

Courses Offered by the Division

The Division of Agricultural Engineering is offering following supporting course for Ph.D./M.Tech/M.Sc. and UG students of Agriculture and Agri-Business Management and Bio-Tech. students of the university.

Ph.D. Course Structure

FARM MACHINERY AND POWER ENGINEERING

Break up of courses

A. Major (15 Credits):

S. No.	Course No	Course Title	Credit Hours	Semester
a.	COMPULSORY COURSES:			
1.	FMPE 601	ADVANCES IN FARM MACHINERY AND POWER ENGINEERING	3+1	I
2.	FMPE 602	SIMULATION MODELLING IN FARM MACHINERY AND POWER ENGINEERING	2+0	II
b.	OPTIONAL COURSES:			
3.	FMPE 603	ENERGY CONSERVATION AND MANAGEMENT IN FARM MACHINERY AND POWER ENGINEERING	2+0	I
4.	FMPE 604	COMPUTER AIDED ANALYSIS AND DESIGN OF FARM MACHINERY	2+1	II
5.	FMPE 605	MACHINERY FOR NATURAL RESOURCE MANAGEMENT AND PRECISION FARMING	3+1	I
6.	FMPE 606	ADVANCES IN HYDRAULICS AND ELECTRO PNEUMATIC CONTROLS	2+0	II
7.	FMPE 693	SPECIAL PROBLEM	0+1	I
8.	FMPE 694	CASE STUDY	0+1	II

B. SEMINAR:

S. No.	Course No	Course Title	Credit Hours	Semester
1.	FMPE 691	DOCTORAL SEMINAR I	1+0	I
2.	FMPE 692	DOCTORAL SEMINAR II	1+0	II

C. RESEARCH:

1.	FMPE 699	DOCTORAL RESEARCH	45	--
----	----------	-------------------	----	----

D. Compulsory Non-Credit Courses:

S.No.	Course No	Course Title	Credit Hours
1.	PGS 501	LIBRARY AND INFORMATION SERVICES	1(0+1)
2.	PGS 502	TECHNICAL WRITING AND COMMUNICATION SKILLS	1(0+1)
3.	PGS 503	INTELLECTUAL PROPERTY AND ITS MANAGEMENT IN AGRICULTURE	1(1+0)
4.	PGS 504 (e-course)	BASIC CONCEPT IN LABORATORY TECHNIQUES	1(0+1)
5.	PGS 505 (e-course)	AGRICULTURAL RESEARCH, RESEARCH ETHICS AND RURAL DEVELOPMENT PROGRAMME	1(1+0)
6.	PGS 506 (e-course)	DISASTER MANAGEMENT	1(1+0)

Deficiency courses (if any): to be decided by the student's advisory committee, if required

Minor/Supporting:

Mechanical Engineering, Processing & Food Engineering , Energy in Agriculture, Civil Engineering , Computer Science, Electrical Engineering, Mathematics and Statistics, Food Science and Technology, Soil and Water Engineering, Statistics & Computer Sciences

M. TECH. (AGRICULTURAL ENGINEERING) Course Structure

**M. TECH. AGRICULTURAL ENGINEERING
(WITH SPECIALIZATION IN FARM MACHINERY AND POWER ENGINEERING)**

Break up of courses

Major: Farm Machinery and Power Engineering

Core Courses

Course No	Course Title	Credit Hours
FMPE 501	DESIGN OF FARM POWER AND MACHINERY SYSTEMS	3+1
FMPE 502	SOIL DYNAMICS IN TILLAGE AND TRACTION	2+1
FMPE 503	TESTING AND EVALUATION OF TRACTORS AND FARM EQUIPMENT	2+1
FMPE 504	SYSTEM SIMULATION AND COMPUTER	1+1

	AIDED PROBLEM SOLVING IN ENGINEERING	
--	--------------------------------------	--

Optional Courses

Course No	Course Title	Credit Hours
FMPE 505	APPLIED INSTRUMENTATION IN FARM MACHINERY AND STRESS ANALYSIS	2+1
FMPE 506	SYSTEM ENGINEERING AND PRODUCTIVITY	2+1
FMPE 507	FARM MACHINERY DYNAMICS NOISE & VIBRATIONS	3+1
FMPE 508	TRACTOR DESIGN	2+1
FMPE 509	OPERATIONS RESEARCH IN FARM POWER & MACHINERY MANAGEMENT	2+1
FMPE 510	ERGONOMICS AND SAFETY IN FARM OPERATIONS	2+1
FMPE 511	ENGINEERING PROPERTIES OF BIOLOGICAL MATERIALS	2+1
FMPE 512	AGRO-ENERGY AUDIT AND MANAGEMENT	2+0
FMPE 513	DESIGN AND ANALYSIS OF RENEWABLE ENERGY CONVERSION SYSTEMS	3+0
FMPE 514	RESEARCH METHODOLOGY	0+1
FMPE 592	SPECIAL PROBLEM	0+1
FMPE 595#	INDUSTRY/ INSTITUTE TRAINING	NC

FPM 595 – Minimum of Three Weeks Training

Minor:

The student's advisory committee will decide about the minor course(s) from the other disciplines as required

Supporting Course

Course No	Course Title	Credit Hours
STAT 513	OPTIMIZATION TECHNIQUES	1+1
STAT 558	DATA ANALYSIS USING STATISTICAL PACKAGES	2+1

Seminar:

Course No	Course Title	Credit Hours
FMPE 591	MASTER'S SEMINAR	1+0

Research:

Course No	Course Title	Credit Hours
FMPE 599	MASTER'S RESEARCH	20

Compulsory Non-Credit Courses:

Course No	Course Title	Credit Hours
-----------	--------------	--------------

PGS 501	LIBRARY AND INFORMATION SERVICES	0+1
PGS 502	TECHNICAL WRITING AND COMMUNICATION SKILLS	0+1
PGS 503	INTELLECTUAL PROPERTY AND ITS MANAGEMENT IN AGRICULTURE	1+0
PGS 504 (e-course)	BASIC CONCEPT IN LABORATORY TECHNIQUES	0+1
PGS 505 (e-course)	AGRICULTURAL RESEARCH, RESEARCH ETHICS AND RURAL DEVELOPMENT PROGRAMME	1+0
PGS 506 (e-course)	DISASTER MANAGEMENT	1+0

Deficiency courses (if any): To be decided by the student's advisory committee, if required

Degree Programme: M. Tech. Agricultural Engineering
(With specialization in Soil and Water Engineering)

Break-up of courses

MAJOR: SOIL AND WATER ENGINEERING

CORE COURSES

Course No	Course Title	Credit Hours
SWE 501	WATERSHED HYDROLOGY	2+1
SWE 502	DESIGN OF FARM IRRIGATION SYSTEMS	2+1
SWE 503	AGRICULTURAL DRAINAGE SYSTEMS	2+1
SWE 504	GROUND WATER ENGINEERING	2+1

OPTIONAL COURSES

Course No	Course Title	Credit Hours
SWE 505	SOIL AND WATER CONSERVATION ENGINEERING	2+1
SWE 506	CROP ENVIRONMENTAL ENGINEERING	2+0
SWE 507	DESIGN OF PUMPS FOR IRRIGATION AND DRAINAGE	2+0
SWE 508	OPEN CHANNEL FLOW	3+0
SWE 509	FLOW THROUGH POROUS MEDIA	2+0
SWE 510	WATER RESOURCES SYSTEM ENGINEERING	3+0
SWE 511	GIS AND REMOTE SENSING FOR LAND AND WATER RESOURCE MANAGEMENT	2+1
SWE 512	WATERSHED MANAGEMENT AND MODELLING	2+1
SWE 513	LAND DEVELOPMENT AND EARTH MOVING	2+0

	MACHINERY	
SWE 514	FLUID MECHANICS	2+1
SWE 592	SPECIAL PROBLEM	0+1
SWE 595#	INDUSTRY/ INSTITUTE TRAINING	NC
# SWC 595 – Minimum of Three Weeks Training		

MINOR:

The student's advisory committee will decide about the minor course(s) from the other disciplines as required

SUPPORTING COURSE:

Course No	Course Title	Credit Hours
STAT 513	OPTIMIZATION TECHNIQUES	1+1
STAT 558	DATA ANALYSIS USING STATISTICAL PACKAGES	2+1

SEMINAR:

Course No	Course Title	Credit Hours
SWE 591	MASTER'S SEMINAR	1+0

RESEARCH:

Course No	Course Title	Credit Hours
SWE 599	MASTER RESEARCH	20

COMPULSORY NON-CREDIT COURSES:

Course No	Course Title	Credit Hours
PGS 501	LIBRARY AND INFORMATION SERVICES	0+1
PGS 502	TECHNICAL WRITING AND COMMUNICATION SKILLS	0+1
PGS 503	INTELLECTUAL PROPERTY AND ITS MANAGEMENT IN AGRICULTURE	1+0
PGS 504 (e-course)	BASIC CONCEPT IN LABORATORY TECHNIQUES	0+1
PGS 505 (e-course)	AGRICULTURAL RESEARCH, RESEARCH ETHICS AND RURAL DEVELOPMENT PROGRAMME	1+0
PGS 506 (e-course)	DISASTER MANAGEMENT	1+0

DEFICIENCY COURSES (IF ANY): To be decided by the student's advisory committee, if required

CORE COURSES OF THE DIVISION (P.G. Level)

S. No.	Course	Credit Hrs.	Semester
1.	Operation Research in Farm Power and Machinery Management (AENG-501)	3(2+1)	1 st
2.	Ergonomics and safety in Farm Operations (AENG-502)	3(2+1)	2 nd
3.	Unit Operations in Food Process Engineering (AENG-503)	3(2+1)	1 st
4.	Processing of Cereals, Pulses and Oilseeds (AENG-504)	3(2+1)	1 st
5.	Watershed Hydrology (AENG-505)	3(2+1)	1 st
6.	Soil and Water Conservation Engineering (AENG-506)	3(2+1)	2 nd

UG Courses:

S. No.	Course	Credit Hrs.	Semester
A. Core Courses of the Division (U.G. Level)			
1	Introductory Soil and Water Conservation Engineering (AENG-121)	2(1+1)	2 nd
2	Farm Machinery and Power (AENG-211)	2(1+1)	3 rd
3	Renewable Energy and Green Technology (AENG-221)	2(1+1)	4 th
4	Introduction of Environmental Engineering (Bio-Tech) (AENG-212)	3(2+1)	1 st
5	Protected Cultivation and Secondary Agriculture(AENG-321)	2(1+1)	6 th

COURSES IN COLLABORATION WITH OTHER DIVISIONS

S. No.	Course	Credit Hrs.	Semester
1.	Food Engineering (FST-508)	3(2+1)	
2.	Advances in Food Engineering (FST-610)		1 st
3.	Farm Power and Machinery Management (ABE-531)	2(2+0)	1 st
4.	Management of Irrigation System (ABE-532)	2(2+0)	1 st
5.	Renewable Energy Resource Management (ABE-533)	2(2+0)	1 st
6.	Integrated Storage of Fruit, Vegetables & Flowers (PHT-415)	3(1+2)	1 st
7.	Grain Storage Technology (FST-608)	3(2+1)	2 nd