



EXCEL ENGINEERING COLLEGE
(Autonomous)

Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai
Accredited by NBA(AERO,CSE,ECE&MECH), NAAC with "A+" and Recognised by UGC (2f &12B)
KOMARAPALAYAM - 637303

DEPARTMENT OF AGRICULTURAL ENGINEERING
COURSE OUTCOMES
BATCH 2020-24 (R2020)

Course Name: C101 20MA101 Mathematics - I for Bio Sciences	
C101.1	Apply the idea of reducing complex problems into simple form using matrix technique.
C101.2	Use both the limit definition and rules of differentiation to differentiate functions.
C101.3	Identify the circle of curvature, evaluate and envelope of the curves.
C101.4	Explain different methods of Integration used in Engineering problems
C101.5	Apply Double and Triple integrals in Engineering real life problems.
Course Name: C102 20AG101 Basics of Agricultural Engineering	
C102.1	Gain knowledge on the basics of soil and water conservation engineering
C102.2	Acquire knowledge on the basics of farm machinery and power
C102.3	Have adequate knowledge on the concepts of agricultural process engineering
C102.4	Understand the scope of civil engineering in agriculture
C102.5	Understand the scope of mechanical engineering in agriculture
Course Name: C103 20ENE01 Communicative English	
C103.1	Use effectively the lexical, grammatical and semantic knowledge
C103.2	Communicate with clarity using intentional vocabulary in English
C103.3	Articulate perfectly and express their opinions confidently using communicative strategies
C103.4	Accomplish listening and reading skills for lifelong learning
C103.5	Comprehend, interpret and present data

Course Name: C104 20CH101 Chemistry for Bio Sciences	
C104.1	Implement the analytical techniques like filtration and evaporation
C104.2	Interpret the properties of proteins
C104.3	Summarize the chemistry of sugar
C104.4	Identify the nature and problems of the soil
C104.5	Decide fertilizer for a particular soil depending on its nature
Course Name: C105 20ME101 Engineering Graphics	
C105.1	Develop the conic sections, special curves, and draw orthographic views from pictorial views.
C105.2	Apply the principles of orthographic projections of points in all quadrants, lines and planes in first quadrant.
C105.3	Construct the projections of simple solids like prisms, pyramids, cylinder and cone.
C105.4	Build the sectional views of solids like cube, prisms, pyramids, cylinders & cones and development of its lateral surfaces.
C105.5	Organize and draw isometric and perspective sections of simple solids.
Course Name: C106 20AG102 Agriculture Engineering Practices Laboratory	
C106.1	Identify and solve the plant protection tools and weeding practices
C106.2	Gain knowledge on soil management practices
C106.3	Identify and solve the basic engineering problems at home and in workplace
C106.4	Develop the surfaces and make simple components like tray and funnel. Prepare pipe connections and sand moulds.
C106.5	Make simple metal joints using welding equipment and wooden joints using carpentry tools. Demonstrate the fundamentals of machining.
Course Name: C107 20MC101 Induction Programme	
C107.1	Perform curricular and co-curricular activities excellently.
C107.2	Do the skill based training with excellence.
C107.3	Work as team for the given task
C107.4	Gain character and behaviour
C107.5	Demonstrate the acquired skills effectively

Course Name: C108 20MA201 Mathematics - II for Bio Sciences

C108.1	Explain various techniques in solving Ordinary differential equations with constant coefficients
C108.2	Apply complex variables in finding ,Gradient, divergence, curl of a vector point function
C108.3	Identify the concepts of analytic functions and its properties and apply it in conformal mapping.
C108.4	Represent periodic functions using Fourier series
C108.5	Observe how the term of a sequence is represented graphically.

Course Name: C109 20ME201 Engineering Mechanics

C109.1	Illustrate the vectorial and scalar representation of forces and moments
C109.2	Find the rigid body in equilibrium.
C109.3	Determine the properties of surfaces and solids.
C109.4	Calculate dynamic forces exerted in rigid body
C109.5	Determine the friction and the effects by the laws of friction

Course Name: C110 20ENE02 Advanced Communicative English

C110.1	Apply knowledge of English grammar for effective communication
C110.2	Make use of common English phrases and vocabulary strength.
C110.3	Build self-confidence and enhance professionalism
C110.4	Implement listening, reading and writing skills in real - life situations
C110.5	Speak fluently in English with proper pronunciation, intonation, tone and accent.

