S.No	Courses	Course Outcomes	Blooms Taxonomy Level
SEMESTER - I	HS3151: PROFESSIONAL ENGLISH - I	**CO1:** To listen and comprehend complex academic texts	K5
		CO2: To read and infer the denotative and connotative meanings of technical texts	K2
		CO3: To write definitions, descriptions, narrations and essays on various topics	K1
		CO4: To speak fluently and accurately in formal and informal communicative contexts	K3
		CO5: To express their opinions effectively in both oral and written medium of communication	K3
	MA3151: MATRICES AND CALCULUS	**CO1:** Use the matrix algebra methods for solving practical problems.	K4
		CO2: Apply differential calculus tools in solving various application problems.	K4
		CO3: Able to use differential calculus ideas on several variable functions.	K4
		CO4: Apply different methods of integration in solving practical problems.	K4
		CO5: Apply multiple integral ideas in solving areas, volumes and other practical problems.	K4
	PH3151: ENGINEERING PHYSICS	**CO1:** Understand the importance of mechanics.	K5
		CO2: Express their knowledge in electromagnetic waves.	K6
		CO3: Demonstrate a strong foundational knowledge in oscillations, optics and lasers.	K4
		CO4: Understand the importance of quantum physics	K5
		CO5: Comprehend and apply quantum mechanical principles towards the formation of energy bands	K4
	CY3151 : ENGINEERING CHEMISTRY	**CO1:** To infer the quality of water from quality parameter data and propose suitable treatment methodologies to treat water.	K1

		CO2: To identify and apply basic concepts of nanoscience and nanotechnology in designing the synthesis of nanomaterials for engineering and technology applications.	K4
		CO3: To apply the knowledge of phase rule and composites for material selection requirements.	K4
		CO4: To recommend suitable fuels for engineering processes and applications.	K4
		CO5: To recognize different forms of energy resources and apply them for suitable applications in energy sectors.	K6
	GE3151: PROBLEM SOLVING AND PYTHON PROGRAMMING	**CO1:** Develop algorithmic solutions to simple computational problems.	K1
		CO2: Develop and execute simple Python programs.	K1
		CO3: Write simple Python programs using conditionals and looping for solving problems.	K1
		CO4: Decompose a Python program into functions.	K3
		CO5: Represent compound data using Python lists, tuples, dictionaries etc.	K2
		CO6: Read and write data from/to files in Python programs.	K1
	GE3171: PROBLEM SOLVING AND PYTHON PROGRAMMING LABORATORY	**CO1:** Develop algorithmic solutions to simple computational problems	K1
		CO2: Develop and execute simple Python programs.	K1
		CO3: Implement programs in Python using conditionals and loops for solving problems.	K3
		CO4: Deploy functions to decompose a Python program.	K2
		CO5: Process compound data using Python data structures.	K1
		CO6: Utilize Python packages in developing software applications.	K4
	BS3171: PHYSICS AND CHEMISTRY	**CO1:** Understand the functioning of various physics laboratory equipment.	K5

	LABORATORY	**CO2:** Use graphical models to analyze laboratory data.	K4
		CO3: Use mathematical models as a medium for quantitative reasoning and describing physical reality.	K4
		CO4: Access, process and analyze scientific information	K3
		CO5: Solve problems individually and collaboratively	K3
	GE3172: ENGLISH LABORATORY	**CO1:** To listen to and comprehend general as well as complex academic information	K5
		CO2: To listen to and understand different points of view in a discussion	K5
		CO3: To speak fluently and accurately in formal and informal communicative contexts	K4
		CO4: To describe products and processes and explain their uses and purposes clearly and accurately	K6
		CO5: To express their opinions effectively in both formal and informal discussions	K4
SEMESTER – II	**HS3252: PROFESSIONAL ENGLISH - II**	**CO1:** To compare and contrast products and ideas in technical texts.	K3
		CO2: To identify and report cause and effects in events, industrial processes through technical texts	K2
		CO3: To analyse problems in order to arrive at feasible solutions and communicate them in the written format.	K3
		CO4: To present their ideas and opinions in a planned and logical manner	K6
		CO5: To draft effective resumes in the context of job search.	K4
	MA3251: STATISTICS AND NUMERICAL METHODS	**CO1:** Apply the concept of testing of hypothesis for small and large samples in real life problems.	K4
		CO2: Apply the basic concepts of classifications of design of experiments in the field of agriculture.	K4
		CO3: Appreciate the numerical techniques of interpolation in various intervals and apply the numerical techniques of differentiation and integration for engineering problems	K4
		CO4: Understand the knowledge of various techniques and methods for solving first and second order ordinary differential equations.	K5

