



The Kavery Engineering College

(Approved by AICTE, New Delhi & Affiliated to Anna University)
Mecheri, Mettur Tk. Salem Dt - 636 453.

DEPARTMENT OF AGRICULTURAL ENGINEERING

PROGRAMME: B. TECH. AGRICULTURAL ENGINEERING

VISION

- ❖ To disseminate excellent professionals in Agriculture Engineering through quality education, leadership skills and ethical values to serve the society.

MISSION

- ❖ To ensure effective teaching learning process imparting practical knowledge on conventional and modern Technologies.
- ❖ To provide in-depth knowledge and applications of Agriculture Engineering.
- ❖ Strive to develop innovative technologies to meet the challenges in Agricultural Engineering.

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

- ❖ To train and educate students with general knowledge and skills in agricultural water management, agricultural production process, farm machinery and farm management.
- ❖ To provide a sound theoretical knowledge in engineering principles applied to agriculture.
- ❖ To prepare students for a successful agricultural engineering career integrating all aspects of engineering in agriculture.
- ❖ To develop innovative capacity of students for increasing agricultural production with scarce water resources available.
- ❖ To impart positive and responsive out their mission as engineers. reach attitudes, initiative and creative thinking in their mission as engineers.
- ❖ To understand ethical issues and responsibility of serving the society and the environment at large.

PROGRAM OUTCOMES (POs)

- ❖ Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
- ❖ Problem analysis: Identify, formulate, review research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences,



The Kavery Engineering College

(Approved by AICTE, New Delhi & Affiliated to Anna University)
Mecheri, Mettur Tk. Salem Dt - 636 453.

and engineering sciences.

- ❖ Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
- ❖ Conduct Investigations of Complex Problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
- ❖ Modern Tool Usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.
- ❖ The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
- ❖ Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
- ❖ Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
- ❖ Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
- ❖ Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
- ❖ Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
- ❖ Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAM SPECIFIC OUTCOMES (PSOs)

- ❖ To make expertise in design and engineering problem solving approach in agriculture with proper knowledge and skill.



The Kavery Engineering College

(Approved by AICTE, New Delhi & Affiliated to Anna University)
Mecheri, Mettur Tk. Salem Dt - 636 453.

- ❖ To enhance the ability of the students to formulate solutions to real-world problems pertaining to sustained agricultural productivity using modern technologies.
- ❖ To inculcate entrepreneurial skills through strong Industry-Institution linkage.

COURSE OUTCOMES (COs)

Regulation	2017
Semester	01
Course Code	HS8151
Course Name	Communicative English
Course Outcome	<ul style="list-style-type: none">❖ Read articles of a general kind in magazines and newspapers❖ Participate effectively in informal conversations; introduce themselves and their friends and express opinions in English.❖ Comprehend conversations and short talks delivered in English❖ Write short essays of a general kind and personal letters and emails in English

Regulation	2017
Semester	01
Course Code	MA8151
Course Name	Engineering Mathematics – I
Course Outcome	<p>After completing this course, students should demonstrate competency in the following skills:</p> <ul style="list-style-type: none">❖ Use both the limit definition and rules of differentiation to differentiate functions❖ Apply differentiation to solve maxima and minima problems.❖ Evaluate integrals both by using Riemann sums and by using the Fundamental Theorem of Calculus.❖ Apply integration to compute multiple integrals, area, volume, integrals in



The Kavery Engineering College

(Approved by AICTE, New Delhi & Affiliated to Anna University)
Mecheri, Mettur Tk. Salem Dt - 636 453.

	<p>polar coordinates, in addition to change of order and change of variables.</p> <ul style="list-style-type: none">❖ Evaluate integrals using techniques of integration, such as substitution, partial fractions and integration by parts❖ Determine convergence/divergence of improper integrals and evaluate convergent improper integrals❖ Apply various techniques in solving differential equations
--	---

Regulation	2017
Semester	01
Course Code	PH8151
Course Name	Engineering Physics
Course Outcome	<p>Upon completion of this course</p> <ul style="list-style-type: none">❖ the students will gain knowledge on the basics of properties of matter and its applications❖ the students will acquire knowledge on the concepts of waves and optical devices and their applications in fibre optics❖ the students will have adequate knowledge on the concepts of thermal properties of materials and their applications in expansion joints and heat exchangers❖ the students will get knowledge on advanced physics concepts of quantum theory and its applications in tunneling microscopes,❖ the students will understand the basics of crystals, their structures and different crystal growth techniques

Regulation	2017
Semester	01
Course Code	CY8151
Course Name	Engineering Chemistry
Course Outcome	<ul style="list-style-type: none">❖ The knowledge gained on engineering materials, fuels, energy sources and water treatment techniques will facilitate better understanding of



The Kavery Engineering College

(Approved by AICTE, New Delhi & Affiliated to Anna University)
Mecheri, Mettur Tk. Salem Dt - 636 453.

	engineering processes and applications for further learning.
--	--

Regulation	2017
Semester	01
Course Code	GE8151
Course Name	Problem Solving and Python Programming
Course Outcome	<ul style="list-style-type: none">❖ Develop algorithmic solutions to simple computational problems.❖ Develop and execute simple Python programs.❖ Write simple Python programs using conditionals and looping for solving problems.❖ Decompose a Python program into functions.❖ Represent compound data using Python lists, tuples, dictionaries etc.❖ Read and write data from/to files in Python programs.

