

***Faculty of Agricultural
Engineering***

**B. Tech.
(Agricultural Engineering)
New Course Curriculum
to be
implemented from 2017-18**

COURSE CURRICULAM AND SEMESTER WISE DISTRIBUTION OF COURSES
B.TECH. (AGRIL. ENGG.)

Semester I

No.	Course No.	Title	Credits		
Core Courses			T	P	Total
1	BS-MATH 111	Engineering Mathematics-I	2	1	3
2	BS-PHY 111	Engineering Physics	1	1	2
3	BS-COMP 111	Computer Programming and Data Structures	1	1	2
4	AS-SS 111	Principles of Soil Science	1	1	2
5	FMPE 111	Engineering Drawing	0	2	2
6	FMPE 112	Workshop Practice	0	1	1
7	PFE 111	Thermodynamics,	1	1	2
8	REE 111	Engineering Chemistry	1	1	2
9	FS 111	Engineering Mechanics	2	1	3
Common Courses					
10	AS-EXTN 111	Communication Skills and Personality Development	1	1	2
Non Gradial Compulsory Courses					
11	DEG 111*	Democracy, Elections and Good Governance	1	0	1*
TOTAL			10 01	11 00	21 01*

* Non Gradial course

Semester II

No.	Course No.	Title	Credits		
Core Courses			T	P	Total
1	BS-MATH 122	Engineering Mathematics-II	2	1	3
2	BS-COMP 122	Web Designing and Internet Applications	0	2	2
3	AS-STAT 121	Statistical Methods in Engineering	1	1	2
4	AS-AGRO 121	Principles of Agronomy	1	1	2
5	AS-HORT 121	Principles of Horticultural Crops and Plant Protection	1	1	2
6	FMPE 123	Workshop Technology	1	1	2
7	SWCE 121	Surveying and Leveling	1	2	3
8	PFE 122	Heat and Mass Transfer	1	1	2
9	REE 122	Electrical Machines and Power Utilization	2	1	3
10	FS 122	Strength of Materials	1	1	2
Non Gradial Compulsory Courses					
11	PHEY 121*	Physical Education and Yoga	0	1	1*
12	NSS 121*	National Service Scheme	0	1	1*
TOTAL			11 00	12 02	23 02*

*Non Gradial course

Semester III

No.	Course No.	Title	Credits		
Core Courses			T	P	Total
1	BS-MATH 233	Engineering Mathematics-III	2	1	3
2	FMPE 234	Farm Power and Automotive Engines	1	1	2
3	FMPE 235	Theory of Machines	1	1	2
4	SWCE 232	Soil Mechanics	1	1	2
5	SWCE 233	Watershed Hydrology	2	1	3
6	IDE 231	Fluid Mechanics and Open Channel Hydraulics	2	1	3
7	PFE 233	Engineering Properties of Agricultural Produce	1	1	2
8	FS 233	Theory of Structures	1	1	2
Common Courses					
9	AS-ECON 231	Entrepreneurship Development and Business Communication	1	1	2
Student READY Programme					
10	EDNT 231#@	Educational Tour@ (During the semester break after 3 rd semester)	0	2	2#@
TOTAL			12 00	09 02	21 02#

Only 1 educational tour Gradual.

@ Student READY Programme

Semester IV

No.	Course No.	Title	Credits		
Core Courses			T	P	Total
1	BS PHY 242	Applied Electronics & Instrumentation	1	1	2
2	FMPE 246	Tractor Systems and Controls	1	1	2
3	FMPE 247	Machine Design	1	1	2
4	SWCE 244	Soil & Water Conservation Engineering	2	1	3
5	IDE 242	Irrigation Engineering	2	1	3
6	PFE 244	Post Harvest Engineering of Cereals, Pulses and Oil Seeds	2	1	3
7	REE 243	Fundamentals of Renewable Energy Sources	2	1	3
8	FS 244	Building Construction and Cost Estimation	1	1	2
Student READY Programme					
9	GAE 241 [@]	In Plant Training – I [@] (4 weeks duration) to be implemented during semester break after IV Semester	0	5	5 [@]
TOTAL			12 00	08 05	20 05 [@]