Course Name: C111 20PH201 Physics for Bio Sciences

C111.1	Explain the knowledge about elastic modulus
C111.2	Compare the working of lasers and propagation of light through optical fibers and its applications
C111.3	Demonstrate the thermal conductivity of good and bad Conductors.
C111.4	Demonstrate about the atomic arrangement in crystals
C111.5	Classify the natural calamities like seismic hazards, flood hazards in detail.

Course Name: C112 20CS201 Problem Solving using Python

C112.1	Develop algorithmic solutions to simple computational problems and read, write, execute by simple python programs.
C112.2	Structure simple python programs for solving problems.
C112.3	Administer the role of control statements and functions involving the idea of modularity.
C112.4	Represent compound data using python strings and lists.
C112.5	Read and write data from/to files in python Programs.

Course Name: C113 20AG201 Crop Husbandry Laboratory

C113.1	Identify and selection of seeds
C113.2	Prepare the seed bed and sowing/transplanting techniques
C113.3	Analyze the biometric observation measurements
C113.4	Explain the Weed, Water and Nutrients management
C113.5	Knowledge on Harvesting techniques

Course Name: C114 20MC201 Environmental Sciences

C114.1	Describe the ecosystem and environment
C114.2	Understand the ecological balance and preservation of bio diversity
C114.3	Demonstrate various types of pollution in order to control pollution
C114.4	Classify the energy sources for the conservation of non conventional energy sources
C114.5	Identify the nature and management of e-waste and solid waste

Course Name: C201 20MA301 Transforms and Boundary Value Problems

C201.1	Classify the linear and non-linear partial differential equations.
C201.2	Illustrate the Fourier series expansion and harmonic analysis
C201.3	Interpret the solution of boundary value problems.
C201.4	Apply transform techniques to solve engineering problems.
C201.5	Determine the Z-transforms and difference equations.

Course Name: C202 20AG301 Engineering Thermodynamics for Agriculture Engineering

C202.1	Explain the basic concepts of Thermodynamics
C202.2	Illustrate the first and second law of thermodynamics
C202.3	Knowledge on the concepts of heat engines
C202.4	Identify the properties of gases and vapour mixtures
C202.5	Apply the heat transfer concepts in thermodynamics

Course Name: C203 20AG302 Theory of Machines

C203.1	Explain the basic terminologies in machines
C203.2	Interpret the friction and lubrication in machines
C203.3	Summarize the motion of cam and follower in machines
C203.4	Identify the types of gears and gear trains in engines
C203.5	Apply speed and energy in flywheel and their balancing in machines

Course Name: C204 20AG303 Fluid Mechanics and Machineries for Agriculture Engineering

C204.1	Identify the properties and behaviours of fluids under static condition
C204.2	Apply the dynamics of fluids through control volume approach
C204.3	Apply principles of conservation laws
C204.4	Construct the various hydraulic engineering problems
C204.5	Develop the dimensional analysis in fluid mechanics and pumps

Course Name: C205 20AG304 Soil Science and Engineering

C205.1	Explain physical properties of soil
C205.2	Identify the soil classification and soil survey
C205.3	Develop the phase relationship of soil and soil compaction
C205.4	Summarize the engineering properties of soil
C205.5	Design of bearing capacity and slope stability of the soil

Course Name: C206 20AG305 Surveying and Levelling

C206.1	Identify the fundamentals of surveying
C206.2	Apply the compass and plane table survey in agriculture
C206.3	Apply the theodolite and modern surveying in irrigation projects
C206.4	Describe the levelling and its types
C206.5	Apply the levelling technology in agriculture

Course Name: C207 20AG306 Computer Aided Design and Drawing Laboratory

C207.1	Create basic drawings the underground pipeline system
C207.2	Organize drawing objects on check dams
C207.3	Create multiline text and hatch objects various types of polughs
C207.4	Describe dimensioning and working of Post harvest technology units
C207.5	Emphasis the drawing additional objects of Biogas plant

Course Name: C208 20MC302 Interpersonnal Skills

C208.1	Practice interpersonal communication skills to influence and build good relationships
C208.2	Identify and pursue personal learning goals.
C208.3	Give evident feedback
C208.4	Reveal group dynamics and amiable behavior
C208.5	Emphasis the communication process

