SUBJECT REVIEW REPORT

DEPARTMENT OF AGRICULTURAL ENGINEERING

FACULTY OF AGRICULTURE
UNIVERSITY OF RUHUNA

9th to 11th June 2008

Review Team :

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CONTENTS

1. SUBJECT REVIEW PROCESS

The subject review of the Department of Agricultural Engineering, Faculty of Agriculture, University of Ruhuna was conducted according to the guidelines given in the Quality Assurance Handbook for Sri Lankan Universities, published by the CVCD and University Grants Commission in July 2002. The Department of Agricultural Engineering submitted a Self-Evaluation Report (SER) consisting of eleven (11) sections, namely: Introduction; Aims, learning outcomes and programme details; Students, staff and facilities; Curriculum design, content and review; Teaching, learning and assessment methods; Quality of students in relation to recruitment, admission, student progress and achievement; The extent of student feedback, qualitative and quantitative; Postgraduate studies; Peer observation; Skills development; and Academic guidance and counseling.

The Review Team consisted of Prof. E.R.N. Gunawardena (Professor of Agricultural Engineering, University of Peradeniya), Prof. Lakshman Jayatilleke (Chairman, NIBM), Prof. W.P.R.P. De Silva (Professor of Agricultural Engineering, University of Peradeniya) and Dr. M.M.M. Najim (Senior Lecturer, University of Kelaniya). The Team took the lead responsibility for all the aspects of provision and contributed to the writing of the report and making judgments in the eight aspects. Prof. E.R.N. Gunawardena served as the review chair.

The review process of the Department was conducted during the period from 09 to 11 June, 2008. The agenda of the three day review process is given in Annex I.

On 09th June morning the Team had a meeting with the Dean of the Faculty of Agriculture, Prof. T Serasinghe at the Dean's Office along with, Dr. (Mrs.) C.M. Nawaratne (Head of the Department of Agricultural Engineering), Prof. K.D.N. Weerasinghe (Professor of Agricultural Engineering) and Prof Colin Peiris (Quality Assurance Specialist of the IRQUE Project). The Dean of the Faculty of Agriculture briefed the importance of the review process and the steps taken to implement the quality assurance process at the Faculty.

On the 10th June the Head of the Department made a comprehensive presentation which summarized all the information that had been compiled in the self evaluation report. The review team then met with other members of the staff and had the opportunity to discuss different aspects of the quality assurance program.

The evaluation of eight aspects was based on:

- Meetings held with the Dean, Head of Department and academic staff of the department, non-academic staff, and undergraduate students representing all four years.
- Observation of the Departmental facilities and other facilities of the Faculty (library, computer unit, English language unit, science park, weather station, laboratories, workshop, lecture rooms, farm etc.).
- Observing teaching and practical classes.
- Reviewing the documents made available at the Department (Annex II).

Each of the eight aspects was judged as good/satisfactory/unsatisfactory, noting the strengths, good practices and weaknesses.

The review team wishes to thank the Dean of the Faculty, the Head of the Department and the staff members of the Department for the excellent arrangements and the cooperation and

hospitality extended to them throughout the review process. The reviewers also thank academic staff of other departments, especially the student's councilors, non academic staff of the Department including librarians, staff of computer center and ELTU and staff manning various laboratories and farm units and most of all the students from all four batches of Faculty of Agriculture and postgraduate students. The views expressed by them had been very useful for the review team to carry out the subject review and also to draw conclusions.

2. BRIEF HISTORY OF THE UNIVERSITY, FACULTY AND THE DEPARTMENT

University of Ruhuna was initially established in 1978 in Matara. The Main campus at Wellamadama, Matara has the Faculties Science and Humanities and Social Sciences. The Faculty of Agriculture was established in 1978 at Mapalana, Kamburupitiya. The University established the Faculties of Medicine at Karapitiya, Galle, Engineering at Hapugala, Galle, Management and Finance and Fisheries at Wellamadama, Matara in 1978, 2000, 2003 and 2005; respectively.

The Faculty of Agriculture has 7 Departments viz., the Department of Crop Science, Animal Science, Agricultural Biology, Agricultural Economics and Extension, Soil Science, Food Science and Agricultural Engineering. At the time of the review, the Faculty had 79 academic staff members, (57 permanent and 22 temporary), 110 non- academic staff members and 550 students.

The Department of Agricultural Engineering has 10 permanent staff members (three Ph.D. holders including a senior professor) out of which 4 are on study leave. The Department also has 8 non-academic staff members (one staff technical officer, two technical officers, one draughtsman, one lab attendant and three labourers). At present there are 22 students specializing Agricultural Engineering (in 2008 June).

The Agricultural Engineering aspects were taught at the Faculty under the Department of Agronomy until 1993. Department of Agricultural Engineering was established in 1993. The task of the Department is to train students to apply knowledge derived from various branches of pure and applied sciences and technologies for the development of engineering skills and technological know-how for the agricultural sector. It deals with the entire chain of Agricultural Engineering operations commencing from land clearing to consumption of products.

Department offers undergraduate courses and conducts research to cover the major areas on Agricultural Engineering – Agricultural Machinery Engineering, Soil and Water Engineering, Post harvest Technology, and Product Process Engineering. Agricultural Machinery Engineering, Post-harvest Technology and Product Process Engineering, Soil and Water Engineering, Irrigation and Water Management and Agricultural Engineering Field Practices are taught for undergraduates under above main three streams as the core program. Thirteen courses together with the research project are conducted for the advanced program (specialization) of the B.Sc. (Agriculture) degree.

