

## **Program: B.Voc.in Textile and Ginning Technology**

### **PO (Program Outcome)**

Students are given a detailed study of various basic & advanced topics and modern technologies in this course of Textile and Ginning Technology.

- Textile and ginning technology is a large engineering department associated with making yarn from the fibre & detail study about different fibres, its impacts on quality, different machines, process parameters and uses of different textile material in human life.
- Textile and ginning technology has a broad area of application in ginning & spinning industry. The various department of the ginning industry is likely pre-post cleaner, double roller ginning machine, bale pressing machine and various fibre testing machines. The various department of the spinning industry is likely fibre mixing department, Blowroom, Card, Breaker draw frame, Lap former, Comber, Finisher Draw frame, Speed Frame, Ring Frame, Winding & TFO, Yarn Condensing department and Quality Control lab.
- In detail, this course contains methods of measuring the speed & critical settings of different spinning machines, Norms on Machinery Performance, Precaution to Prevent Damages to Important Parts of Machinery, parameters affecting cleaning & separation of fibres, speed and setting related parameters affecting fibrous neps and short fibre levels, draft levels of drawing / speed frame and ring frame, causes affecting variation in yarn twist, cleaning efficiency of different spinning department, Neps generation, Fibres rupture, Waste level calculation and management in ginning & spinning industry, Drafting roller pressure / roller eccentricity, suction pressure at ring frame, Weight & moisture level in cones, End Breakage Rate at Ring Frame, Yarn Realization.
- This course contains a detailed study of the quality aspect of different industry and buyer. In terms of quality, the basic characteristics of different fibres are measured is likely Length, thickness, the strength of cotton fibres and the presence of trash, seeds, seed coats, leafy matter/sand dust etc. in cotton, moisture level in cotton, content of immature bolls / clusters in fibres, Testing of fiber fineness, fiber maturity and maturity ratio, Short fibres % in fibre bundle, colour grade and its calculation & Fibre Strength and Elongation. Quality parameters of yarn contain Count and Strength, Twist in Yarn, Unevenness and Imperfections/ Yarn Faults, Variability in Yarn Quality. In maintenance detail study about

the condition of critical parts of ginning and transportation systems, Ideal grooving of ginning rollers, Sharpening of fixed knives, Observing the effect of greasing and oiling in ginning machines, the sharpness of wire points of beaters and cylinders, Spindle centring at ring frame, Apron Slippage, Cleaning of drafting zone, Oiling and greasing of different parts of machinery.

- In spinning modern technologies developed like Friction Spinning, Open End Spinning, Compact Spinning, Wrap spinning, Twistless spinning, siro spinning etc.
- Along with ginning & spinning the basic knowledge of mechanical & electrical workshop, Basic communication skill, Basic management & Computer knowledge is given to students of Textile & Ginning Technology.
- There is two project work respectively in ginning and spinning are carried out in last year which is helpful to enhance the Experimental Works in Machinery Parameters, Raw Material Quality, Ginning & Spinning Process.

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### **PSO (Program Specific Outcome)**

1. After successfully completion of this course students can get employability in various ginning and spinning sector particularly as,
  - 1) Cone Winding Operator - Manual & Assembly Winding
  - 2) Combing Preparatory operator
  - 3) Blowroom Operator
  - 4) Carding Operator
  - 5) Drawframe Operator
  - 6) Fitter – Spinning Preparatory
  - 7) Ring Frame Tenter
  - 8) Open-End Spinning Tenter

- 9) Autoconer Tenter
- 10) Ring Frame Doffer
- 11) TFO Tenter
- 12) Speed Frame Operator – Tenter & Doffer
- 13) Combing operator
- 14) Packing Checker
- 15) Fitter - Ring Spinning
- 16) Fitter - Post Spinning
- 17) Statistical Quality Control Manager
- 18) Technical Manager
- 19) Maintenance In-charge
- 20) Technical Head
- 21) Technical Advisor/Consultant
- 22) Maintenance Head

2. Another post graduate course that can be done after this course is M.B.A. and M.S.W. It will take 2 years to get an M.B.A. Degree.
3. This is a rapidly developing field. Many private businesses are exploring in this field and heavily investing in it so new startups will be open and emerging entrepreneur will come.
4. Research sector in particular is quite lucrative. One may build a rewarding career in this field.
5. Apart from these National level exams, the student can also appear for other State level Competitive Examinations as well e.g. GPSC, Talati, Gram Sevak, Lok Sevak, various Police Service Exams etc.

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## **CO (Course Outcome)**

### **1. TGT 101: Communication Skills**

- a. The student gets information about English grammar.
- b. The student gets acquainted with the Presentation techniques and Etiquettes and grooming.
- c. The student learns about the Written-Listening skills, Group discussion and extempore communication, Interviews- Tips and model interviews.

