

POSTGRADUATE INSTITUTE OF SCIENCE

(PGIS)



University of Peradeniya
SRI LANKA

HANDBOOK
2002

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Cover pictures (clockwise from left): PGIS building; Computer laboratory; Students of the M.Sc. programme in Environmental Science during a field expedition; Participants of the Regional Training Programme on Management of Natural Resources during a visit to a gem testing laboratory, Ratnapura.

Compiled by N. C. Bandara

POSTGRADUATE INSTITUTE OF SCIENCE
University of Peradeniya, Sri Lanka



HANDBOOK 2002

(Effective from September 14, 2002)

POSTGRADUATE INSTITUTE OF SCIENCE

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1.0 INTRODUCTION

The Postgraduate Institute of Science (PGIS) is a national institution attached to the University of Peradeniya. The PGIS was established in 1996 by an order made by the Minister of Education and Higher Education as a sequel to a proposal made by the Faculty of Science, University of Peradeniya to the University Grants Commission.

The principal objective of the Postgraduate Institute of Science is to promote and provide postgraduate instruction, training and research in various scientific specialities. The Institute functions under the direction and control of a Board of Management, which is the academic and executive body chaired by the Director. The academic programmes of the PGIS are conducted through 10 Boards of Study: Biochemistry and Molecular Biology; Chemical Sciences; Earth Sciences; Environmental Science; Mathematics; Physics; Plant Sciences; Science Education; Statistics and Computer Science and Zoological Sciences. At its inception, the postgraduate research programmes (M.Phil. and Ph.D.) which were traditionally conducted by the Faculty of Science of the University of Peradeniya were transferred to the PGIS in 1996. The PGIS commenced its activities also by initiating several M.Sc. programmes and continues to expand these programmes in different disciplines of science. Sandwich and collaborative programmes were also launched by interacting with local and overseas institutions and the industry. Currently, the M.Sc., M.Phil. and Ph.D. programmes as well as post-graduate certificate courses, in-service training programmes, workshops etc. are being routinely conducted. The Institute also offers consultancy services to the local industry, public and private sector institutions. The Institute recommends to the University of Peradeniya the award of degrees, diplomas, certificates and other academic distinctions. Through its programmes, the PGIS currently caters to the growing demand for trained S and T manpower needs of private and public sector organizations in Sri Lanka. Due to the shortage of foreign scholarships, more and more graduates employed in private and public sector institutions are turning to the PGIS to follow their postgraduate studies. The PGIS has thus embarked on a mission to fill the gap created during the last few years due to the paucity of opportunities for Sri Lankan scientific personnel to obtain overseas postgraduate training. It is accomplishing its mission by regularly training a significant number of scientific personnel needed for the country's development effort through some tailor-made M.Sc. programmes.

The PGIS is pleased to record that by the end of the year 2001 more than 200 (M.Sc. – 168; M.Phil. – 26; Ph.D. - 17) degrees have been awarded at the convocations of the University of Peradeniya. With its projects of international collaboration, the acquisition of computers and Internet facilities, the PGIS strives to provide its students, currently numbering over 500, with a postgraduate education on par with the best in the world. A significant number of our students carry out research projects of relevance to the industrial and development needs of the country. In conducting its programmes, the PGIS has been able to enlist the support of highly qualified experts available in the local universities, research institutions and other private and public sector organizations as well as those from abroad. Despite the handicaps due to non-availability of equipment and dearth of resource personnel, the PGIS has strived hard to offer high quality programmes to its students. We have been able to make much headway thanks in large measure to the laboratory facilities presently made available to us by the Faculty of Science and other faculties of the University of Peradeniya. In the future, we intend to acquire state-of-the-art equipment through foreign funding and continue to invite competent resource persons from abroad to conduct some of the programmes for which expertise is not available locally. We also propose to facilitate the conduct of more and more research projects at M.Sc., M.Phil. and Ph.D. levels with increased international collaboration. The year 2002 marked some crowning achievements for the PGIS. The first-ever annual research sessions were conducted successfully with more than 30 papers being presented. These papers were refereed nationally and internationally and the proceedings of the research sessions were published as two special volumes of the Ceylon Journal of Science.

2.0 OFFICERS OF THE INSTITUTE

2.1 Administration

Director: Prof. K Dahanayake	B.Sc. Hons. (<i>Cey.</i>), Diploma (D.E.A.) and Ph.D. (<i>Nancy</i>)
Assistant Registrar: Ms. A A P Athauda	B.Sc. Hons (<i>Kel.</i>)
Senior Assistant Bursar: Ms. W A P S Molagoda	B.A. (<i>S J'Pura</i>)

2.2 Members of the Board of Management

(as of 1st September 2002)

- Director, Postgraduate Institute of Science: *Prof. K Dahanayake* (Chairman)
- Secretary to the Ministry of Tertiary Education & Training: *Mr. S Ediriweera*
- Secretary to the Ministry of Finance (nominee): *Dr. P Alailima*
- Secretary to the Ministry for Economic Reform, Science and Technology: *Mr. G Hewagama*
- Director, Institute of Fundamental Studies (IFS): *Prof. K Tennakone*
- Director, Industrial Technology Institute (ITI): *Dr. A M Mubarak*
- Director, National Science Foundation (NSF): *Mr. M Watson*
- Director, Geological Survey and Mines Bureau (GSMB): *Dr. N P Wijayananda*
- Director-General, Central Environmental Authority (CEA): *Dr. L Jayasinghe*
- Director-General, National Aquatic Resources, Research and Development Agency (NARA):
Mr. M A R Kularatne
- Director-General, National Institute of Education (NIE): *Dr. G B Gunawardena*
- Director-General, Agriculture: *Mr. P Periyasamy*
- President, Federation of Chamber of Commerce and Industry of Sri Lanka (nominee):
Mr. Samanatha Abeywickrama
- Deans of Faculties of Science of the Universities
- University of Colombo: Prof. R L C Wijesundera*
- Eastern University of Sri Lanka: Dr. J C N Rajendra*
- University of Jaffna: Prof. R Kumaravadevel*

University of Kelaniya: Prof. C D Amarasekera
Open University of Sri Lanka: Prof. E M Jayasinghe
University of Peradeniya: Prof. S A Kulasooriya
Rajarata University of Sri Lanka: Dr. J L Ratnasekera
University of Ruhuna: Prof. R N Pathirana
Sabaragamuwa University: Dr. K K D S Ranaweera
South Eastern University: Ms. V Santhanam
University of Sri Jayawardenepura: Prof. W S Fernando
Wayamba University of Sri Lanka: Mr. A de Silva

Members elected by Boards of Study

Prof. P A J Perera (Board of Study in Biochemistry and Molecular Biology)
Prof. N S Kumar (Board of Study in Chemical Sciences)
Dr. A Senaratne (Board of Study in Earth Sciences)
Prof. O A Ileperuma (Board of Study in Environmental Science)
Dr. U N B Dissanayake (Board of Study in Mathematics)
Prof. M A Careem (Board of Study in Physics)
Prof. N K B Adikaram (Board of Study in Plant Sciences)
Prof. M A K L Dissanayake (Board of Study in Science Education)
Dr. K M Liyanage (Board of Study in Statistics and Computer Science)
Prof. K H G M de Silva (Board of Study in Zoological Sciences)

Members appointed by the University Grants Commission

Prof. R P Gunawardane (Chairman, National Education Commission)
Ms. K H P S Kodituwakku (Attorney-at-Law)
Mr. N Pathmanathan (Deputy Secretary, Treasury)
Prof. R O Thattil (Director, Postgraduate Institute of Agriculture)
Mr. D L C Welikala (Director, National Building Research Organization)

2.3 Members of the Co-ordinating Committee

Director (Chairman)
Dean of the Faculty of Science of the University of Peradeniya or his nominee
Chairmen of Boards of Study
Secretaries of Boards of Study
Librarian, University of Peradeniya or his nominee

2.4 Members of the Boards of Study (as of 1st September 2002)

Note: Director (PGIS) is a member (ex-officio) of all the Boards of Study

2.4.1 Biochemistry and Molecular Biology

Prof. P A J Perera, Head, Department of Biochemistry, University of Peradeniya (Chairman)
Dr. J G S Ranasinghe, Department of Biochemistry, University of Peradeniya (Secretary)
Dr. P Samaraweera, Head, Department of Molecular Biology & Biotechnology, University of Peradeniya
Dr. T Attanayake, Rubber Research Institute, Agalawatta
Dr. H R W Dharmaratne, Institute of Fundamental Studies, Kandy
Dr. K Fernando, Plant Genetic Resource Centre, Gannoruwa
Dr. S W Gunasekera, Department of Biochemistry, University of Peradeniya
Dr. D M D Yakandawala, Department of Botany, University of Peradeniya

2.4.2 Chemical Sciences

Prof. N S Kumar, Head, Department of Chemistry, University of Peradeniya (Chairperson)
Dr. A D L C Perera, Department of Chemistry, University of Peradeniya (Secretary)
Dr. W M A T Bandara, Department of Chemistry, University of Peradeniya
Dr. L Jayasinghe, Institute of Fundamental Studies, Kandy
Dr. P Karunaratne, Department of Chemical Engineering, University of Peradeniya
Prof. R M G Rajapakse, Department of Chemistry, University of Peradeniya
Prof. U Samarajeewa, Department of Food Science & Technology, University of Peradeniya
Dr. A Wickramasinghe, Department of Chemistry, University of Peradeniya

2.4.3 Earth Sciences

Dr. A Senaratne, Head, Department of Geology, University of Peradeniya (Chairman)
Mr. L R K Perera, Department of Geology, University of Peradeniya (Secretary)
Dr. H A Dharmagunawardana, Department of Geology, University of Peradeniya
Prof. P G R Dharmaratne, Chairman, National Gem & Jewellery Authority
Prof. A Gunatilleke, Formerly Professor and Head, Department of Earth Sciences, University of Oman and University of Kuwait
Dr. H M T G A Pitawela, Department of Geology, University of Peradeniya
Prof. N Seneviratne, Department of Civil Engineering, University of Peradeniya
Dr. T K D Tennekoon, Head, Oceanography Division, National Aquatic Resources, Research and Development Agency, Mattakuliya

2.4.4 Environmental Science

Prof. O A Ileperuma, Department of Chemistry, University of Peradeniya (Chairman)
Dr. R Fernando, Department of Geology, University of Peradeniya (Secretary)
Dr. M Amerasinghe, Department of Botany, University of Kelaniya
Prof. K H G M de Silva, Department of Zoology, University of Peradeniya

Prof. B S B Karunaratne, Head, Department of Physics, University of Peradeniya
Dr. G K Manuweera, Registrar of Pesticides, Department of Agriculture, Peradeniya
Prof. R M G Rajapakse, Department of Chemistry, University of Peradeniya
Mr. D B Sumithrarachchi, Director, Science and Technology Personnel Development Project,
Ministry for Economic Reform, Science and Technology

2.4.5 *Mathematics*

Dr. A A S Perera, Head, Department of Mathematics, University of Peradeniya (Chairman)
Dr. U Mampitiya, Department of Mathematics, University of Kelaniya (Secretary)
Mr. J P D Dharmadasa, Department of Mathematics, University of Peradeniya
Dr. U N B Dissanayake, Department of Mathematics, University of Peradeniya
Dr. C J Jayawardena, Department of Mathematics, University of Colombo
Dr. S Kanaganathan, Department of Mathematics, Eastern University of Sri Lanka
Dr. A A I Perera, Department of Mathematics, University of Peradeniya
Dr. S B Siyambalapitiya, Department of Engineering Mathematics, University of Peradeniya

2.4.6 *Physics*

Prof. M A Careem, Department of Physics, University of Peradeniya (Chairman)
Dr. P W S K Bandaranayake, Department of Physics, University of Peradeniya (Secretary)
Mr. K R Abhayasingha, Meteorologist, Department of Meteorology, Colombo
Prof. M A K L Dissanayake, Department of Physics, University of Peradeniya
Dr. J K D S Jayanetti, Department of Physics, University of Colombo
Prof. B S B Karunaratne, Head, Department of Physics, University of Peradeniya
Dr. R P U Karunasiri, Department of Physics, University of Peradeniya
Dr. S Kulatunga, Department of Physics, University of Ruhuna

2.4.7 *Plant Sciences*

Prof. N K B Adikaram, Head, Department of Botany, University of Peradeniya (Chairman)
Dr. K U Tennakoon, Department of Botany, University of Peradeniya (Secretary)
Prof. M D Dassanayake, Emeritus Professor, University of Peradeniya
Prof. S A Kulasooriya, Dean, Faculty of Science, University of Peradeniya
Dr. A Nugawela, Deputy Director, Rubber Research Institute, Agalawatta
Prof. A Perera, Department of Agricultural Biology, University of Peradeniya
Dr. D S A Wijesundara, Director, National Botanic Gardens, Peradeniya
Dr. D M D Yakandawala, Department of Botany, University of Peradeniya

2.4.8 *Science Education*

Prof. M A K L Dissanayake, Department of Physics, University of Peradeniya (Chairman)
Dr. S Karunaratne, Science Education Unit, University of Peradeniya (Secretary)
Mrs. R N Amarasinghe, Principal, Girls' High School, Kandy
Dr. W R Breckenridge, Principal, Trinity College, Kandy
Prof. J P Edirisinghe, Department of Zoology, University of Peradeniya
Dr. G L S Nanayakkara, Addl. Secy./Education Development, Ministry of Tertiary Education &
Training
Dr. A A S Perera, Department of Mathematics, University of Peradeniya
Prof. J S H Q Perera, Director, Science Education Unit, University of Peradeniya

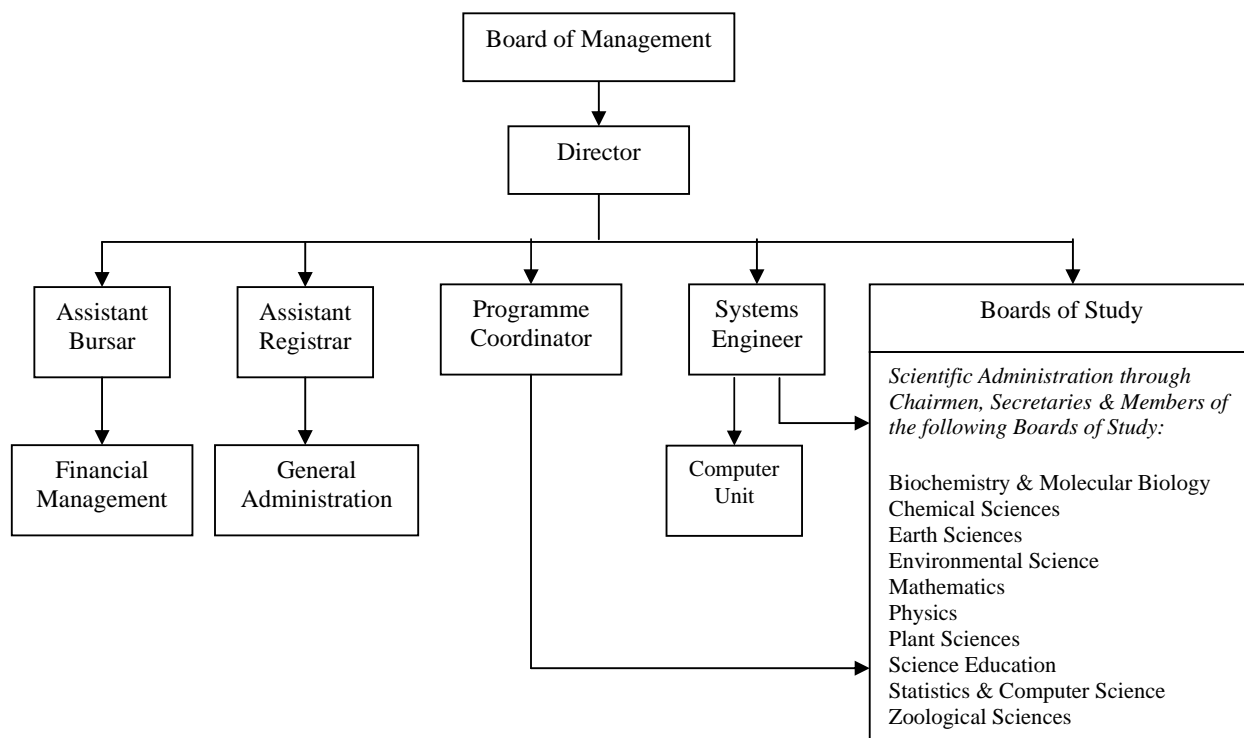
2.4.9 Statistics & Computer Science

- Dr. K M Liyanage, Computing Centre, Faculty of Engineering, University of Peradeniya
(Chairman)
- Dr. A A I Perera, Department of Mathematics, University of Peradeniya (Secretary)
- Dr. M Alahakoon, Department of Agric. Engineering, University of Peradeniya
- Prof. H M N Bandara, Head, Department of Statistics & Computer Sc., University of Peradeniya
- Dr. K Perera, Department of Engineering Mathematics, University of Peradeniya
- Dr. S Samita, Department of Crop Science, University of Peradeniya
- Dr. A Senanayake, Department of Statistics & Computer Science, University of Peradeniya
- Dr. P Wijekoon, Department of Statistics & Computer Science, University of Peradeniya

2.4.10 Zoological Sciences

- Prof. K H G M de Silva, Head, Department of Zoology, University of Peradeniya (Chairman)
- Dr. R P V J Rajapakse, Department of Veterinary Para-Clinical Studies, University of Peradeniya
(Secretary)
- Dr. P H Amerasinghe, Department of Molecular Biology & Biotechnology, Univ. of Peradeniya
- Prof. P K de Silva, Department of Zoology, University of Peradeniya
- Prof. C Santiapillai, Department of Zoology, University of Peradeniya
- Mrs. I S Vitharana, Tea Research Institute, Talawakelle
- Prof. M J S Wijeyaratne, Department of Zoology, Faculty of Science, University of Kelaniya
- Dr. A Wijeyasekera, Horticultural Crop Research and Development Institute, Department of
Agriculture, Gannoruwa

2.5 Organizational Chart of the Institute



3.0 DEGREE OF MASTER OF SCIENCE (M.Sc.)

3.1 Introduction

PGIS offers the following programmes leading to the Degree of Master of Science.

M.Sc. Programme	Board of Study
Clinical Biochemistry Experimental Biotechnology	Biochemistry and Molecular Biology
Analytical Chemistry Chemical Ecology and Pesticide Chemistry Industrial Chemistry	Chemical Sciences
Engineering Geology and Hydrogeology Gemmology Oceanography	Earth Sciences
Environmental Science	Environmental Science
Industrial Mathematics	Mathematics
Physics of Materials Medical Physics	Physics
Biodiversity Conservation Management Postharvest Technology of Fruits and Vegetables	Plant Sciences
Science Education	Science Education
Applied Statistics Computer Science	Statistics & Computer Science
Fish and Wildlife Management Parasitology	Zoological Sciences

The summarized course contents of the M.Sc. programmes are given in section 3.15. The medium of instruction of the programmes shall be English unless otherwise decided by the relevant Board of Study. All M.Sc. programmes consist of course work and research components.

3.1.1 Course work

The course work will consist of core courses and optional courses. The course work component comprises of theory courses and laboratory and/or fieldwork. A theory course will, in general, consist of two to three credits where one credit is equivalent to fifteen (15) hours of instruction. For laboratory work and fieldwork where applicable, approximately thirty (30) hours of work is considered

as one credit. Students are required to earn 24 credits of course work for the M.Sc. programme (not applicable to currently run programmes unless otherwise decided by the Board of Management).

In some M.Sc. programmes students may be required to follow preliminary courses, which will not be credited. Students may also take non-credit courses (audited courses) to advance their knowledge with the consent of the relevant Board of Study.

3.1.2 Research

The research component shall be equivalent to six credits. Students are required to carry out a research project at an academic/research/industrial institution where suitable laboratory facilities are available. The title of the research project, place of work, and the supervisor/s* are to be approved by the relevant Board of Study prior to the commencement of the project.

**At least one of the supervisors should be from the institution where the major part of the research is carried out.*

3.2 Duration

The duration of the M.Sc. programme shall be 15 – 18 months. Course work will be conducted over a period of two semesters of 15 weeks each. The research component consists of a project of 3 - 6 months duration (full-time). Any requests for extension of deadline for submission of M.Sc. project report should be addressed to the Director through the supervisor, M.Sc. programme coordinator and the Chairman of the relevant Board of Study. The initial registration, which is valid for a period of 18 months could be extended by six months by paying the relevant fees (section 3.14) or as decided otherwise by the PGIS, under special circumstances.

The courses are offered during weekdays and/or weekends depending on the M.Sc. programme. However, in carrying out the research component of the programme, continuous attendance is compulsory during regular working hours of the week. Therefore, those who are employed may be required to obtain leave of absence from their work places to be eligible to carry out full-time research.

The maximum duration for the M.Sc. degree would be three years for full-time students from the date of commencement of programme or as decided by the PGIS, under special circumstances.