The Vision of the Department of Agricultural Engineering is committed to the Vision of the University of Ruhuna. The mission of the Department of Agricultural Engineering is to "promote teaching, research and extension aspects of Agricultural Engineering and Technology development for the well being of the mankind."

3. AIMS AND LEARNING OUTCOMES

3.1 Aims

The Department of Agricultural Engineering aims to provide:

- in-depth learning of subjects (Farm Machinery and Equipment, Land Surveying and Leveling, Engineering Drawing, Soil and Water Engineering applications and Agro-climatology) to nourish academic and research interests of students from the very inception of their academic carrier.
- intellectual capacity to improve cognitive and transferable skills which provide better knowledge base and skill in the field of Agricultural Engineering to meet the needs of potential employers by serving in research, training, knowledge dissemination etc..
- practical and field training to develop knowledge and skills in Agricultural Engineering, specially, handling tools and equipment, machinery, etc..
- exposure on real world issues by undertaking practical research and gaining skills in report writing, research management and presentation .
- promote Agricultural Engineering knowledge among school students and public through organization of seminars, exhibitions and outreach activities.
- promote and encourage a research culture among the members of staff.

The above aims are achieved by

- maintaining friendly relationships with other departments in the faculty, other faculties, other universities, government and non-governmental organizations, foreign universities, etc..
- maintaining quality of teaching through career development of the teaching staff, evaluations by students and peers.
- offering various laboratory and field practical classes and field visits.
- use of different methods of evaluation of the students such as mid and end term exams, e-learning assessments, seminars and oral examinations, continuous assessments etc.

3.2 Learning outcomes

On successful completion of the program of study offered by the Department a student should have

- gained comprehensive knowledge on theory and practical skills (field and laboratory) in Agricultural Engineering.
- gained first hand experience and skills in Agricultural Engineering which helps to build up their future career in government or private sector organizations.
- achieved technical and intellectual skills on acquisition of data through field and laboratory work, developed interpretation and analytical skills with the help of the computers, and gained communication skills.
- developed personal skills in problem identification, formulation of a research project, carrying out research under laboratory as well as field conditions, monitoring and evaluation of a research, data collection and analysis, independent interpretation of results and develop communication skills through the final year research project.
- gained knowledge and skills to pursue further studies or engage in local or foreign research and development activities.

- gained the expertise to work in English and to utilize computers in solving day to day problems and pursue further studies in the global frame work of education.

4. FINDINGS OF THE REVIEW TEAM

4.1. Curriculum Design, Content and Review

Curriculum Design and Content

The Faculty of Agriculture offers a four year degree programme of eight semesters. The students follow a common core programme during the first 6 semesters (three years), and select one of the several specialized programmes in the last year (7^{th} and 8^{th} semesters).

During the first six semesters, the Department of Agricultural Engineering offers six (06) compulsory subjects to all the students in each batch to provide the required basic knowledge in Agricultural Engineering. In addition to the compulsory courses, the Department offers five (05) optional courses, two in second year and three in the third year. This is viewed by the review team as a good practice.

During the last two semesters of the degree programme, i.e fourth year, advanced modules are offered for specializing students to enhance the theoretical and practical knowledge in the subject area. The students have to follow three compulsory courses during the first semester of the final year whilst three more optional courses are available to select from. The last semester of the 4th year is allocated for a research project which gives the students an opportunity to apply the theoretical knowledge they acquired in research.

The review team noted few deficiencies in the present curriculum, such as,

- inappropriate sequencing of courses throughout the degree programme. i.e. more advanced materials are covered at the beginning and programme whilst basic concepts are offered at subsequent semesters. For example ground water is covered during first year while basic principles of water movement are covered in third year.
- overloading of theoretical aspects and more advanced materials being covered in some courses. For example, the content covered in water quality is too advanced for an undergraduate programme.
- more than the optimum number of students are allocated to a single practical group, mostly in first and second years of the study programme

Several noteworthy commendable aspects in the curriculum are

- inclusion of English and IT as non-credit core subjects
- relevant references for the courses are included in the detailed course outlines.
- inclusion of learning outcomes to each sections covered – this can be further strengthened by indicating how learning outcomes of each module is related with the overall learning outcomes of the Degree programme.
- development of soft skills, which are vital for employability such as computer skills, English (a certificate is given if the level two and three courses are completed satisfactorily), presentation skills etc.

Curriculum Review

The Curriculum of the B.Sc Degree in Agriculture offered by the Faculty of Agriculture at the University of Ruhuna has undergone considerable changes in the past 29 years of its existence. At the beginning, Agricultural Engineering was under the Department of Agronomy. The Department of Agricultural Engineering was established in 1993. Until the year 2000, the Degree programme was of 4 years duration on term basis (10 weeks per term) and the teaching was conducted with an insignificant continuous evaluation component. During the initial stage the curriculum, courses were revised to provide knowledge and skills based training in all fields of agricultural engineering. Semester based teaching has been introduced in the year 2000 and GPA and course unit system in the year 2006.

The Team during the review process could not find evidence to observe that the curriculum has been reviewed systematically with stakeholder participation. However, new subjects or sections have been included in the present curriculum in order to improve relevance, employability and current needs based on the needs.

