

PROGRAM STRUCTURE

I SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
1	201HS1T01	Communicative English		✓		Students are able to demonstrate communication skills to express fluently in both written as well as oral form of language which is very much essential for the career growth.
2	201BS1T01	Differential equations and Linear algebra		✓		Students are able to demonstrate problem solving skills by modelling physical phenomenon using ordinary differential equations, system of linear equations in various engineering disciplines.
3	201BS1T02	Engineering Physics				
4	201ES1T04	Principles of Agronomy and Soil Science	✓			Students are able to acquire skills related to crop management practices adopted for increasing the crop productivity enabling them to be employed as agriculture field officer.
5	201ES1T05	Engineering Graphics		✓		This subject helps the student to demonstrate technical skills as they have knowledge about engineering drawing and AutoCAD software for orthographic projections and isometric projection.
6	201HS1L01	Communicative English Lab		✓		Students are able to demonstrate technical skills to express fluently in both written as well as oral form of language which is very much essential for the career growth.
7	201BS1L01	Engineering Physics Lab				
8	201ES1L04	Soil Science and Agronomy Field Lab		✓		Students are able to demonstrate technical skill of crop management practices adopted for increasing the crop productivity.
9	201MC1T01	Environmental Science				
10	201BS2T05	Partial Differential Equations and Vector Calculus		✓		Students are able to demonstrate problem solving skills by modelling physical phenomenon using partial differential equations, vector differentiation, vector integration and their applications in various engineering disciplines.

II SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
11	201BS2T08	Chemistry of Materials				
12	201ES2T06	Engineering Mechanics		✓		Students are able to acquire skills related to principles of friction, kinetics, kinematics, resolving forces, trusses etc which forms the crux of design sciences.
13	201ES2T08	Programming for Problem Solving Using C	✓			Students are able to acquire skills related to basic programming using C, enabling them to be employed as software developers.
14	201ES2L07	Engineering Workshop		✓		Engineering Workshop helps the students by improving their skills by knowing the construction of various wooden joints and various fitting joints, by understanding different black smithy work and preparing various sheet metal models.
15	201ES2L12	Computer Aided Drafting Lab		✓		Students are able to acquire skills related to drafting of mechanical components/assemblies through AUTOCAD software enabling them to be employed as a design engineer.
16	201HS2L02	Professional communications skills Lab		✓		Students are able to demonstrate technical skills to express fluently in both written as well as oral form of language which is very much essential for the career growth.
17	201BS2L05	Engineering Chemistry Lab				
18	201ES2L10	Programming for Problem Solving Using C	✓			Students are able to acquire skills related to basic programming using C, enabling them to be employed as software developers.
19	201MC2T02	Constitution of India		✓		This subject helps the student to demonstrate their technical skills for constitution making and its importance for building a democratic India, to make them understand the executive, legislative and judiciary system.

III SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
20	201BS3T12	Integral Transforms and Applications of Partial Differential Equations		✓		Students are able to demonstrate problem solving skills by modelling physical phenomenon using partial differential equations and by learning Fourier Transforms and Laplace Transforms and their applications
21	201AG3T01	Surveying and Levelling		✓		Students are able to demonstrate technical skill of estimating performance of refrigeration and air conditioning tutors
22	201AG3T02	Fluid Mechanics and Open Channel Hydraulics	✓			Students are able to acquire skills for solving difficulties in chain and compass survey, preparing contour plans and producing layouts enabling them to be employed in farm structure construction companies.
23	201AG3T03	Thermodynamics, Refrigeration and Air Conditioning	✓			Students are able to acquire skills related to interpretation of fluid properties and their influence on fluid motion, Bernoulli's equation and its applications enabling them to be employed for Hydraulic designing and analysis.
24	201AG3T04	Strength of Materials	✓			Students are able to acquire skills on working of refrigeration and air conditioning and enabling them to be employed in refrigeration and air conditioning industries
25	201AG3L01	Surveying and Levelling Lab	✓			Students are able to acquire skills to enhance the knowledge about IC Engines and calculating COP and enabling them to be employed in automotive industries.
26	201AG3L02	Fluid Mechanics and Open Channel Hydraulics Lab		✓		Students are able to demonstrate technical skill of estimating the levels of existing ground and prepare contour plan, developing the plan or map showing the ground features from data obtained by surveying
27	201AG3L03	Thermodynamics, Refrigeration and Air Conditioning Lab		✓		Students are able to demonstrate technical skill of determining major and minor losses in pipes, flow behaviour in open channels.

