Faculty of Agriculture and Plantation Management

Wayamba University of Sri Lanka

Bachelor of Biosystems Technology Degree Programme

STUDENT HANDBOOK

Intake 2020/ 2021

*Students are strongly advised to obtain a copy of the '**By-Laws'** and the document on '**examination, procedure, offences and punishments**' of the Wayamba University of Sri Lanka at the time of their registration and adhere to them throughout the study period at the university*

The University Crest

The crest of Wayamba University of Sri Lanka contains six cultural symbols of national significance, namely a lotus, a book, a lamp two sheaves of paddy, a conch shell and a lion with a sword in hand, on top of it.

The lotus which adorns the moon stones of Sri Lanka is an acclaimed symbol of purity and serenity. Above the lotus is a **book** which is a manifest representation of knowledge that leads the University fraternity to an enlightened state of mind, a fact signified by the lamp placed on it with three bright burning flames.

The lamp is designed in such a way as to represent the top most flame in the shape of a conch shell. Form one angel; it looks like a flame, which is symbolical of the light of knowledge. And from another angel, it is a conch shell. What does the conch shell in the crest depict? It is firstly device of communication and secondly it implies fame and repute – an essential aspect in the university context. For Universities, as seats of learning and scholarship are meant to be known to the outside world and its glory should spread far and wide. The combination of the flame of light and the conch shell signifies this particular attribute of university education.

The two sheaves of paddy represent prosperity. Prosperity is an extremely wide term which encompasses many shades of meaning. It may be economic prosperity, to begin with. But it could also encompass in its folds various aspects of prosperity, in a wide sense, namely social, cultural and even scientific and technological prosperity. For prosperity, in this particular context is a term of national significance. There is yet another meaning attached to the two sheaves of paddy since it is identical of the agrarian society which is prevalent in the North Western Province of Sri Lanka.

Though our University is situated in the North Western Province, it is part and parcel of the national system of education. Its identity is significantly national rather than regional or provincial.

The lion at the top of the crest is an articulate expression, that ours is a University of national magnitude. Our University, as any other University of Sri Lanka, is the pride of the nation-a fact the lion on the top of the logo symbolizes.

The University Anthem

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In the North West
Of this scared island of ours
Hails,
Our Alma Mater
Like the Morning Star
In the Sri Lankan skies

Our legacy is the splendor and glory
Of the North West
Enlightened by the poetic wisdom
Of king parakkrama, the sage
And the lion – like words of
Sumangala, the heroic Thera

With rays of knowledge of many
And to burden the trees and fields
Of our dear motherland
With treasures of bountiful harvest
O mother,
You who turn the pages for us
Of the treatise of the world
And who grants us the wisdom of the sages
Give us your blessings,
To open up the springs of new thinking
So that we may tread the path
That leads us to a new world.

Lyrics by – Dr. W.A.Abeysinghe

Contents

Wayamba University of Sri Lanka

Wayamba University of Sri Lanka was established with effect from 01st October 1999, in terms of the provision of the Section 21 of the Universities Act No. 16 of 1978, for the purpose of providing, promoting and developing higher education in the branches of learning of Applied Sciences, Business Studies and Finance, Agriculture, Plantation Management, Livestock, Fisheries and Nutrition.

There are six faculties in the Wayamba University of Sri Lanka,

1. Faculty of Agriculture and Plantation Management
2. Faculty of Applied Sciences
3. Faculty of Business Studies and Finance
4. Faculty of Livestock, Fisheries and Nutrition
5. Faculty of Medicine
6. Faculty of Technology

Vision and Mission of the University

Vision

To be a center of excellence in higher education in Sri Lanka

Mission

To develop human resources to meet the national development needs through innovative educational programs, research and outreach programs, in diverse fields of Applied Sciences, Business Studies and Finance, Agriculture & Plantation Management, and Livestock Fisheries and Nutrition.

Location

The Wayamba University of Sri Lanka is located at two premises, which are 22 km apart, in the administrative district of Kurunegala in the North Western Province. The main premises, at Kuliyapitiya is 1 km on the Lional Jayathilaka Mawatha off the Kuliyapitiya - Madampe Road and houses the administration Complex, and the two Faculties; Applied Sciences and Business Studies & Finance.

The other premises at Makandura is 4 km from Pannala town on the Kurunegala - Negombo road and houses the two Faculties; Agriculture and Plantation Management (FAPM) and Livestock Fisheries and Nutrition (FLFN).

Faculty of Agriculture and Plantation Management

Agricultural education, technology and trade have been prime movers of economic prosperity in the country, where over 60% of the population is directly or indirectly involved in agriculture and related activities improving, on-farm and off farm employment opportunities. Under these circumstances opportunities for skilled jobs in agricultural sector and life-technology related industries would be in high demand and the employment potential for well-trained skilled personnel would increase.

Achieving excellence in agricultural and biosystems technology education is the ultimate objective of the faculty. It will provide the necessary environment to achieve excellence, through development of skills, capabilities, research and outreach programs among the students and staff. The environment should allow the students as well as the academics, sufficient breathing space for, creativity, intellectual thinking and expression and innovations in biotechnology and biosystems industries.

The faculty, in light of the above, has developed some innovative courses to meet the challenges of rapidly changing agriculture and biosystems industry sectors in the country. Through identification of the needs of the farmers, public sector and private sector, new courses have been designed to improve links with these parties through in-plant training, field visits, seminars, workshops, surveys and career guidance.

Vision and Mission of the Faculty

Vision:

To achieve excellence in agricultural and biosystems technology education, research and training for developing human resources to meet regional, national and global needs.

Mission:

To develop innovative, skilled, trained manpower and their capabilities in agriculture and biosystems technology to fulfill national and global needs through undergraduate and postgraduate education, research and outreach programs.

Departments of Study

The Faculty of Agriculture and Plantation Management possesses five Departments, namely:

1. Department of Agribusiness Management
2. Department of Biotechnology
3. Department of Horticulture and Landscape Gardening
4. Department of Plantation Management
5. Department of Biosystems Engineering

Department of Agribusiness Management

Provides the students with an integrated knowledge as well as hard and soft skills required to develop and manage the agribusinesses efficiently and effectively by exposing them to the courses, both general and specialized, in a wide spectrum of areas, including personal and business management, economics, marketing and trade, accounting and finance, development and policy analysis and quantitative techniques etc., through which they are trained to undertake the challenge of working in an emerging local and international agribusiness/markets and government/regulatory environments.

Department of Biotechnology

Provides training in specialized areas of biotechnology, meeting the increasing demand for advanced knowledge on plant and animal related molecular biology, tissue culture and modern methods of pests and disease control. The emphasis of the program will be on the application of new technologies for the improvement of crop and livestock productivity.

Department of Horticulture and Landscape Gardening

On the rationale that horticulture and landscape gardening, as a whole, encompasses the growing of fruits, vegetables for food production and flower and foliage plants to beautify the environment, and the features of horticulture include the use of intensive and specialized technologies in production and the use of diversity of the species grown with a wide range of plant species and forms in improving the quality of landscape and environment, this Department deals with developing the students' ability to understand, use and contribute to the expanding scientific and technological contents, and in turn, to make significant contributions towards growing demands of the horticultural sector and landscape gardening in the country.

Department of Plantation Management

Provides the graduates with scientific knowledge and practical know-how in agronomic and manufacturing processes in plantation agriculture and inculcate managerial skills and confidence in decision making with respect to resource allocation in plantations. The courses offered through the Department are designed to impart the skills in agronomy, farm management, business management, personnel management and elements of accounting. It is expected that the trained graduates will be able to manage the plantation industry, so vital to the economy of the country.

Department of Biosystems Engineering

Biosystems engineering is a field of engineering which integrates engineering science and design with applied biological, environmental and agricultural sciences. Typical programmatic areas include: production of bioenergy; development of biosensors; environmental and ecological engineering; controlled environment agriculture; food processing and food safety; agricultural engineering (machinery, irrigation, storage), water quality, water quantity, and water recycle (including measurements of microorganisms, chemicals, and other contaminants). The department will support the development of human resources needed in activities in bio-production systems, agricultural engineering, postharvest technology, waste management, precision agriculture and food technology.

The Degree

The Faculty offers two degrees;

1. **Bachelor of Science of Agriculture [B.Sc. (Agric.)]**
2. **Bachelor of Biosystems Technology [BBST]**

Bachelor of Biosystems Technology Degree Program

This is a new degree program commencing from 2020/2021 academic year

The Graduate Profile

Biosystems Technology graduates of the Wayamba University of Sri Lanka will possess satisfactory multi-disciplinary knowledge on the fundamental concepts, principles, practices and technologies relevant to sustainable use of the biological production systems and product development.

More specifically, the graduate will be able to:

- Apply the subject knowledge and technological know-how in a holistic manner with innovative management and entrepreneurial perspective to manage the biological systems and resources to fulfill the emerging needs of the food production, bio-business and bio-industry sectors;

- Recognize biological production systems as a service benefiting the mankind and the environment; and identify the issues, trends and perspectives in biological systems and their impact on national development;

- Use enquiry, construct arguments, investigate/ research, critically analyze data, make judgments/ decisions and propose solutions to emerging problems in the sustainable use of biological systems;

- Communicate scientific and other information efficiently and effectively;

- Work independently exercising resourcefulness, and collaboratively demonstrating team spirit and professionalism leadership qualities;

- Engage in life-long learning and undertake further training to further knowledge and skills, and

- Behave harmoniously with an appreciation of human and cultural diversity giving due respect for the values of the others, demonstrating professional integrity, ethical behavior and accountability.

Equipped with those attributes they will be ready to work with confidence in academic, research, education and management fields related to biosystems technology and allied sectors to meet the emerging challenges in the 21st century knowledge based economies.

Overview of Program Structure, Content and Options

The duration of the 'Biosystems Technology' (BST) degree program is 04 "Academic Years". An academic year consists of two "Semesters" of 15 weeks each and academic program is based on "Course Credit System".

The first year course units are devoted to teach basic theory and principles of core requirements in mathematics, physical and life sciences, humanities, social sciences, communication, information technology and management etc. In the second year, those specialized areas of study will be offered by each of the five departments which will continue through the third and final (*i.e.* fourth) year. All these courses are compulsory to follow by all students.

All students are required to carry out an individual 'Research Project' in Year 4 - Semester 1. In Year 4 - Semester 2, they are provided with an opportunity to obtain real world experience in the form of an 'In-Plant Training' by working in a challenging and stimulating environment in private and public sector organizations related to biosystems technology.

In order to qualify for the award of the degree, students are required to earn a total of 123 Credits[1] which contributes to final grade (GPA course units) and successful completion of all the courses which are not contributed to the final grade (Non GPA course units). Yearly breakdown of course units is given below:

- Year 1 – Twenty-Nine (29) credits of GPA course units and 2 Non GPA course units
- Year 2 – Thirty-Six (36) credits of GPA course units
- Year3 – Thirty-Six (36) credits of GPA course units
- Year4 – Twenty-Two (22) credits of GPA course units, including the 'Research Project' and 'In-plant Training'

Course Units Offered in the Study Program

Abbreviations and Notations

The prefix BST denotes that the course is of the Biosystems Technology program. An alpha numeric code is used to identity a course unit. The code consists of five digits prefixed by a set of three letters which refers to the Biosystems Technology Programme. First digit denotes the 'Year 'at which the course unit is offered and the second digit denotes the 'Semester 'in which the course unit is offered. The third and fourth digits denote the 'Serial number' assigned for the course unit by the relevant Department/Unit. The last digit denotes the number of 'Credits' assigned for GPA course units. For Non-GPA course units, zero (0) has been assigned for last digit.
Example: BST 21032 is a course unit offered in the Year 2 Semester I, having serial number 03 and 02 credits.

The table below summarizes the Subject Codes, Names, associated GPA/NGPA credit load, and total contact hours etc. for the entire program:

Subject Code	Subject Name	GPA Credits	NGPA Credits	Total Contact Hours T: P: IL
Year 1 - Semester I				
BST 11012	Basic Mathematics	2		20:20:00
BST 11023	Basic Plant Science	3		30:30:00
BST 11032	Environmental Management	2		20:20:08
BST 11040	Communication Skills		2	20:20:00
BST 11053	Fundamentals of Chemistry	3		30:30:00
BST 11062	Technology for Development	2		20:20:04
	Sub Total	***12***	***2***	

[1] A 'Credit' is a time-based quantitative measure assigned to a course unit and indicates the rating of the unit in working towards a degree. One credit is equivalent to 15 lecture hours or 30 practical hours throughout the semester.

Subject Code	Subject Name	GPA Credits	NGPA Credits	Total Contact Hours T: P: IL
Year 1 - Semester II				
BST 12072	Cell and Tissue Culture Technology	2		15:30:05
BST 12083	Crop Production Systems	3		30:30:10
BST 12092	Foundation Statistics	2		15:30:00
BST 12102	Fundamentals of Physics	2		20:20:30
BST 12113	ICT Applications	3		15:60:00
BST 12123	Poultry Production and Processing	3		30:30:00
BST 12132	Society and Human Behavior	2		20:20:00
	Sub Total	***17***		
Year 2 - Semester I				
BST 21142	Conventional and Advanced Plant Propagation Technologies	2		15:30:00
BST 21152	Crop Protection Technologies	2		15:30:00
BST 21162	English for Technology	2		15:30:00
BST 21173	Food Technology	3		30:30:00
BST 21183	Fundamentals of Electronics and Instrumentation	3		30:30:30
BST 21192	Microbiology	2		20:20:00
BST 21202	Principles of Economics	2		20:20:00
BST 21212	Soil and Plant Nutrient Management	2		20:20:10
	Sub Total	***18***		
Year 2 - Semester II				
BST 22222	Climate Change and Disaster Management	2		20:20:10
BST 22233	Electrical Technology	3		30:30:30
BST 22242	Farm Mechanization	2		15:30:00
BST 22252	Fundamentals of Management	2		20:20:00
BST 22263	Harvesting and Postharvest Handling of Crop Produce	3		30:30:00
BST 22273	Livestock Production and Processing	3		30:30:00
BST 22283	Web Technologies and Programming	3		15:60:10
	Sub Total	***18***		
Year 3 - Semester 1				
BST 31291	Construction Documentation and Estimating	1		15:00:00
BST 31302	Food Quality Management	2		20:20:00
BST 31313	Harvesting and Processing Technologies of plantation crop products	3		30:30:00

Subject Code	Subject Name	GPA Credits	NGPA Credits	Total Contact Hours T: P: IL
BST 31322	Industrial Microbiology	2		15:30:00
BST 31332	Information Systems	2		20:20:00
BST 31342	Power and Energy Management	2		15:30:00
BST 31352	Value Addition and Product Development	2		15:30:00
BST 31362	Waste Management	2		20:20:00
BST 31372	Water Resource Management	2		15:30:00
	Sub Total	**18**		
Year 3 - Semester II				
BST 32383	Aquaculture and Fisheries Production and Processing	3		30:30:00
BST 32392	Engineering Drawing and Design	2		15:30:00
BST 32402	Production and Operations Management	2		20:20:00
BST 32413	Environmental GIS	3		30:30:00
BST 32422	Landscaping Technology	2		15:30:00
BST 32432	Project Management and Evaluation	2		15:30:00
BST 32442	Research Methodology	2		15:30:05
BST 32452	Statistical Methodology (Quantitative Techniques)	2		20:20:20
	Sub Total	***18***		
Year 4 - Semester I				
BST 41462	Business Communication Skills	2		20:20:10
BST 41471	Legal and Ethical Environment for Business Development	1		15:00:00
BST 41482	Entrepreneurship and Venture Creation	2		15:30:00
BST 41491	Recent Advances in Biosystems Technology	1		15:00:00
BST 41508	Research Project	8		
BST 41512	Technology and Innovation Transfer	2		20:20:00
	Sub Total	***16***		
Year 4 – Semester II				
BST 42526	In-plant Training	6		
	Total Credits	***123***	***02***	

T: Theory P: Practical IL: Independent Learning

Teaching and Learning Methods

Theory hours allocated for each course will introduce the concepts. Practical sessions including group work and independent learning will foster in-depth understanding of the concepts. Field visits under different course units provide hands-on experience and awareness about the real-world situations. Learning will be encouraged by the use of progressive formative assessments.

In-plant training (Training in industries and Institutions) will ensure graduate s ability to apply their knowledge appropriately in commercial, enterprises, research and educational institutions, or advisory and regulatory agencies.

A variety of approaches such as group work involving experiential learning (problem based), evaluating case studies, presentations, individual tutorials, and undertaking of individual research project will be used to develop intellectual skills, practical, professional skills and communication skills. Different course units offered in the area of English and Information Technology will provide the IT and communication skills.

Medium of Instruction

The study program is conducted and examined in **English** Medium.

Attendance

Students are required to attend at least **80 percent** of Theory/Lectures and Practical/Tutorials sessions. Those who fail to attend classes as required shall not be eligible to register and sit for examination.

Examination and Assessment Procedures

Assessment of Course Units

Courses will be evaluated through both 'Continuous Assessments'(*i.e.* formative) conducted throughout the semester by way of, for example, assignments, quizzes, case studies and debates etc., and also through 'End Semester Examination' (*i.e.* summative) consisting of 'Theory' and 'Practical' components mentioned as in the relevant course units. The mode of evaluation for continuous assessment will be communicated to students by the Head of Department/Course Coordinator at the beginning of the semester.

The marks allocated for courses, which include practical component, will be weighted in proportion to the credit distribution of practical and theory in that course. If a student is failed to obtain the marks for continuous assessment, he/she will be assessed from the marks obtained from the end semester examination only.

Repeat students who have not gained marks for continuous assessment will also be assessed only on the end semester examination.

For courses in which practicals are assessed by an examination, students obtaining less than 35% marks in either theory or practical will get an E grade even if the average is higher than 40%. For Non-GPA course units, students should obtain minimum average of 55% of marks (C grade) to fulfill the requirements of the degree of Bachelor of Biosystems Technology.

Assessment of In–plant Training and Research Projects

In-plant training and Research Project work will be assessed continuously. The examination would be conducted by a panel of examiners appointed by the Faculty Board. This panel should include at least one person who is not a member of the Faculty. Marks will be allocated on the following basis:

In-plant Training

Diary	40%
Report	30%
Presentation	30%

Research Project

Conduct and performance	40%
Research paper	30%
Paper presentation	30%

Student Portfolio

Students have to maintain records of their academic performances, co-curricular and extra-curricular activities carried out during the study program in the "Student Portfolio" provided by the Faculty. Students are advised to follow the instruction given in the portfolio booklet.

Scheme of Grading

The grade obtained for each course shall be indicated by a letter as shown below. The cut off marks for each grade and the corresponding grade points are also shown.

For GPA courses a student has to obtain at least a **D** grade to be considered to have passed in a course. For Non-GPA courses to pass a course a student has to obtain at least a **C** grade.

