

**PIR MEHR ALI SHAH
ARID AGRICULTURE UNIVERSITY
RAWALPINDI**



**Self Assessment Report
DEPARTMENT OF Entomology**

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Introduction

Department of Entomology was started in 1980 with the establishment of Agriculture College. In the beginning, department used to offer minor courses of Entomology for the students of B.Sc. (Hons). agriculture specializing in disciplines other than Entomology. During the year 1986, the department started B.Sc. Hons. Degree Program in Entomology. With the up gradation of College to the status of University in 1994, the department made tremendous efforts to upgrade B.Sc. Hons. Program. Consequently, M.Sc. Hons. degree program was started in 1997 and Ph.D. program was introduced during 1998. The department is committed to quality teaching and research in the area of Entomology. Mission of the department is to produce professionally skilled and academically sound entomologists to resolve the challenges relating to the insect pests infesting field crop, stored commodities, functioning as vector of plant/ animal diseases and producing useful products directly and to improve quality of the human life and economy of the country indirectly. Keeping in view its mission and objectives, the department of Entomology recurrently reviews its curriculum to meet the challenges in the field. The department is always committed to enhance students' professional training and career opportunities. It arranges field visits and holds national and international seminars on current issues relating to the protection and quality of post-harvest etc. The faculty is actively engaged in a number of research projects some of which are funded by the Higher Education Commission, Pakistan Science Foundation etc.

The department never compromises on quality. Since the faculty has been inducted purely on merit basis, so it is committed to promote merit and improve quality of education, teaching and research. The department is always willing to cooperate with the Quality Enhancement Cell of the University as well as to incorporate their recommendations for improving standard of teaching, quality of learning and achievement of its objectives. This report reflects efforts of the department to evaluate its performance for future improvement in collaboration with the QEC. This Self Assessment Report (SAR) contains eight sections. The first section outlines the programme mission and objectives. Section 2 provides information about the curriculum development. Section 3 enlists the laboratories and other relevant information followed by student support and guidance. The last four sections provide information about student support, process control, faculty characteristics and institutional facilities and support provided by the university.

Criterion-1: Programme Mission, Objectives and Outcomes

The Field of Entomology deals with the protection of crop, stored grains, fruit trees and ornamental plants from the attack of insect pests. Besides the insects produce highly useful products such as silk, honey etc, so the field of Entomology is directly related with Sericulture and Apiculture industries. In case of medical discipline, entomology is playing a key role in healing of wounds by application of sterile maggots which are otherwise difficult to heal specially in diabetic patients. Likewise environmental pollution, biodiversity and insect resistance against the pesticides are the burning issues of today which warrant continuous processes of education and research. Basic and applied education to the students at graduate and post-graduate level, in this specialized field, involves the use of modern/advanced teaching methods and innovative analytical techniques for insect pest identification, monitoring, scouting, forecasting and development of control measures. Application of knowledge concerning the field of entomology not only reduces enormous losses due to insect pests, lessen pollution hazards and develop a sustainable and substantially profitable production system for the farmers.

Standard 1-1: The program must have documented measurable objectives that support institution mission statements.

To produce professionally skilled and academically sound entomologists to resolve the challenges relating to the insect pests infesting field crop, stored commodities which ensure to crop production as well as improved plant health, thereby help developed agricultural and industrial economy, and producing useful products directly and to improve quality of the human life and economy of the country indirectly.

Documented measurable objectives

The department is offering B.Sc. (Hons). M.Sc. (Hons) and Ph.D. degrees in Entomology discipline to cater highly skilled local manpower for future needs. Objectives of Entmology program are given as under.

1. To equip the graduates with necessary theoretical and practical knowledge relating to the field of Entomology and to enable them to apply this knowledge of degree program professionally and productively.

2. To train and prepare the students about application of the latest techniques of IPM (Integrated Pest Management) program, so that they may contribute in reduction of environmental pollution and uplifting of human health.
3. To ensure application of entomological knowledge in a systematic way to reduce cost incurred on plant protection techniques especially on pesticides.
4. To prepare the graduates to work in an R &D environment effectively.
5. To peruse higher studies in any international university of high repute.
6. To enable the graduates to be a good human and an efficient, job oriented and dedicated worker with a reasonable earning to lead a prosper life.

Main elements of strategic plan to achieve mission and objective

- Strengthening and implementation of a solid teaching system based on the knowledge, expertise and vision gathered from world reviews, literature, innovations, proceedings, symposia etc for the award of degree.
- Scheming and improving the curricula involving core subjects, elective subjects, field demonstrations and internship programs.
- Establishing and strengthening well equipped specialized research laboratories to conduct to conduct research.
- Post-graduate research including special problems, research reports and dissertation.
- Publication of review papers, popular articles and scientific papers in well reputed journals, editing of books and manuals etc.
- Execution of research projects funded by the universities and other agencies.
- Provocation of linkages with national and international research organizations to solve indigenous problems relating to research.

PROGRAM OBJECTIVES ASSESSMENT

The department monitoring system is focused on the lines:

- Student-Teacher interaction
- Students views for program/faculty
- Critical analysis and policy formulation for development of infrastructure

Table: 1 Program Objectives Assessment

S. #	Objective	How Measured	When Measured	Improvement Identified	Improvement made
1	Improvement and intensification of Entomology at AAUR	Based on identification of insect pests infesting crop plants in the field and their economic importance	It is a regular process as per requisite	Techniques of guidelines are required to be improved	Techniques regarding research and field practices developed and dissemination to the students.
2	To communicate fundamental and practical knowledge to the graduate and Post-graduate students	Assessing the previous understanding of students through entry tests and student response	At the occasion of entrance into first semester	Various basic subjects are required to be incorporated in the syllabus	Improvement of courses as per requisite
3	Supervision of students in research / internship	Evaluating the attention of students through their opinions	Prior to initiate the projects	Students to deliver seminars and prepare reports	Seminars, presentation sessions and class discussions, were organized for communication proficiency improvement
4	Incorporation of associated fields	Through entry tests, interviews research own interest	Topics / curriculum attachment previous to start	Allied topics to be suggested	Development of awareness and exposure regarding the field
5	Foresee the new lines of education and areas of research	Through surveillance of crop pests, judging manpower, communication to evaluate farmers opinions	Regular feature	Latest subjects should be incorporated in syllabus, to study the new challenges	Endorsement of new syllabus to incorporate modern techniques

Standard 1-2: The program must have documented outcomes for graduating students. It must be documented that the outcomes support the program objectives and that graduating students are capable of performing these outcomes

Expected Outcomes of the Programme:

1. The students should have an aptitude toward understanding the importance of entomology, crop protection, insect pest problem, environmental pollution and health hazards caused by pesticides.
2. The graduates should have ability to differentiate the harmful and beneficial insects as well as to apply knowledge of IPM for their control.
3. The students should have ample capacity to analyze the pest problem and to recommend an insecticide suitable for the situation keeping in view cost effectiveness and environmental safety.

4. The graduate students must have capability to take up small scale research on some problem which they come across during their course of duty; whereas postgraduate and doctoral students will be capable of conducting advanced level research on the problems relating to Entomological field.
5. The students shall gain advanced theoretical and practical knowledge enabling them to peruse for higher studies.
6. The graduates shall be capable to establish their own enterprises and business using their skills such as silkworm production, honey production, sterile maggot production, mass scale production of predators and parasites.
7. The students shall have potential to contribute in national economy and development through their research projects.

Relationship between programme outcomes and objectives are given in table 2.

Table 2 Programme outcomes and their relationship with the Programme objectives

		Outcomes						
		1	2	3	4	5	6	7
Objectives	1	+++	++	+	+++	+++	+	+
	2	+++	+++	+++	++	+++	++	++
	3	+++	++	+++	+++	+++	+	+++
	4	+++	+	++	+++	+++	+	+++
	5	++	+	+	+++	+++	+	++
	6	+	++	+	+	+	++	+++

+ = Moderately satisfactory

++ = Satisfactory

+++ = Highly satisfactory

Programme Outcome Measurement

For programme's evaluation, especially from point view of achievements of objectives; assessment was made through prescribed proforma provided by the Quality Enhancement Cell of Pir Mehr Ali Shah, Arid Agriculture University. This Performa was filled in by students, faculty, alumni, field organizations, research institutes, research centres and agriculture departments as the graduates of Entomology department are mostly working in these institutions.

PROGRAM ASSESSMENT RESULTS

Teachers' Evaluation

Teachers' performance was assessed through students' comments on prescribed evaluation performa. This evaluation was done for different courses of the individual teachers filling in Proforma 10 (Annexure-IV). There are 4 teacher in the department which are numbered 1-4 with monitoring there names, Prof. Dr. Muhammad Aslam, Dr. Muhammad Naeem, Mr. Humayun Javed and Mr. Muhammad Tariq. The results showed that the teacher 1 is on top scoring 4.73. The lowest performance with a score of 4.42 was observed in case of teacher 4.

Teacher Evaluation Form

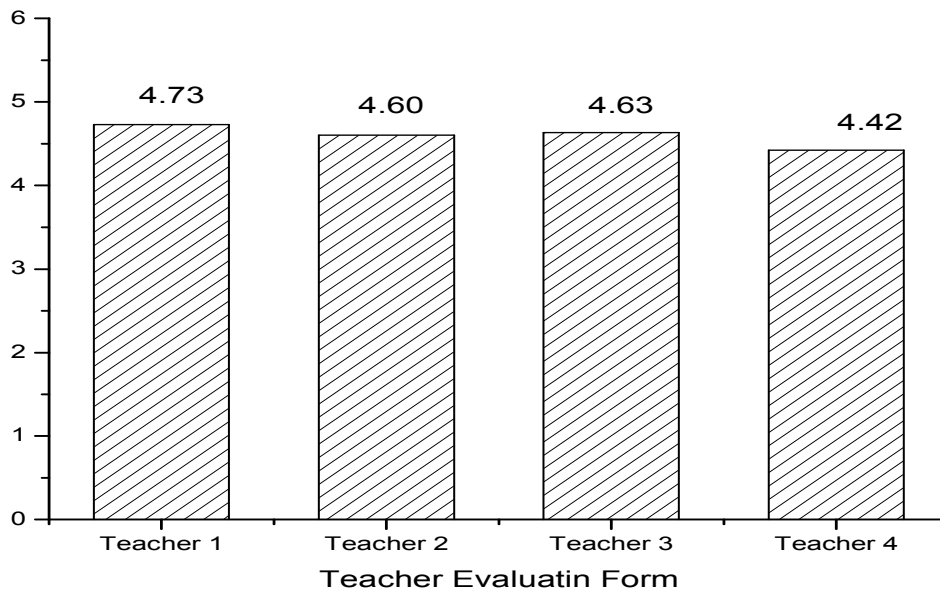
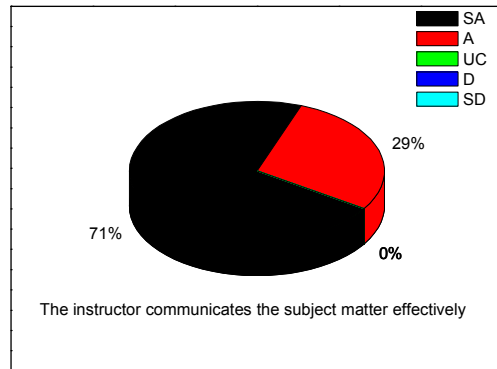
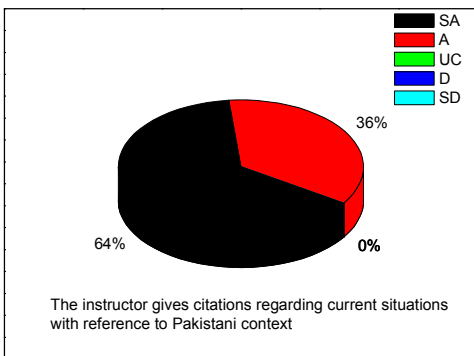
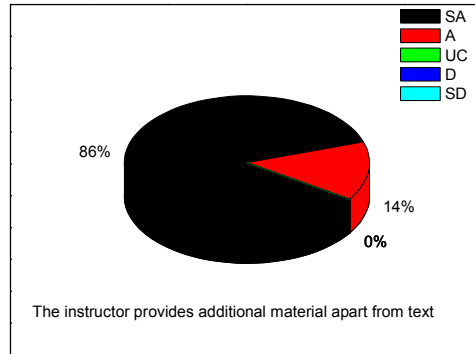
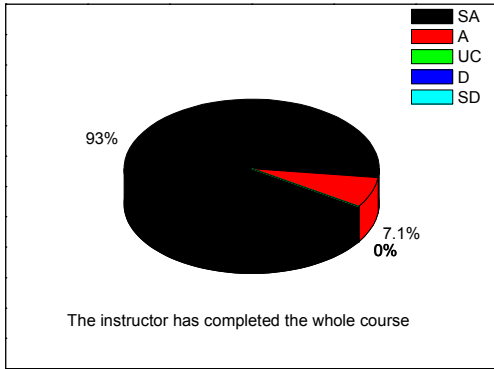
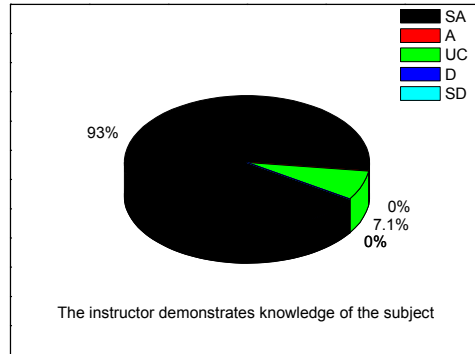
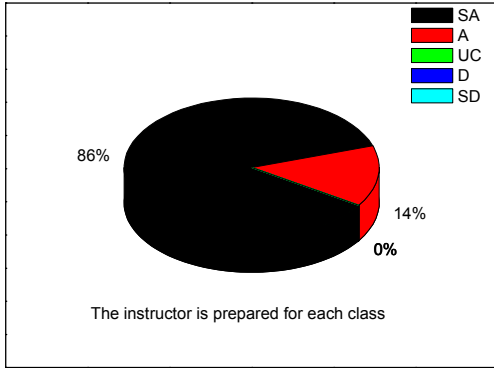
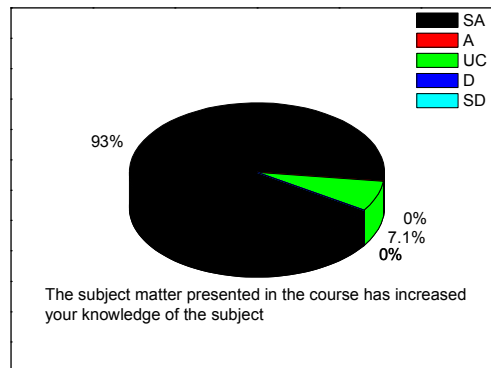
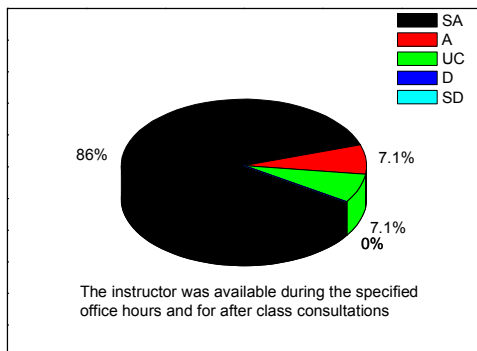
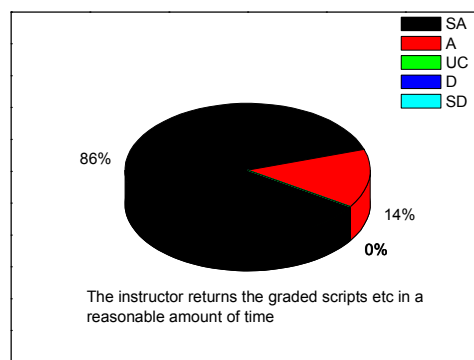
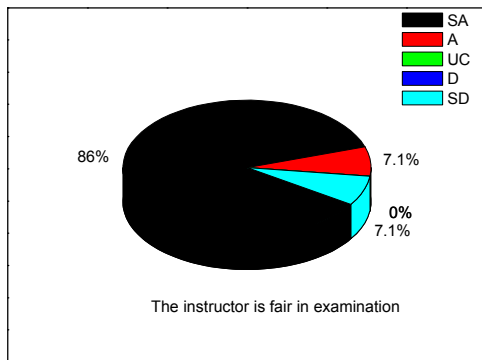
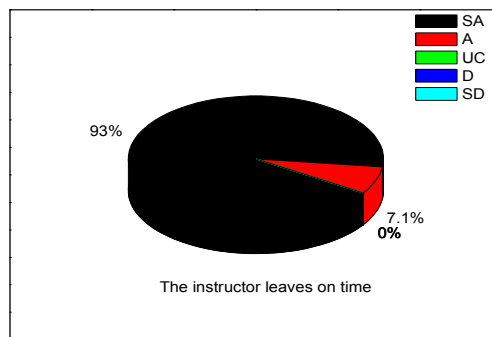
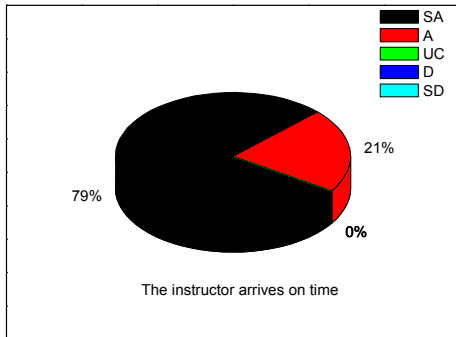
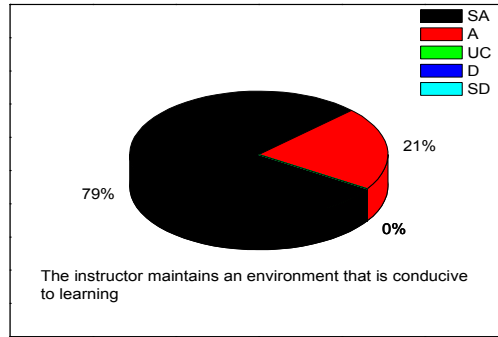
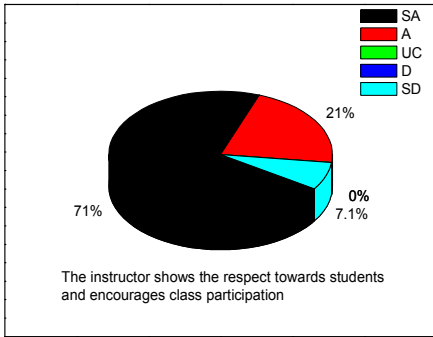


