

College of Agricultural Engineering & Technology Anand Agricultural University Godhra – 389 001

Introducing an additional course on Mathematics entitled "Introduction to Engineering Mathematics" and restructuring the UG syllabus for students admitted in the Faculty of Agricultural Engineering AAU, Anand from the Academic Year 2022-23.

Read: Minutes of the 58th Meeting of the Academic Council vide no. AAU/Reg/Acad(Meet-58)/A.139)/7596-7625/2022, dated:-25/08/2022

NOTIFICATION

It is hereby notified to all concerned that vide item no 58.20 in the minutes of the 58th meeting of the academic council of the Anand Agricultural university held on 29/07/2022, the council has resolved as under;

"Academic Council based on the recommendation of the board of studies and the faculty board, resolves to introduce a non-gradial course entitled *Introduction to Engineering Mathematics* (3+0) as per <u>APPENDIX-I</u> in the First Semester of B.Tech. (Agricultural Engineering) along with the restructured curriculum of B.Tech. (Agricultural Engineering) as per <u>Appendix-II</u> from the

Academic Year 2022-23."

No: -AAU/CAET/Acad/2 2 /2022 Date: - 12 / 0 9 /2022

(Dr. R. Subbaiah) Dean & Principal College of Agril. Engg. & Tech.

Copy F.W.Cs. to:

- 1. PS to Hon'ble Vice-chancellor, Anand Agricultural University, Anand
- 2. State Agricultural University Council, Gandhinagar
- 3. All the members of the Academic Council of the University
- 4. All officers of Anand Agricultural University, Anand
- 5. The Registrar, AAU, Anand
- 6. All the HODs of this college
- 7. Academic Branch of this college
- 8. Notification File

Appendix - I

Name: - Introduction to Engineering Mathematics

Credit – 3+0

Sr. No.	Торіс	Hours	
1	Function:		
-	Concept and Examples	4	
2	Co-ordinate Geometry:	4	
_	Point : Distance Formula, Mid-point, Locus of a point		
	Straight Line : Forms of Equation of St Lines : Slope Point Form, Two Point		
	Form, Intercept Form, Parallel and Perpendicular lines		
	Circle: Equation of Circle, Centre and radius form, Tangent and Normal and		
	related problems.		
3	Limit:	4	
	Concept of Limit, Standard Formulae and related Examples.		
4	Differentiation:	6	
	Definition, Rules of, Sum, Product, Quotient of Functions, Chain Rule,		
	Derivative of Implicit functions and Parametric functions, Logarithmic		
	Differentiation. Successive Differentiation up to second order.		
5	Integration:	6	
	Concept, Integral of Standard Functions, Working Rules of Integration,		
	Integration by Parts, Integration by Substitution Method, Definite Integral and		
	its properties.		
6	Vector	5	
	Basic concept of Vector and Scalar, addition & subtraction, Product of		
	Vectors, Geometric meaning of Scalar and Vector Product. Angle between		
	two vectors, Applications of Dot (scalar) and Cross (vector) Product, Work		
	Done and Moment of Force.		
7	Trigonometry:	4	
	Units of angles (degree and radian), Allied & Compound Angles, Multiple –		
	Submultiples angles, Graph of Sine and Cosine, Periodic function, sum and		
	factor formulae, Inverse trigonometric function.		
8	Matrix:	5	
	Idea of Determinant and Matrix, Addition/Subtraction, Product, Inverse up to		
	3X3 matrix.		
9	Permutation & Combination:	3	
	Introduction, Fundamental Principles of counting, Definition, factorial		
	notations, related examples.		
10	Complex Numbers:	4	
	Introduction, Basic properties of Complex number, representation of complex		
	number, Conjugate of complex number.		
		45	

Note: -

- 1. The course will be a non-gradial course.
- 2. The examination of the said course is to be conducted as per the regular courses and the students will be awarded an "S" grade on passing the course as per the passing criteria fixed in the 5th Deans' committee recommended syllabus, otherwise the student will be awarded a "US" grade and the student will have to reappear in the examination of the said course.

