

तकनीकी महाविद्यालय

सरदार वल्लभभाई पटेल कृषि एवं प्रौद्योगिक विश्वविद्यालय, मेरठ-250110

डा० बी०आर० सिंह
अधिष्ठाता



पत्रांक/सवप/ COT/2023/ 1032
दिनांक: 12/05/2023

सेवा में,

अधिष्ठाता
जैव प्रौद्योगिकी महाविद्यालय

महोदय,

कृपया NAAC Accreditation हेतु Degree Program Wise PROGRAMME OUTCOMES / Course Outcome UG./ PG. and Ph.D. Ag. Engg. (Process and Food Engg.) से सम्बंधित तकनीकी महाविद्यालय एवं कृषि अभियांत्रिकी विभाग का विवरण आपके सुलभ संदर्भ हेतु संलग्न कर प्रेषित।

अधिष्ठाता, तकनीकी महाविद्यालय
Dean
College of Technology
S.V.P.U.A.&T., Meerut (U.P.)

15/5/2023

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College of Technology

SARDAR VALLABHBHAI PATEL UNIVERSITY OF AGRICULTURE AND
TECHNOLOGY, MEERUT- 250 110

B.Tech. (Agril. Engg.)

Duration

Four academic years (8 semesters)

Minimum Eligibility, Curriculum

<http://www.svpuat.ac.in/>

Structure & other details:

PROGRAMME OUTCOMES (POs)

1. To provide students with a comprehensive knowledge in mathematical, scientific and agricultural engineering fundamentals to solve the engineering and farmers related problems and also to pursue higher studies.
2. To provide students experience for planning as well as conducting experiments/ projects in modern engineering laboratories including farmer's friendly technologies and computer based simulation experiments, integrating the significance of experimental data and properly reporting the results.
3. To develop ability of the students to analyze data and technical concepts for application to product design and/or solving real field problems.
4. To make the students familiar with latest and contemporary professional knowledge in the field of agricultural engineering including managerial skills and ethics required for emerging technologies, global economy and also to foster other skills required for grooming them into good professionals.
5. To prepare the students for their successful career in industry/scientific institutions/ technology transfer organizations and also to meet the challenges at national and international levels.
6. Developing Critical and Analytical Thinking Abilities: Critical thinking in academics, presentations, research and professional alliances relies heavily on one's ability to be creative.
7. Developing Entrepreneurship Acumen: Helps to prepare students for research/ managerial roles and as entrepreneurs.
8. Developing skills to solve real-world Engineering problems: Equips students to demonstrate the capabilities required to apply cross-functional knowledge and technologies in solving real-world engineering problems.
9. Appropriate techniques: Enables students to demonstrate use of appropriate techniques to effectively manage academic and research challenges.
10. Practical exposure: Providing an opportunity for the students to gain practical exposure towards the workplace of engineering laboratory and make them industry ready.
11. Decision Making: Equip students with techniques of analyzing and interpretation of the research data which is used in Decision Making.
12. To develop students with the ability to analyze various functional issues affecting the engineering. Organization and acquiring conceptual clarity of various functional areas of engineering field.
13. The students understand the ethical challenges and choices in a engineering unit setting and develop ability to evolve strategies for research/ organizational benefits.
14. To inculcate in students the ability to gain multidisciplinary knowledge through seminar reports, case study analysis, Research projects and industrial training and Organizational visits.
15. Demonstrate ability to work in Groups and acquire leadership quality required in their career.



