

# **SUBJECT REVIEW REPORT**

**DEPARTMENT OF ZOOLOGY**



***FACULTY OF APPLIED SCIENCE  
UNIVERSITY OF SRI JAYEWARDENEPURA***

1<sup>st</sup> to 3<sup>rd</sup> December 2010

**Review Team :**

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## 1. SUBJECT REVIEW PROCESS

The exercise of a subject review evaluates not only the quality of the student learning experience/education at the subject level, but also all the programs offered by an academic department. It is in this context, the review team evaluated the quality of both undergraduate and postgraduate programs in Zoology and Aquatic Sciences offered by the Department of Zoology, University of Sri Jayewardenepura. The Department has laid down the principles, set the aims and expected learning outcomes in the teaching of the subjects of Zoology and Aquatic Science in its **Self Evaluation Report (SER)** and the present review is primarily based upon the information provided in this report supported by evidence gathered during the review visit.

The following aspects of education/provision were evaluated during the present review:

1. Curriculum design, content and review
2. Teaching, learning and assessment methods
3. Quality of students, including student progress and achievements
4. Extent and use of student feedback
5. Postgraduate studies
6. Peer observation
7. Skills development
8. Academic guidance and counseling

The reviewers followed the guidelines set by the Quality Assurance and Accreditation Council of the U.G.C., for subject evaluation.

The review team consisted of Professor. (Ms.) Asoka Pathiratne of the Department of Zoology of the University of Kelaniya, Dr. (Ms.) Nirmalie Pallewatte, of the Department of Zoology of the University of Colombo and Professor Morley de Silva of the University of Ruhuna. Professor Morley de Silva served as the review chair.

The review team visited the Department of Zoology of the University of Sri Jayewardenepura during the period **1<sup>st</sup> December to 3<sup>rd</sup> December, 2010** and carried out the peer review process. The purpose of the visit was to search for evidences and make observations on the aims and learning outcomes and the eight aspects under review as stated in the SER of the department and evaluate them according to the set guidelines.

On the 1<sup>st</sup>. morning the review team had a meeting in the office of the Dean of the Faculty of Applied Sciences during which Professor Colin Peiris, the Director/Quality Assurance and Accreditation Council introduced the members of the team to the Dean, Professor Sudantha Liyanage and briefly explained the objectives and purpose of the review.

The review team then met with the Vice-Chancellor of the University, Dr. N. L.A. Karunaratne along with the Dean, and the Head of the Department of Zoology, Dr. B.G .D. Nissanka de Silva

The Vice-Chancellor briefed the members on the history of the Faculty, its present status and future development plans. He also reiterated the importance of the Faculty of Applied Sciences in the Development of Sri Lanka, the original objective for which it was set up, and the vital role the Faculty has been called upon to play in this context.

The review team thereafter visited the Department of Zoology and was introduced to the staff of the Department of Zoology. The Head of the Department, in the presence of the academic staff, made a presentation to the review team, summarizing the information that had been compiled in the SER covering information pertaining to the structural and organizational aspects and facilities of the department, organization of teaching programs, curricula development and revisions, evaluation procedures, teaching and learning processes, course contents, student performances and achievements, field activities, research programs, post graduate programs etc.

A schedule of activities for the 3 days was drawn up (Annexure 1). Accordingly, the review team during the course of the 3 days met with other members of the academic staff and had the opportunity to discuss different aspects of the quality assurance program. Data were gathered additionally by meeting with different groups (Annexure 2) such as undergraduate students (general degree and special degree), postgraduate students and a group of temporary staff, technical staff and supporting staff of the department. The team also observed teaching classes, laboratory classes, and a students' seminar presented by a student following special degree programme. The review team went through a large collection of documents (Annexure 3) and inspected the facilities available in the department, including the library facilities, laboratory facilities for general practical work and research, facilities available for temporary and permanent academic staff, supporting staff, and the departmental museum. In between these activities, the review team constantly discussed among themselves the outcomes of their observations. Each reviewer took the lead responsibility for different aspects of provision while all contributed to the writing of the report and making judgments on the eight aspects.

Members of the review team wish to thank the Vice-Chancellor and the Dean of the Faculty for granting them fruitful discussions. They extend their special thanks to the Head and members of the academic staff of the Department of Zoology, for the excellent arrangements made and the cooperation and hospitality extended to them throughout the review process. The reviewers also thank all members of the technical and the supporting staff who helped them in observing the laboratory facilities, and those young academic staff members who helped them in numerous ways to successfully carry out the quality assurance program during these three days.

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

### **The history and present status of the University of Sri Jayewardenepura**

University of Sri Jayewardenepura (USJP) is one of the thirteen national universities of the country located thirteen km. south of Colombo city centre. It has roots in "Vidyodaya Pirivena" which was founded by reverend Hikkaduwe Sri Sumangala Thero in 1883 primarily to meet the educational needs of the Buddhist monks. In 1956, in conformity with government's educational policy of promoting national languages and culture, two new universities were created by bestowing university status to the Vidyodaya and Vidyalankara pirivenas. Vidyodaya University was geographically shifted to its present location at Gangodawila in 1961. In 1978, it was renamed as the University of Sri Jayewardenepura following the national tradition of naming the universities according to their location names. In 1959, there were 22 Departments of study and the student population of the university was around 466. Later, it has grown vastly in terms of courses and subjects offered, student enrolments, the strength of the academic staff and infrastructure facilities. At present it is one of the largest universities of the country with 637

staff members and a student population of about 10000 with six faculties namely, Faculty of Arts, Faculty of Applied Sciences, Faculty of Management studies and Commerce, Faculty of Medical sciences and Faculty of Post Graduate Studies. In addition, the university has spawned an attractive Postgraduate Institute of Management, conveniently located in Colombo. The Faculty of Medical Sciences also has achieved a phenomenal growth in a very short time with fifteen Departments of Study and other adjuncts. The well-designed and spacious library, helped to increase the intake of students, and contributed to the community services.

### **The Vision & Mission of the University**

The Vision of the University is: To develop and maintain an exceptional learning environment across Faculties of the University through learner-centered teaching and intellectually challenging curricula,. To promote research and discovery, characterized by pre-eminent scholarships of an increasingly interdisciplinary and collaborative in nature and to expand and uphold the engagement with key social constituents through synergistic sharing and partnership of knowledge and expertise in addressing needs of communities and society at large.

“The Mission of the University founded upon tenet “Vijja Uppatam Settha” (of things that arise knowledge is the greatest) is to excel as an institution of higher learning. The university is committed to pursue and disseminate knowledge through teaching, scholarship and research and active service to the community in an environment which values creativity, freedom of intellectual thought and expression, equal opportunity, fairness and professional growth. The University endeavors to contribute to national development by providing a balanced education, which blends the best of relevant theory and practice using appropriate technology and by forging interactions between the university and the wider society”.

