

B.SC. DEGREE IN AGRICULTURAL TECHNOLOGY AND MANAGEMENT (B.Sc. AgTech & Mgt)

Model used to Develop the Curricula

A student-oriented 'Learning outcomes based model' (Figure 1) consisting of the following stages was adopted to formulate the new curriculum.

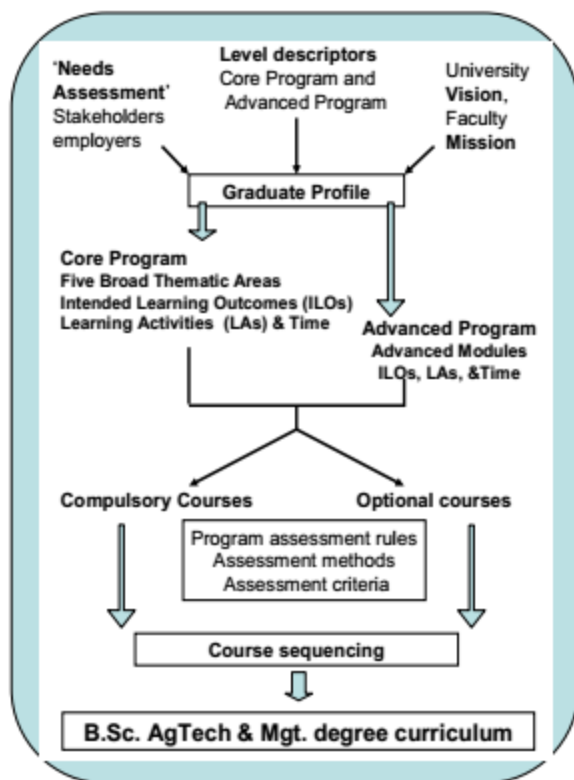


Fig.1. Model used to develop the degree program.

Structure of the Degree Programme

This eight-semester degree programme comprises of a **Core Programme** jointly offered by the eight Departments of Study, and an **Advanced Programme** encompassing twelve Advanced Modules offered by the eight Departments of Study, individually or jointly (Figure 2).

The Core Programme is compulsory for all the students, whereas a student has the freedom of selecting one of the twelve Advanced Modules of his/her choice during the Advanced Programme. The Core Programme comprises of 108 compulsory credit units including the project. Each Advanced Module comprises of a series of compulsory courses, which offer a minimum of 12 credit units 'unique' to that module, and a series of optional courses. The courses of the Core Programme are offered during the 1st to 5th and 8th semester, where the 8th semester is devoted for an independent project. The courses of the Advanced Programme are offered during the 6th and 7th semesters. The 6th semester is a transitional semester comprising of courses from both Core and Advanced Programmes.

To be eligible for the award of the degree a student should complete a **minimum** of 126 credit units during the four academic years of the degree programme. The credit unit requirement should include the following:

- (a). 102 credit units from the specified compulsory courses of the Core Programme.
- (b). a minimum of 18 credit units from the specified compulsory and optional courses of the selected Advanced Module.
- (c). 06 credit units from the 'Project' in a selected field of study.

