

Master of science in Crop Production Technology

**Department of Crop Science
Faculty of Agriculture
University of Ruhuna
Mapalana
Kamburupitiya
Sri Lanka**

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Introduction

Agriculture is an art of living with nature and also a technology which unifies the living and non living world. Furthermore, the efficiency of each production unit either domestic animals or crops has been enhanced through the use of technology to control and regulate a small limited part of nature. Technological innovations in Agriculture, resulting in higher productivity have been emulated worldwide. Proper understanding of the weather and climate, land and soil, crop and cropping systems, agronomy of crop production, pest and disease management etc., have generated enormous technologies, which have been passed from generation to generation. At the same time, modern science has created a number of technologies, which could make an impact on agricultural productivity. As Agriculture remains a strong sector in Sri Lankan economy, exploitation of advances in technology and biology is of particular importance.

Despite a lot of research findings on crop production is available; application of those findings for agricultural development is still lacking, mainly due to lack of skilled human resources. Therefore, skill development in crop production technology should be given priority in agricultural education, not only to the secondary education but also up to the postgraduate education. In the proposed postgraduate program of crop production technology envisage provision of technological know-how to students, commencing from crop environment, agronomic aspects of planting to harvesting, technological aspects of crop production and post-harvest processing up to the marketing.

UNIVERSITY OF RUHUNA - FACULTY OF AGRICULTURE
BY-LAW FOR THE AWARD OF THE DEGREE OF MASTER OF SCIENCE AND
POSTGRADUATE DIPLOMA

1. Award of the Master of Science and Postgraduate Diploma in Crop Production Technology

The Degree of Master of Science, which may be abbreviated as M.Sc. and Post Graduate Diploma which may be abbreviated as PG. Dip. may be awarded by the University of Ruhuna, Sri Lanka, hereinafter referred to as the University, to a student who has:

- a) fulfilled the eligibility requirements set out in Section 2; and
- b) been accepted by the Department of Crop Science of the Faculty of Agriculture hereinafter referred to as the Department and the Faculty respectively; and
- c) thereafter been registered as a full-time or part-time student in the University with the approval of the Senate of the University (hereinafter referred to as the Senate) for the required duration as set out in Section 5; and
- d) paid the prescribed fees; and
- e) followed the prescribed course as outlined in Section 7; and
- f) passed the examination as set out in Section 8.

will qualify for the M.Sc. after completion of the requirement for graduation.

2. Eligibility Requirements

2.1 The eligibility requirements for the M.Sc. degree course and PG. Dip. shall be decided by the Department subject to the minimum eligibility requirements specified in Section 2.2 and approved by the Faculty and the Senate.

2.2 An applicant fulfils the minimum eligibility requirements to follow the prescribed course leading to the Degree of Master of Science, if he/she has:
a degree in Agriculture/Biological Sciences or any other relevant fields from a recognized University/Institution as judged by the Faculty and approved by the Senate (minimum GPA requirement is 2.75).

WITH

Proficiency in English as judged by the Faculty and approved by the Senate

AND

Satisfactory evidence of the capacity and attainments to attend full/part time classes as judged by the Faculty and approved by the Senate.

2.3 The eligibility requirements for the Postgraduate Diploma program are same as those entering the Master's degree program.

2.4 A person who has already registered as an internal/external student of any university or higher educational institution shall not be eligible for registration.

3. Course Structure

3.1 The MSc in Crop Production Technology is based on course works for the first two semesters followed by a research project which spans third and fourth semesters. The course works consist of lectures, practical classes, tutorials, seminars, case studies and field visits. The medium of instruction is English and the course is conducted in weekends at the Department of Crop Science, University of Ruhuna.

Apart from the sound theoretical knowledge provided in the first two semesters, emphasis is given to practical experience, experimentation in laboratory, field and controlled environments, techniques and instruments for measuring crops and their environments, computer based methods of data collection and analysis, and the interpretation and presentation of scientific information. Those who have obtained 30 credits for course works are eligible for the thesis defense examination which will be held at the end of the fourth semester.

Student upon completion of course works with 30 credits, if he/she wishes to discontinue the study program are eligible for a PG. Dip. in Crop Production Technology. The candidate who completes both course works and research component are only eligible for the M.Sc. degree upon the satisfactory completion of both components within the maximum period of registration. M.Sc. or the PG. Dip. can be pursued on both a full-time and part-time basis. The minimum and maximum duration of the registration for the programme shall be in accordance with the section 5.