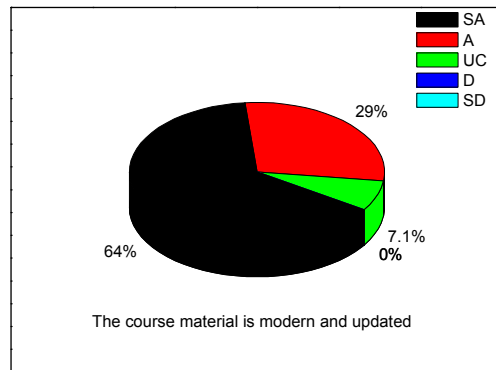
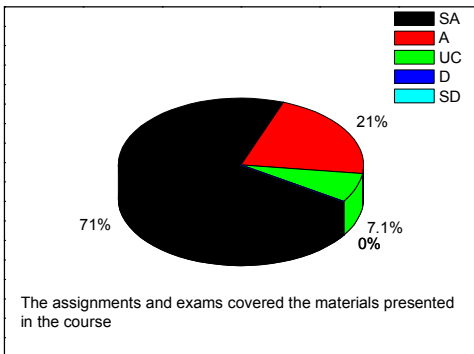
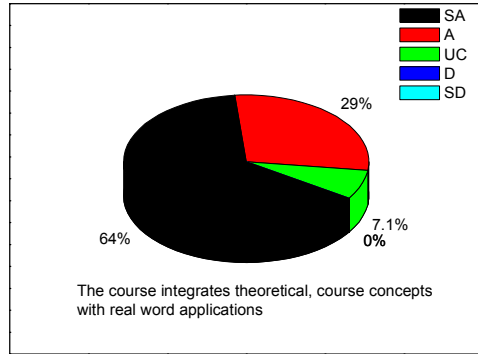
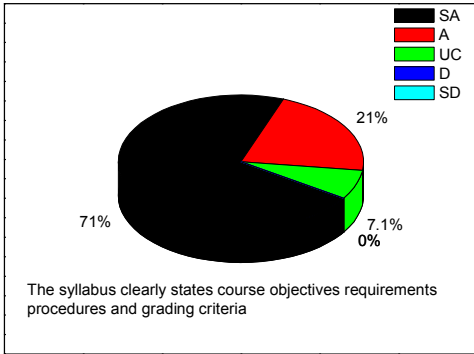
Figure: Performance level of different teachers in Entomology Department

Pie Charts Showing Teacher Evaluation

Teacher 1 The individual graphs reflected excellent performance of the teacher in all respects. However, 7.10% students complained that the instructors do not show respect towards students and do not encourage the class participation.

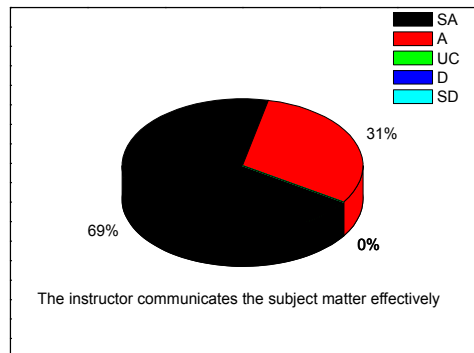
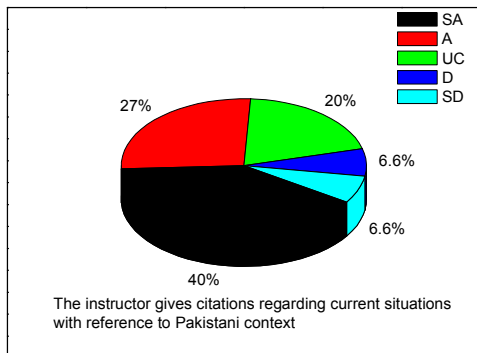
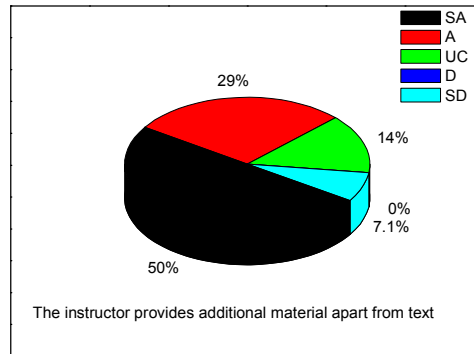
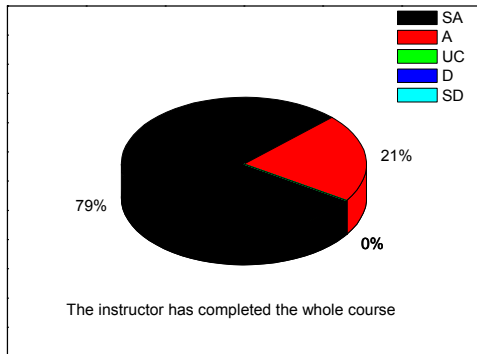
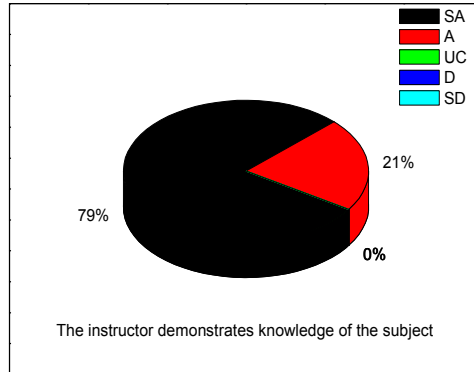
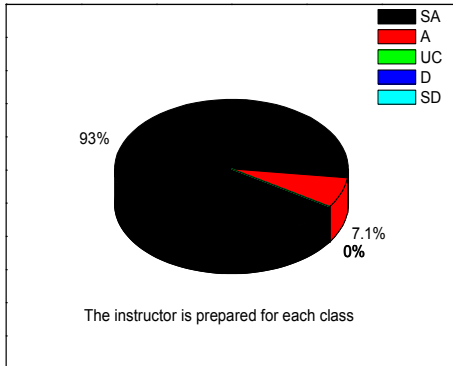


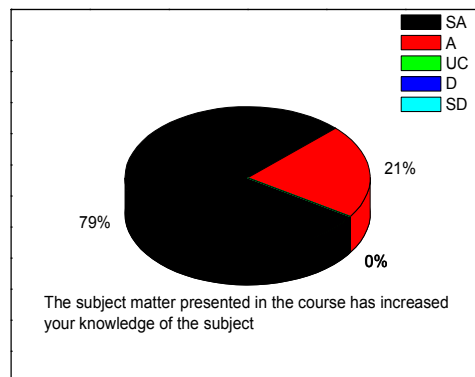
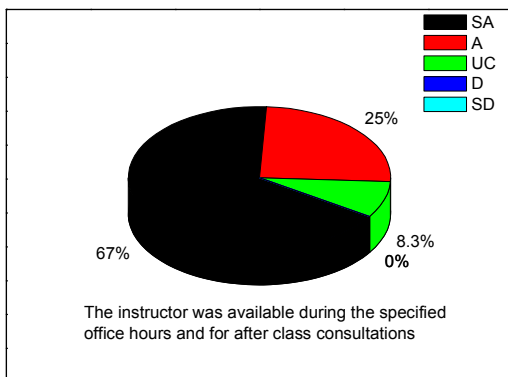
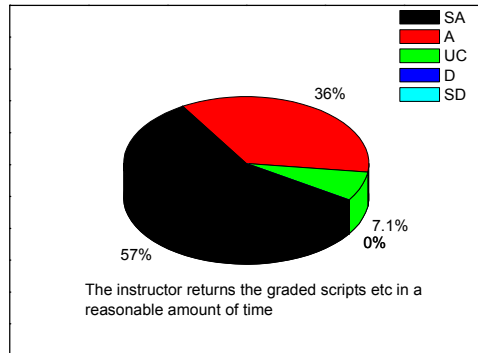
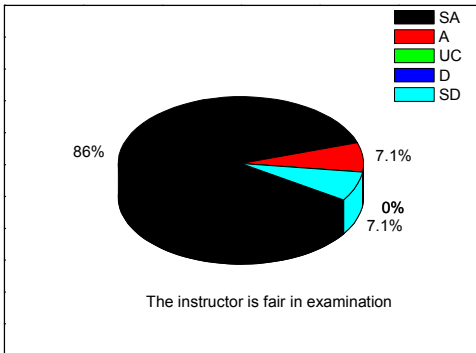
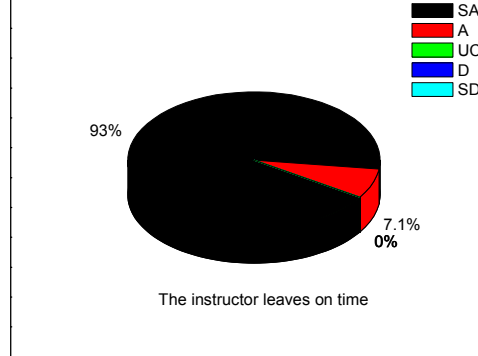
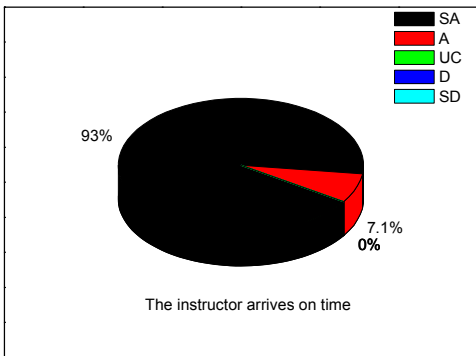
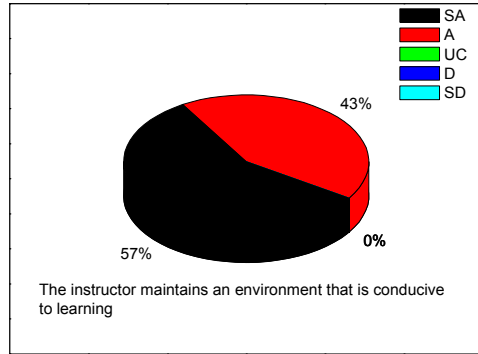
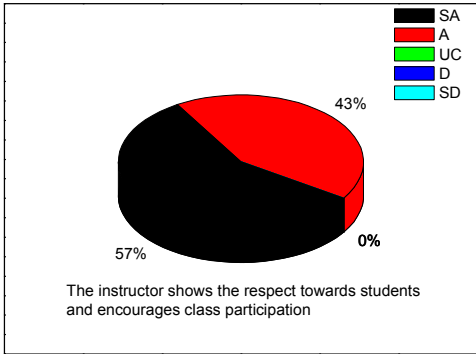


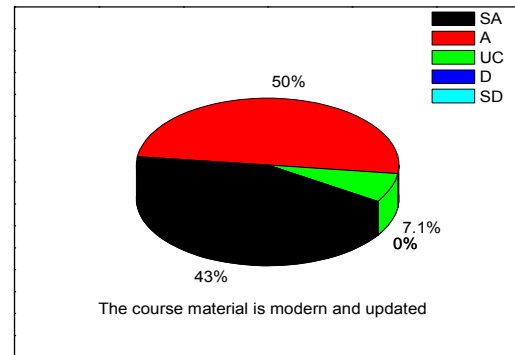
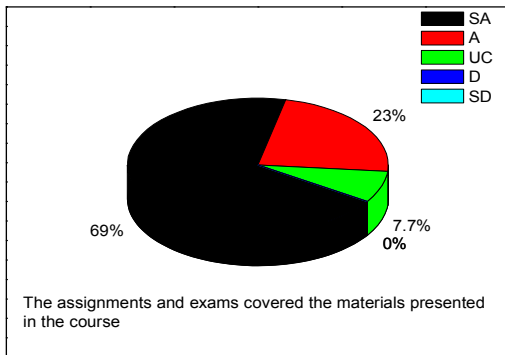
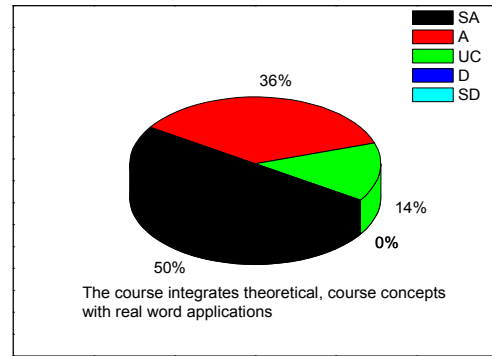
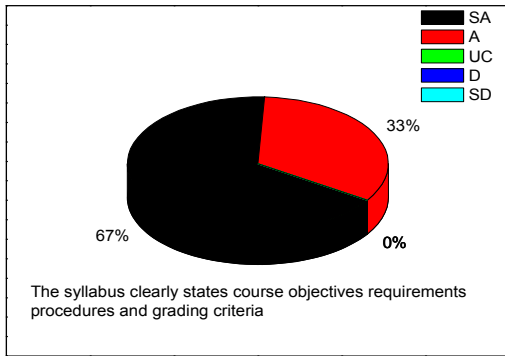


SA: Strongly Agree A: Agree UC: Un-certain
D: Disagree SD: Strongly Disagree

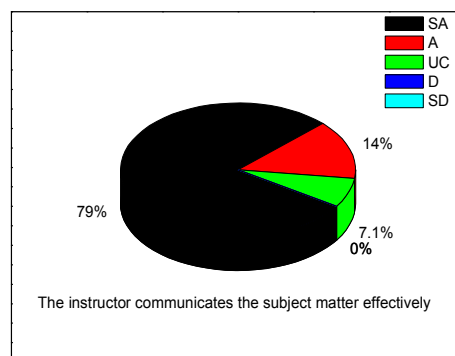
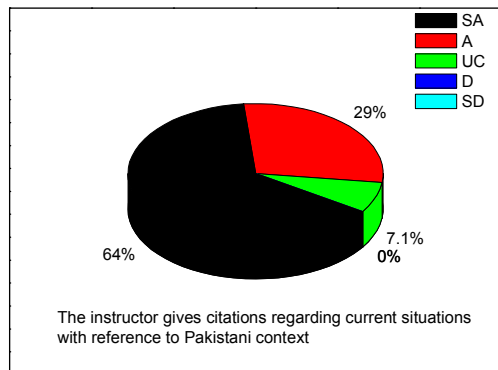
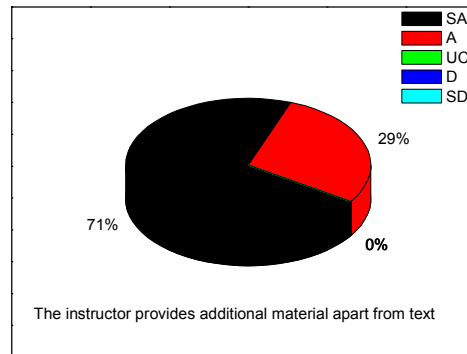
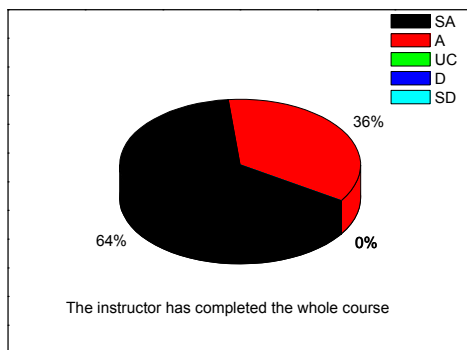
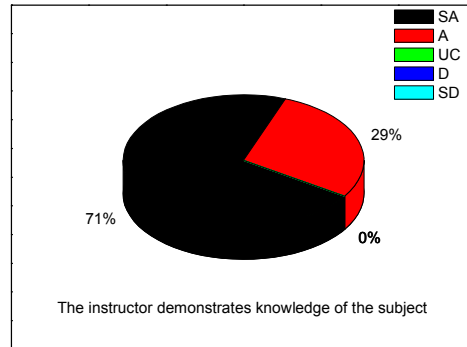
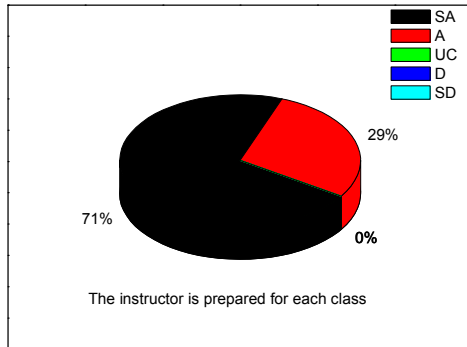
Teacher 2 Evaluation results showed very good performance of the teacher. Almost 79 % of the students stated that the teacher used to provide them extra material apart from text. Besides, 67% students reported that the teacher gives the current citation about the problems relating to Pakistan.