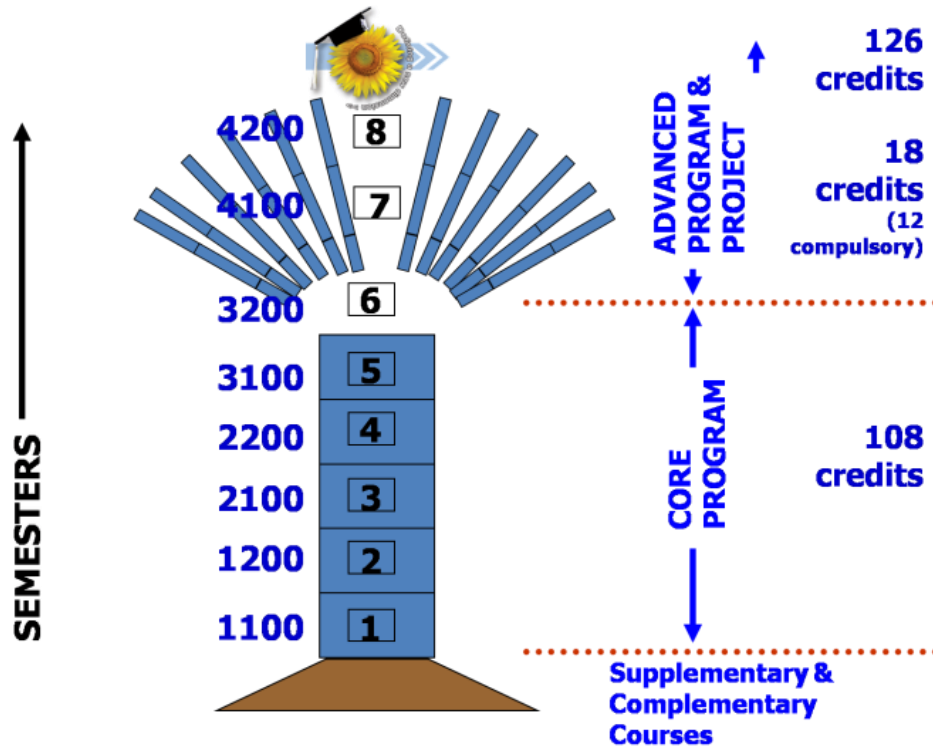


Figure 2: Schematic structure of the Degree programme

In addition to the above mentioned credited courses, a set of supplementary and complementary courses are offered to impart satisfactory proficiency in English, Sinhala, Tamil, Mathematics, Physics, Information and Communication Technology and Laboratory Skills among all students. It is mandatory for every student to pass the supplementary courses and the complementary courses to be eligible for the award of the degree. While these courses are not credited for the degree programme, separate certificates will be awarded for English and Information and Communication Technology, upon successful completion.

Furthermore, to impart and strengthen the professional skills in students, specific training will be given in the following. The courses in the degree programme have also been formulated with in-built learning activities that facilitate acquisition of one or more specific professional skills.

- Life-skills (during 1st semester)
- Team working skills and leadership development (from 1st semester)
- Portfolio development (from 3rd semester)
- In-plant training (four weeks during long vacations)
- Communication and presentation skills (from 1st to 8th semester)

These trainings will be assessed on satisfactory/unsatisfactory basis and every student should perform at satisfactory level in order to be eligible to obtain the degree.

The summary of the structure of the degree programme is given in the following Tables.

The Structure of the Core Programme:

SEMESTER	SERIES	COURSES OFFERED	NO OF CREDIT UNITS	
			CORE	ADVANCED
1	1100	Courses of the core programme (compulsory)	16	
2	1200	Courses of the core programme (compulsory)	18	
3	2100	Courses of the core programme (compulsory)	19	
4	2200	Courses of the core programme (compulsory)	20	
5	3100	Courses of the core programme (compulsory)	21	
6	3200	Courses of the core programme (compulsory)	8	} 18*
7	4100	Courses of the Advanced modules (compulsory & optional)		
8	4200	Research Project (compulsory)	6	
TOTAL CREDIT UNITS			108	18
TOTAL CREDIT UNITS FOR THE DEGREE			126	

* Every advanced module consists of a minimum total of 18 total credit units, of which at least 12 credit units are unique and compulsory for the given module.

Course Sequence of the Core Programme

Semester	Notation	Courses and Credit Hours	Credits
1100	AB 1101 AE 1101 AS 1101 CS 1101 EB 1101 EX 1101 SS 1101	Botany of Field Crops (1: 05/20/15) Field Engineering 1 (2: 10/40/28) Principles and Practices of Animal Production (2: 15/30/35) Crop Production Technologies (5: 19/112/36) Applied Agribusiness (2: 15/30/35) Developmental Extension (2: 10/40/30) Soil Resource and Ecosystem (2: 15/30/20)	16
1200	AB 1201 AB 1202 AE 1201 AS 1201 CS 1201 CS 1202 FT 1201	Insect Biology (2: 15/30/35) Crop Systematics (1: 10/10/20) Field Engineering II (2: 17/26/32) Principles of Aquatic Resource Management (1:11/08/20) Principles of Crop Production (3: 40/10/19) Plantation Crop Production I (3: 15/60/06) Biochemistry and Human Nutrition (3: 33/24/30)	18