3.3 Admission Requirements

The minimum requirements for registration are:

- I** (i) a B.Sc. Special Degree from a recognized university/institution in the relevant subject
or
 - (ii) a B.Sc. General Degree from a recognised university/institution with the relevant subject
or
any other equivalent qualifications acceptable to the PGIS
- and*
- II** any other requirement/s as stipulated in the relevant M.Sc. programme

3.4 Application Procedure

An applicant is expected to refer to public advertisements in printed and electronic media and PGIS website (<http://www.pgis.lk>) for details regarding the commencement of M.Sc. Programmes. Every application for enrolment must be made in duplicate on the prescribed forms obtainable from the PGIS on payment of a processing fee. If application forms are downloaded from the Internet processing fee should accompany the completed application form. The acceptance of the application will be determined on the basis of information disclosed by the applicant. The relevant academic/professional qualifications possessed by the candidate should be supported by academic transcripts and authenticated copies of degree/diploma certificates. Applicants should arrange to have official copy/copies of transcript/s sent directly to the Assistant Registrar of the PGIS. It is the responsibility of the applicant to ensure that two letters of recommendation, at least one of which should be from an academic referee, are sent by the referees under confidential cover to the PGIS. Applicants are advised to submit certified photocopies of original certificates along with the completed application form. The documents submitted in support of an application shall become the property of the PGIS. In the event of any discrepancy between the name/s appearing in an applicant's academic/professional/birth certificates and the name/s given by the applicant in the application form, an affidavit to the effect that the applicant is one and the same person known by all such name/s or relevant certificates should be submitted. Duly completed application forms should be forwarded to the Assistant Registrar of the PGIS.

3.5 Processing of Applications

The applications will be considered by the relevant Board of Study. Applications which are incomplete or carrying false information shall be rejected. Those who are eligible will be called for an aptitude test and in some cases also for a subject based test. The selection shall be based on academic merit and the performance at the test/s and an oral examination (where applicable) conducted by the PGIS. The applicants shall be informed of their acceptance/non-acceptance to the postgraduate programme. The decision of the PGIS shall be final in the admission to any M.Sc. Programme.

3.6 Registration Procedure

3.6.1 Registration

A person who has been selected as a postgraduate student shall be required to register for the given academic year to follow the particular postgraduate programme of study. Originals of all certificates should be produced before admission as required by the PGIS. The date of registration shall be specified by the PGIS.

i. Enrolment for Courses

At registration, students are required to enroll for the courses he/she wishes to follow by submitting the duly completed course enrolment form together with the receipt of payment of the required fees (section 3.14).

ii. Dropping/Adding of Courses

If after registration, a student wishes to drop or add one or more courses he/she should do so by submitting the duly completed relevant application form before the date specified for such purpose in the approved calendar of dates and such changes should be approved by the instructor/s and the programme coordinator/s concerned.

3.6.2 *Maintenance of Registration*

Registration should be maintained in order to obtain the M.Sc. Degree by paying the appropriate fees (section 3.14) as required by the PGIS.

3.6.3 *Concurrent Registration*

A student who is registered for a postgraduate degree in the PGIS/University of Peradeniya or any other institution/university is not permitted to register concurrently for another postgraduate degree/diploma in the PGIS.

3.6.4 *Withdrawal from a Programme*

A postgraduate student wishing to withdraw from the programme for which he/she is registered should do so in writing to the Director, PGIS. In case of such withdrawals, adjustments of fees and refunds, **if any**, shall be decided by the PGIS.

3.6.5 *Amendments to Registration*

A student who wishes to make amendments to his/her registration with regard to personal information, project topic/title, etc. should do so in writing to the Director, PGIS. All such changes to the registration status must receive the approval of the relevant Board of Study.

3.6.6 *Postponement of Registration*

A student who desires to postpone his/her registration for a programme should do so in writing to the Director, PGIS giving reasons and indicating the duration of postponement. Each such request shall be considered by the PGIS on the recommendation of the relevant Board of Study.

3.6.7 *Cancellation of Registration*

A registration may be cancelled by the PGIS on the recommendation of the relevant Board of Study for inadequate academic progress, violation of rules and regulations of the PGIS, failure to pay prescribed fees on schedule, or any other reasons as decided by the PGIS.

3.6.8 *Leave of Absence*

Leave of absence may be granted only on medical grounds or any other valid reasons acceptable to the PGIS.

3.7 *Examinations and Evaluation Procedures*

Each course taken by the student will be evaluated through the scheme given in section 3.7.1.1.

3.7.1 *Evaluation of Course work*

3.7.1.1 *Evaluation Scheme*

For all courses a minimum of 80% attendance is expected. The evaluation of each course shall be based on three components: within course and end of course examinations and assignments (quizzes, tutorials etc.). The weightage of marks given below can generally be used as a guideline in the computation of the final grade.

End of course examination	50%
Other examination(s) (within course)	30%
Assignments	20%

Courses with laboratory and/or fieldwork shall be evaluated, where applicable, on a continuous assessment basis.

Based on the scheme given above, the overall performance of a student in a given course shall be evaluated by the respective instructor(s) and a grade will be assigned. The minimum grade a student should achieve to pass a course is C. Students will be informed of the evaluation scheme by the instructor at the beginning of a given course.

3.7.1.2 Grade Points and Grade Point Average (GPA)

The Grade Point Average (GPA) will be computed using the grades assigned for core courses and optional courses, taken for credit. Preliminary courses, industrial training, research project and seminar will be evaluated on a pass/fail basis. Audited courses will be marked as 'AU' on the transcript upon certification by the relevant instructor that the student has satisfied the 80% attendance requirement.

On completion of the end of course examination the instructor(s) is/are required to hand over the grades of a given course to the programme coordinator who will assign the Grade Points using the following table:

Grade	Grade Point
A	4.0
A ⁻	3.7
B ⁺	3.3
B	3.0
B ⁻	2.7
C ⁺	2.3
C	2.0
F	0.0

The Grade Point Average (GPA) will be computed using the formula:

$$\text{GPA} = \frac{\sum c_i g_i}{\sum c_i} \quad \text{where } c_i = \text{number of credit units for the } i^{\text{th}} \text{ course, and } g_i = \text{grade point for the } i^{\text{th}} \text{ course}$$

3.7.1.3 Make-up Examinations

'Make-up' examinations may be given only to students who fail to sit a particular examination due to medical or other valid reasons acceptable to the PGIS.

3.7.1.4 Repeat Courses

If a student fails a course or wishes to improve his/her previous grade in a course, he/she shall repeat the course at the next available opportunity. The maximum grade, he/she could obtain at a repeat examination is B. Candidates are allowed to repeat a course only on two subsequent occasions. However, if there's no possibility of offering the course in the near future, on the recommendation of the relevant Board of Study, special examinations may be substituted.

3.7.2 Evaluation of Research Project

Research project will be evaluated on the basis of a written report (M.Sc. project report) and oral presentation (see section 5.0 for the format of the project report).

3.7.2.1 Initial Submission of Project Report

After completing the research project, two copies of the project report (in temporarily bound form) should be submitted, in the first instance, through the supervisor/s, the M.Sc. programme co-ordinator and the Chairman of the relevant Board of Study to the Director, PGIS. The supervisor/s is/are expected to certify that it is of acceptable standard as required by the PGIS by signing and forwarding the form 3.7.2.1A obtainable from the PGIS office.

3.7.2.1A

<i>To – Director/PGIS</i>	
Initial Submission of the Project Report (soft bound form) <i>Certification</i>	
This is to certify that this project report is based on the work carried out by Mr./Mrs./Ms. under my/our supervision at the (Department/Laboratory/Institute).	
The project report has been prepared according to the format stipulated by the PGIS, and it is of acceptable standard.	
<i>Certified by:</i>	
1. Supervisor (Name):..... (Signature):	Date:
2. Supervisor (Name):..... (Signature):	Date:
<i>Forwarded through:</i>	
1. M.Sc. Programme Coordinator (Name): (Signature):	Date:
2. Chairman of relevant Board of Study (Name): (Signature):	Date:

3.7.2.2 Evaluation of Project Report

The Director shall send a copy of the project report to the examiner recommended by the relevant Board of Study for evaluation. The examiner, wherever possible, shall be external to the place where the research work was carried out. The examiner will send the evaluation report to the Director of the PGIS. The report of the examiner will then be sent to Chairman/Board of Study so that the candidate will be informed through the programme coordinator and the supervisor/s about corrections and/or modifications to be effected to the project report, if any, as suggested by the examiner.

3.7.2.3 Oral Examination

If the project has been evaluated favourably by the examiner, the Board of Study and the Programme Coordinator will make arrangements to hold an oral examination. In cases where major revisions are

recommended, oral examination may be held after the revised report has been favourably, re-examined by the examiner.

Constitution of Panel of Examiners:

1. Chairman of the relevant Board of Study (Chairman of the Panel)
(Where the Chairman of the Board of Study is a supervisor or if he is not available, the Director or his nominee shall be the Chairman of the Panel)
2. Co-ordinator/s of the M.Sc. programme
3. Two examiners *(including the examiner of project report)* per candidate appointed by the relevant Board of Study
4. The Supervisor/s shall be present as observer/s

The panel of examiners will submit a report on the suitability of the candidate for the award of the degree. The supervisor, with necessary instructions and a copy of the examiners' report (names of the examiners should not be disclosed) will hand over the project report back to the candidate for suggested revisions, if any.

3.7.2.4 Final Submission of Project Report

Four or more copies *(depending on the number of supervisors)* of the project report in the permanently bound form, with revisions, if any, prepared according to the guidelines given in section 5.0 should be submitted through the Supervisor/s, the M.Sc. programme co-ordinator and Chairman of the relevant Board of Study to the Director, PGIS within the specified period of time recommended by the panel of examiners for consideration by the Results Board. When the candidate submits the project report, the supervisor/s is/are expected to certify that corrections, revisions etc., if any, have been properly effected by the candidate by duly signing the form 3.7.2.4A obtainable from the PGIS office.

3.7.2.4A

<i>To – Director/PGIS</i>	
Final Submission of the Project Report (hard bound form)	
<i>Certification</i>	
This is to certify that Mr./Mrs./Ms.. has carried out the corrections and/or modifications on the project report as suggested by the examiner/s.	
<i>Certified by:</i>	
1. Supervisor (Name):..... (Signature):	Date:
2. Supervisor (Name):..... (Signature):	Date:
<i>Forwarded through:</i>	
1. M.Sc. Programme Coordinator (Name): (Signature):	Date:
2. Chairman of relevant Board of Study (Name): (Signature):	Date:

3.8 Award of the M.Sc. Degree/Diploma

The M.Sc. Degree may be awarded to a candidate who has satisfied the following:

- (i) admission requirements as set out in section 3.3
- (ii) accepted by the PGIS as a candidate for the M.Sc. programme
- (iii) duly registered and paid fees for the prescribed duration of the programme
- (iv) obtained at least a C in each course taken for credit and attained a final GPA of 3.00 or above for course work
- (v) satisfactorily completed the research component and any other requirements, as specified

The Postgraduate Diploma may be awarded to a candidate who has satisfied the requirements (i) to (iii) above, satisfactorily completed any other requirements specified by the Board of Study and obtained a final GPA in the range of 2.75 - 2.99 for course work.

Students who reach a final GPA of 3.00 or above but do not wish to continue with the research project or fail the research project are only eligible for the award of the Diploma.

3.9 Academic dress

The academic dress for the Degree of Master of Science shall consist of a gown of University pattern made of black cloth and a garland woven with white and green coloured cords terminating with the crest of University of Peradeniya.

3.10 The Effective Date of the Degree

The effective date of the degree, which should not precede the last date of minimum duration of the given programme, will be as follows:

- (a) Date of the Oral Examination
 - i. *if the project report is accepted without any corrections*
 - ii. *if the project report is accepted with minor corrections and corrections are done during the specified* period of time as recommended by the Panel of Examiners*
(* maximum of one calendar month – period of time between the same dates in successive calendar months)
- (b) Date on which the final bound form is submitted by the candidate to the PGIS
 - i. *if the project report is accepted with major corrections*
 - ii. *if the project report is accepted with minor corrections and corrections are not done during the specified period of time as recommended by the Panel of Examiners*
- (c) Any other date as decided by the PGIS under special circumstances

3.11 Release of Final Results

The PGIS will call a meeting of the Results Board to consider the award of the degree to the candidate. The Results Board will release the final results subject to confirmation by the Board of Management of the PGIS and the Senate of the University of Peradeniya.

Constitution of the Results Board:

1. Director/PGIS or his nominee (Chairman)
2. Chairman of the relevant Board of Study or his nominee
3. Secretary of the relevant Board of Study
4. Co-ordinator/s of the M.Sc. programme

3.12 Transcript

Duly certified transcript/s of a student's academic record will be issued on receipt of an application with the prescribed fee (see section 3.14).

3.13 Transfer to the M.Phil. Degree Programme

A student registered for an M.Sc. degree programme and who has achieved a final GPA greater than 3.00 for course work, may apply for a transfer to the M.Phil. degree programme. The transfer will be made upon the recommendation of the relevant Board of Study.

3.15 Details of M.Sc. Degree Programmes

List of courses in a given M.Sc. programme may be revised/changed from time to time by the relevant Board of Study. Courses offered in a given year under an M.Sc. programme may depend on the availability of resource person(s).

3.15.1 Analytical Chemistry

Coordinator: Dr. W. M. A. T. Bandara

Course Code	Course	Lecture hrs.	Practical hrs.	No. of Credits
Semester I				
CH 501	General Analytical Chemistry	30	-	2
CH 502	Analytical Spectroscopy	45	-	3
CH 503	Special Topics In Analytical Chemistry	45	-	3
CH 511	Practical Analytical Chemistry I	-	60	2
CH 512	Practical Analytical Chemistry II	-	90	3
Semester II				
CH 516	Separation Methods In Analytical Chemistry	45	-	3
CH 517	Electroanalytical Methods	30	-	2
CH 518	Environmental Chemistry*	15	-	1
CH 519	Water Treatment*	15	-	1
CH 520	Food Science*	15	-	1
CH 521	Forensic Chemistry and Toxicology*	15	-	1
CH 522	Pharmaceutical Chemistry*	15	-	1
CH 523	Radiochemistry*	15	-	1
CH 524	Pesticide Chemistry*	15	-	1
CH 526	Practical Analytical Chemistry III	-	60	2
CH 527	Practical Analytical Chemistry IV	-	30	1
CH 597	Seminar			1
CH 599	Research Project	(3 - 6 months)		6

* Optional courses. Students are required to obtain 2 credits from optional courses.

3.15.2 Applied Statistics

Coordinator: Dr. P. Wijekoon

Course Code	Course	No. of Credits
Preliminary Courses		
SC 401	Mathematics* ¹	-
SC 402	Computer Programming* ²	-
SC 403	Statistical Methods* ³	-
Semester I		
SC 501	Theory of Statistics	2
SC 502	Data Analysis and Presentation	3
SC 503	Design and Analysis of Experiments	3
SC 504	Regression Analysis	2
SC 505	Sampling Techniques	2
SC 506	Multivariate Methods I*	2
SC 507	Stochastic Processes and Applications*	2

Semester II		
SC 516	Time Series Analysis	2
SC 517	Non-Parametrics and categorical data analysis	2
SC 518	Independent Study	2
SC 519	Multivariate Methods II*	2
SC 520	Experimental Techniques*	2
SC 521	Biased Estimation*	2
SC 522	Binary Data Analysis*	2
SC 523	Quality Control Statistics*	2
SC 524	Special Topics**	2
SC 599	Research Project (3 - 6 months)	6

*¹ Compulsory for those without a mathematics background

*² Compulsory for those without a computer background

*³ Compulsory for those without a basic statistics background

* Optional courses. Students are required to obtain 4 credits from optional courses.

** Special topics will be notified to the students each year

3.15.3 Biodiversity Conservation Management

Coordinators: Prof. I. A. U. N. Gunetilleke and Dr. U. K. G. K. Padmalal

Course Code	Course	Lecture hrs.	Practical hrs.	No. of Credits
Semester I				
PL 504	Biostatistics	15	30	2
PL 531	Characterization of Biodiversity	30	30	3
PL 532	Inventorying and Monitoring of Biodiversity	30	30	3
PL 533	Sri Lankan Biodiversity	15	60	3
PL 534	Population Dynamics	30	30	3
Semester II				
PL 546	Behavioural Ecology	15	30	2
PL 547	Community and Ecosystem Dynamics	15	30	2
PL 548	Conservation Biology	15	-	1
PL 549	Protected Area Classification & Legislation	15	30	2
PL 550	Conservation Management of Biodiversity	15	30	2
PL 551	Sustained Yield Management of Biodiversity*	30	30	3
PL 552	Bioeconomics and Biopolitics*	30	-	2
PL 599	Research Project	(3 - 6 months)		6

* Optional courses. Students are required to obtain 2 credits from optional courses.

3.15.4 Chemical Ecology and Pesticide Chemistry

Coordinators: Prof. V. Kumar and Prof. S. H. P. P. Karunaratne

Course Code	Course	Lecture hrs.	Practical hrs.	No. of Credits
Semester I				
CH 561	Economic Entomology and Insect Behaviour	60	-	4
CH 562	Entomology	-	30	1
CH 563	Natural Products Chemistry	60	-	4
CH 564	Chromatographic Separation	-	30	1
CH 565	Spectroscopy and Structural Elucidation Practical Course	-	30	1
CH 566	Chemical Ecology	60	-	4

Semester II				
CH 576	Chemical Ecology	-	30	1
CH 577	Pesticide Development with emphasis on Biopesticides*	45	-	3
CH 578	Bioassay	-	30	1
CH 579	Mechanisms of Pesticide Action*	45	-	3
CH 580	Industrial Pesticide Chemistry*	45	-	3
CH 581	Formulation and Pesticide Residues	-	30	1
CH 597	Seminar			1
CH 599	Research Project	(3 - 6 months)		6

* *Optional courses. Students are required to obtain 5 credits from optional courses.*

3.15.5 Clinical Biochemistry

Coordinators: Prof. P. A. J. Perera, Dr. S. B. P. Athauda and Dr. P. H. P. Fernando

Course Code	Course	Lecture hrs.	Practical hrs.	No. of Credits
Preliminary Courses				
BM 40 1	Human Biology and Metabolism* ¹	30	-	-
BM 402	Basic Sciences* ²	30	-	-
Semester I				
BM 501	Laboratory Environment and Biological Samples	10	10	1
BM 502	Analytical Techniques in Clinical Biochemistry	30	30	3
BM 503	Biochemical Immunology and Endocrinology	30	30	3
BM 504	Biochemical Haematology	10	10	1
BM 505	Enzymology	10	10	1
BM 506	Functional Tests	30	90	5
Semester II				
BM 516	Human Molecular Genetics*	15	30	2
BM 517	Paediatric Biochemistry and Intensive Care Biochemistry	10	10	1
BM 518	Therapeutic Drug Monitoring and Toxicology	15	30	2
BM 519	Clinical Nutrition*	20	20	2
BM 520	Laboratory Training	10	40	2
BM 521	Statistical Analysis, Quality Control, Computing & Data Handling	15	30	2
BM 522	Clinical Interpretation and Ward Classes ³	75	-	-
BM 599	Research Project	(3 - 6 months)		6

*¹ *Compulsory for Science graduates*

*² *Compulsory for Medical graduates*

³ *Attendance is compulsory*

* *Optional courses. Students are required to obtain 3 credits from optional courses.*

3.15.6 Computer Science

Coordinator: Dr. A. A. I. Perera

Course Code	Course	Lecture hrs.	Practical hrs.	No. of Credits
Preliminary Courses* ¹				
SC 411	Introduction to Computer Science	30	-	-
SC 412	Introduction to theory of computation	30	-	-
SC 413	Data structures and software principles	30	-	-
SC 414	Introduction to Computer Architecture	30	-	-
SC 415	Programming and electronics laboratories	-	45	-
SC 416	Seminar	-	15	-

Semester I				
SC 531	Database systems*	30	-	2
SC 532	Combinatorial mathematics*	30	-	2
SC 533	Introduction to parallel computing*	30	-	2
SC 534	Programming language design and compilers*	30	-	2
SC 535	Operating system design	30	-	2
SC 536	Graph theory*	30	-	2
SC 537	Computer Networks and Distributed systems	30	-	2
SC 538	Artificial Intelligence	30	-	2
SC 539	Advanced topics in computer graphics	30	-	2
Semester II				
SC 546	Software engineering	30	-	2
SC 547	Computer architecture*	30	-	2
SC 548	Systems analysis/Systems engineering*	30	-	2
SC 549	Artificial Neural Networks*	30	-	2
SC 550	Linear programming*	30	-	2
SC 551	Communication networks for computers*	30	-	2
SC 552	Digital image processing*	30	-	2
SC 553	Project management*	30	-	2
SC 554	Special topics in Computer Science	30	-	2
SC 555	Laboratory work	-	60	2
SC 597	Seminar			1
SC 599	Research Project	(3 - 6 months)		6

*¹ Compulsory for those without sufficient background knowledge.

* Optional Courses. Students are required to obtain 9 credits from optional courses.

3.15.7 Engineering Geology & Hydrogeology

Coordinators: Dr. H. A. Dharmagunawardena and Mr. R. M. U. B. Amerasinghe

Course Code	Course	Lecture hrs.	Practical hrs.	No. of Credits
Semester I				
ES 531	Basic Geology* ¹	30	30	3
ES 532	Basic Mechanics* ²	30	-	2
ES 533	Fundamentals of Hydrogeology	30	-	2
ES 534	Fundamentals of Engineering Geology	30	-	2
ES 535	Site Investigation	30	F	2
ES 536	Rock Mechanics*	30	30	3
ES 537	Soil Mechanics*	30	30	3
ES 538	Photogeology & Remote Sensing*	30	30	3
Semester II				
ES 546	Applications of Engineering Geology	30	F	2
ES 547	Applied Hydrogeology	30	30	3
ES 548	Hydrogeochemistry and Water Quality	30	30	3
ES 549	Computer Software Applications	15	30	2
ES 550	Applied Geophysics*	30	30	3
ES 551	Tunnelling and Underground Excavations*	30	F	2
ES 552	Landslides and Stability of Slopes*	30	F	2
ES 553	Environmental Geology*	30	F	2
ES 554	Bore Hole Techniques*	30	F	2
ES 555	Project Procedures*	30	-	2
ES 556	Water Resources Management*	30	-	2
ES 557	Field Monitoring and Instrumentation*	30	F	2

ES 558	Statistics*	30	-	2
ES 559	Groundwater modelling*	30	30	3
ES 599	Research Project	(3 - 6 months)		6

*¹ Foundation course for non-geology graduates

*² Foundation course for geology graduates

* Optional courses. Students are required to obtain 6 credits from optional courses.

