

SHIVAJI UNIVERSITY, KOLHAPUR



“A⁺⁺” Accredited

by NAAC(2021)

with CGPA 3.52

**Faculty of Interdisciplinary Studies Structure,
Scheme and Syllabus
for Bachelor of Vocation (B.Voc)
Diploma**

CANE AGRICULTURE AND SUGAR TECHNOLOGY Part I- Sem. I & II

(Subject to the modifications that will be made from time to time)
Syllabus to be implemented from 2022-2023 onwards

as per National Education Policy 2020

SHIVAJI UNIVERSITY, KOLHAPUR
PROPOSED STRUCTURE AND SYLLABUS (SEMESTER PATTERN)

Bachelor of Vocation (B.Voc.) Part I Cane Agriculture & Sugar Technology

1. TITLE: B. Voc. Part I (Cane Agriculture & Sugar)
Syllabus (Semester Pattern)

2. YEAR OF IMPLEMENTATION: Syllabus will be implemented from 2022-23

DURATION: B. Voc. Part I, II and III (Three Years)
B. Voc. Part I- Diploma (First Year)
B. Voc. Part II- Advanced Diploma (Second Year)
B. Voc. Part III- Degree (Third Year)

3. PATTERN OF EXAMINATION – Semester Pattern

Theory Examination – At the end of semester as per Shivaji University Rules

Practical Examination –

1. In the 1st, 3rd and 5th semester of B. Voc. There will be internal assessment of practical record, related report submission and project reports.
2. In the second semester of B. Voc. I there will be internal practical examination.
3. In the 4th and 6th semester of B. Voc. There will be external practical examination at the end of the semester.

4. MEDIUM OF INSTRUCTION : English / Marathi

5. STRUCTURE OF COURSE : B. Voc. Part-I, II and III

Two Semester Per Year
Two General Papers per year / semester
Three Vocational Papers per Year /
Semester
Three Practical papers per
Year / Semester
One Project/Industry Visit/Study Tour /Survey

6. SCHEME OF EXAMINATION – A) THEORY –

- The theory examination shall be at the end of each semester.
- All the general theory papers shall carry 40 marks and all the vocational theory papers shall carry 50 marks.
- Evaluation of the performance of the students in theory shall be on the basis of Semester examination as mentioned above.
- Question paper will be set in the view of entire syllabus preferably covering each Unit of the syllabus.
- Nature of question paper for Theory examination (excluding Business Communication paper)

i. There will be seven questions carrying equal

ii. Students will have to solve any five questions.

Q. No. 1 : Short answer type question with internal choice (Two out of Three)

Q. No. 2 to Q. No. 6 : Long answer type questions

Q. No. 7 : Short Notes with internal choice (Two out of Three)

B)PRACTICAL

Evaluation of the performance of the students in practical shall be on the basis of semester examination (Internal assessment at the end of I, III and V Semester and external examination at the end of IV and VI semester as mentioned separately in each paper

STANDARD OF PASSING –

As per the guidelines and rules of B.Voc.

8.STANDARD OF PASSING–

B.Voc PartI (Diploma) Semester– I

| Sr No. | Paper No. | Title | Theory/Practical/ Project | Marks (Total) | Theory | Practical |
|---------------|------------------|--------------------------------------|----------------------------------|----------------------|---------------|------------------|
| 1 | I | BusinessCommuni cation–I | Theory /Practical | 50 | 40 | 10 |
| 2 | II | Sugarcane Agriculture & Soil Science | Theory /Practical | 50 | 40 | 10 |
| 3 | III | Organic Farming | Theory | 50 | 50 | - |
| 4 | IV | Environmental Science | Theory | 50 | 50 | - |
| 5 | V | Sugar Cultivation | Theory | 50 | 50 | - |
| 6 | VI | LaboratoryWork PaperNo.III | Practical | 50 | - | 50 |
| 7 | VII | LaboratoryWork PaperNo.IV | Practical | 50 | - | 50 |
| 8 | VIII | LaboratoryWork PaperNo. V | Practical | 50 | - | 50 |
| 9 | IX | Project | Practical | 50 | - | 50 |