Course Name: C209 20MA401 Numerical Analysis and Statistics

C209.1	Illustrate the algebraic and transcendental equations.
C209.2	Apply the numerical techniques of interpolation and error approximations in various intervals in real life situations.
C209.3	Classify the numerical techniques for solving first and second order ordinary differential equations.
C209.4	Interpret the testing of hypothesis for small and large samples.
C209.5	Explain the basic concepts of classifications of design of experiments in the field of engineering

Course Name: C210 20AG401 Heat and Mass Transfer for Agriculture Engineering

C210.1	Explain the basic heat transfer laws
C210.2	Illustrate the concepts of convective heat transfer
C210.3	Apply the knowledge on heat exchangers in heat transfer
C210.4	Identify the radiation heat transfer techniques in agriculture engineering
C210.5	Interpretation of mass transfer in agriculture engineering

Course Name: C211 20AG402 Electrical and Electronics for Agriculture Engineering

C211.1	Illustrate the electrical circuits and their measurements
C211.2	Identify the various electrical machines for Agriculture
C211.3	Apply the knowledge on semiconductor devices in agriculture
C211.4	Test digital electronics for agriculture
C211.5	Explain the communication engineering in agriculture

Course Name: C212 20AG403 Tractor and Farm Engines

C212.1	Explain on tractor engine and its parts
C212.2	Interpretation of cooling, lubrication, fuel and electrical systems in engines
C212.3	Apply the knowledge on transmission systems in engine
C212.4	Illustrate the hydraulic system in agriculture machineries
C212.5	Testing of tractor, power tiller and bull dozer

Course Name: C213 20AG404 Strength of Materials for Agriculture Engineering

C213.1	Determine stress and strain, principal stresses and principal planes.
C213.2	Analyze plane trusses
C213.3	Determine Shear force and bending moment in beams and understand the concept of theory of simple bending.
C213.4	Apply theory of torsion in analysis of circular shafts and helical springs.
C213.5	Calculate the slope and deflection of beams by various methods.

Course Name: C214 20AG405 IoT in Agricultural Systems

C214.1	Explain the concepts of remote sensing and crop modellings
C214.2	Apply greenhouse and automation in agriculture
C214.3	Identify the various agricultural system management
C214.4	Determination of weather prediction models and forecasting
C214.5	Analyze the e-governance in agricultural system

Course Name: C215 20MC401 Soft Skills

C215.1	Relate the significance and fundamental nature of soft skills.
C215.2	Take part in a wide range of Publicspeaking and professional groupdiscussions.
C215.3	Plan one's time effectively and productively, especially at work.
C215.4	Make use of leadership skills to manage stress &conflict.
C215.5	Organize presentation effectively and participate in interview with confidence.

Course Name: C301 20AG501 Farm Structures and Green House Technology

C301.1	Identify the different ypes of farm buildings
C301.2	Apply the design of dairy and poultry housings
C301.3	Applications of ffarm feed storage structures
C301.4	Construct the rural roads, waer supply and sewage disposal
C301.5	Develop the green houses and constructions

Course Name: C302 20AG502 Unit Operations in Agricultural Processing

C302.1	Examine the evaporation process and types of evaporators for food industry
C302.2	Analyze the principles of filtration and mechanical separation equipment
C302.3	Identify size reduction and grinding equipment and understand the factors affecting the process
C302.4	Identify the gas-liquid and solid-liquid equilibrium concepts and factors influencing equilibrium separation process.
C302.5	Differentiate crystallization and distillation processes and identify processing equipment.

Course Name: C303 20AG503 Farm Implements and Equipments

C303.1	The students will be able to understand the mechanization and various equipment used in the farm for different field operations.
C303.2	Understand the different tillage implements.
C303.3	Understand the Fertilizing equipment.
C303.4	Knowledge on the different types of plant protection equipments.
C303.5	Able to effectively utilize the implements for better production.

