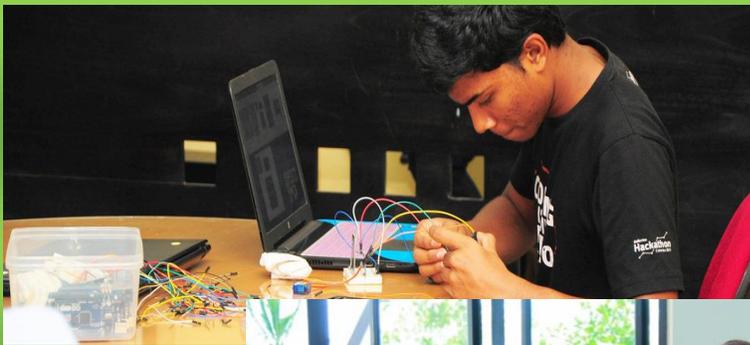




## **Student Handbook**

### **Bachelor of Biosystems Technology (BBST) Degree Programme**



**Faculty of Agriculture & Plantation Management**

**Wayamba University of Sri Lanka**





**Faculty of Agriculture and Plantation Management**  
**Wayamba University of Sri Lanka**

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**B.Sc. Hons (Biosystems technology)**  
**Degree Programme**

**STUDENT**  
**HANDBOOK**

**Academic Year 2019 / 2020**



## 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. From one angle; it looks like a flame, which is symbolical of the light of knowledge. And from another angle, 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 Song

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 සුරංජනු  
 සරසවි දිනිති අපේ  
 අරුන්ධතී  
 තරුව ලෙසේ - ලංකා අම්බරයේ

කලිකල් පැරකුම් කිව් නැණ පහනින  
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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

ශ්‍රී ලංකා වයඹ දිසා  
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 තරුව ලෙසේ - ලංකා අම්බරයේ

ලෝකය නම් වූ මහ ගත පෙරළා  
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 නව චින්තනයේ උල්පත් මතු කොට  
 නව ලෝකය වෙත පියවර තබනුව  
 විවරණ දුටු මැනවි ///  
 නනු - ආචාර්ය ඩබ්ලිව්. ඒ. අබේසිංහ

With rays of knowledge of many  
 sciences  
 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. Abeyasinghe

## Wayamba University of Sri Lanka

Wayamba University of Sri Lanka was established with effect from 01<sup>st</sup> 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 four faculties in the Wayamba University of Sri Lanka, including:

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

## Vision and Mission of the University

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### *Vision*

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

### *Mission*

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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

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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 Kuliypitiya is 1 km on the Lional Jayathilaka Mawatha off the Kuliypitiya - Madampe Road and houses the administration Complex, and the two Faculties; Applied Sciences and Business Studies & Finance.

The other premise 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 agriculture 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**

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### ***Vision:***

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

### ***Mission:***

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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**

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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***

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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***

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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***

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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***

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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***

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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 agricultural production systems, agricultural engineering, postharvest technology, waste management, precision agriculture and food technology.

### **Degree Programs**

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The Faculty offers two degrees;

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

### **Bachelor of Biosystems Technology Degree Program**

This is a new degree program commencing from 2016/2017 academic year

### **The Graduate Profile**

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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, agribusiness and agro-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 21<sup>st</sup> century knowledge based economies.

## **Overview of Program Structure, Content and Options**

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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 126 Credits<sup>1</sup> 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:

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<sup>1</sup> 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.

- Year 1 – Twenty-nine (29) credits of GPA course units and 2 Non GPA course units
- Year 2 – Thirty-seven (37) credits of GPA course units
- Year 3 – Thirty-six (36) credits of GPA course units
- Year 4 – Twenty-four (24) 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 identify a course unit. The code consists of five digits prefixed by a set of two letters which refers to the subject area of the respective Department/Unit. 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 and when it is 10, sign X has been assigned. 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
<b>Year 1 - Semester I</b>				
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	Foundation English		2	15:15:00
BST 11053	Fundamentals of Chemistry	3		30:30:00
BST 11062	Technology for Development	2		20:20:04
<i>Sub Total</i>		<b>12</b>	<b>2</b>	
<b>Year 1 - Semester II</b>				
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
<i>Sub Total</i>		<b>17</b>		
<b>Year 2 - Semester I</b>				
BST 21142	Conventional and Advanced	2		15:30:00

	Propagation Technologies			
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
<b><i>Sub Total</i></b>		<b>18</b>		
<b>Year 2 - Semester II</b>				
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
<b><i>Sub Total</i></b>		<b>18</b>		
<b>Year 3 - Semester 1</b>				
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
	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 31322	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
<b><i>Sub Total</i></b>		<b>18</b>		
<b>Year 3 - Semester II</b>				
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	2		20:20:20
<b><i>Sub Total</i></b>		<b>18</b>		

<b>Year 4 - Semester I</b>				
BST 41461	Business Communication Skills	2		20:20:10
BST 41471	Legal and Ethical Environment for Business	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		
<b>Sub Total</b>		<b>16</b>		
<b>Year 4 - Semester II</b>				
BST 42528	In-plant Training	8		
<b>Total Credits</b>		<b>126</b>	<b>02</b>	

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 graduates' 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

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### *Assessment of Course Units*

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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 practical 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 fulfil the requirements of the degree of Bachelor of Biosystems Technology.

