

SCHEME OF STUDIES OF B.S.C. AGRICULTURAL ENGINEERING (FOUR YEARS DEGREE PROGRAM)

2021-2023			2024-2027		
Existing			Revised		
SEMESTER I			SEMESTER I		
Course No.	Course Title	Credit Hours	Course No.	Course Title	Credit Hours
SEE-311	Engineering Drawing and CAD	2(1-1)	SEE-311	Engineering Drawing and CAD	2(1-1)
PY-301	Applied Physics	3(2-1)	SSH-303	Ideology and Constitution of Pakistan	2(2-0)
MATH-307	Calculus and Analytical Geometry	3(3-0)	CS-305	Introduction to Information and Communication Technologies	3(2-1)
CS-305	Introduction to Information and Communication Technologies	3(2-1)	PY-307	Fundamentals of Natural Sciences	3(2-1)
DHL-403	Functional English	2(2-0)	SOC-311	Introduction to Sociology	2(2-0)
AGRON-301	Basic Agriculture	2(1-1)	ENG-313	Functional English	3(3-0)
IS-401	Islamic Studies	3(3-0)	AGRON-301	Basic Agriculture	2(1-1)
Total		18(14-4)	CHEM-308	Introduction to General Chemistry (Deficiency course for ICS students only)	3(2-1) NCC
SEMESTER II				Understanding of Quran-I/Fehm e Quran - I	1(0-1)
Course No.	Course Title	Credit Hours	Total		18(13-5)
SEE-312	Surveying and leveling	3(2-1)	SEMESTER II		
SEE-314	Engineering Materials	2(1-1)	Course No.	Course Title	Credit Hours
ID-322	Fluid Mechanics	3(2-1)			

FMP-304	Metallurgy and Workshop Practices	2(1-1)
MATH-308	Linear Algebra	3(3-0)
AEE-422	Communication Skills	2(2-0)
Chem-406	Industrial Chemistry	2(1-1)
Total		17(12-5)
SEMESTER III		
Course No.	Course Title	Credit Hours
SEE-401	Engineering Mechanics	3(2-1)
ID-421	Pumps and Tubewells	2(1-1)
FMP-407	Manufacturing Engineering	2(1-1)
FMP-409	Applied Thermodynamics	3(2-1)
DHL-402	Pakistan and Global Perspective	2(2-0)
SES-401	Soil Science-II	3(2-1)
Total		15(10-5)
SEMESTER IV		
Course No.	Course Title	Credit Hours
SEE-402	Mechanics of Materials	3(2-1)
ID-422	Soil Mechanics	3(2-1)
FMP-402	Instrumentation and Control	3(2-1)
FMP-404	Artificial Intelligence(AI)	2(1-1)

SEE-312	Surveying and leveling	3(2-1)
SEE-314	Engineering Materials	2(1-1)
ID-322	Fluid Mechanics	3(2-1)
FMP-304	Metallurgy and Workshop Practices	2(1-1)
EDU-306	Civics and Community Engagement	2(2-0)
FA-310	Introduction to Arts and Humanities	2(2-0)
ENG-314	Expository Writing	3(3-0)
SSH-302	Pakistan Studies	2(2-0)
	Understanding of Quran-II/Fehm e Quran - II	1(0-1)
Total		20(15-5)
SEMESTER III		
Course No.	Course Title	Credit Hours
SEE-401	Engineering Mechanics	3(2-1)
ID-421	Pumps and Tubewells	2(1-1)
ID-423	Soil Mechanics	3(2-1)
FMP-407	Manufacturing Engineering	2(1-1)
FMP-409	Applied Thermodynamics	3(2-1)
IS-401/SSH-306	Islamic Studies/Basic Ethics	2(2-0)
MATH-408	Quantitative Reasoning-I	3(3-0)
Total		18(13-5)

FMP-410	IC Engines and Tractors	3(2-1)
MATH-406	Differential Equations	3(3-0)
Total		17(12-5)
SEMESTER V		
Course No.	Course Title	Credit Hours
SEE-503	Environmental Engineering	3(2-1)
ID-521	Open Channel Hydraulics	3(2-1)
ID-523	Numerical Analysis	2(2-0)
FMP-501	Machine Design	3(2-1)
	Social Sci. Elective-I	2(2-0)
STAT-312	Probability and statistics	3(3-0)
AEE-523	Technical Writing and Presentation Skills	2(2-0)
Total		18(15-3)
SEMESTER VI		
Course No.	Course Title	Credit Hours
SEE-522	Agricultural Pollution Control Technologies	2(2-0)
ID-522	Irrigation Engineering	3(2-1)
ID-524	Engineering Hydrology	3(2-1)
FMP-514	Earth Moving Machinery	2(1-1)

