TYBA
Annexure-II

Structure/Pattern of Syllabus must be as follows:

1) Title of the Course: Soil Conservation & Water Management (Vocational)

2) Introduction: Pattern- Annual

3) Eligibility: Should have offered Soil Conservation & Water Management (Vocational) at S.Y.B.A. & passed as per University rules

4) Examination
   A) Pattern of examination
      i) 80-20 University annual examination of 80 marks & Internal assessment of 20 marks. Details as per syllabus
      ii) Pattern of the question paper- As per specimen given
   B) Standard of Passing: As per University norms
   C) ATKT Rules: As per University norms
   D) Award of Class: As per University norms
   E) External Students: Not allowed
   F) Setting of Question paper/ Pattern of Question paper: As per University norms
   G) Verification of Revaluation: As per University norms

5) Structure of the Course:
   i) Optional
   ii) Medium of instruction: English

6) Equivalence subject/papers & Transitory Provision: Soil Conservation & Water Management (Vocational)

7) University terms: As per University norms

8) Subject wise Detail Syllabus: Attached

9) Recommended books: Mentioned in the syllabus
Paper V Soil Conservation & Water Management (Vocational)

Soil Conservation III

Chapter I  Soil Conservation Survey:
   i) Soil survey-Soil variability, destination of soil survey, importance fundamental and applied ...........(2)
   ii) Types of soil survey, soil mapping unit & soil survey interpretation, soil survey report. ........................................... (3)

Chapter II  Waste Land Management:
   i) Definition of wasteland, causes of wasteland, need for wasteland management .................................................... (1)
   ii) Methods of wasteland management - Establishment of vegetation, selection of plant species, use of fertilizers, improvement of vegetative composition orangepasture. .................................................. (2)

Chapter III  Land Use Capability Classification:
   Definition of Land capability classification, land use land capability classification & their use. ........................................... (2)

Chapter IV  Causes & Improvement Of Degraded Soil:
   i) Release of salts from rocks & minerals, composition of rain water, river water, canal or reservoir water and sea water. .................................................. (2)
   ii) Properties of different salts - Chlorides, carbonates, sulphates, bicarbonates & nitrates of calcium, magnesium, sodium & potassium. .................................................. (1)
   iii) Role of soil slope, minerals, quality of irrigation water, climate and vegetation cover on salinity & alkalinity of soil. .................................................. (2)
   iv) Reclamation of saline & sodic soils. .................................................. (1)

Chapter V  Soil Loss Measurement:
   i) Soil losses due to erosion & extent of erosion - water and wind erosion. .................................................. (1)
   ii) Estimation of soil losses - universal soil loss equation, causes of soil loss-soil erodability, rain fall erosivity, estimation of soil losses by wind erosion. .................................................. (2)

Chapter VI  Development Of Cropping For Soil & Water Conservation:
   Strip cropping, mix cropping, crop rotation & cover crops. .................................................. (2)

Chapter VII  Watershed Management:
   i) Definition of watershed, morphological characteristics of watershed, classification of watershed, sequence of events in planning, planning & designing of structure & other activities, excution of activities, evaluation of work. .................................................. (08)
ii) Concept of watershed management - Principle of watershed management, objectives, steps, basic information & development of components - components of watershed management
iii) Soil water conservation - measures of soil conservation
iv) Water harvesting-rain water harvesting
v) Crop management - cropping pattern
vi) Alternate land use - Agro forestry & types of agro forestry

References :
1) Soil survey manual - All India soil & land use survey organization. IARI New Delhi - 110 012.
3) Soil & water conservation engineering by Schwab, Fravert Edminster & Barnes John Wiley and Sons Publication.
4) Soil conservation in India I.C.A.R. New Delhi, Ramarao, M.S.V. - 1962.

TYBA - Soil Conservation - Practicals : 

1) Study of soil survey equipments.
2) Preparation of soil survey report
3) Determination of runoff from the watershed.
4) Estimation of water erosion losses.
5) Estimation of wind erosion losses.
6) Design and layout of contour bunding / graded bunding.
7) Study in situ moisture conservation techniques - Ridges & furrows / broad bed. furrow / dead furrow / tide ridges / scooping / compartmental bunding.
8) Analysis of saturation extract of saline & sodic soils.
9) Determination of Gypsum requirement for acidic soils.
10) Visit to watershed project.
Water Management - III

Chapter I  National & Global water budget, major irrigation project and extent of area. Crops in India & different states. (2)