B.Voc. Part I (Diploma) Semester– II

| Sr No. | Paper No. | Title | Theory/Practical/Project | Marks (Total) | Theory | Practical |
|--------|-----------|--|--------------------------|---------------|--------|-----------|
| 10 | X | Business Communication–II | Theory /Practical | 50 | 40 | 10 |
| 11 | XI | Introductory Agro-Metrology & Climate Change | Theory /Practical | 50 | 40 | 10 |
| 12 | XII | Physical & Inorganic Chemistry | Theory | 50 | 50 | - |
| 13 | XIII | Organic & Sugar Chemistry | Theory | 50 | 50 | - |
| 14 | XIV | Organic & Biochemistry | Theory | 50 | 50 | - |
| 15 | XV | LaboratoryWork PaperNo. XII | Practical | 50 | - | 50 |
| 16 | XVI | LaboratoryWork PaperNo. XIII | Practical | 50 | - | 50 |
| 17 | XVII | LaboratoryWork PaperNo.XIV | Practical | 50 | - | 50 |
| 18 | XVIII | Industrial Visit /StudyTour | Practical | 50 | - | 50 |

SCHEME OFTEACHING:**B.Voc. Part I (Diploma) Semester– I**

| Sr No. | Paper No. | Title | Distribution ofworkload | | |
|-----------|--------------|---|-------------------------|-----------|-----------|
| | | | Theory | Practical | Total |
| 1 | I | Business Communication - I | 4 | 2 | 6 |
| 2 | II | Sugarcane Agriculture & Soil Science | 4 | 2 | 6 |
| 3 | III | Organic Farming | 4 | - | 4 |
| 4 | IV | Environmental Science | 4 | - | 4 |
| 5 | V | Sugar Cultivation | 4 | - | 4 |
| 6 | VI | Laboratory Work PaperNo.III | - | 4 | 4 |
| 7 | VII | Laboratory Work Paper No.IV | - | 4 | 4 |
| 8 | VIII | Laboratory Work Paper No. V | - | 4 | 4 |
| 9 | IX | Project | - | - | - |
| | | | 20 | 16 | 36 |

B.Voc. Part I (Diploma) Semester– II

| Sr No. | Paper No. | Title | Distribution of workload | | |
|--------|-----------|--|--------------------------|-----------|-------|
| | | | Theory | Practical | Total |
| 10 | X | Business Communication-II | 4 | 2 | 6 |
| 11 | XI | Introductory Agro-Metrology & Climate Change | 4 | 2 | 6 |
| 12 | XII | Physical & Inorganic Chemistry | 4 | - | 4 |
| 13 | XIII | Organic & Sugar Chemistry | 4 | - | 4 |
| 14 | XIV | Organic & Biochemistry | 4 | - | 4 |
| 15 | XV | Laboratory Work Paper No. XII | - | 4 | 4 |
| 16 | XVI | Laboratory Work Paper No. XIII | - | 4 | 4 |
| 17 | XVII | Laboratory Work PaperNo.XIV | - | 4 | 4 |
| 18 | XVIII | Industrial Visit /Study Tour | - | - | - |
| | | | 20 | 16 | 36 |

Eligibility for Admission : 10 + 2 from any faculty or equivalent Diploma /
Advanced Diploma in any related stream.

Eligibility for Faculty: 1) Diploma in Sugar Technology
2) Bachelor's Degree in Sugar Technology

Eligibility for Lab Assistant: Graduation with related field

Staffing Pattern

Teaching: In the 1st year of B.Voc.–One Full Time one C. H. B. for Business
Communication Lab. Assistant : For 1st Year of B.Voc.– C.H.B
For 2nd and 3rd Year (Inclusive of 1st Year) of B.Voc.–3 Full Time

Paper –I:Business Communication-I

Total Workload :06 lectures per week of 60 mins.

Distribution of Workload:

Theory:04 lectures per week

Practical: 02 lectures per week per batch of 20 students

Units Prescribed for Theory:40

Marks.

Unit 1: Use of English in Business

Environment

Topics:

Business Vocabulary: Vocabulary for banking, marketing and for maintaining public relations

What is a sentence?

Elements of a sentence

Types of sentence:Simple, compound, complex

Unit 2: Writing a Letter of Application and CV/

Resume

Topics:

Structure of a letter of application for various posts
CV/Resume and its essentials

Unit 3: Presenting Information/Data

Topics:

Presenting information/data using graphics like tables, pie charts, tree diagrams, bar diagrams, graphs, flow charts

Unit 4: Interview Technique

Topics:

Dos and don'ts of an interview
Preparing for an interview
Presenting documents
Language used in an interview

Practical:Based on the theory units -10 Marks.