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COURSE OUTCOMES (COT)

Subject	Subject Code	Course Outcomes
Engineering Mathematics-I	TBS- 111	The objective of this course is to familiarize agricultural engineers with techniques in Statistics, Differentiation with its applications and Matrices. It aims to equip the students with standard concepts and tools from intermediate to advanced level that will enable them to tackle the more advanced level of mathematics and applications that they would find useful in their disciplines.
Engineering Physics	TBS -112	1.To explain the distribution of energy in black body radiation and to understand the difference in particle and wave nature with explanation of Compton effect and Schrodinger wave equation. 2.To understand the behavior of waves through various examples/applications of interference and diffraction phenomenon and the concept of grating and resolving power. 3.To know the functioning of optical fiber and its properties and applications. To understand the concept, properties and applications of Laser. 4.To know the properties and applications of superconducting materials and Nano materials.
Engineering Chemistry	TBS- 113	1. To enable the students to understand about the Chemistry of Atomic and Molecular structure, Chemistry of advanced Materials like Liquid crystals, Nano materials, Graphite & fullerenes and Green Chemistry. 2. To enable the students to understand and apply the detailed concepts of spectroscopic techniques and stereochemistry to identify the compounds, element etc..
Principles of Soil Science	TAG -111	1. Understanding the concept of soil and soil profile. 2. Understanding the concept of Physio-chemical properties of soil. 3. Analyzing the effect of pH on soil nutrient availability. 4. Identifying the macro and microorganisms and their effect on soil. 5. Evaluating the physical and chemical properties of soil.
Surveying and Leveling	CED- 111	1. Describe the function of surveying and work with survey instruments, take observations, and prepare plan, profile, and cross-section and perform calculations. 2. Calculate, design and layout horizontal and vertical curves. 3. Operate a total station and GPS to measure distance, angles, and to calculate differences in elevation. Reduce data for application in a geographic information system.
Engineering Mechanics	CED- 112	After completing this course, the students should be able to understand the various effect of force and motion on the engineering design structures.
Engineering Drawing	MED- 111	1.Use scales and draw projections of objects. 2. Explain views of solids and their sectional surfaces. 3. Analyze and draw isometric projections of objects. 4. Demonstrate orthographic representation of perspective views using modern tools. 5. Apply AutoCAD software for creation of engineering drawing and models
Heat and Mass Transfer	MED- 112	Upon completion of the course, the student will be able to: 1: Understand the basic modes of heat and mass transfer. 2: Apply principles of heat and mass transfer to predict transfer coefficients 3: Analyze working of various heat transfer equipment 4: Design heat and mass transfer equipment.
Engineering Mathematics-II	TBS-121	1. Understand and apply the tools of differentiation of functions of complex variables that are used in various techniques dealing with engineering problems. 2. To deal with vector calculus that is required to graduate engineers. 3. Understand and apply the effective mathematical tools for the solution of differential equations of model physical processes 4. Apply the tool of Fourier series and multivariable partial Differential equations for learning advanced Engineering Mathematics 5. Apply the application of