Regulation	2017
Semester	01
Course Code	GE8152
Course Name	Engineering Graphics
Course Outcome	<p>On successful completion of this course, the student will be able to</p> <ul style="list-style-type: none">❖ familiarize with the fundamentals and standards of Engineering graphics❖ perform freehand sketching of basic geometrical constructions and multiple views of objects.❖ project orthographic projections of lines and plane surfaces❖ draw projections and solids and development of surfaces❖ visualize and to project isometric and perspective sections of simple solids.



The Kavery Engineering College

(Approved by AICTE, New Delhi & Affiliated to Anna University)
Mecheri, Mettur Tk. Salem Dt - 636 453.

Regulation	2017
Semester	01
Course Code	GE8161
Course Name	Problem Solving and Python Programming Laboratory
Course Outcome	<ul style="list-style-type: none">❖ Write, test, and debug simple Python programs.❖ Implement Python programs with conditionals and loops.❖ Develop Python programs step-wise by defining functions and calling them.❖ Use Python lists, tuples, dictionaries for representing compound data.❖ Read and write data from/to files in Python.

Regulation	2017
Semester	01
Course Code	BS8161
Course Name	Physics and Chemistry Laboratory
Course Outcome	<ul style="list-style-type: none">❖ apply principles of elasticity, optics and thermal properties for engineering applications❖ The students will be outfitted with hands-on knowledge in the quantitative chemical analysis of water quality related parameters.

Regulation	2017
Semester	02
Course Code	HS8251
Course Name	Technical English
Course Outcome	<p>At the end of the course learners will be able to</p> <ul style="list-style-type: none">❖ Read technical texts and write area- specific texts effortlessly❖ Listen and comprehend lectures and talks in their area of specialisation successfully❖ Speak appropriately and effectively in varied formal and informal contexts.❖ Write reports and winning job applications



The Kavery Engineering College

(Approved by AICTE, New Delhi & Affiliated to Anna University)
Mecheri, Mettur Tk. Salem Dt - 636 453.

Regulation	2017
Semester	02
Course Code	MA8251
Course Name	Engineering Mathematics – II
Course Outcome	<p>After successfully completing the course, the student will have a good understanding of the following topics and their applications</p> <ul style="list-style-type: none">❖ Eigenvalues and eigenvectors, diagonalization of a matrix, Symmetric matrices, Positive definite matrices and similar matrices❖ Gradient, divergence and curl of a vector point function and related identities❖ Evaluation of line, surface and volume integrals using Gauss, Stokes and Green's theorems and their verification❖ Analytic functions, conformal mapping and complex integration.❖ Laplace transform and inverse transform of simple functions, properties, various related theorems and application to differential equations with constant coefficients

Regulation	2017
Semester	02
Course Code	BE8251
Course Name	Basic Electrical And Electronics Engineering
Course Outcome	<ul style="list-style-type: none">❖ Ability to identify the electrical components and explain the characteristics of electrical machines❖ Ability to identify electronics components and understand the characteristics

Regulation	2017
Semester	02



The Kavery Engineering College

(Approved by AICTE, New Delhi & Affiliated to Anna University)
Mecheri, Mettur Tk. Salem Dt - 636 453.

Course Code	GE8292
Course Name	Engineering Mechanics
Course Outcome	<p>On successful completion of this course, the student will be able to</p> <ul style="list-style-type: none">❖ illustrate the vectorial and scalar representation of forces and moments❖ analyzed the rigid body in equilibrium❖ evaluate the properties of surfaces and solids❖ calculate dynamic forces exerted in rigid body❖ determine the friction and the effects by the laws of friction

Regulation	2017
Semester	02
Course Code	AI8201
Course Name	Principles And Practices of Crop Production
Course Outcome	<ul style="list-style-type: none">❖ Students completing this course would have acquired knowledge on crop selection, crop production crop management❖ The students will have the required knowledge in the area of production of agricultural and horticultural crops.

Regulation	2017
Semester	02
Course Code	GE3271
Course Name	Engineering Practices Laboratory
Course Outcome	<p>On successful completion of this course, the student will be able to</p> <ul style="list-style-type: none">❖ fabricate carpentry components and pipe connections including plumbing works❖ Make the models using sheet metal works❖ Illustrate on centrifugal pump, Air conditioner, operations of smithy, foundary and Fittings



The Kavery Engineering College

(Approved by AICTE, New Delhi & Affiliated to Anna University)
Mecheri, Mettur Tk. Salem Dt - 636 453.

