SUBJECT REVIEW REPORT

DEPARTMENT OF AGRICULTURAL AND PLANTATION MANAGEMENT

FACULTY OF ENGINEERING TECHNOLOGY

OPEN UNIVERSITY OF SRI LANKA

18th to 20th January 2010

Review Team :

Prof. C. S. Weeraratne

Prof. K. D. N. Weerasinghe, University of Ruhuna

Prof. Sriyani E. Peiris, University of Peradeniya

CONTENTS

Agricultural and Plantation Engineering (DAPE) of the Faculty of Engineering Technology of the Open University of Sri lanka was undertaken to evaluate various aspects of the academic programmes of the Dept. The review was based on the guidelines established by the CVCD and the University Grants Commission in the Quality Assurance Handbook for Sri Lankan Universities, published in July 2002. The agenda of the review meetings is in annex 1.

In this exercise the following aspects were examined and graded.
1. Curriculum Design, Content And Review
2. Teaching, Learning And Assessment Methods
3. Quality Of Students, Student Progress And Achievements
4. The Extent And Use Of Student Feedback
5. Postgraduate Studies
6. Peer Observations
7. Skills Development
8. Academic guidance and counseling

The primary source of documented information for this review was the self-evaluation report prepared by the DAPE. The review team was also provided with supporting documents by the Department including the Prospectus of the Faculty of Engineering Technology for 2009/2010, teaching materials, student work record, question papers, marking schemes, answer scripts, marks, and letters submitted as student feedbacks. The team had useful discussions with the Vice Chancellor, Dean of the Faculty of Engineering Technology, Head of the Department and the staff. Some students and graduates of the Dept. The team also visited laboratories, exam halls, Lecture halls, field, library, computer unit, staff rooms. The team was able to observe a day school, Thesis presentation by a final year student. On the last day the review team had a final meeting with the academic staff of the department to discuss and verify the observations and the judgments made by the team.

2. BRIEF HISTORY OF THE UNIVERSITY, FACULTY AND DEPARTMENT

The Open University of Sri Lanka (OUSL) is the only recognized university in Sri Lanka where students may pursue further education by distance education techniques in keeping with the philosophy of Open and Distance Learning. The OUSL has the same legal and academic status as any other national university in Sri Lanka. The (OUSL) was inaugurated on 19th June 1980 and became fully operative from 22nd July 1980. The University has over 20,000 students with extremely varied profiles, spread throughout the island. About 80% of these students are employed.

The OUSL offers a wide range of study programmes leading to Certificates, Advanced Certificates, Diplomas, Degrees and Postgraduate Diplomas. In addition to these regular academic programmes, there are continuing education courses, beginnersô courses and awareness programmes. The study system adopted by the Open University of Sri Lanka is based on multimedia instructional materials with strong emphasis on **Distance Education** techniques using printed material and audio-visual aids
Any person who is above 18 years of age can enroll at the OUSL. Exemptions are given to those who possess approved relevant qualifications. The OUSL provides a readily accessible

es to study, to improve the vocational, professional and
e educational programmes have been designed to meet
eds, and to offer opportunities to those who have the dedication and drive to succeed. With its flexibility, the OUSL provides a more socially equitable higher education system.
The University has four faculties, and the Faculty of Engineering Technology is one of them. The other three faculties are the Faculty of Natural Sciences, the Faculty of Humanities and Social Sciences and the Faculty of Education .A network of six regional centers located in Anuradhapura, Batticaloa, Colombo, Jaffana, Kandy, and Matara and 17 study centers provide educational facilities to students.

The Faculty of Engineering Technology
The administrative and academic Head of the Faculty of Engineering Technology is the Dean. The Faculty presently consists of following six academic departments:

- Agricultural and Plantation Engineering
- Civil Engineering
- Electrical and Computer Engineering
- Mathematics and Philosophy of Engineering
- Mechanical Engineering
- Textile and Apparel Technology

Each department functions under a Head and these departments are collectively responsible for all academic activities of the Faculty. The Board of the Faculty of Engineering Technology regulates all academic activities in the Faculty, under the direction of the Senate of the OUSL.
The Faculty also has a multi-disciplinary Engineering Research Unit (ERU) dedicated to enhance research in the Faculty and to provide a forum for discussion of matters pertaining to engineering research. The Faculty also actively participates in work of the Rural Research Unit (RRU) of the University.

The Course Guidebook describes the various programmes conducted by the Faculty of Engineering Technology and relevant information pertaining to the programmes.

Department of Agricultural and Plantation Engineering
The Department of Agricultural and Plantation Engineering (DAPE) was established in 1989 and was linked to Silsoe College, Cranfeild University, UK with academic scholarships for Masters , Ph.D and staff interchange between two organizations.. Initially Mr K.D.G Kulatunga who is a Mechanical Engineer was appointed to the newly formed Department in 1989. Subsequently two staff members from Mechanical Engineering and Civil Engineering were transferred to the Department of Agricultural Engineering to undertake postgraduate studies in Agricultural Engineering, and then offer Postgraduate programmes in the Department with the objective to produce qualified people who can address technological problems in the agriculture sector. At the beginning in 1990 the department offered a **Postgraduate Diploma in Agricultural Engineering** study program as a conversion program to train engineers on agricultural aspects and agriculture graduates on engineering aspects. Subsequently an agriculture graduate with post graduate qualifications was appointed to introduce agriculture related courses. Even though it was expected to have 100 students per year, the programme did not attract the expected number and as such the program was not advertised as it was not economical to the university.

udy Programmes offered by the Department of ng. These are

ring) Specializing in Agricultural Engineering

- Bachelor of Technology (Engineering) Specializing in Agricultural Engineering.
- Diploma in Industrial Studies (Agriculture)
- Bachelor of Industrial Studies (Agriculture)
- Certificate in Industrial Studies (Animal Husbandry and Aquaculture) to be offered in 2010.

In 1995, the Faculty of Engineering Technology commenced a **Diploma/ Degree in Technology (Agricultural Engineering)** similar to other engineering fields such as Civil Mechanical and Computer and Electrical Engineering . The aim of **Diploma and Degree in Technology (Agricultural Engineering)** is to give engineering oriented agriculture knowledge to the students with A/L mathematics qualification. The students who do not have A/L mathematics passes have to follow the foundation programme in the Faculty of Engineering Technology to be eligible to engage with this program.. Unfortunately the demand for this programme is very low and less than 20 students are following this programme at present in different levels. There was only one student graduated since its commencement in 1995. In view of this it was decided by the Senate that this Agricultural Engineering programme will be suspended, and therefore no new students were registered from 2009/2010 academic *year.*

Two new study progarmmes Bachelor of Industrial Studies (Agriculture) and Diploma in Industrial Studies commenced in 2004. During the period 2004-2009, about 1117 students have registered for Diploma in Industrial Studies (Agriculture) and 1172 for the Degree in Industrial Studies. Thus, only two programmes are continued to be conducted by the Dept. These are Diploma in Industrial Studies (DIS) (Agriculture)- and Degree in Industrial Studies (DIS) (Agriculture). Certificate in Industrial studies (Animal Husbandry and Aquaculture) is to be started in 2010. These three programmes are conducted with the current academic staff of the DAPE which is 1 Professor, 2 Senior Lecturers with PhD, 2 Probationary Lecturers, 2 Temporary Consultants, and 3 Temporary Demonstrators.