Reference Books:

- Sethi, Anjanee & Bhavana Adhikari. *Business Communication*. New Delhi: Tata McGraw Hill
- Tickoo, Champa & Jaya Sasikumar. *Writing with a Purpose*. New York: OUP, 1979.
- Sonie, Subhash C. *Mastering the Art of Effective Business Communication*. New Delhi: Student
- Aid Publication, 2008.

Herekar, Praksh. *Business Communication*. Pune: Mehta Publications, 2007.

Herekar, Praksh. *Principals of Business Communication*. Pune: Mehta Publications, 2003

Rai, Urmila & S.M. Rai. *Business Communication*. Himalaya Publishing House, 2007.

Pradhan, N.S. *Business Communication*. Mumbai: Himalaya Publishing House, 2005.

Pardeshi, P.C. *Managerial Communication*. Pune: Nirali Prakashan, 2008

Pattern of a Question Paper

Paper I: Business Communication-I Semester-I

Time -2 hours

Total Marks- 40

Q.1 Do as directed. Question items on **Unit 1** to be asked.
10

(10 out of 12)

Q. 2 Write a letter of application.
10

OR

Draft a CV/Resume for a particular post.

Q. 3 Present a given information or data using a table/ chart/ pie
diagram, etc. 10

(Any one diagram to be drawn.)

Q.4 Fill in the blanks in the given interview.
10

Practical Evaluation: 10 Marks

Oral and Presentation based on the units prescribed.

Bachelor of Vocation(B.Voc.) PartI- Sem.I

PaperNo.II : SUGARCANE AGRICULTURE AND SOIL SCIENCE

Theory:4 lectures/ week

Total Marks : 50 (Theory 40 + Practical10)

Practical:2lectures/week/batch

UNIT 1: INRODUCTION

- Morphology of Sugarcane Plant
- History (accent time and middle age).
- Meaning, Scientific name, Genus.
- Origin.

UNIT 2: CULTIVATION OF SUGARCANE

- Planting Season, Duration.
- Sugarcane Varieties (Late Maturing, Middle,Early etc.).
- Seed Selection, Seed Treatment, Sowing Methods, Spacing.
- Planting Material.

UNIT 3: CULTIVATION OF SUGAR BEET

- Origin and History, Scientific Name.
- Varieties.
- Climate (Temperature,Humidity,Sunshine).

UNIT 4: SOIL SCIENCE

- Introduction (Evaluation of earth,organicmatter,Branches of soil science).
- Minerals (Primary minerals,Secondary minerals).
- Biochemistry (Introduction,plant cell).
- Manure and Fertilizer (Introduction,Bulkymanures,greenmanures,compost and composting methods).

• References :

Biochemistry by *Dr.Sumanthi* Professor & HOD Department of Biochemistry, Rajendranagar, Hyderabad.

Manure & Fertilizer by *Dr. K Sreenivasulu Reddy, Dr. M V S Naidu, Dr. P MadhuVani, Dr. D Padmaja, Dr. P Kavitha, Dr. P R K Prasad* Department of soil science Agricultural College tirupati.

Dr.Sailaja V, Dr. P Kavitha, Dr. P R K Prasad Department of soil science Agricultural College Hyderabad.

Dr. PrabhuPrasadini Proffesor Department of Environmental Science College of Agriculture, Rajendranagar.

Reference links and e -books:

<https://link.springer.com/article/10.1007/BF0>

[https://www.biologydiscussion.com/economic-botany/...](https://www.biologydiscussion.com/economic-botany/)

(A) Practicals(Based onthe aboveUnits):

1. Visit toIndustry
2. Surveyregardingmanagement in retail malls

PaperNo.III :ORGANIC FARMING

Theory:4 lectures/ week

Total Marks : 50

UNIT 1: INTRODUCTION

- Meaning.
- Advantages and Disadvantages.
- Usage of organic manure and fertilizer.

UNIT 2: MANUFACTURING OF ORGANIC MANURE

- Farm Yard Manure (Methods,Advantages).
- Vermicompost(Methods,Advantages).
- Green manuring (Methods,Crops,Advantages,etc.).

UNIT 3: ORGANICALLY DISEASE AND PEST MANAGEMENT

- Disease control methods (Products Preparation and application).
- Pest Control Methods (Products Preparation and application).

