

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	R1621351	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.
20	R1621352	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	R1621353	Ground Water Hydrology, Well 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	R1621354	Properties and 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.
23	R1621355	Electrical Systems		✓		Students are able to demonstrate technical skill related to design, synthesize and evaluate the performance of electric machines and electronic circuits or networks.
24	R1621356	Surveying	✓			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	R1621357	Fluid Mechanics and Open Channel Hydraulics Lab		✓		Students are able to demonstrate technical skill of determining major and minor losses in pipes, flow behaviour in open channels.
26	R1621358	Surveying 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

IV SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
27	R1622351	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.
28	R1622352	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.
29	R1622353	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 equipments.
30	R1622354	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.
31	R1622355	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.
32	R1622356	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.

33	R1622357	Soil Science and Agronomy Field Lab		✓		Students are able to demonstrate technical skill of crop management practices adopted for increasing the crop productivity.
34	R1622358	Machine Drawing and Computer Graphics Lab		✓		Students are able to demonstrate technical skill of Manual drawing of machine components and Basics of AUTOCAD

V SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
35	RT31016	IPR & Patents			✓	It helps the graduates safe guard the IP and innovations at their place of work.
36	RT31267	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.
37	RT31351	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
38	RT31352	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.
39	RT31353	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.
40	RT31354	Engineering Properties of Biological Materials and Food Quality	✓			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.
41	RT31355	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.

42	RT31358	Farm Machinery Lab		✓		Students are able to demonstrate technical skill of determining parameters of different farm implements, calibration of seed cum fertilizer drills and sprayers.
43	RT31359	Seminar		✓		Students are able to demonstrate technical skills by giving a seminar on emerging trends in the Agriculture sector.

VI SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
44	RT32353	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.
45	RT32354	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.
46	RT32355	Theory Of Structures	✓			Students are able to acquire skills related to design of beams, slabs, columns, foundations and RCC structures enabling thrum to be employed in any construction related companies.
47	RT32356A	Operations Research		✓		Students are able to acquire analytical skills in finding optimal solutions of different models using various decision making techniques.
48	RT32356B	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.
49	RT32356C	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.
50	RT32356D	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 employed in food industries.

51	RT32356E	Advanced Separation Technology	✓			Students are able to acquire skills related to separation technologies enabling them to be employed in any industry.
52	RT32356F	Mechatronics	✓			Students are able to demonstrate Competency to understand the knowledge of mechatronics and enabling them to be employed in electronics industries.
53	RT32356G	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.
54	RT32356H	Soil Dynamics and Machine Foundations	✓			Students are able to acquire skills related to behaviour of a soil subjected to dynamic (actions having high acceleration) loading and impact on the foundations enabling them to be employed in constructional industry.
55	RT32356I	Water Resources System Planning and Management	✓			Students are able to acquire skills related to planning of various water sources and their conservational principles in the society enabling them to be employed in civil industry.
56	RT32356J	Green Technologies	✓			Students are able to acquire skills related to various technologies related to green building concept enabling them to be employed as modern constructional industry.
57	RT32357	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.
58	RT32358	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
59	RT41352	Farm machinery and equipments II		✓		Students are able to acquire skills related to operation, maintenance and evaluation of harvesters, and threshers enabling them to be employed in farm machinery companies.
60	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.
61	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.
62	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.
63	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.
64	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.
65	RT41358	Watershed management		✓		Students are able to acquire technical skills on media characteristics, compression standards, multimedia representation, data formats, multimedia technology development.

66	RT41359	Food packaging technology		✓		Students are able to demonstrate technical skills related to the principles of multi-threading and distributed computing
67	RT413510	Computational Fluid Dynamics	✓			Students are able to acquire skills related to understand the basics of computational fluid dynamics (CFD) and compare finite difference and finite volume methods applied in CFD and enabling them to be employed as a Computational fluid dynamics engineer.
68	RT4135L	Field operation and maintenance of tractors and farm machinery lab	✓			Students are able to gain skills related to Big data analytics and related tool enabling them to be employed for data analytics role.
69	RT4135M	Dairy and food engineering lab		✓		Students are able to acquire skills to plan and manage projects at each stage of the software development life cycle (SDLC)

VIII SEMESTER

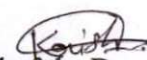
S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
70	RT42352	Agro industries and bi-product utilization	✓			Students are able to acquire skills related to treatment techniques of waste water from agricultural/food industry, production of by- products from agricultural and food processing wastes enabling them to be employed in any food industry.
71	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
72	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.
73	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.
74	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.
75	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.
76	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. 2017-2018

B. Tech Agricultural Engineering

77	RT42355	Project work	✓			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		77	40	29	3	


Program Coordinator


Head of the Department
Head of the Department
Department of Agricultural Engineering
ADITYA ENGINEERING COLLEGE (A9)