28	201SO3L10	1) Computer Aided Manufacturing		✓		Students are able to acquire skills on arithmetic mean, median mode etc, theories of probabilities, types of sampling and estimate deposits with surpac.
29	201SO3L11	2) Computer Aided Design using SolidWorks		✓		Students are able to demonstrate technical skill of computer aided manufacturing
30	201MC3T03	Biology for Engineers				

IV SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
31	201ES4T21	Soil Mechanics	✓			Students are able to acquire skills related to various aspects of material design enabling them to be employed as material designers
32	201BS4T15	Numerical Methods and Statistical Techniques		✓		Students are able to demonstrate problem solving skills by learning numerical methods for solving equations, differential equations, integrals , probability distributions, sampling theory and test of hypothesis
33	201AG4T05	Heat and Mass Transfer	✓			Students are able to acquire skills related to designing various processing equipment's to insure food quality and safety enabling them to be employed as a food engineer.
34	201AG4T06	Tractor Systems and Controls	✓			Students are able to acquire skills related to interpretation of forced and free convection heat transfer mechanism, Application of LMTD and NTU for designing of heat exchangers enabling them to be employed in any food or dairy processing industries.
35	201HS4T07	Entrepreneurship Development and Business Management			✓	Students are able to apply the knowledge of entrepreneurial skills, legal steps to start enterprises ,which enable them to become entrepreneurs
36	201ES4L17	Soil Mechanics Lab	✓			Students are able to acquire skills related to various aspects of material design enabling them to be employed as material designers
37	201AG4L04	Tractor Systems and Controls Lab	✓			Students are able to acquire skills related to designing of food plant, different processing steps enabling them to be employed as Food plant design and operations sector.
38	201AG4L05	Heat and Mass Transfer Lab		✓		Students are able to demonstrate technical skills of periodical maintenance and troubleshooting of all systems like fuel system, lubrication system, cooling system and ignition system and remedial measures for above system.

39	201SC4L23	1) Food Quality and Control		✓		Students are able to demonstrate technical skills of Creating and controlling simple plot and user-interface graphics objects in MATLAB
40	201SC4L22	2) Analysis/Simulation using MATLAB	✓			Students are able to acquire skills related to python programming, enabling them to be employed as software developers.
41	201MC4T04	Essence of Indian Traditional Knowledge				

V SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
42	191AG5T09	Strength of Materials	✓			Students are able to acquire skills related to analysing the deflections in beams under various loading and support conditions, solving the load carrying capacity of columns for different end conditions, and design of riveted and welded joints enabling them to be employed in construction related companies.
43	191AG5T10	Theory and Design of Agricultural Machinery	✓			Students are able to acquire skills related to designing of mechanical power transmission elements, farm machinery implements enabling them to be employed in farm machinery related companies.
44	191AG5T11	Agricultural Process Engineering and Food Quality	✓			Students are able to acquire skills related to unit operations and size reduction processes, designing of mixing equipment's for powder, high and low viscosity liquids enabling them to be employed in food processing industries.
45	191AG5E01	Engineering Properties of Biological Materials	✓			Students are able to acquire skills related to designing various processing equipment's to insure food quality and safety enabling them to be employed as a food engineer.
46	191AG5E02	Mechanical Measurement and Instrumentation	✓			Students are able to acquire skills related to mechanical, electrical and electro-mechanical type pressure measuring transducers, f temperature measuring transducers, and different instruments for measuring sound, speed and motion enabling them to be employed for food or farm machinery related companies.
47	191AG5E03	Theory of Structures	✓			Students are able to acquire skills related to design of beams, slabs, columns, foundations and RCC structures enabling them to be employed in any construction related companies.
48	191CE5O01	Basic Concrete Technology	✓			Students are able to acquire cognitive skills related to properties of concrete, design and test the concrete useful in constructional activities enabling them to be employed in constructional sector.
49	191EE5O01	Electrical Safety	✓			Students are able to acquire skills related to mitigating some of the potential transmission of electrical power challenges that enables them to get employed in power transmission company.