Drawn from the University mission, USJP has derived three main strategic goals as indicated in its corporate plan.

- Develop & maintain an exceptional learning environment across faculties through learner centered teaching and intellectually challenging curricula.
- Promote research and discovery, characterized by pre-eminent scholarship.
- Expand & uphold the engagement with key social constituents, through sharing knowledge and expertise in addressing needs of communities and society at large.

### **The history and present status of the Faculty of Applied Science**

Faculty of Science, which had been established in 1961, was renamed as Faculty of Applied Sciences in 1978 with the intention of focusing its teaching and research more towards applied science areas to support the national development. At present, the Faculty of Applied Science comprises eight Departments namely, Dept. of Botany, Dept. of Chemistry, Dept. of Food Science and Technology, Dept. of Forestry & Environmental Sciences, Dept. of Mathematics, Dept. of Physics, Dept. of Statistics and Computer Science and Dept. of Zoology. Out of the eight Departments, Depts. of Botany, Zoology, Forestry and Environmental Science and Chemistry contribute to Degree programs in Biological Science.

The number of students enrolled for the Biological Science Stream was 165 in 2009 while the number for the Physical Science Stream was 264. The curricula are structured on a course unit system since 1994, giving more flexibility and a wider scope to students in the selection of courses. The teaching is conducted on a 2-semester system, each semester comprising 15 weeks.

With a view of producing graduates who are more effective in their capacity to contribute to the country's development process, the Faculty has introduced more and more diversified courses and subjects which are of an applied nature. Some examples are the introduction of the subject 'Management' in 1993, 'Forestry and Environmental Science' in 1996, 'Computer Science' in 1998. Several Departments have already envisaged the introduction of more new courses, more optional units into the existing subjects. Curricula are being reviewed and revised every year to be in par with the rapidly advancing fields of science. Teaching techniques are being improved to encourage more active participation and to develop skills of students. These include student-centered activities such as seminars, workshops, case studies and group presentations, projects, 'Portfolio of articles'. These novel methodologies are expected to build not only the knowledge of subjects but also develop communication skills with the ultimate objective of improving the quality of the graduates. The medium of instruction is English throughout the Degree course in the subjects Forestry & Environmental Science, Computer Science and Management while in other subjects a shift from Sinhala to English is done gradually.

In order to maintain a more effective link with the industry and for the graduates to be exposed to the pressures in the society outside the university, in-plant training and carrying out projects/assignments with the relevant organizations both governmental and non-governmental have been built into certain courses.

### **The Mission of the Faculty**

The Mission of the Faculty is to foster, promote and excel in teaching, learning and research in science and its applications. In addition to imparting knowledge and developing skills of students on the fundamentals of science and its applications, the enhancement of the quality of graduates, quality of teaching and research and expansion of the services offered to the industry and general community are other objectives of the Faculty.

The Department of Biological Sciences of the University of Sri Jayewardenepura (Then Vidyodaya University) was established in 1966. Professor A.C.J. Weerakoon was its founder. He served as Head of the Department from 1966 to 1977. Professor A.C.J. Weerakoon was responsible for many innovative developments that took place in the Department. He introduced many courses that were not taught in any of the other Universities in Sri Lanka at that time. Fisheries, Forestry, Microbiology, Food Science, Insect Pest Management, Genetics, Wildlife Management, Plant Pathology and Virology were some of them. These applied courses were taught in addition to the conventional courses in Biology. In 1982 the Department of Biological Sciences was split into the Departments of Botany and Zoology.

### **Department of Zoology**

At the moment the Department offers two subjects, namely, Zoology and Aquatic Science. Zoology as a subject was offered to students since 1982. Offering Aquatic Science to students is a fairly recent diversification of the Department, which was introduced in the year 2005.

The motto of the Department of Zoology is to produce self-confident Zoologists, who would use their knowledge in Zoology/Aquatic Science either in research activities to benefit society or in careers based on Zoology/Aquatic Science to increase production/serve society. However, the department does not envisage every student as a prospective zoologist. Zoology/Aquatic Science are ideal subjects for somebody wishing to take up a career in another discipline of science or outside science and technology but wishing to have a scientific background. The study of Zoology/Aquatic Science, while retaining the scientific approach

and the experimental method, provides unique experience in very complex systems and behavioral responses. This type of experience cannot be provided by the non-living subjects.

### **3. AIMS, LEARNING OUTCOMES AND COURSE DETAILS**

#### **3.1 Aims**

The aims of the Department of Zoology are to;

1. Provide a range of learning opportunities in Zoology and Aquatic Science for undergraduate students within the course unit system of the University and to develop their cognitive abilities and transferable skills that will help them to contribute effectively to research, teaching and other careers and to be able to meet the expectations of their potential employers;
2. Facilitate students to develop their academic knowledge and interest in Zoology and Aquatic Science;
3. Offer a B.Sc. Special Degree programmes in Zoology and Aquatic Science that provides an exposure of students to advance knowledge in different disciplines and modern techniques enabling to strengthen the research capabilities of students as well as the Department;
4. Encourage to study Zoology and Aquatic Science which provides unique experience of very complex systems and behavioral responses, while retaining the scientific approach and the experimental methods;
5. Provide opportunities to gain knowledge in both theoretical and practical approaches of Zoology in fields such as Oceanography, Aquaculture and Fisheries Management, Limnology, Applied Genetics, Nutrition, Applied Entomology, Insect Pest Management, Medical Entomology, Environmental Toxicology and Wildlife Management and Conservation etc.;
6. Provide opportunities to gain knowledge in both theoretical and practical approaches of Aquatic Science in fields such as Limnology, Oceanography, Fisheries and Management, Aquaculture, Modelling in Aquatic Resources Management, GIS in Aquatic Resources Management: etc.
7. Provide a friendly and supportive Departmental environment which is conducive
8. to learning and developing skills of students, enabling them to achieve their maximum potential;
9. Give an opportunity to students in the Physical Science stream of the Faculty of
10. Applied Science as well as to those of other Faculties of the University to study various aspects of Zoology at a level suitable for their needs;
11. Give an opportunity to students in the Biological Science stream to study Physical Science subjects and Management subjects offered by the Faculty of Applied Sciences;
12. Support the teaching staff in their career development by offering feedback and Peer advice.