	<ul style="list-style-type: none">❖ Carry out basic home electrical works and appliances❖ Measure the electrical quantities❖ Elaborate on the components, gates, soldering practices❖ Draw pipe line plan; lay and connect various pipe fittings used in common
--	--

Regulation	2017
Semester	03
Course Code	MA8353
Course Name	Transforms And Partial Differential Equations
Course Outcome	<p>After successfully completing the course, the student will have a good understanding of the following topics and their applications</p> <ul style="list-style-type: none">❖ Understand how to solve the given standard partial differential equations❖ Solve differential equations using Fourier series analysis which plays a vital role in engineering applications❖ Appreciate the physical significance of Fourier series techniques in solving one and two dimensional heat flow problems and one dimensional wave equations❖ Understand the mathematical principles on transforms and partial differential equations would provide them the ability to formulate and solve some of the physical problems of engineering❖ Use the effective mathematical tools for the solutions of partial differential equations by using Z transform techniques for discrete time systems

Regulation	2017
Semester	03
Course Code	AI8301



The Kavery Engineering College

(Approved by AICTE, New Delhi & Affiliated to Anna University)
Mecheri, Mettur Tk. Salem Dt - 636 453.

Course Name	Soil Science And Engineering
Course Outcome	At the end of the course the student will be able to understand <ul style="list-style-type: none">❖ Fundamental knowledge of soil physical parameters❖ The procedures involved in soil survey, soil classification❖ The phase relationship and soil compaction.❖ Concepts of bearing capacity and slope stability.

Regulation	2017
Semester	03
Course Code	AI8302
Course Name	Fluid Mechanics And Hydraulics
Course Outcome	On completion of the course, the student is expected to <ul style="list-style-type: none">❖ The students will be able to get a basic knowledge of fluids in static, kinematic and dynamic equilibrium.❖ They will also gain the knowledge of the applicability of physical laws in addressing problems in hydraulics

Regulation	2017
Semester	03
Course Code	MF8491
Course Name	Thermodynamics
Course Outcome	❖ Upon completion of this course, the students can able to understand different gas power cycles and use of them in IC and R&AC applications..

Regulation	2017
Semester	03
Course Code	AI8303
Course Name	Theory of Machines
Course Outcome	On completion of the course, the student is expected to



The Kavery Engineering College

(Approved by AICTE, New Delhi & Affiliated to Anna University)
Mecheri, Mettur Tk. Salem Dt - 636 453.

	<ul style="list-style-type: none">❖ Basic knowledge on the friction applications, gear and gear trains❖ Learn the fundamentals related to motion of cam and follower and fly wheel balancing
--	---

Regulation	2017
Semester	03
Course Code	CE8304
Course Name	Surveying And Levelling
Course Outcome	<ul style="list-style-type: none">❖ Students are expected to use all surveying equipments, prepare LS & CS, contour maps and carryout surveying works related to land and civil engineering projects

Regulation	2017
Semester	03
Course Code	AI3311
Course Name	Fluid Mechanics Laboratory
Course Outcome	On completion of the course, the student is expected to <ul style="list-style-type: none">❖ Apply Bernoulli equation for calibration of flow measuring devices.❖ Measure friction factor in pipes and compare with Moody diagram.❖ Determine the performance characteristics of rotodynamic pumps.❖ Determine the performance characteristics of positive displacement pumps.

Regulation	2017
Semester	03
Course Code	CE8312
Course Name	Surveying And Levelling Laboratory
Course Outcome	<ul style="list-style-type: none">❖ Students completing this course would have acquired practical knowledge on handling basic survey instruments including leveling and development of contour map of given area.



The Kavery Engineering College

(Approved by AICTE, New Delhi & Affiliated to Anna University)
Mecheri, Mettur Tk. Salem Dt - 636 453.

Regulation	2017
Semester	03
Course Code	AI8311
Course Name	Fluid Mechanics Laboratory
Course Outcome	On completion of the course, the student is expected to <ul style="list-style-type: none">❖ The students will be able to measure flow in pipes and determine frictional losses❖ The students will be able to develop characteristics of pumps and turbines

Regulation	2017
Semester	03
Course Code	HS8381
Course Name	Interpersonal Skills/Listening And Speaking
Course Outcome	At the end of the course Learners will be able to: <ul style="list-style-type: none">❖ Listen and respond appropriately❖ Participate in group discussions❖ Make effective presentations❖ Participate confidently and appropriately in conversations both formal and informal

Regulation	2017
Semester	04
Course Code	MA8391
Course Name	Probability And Statistics
Course Outcome	Upon successful completion of the course, students will be able to: <ul style="list-style-type: none">❖ Understand the fundamental knowledge of the concepts of probability and have knowledge of standard distributions which can describe real life phenomenon..❖ Understand the basic concepts of one and two dimensional random



The Kavery Engineering College

(Approved by AICTE, New Delhi & Affiliated to Anna University)
Mecheri, Mettur Tk. Salem Dt - 636 453.