The review team strongly feels that the curriculum review activity should occur at regular intervals with the participation of different stakeholders.

The content of the agricultural engineering curriculum offered for the degree program reflects adequate academic standards and in the opinion of the reviewers, enable the students to achieve the intended learning out comes. The reviewers are of the view that the practical knowledge given to the students is adequate and suitable while much advanced theoretical aspects are included and overloaded. The reviewers also noted that the present curriculum contains some advanced aspects in the initial semesters and some basic knowledge is provided in later semesters. The sequencing of the course contents and subjects need to be rearranged in order to rectify this shortcoming.

Judgment:
Considering the above facts, the review team is on the opinion that the overall achievement under "**Curriculum Design, Content and Review"** is considered as "**SATISFACTORY**".

4. 2 Teaching, Learning and Assessment Methods

Teaching and Learning Methods:

A range of teaching, learning and assessment methods are presently being used by the department staff.

The most common methods of knowledge dissemination are through lectures and practical classes. In addition to those, the department uses field trips, demonstrations, seminars, tutorials, assignments, presentations and research to impart knowledge. Most of the teaching takes place in an interactive environment.
The Department is equipped with conventional teaching aids such as chalkboard, whiteboard, OHP and multimedia. The class room is equipped with all the above resources with air-conditioner to improve the comfort of occupants. The use of e-learning tools using MOODLE software is recently being introduced. Access to adequate internet facilities at the faculty and at the department needs to be improved so that the quality of teaching and learning process can further be improved.

Lectures are conducted using many teaching resources such as white board, OHP and multimedia supplemented with handouts. A series of lecture notes have been prepared for the use of teachers and at least a copy is made available students. The review team is of the opinion that at least few more copies should be given to students or made available at the library so that all the students will have opportunity to get those copied. The lecture notes observed by the review team are print outs of the PowerPoint presentations.

The lectures observed by the review team included power point presentations. The team observed that the presentations could be considerably improved by making use of pictures, flow charts, animations etc rather than having only the text, which can very easily be conveyed using the OHP. The content covered during PowerPoint presentations was also too heavy for the students. These short coming could have been identified if there was a peer evaluation process in place.

The review team has noted that there are few laboratories, a workshop and farm to conduct the practical classes. The practical programme conducted by the Department is good considering the limitations of available resources. The workshop needs more space with additional equipment in order to enhance the teaching and learning process. In order to maintain the quality of the practical classes, 80% attendance is made compulsory prior to face the final examinations.

Individual research projects given to the specialization students prepare them to be intellectually independent and face the real world working environment. Departmental guidelines are provided for the writing research reports and evaluation of the research work. Final presentation of the research project is open to the public where external supervisors and interested staff members of other research institutes are also invited. This helps students to build up presentation skills and ability to defend their own research work and findings. The progress of the research project is evaluated in progress evaluation seminars which are considered by the Team as a good practice at the Department.

The Team noted with satisfaction that members of both academic and non-academic staff displayed a high level of commitment. Some of the non academic staff are well trained and make use of their knowledge to help students, especially during practical sessions. However, few more trained academic support staff would help to further improve the practical program while ensuring continuity when currently available trained staff retires in few years time.

The review team is of the view that the facilities at the science park need to be improved so that the students can be benefited during practical sessions. The management of the meteorological station by the Department is satisfactory, and it is used to train the students in hydrology and meteorology. In addition to that, the laboratories for cinnamon technology and machinery are assets at the department in teaching and research activities.
The faculty library has an insufficient number of text books needed to support the teaching and learning process of the Agricultural Engineering subjects. Considering the variety of subjects offered and the student population, the review team strongly recommends to increase the number of essential text books.

The review team found two major constraints to teaching and learning during the review. The first is the lack of basic knowledge of physics and mathematics of those who have read alternative subjects such as Agriculture in place of Physics for the GCE (Advanced Level)

Examination. The student feels that the foundation course presently offered by the Department is not adequate.

The second is the lack of adequate support to improve the competence in English. This training is provided by only one member available at the English Language Training Unit (ELTU). The English courses are offered at different levels, intensive English course, Level one, Level two and Level three. Getting a pass to the Level one English course is compulsory while other two levels are not. The Levels two and three are not attended by most of the students whose English knowledge is poor (based on the information received from the ELTU staff). The Team proposes that the ELTU programme be strengthened by increasing the number of teachers available while improving the quality of teaching materials. Adopting some of the newly developed relevant teaching materials by other universities for agricultural undergraduates (e.g. Workbook for the intensive course in English by ELTU, Faculty of Agriculture, University of Peradeniya in 2006) would be more attractive and beneficial to the students.

Assessment Methods

The Department practices both summative and formative assessment methods. The proportion of marks allocated for formative and summative components vary among courses and this is considered a good practice (Annex III). The review team has seen a demonstration of the use of MOODLE software by department staff to conduct mid semester examination for some courses. Facilities should be provided (e.g. more computers) to improve and use this assessment method for continuous assessment. The benefits of using this software need to be assessed especially in relation to the use of staff-time in using conventional methods for mid-semester assessment.

End semester written examination comprises various components such as MCQs, structured and essay type questions, practical, viva and presentations depending on the nature of the subject.