@ Student READY Programme during semester break after IV Semester

Semester V

No.	Course No.	Title	Credits		
Core Courses			T	P	Total
1	FMPE 358	Farm Machinery and Equipment-I	1	1	2
2	FMPE 359	CAD Applications	0	1	1
3	FMPE 3510	Field Operation and maintenance of Tractor and Farm Machinery	0	1	1
4	SWCE 355	Water Harvesting and Soil Conservation Structures	2	1	3
5	IDE 353	Groundwater, Wells and Pumps	2	1	3
6	IDE 354	Drainage Engineering	2	1	3
7	PFE 355	Dairy and Food Engineering	2	1	3
8	REE 354	Renewable Power Sources	2	1	3
9	FS 355	Agricultural Structures, Storage Engineering and Environmental Control	2	1	3
Student READY Programme					
10	EDNT 352 ^{#@}	Educational Tour [@] (During the semester break after 5 th semester)	0	2	2 ^{#@}
TOTAL			13 00	09 02	22 02[#]

Only 1 educational tour Gradial.

@ Student READY Programme

Semester VI

No.	Course No.	Title	Credits		
Core Courses			T	P	Total
1	FMPE 3611	Farm Machinery and Equipment-II	1	1	2
2	FMPE 3612	Tractor & Farm Machinery Design	2	1	3
3	SWCE 366	Watershed Planning and Management	1	1	2
4	IDE 365	Canal Irrigation Management	1	1	2
5	IDE 366	Sprinkler and Micro Irrigation System	1	1	2
6	PFE 366	Post Harvest Engineering of Horticultural Crops	1	1	2
7	PFE 367	Refrigeration and Air Conditioning	1	1	2
8	REE 365	Bio-energy Systems: Design and Applications	2	1	3
Common Courses					
9	AS-ESDM 361	Environmental Science and Disaster Management	2	1	3
Student READY Programme					
10	GAE 362 [@]	In Plant Training – II [@] (4 weeks duration) to be implemented during semester break after VI Semester	0	5	5 [@]
TOTAL			12 00	09 05	21 05[@]

@ Student READY Programme during semester break after IV Semester

Semester VII

No.	Course No.	Title	Credits		
Student READY Programme					
	GAE 473 [@]	Industrial Attachment / Internship (10 weeks)	0	10	10 [@]
	GAE 474 [@]	Experiential Learning On campus (10 weeks)	0	10	10 [@]
TOTAL			00	20	20[@]

@ Student READY Programme

Semester VIII

No.	Course No.	Title	Credits		
Elective Courses			T	P	Total
1	ELE-DEPT	Elective I	2	1	3
2	ELE-DEPT	Elective II	2	1	3
3	ELE-DEPT	Elective III	2	1	3
Student READY Programme					
4	GAE 485 [@]	Seminar	0	1	1 [@]
5	GAE 486 [@]	Project Planning & Report Writing	0	10	10 [@]
TOTAL			6 00	3 11	09 11[@]

@ Student READY Programme

List of Electives from different departments

Sr. No	Department	Course No	Course Name	Credits		
1	FMPE	ELE - FMPE 481	Testing of Agricultural Equipment and Machinery	1	2	3
2	FMPE	ELE - FMPE 482	Human Engineering and Safety	2	1	3
3	FMPE	ELE - FMPE 483	Hydraulic drives and controls	2	1	3
4	FMPE	ELE - FMPE 484	Plant protection appliances	2	1	3
5	FMPE	ELE - FMPE 485	Advances in tractors and farm machinery.	2	1	3
6	SWCE	ELE – SWCE 481	Floods and Control Measures	2	1	3
7	SWCE	ELE – SWCE 482	Remote Sensing and GIS Applications	2	1	3
8	IDE	ELE – IDE 481	Minor Irrigation and command area development	2	1	3
9	IDE	ELE – IDE 482	Geo-informatics for land and water management	2	1	3
10	IDE	ELE-IDE 483	Lift Irrigation System Design and Management	2	1	3
11	IDE	ELE-IDE 484	Environmental Engineering	2	1	3
12	IDE	ELE-IDE 485	Landscape Irrigation Design & Management	2	1	3
13	PFE	ELE – PFE 481	Food Quality and Control	2	1	3
14	PFE	ELE – PFE 482	Process Equipment Design	2	1	3
15	PFE	ELE-PFE 483	Food Packaging	2	1	3
16	REE	ELE – REE 481	Photovoltaic Technology and Systems	2	1	3
17	REE	ELE- REE 482	Waste & By-products Utilization	2	1	3
18	FS	ELE – FS 481	Greenhouse Structure for protected cultivation	2	1	3
19	FS	ELE – FS 482	Rural Transport, Water Supply & Sanitation	2	1	3