		CO5: Solve the partial and ordinary differential equations with initial and boundary conditions by using certain techniques with engineering applications.	K4
	AI3201 : PRINCIPLES AND PRACTICES OF CROP PRODUCTION	**CO1:** Students completing this course would have acquired knowledge on the basic principles of crop production.	K4
		CO2: Students will be able to select suitable crops and decide upon its establishment procedures	K6
		CO3: Students will get knowledge on the different crop management practices.	K6
		CO4: The students will have the required knowledge in the area of production of agricultural and horticultural crops.	K6
		CO5: Students will be able to delineate their role in relation to various crop production practices.	K6
	BE3252: BASIC ELECTRICAL, ELECTRONICS AND INSTRUMENTATION ENGINEERING	**CO1:** Compute the electric circuit parameters for simple problems	K1
		CO2: Explain the concepts of domestics wiring and protective devices	K1
		CO3: Explain the working principle and applications of electrical machines	K6
		CO4: Analyze the characteristics of analog electronic devices	K3
		CO5: Explain the types and operating principles of sensors and transducers	K6
	GE3251: ENGINEERING GRAPHICS	**CO1:** Use BIS conventions and specifications for engineering drawing.	K4
		CO2: Construct the conic curves, involutes and cycloid.	K1
		CO3: Solve practical problems involving projection of lines.	K4
		CO4: Draw the orthographic, isometric and perspective projections of simple solids.	K1
		CO5: Draw the development of simple solids.	K1

	GE3271 ENGINEERING PRACTICES LABORATORY	**CO1:** Draw pipe line plan; lay and connect various pipe fittings used in common household plumbing work; Saw; plan; make joints in wood materials used in common household wood work.	K1
		CO2: Wire various electrical joints in common household electrical wire work.	K1
		CO3: Weld various joints in steel plates using arc welding work; Machine various simple processes like turning, drilling, tapping in parts; Assemble simple mechanical assembly of common household equipments; Make a tray out of metal sheet using sheet metal work.	K1
		CO4: Solder and test simple electronic circuits; Assemble and test simple electronic components on PCB.	K1
	BE3272 BASIC ELECTRICAL, ELECTRONICS AND INSTRUMENTATION ENGINEERING LABORATORY	**CO1:**Use experimental methods to verify the Ohm's law and Kirchhoff's Law and to measure three phase power	K4
		CO2: Analyze experimentally the load characteristics of electrical machines	K3
		CO3: Analyze the characteristics of basic electronic devices	K3
		CO4: Use LVDT to measure displacement	K4
	GE3272: COMMUNICATION LABORATORY	**CO1:** Speak effectively in group discussions held in a formal/semi formal contexts.	K4
		CO2: Discuss, analyse and present concepts and problems from various perspectives to arrive at suitable solutions	K3
		CO3: Write emails, letters and effective job applications.	K1
		CO4: Write critical reports to convey data and information with clarity and precision	K4
		CO5: Give appropriate instructions and recommendations for safe execution of tasks	K4
	MA3301: FOURIER SERIES AND LINEAR PROGRAMMING	**CO1:** Apply Fourier series techniques used in wide variety of situations in which the functions used are not periodic and to solve boundary value problems.	K2
		CO2: Apply the Fourier transform techniques to solve boundary value problems.	K4

