SUBJECT REVIEW REPORT

DEPARTMENT OF BOTANY

FACULTY OF APPLIED SCIENCES
UNIVERSITY OF SRI JAYEWARDENEPURA

24th to 26th February 2010

Review Team :

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CONTENTS

Page

1. SUBJECT REVIEW PROCESS

Universities are public institutions. They hold and must conscientiously exercise and be seen to exercise their responsibility for quality standards. Universities and the other higher education institutions should play a crucial role in contributing to the knowledge based economic development of Sri Lanka. Therefore, the accountability for quality and standards is a key factor in promoting and safeguarding public confidence in Sri Lankan higher education system.

The national committee on quality assurance in higher education, the Quality Assurance and Accreditation Committee (QAAC) of the University Grants Commission (UGC) has agreed that the following components of each higher education institution should be reviewed on the guidelines published in the quality assurance hand book for Sri Lankan universities.

1. Institutional Review: Analysis and testing of the effectiveness of an institution's process for managing and assuring the quality of academic activities undertaken by the institution.
2. Subject Review: Evaluation of the quality of education within a specific subject or discipline at programme level, it is focused on the quality of students learning experience and on student achievement. Subject review evaluates the quality of both undergraduate and postgraduate programmes. On a request made by the quality assurance specialist, a review of the subject Botany in the Faculty of Science, University of Sri Jayawardenapura was conducted from 24th -26th January 2010; at the Department of Botany. The review team appointed by QAAC of UGC, consisted of the following:

Professor S. Widanapathirana, (Chair), University of Kelaniya
Professor Morely de Silva, University of Ruhuna
Professor Mala D. Amarasinghe, University of Kelaniya
The specific aspects examined in this review were as follows;

1. Curriculum design, content and review
2. Teaching, learning and assessment methods
3. Quality of students including student progress and achievement
4. Extent of student feedback, Qualitative and Quantitative
5. Postgraduate studies
6. Peer observation
7. Skill development
8. Academic Guidance and counseling

The review team was provided with the self evaluation report (SER) prepared by the Department, before the review visit. The primary source of documentary information for the subject review came from this report. In addition an audio visual presentation of the content of this document was presented by the Head of the Department of Botany.

In addition, the review team was provided with a variety of relevant documents; which substantiated the claims made in the self evaluation report. These included the handbook of the Faculty of Science containing details of the course unit system. Syllabi, samples of student work, question papers, answer scripts, marking schemes, practical handouts, feedback information from undergraduate students, peer observation reports, minutes of departmental meeting and Postgraduate thesis and Undergraduate project reports.

The review team on the first day met the Vice-Chancellor in the VC office and also had fruitful discussions with members of academic staff, undergraduate students, postgraduate students, non-academic staff during the course of the review. The team also visited laboratories, lecture theatres and Departmental library. The review team was provided with opportunities for observing lectures in progress, practical classes and student's presentations.

On the last day, the review team had a final meeting with the entire academic staff of the Department to discuss and verify the observations and judgments made by the team.

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

The University of Sri Jayewardenepura is one of the leading universities among the national universities in Sri Lanka. The University, with its motto **"*Vijja Uppattam Setta*"** meaning **"**Of things that arise, knowledge is the greatest", stands firmly committed for the awakening of indigenous knowledge to promote national development. The origin of the University goes back to the historical Vidyodaya Pirivena at Maligakanda, which was founded by the well known Buddhist prelate Rev. Hikkaduwe Sri Sumangala Thero in 1873. In 1958, by an act of parliament, this Pirivena was conferred University status and was named as the **Vidyodaya University of Ceylon**. Later, it was geographically shifted from Maligakanda to the present location at Gangodawila. Rev. Welivitiye Soratha Maha Thero became the first Vice Chancellor of the University.

Many administrative and structural changes to the University system in Sri Lanka were effected in the next few years during which the Vidyodaya University of Ceylon was once more renamed as University of Sri Jayewardenepura in 1978, in par with the establishment of Sri Jayewardenepura as the administrative capital of Sri Lanka.

At the early years, the University had to face strict competition with other Universities to attract sufficient main stream school students of a high standard. The total internal student enrolment stood at just 466 in 1959. The student choice for this university during this period was low. However, with time, the university was able to achieve considerable growth in student population and also was able to attract high quality students. Today, it stands as one of the major national universities in the country with an internal student population of almost 8500 students. It has also one of the largest enrollments of student in the external degree programme.