University plans to establish a separate faculty to cater to the education/training (Distance Mode) needs of the Agriculture sector.

3. AIMS AND LEARNING OUTCOMES

3.1 Aims

The main aim of the three programmes of the DAPE is to upgrade the knowledge and skills of those who are involved in crop/animal production at grassroot level so that they would be able to provide a better service to the farming community..

Teaching & Learning Activities

Diploma and Degree in Industrial Studies (Agriculture)and Certificate in Industrial Studies (Animal Husbandry and Aquaculture)

The Diploma and Degree in Industrial Studies (Agriculture) and Certificate in Industrial Studies (Animal Husbandry and Aquaculture) are self-study programmes based on multimedia instructional materials with strong emphasis on Distance Education techniques

ual aids. The department offers 35 courses for the DIS (Annex 2). These courses are in the following fields

- Agronomy/Horticulture (vegetable and fruit crops, soil and climate)
- Crop Protection
- Agricultural Economics and Extension
- Animal Husbandry and Aquaculture
- Food and Nutrition
- Agricultural Engineering (Soil &Water, Post harvest, and Machinery)

In addition six more courses are to be offered (Annex 3).The course offered by the Dept. are at different levels. Level 3 and 4 courses are for DIS programme and courses in levels 5 and 6 are for degree programmes.

Aims of the Certificate, Diploma and Degree Programmes.

The main features of the three progammes are indicated below.

- Distance teaching methodologies are used so that even those who are employed can follow the courses.
- The courses include project work with research and exposure to the industry, thus enabling students to obtain knowledge on recent know-how and new technologies;
- Students are exposed to practical experience in agriculture by giving them an opportunity to work at Agricultural Research Stations of the Department of Agriculture and other research institutes related to Agriculture.
- Programmes are flexible enabling the students to progress at a pace of his or her choice in keeping with the time or financial resources available for study.
- Students have the opportunity to gain knowledge in a specific subject area without enrolling for a programme of study leading to a formal qualification, by offering ñstand aloneò courses;
- Short and extension courses are conducted using conventional, face to face teaching methodologies in areas of importance to the agricultural industry;
- A range of challenging learning opportunities within the modular teaching structure of the University allow students to develop their academic interests and potential through curricula consisting of a set of compulsory and elective courses;
- Encourage students to develop knowledge, creative ability, innovative thinking and transferable skills that will enable them to meet the needs of the prospective employers, and to contribute effectively in their chosen careers;
- A friendly and supportive departmental environment that encourages enthusiastic learning and satisfactory completion of programmes by students;
- Provide a wide knowledge on fundamentals of crop biology and their interrelationships with crop production, within the frame work of the department curriculum.
- Obtain practical skills through well structured laboratory level practical lessons on aspects considered essential for the purpose of putting the acquired knowledge in to practice.
- Provide challenging learning opportunities via practical programs combined with field visits and on farm training to develop necessary transferable skills and arouse interest on agriculture production.
- Providing research based information, make sound environment to conduct research and acquire new knowledge.

ith other departments in the faculty to enhance their sciplines and create harmony among students and tments.

- Encourage range of activities through various societies in the faculty to develop personnel skills and knowledge.
- Enable students to develop inter personnel skills through presentations, oral examination discussions and seminars.

The specific features of the programmes courses offered by the DAPE are indicated below.

Diploma in Industrial Studies (Agriculture)
This *program* is mainly focused to upgrade the agricultural knowledge and skills of those who are involved in crop production at grass-root level. Among these are the Agricultural Research and Production Assistants (ARPAs), who have been appointed to each and every Grama Niladari Division to improve the productivity of farm families who are engaged in cultivation of paddy, vegetables and fruit crops ; post harvest activities and animal husbandry. The ARPAs are mostly G.C.E A qualified and do not have adequate knowledge in various aspects of agriculture.

Students following the DIS (Agriculture) have to follow 7 compulsory courses at level 3 and two compulsory courses at Level 4 as indicated below.

Level 3 Courses		
1	AEX3230	Crop Production and Farming Systems
2	AEX3232	Plant and Soil Science
3	AEI3234	Agricultural Biology I
4	AEI3235	Land and Soil Tillage Management
5	AEI3236	Post Harvest Biology and Technology I
6	AEW3291	Specific Training
7	PSU 1182	Biostatistics
Level 4 Courses		
1	AEX4230	Integrated Crop Protection
2	PSU 2182	Design and Analysis of Experiments

The study programme has been designed giving more emphasis on agriculture industry in practice.

Entry Qualifications:
The students need to have passed at least 3 science subjects at the G C E (A/L) examination including biology or botan***y*** and preferably employed in the Agriculture sector. All students who enter with passes in G C E (A/L) science subjects get maximum of 3 credits at level 1 (one credit for each pass) that is counted towards the total credit requirement for the award of diploma or degree. Those who have other qualifications in addition to G C E (A/L) such as Diploma in Agriculture will get exemptions for few courses.

Programme highlights
This programme has level 3 and 4 courses. The total number of credits that a student should obtain for the award of Diploma is 8. The minimum mathematic requirement to be completed

nts have to undergo 1/3 credit of specific training in the previous training the student has undergone elsewhere.

Programme structure:

The programme consists of **compulsory courses** indicated above and **elective courses** indicated in Annexe 2. There are two exit points with the award of Diploma in Industrial Studies (DIS) and Bachelor of industrial Studies (BIS). For each award it is necessary to obtain a minimum number of credits as described here. A credit is equivalent to approximately 450 hours of study.

Credit requirement for the award DIS (Agriculture)

Course Category	Minimum Credits	Maximum Credits
Engineering [X]	6.0 subject to a minimum of 3.0 credits being at level 3 or above, of which at least 1.0 credit is at level 4 or above	7.0 subject to a minimum of 3.0 credits being at level 3 or above, of which at least 1.0 credit is at level 4 or above
Industrial [I]		
Mathematics [Z]	0.333	1.333
Engineering Projects [Y]	0	1.333
Management [M]	0	1.333
General [J]	0	1.333
Training [W]	0.333	1.333
Language [English] [L]	0	0.333
Computer Literacy [K]	0	0.333
Total	8.0 subject to minimum of 4.0 credits being at level 3 or above, of which at least 1.0 credit is at level 4 or above	

Bachelor of Industrial Studies (Agriculture). The aim of this programme is to provide the knowledge on industrial oriented agriculture through distance education methodology. Program is mainly focused on agriculture diplomates from Schools of Agriculture, Technical Colleges and Aquinas College, employed in the Government and Private agriculture related departments and Industries in the country

Entry Qualifications:

Those who have obtained Diploma in Agriculture of any recognized institution are eligible to follow the BIS programme.

llowing the BIS has to follow 3 compulsory courses at elow.