Appendix- II

Semester I 1 Phy(E)-1.1.1 Engineering Physics 3(2+1) 2 Chem(E)-1.1.2 Engineering Chemistry 3(2+1) 3 Ag(E)-1.1.3 Principles of Soil Science 3(2+1) 4 ME-1.1.4 Engineering Drawing 2(0+2) 5 AS(E)-1.1.5 Environmental Science and Disaster Management 3(2+1) 6 Ag(E)-1.1.6 Principles of Agronomy 3(2+1) 7 CSE-1.1.7 Web Designing and Internet Applications 2(1+1) 8 Ag(E)-1.1.8 Principles of Horticultural Crops and Plant Protection 2(1+1) 9 Phy.Edu1.1.9 NSS/NCC/Physical Education 0(0+1*) Non-gradial 10 Math(E)-1.1.10 Introduction to Engineering Mathematics 3(3+0)* Non-gradial 2 CE-1.2.2 Surveying and Levelling 3(1+2) 3(2+1) 2 CE-1.2.3 Engineering Mathematics-I 3(2+1) 3(2+1) 4 ME-1.2.4 Theory of Machines 2(2+0) 3(2+1) 4 ME-1.2.5 <t< th=""><th colspan="6">Revised Semester-wise Course Programme</th></t<>	Revised Semester-wise Course Programme					
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3FMPE-2.4.3Tractor and Automotive Engines3(2+1)4PFE-2.4.4Engineering Properties of Agricultural Produce2(1+1)5SWCE-2.4.5Watershed Hydrology2(1+1)6IDE-2.4.6Irrigation Engineering3(2+1)7IDE-2.4.7Sprinkler and Micro Irrigation Systems2(1+1)8REE-2.4.8Fundamentals of Renewable Energy Sources3(2+1)				3(2+1)		
4PFE-2.4.4Engineering Properties of Agricultural Produce2(1+1)5SWCE-2.4.5Watershed Hydrology2(1+1)6IDE-2.4.6Irrigation Engineering3(2+1)7IDE-2.4.7Sprinkler and Micro Irrigation Systems2(1+1)8REE-2.4.8Fundamentals of Renewable Energy Sources3(2+1)		CE-2.4.2	Building Construction and Cost Estimation	2(2+0)		
5SWCE-2.4.5Watershed Hydrology2(1+1)6IDE-2.4.6Irrigation Engineering3(2+1)7IDE-2.4.7Sprinkler and Micro Irrigation Systems2(1+1)8REE-2.4.8Fundamentals of Renewable Energy Sources3(2+1)				3(2+1)		
6IDE-2.4.6Irrigation Engineering3(2+1)7IDE-2.4.7Sprinkler and Micro Irrigation Systems2(1+1)8REE-2.4.8Fundamentals of Renewable Energy Sources3(2+1)	4	PFE-2.4.4	Engineering Properties of Agricultural Produce	2(1+1)		
7IDE-2.4.7Sprinkler and Micro Irrigation Systems2(1+1)8REE-2.4.8Fundamentals of Renewable Energy Sources3(2+1)	5	SWCE-2.4.5	Watershed Hydrology	2(1+1)		
8 REE-2.4.8 Fundamentals of Renewable Energy Sources 3(2+1)	6	IDE-2.4.6	Irrigation Engineering	3(2+1)		
8 REE-2.4.8 Fundamentals of Renewable Energy Sources 3(2+1)	7					
9 PFE-2.4.9 Post Harvest Engineering of Horticultural Crops 2(1+1)	8	REE-2.4.8	Fundamentals of Renewable Energy Sources	3(2+1)		
	9	PFE-2.4.9	Post Harvest Engineering of Horticultural Crops	2(1+1)		