Course Name: C304 20AG504 Hydrology, Soil and Water Conservation Engineering

C304.1	Gain knowledge on the basic concepts of precipitation
C304.2	Acquire knowledge on runoff
C304.3	Have adequate knowledge on the concepts of flood and drought
C304.4	Understand the properties of reservoir
C304.5	Understand the groundwater status and their management

Course Name: C305 20AG505 Farm Machinery Laboratory

C305.1	The students will be able to understand the mechanization and various equipment used in the farm for different field operations.
C305.2	Understand the different tillage implements.
C305.3	Understand the Fertilizing equipment.
C305.4	Knowledge on the different types of plant protection equipments.
C305.5	Able to effectively utilize the implements for better production

Course Name: C306 20AGE21 Watershed Management

C306.1	Understand the basic concept of watershed management
C306.2	Understand the planning method of watershed
C306.3	Understand the Management skills of watershed
C306.4	Understand the conservation practice
C306.5	Understand the watershed development programme

Course Name: C307 20FTO01 Process Economics and Industrial Management

C307.1	Understand the basic principles of process plants managements.
C307.2	Understand the economic principles, designs, balancing and inventory for production and management.
C307.3	Apply the quality rules and quality control techniques.
C307.4	Understand the economic principles of process industries.
C307.5	Analysis the profitability, alternative management and replacments of annual reports.

Course Name: C308 20AG601 Agricultural Economics

C308.1	Explain the basics of economics and Agricultural economics.
C308.2	Constructing the consumption theory- utility and demand.
C308.3	Illustrate about theory of production and supply.
C308.4	Infer about the theory of exchange and distribution.
C308.5	Summarize the basics of macroeconomics.

Course Name: C309 20AG602 Irrigation and Drainage Engineering

C309.1	Explain the irrigation requirement
C309.2	Interpretation of method of irrigation system
C309.3	Apply the knowledge on diversion structure in agriculture
C309.4	Illustrate the canal irrigation and command area development
C309.5	Know about the agriculture drainage and system

Course Name: C310 20AG603 Food & Dairy Engineering

C310.1	Explain physical, mechanical, thermal, rheological and electrical properties of food material and appraise their importance in food processing
C310.2	Distinguish various thermal treatment techniques for food products and select suitable thermal processing method for food products based on their properties
C310.3	Compare food drying systems and assess their limitations in applying different food products
C310.4	Explain physical, chemical and thermal properties of milk and compare milk processing Techniques
C310.5	Design various milk processing equipment and evaluate their performance

Course Name: C311 20AG604 Renewable Resource Technology	
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C311.1	Understand the need of energy conversion and the various methods of energy storage.
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C311.2	Explain the concept and field applications of solar energy.
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C311.3	Identify Winds energy as alternate form of energy and to know how it can be tapped.
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C311.4	Understand the Geothermal & Tidal energy, its mechanism of production and its applications.
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C311.5	Explain bio gas generation and its impact on environment.
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Course Name: C312 20AG611 Mini Project	
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C312.1	Use of design principles and develop conceptual and engineering design of any components.
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C312.2	Ability to fabricate any components using different manufacturing tools.
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C312.3	The students will be able to Design engineering solutions to agricultural problems utilising a systems approach and develop
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C312.4	The students will be able to Communicate effectively and to present ideas clearly.
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C312.5	The students will be able to demonstrate the knowledge, skills and work as a team to achieve common goal.
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Course Name: C313 20AG612 Internship	
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C313.1	Integrate theory and practice.
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C313.2	Learn to appreciate work and its function in the economy.
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C313.3	Acquire employment contacts leading directly to a full-time job following graduation from college.
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Course Name: C314 20AGE01 Agricultural Waste Management	
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C314.1	Explain the basic concepts of Agricultural waste management
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C314.2	Illustrate the different types of agriculture wastes and its utilization
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C314.3	Knowledge on the Biomass briquetting techniques
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C314.4	Explain the Biochar production methods
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C314.5	Summarize the basic concept of biogas and bio ethanol production
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Course Name: C315 20AGE04 Storage and Packaging Technology	
C315.1	Understand the working of storage systems.
C315.2	Understand the different methods of storage
C315.3	Provided knowledge on functions o pacagng materials
C315.4	Knowledge on the food packaging material testing.
C315.5	Understand the special packaging techniques
Course Name: C316 20AGO05 Green Building Design	
C316.1	Understand the environmental implications of buildings
C316.2	Explain the concept of building technologies
C316.3	Identify the comforts in building
C316.4	Understand the utility of solar energy in buildings
C316.5	Explain green composites for buildings.
Course Name: C401 20AG701 Entrepreneurship in Agricultural Engineering	
C401.1	Learn the basics of Entrepreneurship
C401.2	Understand the Job oportunites in Industries relating to Technopreneurship
C401.3	Learn the applications and successful technopreneurs
C401.4	Understand the scope and concepts in agri business systems
C401.5	Exposed to various trends in agricultural business management
Course Name: C402 20AG702 Groundwater and Well Engineering	
C402.1	Know the technical aspects of groundwater availability, assessment and utilization
C402.2	Able to locate and effectively utilize the groundwater
C402.3	Know about the various design characteristics of wells
C402.4	Familiarize the theory behind construction and management of wells
C402.5	Able to increase groundwater level and effective utilization