#### **3.2 Learning outcomes**

On successful completion of any one of the following programmes, offered for undergraduate and postgraduate students by the Department of Zoology, students should have:

- 1 Gained knowledge and understanding in diverse fields of Zoology/Aquatic Science, based on courses that provide initial broad frameworks followed by progressively increasing depth of study;

- 2 Acquired the ability to apply the knowledge gained in the development of their respective fields of interest;
- 3 Developed personal and transferable skills such as clear observation, critical thinking, data handling, analysis of information and interpretation of results, comprehension, expression, team work, and also acquired the ability to apply these skills in various situations;
- 4 Gathered technical skills necessary to set up experiments to collect scientific data and analyze them;
- 5 Developed the ability to self directed learning

## 4. FINDINGS OF THE REVIEW TEAM

### 4.1. Curriculum Design, Content and Review

At present, the Department of Zoology offers two subjects, namely, Zoology and Aquatic Science for undergraduates following B.Sc. Degree programme. Zoology has been offered as a subject to the undergraduates since 1982. Aquatic Science was introduced as a subject in 2005.

Of the several subject combinations offered by the Faculty of Applied Science for the students who have entered through the Biological Science Stream of the G.C.E (A.L) examination, most combinations include Zoology as a subject. Aquatic Science is included as a subject only in two subject combinations available at present. The students who select Aquatic Science as a subject should also follow Zoology. According to the data presented in the self evaluation report and the information provided at the site visit, the number of students who follow Aquatic science as a subject is much less than those opt for Zoology.

Curriculum of the B. Sc. programme is based on modularized course unit system since 1994. Academic activities are conducted on a two semester system, each semester comprising 15 weeks. At the commencement of the degree program in the first year, the students are provided with a copy of the Faculty prospectus which clearly outlines the course units offered by each department. In the first two years undergraduates are required to follow mostly the 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 students following the B. Sc (General) Degree programme. At the end of the second year, a limited number of students are selected for the B. Sc (Special) Degree programmes. In addition to the compulsory course units, a wide range of optional course units are available for the students following special degree programmes in Zoology or Aquatic Science.

The reviewers were informed that curricula for both subject disciplines have been formulated by the senior academic staff. In the Zoology curriculum, all core areas identified in the Subject Benchmark Statements are covered. The reviewers felt that the range of course units offered for both subjects, Zoology and Aquatic Science are adequate. Course Units are offered at different levels, which enable the students to gradually build up their knowledge and understanding in the subject. 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. In addition opportunities are available for developing subject specific skills and generic skills.

*However the reviewers feel that the allocation of one credit for core course units like Animal Diversity and Ecology is inadequate to deliver the intended learning outcomes to the*



*undergraduates following Zoology as a subject. Contents of these core courses do not have adequate depth. The reviewers are of the view that the Department should re-consider the relevance and adequacy of the time allocation (credit hours) of these core course units.*

The reviewers also noted that a compulsory course unit (only one credit) on laboratory cum field work is offered to the students following Zoology as a subject in each semester along with 4-5 theory course units (one credit each).

*The reviewers feel that the allocation of one credit for the course unit on “Laboratory and field work” is inadequate for development of subject specific skills related to the theory course units which are offered in each semester. The number of practical hours allocated for one semester (which offers 04 theory course units) may not be adequate to achieve the intended skill development for respective disciplines. For instance, practical hours assigned in the first semester of the first year are only about 45 hrs (3 hours x 15) which may not be adequate to achieve a meaningful skill development in core areas of Zoology, “Animal Diversity” and “Histology” as Animal Diversity is a vast discipline. Further, 45 practical hours assigned in the second semester of the first year are not adequate to achieve proper skill development in Ecology, Animal Physiology, Anatomy and Entomology. This may demand appropriate curriculum changes in the Zoology discipline which should be considered with due emphasis.*

In the Aquatic Science discipline, practical hours have been incorporated with the theory components. However, numbers of practical hours have not been specified in “Theory cum Practical” course units. It appears that the time allocation for practical work varies with the course unit. The reviewers also feel that there are some overlaps in the related course units offered.

The reviewers are of the view that the number of optional course units offered for the special degree in Zoology and Aquatic Science is satisfactory. It is commendable that Applied Zoology course units such as Aquaculture and ornamental fish breeding, Fisheries and Oceanography, Wildlife conservation and Management, are offered as optional course units not only for the students following Zoology but also for the other students of Faculty of Applied Science. It was evident to the reviewers however that the wide range of course units provided in the curriculum intended for skills development may not bring the intended results in some course units due to lack of imparting of sufficient depth of knowledge in the individual course units and inadequate facilities.

The present curricula offered by the Faculty of Applied Science for students following B. Sc. Degree contain a non credit English course. In order to obtain the B. Sc. Degree, it is compulsory that students pass the English course. This is a good practice adopted by the Faculty in order to improve the English knowledge of the undergraduates. This course if conducted properly would also help to develop some important interpersonal skills of the students. At the meeting with the senior students, it has been pointed out that more course units on IT need to be introduced into the curriculum. The review team is also of the opinion that it would facilitate the students learning process. In addition the Faculty may consider offering course units on management and personality development as optional course units to the undergraduates offering Zoology and Aquatic Science as subjects in order to strengthen their soft skills.

The reviewers were informed that the curriculum reviews are carried out by senior academics on regular basis in order to include latest information and introduce new course units. Aquatic Science has been introduced as a new subject in 2005. Further, a new B. Sc. (Special) degree programme on Aquatic Science has been introduced recently. The main objective of

introduction of wide range of course units has been a strategy to attract students to course units offered by the department rather than catering to the aspirations of the stakeholders or the needs of the country. *There was no evidence for consulting wider consultation of stakeholders including potential employers and alumni in curriculum design. Similarly, there was no evidence for consulting present students in curriculum design/review. Students have not given any feedback on curriculum content.*

***Review Team is of the view that the present situation with regard to Curriculum Design, Content and Review adopted by the Department can be judged as SATISFACTORY.***

#### **4.2. Teaching, Learning and Assessment Methods**

The review team is of the view that the departmental academic staff takes a keen interest in teaching activities throughout a student's study programme to provide a range of skills and knowledge. They have spent much effort in providing a good teaching and learning environment to the students. It was noted that some members of the teaching staff have undergone training at the Staff Development Center of the University. As all teaching is done in the English language it has allowed students to improve English skills much as they progress from the 1<sup>st</sup> year to the final year.

Through visits to lectures, it was evident that most teachers opt to deliver their lectures in the form of PowerPoint presentations and using other audio-visual teaching aids (e.g. overhead projector). Handouts on the outline of each lecture containing additional notes were made available prior to the commencement of the lectures. There were reference documents, web sites and guides provided with the notes in addition to the contents taught in class.