SEMESTER IV		
Course No.	Course Title	Credit Hours
SEE-402	Mechanics of Materials	3(2-1)
FMP-404	Artificial Intelligence(AI)	2(1-1)
FMP-410	IC Engines and Tractors	3(2-1)
BMS-402	Entrepreneurship	2(2-0)
STAT-408	Quantitative Reasoning-II	3(3-0)
MATH-406	Differential Equations	3(3-0)
SS-403	Introduction to Soil Science	2(1-1)
Total		18(14-4)
SEMESTER V		
Course No.	Course Title	Credit Hours
SEE-503	Environmental Engineering	3(2-1)
ID-513	Farm Irrigation Systems	2(1-1)
ID-521	Open Channel Hydraulics	3(2-1)
ID-525	Engineering Numerical Analysis	2(2-0)
FMP-501	Machine Design	3(2-1)
FMP-503	Instrumentation and Control	3(2-1)
STAT-513	Advanced Statistics	3(2-1)
Total		19(13-6)
SEMESTER VI		

	MDE Elective-I (Environment)	3
	Economics for Engineers	2(2-0)
	Management Elective-I	2(2-0)
Total		17
SEMESTER VII		
Course No.	Course Title	Credit Hours
SEE-621	Farm waste management	2(1-1)
ID-621	Drainage Engineering	2(1-1)
ID-623	GIS & Remote Sensing	3(2-1)
FMP-619	Farm Machinery and Automation	3(2-1)
FYDP-601	Final Year Design Project (FYDP)-I	3(0-3)
	Engg. Elective-I	2
	Management Elective-II	2(2-0)
Total		17
SEMESTER VIII		
Course No.	Course Title	Credit Hours
SEE-626	Farm Structures and Control Sheds	2(1-1)
FMP-602	Agricultural Process Engineering	3(2-1)
FYDP-602	Final Year Design Project (FYDP) –II	3(0-3)
	MDE Elective-II (Alternate and Renewable Energy)	2

Course No.	Course Title	Credit Hours
SEE-522	Agricultural Pollution Control Technologies	2(2-0)
ID-522	Irrigation Engineering	3(2-1)
ID-526	Engineering Hydrology	2(1-1)
ID-528	Project Management	2(2-0)
FMP-514	Earth Moving Machinery	2(1-1)
SEE-528	Occupational Health and Safety	1(1-0)
	MDE Elective-I (Environment)	3(2-1)
ARE-512	Economics for Engineers	2(2-0)
Total		17(13-4)
SEMESTER VII		
Course No.	Course Title	Credit Hours
SEE-621	Farm Waste Management	2(1-1)
ID-621	Drainage Engineering	2(1-1)
ID-623	GIS & Remote Sensing	3(2-1)
FMP-619	Farm Machinery and Automation	3(2-1)
AENG-601	Final Year Design Project (FYDP)-I	3(0-3)
	Engg. Elective-I	2

	Engg. Elective-II	3
	Engg. Elective-III	3
Total		17

Social Sci Elective-I

Course No.	Course Title	Credit Hours
RS-507	Sociology for Engineers	2(2-0)
RS-509	Professional Ethics	2(2-0)

MDE Elective-I (Environment)

Course No.	Course Title	Credit Hours
SEE-524	Wastewater Treatment	3(2-1)
SEE-504	Water Supply and Sewerage	3(2-1)
SEE-528	Occupational Health and Safety	3(3-0)

MDE Elective-II (Alternate and Renewable Energy)

Course No.	Course Title	Credit Hours
ESE-616	Solar Energy for High Efficiency Irrigation Systems	2(1-1)
ESE-618	Solar Thermal Applications in Agriculture	2(1-1)
ESE-620	Bioenergy Engineering	2(1-1)

Management Electives

IS-402/SSH-403	Quran Translation / Interfaith Harmony (Deficiency Compulsory Non-Credit Course)	1(1-0) NCC
Total		15

SEMESTER VIII

Course No.	Course Title	Credit Hours
SEE-626	Farm Structures and Control Sheds	2(1-1)
FMP-602	Agricultural Process Engineering	3(2-1)
AENG-602	Final Year Design Project (FYDP) –II	3(0-3)
	MDE Elective-II (Alternate and Renewable Energy)	2(1-1)
	Engg. Elective-II	3
	Engg. Elective-III	3
IS-403	Roohaniat (Deficiency Compulsory Non-Credit Course)	1(1-0) NCC
Total		16

