

**Trail Bridge
EG 3206 CE
(Elective)**

Year: III
Semester: II

Total: 3 Hrs. /week
Lecture: 3 Hr./week
Tutorial: Hr./week
Practical: 3 Hrs./week
Lab: Hr./week

Course Description:

The course provides fundamental theoretical background for survey, design, cost estimates, construction and maintenance of trail bridges. The course focuses on survey, design and construction of Trail Bridges.

Course Objectives:

After completion of this course students will be able to:

1. Identify components of trail bridges;
2. Select appropriate bridge site and survey;
3. Perform design of a trail bridge;
4. Prepare standard drawings and quantity estimate;
5. Construct/supervise a trail bridge and
6. Explain trail bridge maintenance and site investigation works.

Course Contents:

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| Unit 1: Introduction | [2 Hrs.] |
| <ul style="list-style-type: none">1.1 Trail bridge in Nepal1.2 Classification and standards of trail bridges1.3 Trail bridge components | |
| Unit 2: Bridge Site Selection and Survey | [7 Hrs.] |
| <ul style="list-style-type: none">2.1 Collection of essential data2.2 Socio-economic survey2.3 Bridge site selection2.4 Topographic study and engineering survey | |
| Unit 3: Design of Trail Bridges | [18 Hrs.] |
| <ul style="list-style-type: none">3.1 Basic design concept and design procedure3.2 Cable<ul style="list-style-type: none">3.2.1 Introduction to cable and its specification3.2.2 Cable geometry and its analytical presentation3.2.3 Cable design3.3 Design of cable anchorages3.4 Standard tower selection3.5 Design of walkway, suspenders/hangers | |
| Unit 4: Bridge Standard Drawings | [4 Hrs.] |
| <ul style="list-style-type: none">4.1 Construction drawings4.2 Steel parts drawings | |
| Unit 5: Estimating and Costing | [3 Hrs.] |
| <ul style="list-style-type: none">5.1. Quantity calculation of different bridge components | |

5.2. Rate analysis and Costing of different bridge components

Unit 6: Construction of Trail Bridges

[9 Hrs.]

- 6.1 Construction planning
- 6.2 Setting out of the bridge
- 6.3 Excavation works
- 6.4 Cement works
- 6.5 Transportation, handling and hoisting of cable
- 6.6 Fabrication / erection / construction of bridges

Unit 7: Bridge Maintenance

[2 Hrs.]

- 7.1. Introduction
- 7.2. Classification
- 7.3. Bridge condition investigation

References:

- 1. **Trail Suspension Bridges** (Course Manual), SBD, DOR & IOE.
- 2. **Short-span Trail Bridge Standard**, Technical Handbook, Trail Bridge Section, GoN.
- 3. **Survey, Design and Construction of Trail Suspension Bridges for Remote Areas**
Volume A: **Design**, F. Grob, J. Krähenbühl, A. Wagner.
Volume B: **Survey**, J. Krähenbühl, A. Wagner.
Volume C: **Standard Design Drawings**, C. B. Basnet, J. Krähenbühl.
Volume D: **Execution of Construction Works**, D. Panciotto.
Volume E: **Costing and Contracting**, J. Krähenbühl.