(a) Grades and Grade Point Values

Marks	Grade	Grade point	Notes
≥ 90	A+	4.0	Excellent
85-89	A	4.0	
80-84	A-	3.7	
75-79	B+	3.3	Good
70-74	B	3.0	
65-69	B-	2.7	
60-64	C+	2.3	Pass
55-59	C	2.0	
50-54	C-	1.7	Weak Pass
45-49	D+	1.3	Conditional Pass
40-44	D	1.0	
<40	E	0.0	Fail

(b) References for Incomplete Course Units

Grade	Grade Point	Notes
N	-	Academic Concession
M	-	Medical Concession
W	-	Withheld

Notes:

a) In order to earn a "Grade D" or above for a course unit, a student must score more than the minimum prescribed marks for both continuous assessments and end-semester examination as described. If the assessment is only by continuous assessment, minimum prescribe marks for continuous assessment will apply.

b) "Grade D" or above is required to earn the stipulated credit value for a course unit.

c) "Grade C" or above is the normal requirement to pass a course unit. The maximum grade point accruing to a student repeating a course shall correspond to a "Grade C".

d) Any grade below "Grade C" is not accepted as a pass grade.

e) "Grades C-, D+, D, or E", which can be improved to a "grade C" are considered for calculating GPA and FGPA.

f) A student, who receives a "Grade E" for a course unit, is required to repeat only the semester end examination of the relevant course unit.

g) A student, whose result of a course unit is withheld due to any reason, receives "grade W".

h) The continuous assessment marks shall be carried forward up to a maximum of three consecutive academic years (except the proper attempt) and shall only be replaced with an improvement by reattempting. Improved continuous assessment marks shall be eligible for the improvement of overall grade of the course unit to the highest possible, "Grade C". After three consecutive academic years (except the proper attempt), any repeat student should reattempt all continuous assessments of the relevant course units.

i) A student who has missed an end-semester examination of a course unit because of any reason other than medical reason, may appeal with supporting documents to the Dean for a concession within **one week** from the date of the relevant examination. In case of failing to produce an acceptable reason, appropriate "E Grade" shall be given to the student. If the given reason is accepted by the Senate on the recommendation of the Faculty Board, a "Grade N" shall be awarded and such a student should face the next end-semester examination of the relevant course unit, which will be considered as the proper attempt.

j) A student, who has been granted concession on medical reason for semester end examination, shall be given "grade M" for the relevant course units. He/She shall appear for the very next opportunity of end-semester examinations of the course unit/s and the attempt is considered as the proper attempt.

k) Industrial Training is a compulsory course unit that students shall attend as prescribed in the Industrial Training Handbook. If the industrial training is not completed successfully a "Grade E" will be awarded. Graduation shall be withheld, if Industrial Training is not successfully completed by a student.

l) The mode of assessment and the distribution of weight between continuous assessments and semester-end examination of each course unit shall be determined by the Faculty Board on the recommendation of the relevant Head of the Department and informed to the students at the commencement of each course unit.

Eligibility for Sitting the Examination

In order to achieve the objectives of each course unit, it is expected that the student will attend all lectures, tutorial classes, practicals arranged by the Departments in practice.

Minimum of 80% attendance must be registered by a student in order to be eligible for sitting the relevant paper (s) of each course unit at all examinations.

A student who does not record 80% attendance for any course unit will be considered as a referred candidate and he/she should sit the next available examination. The highest grade given in such an attempt will be grade of C, regardless of the grade or marks obtained at the Examination.

Absence from Academic Activities and Examination (As approved by the Senate of the Wayamba University of Sri Lanka)

(a) If a student fails to attend academic activities (*i.e.* Lectures, tutorial classes, practical session) or examinations due to a medical reason, such absence should be reported to the Senior Assistant Registrar of the Examination Branch by valid Medical Certificate immediately after returning to the Faculty. All Medical Certificates should conform to the format of a Medical Certificate issued by a Government Hospital and should only be obtained from one of the following medical officers:

University Medical Officer (UMO)
District Medical Officer
Consultant Specialist in the relevant field
Head of Government Base Hospital
Government Hospital
Ayurvedic Physician registered in the Ayurvedic Medial Council

Under exceptional circumstance, the Medical Certificates issued by Private Hospitals or private practitioners may be accepted by the University Medical Officer or the medical board.

(b) Should a student fall ill during an examination session, such illness should immediately be reported to the University Medical Officer at the University Medical Centre. If such illness occurs at residence or elsewhere during an examination session the student or his/her guardian should inform the Senior Assistant Registrar/Examinations within seven (7) days by a telegram followed by a letter indicating the nature of illness, doctor consulted, name of examination paper of which he is unable to appear, together with the relevant Medical Certificate.

(c) In the case of a student who, having completed the theory paper is unable to appear for the practical due to a valid medical reason, the results (including the theory paper) will not be released until the practical paper is completed on a later occasion.

Number of Attempts for Sitting Examinations

A student shall not be permitted more than three (03) sittings for the examination of any course unit.

Under no circumstances (*i.e.* even with acceptable Medical Certificates), a student be permitted to sit an examination if he/she has completed a period of eight (08) academic years from the date of admission to the University.

Re-sitting of Examination

A student who obtains either a D or an E in a particular course unit may re-sit the examination in respect of the course unit for the purpose of improving the grade on condition that the best grade obtainable is C. If a student obtains a lower grade in attempting to improve the grade of the later attempt, will be entitled to the previous grade obtained on the first attempt.

Grade Point Average (GPA)

Grade Point Average (GPA) is the credit – weighted arithmetic mean of the Grade Point Values. The GPA is calculated by dividing the total credit – weighted Grade Point Value by the total number of credits.

GPA shall be computed to the second decimal place

For example, a student who completed four course units each of three credits and two course units each of one credits with grades A, B, C, D, E and A respectively would have the following GPA.

$$=\frac{(3\times4.0)+(3\times3.0)+(32.0)+(3\times1.0)+(1\times0.0)+(1\times4.0)}{3+3+3+3+1+1}$$

$$=\frac{(12)+(9)+(6)+(3)+(0)+(4)}{14}$$

$$=\frac{34}{14}$$

$$= 2.43$$

Final Grade Point Average (FGPA) will be calculated by taking weighted average of GPA of different Years as follows:

The contribution of Year 1 to the FGPA is 20%
The contribution of Year 2 to the FGPA is 25%
The contribution of Year 3 to the FGPA is 30%
The contribution of Year 4 to the FGPA is 25%

Provisions for Re-scrutinization Marks & Grades of Undergraduates

Provisions shall be made for undergraduates to submit requests for verification of their examination marks and grades, if they wish to do so.

The provision requesting re-scrutinization of marks and grades shall be limited only during the two weeks immediately following the releasing of results of an examination. An application form issued by the office should be duly filled and forwarded along with a receipt of non-refundable payment, of Rs. 500/= (per subject) make to the Shroff.

Successful Completion of a Semester

A student is considered to have completed a semester successfully only if he/she has achieved a Cumulative GPA of 2.00 or above, and has not received any "E Grade" and no more than three grades at the levels of "C- , D+ or D" in the considering semester. An "E Grade" shall be included in the calculation of Cumulative GPA. In addition, there shouldn't be no Medical Concession (M) or Academic Concession (N) or Withheld of Results (W).

Academic Progression

A student who has not successfully completed the first three semesters (Year 1 – Semester I and Semester II and Year 2- Semester I) and secured a Cumulative GPA of 2.00 or above, according to the criteria given above (*i.e.* Successful completion of a semester) shall not be permitted to register for the fifth semester, until the Cumulative GPA and grades in each of the first three semesters are improved to satisfy the foresaid requirements. Additionally, students should complete (by attending all assessment components) 90% of the course units given under the first three semesters. Grade/s obtained for English Language will not be a barrier, provided Cumulative GPA and other criteria are satisfied.

Provisional Registration

If the condition in "Academic Progression" is not satisfied by any student or not able to get verified due to non-release of results of Year 1 - Semester II of repeat attempt or reattempt due to any concession granted in the previous academic year, he/she should request for a provisional registration for Year 3 Semester I. Such a request should be considered at the Faculty Board subject to the condition that he/she is potentially able to satisfy the eligibility requirements by the results of the above repeat attempt or reattempt of Year 1 Semester II. If the above conditions in Section "Academic Progression" are fulfilled after the release of above results, the student should request for a proper registration for Year 3 Semester I. Otherwise, he/she shall be discontinued from the proper batch and should satisfy the requirements with the immediately following (junior) batch.

Award of Classes and Degree

Classes will be awarded based on the Final Grade Point Average (FGPA)

First Class

A student may be awarded a First Class provided he/she;

(i) Obtains a minimum FGPA of 3.70

and

(ii) Completes the relevant requirements within four academic years

Second Class (Upper Division)

A student may be awarded a Second Class (Upper Division) provided he/she;

(i) Obtains a minimum FGPA of 3.30 and
(ii) Completes the relevant requirements within four academic years

Second Class (Lower Division)

A student may be awarded a Second Class (Lower Division) provided he/she;

(i) Obtains a minimum FGPA of 3.00
and
(ii) Completes the relevant requirements within four academic years

Award of the Degree

To be eligible for the Bachelor of Biosystems Technology Degree a student must have obtained at least a D grade for each GPA course units and a C grade for each Non-GPA course units he/she studied at the end semester examinations held during the eight (8) year period from the time of registration reaching a minimum FGPA of two (2.00).

Contents of the Course Units

<table>
<tr><td>Course Title</td><td colspan="3">Basic Mathematics</td><td>Course Code</td><td colspan="3">BST 11012</td></tr>
<tr><td rowspan="3">Year</td><td rowspan="3">1</td><td rowspan="3">Semester</td><td rowspan="3">1</td><td rowspan="3">Credits</td><td rowspan="3">02</td><td>Theory (hr)</td><td>20</td></tr>
<tr><td>Practical (hr)</td><td>20</td></tr>
<tr><td>Independent Learning (hr)</td><td></td></tr>
</table>

Aim of the Course:

To provide students with the mathematical concepts that are applicable to the discipline of bio-systems technology

Intended Learning Outcomes:

After completion of this course, the learner should be able to:

- Interpret the data using different types of functions and graphs.
- Apply the Set Theory to make inferences.
- Solve a system of linear equations using matrices.
- Solve problems using calculus.

Course Capsule:

Theory
Number line: integers, irrational numbers, rational numbers, natural numbers, prime numbers; Element of set theory notation: Set builder form, Equality of two sets, Disjoint sets, Finite and Infinite sets, Union and intersection of sets, set operations, Venn diagrams; Introduction to Matrix algebra; Solving system of equations using Cramer's Rule; Introduction to function: Domain, Co-domain and Range of a function, Types of functions and their properties, Graphs of functions, General equation for a straight line, Parabola, Circle; Introduction to calculus: Limits, Differentiation, Integration and their applications

Practical
Application of Set Theory to solve real world problems; Solve system of equation by using Matrix algebra; Brake even analysis; Finding out critical points of a function; Introduction to calculus: Limits, Differentiation, Integration and their applications

Assessment:

Continuous assessment: 30%
End semester assessment: 70%

Course Title	**Basic Plant Science**			**Course Code**	**BST 11023**		
Year	**1**	**Semester**	**1**	**Credits**	**03**	**Theory (hr)**	**30**
						Practical (hr)	**30**
						Independent Learning (hr)	

Aim of the Course:

To provide the basic knowledge on plant science to understand the importance of biological systems for the betterment of life

Intended Learning Outcomes:

After completion of this course, the learner should be able to:

- Explain the origin and the diversity of the plant kingdom.
- Describe the chemistry and biology of a cell.
- Describe the importance of reproduction at cellular and plant level in the continuity of life.
- Distinguish metabolic and catabolic reactions vital in the plant growth and development.
- Describe sexual and asexual reproduction methods in plants.

Course Capsule:

Theory
Origin of life; Chemistry of life; Plant diversity – diversity of algae, fungi, bryophytes, gymnosperms and angiosperms; Morphological diversity of higher plants (diversity of stems, leaves, roots);Plant classification; Biology of the cell; Cellular reproduction; Autotrophic nutrition; Energy utilization in plants; Plant structure; Growth and development; Sexual reproduction and seeds; Asexual reproduction in flowering plants; Economic and agricultural importance of plants to people

Practical
Use of the microscope; Plant diversity; Plant morphology (morphology of leaves, stems, flowers and roots); Construction of a dichotomous key; Plant structure (structure of leaves, stems, flowers and roots); Plant growth (height, fresh and dry weights); Seeds , Asexual reproduction

Assessment:

Continuous assessment: 30%
End semester assessment: 70%

Course Title	**Environmental Management**			**Course Code**	**BST 11032**		
Year	**1**	**Semester**	**1**	**Credits**	**02**	**Theory (hr)**	**20**
						Practical (hr)	**20**
						Independent Learning (hr)	**08**

Aim of the Course:

To provide the knowledge and skills required to manage the environment using new concepts and technologies that help to develop a sustainable environment

Intended Learning Outcomes:

After completion of this course, the learner should be able to:

- Explain the structure and functions of ecosystems and identify the causes of the present-day environmental crisis.
- Describe the implication of environmental degradation and environmental management strategies to reduce or mitigate environmental problems.
- Describe the procedure for environmental impact assessment.
- Recognize sustainable solutions for environmental issues.

Course Capsule:

Theory
Ecological concepts and ecosystem processes; Environmental issues and environmental degradation; Air, water, land pollution; waste water and solid waste management; Conservation of ecosystem, biodiversity and genetic resources; Renewable energy and Green technological concepts; Environmental management strategies & Environmental impact assessment

Practical
Field visit to Natural forest/Man-made forest/Aquatic environment/National protected area; Environmental related laboratory testing; Biodiversity conservation strategies Video (Assignment / Field visit); Green technology concepts - Video (Assignment/Field visit)

Assessment:

Continuous assessment: 40%
End semester assessment: 60%

Course Title	**Communication Skills**			**Course Code**	**BST 11040**		
Year	**1**	**Semester**	**1**	**Credits**	**02**	**Theory (hr)**	**20**
						Practical (hr)	**20**
						Independent Learning (hr)	

Aim of the Course:

To provide opportunities to achieve English language skills to enable them to perform confidently in an environment of English medium instructions

Intended Learning Outcomes:

After completion of this course, the learner should be able to:

- Use the correct terminology in the discipline of technology.
- Write grammatically correct complex sentences.
- Communicate effectively using logical and cohesive devices.
- Write an essay by organizing thoughts and sub points.
- Participate actively in debates and discussions.

Course Capsule:

Theory
Sentence Patterns- Simple and Compound; Complex Sentences; Vocabulary Expansion; Techniques of Writing-Transitional Words; Interpretation of Data; Presentations/ Listening Skills; Note Taking and Summarizing

Practical
Writing articles/documents using simple and compound sentence structures; Writing essays using complex sentences; Vocabulary expansion activities; Use Transitional devices ; Describing Tables, graphs and charts; Oral Presentation; Exercises on note-taking and summarizing; Debate

Assessment:

Continuous assessment: 30%
End semester assessment: 70%

Course Title	**Fundamentals of Chemistry**			**Course Code**	**BST 11053**		
Year	**1**	**Semester**	**1**	**Credits**	**03**	**Theory (hr)**	**30**
						Practical (hr)	**30**
						Independent Learning (hr)	

Aim of the Course:

To provide students with the basic principles, concepts and theories of chemistry as applicable to the discipline of Bio-Systems Technology

Intended Learning Outcomes:

After completion of this course, the learner should be able to:

- Explain the basic properties of states of matter.
- Identify the patterns of the periodic table.
- Describe the basic principles and concepts in organic, inorganic, physical, and analytical chemistry.
- Determine the rate of a chemical reaction and to control it using chemical kinetics.
- Determine the properties of systems in dynamic equilibria using the concepts of chemical equilibrium.
- Explain the basic biochemical reactions of the cell.
- Apply the knowledge to separate, analyze and/or synthesize important compounds, active ingredients and/or chemicals.

Course Capsule:

Theory
Matters and properties, SI Units and measurements; Atomic structure, Periodic table and properties; Molar concept, Molecular and ionic equations (Stoichiometry); Chemical bonding, Chemical reactions; Chemical Kinetics; Chemical equilibrium; Types of organic compounds; Nomenclature; Formulae and isomers; Chemical bonding in organic compounds; Organic reactions; Overview of metabolism; Instrumental analysis

Practical
Laboratory safety aspects and familiarization; Inorganic analysis – anion and cation identification; Preparation of standard solutions; Strong acid/strong base titration (titration curves); Strong acid / weak base titrations (titration curves);Complex metric titrations; Back titrations; Chromatographic techniques; spectrophotometric analysis of chemical compounds; Distillation and Fractional Distillation; Melting point; Preparation of Acetyl Salicylic Acid (aspirin); Extraction of a known mixture; Extraction of an unknown mixture; Synthesis of Esters; Synthesis of Soap

Assessment:

Continuous assessment: 30%
End semester assessment: 70%

Course Title	**Technology for Development**			**Course Code**	**BST 11062**		
Year	**1**	**Semester**	**1**	**Credits**	**02**	**Theory (hr)**	**20**
						Practical (hr)	**20**
						Independent Learning (hr)	**04**

Aim of the Course:

To provide the background information pertaining to historical development, recent advancements, contemporary issues and future directions in technological development

Intended Learning Outcomes:

After completion of this course, the learner should be able to:

- Explain the key historical events took place in the process of technological development.
- Explain the recent advancements and contemporary issues related to technological development.
- Assess the appropriateness of a given technology for development.

Course Capsule:

Theory
What is technology - How does technology evolve over time. Role of technology in development process; Historical process of technological development - Ancient engineering practices, invention of wheel, structures in ancient Greece and Egypt, Roman road network, Sri Lankan "stupas" and extensive irrigation network; Industrial revolution and influence of energy: invention of the steam engine, cotton spinning and advancement in Iron making. Invention of internal combustion engine and electrical power generator; Recent developments in technology - the effect of wars: first and second world wars. Invention of synthetic rubber, radar, nuclear power and synthetic fuel; The space age: rapid advancement in rocketry, material science, electronics and computers, including light-weight materials, satellite radio and television, cell phone technology, GPS navigation system, solar energy; Contemporary issues in technology development- Influence of computer: automated control systems, rapid advancement in complex engineering designs, virtual prototype testing; The future scenario- artificial intelligence, renewable energy and inventions to appreciate sustainable development with innovations for the existence of mankind; Socio economic and political implications of the new technologies

Practical
Role of Technology for Development – Conceptualization Group Work; Industrial revolution and influence of energy – Mind Mapping & Poster Preparation; Renewable energy and inventions to appreciate sustainable development with new innovations - Tutorials & Development of the Case; Technology issues in agriculture and other sectors: Analysis – Tutorials & Development of the Case

Assessment:

Continuous assessment: 30%
End semester assessment: 70%

Course Title	**Cell and Tissue Culture Technology**			**Course Code**	**BST 12072**		
Year	**1**	**Semester**	**2**	**Credits**	**02**	**Theory (hr)**	**15**
						Practical (hr)	**30**
						Independent Learning (hr)	**05**

Aim of the Course:

To provide knowledge on theoretical and applied aspects of cell and tissue culture to apply that in research and commercial production

Intended Learning Outcomes:

After completion of this course, the learner should be able to:

- Explain the principles of plant/animal cell culture processes.
- Describe the types of fermenters/ bioreactors used in large scale cell cultures.
- Describe the application of plant /animal cell cultures.
- Describe the minimum requirements necessary to establish a plant tissue culture laboratory as a business venture.
- Explain the stages of plant micro-propagation and programming of the production process.
- Establish and multiply some selected plants via micro-propagation cycle.
- Explain the uses of plant tissue culture in improving selected crops.

