

## 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.
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## III SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
20	191BS3T11	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	191ES3T10	Internet of Things	✓			Students are able to acquire skills related to Internet of Things and enabling them to be employed for IoT sector.
22	191HS3T02	Managerial Economics and Financial Analysis			✓	Students are able to apply the knowledge of economic and financial management enabling them to become an entrepreneur in any domain of their choice.
23	191AG3T01	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.
24	191AG3T02	Fluid Mechanics and Open Channel Hydraulics	✓			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.
25	191AG3T03	Surveying and Leveling	✓			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.
26	191AG3L01	Principles of Agronomy and Soil Science Lab		✓		Students are able to demonstrate technical skill of crop management practices adopted for increasing the crop productivity.

27	191AG3L02	Fluid Mechanics and Open Channel Hydraulics Lab		✓		Students are able to demonstrate technical skill of determining major and minor losses in pipes, flow behavior in open channels.
28	191AG3L03	Surveying and Leveling 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
29	191MC3A03	Employability Skills – I	✓			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.
30	191MC3A04	Essence of Indian Traditional Knowledge		✓		This subject demonstrate technical skills as they were able to understand concept of Traditional knowledge and its importance, enactments related to the protection of traditional knowledge and traditional knowledge in Agriculture and Medicine.



## IV SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
31	191BS4T16	Numerical Methods & 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.
32	191AG4T04	Thermodynamics and Refrigeration System	✓			Students are able to acquire skills related to applications and performance evaluation of different refrigeration cycles, performance of 4 stroke and 2-stroke Diesel and Petrol Engines enabling them to be employed for both Farm machinery and cold storage companies
33	191AG4T05	Farm Power and Tractor Systems	✓			Students are able to acquire skills related to I.C engine systems and tractor systems enabling them to be employed in Farm tractor companies.
34	191AG4T06	Ground Water Hydrology	✓			Students are able to acquire skills related to exploration and replenishment of ground water, design, development, and construction of wells, Selection of pump for irrigation by considering performance characteristics, installation and troubleshooting enabling them to be employed in water pump companies.
35	191AG4T07	Heat and Mass Transfer	✓			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.
36	191AG4T08	Surface Water Hydrology	✓			Students are able to acquire skills related to estimating discharge volume of runoff with hydrographs and unit hydrographs, hydrological design of structures, reservoir planning with flood routing techniques enabling them to be employed in water resources management companies.

37	191AG4L04	Ground Water Hydrology Lab		✓		Students are able to demonstrate technical skills of developing suitable pumps for the field and ground water recharge structures.
38	191AG4L05	Farm Power and Tractor Systems 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	191AG4L06	Heat and Mass Transfer lab		✓		Students are able to demonstrate technical skill of determining thermal conductivity, convective heat transfer coefficient, and emissivity of different materials.
40	191MC4A05	Employability Skills – II	✓			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.
41	191MC4A06	Biology for Engineers		✓		Students are able to demonstrate skills related to biology in a general way by providing a framework for understanding life at the cellular and molecular structures



## V SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
42	171AG5T09	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.
43	171AG5T10	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.
44	171AG5T11	Agricultural Process Engineering	✓			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	171AG5T12	Agricultural Extension Techniques and Business Management			✓	Students are able to demonstrate Competency in the domain of agriculture extension and business management enabling them to become an entrepreneur.
46	171AG5T13	Farm Power and Tractor Systems	✓			Students are able to acquire skills related to I.C engine systems and tractor systems enabling them to be employed in Farm tractor companies.
47	171AG5E01	Agro Industries and Bi-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.
48	171HS5E01	Managerial Economics and Financial Analysis			✓	Students are able to demonstrate Competency in gaining the managerial skill set and enabling them to be an entrepreneur

