

| ARTIAN SCHOOL | | Name of the Teaching Faculty Swarna Mohanty | |
|-----------------------------------|------------------------------------|---|---------------------|
| Discipline: civil | Semester: 4th | Semester From date: _____ To date _____ | No. of Weeks: _____ |
| Subject: Highway Engineering (HE) | No of Days/Week Class Allotted: 05 | | |
| VEEK | Class Day | Theory Topics | |
| | 1st | Introduction | |
| | 2nd | Importance of Highway transportation | |
| | 3rd | Importance of organizations transport | |
| | 4th | Ministry of Surface Transport | |
| | 5th | CRRI Central road research Institute. | |
| | 1st | Function of IRC | |
| | 2nd | IRC classification of roads | |
| | 3rd | Organisation of State highway department | |
| | 4th | Road geometrics, glossary of terms used in road geometry | |
| | 5th | Road geometrics glossary of terms importance used in road geometry. | |
| | 1st | Right of way, formation width, road margin, road shoulder. | |
| | 2nd | Carriage way, side slopes, Kerbs formation level, camber & gradient | |
| | 3rd | Design & average ave SSD and OSP | |
| | 4th | Necessity of curve types of curve Horizontal curve, vertical curve | |
| | 5th | Revision and 1st chapter | |

| WEEK | Class Day | Theory Topics |
|------|-----------|---|
| | 1st | Transition curve, Super elevation |
| | 2nd | Method of super elevation. |
| | 3rd | Methods of providing super elevation |
| | 4th | Different types of road material in use = soil, aggregate, binders. |
| | 5th | Aggregate, binders \leftarrow Types of Binder. |
| | 1st | Binders property with example. |
| | 2nd | Function of soil as highway sub grade |
| | 3rd | CBR = California Bearing Ratio = Method including CBR value |
| | 4th | Testing aggregate = Abrasion test, Impact test |
| | 5th | Crushing test, water absorption test and soundness test. |
| | 1st | Road pavement = what is pavement? Types of pavement? |
| | 2nd | Flexible pavement |
| | 3rd | Rigid pavement D_{eb}^n , 8 Layers |
| | 4th | Merits demerits rigid pavement and Flexible pavement |
| | 5th | Final class test \rightarrow |

| Civil | | Semester: 4th | Name of the Teaching Faculty Swarnopma Mohanty | |
|-------------------|-----------|---|--|---------------|
| Highway Engg (HE) | | No of Days/Week Class Allotted: 05 | Semester From date: _____ To date _____ | No. of Weeks: |
| K | Class Day | Theory Topics | | |
| | 1st | Subgrade preparation, setting out alignment of road, setting out benchmarks | | |
| | 2nd | Control pegs for embankment and cutting, borrow pits, Hauling prohibited | | |
| | 3rd | Construction embankment, stabilization | | |
| | 4th | Preparation of subgrade methods or checking chamber. | | |
| | 5th | gradient & alignment as per recommendation of IRE. | | |
| | 1st | equipment used for subgrade preparation. | | |
| | 2nd | Subbase course = necessity of subbase, stabilized. | | |
| | 3rd | Stabilization = Def ⁿ example types of stabilization. | | |
| | 4th | Mechanical stabilization, Lime stabilization. | | |
| | 5th | Cement stabilization, Fly ash stabilization | | |
| | 1st | Base course - preparation of base course. | | |
| | 2nd | Soling soling; types of soling. Brick soling, stone soling & metalting | | |
| | 3rd | Water Bound macadam and wet-mix macadam. | | |
| | 4th | Bituminous constructions, Different types. | | |
| | 5th | ↳ class test → | | |

| WEEK | Class Day | Theory Topics |
|------|-----------|---|
| | 1st | Scrubbing: surface dressing ^{semidense carpet} premix carpet |
| | 2nd | Bituminous concrete and Grouting. |
| | 3rd | Rigid pavement: - concept of concrete roads as per IRC specifications |
| | 4th | Hill roads → Introduction & Example and PWS - chapter revision |
| | 5th | Typical cross section showing all details of a typical hill road in cut & partly cutting, partly filling. |
| | 1st | Breast walls, Retaining walls |
| | 2nd | Different type of Bends |
| | 3rd | Different type of Bends. |
| | 4th | Road drainage: - Necessity of road drainage. |
| | 5th | cross drainage works |
| | 1st | Surface & subsurface drains and storm water drains |
| | 2nd | Surface & sub surface drains and storm water drains |
| | 3rd | Typical details of side drains & side ditches for surface drainage |
| | 4th | pipe drains in hill roads |
| | 5th | ↳ Class test → |

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| No. of Weeks: _____ | | |

| EK | Class Day | Theory Topics |
|----|-----------|--|
| | 1st | Typical cross sections of road drainage |
| | 2nd | Typical cross sections of road drainage |
| | 3rd | Common types of failure (Road Maintenance) |
| | 4th | causes of failure road failure. |
| | 5th | Maintenance of bituminous road such as patch work & resurfacing |
| | 1st | Maintenance of bituminous road such as patch work & resurfacing |
| | 2nd | Maintenance of bituminous road such as patch work & resurfacing |
| | 3rd | Maintenance of concrete roads - filling cracks, repairing joints |
| | 4th | Maintenance of shoulder |
| | 5th | Maintenance of traffic control devices |
| | 1st | Basic concept idea:- Hot mix plant |
| | 2nd | Hot mix plant |
| | 3rd | Tipper, tractor (wheel & crawler) |
| | 4th | Scraper, bulldozer, dumper. |
| | 5th | shovels, graders, roller, dragline |

| WEEK | Class Day | Theory Topics |
|------|-----------|---|
| | 1st | Asphalt Mixer and tar boilers |
| | 2nd | Road pavers. |
| | 3rd | Road pavers |
| | 4th | - Modern construction equipments for roads |
| | 5th | Modern construction equipments for roads |
| | 1st | |
| | 2nd | |
| | 3rd | |
| | 4th | |
| | 5th | |
| | 1st | |
| | 2nd | |
| | 3rd | |
| | 4th | |
| | 5th | |