Course Capsule:

Theory
History and basics of plant tissue culture: Concept of totipotency and science underpinning tissue and plant cell cultures; Requirement for plant cell cultures: cell culture equipment and culture conditions, Laboratory safety; Basics of animal cell culture: history, definition of cell and tissue culture, primary cultures, continuous cell lines, Types of cells, counting of cells, Basic equipment and facilities in animal cell culture; Types and operations of Bioreactors; Cell cultures and bioreactor based commercialized products: animal and plant cell culture products of medicinal and pharmaceutical importance; Laboratory equipment and low cost options for household Plant tissue culture; Plant tissue culture media components and media preparations; Different tissue culture regeneration systems used in commercial production; Micro propagation of commercially important plants and production programming using banana, anthurium, and pineapple as examples

Practical
Organization of general tissue culture laboratory; Basic equipment and facilities; MS Stock solution preparation and hormone stock preparation for plant tissue culture; MS working medium preparations & formulations; Surface Sterilization procedures for leaf and nodal culturing; Orchid seed culture establishment; Banana culture establishment; Mini project- media preparation and preparation of materials for surface sterilization to establish an interested crop; Mini project continuation Culture establishment of a interested crop; Sub-culturing procedure; Weaning of tissue cultured plants; Familiarization with commercial tissue culture laboratory and plant house (field visit); Laboratory visit to Dept. of Biochemistry, Medical faculty, MRI on animal cell culture; Basic equipment and facilities in animal cell culture (Field visit); Establishment of carrot cells suspension culture and study of time course of cell growth in a simple bioreactor.

Assessment:

Continuous assessment: 30%
End semester assessment: 70%

Course Title	**Crop Production Systems**			**Course Code**	**BST 12083**		
Year	**1**	**Semester**	**2**	**Credits**	**03**	**Theory (hr)**	**30**
						Practical (hr)	**30**
						Independent Learning (hr)	**10**

Aim of the Course:

To provide basic understanding on agronomy and production systems of food crops.

Intended Learning Outcomes:

After completion of this course, the learner should be able to:

- Describe cropping systems as modified ecosystems, and the specific characteristics compared to natural ecosystems.
- Select the suitable crops for a given agro-ecological condition to achieve the maximum productivity.
- Explain the major agronomic practices, their role in crop production and use them for efficient management of crops to achieve sustainable crop production.
- Describe major cropping systems in Sri Lanka and select appropriate agronomic practices for different crops and cropping systems.

Course Capsule:

Theory
History and development of agricultural production systems; Agro-ecology, Agronomic practices in crop production systems; Aspects of Crop Productivity: Growth, development, and basic physiological processes of cultivated crops, Environmental influences on crop growth and development processes; Major cropping systems in Sri Lanka; Sustainable crop production; Alternatives to conventional cropping systems: protected agriculture, hydroponics, urban and periurban farming, organic farming; Integrated crop production systems: Sustainable crop intensification, Integrated crop-livestock farming systems; Challenges in modern crop production systems

Practical
Methods of quantifying plant growth; Familiarization of different cropping systems –field visits and follow up practical reports; Tools for evaluating integrated Systems: Integrated modeling approaches - FALLOW; FALLOW - Case studies; Modeling exercises; Management techniques to minimize stresses and maximize crop yield and quality- Tutorials; Crop Modeling: Concepts; Application in crop production- Students seminar

Assessment:

Continuous assessment: 30%
End semester assessment: 70%

Course Title	**Foundation Statistics**			**Course Code**	**BST 12092**		
Year	**1**	**Semester**	**2**	**Credits**	**02**	**Theory (hr)**	**15**
						Practical (hr)	**30**
						Independent Learning (hr)	

Aim of the Course:

To provide knowledge on basic concepts, theories and applications of statistics

Intended Learning Outcomes:

After completion of this course, the learner should be able to:

- Interpret the data graphically and numerically.
- Describe the concept of probability and probability distributions.
- Calculate point and interval estimates.
- Model a linear relationship between set of variables.
- Perform testing of hypothesis.

Course Capsule:

Theory
Descriptive Statistics: Numerical, graphical and tabulation methods; Concepts of probability distributions with special reference to normal distribution; Introduction to Inferential Statistics: Hypothesis testing, null and alternative hypothesis, errors and power of the test, one tail and two tail tests, z-test, t-tests: one and two sample ttests; Simple Linear Regression and Correlation

Practical
Introduction of Statistical packages; Calculation of descriptive statistics using statistical packages; Sample data analysis and presentation using different descriptive analytical techniques; Data analysis and interpretation using one and two samples t-tests; Model building using Linear Regression, Measuring the strength of relationship between datasets - Correlation

Assessment:

Continuous assessment: 30%
End semester assessment: 70%

Course Title	**Fundamentals of Physics**			**Course Code**	**BST 12102**		
Year	**1**	**Semester**	**2**	**Credits**	**02**	**Theory (hr)**	**20**
						Practical (hr)	**20**
						Independent Learning (hr)	**30**

Aim of the Course:

To provide knowledge on the fundamental physical principles and concepts, and expose the students to the scientific method.

Intended Learning Outcomes:

After completion of this course, the learner should be able to:

- Explain natural physical phenomena.
- Perform simple experiments and interpret the results.
- Find solutions for problems involving physics principles.

Course Capsule:

Theory
Measurements and units; mechanics: dynamics; speed, velocity and acceleration, Newton's laws of motion, force and energy, gravitation; Properties of matter: elasticity, Young modulus; fluids: pressure, surface tension, viscosity; heat: temperature and heat, heat capacities, heat transfer, thermometers; waves: oscillations and waves, characteristics of sound waves, light waves, velocity of waves; geometric optics: reflection and refraction of light, lenses, optical instruments; electricity and magnetism: electric charges and currents, electric fields and forces, current electricity, dc circuits, magnetic fields, forces on charges and currents in magnetic fields, motion of electrons in fields

Practical
Use of measuring instruments - vernier caliper, micrometer screw gauge; Measurement of acceleration due to gravity; Young modulus of a metal; Surface tension by capillary rise/by microscope slide; Determination of specific heat capacity of water/oil by electrical method; Velocity of sound (resonance tube experiment); Determination of refractive index of glass; focal length of lenses (plane mirror & lens formula method); Assembling optical instruments (astronomical telescope and compound microscope); Proof of Ohm's law

Assessment:

Continuous assessment: 50%
End semester assessment: 50%

Course Title	**ICT Applications**			**Course Code**	**BST 12113**		
Year	**1**	**Semester**	**2**	**Credits**	**03**	**Theory (hr)**	**15**
						Practical (hr)	**60**
						Independent Learning (hr)	

Aim of the Course:

To provide basic understanding about computer systems, networking and tools used in Information Communication Technology

Intended Learning Outcomes:

After completion of this course, the learner should be able to:

- Describe the key terms used in personal computing.
- Define the basic concepts of information and communication technology.
- Use the desktop operating systems systematically.
- Prepare a document, presentation, and spreadsheet using relevant software.
- Communicate through internet using common and collaboration tools.

Course Capsule:

Theory
Basic Concepts of ICT; Computer systems, networks and software, Internet, email, ecommerce Communication and Social network; e-Learning concepts

Practical
Familiar with computers: keyboard mouse and boot up process; Familiar with operation systems and common functionalities; Identification of computer hardware; Working with word processing software MS word; Working with spreadsheets; Working with presentation software; MS PowerPoint; Working with internet and its services ; Make use of e-learning facilities; Effective use of social networks; Working with collaboration tools; Adaptation of New technologies

Assessment:

Continuous assessment: 50%
End semester assessment: 50%

Course Title	**Poultry Production and Processing**			**Course Code**	**BST 12123**		
Year	**1**	**Semester**	**2**	**Credits**	**03**	**Theory (hr)**	**30**
						Practical (hr)	**30**
						Independent Learning (hr)	

Aim of the Course:

To provide knowledge and skills on poultry production and poultry product processing

Intended Learning Outcomes:

After completion of this course, the learner should be able to:

- Explain the present status, constraints and potential for poultry production in Sri Lanka.
- Identify and describe different breeds and species of poultry used in meat and egg production.
- Discuss the importance of housing for poultry, feeding, breeding management and other important management practices.
- Describe different egg products, egg quality parameters, egg preservation methods, and microbiological aspects of egg.
- Explain nutritional composition of poultry meat, processing of poultry meat, different poultry meat products and microbiological aspects of poultry meat.
- Discuss the importance of integration of poultry in farming systems.
- Practice the knowledge gained to prevent and control of poultry diseases.

Course Capsule:

Theory
Present status of poultry production in the world and Sri Lanka; Domesticated poultry breeds and species and characteristics of chicken, duck, turkey, geese; Raising of young stock; Management of hatcheries, broilers, layers and parents; Anatomy and physiology of the digestive and reproductive systems of poultry; Poultry housing systems; Importance of feeding and feed formulation with nutritive value; Poultry breeding and breeding stock management; Prevention and control of poultry diseases; Physiology of egg formation; egg and egg products; Egg quality, Egg grading and storage; Microbiology of egg; Composition of poultry meat and Processing of poultry meat; Broiler management, slaughtering, handling of carcass, preservation; Microbiology of poultry meat and Poultry meat products; Integrated farming systems with poultry

Practical
Breed identification; Dissection and observation of poultry digestive and reproductive systems; Brooder management practices (for broilers and layers); Measurement of egg quality; Egg incubation; Feed formulation for poultry and identification of alternative feeds; Handling and management tools; Routine management practices for poultry; Housing systems for poultry

Assessment:

Continuous assessment: 30%
End semester assessment: 70%

Course Title	**Society and Human Behavior**			**Course Code**	**BST 12132**		
Year	**1**	**Semester**	**2**	**Credits**	**02**	**Theory (hr)**	**20**
						Practical (hr)	**20**
						Independent Learning (hr)	

Aim of the Course:

To provide an introduction to the social and cultural dimensions of human behavior with special reference to the role of technology in shaping the workings of human beings in traditional and modern societies

Intended Learning Outcomes:

After completion of this course, the learner should be able to:

- Explain the key terms and concepts used in the study of society and human behavior.
- Compare and contrast the difference between any given aspect related to human behavior, society and culture.
- Assess the role of human in the traditional and modern societies towards effective utilization of technological advances aiming sustainable development.

Course Capsule:

Theory
Introduction to the society: 'What is' and 'Why' society is important? Characteristics of society: How does society function? Traditional vs. Modern society: Characteristics, Differences, Role of technology; Role of Customs, Rituals, Rules and Regulations, Legal system; What is human behavior; Types of human behavior; Classification of human behavior (Conscious vs. Unconscious; Overt vs. Covert; Rational vs. Irrational; Voluntary vs, Involuntary; Simple vs. Complex); Personality and its influence on human behavior; Self Image; Leadership; Understanding the culture; Characteristics and components of culture; How culture influence human behavior; Ethics, morals & values and Attitudes & Perceptions: Importance and differences; Eco-centralism vs. Techno-centralism; Consumerism

Practical
Conceptualization of the society – importance / characteristics (*Group Work*); Real world examples of traditional vs. modern society: characteristics; differences; role of technology; role of customs, rituals, rules and regulations, legal system; Human behavior with respect to personality and leadership types and classifications; Characteristics and components of culture (*Poster-based Presentations Assigned to Specific Groups*); Traditional vs. Modern society; Consumerism (*Picture-based Presentations Assigned to Specific Groups*); Eco-centralism vs. Techno-centralism (*Student Debate*)

Assessment:

Continuous assessment: 50%
End semester assessment: 50%

Course Title	**Conventional and Advanced Plant Propagation Technologies**			**Course Code**	**BST 21142**		
Year	**2**	**Semester**	**1**	**Credits**	**02**	**Theory (hr)**	**15**
						Practical (hr)	**30**
						Independent Learning (hr)	

Aim of the Course:

To provide the knowledge and skills on plant propagation techniques

Intended Learning Outcomes:

After completion of this course, the learner should be able to:

- Identify the appropriate techniques and facilities to propagate a selected plant.
- Develop a propagation plan for mass production of selected plants.
- Explain the practices to be followed to operate a commercial nursery.

Course Capsule:

Theory
Introduction to propagation: asexual and sexual; Plant life cycles; annual, perennial, biennial life cycles; Propagation terminology; Seed propagation; Seed biology - endospermic, non-endospermic; seed sources; Maintaining genetic identity of seed - isolation, rouging, testing, hand pollination; Hybrid seed production; Seed storage; Seed dormancy; Seed raising technique; Operational flow chart for seed propagation; Vegetative propagation; Propagation techniques: runners, suckers, layering, separation, division, grafting, budding, cuttings; Aseptic micro propagation: applications, problems, nutrient media, cleanliness, growing conditions, tissue culture procedures and techniques, laboratory requirements; Biotech applications in Horticulture; Propagation structure and materials: growing in a greenhouse; Growing structures: types of greenhouses, cold frames, shade houses; Propagating equipment -heaters, bottom heat, misting, light control, benches etc.; Managing a greenhouse; Potting media: characteristics of potting and propagating media; Chemical characteristics - ph, cation exchange capacity, salinity, conductivity; physical characteristics; Types of potting media; Potting mixes; laboratory testing of media; nutrition requirement at the propagation stage; nutrition management and fertilizer application; nursery management; nursery production systems; nursery standards, site planning and development; risk management: nursery hygiene; safety tools, equipment handling, electricity, etc.; pest and disease management, Environment Problems and Management.

Practical
Identification of plant propagation materials; Seed propagation: dormancy breaking, seed germination, seed purity ; Layering ; Budding ;Grafting ;Micro propagation; Embryo culture and embryo rescue; Nursery management- field visit

Assessment:

Continuous assessment: 40%
End semester assessment: 60%

Course Title	**Crop Protection Technologies**			**Course Code**	**BST 21152**		
Year	**2**	**Semester**	**1**	**Credits**	**02**	**Theory (hr)**	**15**
						Practical (hr)	**30**
						Independent Learning (hr)	

Aim of the Course:

To provide knowledge and skills on crop protection techniques required for preparation and implementation of an efficient crop protection action plan

Intended Learning Outcomes:

After completion of this course, the learner should be able to:

- Explain the biotic and abiotic factors leading to crop damage.
- Recognize a given crop protection method in relation to conventional and novel technologies.
- Select an appropriate pesticide for a given situation with special emphasis on environment.
- Describe the types of equipment available for agrochemical application with their specific use.
- Develop a crop protection action plan aiming sustainable crop production.

Course Capsule:

Theory
Introduction to crop protection, importance and traditional concepts; Biotic and a biotic factors that damage crops; Convention and non-conventional crop protection techniques; Cultural methods of crop protection; Biological methods; bio-pesticides; bio rationals; botanical pesticides; Synthetic pesticides; Classification of pesticides; Pesticide formulations; Efficiency, Advantages and disadvantages of different crop protection techniques; Methods of safe and efficient use of pesticides; Spray drift management; Maintenance and calibration of equipment and machines for crop protection; Preparation of a crop protection action plan.

Practical
Factors causing damages to plants; Plant diseases caused by fungi - symptoms and signs; Plant diseases caused by bacteria, viruses and mycoplasma - symptoms and signs; Plant pathogenic nematodes and their identification; Insect pests and their damages; Non insect pests of plants; Common weeds of cropping systems; Non infectious diseases of plants; Selection of pesticides for crop protection; Crop protection equipment; maintenance, adjustments, and calibration; Application of pesticides; drift management; Safety measures in crop protection; Preparation of a crop protection action plan for a given situation, presentation and discussion (Group work)

Assessment:

Continuous assessment: 30%
End semester assessment: 70%

<table>
<tr><td>Course Title</td><td colspan="3">English for Technology</td><td>Course Code</td><td colspan="3">BST 21162</td></tr>
<tr><td rowspan="3">Year</td><td rowspan="3">2</td><td rowspan="3">Semester</td><td rowspan="3">1</td><td rowspan="3">Credits</td><td rowspan="3">02</td><td>Theory (hr)</td><td>15</td></tr>
<tr><td>Practical (hr)</td><td>30</td></tr>
<tr><td>Independent Learning (hr)</td><td></td></tr>
</table>

Aim of the Course:

To provide knowledge and skills to prepare professional caliber technical documents and communicate that to a variety of audiences

Intended Learning Outcomes:

After completion of this course, the learner should be able to:

- Write meaningful instructions; work schedules, memos and notices.
- Compose well-structured essays with nuances of technical writing.
- Use correct syntax, diction, and spelling to edit a write-up completely.
- Use appropriate spoken idiom to engage in discussions.

Course Capsule:

Theory
Describing structure and functions of tools and equipment; Basics of technical report writing; Technical communication: Principles and practice; Vocabulary Building; Technical writing skills and proof reading; Techniques of effective writing; Presenting technical innovations and productions to an audience.

Practical
Writing instructions for Manuals, Schedules, Memos; Chit-chat presentations; Reading technology related articles; Games and competitions; Listening to lectures and summarizing ideas; Proof reading; Discussion sessions; Speaking club

Assessment:

Continuous assessment: 30%
End semester assessment: 70%

Course Title	**Food Technology**			**Course Code**	**BST 21173**		
Year	**2**	**Semester**	**1**	**Credits**	**03**	**Theory (hr)**	**30**
						Practical (hr)	**30**
						Independent Learning (hr)	

Aim of the Course:

To provide the knowledge and skills on safe preservation of food and food product development

Intended Learning Outcomes:

After completion of this course, the learner should be able to:

- Describe the food constituents and their role in food industry.
- Identify the appropriate technology to process and preserve different agricultural produces, meat and fish.
- Explain the fundamentals of, and factors affecting food safety and quality.
- Analyz the composition of food samples using qualitative and quantitative tests.
- Develop some selected food products.
- Evaluate the quality and consumer preferences for the developed food products.