At inception, the Vidyodaya University had just three Faculties devoted to more of liberal arts and religious studies viz. the Faculty of Arts, the Faculty of Buddhism and the Faculty of Languages. Today, it offers more diversified study programs, offering undergraduate as well as postgraduate programs in Arts and Humanities, Management and Commerce, Applied Sciences and Medicine. The Faculty of Applied Sciences commenced in 1962 with only five students. It was the first Faculty of Applied Sciences established within the university system in Sri Lanka. At the time of establishing the Faculty of Applied Sciences in the University of Sri Jayewardenepura, there were only two other universities, which had Faculties of science which however were based mainly on fundamentals of science. The Faculty of Applied Sciences of the University of Sri Jayewardenepura deviated from others by providing novel combinations of subject for the undergraduates e.g. Biology, Mathematics, Physics and Chemistry. In 1982, the faculty policy was changed and the Department of Biology was separated into two Departments viz. Botany and Zoology. Nevertheless, the emphasis on

applied courses was maintained and was even strengthened in time to time with the incorporation of more applied subject areas.

At present the faculty has eight Departments *viz.* Botany, Chemistry, Physics, Zoology, Mathematics, Statistics and Computer Science, Forestry and Environmental Sciences and Food Science and Technology. These offer a wide variety of course units allowing students the choice of many different subject combinations.

History of the Department of Botany

The Department of Botany was established in 1982 offering the subject Botany for the general degree students. Special degree in Botany has been offered since 1986 and it was started as a three plus one system i.e. after completing the B. Sc General Degree program, students were selected to follow the Special Degree programme in Botany based on their performance at the General Degree Examination. From 1989 to 2000, students were selected to follow Botany special degree on their performance of the first year examinations. Since 2001, selection of students for the special degree program was based on their performance in the first two years of the General degree. Special degree students who graduated prior to 1989 followed the Special degree programme in Biology.

From 1982 to 2003 the Department of Botany offered only Botany as a subject for the general degree students. Each of these batches had about 50-60 students although the full capacity was 80. After the establishment of the Department of Forestry and Environmental Sciences in 1996 (which was initiated as a unit within the Department of Botany with funds received from the World Bank Project to conduct an M. Sc. Program), the Biological Science stream students had the option to select either Botany or Forestry and Environmental Sciences as a subject for the degree. As a result, the number of students offering Botany as a subject for the general degree dwindled since the new subject offered more practical applications and the total student intake was not increased in spite of the fact that a new subject was introduced to the degree program.

Once Biology was introduced to the Advanced Level syllabus in place of Botany and Zoology, the students entering the university opted to do the new subject, Forestry and Environmental Sciences instead of Botany. This attraction would have been mainly due to the current interest in environmental studies and high employable potential for graduates with knowledge in applied aspects of science rather than for those with knowledge in fundamentals. Further, Botany became less attractive as the conventional subject name did not indicate any specific practical applications available within it. Therefore, for new students, the subject Botany failed to indicate its real importance in spite of its coverage of wider aspects of both fundamental and applied areas in Plant Sciences.

With the available physical and human resources in the Department, the possibility to offer a new subject such as Plant Biotechnology in addition to Botany was proposed as a counteract measure. After lengthy discussions at the Department level, a new curriculum for a Plant Biotechnology course was designed and the new subject was introduced to the degree program in 2003. Naturally the demand for Botany by students continued to be low just as in the previous years. At present there are three batches of students who are following the general degree course offering Plant Biotechnology as a subject in addition to students offering Botany. Presently there are almost 167 students following Plant Biotechnology while only 17 students follow Botany. A Special Degree Course in Plant Biotechnology was

started in 2006 and the first batch (of 5 students) will be passing out during this year (in 2009).

Table I. Number of students currently in the Department of Botany (2008-2009)

Subject	1st year	2nd year	3rd year
Botany	03	06	08
Plant Biotechnology	62	73	32

The above statistics very well demonstrate that students prefer to follow new courses on applied fields that presumably offer higher job opportunities. The lack of interest among students for an important subject such as Botany has been recognized by the academic staff of the Department and accordingly the staff has decided to plan out strategies to address the issue urgently so that the importance of Botany would be better recognized by the students.