### *Assessment of In-plant Training and Research Projects*

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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*

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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*

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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.

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

### ***Eligibility for Sitting the Examination***

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In order to achieve the objectives of each course unit, it is expected that the student will attend all lectures, tutorial classes, practical 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 papers(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 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 Medical 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***

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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***

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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)***

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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.

$$\begin{aligned} &= \frac{(3 \times 4.0) + (3 \times 3.0) + (3 \times 2.0) + (3 \times 1.0) + (1 \times 0.0) + (1 \times 4.0)}{3 + 3 + 3 + 3 + 1 + 1} \\ &= \frac{(12) + (9) + (6) + (3) + (0) + (4)}{14} \\ &= \frac{34}{14} \\ &= 2.43 \end{aligned}$$

**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***

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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 a subject) make to the Shroff.

### ***Award of Classes and Degree***

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A student should maintain a minimum FGPA of two (2.00) at the end of the second year to become eligible to register for the third and fourth academic years of the degree program.

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***

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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

Course Title	Basic Mathematics			Course Code	BST 11012		
Year	1	Semester	1	Credits	02	Theory (hr)	20
						Practical (hr)	20
						Independent Learning (hr)	

### 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	Foundation English			Course Code	BST 11040		
Year	1	Semester	1	Credits	02	Theory (hr)	15
						Practical (hr)	15
						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); Complexometric 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.
- 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 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:*

- 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 peri-urban 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 t-tests; 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 Theory and Practical			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 ( <i>Group Work</i> ); 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 ( <i>Poster-based Presentations Assigned to Specific Groups</i> ); Traditional vs. Modern society; Consumerism ( <i>Picture-based Presentations Assigned to Specific Groups</i> ); Eco-centralism vs. Techno-centralism ( <i>Student Debate</i> )

**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; 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

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 abiotic factors that damage crops; Conventional 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%

<b>Course Title</b>	<b>English for Technology</b>			<b>Course Code</b>	<b>BST 21162</b>		
<b>Year</b>	2	<b>Semester</b>	1	<b>Credits</b>	02	<b>Theory (hr)</b>	<b>15</b>
						<b>Practical (hr)</b>	<b>30</b>
						<b>Independent Learning (hr)</b>	

**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:**

<b>Theory</b>
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.

<b>Practical</b>
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.
- Analyze 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:**

<b>Theory</b>
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

<b>Practical</b>
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%

Course Title	Fundamentals of Electronics and Instrumentation			Course Code	BST 21183		
Year	2	Semester	1	Credits	03	Theory (hr)	30
						Practical (hr)	30
						Independent Learning (hr)	30

**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, Multimeters, 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 handle microorganisms.
- Describe and identify microbial crop pests and disease causing microorganisms.
- Explain the microbial processes use in food industry and soil fertility.

**Course Capsule:**

<b>Theory</b>
Classification, nomenclature and habitats of microorganisms; Cell structure, forms, arrangements and identification of microorganisms; Nutrient requirements and growth of microorganisms; 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

<b>Practical</b>
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; 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 formations; 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 environmental change resulting environmental degradation and tools to slow down or address environmental damage

**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 climate and weather extremes and their likelihood of occurrence.
- Identify the strategies for disaster management.
- Explain the disaster management cycle and key actors in each phase.
- Describe the disaster management response interventions.

**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; Disaster management: Key concepts around disaster risk management; Impacts and needs assessment: Assess rapidly the dimension of disasters using geospatial data; Key challenges of disaster risk response: Key areas of the disaster response phases and challenges linked to coordination on different levels; Disaster recovery and reconstruction, Disaster preparedness; Critical areas of disaster preparedness menu and challenges linked to institutional and legal frame work; Vulnerability and capacity assessment, Knowledge management as building blocks of disaster preparedness; Disaster mitigation

Practical
Writing an assignment – Major disaster management tools, services and their relevance under Sri Lankan situation; Understanding of the Sri Lanka REDD program – Interactive session; Field visit – observations on a site subjected to repeated natural disasters; Team presentation – Impact of natural disasters on food security, livelihoods and community health

**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, Post-harvest 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 Production 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

**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 designs 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; Data 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%

Course Title	Construction Documentation and Estimating			Course Code	BST 31291		
Year	3	Semester	1	Credits	01	Theory (hr)	15
						Practical (hr)	00
						Independent Learning (hr)	

**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 take-offs, 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%

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

**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 processor.
- 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:**

<b>Theory</b>
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

<b>Practical</b>
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 Produce			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-Rotorvane 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, bio-fuels, 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; Wastewater 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%

Course Title	Information Systems			Course Code	BST 31332		
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 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 hydro-power 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 a dendro-thermal power plant

**Assessment:**

Continuous assessment: 50%  
 End semester assessment: 50%

Course Title	Value Addition and Product Development			Course Code	BST 31353		
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 processes; 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%

