

PROGRAM STRUCTURE**I SEMESTER**

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
1	171HS1T01	English – I		✓		Students are able to demonstrate communication skills express their thoughts fluently in both written as well as oral form of language which is very much essential for the career growth and enhances the language competency.
2	171BS1T01	Mathematics – I		✓		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	171HS1T02	Environmental Studies				
4	171BS1T03	Engineering Chemistry				
5	171ES1T02	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.
6	171ES1T01	Computer Programming	✓			Students are able to acquire programming skills related to Structured programming, arrays, functions, pointers, structures and unions that enable them to be employed as a software developer.
7	171HS1L01	English Communication Skills Lab – I		✓		Students are able to demonstrate technical skills to express fluently in both written as well as oral forms of language which is very much essential for career growth.
8	171BS1L01	Engineering Chemistry Lab				
9	171ES1L01	Computer Programming Lab	✓			Students are able to acquire programming skills related to Structured programming, arrays, functions, pointers, structures and unions enabling them to be employed as a software developer.

II SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
10	171HS2T03	English – II		✓		Students are able to demonstrate communication skills express their thoughts fluently in both written as well as oral form of language which is very much essential for the career growth and enhances the language competency.
11	171BS2T02	Mathematics - II		✓		Students are able to demonstrate problem solving skills by evaluating improper and vector integrals applicable in various engineering disciplines.
12	171BS2T06	Mathematics - III		✓		Students are able to demonstrate problem solving skills by evaluating improper and vector integrals applicable in various engineering disciplines.
13	171BS2T07	Engineering Physics				
14	171ES2T03	Engineering Drawing		✓		Students are able to acquire skills related to creating technical drawings by displaying from different angles of projection and adding dimensional information.
15	171ES2T08	Theory of Machines	✓			Students are able to acquire skills related to determining the parameters related to governors, flywheel, and gear trains enabling them to be employed for designing farm machinery equipment's.
16	171HS2L02	English Communication Skills Lab – II		✓		Students are able to demonstrate technical skills to express fluently in both written as well as oral forms of language which is very much essential for career growth.
17	171BS2L02	Engineering Physics Lab				
18	171ES2L02	Engineering Workshop & IT Workshop		✓		Students are able to acquire skills related to system troubleshooting, implement MS office tools, develop LaTeX documents and to work with Linux commands. Students are able to acquire skills related to building various joints in different trades for several applications.

III SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
19	171AG3T01	Principles of Soil Science and Agronomy	✓			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.
20	171AG3T02	Renewable Energy Sources	✓			Students are able to acquire skills related to storage and application techniques of solar energy, different modern energy conversion technologies enabling them to be employed in renewable energy companies.
21	171AG3T03	Ground Water Hydrology, Wells and Pumps	✓			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.
22	171ES3T19	Properties and Strength of Materials	✓			Students are able to acquire skills related to analyzing 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.
23	171ES3T20	Electrical and Electronics Engineering	✓			Students are able to acquire skills related to basic electrical and electronic principles enabling them to be employed for designing farm and food processing equipment's enabling them to be employed as machinery designer.
24	171ES3T21	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.

25	171AG3L01	Soil Science and Agronomy Field Lab		✓		Students are able to demonstrate technical skill of crop management practices adopted for increasing the crop productivity.
26	171ES3L11	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.
27	171HS3A10	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.
28	171HS3A09	Professional Ethics and Human Values		✓		Students are able to acquire skills which help them in becoming a professional with ethical and human values.

IV SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
29	171AG4T04	Thermodynamics and Refrigeration Systems	✓			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
30	171AG4T05	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.
31	171ES4T25	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.
32	171AG4T06	Soil Mechanics	✓			Students are able to acquire skills related to determination of vertical stresses condition for different load conditions, shear strength of soils through theoretical shear parameters which helps them in construction of soil and water conservation structures, irrigation and drainage structures enabling them to be employed for designing drainage and irrigation structures.
33	171AG4T07	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.
34	171AG4T08	Engineering Properties of Biological Materials and Food Quality	✓			Students are able to acquire skills related to designing various processing equipment's to ensure food quality and safety enabling them to be employed as a food engineer.