Level 5 Courses		
1	AEX5232	Soil Plant Water Relationships
2	AEX5243	Farm Power and Machinery
3	AEI5244	Post Harvest Biology and Technology 11
Level 6 Courses		
1	AEI 16234	Environmental Control in Farm Structures
2	AEI 16235	Hydrology and Water Resources
3	AEY 6596	Individual Project

Programme structure: The programme consists of **compulsory courses** at levels 5 and 6 indicated below and **elective courses** indicated in Annexe 2. For the award of BIS it is necessary to obtain minimum number of credits as described below. A credit is equivalent to approximately 450 hours of study

Credit requirement for the award of BIS (Agriculture)

Course Category	Minimum Credits	Maximum Credits
Engineering [X]	6.0 subject to a minimum of 3.0 credits being at level 3 or above, of which at least 1.0 credit is at level 4 or above	7.0 subject to a minimum of 3.0 credits being at level 3 or above, of which at least 1.0 credit is at level 4 or above
Industrial [I]		
Mathematics [Z]	0.667	2.0
Engineering Projects [Y]	0.667 subject to minimum of 0.667 credits being at level 6	2.0 subject to minimum of 0.667 credits being at level 6
Management [M]	0.5	1.667
General [J]	0.5	1.333
Training [W]	0.333	1.333
Language [English] [L]	0	0.333
Computer Literacy [K]	0	0.333
Total	12.0 subject to minimum of 4 credits being at levels 5 and 6, of which at least 1.0 credit is at level 6	

Certificate in Industrial Studies (Animal Husbandry and Aquaculture)

This programme will commence in May 2010. The aim of this programme is to provide an opportunity to those who are engaged or interested in the field of animal husbandry and aquaculture to enhance their knowledge to improve the productivity of the sector. The minimum duration of the certificate programme is one year and the medium of instruction is Sinhala or Tamil. Person seeking admission should be 18 years old on the date of closing applications and has obtained 6 passes in G.C.E O/L examination for the programme and preferably involved in agriculture, animal rearing or fishing as a livelihood. The compulsory and elective courses in this programme are indicated below.

ogy
Productivity of Farm Animals.

AEI2232 Animal Husbandry
AEI2333 Fish and Shellfish Farming
AEY2135 Farm Project

Elective Courses
Students are required to offer any of another 1/3rd credit course indicated below by the department in the Industrial Studies curriculum to complete the Certificate.

AEI2234 Integrated farming systems
AEI2235 Processing and preserving of farm products.
Students who complete this certificate programme will be eligible to register for DIS (Agriculture) offers by this Department.

Teaching activities:
All the teaching activities are designed and carried out to meet the aims and objectives of the programmes so that those who are completing the programmes possess adequate knowledge and understanding of the subject area of agriculture/animal husbandry related to the industry with practical skills.

Printed Course Material Development: Course materials, mainly the printed lesson material, are an essential component of the distance education package. For all the programmes offered by the Department (except for projects and training modules) comprehensive sets of printed lesson materials covering the whole syllabus of subject areas of individual courses are available. A course has 3-4 units, and each unit has a number of sessions varying from 5-9. A session is equivalent to 3 hr. and a course of around 30 sessions is considered equivalent to 1/3 Credit. For example, AEX 3231 , Soil Management, Tillage and Traction Course has 3 units and the total number of sessions in this course is 21 and it is a 1/3 credit course.

The lessons are written in such a way that students can understand them easily without any support of a teacher. New lesson materials written by an author is always edited by at least one other subject specialist. All the new lesson materials are tested during development stage. Usually these materials in development stage are submitted to staff from other institutions, students and personnel from industry. Their comments and inputs are considered by the course committee for further development of the course material. Students are expected to study these printed course materials and answer self-assessment questions and activities built in to the printed course material before attending respective Day Schools.

Development of audio visual course material: Most of the written course materials prepared by the Department are supported by audio visual aids. The Department has a collection of video films collected from the Department of Agriculture and other related institutions (Annex 4). These materials are used during Day Schools and Laboratory classes wherever necessary.

Day Schools: Day schools are conducted with the aim of discussing problem areas in course material. However the practice followed by the DAPE is to give a summary lecture using power point presentation which encourages students to attend the day schools. Generally

/3 credit course and two day schools are conducted for a ainly conducted during weekends and some fall on week

Tutor Clinics: Tutor Clinics are also used to discuss problems faced by students during their self-study. Tutor clinics are usually conducted for courses with lesser numbers of students and at outstation of Study and Regional Centers.

Laboratory Classes: Laboratory classes are conducted for all courses except for three courses (Agricultural Economics Management, Agricultural Marketing, Rural Sociology and Agricultural Extension). Attendance at laboratory classes is mandatory. Lab classes are designed to help students to understand subject matter presented in course materials, to further develop subject specific knowledge and transferable skills. Lab classes are conducted in the laboratories available at the Colombo Regional Centre. The teachers assess studentôs performance in lab classes and their practical reports.

Tutor Marked Assignments (TMA): Tutor Marked Assignments also serve both as teaching tool and as an assessment tool. They stimulate students to study their lesson material, to solve problems applying theories learnt in lesson material, and to think analytically. The TMAs are scrutinized by course coordinators and returned to individual students with comments on their answers. Students are also provided with model answers, which enable them to rectify any mistakes made, and to clarify doubts**.**

Mini projects & Individual Assignments: Mini projects or individual assignments are for Agricultural Economics Management, Agricultural Marketing, and Rural Sociology and Agricultural Extension courses. These are aimed at increasing the involvement of students in the process of learning by solving problems of more complicated nature and to find solutions for problems by doing analytical work or to stimulate them to read additional material relevant to the subject area. Mini projects are also a tool for assessment.

Final Year Project: Final year projects which are only for BIS, can be done individually or by a group of students. This enables students to engage in research in an area of their own choice and encourages originality and self-reliance. It also develops specialist knowledge and transferable skills and promotes active learning. The project gives an opportunity to students to develop presentation skills, defending their findings as well as written skills. A list of final year projects conducted by the students and supervised by staff of the department in last few years is given in Annex 5.

Specific Training: Specific Training provides non-working students in the DIS programme to become acquainted with practical environment. Students are allowed to register for industrial training only after completing some relevant courses so that they are in a position to apply what they have learnt. The Department has arranged with all the Department of Agriculture Institutes and other private institutes in Agriculture sector to provide the necessary training. This training module consists of 18 units covering different areas of agriculture. The units have been grouped into 3 sections: A, B and C. The students should select from these units as mentioned below to complete the 15 weeks of specific training requirement.

- The Section A (3 weeks) is compulsory for all students.
- Student should select units from Section B amounting to minimum total duration of 8 weeks.

to cover the total requirement of 15weeks the students according to their preferences.
ular areas, exemptions would be granted from them after evaluation by the department. In order to get the exemptions the student should provide evidence for such experience by submitting a report certified by the institution in which the student gained such experiences, and face an interview.

