ESWAR COLLEGE OF ENGINEERING

(Approved by AICTE, & Affiliated to JNTUK, A.P.)

KESANUPALLI (V), NARASARAOPETA-522549, AP

www.eswarcollegeofengg.org, email:eswarcollegeofengg@gmail.com

2.6.1 – Programme Outcomes and Course Outcomes for all Programmes offered by the institution are stated and displayed on the website and communicated to teachers and students

2.6.1 – Programme Outcomes and Course Outcomes for all Programmes offered by the institution are stated and displayed on the website and communicated to teachers and students.

The Outcome based Education is followed in the teaching learning process. The objectives of the Outcome Based Education (OBE) emphasizes on outcomes like, Program Outcomes (POs), Program Specific Outcomes (PSOs) and Course Outcomes (COs). The Outcomes are derivedby involving all the relevant stakeholders at the department level offering the concerned program. After a consensus is arrived at, the objectives are publicized through

- Curriculum /regulations books
- Class rooms
- Department Notice Boards
- Laboratories
- Student Induction Programs
- Meetings/ Interactions with employers
- Parent meet
- Faculty meetings
- Alumni meetings
- Library

While addressing the students at the Induction Program the HODs create awareness on POs, PSOs. During the course of study, the concerned faculty throws light on the outcome of the course (COs).

Program specific outcomes (PSOs) are derived based on the specific skill sets of faculty who are available as strength to the department and associated industrial conclave if any. At the end of the program, the students are also assessed to analyse the requirements and accomplishments to be fulfilled at the micro level.

Program Outcomes (POs) are statements with a wider scope that describe the professional accomplishments that the program aims at.POs incorporate many areas of inter-related knowledge, skills and personality traits that are to be acquired by the students during their graduation, and the students need to accomplish these by the time they complete the program.

Course outcomes (COs) describe the essential and enduring disciplinary knowledge, abilities that students should possess and the subject knowledge that should be required upon completion of a course. They are clearly specified and communicated. The faculty who teaches that particular course prepares the Course Outcomes. After this, they are discussed in the concerned department’s BOS meeting course-wise and finally approved.

ESWAR COLLEGE OF ENGINEERING

(Approved by AICTE, & Affiliated to JNTUK, A.P.)
KESANUPALLI (V), NARASARAOPETA-522549, AP
www.eswarcollegeofengg.org, email:eswarcollegeofengg@gmail.com

COURSE OUTCOMES
A.Y:- 2024-2025

Year/Sem: III B.Tech I SEM

Course Name: Farm Machinery and Equipment - I	
Course Code: AGR3101	
AGR3101.1	To understand primary and secondary tillage implements
AGR3101.2	Differentiate earth moving machinery, seeding and plant protection equipment
AGR3101.3	Able to know get awareness on the mechanical area of the agricultural engineering
AGR3101.4	Understand Classification and types of tillage, Primary tillage implements
AGR3101.5	Analyse Problems on forces analysis, Draft measurement of tillage equipment
AGR3101.6	Apply the Different types of seed metering mechanism, different types of furrow openers

Course Name: Surface Water Hydrology	
Course Code: AGR3102	
AGR3102.1	Able to know to acquire knowledge and skills on hydrological cycle
AGR3102.2	Understand to measurements in watersheds, hydrological design of structure
AGR3102.3	Differentiate the prediction of volume and rates of runoff with tools like hydrographs and unit hydrograph
AGR3102.4	Define the reservoir planning with flood routing techniques
AGR3102.5	Application in natural resources management in watershed
AGR3102.6	Analyse Arithmetic mean, Thiessen polygon, Isohyetal methods, DAD relationships and curves

Course Name: Post Harvest engineering of Cereals, Pulses And Oilseeds	
Course Code: AGR3103	
AGR3103.1	To acquire knowledge and skills on Cleaning and grading
AGR3103.2	Define aspiration, scalping; size separators, screens, sieve analysis, capacity
AGR3103.3	Able to know Different methods of drying, batch-continuous
AGR3103.4	Apply mixing-non-mixing, sun, mechanical, conduction, convection, radiation, superheated steam, tempering during drying
AGR3103.5	Define Milling of rice, Milling of wheat, unit operations and equipment
AGR3103.6	Apply the CFTRI and Pantnagar methods

Course Name: Environmental Management	
Course Code: AGR3104	
AGR3104.1	Understand the Plan and design the water and wastewater systems
AGR3104.2	Analyse the he source of emissions and select proper control systems
AGR3104.3	Able to know the Design & estimation of water supply system for a city
AGR3104.4	knowledge about various environmental aspects
AGR3104.5	Apply the suitable treatment flow for raw water treatments
AGR3104.6	Differentiate the importance of Water and Wastewater Treatment Plant and supply system

Course Name: Green House Technology	
Course Code: AGR3105	
AGR3105.1	Understand the Constructional and operational details of greenhouses
AGR3105.2	students to grow crops with profits
AGR3105.3	Able to know the greenhouses for offseason usage and also to manage them commercially

