

MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY
(Formerly West Bengal University of Technology)
Syllabus of B.Tech Agricultural Engineering
(Effective from 2026-2027 Admission Session)
PROGRAMME COURSE STRUCTURE

(As prescribed by the 6th Deans' Committee Report of Indian Council of Agricultural Research (ICAR))

Semester wise course distribution

Sl. No.	Category	Course Code	Course Title	Credit Hours	Total Credit hours
First Year					
I semester					
1	FC	FC-AG101	<i>Deeksharambh</i>	0+2 (NG) Non-gradual	20 (11+9)
2	BA	BA-AG101	Crop Production and Protection Technologies	4 (3+1)	
3	CAE	CAE-AG101	Introduction to Agricultural Engineering	4 (3+1)	
4	ASCE	ASCE-AG101	Surveying and Levelling	3 (1+2)	
5	ME	ME-AG101	Workshop Technology and Practice	2 (0+2)	
6	EE	EE-AG101	Basic Electrical Gadgets and Instruments	3 (2+1)	
7	CSE	CSE-AG101	Agricultural Informatics and Artificial Intelligence	3 (2+1)	
8	FC	FC-AG102	NSS- I/ NCC- I	1 (0+1)	
II semester					
1	SEC	SEC-AG201	Skill Enhancement	8 (0+8)	21 (5+16)
2	ME	ME-AG201	Engineering Drawing	2 (0+2)	
3	CSE	CSE-AG201	Computer Programing and Data Structures	2 (0+2)	
4	BA	BA-AG201	Farming Based Livelihood Systems	3 (2+1)	
5	BA	BA-AG202	Environmental Studies and Disaster Management	3 (2+1)	
6	SS	SS-AG201	Communication Skills	2 (1+1)	
7	FC	FC-AG201	NSS-II/ NCC- II	1 (0+1)	

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Sl. No.	Category	Course Code	Course Title	Credit Hours	Total Credit hours
Second Year					
III semester					
1	BS	BS-AG301	Engineering Mathematics- I	3 (3+0)	20 (11+9)
2	BS	BS-AG302	Engineering Physics	3 (2+1)	
3	BS	BS-AG303	Engineering Chemistry	3 (2+1)	
4	ASCE	ASCE-AG301	Engineering Mechanics	3 (2+1)	
5	ASCE	ASCE-AG302	Soil Mechanics	2 (1+1)	
6	SWCE	SWCE-AG301	Fluid Mechanics and Open Channel Hydraulics	3 (2+1)	
7	FPE	FPE-AG301	Engineering Properties of Agricultural Produce and Food Science	3 (2+1)	
8	FMP	FMP-AG301	Farm Machinery & Equipment- I	3 (2+1)	
9	FC	FC-AG301	Physical Education, First Aid, Yoga Practice and meditation	2 (0+2)	
IV semester					
1	BS	BS-AG401	Engineering Mathematics-II	3 (3+0)	25 (18+7)
2	ASCE	ASCE-AG401	Theory of Structures	2 (1+1)	
3	ASCE	ASCE-AG402	Building Construction & Cost Estimation	2 (2+0)	
4	SWCE	SWCE-AG401	Watershed Hydrology	3 (2+1)	
5	SWCE	SWCE-AG402	Soil and Water Conservation Engineering	3 (2+1)	
6	FMP	FMP-AG401	Farm Machinery & Equipment II	3 (2+1)	
7	RE	RE-AG401	Renewable Energy Sources	3 (2+1)	
8	FPE	FPE-AG401	Post-harvest Engineering of Cereals, Pulses and Oilseeds	3 (2+1)	
9	SS	SS-AG401	Entrepreneurship Development and Business Management	3 (2+1)	

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Sl. No.	Category	Course Code	Course Title	Credit Hours	Total Credit hours
Third Year					
V semester					
1	ASCE	ASCE-AG501	Strength of Materials	2 (1+1)	21 (15+6) +2 (Non-gradial)
2	ME	ME-AG501	Theory of Machines	2 (2+0)	
3	ME	ME-AG502	Thermodynamics and Heat Transfer	3 (3+0)	
4	FMP	FMP-AG501	Tractor & Automotive Engines	3 (2+1)	
5	IDE	IDE-AG501	Irrigation and Drainage Engineering	4 (3+1)	
6	FPE	FPE-AG501	Food and Dairy Engineering	4 (3+1)	
7	SS	SS-AG501	Personality Development	2 (1+1)	
8	CAE	CAE-AG501	Seminar	1 (0+1)	
9	CAE	CAE-AG502	Study tour	2 (0+2) NG	
VI semester					
1	FMP	FMP-AG601	Tractor Systems & Controls	3 (2+1)	21 (13+8)
2	IDE	IDE-AG601	Groundwater, Wells and Pumps	3 (2+1)	
3	CSE	CSE-AG601	Sensors, AI and Robotics in Agriculture	3 (2+1)	
4	ASCE	ASCE-AG601	Agricultural Structures & Environment Control	3 (2+1)	
5	RE	RE-AG601	Bioenergy Systems: Design and Applications	3 (2+1)	
6	ME	ME-AG601	Refrigeration and Air-conditioning	3 (2+1)	
7	FPE	FPE-AG601	Post-harvest Engineering of Horticultural Crops	2 (1+1)	
8	CAE	CAE-AG601	Case Study	1 (0+1)	