		CO3: Develop a fundamental understanding of linear programming models, able to develop a linear programming model from problem description, apply the Simplex method for solving linear programming problems.	K1
		CO4: Analyze the concept of developing , formulating , modeling and solving transportation and assignment problems.	K3
		CO5: Determine the optimum solution for non-linear programming problems.	K4
	AI3301: PRINCIPLES OF SOIL SCIENCE AND ENGINEERING	**CO1:** Understand the fundamental knowledge of soil physical parameters.	K5
		CO2: Perform soil survey and classify soil based on its characteristics	K5
		CO3: Explain the phase relationship and soil compaction.	K5
		CO4: Analyze Engineering properties of soil	K4
		CO5: Understand Concepts of bearing capacity and slope stability.	K5
	AI3302: UNIT OPERATIONS IN AGRICULTURAL PROCESSING	**CO1:** Examine the evaporation process and types of evaporators for food industry	K2
		CO2: Analyze the principles of filtration and mechanical separation equipment	K4
		CO3: Identify size reduction and grinding equipment and understand the factors affecting the process	K5
		CO4: Identify the gas-liquid and solid-liquid equilibrium concepts and factors influencing equilibrium separation process.	K1
		CO5: Differentiate crystallization and distillation processes and identify processing equipment	K3
	AI3303: FLUID MECHANICS AND PUMPS	**CO1:** Demonstrate the properties of fluid and its behaviour in static conditions along with pressure measurements.	K4
		CO2: Apply the conservation laws applicable to fluid flows and its application through fluid kinematics and dynamics.	K4

		CO3: Estimate losses in pipelines for both laminar and turbulent conditions and analysis of pipes connected in series and parallel and to understand the concept of application of dimensional analysis in model studies.	K3
		CO4: Describe the basics characteristics of open channel flows and analysis of steady uniform flow with hydraulically efficient channel sections and to measure the flows in artificial/natural channels.	K5
		CO5: Explain the classification, design and working principles of various pumps.	K1
	ME3491: THEORY OF MACHINES	**CO1:** Discuss the basics of mechanism.	K1
		CO2: Solve problems on gears and gear trains.	K2
		CO3: Examine friction in machine elements	K2
		CO4: Calculate static and dynamic forces of mechanisms.	K2
		CO5: Calculate the balancing masses and their locations of reciprocating and rotating masses. Computing the frequency of free vibration, forced vibration and damping coefficient.	K2
	CE3351 : SURVEYING AND LEVELLING	**CO1:** Introduce the rudiments of various surveying and its principles.	K1
		CO2: Imparts knowledge in computation of levels of terrain and ground features	K1
		CO3: Imparts concepts of Theodolite Surveying for complex surveying operations	K1
		CO4: Understand the procedure for establishing horizontal and vertical control	K5
		CO5: Imparts the knowledge on modern surveying instruments	K1
	AI3311: FLUID MECHANICS LABORATORY	**CO1:** Apply Bernoulli equation for calibration of flow measuring devices.	K4
		CO2: Measure friction factor in pipes and compare with Moody diagram	K2

		CO3: Determine the performance characteristics of rotodynamic pumps	K3
		CO4: Determine the performance characteristics of positive displacement pumps.	K3
	AI3312: SOIL SCIENCE LABORATORY	**CO1:** Explain soil physical properties and compare the properties based on soil and water system	K3
		CO2: Analyse the soil chemical properties to classify the arable and problem soils to develop different reclamation practices	K3
	CE3361: SURVEYING AND LEVELLING LABORATORY	**CO1:** Impart knowledge on the usage of basic surveying instruments like chain/tape, compass and 70 levelling instruments	K1
		CO2: Able to use levelling instrument for surveying operations	K4
		CO3: Able to use theodolite for various surveying operations	K4
		CO4: Able to carry out necessary surveys for social infrastructures	K4
		CO5: Able to prepare planimetric maps	K4
	GE3361: PROFESSIONAL DEVELOPMENT	**CO1:** Use MS Word to create quality documents, by structuring and organizing content for their day to day technical and academic requirements	K1
		CO2: Use MS EXCEL to perform data operations and analytics, record, retrieve data as per requirements and visualize data for ease of understanding	K5
		CO3: Use MS PowerPoint to create high quality academic presentations by including common tables, charts, graphs, interlinking other elements, and using media objects.	K1
SEMESTER – IV	**AI3401 : TRACTORS AND ENGINE SYSTEMS**	**CO1:** Get an idea on various machinery available for farm mechanization	K5
		CO2: Calculate the valve timing of an IC engine and represent by a drawing	K2
		CO3: Gain knowledge on the transmission system of a tractor	K1
		CO4: Understand the hydraulic system in a tractor and estimate the traction.	K5
		CO5: Gain knowledge on power tillers, bulldozers and different tractor testing procedures.	K1