UNIT 4 : ORGANIC PRODUCTION REQUIREMENT

- Components of Organic farming
- Nutrient management in organic farming
- Limiting nutrient losses
- Concept of organic farming in India
- **Reference:**

Manure & Fertilizer by *Dr. K Sreenivasulu*, *Dr. D Padmaja*, *Dr. P Kavitha*, *Dr. P R K Prasad*
Department of soil science Agricultural College Hyderabad.

Pest of crops and their management by *Dr. G dayakar*, *Dr. V Deva Prasad*, *Dr. Hariprasad*,
Dr. K Loka Reddy, *Dr. T Madhumati* Department of Entomology, Bapatla.

Diseases of Fields Crop and their management by *Dr.P. Kishore Varma* Assistant Professor,
Department of Plant Pathology, Aswaraopet.

Reference links and e –books :

<https://www.researchgate.net/publication/259810628...>

https://www.organicconsumers.org/sites/default/files/what_is_organic_farming.pdf

<https://nal.usda.gov/legacy/fnic/organic-foods>

PaperNo.IV :ENVIRONMENTAL SCIENCE

Theory:4 lectures/ week

Total Marks : 50

UNIT 1: INTRODUCTION

- Introduction about Environment.
- Components of Environment Hydrosphere, lithosphere, atmosphere
- Basic concepts, components of ecosystem.
- Rain Cycle
- Food Chain

UNIT 2: METOROLOGY

- Meaning and Introduction.
- Instrument Information and their Usage.

UNIT3: POLLUTION

- Meaning.
- Effect of pollutions.
- Types of pollutions -Water pollutions
Soil Pollutions
Air Pollutions

UNIT 4 : NATURAL RESOURCES

- Classification of natural resources
- Energy Resources
- Environmental Problem

References:

Dr. PrabhuPrasadini Proffesor Department of Environmental Science College of Agriculture, Rajendranagar.

Dr. G. SwarajyaLakshmi Proffesor& unit head Department of Environmental Science College of Agriculture, Rajendranagar.

Reference links and e – books :

[www.sciencescene.com/Environmental Science...](http://www.sciencescene.com/Environmental%20Science...)

<https://wiki.ezvid.com/best-environmental-science-textbooks>

<https://sf.sawfinder.com/best-environmental-science-textbook>

PaperNo.V :SUGARCANE CULTIVATION

Theory:4 lectures/ week

Total Marks : 50

UNIT 1 BREEDING TECHNIQUES IN SUGARCANE

- Introduction, varieties, scope of varietal planting, cytology
- Raising of seed cane crop-Ideal seed cane, seed cane treatment, measures to obtain higher germination, transplanting technique and its advantages.

UNIT 2 BREEDING METHODS

- Introduction & germ plasma collection.
- Clonal selection.
- Hybridization
- Mutation breeding.

UNIT 3 OBJECTIVES OF SUGARCANE BREEDING

- Breeding for yield, logging, resistance to diseases, resistance to insect pests & quality.
- Sugarcane breeding institutes in India.

UNIT 4 PHYSIOLOGY OF SUGARCANE

- Physiology of sugarcane under normal conditions.
- Physiology of sugarcane under saline conditions.
- Rapid screening parameters for salt stress.
- Agro-technology to improve germination under saline conditions.
- Work on the physiology of various sugarcane clones

Reference links and e -books:

<https://link.springer.com/article/10.1007/BF0>

<https://www.biologydiscussion.com/economic-botany/...>

[skyjournals.org/sjar/pdf/2013pdf/Jan/Singh pdf.pdf](https://www.researchgate.net/publication/278405678)

<https://www.researchgate.net/publication/278405678>

<https://testbook.com/question-answer/with>

Paper No- VI: Laboratory Work For Paper No- III

TotalMarks– 50

Practical : 4 lectures / week/perbatch

Practicals :

1. Study and testing of soil analysis
2. Structure making for vermicompost
3. Structure making for farm yard manure
4. Study of Water Irrigation techniques
5. Sugarcane Cultivation and Soil Science
6. Handling of spectrophoto meter
7. To find Purity of sugar by Polari Meter
8. To find Viscosity of syrup by viscometer.