Course Capsule:

Theory
Role of technology in food industry; Food constitutes: Carbohydrates, Proteins, lipids: Importance, Physical aspects, chemical reactions, and Role of carbohydrates in food industry; Importance of vitamins and minerals; Food deterioration, Types and causes of food deterioration; Food preservation technologies; Unit operations of food processing; Quantitative and qualitative tests of food constituents; Food constituents: Water, Water activity, Role of water in food industry; Food formulation basics and approaches; Food product development; Sensory evaluation; Fundamentals of food safety and quality control; Recent advances and emerging trends

Practical
Carbohydrate, lipids and proteins- sources and their utilization; Preparation of flour and related products; Causes for food deterioration; Food preservation methods; New product development; Sensory evaluation

Assessment:

Continuous assessment: 30%
End semester assessment: 70%

<table>
<tr><td>Course Title</td><td colspan="3">Fundamentals of Electronics and Instrumentation</td><td>Course Code</td><td colspan="3">BST 21183</td></tr>
<tr><td rowspan="3">Year</td><td rowspan="3">2</td><td rowspan="3">Semester</td><td rowspan="3">1</td><td rowspan="3">Credits</td><td rowspan="3">03</td><td>Theory (hr)</td><td>30</td></tr>
<tr><td>Practical (hr)</td><td>30</td></tr>
<tr><td>Independent Learning (hr)</td><td>30</td></tr>
</table>

Aim of the Course:

To develop understanding on the operation and application of basic electronic instruments, electronic components and circuitry in instrumentation systems

Intended Learning Outcomes:

After completion of this course, the learner should be able to:

- Describe the characteristics and function of basic circuit elements.
- Explain the application of basic electronic measuring instruments.
- Explain the characteristics and circuit applications of transducers.
- Identify and describe the function of components of an instrumentation system.
- Design and implement a simple monitoring / automation system.

Course Capsule:

Theory
DC and AC currents and voltages, Circuit elements: Resistors, Capacitors, Inductors, Power supplies; Electronic instruments: Voltmeters, Ammeters, Ohmmeters, Millimeters, Signal generators, Oscilloscopes; Electrical circuit analysis: Measuring resistance; Bridge circuits, Potentiometers, Semiconductor devices: Semiconductor materials, p-n junctions, Diodes, Zener diodes, Transistors, Thyristors, Optoelectronic devices, ICs; Diode and Zener diode characteristics and circuit applications; Transistor characteristics and circuit applications; Amplifiers switches, Drivers; Rectification and DC power supplies; Operational / Inverting / Summing amplifiers, Comparators; Digital electronics: Number systems, Logic gates, FFs, Counters, ICs; Instrumentation/Automation systems: System components, A/D and D/A conversion; Sensors; Signal conditioners: Filters, Amplifiers/attenuators, Instrumentation amplifiers; Controllers: Microcontrollers/microprocessors, Microcontroller based systems, PLCs; Actuators: Electromechanical switches, Relays, Motors; Automated bio-systems

Practical
Electronic instruments; Wheatstone bridge /meter bridge for measuring resistance; Diode and Zener diode characteristics; Transistor characteristics and amplifiers; Rectifier circuits and DC power supplies; Operational amplifiers: Filters; Basic logic gates and applications; Interfacing ICs: LED displays and counters; Waveform generation and timer circuits; Sensors: Characteristics and applications; interfacing a simple automation system with sensors-controller unit-actuators

Assessment:

Continuous assessment: 30%
End semester assessment: 70%

Course Title	**Microbiology**			**Course Code**	**BST 21192**		
Year	**2**	**Semester**	**1**	**Credits**	**02**	**Theory (hr)**	**20**
						Practical (hr)	**20**
						Independent Learning (hr)	

Aim of the Course:

To provide the background information pertaining to microorganisms and their use

Intended Learning Outcomes:

After completion of this course, the learner should be able to:

- Classify the microorganisms based on a given criterion.
- Explain the microbial cell structure and arrangement.
- Use the aseptic techniques to hand lemicro organisms.
- Describe and identify microbial crop pests and disease causing microorganisms.
- Explain the microbial processes use in food industry and soil fertility.

Course Capsule:

Theory
Classification, nomenclature and habitats of microorganisms; Cell structure, forms, arrangements and identification of microorganisms; Nutrient requirements and growth of micro organisms; Control of microorganisms; Microorganisms in soil processes and their role in soil fertility; Microbial involvement in food production and preservation; Application of microorganisms in industries

Practical
Familiar with microbiological lab, equipment and tools; Good microbiological laboratory practices; Microscopic examination of microorganisms; Staining techniques for microorganisms; Laboratory techniques for isolation and cultivation of microorganisms; Symbiotic microorganisms; Enumeration of microorganisms; Identification of crop pests and diseases

Assessment:

Continuous assessment: 40%
End semester assessment: 60%

Course Title	**Principles of Economics**			**Course Code**	**BST 21202**		
Year	**2**	**Semester**	**1**	**Credits**	**02**	**Theory (hr)**	**20**
						Practical (hr)	**20**
						Independent Learning (hr)	

Aim of the Course:

To provide understanding about the basics of economic theory and its applications

Intended Learning Outcomes:

After completion of this course, the learner should be able to:

- Explain the key terms and concepts used in micro and macroeconomic theory.
- Determine the optimum levels of production, cost and price in a given firm.
- Explain the nature of markets available for a product or service.
- Explain the nature and behavior of an economy from macro-point of view.

Course Capsule:

Theory
Concept of resource scarcity; Demand and supply, Market mechanism and price and output determination; Demand and supply analysis; Elasticity and its applications in business; Theory of production: Principles and productivity measurement; Costs of production and cost relationships; Using knowledge in economics for managerial decision-making: Break-even analysis, Profit maximization, Cost minimization, Contribution margin and pricing techniques; Market structures: Monopoly, Oligopoly, Monopolistic Competition, Perfect Competition; Topics in Macroeconomics: GDP, Unemployment, Inflation, Growth Rates, and Interest rates

Practical
Drawing utility functions, Understanding Marginal Rate of Substitution; Graphical derivation of consumer equilibrium; Obtaining demand curve from the utility functions using the concept of consumer equilibrium; Understanding the market equilibrium and the shifts in market equilibrium and its implications to consumers and businesses; Using elasticity concepts in the day to day business decision making; Deriving input-output relationships and product-product relationships; Drawing cost functions to understand the relationship with various cost functions such as Total Cost, Marginal Costs and Average Costs; Finding profit maximizing production and input use in production processes; Using break-even analysis for managerial decisions; Making product pricing decisions using knowledge of economics; Group presentations: Topics in macroeconomics;

Assessment:

Continuous assessment: 30%
End semester assessment: 70%

Course Title	**Soil and Plant Nutrient Management**			**Course Code**	**BST 21212**		
Year	**2**	**Semester**	**1**	**Credits**	**02**	**Theory (hr)**	**20**
						Practical (hr)	**20**
						Independent Learning (hr)	**10**

Aim of the Course:

To provide the knowledge and skills on soil and nutrient management for optimum plant growth

Intended Learning Outcomes:

After completion of this course, the learner should be able to:

- Describe the importance of soil.
- Apply the acquired knowledge pertaining to the soil physical, biological and chemical properties for land use management.
- Identify the major soil types in Sri Lanka and their potential use and constraints.
- Determine the crop nutrient requirements.
- Identify the fertilizers according to their physical features, composition.
- Describe the fertilizer application methods.

Course Capsule:

Theory
Soil science: Introduction to soil and its importance in crop production; Factors affecting soil formation; Soil chemical, physical, and biological properties; World soil classification and soils of Sri Lanka; Soil-Plant-Water Relations: Water flow and solute transport through the soil-plant-atmosphere continuum (SPAC); Plant nutrition: Determination of crop nutrient requirement; Macro and Micronutrients Deficiencies and toxicities; Conventional types of fertilizers; Integrated nutrient management techniques

Practical
Soil sampling and analysis: pH, Bulk density, water holding capacity, cation exchange capacity; Leaf sampling techniques and analysis; Familiarization of nutrient deficiencies and toxicities -Determination and recommendation; Student seminars – tutorials on Soil-Plant-Water relations

Assessment:

Continuous assessment: 50%
End semester assessment: 50%

Course Title	**Climate Change and Disaster Management**			**Course Code**	**BST 22222**		
Year	**2**	**Semester**	**2**	**Credits**	**02**	**Theory (hr)**	**20**
						Practical (hr)	**20**
						Independent Learning (hr)	**10**

Aim of the Course:

To provide fundamental understanding of the drivers of global climate change challenging global food production and techniques and practices for adaptation through climate smart agriculture.

Intended Learning Outcomes:

After completion of this course, the learner should be able to:

- Describe the impact of climate change on eco-systems.
- Identify the weather and climate extremes and their likelihood of occurrence.
- Explain the rationale for Climate Smart Agriculture (CSA) and the adoption of a landscape approach to achieve CSA.
- Explain the improved technologies, practices and approaches of CSA in different sectors
- Explain the enabling frameworks to achieve climate-smart approach in different sectors with respect to policy, finance, disaster risk reduction and capacity development.

Course Capsule:

Theory
Introduction to climate change, Global and regional nature of the climate system; Earth's energy balance natural temporal variability in the climate system; Observed climate variability, projected changes and extreme climate phenomena and their likelihood; Human impacts on the climate system: Atmospheric greenhouse gas enhancement, Atmospheric aerosol enhancement, Change of radioactive effects of clouds; Consequences of climate change; Mitigation / adaptation strategies; Climate Smart Agriculture: Why climate-smart agriculture, forestry and fisheries: Food security and climate change, towards more efficient and resilient systems, Increase systemic efficiency and resilience; Managing landscapes for climate-smart agricultural systems: landscape approach for climate-smart agriculture; How can a landscape approach be implemented?, Examples of landscape approaches; Water management in agriculture, soils and their management for CSA; Sound Management of energy for CSA, Conservation and sustainable use of genetic resources for food and agriculture; Climate-smart crop production system; Climatesmart livestock; Climate smart forestry; Climate-smart fisheries and aquaculture; Developing sustainable and inclusive food value chains for Climate-smart agriculture; Key institutions for CSA initiatives; Mainstreaming CSA into national polices and programs; Financing climate –smart agriculture; Disaster risk reduction: Strengthening livelihood resilience; Making CSA work for the most vulnerable: the role of safety nets; Capacity development for climate-smart agriculture; Assessment, monitoring and evaluation for CSA.

Practical
Writing an assignment –Technologies and practices of CSA and their relevance under Sri Lankan conditions; understanding of CSA practices and their advantages and disadvantages. Interactive sessions and field visits: observations on improved technologies applied in resource poor and vulnerable farming sites. Team presentation: Impact of Climate change on food security and livelihood.

Assessment:

Continuous assessment: 30%
End semester assessment: 70%

Course Title	**Electrical Technology**			**Course Code**	**BST 22233**		
Year	**2**	**Semester**	**2**	**Credits**	**03**	**Theory (hr)**	**30**
						Practical (hr)	**30**
						Independent Learning (hr)	**30**

Aim of the Course:

To provide understanding on electrical systems and hands-on experience in using electrical measuring instruments and test equipment.

Intended Learning Outcomes:

After completion of this course, the learner should be able to:

- Use the electrical measuring instruments and test the equipment.
- Adopt the safety measures use in electrical operations.
- Interpret the electrical symbols, circuit diagrams and wiring diagrams.
- Explain the nature of domestic and industrial power supplies and electrical machines.
- Perform a circuit analysis and power calculation.

Course Capsule:

Theory
Conductors and insulators, Voltage and current sources, Series and parallel DC circuits, Basic circuit laws; Electric power and energy: units, power gain, dB; AC theory: Alternating currents and voltages, single phase AC circuits; Power in AC circuits, power factor, power calculations; Three phase systems, Transformers; DC and AC machines; Electrical safety regulations and practices; Electrical test equipment: Digital and Analog MM, Oscilloscope, Logic Probe; Circuit trouble shooting; Circuit diagrams and wiring diagrams; Electrical wiring and Installations

Practical
Analog and Digital electrical instruments and measurements; Investigation of magnetic fields (Induction coil and Hall probe magnetometers); Measurement of voltage, frequency and phase of AC waveforms; Power and energy measurements of DC circuits; AC power measurements (three voltmeter, two wattmeter, three phase wattmeter methods); Circuit troubleshooting; Single phase wiring (domestic); DC and AC motors

Assessment:

Continuous assessment: 30%
End semester assessment: 70%

Course Title	**Farm Mechanization**			**Course Code**	**BST 22242**		
Year	**2**	**Semester**	**2**	**Credits**	**02**	**Theory (hr)**	**15**
						Practical (hr)	**30**
						Independent Learning (hr)	

Aim of the Course:

To provide the knowledge and skills on selection, operation, maintenance and technical and economical evaluation of machinery used in agriculture

Intended Learning Outcomes:

After completion of this course, the learner should be able to:

- Define machine and tools.
- Distinguish between different power sources, i.e. mechanical, hydraulic and pneumatic.
- Explain the working principles of farm tractors and other commonly used agricultural machinery.
- Explain the steps/process of selection, operation and maintenance of agricultural machinery.
- Discuss the process of testing and evaluation of farm machinery.

Course Capsule:

Theory
Machine, implement, mechanism, mechanical power, hydraulic power and pneumatic power; Internal combustion engine, Engine terminology, Engine cycles; Basic engine components; Fuel system and air cleaners; Cooling and lubrication systems; Electrical and ignition system; Power transmission system, hydraulic system; Land preparation implements; Seed and plant establishment equipment; Water pumps; Inter cultivation, Sprayers and dusters, Harvesting machinery, Postharvest and processing machinery; Safe use of farm machinery and ergonomics

Practical
Identification of basic engine components; Identification of valve mechanism; Identification of external components of two wheel tractor; Identification of external components of four wheel tractor; Operation and maintenance of diesel fuel system; Operation and maintenance of petrol fuel system ; Operation and maintenance of cooling and lubrication system; Operation and maintenance of hydraulic system; Operation and maintenance of power transmission system; Operation and maintenance of electrical and ignition system; Handling of land preparation implements; Water pump calculations, selection, installation and operation of water pumps; Spray calibration; Operation, evaluation of harvesting machinery; Testing and evaluation of agricultural tractors (Performance test, endurance test, fuel consumption test, safety and ergonomics)

Assessment:

Continuous assessment: 50%
End semester assessment: 50%

Course Title	**Fundamentals of Management**			**Course Code**	**BST 22252**		
Year	**2**	**Semester**	**2**	**Credits**	**2**	**Theory (hr)**	**20**
						Practical (hr)	**20**
						Independent Learning (hr)	

Aim of the Course:

To provide knowledge and skills on basic concepts and functions of management and manager's operational role in all types of organizations

Intended Learning Outcomes:

After completion of this course, the learner should be able to:

- Explain the role of, and managerial skills required for, a manager working at a given management level.
- Explain the various concepts use in management theory and their applications in different business contexts.
- Demonstrate the skills in efficient and effective management decision making.
- Apply the concepts in human resource management to achieve the organizational goals.
- Apply the effective communication channels appropriately in various business contexts.

Course Capsule:

Theory
Introduction; Management and managers, Roles and levels of managers, Managerial skills; Evolution of management thoughts; Management concepts, Classical, Humanistic, Management science approaches, Strategic Management, Modern trends; Systems theory, Contingency view, Managing organizational environment; SWOT Analysis; Management functions; Planning, Vision and Mission, Goal setting; Strategic, Tactical and Operational goal setting and planning; Organizing; Span of control, Delegation of authority, Unity of command, Organizational structures; Leading: Leadership traits, Power and Influence, Sources of power, Leadership styles; Controlling; Controlling techniques, Feed forward, Concurrence, Feedback; Human Resources management; Motivation; Motivation concepts, Traditional motivation approaches, Motivation perspectives, Content theory, Process theory, Reinforcement theory; Team work and team management; Communication; Communication model, Managing organizational communication, Communication channels, Channel richness, Effective communication

Practical
Manager profile, skills and traits- Group work (real examples from the corporate sector); Tutorial on management schools and thoughts; SWOT analysis- Group work; Case study on communication individual; Debate on effective leadership styles

Assessment:

Continuous assessment: 30%
End semester assessment: 70%

Course Title	**Harvesting and Postharvest Handling of Crop Produce**			**Course Code**	**BST 22263**		
Year	**2**	**Semester**	**2**	**Credits**	**3**	**Theory (hr)**	**30**
						Practical (hr)	**30**
						Independent Learning (hr)	

Aim of the Course:

To provide knowledge and skills on post-harvest quality management practices to minimize losses in crop produce

Intended Learning Outcomes:

After completion of this course, the learner should be able to:

- Describe the principles and practices that are fundamental to postharvest quality management of horticultural and field crops
- Explain the biological factors and physiological processes that determine the quality of harvested crops, and the processes that contribute to product deterioration.
- Explain the strategies and technologies available to extend the shelf life and improve the postharvest quality.
- Provide appropriate solutions to the problems in handling and storage of crop produce.
- Judge the quality parameters of a crop produce and interpret the results.

Course Capsule:

Theory
Postharvest losses: Causes of postharvest losses of fresh produce, factors affecting quality of fresh harvested crop produce; Biological and physiological basis of postharvest handling; Maturity and maturity indices; Fruit ripening; Senescence processes; Postharvest technology procedures: Control of postharvest quality deterioration; Fundamentals of postharvest handling and storage of horticultural crops (fruits, vegetables, cut-flowers and foliage) and field crops; Pack house operations; Warehouse operations; Temperature management; Storage systems; Ethylene management; Recent trends in perishables handling

Practical
Classification of postharvest characteristics of crops; Identification of maturity and harvesting indices for crop produce; Non-destructive and Destructive methods of quality evaluation of fruits and vegetables; Storage environments and percentage weight loss of fresh produce; Artificial ripening of fruits; Postharvest quality evaluation of cut ornamentals; Identification of packaging materials and packaging technologies; Preparation of minimally processed products / fresh-cut produce; Identification of postharvest diseases and disorders of fruits and vegetables; Quality attributes of non-horticultural crop produce; Field visit: Fresh fruit and vegetable exporter

Assessment:

Continuous assessment: 40%
End semester assessment: 60%

Course Title	**Livestock Product ion and Processing**			**Course Code**	**BST 22273**		
Year	**2**	**Semester**	**2**	**Credits**	**03**	**Theory (hr)**	**30**
						Practical (hr)	**30**
						Independent Learning (hr)	

Aim of the Course:

To provide knowledge and skills on livestock production and livestock product processing

Intended Learning Outcomes:

After completion of this course, the learner should be able to:

- Explain the present status, constraints and potential of livestock production in Sri Lanka.
- Identify and describe different breeds and species of livestock used in meat and dairy production.
- Discuss the importance of housing for livestock, feeding, breeding management and other important management practices.
- Describe the quality parameters, preservation methods and microbiological aspects of different livestock products.
- Explain the nutritional composition of meat and dairy products.
- Discuss the importance of integration of livestock in farming systems.
- Practice the knowledge gained to prevent and control of livestock diseases.