Field Visits: Field visits are organized by the Department of Agricultural and Plantation Engineering for certain courses such as ñIndigenous Knowledge on Herbal productsò where students will be aware of the practical atmosphere and to introduce them to different processing products of medicinal plants. Students are expected to write reports on what they have learned during such visits. Similarly field visits are arranged for most of the course to give the industrial exposure to the students.

3.2 Learning Outcomes

On successful completion of the diploma/degree program students should:

a) Have gained knowledge and conceptual understanding on fundamentals of crop biology and principles of crop production, followed by progressively increasing depth of study where it could be applied for successful crop production.
b) be able to apply fundamental principles in addressing issues related to basic and applied research in the relevant fields of study.
c) be able to transform theoretical solutions in to action, for implementation at field level.
d) be able to collect, tabulates, analyze and interpret data from the field in relation to aspects covered in terms of subjects learned during the course and convert them to information, and
e) develop personal skills which enable them for critical and self-directed learning.

4. FINDINGS OF THE REVIEW TEAM

4.1. Curriculum Design, Content and Review

Courses: All the course materials are comprehensive. The individual courses of the Diploma/Degree in Industrial Study programme have been reviewed by experts in the field of Agriculture from other universities time to time and recommendations are incorporated during course material revision process. Going through the course materials the following were noted.

- **Broad Courses:** Some courses are too broad. For example AEX 3232 is Plants and Soil Science. It has 3 units. Unit 1 entitled ñSoil Developmentò has 2 sessions related to plants and 3 sessions on topics related to soil development. Unit 2 has 6 sessions all on soil properties, and Unit 3 has 5 sessions related to plant nutrients. It would be desirable if the course (AEX 3232) is provided as two separate courses one on Plant Science and the other on Soil Science.
- **Incomplete Courses:** Some courses are incomplete. For example the course Agricultural Biology AEI 3234 has 3 units. All 3 units are titled ñ Agric. Biology 1ò. Unit 3 has 3 sessions on Photosynthesis; 1 on Respiration, 1 on Fruit Formation and 1 on Fruit Quality. Plant Physiology topics such as water absorption, transpiration are left out. Similarly the course AEX 4230 titled ñIntegrated Crop Protectionò is incomplete.

ests in unit 1 (pests of some crops not given); Weeds in
disease management but diseases of common crops are

It was also noted that some courses have not being revised since they were first published. For example the course AEX 3231 was published in 1994; AEX 3230 in 1992, AEX 3232 in 1991 (this course has been republished in 1995 and again in 2002 but it is not clear whether it has been revised) AEX 5232 in 1992. However there are some courses which have been revised as late as 2008.

Practicals: In addition to the course materials students have practical classes. There are 3 laboratory practical classes for a subject. Practical sheets are given to students at these classes. It was noted that the number of practicals is inadequate.

Field practicals are conducted. in the ñFarmò of the Open University, which is at the same premises. are used for this purpose. Other activities related to the curriculum such as Field Visits, Specific Training, Final Year Projects etc. were found to be carried out satisfactorily.

4.2. Teaching, Learning and Assessment Methods

Provision of printed course materials for all the courses, exposure to audio and video materials where available , conduct of Day schools , laboratory classes, field practices, field visits to different Institutions and enterprises, Tutor marked assignments, mini projects and final year research project are the different modes adopted by the Department for the teaching and learning process. These Teaching, Learning and Assessment practices of the DAPE were evaluated by the team by (a) examining the relevant documents, and (b) discussions with the staff and students (8 students) who were present at a day school, and (c) observing a presentation made by a student who completed the final year project work.
The review team observed that the courses are satisfactorily delivered through the adaptation of all the varieties of distance education modes indicated above. The team noted that the students were provided a copy of the prospectus, activity schedule (Diary of Activities), lecture materials at the beginning of the programs and they are aware of the broad course content which is a good practice. The diary of the planned activities in respect to the each course, dates assigned for examinations, Day schools and all relevant information are precisely given in the Activity schedule (studentsô diary) which is made available to the students at the registration. Furthermore, it was evident that the students were given an opportunity for any consultation pertaining to the materials provided in the prospectus for their broader understanding of the mode of education in Open University system.

However at the discussion with the students, it was revealed that the guidance given in the above materials are not adequate for them to clearly understand the course structures and subjects of the studies that they have to follow to achieve the yearly progress. This seems to be associated with the exemptions given to the students who register with the Advance Level qualifications for the Diploma in Industrial education program.

Therefore the information given in the guide books needs further expansion providing learning outcome in relation to each course, a more realistic breakdown of time allocation between theory and practical components, references and assessment strategies.

associated with the low allocation of time for practical
e practical and theory components. Students brought to
fficulties they have to face at the examinations, as they were not exposed to practical components in most of the courses before they sit for the examinations.

The team noted the positive aspects of the two 15 weeks industrial training programs to be undertaken by the BIS students as a compulsory component in levels 3 & 4, under the coordination of the training Engineer. As evident from the program, students get a good exposure to understand different sections in organizational aspects of the industry in compulsory base. However, students may not have an opportunity to go through some of basic agronomical practices and technology skills, which are needed for an Agricultural Graduate when selecting the units from the subjects from the category B and C.

The observation of the day school indicated that the delivery of materials facilitate teacher-student interactions and ease of understanding. Yet there is much room for improvements, which could be addressed through frequent peer observations on teaching. In the laboratory exercises it was informed that the senior staff member demonstrates the actual carrying out of the practical; however the team didnâ t get an opportunity to observe a conduct of a practical class due to the unavailability of the students. .

Team had an opportunity to observe the field practice units, established in the campus site which needs much improvement to achieve the learning outcome of the field training program.
Documents made available to the reviewers provided evidence on use of marking schemes, scrutiny of papers, involvement of external examiners and efforts to maintain standards. However, there was no documentary evidence to prove that the procedures are strictly followed. The suggestions made by the moderators in the moderation of question papers and model answers were not evident. Second marking of the answer scripts was also not evident.

During the discussions with the students, they expressed general satisfaction of the course conducted by the DAPE. However, they raised several concerns related to limited exposure to the practical and laboratory work, non-uniformity of question papers and delay in release of examination marks. Students also pointed out the difficulties that they have to face on changes made often with new courses by the Department through out the study programs. Repetition of courses appears to be a serious problem for the students to go through the study process satisfactorily.

Examination is one of the areas where the students tend to be most sensitive and perform under stress. An early understanding of the exact duration of the question papers, based on a general guideline for the Department with clear relationship between the credits in the course and number of questions given in the examination paper is important. There is the need to establish strict guidelines on the general pattern of question papers (number of multiple-choice, structured essay and essay questions). The review team noted that the allocation of marks to components other than the end term paper as 40%. The Department depends heavily on a large number of temporary staff due to lack of permanent staff to handle variety of courses. Team noted the inadequate integration with the Engineering laboratories and resources of the same faculty (Soil engineering, mechanical engineering etc.) for the relevant course deliveries. There is a room to incorporate video conferencing and teaching modules using the available Digital laboratories and the media center.

tudent Progress and Achievements

ity is unique among the conventional universities in Sri Lanka. Open University in order to give an opportunity to anyone who wishes to study further enrolls students from a wide variety of background, ranging from recent school leavers after GCE Ordinary level and Advanced Level to experienced workers from State Departments of agriculture and related areas, Research Institutes and private agriculture sectors. Hence around 75% of the student population is already employed at the time of enrolment.