Course Title	Water Resource Management			Course Code	BST 31372		
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 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:**

<b>Theory</b>
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)

<b>Practical</b>
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%

Course Title	Aquaculture and Fisheries Production and Processing			Course Code	BST 32383		
Year	3	Semester	2	Credits	03	Theory (hr)	30
						Practical (hr)	30
						Independent Learning (hr)	

**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, rearing, 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 32393		
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, 1 <sup>st</sup> angle and 3 <sup>rd</sup> angle 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. Isometric 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%

Production and Operations	Course	BST 32402
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Course Title	Management			Code			
Year	3	Semester	2	Credits	02	Theory (hr)	20
						Practical (hr)	20
						Independent Learning (hr)	

**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 areas in 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.
- Select a 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 bio-system 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%

Course Title	Research Methodology			Course Code	BST 32442		
Year	3	Semester	2	Credits	02	Theory (hr)	15
						Practical (hr)	30
						Independent Learning (hr)	05

**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%

Course Title	Legal and Ethical Environment for Business			Course Code	BST 41471		
Year	4	Semester	1	Credits	01	Theory (hr)	15
						Practical (hr)	00
						Independent Learning (hr)	

**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%

Course Title	Recent Advances in Biosystems Technology			Course Code	BST 41491		
Year	4	Semester	1	Credits	01	Theory (hr)	15
						Practical (hr)	00
						Independent Learning (hr)	

**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%

Course Title	Research Project			Course Code	BST 41508		
Year	4	Semester	1	Credits	08	Theory (hr)	-
						Practical (hr)	-
						Independent Learning (hr)	-

**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	BST 41512		
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 plan and 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 <i>Frontlinesms</i> , Cloud-based crowd mapping with <i>Ushahidhi</i> , Interactive Voice Recognition (IVR) with <i>Freedomfone</i> ; 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%

Course Title	In-plant Training			Course Code	BST 42528		
Year	4	Semester	2	Credits	08	Theory (hr)	-
						Practical (hr)	-
						Independent Learning (hr)	-

**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 month. The students will be attached to an industrial training on full time basis in the 2<sup>nd</sup> Semester of the 4<sup>th</sup> Year. During this time, student will be undergoing training in the industry or commercial organization relevant to their areas of interest for future employment. This training will enable to 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 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**

The ICT Center of Makandura location has been designed to impact 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 at Makandura. The Campus-wide fiber network and *Wifi* 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 Kuliypitiya 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, we are conducting several certificate courses separately. (i.e. Certificate in Web Design and Development (CWDD) and certificate in programming & Data Base Management Systems (CPDBMS) courses.

Some information necessary for students is provided through the University web page ([www.wyb.ac.lk](http://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. Although the normal opening hours are from 7.00 am to 8.00 pm, it can be extended up to 10.00 pm on request. The staff includes Director, 2 Lecturers, Systems Engineer, 2 Computer Instructors, Computer Application Assistant, Lab Attendant and a Lab Labourer.

### **Library**

The library has a collection of approximately 18480 books and 26 journals, newsletters, periodicals, AGORA online 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 centre will coordinate and organize staff development and training activities for all grades of staff members in the university. The centre also conducts programmes for staff from other universities as well.

### **Career Guidance Unit**

Through the programmes of the 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. The Unit is responsible for carrying out career guidance activities both in Kuliypitiya and Makandura Premises.

### **Physical Education Unit**

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. Two mini gymnasiums have been located at Makandura and Kuliypitiya. A playground at Makandura has been developed adjacent to the students' hostels.

### **Students Societies and Associations**

The University promotes the formation of various societies and associations in the University, at faculty-wise or discipline oriented or of general interests. Wherever possible the University will assist their activities. All associations thus formed will be registered by the administration. Following are the societies functioning in the faculty.

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

### **Student Union of the Faculty**

Faculty student Union is actively functioning under the patronage of a senior academic staff member as its Senior Treasurer. Each year office bearers of the Faculty student's Union have to be elected from among the general body of the students to deal with the student welfare matters. 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.

### **Health Care**

Main Health Centre is located at Kuliypitiya. However, a smaller unit on out-patient basis is functioning at Makandura Premises. The services provided at present will continue with the aid of the University Medical officer.

### **Student Counseling**

Two 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.

## **Enrollment of Students under Lateral Entry and Foreign Category**

The Faculty has taken one step forward by opening students' registration for B.Sc. (Agriculture) degree programme to persons in government organizations having experience in the Agriculture sector and also to foreign students under the purview of UGC in 2016. Faculty recruited 5 persons from Department of Agriculture for the 2014/2015 batch in 2016 and it continues to date under lateral entry programme. Faculty recruited a foreign student from Nepal to follow B.Sc. (Agriculture) degree programme 2016/17.

## **B.Sc. (Plantation Management) External Degree Programme**

A three year B.Sc. (Plantation Management) degree programme was commenced in 2006, by the Faculty. The programme is targeted for the executive level employees in the plantation sector with several years of experience. All courses are conducted using distance mode learning method. The

first batch completed the degree programme in April 2009. There are 13 batches registered under this programme and 10 batches were passed out.

