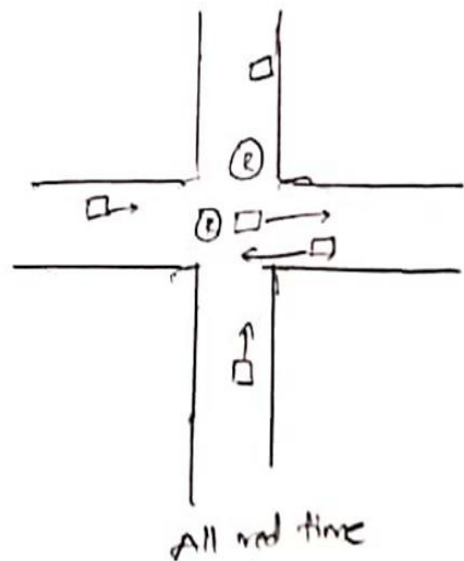
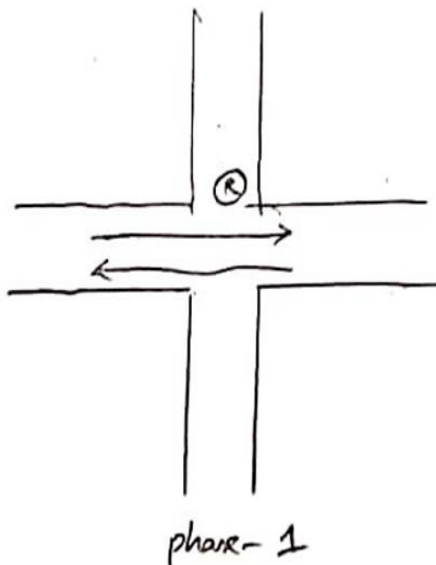
- Wearing safety precautions like helmet, seat Belt
- Look over the road and drive
- Should maintain sufficient gap between vehicle and vehicle
- We should not drive when we are drunk
- Speed should be optimum
- Do not jump over the signals etc..

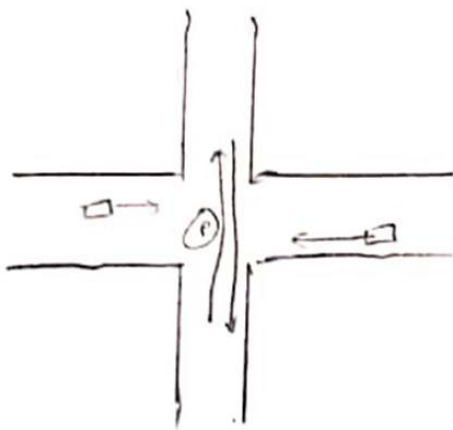
These are causes and preventive measures of Road Accidents.

1b)

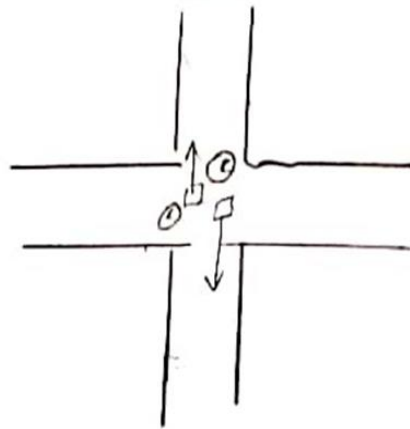
Webster's Method of Traffic Signal design

$$\text{Total cycle time} = \text{Green time} + \text{Amber time} + \text{Red time}$$





phase - 2



All red time

Step-1:-

$$\text{optimum cycle time } (C_0) = \frac{1.5L + 5}{1 - y}$$

$$L \Rightarrow \text{Total lost time} = 2N + R$$

$N \rightarrow$ No. of phases

$R \rightarrow$ Total Red time

$$y \Rightarrow \text{critical flow ratio} = \frac{N}{S} \Rightarrow \frac{\text{Normal flow}}{\text{Saturation flow}}$$

Step-2:-

$$\text{Green time} = G_t = C_0 - L$$

$$\text{Green time in particular phase} \rightarrow G_p = G_t \times \frac{y_p}{y}$$

Step-3:- Amber time

$$C_0 = (G_A + A_A) + (G_B + A_B)$$

From this we will be knowing Amber time

These are the steps involved in the Webster's design of Traffic signals

3) (i) Correction for Elevation

Basic Runway length = 1700m

Elevation of Airport = 280m

As per ICAO \rightarrow International Civil Aviation Organization

For every 300m Increase in elevation \rightarrow 7% Increase in Runway length
280m \rightarrow ?