F - Field work, demonstrations and excursions

3.15.8 Environmental Science

Coordinators: Prof. K. H. G. M. de Silva and Dr. R. Fernando

Course Code	Course	Lecture hrs.	Practical/Field Work hrs.	No. of credits
Preliminary Courses				
EN 401	Introductory Biology* ¹	20	20	-
EN 402	Bio-Statistics and Computer Use* ²	20	20	-
Semester I				
EN 501	Planet Earth and Geological Environment	20	20	2
EN 502	Atmosphere and Climate	25	10	2
EN 503	Ecosystem Structure and Function	20	20	1
EN 504	Population Ecology and Human Population Dynamics And Control	15	-	2
EN 505	Human Impact on Environment and Toxicology	24	18	2
EN 506	Human Impact on Biota – Need for Management and Conservation	20	20	2
EN 507	Air Pollution and Noise Pollution	25	10	2
EN 508	Water Resources and Water Pollution	20	20	2
Semester II				
EN 516	Terrestrial Pollution, Toxicology, Management of Solid and Hazardous Waste	25	10	2
EN 517	Energy Resources, Use, Concepts and Alternatives*	15	-	1
EN 518	Environmental Monitoring and Sampling Techniques*	15	30	2
EN 519	Environmental Management and Sustainable Development*	20	20	2
EN 520	Environment, Government and Economics*	15	-	1
EN 521	Industrial Waste Management*	20	20	2
EN 522	Food Resource Enhancement*	20	20	2
EN 523	Environment Conservation*	20	20	2
EN 524	Wetlands and Their Exploitation*	20	20	2
EN 597	Seminar			1
EN 599	Research Project	3-6 Months		6

*¹ Compulsory for those without a biology background

*² Compulsory for those without a biostatistics background

* Optional courses. Students are required to obtain 6 credits from optional courses.

3.15.9 Experimental Biotechnology

Coordinators: Dr. P. H. Amerasinghe, Dr. K. Fernando and Dr. D. M. D. Yakandawala

Course Code	Course	Lecture hrs.	Practical hrs.	No. of credits
Semester I				
MB 531	Overview on biotechnology	15	-	-
MB 532	Issues related to biological resources	5	20	1
MB 533	Molecular cell biology	30	30	3
MB 534	Protein chemistry	15	45	2

MB 535	Molecular genetics	15	30	2
MB 536	Molecular microbiology	15	45	2
MB 537	Immunology	15	45	2
MB 538	Recombinant DNA technology	15	30	2
MB 539	Industrial biotechnology	5	50	2
MB 540	Bioinformatics	15	30	2
Semester II				
MB 546	Advance immunology*	15	30	2
MB 547	Advanced Biochemistry*	15	30	2
MB 548	Animal Cell culture* ¹	10	40	2
MB 549	Animal Developmental biology* ¹	10	40	2
MB 550	Animal Transgenics* ¹	15	-	1
MB 551	Recent applications in animal biotechnology* ¹	10	40	2
MB 552	Biotechnology in medicine* ¹	15	30	2
MB 553	Plant Developmental biology* ²	10	10	1
MB 554	Plant tissue culture* ²	10	55	2
MB 555	Biotechnology in plant breeding* ²	15	30	2
MB 556	Plant Transgenics* ²	15	-	1
MB 557	Recent applications in Plant biotechnology* ²	10	40	2
MB 558	Biostatistics	15	30	2
MB 597	Seminar	-	-	1
MB 599	Research Project	(3 - 6 months)		6

* *Optional Courses*

*¹ *Optional Courses - Animal biotechnology*

*² *Optional Courses - Plant biotechnology*

Students are required to obtain 3 credits from optional courses.

3.15.10 *Fish and Wildlife Management*

Coordinator: Prof. K. H. G. M. de Silva

Code	Course	Lecture hrs.	Practical/ Field Work hrs.	No. of credits
Preliminary Courses				
ZL 401	Introductory Biology* ¹	25	20	-
ZL 402	Bio-statistics and Computer use* ²	20	20	-
Semester I				
ZL 501	Biodiversity and Sri Lankan Wildlife and Fish species	30	30	3
ZL 502	Ecosystem structure and function	20	20	2
ZL 503	Population ecology and Human population dynamics and control	15	-	1
ZL 504	Field sampling and assessment of diversity and population density	25	40	3
ZL 505	Extinction of species	15	-	1
ZL 506	Management and Conservation	24	12	2
ZL 507	Biogeography, Reserve Design and Wildlife Management	24	12	2
Semester II				
ZL 516	Conflicts with people and Socio-economics of people affected	12	9	1
ZL 517	Principles of farming of fish and ranching of wildlife	20	20	2
ZL 518	Behavioural Ecology of wildlife and fish*	12	9	1

ZL 519	Protected area and habitat management*	12	9	1
ZL 520	Management of large mammal species*	12	9	1
ZL 521	Forestry and forest management*	12	9	1
ZL 522	Coastal habitat management*	12	9	1
ZL 523	Marine and inland fisheries*	12	9	1
ZL 524	Fishing methods, gear and crafts*	12	9	1
ZL 525	Fish production dynamics and Fishery stock assessment*	12	9	1
ZL 526	Sanitation and fish health*	12	9	1
ZL 527	Fisheries administration and Fisheries management*	15	-	1
ZL 528	Post-harvest techniques and marketing*	12	9	1
ZL 597	Seminar			1
ZL 599	Research Project	3-6 months		6

*¹ Compulsory for those without a biology background

*² Compulsory for those without a biostatistics background

* Optional courses. Students are required to obtain 6 credits from optional courses.

3.15.11 Gemmology

Coordinators: Dr. S. W. Nawaratne and Mr. L. R. K. Perera

Course Code	Course	Lecture hrs.	Practical hrs.	No. of Credits
Semester I				
ES 501	Basic geology and geology of Sri Lanka	15	30	2
ES 502	Crystallography	15	30	2
ES 503	Fundamentals of gemmology	30	30	3
ES 504	Descriptive gemmology I	15	30	2
ES 505	Descriptive gemmology II	15	30	2
Semester II				
ES 516	Management of gem industries and national and international gem trade	15	-	1
ES 517	Exploration and mining methods	15	F	1
ES 518	Colour enhancement and value addition	15	D	1
ES 519	Fashioning and evaluation of gemstones	15	D	1
ES 520	Advanced gemmology	15	D	1
ES 521	Gems and gem resources of Sri Lanka	15	F	1
ES 522	Industrial Minerals and Rocks *	15	D	1
ES 523	Mineralogy *	30	D	2
ES 524	Photogeology and remote sensing *	15	30	2
ES 525	Environmental geology *	15	F	1
ES 526	Optical Mineralogy *	15	30	2
ES 527	Gems in museums and personnel collections*	15	-	1
ES 528	Geographical Information Systems (GIS)	15	30	2
ES 529	Special Topics**	30	D	2
ES 597	Seminar			1
ES 598	Field and industrial training			1
ES 599	Research Project	(3 - 6 months)		6

* Optional courses. Students are required to obtain 5 credits from optional courses.

** Special topics to be offered by foreign experts will be notified to the students each year.

F - Field excursion

D - Demonstration

3.15.12 Industrial Chemistry

Coordinators: Dr. A. Wickramasinghe and Dr. P. Karunaratne

Course Code	Course	Lecture hrs.	Practical hrs.	No. of Credits
Semester I				
CH 501	General Analytical Chemistry	30	-	2
CH 502	Analytical Spectroscopy	45	-	3
CH 531	Chemical Engineering* ¹	15	-	1
CH 532	General Chemistry* ²	15	-	1
CH 533	Homogeneous and Heterogeneous Catalysis	15	-	1
CH 534	Heat Exchangers, Unit operations in Chemical Engineering	45	-	3
CH 541	Pilot Plant Study* ¹	-	30	1
Semester II				
CH 546	Safety and Hazards	30	-	2
CH 547	Materials Science, Estimation of Physical Properties, New Product Development and Industrial Economics	45	-	3
CH 548	Polymer Technology*	15	-	1
CH 549	Petroleum Technology*	15	-	1
CH 550	Ceramics and Silicate Technology*	15	-	1
CH 551	Food Technology*	15	-	1
CH 552	Fermentation Technology*	15	-	1
CH 553	Paper and Wood Technology*	15	-	1
CH 554	Paint and Varnish Industry*	15	-	1
CH 555	Textile and Leather Industry*	15	-	1
CH 556	Crop Processing Technology*	15	-	1
CH 557	Pharmaceutical Chemistry*	15	-	1
CH 558	Sea Water based Industries*	15	-	1
CH 559	Physical Chemistry Practicals* ²	-	60	2
CH 597	Seminar			1
CH 598	Industrial Training			2
CH 599	Research Project	(3 - 6 months)		6

*¹ Compulsory for those without an engineering background

*² Compulsory for those without a chemistry background

* Optional courses. Students are required to obtain 5 credits from optional courses.

3.15.13 Industrial Mathematics

Coordinator: Dr. A. A. I. Perera

Course Code	Course	Lecture hrs.	Practical hrs.	No. of Credits
Preliminary Courses*¹				
MT 401	Preliminaries in Mathematics	30	-	-
MT 402	Statistics	30	-	-
MT 403	Computer Applications	-	30	-
Semester I				
MT 501	Differential Equations	45	-	3
MT 502	Statistical Quality Control	30	-	2
MT 503	Numerical Analysis	45	-	3
MT 504	Stochastic Process and Applications*	30	-	2
MT 505	Operations Research	45	-	3
Semester II				
MT 516	Control Theory*	45	-	3

MT 517	Topics in Computer Science	45	-	3
MT 518	Optimization Theory*	30	-	2
MT 519	Special Topics in Industrial Mathematics*	30	-	2
MT 520	Theoretical Fluid Mechanics*	45	-	3
MT 597	Seminar	-	-	1
MT 599	Research Project	(3 - 6 months)		6

*¹ Compulsory for those without sufficient background knowledge.

* Optional courses. Students are required to obtain 9 credits from optional courses.

3.15.14 Medical Physics

Course Code	Course	Lecture hrs.	Practical hrs.	No. of Credits
Semester I				
PH 531	Human Biology and Cell Biology	30	-	2
PH 532	Radiation Physics and Radiodiagnosis	15	-	1
PH 533	Nuclear Medicine	15	-	1
PH 534	Radiation Protection and Radiotherapy	15	-	1
PH 535	Statistics	15	-	1
PH 536	Computing	15	-	1
PH 537	Introduction to Digital Electronic and Microprocessors	15	-	1
PH 538	Applications of Physics in Medicine	15	-	1
PH 539	Bioengineering	15	-	1
PH 540	Clinical Instrumentation	15	-	1
PH 541	Laboratory Course	-	45	1
Semester II				
PH 546	Radiation Protection	15	-	1
PH 547	Radiotherapy Physics – I	45	-	3
PH 548	Radiotherapy Physics – II	30	-	2
PH 549	Radiotherapy Laboratory	-	90	2
PH 550	Nuclear Medicine	15	30	2
PH 551	Medical Electronics and Instrumentation*	15	-	1
PH 552	Computer Systems and Methods*	15	-	1
PH 553	Biomechanics, Biomaterials and Rehabilitation Engineering*	15	-	1
PH 554	Computer Architectures and Artificial Intelligence*	15	-	1
PH 555	Ultrasound in Medicine*	15	-	1
PH 556	Non-ionising E.M. Radiations in Medicine*	15	-	1
PH 557	Clinical Tutorials and Demonstration	-	30	1
PH 599	Research Project	(3 - 6 months)		6

* Optional courses. Students are required to obtain 2 credits from optional courses.

3.15.15 Oceanography

Coordinators: Dr. H. M. T. G. A. Pitawala and Dr. E. M. S. Wijeratne

Course Code	Course	Lecture hrs.	Practical hrs.	No. of Credits
Semester I				
ES 561	Biological Oceanography	30	-	2
ES 562	Physical Oceanography	30	-	2
ES 563	Chemical Oceanography	30	-	2
ES 564	Oceanography Practical I	-	60	2
ES 565	Marine Geology and Geophysics	30	-	2
ES 566	Surveying, Sampling and Analytical Techniques with special reference to Coastal Areas	30	-	2

ES 567	Data Analysis and Statistics	30	-	2
Semester II				
ES 576	Oceanography Practical II		60	2
ES 577	Computational Methods in Oceanography	30		2
ES 578	Estuarine and Coastal Oceanography	30	-	2
ES 579	Dynamic Oceanography*	30	-	2
ES 580	Physical and Inorganic Chemistry of Seawater*	30	-	2
ES 581	Marine Biodiversity and Conservation*	30	-	2
ES 582	Marine Geophysics*	30	-	2
ES 597	Seminar	-	-	1
ES 599	Research Project	(3 - 6 months)		6

* *Optional courses. Students are required to obtain 3 credits from optional courses.*

3.15.16 Parasitology

Coordinator: Dr. R. P. V. J. Rajapakse

Code	Course	Lecture hrs.	Practical hrs.	No. of credits
Semester I				
ZL 531	Basic parasitology	25	40	3
ZL 532	Parasite biochemistry and physiology	15	30	2
ZL 533	Immunology of parasite infections	25	40	3
ZL 534	Epidemiology of parasitic diseases	30	30	3
ZL 535	Adverse effects of chemical and biological agents on parasites	10	10	1
ZL 536	Techniques in parasitology	15	60	3
Semester II				
ZL 546	Statistical packages, interfacing equipment for data analysis - use of computers	-	60	2
ZL 547	Molecular parasitology	15	30	2
ZL 548	Web-based studies in parasitology	-	60	2
ZL 551	Advanced Immunology*	15	30	2
ZL 552	Plant Nematology*	20	20	2
ZL 553	Biology of Arthropod Vectors and Molluscan Hosts*	15	30	2
ZL 597	Seminar	-	-	1
ZL 599	Research Project	(3 - 6 months)		6

* *Optional courses. Students are required to obtain 3 credits from optional courses.*

3.15.17 Physics of Materials

Coordinator: Prof. B. S. B. Karunaratne

Course Code	Course	Lecture hrs.	Practical hrs.	No. of Credits
Semester I				
PH 501	Quantum Mechanics and Statistical Mechanics	15	-	1
PH 502	Electron Theory of Solids	30	-	2
PH 503	Structure and Properties of Solids, Lattice Dynamics	15	-	1
PH 504	Semiconductors	30	-	2
PH 505	Ceramics Materials	30	-	2
PH 506	Polymers	30	-	2
PH 507	Solid State Ionic Materials	30	-	2
PH 508	Introductory Laboratory Work	-	30	1
Semester II				
PH 516	Material Characterisation Techniques	45	-	3
PH 517	Magnetic Materials and Superconducting Materials	30	-	2

PH 518	Glass and Glass Ceramics	15	-	1
PH 519	Advanced Laboratory Work	-	30	1
PH 520	Semiconductors Device Technology*	15	-	1
PH 521	Industrial Ceramics*	15	-	1
PH 522	Solid State Ionic Devices*	15	-	1
PH 523	Nuclear Materials*	15	-	1
PH 524	Low-cost Materials for Building Construction and other Applications*	15	-	1
PH 525	Metals and Alloys*	15	-	1
PH 598	Industrial Training*			1
PH 599	Research Project	(3 - 6 months)		6

* Optional courses. Students are required to obtain 4 credits from optional courses.

3.15.18 Postharvest Technology of Fruits and Vegetables

Coordinator: Prof. N. K. B. Adikaram

Course Code	Course	Lecture hrs.	Practical hrs.	No. of Credits
Semester I				
PL 501	Economical and social aspects of fruits and vegetables*	15	30	2
PL 502	Pre-and postharvest physiology/biochemistry of fresh produce and ethylene in postharvest technology	30	30	3
PL 503	Postharvest losses of fruits & vegetables*	15	30	2
PL 504	Biostatistics* ¹	15	30	-
PL 505	Postharvest handling and quality assurance of perishables	30	30	3
PL 506	Packaging and packing house operations*	15	30	2
PL 507	Transportation, storage of fruits & vegetables	30	30	3
Semester II				
PL 516	Postharvest diseases and disorders and their control	30	45	3
PL 517	Postharvest logistics for perishable crops*	15	-	1
PL 518	Insect pests in postharvest products & their control	15	30	2
PL 519	Fruit and vegetable processing	30	30	3
PL 520	Minimal processing of fruits and vegetables*	15	30	2
PL 521	Microflora and mycotoxins in fresh & processed produce*	30	30	3
PL 522	Marketing management for postharvest operations	15	30	2
PL 523	Independent Study*			1
PL 599	Research Project	(3 - 6 months)		6

*¹ Compulsory non-credit course

* Optional courses. Students are required to obtain 5 credits from optional courses.

3.15.19 Science Education

The programme of study consists of 225 lecture hours and 15 practical hours (15.5 credits) in the General Component (Science Education). The Special Component consists of 105 lecture hours (7 credits) and 45 practical hours (1.5 credits), and a 3 – 6 month research project.

GENERAL COMPONENT

Coordinator: Dr. S. Karunaratne

Course Code	Course	Lecture hrs.	Practical hrs.	No. of Credits
SE 501	Science in the Past, Present and Future	15	-	1
SE 502	Science Teaching and Learning	45	-	3
SE 503	Qualitative Research Methods in Science Ed.* ¹	45	-	3

SE 504	Quantitative Research Methods in Science Ed.* ¹	45	-	3
SE 505	Science Curricula*	30	-	2
SE 506	Science and Society*	30	-	2
SE 507	Science and Information Technology	15	15	1.5
SE 508	Educational Measurement and Evaluation*	30	-	2
SE 509	Philosophical Foundations of Education*	15	-	1
SE 510	Psychological Foundations of Education*	15	-	1
SE 511	Educational Management*	15	-	1
SE 512	Action Research	15	-	1
SE 513	Energy and Environment*	15	-	1

*¹ One of the courses in Research Methodology (SE 503 or SE 504) is compulsory

* Optional courses. Students are required to obtain 6 credits from optional courses in addition to the 9.5 credits from compulsory courses.

SPECIAL COMPONENT

The students are expected to select one of the following special subjects:

- Biology Education
- Chemistry Education
- Mathematics Education
- Physics Education

All the special subjects have a theory component of 105 lecture hours (7 credits: compulsory 4 credits and optional 3 credits), a practical component of 45 practical hours (1.5 credits), 3 – 6 months research project (6 credits).

SPECIAL COMPONENT - BIOLOGY EDUCATION

Coordinator: Dr. G. A. D. Perera

Course Code	Course	Lecture hrs.	Practical hrs.	No. of Credits
SE 516	Biology Education	30	-	2.0
SE 517	Methods of Teaching Biology	30	-	2.0
SE 518	Plants and Animals: Their evolution and Interactions*	15	15	1.5
SE 519	Environmental Science*	15	15	1.5
SE 520	Molecular Biology and its applications*	15	15	1.5
SE 521	Histology and Hormones in living organisms*	15	15	1.5
SE 522	Plant Systematics and Breeding*	15	15	1.5
SE 523	Microbiology and Plant Pathology*	15	15	1.5
SE 524	Food Science*	15	15	1.5
SE 525	Functioning Plant*	15	15	1.5
SE 599	Research Project	(3 - 6 months)		6

* Optional courses. Students are required to obtain 4.5 credits from optional courses.