Review team noted that during practical classes, students had access to good quality museum specimens providing very good support material for the topics of the practical work. The specimens had been labeled and well laid out with the supporting theory being taught using a multimedia projector or being demonstrated using available laboratory equipment as evident during the selected laboratory practical sessions observed by the review team. Students used a range of laboratory equipment and techniques to carry out chemical and biological analyses. The quality of the practical manuals/hand outs was assessed as good.

There was a wide range of assessment methods adopted by the teachers to evaluate different aspects of skills and knowledge areas of students. The methods varied according to the teacher with the exception of the theory papers which had a formal fixed structure approved by the faculty. The standard and quality of examination papers and marking schemes in general were quite satisfactory. There were detailed marking guides for assessment of literature reviews, student dissertations and oral presentations given to examiners. *It was evident to the reviewers that the moderation of examination papers and the second marking occur within the department only by the academic staff of the Department Zoology.* The SER stated that a Board consisting of academics of the department moderate examination papers and this was confirmed at meetings during the review.

The end of semester examination process for theory papers needs to be modified to include a scheme of assessment that looks at progress of students through the course. Some teachers give ad-hoc tests but the marks do not contribute to the final grade. However, it is the understanding of the reviewers that lack of e-resources and heavy workloads of academics are serious constraints to this situation.

All students who met the reviewers were satisfied with the quality of their courses and with teaching in the department. The flow of subject topics was said to be logical and useful for students which made the students to follow the teaching easy. Students stated that the teachers were very approachable and were friendly, helpful and guide them constantly. The Head of department had meetings with students of all years from time to time to find out about their academic or other problems that would affect their work. This is a commendable initiative from the department for implementing student feedback in academic matters. However there was inadequate information on the outcome of these meetings. Career guidance was also carried out through its unit at 1-2 day workshops through academics who are student counselors.

The quality and range of specimens and the maintenance of the department museum deserves special mention. The museum has a very good collection of fossils and specimens which have been donated to it by former academics but which would not have survived in good condition up to today unless they were well looked after by the earlier and the present curators. The department is to be commended for maintenance of such a department level museum. The present curator who has a Zoology special degree from the same department and has some training at the National Museum and at Department of Zoology, University of Peradeniya, continues to maintain the specimens well and provides a valuable support service to the teaching and learning activities of the department. He had also prepared a practical guide to help students on the above aspects.

The lack of a proper lecture room was highlighted by all general students as a problem for them. As lectures are currently held in laboratories, some students did not see the board or the presentations well if they were seated in some points of the laboratory. The reviewers noted that there was a high level of noise from adjoining canteen during one lecture they visited. The support staff confirmed that this is a recurrent occurrence. As laboratories are not designed for holding lectures, placement of projection screens and of the teacher are restricted. This factor affects teaching process.

There was a dearth of multi-media equipment as often more than two teachers wanted to use this equipment at the same time and often the available audio visuals have to be continuously shifted from lecture hall to lecture hall causing much inconvenience, loss of time and damage to equipment.

The department library should be improved much more to make it useful to the students and to support teaching and learning in the modern day. The books are mostly old (more than 20 years in some cases). The library should be kept open during lunch hours, after hours and on weekends. Access to internet has to be improved as well as good quality web based journals and text books. Students made these comments during the review meetings.

The student microscopes need to be upgraded/replaced as a matter of urgent priority as students and support staff stated at meetings. The number of other types of basic equipment in laboratories, specimen slides, amounts of chemicals available are inadequate for the number of students. *Overall, the laboratories need to be upgraded and improved to maintain teaching and learning standards.*

There were also problems to field practical classes due to inadequate transport facilities from the university. Students made these comments during the review meetings.

There should be much greater improvement to the number of computers available for students (currently only 03 for both 3<sup>rd</sup> and 4<sup>th</sup> year special degree students), teachers and access to internet. The speed of internet access through the university network was far from adequate. Students made these comments during the reviewers/students' meetings.

In the case of the student dissertations that are submitted for examination at the end of the research project, the corrected version that has been seen by the supervisor/s should be the one that is properly bound and given to the university library and taken by the student for external interview panels. The uncorrected version can be used for evaluation. This comment is being said as a piece of constructive criticism and is not intended to be a negative remark about the academic quality of the department in anyway. When the uncorrected version is given to external interview boards it does not create a good impression of the supervisor, the Department of Zoology or the University of Sri Jayewardenapura. Many other universities only send the corrected version to the library and for use in interviews etc. by the respective students.

Providing formal training to the support staff such as technical officers and laboratory assistants will certainly improve teaching and learning as they too will then be able to contribute to these aspects much more than at present and also improve their self confidence and morale. The academic support staff requested such training to be made available to them.

***The Review team is of the view that this aspect could be judged as GOOD.***

#### **4.3. Quality of Students including Student Progress and Achievements**

Admission of students to the Biological Sciences program is through the UGC mainly based upon the Z score values. It was apparent to the review team that out of the student intake nearly 70% are from schools in the Western Province mainly from Colombo, Gampaha districts and the Southern Province. From the interaction the reviewers had with the general degree students during their meeting (unfortunately only 4, 3<sup>rd</sup> year students were present) it became evident that the majority of them are equipped with a satisfactory level of proficiency in English though most felt more convenient to interact with the reviewers in Sinhala. The students expressed satisfaction with the English courses offered by the University at the commencement of their academic career and during semester, as a sufficient help to follow academic programs (lectures, practical, field visits and tutorials) conducted in the English medium. English had been made compulsory for the award of the degree and except during the first year, the lectures are now conducted almost solely in the English medium. This is a major reason for the good level of English among the undergraduates. The Department can accommodate 100 Zoology students per academic year out of which only 30 places are assigned to Aquatic sciences. Out of all biological stream students, an average of 55-65% opts to follow zoology as a subject. A maximum of 10 students are selected for special courses each year.

Student performance (in theory and practical examinations) for each course offered by the Department is assessed either at the mid or end of semester or academic year via examinations. The continuous assessment is being practiced for practical assignments and field assignments only. Many students have progressed well in their studies. (Table 5.4.1 in the SER of the Dept. and other documents submitted). Attendance is maintained for lectures, practical and field visits if any, for each course offered by the Department. Unsatisfactory attendances (80% or less) are reported to the office of the Dean, at the time of registration for examinations and such

students are barred from sitting at examinations to maintain standards. According to the academic staff, bad attendance poses no serious threat to academic programs. Only very few students (as it appeared at the meetings with students) apparently take up outside courses such as CIMA or British Council examinations.