Students who wish to follow Diploma in Industrial Studies should have at least three pass subjects for the GCE (A/L) including Botany or Biology. The students seeking the degree status should have the above requirement and a diploma in Agriculture from a recognized Institute. However, the students who have only GCE (O/ L) as the qualifications also can register for a diploma or a degree in OSUL after completing required foundation courses offered by the OSUL and obtaining satisfactory eligibility status.

Quality of students and their progress

Each year the 2 programmes, which are currently active, attract more than 1000 students. However, the student number who completes within 4 years is only a handful. This is attributed to the part time nature of studies which is more applicable to this situation where employed students are trying to improve themselves while working. The number of students who have completed the degree and their performances are given in the following table.

Students performances

Year	Number completed	Performances		
		1st Class	2nd Class	Pass
2007	3	1	2 (upper)	0
2008	8	0	1 (upper) + 2 (lower)	5
2009	10	0	3 (lower)	7

Theory classes

Student participation in the day school (theory classes) is unsatisfactory. However, this is not a compulsory activity and they are given learning materials which provide sufficient knowledge on the subjects they have been enrolled. There are 3 day schools held for each semester for each subject. The objective of holding day schools is to give an opportunity for students to clarify any ambiguity that occurs from the study materials, and the teacher sufficiently describes the important aspects of the whole course during these 3 days.

Though the student participation for day schools is very low, those who were present were very enthusiastic to learn. Almost all students participated in the discussion during the session. The teacherôs effort to get their maximum participation in the discussion is highly commendable. Students also show very high enthusiasm towards learning and their command of English is also good.

Practicals: Practical sessions are also held 3 days per semester per course. One of these 3 days is evaluation of the practical which they have done during the semester. The facilities such as properly equipped laboratories are not available. The equipment are lying in different rooms and when the practical is organized, required equipment are brought to the common area and laboratory practical classes are held. Many other practical sessions are conducted in

ersities such as University of Peradeniya, and institutes Authority, Farm Machinery and Research Centre of the Nature Secret Medicinal Plant Unit, Horana, Irrigation Department, Meteorological Department and Department of Agriculture Research Institutes. Field trips of this nature will have many benefits and the staff has been very enthusiastic in arranging fruitful programmes to gain expected knowledge during these field visits. Although the team did not have an opportunity to observe a practical session, this activity is highly commendable and it will give an opportunity to share already established facilities.

Student's achievements:

At the meeting held with students graduated from the Dept. it was obvious that they were happy to have had such an opportunity to climb up the ladder of achievements as students who did not get admission to conventional universities in Sri Lanka. Students also show their ability to learn and the quality of the course by achieving first classes. The one year research project and one month industrial training prepare the students to outside working world, which will enable them to have better career positions after the degree.

It was noted that external supervisors are not appointed as the examiners for the final presentations and the evaluation of the research programmes.

4.4. Extent and use of Student Feedback

The Department adapts general quality management procedures as one of the methods to address student feed back. In these procedures Course Team concept is applied to develop course materials. The Course Team consists of internal staff members with the expertise in the subject area and external members in the relevant field from other universities and industry. Course team decides the content of the subject, and the lesson author, basically an internal staff member, writes the lessons. The quality of the lessons is maintained through meticulous scrutiny by the subject specialist and the Head of the Department. The experimental copies of the course materials are also developed further by the staff members based on the student feed back.

Under the supervision of the Programme Coordinator, Course Coordinators analyze the final examination results and continuous assessment marks in order to evaluate the quality of teaching and lesson materials since they can be considered as a system of feed back of students.

Apart from the above, the direct feed back from students are also taken through consultations and discussions during the day school time and from question time during the compulsory activities such as laboratory and field practical classes. As a result of these feed backs the course materials have been revised, the summary lectures are conducted using power point presentations, laboratory classes have been increased, better facilities were sought in other universities and laboratory evaluations have been included as an assessment method.

Students also give their feed back in the form of letters to the staff and informal discussions. Student representatives participate in the Faculty Board and Faculty Student Forum once a month. Furthermore, student representatives meet with Faculty representatives, the Dean and the Vice Chancellor once in three months. Students very actively provide their feed back during these meetings. Along with that, there is also an opportunity provided to every student

elor. They help students to clarify the subject matter as eir presence in the university and the student is able to nmes during such informal discussions.

4. 5 Postgraduate Studies

DAPE does not conduct any taught postgraduate degree programs due to the limited facilities in the Faculty. However, Dept. accommodates students doing research degrees such as M.Phil and Ph.D programs although so far the Dept. has produced only one M.Phil graduate. At the beginning of the Dept.in 1990, Postgraduate Diploma in Agricultural Engineering study program was offered as a conversion program to train engineers on agricultural aspects and agriculture graduates on engineering aspects. Even though it was expected to have 100 students per year the programme did not attract the expected number and as such the program was not advertised, in recent years. This is one of the drawback of the intended post graduate programs by the Department.

Head of the Department is engaged in many research programmes with funds received from National Science Foundation. However, the other staff members are not involved in any research which is a major component to assess the academic performances of a university teacher At the same time it need to be pointed out that facilities to conduct research have to be made available to all academic staff of the faculty.

It was note that the DAPE is yet to develop its own postgraduate degree programs, but has taken effective initiatives to establish a research culture.

4.6 Peer Observation

There is no formal procedure for peer observations in the Department. However, Each course has a course co-ordinator, who is responsible for maintaining quality of course material and delivery. Academic co-ordinators observe and guide course co-ordinators. The lesson materials are written by the academics of the department and selected experts from other universities and other institutes. These lesson materials are peer reviewed in the form of lesson editing by the academic relevant to the field. In this way a peer reviewed exercise that is suitable for a distance education institute is practiced by the department.

Another peer review exercise undertaken by the department is reviewing the examination papers. All the exam papers, both the continuous assessment tests and final examination papers are reviewed or moderated by an expert in the field from the Open University of Sri Lanka or another university or from the industry

4.7. Skills Development

There are numerous activities aimed at develop[ping skills of the students. Among these activities is laboratory practicals. Specific training is another activity which aims at skills development. The project titles are designed with the objectives of developing the skills in research planning, conducting field research, experimental design, report-writing, oral presentations, and defense of the results etc.

The department has given students an opportunity to learn English in different levels after testing them by having a grading test. This is particularly beneficial for students as the

rs is English. Additionally, students are advised to offer age and computer awareness with the objective of er skills.