SPECIAL COMPONENT - CHEMISTRY EDUCATION

Coordinator: Prof. J. S. H. Q. Perera

Course Code	Course	Lecture hrs.	Practical hrs.	No. of Credits
SE 531	Curriculum Development and Chemistry Education in Sri Lanka	15	-	1
SE 532	Problems of Chemistry Teaching in Schools and Possible remedial measures	15	-	1
SE 533	Methods of Teaching Chemistry I	15	-	1
SE 534	Methods of Teaching Chemistry II	15	-	1
SE 535	Some Important Theoretical Concepts and Special Topics Relevant to Chemistry Teaching I*	15	-	1

SE 536	Some Important Theoretical Concepts and Special Topics Relevant to Chemistry Teaching II*	15	-	1
SE 537	Relevance of Principles of Chemistry in Selected Chemical Industries*	15	-	1
SE 538	Chemistry and the Environment*	15	-	1
SE 539	Laboratory Work	-	45	1.5
SE 599	Research Project	(3 - 6 months)		6

* *Optional courses. Students are required to obtain 3 credits from optional courses.*

SPECIAL COMPONENT - MATHEMATICS EDUCATION

Coordinator: Dr. U. N. B. Dissanayake

Course Code	Course	Lecture hrs.	Practical hrs.	No. of Credits
SE 546	Mathematics Education in Sri Lanka	15	-	1
SE 547	Methods of Teaching Mathematics	15	-	1
SE 548	Fundamental Concepts in Mathematics	15	-	1
SE 549	Laboratory & Field Work	-	45	1.5
SE 550	History of Mathematics	15	-	1
SE 551	Complex-variable Theory*	15	-	1
SE 552	Mathematical Modelling*	15	-	1
SE 553	Metric Spaces and their Applications*	15	-	1
SE 554	Linear Algebra*	15	-	1
SE 555	Measure Theory*	15	-	1
SE 556	Differential Equations*	15	-	1
SE 557	Computer Mathematics*	15	-	1
SE 558	Probability and Statistics*	15	-	1
SE 559	Numerical Methods*	15	-	1
SE 599	Research Project	(3 - 6 months)		6

* *Optional courses. Students are required to obtain 3 credits from optional courses.*

SPECIAL COMPONENT - PHYSICS EDUCATION

Coordinator: Prof. M. A. K. L. Dissanayake

Course Code	Course	Lecture hrs.	Practical hrs.	No. of Credits
SE 561	Physics Education I	30	-	2
SE 562	Physics Education II	15	-	1
SE 563	Important Concepts and Principles in Physics	15	-	1
SE 564	Energy and Environment*	15	-	1
SE 565	Physics of Materials*	15	-	1
SE 566	Astronomy*	15	-	1
SE 567	Electronics and communication*	15	-	1
SE 568	Topics in Applied Physics*	15	-	1
SE 569	Practicals in Physics	-	45	1.5
SE 599	Research Project	(3 - 6 months)		6

* *Optional courses. Students are required to obtain 3 credits from optional courses.*

4.0 DEGREE OF MASTER OF PHILOSOPHY (M.Phil.) & DEGREE OF DOCTOR OF PHILOSOPHY (Ph.D.)

The PGIS offers postgraduate research programmes leading to the award of Degree of Master of Philosophy (M.Phil.) and Degree of Doctor of Philosophy (Ph.D.), which involve course work and research in selected areas of study. The medium of instruction shall be English. A candidate may normally register for an M.Phil./Ph.D. Degree programme in a chosen field of study with the approval of the relevant Board of Study. Details of some ongoing research programmes and collaborative projects with local and overseas universities/institutions are given in section 11.

4.1 General Information

4.1.1 Classification of Students

A student registering for a degree of Master of Philosophy or Doctor of Philosophy in the Postgraduate Institute of Science shall be required to pursue his/her studies at a university, research institute or any other recognized institution under the guidance of a supervisor/s appointed by the PGIS with the concurrence of the relevant Board of Study.

Full-time and Part-time students

A **full-time** student shall be a person duly registered for an M.Phil./Ph.D. degree programme who is engaged in research or related activities during the entire normal working hours of the week. Therefore those who are employed are required to obtain leave of absence from their work places so as to be available for studies during normal working hours and be eligible for registration under this category.

A **part-time** student shall be a person duly registered for an M.Phil./Ph.D. degree programme who devotes only a percentage of the total working hours of a week for his/her research work.

4.1.2 Application Procedure

Applications are entertained by the PGIS throughout the year. Every application for enrolment must be made in duplicate on the prescribed forms obtainable from the PGIS on payment of a non-refundable application-processing fee. If the application form is downloaded from Internet (<http://www.pgis.lk>), payment of application processing fee should be made at the time of submission of completed application form to the PGIS office. The acceptance of the application will be determined on the basis of the particulars disclosed. The relevant academic/professional qualifications possessed by the candidate should be supported by academic transcripts and authenticated copies of degree/diploma certificates. Applicants should arrange to have the official copy/copies of transcript/s sent directly to the Assistant Registrar of the PGIS. Originals of all certificates should be produced before admission as required by the PGIS. Two letters of recommendation, at least one of which should be from an academic referee, should be sent by the referees under confidential cover to the PGIS. Applicants are advised to submit certified photocopies of original certificates along with the application. The documents submitted in support of an application shall become the property of the PGIS. In the event of any discrepancy between the name/s appearing in an applicant's academic/professional/birth certificates and the name/s given by the applicant in the

application form, an affidavit to the effect that the applicant is the one and the same person known by all such name/s or relevant certificates should be sent together with the application form. Duly completed application form should be forwarded to the Assistant Registrar of the PGIS.

N.B. For admission requirements of M.Phil. and Ph.D. degrees see sections 4.2 (page 35) and 4.3 (page 39) respectively.

4.1.3 Processing of Applications

The applications will be considered by the relevant Board of Study. The applications which are incomplete or carrying false information, shall be rejected. The selection shall be based on academic merit. The applicants shall be informed of their acceptance/non-acceptance to the particular postgraduate programme for which admission has been sought. The decision of the PGIS shall be final in the admission to any programme.

4.1.4 Registration Procedure

a. Date of Registration

A person who has been accepted as a postgraduate student shall be required to register to follow the particular postgraduate programme of study. If an application for an M.Phil./Ph.D. degree is accepted by a Board of Study the effective date of registration would be the date on which the duly completed application was received at the PGIS office or the date of commencement of research which ever comes later. Special cases would be considered on their own merits by the PGIS.

b. Maintenance of Registration

It shall be obligatory for each student to renew the registration every year until the completion of the programme of study.

c. Concurrent Registration

A student who is registered for a postgraduate degree in the PGIS/University of Peradeniya or any another institution/university is not permitted to register concurrently in the PGIS.

d. Withdrawal from a Programme

A postgraduate student wishing to withdraw from the programme for which he/she is registered should do so in writing to the Director, PGIS. In case of such withdrawals, adjustments of fees and refunds, **if any**, will be made in accordance with the rules and regulations of the PGIS.

e. Readmission

An M.Phil./Ph.D. student who fails to maintain his/her registration shall be deemed to have withdrawn from the selected programme of study. If he/she wishes to re-enter the programme, he/she must apply for readmission in accordance with the regulations in force at that time. However, there is no guarantee of readmission. The procedure for readmission shall be the same as for initial registration, including the payment of all the prescribed fees.

f. Changes of Registration

Any changes in the personal information as submitted at initial registration should be communicated to the office of the PGIS. A student who wishes to make changes in the registration such as courses/subjects, thesis topic/title, student status etc. should do so in writing to the Director, PGIS. All changes in registration must receive the approval of the supervisor, Head of the Institution/Department/Laboratory concerned and the relevant Board of Study.

g. Postponement of Registration

A student who desires to postpone his/her registration for a programme should do so in writing to the Director, PGIS giving reasons for and duration of postponement. Each such request shall be considered on its own merit by the relevant Board of Study of the PGIS.

h. Cancellation of Registration

A registration may be cancelled by the PGIS on the recommendation of the relevant Board of Study for the following reasons: non-fulfilment of the course work requirements of an

M.Phil. degree within a maximum period of two years from the date of registration, exceeding the maximum duration allowed for M.Phil. and Ph.D. programmes (six and eight years respectively), non-payment of prescribed fees within the first six months of each year, failure to submit two progress reports successively except during the period of writing the thesis, non-adherence to rules and regulations of the PGIS and unsatisfactory academic progress.

i. Leave of Absence from the Programme

Leave of absence from the programme will not be granted under normal circumstances. However, leave may be granted under special circumstances on a written request made by the student. A student on a split or/and sandwich programme may be released for a specified period of time to continue the programme in an outside collaborating Laboratory/Institute. The student should maintain the continuity of registration by paying the relevant registration fees and any other fees if any unless an exemption from payment of such fees during a period of leave is granted by the PGIS.

4.1.5 Place of Research Work and Supervisors

A postgraduate student would normally be required to work in a laboratory/institution under the guidance of a supervisor/s approved by the relevant Board of Study. At least one of the supervisors should be from the institution where the major part of the research is carried out.

4.1.6 Progress Reports

Students should submit progress reports (in the prescribed form) every six months (*Deadlines*: for the period - 1st January to 30th June: *15th July* and for the period -1st July to 31st December: *15th January* of the following year) except during the period of thesis writing. The reports should be forwarded through the Head of the Department/Institution with the approval of supervisor/s to the Chairman of the relevant Board of Study, who shall forward the same to the Director/PGIS with his/her recommendation. Non submission of two successive progress reports will lead to the cancellation of registration of the candidate.

4.1.7 Examinations & Evaluation Procedures

On successful completion of the course requirements (specified in sections 4.2.2. & 4.3.2) the performance of a student shall be assessed on the basis of a thesis and a seminar (if applicable) based on the research project and an oral examination. (See section 5.0 for the format of the thesis)

- (i) The thesis shall be examined by two or more thesis examiners at least one of whom shall be an examiner external to the place where the research work was carried out.
- (ii) The oral examination will be conducted by a Panel of Examiners appointed by the PGIS. The Panel of Examiners may accept the thesis, recommend corrections/amendments and/or further work, or recommend the award of an M.Phil./Ph.D. degree or reject the thesis. The corrections/amendments and/or further work as recommended shall be completed and the thesis shall be re-submitted in the revised form within a period of time as specified by the Panel of Examiners.
- (iii) The final results will be released by the Results Board subject to confirmation by the Board of Management of the PGIS and the Senate of the University of Peradeniya.

4.1.7.1 Initial Submission and Evaluation of Thesis

Two copies of the thesis in temporary binding should be submitted in the first instance by the candidate through supervisor/s and the Chairman of the relevant Board of Study to the Director, PGIS. The supervisor/s is/are expected to certify that the thesis is of acceptable standard as required by the PGIS by signing and forwarding the form 4.1.7.1A obtainable from the PGIS office. The Director will dispatch a copy of the thesis to each examiner as recommended by the relevant Board of Study in consultation with the supervisor/s for evaluation. The examiners will send the evaluation reports to the Director of the PGIS. If both reports are favourable the reports of examiners will then be sent to Chairman/Board of Study so that the candidate will be informed through the supervisor/s about any corrections and/or modifications, to be effected to the thesis that may be suggested by the examiners. If one or both examiners suggest rejection of the thesis the Director shall send the reports to the relevant Board of Study to take appropriate action.

4.1.7.1A

<i>To – Director/PGIS</i>	
Initial Submission of the Thesis (soft bound form) <i>Certification</i>	
This is to certify that this thesis is based on the work carried out by Mr./Mrs./Ms. under my/our supervision at the (Department/Laboratory/Institute).	
The thesis has been prepared according to the format stipulated by the PGIS, and it is of acceptable standard.	
<i>Certified by:</i>	
1. Supervisor (Name):..... (Signature):	Date:
2. Supervisor (Name):..... (Signature):	Date:
<i>Forwarded through:</i>	
Chairman of relevant Board of Study (Name): (Signature):	Date:

4.1.7.2 Oral (Thesis Defense) Examination

If the thesis has been evaluated favourably by both examiners, the Director, PGIS will request the Chairman of the relevant Board of Study to call the candidate to a thesis defence examination on a specified date, time and place. In cases where there are major revisions of thesis, oral examination will be held after the revised report is re-examined favourably by the examiner/s.

Constitution of Panel of Examiners:

1. Chairman of the relevant Board of Study (Chairman)
(Where the Chairman of the Board of Study is a supervisor, the Director or his nominee shall be the Chairman)
2. Three examiners including the two thesis examiners
(Where the thesis examiner/s is/are not available, the relevant Board of Study shall nominate suitable person/s)
3. The Supervisor/s shall be present as observer/s

The panel of examiners will submit a report on the suitability of the candidate for the award of the degree. A candidate whose thesis is recommended for the award of the degree is required to make all minor/major corrections, revisions etc., if any, as required by the Panel and resubmit four copies of the thesis to the Director/PGIS as stipulated in section 4.1.7.3.

4.1.7.3 Final Submission of Thesis

Four or more copies (*depending on the number of supervisors*) of the thesis (*in the permanently bound form*), with revisions if any, prepared according to the guidelines given in section 5.0 should be submitted through the Supervisor and the Chairman of the relevant Board of Study to the Director, PGIS within the specified period of time as recommended by the panel of examiners for consideration by the Results Board. When the candidate submits the thesis, the supervisor/s is/are expected to certify that corrections, revisions etc., if any, have been properly effected by the candidate by duly signing the form 4.1.7.3A obtainable from the PGIS office.

4.1.7.3A

<i>To – Director/PGIS</i>	
<p>Final Submission of the Thesis (hard bound form) <i>Certification</i></p>	
<p>This is to certify that Mr./Mrs./Ms.. has carried out the corrections and/or modifications on the thesis as suggested by the examiner/s.</p>	
<i>Certified by:</i>	
1. Supervisor (Name):.....	Date:
(Signature):	
2. Supervisor (Name):.....	Date:
(Signature):	
<i>Forwarded through:</i>	
Chairman of relevant Board of Study (Name):	Date:
(Signature):	

4.1.8 The Effective Date of the Degree

The effective date of the degree which should not precede the last date of minimum duration of the given programme will be as follows:

- (a) Date of the Oral Examination
 - i. *if the thesis is accepted without any corrections*
 - ii. *if the thesis is accepted with minor corrections and corrections are done during the specified period of time as recommended by the Board of Examiners*
- (b) Date on which the final bound form is submitted by the candidate to the PGIS
 - i. *if the thesis is accepted with major corrections*
 - ii. *if the thesis is accepted with minor corrections and corrections are not done during the specified period of time as recommended by the Board of Examiners*
- (c) Any other date as decided by the PGIS, under special circumstances

4.1.9 Release of Results

The PGIS will call a meeting of the Results Board to consider the award of the degree to the candidate. The Results Board will release the results subject to confirmation by the Board of Management of the PGIS and the Senate of the University of Peradeniya.

Constitution of Results Board

1. Director/PGIS (Chairman)
2. Chairman of the relevant Board of Study
3. Secretary of the relevant Board of Study
4. Examiners
5. Supervisors

4.1.10 Transcript

Certified transcript/s of a student's academic record authenticated by the signatures of the Director and the Senior Assistant Registrar/Assistant Registrar of the PGIS may be sent under confidential cover directly to other institution/s on receipt of an application with the prescribed fee for such a transcript.

4.2 Degree of Master of Philosophy (M.Phil.)

4.2.1 Admission Requirements

The minimum requirements for registration are:

- A** (i) an M.Sc. degree from a recognised university/institution in the relevant area of study
or
(ii) a transfer from an M.Sc. programme conducted by the PGIS as stated under section 3.13
or
(iii) a B.Sc. Special Degree from a recognised university/institution in the relevant area of study
or
(iv) a B.Sc. General Degree from a recognised university/institution with subject/s relevant to the area of study
or
(v) any other equivalent qualification acceptable to the PGIS

and

- B** any other requirement/s as stipulated by the relevant Board of Study

4.2.2 Course Requirements for the M.Phil. Degree

All M.Phil. candidates should meet the following requirements:

- I He/She should engage in full-time research of **not less than two years**, or its equivalent on a part-time basis under the guidance of a supervisor/s as recommended by the relevant Board of Study, and submit a thesis based on the research carried out.
- II (a) He/She should successfully earn a minimum of **four credits of course work at postgraduate level** as recommended and arranged by the respective Board of Study. In addition, Boards of Study may recommend supplementary courses of B.Sc. special degree level to certain categories of candidates.
- or*
- (b) He/She should successfully complete an independent/directed study that would be equivalent to credits stated in II (a) above assigned to him/her by the relevant Board of Study and pass the relevant examination.
- III He/She should attain a minimum standard in scientific writing acceptable to the PGIS. The relevant courses will be conducted by the PGIS from time to time.

The requirements mentioned under II & III above should be completed within a **maximum period of two years** from the date of registration. Those candidates registered under 4.2.1A (i) and (ii) may be exempted from some or all the requirements mentioned under II and III above as recommended by the relevant Board of Study. The form 4.2.2.IIA obtainable from the PGIS office should be completed and submitted to certify the completion of requirements mentioned under 4.2.2.II a/b above.

4.2.2.IIA

To – Director/PGIS

Completion of Course Work Requirement
Certification

M.Phil. in

Name of Student:

PGIS Registration No: Date of Registration:.....

Board of Study:.....

Research Supervisor/s:.....

Requirement as specified in the student’s M.Phil. Registration Form (*please circle the relevant requirement*):

- *four credits of course work (4.2.2.II.a) or*
- *independent/directed study (4.2.2.II.b)*

4.2.2.II.a:

1. Postgraduate Course completed (code number and the title of the course):.....

.....

Number of credits:..... Grade obtained:.....

Name of the Programme Coordinator:.....

Signature of the Programme Coordinator:.....

Board of Study:.....

2. Undergraduate Course completed (code number and the title of the course):.....

.....

Number of credits:..... Grade obtained:.....

Name of the Lecturer in Charge/Head of Department:.....

Signature of the Lecturer in Charge/Head of Department:.....

Department of Study:

4.2.2.II.b:

Title of the independent/directed study:

.....
.....
.....

Results of the relevant examination:

.....
.....

Supervisor’s signature:

Date:.....

Chairman of relevant Board of Study:

Date:

4.2.3 Duration

The minimum duration for

- (i) full-time candidates registered under 4.2.1 A (i), (iii), (iv) or (v) - two years
- (ii) full-time candidates under 4.2.1 A (ii) - two years and nine months including the time spent for the M.Sc. programme or as specified by the PGIS.
- (iii) part-time candidates - 1 ½ times the period specified under (i) & (ii) above.

The maximum duration for the M.Phil. Degree would be six years for full-time students and eight years for part-time students from the date of registration. Exceptional cases may be considered by the PGIS.

On a written request made by the student, he/she may be allowed to change over from being a full-time student to a part-time student and vice versa. The minimum period required for completing the remaining programme shall be decided by the PGIS.

4.2.4 Award of the Degree

The M.Phil.degree may be awarded to a candidate who has:

- (i) fulfilled the admission requirements as set out in section 4.2.1
- and**
- (ii) been accepted by the PGIS as a candidate for the M.Phil. Degree
- and**
- (iii) been duly registered and paid fees for the prescribed duration of the programme
- and**
- (iv) successfully completed the requirements given under sections 4.1.7 and 4.2.2 subject to the condition given under section 4.2.3.

4.2.5 Academic dress

The academic dress for the Degree of Master of Philosophy shall consist of a gown of University pattern made of black cloth and a garland woven with white and gold coloured cords and terminating with the crest of University of Peradeniya.

4.2.6 Transfer to the Ph.D. Programme

A student who has been registered for an *M.Phil. degree programme* and who has made exceptional progress, may at his/her request and upon the recommendation of the relevant Board of Study be permitted to transfer the registration to that of a *Ph.D. degree programme* under the rules governing such a programme. A student may apply for such a transfer only after completion of at least one year of the M.Phil programme.

4.3 Degree of Doctor of Philosophy (Ph.D.)

4.3.1 Admission Requirements

The minimum requirements for registration are:

- A** (i) a transfer from an M.Phil. programme conducted by the PGIS on the recommendation of the relevant Board of Study
or
(ii) a Masters Degree in the relevant field obtained after a full-time research component of at least two years duration
or
(iii) any other equivalent qualifications acceptable to the PGIS
and
B any other requirement/s as stipulated by the relevant Board of Study.

4.3.2 Course Requirements for the Ph.D. Degree

All Ph.D. candidates should meet the following requirements:

- I** He/ She should engage in full-time research of not less than three years, or its equivalent on a part-time basis under the guidance of a supervisor/s as recommended by the relevant Board of Study, and submit a thesis based on the research carried out. Some candidates may have to take courses as decided by the PGIS.
- II** He/ She should satisfy the requirements given under II and III of section 4.2.2.

4.3.3 Duration

The minimum duration for

- (i) full-time candidates registered directly - three years
(ii) full-time candidates who are transferred from an M.Phil. programme - three years from the date of registration for the M.Phil. programme
(iii) full-time candidates who are transferred from an M.Sc. to M.Phil. programme and subsequently transferred to a Ph.D. programme - three years and nine months
(iv) part-time candidates - 1 ½ times the period specified under (i), (ii) or (iii) above.

The maximum duration for any candidate would be eight years for full-time students and ten years for part-time students from the date of registration. Exceptional cases may be considered by the PGIS.

On the written application of a student, he/she may be allowed to change over from being a full-time student to a part-time student and vice versa. The minimum period required for completing the remaining course shall be decided by the PGIS.

4.3.4 *Award of the Degree*

The Ph.D. degree may be awarded to a candidate who has:

- (i) fulfilled the admission requirements as set out in section 4.3.1. ***and***
- (ii) been accepted by the PGIS as a candidate for the Ph.D degree ***and***
- (iii) been duly registered and paid fees for the prescribed duration of the programme ***and***
- (iv) successfully completed all the requirements given under sections 4.1.7 and 4.3.2. subject to the condition given under section 4.3.3.

4.3.5 *Academic dress*

The academic dress for the Degree of Doctor of Philosophy shall consist of a gown of University pattern made of black cloth with a facing of scarlet and a garland woven with scarlet and gold coloured cords and terminating with the crest of University of Peradeniya.

4.4 Fees

(N.B. The fees given below may be revised from time to time by the Board of Management of the PGIS.)

All the relevant fees should be paid at registration. In order to renew the registration the relevant fee/s should be paid on or before 30th June of each year. Candidates joining or terminating the programme during the middle of the year are required to pay only for the relevant period of the year on quarterly basis.

Fee		Local candidates SL Rs.	Foreign candidates	
			SARRC Countries US\$	Other Countries US\$
4.4.0	Application processing fee*	300	30	60
4.4.1	Registration fee (per year)	2000	200	400
4.4.2	Communication fee (per year)	1800	180	360
4.4.3	Tuition fee (per year)**	3000	300	600
4.4.4	Bench fee - minimum (per year)**	#5000	#500	#1000
4.4.5	Library fee (per year)	100	10	20
4.4.6	Science deposit (per programme)	3000	300	600
4.4.7	Library deposit (per programme)	3000	300	600
4.4.8	Medical fee (per semester)	50	5	10
4.4.9	Examination fee			
	M. Phil.	4000	400	800
	Ph. D.	5000	500	1000
4.4.10	Transcript fee: Local	200	20	40
	Foreign (Additional for faxing)	300	30	60
4.4.11	Provisional certificate fee	100	10	20

* Payment of application processing fee is required to obtain application documents from the PGIS office. If application form is downloaded from the Internet (<http://www.pgis.lk>), payment of application processing fee should accompany the completed application form when it is submitted to the PGIS office.