50	191EE5002	Electrical Materials	✓			Students are able to acquire skills related to mitigating some of the potential transmission of electrical power challenges that enables them to get employed in power transmission company.
51	191EE5003	Basic Electrical Measurements		✓		Students are able to acquire skills related to various types of electrical parameters that enable them to get employed in core (electrical) industry/company related to measurements of electrical parameters.
52	191ME5002	Fundamentals of Mechanical Engineering	✓			Students are able to acquire skills related to concepts of fundamentals of thermal, manufacturing and design fields in mechanical engineering.
53	191ME5003	Supply Chain Management	✓			The students are able to acquire skills related to cost benefit analysis of different supply chains, designs which enable them to be employed in Marketing department of manufacturing and service based companies
54	191ME5004	3D Printing	✓			Students are able to acquire skills on basic knowledge of various additive manufacturing processes and enabling them to be employed in manufacturing companies.
55	191ME5005	Entrepreneurship Development and Incubation			✓	Students are able to acquire skills on basic knowledge on concepts of entrepreneurship development.
56	191EC5001	Signals & Systems		✓		Students are able to acquire skills related to mathematics of signal processing that aids them in getting jobs in industries that use X-rays, MRIs and CT scans, allowing medical images to be analysed and deciphered by complex data processing techniques.
57	191EC5002	Digital Electronics and Logic Design	✓			Students are able to acquire skills related to design, and synthesize basic of digital ckts enabling them to be employed for designing and manufacturing of electronic equipment.
58	191EC5003	Semiconductor devices	✓			Students are able to acquire skills related to the various power electronic drives which enables them to get employed in semiconductor based industries such as in communications, computing, health care, military systems, transportation, clean energy, etc.
59	191CS5001	Data Structures	✓			Students are able to acquire technical skills related to demonstrate fundamental algorithmic problems that enable them to be employed as software developers

60	191CS5O02	Object Oriented Programming through C++	✓			Students are able to acquire skills related to concepts of object-oriented programming and process of data file manipulations using C++ enabling them to be employed as software developers.
61	191CS5O03	Java Programming	✓			Students are able to acquire skills related to java programming enabling them to be employed as software developers.
62	191CS5O04	R Programming	✓			Students are able to acquire skills related to R commands, Graphical representation of data sets, and visualization Techniques and also enabling them to be employed for Data analyst
63	191IT5O01	Data Base Management Systems	✓			Students are able to acquire skills related to SQL commands, constraints, views, models, transactions, storage and indexing enabling them to be employed for backend developer
64	191IT5O02	Computer Graphics	✓			Students are able to demonstrate technical skill to develop graphical applications using line, polygon, curve drawing and clipping algorithms, design 2d and 3d applications.
65	191MI5O01	Overview of Mining		✓		This course demonstrate the technical skills of the student by giving them knowledge about life cycle of mines, ventilation, lighting and permanent lining of underground mines. It also gives knowledge about modern techniques of shaft sinking.
66	191PT5O01	Process Intensification in Petroleum Industry		✓		Students are able to demonstrate technical skill of characterizing different intensifications modelling and analysis of process in Petroleum Industry.
67	191PT5O02	Fundamentals of Petroleum Industry		✓		Students are able to demonstrate technical skill of characterizing different streams , modelling and analysis of petroleum industry.
68	191AG5L07	Soil Mechanics Lab		✓		Students are able to demonstrate technical skill of performing Tri- axial tests and interpreting permeability characteristics of soil
69	191AG5L08	Theory and Design of Agricultural Machine LAB		✓		Students are able to demonstrate technical skill of finding the velocity of linkage mechanism by graphical and analytical methods, designing gears, gear trains and clutches for agricultural machinery.
70	191AG5L09	Agricultural Process Engineering and Food		✓		Students are able to demonstrate technical skill of designing handling and processing equipment's, determining the power requirement in different types of conveyors

		Quality LAB				
71	191HS5T06	Employability Skills - III	✓			This subject helps the students to acquire skills to be placed in a company as it will impart employability skills in students, which will enable the students to feel comfortable to face several competitive examinations with confidence and competence.
72	191PR5P02	Socially Relevant Project	✓			Students will be able to demonstrate problem identification, analysis, design solutions or applications in electronics and communication domain through the acquired technical, cognitive, communication and creative skills to address societal needs.
73	191MC5A08	Intellectual Property Rights and Patents			✓	It helps the graduates safe guard the IP and innovations at their place of work.

VI SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
74	191AG6T12	Irrigation and Drainage Engineering	✓			Students are able to acquire skills related to designing of drainage systems, irrigation canals enabling them to be employed as Irrigation engineers.
75	191AG6T13	Post-Harvest Engineering for Horticultural Produce	✓			Students are able to acquire skills related to development of different packaging technologies, preservation technologies to preserve horticultural crops enabled them to be employed in any horticulture processing/ storing industries
76	191AG6T14	Agricultural Machinery and Equipment	✓			Students are able to acquire skills related to designing of mechanical power transmission elements, farm machinery implements enabling them to be employed in farm machinery related companies.
77	191AG6E06	Human Engineering and Safety			✓	This course helps to enable the students learn about environmental factors related to human, to enrich the students with anthropometric principles for work space design and to make the students to acquire knowledge on advance effects of air pollution, safety regulations and standards.
78	191AG6E04	Agricultural Structures	✓			Students are able to acquire skills related to design of gully control structures, grain storage structures enabling them to be employed in any grain storage companies or irrigation companies.
79	191AG6E05	Agro Industries and By-Product Utilization	✓			Students are able to acquire skills related to treatment techniques of waste water from agricultural/food industry, production of by- products from agricultural and food processing wastes enabling them to be employed in any food industry.
80	191AG6E07	Design of Agricultural Machinery	✓			Students are able to acquire skills related to designing of mechanical power transmission elements, farm machinery implements enabling them to be employed in farm machinery related companies.
81	191AG6E09	Watershed Planning and Management	✓			Students are able to acquire skills related to estimating runoff and water harvesting structures, erosion controlling techniques and water harvesting methods enabling them to be employed in companies related to watershed management projects.