3. AIMS AND LEARNING OUTCOMES

3.1 Aims:

Botany is the scientific study of plants and microorganisms, which are diverse in habit, structure, biochemical composition and ecosystem functions. The curriculum focuses on the diversity of plants, structure, physiological and biochemical activities and their functional role in various ecosystems,

Plant Biotechnology is a more recent development of various applications of plants and microbes that will bring about enhanced economic benefits to the society as a whole.
Both Botany and Plant Biotechnology are essentially practical and experimental subjects which foster inquiry into fundamental processes of life as well as sustainable utilization of biological resources. In this context the Department of Botany aims to provide:

- quality undergraduate education in Botany and Plant Biotechnology for students of the biological science stream of the Faculty of Applied Sciences;
- an enriched learning environment for students through extensive interaction between faculty and students;
- students with the essential knowledge and skills needed to qualify them for further education or employment in a relevant field;
- opportunities for students to develop the skills and enthusiasm for lifelong learning;
- applied course units to develop transferable skills that will enhance employability of graduates;
- a stimulating opportunity to learn the subject by conducting field/ laboratory studies that complement to lecture presentations in various areas of course units;
- encouragement to faculty to engage in basic and applied research in order to promote faculty vitality and increase scientific knowledge;

3.2. Learning Outcomes:

On successful completion of any one of our courses, B. Sc. (Special) or B. Sc. (General) Degree Program, students should have:

- a thorough **knowledge and comprehension** of the core concepts in the discipline of Botany (knowledge on physical, chemical and biological properties of living matter, diversity with regard to plant world, communal and interdependencies of organisms, metabolism and reproduction of plants) / Plant Biotechnology (molecular biology of plants and microbes and a general understanding of the various categories of plant biotechnology)
- an adequate knowledge with regard to certain industrial and agricultural applications of plants and microorganisms.
- mastered a set of fundamental intellectual and technical **skills** (Field and Laboratory) which would be useful to function effectively as professionals and to their continued development and learning within the field of Plant Biotechnology and Botany.

4. FINDINGS OF THE REVIEW TEAM

4.1 Curriculum Design, Content and Review

Since the inception in 1982 until 2003, Department of Botany has offered only Botany for BSc (General) undergraduates and from 2003 Plant Biotechnology as a subject has been introduced to the BSc degree programme. This has been a move towards securing student numbers which has shown a declining trend after the introduction of Forestry and Environmental Sciences to BSc degree programme in 1996.

Curriculum of the BSc degree programme is based on course unit system since 1994. In the first two years undergraduates are required to offer core and compulsory course units of the three subjects that they select to offer. In the third year optional course units are offered for the BSc (General) students. A limited number of students are selected for the special degree courses in Botany (BOT) and Plant Biotechnology (PBT) at the end of the second year. In the current academic year (2008/2009) the total number of students registered for Botany (General) degree course is 17 (in all three years) and it is far lower than that for the PBT discipline (a total of 167).

Curricula for both the disciplines have been formulated by the academic staff, of whose qualifications indicate their competence in designing curricula and formulating the syllabi.

Content of many of the course units and the time allocation for both the disciplines offered by the department reflects adequate academic standards and enables student to achieve the intended learning outcomes in the form of knowledge and understanding of subject matter and subject / discipline related skills. The range of course units offered for both disciplines, Botany and plant biotechnology are adequate. However the review team felt that the allocation of one credit unit for courses like Plant Diversity, Ecology, Horticulture and Landscaping is inadequate; to deliver the intended learning outcomes to students. The reviewers are of the view that the department should re-consider the relevance and adequacy of the time allocation of these course units.

The review team also noted that the number of laboratory hours (field work) allocated for one semester (which offers 04 theory course units) may not be adequate to achieve the intended skill development for a practical subject like Botany. Practical / laboratory hours assigned for one semester for instance, in the 1st semester, of the first year only about around 45 hrs (one credit 15 hours x 3) are allocated for practical course unit and it may not be adequate to achieve a meaningful skill development, in such vast disciplines like enzymology, biomolecules of cells, plant systematics and bacteriology (offers 3/4 hours of practical classes for each unit).

The reasons for having a small number of students, (17 in 2008) registered to offer course units in Botany in a department with excellent facilities, human resources in terms of qualified staff, needs serious consideration.