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Sl. No.	Category	Course Code	Course Title	Credit Hours	Total Credit hours
Fourth Year					
VII semester					
1	SEC	SEC-AG701	Project- I	3 (0+3)	20 (10+10)
2	ME	ME-AG701	Engineering Graphics and Design	2 (0+2)	
3	FPE	FPE-AG701	Food Quality and Safety	3 (2+1)	
4	SWCE	SWCE-AG701	Watershed Planning and Management	3 (2+1)	
5	IDE	IDE-AG701	Sprinkler & Micro Irrigation Systems	2 (1+1)	
6	ME	ME-AG702	Machine Design	2 (2+0)	
7	EE	EE-AG701	Electrical Machines	3 (2+1)	
8	BA	BA-AG701	Agricultural Statistics and Data Analysis	2 (1+1)	
VIII semester					
1	SEC	SEC-AG801	Project -II	4 (0+4)	21 (13+8)
2	IPT	IPT-AG801	In-plant Training/ Research Internship	8 (0+8)	
3	EE	EC-AG801	Elective- I	3 (2+1)	
4	EE	EC-AG802	Elective- II	3 (2+1)	
5	EE	EC-AG803	Elective- III	3 (2+1)	
				TOTAL	174 (94+80)
1	OE	AGN-OE501/ AGN-OE601/ AGN-OE701/ AGN-OE801	**On-line courses	6	6
				Grand Total	174+6*

*** These courses can be taken any time during the 3rd and 4th years of the UG programme.*

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Department/ section wise course breakup

Sl. No.	Course Title	Credit hours	Total
FC: Foundation courses/ Ability Enhancement Courses, etc.			
1	Deeksharambh	0+2 (Non-gradual)*	4 (0+4)
2	NSS-I/ NCC - I	1 (0+1)	
3	NSS-I/ NCC - II	1 (0+1)	
4	Physical Education, First Aid and Yoga Practice	2 (0+2)	
BA: Basic Agriculture			
1	Crop Production and Protection Technologies	4 (3+1)	12 (8+4)
2	Farming Based Livelihood Systems*	3 (2+1)	
3	Environmental Studies and Disaster Management*	3 (2+1)	
4	Agricultural Statistics and Data Analysis	2 (1+1)	
SS: Social Sciences			
1	Communication Skills*	2 (1+1)	7 (4+3)
2	Personality Development*	2 (1+1)	
2	Entrepreneurship Development and Business Management*	3 (2+1)	
CAE: Common Agricultural Engineering			
1	Introduction To Agricultural Engineering	4 (3+1)	6 (3+3)
2	Seminar	1 (0+1)	
3	Case Study	1 (0+1)	
4	Study Tour	2 (0+2) NG*	
SEC: Skill Enhancement Courses/ Project			
1	Skill Enhancement	8 (0+8)	15 (0+15)
2	Project- I	3 (0+3)	
3	Project- II	4 (0+4)	
IPT: In-plant training/ Internship			
1	Internship only for exit option with UG-Certificate	10 (0+10)#	8 (0+8) #Credits not included in the total credits calculated for B. Tech. programme
2	Internship only for exit option with UG-Diploma	10 (0+10)#	
3	In-plant Training/ Research Internship	8 (0+8)	
BS: Basic Sciences			
1	Engineering Mathematics- I	3 (3+0)	12 (10+2)
2	Engineering Mathematics- II	3 (3+0)	
3	Engineering Physics	3 (2+1)	
4	Engineering Chemistry	3 (2+1)	
ASCE: Agricultural Structures and Civil and Environmental Engineering			
1	Surveying and Levelling	3 (1+2)	17 (10+7)
2	Engineering Mechanics	3 (2+1)	
3	Soil Mechanics	2 (1+1)	
4	Theory of Structure	2 (1+1)	
5	Building Construction and Cost Estimation	2 (2+0)	
6	Strength of Materials	2 (1+1)	