The review team was informed that the examination papers are scrutinized by the department staff, though the evidence to substantiate that claim was inadequate. The review team is strongly of the view that the examination papers need to be systematically scrutinized at least at the department level. The original scrutinized papers with signatures of all those attended for the scrutiny meetings should be kept with the Head of the Department for recording purposes.

The question papers are not marked by an external expert, which is understandable especially in course unit system. Discrepancies could be avoided if there is an internal review system within the department.

Research reports are assessed on the basis of student's attitudes namely; initiative, flexibility, honesty, punctuality, and ability to cope with stressful conditions etc. Since the number of students is small, academic staff members who are working as the supervisor become personal tutors. According to the assessment scheme 8 credits have been allocated for the research project and students who do well automatically improve their GPA leading to a higher grade in their final result.

Judgment:
Considering the above facts, the review team is on the opinion that the overall achievement under "**Teaching, Learning and Assessment Methods"** is considered as "**GOOD**".

4.3 Quality of Students including Student Progress and Achievements

The Department has taken various measures to ensure that students achieve the intended learning outcomes of the courses offered. In addition to regular lectures and practical programme, the Department provides opportunities for students to engaged in outreach activities. Monitoring performance through continuous assessments and advising and counseling of weaker students by the staff members concerned are additional measures taken by the Department towards improving the student progress.

The review team finds that there is hardly any drop out from the students who enrolled at the Department for specialization in Agricultural Engineering, which is commendable. The student intake into the specialization programme is based on their preference and the statistics presented by the Department show that there is an increasing demand for specialization in Agricultural Engineering over the past years (Annex IV a). It is also noted that the specialization students get their performance increased at the Department during the final year. The job profile of the students who specialized in Agricultural Engineering as shown in Annex IV b reflects the achievements of the students. Such tracer studies performed by the Department by maintaining the records of its own graduates are commendable and should be continued.

The Team noted that the students have been involved in few innovations and some of which have won awards.

Judgment:
Considering the above facts, the Team is on the opinion that the overall achievement under "**Quality of Students including Student Progress and Achievements"** is considered as "**GOOD**".

4.4 Extent and Use of Student Feedback

The student feedback is collected through formal and informal methods at the Department. The review team found records of student feedback in prescribed questionnaires from 2005. The questionnaires are distributed among the students by the respective lecturer at the end of the semester and he/she himself/herself collect the filled questionnaires. The Department has established a system to analyze the results obtained through these questionnaires. The Team is of the view that the Department of Agricultural Engineering has a formal mechanism to get the student feedback. In 2007 (November) the Faculty Board has approved a common questionnaire to get student feedback, which the department uses at present.

The discussions with students revealed that the student feedback has led to improved teaching materials and few aspects of teaching of some of the staff members.

The Team considers that the process of getting student feedback can be further improved where the distribution of questionnaire, collection and analysis can be done by an independent group (i.e. Process led by Senior Assistant Registrar of the faculty with the help of staff at the Dean's office).

Judgment:
Considering the above facts, the review team is on the opinion that the overall achievement under "**Extent and Use of Student Feedback, Qualitative and Quantitative"** is considered as "**GOOD**".

4.5 Postgraduate Studies

As indicated in the self evaluation report, the Department has completed only a single postgraduate degree (Ph.D. in 2003). The non-availability of senior staff in the past has been the main reason for not having a strong postgraduate programme at the Department.

However, there are eleven postgraduate students (3 Ph.D. and 8 M.Phil.) registered at present at the Department. The academic staff was responsible for preparing project proposal and bringing fellowships and research funds to carry out this programme. Foreign as well as local funds have been obtained for this purpose.

The facilities available at different organizations are being used to supplement the limited resources available at the Department for postgraduate research. Access to internet and library network provides them literature required for their research work. Non-availability of adequate bandwidth to brows internet and unload research articles has been identified as a major constraints by the student due to the remote location of the Faculty of Agriculture.

The Department initiated to offer an international M.Sc. program on Social Water Management commencing in August 2004. This could not be materialized due to some reasons which were beyond the control of the Department.

Judgment:
Considering the above facts, the review team is on the opinion that the overall achievement under "**Postgraduate Studies"** is considered as "**GOOD**".

In reaching this judgment, the review team considered the resources available, both human and physical in the Department..

4.6 Peer Observations

Peer observation was not practiced at the Department though initiatives were made by individual staff members using individually prepared formats since 2007. The Department has started the formal peer evaluation in 2008 after the Faculty of Agriculture adopted a common format. Temporary staff, junior staff and demonstrators are observed by senior members of the department. Senior members of the department are observed by the colleagues from the same department or other departments of the faculty.

However, peer evaluation process is yet to be formalized and continued in a regular manner.

Judgment:
Considering the above facts, the review team is on the opinion that the overall achievement under "**Peer Observation"** is considered as "**SATISFACTORY**".

4.7 Skills Development

The review team has noted that the Department has provided opportunities to improve the skills of the students. These includes In-service Training at the Institute of Post Harvest technology (IPHT), tractor training course, industrial visits, laboratory and workshop skills development through practical sessions, field trips etc. The resources required to facilitate the above should be secured and continued.

There are provisions to improve generic skills of language proficiency in English and Computing. The inputs for the former are inadequate while the access to support services provided for improving computer skills is good.