Course Capsule:

Theory
Present status of livestock production in the world and Sri Lanka; Different breeds of domesticated livestock animals and characteristics; Raising of young stock, management of cattle, buffalo and small ruminants ; Introduction to swine management ; Principles of animal housing; Animal feeding and animal feed formulation with nutritive value; Introduction to animal breeding and breeding stock management; Prevention and control of livestock diseases; Introduction to integrated farming systems; Dairy and meat industry; Commercially important dairy product processing technology; Meat processing technology

Practical
Breed identification (Field visit); Identification and observation of digestive and reproductive systems; Identification of common forages, legumes and alternative nontraditional feedstuff used in ruminant feeding; Proximate analysis of feedstuffs (moisture, fat, fiber, protein, ash); Feed formulation and conservation methods; Handling and management tools; Routine management practices; Housing systems; Clean milk production, milking and determination of milk quality parameters; Identification of commercial dairy products (Field visit); Identification of commercial meat products (Field visit);Microbiological analysis of fresh produce and processed products

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Assessment:

Continuous assessment: 30%
End semester assessment: 70%

Course Title	**Web Technologies and Programming**			**Course Code**	**BST 22283**		
Year	**2**	**Semester**	**2**	**Credits**	**3**	**Theory (hr)**	**15**
						Practical (hr)	**60**
						Independent Learning (hr)	**10**

Aim of the Course:

To provide the knowledge and skills on web applications and use programming tools to solve problems

Intended Learning Outcomes:

After completion of this course, the learner should be able to:

- Explain the basic concepts of web deigns and usability guidelines.
- Create a simple web application.
- Evaluate the design of a web application using standard criteria.
- Use the basic algorithmic techniques to solve problems.
- Design and implement a computer based system.

Course Capsule:

Theory
Web design: Basic principles of web design & development; Introduction to HTML and CSS; Web usability guidelines; Web hosting and maintenance; Programming: Introduction to Programming Languages; Introduction to software development; types, Variables, Arrays; Control structures, Procedures, Classes, Repetition Structures, Functions & Modules; GUI programming, Development frameworks

Practical
Working with Hyper Text Markup Language (HTML); Familiarize Cascade Style Sheet (CSS); Use web authoring application to design and develop web applications; Practice Image & video optimization techniques for web; Familiarize Web Hosting environment- WAMP / XAMPP; Basics of a programming development environments; Working with variables and operations; Working with Control Structures; Working with Repetition Structures and Arrays; Working with Functions & Modules Develop front-end applications using GUI programming; Practice database connection with Programming

Assessment:

Continuous assessment: 40%
End semester assessment: 60%

<table>
<tr><td>Course Title</td><td colspan="3">Construction Documentation and Estimating</td><td>Course Code</td><td colspan="3">BST 31291</td></tr>
<tr><td rowspan="3">Year</td><td rowspan="3">3</td><td rowspan="3">Semester</td><td rowspan="3">1</td><td rowspan="3">Credits</td><td rowspan="3">01</td><td>Theory (hr)</td><td>15</td></tr>
<tr><td>Practical (hr)</td><td>00</td></tr>
<tr><td>Independent Learning (hr)</td><td></td></tr>
</table>

Aim of the Course:

To provide the knowledge and skills on construction documentation and estimating

Intended Learning Outcomes:

After completion of this course, the learner should be able to:

- Record the dimensions and descriptions of construction work methodically and process those into final quantities.
- Calculate all-in costs of materials, labor and plant, together with unit rates, for a given construction work.
- Derive the quantities and costs to determine the value of a given building project at different pre-contract development design stages.
- Prepare a BOQ with the estimates reflecting standard rates and minimum contingencies.

Course Capsule:

Theory
Types and interpretation of construction documents, plans, specifications and schedules of materials and considerations of document control; Introduction to construction estimating, including the types of estimates, their uses, quantity takeoffs, costs of work, overhead, submitting the bid, application of spreadsheets for basic estimating; Computer assisted estimation for Sri Lankan construction industry; Process of estimation: introduction to estimating process, types of estimates, preconstruction services, risk analysis and contingencies; Quantity surveys; basic concepts, site, concrete, masonry, steel: Estimating Software; Unit costs; materials, labor, equipment; overhead and mark up, market conditions, pricing database; Conceptual estimates, design development estimates, construction document estimates

Assessment:

Continuous assessment: 30%
End semester assessment: 70%

Course Title	**Food Quality Management**			**Course Code**	**BST 31302**		
Year	**3**	**Semester**	**1**	**Credits**	**02**	**Theory (hr)**	**20**
						Practical (hr)	**20**
						Independent Learning (hr)	

Aim of the Course:

To provide the background information related to food quality management

Intended Learning Outcomes:

After completion of this course, the learner should be able to:

- Identify the problems associated with substandard food quality.
- Discuss appropriate quality control measures and their applications.
- Assess the health and safety practices adopted by a food processer.
- Assess the potential risks to health and the environment in the food industry.
- Evaluate the appropriateness of a particular QMS to avoid/minimize risks.

Course Capsule:

Theory
Introduction quality management – control, assurance and systems; Health and safety issues- Food borne diseases, adulterants, contaminants and chemical residues; Identification of Critical Control Points; Food plant sanitation; Food hygiene, regulations and standards; Importance, use and application of GAP, HACCP, GMP, ISO, GHP, CORDEX ; Food risks identification assessment and control; Quality audit

Practical
Group assessment of use and application of a selected Food QMS; Visits to food processing plants with QMS

Assessment:

Continuous assessment: 40%
End semester assessment: 60%

Course Title	**Harvesting and Processing Technologies of Plantation Crop Products**			**Course Code**	**BST 31313**		
Year	**3**	**Semester**	**1**	**Credits**	**03**	**Theory (hr)**	**30**
						Practical (hr)	**30**
						Independent Learning (hr)	

Aim of the Course:

To provide the knowledge on harvesting, processing and product development technologies in major plantation and export agricultural crops

Intended Learning Outcomes:

After completion of this course, the learner should be able to:

- Describe harvesting techniques of tea, rubber, coconut, oil palm, cashew, sugarcane and other export agricultural crops.
- Identify problems related to current harvesting techniques.
- Develop innovative harvesting techniques.
- Identify different produce and products of tea, rubber, coconut, oil palm, cashew, sugarcane and other export agricultural crops.
- Explain the steps in processing of different produce and products from tea, rubber, coconut, oil palm, cashew, sugarcane and other export agricultural crops.

Course Capsule:

Theory
Harvesting techniques of tea, rubber, coconut oil palm, cashew, sugarcane and other export agricultural crops; Problems related to current harvesting techniques; Modern harvesting techniques to overcome current problems; Pure Orthodox tea, Orthodox-Rotor vane tea, CTC tea, Green tea, Oolong tea manufacturing; Product development in tea; Processing of natural rubber latex in to RSS, Crepe, Centrifuge Latex and TSR; Product development using different raw rubbers; Processing and manufacturing of coconut into desiccated coconut & copra; Product development in coconut; Processing and product development of export agricultural crops; Processing and product manufacturing of oil palm, cashew, sugarcane

Practical
Harvesting techniques of tea; Harvesting techniques of rubber; Harvesting techniques of coconut and oil palm; Harvesting techniques of cashew and sugarcane; Harvesting techniques of export agricultural crops; Processing and product development of tea; Processing and product development of rubber; Processing and product development of coconut and oil palm; Processing and product development of cashew and sugarcane; Processing and product development of export agricultural crops

Assessment:

Continuous assessment: 30%
End semester assessment: 70%

Course Title	**Industrial Microbiology**			**Course Code**	**BST 31322**		
Year	**3**	**Semester**	**1**	**Credits**	**02**	**Theory (hr)**	**15**
						Practical (hr)	**30**
						Independent Learning (hr)	

Aim of the Course:

To provide the knowledge and exposure on the applications of microorganisms in various industries

Intended Learning Outcomes:

After completion of this course, the learner should be able to:

- Explain the growth and metabolism of microorganisms: fermentation process.
- Describe the main types and designs of fermenters.
- Describe the general methods for monitoring and controlling of the fermentation process.
- Describe different industrial microbiological products and processes (i.e. fermented food and beverages, pharmaceuticals, industrial chemicals, biofuels, bio-fertilizers, and bio-treatment of contaminated environments).
- Explain the process of production of a given fermented product in the respective industry.

Course Capsule:

Theory
Introduction to industrial microbiology: history and overview; Growth and metabolism of industrial microbes: fermentation; Industrial fermenters: main types, designing, monitoring and controlling; Fermented food: dairy products, vinegar and other fermented food; Fermented beverages: brewery, wine and other fermented beverages; Food additives, pharmaceuticals, enzymes, organic acids and antibiotics; Bio fuels, bio fertilizers, bio pesticides, biopolymers; Waste water bio treatment

Practical
Production and operation activities of a fermented dairy product plant – (industrial visits); Brewery – (industrial visits); Waste water bio treatment plant – (Field visit); Designing, monitoring and controlling of industrial fermenters –Tutorial; Guest lecture/ Industry talk

Assessment:

Continuous assessment: 40%
End semester assessment: 60%

<table>
<tr><td>Course Title</td><td colspan="3">Information Systems</td><td>Course Code</td><td colspan="3">BST 31332</td></tr>
<tr><td rowspan="3">Year</td><td rowspan="3">3</td><td rowspan="3">Semester</td><td rowspan="3">1</td><td rowspan="3">Credits</td><td rowspan="3">02</td><td>Theory (hr)</td><td>20</td></tr>
<tr><td>Practical (hr)</td><td>20</td></tr>
<tr><td>Independent Learning (hr)</td><td></td></tr>
</table>

Aim of the Course:

To provide the knowledge and skills on database management and use information systems for business

Intended Learning Outcomes:

After completion of this course, the learner should be able to:

- Identify the components of a system comprised of people, procedures, hardware, software, and data
- Describe the individual and enterprise information systems.
- Design and develop a database for a small scale information system.
- Assess an ERP system using the standard professional and Ethical practices.

Course Capsule:

Theory
Introduction to information systems; Main components of information systems; Types of information systems; Design a database for information system; Enterprise Resource Planning systems; Professional and ethical practices

Practical
Development of databases for information systems: Identification of data types; Designing tables and making relationships; Creating forms and reports; Retrieving required information from developed databases; Discuss different information systems using developed systems (Video);Case studies related to information systems

Assessment:

Continuous assessment:	30%
End semester assessment:	70%

Course Title	**Power and Energy Management**			**Course Code**	**BST 31342**		
Year	**3**	**Semester**	**1**	**Credits**	**02**	**Theory (hr)**	**15**
						Practical (hr)	**30**
						Independent Learning (hr)	

Aim of the Course:

To provide the knowledge and skills on management of power and energy and explore the potential of renewable energy sources

Intended Learning Outcomes:

After completion of this course, the learner should be able to:

- Identify the thermal and renewable energy sources.
- Explain the principles of basic energy.
- Describe the potential thermal and renewable energy sources and management of which in terms of technical, social and economic feasibility.

Course Capsule:

Theory
Introduction to basic energy principles; Thermal energy resources and their uses; Introduction to renewable energy sources; Introduction to solar energy, conversion of solar energy into electricity: photovoltaic cells, solar power plants; Wind energy conversion systems; Hydro-power systems: components of a hydro-electric plant, working principle of a hydro power plant; Types of hydropower plants, benefits and obstacles of hydro-power; Introduction to bio gasification; Bio gasification systems

Practical
Basic components of an energy unit; light meter, thermometer, volt meter, watt meter; Air flow measurement devices; Steam conversion calculations; Energy auditing; Design of non-concentrate solar heater; Design of concentrate solar heater; Design of a bio gasifiers; Field visit to a electricity generating wind turbine plant; Field visit to a solar power plant; Field visit to adendro-thermal power plant

Assessment:

Continuous assessment: 50%
End semester assessment: 50%

Course Title	**Value Addition and Product Development**			**Course Code**	**BST 31352**		
Year	**3**	**Semester**	**1**	**Credits**	**02**	**Theory (hr)**	**15**
						Practical (hr)	**30**
						Independent Learning (hr)	

Aim of the Course:

To provide the knowledge and skills on value addition and product development of agricultural products

Intended Learning Outcomes:

After completion of this course, the learner should be able to:

- Explain the concepts of value addition, product development and product diversification.
- Explain the concepts of value addition, product development product diversification.
- Identify the value added products available in the market with commercial value.
- Explain the process of value addition of a selected product.
- Develop a value added product innovatively.

Course Capsule:

Theory
Introduction to value addition, product development and product diversification; Importance of value addition, Product development and product diversification; Concepts of value addition, Product development and product diversification on cleaning, separation, sorting, grading, packaging, dehydration/drying, addition, preservation, fermentation, formulation, extraction, concentration, sterilization/ pasteurization; Procedure of product development value added products (plants, animals, fish, aquaculture); Cold press and high pressure processing

Practical
Jam, Cordial, RTS, Nectar, Fruit leather, Fruit candy; Dehydration of fruit and vegetables; Pickling, Fermented products; Soy product, Cereal product; Value added tea products and value added coconut products, Milk products

Assessment:

Continuous assessment:	30%
End semester assessment:	70%

Course Title	**Waste Management**			**Course Code**	**BST 31362**		
Year	**3**	**Semester**	**1**	**Credits**	**02**	**Theory (hr)**	**20**
						Practical (hr)	**20**
						Independent Learning (hr)	

Aim of the Course:

To provide the knowledge and skills required to foster implementation of an integrated waste management system with special reference to the reduction of waste at the source

Intended Learning Outcomes:

After completion of this course, the learner should be able to:

- Classification of waste in terms of their collection, storage and transportation.
- Explain the design, operation and maintenance of waste disposal techniques.

Course Capsule:

Theory
Classification of waste; Waste generation aspects; Waste characteristics; Waste collection, storage and transport; Waste disposal; Sanitary land fill; Waste processing techniques; Source reduction; Product recovery and recycling; Biological conversion of products; Compost and biogas; Incineration and energy recovery; Hazardous waste management; Integrated waste management; Public and health issues; Policy and legislations; Waste water characteristics, components and effluent quality parameters; Waste water treatment processers; anaerobic and aerobic

Practical
Testing BOD of waste water; Testing COD and DO in the waste water; Testing physical parameters of waste water; TSS, Turbidity; Coli-form test; Design of an aerobic digester; Design of a bio gas unit; Case study- industrial visit to a dairy, DC, textile or rubber factory to observe waste treatment process

Assessment:

Continuous assessment: 50%
End semester assessment: 50%

<table>
<tr><td>Course Title</td><td colspan="3">Water Resource Management</td><td>Course Code</td><td colspan="3">BST 31372</td></tr>
<tr><td rowspan="3">Year</td><td rowspan="3">3</td><td rowspan="3">Semester</td><td rowspan="3">1</td><td rowspan="3">Credits</td><td rowspan="3">02</td><td>Theory (hr)</td><td>15</td></tr>
<tr><td>Practical (hr)</td><td>30</td></tr>
<tr><td>Independent Learning (hr)</td><td></td></tr>
</table>

Aim of the Course:

To provide the knowledge and skills required to make an accurate assessment on the existing and potential impacts of abstraction, agriculture and industrial practices on water environment

Intended Learning Outcomes:

After completion of this course, the learner should be able to:

- Explain the concept of integrated water resource management.
- Explain the characteristics of various management tools, uses of water, water demand and supply issues.
- Use a technological approach to address water resource management problems methodically.
- Explain and use the systems approach for water resources management.

Course Capsule:

Theory
Introduction to water resource management; Surface water resources; Ground water resources; Water resource assessment and inventory; Water resource management principles; Water supply, Water demand; Management of water resource for sustainable development; Tools for water resource management; Regulatory environment for water management; Economic analysis; Climate change and water resource management, Extremes (floods and droughts)

Practical
Water quality management – parameters, measurements and monitoring; Advanced GIS for water resources management; Use of computer-based tools in solving water resource management problems; Tutorials and development of a case to identify the basic components to characterize the quantitative and qualitative nature of a water resources system and to analyze the hydrology of a water resources systems; Field visit to understand integrated water resource management concept in practice; Formulation of problem statement, collect and analyze data from field measurements and interviews; Develop a problem analysis

Assessment:

Continuous assessment: 50%
End semester assessment: 50%

<table>
<tr><td>Course Title</td><td colspan="3">Aquaculture and Fisheries Production and Processing</td><td>Course Code</td><td colspan="3">BST 32383</td></tr>
<tr><td rowspan="3">Year</td><td rowspan="3">3</td><td rowspan="3">Semester</td><td rowspan="3">2</td><td rowspan="3">Credits</td><td rowspan="3">03</td><td>Theory (hr)</td><td>30</td></tr>
<tr><td>Practical (hr)</td><td>30</td></tr>
<tr><td>Independent Learning (hr)</td><td></td></tr>
</table>

Aim of the Course:

To provide the basic information required for sustainable utilization of fishery resources and aquaculture products

Intended Learning Outcomes:

After completion of this course, the learner should be able to:

- State the present status, constraints and future potentials of fisheries and aquaculture sectors in Sri Lanka.
- Describe the nutritional requirements, energy metabolism and different feed and feed formulation.
- Describe various techniques in practice related to feeding, breeding, raring, and harvesting of selected aquaculture organisms.
- Practice selected fishery product processing and post-harvest technologies.
- Explain the policy and regulatory environment governing fishery and aquaculture.

Course Capsule:

Theory
Introduction to fisheries production; Nutritional requirement and metabolism of fish; Fish feeds, formulation and digestibility estimation; Introduction to live food organisms in aquaculture; Aquatic plants; Production of live feeds; Introduction to fish breeding; Techniques used in fish breeding; Breeding of different fish breeds; Establishment and management of fish breeding station; Marine and inland fisheries production; Introduction to shrimp and prawn culture; Introduction to ornamental fish production; Diseases in aquaculture; Introduction to aquaculture based farming systems; Introduction to fish legislation; Fish processing techniques and product development

Practical
Anatomy and physiology and identification of fish; Determination of water quality parameters; Fish feed and formulation; Identification of fish live feed, propagation and management of aquatic plants; Breeding of fish species and maintenance of ornamental fish tanks – Field visit; Biuret method for determination of protein content of various extracts; Determination of salt content in fish using Volhard method; Determination of rancidity in fish (Peroxide value and TBARS); Fishing gears and crafts – (Field visit); Fish processing and value addition

Assessment:

Continuous assessment: 30%
End semester assessment: 70%

Course Title	**Engineering Drawing and Design**			**Course Code**	**BST 32392**		
Year	**3**	**Semester**	**2**	**Credits**	**02**	**Theory (hr)**	**15**
						Practical (hr)	**30**
						Independent Learning (hr)	

Aim of the Course:

To provide the knowledge and skills required to construct and interpret a standard engineering drawing of a given object

Intended Learning Outcomes:

After completion of this course, the learner should be able to:

- Explain the meaning of sections and cutting plane lines.
- Draw the sectional views.
- Define size and shape accurately on an engineering drawing using the conventional dimensioning techniques.
- Produce a CAD drawing using the basic drawing commands.