AGR3105.4	Classify Greenhouse types based on shape, utility, construction and covering material
AGR3105.5	Define Temperature requirement of horticultural crops, light requirement of crops and lighting control methods
AGR3105.6	Analyse Site selection and orientation, structural design

Course Name: Theory of Machines Lab	
Course Code: AGR3106	
AGR3106.1	Able to determine whirling speed of shaft theoretically andexperimentally.
AGR3106.2	Understand position of sleeve against controlling force and speed of a Hartnell governor and to plot the characteristic curve of radius ofrotation
AGR3106.3	Analyse the motion of a motorized gyroscope when the couple is applied along its spinaxis
AGR3106.4	Study the static and dynamic balancing using rigid blocks
AGR3106.5	Plot slider displacement, velocity and acceleration against crank rotation for single slider crank mechanism/Four bar mechanism
AGR3106.6	Define simple and compound screw jack and determine the mechanical advantage , velocity ratio and efficiency

Course Name: Electrical Circuits Lab	
Course Code: AGR3107	
AGR3107.1	To verify and demonstrate various theorems and resonance
AGR3107.2	Able to draw the locus diagram of series circuits
AGR3107.3	Determine the various parameters of a two port networks
AGR3107.4	Define self and mutual inductance of a magnetic circuit, parameters of a given coil
AGR3107.5	Analyse to measure the power of three phase unbalanced circuit

AGR3107.6	Applying Kirchhoff's law to verify the circuit laws

Year/Sem: III B.Tech I SEM

Course Name: Soil and Water Conservation Engineering	
Course Code: AGR3201	
AGR3201.1	Acquire knowledge on different soil laws estimation models, run off estimation by rational, curve number, cook's
AGR3201.2	Define Land use, capability classification, soil conservation measures like contour bunding, terracing, bench terraces
AGR3201.3	Classify the contour trenches and their types and complete design calculations
AGR3201.4	To enrich the students and familiarize the students in the design of various gully control structures
AGR3201.5	Able to know the estimation of Factors affecting runoff
AGR3201.6	Designs with a due importance to hydrologic, hydraulic and structural phases of design

Course Name: Farm Machinery and Equipment - II	
Course Code: AGR3202	
AGR3202.1	Understand the basic principles of cutting mechanisms and to know the various available harvesting machine
AGR3202.2	To know the working principle and functions of various machine parts of mowers, reapers
AGR3202.3	Define windrowers, forage harvesters, threshers, combine harvesters, cotton strippers, cotton pickers, groundnut and potato and sugarcane harvesters
AGR3202.4	Students can also understand the importance of testing and evaluation of agricultural machines
AGR3202.5	Differente standard codes (BIS Codes) available in India for testing of machinery

AGR3202.6	Classify Crop harvesting machinery, history of development

Course Name: Agricultural Process Engineering	
Course Code: AGR3203	
AGR3203.1	Able to know the unit operations of agricultural process engineering
AGR3203.2	Classify the preliminary operations such as clearing, size reduction, mixing, separation, filtration and materials handling equipment
AGR3203.3	Define Principle, classification, operation, advantages, disadvantages
AGR3203.4	Analyse capacity and power requirement
AGR3203.5	Able to know the Scope and importance crop processing
AGR3203.6	Introduction, theory of solids mixing, criteria of mixer effectiveness and mixing index for granular solids

Course Name: Water Shed Management	
Course Code: **AGR3204**	
AGR3204.1	Know the quality and quantity of water for various industries and Advanced water treatment methods
AGR3204.2	Learn the common methods of treatment of wastewaters and Biological treatment methods
AGR3204.3	Analyse methods to reduce impacts of disposal of wasters into environment and CETPs
AGR3204.4	Classify the treatment of wastewaters from specific industries like steel plants
AGR3204.5	Able to know methods of treatment of wastewaters from industries like Aqua, dairy, sugar plants, and distilleries that imply biological treatment methods
AGR3204.6	Applying the neutralization methods for water treatment

Course Name: Remote Sensing & GIS	
Course Code: AGR3205	
AGR3205.1	Understand Model the geometry of real-world structure Represent the physical model of structural element/structure
AGR3205.2	Analyse the Perform analysis of the frame
AGR3205.3	Able to Design and detailing of built up steel beam
AGR3205.4	Developing a design programme for foundation
AGR3205.5	Differentiate the Interpret from the Post processing results
AGR3205.6	Analysis & Design of Roof Trusses

Course Name: Soil and Water Conservation Engineering Lab	
Course Code: AGR3206	
AGR3206.1	Estimate the soil losses and sediment concentration
AGR3206.2	Describes the procedure for planning and construction of soil conservation measures
AGR3206.3	Design the soil conversion measures and structures
AGR3206.4	Underrated the procedure for estimation of soil loss
AGR3206.5	Define discharge, evaporation, sediment, accumulation, water movement through layers
AGR3206.6	Able to know Measurement of irrigation water with H-Flume

Course Name: Farm Machinery and Equipment Lab	
Course Code: AGR3207	
AGR3207.1	student to get the practical knowledge on various operation in agricultural field for crop production
AGR3207.2	Study of various Farm Machinery and equipment
AGR3207.3	Determination of Field capacity and Field efficiency of primary tillage implements
AGR3207.4	Study of different types of plough bottoms and shares of M.B. Plough
AGR3207.5	Define Calibration of seed drill and problems
AGR3207.6	Analyse Construction and working of renovators and weeding equipment