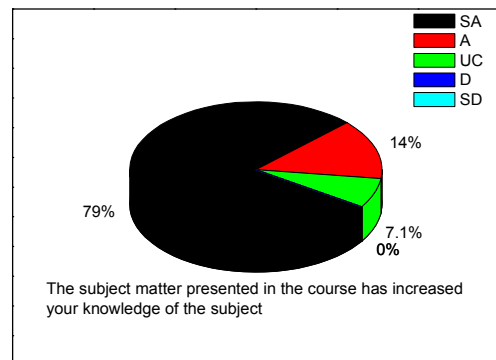
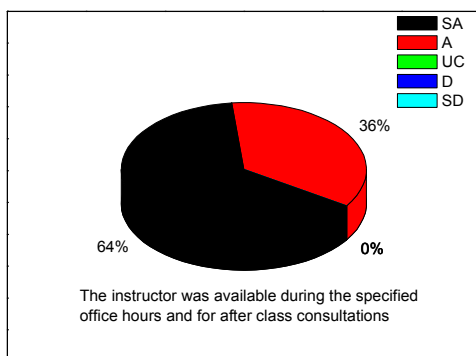
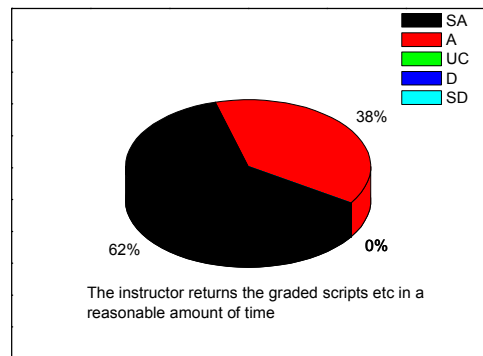
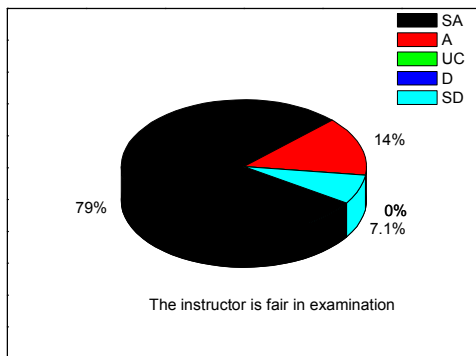
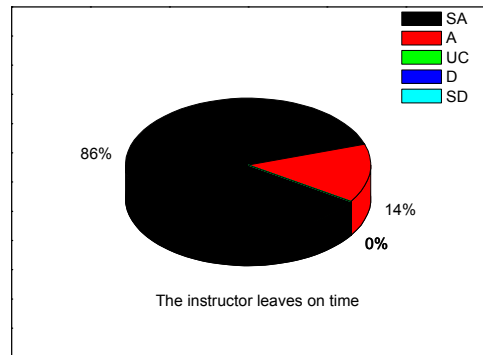
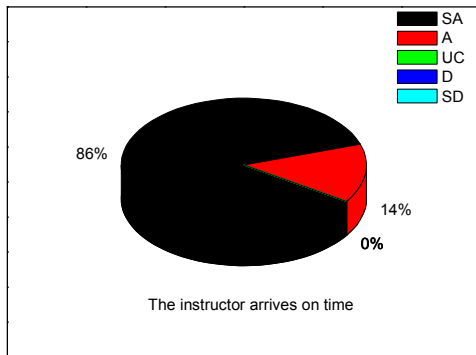
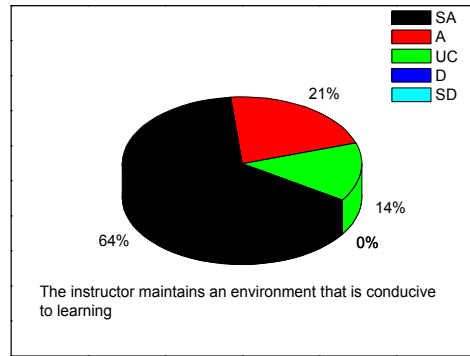
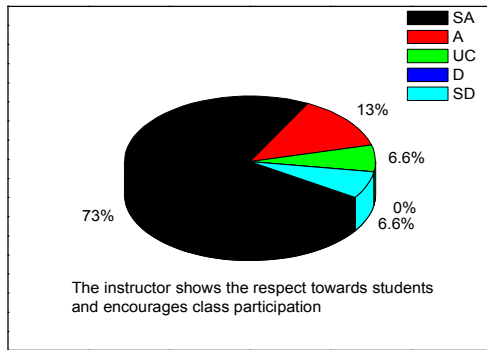


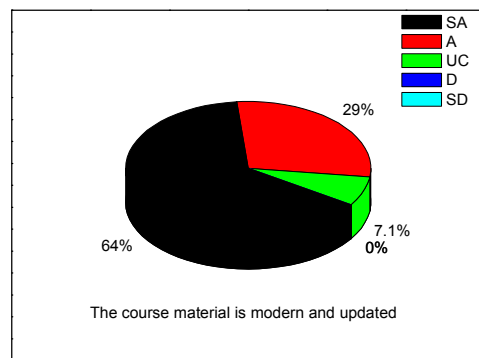
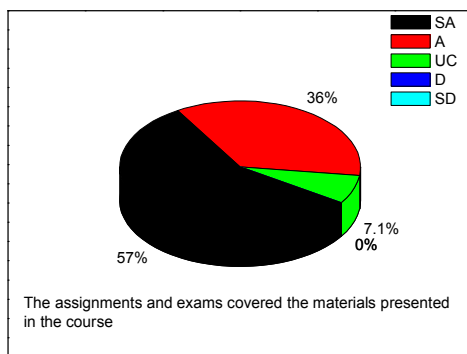
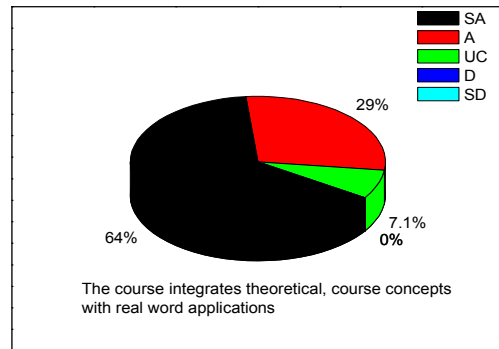
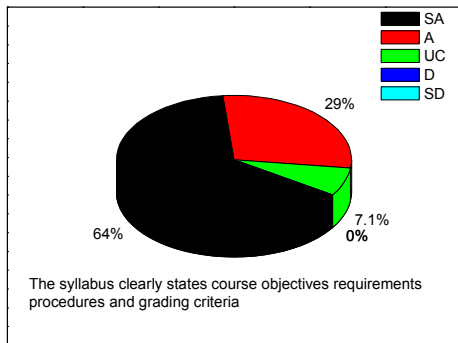




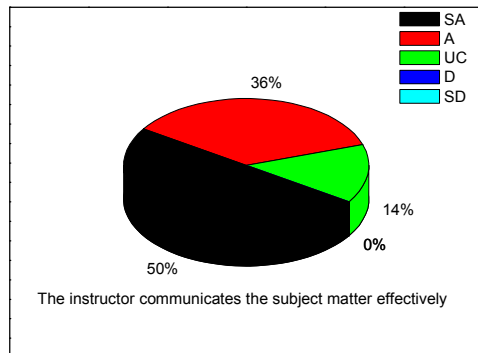
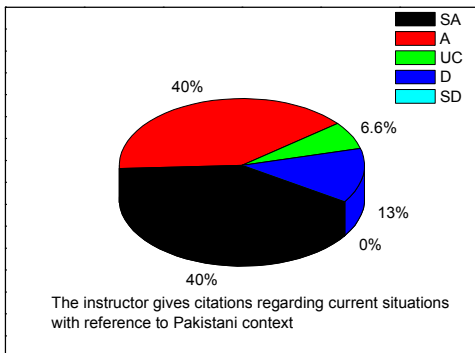
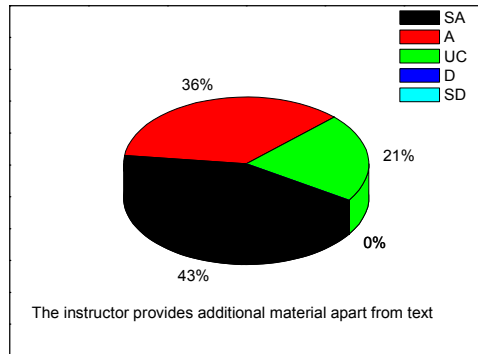
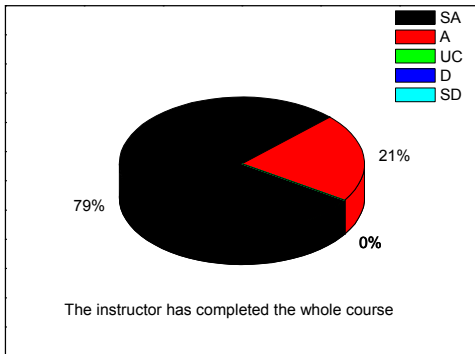
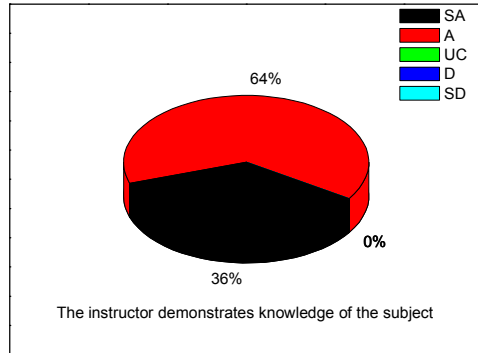
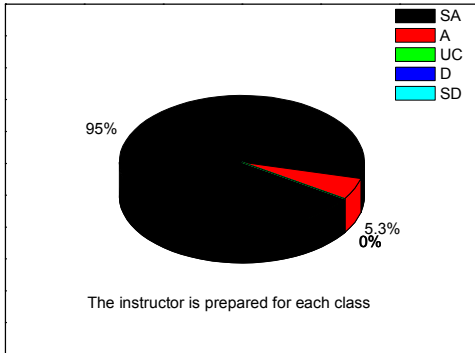
Teacher 3 Analyses of the proformae revealed good performance of the teacher except some students (7.1 %) were not satisfied with the fairness in marking and 6.6% reported unsatisfied level of students' respect by the teacher.

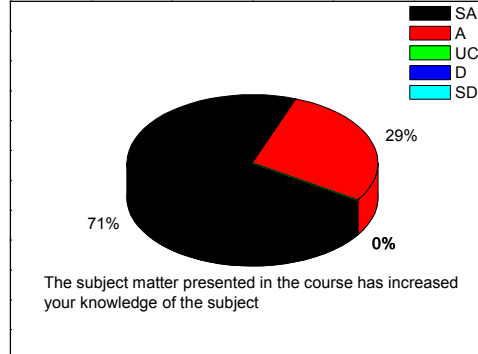
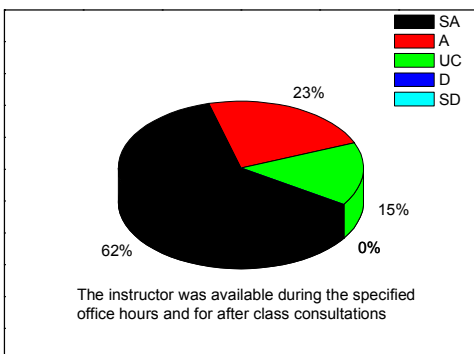
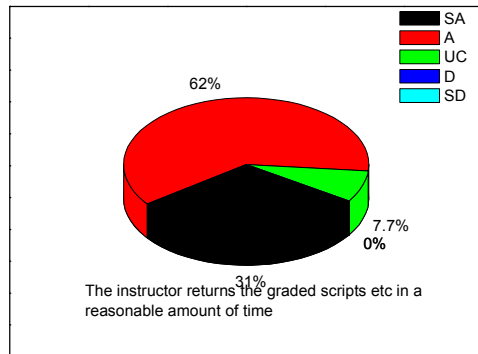
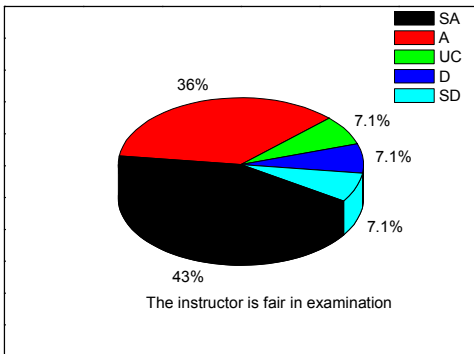
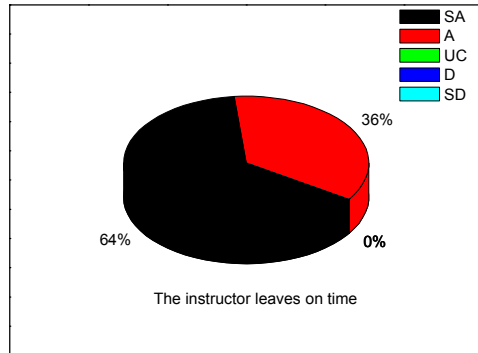
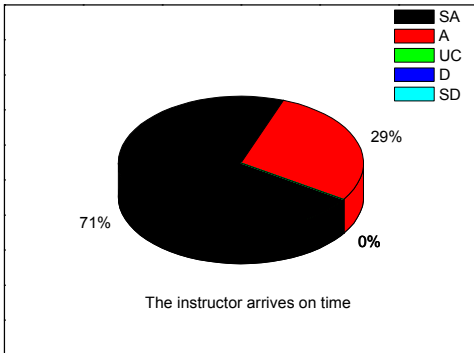
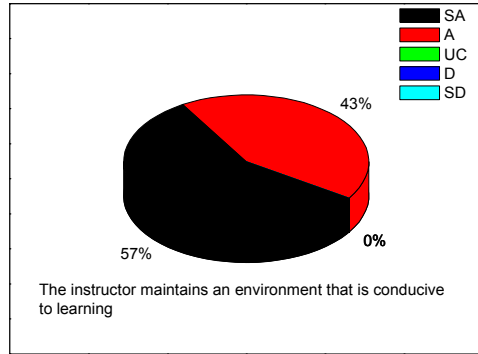
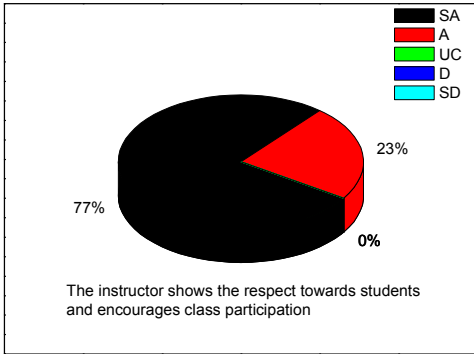


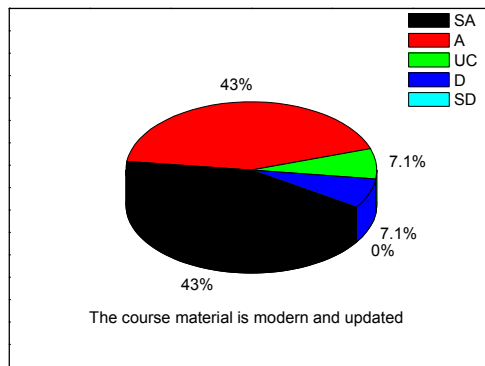
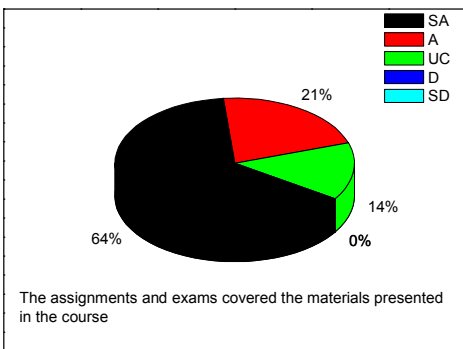
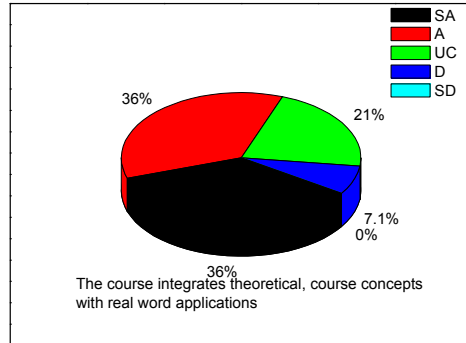
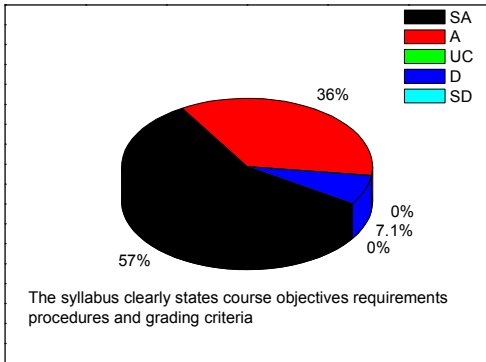




Teacher 4 The pie charts indicated that overall performance of the teacher was good. However some students (7.1%) reported that the course was not updated and did not depict citations from Pakistani point of view. Few students were doubtful about the fairness of the teacher in examination.