The University has Elementary Computer Laboratories in the Regional Centers and selected Study Centers which are housed in buildings that belong to the university. All the registered students of the university are entitled to utilize the facilities available in these laboratories. Further, the library also has a limited number of computers for the use of students. All these enable students to develop their skills in computer use.

The main library of the university situated in the Main Campus has a Virtual Library facility where the students can access various educational resources that would help them to enhance the researching and literature reviewing capabilities.

4.8 Academic Guidance and Counseling

A counseling system is available within the Faculty and DAPE. One Academic adviser is available for the Faculty of Engineering Technology, and one student councilor in the DAPE.

Our discussion with the Academic counselor of the Faculty of Engineering technology and the student councilor of the Dept. indicated that students have adequate opportunities to have the assistance on academic guidance and counseling. The counseling and the guidance for the selection of the program of studies and relevant courses, based on the studentsô qualifications are given by the councilors through presentations and consultation programs conducted at the regional study centers prior to the registration and at the time of the enrolment

The Head of the Department, course coordinators and lecturers assist the students in different aspects of the student problems in respect to selection of the relevant course units, evaluation procedures and programs of activities through e mails, and telephone connections. Review team felt that the staff members of DAPE make a positive effort to assist the students as and when required.

The list of facilities observed and the list of documents and printed materials made available for the review are indicated in Annex 6 and 7 respectively.

ing the study visit by the review team, the eight aspects

Aspect reviewed	Judgment given
Curriculum Design, Content and Review	Satisfactory
Teaching, Learning and Assessment Methods	Good
Quality of Students including Student Progress and Achievements	Good
Extent and Use of Student Feedback	Good
Postgraduate Studies	Satisfactory
Peer Observation	Satisfactory
Skills Development	Satisfactory
Academic Guidance and Counseling	Good

5. CONCLUSIONS

1. Curriculum Design, Content and Review

Strengths/Good Practices:

Curriculum of the Dept. of DAPE covers a wide range of topics and activities such as, course materials, audio visuals, Day Schools, tutor clinics, laboratory classes, mini projects & individual assignments, tutor marked assignments (TMA);final Year projects, specific training and field visits: The links formed with organizations involved in agro-industries, universities, research organizations, and numerous farms are strengths of the curriculum. The courses are comprehensive and cover most of the relevant topics adequately.

Weaknesses:

As indicated in section 3.2.1, the some courses are incomplete/ too wide. There is some duplication of some course materials. The number of hours assigned for laboratory practicals especially in the BIS programme is inadequate. This is likely due to inadequate facilities for practical at the Colombo and other centers.

2. Teaching, Learning and Assessment Methods

Strengths/Good Practices:

DAPE uses most of the Distance Education modes adopted in the open University systems to deliver Certificate, Diploma and Degree courses related to Agric and Plantation Engineering. DAPE collaborate with Agricultural Institutions in the country for practical programs, mini projects and conduct of the final year project work

At the time of registration DAPE provides necessary guidance for the students to enroll with appropriate programmes , providing course materials, Activity schedule (Diary of activities), lecture materials etc. Which helps students to systematically engage with the learning process.

component in the course evaluation. Students were not less they qualify from the continuous assessment marks ons, field reports, Mini projects etc.

Weaknesses

Web based techniques, facilities and materials are not adequately used to improve teaching process. Adequate attention is not given to improve or modify Agric. Engineering courses to suit the requirement of the country even though the mandate of the Dept is to develop Agric. and plantation Engineering courses.

Laboratory Facilities available in other Depts. of the Faculty are not adequately used for teaching and learning process.

3. Quality of Students, including Student Progress and Achievement

Strengths/Good Practices:

Students get an opportunity to expose to expertise, new techniques and equipment in the subject area through field practical classes. Sharing of resources available in other universities, institutes and private sector is high.

Weaknesses

Proper laboratories are not available for each subject.

4. Extent and Use of Student Feedback

Strengths/Good Practices:

A number of systems are used to get studentsô feedback from external reviewers is used in the production of course materials, and opportunities are available for students to contact or meet with the staff.

Weaknesses

No formal student feedback from students using a questionnaire.

5. Postgraduate Studies

Strengths/Good Practices:

Leadership is given by the present Head of the Dept. to engage with research programmes by attracting funds for research is commendable.

Weaknesses

Inadequate attention given by the Dept and the Faculty to provide necessary facilities to improve Agric and Plantation Engineering post graduate programmes, to suit the needs of the country.

Lack of research programs initiated by the academic staff.

6. Peer Observation

Strengths/Good Practices:

Staff has accepted the need for Peer observation and is going ahead with it. Undergraduate examination papers/thesis are being scrutinized by second examiners.

observations

7. Skills Development

Strengths/Good Practices:

The staff has developed a range of activities/programmes that provide opportunities to students to develop many types of skills by being involved in research projects, practicals and outside activities. Attention is paid in developing practical skills of the students through field work although there is much room for improvement of these aspects.

Weaknesses:

The practical components of the modules need to be improved to enable the students to obtain better skills.

8. Academic Guidance and Counseling

Strengths/Good Practices:

There is a student counselor attached to the Dept. and one in the Faculty. The students are given academic guidance even before they join the university through introductory seminars that are conducted throughout the country. In these seminars academics present the programmes offered by the Faculty along with all the intricacies of distance education. When the students come for registration, academic counseling is compulsory at the time of registration and the students are advised and helped to select their courses as per their prior qualifications, availability of time and financial resources and other relevant matters.

The academics also get involved with telephone counseling. In certain instances the academics have even given their home and mobile phone numbers to the students to contact themselves as most students find time only after office hours. Some students use E-mail facilities available at their work places to communicate with the staff.

Weaknesses

There is no office for the counselors and they have not been given formal training.

No one member of staff is assigned to each student and it is found that a few students do discuss their problems with a member of staff of their choice. The internet and email facilities at the Regional / Study Centers are not very effective.

Though the academic staff is available at most times, very few students come and ask for help with their difficulties. Working students have great difficulties in getting away from their work sites, but a few keen students, usually full time students, make use of the availability of staff to discuss their difficulties.

t the Curricula of the DAPE is revised. This will make the curricula of the programmes offered by the DAPE at par with that of the other appropriate institutions.