** Those who have finished laboratory work (and have commenced writing the thesis) are exempted from payment of Tuition and Research fees. The exemption should be requested in writing from the Director of the PGIS by the candidate through his/her supervisor/s and the Chairman of the relevant Board of Study.

The exact amount will be determined by the relevant Board of Study at the time of processing the application for registration

N.B. Please refer to section 8.0 (page 58) for mode of payment.

5.0 M.Sc., M.Phil. & Ph.D. – FORMAT OF THE PROJECT REPORT/THESIS

The project report/thesis shall consist of the candidate's own account of his/her research. It must form a distinct contribution to knowledge and afford evidence of originality shown by the exercise of independent critical power and/or by the discovery of new facts. It must be satisfactory as regards literary presentation.

A candidate shall not submit a project report/thesis or part thereof, on which a degree has been conferred upon him/her by the University of Peradeniya or any other university/institution. A candidate may incorporate into his/her project report/thesis any published work, which has not already been embodied in an earlier report of the candidate for the conferment of a degree.

5.1 Paper and Printing

Each copy shall be on clear white paper of good quality having at least **80 GSM and A4 size (210 x 297 mm)**. One type of paper must be used throughout the project report/thesis. However, papers of different quality and size may be used for figures, maps, etc. Each copy shall be computer printed. One font (preferably Times New Roman - size 12) must be used throughout the project report/thesis. The use of bold type headings and italics for emphasis is permitted. All typing should be on one side of the paper only, 1.5 spaced, with the left hand margin not less than 40 mm, right hand margin not less than 15 mm and top and bottom margins not less than 25 mm. Photocopies should be clearly legible.

5.2 Diagrams

Drawings, diagrams, maps etc. should be clear and may be reproduced by photographic or other processes. They should carry captions on the same page.

5.3 Number of Pages

The total number of pages in an M.Sc. project report should not exceed 150 pages.

5.4 General Format

In the first instance the temporarily bound project report (two copies)/thesis (three copies) should be submitted for evaluation. Four or more copies of final corrected version of the project report/thesis should be submitted in properly bound form (refer sections 3.7.2 and 4.1.7).

The general format of the project report/thesis shall be as follows:

(i) *The Title*

The title shall be the title approved by the relevant Board of Study of the PGIS. It should be informative and descriptive of the work done. As shown in the section 5.8.3, year of effective date of award of degree should appear at the bottom of the title page.

- (ii) *Declaration*
Each project report/thesis should carry a declaration as specified in section 5.8.4.
- (iii) *Abstract*
This shall consist of the title of the project report/thesis, name and address of the author and a summary not exceeding 350 words as given in section 5.8.5.
- (iv) *Acknowledgments*
The candidate shall declare in the thesis the extent to which assistance has been obtained from others in the collection of material, design and construction of apparatus, performance of experiments, preparation of the thesis, financial support etc.
- (v) *Table of Contents*
- (vi) *List of Tables*
- (vii) *List of Figures*
- (viii) *List of Abbreviations*
- (ix) *Main Body of the Text*
This shall include introduction, survey of prior research, objectives of the study, research design, results, analysis, discussion and conclusions. References should be cited in the text either by author and year or numbered. Notes may be placed at the foot of each page or in a group at the end of each chapter. Standard International units should be used. Unit symbols should be written after the numerical value, leaving a space between, e.g., 5 m.
Formulae: Formulae should be printed. Leave ample space around the formulae. Subscripts and superscripts should be clear and not too small. Give the meaning of all symbols immediately after the equation in which they are first used. For simple fractions use the solidus (/) instead of a horizontal line. Equations should be numbered serially at the right-hand side in parentheses. Use of fractional powers instead of root signs is recommended. Also powers of e are often more conveniently denoted by exp. Levels of statistical significance which can be mentioned without further explanation are *p<0.05, **P<0.001 and ***P<0.001. In chemical formulae, valence of ions should be given as, e.g. Ca²⁺ and CO₃²⁻, not as Ca⁺⁺ or CO₃⁻⁻. The repeated writing of chemical formulae in the text is to be avoided; instead, the name of the compound should be given in full. Exceptions may be made in the case of very long names occurring very frequently or in the case of a compound being described as the end product of a gravimetric determination.
Scientific Names: Scientific names of species should be in italics, e.g. *Stemonoporus canaliculatus* Thw. (Dipterocarpaceae), *Elettaria cardamom* var. *major* Thw. and *Shorea disticha* (Thw.) Ashton.
- (x) *List of References*
The references in the text may either be listed at the end of the thesis or at the end of each chapter. The references can be in the numeric system or author-year system. However, one system should be used throughout the thesis. The format to be used is given in section 5.9.
- (xi) *Appendices*
Any detailed description, recipe or set of data could be included under an Appendix.

5.5 Numbering of Pages

Each page in a thesis should be numbered in consecutive order. This includes illustrative material as well as text.

For the prefatory pages (title page to list of abbreviations) small Roman numerals should be used and placed 10 mm below the midpoint of the top edge of the page. All pages of the main body of the thesis, beginning with the introduction or Chapter 1 up to the last page of the thesis should be numbered with arabic numerals.

The first page of each major section (e.g. the first page of chapter) should be numbered 10 mm above the midpoint of the bottom edge of the page. All other pages must be numbered in the upper right hand corner of the page 10 mm from the top and right edges.

5.6 Tables and Figures

Tables and Figures should be numbered with Arabic numerals according to chapter number with decimals. e.g. the third figure in Chapter 1 should be numbered as Fig. 1.3 or Table 1.3. Title of a table should be clear and meaningful, and should be placed at the top of the table. Only relevant data should be presented in any tables included in the project report/thesis. If there are masses of data which take up three to four pages or more, they should be placed in an Appendix and not in the main body of the text.

The figure caption should be at the bottom of maps, line drawings, photographs and graphs. Every map should bear: the coordinates, a linear scale, the directive arrow, and index map showing locality of area dealt with. Line drawings should contain only essential information and should illustrate some points in the text. Graphs may be line graphs or bar graphs and the choice of which is to be used at any time depends on the data to be presented. Only good-quality photographs should be included and only if they are useful in illustrating something in the text. All maps should include a scale.

The table titles and figure captions should be of the same font-style as in text but of smaller size (preferably Times New Roman and size 10) and single spaced if there are more than one line.

5.7 Specified Colours and Binding

Each copy of the project report/thesis should be bound with cloth, rexin or material of equivalent quality. The cover should be in the colour specified for the particular degree with gold lettering as given below:

<i>Diploma</i>	<i>Brown</i>
<i>M.Sc.</i>	<i>Maroon</i>
<i>M.Phil.</i>	<i>Green</i>
<i>Ph.D.</i>	<i>Blue</i>
<i>D.Sc.</i>	<i>Black</i>

As shown in section 5.8.1, cover should carry the full title of the project report/thesis, name of candidate, degree sought and year of effective date of award of degree. The spine (see section 5.8.2) shall also carry the title, name of candidate, degree sought and year of effective date of award of degree. If the approved title is too long, the approved short title should be printed on the spine.

5.8 Specimen Pages

Boxes given in the specimen pages represent A4-size pages or spine of the project report/thesis, but not to scale. The font to be used is specified at the right hand side margin of the pages.

5.8.1 Specimen Cover Page

This box should not appear on the cover page

(Times New Roman, size 14)

ECOLOGY AND BIODIVERSITY IN AN IRRIGATED RICE FIELD ECOSYSTEM

(Times New Roman, size 12)

DAMITHA ASIRI BANDARA

(Times New Roman, size 14)

M.Sc./M.Phil./Ph.D.

2002

5.8.2 *Specimen Spine*

This box should not appear on the spine



D. A. BANDARA
ECOLOGY AND BIODIVERSITY IN AN IRRIGATED RICE FIELD ECOSYSTEM
M.Sc.
2002

(Times New Roman, size 10)

(Times New Roman, size 14)

QUALITY ENHANCEMENT OF SRI LANKAN GEUDA

(Times New Roman, size 12)

A PROJECT REPORT PRESENTED BY

CHAMARA PERERA

to the Board of Study in Earth Sciences of the
POSTGRADUATE INSTITUTE OF SCIENCE

*in partial fulfillment of the requirement
for the award of the degree of*

MASTER OF SCIENCE IN GEMMOLOGY

of the

**UNIVERSITY OF PERADENIYA
SRI LANKA**

2002

(Times New Roman, size 12)

5.8.4 Specimen Declaration Page

To be included only at the resubmission (final submission) of the properly bound project report/thesis.

This box should not appear

DECLARATION

(Times New Roman, size 14)

(Times New Roman, size 12)

I do hereby declare that the work reported in this project report/thesis was exclusively carried out by me under the supervision of It describes the results of my own independent research except where due reference has been made in the text. No part of this project report/thesis has been submitted earlier or concurrently for the same or any other degree.

Date:

Signature of the Candidate

(Times New Roman, size 11)

Certified by:

1. Supervisor (Name):..... Date:

(Signature):

2. Supervisor (Name):..... Date:

(Signature):

PGIS Stamp:

(Times New Roman, size 14)

5.8.5 Specimen Abstract (1 – 2 pages)

**POLYPYRROLE BASED CONDUCTING POLYMERS
AND THEIR ELECTROCHEMOMECHANICAL
PROPERTIES**

(Times New Roman, size 14)

K. P. Vidanapathirana

Department of Physics

(Times New Roman, size 12)

University of Peradeniya

Peradeniya

Sri Lanka

The influence of preparation conditions on the properties of electroactive poly-N-methylpyrrole (PNMP) films were investigated by varying preparation conditions with a view of obtaining highly conductive films. Characterizations were done using cyclic voltammetry and impedance spectroscopy. Conductivity of PNMP films was very much affected by the polymerization current density, pH and the polymerization temperature. Electrochemical Quartz Crystal Microbalance (EQCM) studies revealed that anions are the moving species during the redox process in PNMP films that were prepared and cycled in aqueous electrolytes containing small anions.

Polypyrrole (PPy) films were prepared with large surfactant anion, dodecyl benzenesulfonate (DBS⁻), and their properties were compared with those of PPy films prepared with small anions. EQCM studies on PPy/DBS films showed a dual step scheme for the redox process in aqueous electrolytes. Lithium rechargeable cells were fabricated using PPy/DBS as the cathode. Continuous charge-discharge experiments showed that these cells could be cycled more than 1000 times without any appreciable charge decay.

Electrochemomechanical properties of PPy/DBS films were investigated by fabricating bi-layer and dry artificial muscles and obtaining the force exerted by these muscles. The highest force change is always associated with the main peaks of the cyclic voltammogram. It has been observed that appreciable force change occurred in a rather narrow voltage interval. Muscles fabricated with PPy films prepared using larger anions and higher polymerization current densities gave higher forces. Higher forces can also be obtained by limiting the cycling potential window so that only cation exchange occurs.

5.9 References/Bibliography Format

In the project report/thesis, references may take either of the two following forms:

- Numeric System
- Author -Year System

5.9.1 Numeric System

In the Numeric System citation numbers may be introduced into a text within brackets or as superscripts. e.g.:

..... text[7]....., text[7,8], text[4,7-10] ...
..... text⁷, text^{7,8}, text^{4,7-10}

Use of this system does not preclude also mentioning an author's name;
e.g., The results reported by Smith⁷ are.....

In the Numeric System references are listed in the order they appear in the text.

Recommended Format for Numeric System

1. Journal article: Nakamishi, T., Ito, K., *Sol. Energy. Mat.* **1994**, 35, 171.
2. Journal article (electronic): Williams, F. Electronic Document Delivery – a trial in an academic library. Ariadne issue 10, 15 July 1997. <http://www.ariadne.ac.uk/issue10/edd/> (5 December 1997)
3. Journal without volume numbers: Hart, T.W., *J. Chem. Soc. Chem. Commun.* **1979**,156.
4. Journal with new pagination in each issue: Haggin, I., *Chem. Eng. News* **1985**, 63 (42), 23-25.
5. Translation journal: Volpin, M.E., *J. Gen. Chem. USSR (Engl. Transl.)* **1960**, 30 1207; *Zh. Obshch. Khim.* **1960**, 30, 1187. (translation journal data followed by original journal data)
6. Reference to abstract of an article: Mirnov, V.F., *Izv. Akad. Nauk SSSR* **1966**,1177; *Chem. Abstr.* **1966**, 65,16997.
7. Paper not yet published: Ariyaratne, K.A.N.S., *J. Natl. Sci. Coun. Sri Lanka*, in press.
8. Monograph: Soo, S.L., *Fluid dynamics of Multiphase systems*. New York: Blaisdell, 1967.
9. Chapter in a monograph: Ugi, I., *Isonitrile chemistry*, New York: Academic press, 1971; Chapter 2.
10. Book: Smith, J.D., Crawford, F., *Hormonal Mediators in Bees*. Greenvillage: The New Science Press, 1985.
11. Edited Book: Cleerfield, A. (Ed.) *Inorganic Ion Exchange Materials*. Boca Raton: CRC Press, 1982.
12. Chapter in an edited book: Stoepler, M. and Nireuberg, W., in: *Metalle in der umwelt; Merian, E.* (Ed.) Weinheim: Verlag Chemie, 1984; Chapter I, 4a.
13. Abstract of a conference paper: Dissanayake, M.A.K.L., *Abstracts of papers*, 51st Meeting of the Sri Lanka Association for the Advancement of Science, Colombo, Sri Lanka, 1986, 513.

14. Patent: Maldonado, P., Nougier, R., *U.S. Patent*. 197205, 1983.
15. Thesis: Bandara, J.M.S., M.Phil. Thesis, University of Peradeniya, 1992.
16. Thesis (website): Smith, J., Curly's Airships Polegate, Masters of Arts 2000 Available from:
<http://www.curlysairships.com> (Accessed 29 May 2001).

5.9.2 Author-Year System

The Author-Year System is preferred by scientists and editors, particularly in medicine and biosciences. In this system, reference numbers are totally avoided. Instead the name of the first author of the publication (or the names of the first and second authors if there are only two) appears together with the publication *year* of the document.

References should be arranged first alphabetically under author/s name/s and then in chronological order if several papers by the same author/s are cited. Use *a, b, etc.* after the year to distinguish papers published by the same author/s in the same year.

The *text*: The surnames/s of author/s should be followed by the date, to which may be added *a, b, etc.* to distinguish papers published by the same author/s in the same year. (i) *Two authors*: use both names and the year. Do not use *et al.* (ii) *Three authors*: on first citation use all authors' names and the year. Thereafter it is usually sufficient to give the name of the first author followed by *et al.* and the date. (iii) *More than three authors*: on first citation and thereafter give the name of the first author followed by *et al.* and the date.

The following examples illustrate how Author--date citations can be incorporated into a running text.

Young (1981) and also Peterson (1983) report Recent studies (Silva and Perera, 1996) have shown... that the actual value is higher (Senaratne et al., 1995).

Recommended Format for Author-Year System

1. Journal article:

- (a) Bell, C.H. (1991). Diapause and cold tolerance of larvae of *Ephestia elutella*. *Postharvest Biology and Technology* **1**, 81-93.
- (b) Priesler, H.K. and Robertson, J.L. (1992). Estimation of treatment efficacy when the number of test subjects is unknown. *Journal of Economic Entomology* **85**, 1033-1040.
- (c) Waite, D.T., Grover, R., Westcott, N.D., Sommerstd, H. and Kerr, L. (1992). Pesticides in ground water, surface water and spring runoff in a small Saskatchewan watershed. *Environmental Toxicology and Chemistry* **11**, 741-748.

2. Journal article (electronic): Williams, F. (1997). Electronic Document Delivery – a trial in an academic library. Ariadne issue 10, July 15. <http://www.ariadne.ac.uk/issue10/edd/> (December 5 1997)

3. Journal without volume numbers: Jang, E.B. (1991). Thermal death kinetics and heat tolerance in early and late third instars of the oriental fruit fly (*Diptera: Tephritidae*). *Journal of Economic Entomology*, 1298-1303.

4. Journal with new pagination in each issue: Becker, L.J. & Seligman, C. (1981). Welcome to the energy crisis. *J. Social Issue* **37** (2), 1-7.
5. Translation journal: Assink, E.M.H. & Verloop, N. (1977). Het aanleren van deel-geheel relaties in het aanvankelijk rekenonderwijs [Teaching part-whole relations in elementary mathematics instruction]. *Pedagogische Studien* **54**,130-142.
6. Reference to abstract of an article: Karunaratne, W.M.A.A. & Dissanayake, C.B., 1983.The distribution of goldmines and mining villages in ancient Sri Lanka. Abs. *First Geology Symposium of Sri Lanka*: University of Peradeniya.
7. Paper not yet published: Potting, R.P.J., Otten, H. & Vet, L.E.M. (1997). The relation between parasitoid ecology and learning: absence of learning in the stemborer parasitoid *Cotesia flavipes*. *Animal Behaviour* (in press).
8. Monograph: Gunatilleke, C.V.S. (1996). *A nature guide to the world's end trail, Horton Plains*. Peradeniya Science Publication 5.
9. Chapter in monograph: Ugi, I. (1971). *Isonitrile chemistry*, New York, Academic press; Chapter 2
10. Book: Abeles, F.B. (1973). *Ethylene in Plant Biology*. Academic Press, New York.
11. Edited Book: Worthing, C.R. & Walker, S.B. (1987). *The Pesticide Manual*, 8th edn. British Crop Protection Council, Thornton Heath.
12. Chapter in edited book: Ries, S.K. (1976). Subtoxic effects on plants. In *Herbicides: Physiology, Biochemistry, Ecology*, 2nd edn. Vol. 2, ed. L.J. Audus. Academic Press Inc. (London) Ltd, Chapter 2, 313-344.
13. Edited symposia, special issues, etc., published in a periodical: Kimball, B.A. & Idso, S.B.(1983). Increasing atmospheric Carbon Dioxide: effects on crop yield, water use and climate. In: J.F. Stone and W.O. Willis (Editors), Symp. Plant Production and Management under Drought Conditions, 4-16 October 1982, Tulsa, OK. *Agric. Water Manage.* **7**, 55-72.
14. Patent: Kysika, J.O., Sawiciki, C.A., Apparatus and method for measuring optically active materials, U.S. Patent 352 321, 1983.
15. Thesis: Cregg, B.M. (1990). Net Photosynthesis and carbon allocation of loblolly pine (*Pinus taeda L.*) branches in relation to three levels of shade. Ph.D. thesis, University of Georgia, USA.
16. Thesis (website): Smith, J. (2000) *Curly's Airships Polegate*, Masters of Arts Available from: <http://www.curlysairships.com> (Accessed 29 May 2001).

6.0 DEGREE OF DOCTOR OF SCIENCE (D.Sc.)

On the recommendation of the Board of Management of the PGIS, the Senate of the University of Peradeniya may resolve that the Degree of Doctor of Science be conferred on a graduate of the University of Peradeniya or its predecessors, who is

- a. of at least six years' standing with a degree of Doctor of Philosophy or an equivalent research degree of a recognized university, or
- b. of at least ten years' standing with a degree of Master of Philosophy or an equivalent research degree of a recognized university,
- c. and who has satisfied any other requirements laid down by the PGIS.

The Degree of Doctor of Science shall not be awarded except for conspicuous merit in a field of study within the purview of the PGIS. Evidence of conspicuous merit shall consist of papers published in journals, monographs, books or other research material representing a significant and substantial contribution to the relevant field of learning.

6.1 Application Procedure

Every application for a Degree must be made in duplicate on the prescribed forms obtained from the PGIS on the payment of a fee.

Every application shall be accompanied by a receipt for the prescribed fee paid to the account of the PGIS at a specified bank.

Four copies of all relevant material other than that which is specified in detail in the application should be submitted along with the application form to the Director /PGIS. Two of the copies submitted will become the property of the PGIS whether or not the degree is conferred.

Every application shall be accompanied by a declaration by the applicant that the published works on which the application is based have not been submitted for a degree of this or any other university, and that the applicant received no assistance other than the assistance which is specified in detail in the application. An applicant who submits papers or books which have been produced in collaboration shall state in respect of each item the extent of the applicant's own contribution.

6.2 Evaluation Procedure

The Director/PGIS will place the application before the relevant Board of Study and the Coordinating Committee for preliminary evaluation. The Board of Study and the Coordinating Committee, when assessing the application should also take into consideration the contribution made by the applicant towards stimulating, promoting and supporting research in the specific area in which the higher degree is sought.

If the Coordinating Committee decides to proceed with the application, its observations/recommendations will be forwarded to the Board of Management of the PGIS. The Board of

Management will submit its observations/recommendations to the Senate and if the application is accepted by the Senate, the Senate will then proceed with the appointment of examiners.

The Senate shall appoint not less than two examiners who have higher doctoral degrees and with special competence in the relevant subject. Examiners shall not be from the same institution as the applicant. They shall consider the evidence submitted by the applicant and report thereon to the Senate. They should disregard any of the work which has not been made available for criticism either on account of its inaccessibility or because it has been submitted for the degree at too short an interval after its publication. In their report the examiners should state whether the evidence presented constitutes an original contribution to the advancement of knowledge of such substance and distinction as to give the applicant authoritative status in the relevant branch of learning. For the award of the D.Sc., the concurrence of all examiners is mandatory.