82	191AG6E08	Seed Processing and Storage Engineering	✓			Students are able to acquire skills related to unit operations in seed processing industry, techniques of seed drying, cleaning and plant layout planning enabling them to be employed as seed processing engineer.
83	191CE6O02	Disaster Management		✓		Students are able to demonstrate technical skill of characterizing various disasters occurring in the environment and apply them in various disciplines of day to day life
84	191EE6O04	Energy Audit and Conservation Management			✓	The course focuses on the loss and profit studies and other company maintenance activities, creates the interest among the students to have own company.
85	191EE6O05	Non Conventional Energy resources	✓			Students are able to acquire skills related to various types of pivotal role in the development of a sustainable energy supply enabling the students to get employed in renewable energy generation sector.
86	191ME6O08	Introduction to Hydraulics and Pneumatics		✓		Students are able to demonstrate problem solving skills in analysing the hydraulic and pneumatic systems
87	191ME6O09	3D Printing	✓			Students are able to acquire skills on basic knowledge of various additive manufacturing processes and enabling them to be employed in manufacturing companies.
88	191ME6O10	Robotics	✓			Students are able to acquire skills to understand the concepts of robot kinematics, Dynamics and trajectory planning enabling them to be employed in robot manufacturing companies
89	191ME6O11	Management Science			✓	Students are able to apply the knowledge of economic and financial management enabling them to become an entrepreneur in any domain of their choice
90	191ME6O07	Biomedical Instrumentation		✓		Students are able to acquire skills to understand the concepts of biomedical instrumentation and can be employed in fabrication of biomedical instruments.
91	191ME6O08	ECAD Tools	✓			Students are able to acquire skills related to ECAD tools, enabling them to be employed as Design engineers

92	191CS6O05	Python Programming	✓			Students are able to acquire skills related to python programming, enabling them to be employed as software developers.
93	191CS6O06	Operating Systems	✓			Students are able to understand and acquire skills related to features and functionalities of operating System and understand the utilization of Input & output and memory operations which enables them to be employed for Hardware core side job opportunities
94	191CS6O07	Web Technologies	✓			Students are able to acquire skills related to developing web pages, enabling them to be employed as front end developers.
95	191CS6O08	Cyber Security	✓			Students are able to acquire technical skills related to Cyber security and enabling them to be employed for cyber security sector.
96	191CS6O09	AR / VR	✓			Students are able to acquire skills related to Design, create, and integrate audio, visual, and interactive elements into a comprehensive immersive experience enabling them to be employed as app developers.
97	191IT6O03	Computer Organization	✓			Students are able to acquire technical skills which help them to work with the internal organization and functioning of Computer System and enabling them to get employed in the hardware sectors of computers.
98	191IT6O04	AI Tools & Techniques	✓			Students are able to demonstrate technical skill of searching techniques used in AI, Expert systems, Knowledge representation and fuzzy logic.
99	191MI6O03	Electrical Equipment's in Mines		✓		This subject helps the student to demonstrate their technical skills as it helps the students to understand standards of lighting in different working areas, AC and Dc motors and its maintenance, earthing methods and applicability. This subject will guide the students of mining to be self-sufficient for the electrical related problems in mines.
100	191PT6O03	Unconventional Hydrocarbon Resources			✓	Students are able to demonstrate Competency in the domain of Integrated asset management enabling them to become an entrepreneur.
101	191PT6O04	Asset Management			✓	Students are able to demonstrate Competency in the domain of Integrated asset management enabling them to become an entrepreneur.
102	191ME6O12	Entrepreneurship Development and Incubation			✓	Students are able to acquire skills to understand and apply the business plan for preparation and evaluation of project and enabling them to be employed as a project engineer in various organizations.
103	191AG6L10	Irrigation and Drainage Engineering LAB		✓		Students are able to demonstrate technical skill of evaluating the performance of irrigation and drainage systems, interpretation soil physical and chemical properties.