Course Capsule:

Theory
Importance of engineering drawing as graphic communication, Link between engineering drawing and other subjects of study; Lettering, Numbering and Dimensioning**:** Necessity of dimensioning, Principles and method of dimensioning and dimensioning practice as per I.S.I. code; Conic section: Concept of drawing and conic section; Orthographic projections**:** Concept of horizontal, vertical and auxiliary planes, 1stangle and 3rdangle projection; Section views and Auxiliary views: Concept of sectioning and drawing section lines, Need for drawing sectional views; Isometric, Pictorial and Oblique drawing: Pictorial drawing. Different types of pictorial drawing viz. Isometric, oblique and perspective and their applications; Isometric views. Isomeric projection and Isometric scale; Development of surfaces; Introduction to AUTOCAD and drawing

Practical
Use of drawing instruments and materials; Basic tools and selection of scales; Centre line, Section line, Dimensioning lines etc., Drawing of plain and diagonal scales and dimensioning practice; ellipse, parabola and hyperbola and drawing of tangent and normal; Projection of points / lines on horizontal, vertical and auxiliary planes and its implication; Section of simple geometrical solids-cases involving different types of cutting planes. Conventional representation of materials as per I.S. Code; Isometric projection of simple solids, frustum of solids, truncated solids and sets of simple solids, Simple drawing of oblique views; Development of surfaces of cylinders, prisms, pyramids, cones and their frustum and truncated objects; AUTOCAD and drawing

Assessment:

Continuous assessment: 60%
End semester assessment: 40%

<table>
<tr><td>Course Title</td><td colspan="3">Production and Operations Management</td><td>Course Code</td><td colspan="3">BST 32402</td></tr>
<tr><td rowspan="3">Year</td><td rowspan="3">3</td><td rowspan="3">Semester</td><td rowspan="3">2</td><td rowspan="3">Credits</td><td rowspan="3">02</td><td>Theory (hr)</td><td>20</td></tr>
<tr><td>Practical (hr)</td><td>20</td></tr>
<tr><td>Independent Learning (hr)</td><td></td></tr>
</table>

Aim of the Course:

To provide the knowledge and skills required in management of production and operations in manufacturing and services sectors

Intended Learning Outcomes:

After completion of this course, the learner should be able to:

- Explain the key concepts and issues of operation management in relation to manufacturing and service organizations.
- Explain the strategic role of operation management in developing a firm's competitive advantage.
- Apply an appropriate technique/s in operation management to resolve a specific problem.

Course Capsule:

Theory
Introduction to operations management; product design, service design and form teams; Process analysis / manufacturing process analysis; Job design and measurement; Quality management; Statistical process control (SPC); Capacity planning, Aggregate planning and Resource planning; Lean production; Inventory management; Waiting line analysis; Supply chain strategy, Material requirement planning

Practical
A case study/ Project (individual or group basis); Methods and philosophy of statistical process control (SPC); Applications of SPC; Quality tools; DMAIC process; Application of control charts; Reporting

Assessment:

Continuous assessment: 30%
End semester assessment: 70%

Course Title	**Environmental GIS**			**Course Code**	**BST 32413**		
Year	**3**	**Semester**	**2**	**Credits**	**03**	**Theory (hr)**	**30**
						Practical (hr)	**30**
						Independent Learning (hr)	

Aim of the Course:

To provide the basic knowledge of 'Geographic Information Systems' (GIS), 'Geographic Positioning Systems' (GPS), 'Remote Sensing' and applications of Geospatial modeling

Intended Learning Outcomes:

After completion of this course, the learner should be able to:

- Define the basic components of GISc.
- Describe the fundamentals and components of GIS and GPS.
- Identify the emerging area sin global navigation systems.
- Describe the fundamentals and components of Remote Sensing.
- Describe the fundamentals of spatial statistics.
- Describe the digital terrain modeling.

Course Capsule:

Theory
Definition, history, practical benefits, components of GIS, GPS and RS; Data models in GIS, Spatial database management systems, Components of GPS; Coordinate systems and map projections; Differential and real time kinematic GPS, Other global navigation systems; Types of resolutions in Satellite Remote Sensing; Satellite image pre-processing and interpretation; Image classification: Part 1 - Pixel based and Image classification: Part 2 - Post classification correction and accuracy assessment; Object based image classification and other emerging areas; Satellite remote sensing indexes and their applications; Geospatial modeling: Introduction to spatial statistics, digital terrain modeling; Applications of geospatial modeling: getting geospatial data from different sources, standardization and data interoperability, Steps towards GIS project and project evaluation; Digital soil mapping, Land use planning, watershed management, plantation management, suitability mapping, land use / land cover modeling

Practical
Components of GIS; Data models in GIS, Spatial database management systems; Fundamentals and components of GPS; Coordinate systems and map projections; Differential and real time kinematic GPS, Types of resolutions in Satellite Remote Sensing, Introduction of satellite remote sensing indexes and their applications in agriculture and environment; Introduction to spatial statistics and digital terrain modeling; Case studies: Digital soil mapping, Land use planning, watershed management, plantation management, suitability mapping, land use / land cover modeling

Assessment:

Continuous assessment: 30%
End semester assessment: 70%

Course Title	**Landscaping Technology**			**Course Code**	**BST 32422**		
Year	**3**	**Semester**	**2**	**Credits**	**02**	**Theory (hr)**	**15**
						Practical (hr)	**30**
						Independent Learning (hr)	

Aim of the Course:

To provide the knowledge and skills on principles and practices of landscape design

Intended Learning Outcomes:

After completion of this course, the learner should be able to:

- Explain the different soft and hard landscape materials and their use in landscape designing.
- Selecta suitable machinery, tools and equipment required for landscape maintenance.
- Explain the important practices in sport turf management.
- Develop an appropriate landscape design for a given area.

Course Capsule:

Theory
Introduction; Basic design styles; Soft landscape technology; Sport turf management; Hard landscape technology; Elements and principles of landscape designs; Process of a design; Preparation of BOQ's; Machinery tools and equipment in landscape maintenance; Computer aided designing techniques

Practical
Soft landscape materials (ground covers, herbs, climbers, shrubs, trees and lawn grasses); Hard landscape materials; Computer aided designing; Presentation of the designs; Field visit (Turf management and machinery)

Assessment:

Continuous assessment: 30%
End semester assessment: 70%

Course Title	**Project Management and Evaluation**			**Course Code**	**BST 32432**		
Year	**3**	**Semester**	**2**	**Credits**	**02**	**Theory (hr)**	**15**
						Practical (hr)	**30**
						Independent Learning (hr)	

Aim of the Course:

To provide the knowledge and skills required to identify, select, analyze, monitor and evaluate a project

Intended Learning Outcomes:

After completion of this course, the learner should be able to:

- Apply the principles of project management to design and implement a project, in general, and a bio-system based technology-oriented project, in particular.
- Evaluate *an-ante* and *ex-post*, a bio-system based technology-oriented project using the appropriate methods and techniques for its success and failure.
- Prepare a detailed Project Report for a potential client on a specific biosystem based technology-oriented project.

Course Capsule:

Theory
Project: Definition and Life Cycle; Aspects of Project Preparation and Analysis; Core Project Management Processes – Scope, Schedule, Budget and Quality; Supplementary Project Management Processes – Team, Stakeholder, Information, Risk and Contract; Project Costs and Benefits; Incremental Net Benefit; Measures of Project Worth: Selection & Assessment Criteria; Discounted Measures; Present and Future Value of Money; Net Present Value and Benefit Cost Ratio; Internal Rate of Return; Sensitivity Analysis; Cost Effectiveness Analysis; Recent Trends in Project Management and Evaluation

Practical
Project Definition and Life Cycle – Conceptualization Group Work; Project Management Processes – Mind Mapping and Poster Preparation; Measures of Project Worth: Selection Criteria and Assessment Criteria (Undiscounted and Discounted Measures) – Tutorials and Development of the Case; Measures of Project Worth: Assessment Criteria – IRR, Sensitivity Analysis – Tutorials and Development of the Case; Environmental and Social Impact Assessments; Compilation of Course Portfolio

Assessment:

Continuous assessment: 30%
End semester assessment: 70%

<table>
<tr><td>Course Title</td><td colspan="3">Research Methodology</td><td>Course Code</td><td colspan="3">BST 32442</td></tr>
<tr><td rowspan="3">Year</td><td rowspan="3">3</td><td rowspan="3">Semester</td><td rowspan="3">2</td><td rowspan="3">Credits</td><td rowspan="3">02</td><td>Theory (hr)</td><td>15</td></tr>
<tr><td>Practical (hr)</td><td>30</td></tr>
<tr><td>Independent Learning (hr)</td><td>05</td></tr>
</table>

Aim of the Course:

To provide the basic knowledge on research methodology and skills on formulating a standard research proposal to carry out a scientific research

Intended Learning Outcomes:

After completion of this course, the learner should be able to:

- Identify the basic principles of scientific research and the fundamental concepts of scientific research and the research ethics.
- Identify research problems, both basic and applied.
- Formulate a comprehensive project proposal with all required components to address a problem relevant to the disciplines.
- Produce a written research proposal/report/paper and effectively communicate the outcome of it to the relevant stakeholders.

Course Capsule:

Theory
Introduction to research: definitions, key concepts and characteristics of basic and applied research; Planning a research project: process and control; Problem identification and formulation of research questions and objectives; Review of literature; Research methods for collecting and analyzing data qualitatively and quantitatively; Components of a standard research proposal; Research culture and ethical considerations; Research communication: methods and avenues, scientific writing, preparing research publications, structure of a scientific paper; Publications and patents.

Practical
Word usage in scientific writing based on standard research papers; Research proposal formulation – Use of standard research proposal related to bio-system technology/engineering; Research Proposal: Formulating time frame and budget; Technology-based research papers: environment sector; paddy and vegetable sectors; plantation sector; bio-systems; Publishing and Reviewing: What makes a good paper; Publishing and Reviewing: Where to publish; Publishing and Reviewing: The peer review process; Patent Application: The criteria for patentability; Patent Application: The requirements for a patent application

Assessment:

Continuous assessment: 50%
End semester assessment: 50%

Course Title	**Statistical Methodology (Quantitative Techniques)**			**Course Code**	**BST 32452**		
Year	**3**	**Semester**	**2**	**Credits**	**02**	**Theory (hr)**	**20**
						Practical (hr)	**20**
						Independent Learning (hr)	**20**

Aim of the Course:

To provide the knowledge and skills on designing of an experiment/survey and analyze the data gathered using the standard statistical software packages

Intended Learning Outcomes:

After completion of this course, the learner should be able to:

- Design an experiment and/or survey methodically.
- Identify the most appreciate method/s available to collect and process different types of data.
- Analyze the data to get meaningful statistical outputs.
- Summarize and interpret the outputs from statistical analysis.

Course Capsule:

Theory
Basic concepts: definitions, treatment, factors, plots, blocks, precision, efficiency, replication, randomization; Complete Block Designs: Complete Randomized Design (CRD), Randomized Complete Block Design (RCBD), Latin Square Design (LSD); Factorial Designs; Response surface design; Designing of a survey; Probability and non-probability sampling techniques, sample size calculation questionnaire construction

Practical
Analysis of Complete Randomized Design (CRD), Randomized Complete Block Design (RCBD), Latin Square Design (LSD) using statistical packages; Analysis of Factorial Designs; Analysis Response surface design; Designing of a survey, questioner construction and data collection for a Case Study

Assessment:

Continuous assessment: 30%

End semester assessment: 70%

Course Title	**Business Communication Skills**			**Course Code**	**BST 41462**		
Year	**4**	**Semester**	**1**	**Credits**	**02**	**Theory (hr)**	**20**
						Practical (hr)	**20**
						Independent Learning (hr)	**10**

Aim of the Course:

To provide the knowledge and skills to engage in day-to-day business communication activities logically and effectively

Intended Learning Outcomes:

After completion of this course, the learner should be able to:

- Write a business letter, memo and an e-mail with an appropriate structure and content.
- Engage in small talk and telephone conversations effectively and confidently.
- Present the business ideas and productions in a formal set up.
- Derive a logical conclusion to a problem in hand, i.e. real or simulated.

Produce a standard e-Portfolio on a given aspect.

Course Capsule:

Theory
Structure and mechanics of formal writing; Organizing contents, thoughts and ideas in write-ups; Styles of business presentations; Format and styles of business letters; Deriving logical conclusions through interpreting and applying results; Empathy, emotional quotient, personality types; Strategies of problem solving; Business cultures; E-portfolios and related skills

Practical
Effective writing skills - Workshop; Effective presentations - Workshop; Business letter writing; Formulation of a CV and covering letter; Reading project on effective communication; Public speaking; e-Portfolio development

Assessment:

Continuous assessment: 30%
End semester assessment: 70%

<table>
<tr><td>Course Title</td><td colspan="3">Legal and Ethical Environment for Business Development</td><td>Course Code</td><td colspan="3">BST 41471</td></tr>
<tr><td rowspan="3">Year</td><td rowspan="3">4</td><td rowspan="3">Semester</td><td rowspan="3">1</td><td rowspan="3">Credits</td><td rowspan="3">01</td><td>Theory (hr)</td><td>15</td></tr>
<tr><td>Practical (hr)</td><td>00</td></tr>
<tr><td>Independent Learning (hr)</td><td></td></tr>
</table>

Aim of the Course:

To provide the knowledge required to understand the legal processes and business ethics involved with business environment in Sri Lanka

Intended Learning Outcomes:

After completion of this course, the learner should be able to:

- Identify the key legal and ethical issues that are important in making a business decision.
- Analyze a problem in business from the legal and ethical point of view.
- Evaluate the expert advice so that such can be incorporated into a business decision.
- Identify and suggest solutions to legal and ethical issues related to business.

Course Capsule:

Theory
Introduction: Nature and Sources of Law, Court System; Functions, Jurisdiction; Dispute Resolution: Labour law, Labour tribunals, Litigation, ADR (based on real cases) ; Torts: Negligence, Intentional Wrongdoing; Law Relating to different business forms: Sole Traders, Clubs, Unincorporated Associations and Societies, partnerships, companies; Business Ethics: Morality, Decision Making, Corporate Culture; Intellectual Property: Trade Secrets, Patents, Copyrights, Trademarks; Contracts: Nature, Formation, Enforcement, Law of Agency; Termination, Compensation; Agency law: Creation of agency, Power, Termination of agency; Sale of goods: Implied conditions, performance of the contract, unpaid seller, remedies for buyer

Assessment:

Continuous assessment: 30%
End semester assessment: 70%

Course Title	**Entrepreneurship and Venture Creation**			**Course Code**	**BST 41482**		
Year	**4**	**Semester**	**1**	**Credits**	**02**	**Theory (hr)**	**15**
						Practical (hr)	**30**
						Independent Learning (hr)	

Aim of the Course:

To provide the background knowledge on concepts of entrepreneurship to facilitate creating and managing a new venture

Intended Learning Outcomes:

After completion of this course, the learner should be able to:

- Explain the key terms and concepts associated with entrepreneurship.
- Recognize the opportunities to start up a business.
- Transform creative ideas into commercial opportunities.
- Develop a business plan for a "business start-up".
- Interpret the stages of a new venture creation process.

Course Capsule:

Theory
Introduction: Definitions, entrepreneurship and economic development, evolution of Entrepreneurship; Entrepreneurial Mindset: Entrepreneurial individual, Entrepreneurial traits and characteristics, Classification of entrepreneurs, Myths, Tools for entrepreneurs, Entrepreneurship and innovation; Opportunity and opportunity recognition process; Environment analysis, Sustainable competitive advantage, Five forces model; Innovation management; Innovation, Types of innovations, Sources of innovations, Creativity, Developing creativity; Feasibility analysis; Business concept, Market analysis, Product/Service development plan, Financial analysis; Venture planning; Marketing plan, Organizational plan, Finance plan, Risks; Formation of business: Forms of businesses, Process of business registration, Legal environment; Corporate Entrepreneurship: Importance, policies and priorities in corporate entrepreneurship

Practical
Visiting entrepreneurships: Single proprietorships, partnerships, companies: Developing entrepreneurship profiles; Project (going-on): Developing creative ideas, converting the ideas to commercial opportunities, Market research, Innovation and identifying business opportunities, Developing business plans, Feasibility studies; Directing to establish business start-ups

Assessment:

Continuous assessment: 30%
End semester assessment: 70%

<table>
<tr><td>Course Title</td><td colspan="3">Recent Advances in Biosystems Technology</td><td>Course Code</td><td colspan="3">BST 41491</td></tr>
<tr><td rowspan="3">Year</td><td rowspan="3">4</td><td rowspan="3">Semester</td><td rowspan="3">1</td><td rowspan="3">Credits</td><td rowspan="3">01</td><td>Theory (hr)</td><td>15</td></tr>
<tr><td>Practical (hr)</td><td>00</td></tr>
<tr><td>Independent Learning (hr)</td><td></td></tr>
</table>

Aim of the Course:

To make aware of the recent applications and emerging trends, from both local and global perspective, in the management of, and the technologies in use in, various biosystems to enhance their productivity and sustainability.

Intended Learning Outcomes:

After completion of this course, the learner should be able to:

- Explain the latest developments in relation to management of various biosystems local and global perspective.
- Discuss the applicability of certain advance technologies in use globally to solve the problems associated with biosystems in Sri Lanka.

Course Capsule:

Theory
Current understanding in key areas in Biosystems technology, how conceptual and technical advances provide new insights in Biosystems technology; New approaches for answering the problems in different biosystems; Novel technologies and issues in biosystems, environment, health and society; Bio-safety regulations and procedures; New trends in red, white and green biotechnologies, Quality management systems, Patents and Intellectual Property Rights (IPR)

Assessment:

Continuous assessment: 30%
End semester assessment: 70%

<table>
<tr><td>Course Title</td><td colspan="3">Research Project</td><td>Course Code</td><td colspan="3">BST 41508</td></tr>
<tr><td rowspan="3">Year</td><td rowspan="3">4</td><td rowspan="3">Semester</td><td rowspan="3">1</td><td rowspan="3">Credits</td><td rowspan="3">08</td><td>Theory (hr)</td><td>-</td></tr>
<tr><td>Practical (hr)</td><td>-</td></tr>
<tr><td>Independent Learning (hr)</td><td>-</td></tr>
</table>

Aim of the Course:

To carry out an independent research following the scientific research methods under the supervision of a senior academic to investigate a particular problem related to biosystems technology

Intended Learning Outcomes:

After completion of this course, the learner should be able to:

- Review the literature related to a given research topic/area systematically.
- Use appropriate scientific research methodologies to conduct an applied research in biosystems technology.
- Develop a Scientific Paper containing all necessary components.
- Communicate the findings of a research to a scientific community/and general public.