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		partial Differential equations in heat and wave equations
Environmental Science and Disaster Management	TAG-122	Upon completion of this course, students will acquire knowledge about 1. Understand the natural environment and its relationships with human activities. 2. Characterize and analyze human impacts on the environment. 3. Integrate facts, concepts, and methods from multiple disciplines and apply to environmental problems. 4. Capacity to integrate knowledge and to analyses, evaluate and manage the different public health aspects of disaster events at a local a and global levels. 4. Capacity to obtain, analyses, and communicate information on risks, relief needs and lessons learned from earlier disasters in order to formulate strategies for mitigation in future scenarios.
Entrepreneurship Development and Business Management	TAG-121	Clarity about the business idea. Market potential for the product or service. Skills in preparing business plan. Conducting project feasibility study.
Fluid Mechanics and Open Channel Hydraulics	CED-121	1. Understand the broad principles of fluid statics, kinematics and dynamics 2. Understand definitions of the basic terms used in fluid mechanics 3. Understand classifications of fluid flow 4. Apply the continuity, momentum and energy principles 5. Apply dimensional analysis
Strength of Materials	CED-122	1. Describe the concepts and principles of stresses and strains 2. Analyze solid mechanics problems using classical methods and energy methods 3. Analyze structural members subjected to combined stresses 4. Calculate the deflections at any point on a beam subjected to a combination of loads 5. Understand the behavior of columns, springs and cylinders against loads.
Workshop Technology and Practices	MED-121	1. Use various engineering materials, tools, machines and measuring equipments. 2. Perform machine operations in lathe and CNC machine. 3. Perform manufacturing operations on components in fitting and carpentry shop. 4. Perform operations in welding, moulding, casting and gas cutting. 5. Fabricate a job by 3D printing manufacturing technique
Theory of Machines	MED-122	1. To identify and enumerate different link based mechanisms with basic understanding of motion 2. To understand and illustrate various power transmission mechanisms using suitable methods 3. To understand and illustrate various power transmission mechanisms using suitable methods 4. To design and evaluate the performance of different cams and followers.
Web Designing and Internet Applications	CSE-121	1. Understand principle of Web page design and about types of websites 2. Visualize and Recognize the basic concept of HTML and application in web designing. 3. Recognize and apply the elements of Creating Style Sheet (CSS). 4. Understand the basic concept of Java Script and its application. 5. Introduce basics concept of Web Hosting and apply the concept of SEO
Principles of Horticultural Crops and Plant Protection	TAG-211	1 Understanding the concepts of horticulture including the management of water, weed, fertility, and market chain. 2 Explaining the vegetable gardens, orchards and their management practices. 3 Analyzing the weed management, fertility management in production of Horticultural crops.
Principles of Agronomy	TAG-212	1. Understanding the scope and practices of Agronomy. 2. Demonstrating the methods of irrigation, crop rotation and weeding in different crops. 3. Applying the method of seed sowing, tillage, weeding, irrigation, and crop management in problematic areas. 4. Analyzing the effect of weed-crop competition on agricultural productivity.
Communication Skills and Personality Development	TBS-211	1. Write professionally in simple and correct English. 2. Demonstrate active listening with comprehension, and the ability to write clear and well structured emails and proposals. 3. Learn the use of correct body language and tone of voice to enhance communication.


Dean

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कुलसचिव

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		<p>4. Acquire the skills necessary to communicate effectively and deliver presentations with clarity and impact</p> <p>5. Understand and apply some important aspects of core skills, like Leadership and stress management.</p>
Engineering Mathematics-III	TBS- 212	<p>1. Remember the concept of Laplace transform and apply in solving real life problems. 2. Understand the concept of Fourier and Z – transform to evaluate engineering problems 3. Remember the concept of Formal Logic ,Group and Rings to evaluate real life problems 4. Apply the concept of Set, Relation, function and Counting Techniques 5. Apply the concept of Lattices and Boolean Algebra to create Logic Gates and Circuits, Truth Table, Boolean Functions, Karnaugh Map</p>
Soil Mechanics	CED-211	<p>1. Classify the soil and determine its Index properties. 2.Evaluate permeability and seepage properties of soil. 3.Interpret the compaction and consolidation characteristics & effective stress concept of soil. 4. Determine the vertical and shear stress under different loading conditions and explain the phenomenon of soil liquefaction. 5. Interpret the earth pressure and related slope failures.</p>
Design of Structures	CED-212	<p>1. Explain type of structures and method for their analysis. 2. Analyze different types of trusses for member forces. 3.Compute slope and deflection in determinate structures using different methods. 4. Apply the concept of influence lines and moving loads to compute bending moment and shear force at different sections. 5. Analyze determinate arches for different loading conditions.</p>
Machine Design	MED-211	<p>1.To identify and enumerate different link based mechanisms with basic understanding of motion2. To understand and illustrate various power transmission mechanisms using suitable methods</p> <p>3. To understand and illustrate various power transmission mechanisms using suitable methods.</p>
Thermodynamics, Refrigeration and Air Conditioning	MED-212	<p>1.Illustrate the fundamental principles and applications of refrigeration and air conditioning system. 2. Obtain cooling capacity and coefficient of performance by conducting test on vapour compression refrigeration systems 3.Present the properties, applications and environmental issues of different refrigerants. 4. Calculate cooling load for air conditioning systems used for various 5.Operate and analyze the refrigeration and air conditioning systems.</p>
Electrical Machines and Power Utilization	ECE-211	<p>1.Analyze the various principles & concepts involved in Electromechanical Energy conversion. 2. Demonstrate the constructional details of DC machines as well as transformers, and principle of operation of brushless DC motor, Stepper and DC Servo motors. 3. Evaluate the performance and characteristics of DC Machine as motor and as well as generator. 4. Evaluate the performance of transformers, individually and in parallel operation. 5. Demonstrate and perform various connections of three phase transformers.</p>
Building Construction and Cost Estimation	CED-221	<p>1. Identify various building materials and to understand their basic properties. 2. Understand the use of non-conventional civil engineering materials. 3. Study suitable type of flooring and roofing in the construction process. 4. Characterize the concept of plastering, pointing and various other building services. 5. Exemplify the various fire protection, sound and thermal insulation techniques, maintenance and repair of buildings.</p>
Auto CAD Applications	MED-221	<p>Upon completion of the course, the student will: Become familiar with the Auto CAD user interface. Understand the fundamental concepts and features of Auto CAD. Use the precision drafting tools in Auto CAD to develop accurate technical drawings.</p>