It is appropriate that the number of students selected for Plant Biotechnology is restricted, in such a way to create an environment that more students are opted for Botany. This may demand appropriate curriculum changes in the Botany discipline which should be considered with due emphasis.

The number of optional course units offered for the special degree in Botany and Plant biotechnology is satisfactory and it is praiseworthy that Plant Biotechnology course units such as Bioinformatics and Molecular Modeling is offered as an optional course unit not only for the Plant Biotechnology students but also for the other students of Faculty of Science.

The SER states that the curriculum has been reviewed periodically in order to update and include new course units. As a result a new subject Plant biotechnology has been introduced in 2003 and a special degree course on Plant Biotechnology has been introduced in 2006. However there is no evidence that curriculum designing/ review has involved wider consultation of stake holders. In fact, the objective of introduction of Plant Biotechnology discipline, has been a strategy to a attract students to courses offered by the department rather than catering to the needs of the country or the aspirations of the stakeholders. The reviewers are of the opinion that the department should make arrangements to retain a reasonable number of students for Botany discipline, as teaching of various basic disciplines of Botany should be the major objective of the department. Evidence made available to the review team of the employability of Botany graduate does not appear to be complete and does not really reflect the quality of knowledge and skills disseminated by the department.

Overall Judgment: Satisfactory

4.2. Teaching, Learning and Assessment Methods

The academic staff of the Botany department consists of highly qualified and experienced persons as evident by their scientific achievements, involvement in research, extensive preparation for lectures and practical sessions (and the delivery of teaching component.) The department has reasonably well equipped laboratories which assist teaching - learning process. The faculty hand book provided to students contains details of organization of course units, methods of assessment, rules and regulations governing assessment. However the well considered opinion of the reviewers was that the intended learning outcomes, recommended reading material and outline of subject content of each course unit should also be provided to student in the form of a Handbook at least by the department.

All course units offered by the department of Botany are taught through a combination of lectures, practical classes assignments tutorials and field work where appropriate.
The review team noticed that the students are given a handout containing the details such as learning outcomes, course content and mode of assessment before the commencement of each lecture. The teacher highlights the sub- topics she/he intends covering during the lecturer. The review team is of the opinion that learning outcomes of the lecture also must be explained to students with some emphasis, before or during the lecture. The review team was pleased to observe that the teachers come well prepared for lectures and practical classes. However the use of modern approaches to teaching such the use of multimedia projector appears not to be common.
The review team was particularly concerned about the lack of course units dedicated, to improve computer skills / literacy of students, unlike in many universities in Sri Lanka that gives a priority to improve computer skills of undergraduates.

Students also expressed their concern regarding the lack of formal training course units in computer literacy and also about the teaching of English courses by ELTU. (Almost all universities in Sri Lanka have given priority for these two areas in their undergraduate programmes). However students expressed great satisfaction with the courses conducted by members of the department and in general about teaching and learning process. The students were of the opinion that their work loads are reasonably balanced.

Undergraduate research project in the final year is carried out entirely, in the laboratory of the external supervisor. Research topics are identified by the external supervisors and the proposal is presented to the academic staff of the department. According to the SER (page 23, ref. 06) this arrangement has worked well and resulted in a number of presentations/ publications and patents in accepted scientific establishments. The review team however happened to learn during discussions with the students that they are not sufficiently disseminated with the knowledge on scientific method, formulating hypothesis (Research methodology) by the department unless taught by the external supervisor.

The details of the examination procedure followed by the department have been made available to the reviewers (document No.1 1.1) There is evidence that the setting of question papers, moderation, first marking, second marking and external examination of answer scripts are done in accordance with the university senate accepted procedures.

The department uses basically a combination of semester end course unit examination and continuous assessments for some of the theory course units. Continuous assessment is used mainly for practical course units that include assignments. The SER states that most course units of the undergraduate curriculum is assessed 100% using end of semester examinations. The review team thinks that the continuous assessment of all theory courses should be conducted on a regular basis in order to motivate students to get involved in the learning processes, actively.

A library with adequate teaching materials books plays an important role in the part of quality assurance of the teaching and learning process. The departmental library which is easily accessible to student did not contain sufficient numbers of recently published books. Also the physical environment of the library was not at all conducive for students to spend time in it as it was too warm.