	<p>variables and apply in engineering applications..</p> <ul style="list-style-type: none">❖ Apply the concept of testing of hypothesis for small and large samples in real life problems.❖ Apply the basic concepts of classifications of design of experiments in the field of agriculture and statistical quality control.❖ Have the notion of sampling distributions and statistical techniques used in engineering and management problems.
--	--

Regulation	2017
Semester	04
Course Code	AI8401
Course Name	Unit Operations In Agricultural Processing
Course Outcome	<p>At the end of the study the student will have knowledge on</p> <ul style="list-style-type: none">❖ Fundamentals of various unit operations of Agricultural Processing.❖ Material handling equipments.

Regulation	2017
Semester	04
Course Code	AI8402
Course Name	Farm Tractors
Course Outcome	<p>On completion of the course, the student is expected to</p> <ul style="list-style-type: none">❖ The students will be able to understand the various equipments and mechanizations used in the farm❖ The students will have the knowledge on earth moving machineries, tractor classification and tillage implements

Regulation	2017
Semester	04
Course Code	CE8091



The Kavery Engineering College

(Approved by AICTE, New Delhi & Affiliated to Anna University)
Mecheri, Mettur Tk. Salem Dt - 636 453.

Course Name	Hydrology and Water Resources Engineering
Course Outcome	<p>On completion of the course, the student is expected to</p> <ul style="list-style-type: none">❖ an understanding of the key drivers on water resources, hydrological processes and their integrated behaviour in catchments❖ Ability to construct and apply a range of hydrological models to surface water and groundwater problems including Hydrograph, Flood/Drought management, artificial recharge.❖ Ability to conduct Spatial analysis of rainfall data and design water storage reservoirs.❖ Understand the concept and methods of ground water management Understand and apply the concepts of groundwater management.

Regulation	2017
Semester	04
Course Code	CE8393
Course Name	Strength Of Materials
Course Outcome	<p>On completion of the course, the student is expected to</p> <ul style="list-style-type: none">❖ Upon completion of this course, the students can able to apply mathematical knowledge to calculate the deformation behaviour of simple structures.❖ Critically analyse problem and solve the problems related to structural elements and analyse the deformation behaviour for different types of loads.

Regulation	2017
Semester	04
Course Code	GE8291
Course Name	Environmental Science And Engineering
Course Outcome	<ul style="list-style-type: none">❖ Environmental Pollution or problems cannot be solved by mere laws. Public participation is an important aspect which serves the environmental Protection. One will obtain knowledge on the following after completing



The Kavery Engineering College

(Approved by AICTE, New Delhi & Affiliated to Anna University)
Mecheri, Mettur Tk. Salem Dt - 636 453.

	<p>the course</p> <ul style="list-style-type: none">❖ Public awareness of environmental is at infant stage.❖ Ignorance and incomplete knowledge has lead to misconceptions❖ Development and improvement in std. of living has lead to serious environmental disasters
--	---

Regulation	2017
Semester	04
Course Code	AI8411
Course Name	Soil Science Laboratory
Course Outcome	<ul style="list-style-type: none">❖ Students know the techniques to determine various physical and chemical properties of soil that are applicable for agriculture and irrigation by conducting appropriate tests.

Regulation	2017
Semester	04
Course Code	AI3412
Course Name	Strength of Materials Laboratory
Course Outcome	<ul style="list-style-type: none">❖ Find the stress distribution and strains in regular and composite structures subjected to axial loads.❖ Assess the shear force, bending moment and bending stresses in beams.❖ Apply torsion equation in design of circular shafts and helical springs

Regulation	2017
Semester	04
Course Code	CE8481
Course Name	Strength of Materials Laboratory
Course Outcome	<ul style="list-style-type: none">❖ The students will have the required knowledge in the area of testing of materials and components of structural elements experimentally Measure



The Javery Engineering College

(Approved by AICTE, New Delhi & Affiliated to Anna University)
Mecheri, Mettur Tk. Salem Dt - 636 453.

	friction factor in pipes and compare with Moody diagram.
--	--

Regulation	2017
Semester	04
Course Code	HS8461
Course Name	Advanced Reading And Writing
Course Outcome	At the end of the course Learners will be able to: <ul style="list-style-type: none">❖ Write different types of essays❖ Write winning job applications.❖ Read and evaluate texts critically❖ Display critical thinking in various professional contexts