

LESSON PLAN-2024(W)

Discipline: Civil Engineering
 Subject: Geotechnical Engineering
 Semester-3rd

Name of The Teaching Faculty: Jyotirmayee Samal

Semester From Date: 1.7.2024 To Date 8.11.2024

No. Of Weeks: 18 4P/WEEK

No. of Days/week class allotted: 04
 period per week (Monday, Tuesday, Wednesday & Saturday- 1 Period each)

TOTAL PERIOD-60

| MONTH | WEEK | DATE | DAYS/P ERIOD | SYLLABUS TO BE COVERED | NOS. OF PERIODS | |
|---|------|---|------------------|---|---|---|
| J u l y | 1st | 1.7.2024 | Mon | 1: INTRODUCTION (2P) 1.1- Soil and Soil Engineering. Scope of Soil Mechanics. 1.2- | 1 | |
| | | 2.7.2024 | Tues | 1.3 Origin and formation of soil | 1 | |
| | | 2: PRELIMINARY DEFINITIONS AND RELATIONSHIP (6P) | | | | |
| | | 3.7.2024 | Wed | 2.1 Soil as a three Phase system. | 1 | |
| | | 6.7.2024 | Sat | 2.2 Water Content, Density, Specific gravity, Voids ratio, Porosity, Percentage of air voids, air content, | 1 | |
| | | 2nd | 8.7.2024 | Mon | Degree of saturation, density Index, Bulk/Saturated/dry/submerged density, Interrelationship of various soil parameters | 1 |
| | | | 9.7.2024 | Tues | Numerical problems | 1 |
| | | | 10.7.2024 | Wed | Numerical problems | 1 |
| | | | 13.7.2024 | Sat | Numerical problems | 1 |
| | | 3. INDEX PROPERTIES OF SOIL (4P) | | | | |
| | 3rd | 15.7.2024 | Mon | 3.1- Water Content | 1 | |
| | | 16.7.2024 | Tues | 3.2- Specific Gravity | 1 | |
| | | 20.7.2024 | Sat | 3.3- Particle size distribution, Sieve analysis, wet mechanical analysis, particle size distribution curve and its uses | 1 | |
| | 4th | 22.7.2024 | Mon | 3.4 – Consistency of Soils, Atterberg’s Limits, Plasticity Index, Consistency Index, Liquidity Index | 1 | |
| | | 4. CLASSIFICATION OF SOIL. (6P) | | | | |
| | | 23.7.2024 | Tues | 4.1- General. Classification | 1 | |
| | | 24.7.2024 | Wed | 4.1- General. Classification | 1 | |
| | | 27.7.2024 | Sat | 4.2 I.S. Classification, | 1 | |
| | | 5th | 29.7.2024 | Mon | 4.2 I.S. Classification | 1 |
| | | | 30.7.2024 | Tues | Plasticity chart | 1 |
| 31.7.2024 | Wed | | Plasticity chart | 1 | | |
| 5 .PERMEABILITY AND SEEPAGE (7P) | | | | | | |