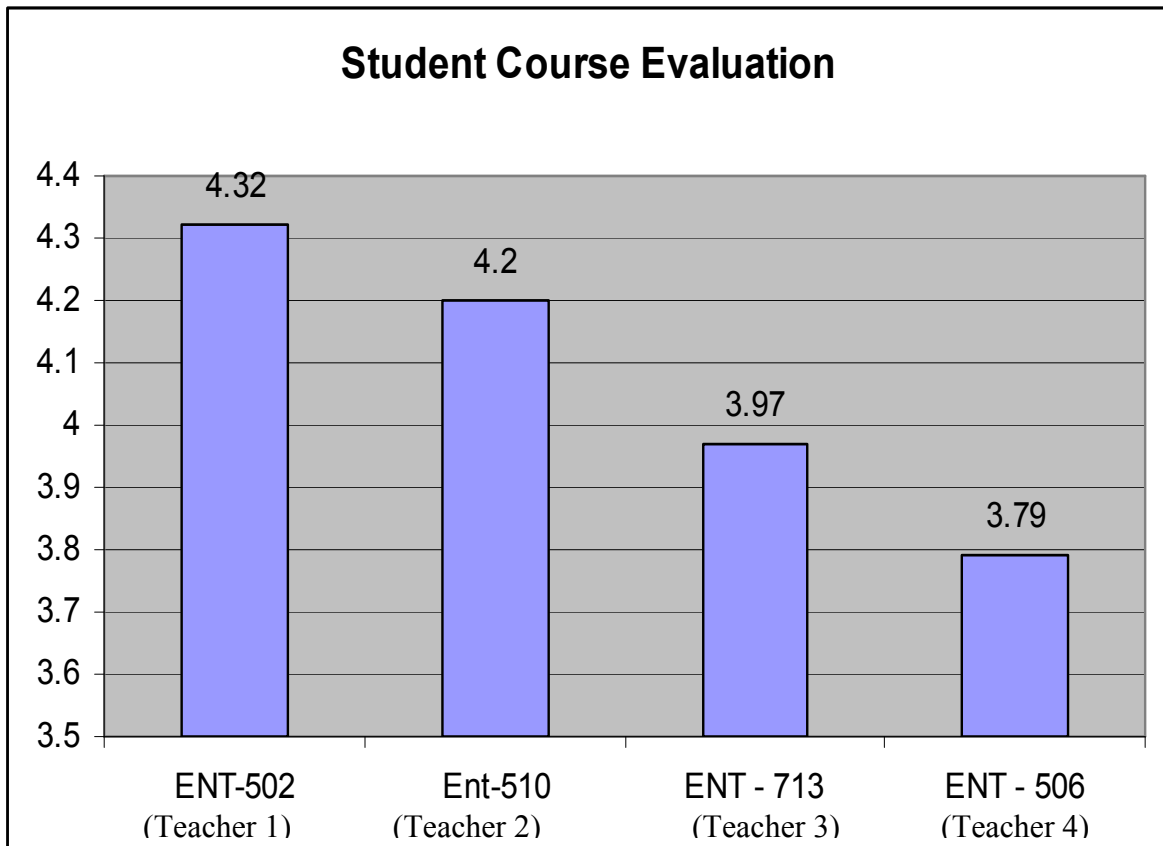






Students Course Evaluation

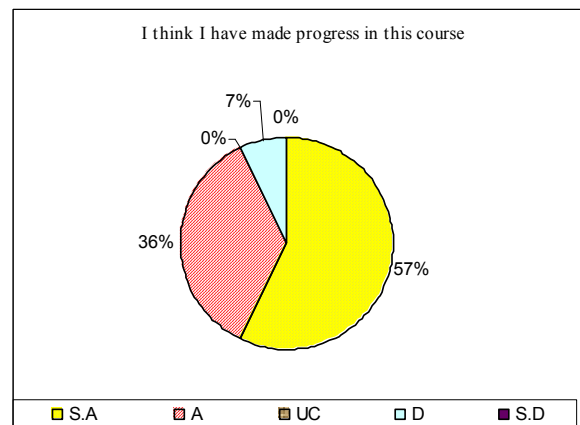
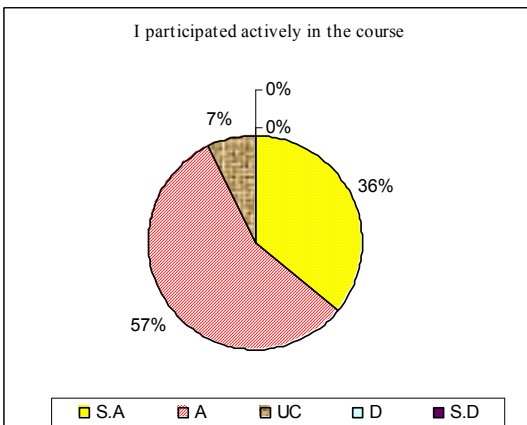
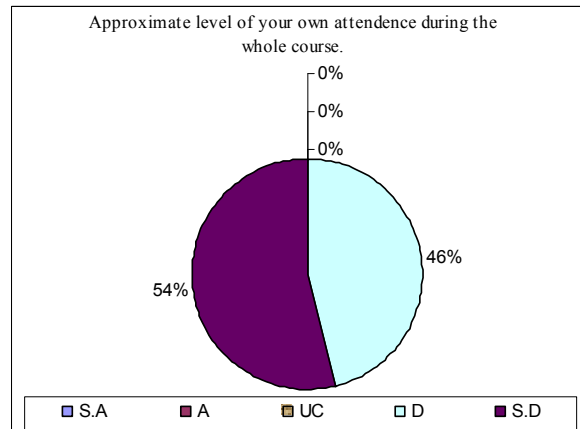
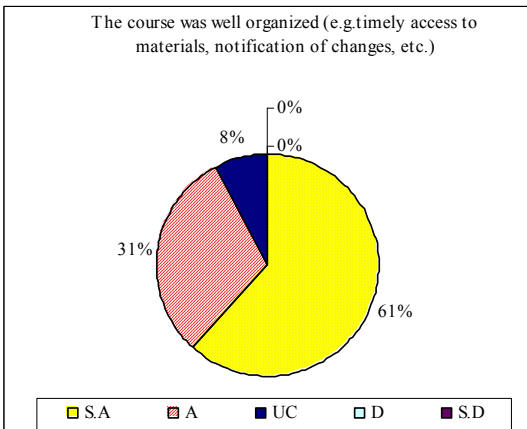
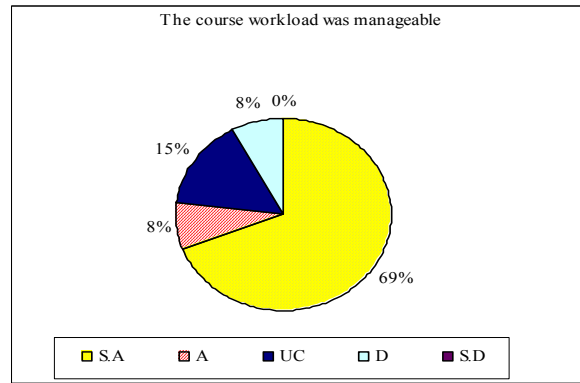
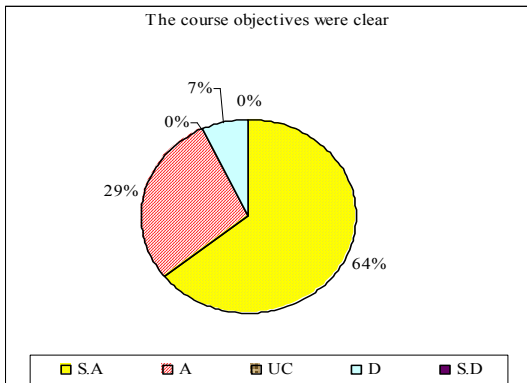
The courses of the individual teachers were evaluated on the basis of information gathered from Proforma 1 (Annexure-III). There are 3 teacher which are numbered 1-3 with monitoring there names, Dr. Muhammad Naeem, Mr. Humayun Javed and Prof. Dr. Abdul Khaliq (Late). The performance level is graphically presented in figure as shown under. Results showed that course taught by Teacher No. 1 gathered maximum score (4.32).

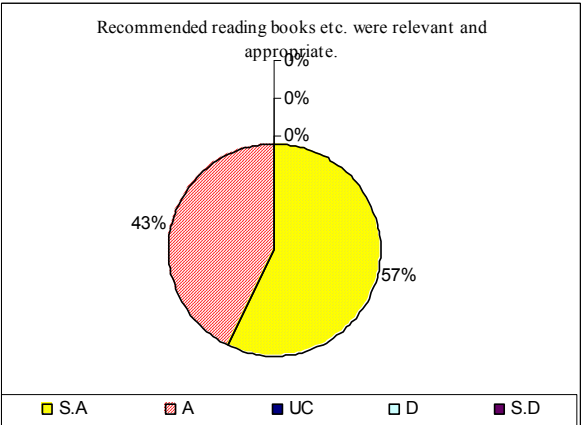
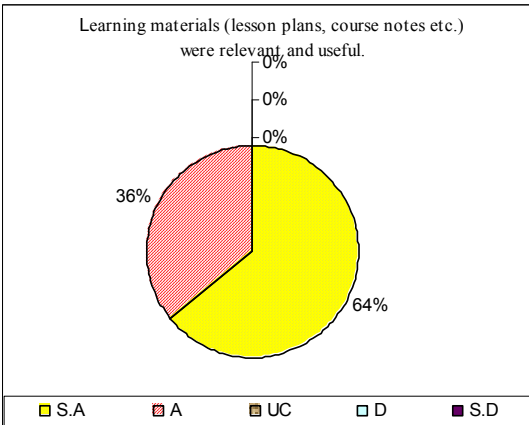
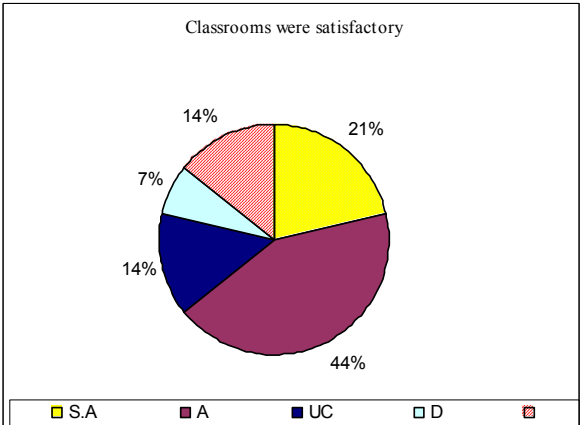
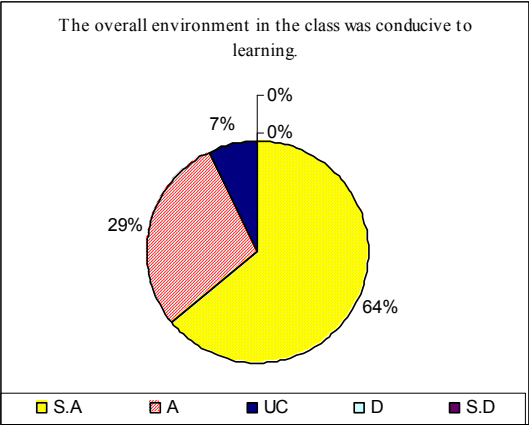
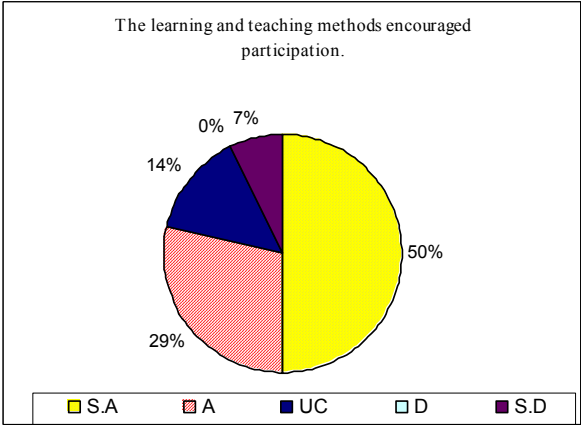
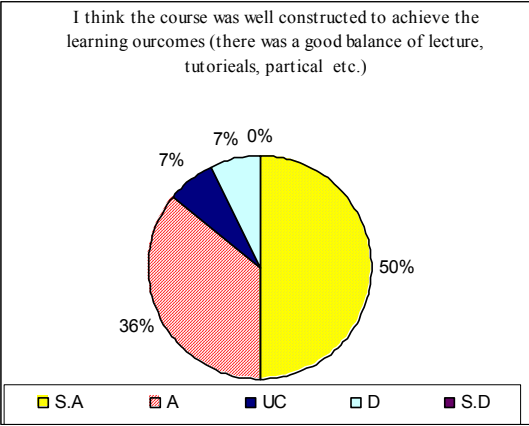