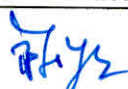
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Applied Electronics and Instrumentation	ECE-221	1. Recognize the evolution and history of units and standards in Measurements. 2. Identify the various parameters that are measurable in electronic instrumentation. 3. Employ appropriate instruments to measure given sets of parameters. 4. Practice the construction of testing and measuring set up for electronic systems. 5. To have a deep understanding about instrumentation concepts which can be applied to Control systems. Relate the usage of various instrumentation standards.
Tractor and Automotive Engines	FME- 221	1. Understand the working and operating principles of different systems of I.C. engines. 2. Identify the different components of I.C. engines. 3. Relate and analyze the working of different systems of engine. 4. Comprehend the terminologies and efficiency of I.C. engines with numerical specific to tractor engine.
Engineering Properties of Agricultural Produce	PFE- 221	1. Understand the basics of engineering properties of foods. 2. Analyze the design concepts for different food instruments /equipment 3. Implement the engineering properties in processing machines.
Watershed Hydrology	SWE- 221	1. Understand the basic concept of hydrological cycle and its various phases. 2. Understand the concept of runoff and apply the knowledge to construct the hydrograph. 3. Apply the various methods to assess the flood. 4. Assess the quality of various forms of water and their aquifer properties. 5. Understand the well hydraulics and apply ground water modelling techniques.
Irrigation Engineering	IDE- 221	1. Compute the discharge at the head of distributaries required in its command, capacity of a reservoir, evapo-transpiration, irrigation requirement of crop, water requirement of crop, irrigation interval, irrigation period and irrigation efficiencies by applying the knowledge of crop period, crop area, duty, delta and irrigation intensity. 2. Analyse the data related to irrigation water measurement through irrigation water measuring structures to estimate the discharge of water measuring structures such as weirs, flumes and notches. 3. Design the field channels, Regime Channels, border irrigation, fundamentals of check basin and furrow irrigation. 4. Solve the real world problem of land grading by calculating the formation levels of grid points of a particular area where land grading operation is to be done
Sprinkler and Micro Irrigation Systems	IDE-222	1. Apply: basic understanding of Sprinkler irrigation: adaptability, problems and prospects, types of sprinkler irrigation systems. Micro Irrigation Systems: chemical treatment, Fertigation: advantages and limitations of fertigation, fertilizers solubility and their compatibility, precautions for successful fertigation system, fertigation frequency, duration and injection. 2. Compute: uniformity coefficient and pattern efficiency, wetting patterns, irrigation requirement, emitter selection. 3. Analyse: performance evaluation of sprinkler and drip irrigation systems, necessary steps for proper operation of a drip irrigation system. 4. Design: sprinkler and drip irrigation system: Main, Sub-main, Lateral
Fundamentals of Renewable Energy Sources	REE-221	1. Understand the fundamentals of various Renewable Energy Sources and their applications 2. Analyze the different approaches of solar energy collection, storage and power generation. 3. Compute the power generation from solar energy and wind power systems 4. Explain the construction and working principle of different Bio energy conversion systems
Skill Development Training-I summer Break June-July after 4 th		Effectively communicate through verbal/oral communication and improve the listening 1. Skills Write precise briefs or reports and technical documents 2. Actively participate in group discussion/meetings/interviews and prepare 3. Deliver presentations. Become more effective individual through goal/target setting, self motivation 4. Practicing creative thinking, Function