### **2. TGT 102: Engineering Workshop Practice (Mechanical)**

- a. The student learns about the various processes of Fitting, Carpentry and Tin Smithy Shop.
- b. The student also learnt about the various operations like Pipe Fitting, Metal Joining and Drilling.
- c. The student also learnt about the various operations like Lathe Machine, Shaper Machine and Milling Machine.

### **3. TGT 103: Seed Cotton Processing**

- a. The student studies here about the Selection and Heaping of Seed cotton.
- b. The student studies here about the various Transportation systems of Seed Cotton.
- c. The student studies here about various Cleaning systems of Seed Cotton.

### **4. TGT104:OPERATION OF SPINNING MACHINES**

- a. The student studies the Blow Room and Carding operations.
- b. The student studies the Drawing, Combing and Super Lap Former Machinery operations.
- c. The student studies the Speed / Ring Frames / Winding Machinery operations.

### **5. TGT105:SPINNING MACHINERY 1**

- a. The student studies the Blow Room and Carding for Fibers Cleaning.
- b. The student studies the Drawing Machinery for Fibers Parallelization/Leveling of Material Weight.
- c. The student studies Lap Formation and Combing for Removal of Short Fibers/ Entanglements.

### **6. TGT 106:SPINNING PROCESS 1**

- a. The students will learn the Principles of Spinning.

- b. The students will learn the Cotton Spinning Process.
- c. The students will learn the Fiber Cleaning and Neps Generation / Removal.

#### **7. TGT201:COMPUTER APPLICATION- I**

- a. The students will study Basics of Computer System.
- b. The students will learn the MS – Word.
- c. The students will learn the MS – Excel.

#### **8. TGT202:ENGINEERING WORK SHOP PRACTICE (ELECTRICAL)**

- a. The students will learn the Electrical Tools, Cables and Switches and Resistors.
- b. The students will learn the Earthing and Electrical Safety.
- c. The students will learn the various types of Electrical wiring.

#### **9. TGT203:GINNING TECHNOLOGY-I**

- a. The students work upon Definition of Ginning and its yield.
- b. The students learn the Ginning Systems and Working of Roller Gin Machine / Maintenance.
- c. The students learn the Cleaning Systems for Kapas and Ginned Cotton.

#### **10.TGT204:SPINNING PROCESS-II**

- a. The students understand the Fibers Parallelization and Doubling of Material.
- b. The students understand the Attenuation of Material.
- c. The students learn the Yarn Spinning and its Winding.

#### **11.TGT205: GINNING PRACTICE**

- a. Checking performance of kapas transportation system. To study air pressure, revolutions of suction fans, diameter & length of ducting pipe etc.
- b. To observe quantity of kapas from heap to pre ginning cleaner to auto feeder of roller gin machine. Efficiency of labour / machine operators.
- c. To check the performance of ginned lint transportation system. Observing effects of air pressure, shape / position of mouth piece, stationery condenser, ducting diameter / fan RPM etc.
- d. To study cleaning efficiency of post ginning cleaner. Performance checking of post ginning machine considering type of trash present in the cotton.

#### **12.TGT206:SPINNING PRACTICE**

- a. The student studies here Neps generation level and Fibers rupture intensity at blow room.

- b. The student studies here Neps reduction efficiency and Waste level at Carding.

The student studies here Combing efficiency in terms of removal of short fibers / neps.

### **13.TGT301:COTTON QUALITY AND ITS TESTING**

- a. The student gets information vsrious Quality Parameters of Cotton.
- b. The student gets knowledge about Fiber Length/ Strength/ Fineness and trash of Cotton.
- c. The student studies various Parameters affecting strength of fibers.

### **14.TGT302:HUMAN RESOURSE MANAGEMENT**

- a. The student studies here the Introduction of Human needs, relations and values and Behavioral dynamics.
- b. The student studies here Leadership Development and stress management.

### **15.TGT303: GINNING TECHNOLOGY 2**

- a. The student studies here the Cotton Transportation / Packing at Ginning.
- b. The student studies here the various Parameters Affecting Characteristics of Cotton Fibers.
- c. The student studies here the effect of condition of parts of roller gin machine on fiber quality.

### **16.TGT304: SPINNING MACHINERY 2**

- a. The student gets information about Speed Frame for Attenuation of Material.
- b. The student gets information about the Ring Frame and Winding for Spinning of Yarn.
- c. The student gets information about Care to Eliminate Excessive Wear & Tear to Critical Parts.

### **17.TGT305: COTTON TESTING PRACTICE**

- a. The student gets information about Measuring length variability and moisture level in cotton fibers.
- b. The student studies here Testing of Short fibres %, Cotton colour grade and fiber maturity and maturity ratio.
- c. The student studies here Generation/ Reduction of neps at Ginning Stage.

### **18.TGT306: COMPUTER APPLICATION- II**

- a. The student studies here Basic operations of Power point, Create PPT and inset and delete slides.
- b. The student studies here Installation and keyboard setting of Gujarati INDIC.