	SS 1201	Properties and Functions of Soil (3: 30/30/12)	
2100	AB 2101	Principles of Genetics and Breeding (2: 22/16/42)	19
	AS 2101	Anatomy, Physiology and Health Management of Farm Animals (3: 30/30/36)	
	AS 2102	Principles of Animal Nutrition (2: 25/10/18)	
	AS 2103	Forage Production and Conservation (2: 23/14/19)	
	CS 2101	Principles of Horticulture (2: 20/20/13)	
	EB 2101	Principles of Economics (3: 40/10//40)	
	FT 2101	Agricultural Product Quality and Processing (2: 20/20/05)	
	SS 2101	Soil Fertility and Plant Nutrition (3: 30/30/14)	

2200	AB 2201 AE 2201 AS 2201 AS 2202 CS 2201 EB 2201 EX 2201 FT 2201 EX 2202	Plant Physiology (2: 20/20/40) Fluid Mechanics and Irrigation Principles (3: 40/10/33) Ruminant Animal Production (2: 23/14/20) Poultry and Swine Production (2: 25/10/26) Plantation Crop Production II (3: 36/18/18) Development Economics (2: 25/10/45) Principles of Human Behaviour (3: 40/10/60) Preservation of Agricultural Produce (2: 26/08/22) Career Development (1: 10/10/20)	20
3100	AB 3101 AB 3102 AE 3101 AS 3101 CS 3101 CS 3102 CS 3103 EB 3101 EX 3101 SS 3101	Insect Pests of Crops (2: 15/30/35) Diseases of Crops (3: 30/30/60) Land and Water Resources Engineering (3: 34/22/36) Animal Product Processing Technology (2: 15/30/10) Horticultural Crop Production (2: 26/08/06) Statistical Methods I (2: 30/00/15) Principles of Forestry (1: 15/00/10) Business Creation and Management (2: 15/30/35) Organizational Management (2: 15/30/35) Management of Soils of Sri Lanka (2: 20/20/08)	21
3200	AE 3201 CS 3201 CS/AS 3201 EB 3201 EX/EB 3201	Post-harvest Technology (2: 21/18/31) Design and Analysis of Experiments (2: 30/00/15) Farming Systems (2: 27/06/15) Project Analysis (1: 10/10/20) Socio-Economic aspects of Natural Resource Management (1: 12/06/20)	8
4200	AB/AE/AS/ CS/EB/EX/ FT/SS 4201	Research Project	6
TOTAL			108

The Structure of the Advanced Programmes:

The 12 modules of the Advanced Programme and their structures offered by the eight Departments of Study are given below:

Name of the Module		Department of Study
1	Advanced Crop Production Technology	Crop Science
2	Agricultural and Biosystems Engineering	Agricultural Engineering
3	Animal Science and Technology	Animal Science
4	Applied Economics and Business Management	Agricultural Economics and Business Management
5	Development Communication and Organizational Management	Agricultural Extension
6	Economic and Applied Entomology	Agricultural Biology
7	Food Science and Technology	Food Science and Technology
8	Genetic Improvement of Plants	Agricultural Biology
9	Molecular Biology and Biotechnology	Agricultural Biology
10	Plant Pathology and Microbiology	Agricultural Biology
11	Plantation Management and Forestry	Crop Science
12	Soil and Environment	Soil Science

Module: Advanced Crop Production Technology (Department of Crop Science)

Compulsory courses	Optional courses
CS 3206 Tissue Culture (2: 20/20/08)	CS 3205 Commercial Nursery Management (1: 10/10/10)
CS 3207 Fruit and Vegetable Production (2: 25/10/20)	CS 3209 Post-harvest Quality Management in Horticultural Products (1: 12/06/10)
CS 3208 Crop Physiology (2: 25/10/20)	C S 3210 Organic Crop Production Systems (1: 10/10/10)
CS 4103 Statistical Methods II (2: 30/00/15)	CS 3211 Integrated Weed Management Systems (1: 12/06/12)
CS 4104 Scientific Research and Communication in Crop Science (1: 08/14/10)	CS 4106 Statistical Modelling (1: 15/00/10)
CS 4109 Protected Culture (1:10/10/10)	CS 4113 Urban Agriculture (1: 10/10/10)
CS 4110 Floriculture and Landscape Horticulture (2: 20/20/40)	
CS 4111 Rice Production Technology (1: 12/06/10)	
CS 4112 Advanced Field Crop Production (2: 30/00/05)	

Module: Agricultural & Bio-systems Engineering (Department of Agricultural Engineering)