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7	Agricultural Structures and Environmental Control	3 (2+1)	
ME: Mechanical Engineering			
1	Workshop Technology and Practices	2 (0+2)	16 (9+7)
2	Engineering Drawing	2 (0+2)	
3	Theory of Machines	2 (2+0)	
4	Thermodynamics and Heat Transfer	3 (3+0)	
5	Refrigeration and Air Conditioning	3 (2+1)	
6	Machine Design	2 (2+0)	
7	Engineering Graphics and Design	2 (0+2)	
EE: Electrical and Electronics Engineering			
1	Basic Electrical Gadgets and Instruments	3 (2+1)	6 (4+2)
2	Electrical Machines	3 (2+1)	
CSE: Computer Science and Engineering			
1	Agricultural Informatics and Artificial Intelligence*	3 (2+1)	8 (4+4)
2	Computer programming and data structures	2 (0+2)	
3	Sensors, Artificial Intelligence and Robotics in Agriculture	3 (2+1)	
FMP: Farm Machinery and Power Engineering			
1	Farm Machinery and Equipment- I	3 (2+1)	12 (8+4)
2	Farm Machinery and Equipment- II	3 (2+1)	
3	Tractor and Automotive Engines	3 (2+1)	
4	Tractor Systems and Controls	3 (2+1)	
RE: Renewable Energy Engineering			
1	Renewable Energy Sources	3 (2+1)	6 (4+2)
2	Bio-energy Systems: Design and Applications	3 (2+1)	
SWCE: Soil and Water Conservation Engineering			
1	Fluid Mechanics and Open Channel Hydraulics	3 (2+1)	12 (8+4)
2	Watershed Hydrology	3 (2+1)	
3	Soil and Water Conservation Engineering	3 (2+1)	
4	Watershed Planning and Management	3 (2+1)	
IDE: Irrigation and Drainage Engineering			
1	Irrigation and Drainage Engineering	4 (3+1)	9 (6+3)
2	Groundwater, Wells and Pumps	3 (2+1)	
3	Sprinkler and Micro Irrigation Systems	2 (1+1)	
FPE: Processing and Food Engineering			
1	Engineering Properties of Agricultural Produce and Food Science	3 (2+1)	15 (10+5)
2	Post-harvest Engineering of Cereals, Pulses and Oilseeds	3 (2+1)	
3	Food and Dairy Engineering	4 (3+1)	
4	Post-harvest Engineering of Horticultural Crops	2 (1+1)	
5	Food Quality and Safety	3 (2+1)	

* Common courses across the disciplines

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1	Mechanics of Tillage and Traction	3 (2+1)	9 (any three courses to be chosen)
2	Farm Machinery Design and Production	3 (2+1)	
3	Tractor Design and Testing	3 (2+1)	
4	Hydraulic Drives and Controls	3 (2+1)	
5	Human Engineering and Safety	3 (2+1)	
6	Precision Agriculture and System Management	3 (2+1)	
7	Photovoltaic Technology and Systems	3 (2+1)	
8	Wind Power Technology and Systems	3 (2+1)	
9	Waste and By-products Utilization	3 (2+1)	
10	Floods and Control Measures	3 (2+1)	
11	Remote Sensing and GIS Applications	3 (2+1)	
12	Information Technology for Land and Water Management	3 (2+1)	
13	Wasteland Development	3 (2+1)	
14	Minor Irrigation and Command Area Development	3 (2+1)	
15	Management of Canal Irrigation System	3 (2+1)	
16	Water Quality and Management Measures	3 (2+1)	
17	Landscape Irrigation Design and Management	3 (2+1)	
18	Application of Plastics in Agriculture	3 (2+1)	
19	Precision Farming Techniques for Protected Cultivation	3 (2+1)	
20	Environmental Engineering	3 (2+1)	
21	Development of Processed Food Products	3 (2+1)	
22	Food Packaging Technology	3 (2+1)	
23	Food Plant and Equipment Design	3 (2+1)	
24	Emerging Technologies in Food Processing	3 (3+0)	
25	Processing of Livestock, Fish and Marine Products	3 (2+1)	
26	Food Business Management and Entrepreneurship Development	3 (3+0)	
27	MATLAB Programming	3 (1+2)	
28	Python Programming	3 (1+2)	
29	Artificial Intelligence	3 (2+1)	
30	Advances in Automation and Robotics in Agriculture	3 (2+1)	
31	Machine Learning	3 (2+1)	
32	Operations Research	3 (3+0)	
33	Mechatronics	3 (2+1)	
34	Natural Fibres: Extraction & Properties	3 (2+1)	
35	Natural Fibre Applications in Agriculture	3 (2+1)	
36	Processing of Natural Fibres	3 (2+1)	
37	Agricultural Marketing and Trade	3 (2+1)	