A high level of success has been achieved by students on almost all the disciplines in Zoology and Aquatic Sciences via general and special degree programs conducted by the Department, from its inception. From the evidence shown, reviewers were convinced of the high academic performance of both general and special degree students in both study programmes.

All the students who followed the special degree program of the Department of Zoology were able to successfully complete their degrees at the exact time of completion. Though nearly 18-23 students became eligible to follow Zoology as a special degree programme, only 33-47% have been enrolled between 2005-2009. The success rate during the period had been quite satisfactory as over 21% obtained first classes while only 2% ended up without a class. This is mainly due to the strict admission criteria for special programmes (GPA value 3.5 or above) adopted to maintain good standards. The Department offers only 1 merit award for the best Zoology student (Prof. Winston Rathnayke Award).

The Department of Zoology strives hard to provide opportunities to improve general attitudes, ethics, self-confidence and thus the over-all personality of students. There was a general satisfaction among all students in the guidance and support they get from both academic as well as supporting staff. The review team was informed that most of the graduates are employed or start higher studies within one year of their graduation (Table 5.4.2. in SER). Accordingly the majority have found employment as teachers or research officers, or registered for higher degrees. *Only scarce information however was available on their employment records. There was also no evidence of a constant dialogue of the Department with stakeholders.*

***The Review Team is of the view that this aspect could be judged as GOOD.***

#### **4.4. Extent and Use of Student Feedback**

The Department obtains students' feedback quantitatively by using a questionnaire adopted by the Faculty of Science. At the end of each course this form is given to students and the responses are collected and the data are analyzed. The reviewers found the questionnaire to be adequate to obtain a good student feedback on the lecturers' performances. The student feedback from however was not designed to get student's view on the curriculum content. The review team recommends that the evaluation form be revised, to include a section to obtain a feed back on course content. This would enable an instructor to obtain an overall judgment not only on his/her teaching and but also areas he/she need to improve in presenting or emphasizing for better understanding of the subject content. A majority of students have expressed satisfaction on teaching and learning aspects. The Head of the Department informed that the feedback obtained from the students enabled the lecturer to take positive steps to improve the quality of teaching and learning environment. Currently these forms are distributed by the teacher who conducts the course prior to end semester evaluations. Although some anonymity is ensured by not having the students' identities in the forms, the authenticity of the views expressed could be improved by assigning the conduct of this exercise to persons other than the teaching staff.

It was also revealed that the Department acquires students' feedback qualitatively at the lecture/practical /field assignments time discussions. The review team was also of the view that

such informal discussions during laboratory and field practical classes between the students and staff is a good way of obtaining a feedback on course content and recommends that the good practice of having a senior academic present in practical classes throughout the session to be continued.

The Head of the Department has regular face-to-face interaction with students which gives an opportunity to gather information on the quality of academic programs, teaching methods and infrastructure facilities. This type of interaction takes place more frequently between the special students, post-graduate and staff. The review team was of the view that this could develop into a **“staff student liaison committee”** where staff of the department meets regularly both general degree and special degree student representatives of all levels (first year students to final year students of both subjects). It is also recommended that minutes of such meetings are maintained and circulated among all participants so that students and academic staff maintain a record of improvements and developments to the teaching and learning process of the department.

Student feedback within the department could also be improved by making provision for student representation in the departmental meetings during which they can submit their views on non-confidential matters. Also the student representatives in the Faculty Board could be made use of, to obtain student feedback on academic and non-academic matters affecting their learning process.

The reviewers noted inadequate statistical analysis of the students' views on a regular basis. The staff of the department had accepted the importance of student feedback in improving teaching and learning process and showed a positive attitude towards continuing the process of obtaining student feedback. The review team therefore felt the need of a formal mechanism in the department to inform students the action taken for their suggestions.

***It is the view of the Review Team that the extent and use of student feedback by the members of the staff of the Department can be judged as GOOD.***

#### **4.5. Postgraduate Studies**

The department offers a Postgraduate Diploma/ M. Sc. Programme in Fisheries and Aquatic Resources Management. The M.Sc. programme consists of 6 taught modules covering a wide range of disciplines related to Fisheries and Aquatic Resources Management. The M.Sc programme has commenced in 2000 and three batches have completed the degree. According to the records available, the completion rates of the M. Sc. programme are satisfactory. The two postgraduate students who met the reviewers had only started their M.Sc. Fisheries and Aquatic Resources Management course in September 2010 and were not able to comment in depth about the teaching. They said they were attracted to the course due to the relevance of the topic to their present employment or intended future careers.

The Department also offers M. Phil and Ph.D. degree programs by research. The research students are usually funded by the research grants obtained by the academic staff through NSF, CARP and the university. According to the self evaluation report, the academic staff have supervised 3 Ph. D. students and 15 M. Phil students from 2005-2009. However no evidence was available for the successful completion rates of the research degrees within the stipulated time. Data on time taken to complete the degree were not available for the review team.

At present only four students are following the M. Phil degree programme in Zoology. The reviewers met only two postgraduate students (M. Phil.) who expressed their satisfaction on the progress in their study programmes. They indicated that their programs are on schedule. They had been guided on research methodology through introductory courses from their supervisors. Postgraduate students can meet their supervisors as and when required. Supervisory arrangements are satisfactory.

The department has a good academic strength of eight senior academics with Ph. D qualifications and expertise in various core areas and applied areas of Zoology. Excessive teaching load of some academic staff members seem to affect the active involvement in research work. Nevertheless, academic staff members have published a number of research papers during the last five years. However no evidence was available for the publication of research findings of the postgraduate degrees produced by the department in reputed national and international journals. Qualifications and the research publications of the staff members indicate the potential and capability for further development. The Department may consider attracting more students to do postgraduate programs leading to M.Phil and Ph.D. degrees as the department has the necessary human resources and adequate infrastructure facilities. Involvement in research funded by external donor agencies is necessary to develop the research culture. Improved research culture would uplift the teaching and recognition of the Department and in turn, this recognition would bring more research students to the department.

***The Review Team is of the opinion that the aspect of Postgraduate Studies could be judged as GOOD.***

#### **4.6. Peer Observation**

The Head of Department provided evidence for peer observation during his presentation as well as through various documents maintained in the department. Though there is no specific mechanism in place for regular peer observations of lectures, staff members get their lectures observed by colleagues or seniors and an evaluation form for documenting their observations and comments is available. Some staff members acknowledged the fact that they improved their lecture delivery accordingly. There is however no mechanism to monitor the progress of a teacher after peer evaluation. The reviewers noted however an inadequacy in the questionnaire used by the academic staff for peer observation. It was noted that peer observation questionnaire focuses mainly on lecture delivery techniques but only vaguely on lesson planning and organization skills of the teacher, knowledge, and rapport with the students.