**Distribution of credits in odd and even semesters including Non
Gradial, Student READY programme and Electives**

Odd Semesters		Even Semesters	
Semester	Credits	Semester	Credits
I	10+11=21 01+00=01*	II	11+12=23 00+02=02*
III	12+09=21 00+02=02 ^{#@}	IV	12+08=20 00+05=05 [@]
V	13+09=22 00+02=02 ^{#@}	VI	12+09=21 00+05=05 [@]
VII	00+20=20 [@]	VIII	06+03=09 00+11=11 [@]
Core & Common Non Gradial Student READY	35+29 =64 01+00=01* 00+22=22 ^{#@}	Core & Common Non Gradial Student READY Elective	35+29=64 00+02=02* 00+21=21 [@] 06+03=09 ^{**}
Grand Total	183		

* Non-gradial credits

Only 2 credits of educational tour gradial

@ Total 43 credits of Student READY Programme

** Credits of Elective courses

Summary Abstract of New Syllabus (183 Credits)
B.Tech. (Agril. Engg.)

Sr.No	Name of the Department	Credit
1	Basic Science	09+08=17
2	Applied Science	08+07=15
3	Farm Machinery & Power Engineering	09+13=22
4	Soil water Conservation Engineering	09+07=16
5	Irrigation Drainage Engineering	10+06=16
6	Processing & Food Engineering	09+07=16
7	Renewable Energy Engineering	09+05=14
8	Farm Structure	07+05=12
9	General Agricultural Engineering (In Plant Training, & Student READY)	00+41=41
10	Electives	06+03=09
11	Educational Tour (Only one tour to be gradial)	00+02=02
12	Non gradial compulsory courses	01+02=03
Total		77+106=183

Department / Discipline wise Course Distribution

1. Basic Science

No.	Course No.	Title	Credits		
			T	P	Total
1	BS-MATH 111	Engineering Mathematics-I	2	1	3
2	BS-MATH 122	Engineering Mathematics-II	2	1	3
3	BS-MATH 233	Engineering Mathematics-III	2	1	3
4	BS-PHY 111	Engineering Physics	1	1	2
5	BS-PHY 242	Applied Electronics & Instrumentation	1	1	2
6	BS-COMP 111	Computer Programming and Data Structures	1	1	2
7	BS-COMP 122	Web Designing and Internet Applications	0	2	2
Total			09	08	17

2. Applied Science (Agricultural & Other)

No.	Course No.	Title	Credits		
			T	P	Total
1	AS-SS 111	Principles of Soil Science	1	1	2
2	AS-EXTN 111	Communication Skills and Personality Development	1	1	2
3	AS-STAT 121	Statistical Methods in Engineering	1	1	2
4	AS-AGRO 121	Principles of Agronomy	1	1	2
5	AS-HORT 121	Principles of Horticultural Crops and Plant Protection	1	1	2
6	AS-ECON 231	Entrepreneurship Development and Business Communication	1	1	2
7	AS-ESDM 361	Environmental Science and Disaster Management	2	1	3
			08	07	15

3. Dept. of FMPE

No.	Course No.	Title	Credits		
			T	P	Total
1	FMPE 111	Engineering Drawing	0	2	2
2	FMPE 112	Workshop Practice	0	1	1
3	FMPE 123	Workshop Technology	1	1	2
4	FMPE 234	Farm Power and Automotive Engines	1	1	2
5	FMPE 235	Theory of Machines	1	1	2
6	FMPE 246	Tractor Systems and Controls	1	1	2
7	FMPE 247	Machine Design	1	1	2
8	FMPE 358	Farm Machinery and Equipment-I	1	1	2
9	FMPE 359	CAD Applications	0	1	1
10	FMPE 3510	Field Operation and Maintenance of Tractor and Farm Machinery	0	1	1
11	FMPE 3611	Farm Machinery and Equipment-II	1	1	2
12	FMPE 3612	Tractor & Farm Machinery Design	2	1	3
Total			09	13	22