6.3 Fees

Registration & Preliminary Evaluation Rs. 5000.00

Final Evaluation Rs. 15000.00

In addition candidates are required to pay postage depending on the actual cost.

6.4 Release of Results

The recommendations of the examiners will be considered by a Results Board consisting of the Director/PGIS(Chairman), Dean, Faculty of Science, University of Peradeniya and three Chairmen of Boards of Study nominated by the Director. The decision of the Results Board shall be submitted to the Board of Management, and the Senate for ratification. The decision of the Senate on such recommendation shall be final and conclusive.

6.5 Effective Date

Effective date of the degree shall be the date on which the Results Board met to recommend the award of the Degree.

6.7 Academic Dress

The academic dress for the Degree of Doctor of Science shall consist of a gown of University pattern made of scarlet silk or similar material with the lion design on the lapels, and a garland woven with blue, scarlet and gold coloured cords and terminating with a lotus made up of gold coloured material.

7.0 OTHER ACTIVITIES OF THE PGIS

7.1 *Short Courses/Training Programmes/Workshops*

Given below are some of the themes of Short courses, In-service Training Programmes and Workshops that will be conducted by the PGIS from time to time.

Sampling Techniques
Medical Statistics
Industrial Statistics
Achieving and Maintaining Quality and Productivity
Spread Sheets and Database Management
Introduction to Microcomputers and Applications
Computer Awareness
Microcomputer Interfacing Methods in Chemistry
Chemical instrumentation
Application and Maintenance of Instruments in a Clinical Biochemistry Laboratory
Basic Electronics
Advanced Electronics
Electronics for A/L Physics Teachers
Radiation Protection and Radiation Physics
Weather Forecasting and Meteorological Instruments
Astronomy
Business Mathematics
Actuarial Mathematics
Analytical Methods in Geochemistry
Geology for Engineers
Identification of Rocks & Minerals
Topographic Surveying and Geological Surveying
Remote Sensing and Geological Mapping
Basic Gemmology
Oceanography
Geo-scientific Writing
Scientific Writing
Biotechnology
Advanced Biochemistry
Nutrition and Food Security for School Teachers
Training programme for Microscopists
Enzyme-Linked Immunosorbent Assays (ELISA) for the detection of Malarial Antigens,
Antibodies and Vector Blood Meals
Insect Taxonomy
Forensic Entomology
Insect Toxicology
Management of Natural Resources
Applied Environmental Toxicology
Chemical Toxicology
Toxicology and Pesticide Use
Waste Disposal and Management
Environmental Sampling and Data Analysis
Environmental Organic Chemistry

Pesticide Residue Analysis
Air Quality Monitoring and Management
Acid Rain Monitoring and Atmospheric Modelling
Algae Toxins
Water Quality Monitoring
Industrial Waste Management
Liquid Chromatography
NMR Spectroscopy
Ceramic Technology
Methods in Basic Plant Taxonomy
Plant Systematics
Plant Tissue Culture
Methods in Plant Eco-Physiology
Multivariate Analysis of Ecological & Environmental Data
Canopy Hemispherical Photography for Measurements of Canopy Parameters
Science Education
Teaching Methods in Biology/Chemistry/Mathematics/Physics
Computer Based Interactive Physics Teaching
Postgraduate Education & Research in Sciences
Intellectual Property Rights and Commercialisation of Research

7.2 Scientific Consultancy Services

The Scientific Consultancy Services Center (SCSC) provides consultancy services in various disciplines of science. In processing proposals for consultancies the following information and guidelines will be useful.

1. The governing body of the SCSC is the Board of Management of the PGIS.
2. A committee appointed by the Board of Management of the PGIS shall be in charge of evaluating the feasibility of a given project. The committee shall be chaired by the Director of the PGIS. The committee shall then identify a team leader and obtain approval for the project from the Board of Management of the PGIS.
3. The committee after consultation with the team leader shall then appoint a team of experts to carry out the stipulated tasks (preparation of a project document, carrying out the project etc.). The SCSC could provide any advice needed by team leaders for interacting with potential clients and writing reports.
4. The contractual agreement between the client and the SCSC will be signed by the Director of PGIS (or his nominee) and the team leader. At the time of signing the contract a mobilization payment of a minimum of 10% of the total fee will be charged from the client. A procurement incentive of up to 2% of the total value of the project shall be offered to any person affiliated to the scientific community who finds a project to SCSC.
5. The PGIS will oversee the successful completion of the project.
6. The team leader shall convene regular progress evaluation meetings, to which the client shall be invited, and report back to the SCSC Committee.

7. Disbursement of funds: 10-30% of the fee on a sliding scale based on the total value of the project shall be given to the PGIS. After subtracting the costs involved (institutional charges, vehicle hire, the cost of chemicals, material and other facilities used belonging to the institution where the work is carried out) the balance shall be distributed among the team of consultants based on a weighted mean according to the salary and the number of days worked on the project.
8. Post consultancy services, after the completion of a given project, shall be made available at a negotiated price.

7.3 *Junior Research Assistantship (JRA) Programme*

This is a novel scheme where brilliant Sri Lankan science students with exceptionally good results at the G.C.E. (A/L) examination are exposed to advanced scientific research for a few months before they gain admission to the universities. During this period, they will be paid a monthly allowance of not less than Rs. 3000.00. This scheme is aimed at promoting and popularizing scientific research among the younger generations. Those selected will get the opportunity to share the excitement and experience of scientific research by working with eminent Sri Lankan scientists. Their programme will include research work in laboratories, Computer Center, and may also involve field assignments. In addition, a special lecture series, visits etc. are also organized for the benefit of these students.

8.0 PAYMENT OF FEES

All payments should be made by:

- Money Order drawn in favour of the *Postgraduate Institute of Science* payable at the Peradeniya Post Office or
- Cash to the credit of the *Postgraduate Institute of Science, a/c 0057 162 0000612 at the People's Bank, Peradeniya* using the paying-in-voucher prepared by the Institute for this purpose.

Payments by other methods are acceptable only if prior arrangements have been made with the Institute. A receipt for payment of the prescribed fee should be annexed to the application for i) registration, ii) obtaining transcript, certificate, etc.

9.0 FACILITIES AVAILABLE

9.1 *Laboratory Facilities*

The PGIS is located in its own 3-storey building in the Peradeniya campus in the picturesque surroundings overlooking the university cricket grounds since October 20, 1999. The building has facilities for a computer unit, laboratories, lecture halls, etc.

Currently, proposals are being formulated to obtain foreign assistance to install state-of-the-art instrumentation in the PGIS laboratories. At present Departments of Botany, Chemistry, Geology, Mathematics, Molecular Biology and Biotechnology, Physics, and Zoology in the Faculty of Science provide laboratory facilities to the postgraduate students of the PGIS to carry out their work.

9.2 *Computer Facilities*

The computer laboratory at the PGIS is providing services to the postgraduate students. Twenty-five Pentium computers have been networked to a server. They can also be used as stand-alones. Hardware accessories have been installed to enable state-of-the-art computer facilities at the PGIS. A wide range of software is available to fulfil the requirements of all fields of study. Internet facilities are also available for both students and staff. With the installation of the computers, PGIS is now geared to offer courses on computer literacy to all postgraduate students. In addition, the PGIS students will be able to use computers for their data analysis work. Further expansion of facilities is also envisaged.

9.3 *Library Facilities*

Postgraduate students are provided with library facilities in the Library of the Faculty of Science. The library currently holds approximately 20,365 books and 973 Journal titles. In addition, this library subscribes to 70 foreign and 26 local Journals annually. The library has an M.Sc. project report and M.Phil./Ph.D. thesis collection currently numbering 344. Audiovisual facilities are available with 114 videocassettes and 31 audio materials.

Further, arrangements can be made for students to use the Main Library, Medical Library, Engineering Library and Agriculture Library of the University of Peradeniya. The library provides interlibrary loan facility to its readers. Library user education programmes are also available on information retrieval, referencing, managing information, preparation of bibliographies, etc.

9.4 *Recreation Facilities*

Facilities for athletics, cricket, hockey, rugby, soccer, volleyball, tennis, swimming, etc. are available in the university premises. A well equipped gymnasium is situated about 500 meters away from the institute where students could participate in indoor games such as badminton, basket-ball, table-tennis, weight lifting, etc. A theatre for screening of films, documentaries, etc. and an open-air theatre for dramas are also available in the university campus.

9.5 Health Care Facilities

The University Health Center provides preventive and curative health care to the university community including postgraduate students and employees. A 24-hour medical service catering to emergencies is also provided. Cases, which cannot be handled at the Health Center, are referred to the General Hospital, Peradeniya or the General Hospital, Kandy. A number of private hospitals are also available in the vicinity of Peradeniya.

10.0 PANELS OF RESOURCE PERSONS OF BOARDS OF STUDY

Resource persons of the Boards of Study of the PGIS are academics/scientists drawn from Sri Lankan universities, research institutes, industry, etc. Based on the need of the postgraduate programmes, provision for appointment as Visiting Professor is also available for eminent scientists from Sri Lanka and abroad.

10.1 Board of Study in Biochemistry & Molecular Biology

Abeysekera, C. K., *MBBS (Cey.), DCH (Col.), MRCP (UK)*
Abeyasinghe, D. R. R., *MBBS (Cey.), MD (Col.), MRCPsych (UK)*
Amarasinghe, A. B. C., *B.Sc. (Cey.), M.Sc. (Carolina), Ph.D. (Buffalo)*
Amerasinghe, P. H., *B.Sc. (Cey.), Ph.D. (S. Lan.)*
Amerasinghe, W. I., *MBBS (Cey.), FRCOG (UK)*
Aponso, H. A., *MBBS (Cey), FRCP (UK)*
Athauda, S. B. P., *B.Sc. (Perad.), M.Sc., Ph.D. (Tokyo)*
Athukorala, S. D., *MBBS (Col.), MRC Path (UK)*
Balasuriya, P., *MBBS (Cey.), MRCP (UK)*
Bandara, B. M. R., *B.Sc. (S. Lan.), Ph.D. (ANU)*
Bandara, H. M. N., *B.Sc. (Cey.), M.Sc., Ph.D. (Ast.)*
Bandara, N. C., *B.Sc. (Perad.), M.Sc. (New Orleans), Ph.D. (New Orleans)*
Bandara, Y. M. H. B. Y., *B.Sc. Agric. (Perad.), Ph.D (Reading)*
Buthpitiya, A. G., *MBBS (Cey.), MS (Col.)*
Chandrasekera, M. S., *BDS (Cey.), Ph.D. (New Castle)*
Chandrasena, L., *B.Sc., M.Sc., M. Phil. (Sheffield), Ph.D*
Dangahadeniya, U., *MBBS (Perad.), MD (Col.)*
Dassanayake, M. D., *B.Sc. (Cey.), Ph.D. (Manchester)*
Dissanayake, D. M., *MBBS (Perad.), DPath (Col.)*
Dissanayake, M. A. K. L., *B.Sc. (Cey.), M.S., Ph.D. (Indiana)*
Edirisinghe, J. S, *MBBS (Cey.), M.Sc., Ph.D. (Lond.), MD (Col.)*
Eeswara, J., *B.Sc. Agric. (Perad.), M.Phil.(S. Lan.), Ph.D. (Aberdeen)*
Ekanayake, N., *MBBS (Perad.), MD (Cey.)*
Evarad, J. M. D. T., *M.Phil. (New England, Australia)*
Fernando, K., *B.Sc. (Perad.), M.Sc. (Calif.), Ph.D. (Bath)*
Fernando, P. H. P., *B.VSc. (Perad.), M.Agric. (Miyazaki), Ph.D. (Kagoshima)*
Fernando, R., *MBBS (Col.), MRC Path (UK)*
Fernandopulle, N., *B.Sc. (Col.), Ph.D. (Col.)*
Goonasekara, C. D. A., *MBBS, MD (Cey.), FFARCS (IRE), DCH (Lond.), MRCP (UK)*
Gunasekara, M., *B.Sc. (Col.), Ph.D. (UK)*
Gunasekara, S. W., *B.Sc. (Cey.), Ph.D. (Surrey)*
Gunatilleke, I. A. U. N., *B.Sc. (Cey.), Ph.D.(Cantab.)*
Horadagoda, N. U., *B.VSc., M.VSc. (Cey.), Ph.D. (Liv.)*
Illangasekara, V. L. U., *MBBS (Cey.), MD (Cey.), MRCP (UK), Ph.D.*
Janz, E. R., *B.Sc., Ph.D.*
Jayasena, L., *MBBS (Cey.), FRCP (UK)*
Kaluarachchi, T. K. P., *B.D.S (S. Lan.), Ph.D.*
Karunaratne, A. M., *B.Sc. (Perad.), M.Sc. (Nebraska)*
Karunaratne, S. H. P. P., *B.Sc. (Perad.), M.Sc.(Cey.), Ph.D.(Lond.)*
Karunanayake, E. H., *B.Sc. (Cey.), Ph.D. (UK)*
Kulasooriya, S. A., *Vidyanidhi, B.Sc. (Cey.), Ph.D. (Lond.)*

Kumar, V., *B.Sc. (Cey.), D.Phil. (Oxon)*
 Kumar, S., *B.Sc. (Cey.), Ph.D. (Lond.)*
 Leelananda, S. A., *B.Sc. (Cey.), M.Sc. (Lond.), D.I.C., Ph.D. (Calgary)*
 Lekamge, N., *MBBS, MS*
 Mahendran, *B.Sc. (Col.), M.Sc. (UK)*
 Mendis, P. B. S., *MBBS (Cey.), MD (Perad.), FRCP (UK)*
 Pathirana, C., *B.Sc., Ph.D.*
 Peiris, S., *B.Sc. Agric. (S. Lan.), M.Sc. (Penn. State), Ph.D. (Lond.)*
 Perera, A. L. T., *B.Sc. Agric. (Perad.), M.Sc. (Obihiro), Ph.D. (Birmingham)*
 Perera, J. S. H. Q., *B.Sc. (Cey.), Ph.D. (Br. Col.)*
 Perera, P. A. J., *B.Sc. (Cey.), Ph.D. (Glas.)*
 Piyasena, R., *MBBS, Ph.D. (UK)*
 Priyantha, H. M. D. N., *B.Sc. (Perad.), Ph.D. (Hawaii)*
 Rajapakse, R. P. V. J., *B.VSc. (Perad.), Ph.D. (Perad.)*
 Ramasamy, R., *B.Sc., Ph.D.*
 Ranasinghe, J. G. S., *B.VSc. (Perad.), M.Phil., Ph.D.*
 Rajaratne, A. A. J., *B.VSc. (S. Lan.), Ph.D. (Lond.)*
 Ratnatunga, P. C. A., *MBBS (Cey.), FRCS (UK)*
 Ratnatunga, N. V. I., *MBBS (Cey.), Dpath (Col.), MD (Col.), Ph.D. (Perad.)*
 Rodrigo, E. K., *MBBS (Cey.), MD (Cey.), MRCP (UK)*
 Samarajeewa, U., *B.Sc. (Cey.), Ph.D. (Cey.)*
 Samarakoon, E., *MBBS (Col.), MS (Col.), MRCOG (UK)*
 Samaraweera, P., *B.Sc. (Perad.), Ph.D. (Arizona)*
 Samita, S., *B.Sc. Agric., M.Phil. (S. Lan.), Ph.D.(Edin.)*
 Senanayake, S. M. N. A., *M.Sc.Eng. (Havana), Ph.D. (Linz)*
 Senanayake, A. M. A. N. K., *MBBS (Cey.), MD (Cey.), MRCP (UK), FRCP (Lond.), FRCP (Edin.)*
 Seneviratne, H. H. G., *B.Sc. (Cey.), Ph.D. (Lond.)*
 Siriwardana, S., *MBBS (Col.), MD (Cey.), MRC Path (UK)*
 Sivakanesan, R., *B. VSc. (Cey.), Ph.D. (Hull)*
 Sumanasinghe, V. A., *B.Sc. Agric. (Perad.), M.Sc., Ph.D. (Penn. State)*
 Tennekoon, D. T. B., *B.Sc. (Cey.), Ph.D. (Wales)*
 Thattil, R. O., *B.Sc. (Cey.), M.Sc. (UPLB, Philippines), Ph.D. (VPI & SU)*
 Thevanesan, V., *MBBS (Cey.), MRC Path (UK), Ph.D. (Cey.)*
 Uluwita, P., *B.Sc. (Col.), M.Sc. (UK)*
 Wanigasekara, A., *B.Sc. (S. Lan.), M.Phil. (Perad.), Ph.D. (Kyoto)*
 Watawana, L., *MBBS, M.Sc. (UK), Ph.D. (India)*
 Weerasinghe, V. S., *BDS (Perad.), Ph.D. (Southampton)*
 Weerawarna, *B.Sc.(Col.), M.Sc. (UK)*
 Wijayawardena, R. L., *B.Sc. (Perad.), M.Sc., Ph.D.(Sunny.)*
 Wijekoon, A. S. B., *MBBS (Cey.), MD (Col.), DCH (Lond.), MRCP (UK)*
 Wijekoon, P., *B.Sc. (S. Lan.), Ph.D. (Dortmund)*
 Wijesundara, M., *MBBS, MD, Ph.D.*
 Wimalasena, J., *B.Sc. Med.Sc. (UK), Ph.D. (Colorado)*
 Wimalasiri, W.R., *B.Sc. (Perad.), Ph.D. (Perad.)*
 Yakandawala, D. M. D., *B.Sc. (Perad.), Ph.D. (Reading)*

10.2 Board of Study in Chemical Sciences

Abeysinghe, I. S. B., *B.Sc. (Perad.), Ph.D. (Sheffield)*
Adikaram, N. K. B., *B.Sc. (Cey.), Ph.D. (Belfast)*
Bandara, B. M. R., *B.Sc. (S. Lan.), Ph.D. (ANU)*
Bandara, K. A. N. P., *B.Sc., Ph.D. (Perad.)*
Bandara, W. M. A. T., *B.Sc. (Perad.), Ph.D. (TIT)*
Bandara, N. C., *B.Sc. (Perad.), M.Sc. (New Orleans), Ph.D. (New Orleans)*
Bandara, H. M. N., *B.Sc. (Cey.), M.Sc., Ph.D. (Ast.)*
Chandani, A. D. L., *B.Sc. (Perad.), Ph.D. (Tokyo Inst. Tech.)*
Chandraratne, M. R., *B.Sc. (Perad.), M.Sc. (Leeds)*
Dharmadasa, D., *B.Sc. (Perad.), M.Phil. (Perad.), MBA (Col.)*
Dias, H. W., *B.Sc. (Cey.), Ph.D. (Leeds)*
Edirisinghe, J. P., *B.Sc. (Cey.), Ph.D. (Adelaide)*
Fernando, W. J. N., *B.Sc. (Cey.), Dip.Chem.Eng. (Sur.), Ph.D. (Lond.)*
Gunawardane, R. P., *B.Sc. (Cey.), Ph.D. (Aberd.)*
Gunawardhana, H. D., *B.Sc. (Cey.), Ph.D. (Balford)*
Hewamanna, R., *B.Sc. (Col.), M.Sc. & Ph.D. (Lond.)*
Hussain, S. F., *B.Sc. (Perad.), Ph.D. (Reading)*
Ileperuma, O. A., *B.Sc. (Cey.), Ph.D. (Arizona)*
Jayasinghe, L., *B.Sc. (Perad.), Ph.D. (Perad.)*
Karunaratne, B. S. B., *B.Sc. (Cey.), Ph.D. (Warwick)*
Karunaratne, D. G. G. P., *B.Sc. Eng. (Perad.), Ph.D.*
Karunaratne, V., *B.Sc. (Col.), Ph.D. (Br. Col.)*
Karunaratne, S. H. P. P., *B.Sc. (Perad.), Ph.D. (Lond.)*
Kumar, N. S., *B.Sc. (Cey.), Ph.D. (Lond.)*
Kumar, V., *B.Sc. (Cey.), Ph.D. (Oxon.), D.Phil. (Oxon)*
Kumarasinghe, S., *B.Sc.*
Manuweera, G. K., *B.Sc. (Cey.), Ph.D. (Missouri)*
Mohomed, M. T. Z., *B.Sc. (Jaffna), Ph.D. (Sheffield)*
Mubarak, A. M., *B.Sc. (Cey.), Ph.D. (Cantab.)*
Navaratne, M. M. A., *B.Sc. (Perad.), Ph.D. (Hawaii)*
Padmasiri, J. P., *B.Sc. (Cey.), M.Phil. (Perad.)*
Paranagama, P. A., *B.Sc., Ph.D. (Glasgow)*
Peiris, H. S. M., *B.Sc. (Col.), M.Sc. (S J'pura), MBA (SJ'pura), FIM (UK),*
Perera, A. D. L. C., *B.Sc. (Perad.), Ph.D. (TIT)*
Perera, J. S. H. Q., *B.Sc. (Cey.), Ph.D. (Br. Col.)*
Priyantha, H. M. D. N., *B.Sc. (Perad.), Ph.D. (Hawaii)*
Rajapakse, R. M. G., *B.Sc. (Perad.), Ph.D. (Lond.)*
Samarajeewa, U., *B.Sc. (Cey.), Ph.D. (Cey.)*
Shanthini, R., *B.Sc. (Mor'wa), M.Sc. (Alberta), Ph.D. (Lulea)*
Tennakoon, D. A. S. S., *B.Sc. (Perad.), M.Sc. (Strathclyde)*
Tennakoon, D. T. B., *B.Sc. (Cey.), Ph.D. (Wales)*
Tennakoon, K. U., *B.Sc. (Perad.), Ph.D. (West. Australia)*
Thattil, R. O., *B.Sc. Agric. (Cey.), M.Sc. (UPLB, Philippines), Ph.D. (VPI & SU)*
Wannigama, G. P., *B.Sc. (Cey.), Ph.D. (Cantab.)*
Welhenge, D., *B.Sc. Eng. (Mor'wa), C.Eng.MIE SL*
Wickremasinghe, A., *B.Sc. (Perad.), Ph.D. (FRG)*
Wickremasinghe, W. R. M. U., *B.Sc.*
Wijekoon, P., *B.Sc. (Kel.), Ph.D. (Dortmund)*