All lecture and practical material prepared by junior staff members are done under the guidance and supervision of senior academics. Every question paper and other material used for end semester evaluations are moderated by senior teachers and all answer scripts undergo a 2<sup>nd</sup> correction within the department. Awarding marks for the seminar presentations and viva voce of students supervised by individual staff members are done with the participation of all permanent members of the academic staff. The demonstrators are guided by the respective senior staff members before the practical or field visits occur.

Thus there are several mechanisms of indirect peer observation implemented in the department. What is lacking is the observation of class teaching *in situ* by staff colleagues on a regular basis although the value and importance of such observation is appreciated. The review team is of the view that peer observation could be continued effectively in the department.

*Lack of external examiners outside the department is a serious shortcoming. It is recommended that such a systematic peer observation process is started by implementing peer observation of assessment/evaluation by junior staff through senior members of the department which could include even retired professors. The introduction of a more acceptable examination paper and answer scripts moderation system at least for Special degree level examinations by external peers is an urgent need of the department.*

***It is the view of the Review Team that the present status of the Peer Observation adopted by the department is considered as SATISFACTORY.***

#### **4.7. Skills Development**

The department has designed a number of courses covering a wide range of topics in Applied Zoology and to enable students to gain practical scientific experience as well as general skills in preparing and making presentations, writing reports, doing seminar topics, carrying out individual research projects, writing dissertations, working as a team, achieving work targets, cultivation of good personality characteristics, improved knowledge of the English language and IT skills. In the Aquatic Science subject stream an industrial placement was available for 3<sup>rd</sup> year special degree students which enabled them to work with professionals in the respective organizations and take part in the work of the organization. Overall, there is good progress of skills of students from the 1<sup>st</sup> to final years both at the general degree and special degree streams. There was evidence of individual work such as assignments and practical reports as well as group work.

The museum curator seems to have good skills in museum curation techniques and carries out some teaching of preparation of specimens to students which gives them theory and practical training in collection, preservation and curation of specimens. Knowledge in special techniques of this nature is very useful for graduates in Zoology.

It was clearly evident that the special degree students obtained a wider range of skills than general degree students. The research project where the student produced a dissertation at the end was designed to provide special degree students with greater analytical ability, to train them to handle problems under field situations and for them to learn with independence and to obtain much more self confidence. For example, there was a 'How to write a thesis' document with training on it provided.

Both general degree and special degree students expressed satisfaction with the skills that they gain from courses of the department. As teachers are all engaged in their own research areas which too contributes to improvement of skills of students they guide.

Examination of the compilation of information on alumni of this department showed that there were many who had postgraduate qualifications and held senior positions both within and outside Sri Lanka in recognized universities and organizations in developed countries. This is testimony to the quality of students produced and the skills that they have gained through this department.

It was evident to the reviewers however that the wide range of courses provided in the curriculum intended for skills development *may not bring the intended results due to lack of imparting of sufficient depth of knowledge in the individual course units*, lack of teaching staff and other facilities.



Furthermore, the new stream of Aquatic Science has been added without adequate additional staff and facilities. This has placed a strain on the academic and support staff as well as on the resources of the department. While it has been done with good intentions and the department is to be complimented on this, it should also be aware of the potential negative effects of not being adequately resourced.

***It is the view of the Review Team that this aspect of Skills' Development could be judged as GOOD.***

#### **4.8. Academic Guidance and Counselling**

The Faculty of Applied Sciences carries out a very comprehensive orientation programme of 3 weeks duration to all its newly enrolled students with the assistance of all academic departments in the Faculty. All students in small groups are given guided visits to all academic departments (during which each department makes a presentation on their study programmes and facilities), laboratories, libraries and hostels. Also included are computer awareness programmes, mentoring programs, lectures on leadership, and many other related topics, some of which are in collaboration with the Faculty of Medicine. Students also take part in fun items, a tea party and a concluding cultural program attended by both staff and students. The programme has proved to be a great success in fostering student harmony and facilitating closer bonds with fellow students and staff. It was reported that student attendance at the orientation programme had been almost 100%. The Faculty has a Deputy Proctor, 3 Student Counsellors while each department also has appointed an Academic Counsellor. The review team noted that the academic guidance and counselling is of par excellence at the Faculty and especially at the department of Zoology, which view was confirmed by all students with whom we had our discussions.

In addition, all the academic staff members are helping and guiding the student community. As far as academic matters are concerned the Academic Counselor gives the necessary guidance on the selection of different subject combinations to the undergraduates at the beginning of first year.

The Faculty handbook containing information on all aspects of student information, is published in Sinhala and made available to all students during the orientation period and is updated annually. The course contents, text books, references and other learning aids recommended by academic staff members are also made available for students at the beginning of each course module by the respective teachers. The Faculty publishes annually a Prospectus of international standard which is also distributed free of charge among the students. The prospectus provides the students information on staff profiles of each department, Course details, Examination regulations, and Information on student affairs. The publication of a prospectus of such a high standard is a faculty effort and is highly commendable as it makes a very positive impression of the Faculty on the newly enrolled students. The prospectus should also be viewed as a motivation factor on Faculty quality.

To attend to the personal problems encountered by the students of all categories attached to the Department of Zoology, there is a Department Counselor in addition to the three academic staff members of the Faculty who are engaged as student counselors along with the Deputy Proctor. There is a close interaction between the students and counselors and every effort is taken to provide counseling in an informal manner. There was some evidence provided on this aspect where the staff members have resolved problems encountered by their students in both

academic as well as in their personal lives. The reviewers were impressed by the friendly atmosphere that prevailed between the departmental staff and the students. Politeness and positive manners of students were evident. However this aspect could be further improved by providing some training in counseling to academic members of the staff. There was one staff member in the Department who had secured specialized training in this aspect. Academic Guidance and Counseling could be further improved by having records of academic guidance and counseling vis-à-vis student achievements in their academic performances and career development.

***It is the view of the Review Team that the present situation with regard to academic guidance and counseling adopted by the Department can be judged as GOOD.***

## **5. CONCLUSIONS**

### **1. Curriculum Design, Content and Review**

#### **Strengths/Good Practices**

- Credit based modular course unit system
- Incorporation of course modules of applied nature into the curriculum
- Provision of wide range of optional course units
- Qualified and dedicated academic staff capable of delivering knowledge and skills of both Zoology and Aquatic sciences
- Availability of opportunities to develop skills
- Curriculum reviews on regular basis to include latest information and introduce new course units.

