**Usha Rama College of Engineering and Technology**

**Department of Civil Engineering**

**LESSION PLAN**

Sub: **Structural Analysis-II** Year: III Semester: I

|  |  |  |  |
| --- | --- | --- | --- |
| **Sl.No.** | **Topic to be covered** | **Cumulative**  **Periods** | **Dates** |
|  | **UNIT I(14)** |  |  |
| 1 | **Three hinged arches**: Introduction  Elastic theory of arches | 1-2 | 15-06-2016 |
| 2 | Eddy’s theorem  Determination of horizontal thrust | 3-4 | 16-06-2016 |
| 3 | Bending moment  normal thrust ,radial shear | 5-6 | 17-06-2016 |
| 4 | effect of temperature  **Two hinged arches**: Determination of horizontal thrust | 7-8 | 22-06-2016 |
| 5 | bending moment  normal thrust | 9-10 | 23-06-2016 |
| 6 | radial shear  Rib shortening and temperature stresses | 11-12 | 24-06-2016 |
| 7 | tied arches, fixed arches(no analytical question) | 13 | 29-06-2016 |
| 8 | ***Assignment test on Unit-I*** | **14** |
|  | **UNIT II (10)** |  |  |
| 9 | **Lateral load analysis using approximate methods:** Introduction  Application to building frames | 15-16 | 30-06-2016 |
| 10 | Examples | 17-18 | 01-07-2016 |
| 11 | Portal method  Examples | 19-20 | 06-07-2016 |
| 12 | Cantilever method | 21-22 | 08-07-2016 |
| 13 | Examples | 23  24 | 13-07-2016 |
| 14 | ***Assignment test on Unit-II*** |
|  | **UNIT III(22)** |  |  |
| 15 | **Cable structures and Suspension bridges:** Introduction | 25-26 | 14-07-2016 |
| 16 | characteristics of cable | 27-28 | 15-07-2016 |
| 17 | analysis of cables subjected to concentrated loads  Example | 29-30 | 20-07-2016 |
| 18 | analysis of cables subjected to uniformly distributed loads  Example | 31-32 | 20-07-2016 |
| 19 | 33-34 | 21-07-2016 |
| 20 | Anchor cable  Example | 35-36 | 22-07-2016 |
| 21 | temperature stresses  analysis of simple suspension bridge | 37-38 | 27-07-2016 |
| 22 | three hinged stiffening girdersuspension bridges | 39-40 | 29-07-2016 |
| 23 | two hinged stiffening girdersuspension bridges | 41 | 03-08-2016 |
| 24 | ***Assignment test on Unit-III*** | **42** | 03-08-2016 |
| 25 | ***Revision before 1st mid: 4 periods***  ***(1st mid: 08-08-2016 to 13-08-2016)*** | 43-46 | 04-08-2016  05-08-2016 |
|  | **UNIT IV(12)** |  |  |
| 26 | **Moment Distribution method** : Introduction  Stiffness | 47-48 | **17-08-2016** |
| 27 | carry over factors  Distribution factors | 49-50 | 19-08-2016 |
| 28 | Analysis of continuous beams | 51-52 | **24-08-2016** |
| 29 | Analysis of continuous beams with sinking of supports | 53-54 | 26-08-2016 |
| 30 | Example  portal frames | 55-56 | 31-08-2016 |
| 31 | Example  portal frames withsway | 57-58 | 01-09-2016 |
| 32 | Substitute frame analysis by two cycle | 59-60 | 02-09-2016 |
| 33 | ***Assignment test on Unit-IV*** | 61-62 | 07-09-2016 |
|  | **UNIT V(12)** |  |  |
| 34 | **UNIT – V Kani’s Method:** Introduction  Method explanation | 63-64 | 08-09-2016 |
| 35 | Analysis of continuous beams  Example | 65-66 | 09-09-2016 |
| 36 | Analysis of continuous beams  Example | 67-68 | 14-09-2016 |
| 37 | Analysis of continuous beams including settlement of supports  Example | 69-70 | 15-09-2016 |
| 38 | single bay portal frames without side sway  Example | 71-72 | **16-09-2016** |
| 39 | single bay portal frames with and with side sway | 73-74 | 21-09-2016 |
| 40 | ***Assignment test on Unit-V*** | 75-76 |
|  | **UNIT VI(16)** |  |  |
| 41 | **UNI – VI Flexibility methods**: Introduction  Flexibility matrix | 77-78 | 22-09-2016 |
| 42 | Flexibility Method  application to continuous beams | 79-80 | 23-09-2016 |
| 43 | application to continuous beams including support settlements  application to continuous beams | 81-82 | 28-09-2016 |
| 44 | **Stiffness method**: Introduction | 83-84 | 29-09-2016 |
| Stiffness matrix |
| 45 | Stiffness Method | 85-86 | 30-09-2016 |
| application to continuous beams |
| 46  47 | application to continuous beams including support settlements | 87-88 | 05-10-2016 |
| application to continuous beams |
| 48 | ***Assignment test on Unit-VI*** |
| 49 | ***Revision before 2nd mid: 4 periods***  ***(2nd mid: 10-10-2016to 15-10-2016)*** | 89-92 | 06-10-2016  07-10-2016 |

**TEXT BOOKS:**

1. ‘Structural Analysis’ by T.S.Thandavamoorthy, Oxford universitypress, India.

2. ‘Structural Analysis’ by R.C. Hibbeler, Pearson Education, India

3. ‘Theory of Structures – II’ by B.C.Punmia, Jain & Jain, LaxmiPublications, India.

4. ‘Structural Analysis’ by C.S. Reddy, Tata Mc-Graw hill, New Delhi.

**REFERENCES:**

1. ‘Intermediate Structural Analysis’ by C. K. Wang, Tata McGraw Hill,India.

2. ‘Theory of structures’ by Ramamuratam, Dhanpatrai Publications.

3. ‘Analysis of structures’ by Vazrani&Ratwani – Khanna Publications.

4. ‘Comprehensive Structural Analysis-Vol.I&2’ by Dr. R. Vaidyanathan&Dr. P. Perumal-

Laxmi Publications Pvt. Ltd., New Delhi.

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