3.2 One credit is equivalent to 15 hours of lectures or 30 hours of practical classes or 45 hours of industrial/field visits. Students shall not exceed the maximum number of allowed modules and credit limits per semester. Given below is the maximum number of credits and modules, a student can take per semester.

	<u>Full time</u>	<u>Part time</u>
Maximum number of modules per semester	08	04
Maximum number of credits per semester	20	10

3.3 The tentative list of modules offered for a particular semester will be notified to the students before registration for the course and students are required to choose the sufficient credits in consultation with the Course coordinator. Modules in the tentative list will only be offered if sufficient numbers (at least five students) subscribe to the module. Students will be notified before course registration if a module originally selected is not offered subsequently. Students are required to add modules from among the other modules offered to compensate for credit requirements if modules originally offered are subsequently found to be not available.

3.4 In case of failure and in the event such a module is not offered in a subsequent year a student who fails to earn credits in the original attempt has to register for a different module/s to satisfy the credit requirements for graduation. Students have total freedom to select the modules and to add or drop them during the first two weeks of lectures. All adding and dropping should be according to the procedure outlined by the Course coordinator at the beginning of the course.

3.5 Research Project

As a part of the program, students are required to get 20 credits from the research project during which they will be guided and advised by a supervisor/s appointed by the Senate on the recommendation of Academic Advisory Board. A wide range of topics is available within the research interests of members of the teaching panel. A research proposal prepared by each student should be submitted to the Academic Advisory Board and upon

a notification; a presentation should also be done. Duration of 8 to 12 months shall be spent on the research investigation on a full time basis or 16 to 24 on a part time basis. Thesis of the research project is expected to be submitted after the specified period as appropriate. However, to be eligible to submit the thesis, students are required to complete the relevant course works with 30 credits. They shall maintain a minimum overall GPA of 2.5 also. Duly completed thesis with the signatures of all supervisors and Head of the Department of Crop Science should be submitted to the SAR/Examinations, University of Ruhuna. SAR/Examinations, taking the comments of examiners into consideration, will then arrange the thesis defense examination, which would be within a period of three months upon submission of thesis. However, if any minor correction is to be made as notified by the examiners, students are required to re-submit the corrected bound thesis within a period of six weeks. In the case of major revisions, the student may take a maximum period of six months to re-submit the thesis. In such a situation, student should register for an additional semester. The defense examination shall include an oral presentation followed by a defense by the candidate of his/her thesis and overall knowledge on the discipline areas. If a thesis is judged to be satisfactory, the Academic Advisory Board will grade it: Excellent, Very Good, Good or Fair. Those who obtained a satisfactory grade from the thesis defense examination will only be qualified for awarding of the degree.

- 3.6 The Academic Advisory Board consists of following members.
- Head of the Department (Chairperson)
 - Course coordinator (appointed by the Head/Crop Science)
 - Professors and Senior lecturers of the Department
 - Two representatives the other departments of the Faculty
 - Two representatives from the other relevant institutions

4. Registration

- 4.1 An applicant selected for admission may register having paid the prescribed fees. The registration procedure shall be as determined by the Senate. The effective date of registration will be the date of commencement of the courses of the program. In the case of students, who wish to do the research component first, the effective date of registration will be the date of proposal defence and the acceptance of the proposal by the Academic Advisory Board as shall be approved by the Senate on the recommendation of the Department.
- 4.2 If in the opinion of the Department, the performance of a student is consistently unsatisfactory over a period of six months, his/her registration may be cancelled by the Senate on the recommendation of the Faculty.
- 4.3 The registration for the M.Sc. degree may be reverted to the Postgraduate Diploma and the student considered for the award of the PG-Dip. by the Senate on the recommendation of the Faculty, under the regulations governing the award of the Postgraduate Diploma, at the end of the minimum period of registration or anytime thereafter, upon completion of 30 credits from course works, provided:
- (a) the student opts to obtain the Postgraduate Diploma; or
 - (b) there are other valid reasons for such a change; or
 - (c) the performance of a student for the MSc Degree is not up to the requisite standard in the opinion of the Department.

5. Duration of the program

- 5.1 The duration of the M.Sc. degree program shall be:
- a) 24 to 30 months for full-time students, and

b) 36 to 42 months for part-time students.