The research projects of the final year undergraduate students provide evidence that the students are being trained to conduct independent research studies that enhance the students' capabilities in research. The presentations to be made by the students during this period, i.e. at the proposal defense, mid-term review and the final presentation would help to develop the presentation skills.

Very supportive members among the technical staff of the Department help in this process of skills development of students throughout the degree programme while more intensive trainings are being provided during the advance programme.

Judgment:
Considering the above facts, the review team is on the opinion that the overall achievement under "**Skills Development"** is considered as "**GOOD**".

4.8 Academic Guidance and Counseling

The university appoints student counselors from all the faculties. At present there is one senior student counselor, five student counselors, and a deputy proctor at the faculty. Out of this list, one student councilor and the proctor is from the Department Agricultural Engineering.

There are measures taken to ensure effective academic guidance and counseling, both in formal and informal ways. The students having personal problems get guidance and advice from the counselors, and in some instances the individual staff from the department also assists in this process.
During the final year research project period, the internal supervisors provide the needed guidance for the students. There are co-supervisors also appointed for each student either from the Department, Faculty or from outside organizations. They too guide the students in most of the academic matters.

There is no academic advisor/personal tutor or advisor appointed to each student who is enrolled at the faculty in order to have formal academic guidance. Whenever the students need academic guidance, they approach the staff members concerned and get the needed guidance in an informal manner. The review team suggests to have formalized student counseling at the faculty level.

The discussions with students revealed that the students are satisfied with the guidance they are getting. The student staff relationship at the Department is satisfactory and cordial.

The student counselors informed that they have not undergone formal training in counseling, especially to assist students on psychological or trauma counseling. The review team believes that training for the student counselors in trauma and psychological counseling will enhance the counseling process. .

Judgment:
Considering the above facts, the review team is on the opinion that the overall achievement under "**Academic Guidance and Counseling"** is considered as "**GOOD**".

5. CONCLUSIONS

The department of agricultural engineering ranked second out of 8 departments in terms of student demand for specialization during the final year. The strong practical component, relevance of the subject matter covered, qualified staff, opportunities for innovations, the out reach programme vigorously carried out by the Department are some of the reasons quoted by the students for this higher demand. This is a clear indication of the quality and the relevance of the delivery of the teaching programme offered by the Department.

Based on the observations made during the study visit by the review team, the eight aspects were judged as follows:

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, Qualitative and Quantitative	Good
Postgraduate Studies	Good
Peer Observations	Satisfactory
Skills Development	Good
Academic Guidance and Counselling	Good

The overall judgment is suspended.

6. RECOMMENDATIONS

i) Good practices, such as strong practical program, getting students to collect weather data, and use of MOODLE software for conducting mid-semester assessment should be further improved and continued.
ii) Curriculum review process should be more inclusive and streamlined. The consultation process with students, employers both public and private sector, alumni and experts from the field should be initiated and pursued at various stages. It is also important to validate

the final curriculum in public before implementation. This will also provide an added benefit in giving publicity to the programme.

iii) The deficiencies identified in the curriculum with regard to content, sequencing and balance between theory and practice need to be addressed during the next curriculum review process.

iv) Peer evaluation should be formalized and continued.

v) The process of obtaining student feedback should be improved, formalized and continued on regular basis.

vi) Moderation of examination papers and assessment within the Department should be formalized.

vii) The training provided by the ELTU to students need to be enhanced by making use of improved learning materials developed in other universities (e.g. learning materials developed and printed by ELTU at Faculty of Agriculture, University of Peradeniya) with appropriate training for the ELTU staff.

viii) Offer pre-requisite courses, such as in Mathematics and Physics with reasonable depth to those who have taken Agriculture as a subject at the GCE (Advanced Level).

ix) Adequate allocations should be made to purchase relevant text books to the library.

x) Limitations of internet facilities due to inadequate bandwidth and number of computers should be addressed to improve the access to information and to regularize the computer-based learning and assessment process.

xi) The student counselors should be provided with formal training on counseling, especially to assist students on psychological or trauma counseling.

7. ANNEXES

Annex 1. AGENDA FOR THE SUBJECT REVIEW VISIT

Day 1 – June 9, 2008

08.30 – 09.00	Private Meeting of Review Panel with QAA Council Representatives
09.00 – 09.30	Discussing the Agenda for the Visit
09.30 – 10.15	Meeting(s) with Dean, Head of the Dept/Head, Faculty QA Cell etc. *(Working Tea)*
10.15 – 10.45	Observing Documents
10.45 – 12.15	Observing Departmental Facilities
12.15 – 12.45	Meeting with Postgraduate Students
12.40 – 13.30	*Lunch*
13.30 – 14.00	Observing Teaching – Practical Class (3^{rd} year 2^{nd} semester-EN3201)
14.00 - 14.30	Observing Teaching – Practical Class (3^{rd} year 2^{nd} semester – EN3201 different practical)
14.30 – 15.30	Observing Other Facilities (Library, Computer Centre, Farms etc.)
15.30 – 16.30	Observing Documents (*Working Tea*)
16.30 – 17.30	Meeting with Undergraduate Students
17:30 – 18:30	Brief Meeting of Reviewers