### **Outreach Activities**

The Faculty was capable of organizing several outreach activities during the last few years. As a new faculty the number of outreach programmes that was carried out in the past was commendable. Under the outreach activities the Faculty is involved in the training of A/L Agriculture and Bio-system teachers in collaboration with National Institute of Education (NIE). Further, the Faculty provides fullest support to enhance the practical knowledge of A/L Agriculture and Bio-system students by organizing practical training programmes for them.

Other outreach programmes for which the faculty contributes, are the Plantation Extension Training Programme and Higher National Diploma in Plantation Management conducted in collaboration with the National Institute of Plantation Management (NIPM). These programmes are being conducted annually.

### **Common Support Unit**

The Unit consists of following divisions and was established to attend matters connected to finance, student welfare, general maintenance and security of Makandura premises of Wayamba University of Sri Lanka.

#### **General Administration and Student Welfare**

This 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**

This 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**

This 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**

This 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.

## Faculty Staff

### Dean's Office

Dean	Prof. JC Edirisinghe <i>B.Sc. (Agric.) Hons. (Peradeniya)</i> <i>M.Phil. (Peradeniya)</i> <i>Ph.D. (UK)</i>	
Assistant Registrar	Ms. DM Jayakodi <i>B.Sc. (Applied Science)(RUSL)</i> <i>M.Sc. (Polymer Science) (USJP)</i>	
Farm Manager	Mr. VHBS <i>B.Sc. (Agric.) Hons. (Peradeniya)</i>	Somasiri
Senior Staff Assistant	Ms. SAS Sooriyaarachchi	
Staff Assistant Technical Officer (Audio Visual)	Ms. HMR Priyadarshani Mr. D.I. Marasinghe	
Technical Officer (Grade II)	Ms. M.S.S.R. Weerasinghe <i>PQ in HRM (IPM)</i> <i>Dip in IT (ESOFT)</i>	
Management Assistant (Grade I)	Ms. WMCN Wijerathne <i>B.A. Hons. (Kelaniya)</i> <i>Dip. in IT (Kelaniya)</i>	
Clerk (Grade III)	Ms. H. Hasintha Andrahennadi <i>B.A. (Kelaniya)</i> <i>Dip. in Eng. (WUSL)</i>	
	Ms. IAA Athukorala <i>B.A. (Kelaniya)</i> Ms. U.G.A.W. Gamage <i>Dip in English (NSYC)</i>	
Telephone Operator	Mr. SM Piyarathna <i>Dip. in Video &amp; Lighting (SLTTI)</i>	

### Department of Agribusiness Management

Head	Prof. HMLK Herath <i>B.Sc. (Agric.) Hons. (Peradeniya)</i> <i>M.Sc. (USA)</i> <i>Ph.D. (Peradeniya)</i>	
Chair Professor / Senior Professor	Prof. JMUK Jayasinghe <i>B.Sc. (Agric.) Hons. (Peradeniya)</i> <i>M.Sc. (Peradeniya)</i> <i>Ph.D. (Guelph)</i>	

<b>Professor</b>	Prof. JC Edirisinghe <i>B.Sc. (Agric.) Hons. (Peradeniya)</i> <i>M.Phil. (Peradeniya)</i> <i>Ph.D. (UK)</i>
	Prof. (Ms.) NR Abeynayake <i>B.Sc. (Agric.) Hons. (Peradeniya)</i> <i>M.Sc. (Peradeniya)</i> <i>Ph.D. (IASRI - India)</i>
<b>Senior Lecturers</b>	Dr. (Ms.) AGK Wijesinghe <i>B.Sc. (Agric.) Hons. (Peradeniya)</i> <i>M.Sc. (Peradeniya)</i> <i>Ph.D. (Czech Republic)</i>
	Dr. (Ms.) JMM Udugama <i>B.Sc. (Agric.) (WUSL)</i> <i>M.Sc. (Peradeniya)</i> <i>Ph.D. (UK)</i>
<b>Lecturer</b>	Ms. TPSR Guruge <i>B.Sc. (Agric.) (WUSL)</i> <i>MBS (Colombo)</i> <i>Ph.D. (Colombo)</i>
	Ms. GHI Anjalee <i>B.Sc. (Agric.) (WUSL)</i> <i>MBA (Kelaniya)</i>
<b>Lecturers (Probationary)</b>	Ms. LDM Nimanthika <i>B.Sc. (Agric.) (WUSL)</i> <i>M.Sc. (USA)</i>
<b>Management Assistant (Grade I)</b>	Mr. BMKD Ranaraja <i>(Cisco Certified Network Associate)</i>

### Department of Bio-systems Engineering

<b>Head</b>	Dr. (Ms.) JAAC Wijesinghe <i>B.Sc. Hons. (USJP)</i> <i>Ph.D. (USJP)</i>
<b>Senior Lecturer</b>	Dr. KH Sarananda <i>B.Sc. (Agric.) Hons. (Peradeniya)</i> <i>M.Sc. (Phillippines)</i> <i>Ph.D. (University of London)</i>
<b>Lecturer</b>	Dr. NWBAL Udayanga <i>B.Sc. (Environment) Hons. (Kelaniya)</i> <i>Ph.D. (Kelaniya)</i>
	Dr. (Ms.) KHINM Herath <i>B.Sc. (Agric.) Special (Rajarata)</i>