Paper No- VII: Laboratory Work For Paper No- IV

Total Marks– 50

Practical : 4 lectures / week/perbatch

Practical

1. Cultivation Of Sugarcane
2. Cultivation of Sugar Beet
3. Visit of Agro-meteorological Observatory
4. Exposure of instruments & weather data recording
5. Measurement of total, shortwave & long wave radiation
6. Measurement of Soil temperature
7. Computation of soil heat flux.
8. Determination of vapour temperature.

Paper No- VIII: Laboratory Work For Paper No- V

Total Marks– 50

Practical : 4 lectures / week/perbatch

Practical-

1. Structure making for farm yard manure
2. Study of Water Irrigation techniques
3. Determination of dew point temperature
4. Measurements of Atmospheric pressure
5. Tabulations & Analysis of rain
6. Measurements of open pan evaporation
7. Estimation of soil moisture
8. Determination of Field Capacity.

Paper No- IX: Project

Internal practical evaluation

50marks

i) Submission of practical record book=20marks

ii) Submission of visit report=15 marks

iii) Viva-voce 15=marks

SEMESTER II

Paper –X:Business Communication-II

Total Workload:06 lectures per week of 60 mins.

Distribution of Workload:

Theory:04 lectures per week

Practical: 02 lectures per week per batch of 20 students

Units Prescribed for Theory:40

Marks

Unit1:Group Discussion

Topics:

- Preparing for a Group Discussion
Initiating a Discussion
- Eliciting Opinions, Views, etc. Expressing Agreement/Disagreement
- Making Suggestions; Accepting and Declining Suggestions
Summing up.

Unit2:Business Correspondence

Topics:

- Writing Memos, e-mails, complaints, inquiries, etc. Inviting Quotations
- Placing Orders, Tenders, etc.

Unit 3:English for Negotiation

Topics:

- Business Negotiations
Agenda for Negotiation
Stages of Negotiation

Unit 4:English for Marketing

Topics:

- Describing/ Explaining a Product/ Service
Promotion of a Product
- Dealing/bargaining with Customers
- Marketing a Product/ Service: Using Pamphlets, Hoardings, Advertisement, Public Function/Festival

➤ Reference Books:

1. Herekar, Praksh. *Business Communication*. Pune: Mehta Publications, 2007.
2. Herekar, Praksh. *Principals of Business Communication*. Pune: Mehta.

PaperNo.XI : Introductory Agro-meteorology and Climate change

Theory:4 lectures/ week

Total Marks : 50 (Theory 40 + Practical10)

Practical:2lectures/week/batch

UNIT –I INTRODUCTION

- Meaning and scope of agricultural meteorology
- Earth's atmosphere - its composition, extent and structure ; Atmospheric weather variables
- Atmospheric pressure – its variation with height

UNIT –II WIND TYPES

- Wind-types of wind, daily and seasonal variation of -wind speed,
cyclone,
anticyclone,
land breeze and
sea breeze

UNIT-III ATMOSPHERIC TEMPERATURE

- Atmospheric temperature - temperature inversion,
lapse rate,
daily and seasonal variations of temperature,
vertical profile of temperature,
Energy balance of earth

UNIT IVWEATHER

- Agriculture and weather relations
- Modifications of crop microclimate
- Climatic normals for crop and livestock production

Reference Books

- 1) Agricultural Meteorology- G.S.L.H.V. Prasad Rao, Kerala Agricultural University Publications.
- 2) Text book of Agricultural Meteorology – M. C. Varshneya and P. Balkrishna Pillai.
- 3) Introduction to Agro-meteorology- H. S. Mavi
- 4) Our Atmosphere- Smita Bhutani

PaperNo.XII : Physical and Inorganic Chemistry

Theory:4 lectures/ week

Total Marks : 50

UNIT I: SOLUTION & STRENGTH OF SOLUTION

- Definitions of the terms :Solute, solvent, solution & dilute solution.
- Concentration units : Normality, Molarity, molality, mole fraction, weight reaction, percentage composition by weight and volume.