Chapter II  Role of physical properties in water management - Bulk density, Hydraulic conductivity, Infield ratio, Soil water movement, Soil water potential, Moisture constant, Field capacity, Permanent wilting point, Soil moisture measurement methods. (4)

Chapter III  Soil water plant relationship - evaporation, transpiration & evapotranspiration, consumptive use measurement methods, water uptake & transpiration by plants. (2)

Chapter IV Scheduling of irrigation water, different approaches of scheduling of irrigation water. (2)

Chapter V  Water requirement, crop water requirement, irrigation requirement, Gross & net irrigation requirement, factors affecting water requirement. (2)

Chapter VI  Irrigation water use efficiency - Definition, Types of irrigation water use efficiency, Convence efficiency, Convence application, storage, distribution, crop water use efficiency, field water use efficiency, project efficiency. (4)


Chapter VIII  Fertigation - Concept & importance, advances and limitations, Criteria for fertigation, Fertigation methods. (2)

Chapter IX  Water management for problem soils-Definition, suitable irrigation methods. (1)

Chapter X  Watershed management - Concept, identification & classification, water harvesting & recycling runoff collection, selection of pond site, design of pond, embankment ponds, drainage of excessive water, excavated ponds, watershed planning & management. (6)

References :-
2) Water Shed Management By Dhruvanarayan.
T.Y.B.A. - Water Management - III - Practicals:

2) Measurement of soil-moisture by pressure plate apparatus / Time Domine Reflectometer (Microwave method).
3) Measurement of crop water requirement by Pan evaporation method.
4) Measurement of evapo transpiration by Lysimeter.
5) Estimation of Reference Crop - evapo transpiration by modified Panman method.
6) Estimation of net irrigation requirement & gross irrigation requirement.
7) Estimation of irrigation efficiencies.
8) Determination crop water requirement in drip irrigation / sprinkler irrigation.
9) Determination of electrical conductivity (EC) & PH of irrigation water.
10) Determination of total soluble salts (like Ca, Mg, Na, K) from irrigation water.
11) Determination of HCO3, CO3, Cl & SO4 from irrigation water.
12) Determination of boron from irrigation water.
Paper VI  Entrepreneurship development and Project Report

Entrepreneurship development

Unit I  
- Meaning and Concept of Entrepreneurship Development
- Factors affecting the growth of Entrepreneurship
- Benefits of Being an Entrepreneur
- Qualities of an Entrepreneur
- SWOT Analyses
- Functions of an Entrepreneur

Unit II  
- Promotional steps for starting a Small Scale Industry
- Meaning, definition and types of SSI
- Role of the Government in promoting SSI
- Sources of Information: Practical
- District Industry Centre, MIDC, MS SSI Development Corporation, National Institute of E and Small Business Development (IESBUD), National E Development Board (NEDB), E D Institute of India (EDII), State Industrial Development Bank (SIDBI), MSEB, office of the Charity Commissioner

Unit III  
- Service Industries: meaning, definition and scope,
- process of registration: small scale and service industries
- Similarities and difference between small scale and service industries

Unit IV  
- Techno Economic Feasibility Assessment
  - Primary Project Report
  - Detailed Project Report
  - Techno Economic Feasibility Report

Unit V  
- Personnel Management
- Meaning and Definition
- Recruitment and Selection
- Training

Unit VI  
- Legal Aspects
- Basic Knowledge of Income tax, sales tax, , VAT
- Factory Act and Payment of wages Act, shop act
Unit VII
Motivational Stories of Two Successful Entrepreneurs: Practical: Field work as well as reading biographies/autobiographies.

Practical

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<th>Sr No</th>
<th>Title of the Practical</th>
<th>Objective</th>
<th>Mode</th>
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<tbody>
<tr>
<td>1</td>
<td>Experiences of Entrepreneur</td>
<td>Identification of Entrepreneurial Qualities</td>
<td>Interview</td>
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<td>2</td>
<td>Pitfalls of Entrepreneurship</td>
<td>Problems faced by an Entrepreneur</td>
<td>Interview</td>
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<td>3</td>
<td>Preparation of a project report</td>
<td>Understanding Techno Economic Feasibility Assessment</td>
<td>Project work</td>
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<td>4</td>
<td>Modern Management Techniques</td>
<td>Technique To study/survey the development of an Industry</td>
<td>Visit</td>
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Key Competency Modules
- Managing Professional Challenges
- General and professional Ethics

Evaluation Pattern

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<td>Annual Examination:</td>
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<td>Internal Assessment (Term Work)</td>
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<td>University Theory Paper:</td>
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<tr>
<td>University Practical Exam of Project</td>
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