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 APPENDIX-I in the First Semester of B.Tech. (Agricultural Engineering) along with the restructured curriculum of B.Tech. (Agricultural Engineering) as per Appendix-II from the Academic Year 2022-23."

No: -AAU/CAET/Acad/2228-25 /2022
Date: - 12/09 /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.	Topic	Hours
1	**Function**: Concept and Examples	4
2	**Co-ordinate Geometry**: **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.	4
3	**Limit**: Concept of Limit, Standard Formulae and related Examples.	4
4	**Differentiation**: 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.	6
5	**Integration**: Concept, Integral of Standard Functions, Working Rules of Integration, Integration by Parts, Integration by Substitution Method, Definite Integral and its properties.	6
6	**Vector** 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.	5
7	**Trigonometry**: 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.	4
8	**Matrix**: Idea of Determinant and Matrix, Addition/Subtraction, Product, Inverse up to 3X3 matrix.	5
9	**Permutation & Combination**: Introduction, Fundamental Principles of counting, Definition, factorial notations, related examples.	3
10	**Complex Numbers**: Introduction, Basic properties of Complex number, representation of complex number, Conjugate of complex number.	4
		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

Revised Semester-wise Course Programme

No.	Course No.	Title of the Course	Credit Hour	Remarks
		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.Edu.-1.1.9**	NSS/NCC/Physical Education	0(0+1*)	
10	**Math(E)-1.1.10**	Introduction to Engineering Mathematics	**3(3+0)***	**Non-gradial**
		Total	**21(12+09)**	
		Semester II		
1	**Math(E)-1.2.1**	Engineering Mathematics-I	3(2+1)	
2	**CE-1.2.2**	Surveying and Levelling	3(1+2)	
3	**CE-1.2.3**	Engineering Mechanics	3(2+1)	
4	**ME-1.2.4**	Theory of Machines	2(2+0)	
5	**ME-1.2.5**	Heat and Mass Transfer	2(2+0)	
6	**AS(E)-1.2.6**	Entrepreneurship Development and Business Management	3(2+1)	
7	**ME-1.2.7**	Workshop Technology and Practices	3(1+2)	
8	**CE-1.2.8**	Strength of Materials	2(1+1)	
9	**Phy. Edu. -1.2.9**	NSS/NCC/Physical Education	0(0+1*)	
		Total	**21(13+8)**	
		Semester III		
No.	**Course No.**	**Title of the Course**	**Credit Hour**	**Remarks**
1	**Math(E)-2.3.1**	Engineering Mathematics-II	3(2+1)	
2	**CE-2.3.2**	Fluid Mechanics and Open Channel Hydraulics	3(2+1)	
3	**AS(E)-2.3.3**	Communication Skills and Personality Development	2(1+1)	
4	**ME-2.3.4**	Auto CAD Applications	2(0+2)	
5	**CE-2.3.5**	Soil Mechanics	2(1+1)	
6	**CE-2.3.6**	Design of Structures	2(1+1)	
7	**ME-2.3.7**	Machine Design	2(2+0)	
8	**ME-2.3.8**	Thermodynamics, Refrigeration and Air Conditioning	3(2+1)	
9	**EE-2.3.9**	Electrical Machines and Power Utilization	3(2+1)	
10	**Phy.Edu.-2.3.10**	NSS/NCC/Physical Education	0(0+1*)	
		Total	**22(13+9)**	
		Semester IV		
1	**Math(E)-2.4.1**	Engineering Mathematics-III	3(2+1)	
2	**CE-2.4.2**	Building Construction and Cost Estimation	2(2+0)	
3	**FMPE-2.4.3**	Tractor and Automotive Engines	3(2+1)	
4	**PFE-2.4.4**	Engineering Properties of Agricultural Produce	2(1+1)	
5	**SWCE-2.4.5**	Watershed Hydrology	2(1+1)	
6	**IDE-2.4.6**	Irrigation Engineering	3(2+1)	
7	**IDE-2.4.7**	Sprinkler and Micro Irrigation Systems	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)	

10	**Phy.Edu.-2.4.10**	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	**PFE-3.5.3**	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	**FMPE-3.6.6**	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				
VII Semester Student READY (Rural and Entrepreneurship Awareness Development Yojana)				
1	**CAE-4.7.1**	10- weeks Industrial Attachment /Internship (Student READY)	10(0+10)	
2	**CAE-4.7.2**	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 Semester Student READY (Rural and Entrepreneurship Awareness Development Yojana)				
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	**IDE-4.8.6**	Minor Irrigation and Command Area Development	3(2+1)	
7	**IDE-4.8.7**	Precision Farming Techniques for Protected Cultivation	3(2+1)	
8	**IDE-4.8.8**	Water Quality and Management Measures	3(2+1)	
9	**IDE-4.8.9**	Landscape Irrigation Design and Management	3(2+1)	
10	**REE-4.8.10**	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	**PFE-4.8.17**	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)	
			143 (87+56)	

* Non-credit courses