UNIT II: CHEMICAL KINETICS

- Introduction : Rate of reaction
- definition and units of rate constants
- factors affecting the rate of reaction

UNIT III: CHEMICAL BONDING

Introduction & definition with example of each. a) Ionic bond.

b) Covalent bond

c) Coordinate bond

UNIT IV: CORROSION & ITS PREVENTION

- Introduction
- corrosion and its causes
- classification

Reference Book

1. Physics :S.G.Starling&Woodlall, Longmans& green co.Ltd.

2 Textbook of properties of matter :N.S.Khare&S.Kumar, Atmaram & sons, New Delhi.

3 Physics Vol.I&II : Resnik & Halliday, Wiley Ester ltd. New Delhi.

4 Treatise on heat : Shah & Shrivastava.

5 Kinetic Theory of gases :V.N.Kelkar

6 Heat &thermodynamics :Brijlal&Subramanyam, S.Chand&

PaperNo.XIII : Organic And Sugar Chemistry

Theory:4 lectures/ week

Total Marks : 50

UNIT I :INTRODUCTION TO SUGAR

- Introduction – Etymology, History
- Chemistry of sugar, Constituents of sugar, Natural polymers of sugars, Flammability of sugar.
- Refining of sugars

UNIT II: CARBOHYDRATES

- Reactions of Monosaccharide such as
 - a) Mutarotation
 - b) Alkaline degradation
 - c) Rearrangements
 - d) Acidic degradation
 - e) Polymetrisation
 - f) Caramelisation

UNIT III: DI & POLYSACCHARIDES

- Organic acids & their effects on the processing of sugar house products.
- Polyphenols : Occurrence, classification & their effects on processing of sugar house products

UNIT IV: PHYSICAL & CHEMICAL PROPERTIES OF SUGAR

- Chemical properties of sucrose :— sucrose molecule,
crystalline sucrose,
amorphous sucrose,
aqueous sucrose.

Reference Books :

- 1 Organic Chemistry : Hendrickson, cram, Hammond
- 2 Organic Chemistry : Morrison & Boyd
- 3 Organic Chemistry : Volume I & II I.L.Finar
- 4 Organic Chemistry : Pine
- 5 Advanced Organic Chemistry :Sachinkumar Ghosh

PaperNo.XIV :Organic & Biochemistry

Theory:4 lectures/ week

Total Marks : 50

UNIT I- ORGANOSULPHUR COMPOUNDS

- Organosulphur compounds :
- Introduction and nomenclature.
- Thiols (simple examples).

UNIT II - SUGAR AND POLYSACCHARIDES

- Introduction to Di and Polysaccharides –
- Stereochemistry and cyclic forms
- Sugar derivatives - Glycoside bonds & cyclic forms

UNIT III - CELL AS A BIOCHEMICAL ENTITY

- Introduction to living cells, classifications of living cells, structure and function of cells, Structure and typical characteristics of DNA & RNA.
- Portions: Characteristics and classifications of proteins, protein structure, proteins in sugarcane juice.

UNIT IV- ORGANIC ACIDS AND POLYPHENOLS

- Definition of polyphenols - Chemical reactions synthesis –
- Structure - Structural feature –
- Chemical properties and uses-Biological role in plant

Reference Book-

1. Physical chemistry :S.Glasstone
2. Text book of Physical chemistry :A.S.Negi&S.C.Anand (New age International Pvt.Ltd)
3. Text book of Engineering chemistry :M.M.Uppal, Khanna publishers, Delhi.
4. Text book of Engineering chemistry :S.S.Dara, S.Chand

Paper No- XV: Laboratory Work For Paper No- XII

Total Marks – 50

Practical : 4 lectures / week/per batch

1. Visit of Agrometeorological Observatory.
2. Site selection of observatory, exposure of instruments and weather data recording.
3. Measurement of air temperatures, its tabulation and variation.
4. Measurement of soil temperature.
5. Measurement of rainfall.
6. Measurement of wind speed and wind direction.
7. Measurement of evaporation with the help of open pan evaporation.
8. Measurement of evapotranspiration.

Paper No- XVI: Laboratory Work For Paper No- XIII

Total Marks – 50

Practical : 4 lectures / week/per batch

1. Determination of purity of phosphoric acid by Sodium hydroxide method
2. Determination of purity of phosphoric acid by Phosphomolybdate method.
3. Determination of purity of hydrogen peroxide
4. Determination of purity of hydros
5. Determination of purity of formine
6. Determination of purity of caustic soda
7. Determination of purity of washing soda
8. Introduction to the instrumentation of GLC (Demonstration)

