

Discipline: <b>CE</b>	Semester: 4 <sup>th</sup>	Name of the Teaching Faculty: <b>SHAKTI SWARUP PANI</b>
Subject: <b>HIGHWAY ENGINEERING</b>	No. of Days/per week class allotted: 05	Semester From Date: <b>14-03-2023</b> To Date: <b>23-05-2023</b> No. of Weeks : <b>15</b>
<b>Week</b>	<b>Class Day</b>	<b>Theory Topics</b>
1 <sup>st</sup>	01	Introduction Importance of Highway transportation
	02	importance organizations
	03	Functions of Indian Roads Congress
	04	IRC classification of roads
	05	Organisation of state highway department
2 <sup>nd</sup>	01	Road Geometrics
	02	Glossary of terms used in geometric and their importance
	03	Glossary of terms used in geometric and their importance
	04	Glossary of terms used in geometric and their importance
	05	Glossary of terms used in geometric and their importance.
3 <sup>rd</sup>	01	Design and average running speed.
	02	Design and average running speed.
	03	Design and average running speed
	04	stopping and passing sight distance
	05	stopping and passing sight distance
4 <sup>th</sup>	01	stopping and passing sight distance
	02	stopping and passing sight distance
	03	stopping and passing sight distance
	04	Necessity of curves, horizontal and vertical curves
	05	Necessity of curves, horizontal and vertical curves
5 <sup>th</sup>	01	Necessity of curves, horizontal and vertical curves
	02	transition curves and super elevation, Methods of providing super – elevation
	03	transition curves and super elevation, Methods of providing super – elevation
	04	transition curves and super elevation, Methods of providing super – elevation
	05	transition curves and super elevation, Methods of providing super – elevation
6 <sup>th</sup>	01	Road Materials
	02	Difference types of road materials in use: soil, aggregates, and binders
	03	Difference types of road materials in use: soil, aggregates, and binders
	04	Function of soil as highway Subgrade
	05	California Bearing Ratio: methods of finding CBR valued in the laboratory and at site and their significance
7 <sup>th</sup>	01	California Bearing Ratio: methods of finding CBR valued in the laboratory and at site and their significance
	02	California Bearing Ratio: methods of finding CBR valued in the laboratory and at site and their significance
	03	Testing aggregates: Abrasion test, impact test, crushing strength test, water absorption test & soundness test
	04	Testing aggregates: Abrasion test, impact test, crushing strength test, water absorption test & soundness test
	05	Road Pavements
8 <sup>th</sup>	01	Road Pavement: Flexible and rigid pavement, their merits and

		demerits, typical cross-sections, functions of various components
	02	Road Pavement: Flexible and rigid pavement, their merits and demerits, typical cross-sections, functions of various components
	03	Flexible pavements:
	04	Sub-grade preparation:
	05	Sub-grade preparation:
9 <sup>th</sup>	01	Sub base Course: Necessity of sub base, stabilized sub base, purpose of stabilization
	02	Sub base Course: Necessity of sub base, stabilized sub base, purpose of stabilization
	03	Sub base Course: Necessity of sub base, stabilized sub base, purpose of stabilization
	04	Types of stabilization
	05	Base Course:
10 <sup>th</sup>	01	Surfacing
	02	Rigid Pavements:
	03	Hill Roads
	04	Introduction: Typical cross-sections showing all details of a typical hill road in cut, partly in cutting and partly in filling
	05	Introduction: Typical cross-sections showing all details of a typical hill road in cut, partly in cutting and partly in filling
11 <sup>th</sup>	01	Introduction: Typical cross-sections showing all details of a typical hill road in cut, partly in cutting and partly in filling
	02	Breast Walls
	03	Retaining walls
	04	different types of bends
	05	Road Drainage
12 <sup>th</sup>	01	Necessity of road drainage work
	02	cross drainage works
	03	Surface and sub-surface drains and storm water drains
	04	Surface and sub-surface drains and storm water drains
	05	Location, spacing and typical details of side drains, side ditches for surface drainage, intercepting drains,
13 <sup>th</sup>	01	pipe drains in hill roads, details of drains in cutting embankment, typical cross sections
	02	Road Maintenance
	03	Common types of road failures – their causes and remedies
	04	Maintenance of bituminous road such as patch work and resurfacing
	05	Maintenance of concrete roads – filling cracks, repairing joints, maintenance of shoulders (berm), maintenance of traffic control devices
14 <sup>th</sup>	01	Maintenance of concrete roads – filling cracks, repairing joints, maintenance of shoulders (berm), maintenance of traffic control devices
	02	Basic concept of traffic study, Traffic safety and traffic control signal
	03	Basic concept of traffic study, Traffic safety and traffic control signal
	04	Construction equipments:
	05	Hot mixing plant
15 <sup>th</sup>	01	Tipper, tractors (wheel and crawler) scraper, bulldozer, dumpers, shovels, graders, roller dragline
	02	Tipper, tractors (wheel and crawler) scraper, bulldozer, dumpers, shovels, graders, roller dragline
	03	Asphalt mixer and tar boilers

	04	Road pavers
	05	Modern construction equipments for roads