Engineering Elective Courses

MDE Elective-I (Environment)

Course No.	Course Title	Credit Hours
SEE-524	Wastewater Treatment	3(2-1)
SEE-504	Water Supply and Sewerage	3(2-1)

Course No.	Course Title	Credit Hours
BBA-512	Engineering Project Management	2(2-0)
BBA-611	Entrepreneurship	2(2-0)

ENGGELECTIVE-I

Course No.	Course Title	Credit Hours
SEE-623	Rural Electrification	2(1-1)
SEE-625	Quantity Survey and Cost Estimation	2(2-0)
FMP-619	Precision Agriculture	2(1-1)
FMP-621	Post-Harvest Technologies	2(1-1)
FMP-623	Emerging Farm Engineering Systems	2(1-1)
FMP-625	Energy in Agriculture	2(1-1)
ID-625	Farm Irrigation Systems	2(1-1)
ID-627	Farm Water Management	2(1-1)
ID-629	Soil Dynamics	2(1-1)

ENGGELECTIVE-II AND ENGG ELECTIVE-III

Course No.	Course Title	Credit Hours
SEE-602	Water Pollution Control	3(3-0)
SEE-608	Landscape Engineering	3(2-1)
SEE-610	Cleaner Production Techniques	3(3-0)
SEE-612	Sustainable Environment	3(3-0)
SEE-616	Environmental Modelling and Simulation	3(2-1)
SEE-618	Environmental Impact Assessment	3(3-0)
FMP-608	Robotics in Agriculture	3(2-1)

MDE Elective-II (Alternate and Renewable Energy)

Course No.	Course Title	Credit Hours
ESE-616	Solar Energy for High Efficiency Irrigation Systems	2(1-1)
ESE-618	Solar Thermal Applications in Agriculture	2(1-1)
ESE-620	Bioenergy Engineering	2(1-1)

ENGGELECTIVE-I

Course No.	Course Title	Credit Hours
SEE-519	Environmental Laws and Policies	2(2-0)
SEE-623	Rural Electrification	2(1-1)
SEE-625	Quantity Survey and Cost Estimation	2(2-0)
FMP-619	Precision Agriculture	2(1-1)
FMP-621	Post-Harvest Technologies	2(1-1)
FMP-623	Emerging Farm Engineering Systems	2(1-1)
FMP-625	Energy in Agriculture	2(1-1)
ID-627	Farm Water Management	2(1-1)
ID-629	Soil Dynamics	2(1-1)

ENGGELECTIVE-II AND ENGG ELECTIVE-III

Course No.	Course Title	Credit Hours
SEE-601	Landscape Engineering	3(2-1)
SEE-602	Water Pollution Control	3(3-0)

FMP-610	Design of Agricultural Machinery	3(2-1)
FMP-612	Hydraulic Machinery and Automation	3(2-1)
FMP-614	Agro-Industrial Engineering	3(2-1)
FMP-616	Electronics Engineering	3(2-1)
FMP-618	Boiler Engineering and Power Plants	3(2-1)
ID-622	Groundwater Hydrology	3(2-1)
ID-624	Water Resources Assessment and Management	3(2-1)
ID-626	Soil and Water Conservation	3(2-1)
ID-628	Water Quality Management	3(2-1)

SEE-609	Environmental Impact Assessment	3(3-0)
SEE-610	Cleaner Production Techniques	3(3-0)
SEE-612	Sustainable Environment	3(3-0)
SEE-616	Environmental Modelling and Simulation	3(2-1)
FMP-608	Robotics in Agriculture	3(2-1)
FMP-610	Design of Agricultural Machinery	3(2-1)
FMP-612	Hydraulic Machinery and Automation	3(2-1)
FMP-614	Agro-Industrial Engineering	3(2-1)
FMP-616	Electronics Engineering	3(2-1)
FMP-618	Boiler Engineering and Power Plants	3(2-1)
FMP-620	Standards and Codes for Testing of Agricultural Machinery	3(2-1)
ID-622	Groundwater Hydrology	3(2-1)
ID-624	Water Resources Assessment and Management	3(2-1)
ID-626	Soil and Water Conservation	3(2-1)
ID-628	Water Quality Management	3(2-1)