- c. The student studies here Practice browsing of different sites using search engine.
- d. The student studies here practice and understand different E-Mail services – Outlook, Yahoo mail, rediffmail etc.

#### **19.TGT401:MACHINERY MAINTENANCE**

- a. The student learnt about Measurement of different settings of critical parts of ginning machines and set them.
- b. The student learnt about Measurement of speed of critical parts of ginning machinery.
- c. The student learnt about Measurement of critical settings of spinning machinery.
- d. The student learnt about Identifying sharpness of wire points of beaters and cylinders.
- e. The student learnt about Cleaning of drafting zone.

#### **20.TGT 402: MODERN SPINNING TECHNOLOGY**

- a. The student studies here New Technique for yarn production.
- b. The student studies here Importance of open end spinning and its machinery-process.
- c. The student studies here Automation and Technological Aspects in Rotor spinning.

#### **21.TGT403:YARN QUALITY PARAMETERS AND THEIR TESTING**

- a. The student studies here Yarn Count / Strength and Twist/ Appearance.
- b. The student studies here Yarn Unevenness and Imperfections/ Yarn Faults.
- c. The student studies here Instruments for testing various Quality Parameters.
- d. The student studies here Humidification and Yarn Conditioning System.

#### **22.TGT404:PROCESS CONTROL AT SPINNING**

- a. The student learnt about Control of Yarn Properties.
- b. The student learnt about Yarn Realization and Process Waste Control.
- c. The student learnt about Optimization of Speed and Setting Related Parameters.
- d. The student learnt about Reducing End Breakage Rate at Ring Frame.
- e. The student learnt about Reducing Variability in Yarn Quality.

#### **23.TGT405: PROCESS CONTROL AT GINNING**

- a. The student studies here Cleaning of Cotton and Rupture of Fibers.
- b. The student studies here Ginning% and its Productivity.
- c. The student studies here Quality/ Preparation of Seed Cotton.

#### **24.TGT501: INDUSTRIAL PROTECTION**

- a. The student studies here Elements of Protection.

- b. The student studies here Protective Relays, Protective Transformer and Protective System.
- c. The student studies here drawing of the schematic diagram of the protective schemes for 66 KV/132 KV/220 KV Sub Station.

### **25.TGT502: INDUSTRIAL MANAGEMENT**

- a. The student studies here Introduction to Industrial Management.
- b. The student studies here Organizational Structure and Organizational Dynamics and Material Management.
- c. The student studies here Critical Path Method and Pre-Evaluation Review Technique (CPM/PERT).

### **26.TGT503: STATISTICAL QUALITY CONTROL**

- a. The student studies here Introduction to S.Q.C. in textile.
- b. The student studies here Basic statistical concept.
- c. The student studies here Theoretical Distribution.

### **27.TGT504: INDUSTRIAL PRACTICE AT GINNING**

- a. The student gets knowledge about Optimization of Ginning processes.
- b. The student gets knowledge about Optimization of mechanical parameters of ginning machinery.
- c. The student gets knowledge about Identifying effect of cleaning system on final bale quality.
- d. The student gets knowledge about Optimization of moisture content in materials.
- e. The student gets knowledge about Optimization of speed and setting related parameters.

### **28.TGT505:ENVIRONMENT CONSERVATION & HAZARD MANAGEMENT**

- a. The student gets knowledge about Ecology and environment.
- b. The student gets knowledge about Sustainable Development.
- c. The student gets knowledge about Wind Power.
- d. The student gets knowledge about Solar Power and Biomass Energy.

### **29.TGT601:ELECTRICAL AND ELECTRONICS ENGG FOR GINNING & SPINNING**

- a. The student gets knowledge about DC Circuits and machines.
- b. The student gets knowledge about AC Circuits and Machines.
- c. The student gets knowledge about Electronics Components.

### **30.TGT602: ENTREPRENURSHIP DEVELOPMENT**



- a. The student studies here Entrepreneurship Development — Concept & Scope.
- b. The student studies here Facility Planning.
- c. The student studies here Managing Critical Resources.
- d. The student studies here Managing Enterprise.

### **31.TGT603:ELECTRONIC PRACTICE**

- a. The students are measure Voltage, Current, Frequency, Power, Power Factor for single and three-phase supply.
- b. The student also study about Wire fan, tube light, two-way control (staircase wiring).
- c. The student also Identify various types of ports and connectors.
- d. The student studies here different type of switches like limit switch, proximity switch, push switch.

### **32.TGT604: INDUSTRIAL PRACTICE AT SPINNING**

- a. The student studies here optimization of speed and setting related parameters.
- b. The student studies here Snap Study for Spinning machinery.
- c. The student studies here Cleaning of Spinning machinery.
- d. The students are observe Yarn quality, Moisture content, Twist contraction % etc. as per standard norms.