Course Capsule:

Each student is expected to carry out an independent research under the supervision of a supervisor assigned for this purpose. The research shall be completed by 15 weeks period based on a pre-approved research proposal. The outcome of research must be set to a Scientific Paper with specific format, and then, defended successfully.

Assessment:

Conduct and performance:	40%
Research paper	30%
Paper presentation:	30%

Course Title	**Technology and Innovation Transfer**			**Course Code**	**BST41512**		
Year	**4**	**Semester**	**1**	**Credits**	**02**	**Theory (hr)**	**20**
						Practical (hr)	**20**
						Independent Learning (hr)	

Aim of the Course:

To provide the basic knowledge with respect to the process of technology transfer with special reference to the innovations in technology

Intended Learning Outcomes:

After completion of this course, the learner should be able to:

- Explain the basic concepts and models of technology transfer and diffusion of innovations.
- Identify the specific roles and responsibilities of technology stewards and extension workers in the process of technology transfer.
- Illustrates the implementation of technology transfer land rapid prototyping.

Course Capsule:

Theory
Introduction to technology transfer/knowledge mobilization; Technology dissemination; Sustainable technology ;Diffusion of innovations, changes and challenges in technology transfer; Technology transfer models: Extension models, community of practice approach, rapid prototyping techniques, participatory rural appraisal, technology stewardship concept, inclusive innovations; ICT enable knowledge mobilization tools: Texting with *Frontlinesms*, Cloud-based crowd mapping with *Ushahidhi*, Interactive Voice Recognition (IVR) with *Freedomfone*; Technology transfer planning, implementation of rapid prototyping and campaign, monitoring and evaluation of technology transfer plan.

Practical
Research- extension dialogue; Stakeholder – extension dialogue; Practice approach on participatory rural appraisal; ICT enable knowledge mobilizing tools

Assessment:

Continuous assessment: 30%
End semester assessment: 70%

<table>
<tr><td>Course Title</td><td colspan="3">In-plant Training</td><td>Course Code</td><td colspan="3">BST 42526</td></tr>
<tr><td rowspan="3">Year</td><td rowspan="3">4</td><td rowspan="3">Semester</td><td rowspan="3">2</td><td rowspan="3">Credits</td><td rowspan="3">06</td><td>Theory (hr)</td><td>-</td></tr>
<tr><td>Practical (hr)</td><td>-</td></tr>
<tr><td>Independent Learning (hr)</td><td>-</td></tr>
</table>

Aim of the Course:

To provide an opportunity to integrate all the learning in a real life environment and to experience and understand the real world of work environment in order to make the student a "ready to work" graduate

Intended Learning Outcomes:

On the successful completion of the course, the learner should be able to:

- Explain the administrative and technical processes as applicable to a specific industry /organization.
- Critically report the strengths and weaknesses, and room for development, of the administrative and technical process of a given industrial/services sector.
- Comment on the essentials of operations, the way of running a business, use of tools, techniques and equipment, and protocols of health, safety and environment.

The duration of the in-plant training is six months. The students will be attached to an industrial training on full time basis in the 2nd Semester of the 4th Year. During this time, students will be undergoing training in the industry or commercial organization relevant to their areas of interest for future employment. This training will enable the students to gain knowledge and hands on experience, develop skills, and to build up confidence to handle, maintain, and manage operational systems in the selected professional area.

Assessment:

In-plant Diary:	40%
Presentation:	30%
In-Plant Report:	30%

Resources

Human Resources

At present the Faculty has 44 academic staff members, an Assistant Registrar and 48 non-academic staff members. With promotion of several senior staff members of the Faculty to the Professor level, currently Faculty has 9 full Professors and one Associated Professor. Out of 44 academic staff members 27 members have Ph.D.s and 8 members have M.Sc. or M.Phil. qualifications. Currently, 8 junior staff members are reading their Ph.D.s in foreign universities. Almost all staff members have undergone training on staff development conducted by either the Staff Development Centre (SDC) of Wayamba University of Sri Lanka or in another University. Due to the strength of academic staff members of the Faculty, except for a very few specialized areas, almost all the academic programmes are delivered by internal academic staff.

Some academic staff members of the Faculty are holding key positions at University level units and centers such as Director SDC, Director Career Guidance Unit (CGU), and Director ICT Unit Makandura etc. In addition each Department has student societies under the patronage of senior academic staff members which facilitate students' active participation in a variety of co-curricular and social activities such as organizing religious & cultural events, guest speeches, seminars, workshops and competitions among school children.

Physical Resources

Laboratories

The laboratories of the Departments of Biosystems Engineering, Horticulture, Biotechnology and Plantation Management cater to all the practical oriented courses in the faculty.

The centre for Agribusiness studies has been upgraded with modern facilities to conduct the specialization courses offered by the Department of Agribusiness Management.

Experimental Fields, Net Houses, Planthouse and Rain Shelter

Two hectares of cropping land is available for the purpose of field practical and research activities. Tea and rubber experimental plots, three net houses, a planthouse and a rain shelter are also available for use by the students and staff.

Faculty Computer Laboratory

Faculty has established a computer laboratory to conduct regular practical classes for specialized students. The software related to specialized courses were purchased and installed in the faculty computer laboratory.

Internal Quality Assurance Unit (IQAU)

The Quality Assurance and Accreditation Council (QAAC) of the University Grants Commission is the governing body for maintaining and enhancing academic standards in the Universities of Sri Lanka. WUSL has established an Internal Quality Assurance Unit (IQAU) to co-ordinate quality assurance activities within the university. All faculties have a Faculty Quality Assurance Cell (FQAC), which coordinates quality assurance activities for improvement in the overall performance of the faculty in liaison with the IQAU. FQAC of the Faculty of Agriculture and Plantation management comprises of a committee of academic staff members lead by a coordinator under the purview of Dean of the faculty. FQAC regularly plans and monitors quality assurance activities and give guidance on good practices among staff and students of the faculty. FQAC office is located at the Ground floor of the Faculty.

ICT Center

ICT Center of the Makandura premises has been designed to impart knowledge on Information Technology for students to meet the challenges in modern world by making use of computers in their relevant fields. The ICT Center is currently equipped with more than 100 workstations to access the internet and for course work of the 2 faculties located at the Makandura premises. The Campus-wide fiber network and *Wi-Fi* system added recently, facilitates all the offices, departments, units, library, hostels and quarters to gain high speed web access 20 mbps and communication facility within the premises through IP Telephone system. It can also be used to communicate with Kuliyapitiya Premises. E-mail service has been provided to all staff members. Student centered learning environment is created through LMS server which is hosted and maintained by ICT center. ICT center has extended its facilities to outsiders through 'Certificate Course in Computer Applications' (CCAS) and 'Diploma in Information Technology' (DIT) courses. Both courses are mainly targeted on A/L leavers. To enhance for the ICT skills of internal students, it conducts several certificate courses separately, including 'Certificate in Web Design and Development' (CWDD) and 'Certificate in Programming & Data Base Management Systems' (CPDBMS).

Some information necessary for students is provided through the University web page (www.wyb.ac.lk). Equipment including web and e-mail servers, multimedia projectors, laser printers, dot-matrix printers, ink-jet printers, scanners, digital cameras, a video camera and heavy duty on-line UPS systems help the unit to provide all infrastructure necessary facilities to students. The regular opening hours of the unit are from 7.00am to 8.00pm; however, an extended service shall be provided up to 10.00 pm upon request by the respective faculties. The staff includes the Director, 2 Lecturers, Systems Engineer, 2 Computer Instructors, Computer Application Assistant, Lab Attendant and a Lab Laborer.

Library

The library has a collection of approximately 18480 books and 26 journals, newsletters, periodicals, AGORA on line database etc. mainly in different areas of agriculture. Further, it has a good collection of books in Computer Science and English Language. The Reference Section comprises of Encyclopedias, Dictionaries and Annual publications etc. The Library has given to reader to search the library collection by using the computerized catalogue with the internet support call OPAC (Online Public Access Catalogue).

English Language Teaching Unit

English as a global language of communication has become an absolute necessity in the sphere of higher education. Hence, the students are given a sound knowledge of English to proceed up the academic career ladder. The courses are designed to improve the language skills of undergraduates to succeed socially, academically and professionally. English Unit possesses a 'Language Learning Center' equipped with English language teaching / learning material, computers, headphones and valuable books.

Staff Development Centre

Several senior academic staff members are involved in staff development activities in the faculty. The center will coordinate and organize staff development and training activities for all grades of staff members in the university. The center also conducts programs for staff from other universities and higher educational and schools as well.

Career Guidance Unit

The students are provided with opportunities to develop and enhance their skills and capabilities required to make them more employable and competitive through the programs conduct by the Career Guidance Unit. The unit is responsible for carrying out career guidance activities both in Kuliyapitiya and Makandura Premises.

Common Support Unit (CSU)

The CSU consists of following divisions and was established to attend matters connected to finance, student welfare, general maintenance and security of Makandura premises.

- *General Administration and Student Welfare Unit* is housed in a separate building. Duties connected with student Hostels, Bursary, Scholarships, Staff Quarters, Maintenance & Utility Services, Security and other general matters are performed by this Unit. A Senior Assistant Registrar is in charge of the Unit.

- *Finance* Unit is responsible in making all payments and collect revenue due to the University. The general store is also under this unit for distributing articles, equipment and supplies required by Faculties, Departments and Units. A senior Assistant Bursar is in charge of the Unit.

- Maintenance Unit is responsible in maintaining the premises and the buildings including supply of water and electricity. Cleaning service has been contracted to a private firm whose work is also coordinated and supervised by this Unit.

- *Security Unit* is responsible in protecting both movable and immovable properties of the University and scrutinizing the entry and exit of personnel and goods. The security service is also contracted to a private firm whose services are supervised by the Security Officials of the University.

Physical Education Unit

The main objective of this unit is to develop and promote sports activities of the university. Implementation of these activities will improve undergraduates' personnel and professional productivity. It is also expected that sports activities will lead to a healthy and a contended life. A mini gymnasiums has been located at Makandura and a full-fledged gymnasium has been developed in the Kuliyapitiya premises. A playground at Makandura has been developed adjacent to the students' hostels.

Health Centre

The main 'Health Centre' is located at Kuliyapitiya, and a unit on "out-patient basis" is functioning at the Makandura premises with the aid of the University Medical Officer.

Under the 'Infrastructure Development Master Plan', a four-storey building is designed to accommodate all laboratories and departments of the faculty, which is now being near completion. An auditorium, playground, medical center, staff quarters have also been included in the master plan as common facilities. Construction work of new hostels in the premises has already been completed for over 900 students.

Student Counseling

Three senior academic staff members have been appointed as Student Counselors of the faculty. Students are advised to get their assistance in times of personal difficulties.

Societies and Associations

The university promotes the formation of various societies and associations at faculty-wise or discipline oriented or of general interests. Wherever possible, the university will assist those activities. All associations formed will, therefore, be registered by the administration. Currently, the following societies are functioning at the level of faculty:

- Horticulture Society
- Agri-Business Career Development Society
- Biotechnology Society (BitSoc)
- Plantation Society
- Biosystems Technology Society
- Art Circle
- Nature Club

The 'Faculty Student Union' works very closely with the university and faculty administration to facilitate academic, welfare and out-reach activity organized by the students. The office bearers of the students Union of the faculty have to be elected every year from the general body of the students to deal with the student welfare matters.

Outreach Activities

The faculty was capable of organizing several outreach activities during the last few years. As a new faculty, the number of outreach programs that was carried out in the past was commendable.

A job oriented practical training program for coconut estate managers in the NWP was carried out, and the course was a success. Several training programs on foliage plant nursery management for small-scale nurserymen were conducted and the demand for such programs is increasing. In NWP there are many private small scale nurseries who act as out growers and suppliers for major foliage plant nurseries in the region. There is no formal training given by any of the agencies operated in the region. Hence, the faculty has initiated this program and gaining positive response from the people.

Since the faculty is actively involved in a "Cashew Research & Development Program" in collaboration with the Sri Lanka Cashew Corporation, many training programs are being conducted by the faculty staff for cashew farmers as well as for cashew extension staff. These programs are being held from time to time at different locations in the country. Faculty has contributed to the cashew industry by developing & releasing six new cashew varieties for planting.

Other outreach programs for which the faculty contributes include the Plantation Extension Training Program and Higher National Diploma in Plantation Management conducted in collaboration with the National Institute of Plantation Management (NIPM).

These programs are being conducted annually. A tissue culture laboratory has been established in collaboration with the University of Colombo and the Wayamba Provincial Council. This is located at Wariyapola and produce tissue cultured Banana plants for distribution among farmers in the province.

Funding

The faculty presently operates on funds allocated from the university budget, which cannot meet the total requirements. Unfortunately the new universities get less funds than the established universities where funding is based on existing student population. The new universities/faculties need relatively more funds for establishment of buildings, laboratories, offices and other infrastructure facilities. Hence all possible avenues will be exploited to obtain additional financial resources through initiating projects to obtain funds for infrastructure development. Necessity of funding through foreign funded projects is felt badly and plans are being made to request funding from international donor agencies. This is a priority area in the faculty, where attention is given.

Faculty Staff

Dean's Office

Dean	Prof. JC Edirisinghe *B.Sc. (Agric.) Hons. (Peradeniya)* *M.Phil. (Peradeniya)* *Ph.D. (UK)*
Assistant Registrar	Ms. DM Jayakodi *B.Sc. (Applied Science) (RUSL)* *M.Sc. (Polymer Science) (USJP)*
Farm Manager	Mr. VHBS Somasiri *B.Sc. (Agric.) Hons (Peradeniya)*
Staff Assistant	Ms. HMR Priyadarshani
Technical Officer (Audio Visual)	Mr. D.I. Marasinghe
Technical Officer (ICT) (Grade III)	Mr. MMCS Madurapperuma *B. IT (Colombo)*
Technical Officer (Grade II)	Mr. RDRK Nawarathna *Dip. In English (SLIAT)*

Management Assistant (Grade I)	Ms. WMCN Wijerathne *B.A. Hons. (Kelaniya)* *Dip. in IT (Kelaniya)*
Management Assistant (Grade II)	Ms. AHH Hasintha *B.A. (Kelaniya)* *Dip. in Eng. (WUSL)*
Management Assistant (Grade III)	Ms. IAA Athukorala *B.A. (Kelaniya)*
	Ms. U.G.A.W. Gamage *Dip in English (NSYC)*

Department of Agribusiness Management

Head	Prof. HMLK Herath *B.Sc. (Agric.) (Peradeniya),* *M.Sc. (USA)* *Ph.D. (Peradeniya)*
Chair Professor / Senior Professor	Prof. JMUK Jayasinghe *B.Sc. (Agric.) (Peradeniya)* *M.Sc. (Peradeniya), Ph.D. (Guelph)* *PG. Dip. in Teacher Training & Edu.(India)* *Dip. Media & Com. (Colombo)*
Professor	Prof. JC Edirisinghe *B.Sc. (Agric.) Hons. (Peradeniya),* *M.Phil. (Peradeniya), Ph.D. (UK)*
	Prof. (Ms) NR Abeynayake *B.Sc. (Agric.), M.Sc. (Peradeniya)* *Ph.D. (IASRI - India)*
Senior Lecturer	Dr. (Ms.) AGK Wijesinghe *B.Sc. (Agric.) Hons. (Peradeniya)* *M.Sc. (Peradeniya)* *Ph.D. (Czech Republic)*

	Dr. JMM Udugama *B.Sc. (Agric.) (WUSL)* *M.Sc. (Peradeniya)* *Ph.D. (UK)*
	Dr. TPSR Guruge *B.Sc. (Agric.) (WUSL)* *MBS. (Colombo)* *Ph.D. (Colombo)*
Lecturer	Ms. GHI Anjalee *B.Sc. (Agric.) (WUSL)* *MBA (Kelaniya)*
Lecturer (Probationary)	Ms. LDM Nimanthika *B.Sc. (Agric.) (WUSL)* *M.Sc. (USA)*
	Mr. IV Kuruppu *B.Sc. (Agric.) (WUSL)* *MBA (PIM-USJP, SL)*
Staff Assistant	Mr. BMKD Ranaraja *(CCNA)* *Certificate in Web Design (WUSL)*

Department of Biosystems Engineering

Head	Dr. (Ms.) JAAC Wijesinghe *B.Sc. Hons. (USJP)* *Ph.D. (USJP)*
Senior Lecturer	Dr. KH Sarananda *B.Sc. (Agric.) Hons. (Peradeniya)* *M.Sc. (Phillippines)* *Ph.D. (University of London)*
Lecturer	Dr. NWBAL Udayanga *B.Sc. (Environment) Hons. (Kelaniya)* *Ph.D. (Kelaniya)*
	Mr. AHMN Chamara *B.Sc. (Mechanical Eng.) Hons. (Moratuwa)*

	Dr. (Ms.) KHINM Herath *B.Sc. (Agric.) Special (Rajarata)* *M.Sc. (Korea)* *Ph.D. (Korea)*
Lecturer (Probationary)	Ms. LHN De Silva *B.Sc. (Agric.) (WUSL)* *M.Phil. (WUSL) (Reading)*
Technical Officer (Grade III)	Ms. RMAIAN Rajakaruna *Dip in English*
Technical Officer (Grade II, Segment B)	Ms. A.M.S.S Athapattu *B.Sc. (Undergraduate) (OUSL)* *Dip in English (WUSL)* *Dip in IT (WUSL)* *Certi. Course in Comp. Networks & Security*

Department of Biotechnology

Head	Dr. (Ms.) DR Gimhani *B.Sc. (Agric.) (WUSL)* *M.Sc. (Peradeniya)* *Ph.D. (WUSL)*
Chair Professor	Prof. DPSTG Attanayaka *B.Sc. (Agric.) Hons. (Peradeniya),* *Ph.D. (Birmingham, UK)*
Professor	Prof. (Ms.) NS Kotterachchi *B.Sc. (Agric.) Hons. (Peradeniya),* *M.Sc. (Thailand)* *Ph.D. (Japan)*
Senior Lecturer	Dr. (Ms.) BLWK Balasooriya *B.Sc. (Agric.) Hons. (Peradeniya)* *M.Sc. (Peradeniya), M.Sc. (Belgium)* *Ph.D. (Belgium)*
	Dr. KM Mewan *B.Sc. (Agric.) (Ruhuna)* *M.Phil. (Colombo)* *Ph.D. (Colombo)*

	Dr. (Ms.) P Warakagoda *B.Sc. (Agric.) (Ruhuna)* *M.Phil. (Ruhuna)* *Ph.D. (Ruhuna)*
Lecturer	Ms.MP Dasanayaka *B.Sc. (Agric.) (WUSL)* *M.Sc. (Peradeniya)* *PhD (Lincoln University - NZ) (Reading)*
Lecturer (Probationary)	Mr. M.J.M.S. Kurera *B.Sc. (Agric.) (WUSL)* *M.Sc. (Colombo)*
Technical Officer	Mr. NGCA Bandara *NDIT Civil Engineering* *ACLT (OUSL)*
Management Assistant (Grade II)	Ms. BLDD Hemachandra *Dip. in Computers Science.* *Dip. in Comp. Engineering with networking* *Dip. In English (WUSL),* *Certificate in Web Design (WUSL)*

