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| Dicipline: | civil | Semester: 3 rd | Name of the Teaching Faculty | UmaKanta Pradhari |
| Subject: | Geotechnical Engineering | No of Days/Week Class Allotted: 4 | Semester From date: 15.09.22, To date 17/10/22 | No. of Weeks: |

| WEEK | Class Day | Theory Topics |
|---|-----------------|--|
| 1 st 15.09.22 to 17.09.22 | 1 st | Introduction - soil Engineering. |
| | 2 nd | scope of soil mechanics |
| | 3 rd | origin and formation of soil |
| | 4 th | |
| | 5 th | |
| 2 nd 19.09.22 to 24.09.22 | 1 st | Preliminary definitions & relationship - three phase system |
| | 2 nd | Day ⁿ - Water content, Density, Specific gravity, void ratio & their relation |
| | 3 rd | Porosity, Percentage of air void, air content, degree of saturation |
| | 4 th | Density index, Bulk / saturated / dry / submerged density. |
| | 5 th | |
| 3 rd 26.09.22 to 01.10.22 | 1 st | Inter relationship of various soil parameter |
| | 2 nd | Problems Practice |
| | 3 rd | Index properties of soil. |
| | 4 th | water content, specific gravity. |
| | 5 th | |

| WEEK | Class Day | Theory Topics |
|-----------------------------------|-----------|--|
| 4th 10-10-22 to 15-10-22 | 1st | Particle size distribution: sieve analysis |
| | 2nd | Wet mechanical analysis, Particle size distribution curve and its uses |
| | 3rd | consistency of soils, Atterberg limits |
| | 4th | Problems |
| | 5th | |
| 5th 17-10-22 to 22-10-22 | 1st | Classification of soil - General |
| | 2nd | I.S classification |
| | 3rd | Plasticity chart |
| | 4th | Revision class |
| | 5th | |
| 6th 24-10-22 to 29-10-22 | 1st | Permeability - Introduction, Concept of permeability. |
| | 2nd | Darcy's law, Co-efficient of Permeability |
| | 3rd | Factor affecting permeability. |
| | 4th | Test on Permeability - Constant head & falling head. |
| | 5th | Problems on Permeability |

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| Discipline: | Semester: | Name of the Teaching Faculty: <i>Pratibha Phuyon</i> | |
| Subject: | No of Days/Week Class Allotted: _____ | Semester From date: _____ To date: _____ | No. of Weeks: |

| WEEK | Class Day | Theory Topics |
|---|-----------|--|
| <i>7th</i> <i>31.10.22</i> <i>to</i> <i>05.11.22</i> | 1st | Problem Practice on Permeability. |
| | 2nd | Def ⁿ . Seepage, seepage pressure |
| | 3rd | Effective stress phenomenon & Problems |
| | 4th | Quick sand cond ⁿ & Problem Practice. |
| | 5th | |
| <i>8th</i> <i>07.11.22</i> <i>to</i> <i>12.11.22</i> | 1st | Compaction- Introduction, Def ⁿ , Light & heavy comp ⁿ test. |
| | 2nd | Optimum moisture content of soil, |
| | 3rd | Max ^m dry density, Zero air void line diagrams |
| | 4th | Factor affecting compaction, |
| | 5th | |
| <i>9th</i> <i>14.11.22</i> <i>to</i> <i>19.11.22</i> | 1st | Field compaction methods & their suitability. |
| | 2nd | Consolidation - Def ⁿ , distinction bet ⁿ comp ⁿ & consolida ⁿ |
| | 3rd | Terzaghi's model analogy of compression |
| | 4th | The Process of consolidation - Field implicat ⁿ |
| | 5th | |

| WEEK | Class Day | Theory Topics |
|------------------------------------|-----------|--|
| 10th 21.11.22 to 26.11.22 | 1st | Shear strength - concept of shear strength |
| | 2nd | Mohr - coulomb failure theory, cohesion |
| | 3rd | Angle of internal friction, strength envelope for different type of soil. |
| | 4th | Measurement of shear strength - Direct shear test, |
| | 5th | |
| 11th 28.11.22 to 03.12.22 | 1st | Triaxial shear test, unconfined compression test. |
| | 2nd | Ver. shear test |
| | 3rd | Shear strength Problems |
| | 4th | Problem Practice & Doubt clearing class |
| | 5th | |
| 12th 05.12.22 to 10.12.22 | 1st | Earth Pressure - Active & Passive |
| | 2nd | Earth Pressure at rest & Derivating |
| | 3rd | Problems |
| | 4th | Use of Rankine's Formula, Problems on backfill with no surcharge, with uniform surcharge |
| | 5th | |

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| Discipline: | Semester: | Name of the Course: |
| Subject: | No of Days/Week Class Allotted: _____ | To _____ No. of Weeks: _____ |

| WEEK | Class Day | Topic |
|------------------------------------|-----------|--|
| 13th 12.12.22 to 17.12.22 | 1st | Foundation engineering - Introduction & uses |
| | 2nd | Function of foundation engs, shallow & deep foundation. |
| | 3rd | Different types of shallow & deep with sketches Types of failure - General shear & local. |
| | 4th | Punching shear failure, bearing capacity of soil - using Terzaghi formula. |
| | 5th | |
| 14th 19.12.22 to 24.12.22 | 1st | IS code formula for strip, circular, problems, square. |
| | 2nd | Effect of water table on bearing capacity of soil. |
| | 3rd | Test on bearing capacity of soil - Plate load test. |
| | 4th | Derivation on plate load test. Problem |
| | 5th | |
| 15th | 1st | Standard penetration test derivation |
| | 2nd | Problems |
| | 3rd | Differentiate bet ⁿ plate load test and standard p. test |
| | 4th | Problems. |
| | 5th | |

13/12/22

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13/12/22