$$\left(\frac{7\% \text{ of } 1700}{300} \right) \times 280$$

$$= \frac{7}{100} \times 1700 \times \frac{280}{300}$$

$$\Rightarrow 111.06\text{m}$$

$$\therefore \text{Increase in Runway length due to Elevation} = 1700 + 111.06 \\ = 1811.06\text{m}$$

(ii) Correction for Temperature

Reference Temperature = 33°C

As per ICAO

Standard Temperature = $15 - 0.0065 (\text{Elevation})$

$$= 15 - 0.0065 (280)$$

$$= 13.18^\circ\text{C}$$

$$\text{Difference} = 33^\circ\text{C} - 13.18^\circ\text{C}$$

for every 1°C Rise in Temperature \rightarrow 1% Increase in length

$$\Rightarrow (1\% \text{ of } 1811.06) \times 13.18$$

$$= 238.69\text{m}$$

⇒ Show

Increase in length due to correction of Temperature

$$\rightarrow 1811.06 + 28.69$$

$$= 2049.75 \text{ m}$$

The correction in Runway length due to Elevation & Temperature should not be more than 35%.

$$\Rightarrow \frac{(2049.75 - 1700)}{1700} \times 100$$

$$\Rightarrow 20.45\% < 35\%$$

Hence OK

(ii) Correction for gradient

For every 1% Increase in gradient \rightarrow 20% Increase in Runway length
 $\rightarrow ?$
0.22% Increase

$$(20\% \text{ of } 2049.75) \times 0.22$$

$$\Rightarrow \frac{20}{100} \times 2049.75 \times 0.22$$

$$= 90.189$$

$$\text{Corrected length} = 2049.75 + 90.189 = 2139.939$$

\therefore Corrected runway length after the correction due to Elevation, Temperature and Gradient is 2139.939 m

2) (a) Objectives of channelization using Traffic Islands at Intersections

→ Channelization of Road traffic is very much important to reduce the accidents.

Objectives

- As we are providing Islands at the Intersection the conflict area will be reduced.
- To reduce the speed of the vehicle when it is entering the Intersection.
- To provide a fixed and controlled path of traffic for the road users.
- To reduce the accidents which are caused due to unchannelized Intersections.
- To monitor the roadway and traffic in a proper way.

Main advantages of channelized Intersections

- The continuous monitoring will be there and the driver will be driving at moderate speed.
- Semi controlled system will be developed.
- Head on collision wont happen etc.. are the objectives of Channelization using Traffic Islands at Intersection.

2b) Rotary Intersection :-

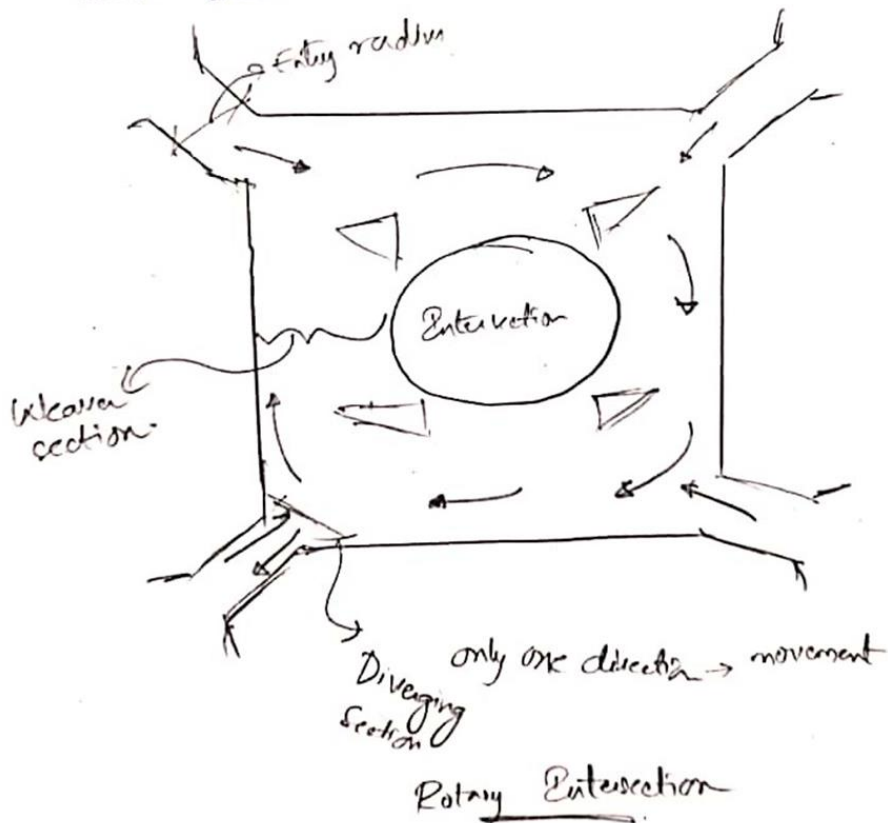
- one of the type of channelized Intersection
- It is an At-grade Type of Intersection
- In this type of Intersection a rotary is placed at the Junction point
- And all the vehicles have to move in only clockwise direction to move from one lane to another lane
- Minimum number of vehicles that can accommodated in Rotary Intersection is 500 veh/hour and Maximum number of vehicles are 3000 veh/hour
- In this type of Intersection Right-side turning traffic can be avoided.