104	191AG6L11	Agricultural Machinery and Equipment Lab		✓		Students are able to demonstrate technical skill of determining parameters of different farm implements, calibration of seed cum fertilizer drills and sprayers.
105	191HS6T07	Employability Skills – IV	✓			This subject helps the students to acquire skills to be placed in a company as it will impart employability skills in students, which will enable the students to feel comfortable to face several competitive examinations with confidence and competence.
106	191MC6A09	Professional Ethics and Human Values		✓		This subject help the students to demonstrate their skills as they inculcate human values to grow as responsible human beings with proper personality and helps them to maintain ethical conduct and discharge their professional duties.

VII SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
107	171AG7T20	Dairy and Food Engineering	✓			Students are able to acquire skills related to milk and food processing unit operations, thermal treatment techniques enabling them to employed as dairy engineer.
108	171ES7T26	Mechanical Measurements and Instrumentation	✓			Students are able to acquire skills related to mechanical, electrical and electro-mechanical type pressure measuring transducers, f temperature measuring transducers, and different instruments for measuring sound, speed and motion enabling them to be employed for food or farm machinery related companies.
109	171AG7E09	Seed Processing and Storage Engineering	✓			Students are able to acquire skills related to unit operations in seed processing industry, techniques of seed drying, cleaning and plant layout planning enabling them to be employed as seed processing engineer
110	171AG7E10	Food Processing Plant Design and Layout	✓			Students are able to acquire skills related to designing of food plant, different processing steps enabling them to be employed as Food plant design and operations sector.
111	171AG7E11	Food Packaging Technology	✓			Students are able to acquire skills related to the effect of packaging material on fruits and vegetables, different laws and regulations related to food packaging, and innovations in food packaging technologies enabling them to be employed in food packaging companies.
112	171AG7E12	Aqua Cultural Engineering	✓			Students are able to acquire skills related to designing an aqua farm and modern aquaculture farm system with aquaculture equipment enabling them to be employed as an aqua farm designer.
113	171AG7E13	Soil Dynamics in Tillage and Traction	✓			Students are able to acquire skills related to interpretation of traction mechanics, evaluation of traction device performance enabling them to be employed in any farm machinery designing companies.
114	171AG7E14	Computational Fluid Dynamics		✓		Students are able to acquire skills in analyzing the numerical methods related to fluid modelling.
115	171AG7L06	Farm Machinery Lab – II		✓		Students are able to demonstrate technical skill of determining parameters of different farm implements, calibration of seed cum fertilizer drills and sprayers.

116	171AG7L07	Dairy and Food Engineering Lab		✓		Students are able to demonstrate technical skills of analysing heat treatment processes used in milk preservation and operations involved in milk processing.
117	171AG7P01	Industry Oriented (Internship) Minor Project	✓			Students will be able to demonstrate problem identification, analysis, design solutions or applications in electronics and communication domain through the acquired technical, cognitive, communication and creative skills to address societal needs.


VIII SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
118	171AG8E17	Design of Agricultural Machinery	✓			Students are able to acquire skills related to designing of mechanical power transmission elements, farm machinery implements enabling them to be employed in farm machinery related companies.
119	171AG8O01	Digital Control systems	✓			Students are able to acquire skills related to how a well-designed power system ensures robust performance and maximizes plant availability under all operating conditions enabling them to be employed for assessing transient conditions like motor starting, non-linear loads and generator loss.
120	171AG8O02	Industrial Pollution Control Engineering	✓			Students are able to acquire skills related to unit operations and unit processes involved in conversion of highly polluted water to potable standards, analysis and quantification of waste water treatment enabling them to be employed in food industries
121	171AG8O03	Mechatronics		✓		Students are able to demonstrate technical skills to measure the load, displacement and temperature using analogue and digital sensors.
122	171AG8O04	Water Resources Systems Planning and Management	✓			Students are able to acquire skills related to dynamic programming for water resources allocation, evaluating the feasibility of water resource projects by using linear programming methods enabling them to be employed in any water resources managing companies.
123	171CS8O04	Operations Research		✓		Students are able to demonstrate technical skill to formulate and solve problems as networks and graphs.
124	171AG8O05	Image Processing Techniques		✓		Students are able to acquire technical skills related to image processing by using various tools related to computer vision.

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B. Tech Agricultural Engineering

125	171AG8P02	Major Project	✓			Students will be able to demonstrate problem identification, analysis, design solutions or applications in electronics and communication domain through the acquired technical, cognitive, communication and creative skills to address societal needs.
TOTAL		125	68	41	9	


Program Coordinator


Head of the Department
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