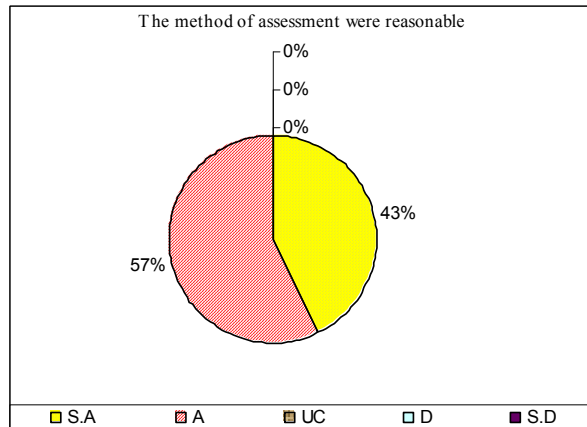
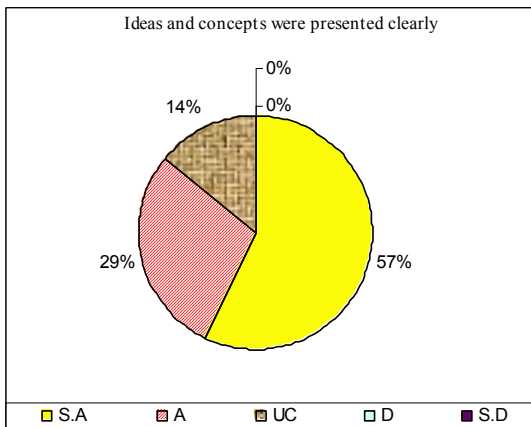
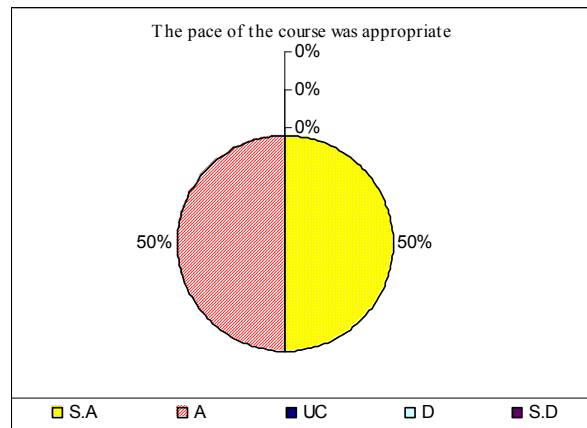
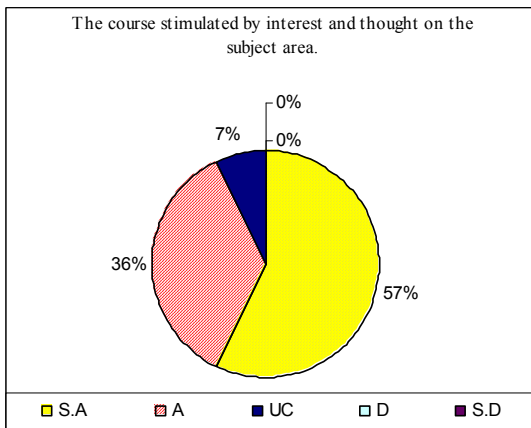
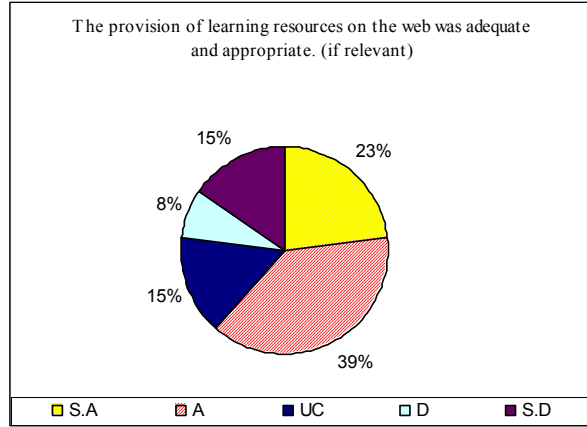
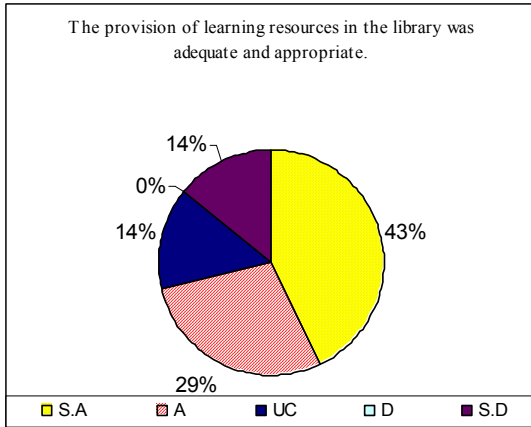
Pie Charts Showing Student Course Evaluation

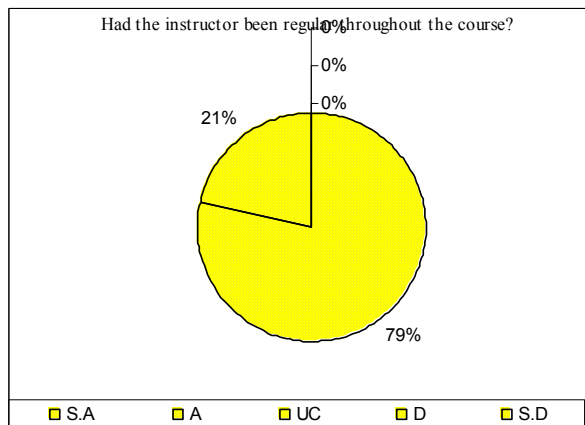
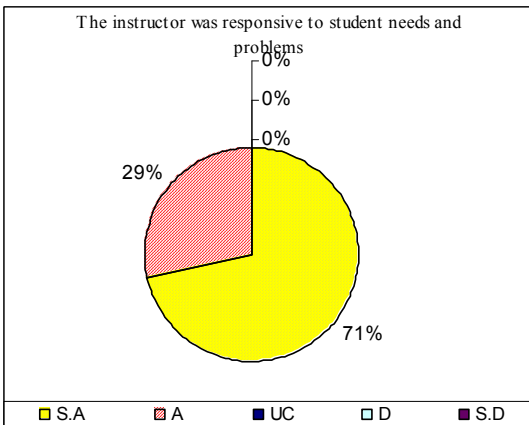
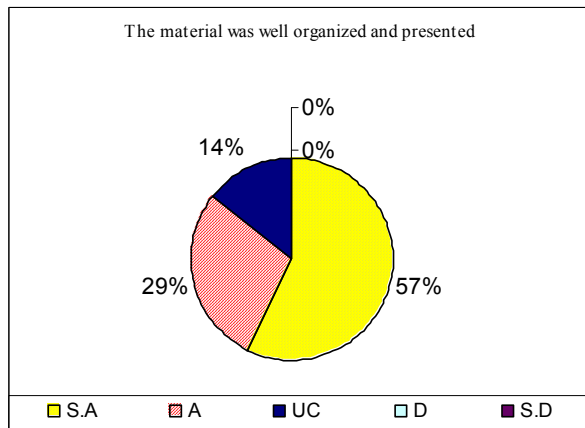
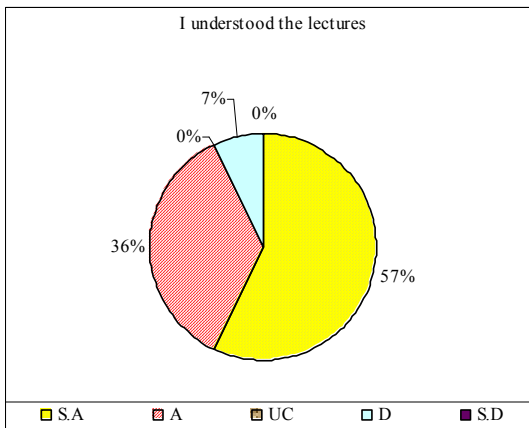
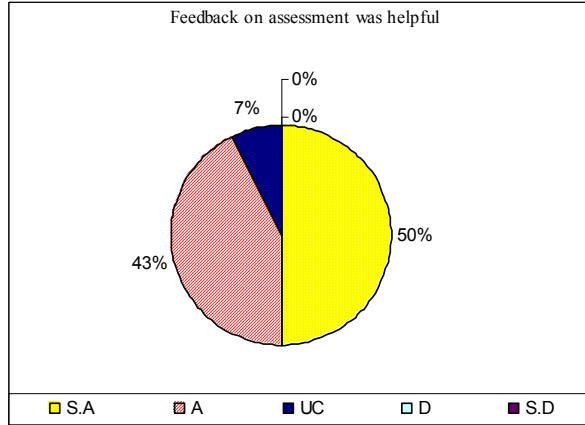
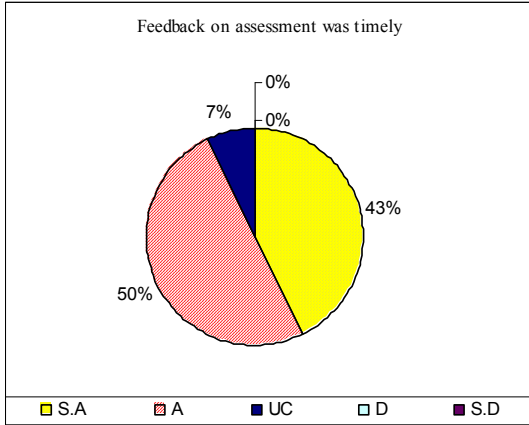
Course ENT 502 (Teacher 1)

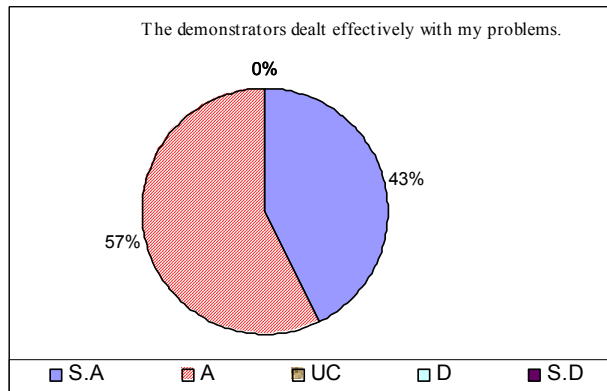
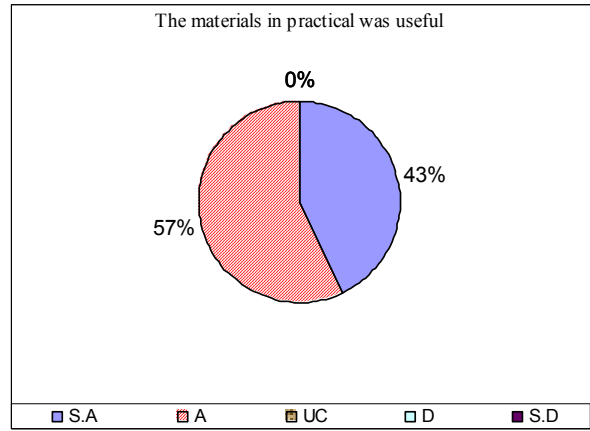
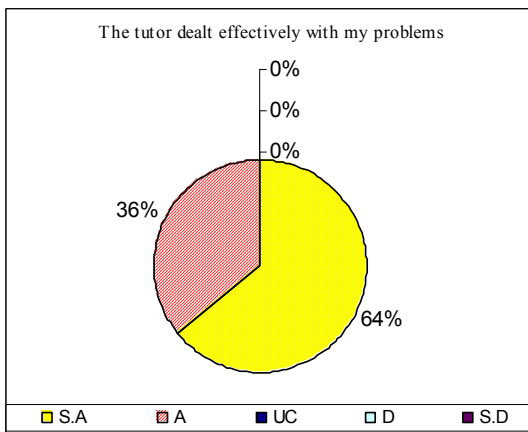
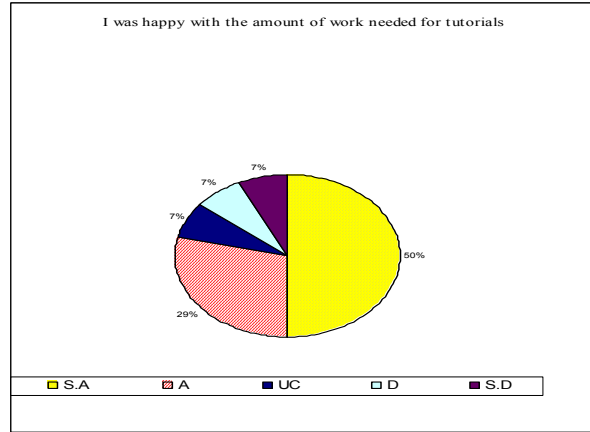
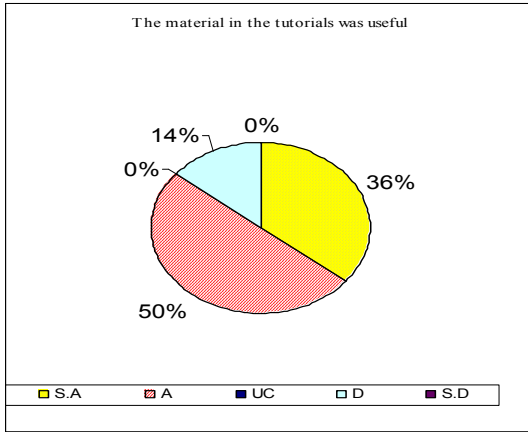
About 61 to 69 % students revealed that the course objectives were clear, course work was manageable and the course was well organized. However the students were not satisfied about the level of their own attendance. That is why the level of students participation was found to be only 37 % and about 56 % students pointed out that they made progress in the course. 21 % students were not satisfied with class room environment.





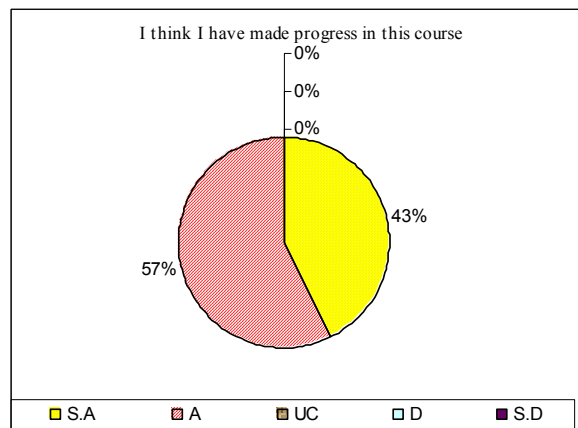
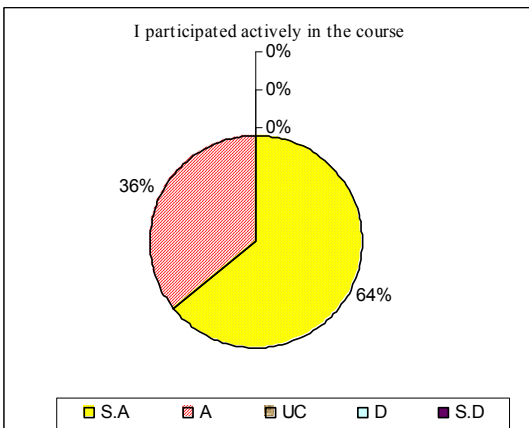
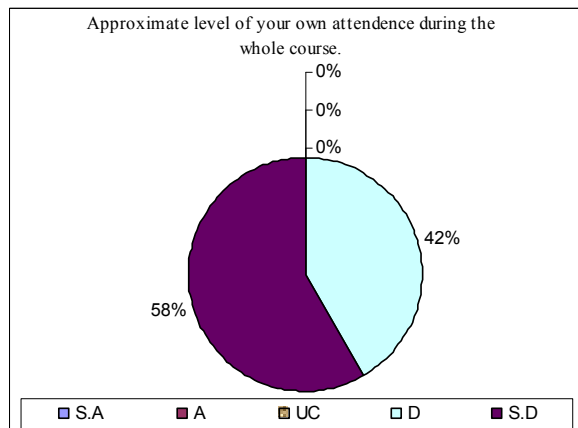
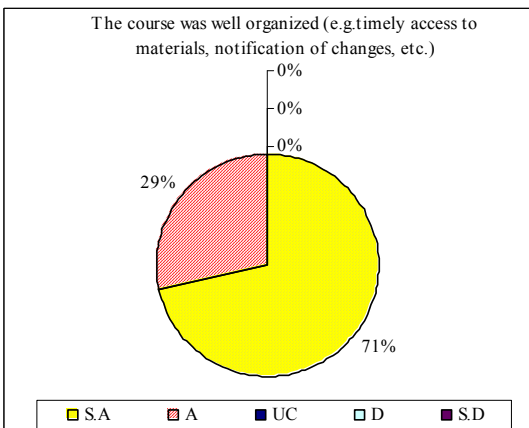
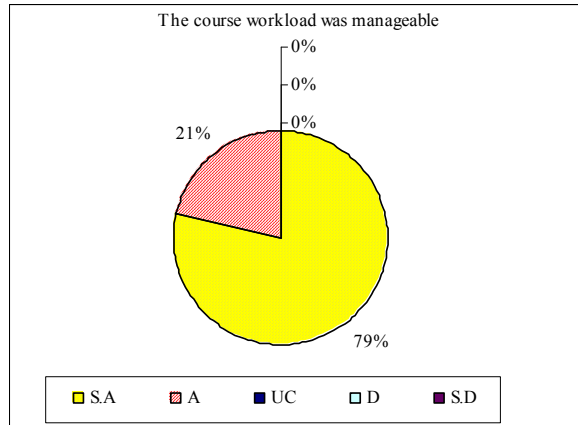
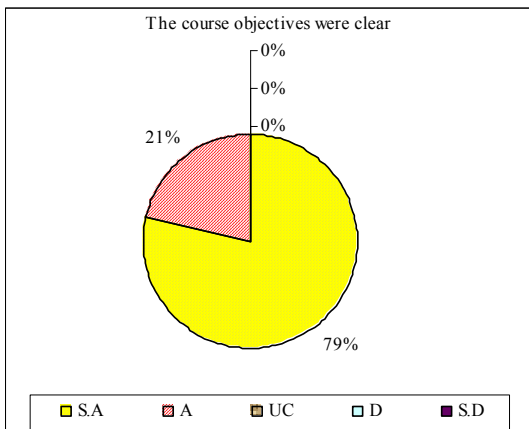