Compulsory courses	Optional courses
AE 3202 Thermodynamics (2: 30/00/12)	AE 3205 Engineering Mathematics (2: 26/08/15)
AE 3203 Irrigation Systems Design & Management (2: 25/10/12)	AE 3206 Farm Power & Machinery (2: 23/14/26)
AE 3204 Energy and Waste Management (2: 20/20/15)	AE 3207 Environmental Hydrology (2: 15/30/15)
AE 4101 Advanced Land & Water Resources Engineering (2: 20/20/20)	AE 4105 Remote Sensing in agricultural Resource Management (2: 20/20/16)
AE 4102 Food Process Engineering (2: 22/16/15)	AE 4106 Geographic Information Systems (2: 15/30/12)
AE 4103 Farm Mechanization (2: 20/20/30)	AE 4107 Electronics & Instrumentation (2: 25/10/08)
AE 4104 Engineering Design Philosophy (2: 20/20/40)	AE 4108 Post-harvest Handling of Perishable Crops (2: 22/16/20)
	AE 4109 Structural Designs for Commercial Farming (2: 20/20/20)
	AE 4110 Computer Applications in Agricultural Engineering (2: 20/20/30)
	AE 4111 Paddy Field Engineering (1: 05/20/10)
	AE 4112 Soil and Water Conservation Engineering (1: 10/10/08)
	CS 4106 Statistical Modelling (1: 15/00/10)

Module: Animal Science & Technology (Department of Animal Science)

Compulsory courses	Optional courses
AS 3201 Applied Animal Nutrition (3: 40/10/08)	AS 3204 Wildlife and Ecosystems (2: 20/20/06)
AS 3202 Dairy Product Technology (2: 25/10/08)	AS 3205 Forage Resources and Production (2: 14/32/20)
AS 3203 Applied Animal Physiology (2: 24/12/30)	AS 3206 Feed Processing Technology (1: 13/04/04)
AS 4101 Meat, Fish & Egg Product Technology (2: 25/10/34)	FT 3203 Food Preservation (2: 30/00/10)
AS 3102 Applied Genetics and Animal Breeding (2: 25/10/20)	AS 4106 Animal Biotechnology (2: 20/20/40)
AS 4103 Animal Health Management (2: 24/12/13)	AS 4107 Ornamental Fisheries Conservation and Management (2: 25/10/35)
AS 4104 Inland and Marine Fisheries Management (2: 20/20/40)	AS 4108 Livestock Economics (2: 30/00/15)
AS 4105 Scientific Research & Communication in Animal Science (1: 05/20/15)	AS 4109 Animal By-product Technology (2: 26/08/15)
	AS 4110 Livestock Farm Planning (2: 25/10/15)
	AS 4111 Integrated Animal Production Systems (2: 25/10/20)
	AS 4112 Beef Cattle and Micro-livestock Production (2: 25/10/08)
	CS 4103 Statistical Methods II (2: 30/00/15)
	EX 4102 Human Resource Management (2: 24/12/34)

Module: Applied Economics & Business Management (Department of Agricultural Economics and Business Management)

Compulsory courses	Optional courses
EB 3202 Microeconomics (2: 30/00/50)	EB 3205 Agricultural Marketing (2: 30/00/50)
EB 3203 Macroeconomics (2: 30/00/50)	EB 3206 Financial and Management Accounting (2: 25/10/45)
EB 3204 Marketing Management (2: 20/20/40)	EB 3207 Advanced Development Economics (2: 30/00/50)
EB 4101 Resource and Environmental Economics (2: 25/10/45)	EB 3208 Production Economics (2: 30/00/50)
EB 4102 Quantitative Techniques for Business & Economics (2: 20/20/40)	EB 3209 International Business and Trade (2: 20/20/40)
EB 4103 Research Methods for Business & Economics (2: 25/10/45)	EX 3203 Organizational Behaviour (2: 24/12/34)
EB 4104 Business Psychology (2: 25/10/45)	EB 4105 Financial Management (2: 30/00/50)
	EB 4106 Entrepreneurship (2: 25/10/45)
	EB 4107 Policy Analysis (2: 30/00/50)
	EB 4108 International Agribusiness (2: 25/10/45)
	EB 4109 Advanced Project Analysis (2: 30/00/50)
	EB 4110 Business Strategy (2: 20/20/40)
	EX 4102 Human Resource Management (2: 24/12/34)

Module: Development Communication & Organizational Management (Department of Agricultural Extension)

