GIN SCHOOL
COURSE DESCRIPTION AND OUTLINE

LEVEL III

REVIEW OF FUNCTIONS OF A GINNING SYSTEM AND DEMONSTRATION Summarizes materials in this section of Level II, focusing on the purpose of each machine in the ginning system and its effect on fiber quality, bale value, and textile processing. Review includes a ginning demonstration.
GIN SAFETY - Costs of accidents and injuries; loss control; employee selection orientation and training; maintenance of safe working environment; safety and labor regulations; creating a safety program.
BALE PRESSES AND HYDRAULIC SYSTEMS Outline and describe basic components in the hydraulic system, including maintenance and safety, common problems, and trouble- shooting. Survey press types, strapping and bale packaging options, safety, capacities, trampers, and chargers, etc. Include discussion on moisture restoration and press capabilities and misshapen bales.
AIR SYSTEMS IN THE GIN/Waste Utilization – a review of Fan Tables, Fan laws, High Efficiency Fans, Air Requirements of Gin Machines, Air System Design, Air Measurement Theory and Procedures, Emission Control Systems, Troubleshooting Air Problems, Matching Air Systems: Design and Analysis, Cyclone Operation Theory and Maintenance of Cyclones and Condensers, and discussion of methods of Disposal of Gin Trash and methods of wastes utilization and value.
ELECTRICAL SYSTEMS - Includes review of typical electrical circuits used in gins, how to use volt/amp meters, service and repair electrical components such as timers, micro-switches, limit switches, reversing direction of three- phase motors, motor starters, replacing defective motor brushes, motor fuses, starter heater coils, defective electric motor bearings, circuit breakers, electric motor starter relays. Also includes selection of motor and wire sizes, high efficiency motors, electrical demand, power saving techniques, demand charges, conserving energy, new technology to reduce costs, PLC controllers, and understanding electrical rates.

SEED COTTON UNLOADING SYSTEMS—CONVENTIONAL SUCTIONS, AUTOMATIC SUCTIONS, AND MODULE FEEDERS Includes pipe sizing and capacities of suction systems; advantages, costs and feasibility of hydraulic assist and automatic suctions systems; outline the types of module feeders and their advantages/disadvantages, costs, operation, etc.

CLASSING COTTON – an overview of the AMS cotton classing locations and requirements and procedures are discussed along with terms and methods for measuring length, strength, color, micronaire, leaf and other parameters. These parameters are related to harvesting, storage and ginning conditions to help ginners improve fiber quality.

MATCHING MACHINERY CAPACITIES IN THE GIN - Includes gin diagrams identifying machine capacities, piping dimensions, fan sizes, equipment schematics illustrating procedures equipment for upgrading gin systems.

DRYING AND MOISTURE RESTORATION SYSTEMS – Includes Basic Principles of Drying, Drying Systems, Temp. Sensing and Locations, Burner Selection, Operation and Maintenance and Moisture Restoration system.

MOISTURE AND CONTAMINATION ISSUES IN BALED LINT - a review of the problems with high moisture and contamination of bales at the gin and discussion on the impact of this has to the producer, textile industry, and US cotton industry.

COTTON HARVESTING, HANDLING AND STORAGE - a discussion of different harvesting systems, the importance of proper field preparation, module construction, storage and module cover selection, moisture management and monitoring to improve fiber quality and gin operating performance.

GINNING AND TEXTILE INDUSTRY TRENDS—MACHINERY AND BUSINESS ASPECTS – Includes current trends in the textile industry and describes basic methods of yarn and fabric construction. Emphasizes the importance fiber quality traits and fiber contamination have on conversion efficiency. Ginning trends describes the changes in harvesting, storing and transporting cotton to the gins and provides an overview of gin numbers, capacity and costs associated with ginning over time.

COTTONSEED HANDLING AND STORAGE SYSTEMS Review the importance of maintaining cottonseed Quality and Products made from cottonseed and with recommended Handling and Storage Systems design specifications such as principles of operation of roots blowers, sizing blowers, vacuum wheels, and piping systems to match ginning capacity, maintenance, etc., and storage facilities.
ROLLER GINNING – this session covers current research in high-speed roller ginning of Pima and upland cotton (Western Gin School Only)