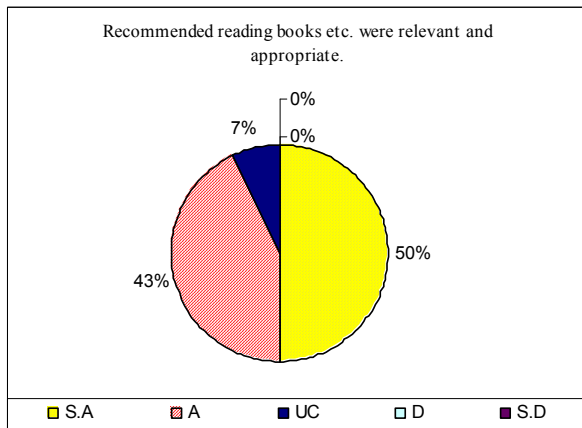
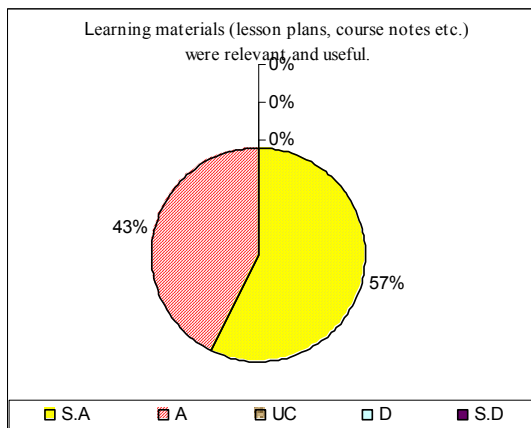
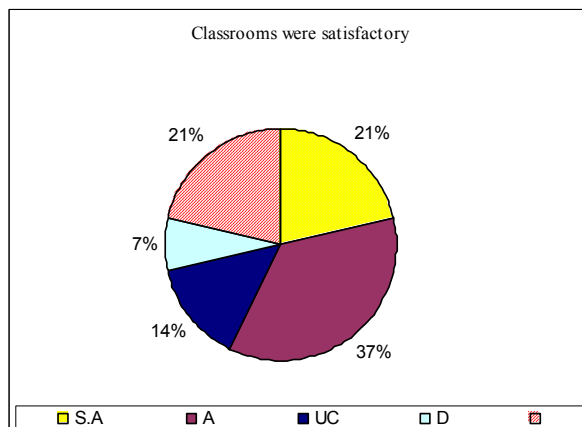
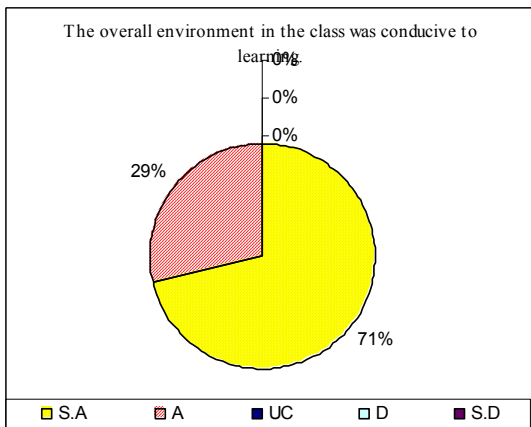
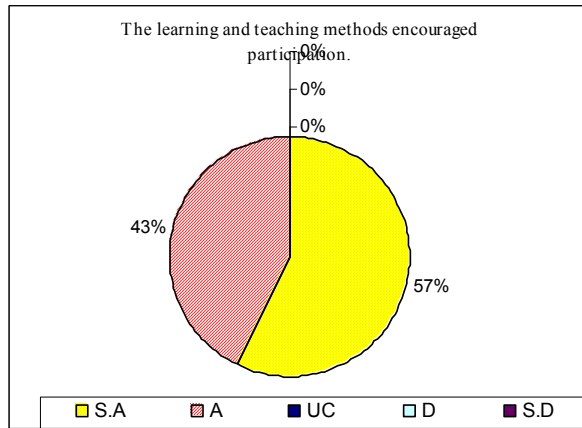
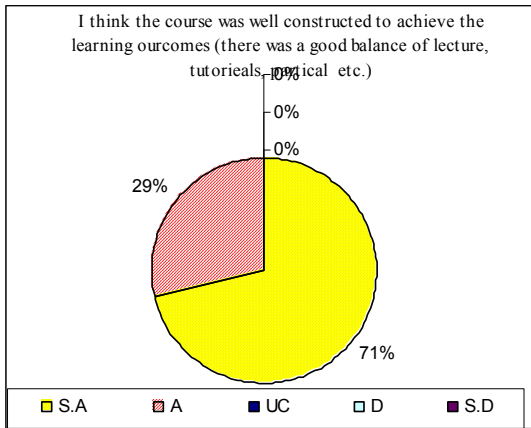


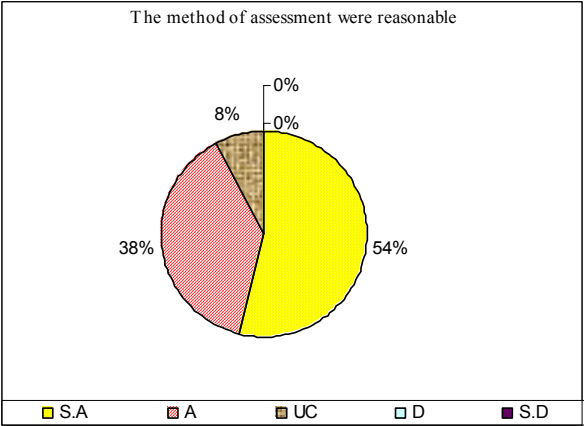
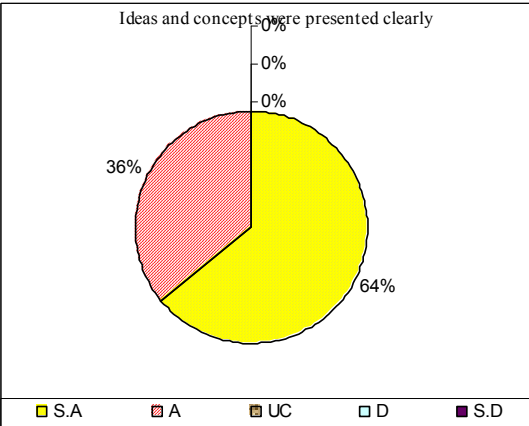
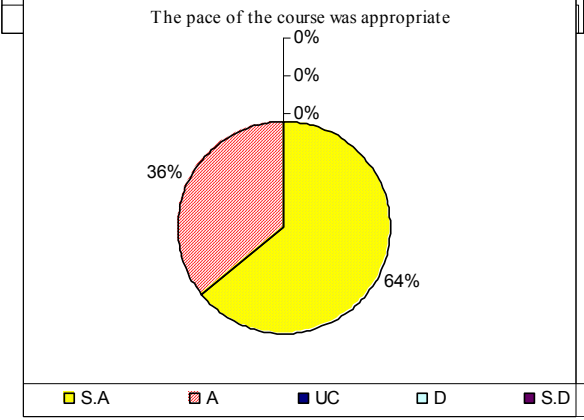
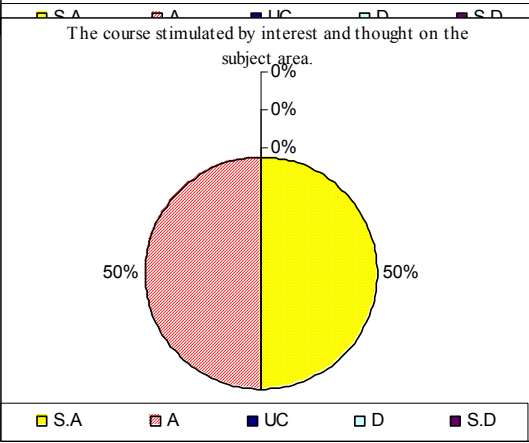
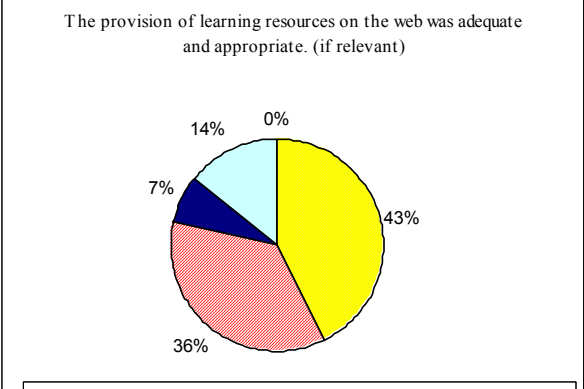
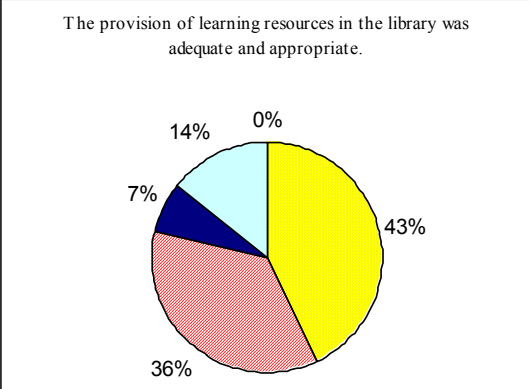


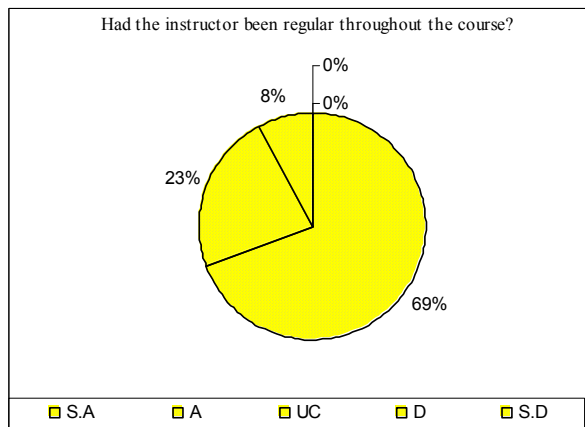
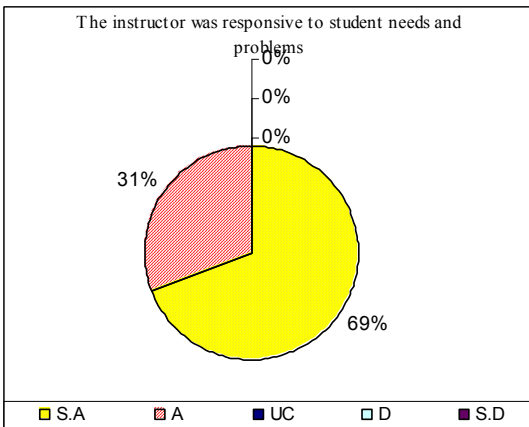
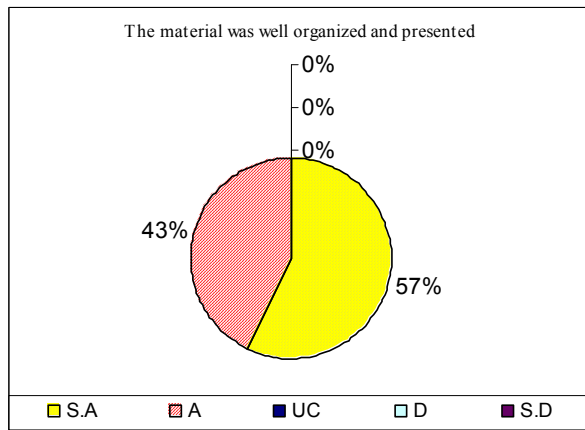
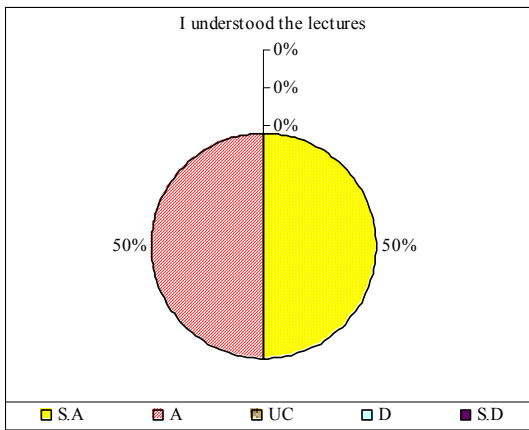
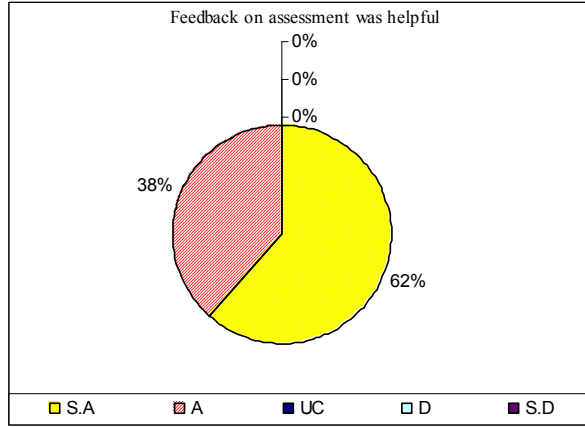
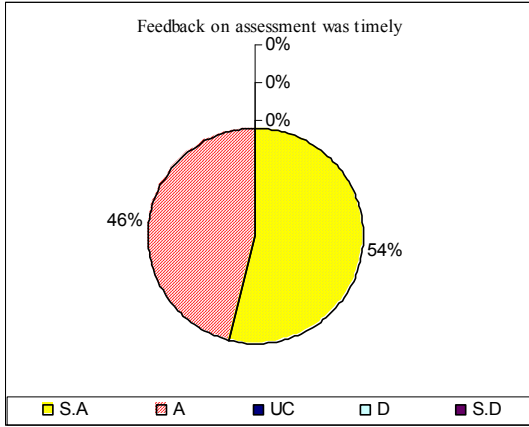
Course ENT 510 (Teacher 2)

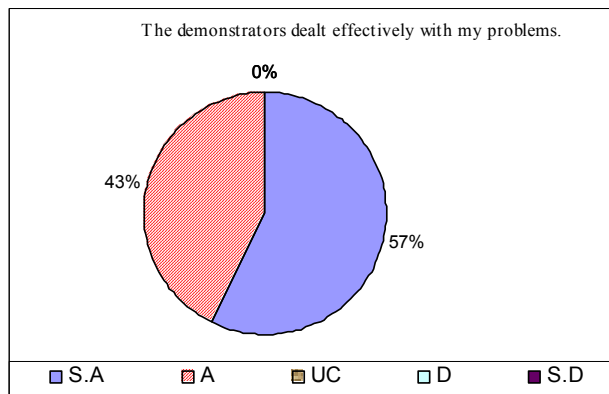
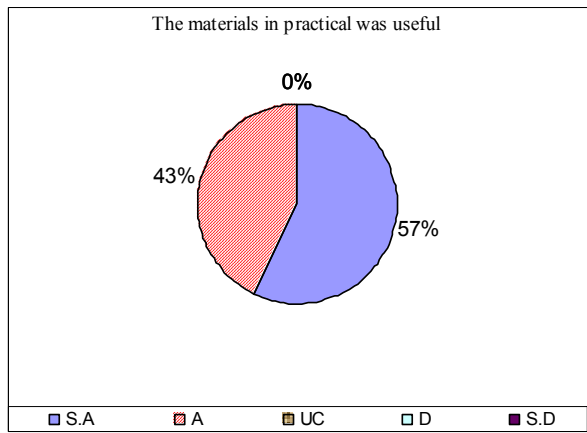
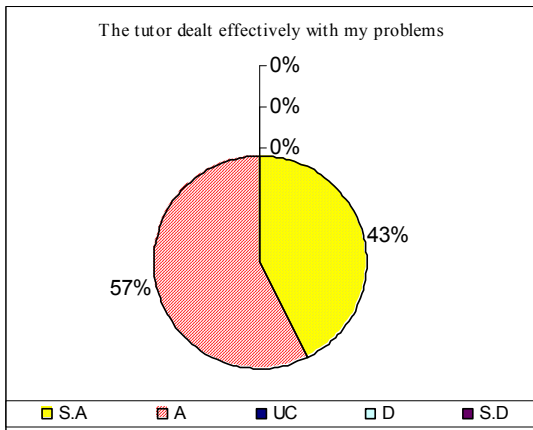
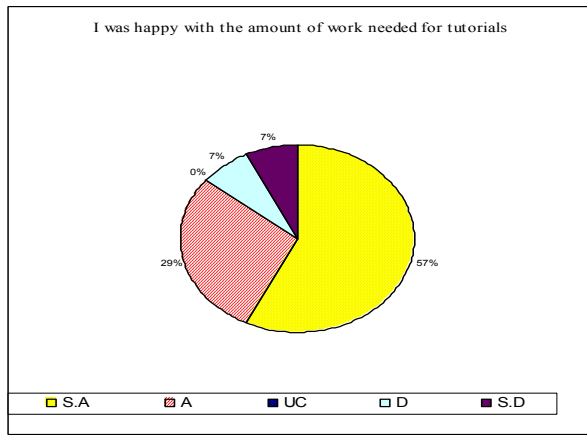
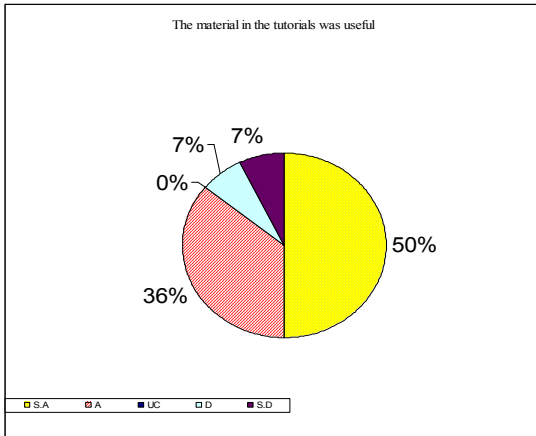
A majority of the students ranging 71 to 79 % disclosed that the course objectives were clear, course work was manageable and the course was well organized. However 42 % students were not satisfied with the level of their own attendance. That is why 43 % students strongly affirmed that they made progress into the course inspite of their active participation to the extent of 64 %. 21 % students were not satisfied with class room environment.