Advantages

- single the vehicles are moving in only one direction no. of conflicts can be reduced
- Even though drivers wont reduce the speed when they enter the rotary they need to reduce the speed.
- very rare accidents will be happened and that too of very less severity
- convenient and easy movement of vehicles can be seen
- It does not required any type of continuous monitoring any traffic signals (or) any type of traffic police.

Disadvantages of Rotary Intersection

- Area required will be very high
- Cost of constructing Rotary Intersection is high
- Even though there are less number of vehicles the vehicles have to go in a lesser speed only
- total lost time will be very high
- At the Intersection only we will be having less speed and when we move to our Exit lane the speed will be more which cause accidents



III B.Tech II Semester Regular Examinations, May/June 2022

TRANSPORTATION ENGINEERING
(Civil Engineering)

Time: 3 hours

Max Marks: 70

Instructions:

1. Question paper comprises of Part-A and Part-B
2. Part-A (for 20 marks) must be answered at one place in the answer book.
3. Part-B (for 50 marks) consists of five questions with internal choice, answer all questions.

PART - A

(Answer ALL questions. All questions carry equal marks)

10 * 2 = 20 Marks

1. a. Write the road classification based on Nagpur Road plan. [2] CO1 BL2
- b. What are the ideal requirements of a new highway alignment? [2] CO1 BL1
- c. Name the different types of transition curves. [2] CO2 BL1
- d. Write the functions of camber. [2] CO2 BL4
- e. Draw the various forms of at-grade intersections. [2] CO3 BL6
- f. If the spot speeds in KMPH are 50,40,60,54 and 45, then what is the time mean speed? [2] CO3 BL
- g. What are the different traffic control devices? [2] CO4 BL1
- h. Draw the different basic traffic movements at an intersection. [2] CO4 BL2
- i. Define cant and cant deficiency. [2] CO5 BL1
- j. What are the different types of rails? [2] CO5 BL4

PART - B

(Answer ALL questions. All questions carry equal marks)

5 * 10 = 50 Marks

2. (a) Explain briefly the twenty year road development plans in India. [6] CO1 BL2
- (b) Discuss the significant recommendations of Jayakar committee report. [4] CO1 BL6

OR

3. (a) Briefly explain the different classification of roads. [4] CO1 BL4
- (b) Explain the different engineering surveys to be conducted for new highway Alignment. [6] CO1 BL2
4. (a) Derive an expression for finding the stopping sight distance at level and at grade. [10] CO2 BL6
- (b) The speeds of overtaking and overtaken vehicles are 85 and 65 kmph respectively. The acceleration of a overtaking vehicle is 0.91 m/s^2 , calculate the overtaking sight distance for i) one way traffic ii) two way traffic.

OR

5. (a) Explain the various methods of attainment of superelevation in the field. [10] CO2, BL3
 (b) Calculate the extra widening required for a pavement of width 7 m on a horizontal curve of radius 200 m, if the longest wheel base of vehicle expected on the road is 6.1 m and design speed is 60 kmph. CO2, BL1

6. Define traffic volume and explain the various methods of classified traffic volume studies. [10] CO3, BL1

OR

7. (a) Draw and explain the relationship between speed, density and flow. [6] CO3, BL1
 (b) Enumerate the advantages and disadvantages of traffic signals. [4] CO3, BL5

8. Explain the functional classification of traffic islands with suitable sketches. [10] CO4, BL5

OR

9. At the right angled intersection of two roads, road-I has four lanes with a total width of 12m and road-II has two lanes with a total width of 6.6m. The volume of traffic approaching the intersection during design hour are 900 and 743 PCU/hr on the two approaches of road-I and 278 and 180 PCU/hr on the two approaches of road-II. Design the signal timings as per IRC guidelines. [10] CO4, BL4

10. (a) What do you understand by a railway track or a permanent way? Mention the requirements of an ideal permanent way. [6] CO5, BL2

- (b) Discuss the necessity of coning of wheels. [4] CO5, BL2

OR

11. (a) The length of a runway under standard conditions is 1600 m. The airport is to be provided at an elevation of 290 m above the mean sea level. The airport reference temperature is 32.94°C, If the effective gradient is 0.5%, determine the runway length to be provided. [6] CO5, BL4

- (b) Explain the factors to be considered for the selection of an airport site. [4] CO5, BL5