10.3 Board of Study in Earth Sciences

Amarasinghe, R. M. U. B., *B.Sc. (Perad.), M.Sc. (AIT)*
Amarasiri, C., *B.Sc., Ph.D. (Norway)*
Amirthanathan, G. E., *B.Sc. Eng (Cey.), M.Eng. (AIT), Deng Montepellier 11, MIE (SL)*
Arulananthan, K., *B.Sc. (India), M.Sc. & Ph.D. (Gothenburg)*
Bandara, H. M. N., *B.Sc. (Cey.), M.Sc., Ph.D. (Ast.)*
Bandara, N. M. K. B., *B.Sc. (Perad.), M. Sc. (AIT)*
Cooray, P. G., *B.A. (Col.), B.Sc. (Lond.), Ph.D. (Lond.)*
Dahanayake, K., *B.Sc. (Cey.), PgDip. (Nancy), Ph.D. (Nancy)*
Dharmagunawardhana, H. A., *B.Sc. (Perad.), M.Phil. (Perad.)*
Dharmaratne, P. G. R., *B.Sc. (S. Lan.), M.Sc. (Newcastle), Ph.D. (Leeds), FGA, FGG*
Dillimuni, D., *FGA, DGemG*
Dissanayake, C. B., *B.Sc. (Cey.), D.Phil. (Oxon), Ph.D. (Oxon), D.Sc. (Oxon)*
Dissanayake, U. I., *B.Sc. Eng. (Perad.), Ph.D. (Sheffield)*
Edirisinghe, H. J., *B.Sc. (Perad.), M.Eng., Ph.D. (Ehime)*
Fonseka, G. M., *B.Sc. (Col.), M.Sc., Ph.D. (Lond.)*
Francis, M. D. P. L., *B.Sc., M.Sc. (Perad.)*
Goonathileke, J., *B.Sc. (Perad.), M.Sc. (AIT)*
Gunaratne, H. S., *FGA*
Gunatilake, A. A. J. K., *B.Sc. (Perad.), M.Sc. (AIT)*
Gurusinghe, S., *B.Sc. (Camborne), M.Sc. (New Castle)*
Ileperuma, O. A., *B.Sc. (Cey.), Ph.D. (Arizona)*
Jayasena, H. A. H. J., *B.Sc. (Perad.), M.S. (Colorado)*
Jayasiri, H. B., *B.Sc. (Ruhuna), M.Sc. (Gothenburg)*
Jayawardene, U. de S., *B.Sc. (Perad.), M. Sc. (AIT)*
Karunaratne, B.S.B., *B.Sc. (Cey.), Ph.D. (Warwick)*
Kurt Klitten, *M. Sc. (Copenhegan)*
Mathavan, V., *B.Sc. (Cey.), Ph.D. (Belf.)*
Nawaratne, S.W., *B.Sc. (Cey.), PgDip. (Aut.), M.Sc. (Can.), Ph.D. (Austria)*
Ole Larson, *M. Sc., Ph.D. (Copenhegan)*
Pathirana, K. P. P., *B.Sc. Eng. (Perad.), M Eng., Ph.D. (KU Leuven)*
Perera, L. R. K., *B.Sc. (Perad.), M.Phil. (Perad.)*
Pitawala, H. M. T.G. A., *B.Sc. (Perad.), M.Phil. (Perad.), Ph.D. (Mainz)*
Piyasiri, A. V. L., *B.Sc. Eng. (Mor'wa)*
Peiris, N. I. C., *B.Sc. (Perad.), M.Sc. (AIT)*
Priyantha, H. M. D. N., *B.Sc. (Perad.), Ph.D. (Hawaii)*
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Skjernaa, L., *M.Sc., Ph.D. (Copenhegan)*
Thantirigoda, D. A., *B.Sc., Ph.D.*
Udawatta, C. P., *B.Sc. (Perad.), M.Phil. & Ph.D. (Perad.)*
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Wijeratne, E. M. S., *B.Sc. (Perad.), M.Sc. (Gothenburg), Ph.D. (Perad.)*
Zoysa, G., *Consultant Gemmologist*

10.4 Board of Study in Environmental Science

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de Silva, P. K., *B.Sc. (Cey.), Ph. D.(Lanc.)*
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Edirisinghe, U., *B.Sc., M.Sc., Ph.D. (Cey.)*
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Hennayake, S., *B. A., M.A. (Perad.), Ph.D. (Syracuse)*
Ileperuma, O. A., *B.Sc. (Cey.), Ph.D. (Arizona)*
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Karunaratne, S. H. P. P., *B.Sc. (Perad.), M.Sc. (Perad.), Ph.D. (Lond.)*
Kumaragamage, D., *B.Sc. Agric, M.Phil. (Perad.), Ph.D. (Monitoba)*
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Werellagama, D. R. I. B., *B.Sc., M.Sc. (AIT), Ph.D. (Japan)*
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Dharmadasa, J. P. D., *B.Sc. (Cey.), M.Phil. (Lond.)*
Dissanayake, U. N. B., *B.Sc. (Perad.), Ph.D. (Alberta)*
Jayawardene, C. J., *B.Sc. (Col.), M. Sc. (Ohio State), M. Sc., Ph.D. (Memphis)*
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Mampitiya, M. A. U., *B.Sc. (Kel.), M. Sc. (Ottawa), Ph.D. (Ottawa)*
Perera, A. A. I., *B.Sc. (Perad.), M.Sc. (Oslo), Ph.D. (Melbourne)*
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Wijekoon, P., *B.Sc. (Kel.), Ph.D. (Dortmund)*

10.6 Board of Study in Physics

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10.7 Board of Study in Plant Sciences

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 Dittus, W. P. J., *B.Sc., M.Sc. (McGill), Ph.D. (Maryland)*
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 Ekanayake, S., *B.Sc. (Perad.), M.Sc. (India)*
 Fernando, P., *B.Sc., Ph.D. (Oregon)*
 Fernando, S., *B.Sc. Agric. (Perad.), Ph.D.*
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 Gunatilleke, I. A. U. N., *B.Sc. (Cey.), Ph.D. (Cantab.)*
 Gunasekara, S., *B.Sc. (Open U.)*
 Gunawardane, E. R. N., *B.Sc. Agric. (Perad.), M.Sc., Ph.D. (Cran. I. T.)*
 Gunawardane, J., *Attorney at law*
 Gunawardane, P., *B.Sc., Ph.D. (Edin.)*
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 Hittinayake, H. M. G. S. B., *B.Sc. Agric., M. Sc. (S. Lan.), Ph.D. (Wales)*
 Jayasinghe, J. M. P. K., *B.Sc., M.Phil. (Col.), Ph.D. (Sterling)*
 Jayasuriya, A. H. M., *B.Sc., Ph.D. (SUNY)*
 Jayawardhane B., *B.Sc. Agric. (Perad.), M.Sc. (Australia)*
 Karunaratne, A. M., *B.Sc. (Perad.), M.Sc. (Nebraska)*
 Karunaratne, S. H. P. P., *B.Sc. (Perad.), M.Sc. (Perad.), Ph.D. (Lond.)*
 Kodituwakku S., *B.Sc. Agric. (Perad.), M.Sc., Ph.D. (Sterling)*
 Kotagama, H. B., *B.Sc. (Perad.), M.Sc. (Phillippines), Ph.D. (Lond.)*
 Kotagama, S., *B.Sc. (Cey.), Ph.D. (Aberd.)*
 Kulasooriya, S. A., *Vidyanidhi, B.Sc. (Cey.), Ph.D. (Lond.)*
 Manthrililaka, H., *M.Sc. (Moscow), Ph.D. (Moscow)*
 Mapa, R. B. *B.Sc. Agric. (Cey.), Ph.D. (Hawaii)*
 Padmalal, U. K. G. K., *B.Sc., M.Sc. (Col.), Ph.D. (Tohoku)*
 Pallewatta, N., *B.Sc. (Cey.), Ph.D. (Lond.)*
 Peiris, B. C. N., *B.Sc. Agric. (Perad.), M.Sc., Ph.D. (Penn. State)*
 Perera, G. A. D., *B.Sc. (Perad.), D.Phil. (Oxon)*
 Ranawana, K. B., *B.Sc. (Perad.), M.Sc. (SUNY-ESF, Syracuse), M.Phil. (Perad.)*
 Samarakoon, J., *B.Sc. (Cey.), Ph.D.*
 Sarawanakumar, P., *B.Sc. M.Sc. (India), Ph.D. (India)*

Sathurusinghe, A., *B.Sc. (Perad.), M.Sc. (S'pura)*
 Sinhakumara, B. M. P., *B.Sc. (Cey.), D.Phil. (Oxon)*
 Tennakoon, K. U., *B.Sc. (Perad.), Ph.D. (West Australia)*
 Wanigasundara, W. A. D.P., *B.Sc. Agric. (S. Lan.), Ph.D. (Reading)*
 Weerahewa, D., *B.Sc., Ph.D. (Perad.)*
 Weerakkody, W.A.P., *B.Sc. Agric. (Perad.), M.Sc. (Japan), Ph.D. (Perad.)*
 Weerakoon, D., *B.Sc. (Cey.), Ph.D.*
 Weerawardane, N. D. R., *B.Sc. (Cey.), Ph.D.*
 Wickramagamage, P., *B.A. (S. Lan.), M.Sc., Ph.D.*
 Wijayagunasekera, H. N. P., *B.Sc. Agric. (Perad.), M.Sc. (New Castle)*
 Wijeratnam, S. W., *B.Sc. Ph.D. (Lond.)*
 Wijesekara, G. A. W., *B.Sc. Agric. (Perad.), M.Phil. (Perad.), Ph.D. (Maryland)*
 Wijesundara, D. S. A., *B.Sc. (Perad.), M.Phil., Ph.D. (New York)*
 Yakandawala, D., *B.Sc., Ph.D. (Reading)*

10.8 Board of Study in Science Education

Abegunasekara, R. M. K., *B.Sc. (Cey.), Ph.D. (Lond.)*
 Adikaram, N. K. B., *B.Sc. (Cey.), Ph.D. (Belfast)*
 Alles, B. J. P., *B.Sc. (Cey.), M.Sc. (Cornell)*
 Amarasinghe, F. P., *B.Sc. (Cey.), Ph.D. (Bristol)*
 Amarasinghe, P. H., *B.Sc. (Cey.), Ph.D. (S. Lan.)*
 Anderson, C. W., *B.Sc. (Rice), Ph.D. (Texas)*
 Ariyaratne, J. K. P., *B.Sc. (Cey.) Ph.D. (Cambridge)*
 Ariyaratne, K. A. N. S., *B.Sc. (Perad.), Ph.D. (Hawaii)*
 Arshad, T., *B.Sc., M.Sc. (Peshawar), Ph.D. (Liverpool)*
 Arulpragasam, K., *B.Sc. (Cey.), Ph.D. (Wales)*
 Bandara, B. M. R., *B.Sc. (S. Lan.), Ph.D. (ANU)*
 Bandara, H. M. N., *B.Sc. (Cey.), M.Sc., Ph.D. (Ast.)*
 Bandara, K. R. A., *B.Sc. (Cey.), M.Sc. (Reading), M.Phil. (Col.)*
 Bandara, L. R. A. K., *B.Sc., Ph.D. (Perad.)*
 Bandara, W. M. A. T., *B.Sc. (Perad.), Ph.D. (TIT)*
 Bandaranayake, P. W. S. K., *B.Sc. (Perad.), Ph.D. (Perad.)*
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 Daundasekera, W. B., *B.Sc. (Perad.), M.A., Ph.D. (Alabama)*
 Dharmadasa, J. P. D., *B.Sc. (Cey.), M.Phil. (Lond.)*
 Dharmagunawardena, H. A., *B.Sc. (Perad.), M.Phil. (Perad.)*
 Dharshana, P., *B.Sc. (Perad.), M.Phil. in Ed. (Col.)*
 Dissanaikie, G. A., *B.Sc. (Cey.), Ph.D. (Cantab.)*
 Dissanayake, M. A. K. L., *B.Sc. (Cey.), M.S., Ph.D. (Indiana)*
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 Gallagher, J. J., *A.B., M.A. (Colgate), MAT (Anticon), Ed.D. (Harvard)*
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 Jayasena P. H. A. N. S., *B.A. (Cey.), Dip in Ed. (Cey.), M.A. (S. Lan.) M.A. (Columbia), Ph.D. (Monash)*
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 Jayawardene, S. S., *B.Sc. (Cey), M.Ed. (Reading)*
 Kanaganathan, S., *B.Sc. (Cey.), M.Sc. (Cey.), M.Sc. (Liverpool), Ph.D. (Jaffna)*
 Karunaratne, A. M., *B.Sc. (Cey.), M.S. (Nebraska)*
 Karunaratne, B. S. B., *B.Sc. (Cey.), Ph.D. (Warwick)*
 Karunaratne, W. G., *B.Sc. (Cey.), Dip. in Ed., M.Phil. (Col.)*
 Karunaratne, S., *B.Sc. (Cey.), Dip in Ed. (Perad.), M.Sc. Agric. (Perad.), M.Ed. in Sc. Ed. (Bristol), Ph.D. in Sc. Ed. (Michigan State)*
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 Medagama, R. S., *B.A., Dip. in Ed. (Cey.), Master of Professional Studies (University of Philippines), M. Sc. (Sheffield)*
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 Perera, D. A., *B.Sc. (Cey.), Dip. in Ed.(Cey.), M.S.(Ohio State)*
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 Perera, L., *B.A. (Cey.), Dip.in Ed. (Cey.), M.A. (Cey.), Ph.D. (Moscow)*
 Perera, S.J., *B.Sc. (Cey.), Dip in Ed. (Cey.), M. Ed (Bristol)*
 Premaratne, K., *B.Sc. (Cey.), M.S., Ph.D. (Hawaii)*
 Rajapakse, R. M. G., *B.Sc. (Cey.), Ph.D. (Lond.)*
 Ranawana, K. B., *B.Sc. (Perad.), M.S. (SUNY-ESF, Syracuse)*
 Ranaweera, M., *B.Sc. (Cey.), Dip. in Ed. (Cey.), M.A. (Columbia)*
 Ratnasiri, N. B., *B.Sc. (Cey.), Ph.D. (Illinois)*
 Samaraweera, P., *B.Sc. (Perad.), Ph.D. (Arizona)*
 Samita S., *B.Sc. Agric. (Perad.), M.Phil. (Perad.), Ph.D. (Edin.)*
 Sarawanakumar, P., *B.Sc., M.Sc., Ph.D. (Bard.)*
 Sedera, M. U., *B.Ed. (Cey.), Ph.D. (Iowa)*

Senaratne, A., *B.Sc. (Perad.), PgDip., M.Sc. (Lond.), Ph.D. (Mainz)*
 Senanayake, K. M. S., *M.Sc. Eng. (Havana)*
 Senanayake, S. M. N. A., *M. Sc. (Havana), Ph.D. (Linz.)*
 Seneviratne, H. H. G., *B.Sc. (Cey.), Ph.D. (Lond.)*
 Seneviratne, S. D. S. E., *B.A. (Cey.), Dip. in Ed. (Cey.), Ph.D. (Col.)*
 Tennakoon, D. T. B., *B.Sc. (Cey.), Ph.D. (Wales)*
 Tennakoon, K. U., *B.Sc. (Perad.), Ph.D. (Western Aust.)*
 Tennakoon, K., *B.Sc. (Cey.), M.Sc., Ph.D. (Hawaii)*
 Vidanapathirana, G. S., *B.Sc. (Cey.), Ph.D.(HWE din.)*
 Vithanapathirana, M. V., *B.Sc. (Col.), Dip. in Ed. (OUSL), M.Ed. (OUSL)*
 Waidyaratne, C. K., *B.Sc., Dip. in Ed. (Cey.)*
 Walgama, K. S., *B.Sc. Eng. (Mor'wa), M.Eng. (Netherland), M.Sc. (Alberta), Ph.D. (Lulea)*
 Wanasinghe, J., *B.Sc. (Cey.), M.S. (Cornell), Dip in Ed. (Cey.), Ph.D. (Lond.)*
 Wannigama, G. P., *B.Sc. (Cey.), Ph.D. (Cantab.)*
 Weerasighe, S., *B.Sc. (Perad.), M.Phil., Ph.D. (Cantab.)*
 Wickramasinghe, A., *B.Sc. (Perad.), Ph.D. (FRG)*
 Wijayananda, N. P., *B.Sc. (Cey.), Ph.D. (Lond.)*
 Wijayawardena, R. L., *B.Sc. (Cey.), M.S., Ph.D. (SUNY)*
 Wijekoon, P., *B.Sc. (Kel.), Ph.D. (Dortmund)*
 Wijekoon, S., *B.Sc. (Cey.), Ph.D. (Lond.)*
 Wijeratne, M. S., *B.Sc. (Kel.)*
 Wijesuriya, G., *B.Sc. (Cey.), Diploma in Sc. Ed. (IWATE, Japan), Dip. in Ed. (Lond.)*
 Wijeyaratne, M. J. S., *B.Sc. (Kel.), M.Sc. (Michigan), Ph.D. (Kel.)*
 Yakandawala, D., *B.Sc., Ph.D. (Reading)*

10.9 Board of Study in Statistics & Computer Science

Alahakoon, P. M. K., *B.Sc. Eng. (Perad.), M.Sc. (VPI&SU), Ph.D. (UMC)*
 Bandara, G. E. M. D. C., *M.Sc. (Bulgaria), Ph.D.(Bulgaria)*
 Corea, F. M. R., *B.Sc. Eng. (Perad.), Dip. in Comp.Sc. (Cambridge), Ph.D. (New Castle)*
 Daundesekara, W.B., *B.Sc. (Perad.), M.A. (Alabama) Ph.D. (Alabama)*
 Dayananda, R. A., *B.Sc. (Ceylon), Ph.D. (Wales)*
 Dissanayake, U.N.B., *B.Sc. (Perad.), Ph.D. (Alberta)*
 Gunaratne, L. H. P., *B.Sc. Agric. (Perad.), M.Sc., Ph.D. (Hawaii)*
 Gunaratne, L. H. P., *B.Sc. Agric. (Perad.), Ph.D. (Alberta)*
 Herath, V. R., *B.Sc. Eng. (Perad.), MSECE (Miami), AMIEE*
 Hewapathirana, T. K., *B.Sc. (Kel.), Dip. in Stat.(Col.), M.Sc.(Bath)*
 Hoole, S. R. H., *B.Sc. Eng. (Cey.), M.Sc. Eng. (Lond.), Ph.D., D.Sc. (Lond.), FIEEE*
 Karunananda, A., *B.Sc. (Col.), M.Phil. (Kel.), Ph.D. (Keele)*
 Kodituwakku, S.R., *B.Sc. (Perad.), M.Sc. (AIT)*
 Liyanage, K.M., *B.Sc. Eng. (Perad.), M. Eng. (U. Tokyo), Dr. Eng. (U. Tokyo), MIEEE*
 Mutukumaraswami, V., *B.Sc. Eng. (Perad.), Ph.D. (Cambridge)*
 Perera, A. A. I., *B.Sc. (Perad.), M.Sc. (Oslo), Ph.D. (Melbourne)*
 Perera, A. A. S., *B.Sc. (Perad.), Ph.D. (SUNY/Albany)*
 Perera, K., *B.Sc. (S J'pura), M.A., Ph.D. (New York)*
 Ramanayake, D. N. D., *B.Sc. (Perad.), M.Sc. (AIT), Ph.D. (Washington)*
 Samita, S., *B.Sc. Agric. (Perad.), M.Phil. (Perad.), Ph.D. (Edin.)*
 Senanayake, S. M. N. A., *M.Sc. (Havana), Ph.D. (Linz.)*
 Suriyaarachchi, D. J. C., *B.Sc. (Cey.), Dip. in Math (Perad.), M.Sc.(Manchester)*
 Thattil, R.O., *B.Sc. (Cey.), M.Sc. (UPLB, Philippines), Ph.D. (VPI & SU)*
 Weerasekera, R., *B.Sc. Eng. (Perad.), M.Sc. (Sweden)*
 Wijekoon, P., *B.Sc. (Kel.), Ph.D. (Dortmund)*