2. At present common courses are conducted for both DIS and BIS. The suitability of this practice need to be critically examined.
3. More laboratory practicals need to be included in the BIS curriculum, so that the BIS from the OUSL are comparable with the corresponding degrees from the conventional universities.
4. An effort should be taken to provide students with better field practicals. In this regard the facilities available in the regions (eg. Faculties of Agriculture, Farms of the Dept. of Agriculture etc.) can be used to a greater extent.
5. Resources and Manpower available in the regional Universities, Research Institutions and Dept. of Agriculture could be further used to improve the teaching processes. This could be done through MOUs signed with the relevant Institutions and conduct of training workshops for Trainers, and appointing the members of the relevant institutions as visiting academics and external examiners etc.
6. Moderation of the question papers, and model answers by a second examiner and keep these records.
7. Share the facilities with the other Departments of the Engineering Faculty and the Faculty of Natural Sciences where possible.
8. Since the practical component is compulsory and students must attend all the practical classes there should be adequate amount of proper laboratories for the use of students in all four years.
9. Include more student presentations in subjects.
10. Develop computer based learning materials.
11. It was noted that external supervisors are not appointed as the examiners for the final presentations and the evaluation of the research programmes. It is recommended to appoint them as Examiners.
12. Develop a computer based direct feed back system using a questionnaire .
13. It is recommended to appoint an independent committee to assess the drawbacks associated with all the programmes. Appropriate postgraduate studies need to be initiated and all staff members carry out research programmes.
14. Establish a formal system of peer observation.
15. More field and laboratory practical classes are conducted to improve the related skills of students.
16. A carrier guidance unit needs to be established and an academic counselor should be appointed as soon as possible.
17. The student counselors unit should be provided with an office in a suitable location, and the student counselor should be given training in counseling.
18. The proposal to establish a separate Faculty need to be pursued.
19. The number of staff in the Dept. is inadequate when the amount of work involved is considered. As a result staff members do not find enough time to conduct research programmes. Hence, it is strongly recommended that the staff numbers is increased.
20. An effective Human Resource Development programme for the DAPE staff need to be developed and implemented. Short term training for technician and laboratory staff on maintenance of laboratory and collection of samples need to be provided.

e Chancellor of the University, Dean of the Faculty of Head of the Dept. of Agricultural and Plantation Engineering, for the excellent arrangements made for the review team to go through the review process. We specially appreciate the efforts taken by the Head of the Dept. Prof. Shanthi De Silva to provide all the assistance to the reviewers through out the review process. The reviewers appreciate the assistance given by the academic, non academic staff, and the students of the DAPE during the review process.

EW VISIT

DAY – 01 18th Jan. 2010

08-00 08.30 a.m. - Private meeting of Review panel with QAA council representative
08.30 - 09.30 a.m. - Meeting with Vice Chancellor, Dean and Head of Department
09.30 - 10.00 a.m. - Discuss the Agenda of the Review
10.00 - 11.00 a.m. - Presentation of the Self Evaluation Report by Head of Dept.
11.00 - 12.00 p.m. - Discussion
12.00 - 12.30 p.m. - Meeting with Academic Staff of the Dept.
12.30 - 01.30 p.m. - **Lunch Break**
01.30 - 03.30 p.m. - Observing Facilities Department Facilities (Library, Computer labs, research plots *etc*.)
03.30 - 05.30 p.m. - Research lab in Science and Technology building, Roof top Garden. -
05.30 - 06.00 p.m. - Brief meeting of Reviewers

DAY – 02 19th Jan. 2010

09.00 - 10.30 a.m. Observe Printed teaching materials, question papers and other documents
10.30 - 11.00 a.m. Observe final year student presentation
11.00 - 12.30 a.m. - Observe student lab at block 3, Green house and soil erosion bin
12.30 - 01.30 p.m. - Lunch Break
01.30 - 02.00 p.m. - Meeting with academic support staff
02.00 - 02.30 p.m. - Meeting with technical staff
02.30 - 04.30 p.m. - Observing Documents, continuous assessment components, assignments, lab reports, pest boxes, weed album, medicinal plant albums)
04.30 - 05.00 p.m. - Brief meeting of Reviewers

DAY – 03 20th Jan. 2010

08.30 - 09.30 a.m. - Meeting with Graduate students of BIS/BT programs
09.30 - 10.00 a.m. - Observation of a day school
10.00 - 10.30 a.m. - Meeting undergraduate students
10.30 - 11.00 a.m. - Meeting with academic councilor and the student councilor of \ the Dept
11.00 - 12.00 noon - Reviewers Private Discussion
12.00 - 01.00 p.m. - Lunch Break
1.00 - 2.00 p.m. - Reviewers meeting with Head,
2.00 ï 2.30 p.m Meeting with the Dean of the faculty
02-30 - 03.00 p.m. Meeting with the Vice Chancellor
03.00 - 04.00 p.m Meeting with Head, and staff for reporting

FFERED BY THE DAPE

		Title
1	AEX3230	Crop production and farming systems
2	AEX3231	Soil management, tillage and traction
3	AEX3232	Plant and soil science
4	AEX3233	Post harvest technology I
5	AEI3234	Agricultural biology I
6	AEI3235	Land and Soil Tillage management
7	AEI3236	Post harvest Biology and Technology I
8	AEZ3238	Mathematics for agriculture
9	AEX4230	Integrated crop protection
10	AEX4231	Food and nutrition
11	AEX4232	Soil and water conservation
12	AEJ4233	Rural sociology
13	AEM4234	Agricultural economics and management
14	AEM4235	Agricultural marketing
15	AEX4237	Irrigation and drainage engineering
16	AEI4238	Agricultural biology II
17	AEX5230	Power and machinery in agriculture
18	AEX5231	Post harvest technology II
19	AEX5232	Soil plant water relationships
20	AEI5230	Fisheries and Aquaculture
21	AEJ5240	Indigenous Knowledge of Herbal Products
22	AEI5241	Agricultural Biotechnology
23	AEI5243	Farm Power and Machinery
24	AEI5244	Post harvest Biology and Technology II
25	AEM5246	Agricultural Extension
26	AEX6230	Environment control in agricultural structures
27	AEX6231	Processing of food products
28	AEX6233	Hydrology
29	AEI6132	Groundwater resources management
30	AEI6234	Environment control in farm structures
31	AEI6235	Hydrology and water resources
32	AEI6236	Food processing
33	AEI6137	Impact of climate change on water resources
34	AEI6138	Fruit crops and cut flower production
35	AEI6239	Animal husbandry and production

E OFFERED

		Crop Physiology
2	AEI6240	Horticultural landscaping
3	AEI6242	Plantation Crop Production
4	AEI5245	Agricultural Waste Management
5	AEI5248	Environmental Agriculture
6	AEI5249	Molecular and Cell Biology
7	AEI5250	Agricultural Biotechnology II
8	AEX5242	Crop Processing

Annex 4. LIST OF TEACHING MATERIALS (CD-ROM,VIDEO,AUDIO) AVAILABLE IN THE DEPARTMENT OF AGRICULTURAL AND PLANTATION ENGINEERING

1. Photosynthesis: light into life [Video]
2. Video guide to DNA biotechnology
3. The living cell [Video]
4. Soil and water management for agricultural production : demonstrating field capacity of soils [Video]
5. Soil and water management for agricultural production : nitrate leaching [Video]
6. Integrated pest management in Agriculture [Video]
7. Vegetable Insect pest [CD-Rom]
8. Advances in science and technology series; Agriculture and Animal science [Video]
9. Anthurium culture [Video]
10. Orchid culture [Video]
11. Gebera culture [Video]
12. Hydroponics and Protected Agriculture [Video]
13. Royal Botanical Gardens, Peradeniya [Video]
14. Potato cultivation [Video]
15. Mushroom culture [Video]
16. Soil conservation and management [Video]
17. Leafy vegetables production [Video]
18. Irrigation systems for crop production [Video]
19. Big Onion cultivation and processing [Video]
20. Red Onion cultivation and processing [Video]
21. Cucurbitaceous crops cultivation [Video]
22. Chilly cultivation and processing [Video]
23. Eggplants cultivation [Video]
24. Tomato cultivation [Video]
25. Coconut cultivation [Video]
26. Beans cultivation [Video]
27. Betel cultivation [Video]
28. Maize cultivation [Video]
29. Paddy cultivation [Video]
30. Vegetable cultivation [Video]