Revised Semester-wise Course Programme

10	Phy.Edu2.4.10	NSS/NCC/Physical Education	0(0+1*)			
	,	Total	22(14+8)			
V Semester						
1	FMPE-3.5.1	Farm Machinery and Equipment-I	3(2+1)			
2	FMPE-3.5.2	Tractor Systems and Controls	3(2+1)			
3		Agricultural Structures and Environmental Control	3(2+1)			
4	PFE-3.5.4	Post Harvest Engineering of Cereals, Pulses and Oil Seeds	3(2+1)			
5	SWCE-3.5.5	Soil and Water Conservation Engineering	3(2+1)			
6	SWCE-3.5.6	Watershed Planning and Management	2(1+1)			
7	IDE-3.5.7	Drainage Engineering	2(1+1)			
8	REE-3.5.8	Renewable Power Sources	3(2+1)			
9	CAE-3.5.9	Skill Development Training-I (Student READY) Registration only	5(0+5)			
		Total	27(14+13)			
		VI Semester				
No.	Course No.	Title of the Course	Credit Hour Remarks			
1	CSE-3.6.1	Computer Programming and Data Structures	3(1+2)			
2	FMPE-3.6.2	Farm Machinery and Equipment-II	3(2+1)			
3	EE-3.4.3	Applied Electronics and Instrumentation	3(2+1)			
4	SWCE-3.6.4	Water Harvesting and Soil Conservation Structures	3(2+1)			
5	IDE-3.6.5	Groundwater, Wells and Pumps	3(2+1)			
6		Tractor and Farm Machinery Operation and Maintenance	2(0+2)			
7	PFE-3.6.7	Dairy and Food Engineering	3(2+1)			
8	REE-3.6.8	Bio-energy Systems: Design and Applications	3(2+1)			
		Total	23(13+10)			
VII Semester						
VIIS		READY (Rural and Entrepreneurship Awarenes				
1		10- weeks Industrial Attachment /Internship (Student READY)	10(0+10)			
2		10- weeks Experiential Learning On campus (Student READY)	10(0+10)			
3	CAE-4.7.3	Skill Development Training-II (Student READY) Registration only	5(0+5)			
4	CAE-4.7.4	Educational Tour (Registration only)	2 (0+2)			
		Total	27(0+27)			

		VIII Semester	
VIII Yoja		ent READY (Rural and Entrepreneurship Av	wareness Development
1)	Elective course	3(2+1)
2		Elective course	3(2+1)
3		Elective course	3(2+1)
4	CAE-4.8.4	Project Planning and Report Writing (Student READY)	10(0+10)
		Total	19(6+13)
		Grand Total I to VIII semesters	182(85+97)
		Elective Courses (Any 3 courses) 9 (6+3)	
1	SWCE-4.8.1	Floods and Control Measures	3(2+1)
2	SWCE-4.8.2	Wasteland Development	3(2+1)
3	SWCE-4.8.3	Information Technology for Land and Water Management	3(2+1)
4	SWCE-4.8.4	Remote Sensing and GIS Applications	3(2+1)
5	IDE-4.8.5	Management of Canal Irrigation System	3(2+1)
6		Minor Irrigation and Command Area Development	3(2+1)
7	IDE-4.8.7	Precision Farming Techniques for Protected Cultivation	3(2+1)
8		Water Quality and Management Measures	3(2+1)
9	IDE-4.8.9	Landscape Irrigation Design and Management	3(2+1)
10	REE-4.8.1 0	Plastic Applications in Agriculture	3(2+1)
11	FMPE-4.8.11	Mechanics of Tillage and Traction	3(2+1)
12	FMPE-4.8.12	Farm Machinery Design and Production	3(2+1)
13	FMPE-4.8.13	Human Engineering and Safety	3(2+1)
14	FMPE-4.8.14	Tractor Design and Testing	3(2+1)
15	FMPE-4.8.15	Hydraulic Drives and Controls	3(2+1)
16	FMPE-4.8.16	Precision Agriculture and System Management	3(2+1)
17		Food Quality and Control	3(2+1)
18	PFE-4.8.18	Food Plant Design and Management	3(2+1)
19	PFE-4.8.19	Food Packaging Technology	3(2+1)
20	PFE-4.8.20	Development of Processed Products	3(2+1)
21	PFE-4.8.21	Process Equipment Design	3(2+1)
22	REE-4.8.22	Photovoltaic Technology and Systems	3(2+1)
23	REE-4.8.23	Waste and By-products Utilization	3(2+1)
24	CSE-4.8.24	Artificial Intelligence	3(3+0)
25	ME-4.8.25	Mechatronics	3(2+1)
26	REE-4.8.26	Energy Conservation and Audit in Agricultural Industry	3(2+1)
	-credit courses	143 (87+56)	

* Non-credit courses