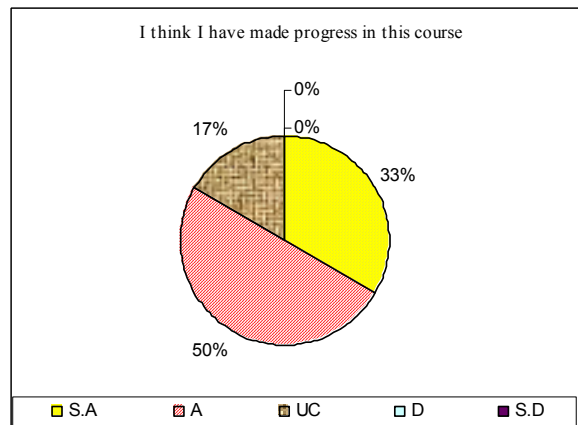
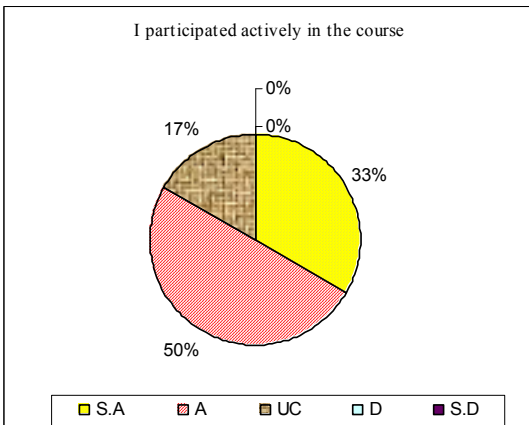
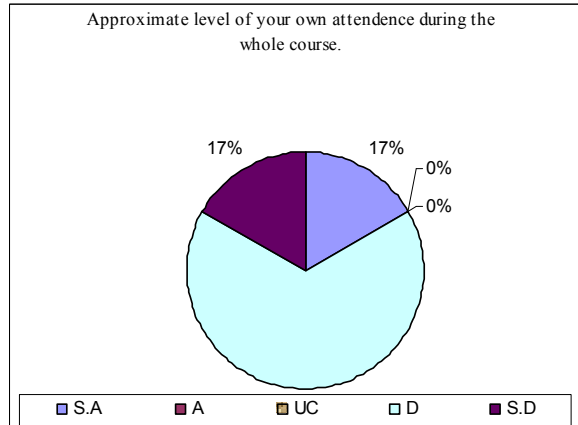
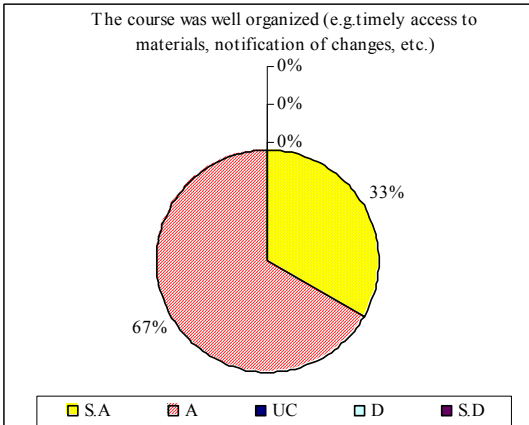
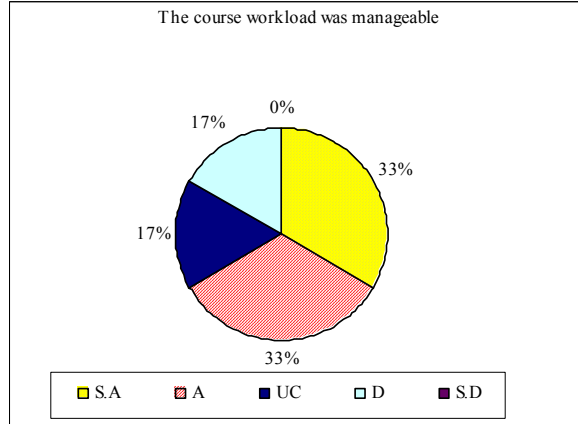
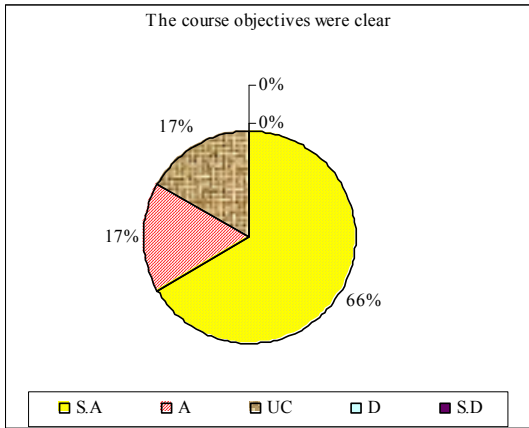


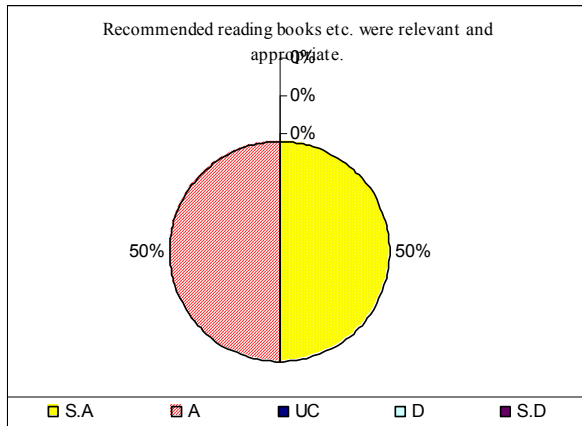
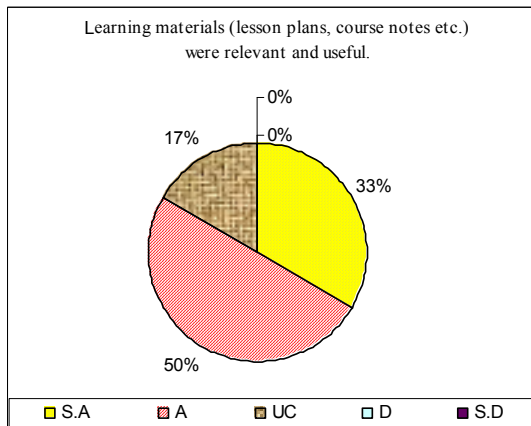
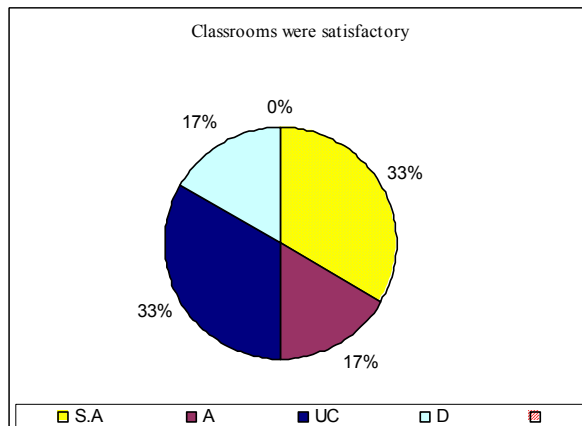
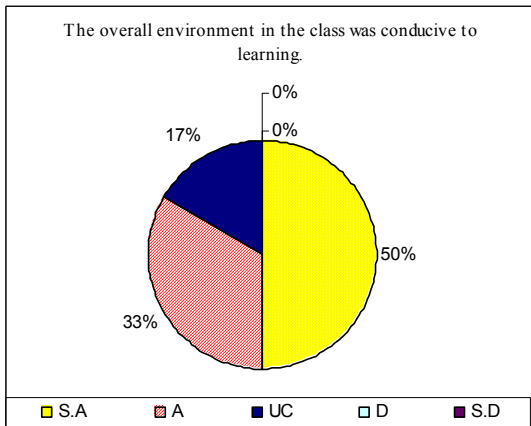
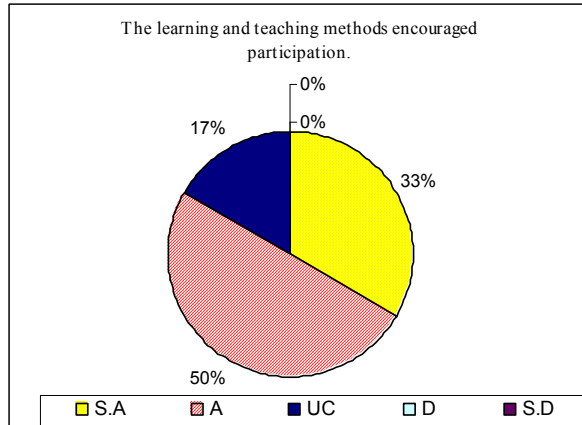
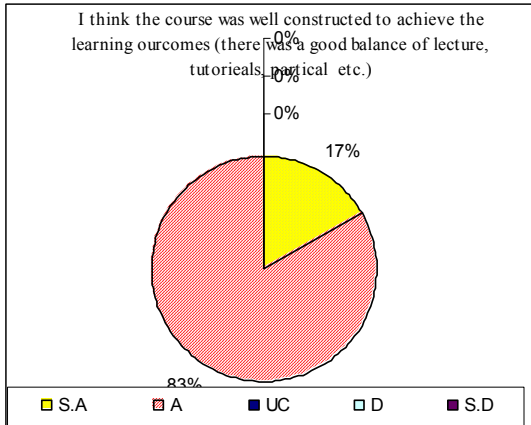


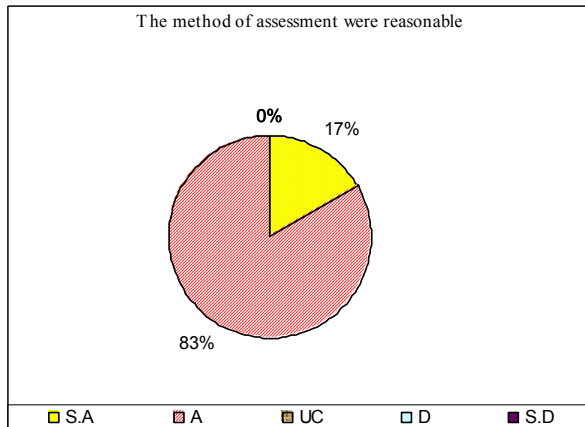
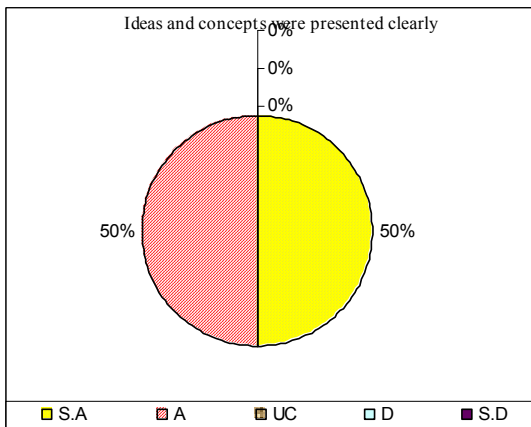
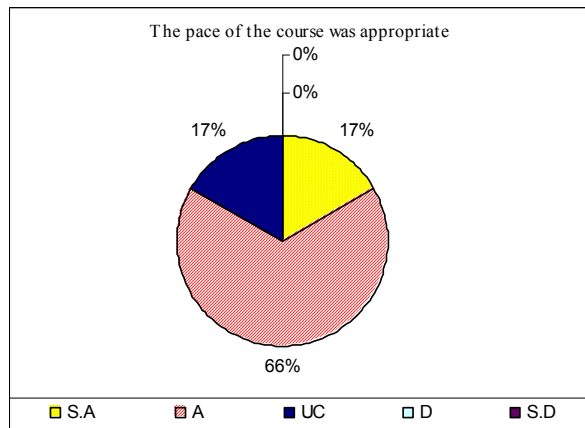
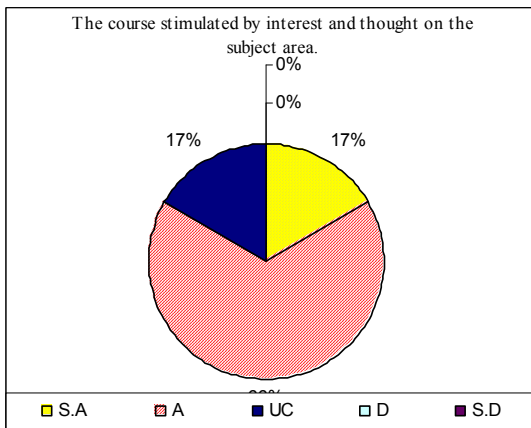
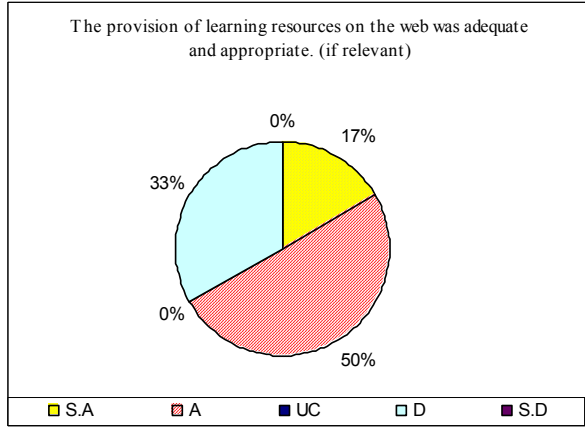
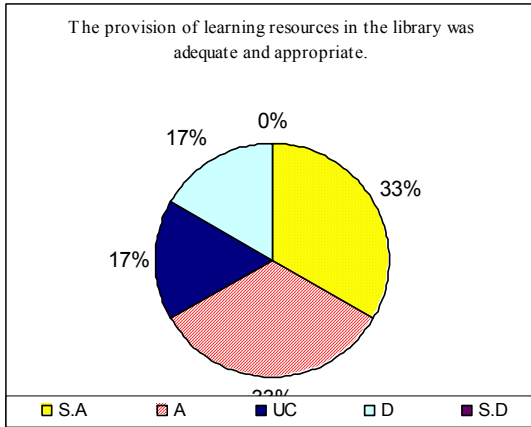