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S.V.P.U.A.&T., Meerut (U.P.)



कुलसचिव

स.व.प. कृषि एवं प्रौ.वि.वि, मेरठ

Semester (Student READY)		effectively in multi-disciplinary and heterogeneous teams through the knowledge of team work, Inter-personal relationships, conflict management and leadership quality
Tractor Systems and Controls	FME- 312	1. Understand construction & working of different systems of tractor clutch transmission & power flow in a tractor. 2. Analyze problems related clutch, gear box, traction, traction mechanics. 3. Relate human factors that are considered for the design of controls on tractors. 4. Explain construction, operation and working principles of different systems of tractor in general.
Farm Machinery and Equipment-I	FME- 311	1. Apply the knowledge of various farm machines used for farming operations and land development works including their material of constructions 2. Calculate the forces acting on the tillage machine components, draft requirement of the various machines and economics of operating these machines 3. Compute the size of tractor required to operate the machines 4. Select the types of machines required for specific field operations and material for their construction
Agricultural Structures and Environmental Control	PFE- 311	1. To know basics of design of various agricultural structures for animals and human beings. 2. Analyze impact of environmental, ecological and sanitation on livestock and human beings. 3. Compute cost of agricultural structures related to animals and human beings. 4. Apply real world problems of planning, design and execution of agricultural structures related to animals and human beings
Post Harvest Engineering of Cereals, Pulses and Oil Seeds	PFE- 312	1. To impart knowledge on various process technologies for cereals, pulses, oilseeds and their handling and conveying equipment 2. To understand the working principles and selection procedure of different machineries used for processing of cereals, pulses and oilseeds 3. To compute different unit operations in processing, storage and value addition of cereals, pulses and oilseeds 4. To analyze the different uses of byproducts obtained from cereals, pulses and oilseed
Soil and Water Conservation Engineering	SWE- 311	1. Understand the importance of soil & water conservation (SWC) measures for the control of soil erosion and thereby enhancing agricultural productivity 2. Compute various design components of terraces, bunds etc. 3. Select appropriate soil and water conservation measures at a location 4. Apply the knowledge on engineering for design of SWC projects in watersheds
Watershed Planning and Management	SWE- 312	1. Understand the concept of watershed as a unit of planning and development of agriculture on a watershed scale to enhance agricultural productivity 2. Compute various parameters of hydrologic and geomorphologic characteristics of watershed 3. Formulate the appropriate watershed management plan for implementation 4. Apply the engineering knowledge and skill for designing various SWC projects in watersheds
Drainage Engineering	IDE- 311	1. Apply: basic understanding of impact of Water logging objectives of drainage. familiarization with drainage problems of India and state; sub-surface drainage: purpose and benefits, 2. Compute: different drainage design parameters-hydraulic conductivity, drainable porosity, water table observation wells and piezometers. 3. Analyze Hooghoudt, Ernst drain spacing equations drainage materials, drainage pipes, drain envelope layout, construction & installation of drains; drainage structures; vertical drainage; bio-drainage; mole drains reclamation of saline & alkaline soils. Cost analysis of surface & sub-surface systems 4. Design: surface and subsurface drainage systems as well as gravel envelop for different soil and water conditions and conjunctive use of fresh and saline water
Renewable Power Sources	REE- 311	1. Understand the working and operating principles of different Renewable Energy Sources. 2. Explain the construction, operation and working principle

