**Subject: PE/CE/13-T IRRIGATION ENGINEERING Sem: 6th**

|  |  |  |
| --- | --- | --- |
| **Week****1st** | **Theory** | **Topic Covered Date and Remarks** |
| **Lecture- Day** | **Topic (Including Assignment/Test)** | **Date** | **HOD** | **Director- Principal** |
| 1 | **Introduction:** Irrigation-necessity, advantages, disadvantages, impact of irrigation on human environment |  |  |  |
| 2 | Need and development of irrigation in India, crops and crop seasons, ideal cropping pattern and high yielding varieties of crops. |  |  |  |
| 3 | **Soil-water Introduction relationship and irrigation methods:** Soil-water relationship, root zone soil water, infiltration, consumptive use, field capacity, wilting point, available moisture in soil |  |  |  |
|  2nd | 4 | Intensity of irrigation, delta, base period, Kor depth, core period, frequency of irrigation, duty of water, relation between delta, duty and base period |  |  |  |
| 5 | Irrigation requirement, flooding methods, border strip method, check basin and furrow method, assessment of irrigation water, sprinkler irrigation, favorable conditions, |  |  |  |
| 6 | Sprinkler systems, hydraulics of sprinkler irrigation, planning, design and maintenance of sprinkler systems,  |  |  |  |
| 3rd | 7 | Drip irrigation- components parts, advantages and limitations, suitability of drip irrig |  |  |  |
| 8 | **Canal irrigation:** Component of canal distribution system, alignment of channels |  |  |  |
| 9 | Losses in irrigation channels, design discharge |  |  |  |
| 4th | 10 | Silt theories and design of alluvial channels |  |  |  |
| 11 | Comparison of Kennedy's and Lacey's theories |  |  |  |
| 12 | Canal section and design procedure |  |  |  |
| 5th | 13 | Garrets and Lacey's diagrams |  |  |  |
| 14 | **Water logging and land reclamation:** Water logging-effects, |  |  |  |
| 15 | Causes and measures of prevention, |  |  |  |
| 6th | 16 | Lining of irrigation channels |  |  |  |
| 17 | Types of lining |  |  |  |
| 18 | Design of lined channel land drainage, open drains, |  |  |  |
| 7th |  |  **1st Minor Test** |  |
| 8th | 19 | Design of lined channel land drainage, open drains, |  |  |  |
| 20 | Design considerations |  |  |  |
| 21 | Advantages of tile drains |  |  |  |
| 9th | 22 | Depth of tile drains |  |  |  |
| 23 | Layout of closed drains |  |  |  |
| 24 | Spacing of closed drains |  |  |  |
| 10th | 25 | Diameter of tile drain |  |  |  |
| 26 | Outlets for tile drains |  |  |  |
| 27 | Maintenance of tile drains |  |  |  |
| 11th | 28 | Purpose of land reclamation |  |  |  |
| 29 | Methods of land reclamation |  |  |  |
| 30 | **River Training:** Classification of rivers, |  |  |  |
| 12th | 31 | River training and its objectives |  |  |  |
| 32 | Classification of river training works |  |  |  |
| 33 | Methods of river training |  |  |  |
| 13th | 34 | Marginal embankments, guide-banks, spurs, cutoffs, |  |  |  |
| 35 | Bank pitching and launching apron. |  |  |  |
| 36 | **Canal outlets:** Classification, requirements of a good outlet, design of pipe |  |  |  |
| 14th |  **2nd Minor Test** |  |
| 15th | 37 | **Canal outlets:** Classification, requirements of a good outlet, design of pipe  |  |  |  |
| 38 | APM and open flume outlet, flexibility proportionality |  |  |  |
| 39 | Setting and sensitivity of outlet |  |  |  |