*M.Sc. (Korea)*  
*Ph.D. (Korea)*

**Lecturers (Probationary)**

Mr. AHMN Chamara  
*B.Sc. (Mechanical Engineering) Hons. (Moratuwa)*

**Technical Officer  
(Grade II)**

Mr. SAK Dharmadasa  
*Dip in Computer Programming (TEI)*

Ms. RMAIAN Rajakaruna  
*Dip in English*

**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 Lecturers**

Dr. (Ms.) BLWK Balasooriya  
*B.Sc. (Agric.) Hons. (Peradeniya)*  
*M.Sc. (Peradeniya)*  
*M.Sc. (Ghent, Belgium)*  
*Ph.D. (Ghent, 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)*

**Lecturers**

Ms.MP Dasanayaka  
*B.Sc. (Agric.) (WUSL)*  
*M.Sc. (Peradeniya)*

**Technical Officer**

Mr. NGCA Bandara  
*NDIT Civil Engineering*  
*ACLT (OUSL)*

**Management Assistant  
(Grade II)** Ms. BLDD Hemachandra  
*Dip. in Computers Science.*  
*Dip. in English (WUSL)*

**Department of Horticulture & Landscape Gardening**

**Head** Dr. (Ms.) RHMK Rathnayake  
*B.Sc. (Agric.) (WUSL)*  
*M.Sc. (Peradeniya)*  
*Ph.D. (Queensland)*

**Chair Professor** Prof. K Yakandawala  
*B.Sc. (Botany) Hons. (Peradeniya)*  
*M.Sc. (UK)*  
*Ph.D. (Colombo)*

**Professor** Prof. (Ms.) PIP Perera  
*B.Sc. (Agric.) Hons. (Peradeniya)*  
*Ph.D. (Peradeniya)*

**Senior Lecturers** Dr. B Ranaweera  
*M.Sc. (Moscow)*  
*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)*

**Lecturers** Ms. SAEC Wijesinghe  
*B.Sc. (Agric.) (WUSL)*

Ms. RDN Debarawatta  
*B.Sc. (Agric.) (WUSL)*

**Lectures (Probationary)** Ms. N Subashani  
*B.Sc. (Agric.) (WUSL)*

Ms. DMAEI Dewagedara  
*B.Sc. (Agric.) (WUSL)*

Ms. RMVA Bandara  
*B.Sc. (Agric.) (WUSL)*

<b>Technical Officer</b>	Mr. RM Padmasiri
<b>Management Assistant (Grade I)</b>	Mr. HAPJ Hettiarachchi

**Department of Plantation Management**

<b>Head</b>	Prof. KGMCP Bandara Gajanayake <i>B.Sc. (Agric.) Hons. (Peradeniya)</i> <i>M. Phil. (Peradeniya)</i> <i>M.Sc. (Mississippi State, USA)</i> <i>Ph.D. (Mississippi State, USA)</i>
<b>Chair Professor</b>	Prof. DC Abeysinghe <i>B.Sc. (Agric.) Hons.</i> <i>M.Phil. (Peradeniya)</i> <i>Ph.D. (Zhejiang)</i>
<b>Professor</b>	Prof. (Ms.) HMIK Herath <i>B.Sc. (Agric.) Hons. (Peradeniya)</i> <i>M.Sc. (Peradeniya)</i> <i>Ph.D. (New Zealand)</i>
	Prof. WJSK Weerakkody <i>B.Sc. (Kelaniya)</i> <i>Ph.D. (Kelaniya)</i>
<b>Senior Lecturers</b>	Dr. HAWS Gunathilake <i>B.Sc. (Agric.) Hons. (Peradeniya)</i> <i>M. Phil. (Peradeniya)</i> <i>Ph.D. (Ludhiana)</i>
<b>Lecturers</b>	Ms. WAS Lakmali <i>B.Sc. (Forestry &amp; Env. Science) (USJP)</i> <i>M.Phil. (Peradeniya)</i>
	Ms. KGAPK Amarasingha <i>B.Sc. (Agric.) (WUSL)</i> <i>M.Phil. (WUSL)</i>
<b>Lecturers (Probationary)</b>	Mr. IJ Amadoru <i>B.Sc. (Agric.) (WUSL)</i> <i>M.Sc. (Agric. Biosystem Engineering) (Peradeniya)</i>
	Mr. HKJP Wickramasinghe <i>B.Sc. (Agri. Tech &amp; Mgt.) (Peradeniya)</i> <i>M.Sc. (Peradeniya)</i>
	Mr. KHMI Karunarathne <i>B.Sc. (Agric.) Hons. (Peradeniya)</i> <i>PG. Dip. IT (Moratuwa)</i>