Overall Judgment: Good

4.3 Quality of Students Including Student Progress and Achievements

Admission to the faculty of science, and the biological science stream, is through the UGC based national policy on university admission. The self-evaluation report (SER) submitted by the department states that in general students selected to the faculty had an acceptable Z – score which is variable among students coming from various districts in the country. SER also states that the English language proficiency of more than 50% students is poor, and that the university does not conduct a special English course before the commencement of the academic activities. The English course provided by the university during the academic programme is believed to be inadequate to enhance a student proficiency in English. The review team strongly felt that this inadequacy should be addressed. However some of the students who met the review team during discussions, were able to communicate with the team in English very fluently. Examination of answer scripts and the oral presentation of some of these students, convinced the review team that the department has guided them to communicate in English during their academic term.

It was also noted by the review team that on admission the students have been clearly informed about their study programme, structure of the course unit system, credit requirement, selection of course combination, examination assessment procedure and attendance requirements. The students are given the Faculty Hand Book which comprehensively states the above details.

The review team was very concerned about the low numbers of students opted to follow the Botany discipline when compared with that of Plant Biotechnology discipline, although the Botany department has highly qualified human resources and physical infrastructure to offer both these programmes.

It is therefore suggested that the Faculty or the department adopts a strategy to limit the number of students getting registered for Plant Biotechnology and create an environment to attract a reasonable number of students for the Botany discipline.

In general the motivation and enthusiasm shown by all students, the dedication of staff committed to deliver a high quality education are noted and appreciated highly by the review team.

There is evidence that the performance of student is monitored twice a year during the programme.

The completion rates of some course units offered by students, e.g. Medical Biotechnology, Horticulture and Landscaping were not very satisfactory and needs attention to figure out the reasons for states quo. In general, the students' achievements in both general degree and in special degree programmes are very satisfactory.

Overall judgment: Good

4.4. Extent and Use of Students Feedback

The quality of the course units and effectiveness of their delivery by teachers is evaluated by students independently at the end of courses through a questionnaire. The review team was told by the academic staff that student feedback is used to improve the course delivery by the

respective teachers. Although students' comments have been analyzed for a few teachers and presented in graphical form, no mechanism is in place to implement the findings.

The review team was of the opinion that the students should be encouraged to establish staff student liaison committees, as such committees can provide reliable means to gather student feedback on various aspects of teaching and the quality and relevance of the course contents. It provides a mechanism to maintain a cordial relationship between staff and students.

Overall judgment: Good

4.5. Postgraduate Studies

The department of Botany offers ample opportunities for students to pursue postgraduate studies.

There are arrangements for students to be recruited to postgraduate degree programmes once in every four months of the year. The students who wish to pursue MPhil and PhD are selected through a qualifying examination (MSQ) prior to enrolment. Registration, enrolment and progress of the students are monitored through the Faculty of Postgraduate Studies.

The review team was impressed by the number of postgraduate students currently registered in the department and the number of students that has completed their degrees during the last few years.

All research students are funded through grants obtained by their respective supervisors. The donor agencies include many local and some foreign agencies. The review team was very happy to note the motivation and enthusiasm of the academic staff to engage on research.

Review team also noted that the some of their grants provided a small but reasonable stipend to postgraduate students.

Research publications and patent for inventions received by the researchers indicate that the department has a commitment to achieve one of their fundamental function of the university, research and development.

Department of Botany has laboratories which are reasonably well equipped, for research in major areas of Botany and Plant Biotechnology (Molecular Biology). The review team was able to meet some of the research students carrying out their research in the department and outside institutes. They expressed great satisfaction of the facilities available and the supervisory arrangements made by the department.

The links that some academic staff members have developed with the industry through research is commendable.

Overall judgment: Good

4.6. Peer Observation

The Department has correctly recognized the importance of peer observation at lectures. Accordingly a well planned time table for peer observations has been drafted by the Department. However, its implementation has been curtailed due to the overlapping of time tables of some senior lecturers with the peer observation schedule. The review team was told that the staff is keen to find ways to address this issue in the next semester. Though direct peer observation sector was poor, the Head of the Department provided sufficient evidence of indirect peer observations during her presentation as well as through various documents maintained in the department.

