**USHARAMA COLLEGE OF ENGINEERING&TECHNOLOGY**

**Department Of Civil Engineering**

**Lesson plan**

**Sub: TransportationEngg-I Year: III Sem: I**

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| **S.No** | **Topics To Be Covered** | **Cumulative Periods** | **Date** |
| **Unit-I** |
| 1 | **Highway planning and alignment**: IntroductionHighway development in India | 2 | 14-06-2016 |
| 2 | Classification of roadsRoad network patterns | 4 | 15-06-2016 |
| 3 | Necessity for highway planning | 6 | 17-06-2016 |
| 4 | Different road development plans, road development vision 2021 | 8 |  |
| 5 | Rural road development plan, vision 2025 | 10 | 20-06-2016 |
| 6 | Planning surveys | 12 | 21-06-2016 |
| 7 | Highway alignment, factors affecting alignment | 14 | 24-06-2016 |
| 8 | Engineering surveys, drawings and reports | 16 | 27-06-2016 |
| 9 | **Assignment on unit-I** | 18 | 28-06-2016 |
| **Unit-II** |
| 10 | **Highway geometric design**: importance of geometric designDesign controls and criteria | 20 | 01-07-2016 |
| 11 | Highway cross section elements | 22 | 04-07-2016 |
| 12 | Sight distance elements-ssd, osd, isdDesign of horizantal alignment | 24 | 05-07-2016 |
| 13 | Design of superelevation and extrawidening | 26 | 08-07-2016 |
| 14 | Design of transition curves | 28 | 11-07-2016 |
| 15 | Design of vertical alignmentGradients, vertical curves | 30 | 12-07-2016 |
| 16 | **Assignment on unit-II** | 32 | 15-07-2016 |
| **Unit-III** |
| 17 | **Traffic engineering:** basic parameters of traffic –volume, speed and densityTraffic volume studies | 34 | 18-07-2016 |
| 18 | Speed studiesParking studies  | 38 | 22-07-2016 |
| 19 | Road accidents-causes and preventive measuresCondition diagram and collision diagram | 40 | 19-07-2016 |
| 20 | PCU factors, capacity of highways-factors affecting | 44 | 22-07-2016 |
| 21 | Los conceptsRoad traffic signs , road markingsTypes of intersections; at-grade intersectionsDesign of plain, flared, rotary and channelized intersectionsDesign of Traffic signals: Webster methodIRC method | 46 | 25-07-2016 |
| 22 | **Assignment on unit-III** | 48 | 26-07-2016 |
| 23 | **Revision and preparation for I mid** | 54 | 01-08-2016 to 05-08-2016  |
| **Unit-IV** |
| 24 | **Highway materials**: subgrade soil, classification, group index | 56 | 16-08-2015 |
| 25 | Subgrade soil strength, CBR | 58 | 19-08-2015 |
| 26 | Modulas of subgrade reactionStone aggregates: desirable properties | 60 | 22-08-2016 |
| 27 | Tests for road aggregates | 62 | 23-08-2016 |
| 28 | Bituminous materials: types, desirable propertiesTests on bitumen | 64 | 26-08-2016 |
| 29 | Bituminous paving mixes: requirementsMarshall ethod of mix design | 66 | 29-08-2016 |
| 30 | **Assignment on unit-IV** | 68 | 30-08-2016 |
| **Unit-V** |
| 31 | **Design of pavements**: types of pavements | 70 | 02-09-2016 |
| 32 | Functions and requirements of different types of pavements, design factors | 72 | 06-09-2016 |
| 33 | **Flexible pavements**: design factors, flexible pavement design methods | 74 | 09-09-2016 |
| 34 | CBR method, IRC method | 76 | 09-09-2016 |
| 35 | Burmister method, mechanistic methodIRCmethod for low volume flexible pavements | 78 | 13-09-2016 |
| 36 | **Rigid pavements:** design considerations | 80 | 16-09-2016 |
| 37 | Wheel load stresses, temperature stresses, frictional stresses , Combination of stresses | 82 | 19-09-2016 |
| 38 | Design of slabs, Design of joints, IRC methodRigid pavements for low volume roads | 84 | 20-09-2016 |
| 39 | Continuously reinforced cement concrete pavementsRoller compacted concrete pavements | 86 | 23-09-2016 |
| 40 | **Assignment on unit-V** | 88 | 26-09-2016 |
| **Unit-VI** |
| 41 | **Highway construction and maintenance** : introduction, types of highway construction, earthwork | 90 | 27-09-2016 |
| 42 | Construction of earth roads, gravel roads, water bound macadam roadsBituminous pavements and construction of cement concrete pavements | 92 | 28-09-2016 |
| 43 | Pavement failures, maintenance of highwaysPavement evaluation, strengthing of existing pavements | 94 | 30-09-2016 |
| 44 | **Assignment on unit-VI** | 96 | 30-09-2016 |
| 45 | **Revision and preparation for II mid** | 102 | 03-10-2016 to 07-10-2016 |

**Text books:**

1. ‘Highway engineering’ by Khanna S.K., Justo C.E.G and veeraragavan A, NEM Chand Bros, Roorkee.
2. ‘Traffic engineering and transportation planning’ by kadiyali L.R, Khanna Publishers, New Delhi.
3. ‘Highway engineering’ by Srinivas kumar R, universities press, Hyderabad.

**References:**

1. ‘Transportation engineering and planning’ by papacoastas C.S. and D Prevedouros, prentice Hall of India pvt. Ltd; New Delhi
2. ‘Principles of highway engineering’ by kadiyali LR, Khanna publishers, New Delhi.
3. ‘Transportation engineering-a n introduction’ by jotin Khisty c prentice hall, Englewood cliffs ,New Jersey.
4. ‘Highway engineering’ by paul H. wright and Karen K Dixon, wiley student edition , Wiley India(p) Ltd., New Delhi.
5. ‘Principles of transportation engineering’ by partha chakraborthy and Animesh das, PHI learning private limited , New Delhi.
6. ‘Practice and design of highway engineering’ by Sharma Sk, principles, s.Chand & company private limited, New Delhi.

**FACULTY HOD**