Paper No- XVII: Laboratory Work For Paper No- XIV

Total Marks– 50

Practical : 4 lectures / week/perbatch

1. Studies on climate classification,
2. studies on rainfall pattern in rainfed areas of the country and pattern of onset and withdrawal of monsoons.
3. Studies on cropping pattern of different rainfed areas in the country and demarcation of rainfed area on map of India.
4. Interpretation of meteorological data and scheduling of supplemental irrigation on the basis of evapo-transpiration demand of crops.
5. Critical analysis of rainfall and possible drought period in the country, effective rainfall and its calculation
6. Studies on cultural practices for mitigating moisture stress.
7. Characterization and delineation of model watershed.
8. Field demonstration on soil & moisture conservation measures

Paper No- XVIII: Project

Internal practical evaluation

50marks

iii) Submission of practical record book=20marks

iv) Submission of visit report=15 marks

iii) Viva-voce 15=marks

Annexure I

Standard of passing:

- A. For B.Voc. programme total credits shall be 180 with 30 credits for each semester. There shall be 12 credits for theory and 18 credits for practical per semester.
- B. Subject wise credits are mentioned in the concerned syllabus of every B.Voc. Program.
- C. The standard of passing shall be 35 % where the student will have to score 18 marks out of 50, 14 marks out of 40 and 4 marks out of 10.
- D. Rules for ATKT are mentioned below:
 - I. Internal examination will be compulsory for all students. If the student is absent/fail in the internal examination then he/she will have to clear the internal examination. However ATKT rules will be followed in respect of theory and practical papers only. Then the student is allowed to keep term in the third fifth semester even if he/she has failed in the three less than three beads (ie. theory and practical) of passing each semester. However he/she shall have to clear all the papers of semester I & II before taking admission to the fifth semester.
 - II. In the B.Voc. Part II, every student has to complete internship of concerned industry

Award of degree:

- B.Voc. is a six semester integrated course spread over the period of 3 years. The course of B.Voc. will be 3 years integrated course commencing from the years as mentioned below:
 - a. B.Voc. Part-I: Semester I & II- Diploma
 - b. B.Voc. Part-II: Semester III & IV-Advanced diploma
 - c. B.Voc. Part-III: Semester V & VI-B.Voc. Degree
- The candidate may take exit after one year of successful completion of the course. After successful completion of one year (Semester I & II) the candidate will get Diploma. After successful completion of two years (Semester III & IV), the candidate will get Advanced Diploma. The students those who have completed the entire three years (Semester V & VI) integrated course shall be awarded B.Voc. Degree programme, inclusive of Diploma and Advanced Diploma.
- The candidate admitted for direct second year or third year will get Class (First/Second/Pass class) as per their performance for B.Voc.

▪ **Scheme of mark:**

Grading chart:

A. Grading chart of 50 points:

| Sr.No. | Marks Obtained | Numerical grade (grade point) | CGPA | Letter grade |
|--------|----------------|----------------------------------|------------|------------------|
| 1 | Absent | 0 (Zero) | - | - |
| 2 | 0-17 | 0 (Zero) | 0.0-4.99 | F (Fail) |
| 3 | 18-22 | 5 | 4.50-5.49 | C (Satisfactory) |
| 4 | 23-27 | 6 | 5.50-6.49 | B (Average) |
| 5 | 28-32 | 7 | 6.50-7.49 | B+ (Good) |
| 6 | 33-37 | 8 | 7.50-8.49 | A (Very Good) |
| 7 | 38-42 | 9 | 8.50-9.49 | A+ (Excellent) |
| 8 | 43-50 | 10 | 9.50-10.00 | O (Outstanding) |

Note:

- i. Marks obtained 0.5 shall be rounded off to next higher digit.
- ii. The SGPA & CGPA shall be rounded off to 2 decimal points.
- iii. Marks obtained in 50 marks or 200 marks paper shall be converted to 100 marks.

Calculation of SGPA & CGPA

1. Semester Grade Point Average (SGPA)

$$\text{SGPA} = \frac{\sum (\text{Course Credits} \times \text{Grade Points Obtained}) \text{ of a semester}}{\sum (\text{course credits}) \text{ of respective semester}}$$

2. Cumulative Grade Point Average (CGPA)

$$\text{CGPA} = \frac{\sum (\text{Total Credits of A Semester} \times \text{SGPA of Respective Semester}) \text{ of all semesters}}{\sum (\text{Total Course Credits}) \text{ of all semester}}$$