All teaching materials for the both lectures and practical sessions are prepared by junior staff members and it is done under the guidance and supervision of senior academics. Senior staff members discuss the laboratory assignments well in advance with the demonstrators. A senior academic is always present in the laboratory while the session is on. Every question paper and other material used for end of semester assessments are moderated by counterpart teachers and all answer scripts undergo a second correction. Assessment of seminar presentations and *viva voce* of students are done by a group of academics. Assessment of each research project of the special students is done by two senior academics of the department in addition to the respective external supervisor under whose guidance the work was carried out.

Thus there are several mechanisms of indirect peer observation implemented in the department in spite of the lack of direct observation on teaching in the classroom. It needs to be mentioned that peer observation is yet to be implemented in most other departments and universities.

Overall judgment: Satisfactory

4.7 Skills Development

Besides the academic knowledge, course units aim at developing various other soft skills such as critical thinking, communication and presentation skills, scientific investigation, report writing skills, IT skills (only during the 3rd year at the Faculty), leadership, professional and entrepreneurial skills. A well designed industrial training/internship program for all special degree students during the vacations in the third year was observed to be in place as a novel feature in the department. Generally, the special students spend around eight weeks at industries selected through personal relationships of the lecturers. The students are exposed to existing working environments through which they gain experience in working under real-world situations, leadership and in team working. The skills on maintaining daily a log book on the daily work carried out is another skill acquired. Planning skills and record maintaining skills are enhanced through this exercise. In addition, this industrial training acquired during the third year vacation provides the special students to build managerial and inter-personal communication and entrepreneurial skills that will enhance their employability. Students are given a set of guidelines which they have to strictly adhered to during their industrial training. Another novel practice that was noted was the participation of these students in a two day "Psychiatry Workshop" prior to their industrial training and internship. During this workshop conducted by the Faculty of Medicine, the students were exposed to knowledge on ethical and behavioral concepts which helped them to face difficult life situations and adapt themselves accordingly. The vacation program

component in the curriculum has been carried out by the Department uninterrupted during the last six years in a very systematic manner.

All special degree students are also required to carry out a research project during their final year. This enhances their research skills. The research proposals are decided through discussions with their internal supervisors, who are senior members in the academic staff, as well as with the external supervisors who are from outside institutions where the student carries out research. Tile of the research project are finally discussed at departmental meetings before being finalized. The students develop their presentation skills through periodic presentation of the results. The external examiners are also invited for these presentations which occur at least three times before the project report is finally presented for marking. Students are exposed to critical criticism through this practice. The final thesis is assessed by two staff members.
The special students acquire additional presentation skills through their weekly seminars and all special degree students generally present about 10 seminars during the study program. The students acquaint themselves with the use of audio-visual equipment such as Overhead and multimedia projectors and preparation of slides using power point software. At the end of the second semester of the third year, special students are tested with a written paper for the knowledge that they gained through all the seminars done by the students and it is allocated 25% of the marks for the course unit on seminars.

The opportunity to develop presentation skills of general students occur only with certain course units. As the number of General degree students is low at present,, it would be worthwhile if such skills development activities can be introduced to them too.

The activities of the Botany and Plant Biotechnology Society of the undergraduates have included both academic and social events such as guest lectures, field trips, exhibition, fund raising activities such as sale of plants and ice cream etc., These activities help to develop their talents, improve their organizational abilities, team work, leadership qualities and personality development.

The staff-student interactions and student community interactions have been strengthened during the anniversary exhibition when staff and students work together for its success. These good practices not only enable the development of skills of the students, but also inculcate attitudes of social responsibility.

Overall judgment: Good

4.8. Academic Guidance and Counseling

The University has appointed a Proctor who is the chief officer in student disciplinary affairs in the University. There is a Deputy Proctor in each Faculty. These officers however oversee general disciplinary issues. Four senior academic staff members of the Faculty have been appointed as Student Counselors for the Faculty. A senior staff member of the Department is also officially engaged in academic guidance and counseling. It was evident to the review team through the discussions with the students that all academic staff members of the Department willingly help and guide students whenever the necessity arises. Although there is no professional counselor attached to the University, the academic staff members of the department informally serve as student counselors. There is a close interaction between the students and these counselors and every effort is taken to provide counseling in an informal

manner. However this aspect could be improved by providing some training in counseling to academic members of the staff. This aspect could also be improved by having records of academic guidance and counseling vis-à-vis student achievements in their academic performances and career development.