Wijekulasooriya, J.V., *B.Sc. Eng. (Perad.), Ph.D. (UK)*

10.10 Board of Study in Zoological Sciences

Abeygunawardena, I. S., *B.VSc. (S. Lan.) M.Sc. (Ill)*
Amerasinghe, P. H., *B.Sc. (Cey.), Ph.D. (S. Lan.)*
Amarasinghe, U. S., *B.Sc. (Kel.), Ph.D. (Ruhuna)*
Appuhamy, S., *B.VSc. (Perad.), Ph.D. (Glas.)*
Arulkanthan, A., *B.VSc. (Perad.), M.Sc. (WSU)*
Dangolla, A., *B.VSc. (S. Lan.)*
de Silva, P. K., *B.Sc. (Cey.), Ph.D. (Lanc.)*
de Silva, K. H. G. M., *B.Sc. (Cey.), Dip. (Edin.), Ph.D. (Edin.)*
Edirisinghe, J. P., *B.Sc. (Cey.), Ph.D. (Adelaide)*
Edirisinghe, J. S., *MBBS (Cey.), M.Sc. (Lond.), Ph.D. (Lond.)*
Edirisinghe, U., *B.Sc. (Cey.), M.Sc & Ph.D. (Cey.)*
Faizal, A. C. M., *B.VSc. (Perad.), MVM (Glas.)*
Gunawardena, G. S. P. de, *B.VSc. (S. Lan.), Ph.D. (Perad.)*
Hettiarachchi, M., *B.Sc. (Kel.), Ph.D. (Nigeria)*
Hussain, S. A., *B.Sc. (Utkal), M.Sc., M. Phil. & Ph.D. (Aligarh)*
Jayasekara, A. M., *B.Sc. (Perad.), M.Sc. (Phillipines)*
Jayasekera, N. K., *B.VSc. (Perad.), M.Sc. (Illinois), Ph.D. (Illionois)*
Jeyasingam, T., *B.Sc. (Perad.), Ph.D. (Wales)*
Jayasinghe, S. R., *B.V.Sc. (Cey.), M.Sc. (Qld)*
Karunaratne, S. H. P. P., *B.Sc. (Cey.), M.Sc. (Cey.), Ph.D. (Lond.)*
Kuruvita, V., *B.V.Sc. (Cey.), Ph.D. (Massy)*
Padmasiri, J. P., *B.Sc. (Cey.), M.Phil. (Perad.)*
Pathiratne, A., *B.Sc. (Kel.), Ph.D. (North Dakota)*
Perera, G. A. D., *B.Sc. (Perad.), M.Sc. (Oxon), D.Phil. (Oxon)*
Perera, A. A. I., *B.Sc. (Perad.), M.Sc. (Oslo), Ph.D. (Melbourne)*
Pitigalaarachchi, A. J., *B.DS (S. Lan.), Ph.D. (Brist.)*
Rajapakse, R. P. V. J., *B.VSc. (S. Lan.), Ph.D. (Perad.)*
Rajapaksha, W. R. A. K. J. S., *B.VSc. (Perad.), Ph.D. (Glas.)*
Rathnayake, H. D., *B.Sc. (Cey.), M.Phil. (Perad.)*
Samarakoon, J. I., *B.Sc. (Cey.), Ph.D. (Illinois)*
Samita S., *B.Sc. Agric. (Perad.), M.Phil. (Perad.), Ph.D. (Edin.)*
Santiapillai, C., *B.Sc. (Cey.), Ph.D. (Southampton)*
Silva, I. D., *B.VSc. (Cey.), Ph.D. (Calif.)*
Sunil Chandra, N. P., *B.VSc. (Cey.), M.Phil. (Cey.), Ph.D. (Camb.)*
Weilgama, D. J., *B.VSc. (Cey.), M.VSc. (Cey.), Ph.D. (Brisbane)*
Wijewardena, T. G., *B.VSc. (S. Lan.), M.Phil. (Perad.), Ph.D. (Edin.)*
Wijeyaratne, M. J. S., *B.Sc. (Kel.), M.Sc. (Michigan), Ph.D. (Kel.)*
Wijesundera, M. K. de S., *MBBS (Cey.), M.Sc. (Lond.), Ph.D. (Perad.)*

11.0 RESEARCH PROGRAMMES/COLLABORATIVE PROJECTS OF BOARDS OF STUDY

Resources are available for postgraduate students in the following areas.

11.1 Board of Study in Biochemistry and Molecular Biology

Antioxidant status in cardiovascular diseases and diabetes; Biochemical and Molecular biological basis of insecticide resistance of insects; Chemical and biological investigation of medicinal plants in Sri Lanka for anti-fertility, hypolipidemic and anti-asthmatic activity; Clinically important proteinases of filarial parasites; Effect of different dietary fats on blood cholesterol level; Epidemiology of diseases; Feeding behaviour of vectors of Malaria and Dengue; Free radicals in biology and medicine; Haemoglobin in buffaloes; Lipid abnormalities in cardiovascular diseases; Micropropagation of floriculture/horticulture crops, medicinal plants; Molecular biology and Molecular diagnostics of parasitic protozoans and helminths; Molecular diagnosis of pathogenic infections in fruits and vegetables; Molecular diagnostics of arthropod vector species and species complexes; Mycotoxins with special reference to biocontrol of toxigenic fungi in coconut products; Parasitology; Purification, cDNA cloning and expression of clinically and industrially important proteinase from endemic plants; Screening and elucidation of structure of natural inhibitors of HIV-proteinase; Soil microbiology; Structure and other features associated with thermostability of enzymes; Trace element (Zn, Cu) metabolism in humans; Characterization of venom of Sri Lankan snakes; Induction of oral cancers and precancerous lesions using areca extract in mouse.

11.2 Board of Study in Chemical Sciences

Accumulation of heavy metals in aquatic plants; Analysis of drugs using electrochemical methods; Bioactive compounds from Sri Lankan Lichens; Bioactive compounds from Sri Lankan plants (Erythroxylaceae & Ancistrocladaceae); Bioactive natural products; Biochemical interactions in Shot-hole borer attack on tea; Biochemical mechanism of insect attack; Biochemical pest control; Biological activity of natural products and their syntheses; Biological Pest Control; Biosensors, Tissue-based amperometric sensors; Chemical ecology of insects; Chemical Instrumentation; Chemical sensors for pesticides; Chemically modified electrodes; Chemistry and Bioactivity of Plants; Chemistry of building materials; Conducting polymers; Constituents of Terminalia species (bulu, kottamba) Coordination Chemistry; Development of biopesticides; Development of sensitive and selective spectrophotometric methods by ternary complex formation for metal ions such as Ti, Zr, W and Mo; Development of sensors for environmental pollutants and for medical use; Electrochemical research ((i) Novel applications of electronically conducting polymers (a) applications in liquid crystal display technology, (b) applications in electrocatalysis, (ii) Novel conducting polymers based on natural rubber and other natural products, (iii) Electrochemical modification of essential oils for value addition, (iv) Kinetics and mechanistic studies of electrodeposition of binary and ternary semiconducting materials, (v) Photoelectrochemical generation of singlet oxygen and its subsequent use in pollution abatement, (vi) Electrochemical detection of environmental pollutants and clinical substances); Environmental chemistry ((i) Detection of chemical oxygen demand by alternative methods, (ii) Effect of sodium absorption ratio under different soil systems, (iii) Acid rain monitoring in Sri Lanka, (iv) Degradation of environmental pollutants on semiconductors, (v) Evaluation of water quality parameters of surface waters); Extraction of rare earths from monazite using naturally occurring chelating agents; Extractive separation of industrially important metal ions using ligands prepared from local raw materials; Fabrication of low cost solar cells and photoelectrochemistry; Fractionation of phosphorous in Soils; Heat treatment of geuda; Heavy metal pollution in the lagoons of Sri Lanka;

Impact of pesticides and fertilizer residues on water quality; Improvement of effluent treatment processes in garment industry; Mineral chemistry and mineral processing; Monitoring of pesticides in rice fields; Natural Insecticides & Pesticides; Phosphorous chemistry in soils; Phosphorous fertilizers and Chemistry of Gem Minerals; Phototoxic agents as mosquito larvicidal compounds; Physical properties of natural products; Plant & Microbial Polysaccharides; Plant-tissue based biosensors for detection of pesticides; Porphyrin electrochemistry; Reactive oxygen species and biochemical studies; Solid Electrolytes; Structural Chemistry; Studies on the manufacture of fluorapatite fertilizers; Studies on plant and; microbial polysaccharides; Surface and Solid State Chemistry; Synthetic organic chemistry; Treatment of industrial effluents; Use of ammonium sulfide in qualitative analysis; X-ray crystallography.

Collaborative research programmes:

Bioactive natural products from Sri Lankan lichens (in collaboration with NARESA); Chemically modified electrodes for detection of clinically important compounds (in collaboration with NARESA); Development of novel Cd/S/Se/Te based composite materials for optoelectronic devices (in collaboration with Sheffield-Hallam University through a British Council link programme); Development of novel materials and devices based on polymers/natural rubber, semiconductors and graphite for energy conversion storage and other applications (in collaboration with NARESA); Development of Sensors for the monitoring of pollutants of the atmosphere and the hydrosphere (in collaboration with NARESA); Improvement to the effluent treatment processes used in the garment industry (in collaboration with Venture International (pvt.) Ltd.); Investigation of extent of air pollution in Sri Lanka through acid precipitation measurements (in collaboration with NARESA); Isolation of rare earths from monazite using plumbagin (in collaboration with NARESA); Metalloporphyrin coated electrodes as sensors for pesticides (in collaboration with NARESA); Plant tissue based electrodes for detection of herbicides (in collaboration with NARESA); Studies on Dye-sensitised cadmium sulphide films (in collaboration with the University of Bath, UK under an EEC grant); Studies on solid electrolytes (in collaboration with the University of Aberdeen, University of Grenoble and the Department of Physics).

11.3 Board of Study in Earth Sciences

Agrogeology; Dental flourosis and goiter; Design of Economical Earth Retaining Structures for Slope Stabilization; Effect of deforestation on springs in the wet zone; Effects of agrowells on groundwater table in the dry zone of Sri Lanka; Engineering Geological Aspects of Sub-way Tunnel Construction to ease Vehicular Traffic; Engineering geological studies on damsites and tunnels; Studies on engineering properties of soils and rocks, stability of slopes, site investigation of engineering structures; Environmental Geochemistry and health; Environmental hydrology; Exploration for Economic Mineral deposits; Exploration for Groundwater and its Chemical Properties; Geochemistry of gem-bearing sediments; Geochemistry of soils; Geological and biological study of the evolution of soil profiles in the Singharaja Area; Geology of Gem-bearing Areas and Graphite deposits; Geophysical Investigation for Hydrothermal Energy; Geostatistical analysis of special and temporal data; Gold and other mineral resources of Sri Lanka and their origin; Gem minerals, their origin, occurrence; Ground water contamination; High grade metamorphism and mineral assemblages; Landslides and Natural hazards; Landslides and their mechanisms; Major metamorphic events in Sri Lanka; Major reservoirs and groundwater table; Microstructure and geochemistry of Sri Lankan graphite; Muthurajawela Peat Deposit; Origin of Gold Mineralization in the Highland Complex of Sri Lanka; Petrological and Mineralogical Studies of Metamorphic Rocks; Petrological studies on limestones and phosphate rocks; Physical and chemical modeling of ground water systems; Sources of Sri Lankan gems and their petrogenesis; Melting in high grade metamorphic rocks; Studies on tunnels and dam sites, stability of slopes; Water decontamination, waste water treatment and reuse; Underground excavations as solutions to traffic problem in cities of

hill country; Mineral resources around Matale area; Occurrences of coal in the northwest Sri Lanka; Fixation of phosphate in Eutrophicated lakes in Sri Lanka; Igneous charnockites of Sri Lanka.

Collaborative research programmes:

Environmental geochemistry work (in collaboration with British Geological Survey); Studies on water resources of Sri Lanka (in collaboration with National Water Supply and Drainage Board of Sri Lanka).

11.4 Board of Study in Environmental Science

Acid-rain monitoring in Sri Lanka; Chironomids as bio-indicators; Degradation of Environmental Pollutants on semiconductors; Detection of residual pesticides in soil, water and food; Development of sensors for environmental pollutant; Electrochemical detection of pesticides; Pesticide resistance in agriculturally and medically important insect pests; Photoelectrochemical generation of singlet oxygen and its subsequent use in pollution abatement; Plant tissue based biosensors for detection of pesticides; Towards the restoration and sustainable management of forest lands in southwestern Sri Lanka; Treatment of industrial effluents.

11.5 Board of Study in Mathematics

Compact Spaces and Topological Groups; Curriculum Development and Lesson Writing in Mathematics; Extremal Problems over Families of Analytic Functions; Relative Difference Sets, Divisible Designs, and Applications of Orthogonal Cycles; Optimization Theory for n -set functions; High Performance Computing, Finite Element Modeling, Numerical Analysis; Operations Research and Optimization, Design of Algorithms, Evolutionary Algorithms, Mathematics and Engineering Education; Oscillation Theory of Ordinary Differential Equations, Sturm–Liouville Theory; Combinatorics; Applications in Graph Theory.

11.6 Board of Study in Physics

Atmospheric Physics; Ceramics (Fabrication and characterization of structural ceramics, Electro-ceramics and semiconductor ceramics & Low cost, ceramics and clay based materials for local building industry); Computer modeling (Circulation and water exchange in Tropical shallow water lagoons; Thin Film Growth- modeling and Simulation); Conducting polymers (Synthesis and characterization of electronically conducting polymers; Fabrication and testing of devices with conducting polymers), High Temperature Superconductivity; Magnetic Properties of Materials; Neutron Physics; Physics Education (Development of interactive lecture demonstrations, study packages, demonstrations experiments etc.); Semiconductor Physics (Preparation and Characterization of low-cost semiconductor materials, and Fabrication and characterization of Semiconductor device structures suitable for solar energy conversion and other practical applications & Characterization of semiconductor quantum well heterostructures); Solar energy (Development of low cost solar cookers, heaters etc& Development of low cost solar cells); Solid State Ionic Materials and Devices ((i) Synthesis and characterization of novel crystalline glassy and polymeric solid electrolytes; (ii) Fabrication and characterization of solid state batteries, solar cells and other devices).

Collaborative research programmes:

Ceramics (in collaboration with Royal Institute, Stockholm, Sweden, Chalmers University, Sweden, & Warwick University, United Kingdom); Computer modeling (in collaboration with Gotherburg University, Sweden); Conducting polymers (in collaboration with Denmark Technical University, Denmark); Ionically Conducting glasses (in collaboration with INPG, Grenoble, France); Ionically conducting polymers (in collaboration with Chalmers University of Technology, Sweden); Semiconductors and Semiconductor Heterostructures (in collaboration with Chalmers University, Sweden; Chulalongkorn University, Thailand and Sheffield Hallam University, UK); Solid ion conductors (in collaboration with Aberdeen University, United Kingdom); Synthesis and characterization of novel solid state ionic materials with potential applications in solid state devices (Main sponsor: International Program in the Physical Sciences, Uppsala, Sweden, Other sponsors: EEC, NARESA, British Council, University of Peradeniya).

11.7 Board of Study in Plant Sciences

Algae and water pollution & their control through Bio-manipulation; Antifungal substances in plants and their role in disease resistance; Biochemistry of plant-pathogen interactions; Biodiversity Conservation; Biology, Chemistry of natural antifungal compounds in plants & their role in disease resistance; Carbon and N partitioning of crop plants; Conservation farming & agroforestry; Diversity of Algae; Ecological physiology of native plants; Floral biology of the Cucurbitaceae; Fresh water algae; Genetical and biochemical studies of some wild relatives of pulses; Germplasm characterization of some wild pulses; Infection and nodulation of Leguminous plants; Integrated plant nutrient systems in relation to bio & organic fertilizer in crop production; Conservation of medicinal plants – development of propagation and growth conditions; Microbiology; Molecular Biology; Mycorrhizal infection of plants in different habitats; Mycotoxins in food & their control; N₂ - fixation in Cyanobacteria & Azolla in relation to rice soil fertility; N₂ .fixation in food, green manure, cover crop and tree legumes; Nutrient Cycling; Physiology of host-Pathogen relationships; Plant Pathology; Plant Reproductive Biology; Plant response to environmental stresses; Plant Taxonomy; Plant-plant interactions with special reference to economically important angiosperm hemiparasites; Population Genetics; Postharvest diseases and disorders in tropical and sub-tropical fruits and their control; Postharvest Pathology of Fruits and Vegetables; Postharvest Technology of fruits and Vegetables; Purification, Restoration Ecology; Rhizobial inoculum production; Soil Microbiology; Structural and functional studies of adaptations in native Sri Lankan plants; Tropical Forest Ecology; The effect of gibberellic acid and bagging to improve shelf-life and quality of the ‘Embul’ variety of banana.

Collaborative research programmes:

Algal problems at Tissawewa and Basawakkulama water reservoirs and their control through biomanipulation (in collaboration with National Water Supply & Drainage Board, and Department of Environmental Engineering, Saitama University, Japan); Restoration and sustainable management of forest lands in South Western Sri Lanka (collaborative project with University of Sri Jayawardanapura, Sri Lanka and Yale and Harvard Universities, USA. funded by MacArthur Foundation); Management of postharvest diseases of tropical and subtropical fruits using natural resistance mechanisms (ACIAR funded project conducted in collaboration with the QDPI); Performance of selected non Timber Forest Species in the Sinharaja World Heritage Site (funded by the NAGAO Foundation, Japan), Establishment of high value Santalum album tree farm systems with community participation (funded by EAIP & PGIS), Investigation of rapid, cost effective propagation techniques and agronomic practices of selected medicinal plants (funded by Sri Lanka Conservation & sustainable use of medicinal plants project), Evaluation of tree species as potential candidates for metal ion uptake from polluted water (funded by PGIS); Restoration of Plant and Economic Diversity in Monoculture Pinus Plantations in Sri Lanka (funded by the SL - USA Cooperative Germplasm

Development Programme); Understanding eco-physiology and performance of pioneer species in Sinharaja (in collaboration with School of Forestry & Environmental Studies, Yale University, USA).

11.8 Board of Study in Science Education

Teaching and Learning (Using analogies in science teaching; Teaching science for understanding; Misconceptions and naïve conceptions in learning science; Group work in teaching/learning of science; Collaborative activities in teaching/learning science; Science teaching at primary level; Science teaching at secondary level; Reading and writing to learn science; Use of Interactive Lecture Demonstration (ILDs) in science techniques); Science and Technology (Use of audio and video cassettes in teaching science; Use of computers in teaching science - Chemistry, Physics, Biology and Mathematics); Psychology (Beginning science and the primary child; Science teachers' beliefs about science); Curriculum Development (Suggestions for developing primary and secondary science; Curriculum for students' understanding); Evaluation (Primary science; Secondary science; Chemistry/Physics/Botany/Zoology/Mathematics).

11.9 Board of Study in Statistics & Computer Science

Biased estimation in the linear regression model; Clinical trials; Epidemiological Statistics; Forecasting; Growth curves; Intelligent Systems; Logistic Binomial distributions; Misspecification analysis in the linear regression model; Mixed estimation and Preliminary test estimation; Models for Mixed cropping systems (P); Multivariate Statistics; Non-linear Modelling and simulation; Principal component estimation in linear regression; Spatial pattern analysis; Construction of optimal designs; Handling over dispersion in categorical data; Algorithms and Theory of Computation; Artificial Intelligence; CAD tools; Computer Architectures; Computer Vision; Databases; Distributed Systems; Graphics; High Performance Computing; Human Computer Interaction; Intelligent Systems; Multimedia Systems; Numerical Analysis; Programming Languages; Real-time Systems; Software Engineering; Systems Evaluation; Networks; Information System Security; Mobile and Wireless Systems.

11.10 Board of Study in Zoological Sciences

Limnological aspects of reservoirs and streams; Ecology and biology of freshwater invertebrate biota; Ecology and distribution of selected land and freshwater snail species; Ecology and taxonomy of selected insects of agricultural importance; Biology and taxonomy of hymenopteran pollinators; Biology of insect pests and their natural enemies; Nematology with special reference to plant nematodes; Earthworm ecology and taxonomy; Ecology of freshwater fishes; Ecology, geographical distribution and systematics of herpetofauna in Sri Lanka; Plant-animal interactions; Disturbance ecology; Marine Fisheries and Fish Biology; Fish Systematics and Fisheries Biology; Ecology and taxonomy of arthropods of medical and veterinary importance; Vector-borne diseases and their epidemiology; Molecular biology of parasites; Molecular parasitology and immunology with reference to Malaria; Insecticide resistance in insects of medical and agricultural importance; Aquatic pollution; Conservation and management of large mammals in Asia.

Collaborative Research Programmes:

Taxonomy and ecology of bees of Sri Lanka (in collaboration with NSF); Land snail diversity in Sri Lanka (in collaboration with Natural History Museum, London - funded by Darwin Institute, UK); Insecticide resistance in rice insect pests and their natural enemies (in collaboration with NARESA);

Effect of insecticide resistance on mosquito vectorial capacity (in collaboration with Liverpool School of Tropical Medicine, UK - under Wellcome Trust Grant); Insecticide resistance in anopheline vectors of malaria (in collaboration with NARESA); Vector-borne disease aspects of integrated rural development (in collaboration with International Irrigation Management Institute); A study on the taxonomy and ecology of cattle ticks (Acarina ixodidae) in Sri Lanka (in collaboration with NARESA); Conservation of sea turtles in Sri Lanka (in collaboration with Turtle Conservation Project); Research on conservation and management of large mammals in Asia (in collaboration with WWF International, Switzerland, IUCN Species Survival Commission, Switzerland, Asian Bureau of Conservation (Hong Kong) and Asian Elephant Conservation Centre, India); Research on wetlands ecology (in collaboration with IUCN Species Survival Commission, Switzerland, Freshwater Biological Association, UK, and Institute of Terrestrial Ecology, UK); Taxonomy and ecology of crop pollinating bees in Sri Lanka (in collaboration with NARESA); Gap regeneration in mangrove ecosystem (in collaboration with NARESA).