**Technical Officer  
(Grade II)** Ms. BMGM Balasooriya  
*Dip in IT (WUSL)*  
*Dip in English (WUSL)*

**Management Assistant  
(Grade III)** Ms. WWKS Mendis  
*Dip. in NDICT (NAITA)*

**Mechanic (Grade II)** Mr. M.H.I. Prasad

**Field Supervisor (Grade II)** Mr. S.P.A Karunarathna

#### Other Units

#### Library

**Senior Assistant Librarians** Mr. W Punyawardena  
*B.A. (Special) (Kelaniya)*  
*MLIS (Colombo)*  
*ALA, FLA (Sri Lanka), Chartered Librarian*

Ms. DGAS Malkanthi  
*B.A. Hons. (Kelaniya)*  
MSSc (Kelaniya)

**Senior Staff Assistant** Ms. SPJ Muthugalage

#### English Language Teaching Unit

**Coordinator** Ms. WMC Fernando  
*B.A. (Peradeniya)*  
*M.A. (Kelaniya)*

**Computer Application Assistant  
(Grade III)** Ms. EMHAK Ekanayake  
*Dip. in Computer (IDM)*  
*Dip. in English for Legal Studies (OUSL)*

#### 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

	<i>B.Sc. (Agric.) Hons. (Peradeniya)</i> <i>PGD (SLIIT)</i> <i>M.Sc.in IT (SLIIT)</i> <i>Ph.D. (WUSL)</i>
<b>Systems Engineer</b>	Mr. WD Samanwickrama <i>B.Sc. (Kelaniya)</i> <i>PG. Dip.IT (SLIIT)</i> <i>PG. Dip.IT (UCSC)</i> <i>M.Sc. (SLIIT)</i>
<b>Assistant Network Manager</b>	Mr. EMDS Ekanayake B.ICT(Colombo)
<b>Instructors</b>	Mr. SBMCP Herath <i>B.Sc. (Agric.) (WUSL)</i> <i>M.Sc. (Peradeniya)</i> <i>PG. Dip. in IS (SLIIT)</i> <i>M.Sc. (Information Systems) (SLIIT)</i>
	Mr. HWH Premachandra <i>BIT (Colombo)</i>
<b>Technical Officer</b>	Mr. HMSKYB Herath
<b>Computer Application Assistant</b>	Mr. HAA Dharmapriya
<b><u>Internal Quality Assurance Unit (IQAU)</u></b>	
<b>Director</b>	Prof. KDRR Silva <i>B.Sc. (Agric.) Hons. (Peradeniya)</i> <i>Ph.D. (Reding)</i>
<b>Faculty Coordinator</b>	Dr. B.L.W.K. Balasooriya <i>B.Sc. (Agric.) Hons. (Peradeniya)</i> <i>M.Sc. (Peradeniya)</i> <i>M.Sc. (Ghent, Belgium)</i> <i>Ph.D. (Ghent, Belgium)</i>
<b><u>Health Services</u></b>	
<b>University Medical Officer</b>	Dr. DMNS Karunaratne <i>MBBS (SL)</i>
<b>Pharmacist</b>	Ms. YMNDY Kumari <i>(S.L.M.C. Reg. Pharmacist)</i>
<b>Nursing Officer</b>	Mr. SN Senavirathne <i>Dip. In Nursing</i>
<b>Health Attendant</b>	Mr. KSSB Fernando

<b>Public Health Inspector</b>	Mr. RWSK Balasooriya <i>Dip. in Public Health Inspector</i>
<b>Student Counsellors</b>	Dr. (Ms.). RHMK Ratnayake <i>B.Sc. (Agric.) (WUSL)</i> <i>M.Sc. (Peradeniya)</i> <i>Ph.D. (Queensland)</i>  Dr. (Ms.) HMIK Herath <i>B.Sc. (Agric.) Hons. (Peradeniya)</i> <i>M.Sc. (Peradeniya)</i> <i>Ph.D. (New Zealand)</i>  Dr. (Ms.) JAAC Wijesinghe <i>B.Sc. Hons. (USJP)</i> <i>Ph.D. (USJP)</i>
<b>Proctor</b>	Dr. TK Karadakatiya <i>B. Com (Sp.) (SJP)</i> <i>M.Sc. (SJP)</i> <i>Ph.D. (Wuhan, China)</i>
<b>Deputy Proctor</b>	Dr. (Ms.) AGK Wijesinghe <i>B.Sc. (Agric.) Hons. (Peradeniya)</i> <i>M.Sc. (Peradeniya)</i> <i>Ph.D. (Czech Republic)</i>
<b>Coordinator Out Reach Center</b>	Dr. B Ranaweera <i>M.Sc. (Moscow)</i> <i>Ph.D. (Moscow)</i>
<b><u>Physical Education</u></b>	
<b>Director</b>	Mr. RJ Wellassa <i>B.Sc. (Kelaniya)</i> <i>PG. Dip. in Physical Education (Peradeniya)</i>
<b>Instructors</b>	Mr. GWSR Wickrama <i>B.A. (Jayawardenapura)</i> <i>Dip. in Sport Science (NISS)</i> <i>PG.Dip.in Physical Edu. (Peradeniya)</i> <i>Dip. in Sport Science (NIS)</i>  Mr. KAM Bandarathilaka <i>B.Sc. (sp.) Business Management (WUSL)</i> <i>PG. Dip in Exercise and Sports Science (Peradeniya)</i>  Ms. MA Sammani <i>B.Sc. (Agric.) (WUSL)</i>  Ms. KAC Chathurangani <i>B.Com. (sp.) (Kelaniya)</i>
<b>Staff Assistant</b>	Mr. HMN Dharmapriya