#### **Weaknesses:**

- Low credit values (in sufficient allocation of time) for core course units like Animal diversity and Ecology in the Zoology curriculum
- Contents of some core courses do not have adequate breadth and depth
- Low credit values (insufficient student contact hours) allocated for practical course units
- Non-consultation of potential employers, alumni and other stakeholders in curriculum review

### **2. Teaching, Learning and Assessment Methods**

#### **Strengths/Good Practices:**

- Highly dedicated academic staff
- Frequent use of audio visuals and proper hand outs in teaching
- Well organized practicals in courses
- Opportunities for skills development

#### **Weaknesses:**

- lack of moderation of examination work from examiners outside the department.
- poor lecture theatre conditions and insufficient multimedia projectors
- Under utilization of research laboratories

### **3. Quality of Students including Student Progress and Achievements**

#### **Strengths/Good Practices:**

- Compulsory English course for improvement of English language
- Overall good performance by students in courses offered by the department
- Adequate level of soft skills development for special degree students besides subject knowledge.
- High student satisfaction on the support from both academic and supporting staff during their study programmes

#### **Weaknesses:**

- Limited opportunities for general degree students for skills development
- Limited computer awareness programmes

### **4. Extent and Use of Student Feedback**

#### **Strengths/Good Practices**

- Use of evaluation form (questionnaire) to obtain the students' feedback at the end of each course unit
- Informal discussions with students during practical classes and field classes to get feedback.
- Discussions of findings of the student feedback with the departmental staff meetings
- Students meetings with the Head of the Department.

#### **Weaknesses**

- No formal staff-student liaison committees to obtain students' feedback
- No evidence of follow up action taken in response to the feedback of students
- Student feedback questionnaire is not designed to get a feedback on course contents
- No evidence of regular statistical analysis of student feed back by lecturers

### **5. Postgraduate Studies**

#### **Strengths/Good Practices**

- Availability of qualified staff and sufficient facilities
- Availability of both taught and research degrees
- Satisfactory supervisory arrangements
- Satisfactory completion rates of taught the M.Sc. programme
- Provision of a stipend to postgraduate research students through university grants

#### **Weaknesses:**

- Inadequate links with the industry and research programmes to cater to the country's needs.

### **6. Peer Observation**

#### **Strengths/Good Practices:**

- Moderation of examination papers by senior staff members
- Guidance to junior staff members by senior staff

**Weaknesses:**

- Lack of examination moderation by external examiners
- inadequate direct peer observation of teaching

**7. Skills Development****Strengths/Good Practices:**

- Wide range of courses in applied zoology aimed at providing students with adequate skills
- Good employment record of graduates

**Weaknesses:**

- Too extensive range of course units may fail to deliver sufficient “in depth” knowledge and skills.
- Introduction of study programme e.g. aquatic sciences without concurrent increase of human resources as well as facilities is a stress on the department.

**8. Academic Guidance and Counseling****Strengths/Good Practices:**

- Comprehensive Orientation Programme
- Availability of high standard Prospectus
- Active participation of departmental staff in guidance and counseling

**Weaknesses:**

- Lack of adequate records to show improvements of student progress and achievement through academic guidance and counseling
- Lack of professional training to counselors

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

| ASPECT   | JUDGEMENT    |
|--|--------------|
| 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 Counseling                                 | Good         |

## 6. RECOMMENDATIONS

1. It is recommended that the Department may consult and seek the views of different stakeholders, especially recent graduates and representations from industrial, research, educational and related organizations in the next curriculum revision. It is also important to get views from current students.
2. The Department may consider revising the curriculum to adopt adequate number of credits for core courses in Zoology and to allocate more credit hours to practical course units.
3. The Department may explore the possibility of modifying teaching sessions from teacher centered learning to student centered learning, especially for the students following special degree programmes.
4. The Department needs to consider seriously ways and means to attract more students for postgraduate programs leading to M. Phil and Ph.D. as the department has the necessary human resources. Improved research culture would uplift the teaching and recognition of the Department. In turn, this recognition would bring more research students to the department. It would be desirable to explore the possibility of having links with the industry and research programmes to cater to the country's present needs.
5. It is recommended to consider revising the feedback evaluation form to include an assessment on the course contents and establishing a staff-student liaison committee to obtain feedback on the teaching and learning process and conducting regular meetings of the staff-student committee and maintaining minutes of such meeting to ensure follow up action.
6. The Department may consider reviewing the process of peer observation within the department and continuing the good practice of peer observation in the future involving all academic staff including senior most staff and junior staff and establishing a mechanism to monitor the progress based identified on weaknesses and suggested improvements.
7. The Departmental library (shared with the Dept. of Botany) and the museum are two valuable resources *in situ*. The Departmental should make vigorous attempts to improve both assets through University or outside funds. Students and staff should be advised for better usage of the library. Statistical data should be regularly maintained on library use and such data be used in seeking funds. Student's requests on library hours should be positively considered on a TEST BASIS and statistical data on ' library use' be brought to the notice of students during the staff/student interactions. Department should have a stronger hold on the library.
8. Short term training programmes on laboratory maintenance and instrumentation are recommended to be implemented with the help of academic staff/ retired technical staff. This would be a motivation for the supporting staff by way of executing their duties as well as for promotions.
9. While the present status of the laboratories is satisfactory, lack of basic facilities such as good quality microscopes, permanent slides etc. were noted. A better lighting system for all general laboratories to rid the gloomy appearance is urgently needed.

There is also under utilization of the good research laboratories and the highly sophisticated equipment and therefore a unified effort for expansion of research opportunities for both staff and students should be given high priority.

10. The reviewers strongly felt the urgent need of a well equipped modern lecture theatre for the Department and strongly recommend to the University authorities to initiate action.