Day 2 – June 10, 2008

09.00 – 09.30	Observing Teaching – Lecture (2^{nd} year 2^{nd} semester – EN2201)
09.30 – 10.30	Department Presentation on the Self Evaluation Report
10.30 – 11.00	Discussion (*Working Tea*)
11.00 – 11.30	Observing Teaching – Lecture (1^{st} year 2^{nd} semester – EN1201)
11.30 – 12.30	Meeting with Department Academic Staff
12:30 – 13:30	*Lunch*
13.30 – 14.30	Meeting with Technical Staff and Other Non-Academic Staff
14.30 – 15.00	Observing Teaching – Practical Class (1^{st} year 2^{nd} semester – EN2101)
15.00 – 16.00	Observing Documents (*Working Tea*)
16.00 – 16.30	Meeting Student Counselors/Academic Advisors/Personal Tutors (Drs. Disna Ratnasekere, L.M.Abeywickrama and K.L.Wasantha Kumara)
16.30 – 17.00	Meeting of Reviewers

Day 3 – June 11, 2008

09.00 – 09.30	Observing Students' Presentations (4^{th} year 2^{nd} semester)
09.30 – 10.30	Meeting with Special Degree Students (4^{th} year 2^{nd} semester)
10.30 – 11.00	Reviewers Private Discussion
11.00 – 12.00	Meeting with Head and Staff for Reporting
12.00 – 13.00	*Lunch*
13.00 – 17.00	Report Writing

Annex 2. LIST OF DOCUMENTS OBSERVED DURING THE REVIEW PROCESS

Lecture Notes

01) 1st year 1st Semester –
Farm Mechanization (Mrs. CP Rupasinghe)
Indigenous water lifting Devices (Dr. PLAG Alwis)
Basic Engineering Mechanics static's (Mrs. CP Rupasinghe)
Transmission of Power (Mr. LWS Pemasiri)
Development of Off-road Vehicles (Mr. LWS Pemasiri)
Agricultural Tractors (Mr. LWS Pemasiri)
Engine System (Mr. LWS Pemasiri)
Engine Basics (Mr. LWS Pemasiri)
Nuclear physics (Mr. CP Gunasena)

02) 1st year 2nd Semester –
Hydrology (Prof. KDN Weerasinghe)
Water Quality for Agriculture (Mr. S Wijethunga)
Precipitation (Dr. CM Nawaratne)
Climatology, Soil and Water, (Dr. CM Nawaratne)

03) 2nd year 1st Semester –
Post-harvest Technology (Mrs. CP Rupasinghe)
Waste Management (Mr. S Wijethunga)
Optional Course: Ergonomics (Mrs. CP Rupasinghe)

04) 2nd year 2nd t Semester –
Machinery Engineering- sawing and planting machines (Dr. PLAG Alwis)
Machinery Engineering- Farm power and implements (Dr. PLAG Alwis)
Machinery Engineering – Water lifting Devices (Dr. PLAG Alwis)
Plant Protection Machine for Application Chemicals (Mrs. CP Rupasinghe)
Soil Tillage and Dynamics (Mrs. CP Rupasinghe)
Tractor test and Performance (Mr. LWS Pemasiri)
Machinery managements (Mrs. CP Rupasinghe)
Traction (Mrs. CP Rupasinghe)
Optional Course: Precision Agriculture (Mrs. CP Rupasinghe)
Remote sensing (Mr. S. Wijethunga)

05) 3rd year 1st Semester –
Ground water wells, Drainage, Irrigation (Dr. CM Nawaratne)
Soil Erosion (Mr. S Wijethunga)
Soil Plant water relationship (Mr. S. Wijethunga)
Fluid mechanics (Dr. CM Nawaratne)

06) 3rd year 2nd Semester –
Engineering Materials (Mr. LWS Pemasiri)
Land Surveying (Mr. LWS Pemasiri)
Meteorology (Dr. CM Nawaratne)
Bio-gas (Mr. S Wijethunga)

Practical sheets (28 practicals)

- Chain Survey.
- Plane-table Survey- Radiation Method.
- Plane-table Survey- Intersection Method.
- Leveling - Profile leveling.
- Leveling - Contouring.
- Determination of water infiltration Rate - Cylindrical Method.
- Determination of Soil moisture content - Gravimetric Method.
- Determination of Soil moisture content - Gypsum Block Method.
- Determination of Soil moisture content - Tensiometer Method: Preparation of Calibration Carve.
- Determination of Soil moisture content - Infrared moisture Meter Method.
- Determination of Soil moisture content - Calcium Carbide Method.
- Determination of Soil moisture content - Neutron Moisture Gauge Method.
- Determination of True Density.
- Determination of Bulk Density.
- Determination of Porosity.
- Determination of Field Capacity (Field Method.)
- Determination of Atterburg Limit.
- Determination of Permeability Coefficient (Hydraulic Conductivity)- Falling Head Method.
- Aggregate Analysis of the soil.
- Standard Proctor compaction Test – Moisture Density Relation Test.
- Calibration of plant protection Equipments.
- Identification of farm Implements.
- Determination of Pattern Efficiency of a Sprinkler Irrigation System.
- Tractor Performance Testing.
- Identification of Workshop Tools.
- Evaluation of Power Operated Water Pumps.
- Evaluation of Machine Capacity and Field Efficiency in Tillage Operation.
- Demonstration of Welding Process