Course Name: Agricultural Process Engineering Lab	
Course Code: **AGR3208**	
AGR3208.1	Understand students on how to conduct experiments and evaluate performance of various agricultural food process
AGR3208.2	Able to know the Preparation of flow charts and layout of a food processing plant
AGR3208.3	Determination of the efficiency of cyclone separator
AGR3208.4	Tutorial on extraction by McCabe and Thiele plot
AGR3208.5	Define Performance evaluation of hammer mill and attribution mill
AGR3208.6	Apply Transport Processes and separation Process Principle

Course Name: Structural Design with ANSYS Lab	
Course Code: AGR3209	
AGR3209.1	Understand the concepts of Loads and use of BIS Codes
AGR3209.2	Able to design of singly and doubly reinforced sections, Reinforced concrete Cantilever
AGR3209.3	Design of Eccentric Shear and Moment Resisting connections
AGR3209.4	Applying Method of IS code and Structural steel Framing
AGR3209.5	Able to know Design of Flanged Beams, Slabs, Columns, Foundations, Retaining walls and Silos
AGR3209.6	Differentiate Design of Shear Key-Design and Drawing

Year/Sem: IVB.Tech I SEM

Course Name: Irrigation and Drainage Engineering	
Course Code: **AGR4101**	
AGR4101.1	Explain the terminology related to Irrigation and calculate Soil moisture by different methods
AGR4101.2	Determine infiltraction under check basin conditions and adaptability
AGR4101.3	Design irrigation canals using Lacey's and Kennedy's theories
AGR4101.4	Describe the factors affecting drainage requirement, drainage coefficient based on the given criteria
AGR4101.5	Design subsurface drains under Steady State conditions
AGR4101.6	Able to solve typical example for total cost estimation of SSD system and benefit

Course Name: Design of soil and water conservation and farm systems	
Course Code: **AGR4102**	
AGR4102.1	Analyze types of flow, state of flow, regimes of flow

AGR4102.2	Estimate runoff by using Parshall flume, H-Flume and weirs, water stage recorders, straight drop spill way-general description
AGR4102.3	Design Chute spillway and SAF stilling basic
AGR4102.4	Design trapezoidal notch fall and syphon well drop type of canal falls
AGR4102.5	Analyze different components of diversions head works
AGR4102.6	Undrstand the Operation of gates in controlling water in irrigation structures

Course Name: Dairy and food engineering	
Course Code: **AGR4103**	
AGR4103.1	Estimate the physical and chemical properties of milk, water content, acidity, pH, developed acidity
AGR4103.2	Analyze the parameters that influence Pasteurization
AGR4103.3	Describe emulsification and types of emulsions
AGR4103.4	Estimate the carbohydrates, protein, lipids, minerals, vitamins in food product
AGR4103.5	Analyze the factors influencing rate of evaporation, thermodynamics of evaporation, circulation in Evaporators
AGR4103.6	Understand the Drying methods

Course Name: Highway Engineering	
Course Code: **AGR4104**	
AGR4104.1	Able to draw aPlan highway network for a given area
AGR4104.2	To Determine Highway alignment
AGR4104.3	Design Intersections and prepare traffic management plans
AGR4104.4	Judge suitability of pavement materials and design flexible and rigid pavements
AGR4104.5	To classify the different concepts in the field of Highway Engineering

AGR4104.6	Able to know the types and classification of roads and intersections

Course Name: Operational Management	
Course Code: **AGR4105**	
AGR4105.1	Apply appropriate forecasting techniques & Aggregate planning methods
AGR4105.2	Learn Materials management analysis and scheduling policies
AGR4105.3	Learn about the inventory control techniques, MRP and contemporary management techniques.
AGR4105.4	Apply quality management principles proposed by Taguachi, Juran & Demigs
AGR4105.5	Apply optimization to LP model & transportation.
AGR4105.6	Apply optimization to assignment problems

Course Name: Universal human values: 2 understanding harmony	
Course Code: **AGR4106**	
AGR4106.1	Analyze Principles of Solar Radiation
AGR4106.2	Apply solar heating/cooling technique, solar distillation and drying, photovoltaic energy conversion
AGR4106.3	Apply Principles of bio-conversion
AGR4106.4	Analyze Geothermal Energy techniques
AGR4106.5	Discus Direct Energy Conversion
AGR4106.6	Able to selection of fuels and operating conditions

Course Name: Computational fluid dynamics with fluent	
Course Code: **AGR4107**	
AGR4107.1	Explain elementary details and numerical techniques for solving various engineering problems involving fluid flow
AGR4107.2	Study about finite difference applications in heat conduction and convection

AGR4107.3	Apply finite difference for flow modeling
AGR4107.4	Understand the concepts of finite volume method
AGR4107.5	Understand the concepts of finite element method applied to heat transfer problems
AGR4107.6	Understand the Applications of FEM to One dimensional Problems