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कुलसचिव

स.व.प. कृषि एवं प्रौ.वि.वि., मेरठ

		of biomass/MSW based power generation systems. 3. Design the power generation systems from solar energy, wind energy and small hydropower. 4. Analyze the working of different alternative energy sources
Skill Development Training-I (Student READY) Registration only	AGE-311	Effectively communicate through verbal/oral communication and improve the listening 1. skills Write precise briefs or reports and technical documents 2. Actively participate in group discussion / meetings / interviews and prepare 3. & deliver presentations. Become more effective individual through goal/target setting, self motivation and 4. practicing creative thinking. Function effectively in multi-disciplinary and heterogeneous teams through the knowledge 5. Of team work, Inter-personal relationships, conflict management and leadership quality
Computer Programming and Data Structures	CSE-321	1. Perform operations on various discrete structures such as sets, functions, relations, and sequences. 2. Ability to solve problems using Counting techniques, Permutation and Combination, Recursion and generating functions. 2. Apply algorithms and use of graphs and trees as tools to visualize and simplify Problems.
Farm Machinery and Equipment-II	FME-321	1. Understand the principles & types of cutting mechanisms. Construction & adjustments of shear and Impact-type cutting mechanisms. 2. Crop harvesting machinery: Mower, Reaper, windrower, reaper binder & forage harvester. Forage chopping & handling equipment. 3. Apply threshing mechanics & various types of threshers. Straw combines & grain combines, Maize harvesting & shelling equipment, Root crop harvesting equipment - potato, Groundnut etc. 4. Understand Cotton picking & Sugarcane harvesting equipment. Principles of fruit harvesting tools & machines.
Dairy and Food Engineering	PFE-322	1. Apply the knowledge of different unit operations in dairy industries 2. Analyses the dairy plant design problems 3. Compute the problems based on different unit operations. 4. Understand the change in product behavior during different unit operations
Post Harvest Engineering of Horticultural Crops	PFE-321	Use the different types of sorting, grading, peeling, slicing, blanching and other equipment for processing of fruits and vegetables. 1. Identify the suitable equipment, materials, and methods for storage, processing, packaging, and value addition of fruits and vegetables. 2. Develop at least types of value-added products from fruits and vegetables. 3. Understand the technical and management aspects of the operation of fruits and vegetable processing industries.
Water Harvesting and Soil Conservation Structures	SWE-321	1. Understand the procedures/steps for designing various water harvesting and soil conservation structures/measures 2. Design various components of drop, inlet spillways, farm pond, earth embankments etc. 3. Select appropriate water harvesting and soil conservation structures at a location. 4. Apply the knowledge on engineering for design of water harvesting and soil conservation structures in watersheds
Groundwater, Wells and Pumps	IDE- 321	1. Study of the Occurrence and movement of ground water and their classification: water lifting devices and their classification. 2. Apply the knowledge of ground water movement and pumps in computation of aquifer parameters and pumping, parameters, respectively. 3. Analyze well test data for determination of aquifer parameters; and pumping data for Efficiencies, performance, power requirement of different types of pumps. 4. Analyze well test data for determination of aquifer parameters; and pumping data for Efficiencies, performance, power requirement of different types of pumps. 5. Design of wells (open and tube well); different types of pumps (radial pump impeller, volute and diffuser casings)



Dean

College of Technology
S.V.P.U.A.&T., Meerut (U.P.)