49	171AG5E02	Rural Water Supply, Sanitation and Environmental Engineering	✓			Students are able to acquire skills related to Wastewater collection system, treatment and disposal of wastewater enabling them to be employed in any industries.
50	171HS5T06	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.
51	171AG5L02	Agricultural Process Engineering Lab		✓		Students are able to demonstrate technical skill of designing handling and processing equipment's, determining the power requirement in different types of conveyors
52	171AG5L03	Field Operation and Maintenance of Tractors Lab		✓		Students are able to demonstrate technical skill of periodical maintenance and troubleshooting of all systems like fuel system, lubrication system, cooling system and ignition system and remedial measures for above system of a tractor.
53	171AG5S01	MOOCs – I		✓		Students are able to demonstrate technical skill of various online courses available adding to their curricular courses



## VI SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
54	171AG6T14	Soil and Water Conservation Engineering	✓			Students are able to acquire skills related to design of various gully control structures, temporary and permanent, their designs and quantification of annual soil loss using USLE from a watershed enabling them to be employed in companies which deals with watershed management projects.
55	171AG6T15	Farm Machinery and Equipment – I	✓			Students are able to acquire skills related to design of different farm implements enabling them to employ in farm machinery companies.
56	171AG6T16	Design of Soil, Water Conservation and Farm Structures	✓			Students are able to acquire skills related to designing and execution of the structures for controlling soil erosion, water erosion and irrigation in fields enabling them to be employed as farm structure designer.
57	171AG6T17	Post Harvest Engineering for Horticulture Produce	✓			Students are able to acquire skills related to preservative techniques on fruits and vegetables, advanced packaging technology in food preservation, and preparation of fermented and unfermented beverages enabling them to be employed in food storage and food processing companies.
58	171AG6E03	GIS and Remote Sensing	✓			Students are able to acquire skills related to techniques of Remote Sensing and GIS applications for land and water resources management enabling them to be employed in GIS and remote sensing related jobs.
59	171AG6E04	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.



60	171AG6E05	Production Technology of Agricultural Machinery	✓			Students are able to acquire skills related to development of different manufacturing techniques in agricultural machinery and cutting tools enabling them to be employed in farm machinery designing companies.
61	171AG6E06	Green House / Poly House Technology	✓			Students are able to acquire skills related to development of different manufacturing techniques in agricultural machinery and cutting tools enabling them to be employed in farm machinery designing companies.
62	171AG6E07	Optimization, Operations Research and Systems Engineering		✓		Students are able to acquire analytical skills in finding optimal solutions of different models using various decision making techniques.
63	171AG6E08	Industrial Engineering and Management			✓	This subject helps the student to demonstrate competency become as the students have interactions between engineering, business, technological and environmental spheres in the modern society. This subject also understand students role as engineers and their impact to society at the national and global context which enabling them to become an entrepreneur.
64	171HS6T07	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.
65	171AG6L04	Farm Machinery Lab - I		✓		Students are able to demonstrate technical skill of determining parameters of different farm implements, calibration of seed cum fertilizer drills and sprayers.
66	171AG6L05	Soil and Water Engineering Lab		✓		Students are able to demonstrate technical skill of designing of various gully control structures, measurement of flow with current meter and water meter.
67	171AG6S02	MOOCs – II		✓		Students are able to demonstrate technical skill of various online courses available adding to their curricular courses

## VII SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
68	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.
69	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.
70	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.
71	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.
72	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.
73	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.
74	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.



75	171AG7E14	Computational Fluid Dynamics		✓		Students are able to acquire skills in analyzing the numerical methods related to fluid modelling.
76	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.
77	171AG7L07	Dairy and Food Engineering Lab		✓		Students are able to demonstrate technical skills of analyzing heat treatment processes used in milk preservation and operations involved in milk processing.
78	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
79	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.
80	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.
81	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
82	171AG8O03	Mechatronics		✓		Students are able to demonstrate technical skills to measure the load, displacement and temperature using analogue and digital sensors.
83	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.
84	171CS8O04	Operations Research	✓			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.
85	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

86	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		86	46	31	5	

  
Program Coordinator

  
Head of the Department  
Head of the Department  
Department of Agricultural Engineering  
ADITYA ENGINEERING COLLEGE (AB)