Compulsory courses	Optional courses
EX 3201 Extension Education (2: 24/12/40)	EX 3203 Organizational Behaviour (2:24/12/34)
EX 3202 Communication: Theory & Practice (2: 24/12/40)	EX 3204 Information Management 2:15/30/35)
EX 4101 Rural Sociology (2: 24/12/34)	EB 3204 Marketing Management (2:20/20/40)
EX 4102 Human Resource Management (2:24/12/34)	EX 4106 Project Development & Management (2 :24/12/34)
EX 4103 Productivity Enhancement Training (2:00/60/20)	EX 4107 Gender Issues in Development (2:24/12/34)
EX 4104 Journalism and Media Use (2:20/20/40)	EX 4108 Community Development Approaches (2:24/12/34)
EX 4105 Social Research Methods (2:24/12/44)	CS 4103 Statistical Methods II (2:30/00/15)
	EB 4106 Entrepreneurship (2:25/10/45)

Module: Economic & Applied Entomology (Department of Agricultural Biology)

Compulsory courses	Optional courses
AB 3201 Structure and Function of Insects (2:15/30/35)	CS 3210 Organic Crop Production Systems (1:10/10/10)
AB 3202 Ecological Insect Pest Management (2:25/10/40)	AB 4120 Nematology (1:10/10/20)
AB 3203 Insects in Farm Animals and Public Health (2:15/30/35)	AB 4122 Computer Applications in E Entomology (2:10/40/30)
AB 3204 Honey Bee Culture (2:15/30/35)	
AB 4101 Insect Systematics (2:/15/30/35)	
AB 4102 Pesticide Management (2:25/10/40)	
AB 4103 Current Trends in Entomology (2:00/60/20)	
AB 4104 Product Entomology (2:15/30/35)	
AB 4105 Scientific Research & Communication in Biology (1:10/10/20)	

Module: Food Science & Technology (Department of Food Science and Technology)

Compulsory courses	Optional courses
FT 3201 Food Chemistry (2:27/06/20)	FT 3204 Applied Human Nutrition (2: 25/10/20)
FT 3202 Food Microbiology (2:23/14/30)	AB 3211 Recombinant DNA Technology (2: 20/20/40)
FT 3203 Food Preservation (2:30/00/10)	AS 3202 Dairy Product Technology (2:25/10/08)
FT 4101 Food Analysis (2:20/20/20)	EB 3204 Marketing Management (2: 20/20/40)
FT 4102 Food Processing for Product Development (2:30/00/10)	FT 4105 Practical in Product Development (1:00/30/10)
FT 4103 Food Process Technology (1:15/00/15)	FT 4106 Food Sanitation and Sensory Evaluation (2:27/06/30)
FT 4104 Scientific Research & Communication in Food Science (1:10/10/20)	FT 4107 Food Packaging (1:15/00/15)
AS 4101 Meat, Fish and Egg Product Technology (2:25/10/34)	FT 4108 Advanced Post-harvest Technology of Fruits and Vegetables (1:15/00/20)
CS 4103 Statistical Method II (2:30/00/15)	FT 4109 Food Regulations & Food Quality Control (1:15/00/05)
	FT 4110 Fats and Oils Technology (1:15/00/15)
	EX 4102 Human Resource Management (2 :24/12/34)

Module: Genetic Improvement of Plants (Department of Agricultural Biology)

Compulsory courses	Optional courses
AB 3205 Applied Genetics & Plant Breeding (2:20/20/40)	AB 3202 Ecological Insect Pest Management (2:25/10/40)
AB 3206 Plant Genetic Resources (1:10/10/20)	AB 3212 Plant Pathology (2:25/10/10)
AB 3207 Quantitative Genetics (2:20/20/40)	CS 3205 Tissue Culture (2:20/20/08)
AB 3211 Recombinant DNA Technology (2:20/20/40)	CS 4108 Conservation and Management of Medicinal Plants (1:12/06/10)
AB 4105 Scientific Research & Communication in Biology(1:10/10/20)	
AB 4106 Plant Eco Physiology (2:15/30/35)	
AB 4107 Developmental Biology of Plants (2:20/20/40)	
AB 4108 Post-harvest Physiology of Fruits and Vegetables (1:10/10/20)	
AB 4109 Economic Botany (1:15/00/25)	

Module: Molecular Biology & Biotechnology (Department of Agricultural Biology)