5.2 On a written request of a student, he/she may be allowed to change over from full-time registration to part-time registration of the course or vice-versa. In that case, the minimum period required for completing the remaining part of the course shall be decided by the Senate in accordance with Section 5.1.

5.3 The minimum duration for the Postgraduate Diploma subjected to the satisfaction of the credit requirement as set out in section 4.3 of the bylaws shall be:

- a) 12 to 15 months for full-time students, and
- b) 18 to 24 months for part-time students.

5.4 The Senate may extend the period in any particular case on the recommendation of the Faculty under exceptional circumstances.

6. Presence at the University

6.1 A part-time student shall be present at the University for a minimum period of time prescribed by the Faculty and approved by the Senate and at particular hours prescribed by his/her Supervisor, Course Coordinator and the Head of the Department concerned.

6.2 A full-time student shall be present at the University unless the Dean approves leave of absence for a specific period.

6.3 A full-time student may undertake instruction work or work for the university in temporary, contract or permanent capacity with the permission of his/her Supervisor, Course Coordinator and the Head of the Department concerned, as long as such activities doesn't affect his/her academic activities in the view of the his/her Supervisor and Course Co-ordinator.

7. Course Outline

The M.Sc. degree course shall consist of the following:

- a) Attending regular lecture courses at the University as envisaged in the curriculum recommended by the Faculty and approved by the Senate;
- b) Preparation and presentation of one or more seminars on topics recommended by subject coordinators and approved by the Course coordinator and the Head of the Department;
- c) Any other assignments such as laboratory work, tutorials and field works/trips envisaged in the curriculum approved by the Faculty and the Senate;
- d) Research work in a specified area under the guidance of a Supervisor or Supervisors, the results of which shall be presented in the form of a Dissertation. The format of the Dissertation and the number of copies to be submitted shall be decided by the Faculty. The Supervisor(s) shall be assigned to a student by the Course coordinator and Head of the Department concerned. Minimum duration of registration for research shall be according to section 3.5.

Syllabus

List of Courses

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Module 1 : Compulsory Courses		
Course No.	Course Name	Credits
CS 5301	Principles of Agronomy and Horticulture	3
CS 5201	Integrated Plant Nutrient Management	2
CS 5202	Applied Crop Physiology	2
CS 5203	Principles of Plant Protection	2
CS 5204	Bio Statistics	2
CS 5205	Organic and Biodynamic Agriculture	2
CS 5206	Agro-ecology and Sustainable Agriculture	2
CS 5207	Commercial Floriculture	2
CS 5208	Management of Aquatic Plants	2
CS 5209	Agro-forestry and Woodland Management	2
CS 5210	Plant Tissue Culture Technology	2
CS 5211	Protected Agriculture Technology	2

Module 2 : Elective Courses		
CS 5212	Current issues in Crop Production	2
CS 5213	Energy Plantations	2
CS 5214	Unutilized and Underutilized Crops	2
CS 5215	Crop Waste Management and Integrated Farming	2
CS 5101	Seminars	1
CS 5216	Statistics for Crop Technology Research	2
CS 5217	Production Technology of Plantation Crops	2
CS 5218	Landscape Gardening	2
CS 5219	Production Technology of Fruit Crops	2
CS 5220	Production Technology of Field Crops and Vegetables	2
CS 5221	Production Technology of Export Agricultural Crops	2
CS 5222	Post harvest Technology of Agricultural Crops	2

8. Course Evaluation

- 8.1 Most of the works are assessed on an individual basis, but some small-group assignments may also be included.
- 8.2 The performance of a student shall be assessed on the basis of the following:
- Written examination(s);
 - Seminars;
 - Assignments, where appropriate;
 - Examination of the dissertation and oral examination.
- 8.3 The module coordinator, lecturers/examiners for each module conducted in a semester shall be nominated by the Department and recommended by the Faculty Board and approved by the Senate. A committee comprising of the Course coordinator, module coordinators and lecturers/examiners for all modules under the supervision of the Head of the Department, is responsible for evaluating the performance of a student in all modules offered by the Department and for issuing the respective grade.
- 8.4 A student who has missed an examination because of illness or other compelling reason may appeal with supporting documents to the Dean for an Academic Concession within two weeks from the date of the examination. An Academic Concession, which enables the student to

repeat the module or attempt the supplementary evaluation, if applicable, as the first attempt, shall require the approval of the Faculty Board.