कुलसचिव

स.व.प. कृषि एवं प्रौ.वि.वि., मेरठ

Tractor and Farm Machinery Operation and Maintenance	FME-322	Students will be able to identify different systems of tractor and know about their functioning. 1. Students will be able attach various agricultural machinery with the tractor and can do the adjustments required for operation. 2. Students will be able to do periodic maintenance of various components of tractor and machinery. 3. Student will be able to learn how to replace the agricultural machinery components like furrow opener, plough bottom and rotavator blade
Bio-energy Systems: Design and Applications	REE-321	1. Apply the knowledge of various design perspectives in construction and working of different bio energy systems and their applications. 2. To study biomass production techniques. 3. Analyze the working of different power generation system. 4. Understand the biodiesel and bio-hydrogen production techniques and Assessment of environmental aspect of bio energy
Skill Development Training-II (Student READY) Registration only	AGE-411	Effectively communicate through verbal/oral communication and improve the listening 1. skills Write precise briefs or reports and technical documents 2. Actively participate in group discussion / meetings / interviews and prepare 3. & deliver presentations. Become more effective individual through goal/target setting, self motivation and 4. practicing creative thinking. Function effectively in multi-disciplinary and heterogeneous teams through the knowledge 5. of team work, Inter-personal relationships, conflict management and leadership quality
10- weeks Industrial Attachment /Internship (Student READY)	AGE-412	Understand the Organizational Structure of a company. Develop work habits and attitudes necessary for job success (technical competence, professional attitude, organization skills etc.) Develop written communication and technical report writing skills.
10- weeks Experiential Learning On campus (Student READY)	AGE-413	Throughout the experiential learning process, the learner is actively engaged in posing questions, investigating, experimenting, being curious, solving problems, assuming responsibility, being creative and constructing meaning. Learners are engaged intellectually, emotionally, socially, soulfully and/or physically.
Educational Tour (Registration only)	AGE-414	Enhances knowledge and understanding. ... Promotes teamwork and social skills. ... Encourages independent learning. ... Promotes creativity and critical thinking. ... Provides a break from the monotony of classroom learning. ... Exposure to new cultures and environments.
Remote sensing & GIS applications (Elective course)	SWE-424	1. Understand the basic concepts of RS, GIS & Photogrammetry. 2. Acquaint with components & scanning techniques of RS & GIS. 3. Analyse digital images & classifications using various principles. 4. Apply the knowledge of RS & GIS techniques for natural resource management
Farm Machinery Design & Production (Elective course)	FME-423	1. To identify the need of timely harvesting of crops in India. Also equip the students with technical knowledge and skills required for the operation, maintenance and evaluation of harvesting, threshing and land preparation (heavy) machinery needed for agricultural farms. 2. To abreast the students with mathematical, experimental and computational skills for solving different field problems. 3. To develop skills in the students required to develop and modification of indigenous harvesting machines/methods as per the need of the area and farmers 4. give a brief introductory idea of importance of testing of agricultural machines and tractor



Dean

College of Technology
S.V.P.U.A.&T., Meerut (U.P.)



कुलसचिव

स.व.प. कृषि एवं प्रौ.वि. मेरठ

Management of Canal Irrigation Systems (Elective course)	IDE-421	1. Have knowledge and skills on crop water requirements. 2. Understand the methods and management of irrigation. 3. Gain knowledge on types of impounding structures.
Project Planning and Report Writing (Student READY)	AGE-421	Recognize how to plan and complete reports for maximum impact. Understand the Who, What, When, Where, Why and How. Identify the different measures of readability. Know how to tailor a report for a specific audience.