### Career Guidance Unit

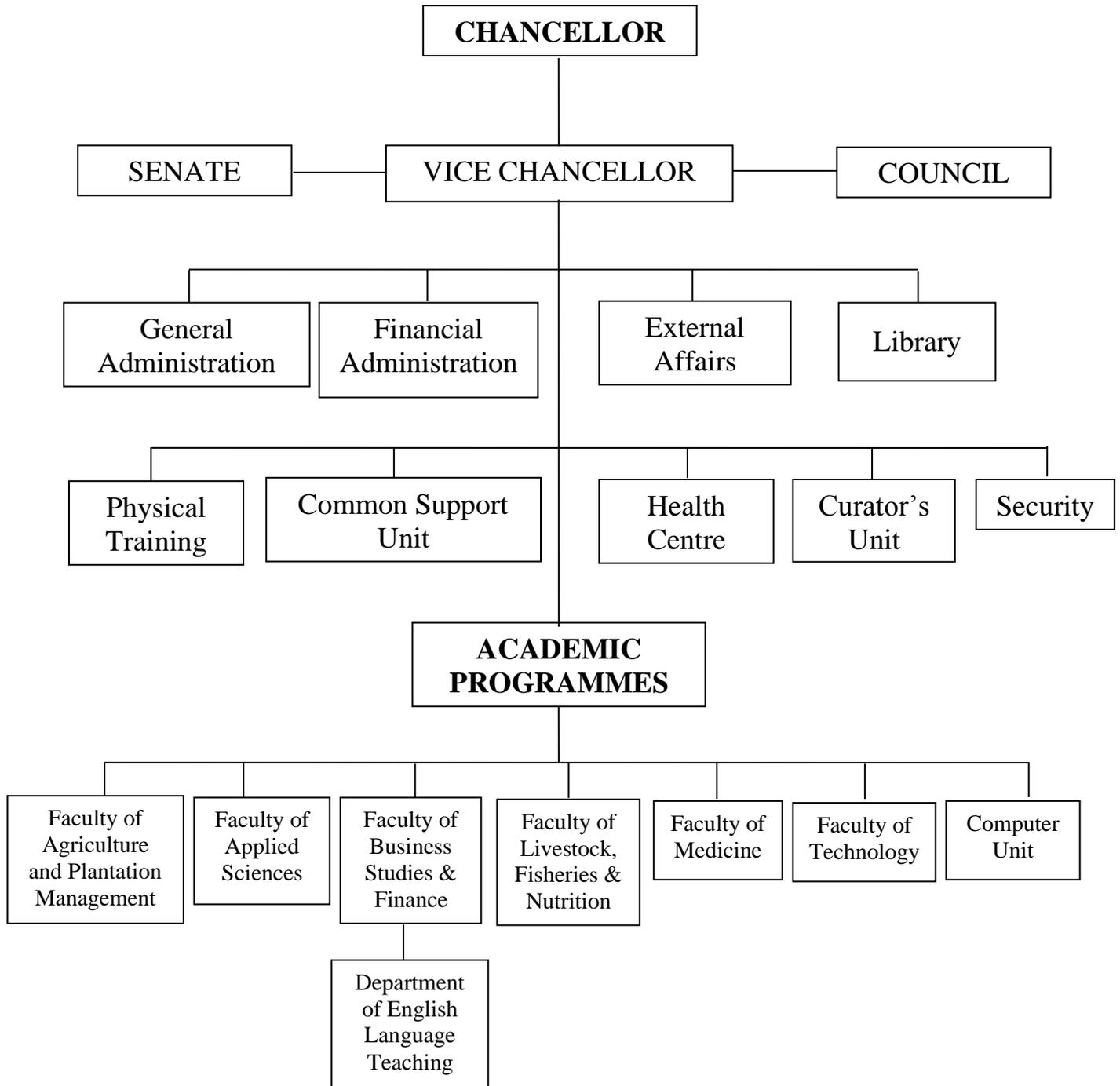
<b>Director</b>	Prof. H.M.A.Herath <i>B. Com (Ruhuna), PGDM in Education</i> <i>M.Sc. (Management-SJP)</i> <i>Ph.D. (UUM –Malaysia)</i> <i>SEDA (UK), Entrepreneurship Trainer (CEFE-German)</i>
<b>Computer Application Assistant</b>	Mr. NP Sanjeeva Janakasiri <i>Dip. in HRM (IPM)</i>
<b>Director / Staff Development</b>	Prof. M.M.D.R. Deegahawature <i>B.Sc. Business Administration (Hons.) (Sri J'pura) MBA (Colombo)</i> <i>MBA in MOT (AIT)</i> <i>PhD in Management (HUST)</i>
<b>Coordinators / External Affairs</b>	Dr. WMHK Wijenayake <i>B.Sc. (Kelaniya)</i> <i>Ph.D. (Kelaniya)</i>  Dr. I. P. M. Wickramasinghe <i>B.Sc. Eng (Peradeniya)</i> <i>M.Phil. (Peradeniya)</i> <i>M.Sc. (USA)</i> <i>Ph.D. (USA)</i>
<b>Coordinators / Student Support Services &amp; Welfare</b>	Dr. B Ranaweera <i>M.Sc. (Moscow)</i> <i>Ph.D. (Moscow)</i>  Dr. PMN Dharmawardena <i>B.Sc. (Hons) (Kelaniya)</i> <i>M.Phil. (Kelaniya)</i> <i>M.Sc. (Kyushu)</i> <i>Ph.D. (Kyushu)</i>
<b><u>Common Support Unit</u></b>	
<b>Senior Asst. Registrar</b>	Ms. R.Y Sandamali <i>B.Sc. (Hons.) Town &amp; Country Planning (UoM)</i> <i>MBA (WUSL)</i> <i>ICASL (Intermediate)</i>
<b>Assistant Registrar</b>	Mrs. SPAU. Senarath <i>B.Sc. in Environment Conservation &amp; Mgt. (Kelaniya)</i>
<b>Assistant Bursar</b>	Mrs. SNK Karunarathna <i>B.Sc. (Business Administration) (Jayawardenapura)</i>
<b>Works Engineer</b>	Mr. MVW Samarakkody <i>B.Sc. (Civil Eng.) (Peradeniya)</i>