Course Name: C403 20AG703 Post Harvest Technology	
C403.1	Understand the importance of post harvest processing and determine moisture content of products
C403.2	Perform drying of agricultural products and analyze performance of dryers
C403.3	Recognize the working principles of grain cleaning and grading devices and able to select suitable equipment for cereal grains, oilseeds, and pulses
C403.4	Understand the operation of post harvest equipment like shellers, conveyors.
C403.5	Know about different Post Harvest operations and processing methods of harvested crops.
Course Name: C404 20AG711 Design Project	
C404.1	Use of design and analysis of Agriculture Engineering machineries.
C404.2	Ability to design of Drip and Sprinkler irrigation system.
C404.3	The students will be able to Design of Agriculture processing equipments.
C404.4	The students will be able to design of post harvest technology equipments.
C404.5	The students will be able to design of Green house/Poly House/Net House structures.
Course Name: C405 20AG712 Study Tour	
C405.1	Integrate theory and practice.
C405.2	Learn to appreciate work and its function in the economy.
C405.3	Acquire employment contacts leading directly to a full-time job following graduation from college.
Course Name: C406 Process Engineering of Fruits and Vegetables	
C406.1	Able to analyse the structure, composition and ripening of fruits and vegetables.
C406.2	To gain knowledge on pretreatments of fruits and vegetables
C406.3	To gain insight on preservation of horticultural crops
C406.4	Analyze and select the suitable dryer for drying fruits and vegetables
C406.5	Understanding the fundamental concepts of storage and selecting suitable storage conditions.

Course Name: C407 20AGE48 Thermal Power Engineering

C407.1	Determine the calorific values of fuels.
C407.2	Illustrate the working of an IC engines.
C407.3	Identify the performance of an engine & Conduct the different tests.
C407.4	Explain the working of different types of boilers.
C407.5	Illustrate the concept of Cogeneration and CHP.

Course Name: C408 20ITO01 Smart Agriculture

C408.1	Explain the concepts of remote sensing and crop modellings
C408.2	Apply greenhouse and automation in agriculture
C408.3	Identify the various agricultural system management
C408.4	Determination of weather prediction models and forecasting
C408.5	Analyze the e-governance in agricultural system

Course Name: C409 20AGE43 Special Farm Equipment

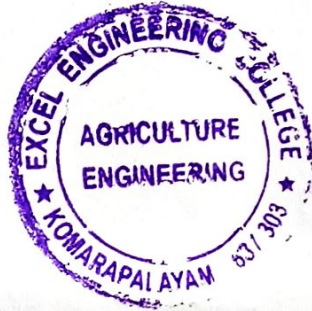
C409.1	To understand the weeding equipments working principle.
C409.2	To carry out a different types of psrayers and dusters.
C409.3	To prepare and identify the energy expenses.
C409.4	To infer the Anthropometry and applications.
C409.5	To identify the human engineering in tractor design.

Course Name: C410 20AGE02 Sustainable Agriculture and Food Security

C410.1	Able to determine land utilization and cropping pattern in India
C410.2	Able to estimation rainfall, drought and irrigation potential in watershed
C410.3	Able to execute natural farming principle for suitable agriculture
C410.4	Able to estimate the food supply and demand projections
C410.5	Able to execute the policies for food security

Course Name: C411 20AG811 Major Project

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| C411.1 | Take up and Evaluate any challenging practical problem. |
| C411.2 | Find solution by formulating proper methodology. |
| C411.3 | Develop the ability to solve a specific problem right from its identification and literature review. |
| C411.4 | Analyze and carry out engineering task related to various fields of agriculture. |
| C411.5 | Analyze and evaluate to obtain solution for practical problems in agricultural engineering. |



Govisham
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