H PROJECTS CONDUCTED BY STUDENTS AND

Student Name	Project supervisor/s	Research Title
W.M.S.K. Egodawatta	Prof. C.S. de Silva	Development of ready to serve drink and Nectar from Pomegranate.
H.K.M.S.K. Herath	Dr. Kokila Gunasekara	Effect of stage of maturity at harvest on the postharvset quality of Dragon fruits (*hylocerens undatus)*
W.P. Anoma P. Dhanapala	Prof. C.S. de Silva	Comparison of flood and sprinkler irrigation methods practiced by big onion farmers in Matale district
S.D. Silva .	Prof. C.S. de Silva	Effect of depth of ploughing on soil moisture retention and growth of rain fed sugarcane between 5th to 11th month ages.
S.A.M.C. Senevirathne	Dr. Kokila Gunasekara	Study on storage life of the betel leaves (*Piper betel*) in bamboo baskets
R.A.D.N. Priyangani .	Ms. N.S. Weerakkody	Effect of growing media on growth and multification of *cryptocoryne wendtii* in wet zone
D.H. Nilani Wathsala	Dr. Kokila Gunasekara	Identification of high yielding large fruit and heat tolerant tomato *(lycopersicon esculenttum)* Line suiltable for both yala and maha seasons.
S.M.C. Rukshan	Ms. Chula Perera.	Pest attack in cashew (Anarcordium accidentale) nurseries and controlling measures for serve damage.
S.A.C.J. Senarathne	Dr. Kokila Gunasekara	Identification of most effective microbes for coconut coir retting a
L.A.N.T. Amarasekara	Ms. N.S. Weerakkody	Comparative study of cultivation and yield performance of Oyster mushroom grown on lawn moved buffalo grasses
W.Ganga Shyamalee Warnakulasooriya	Ms. N.S. Weerakkody	Selection of best medium for the Spawn Preparation of Shitake Mushroom

	C.S. de Silva	Comparison of growth and yield parameters of traditional and newly improved rice varieties under the green house condition.
Korala Gamage Samitha Madusanka	Ms. N.S. Weerakkody	Identify the optimum performance of Natamycin to control the growth of yeasts and moulds in highland set yoghurt
Y.M.U.D.K. Yapa	Dr. Kokila Gunasekara	*Invitro* micro grafting of citrus
A.S. Rathnayake	Prof. C.S. de Silva	Water quality Assessment in wells used for drinking purposes in coastal areas of Hambantota district
Pawithra Welgama	Prof. C.S. de Silva	Ground water quality analysis in selected wells in Kottawa for drinking purpose.
K.M.A.Muthukumari	Prof. C.S. de Silva	A preliminary study to select soil amendments to improve the soil in the Open University of Sri Lanka, Nawala for successful growth of Okra.
Subuddhi Panampitiya	Dr. Kokila Gunasekara	Dwarfing effect of mango by using interstocks and variety *vellai colomban*
E.A.D. Najith Nishantha	Ms. N.S. Weerakkody	Pathogenicity of Papaya isolates of Corynespora cassiicola (Berk and Curt) wei on Rubber and Papaya
H.A.Indika Gunesena	Prof. C.S. de Silva	Effect of different potting media mixtures on growth of Durian and Jackfruit grafts
P.K. Ananda Sugathapala.	Ms. N.S. Weerakkody	Cost effectiveness of poly-culture farming system with proper management to improve the fish production in (Mahaweli system ñHò) tanks
B.D. Randunuge	Ms. N.S. Weerakkody	Yoghurt production from Goat milk
R.T. Ekanayake	Dr. Kokila Gunasekara	Study the tillering habit of finger millet (*Elusine coracana* L. Gaertu)

	C.S. de Silva	Preliminary study on water and soil quality analysis in tsunami affected area. A case study in coastal belt from Panadura to Moratuwa.

Annex 6. LIST OF FACILITIES OBSERVED

1. Deans Office
2. Office of the Department of Agricultural and Plantation Engineering
3. Department facilities, in Science and Technology building Research plots, computer center
4. Research lab in science and technology building
5. Students lab in Block 3
6. The media center
7. The library
8. Video conferencing center in the Engineering block
9. Block of land used for students field training and research programs.
10. Lecture rooms available for the day school programs.

Annex 7. LIST OF DOCUMENTS AND PRINTED MATERIALS MADE AVAILABLE FOR THE REVIEW

- Postgraduate Studies & Academic Assistance to Other Institutions
- Department ï Appointments (Consultants, Project Assistants, Demonstrators and Visiting academics)
- Details of Graduates from the Department
- Continuous Assessment Test Question papers CAT - 2 2008/2009
- Continuous Assessment Test Question papers CAT - 1 2009/2010
- Continuous Assessment Test Question papers CAT - 1 2008/2009
- Continuous Assessment Test Question papers CAT - 2 2009/2010
- DIS/GIS (Agriculture) Rules, Regulations & Memos
- Eligibility Marks 2004/2005
- Eligibility Marks 2008/2009
- Eligibility Marks 2007/2008
- Final Examination Papers 2008/2009
- Mark Sheets - Final Exam 2009
- CAT Marks 2007 ï 2008
- Moderated Examination papers
- Model Answers CATôs & Final Marks
- Guide line for Specific Training/ Industrial Training
- Specific Training Reports of Students
- Credit Calculation Forms for Academic Guidance
- Student Feedback (Letters and Complaints)
- Research Awards obtained by academic staff
- Academic Staff Leave/Appointments
- Student Numbers/Courses and Course information
- Continuous Assessment Marks

sbandry & Aquaculture
amil media
the Department to students

- Outline and Syllabus including the course teams of the Courses Offered by the Department
- Short Courses conducted by the Department and the feed back details
  Impacts of Climate Change on Water Resources
  Groundwater Development & Management in Hard Rock Areas for
- Books written by Dept Staff
  Agro Wells for Drought Mitigation (English, Sinhala and Tamil)
  Livelihood Options for coping with drought
  Mainstreaming gender in Water management
  Climate change
- Guidelines for Final Year project AEY6595 and AEY6596
- Proceedings of the OUSL-Academic Sessions, 2008 and 2009 chaired by Head of this Department
- Student Assignments 1, 2, 3, Mini Projects, Lab Reports
- Weed Albums, Pest Boxes, Medicinal Plants Album of the students
- Videos and CDs used by the Department in Day schools and Lab classes