4. Dept. of SWCE

No.	Course No.	Title	Credits		
			T	P	Total
1	SWCE 121	Surveying and Leveling	1	2	3
2	SWCE 232	Soil Mechanics	1	1	2
3	SWCE 233	Watershed Hydrology	2	1	3
4	SWCE 244	Soil and Water Conservation Engineering	2	1	3
5	SWCE 355	Water Harvesting and Soil Conservation Structures	2	1	3
6	SWCE 366	Watershed Planning and Management	1	1	2
Total			09	07	16

5. Dept. of IDE

No.	Course No.	Title	Credits		
			T	P	Total
1	IDE 231	Fluid Mechanics and Open Channel Hydraulics	2	1	3
2	IDE 242	Irrigation Engineering	2	1	3
3	IDE 353	Groundwater, Wells and Pumps	2	1	3
5	IDE 354	Drainage Engineering	2	1	3
4	IDE 365	Canal Irrigation Management	1	1	2
6	IDE 366	Sprinkler and Micro Irrigation System	1	1	2
Total			10	06	16

6. Dept. of PFE

No.	Course No.	Title	Credits		
			T	P	Total
1	PFE 111	Thermodynamics	1	1	2
2	PFE 122	Heat and Mass Transfer	1	1	2
3	PFE 233	Engineering Properties of Agricultural Produce	1	1	2
4	PFE 244	Post Harvest Engineering of Cereals, Pulses and Oil Seeds	2	1	3
5	PFE 355	Dairy and Food Engineering	2	1	3
6	PFE 366	Post Harvest Engineering of Horticultural Crops	1	1	2
7	PFE 367	Refrigeration and Air Conditioning	1	1	2
Total			09	07	16

7. Dept. of REE

No.	Course No.	Title	Credits		
			T	P	Total
1	REE 111	Engineering Chemistry	1	1	2
2	REE 122	Electrical Machines and Power Utilization	2	1	3
3	REE 243	Fundamentals of Renewable Energy Sources	2	1	3
4	REE 354	Renewable Power Sources	2	1	3
5	REE 365	Bio-energy Systems: Design and Applications	2	1	3
Total			09	05	14

8. Dept. of FS

No.	Course No.	Title	Credits		
			T	P	Total
1	FS 111	Engineering Mechanics	2	1	3
2	FS 122	Strength of Materials	1	1	2
3	FS 233	Theory of Structures	1	1	2
4	FS 244	Building Construction and Cost Estimation	1	1	2
5	FS 355	Agricultural Structures, Storage Engineering and Environmental Control	2	1	3
Total			07	05	12

9. General Agricultural Engineering (In Plant Training, & Student READY)

No.	Course No.	Title	Credits		
			T	P	Total
1	GAE 241	In Plant Training – I (4 weeks duration) after IV sem.	0	5	5
2	GAE 362	In Plant Training – II (4 weeks duration) after VI sem.	0	5	5
3	GAE 473	Industrial Attachment / Internship (10 weeks)	0	10	10
4	GAE 474	Experiential Learning On campus (10 weeks)	0	10	10
5	GAE 485	Seminar	0	1	1
6	GAE 486	Project Planning & Report Writing	0	10	10
Total			00	41	41

@ Student READY Programme

10. Educational Tour

No.	Course No.	Title	Credits		
			T	P	Total
1	EDNT 231 [#]	Educational Tour [@] (During the semester break after third semester)	0	2	2
2	EDNT 352 [#]	Educational Tour [@] (During the semester break after 5 th semester)	0	2	2
Total			00	02	02[#]

Only 1 educational tour Gradiual.