- 8.5 An outline of the module, class activities, assignments, examinations and weights assigned shall be announced to the students by the coordinator/ lecturer-in-charge at the commencement of the module.

9. Schedule of Fees

The schedule of fees shall be as recommended by the Department subject to approval by the Faculty and the Senate.

10. Revision

This by-law is subject to revision from time to time.

Payments

Application fee (Rs. 1000.00)

Registration fee (Rs.2500.00 per year)

Tuition fee (Rs. 25000.00 per semester)

Library fee (Rs. 2000.00 (refundable) + Rs. 1000.00 per year)

Internet/Computer fee (Rs. 1000.00 per year)

Examination fee (Rs.500.00 per subject)

Thesis defense examination/submission fee (Rs. 5000.00)

APPENDIX

Typical Performance Criteria

1. Title of Award:

Master of Science in _____*

(* To be specified for the specific course)

2. Participation in the Academic Program:
 - 2.1 At least 80 % attendance is required in lectures and tutorials specified under 7 (a);
 - 2.2 Participation is compulsory in seminars and assignments, such as: laboratory and field works and field trips as specified under 7 (b) and (c);
 - 2.3 Undertaking a research project as specified under 7(d);

3. Pass in the Master of Science Degree:

- 3.1 A candidate is deemed to have passed the Master of Science degree if he/she has:

- a) successfully completed all the subjects specified under 7(a);
- b) successfully completed all the seminars specified under 7(b);
- c) successfully completed the assignments specified under 7(c); and
- d) successfully completed the research project specified under 7(d).

Note: Where the overall mark assigned for a subject consists of written examination marks as well as marks assigned for any subject related coursework, the candidate shall obtain at least 50 % for all components of that subject. This is in addition to all the mandatory requirement to pass the module which may include

- 3.2 If the student is unsuccessful in any of the parts (a, b, c, d) of 3.1, the student may be repeated and this shall be at the next holding of the examination(s)/assessment(s). No postponement shall be allowed without prior approval of the Senate. The student may compel to register for another course, if the repeated course was unavailable in the subsequent year or if he/she wishes to substitute the repeated course with another course/s to earn credit requirement for graduation. Substitute courses are only allowed one re-examination after the proper attempt and are not allowed to repeat.

- 3.3 Classes will not be awarded. Transcript with all the grade points will be issued on request.

4. Award of Subject Grades:

The performance of a student in each module is evaluated based on different component as may be relevant for the subject. Grades and Grade Points shall be assigned for each module according to the following table.

Marks (%) (out of 100)	Grade	Points
≥85	A+	4.0
80 – 84	A	4.0
75 – 79	A-	3.7
70 – 74	B+	3.3
65 – 69	B	3.0
60 – 64	B-	2.7
55 – 59	C+	2.3
50 – 54	C	2.0
45 – 49	C-	1.7
40 – 44	D	1.3
40>	F	0

For passing a course, the student should obtain a minimum of C grade. Overall Grade Point Average (GPA) is calculated using the formula;

$$GPA = \frac{\sum C_i G_i}{\sum C_i}$$

Where;

C_i is the number of credits for the i^{th} course

G_i is the grade point obtain for the i^{th} course

Candidates should maintain an overall minimum GPA of 2.5 throughout the course. Candidates who obtained a lower grade than D for a particular module should repeat the course at the next immediate opportunity and in such a situation, he/she shall not be given a grade above B, even if the student obtains more than 69 marks. However, if a student has obtained a C or D grade for a course he/she has the option either to repeat the course or to keep the grade as it is, provided he/she can maintain the overall minimum GPA requirement. Normally only one re-examination shall be allowed.

5. Release of Results of the Written Examinations:

Results of a candidate at the written examinations shall be released after the meeting of Board of Examiners chaired by the Vice Chancellor, unless the Results Board recommends withholding of the results for specific reasons. Results board of the end semester examinations consists of following members;

Vice Chancellor (Chairman)

Dean of the Faculty of Agriculture

Director (Postgraduate studies)

SAR (Examination)

Head of the Department

Course coordinator/MSc. program

Professors of the Department of Crop Science

All examiners of the stipulated module

6. Date of Award:

The effective date of the Master of Science Degree/Postgraduate Diploma shall be the first day of the month after the successful completion of the following:

- a) written examination(s), where appropriate;
- b) seminar(s);
- c) assignment(s), where appropriate;
- d) examination of the dissertation and oral examination.