For all new students, there is a rigorous mentoring programme of two weeks at the commencement of the new academic year. Guidance is also provided with regard to the facilities available for academic work in each department during the mentoring period.
This programme is aimed at providing academic guidance to students as well as to propagate inter-personal harmony among students and for developing closer student/teacher interactions. Programme culminates with a variety entertainment show and other social activities where staff as well as both new students and senior students participate in. The programme had been successful to minimize personal rifts among the members of the student community. According to staff members, there exists a good social harmony among students of the Faculty since the implementation of this programme.
The Faculty handbook is made available to the students during this mentoring programme. The student hand book published by the Faculty is of very high quality complying to international standards. The Handbook gives information on expertise of academic staff members of each department, curricula and examination procedures with a comprehensive description of the credit system as well as a wealth of information important for beginners. The Handbook provides the students with sufficient academic guidance they need to pursue their education at the Faculty.

The course unit contents, learning outcomes, recommended text books and other learning aid methods of assessment durations are given to students at the start of each course unit by the respective lecturer in the form of a well designed hand out. This provides valuable guidance for the students on each course unit and is a good practice adopted by the Department. The rare plant specimens in the botanical garden and plant house help in “in situ” identification for students offering Botany. There is also a herbarium to help students with identifications. The practice of distribution of practical schedules well in advance to the laboratory assignments and the display of practical schedules on the Departmental notice boards assist students in planning their practical work in advance. This practice has been strictly adhered to by the staff.

Overall Judgment: Good

Based on the observations made during the 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 Observation	Satisfactory
Skills Development	Good
Academic Guidance and Counselling	Good

5. CONCLUSIONS

1. Curriculum Design, Content and Review

Strengths/Good practices:

1. Qualified and dedicated academic staff capable of delivering knowledge and skills of both Botany and Plant Biotechnology disciplines
2. Well designed handbook with information on staff, course details and examination regulations before they get registered for course units.
3. Keeping records on curriculum development discussions during staff meetings at the department
4. Number of optional course units offered contributes to disseminate knowledge on peripheral topics.

Weaknesses:

1. Syllabi of the course units with learning objective are not given to students at the time of selection of course pathways. Syllabi could be uploaded in the university website with easy access for the students and thus can allow them to make an informed decision over subject choices.
2. Lack of stakeholder consultation in curriculum revisions
3. Inability to attract students for Botany discipline through curriculum revisions that caters to student/ national needs and aspirations as well as through regulatory mechanisms such as limited enrollment practices
4. Insufficient student contact hours allocated for practical/ laboratory course units
5. In sufficient allocation of time for course units like Plant Diversity, Horticulture and Landscaping and Plant Systematic.
6. Allocation of one credit unit each for course units like enzymology and Biomolecules of cells. They could be combined in one course unit e.g. Cell Biology.

2. Teaching, Learning and Assessment Methods

Strengths/Good practices:

1. Provision of handouts with summary content of the course units
2. Qualified and dedicated academic teachers

Weaknesses:

1. Lack of provision to improve computer literacy of students
2. Absence of infrastructure to introduce computer-assisted learning (CAL)
3. Lack of emphasis on continuous assessments in many of the course units.
4. Inadequate provisions for improving English language proficiency of students
5. Insufficient knowledge delivered on scientific method, formulation of hypothesis and sampling.

3. Quality of Students including Student Progress and Achievements

Strengths / Good practices

- A substantial proportion of students registered for Plant Biotechnology discipline have Z – scores between 1.2 and 1.5
- Even without well designed course units to enhance English language proficiency of students a noteworthy proportion of students, particularly those who offer special degree programmes in Botany and PBT are conversant with English.

Weaknesses

- Absence of a well planned English language training.
- Absence of a computer literacy / awareness programme

4. Extent of Use of Student Feedback

Strengths and good practices

- A mechanism exists to gather student0feedback on teacher performance.

Weakness

- Lack of a sound method quality and to make-use of the output relevance of course of student evaluation contents.

5. Postgraduate Studies

Strengths / Good Practices

- Screening postgraduate students for quality through a qualifying test.
- Provision of a stipend to postgraduate students through university grants.
- Links with the industry and research programmes to cater to their / country's needs.

Weakness

None

6. Peer Observation

Weaknesses
- No peer – observation is done.
- Already formulated method has draw –backs and hence cannot be implemented.