## **7. ANNEXURES**

### **Annex 1: AGENDA OF THE REVIEW VISIT**

#### **Day 1-2010/12/01 - Wednesday**

|             |   |
|-------------|---|
| 8.00-9.00   | private meeting of review panel with QAA council representatives                        |
| 9.00-9.30   | Meeting with the VC, Dean and Heads of the Department                                   |
| 9.30-10.00  | Discuss the agenda for the visit  |
| 10.00-10.30 | Tea   |
| 10.30-11.30 | Department presentation on the self evaluation report                                   |
| 11.30-12.30 | Discussion  |
| 12.30-01.30 | Lunch   |
| 01.30-02.00 | Observing lecture by Dr. Kamal Ranathunga-Capture Fishery                               |
| 02.00-02.30 | Observing of Aquatic Science practical class-first year                                 |
| 02.30-03.30 | Meeting with the Department Academic Staff  |
| 03.30-04.00 | Observing Documents   |
| 04.00-05.00 | Meeting with undergraduates-1 <sup>st</sup> , 2 <sup>nd</sup> and 3 <sup>rd</sup> years |
| 05.00-06.00 | Meeting of Reviewers  |

#### **Day 2-2010/12/02-Thursday**

|             |  |
|-------------|--|
| 09.00-09.30 | Observing teaching-Dr. Pathmalal- Parasitology |
| 09.30-10.30 | Observing facilities                           |
| 10.30-11.30 | Meeting with technical and supporting staff    |
| 11.30-12.30 | Meeting with post-graduate students            |
| 12.30-01.30 | Lunch  |
| 01.30-02.30 | Special Part 2 presentation                    |
| 02.30-03.30 | Meeting with special degree students           |
| 03.30-04.30 | Observing documents                            |
| 04.30-05.00 | Meeting of reviewers                           |

#### **Day 3-2010/12/03-Friday**

|             |  |
|-------------|--|
| 09.00-09.30 | Observing practical class-zoology IPM  |
| 09.30-10.00 | Observing teaching-Prof. Alwis-Principles in Aquaculture                         |
| 10.00-10.30 | Academic guidance and counseling core aspect meeting-Academic lecturers and Head |
| 10.30-12.00 | Reviewers private meeting  |
| 12.00-01.00 | Lunch  |
| 01.00-02.00 | Meeting with the Head and Staff for reporting                                    |
| 01.00-03.00 | Exchange of ideas for Report writing   |
| 03.00-03.30 | Tea  |

## **Annex 2. THE PERSONNEL WHOM THE REVIEW TEAM MET DURING THE 3 DAY VISIT**

- Members of academic staff-  
All members of the academic staff in the Dept. of Zoology including the demonstrators
- Technical and supporting staff-  
Staff Technical Officer, Museum Curator, 1 clerk, 2 trainee technical officers,  
4 laboratory assistants, 1 labourer
- General Degree students-
  - a. 15 first year students
  - b. 9 second year students
  - c. 4 third year students
- Special degree students
  - a. 10 third year special degree students
  - b. 10 fourth year special degree students
- Postgraduate students
  - a. 2 M.Sc. students (by course work)
  - b. 2 M.Phil students (by research)
- Student Counsellors and academic Counsellors.
  - a. Deputy Proctor
  - b. 3 Student Counsellors (Faculty)
  - c. 1 academic counsellor (Department)



### **Annex 3. TYPES OF DOCUMENTS OBSERVED FOR SUBJECT REVIEW**

#### **1. Curriculum design and content and review:**

- Student prospectus
- Academic prospectus
- Examination regulations
- Course unit books- detailed & summary
- USJP vision plan
- QA handbook
- Minutes of the curriculum matters

#### **2. Teaching, learning and assessment methods:**

- Marking convention
- Marking schemes
- Marking answer scripts (proves of 1st examiner & 2nd examiner marking)
- Mark sheets
- Numerical information
- Exam supervisors and invigilators
- Student admissions
- Change of subject combinations
- Committee meeting minutes
- Practical marking schemes
- Laboratory manuals
- Lecture notes
- Zoology practical records
- "How to write a thesis" documents
- Exam paper Lab & field work
- Sharing good practice in teaching, learning & assessment documents

#### **3. Quality of students including student progress and achievements:**

- Past papers
- Results of B.Sc Physical students
- Results file
- Alumni directory
- Other numerical statistics about student achievements
- Student admission file

#### **4. Extent of student feedback, qualitative and quantitative:**

- Qualitative method analysis
- Feedback analysis method
- Statistical analysis

#### **5. Post graduate studies:**

- Visiting lectures' appointments
- M.Sc final results
- M.Sc prospectus
- Post graduate studies, supervisors and registration

- Different training programs of research method
- Admission for M.Sc programme

## **6. Peer Observation**

- Peer observation file

## **7. Skill Development**

- Presentation reports
- Practical manuals
- Lecture and reading materials
- Alumni directory
- Research project publications of students
- Group and individual presentations of students
- Field study reports
- Skill development- collection of photographs
- Aquatic club and Biological Society documents
- e-learning program through orientation
- Special degree practical manual and section cutting handout

## **8. Academic guidance and counseling**

- Academic advisor assessment
- Self evaluation

### **Types of documents for subject review**

#### **1. & 2:**

- Student prospectus
- Academic prospectus
- Examination regulations
- Course unit books- detailed & summary
- USJP vision plan
- QA handbook

#### **3 & 4:**

- Curriculum design
- Examination regulations
- Course unit books- detailed & summary
- USJP vision plan
- QA handbook

#### **5.**

- Introduction of new courses
- Proposal to introduce aquatic science as a new subject
- Proposed course profile
- Revised courses
- Proposals to aquatic science courses
- General quality management file (minutes for changing syllabus)

6.
  - Seminar reports 4th year
7.
  - Industrial training reports
  - Oceanography reports
  - Marine ecology reports
  - Industrial training hand book
  - file of request reports and offering letters
8.
  - Literature review
9.
  - Laboratory manuals & reports
10.
  - Field reports and field manuals
11.
  - Special students thesis, viva and thesis presentations
12.
  - Marking convention
  - Marking schemes
  - Marking answer scripts (proves of 1st examiner & 2nd examiner marking)
  - Mark sheets
  - Numerical information
  - Exam supervisors invigilators
  - Student admissions
  - Change of subject combinations
  - Committee meeting minutes
  - Practical marking schemes
  - Laboratory manuals
  - Lecture notes
  - Zoology practical records
  - "How to write a thesis" documents
  - Exam paper Lab & field work
  - Sharing good practice in teaching, learning & assessment documents
13.
  - Moderation board reports and papers
- 15:
  - Student prospectus
  - Academic prospectus
  - Examination regulations
  - Course unit books- detailed & summary

- USJP vision plan
  - QA handbook
  - Minutes of the curriculum matters
- 16.**
- Registration of students for B.Sc special degree
- 17.**
- M.Sc. prospectus
- 18.**
- Orientation presentations
  - CDs
- 19.**
- Academic advisor
  - Orientation presentations
  - CDs
  - Academic advisor assessment
  - Self evaluation
- 20.**
- Practicals- attendance
  - Practicals- marks
  - Practicals- reports
  - Practicals- manual
- 24**
- Minutes of the meeting of Head and the students
- 25**
- M.Sc. feedback
  - M.Sc. approval
- 26**
- field reports-M.Sc.
- 27**
- M Sc. seminar reports
- 28**
- M. Sc. dissertations
- 29**
- Activities of academic
- 30**
- Peer observation

**31**

- Field reports

**32**

- Presentations of the special students

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