35	171ES4L14	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.
36	171ES4L15	Machine Drawing and Computer Graphics Lab		✓		Students are able to demonstrate technical skill of Manual drawing of machine components and Basics of AUTOCAD.
37	171HS4A11	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.
38	171HS4A08	Intellectual Property Rights and Patents			✓	It helps the graduates safe guard the IP and innovations at their place of work.

V SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
39	R1631351	Thermodynamics and Refrigeration systems	✓			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.
40	R1631352	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.
41	R1631353	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.
42	R1631354	Engineering Properties of Biological Materials and Food Quality	✓			Students are able to acquire skills related to designing various processing equipment's to ensure food quality and safety enabling them to be employed as a food engineer.
43	R1631355	Managerial Economics & 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.
44	R1631356	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
45	R1631357	Advanced English Communications Skills Lab		✓		Students are able to demonstrate communication skills express their thoughts fluently in both written as well as oral form of language which is very much essential for the career growth and enhances the language competency.

46	R1631358	Field Operation and Maintenance of Tractors Lab - 1		✓		Students are able to demonstrate technical skill of periodical maintenance and trouble shooting of all systems like fuel system, lubrication system, cooling system and ignition system and remedial measures for above system of a tractor.
47	R1631029	IPR & 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
48	R1632029	Professional Ethics & 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.
49	R1632351	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.
50	R1632352	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.
51	R1632353	Design of Soil Water Conservation and Farm Structures	✓			Students are able to acquire skills related to techniques in designing of soil water conservation and farm structures enabling them to be employed as farm structure designer or planner.
52	R1632354	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 a dairy engineer.
53	R163235A	Operations Research		✓		Students are able to acquire analytical skills in finding optimal solutions of different models using various decision making techniques.
54	R163235B	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.
55	R163235C	Robotics& Automation	✓			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 industries.
56	R163235D	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.
57	R163235E	Finite Element Method	✓			Students are able to acquire skills related to analytical skills in solving static and dynamic heat transfer problems enabling them to be employed as a FEA engineer.
58	R163235F	Water Resources System Planning and Management	✓			Students are able to acquire skills related to planning of various water sources and their conservation principles in the society enabling them to be employed in civil industry
59	R1632356	Farm Machinery Lab - 1		✓		Students are able to demonstrate technical skill of determining parameters of different farm implements, calibration of seed cum fertilizer drills and sprayers.
60	R1632357	Field Operation and Maintenance of Tractors Lab - 2		✓		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.
61	R1632358	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.

VII SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
62	RT41353	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.
63	RT41354	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.
64	RT41355	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.
65	RT41356	Managerial economics & financial Analysis	✓			Students are able to acquire skills related to analysis of financial data enabling them to be employed as financial analyst.
66	RT41357	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.
67	RT41358	Watershed 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.

68	RT41359	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.
69	RT41310	Computational Fluid Dynamics		✓		Students are able to acquire skills in analyzing the numerical methods related to fluid modelling.
70	RT4135L	Field operation and maintenance of tractors and farm machinery 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.
71	RT4135M	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.

VIII SEMESTER

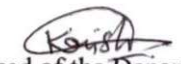
S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
72	RT42353A	GIS and remote sensing	✓			Students are able to acquire skills related to techniques of Remote Sensing and GIS applications for land and water resources management enabling them to be employed in GIS and remote sensing related jobs.
73	RT42353B	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.
74	RT42353C	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.
75	RT42354C	Principles of entrepreneurship			✓	Students are able to apply the knowledge of entrepreneurial skills, legal steps to start enterprises which enable them to become entrepreneurs.
76	RT42354A	Minor Irrigation and Command area development	✓			Students are able to acquire skills related to improvement of command area, usage of water resources effectively enabling them to employed as water resource planner.
77	RT42354B	Hydraulic Devices and Control	✓			Students are able to acquire skills related to designing of hydraulic system and working of various hydraulic devices energy transfer in hydraulic actuators and motors enabling them to be employed in farm machinery companies.

A.Y. 2018-2019

B. Tech in Agricultural Engineering

78	RT42355	Project work	✓			Students will be able to demonstrate problem identification, analysis, design solutions or applications in agriculture domain through the acquired technical, cognitive, communication and creative skills to address societal needs.
TOTAL		78	42	26	5	


Program Coordinator


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