Department of Horticulture & Landscape Gardening

Head	Dr. (Ms.). RHMK Ratnayake *B.Sc. (Agric.) (WUSL),* *M.Sc. (Peradeniya)* *Ph.D. (Queensland)*
Chair Professor	Prof. K Yakandawala *B.Sc. (Botany) (Peradeniya),* *M.Sc. (UK)* *Ph.D. (Colombo)*
Professor	Prof. (Ms.) PIP Perera *B.Sc. (Agric.) (Peradeniya)* *Ph.D. (Peradeniya)*
Senior Lecturers	Dr. B Ranaweera *M.Sc., Ph.D. (Moscow)*

	Dr. WMWW Kandegama *B.Sc. (Agric.) Hons. (Peradeniya)* *M.Sc. (UK)* *Ph.D. (China)*
	Dr. (Ms.) KMGK Pamunuwa *B.Sc. (Chemistry Special) Hons. (Peradeniya)* *M.A. in chemistry (USA)* *Ph.D. (Peradeniya)*
	Dr. ASA Salgadoe *B.Sc. (Agric.) (WUSL)* *Ph.D. (Australia)*
Lecturer	Ms. RDN Debarawatta *B.Sc. (Agric.) (WUSL)* *M. Phil (WUSL)*
	Ms. SAEC Wijesinghe *B.Sc. (Agric.) (WUSL)* *M. Phil (WUSL)* *PhD (Australia) (Reading)*
	Ms. N Subashani *B.Sc. (Agric.) (WUSL)* *PhD (Reading)*
Lecturer (Probationary)	Ms. DMAEI Dewagedara *B.Sc. (Agric.) (WUSL)*
	Ms. RMBA Bandara *B.Sc. (Agric.) (WUSL)*
Technical Officer (Grade II)	Ms. SMDM Senanayaka
	Mr. HMSPB Herath
Management Assistant (Grade III)	Mr. SMST Samarakoon *B.Com (Japura) (Reading)*

Department of Plantation Management

Head	Prof. KGMCP Bandara Gajanayake *B.Sc. (Agric.) Hons. (Peradeniya)* *M. Phil. (Peradeniya)* *M.Sc. (Mississippi State, USA)* *Ph.D. (Mississippi State, USA)*
Chair Professor	Prof. DC Abeysinghe *B.Sc. (Agric.) Hons.* *M.Phil. (Peradeniya)* *Ph.D. (Zhejian)*
Professor	Prof. (Ms.) HMIK Herath *B.Sc. (Agric.) Hons. (Peradeniya)* *M.Sc. (Peradeniya)* *Ph.D. (New Zealand)*
	Prof. WJSK Weerakkody *B.Sc. (Kelaniya)* *Ph.D. (Kelaniya)*
Senior Lecturers	Dr. HAWS Gunathilake *B.Sc. (Agric.) Hons. (Peradeniya)* *M. Phil. (Peradeniya)* *Ph.D. (Ludhiana)*
	Dr. WAS Lakmali *B.Sc. (Forestry & Env. Science) (USJP)* *M.Phil. (Peradeniya)* *Ph. D (Melbourne, Australia)*
Lecturer	Ms. KGAPK Amarasingha *B.Sc. (Agric.) (WUSL)* *M.Phil. (WUSL)*
	Mr. IJ Amadoru *B.Sc. (Agric.) (WUSL)* *M.Sc. (Agric. Biosystem Eng.) (Peradeniya)* *M. Phil (WUSL)*

	Mr. HKJP Wickramasinghe *B.Sc. (Agri. Tech & Mgt.) (Peradeniya)* *M.Sc. (Peradeniya)*
Lecturer (Probationary)	Mr. KHMI Karunarathne *B.Sc. (Agric.) Hons. (Peradeniya)* *PG. Dip. IT (Moratuwa)*
	Mr. LB Dunsford *B.Sc. (Agric.) (WUSL)* *MBA (Colombo)*
	Mr. AWSP Kumara *B.Sc. (Agric.) (WUSL)* *M.Phil. (WUSL) (Reading)*
Technical Officer (Grade I)	HMRPB Herath *NCT (Mechanical Engineering)*
Technical Officer (Grade II Segment B)	Ms. BMGM Balasooriya *Dip in IT (WUSL)* *Dip. in Eng.(WUSL)* *Dip. In Tamil (IHRA)*
Field Supervisor (Grade II)	Mr. S.P.A Karunarathna *BA (Kelaniya)*
Management Assistant (Grade III) *Dip in IT*	Ms. WIH De Silva *AAT Passed Finalist*
Mechanic (Grade II)	Mr. M.H.I. Prasad

Other Units

Library

Senior Assistant Librarian
Mrs. DGAS Malkanthi
B.A. Hons. (Kelaniya)
M.Sc. (Kelaniya)

Staff Assistant
Mr. A. Bandara

English Unit

Coordinator
Ms. APLP Abesooriya
B.A. (Kelaniya)
M.A. (Open University) (Reading)

ICT Center

Director
Prof. WJSK Weerakkody
B.Sc. (Kelaniya)
Ph.D. (Kelaniya)

Lecturers
Dr. **(**Ms.) WKGK Weerasinghe
B.Sc. (Agric.) Hons. (Peradeniya)
PGD (SLIIT)
M.Sc. in IS (SLIIT)
Ph.D. (Mississippi State, USA)

Dr. HACK Jayathilake
B.Sc. (Agric.) (Peradeniya),
M.Sc.in IT (SLIIT)
Ph.D. (WUSL)
PG.Dip. in IT (SLIIT)

Systems Engineer
Mr. WD Samanwickrama
B.Sc. (Kelaniya),
PG. Dip.IT (SLIIT),
PG. Dip.IT (UCSC)
M.Sc. (SLIIT)

Instructor	Mr. SBMCP Herath *B.Sc. (Hons) (Agric.) (WUSL)* *M.Sc. (Ag.Econ.)(Peradeniya)* *PG.Dip. in IS (SLIIT)* *M.Sc. (Information Systems (SLIIT)*
	Dr. HWH Premachandra *PhD (Japan), MSc. (SL)* *BIT (SL), DCSD (SL)* *MIEEE, MBCS, MACS, MCSSL*
Assistant Network Manager	Mr. EMDS Ekanayake *BICT (Hons), C/EH, E/NSA*
Technical Officer	Mr. HMSKYB Herath *BIT (UCSC), Dip. In Photography (Kelaniya)*
Management Assistant	Mr. HAAD Hettiarachchi *CAA, NCICT*

Internal Quality Assurance Unit (IQAU)

Director	Prof. KDRR Silva *B.Sc. (Agric.) Hons. (Peradeniya)* *Ph.D. (Reding)*
Faculty Coordinator	Dr. JMM Udugama *B.Sc. (Agric.) (WUSL)* *M.Sc. (Peradeniya)* *Ph.D. (UK)*
Technical Officer	Mr. HMSKYB Herath
Computer App. Assistant	Mr. HAA Dharmapriya

Health Services

University Medical Officer	Dr. HMB Jayasinghe *MBBS (SL)*

	Dr. A.A. Prasad *MBBS (SL)*
Pharmacist	Ms. YMNDY Kumari *(S.L.M.C. Reg. Pharmacist)*
Nursing Officer	Mr. SN Senavirathne *Dip. In Nursing*
Health Attendant	Mr. KSSB Fernando
Public Health Inspector	Mr. RWSK Balasooriya *Dip. in Public Health Inspector*

Student Counsellors

Counsellors	Dr. (Ms.). RHMK Ratnayake *B.Sc. (Agric.) (WUSL)* *M.Sc. (Peradeniya)* *Ph.D. (Queensland)* Dr. (Ms.) HMIK Herath *B.Sc. (Agric.) Hons. (Peradeniya)* *M.Sc. (Peradeniya)* *Ph.D. (New Zealand)* Dr. (Ms.) JAAC Wijesinghe *B.Sc. Hons.* (*USJP)* *Ph.D.* (*USJP*)
Deputy Proctor	Dr. WMWW Kandegama *B.Sc. (Agric.) Hons. (Peradeniya)* *M.Sc. (UK)* *Ph.D. (China)*
Coordinator out Reach Centre	Dr. B Ranaweera *M.Sc. (Moscow)* *Ph.D. (Moscow)*

Physical Education

Director	Mr. RJ Wellassa *B.Sc.(Kelaniya);* *PG. Dip. in Physical Edu. (Peradeniya)*
Instructors	Mr. GWSR Wickrama *B.A. (Jayawardenapura); Dip. in Sport Science(NISS)* *PG.Dip.in Physical Edu.(Peradeniya)* *Dip. in Sport Science (NIS)* Mr. KAM Bandarathilaka *B.Sc. (sp.) Business Management (WUSL)* *PG. Dip in Exercise and Sports Sci. (Peradeniya)* Ms. MA Sammani *B.Sc. (Agric.) (WUSL)* *Msc. In Food & Nutrition (Peradeniya) (Reading)* Ms. KAC Chathurangani *B.Com. (sp.) (Kelaniya)* *PG. Dip. In Physical Education (Peradeniya)*
Staff Assistant	Mr. HMN Dharmapriya

Career Guidance Unit

Director	Dr. WMWW Kandegama *B.Sc. (Agric.) Hons. (Peradeniya)* *M.Sc. (UK)* *Ph.D. (China)*
Computer App. Assistant	Mr. NP Sanjeewa Janakasiri *Dip. in HRM (IPM)*

Staff Development Centre

Director	Prof. M.M.D.R. Deegahawature B.Sc. Business Administration (Hons.) (Sri J'pura) MBA (Colombo) MBA in MOT (AIT) PhD in Management (HUST)
Coordinators/External Affairs	Dr. WMWW Kandegama *B.Sc. (Agric.) Hons. (Peradeniya)* *M.Sc. (UK)* *Ph.D. (China)* Dr. I. P. M. Wickramasinghe *B.Sc. Eng (Peradeniaya)* *M.Phil. (Peradeniya)* *M.Sc. (USA)* *Ph.D. (USA)*
Coordinators/SAWDAM	Dr. B Ranaweera *M.Sc. (Moscow)* *Ph.D. (Moscow)*

Common Support Unit

Senior Asst. Registrar	Ms. R.Y Sandamali *B.Sc. (Hons.) Town & Country Planning (UoM)* *MBA (WUSL)* *ICASL (Intermediate)*
Asst. Registrar	Mr. BMDT Bandara *MBA (PIM)* *B.Sc. (Operations Management) Special- USJP*
Asst. Bursar	Ms. PMO Purnima *B.Sc. (Business Administration) Special- USJP*
Senior Assit. Bursar	Mrs. AMA Rathnayake *B.Sc. (Business Administration) – USJP*

Work Superintend Mr. NSC. Nanayakkara
NDES
Advance Diploma City & Guilds

Shroff Mr. DMC Dharmawardana

Academic Warden (Makandura Premises)
Dr. KGMCP Bandara Gajanayake
B.Sc. (Agric.) (Peradeniya),
M. Phil. (Agric. Economics & Business) (Peradeniya)
M.Sc. (Mississippi State, USA)
PhD. ((Mississippi State, USA)

Sub Warden - Sapumalbandara Hostel (Boys)
Mr. GSV Chandrarathna
B.Sc. (Arts) – UVPA

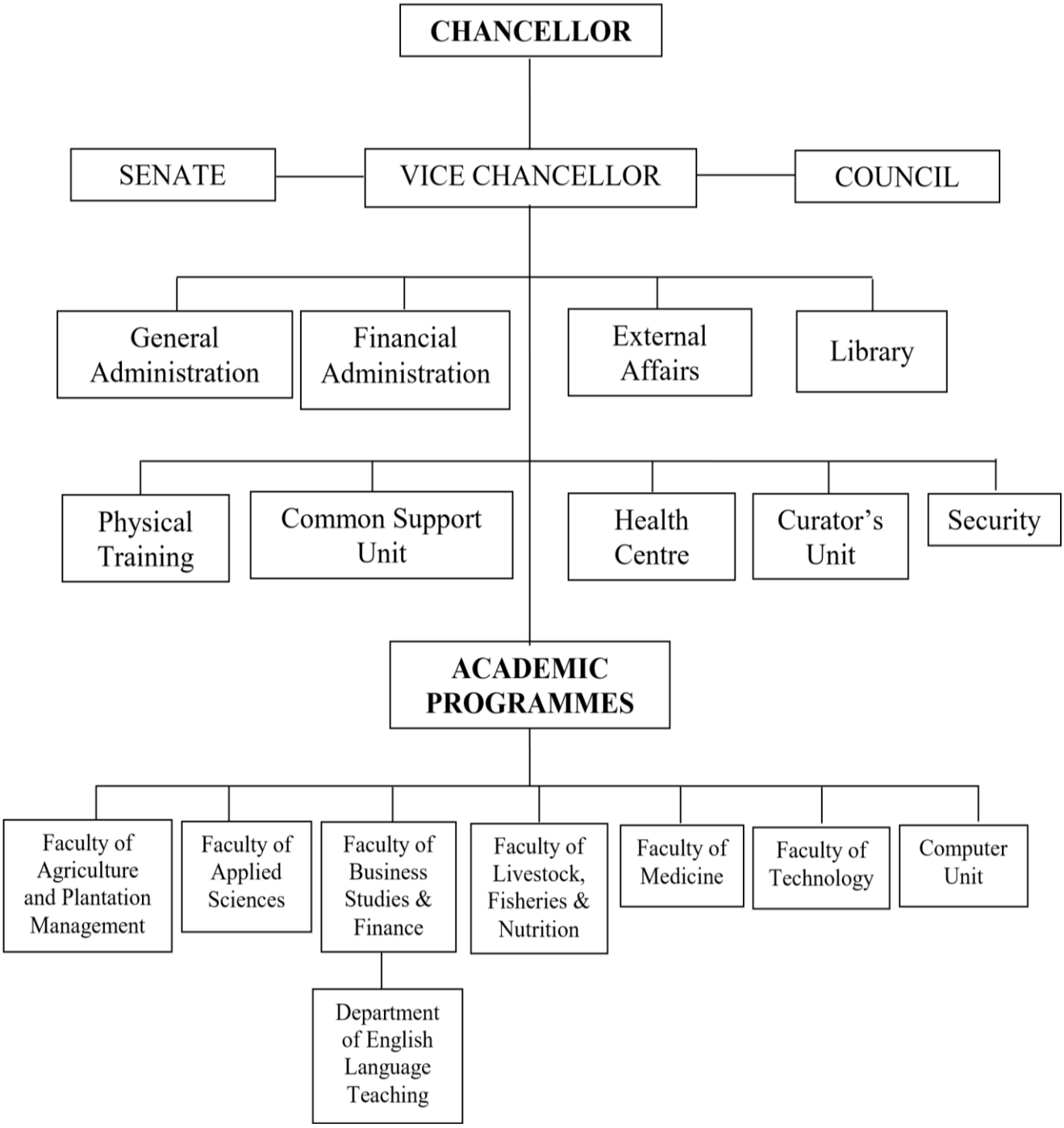
Sub Warden - Biosobandara Hostel (Girls)
Ms. NA Samarasinghe
B.A.Sp. (Hons)(Kelaniya)

Administrative staff useful for Student matters at Kuliyapitiya Premises

Senior Assistant Registrar (Examinations)
Mr. LMC Siriwardhana
B.A. (Hons.) (USJP)
Master of Art (Kelaniya)

Senior Assistant Registrar (Student Registration & Student Welfare)
Mr. M.D.I.P. Wijenayake
MBA (WUSL), BA (Econ) (UoP),
MCPM
MIMSL

Organizational Structure of the University



Officers of the University

Chancellor

Deshabandu Prof. TulyDe Silva
B.Sc. (Cey)
B.Pharm. (Lond)
M.Sc. (Manch)
Ph.D. (Manch)
D.Sc. (Hon.C)
C.Chem. (SL),
F.I.Chem.Cey

Vice - Chancellor

Prof. JC Edirisinghe (Actg.)
B.Sc. (Agric.) Hons. (Peradeniyya)
M.Phil. (Peradeniya)
Ph.D. (UK)

Deans of Faculties

Agriculture & Plantation Management

Prof. JC Edirisinghe
B.Sc. (Agric.) Hons. (Peradeniya)
M.Phil. (Peradeniya)
Ph.D. (UK)

Applied Sciences

Dr. LDRD Perera
B.Sc. Hons. (Kalaniya)
M.Phil. (Kalaniya)
D.Eng. (Kyushu)

Business Studies & Finance

Prof. SK Gamage
B.Com.(Kelaniya)
PG Dip. (Econ) (Ruhuna)
MBA (Malayasia)
Ph.D. (Kelaniya)

Livestock, Fisheries & Nutrition

Prof. (Mrs.) C.V.L. Jayasinghe
B.Sc. (Peradeniya)
PG.Dip. in Counselling (Colombo)
M.Sc. (Sri Jayawardanepura)
M.Phil. (Sri Jayawardanepura)
Ph.D. (Japan)

Medicine	Dr. PGCS Bowatte *MBBS* *M.D.* *M.R.C.P. (UK)* *M.R.C.P. (London)*
Technology	Dr. A.M.N. Alagiyawanna (Actg.Dean) *B.Sc.Eng. (Hons) (Moratuwa)* *M.Eng. (AIT)* *D.Eng. (Nagaoka)* *C.Eng., MIE(SL), MSLGS*
Registrar	Mr. WAD Chithrananda *B.A. (Kelaniya)* *Master of Public Mgt., SLIDA*
Acting Librarian	Mrs.W.M Thusithakumari
Bursar	Mr. DAU Dharmadasa *B.Sc. (Kelaniya)* *MBA (WUSL)* *PG.Dip in MIT (Kelaniya)* *ACA, ACMA*

Council of the University

Chairman	Prof. JC Edirisinghe *Vice Chancellor (Actg.)*
	Prof. JC Edirisinghe *Dean, Faculty of Agriculture & Plantation Mgt.*
	Prof. LDRD Perera *Dean, Faculty of Applied Sciences*
	Prof. SK Gamage *Dean, Faculty of Business Studies & Finance*
	Prof. (Mrs.) CVL Jayasinghe *Dean, Faculty of Livestock, Fisheries & Nutrition*

Dr. AMN Alagiyawanna
Dean, Faculty of Technology

Dr. PGCS Bowatte
Dean, Faculty of Medicine

Senate Nominee

Dr. KM Chandimal
Prof. HMLK Herath

Appointed Membzers

Mr. Upendra Wijesinghe
Mr. Supun Adikari
Dr. R Pramitha Shanthilatha
Mrs. PASM Marasinghe
Mr. Chandana Prasad Yapa
Mr. T Karunasena
Mr. PBM Sirisena
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