BHUBANANANDA ODISHA SCHOOL OF ENGINEERING, CUTTACK

DEPARTMENT OF CIVIL ENGINEERING



LESSON PLAN

|  |  |
| --- | --- |
| SUBJECT: GEOTECHNICAL ENGG. (TH 2) | ACCADEMIC SESSION: 2021-22 |
| FACULTY: SRI KANITPALAKIA | SEMESTER: 3 RD |
|  | SEC: C |

|  |
| --- |
| Sd/- |
| H O D (Civil Engg.) |

|  |  |  |  |
| --- | --- | --- | --- |
| Discipline:  Civil Engineering | Semester:  3rd | | Name of the teaching faculty:  **Sri KanitPalakia** |
| Subject:  **Geotechnical Engg.** | No of days per week class allotted: **04 periods/week**  **(Wed, Thu, Fri and sat-1 period each)** | | Semester : From date: 01-10-2021 to date : 08-01-2022  No of weeks: 14 weeks |
| Week | Class Day | No of period available | Theory/Practical topic |
| 1st | 01-10-2021 | 1 | 1.1 Soil and Soil Engineering  1.2 Scope of Soil Mechanics |
| 2nd | 07-10-2021 | 1 | 1.3 Origin and formation of soil |
| 08-10-2021 | 1 | 2.1 Soil as a three Phase system |
| 09-10-2021 | 1 | 2.2 Water Content, Density, Specific gravity |
| 3rd | 21-10-2021 | 1 | 2.2 Voids ratio, Porosity, Percentage of air voids, air content, degree of saturation |
| 22-10-2021 | 1 | 2.2 density Index, Bulk/Saturated/dry/submerged density, Interrelationship of various soil parameters |
| 23-10-2021 | 1 | Problem solving of 2ndchapter |
| 4th | 27-10-2021 | 1 | Monthly class test |
| 28-10-2021 | 1 | 3.1 Water Content  3.2 Specific Gravity |
| 29-10-2021 | 1 | 3.3 Particle size distribution: Sieve analysis |
| 30-10-2021 | 1 | 3.3 wet mechanical analysis, particle size distribution curve and its uses |
| 5th | 03-11-2021 | 1 | 3.4 Consistency of Soils, Atterberg’s Limits |
| 05-11-2021 | 1 | 3.4 Plasticity Index, Consistency Index , Liquidity Index, Indices |
| 06-11-2021 | 1 | Problems solving on chapter 3 |
| 6th | 10-11-2021 | 1 | 4.1 General  4.2 I.S. Classification, Plasticity chart |
| 11-11-2021 | 1 | Problems solving on chapter 4 |
| 12-11-2021 | 1 | Problems solving on chapter 4 |
| 13-11-2021 | 1 | Exam on Chapter 1, 2,3,4 |
| 7th | 17-11-2021 | 1 | 5.1 Concept of Permeability |
| 18-11-2021 | 1 | 5.1 Darcy’s Law, Co-efficient of Permeability |
| 20-11-2021 | 1 | 5.2 Factors affecting Permeability |
| 8th | 24-11-2021 | 1 | 5.3 Constant head permeability and falling head permeability Test |
| 25-11-2021 | 1 | 5.4 Seepage pressure , effective stress, phenomenon of quick sand |
| 26-11-2021 | 1 | Monthly class test |
| 27-11-2021 | 1 | 6.1 Compaction: Compaction, Light and heavy compaction Test |
| 9th | 01-12-2021 | 1 | Internal assessment |
| 02-12-2021 | 1 | Internal assessment |
| 03-12-2021 | 1 | Internal assessment |
| 04-12-2021 | 1 | 6.1 Optimum Moisture Content of Soil, Maximum dry density, Zero air void line  6.1 Factors affecting Compaction |
| 10th | 08-12-2021 | 1 | 6.1 Field compaction methods and their suitability  6.2 Consolidation: Consolidation |
| 09-12-2021 | 1 | 6.2 distinction between compaction and consolidation. |
| 10-12-2021 | 1 | 6.2 Terzaghi‘s model analogy of compression/ springs showing the process of consolidation – field implications |
| 11-12-2021 | 1 | 6.2 Terzaghi‘s model analogy of compression/ springs showing the process of consolidation – field implications |
| 11th | 15-12-2021 | 1 | Problems solving on chapter 6 |
| 16-12-2021 | 1 | 7.1 Concept of shear strength |
| 17-12-2021 | 1 | 7.1 Mohr- Coulomb failure theory, Cohesion, Angle of internal friction. |
| 18-12-2021 | 1 | 7.1 strength envelope for different type of soil. |
| 12th | 22-12-2021 | 1 | 7.1 Measurement of shear strength- Direct shear test, triaxial shear test. |
| 23-12-2021 | 1 | 7.1 unconfined compression test and vane-shear test. |
| 24-12-2021 | 1 | Problems on chapter 7 |
| 13th | 29-12-2021 | 1 | Problems on chapter 7 |
| 30-12-2021 | 1 | Monthly class test |
| 31-12-2021 | 1 | 8.1 Active earth pressure, Passive earth pressure, Earth pressure at rest. |
| 14th | 05-01-2022 | 1 | 8.2 Use of Rankine’s formula for the following cases (cohesion-less soil only)  (i) Backfill with no surcharge (ii) backfill with uniform surcharge |
| 06-01-2022 | 1 | 9.1 Functions of foundations, shallow and deep foundation, different type of shallow and deep foundations with sketches.Types of failure (General shear, Local shear & punching shear) |
| 07-01-2022 | 1 | 9.2 Bearing capacity of soil, bearing capacity of soils using Terzaghi’s formulae & IS Code formulae for strip, Circular and square footings. Effect water table on bearing capacity of soil.  9.3 Plate load test and standard penetration test. |
| 08-01-2022 | 1 | Problems on Chapter 9 |