	AI3402: SOIL AND WATER CONSERVATION ENGINEERING	**CO1:** Gain fundamental knowledge on the concepts of erosion and sedimentation.	K1
		CO2: Gain knowledge about evolution of Universal Soil Loss Equation: and its applications.	K1
		CO3: Explain and design erosion control measures types and design specifications	K1
		CO4: Have sufficient knowledge on soil and water conservation measures.	K1
		CO5: Have sufficient knowledge on reservoir sedimentation and sediment control methods.	K1
	AI3403: STRENGTH OF MATERIALS FOR AGRICULTURAL ENGINEERING	**CO1:** Find the stress distribution and strains in regular and composite structures subjected to axial loads.	K3
		CO2: Evaluate the stresses in plane trusses	K2
		CO3: Assess the shear force, bending moment and bending stresses in beams	K2
		CO4: Apply torsion equation in design of circular shafts and helical springs	K4
		CO5: Evaluate the slope and deflection of beams and buckling loads of columns under different boundary conditions	K2
	AI3404: HYDROLOGY AND WATER RESOURCES ENGINEERING	**CO1:** Define the hydrological processes and their integrated behaviour in catchments	K1
		CO2: Apply the knowledge of hydrological processes to address basin characteristics, runoff and hydrograph	K4
		CO3: Explain the concept of hydrological extremes and its management strategies	K1
		CO4: Describe the principles of storage reservoirs	K1
		CO5: Understand and apply the concepts of groundwater management	K4
	ME3391 : ENGINEERING THERMODYNAMICS	**CO1:** Apply the zeroth and first law of thermodynamics by formulating temperature scales and calculating the property changes in closed and open engineering systems.	K4
		CO2: Apply the second law of thermodynamics in analyzing the performance of thermal devices through energy and entropy calculations.	K4
		CO3: Apply the second law of thermodynamics in evaluating the various properties of steam through steam tables and Mollier chart	K4

		CO4: Apply the properties of pure substance in computing the macroscopic properties of ideal and real gases using gas laws and appropriate thermodynamic relations.	K4
		CO5: Apply the properties of gas mixtures in calculating the properties of gas mixtures and applying various thermodynamic relations to calculate property changes.	K4
	GE3451: ENVIRONMENTAL SCIENCES AND SUSTAINABILITY	**CO1:** To recognize and understand the functions of environment, ecosystems and biodiversity and their conservation.	K5
		CO2: To identify the causes, effects of environmental pollution and natural disasters and contribute to the preventive measures in the society.	K4
		CO3 :To identify and apply the understanding of renewable and non-renewable resources and contribute to the sustainable measures to preserve them for future generations.	K4
		CO4: To recognize the different goals of sustainable development and apply them for suitable technological advancement and societal development.	K4
		CO5: To demonstrate the knowledge of sustainability practices and identify green materials, energy cycles and the role of sustainable urbanization.	K4
	AI3411: TRACTOR AND FARM ENGINES LABORATORY	**CO1:** Understand the working of tractors, power tillers and their functions	K5
		CO2: Identify and rectify problems in the functioning of tractors and power tillers.	K3
		CO3: Summarize the ergonomics of tractors and power tillers.	K6
	AI3412 : STRENGTH OF MATERIALS LABORATORY	**CO1:** Find the stress distribution and strains in regular and composite structures subjected to axial loads.	K2
		CO2: Assess the shear force, bending moment and bending stresses in beams	K2
		CO3: Apply torsion equation in design of circular shafts and helical springs	K4