7. Skills Development

Strengths / Good Practices
- Inclusion of the course unit on seminar encourages students to read on knowledge/ facts peripheral to core subject areas.
- Assessment of presentation skills through the course unit on seminar
- Inclusion of industrial training / internship

Weakness
- Carrying out the special degree research project completely outside the department.

8. Academic Guidance and Counseling

Strength/Good Practice
- Well designed student Handbook.
- Distribution of practical schedules on advance to practical sessions.

Weakness
- Absence of formal strategy for academic guidance and connecting counseling

6. RECOMMENDATIONS

1. Seek stake holder consultation in curricular revision.
2. Devise a strategy to retain a reasonable number of students for Botany.
3. Re-consider credit hours of course units like Plant Diversity, Horticulture and Landscaping.
4. Consider introducing a Basic Microbiology course unit instead of Bacteriology.
5. Courses like Enzymology and Biomolecules can be amalgamated to a single course unit of Cell Biology
6. Re-consider time allocation for all laboratory work.
7. Initiation of a meaningful English language proficiency course as a permanent feature of the degree programme.
8. Introduction of courses to train and improve students' computer skills.
9. Establish a staff student liaison committee in the Department.
10. Establish a mechanism to introduce a peer review.

7. ANNEXES

Annex 1. PROGRAMME FOR THE REVIEW VISIT

Day 1 -Wednesday 24tb February 2010

08.00 -08.30 Meeting with the Vice Chancellor
08.30- 09.30 Private Meeting of Review Panel with QAA Council Representatives
09.30- 10.00 Discuss Agenda for the Visit
10.00- 10.30 TEA
10.30 -11.30 Presentation on the Self Evaluation Report by Head of the Department.
11.30 -12.30 Discussion
12.30 -13.30 LUNCH
13.30 -14.00 Observing Teaching -First Year General Degree Lecture
14.00- 15.00 Observing Departmental Facilities (Teaching and Research Laboratories Greenhouse, Garden, Herbarium etc.)
15.00 -16;00 Meeting with Department Academic Staff
16.00 -16 JO Observing Teaching -Special Degree (part 1) Lecture
16.30 -17.00 Brief Meeting of Reviewers

Day 2 -Thursday 25tb February 2010

09.00 -10.00 Observing Documents
10.00 -10.30 Meeting with Postgraduate Research students (working TEA)
10.30- 11.00 Observing Teaching- 2nd Year General Degree Lecture
11.00 -11.30 Meeting with Demonstrators
11.30 -12.30 Observing Other (General) Facilities (Library, Computer Centre etc.)
12.30 -13.30 LUNCH
13.30- 14.00 Observing Special Student's Presentations (Part 1 Seminars)
14.00- 15.00 Meeting with technical officers, Laboratory Attendants, Office Staff & Gardner
15.00- 15.30 Meeting with 2nd year students
15.30- 16.00 Meeting with 1st year students
16.00 -16.30 Meeting with Academic /Student Councilors
16.30 -17.00 Meeting of Reviewers

Day 3- Friday 26tb February 2010

08.30- 09.00 Observing Teaching -General Degree 3rd year Lecture
09.00- 09.30 Observing Teaching- General Degree 3rd year Practical
09.30 -10.00 Meeting with Special degree students
10.00- 10.30 Meeting with 3rd year students (Working Tea)
10.30- 11.30 Reviewers Private Discussion
11.30 -12. 30 Meeting with Head and Staff for Reporting
12.30 -01.30 LUNCH
01.30-17.00 Report Writing (Working Tea)

Annex 2: LIST OF DOCUMENTS

1 Students Handbook
2 (a) Students Seminar reports and submitted reports
(b) Records Books
3 Laboratory Practical Handouts, Field Trip Handouts
4 Minutes of curriculum revision
5 Minutes of Staff meetings
6 Research publications
7 Syllabi of Course units
8 Student feedback forms & summaries
9 Lecture notes Handouts etc.
10 Tutorials
11 Answer Scripts/ Marks sheets
12 Seminar marks file
13 Dissertation marks file and dissertations
14 Moderated Question Papers
15 Marked answer scripts of special degree students I
Moderated question papers
16 Thesis
17 Eligibility list of students
18 Postgraduate progress reports
19 Peer observation completed forms. Unfilled form
20 Assignment Report
21 Publications
22 List of ongoing research with supervisor
23 Students practical records (Samples)
24 Seminar reports of students