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| A u g u s t | 1st | 3.8.2024 | Sat | 5.1- Concept of Permeability, Darcy's Law, Co-efficient of Permeability, | |
| | | 5.8.2024 | Mon | 5.1- Concept of Permeability, Darcy's Law, Co-efficient of Permeability, | |
| | 2nd | 6.8.2024 | Tues | 5.2- Factors affecting Permeability. | 1 |
| | | 7.8.2024 | Wed | 5.3- Constant head permeability | 1 |
| | | 10.8.2024 | Sat | 5.3-falling head permeability Test. | 1 |
| | 3rd | 12.8.2024 | Mon | 5.4- Seepage pressure, Phenomenon of quick sand | 1 |
| | | 13.8.2024 | Tues | 5.4- Seepage pressure, Phenomenon of quick sand | 1 |
| | | | | 6 .COMPACTION AND CONSOLIDATION(8P) | |
| | | 14.8.2024 | Wed | 6.1- Compaction, Light and heavy compaction Test, | 1 |
| | | 14.8.2024 | Wed | Optimum Moisture Content of Soil, Maximum dry density, Zero air void line | 1 |
| | | 17.8.2024 | Sat | Factors affecting Compaction, Field compaction methods and their suitability | 1 |
| | 4th | 20.8.2024 | Tues | numericals | 1 |
| | | 21.8.2024 | Wed | 6.2- Consolidation, distinction between compaction and consolidation. | 1 |
| 24.8.2024 | | Sat | 6.2- Consolidation, distinction between compaction and consolidation. | 1 | |
| 5th | 27.8.2024 | Tues | Terzaghi's model analogy of compression/ springs showing the process of consolidation | 1 | |
| | 28.8.2024 | Wed | Terzaghi's model analogy of compression/ springs showing the process of consolidation | 1 | |
| | 31.8.2024 | Sat | 6.5- Terzaghi's model analogy of compression/ springs showing the process of consolidation – field implications | 1 | |
| | | | 7 SHEAR STRENGTH (6P) | | |
| S e p | 1st | 2.9.2024 | Mon | 7.1- Concept of shear strength | 1 |
| | | 3.9.2024 | Tues | Mohr- Coulomb failure theory, Cohesion | 1 |
| | | 4.9.2024 | Wed | Angle of internal friction, strength envelope for different type of soil | 1 |
| | | 7.9.2024 | Sat | 7.2- Measurement of shear strength;- Direct shear test | 1 |
| | 2nd | 9.9.2024 | Mon | Triaxial shear test | 1 |
| | | 10.9.2024 | Tues | Unconfined compression test and vane-shear test | 1 |
| | | | | 8 EARTH PRESSURE ON RETAINING STRUCTURES. (7P) | |
| | | 11.9.2024 | Wed | 8.1- Active earth pressure, | 1 |
| | | 14.9.2024 | Sat | Passive earth pressure, Earth pressure at rest. | 1 |

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| September | 3rd | 17.9.2024 | Tues | 8.2- Use of Rankine's formula for the following cases (cohesion-less soil only) | 1 |
| | | 18.9.2024 | Wed | NUMERICAL PROBLEMS | 1 |
| | | 21.9.2024 | Sat | NUMERICAL PROBLEMS | 1 |
| | 4th | 23.9.2024 | Mon | (i) Backfill with no surcharge, (ii) backfill with uniform surcharge | 1 |
| | | 24.9.2024 | Tues | NUMERICAL PROBLEMS | 1 |
| | | | 9 FOUNDATION ENGINEERING.(14) | | |
| 25.9.2024 | | Wed | 9.1- Functions of foundations, shallow and deep foundation, | 1 | |
| | 28.9.2024 | Sat | 9.1- Functions of foundations, shallow and deep foundation, | | |
| 5th | 30.9.2024 | Mon | Different type of shallow foundations with sketches. | 1 | |
| October | 1st | 1.10.2024 | Tues | Different type of deep foundations with sketches. | 1 |
| | | 5.10.2024 | Sat | Types of failure (General shear, Local shear & punching shear) | 1 |
| | 3rd | 15.10.2024 | Tues | 9.2- Bearing capacity of soil, | 1 |
| | | 19.10.2024 | Sat | Bearing capacity of soils using Terzaghi's formulae | |
| | 4th | 21.10.2024 | Mon | Bearing capacity of soils using Terzaghi's formulae | 1 |
| | | 22.10.2024 | Tues | IS Code formulae for strip, Circular and square footings. | 1 |
| | | 23.10.2024 | Wed | Effect water table on bearing capacity of soil | 1 |
| | | 26.10.2024 | Sat | Effect water table on bearing capacity of soil | |
| | | 28.10.2024 | Mon | Effect water table on bearing capacity of soil | |
| | 5th | 29.10.2024 | Tues | 9.3 Plate load test | 1 |
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| November | 1st | 02.11.2024 | Sat | 9.3 Plate load test | 1 |
| | 2nd | 04.11.2024 | Mon | Standard penetration test | 1 |
| | | 05.11.2024 | Tues | Standard penetration test | 1 |
| | | 06.11.2024 | Wed | DOUBT CLEARING CLASS | 1 |
| | | 09.11.2024 | Sat | DOUBT CLEARING CLASS | 1 |