07) Final year 1st Semester –
GIS (Dr. CM Nawaratne)
Machinery – Farm Water System (Dr. PLAG Alwis)
Wastewater treatments (Mr. S Wijethunga)
River Basin Planning and Managements (Mr. CP Gunasena)
Water Managements Principles (Mr. CP Gunasena)
Designing of Small Earthen Channels for Irrigation Purposes (Prof. KDN Weerasinghe)
Construction of a Reservoir for an Agricultural Farm (Prof. KDN Weerasinghe)
Engineering Drawing (Mr. LWS Pemasiri)

08) Final year 2nd Semester –
Project proposals

09) Practical Spots - 1st year 1st Semester
1st year 2nd Semester
2nd year 1st Semester
2nd year 2nd t Semester
3rd year 1st Semester

10) Past papers - 1st year 1st Semester
1st year 2nd Semester
2nd year 1st Semester
2nd year 2nd t Semester
3rd year 1st Semester
3rd year 2nd Semester

11) Model Answers - 1st year 1st Semester
1st year 2nd Semester
2nd year 1st Semester
2nd year 2nd t Semester
3rd year 1st Semester
3rd year 2nd Semester
Final year 1st Semester

12) Question Paper Scrutinization / Moderation

13) Curriculum design content and review (4.0)
- Curriculum design content and review
- Examination bylaws Undergraduates
- Post graduates bylaws
- Progress report
- Organization Planning and assessment of study progress

14) Departmental minutes -
- Department minuets
- Non-academic Minutes of Department

15) Extent of students feed back qualitative and quantitative
- 7.0 Summary of Teacher Evaluation Form, (Dr. CM Nawaratne), (Prof. KDN Weerasinghe), (Mr. S Wijethunga), (Mrs. CP Rupasinghe)
- Teacher Evaluation form
- Soil Engineering 2nd year 2nd Semester (Prof. KDN Weerasinghe)
- Basic Engineering Mechanics 1st year 1st Semester (Mrs. CP Rupasinghe)
- Engineering Mechanics 1st year 2nd Semester (Mrs. CP Rupasinghe)
- Farm Mechanization and Processing Engineering 2nd year 1st Semester (Mrs. CP Rupasinghe)
- Post-harvest Technology 2nd year 2nd Semester (Mrs. CP Rupasinghe)
- Soil and Water Engineering 2nd year 2nd Semester (Dr. CM Nawaratne)
- Energy in agriculture (Mr. S Wijethunga)
- Atmospheric Physics and Measurement of Pressure and Humidity 1st year 1st Semester
- Precipitation 1st year 2nd Semester (Dr. CM Nawaratne)
- Field Machinery Managements and Traction Mechanics 2nd year 2nd Semester (Mrs. CP Rupasinghe)

- Soil and Water Enginering 2nd year 2nd Semester (Dr. CM Nawaratne)
- Irrigation and Water Management 3rd year 1st Semester (Dr. CM Nawaratne)
- Farm machinery 1st year 1st Semester (Mr. LWS Pemasiri)

16) Involvement of other social activities by Department's Members

17) Awards Staff
- President Awards for Innovation 2007 (Dr. PLAG Alwis)
- CVCD Excellence Awards 2006 (Dr. PLAG Alwis)
- Vice Chancellors Awards 2006(Prof. KDN Weerasinghe)

18) Technical Innovation –Staff

19) Certificates of Patents

20) Peer Evaluation (9.0)

21) Staff (3.2)
1 Outreach Activities
2 Staff Certificates
3 Staff Publications
4 Workload of the Academic Staff
5 Visiting Lecturers (Foreign)

22) Teaching Learning and assessment method (5)
Teaching Learning and Assessment Strategy
Analysis of the Students Marks
Proportions of the Students Marks
Assessments students' Evaluation Forms

23) Quality of students including students' progress and achievements (6)
Student's involvements in industrial research
Students training program
Students research projects
Students training program outside
Practical and field training for students
Sample of student's works (Poster Evaluation)
Foreign students
Students' attendance sheets

24) Post graduates students (8)