<b>Shroff</b>	Mr. DMC Dharmawardana
<b>Academic Warden (Makandura Premises)</b>	Dr. KGMCP Bandara Gajanayake <i>B.Sc. (Agric.) Hons. (Peradeniya)</i> <i>M. Phil. (Peradeniya)</i> <i>M.Sc. (Mississippi State, USA)</i> <i>Ph.D. (Mississippi State, USA)</i>
<b>Sub Warden Sapumalbandara Hostel (Boys)</b>	Mr. MDDS Abeyrathna <i>B.A. (sp.) (Jayawardenapura)</i>
<b>Sub Warden Biosobandara Hostel (Girls)</b>	Ms. NA Samarasinghe <i>B.A. (sp.) (Kelaniya)</i>

**Administrative staff useful for Student matters at Kuliypitiya Premises**

<b>Senior Assistant Registrar (Examinations)</b>	Mr. LMC Siriwardhana <i>B.A. (Hons.) (USJP)</i> <i>Master of Art (Kelaniya)</i>
<b>Assistant Registrar (Student Registration &amp; Student Welfare)</b>	Ms. SN Piyadarshani <i>B.B. Mgt. (HRM sp.) (Hons.)</i>

**Organizational Structure of the University**



## Officers of the University

**Chancellor**  
Deshabandu Prof. Tuley De 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. JMUK Jayasinghe  
B.Sc. (Agric.) Hons. (Peradeniya)  
M.Sc. (Peradeniya)  
Ph.D. (Guelph)

### Deans of Faculties

#### *Agriculture & Plantation Management*

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

#### *Applied Sciences*

Prof. 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 (Malaysia)  
Ph.D. (Kelaniya)

#### *Livestock, Fisheries & Nutrition*

Prof. (Mrs.) C.V.L. Jayasinghe  
B.Sc. (Agric.) Hons. (Peradeniya)  
M.Phil. (SJP)  
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  
B.Sc. (Eng.) Hons. (Moratuwa)

	<i>M.Eng. (AIT)</i> <i>D.Eng. (Japan)</i>
<b>Registrar</b>	Mr. WAD Chithrananda <i>B.A. (Kelaniya)</i> <i>Master of Public Mgt., SLIDA</i>
<b>Acting Librarian</b>	Mr. W Punyawardena <i>B.A. (Special) (Kelaniya)</i> <i>MLIS (Colombo)</i> <i>ALA, FLA (Sri Lanka), Chartered Librarian</i>
<b>Bursar</b>	Mr. DAU Dharmadasa <i>B.Sc. (Kelaniya)</i> <i>MBA (WUSL)</i> <i>PG.Dip in MIT (Kelaniya)</i> <i>ACA, ACMA</i>

### Contact Telephone Numbers

#### Faculty of Agriculture & Plantation Management, Makandura

	General	031- 2299704
	Fax	031- 2299248
	<b>Tel. No.</b>	<b>E-mail</b>
Dean	031-2299430	fapm@wyb.ac.lk
Head /Horticulture	031-2299249	horticulture@mkd.wyb.ac.lk
Head /Plantation Mgt.	031-2299226	plantation@@mkd.wyb.ac.lk
Head/ Biotechnology	031-3315373	biotech@mkd.wyb.ac.lk
Head / Agribusiness Mgt.	031-2299246	abm@mkd.wyb.ac.lk
Assistant Registrar	031-2299875	arfapm@wyb.ac.lk

#### Faculty of Livestock Fisheries & Nutrition, Makandura

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General	037-2281412, 2282414, 2283614
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