@ Student READY Programme

11. Non Gradiual Compulsory Courses

No.	Course No.	Title	Credits		
			T	P	Total
1	DEG 111	Democracy, Elections and Good Governance	1	0	1
2	PHEY 121	Physical Education and Yoga	0	1	1
3	NSS 121*	National Service Scheme	0	1	1
Total			01	02	03

* Non Gradiual courses

12. Elective Courses (Any 3 Courses, 9 credits) (VIII semester)

LIST OF ELECTIVE COURSES IN DIFFERENT DEPARTMENTS

No.	Dept.	Course No.	Elective Courses (Any 3 courses)	Credits		
				T	P	Total
1.	FMPE	ELE - FMPE 481	Testing of Agricultural Equipment and Machinery	2	1	3
2.	FMPE	ELE - FMPE 482	Human Engineering and Safety	2	1	3
3.	FMPE	ELE - FMPE 483	Hydraulic drives and controls	2	1	3
4.	FMPE	ELE - FMPE 484	Plant protection appliances	2	1	3
5.	FMPE	ELE - FMPE 485	Advances in tractors and farm machinery	2	1	3
6.	SWCE	ELE – SWCE 481	Floods and Control Measures	2	1	3
7.	SWCE	ELE – SWCE 482	Remote Sensing and GIS Applications	2	1	3
8.	IDE	ELE – IDE 481	Minor Irrigation and command area development	2	1	3
9.	IDE	ELE – IDE 482	Geo-informatics for land and water management	2	1	3

10.	IDE	ELE-IDE 483	Lift Irrigation System Design and Management	2	1	3
11.	IDE	ELE-IDE 484	Environmental Engineering	2	1	3
12.	IDE	ELE-IDE 485	Landscape Irrigation Design & Management	2	1	3
13.	PFE	ELE – PFE 481	Food Quality and Control	2	1	3
14.	PFE	ELE – PFE 482	Process Equipment Design	2	1	3
15.	PFE	ELE-PFE 483	Food Packaging	2	1	3
16.	REE	ELE – REE 481	Photovoltaic Technology and Systems	2	1	3
17.	REE	ELE- REE 482	Waste & By-products Utilization	2	1	3
18.	FS	ELE – FS 481	Greenhouse Structure for protected cultivation	2	1	3
19.	FS	ELE – FS 482	Rural Transport, Water Supply & Sanitation	2	1	3

List of Experiential Learning Programme

No.	Dept.	Course No.	Experiential Learning Programme (ELP)	Credits		
				T	P	Total
1.	FMPE	GAE FMPE 477-1	Farm Mechanization	0	10	10
2.	FMPE	GAE FMPE 477-2	Manufacturing of Agricultural Tools & Implements	0	10	10
3.	SWCE	GAE SWCE 477-1	Watershed Planning, Development and Evaluation	0	10	10
4.	SWCE	GAE SWCE 477-2	Design & Development of Rainwater Harvesting	0	10	10
5.	IDE	GAE IDE 477-1	Planning, design and installation of pressurized irrigation systems.	0	10	10
6.	IDE	GAE IDE 477-2	Maintenance and Management of Pressurized Irrigation Systems.	0	10	10
7.	IDE	GAE IDE 477-3	Cropping pattern and irrigation management in canal command for major/minor/medium irrigation projects	0	10	10
8.	IDE	GAE IDE 477-4	Irrigation and Nutrient Management in Greenhouse	0	10	10
9.	PFE	GAE PFE 477-1	Processing of Cereals & Pulses	0	10	10
10.	PFE	GAE PFE 477-2	Bakery Products	0	10	10
11.	PFE	GAE PFE 477-3	Cashew Nut Processing	0	10	10
12.	PFE	GAE PFE 477-4	Production of Soya Products	0	10	10
13.	REE	GAE REE 477-1	Drying of Different Vegetables using Solar dryer	0	10	10
14.	REE	GAE REE 4757-2	Preparation of Briquettes for Furnaces, & Cook Stoves	0	10	10
15.	FS	GAE FS 477-1	Bamboo Processing for Value added production	0	10	10
16.	FS	GAE FS 477-2	Design & Development of Advanced Agricultural Structures	0	10	10
17.	FS	GAE FS 477-3	Production of tiles	0	10	10