Compulsory courses	Optional courses
AB 3208 Cell Biology (2:20/20/40)	AE 3203 Energy and Waste Management (2:20/20/15)
AB 3209 Plant Biochemistry (2:20/20/40)	AB 4107 Developmental Biology of Plants (2:20/20/40)
AB 3210 Molecular genetics (2:20/20/40)	AB 4109 Economic Botany (1:15/00/25)
AB 3211 Recombinant DNA technology (2:20/20/40)	AB 4116 Microbial Biotechnology (1:10/10/20)
AB 4105 Scientific Research & Communication in Biology (1:10/10/20)	FT 4101 Food Analysis (2:20/20/20)
AB 4110 Applied Biotechnology (1:15/00/25)	AS 4106 Animal Biotechnology (2:20/20/40)
AB 4111 Bioinformatics (1:5/20/15)	
AB 4112 Practicum in Molecular Biology (1:00/30/00)	
AB 4113 <i>In vitro</i> Techniques (2:20/20/40)	

Module: Plant Pathology & Microbiology (Department of Agricultural Biology)

Compulsory courses	Optional courses
AB 3212 Plant Pathology (2:25/10/10)	AB 3205 Applied Genetics and Plant Breeding (2:20/20/40)
AB 3213 Microbiology (2:25/10/10)	AB 4119 Immunology (1:15/00/25)
AB 3214 Clinical Plant Pathology (2:15/30/35)	AB 4120 Nematology (1:10/10/20)
AB 4102 Pesticide Management (2:25/10/40)	AB 4121 Yeast Microbiology and Fermentation Technology (1:10/10/20)
AB 4105 Scientific Research and Communication in Biology (1:10/10/20)	
AB 4114 Post-harvest Pathology (1:10/10/20)	
AB 4115 Virology (1:10/10/20)	
AB 4116 Microbial Biotechnology (1:10/10/20)	
AB 4117 Agricultural and Environmental Microbiology (2:25/10/45)	
AB 4118 Practicum in Molecular Microbiology (1:00/30/50)	

Module: Plantation Management & Forestry (Department of Crop Science)

Compulsory courses	Optional courses
CS 3202 Management of Rubber, Coconut & Export Agricultural Crops (4:15/90/30)	CS 3205 Commercial Nursery Management (1:10/10/10)
CS 3203 Agroforestry Systems (2:25/10/10)	CS 3208 Crop Physiology (2: 25/10/20)
CS 3204 Tree Diversity and Improvement (2:20/20/15)	CS 4105 Farming System Analysis (1:10/10/10)
CS 4101 Tea Plantation Management (2:10/40/10)	CS 4106 Statistical Modelling (1:15/00/10)
CS 4102 Forest Management (2:25/10/10)	CS 4107 Crop Environment Interactions (1:10/10/20)
CS 4103 Statistical Methods II (2:30/00/15)	CS 4108 Conservation and Management of Medicinal Plants (1:12/06/10)
CS 4104 Scientific Research & Communication in Crop Science (1:08/14/10)	

Module: Soil & Environment (Department of Soil Science)

Compulsory courses	Optional courses
SS 3201 Soil Physics (2:20/20/04)	SS 3205 Soil Survey and Classification (2:20/20/12)
SS 3202 Soil Mineralogy (2:20/20/12)	CS 3209 Organic Crop Production Systems (1:10/10/10)
SS 3203 Soil Microbiology (2:20/20/10)	EB 3204 Marketing Management (2:20/20/40)
SS 3204 Sustainable Soil Fertility Management (2:20/20/08)	SS 4105 Land Use and Environment (2:20/20/10)
SS 4101 Soil Chemistry (2:20/20/12)	<i>Pre-requisite: SS 3205 Soil Survey and Classification</i>
SS 4102 Land Degradation and Conservation (2:25/10/04)	SS 4106 Research Techniques in Soil Science (2:25/10/04)
SS 4103 Soil and Environmental Quality (2:20/20/10)	AE 4105 Remote Sensing in Agricultural Resource Management (2:20/20/16)
SS 4104 Scientific Research & Communication in Soil Science (1:10/10/10)	CS 4103 Statistical Methods II (2:30/00/15)
	CS 4111 Rice Production Technology (1:12/06/10)
	EB 4101 Resource and Environmental Economics (2:25/10/45)
	EX 4102 Human Resource Management (2:24/12/34)