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कुलसचिव

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Department of Agricultural Engineering

Three major points were kept in mind while preparing course curricula related to Processing and Food Engineering (1) the syllabus and courses taught at UG level (2) preparing students to keep pace with future requirement of the human resource in institutions and industry (3) to align the syllabus with ARS/NET examination. All courses are designed to cover all basic topics and by taking into consideration demands of corporate sector harnessing commercial aspects, modern research tools and their applications, supplementary skills required and enhancing the global competitiveness and employability of students. To meet these objectives courses were added which covers areas: cereals, pulses, oil seeds, fruits and vegetable processing industry

POs and COs Post Graduate degree program

POs M.Tech. Agricultural Engineering -Process and Food Engineering

- Student will learn all basic topics and by taking into consideration demands of corporate sector harnessing commercial aspects, modern research tools and their applications, supplementary skills required and enhancing the global competitiveness and employability of students.
- Trained students will easily deal with the post harvest processing of cereals, pulses, oil seeds, fruits and vegetable processing industry
- The students will get knowledge on various unit operations, backbone of all food processes. Knowledge on basic principles of thermal food processes, size reduction and separation operations involved in food processing and related equipment will prepare students to solve problems related with food processing.

COs M.Tech. Agricultural Engineering -Process and Food Engineering

S. No.	Courses	Course code	Outcome
1.	Processing of Cereals, Pulses and oilseeds	PFE-506	Student's capability to mill and process (value added products) all kinds of field crops as per requirement of food industries.
2.	Fruits and Vegetables Process Engineering	PFE-508	Student's capability to mill and process (value added products) all kinds of horticultural crops as per requirement of food industries.
3.	Farm Structures and Environmental Control	PFE-512	Student's capability to design new farm structures and create suitable atmosphere within it.
4.	Transport Phenomena in Food	PFE 501	The course will impart requisite knowledge about transport phenomenon with respect to heat, mass



Dean

College of Technology
S.V.P.U.A.&T., Meerut (U.P.)



कुलसचिव

स.व.प. कृषि एवं प्रौ.विधि, मेरठ

	Processing		and momentum transfer which is necessary to understand the food processing operations. After going through the course, students will be able to understand, analyze and solve numerically the food processing operations where heat/mass/momentum transfer is involved.
5.	Advanced Food Process Engineering	PFE-503	Student's capability to develop food products using recent techniques as per requirement of food industries.
6.	Engineering Properties of Food Materials	PFE-502	Student's capability to apply properties of food for design of equipment and structures.
7.	Unit Operations in Food Process Engineering	PFE-504	The students will get knowledge on various unit operations, backbone of all food processes. Knowledge on basic principles of thermal food processes, size reduction and separation operations involved in food processing and related equipment will prepare students to solve problems related with food processing. This will help students to solve problems of post-production processes and will also enhance employability in food industries.



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College of Technology
S.V.P.U.A.&T., Meerut (U.P.)



कुलसचिव
स.व.प. कृषि एवं प्रौ.वि.वि., मेरठ

POs of Doctoral degree program

POs Ph.D. Agricultural Engineering (Process and Food Engineering)

- Student's capability to understand and undertake mechanical handling of food as per requirement of food industries as well as storage devices and systems for safe storage of food for longer period of time.
- Student's capability to develop dehydrated food products with higher retention of nutrients using different drying techniques and equipment.
- Student's capability to process and preserve food products using advance techniques as per requirement of food industries.

COs Ph.D. Agricultural Engineering (Process and Food Engineering)

S. No.	Courses	Course code	Outcomes
1.	Storage Engineering and Handling of Agricultural Products	PFE 513	Student's capability to understand and undertake mechanical handling of food as per requirement of food industries as well as storage devices and systems for safe storage of food for longer period of time.
2.	Agricultural Waste and Byproduct Utilization	PFE 605	Student's capability to develop processes for effective utilization of wastes generated through milling and processing of food materials.
3.	Advances in Drying of Food Materials	PFE 604	Student's capability to develop dehydrated food products with higher retention of nutrients using different drying techniques and equipment.
4.	Textural and Rheological characteristics of Food Materials	PFE 601	Student's capability to determine textural and rheological properties of food materials and their application in control of food processing operations.
6.	Advances in Food Processing	PFE 602	Student's capability to process and preserve food products using advance techniques as per requirement of food industries.



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3

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