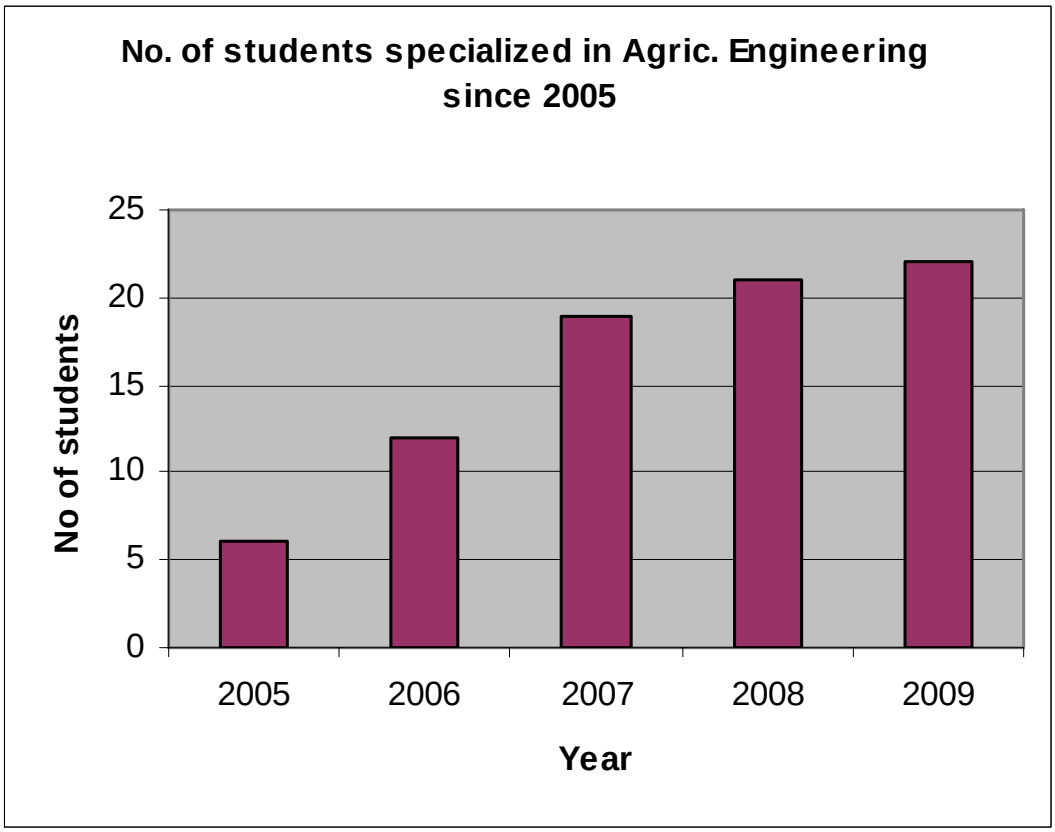
25) Teaching & Learning outcomes
26) Time schedules
28) Non academic
Mr. C Rathnayaka
Mrs. MMA Priyangika
Mrs. CK Welahetti
Mr. WS Gamini
Mr. Vimaladasa

29) Social Environment within the department (11)

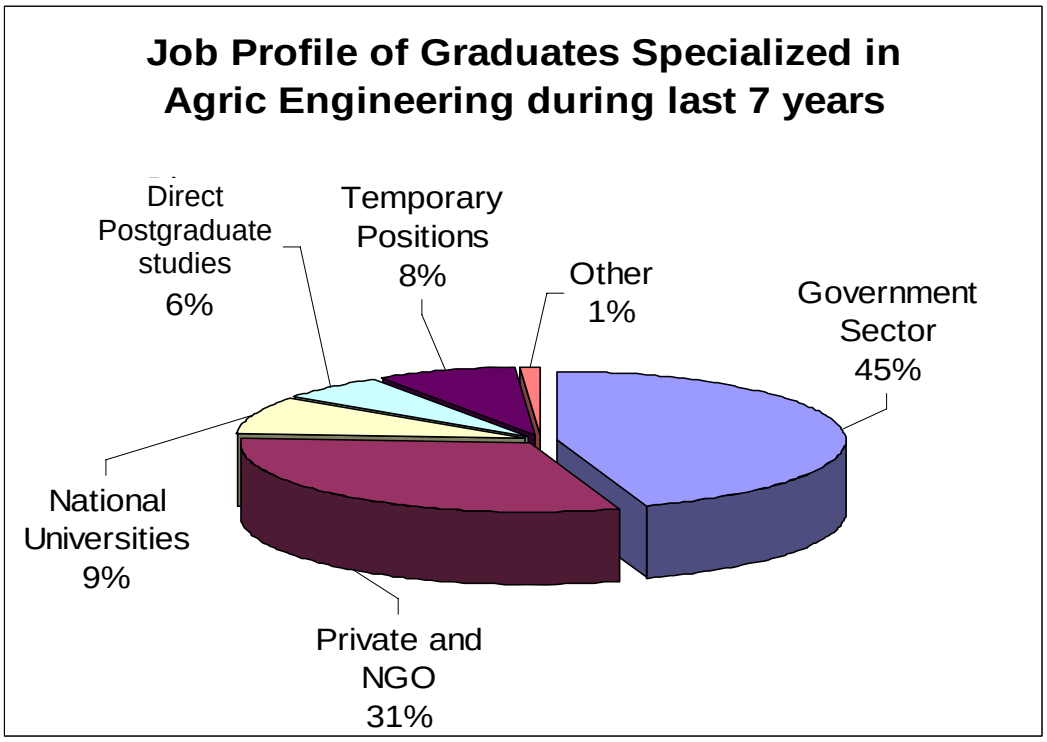
Annex 3.

Academic Semester	Student Assessments				
	Theory	**Oral**	**Practical**	**Mid semester**	**Continuous Evaluation**
First Year–1st Semester	60%	-	20%	-	20%
First Year–2nd Semester	40%	-	30%	-	30%
Second Year–1st Semester	36%	-	24%	20%	20%
Second Year–2nd Semester	30%	-	20%	25%	25%
Third Year–1st Semester	40%	-	30%	-	30%
Third Year–2nd Semester	50%	20%	-	-	30%
Final Year–1st Semester	50%*	20%	-	-	30%
Final Year–2nd Semester	-	50%	-	-	50%
Optional 2nd Year- 1st Se	60%	-	-	-	40%
Optional 2nd Year- 2nd Se	50%	-	-	-	50%

Annex 4.


No. of students specialized in Agric. Engineering since 2005
No of students
25
20
15
10
5
0
2005
2006
2007
2008
2009
Year

S


Job Profile of Graduates Specialized in Agric Engineering during last 7 years
Direct Postgraduate studies 6%
Temporary Positions 8%
Other 1%
Government Sector 45%
National Universities 9%
Private and NGO 31%