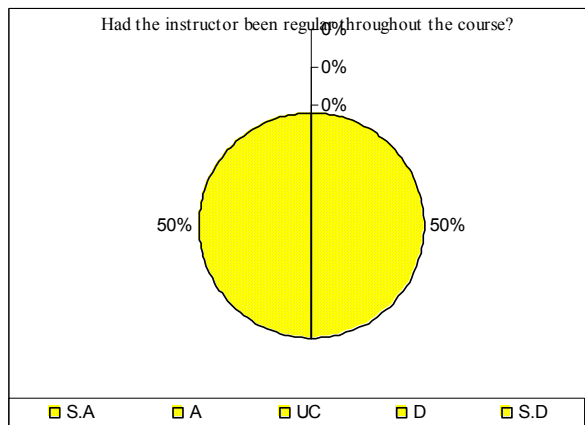
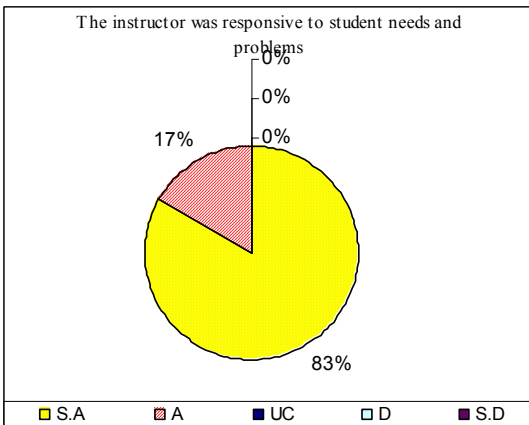
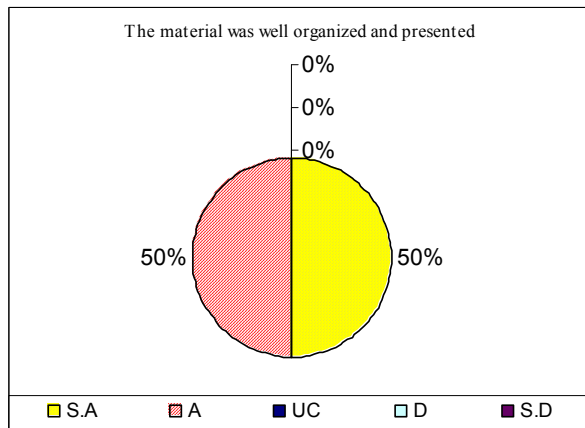
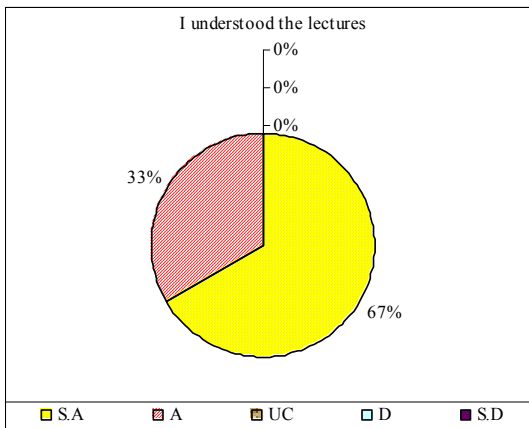
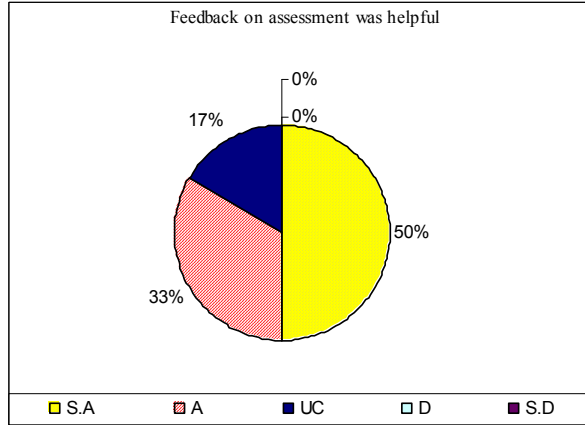
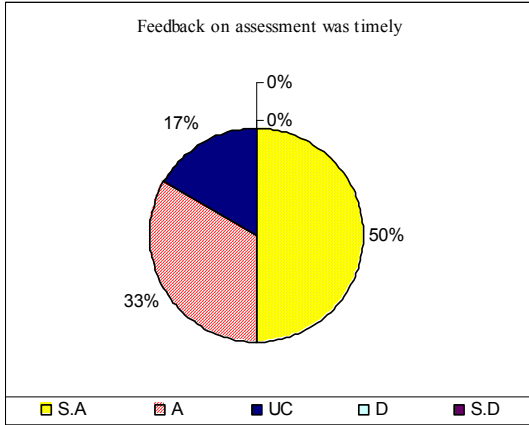
Course ENT 713 (Teacher 3)

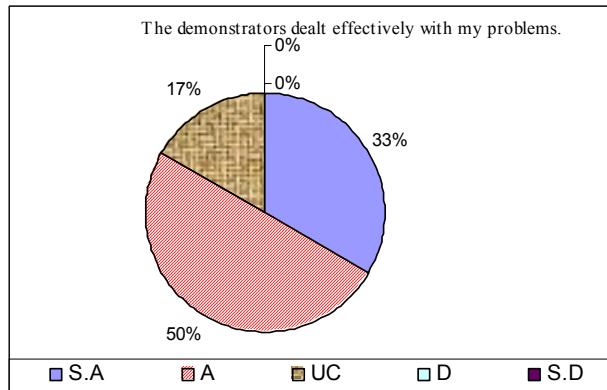
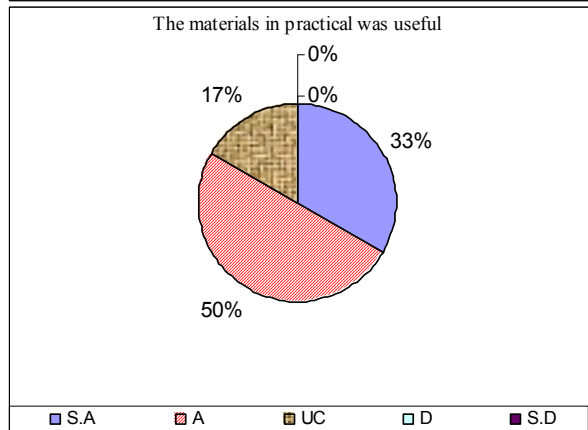
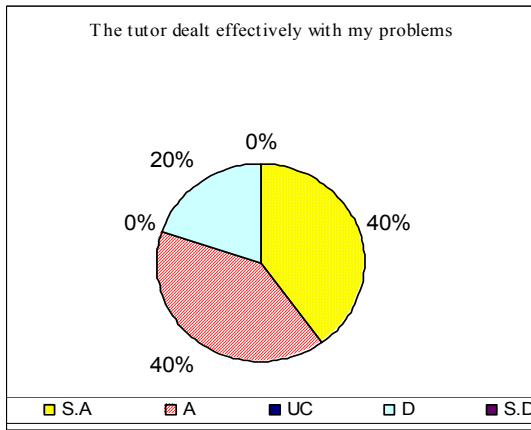
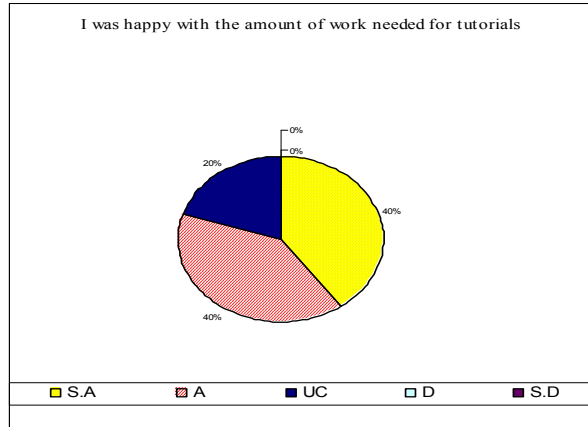
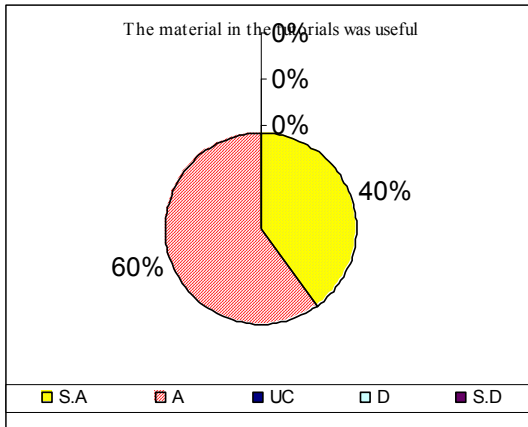
Although 66 % students were of the view that course objectives were clear but only 33 % students strongly agreed that the course work was manageable and the course was well organized. Similar percentage of the students strongly agreed that the course was well conducted and teaching methods encouraged their participation.





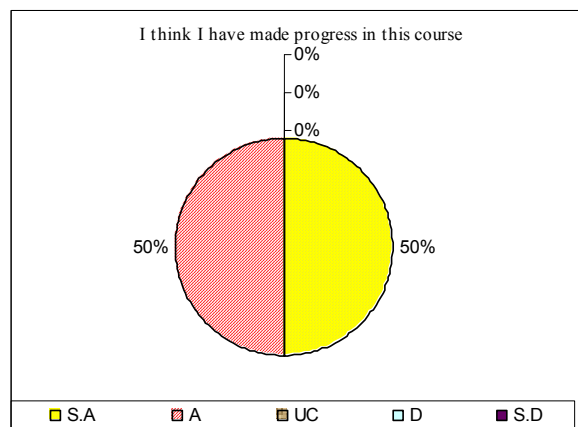
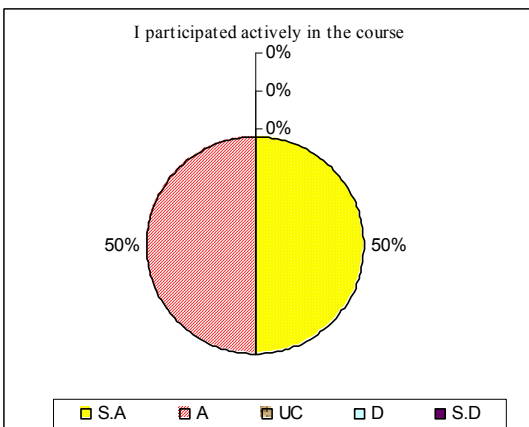
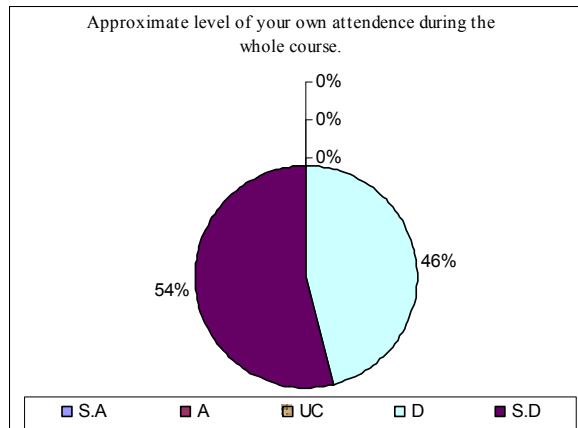
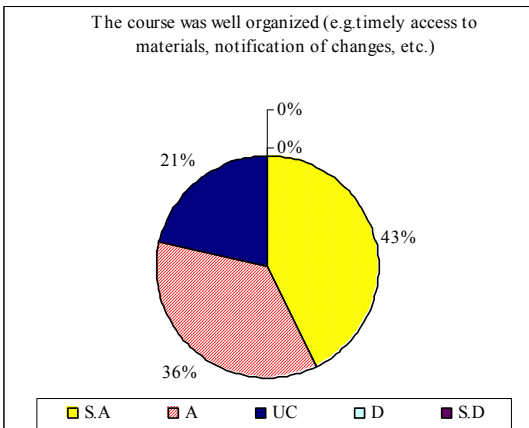
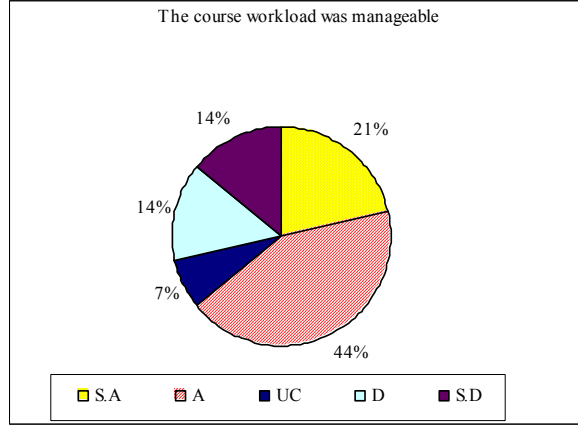
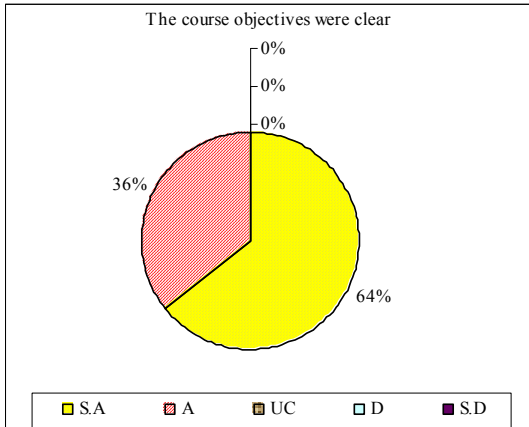


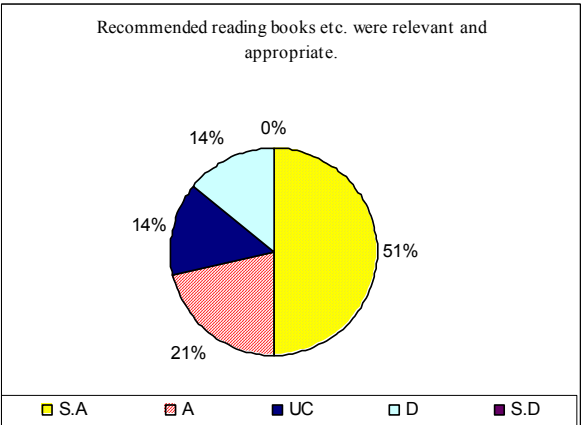
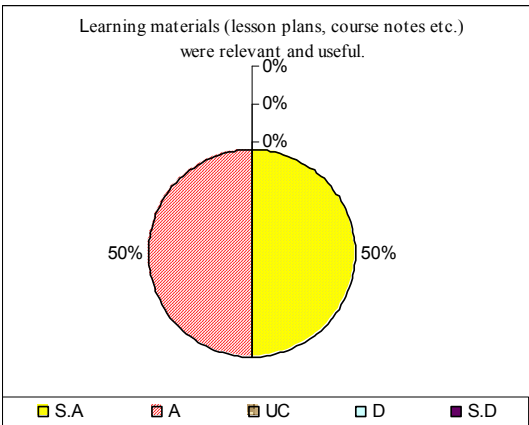
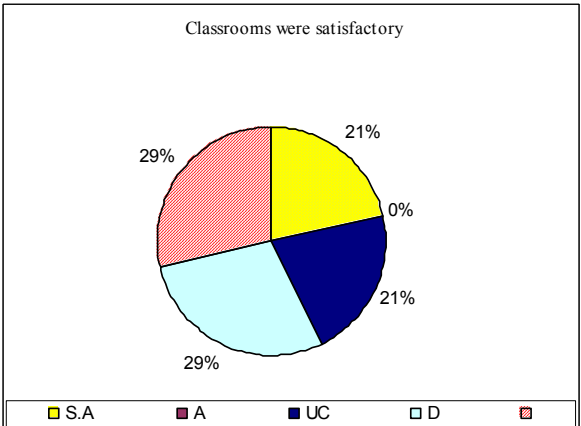
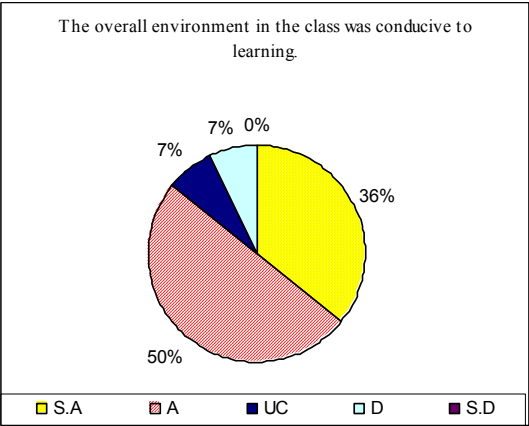
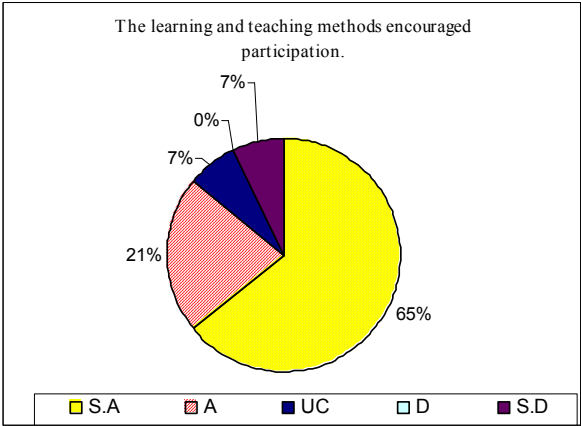
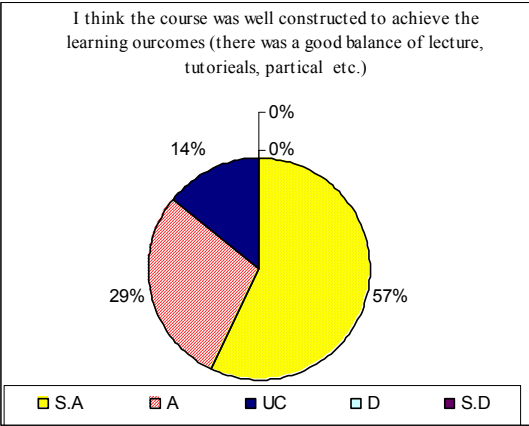


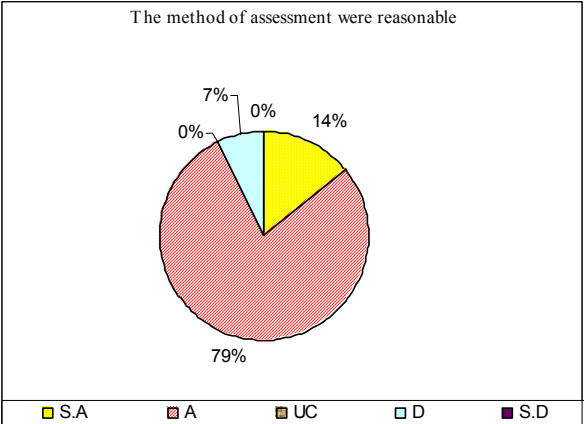
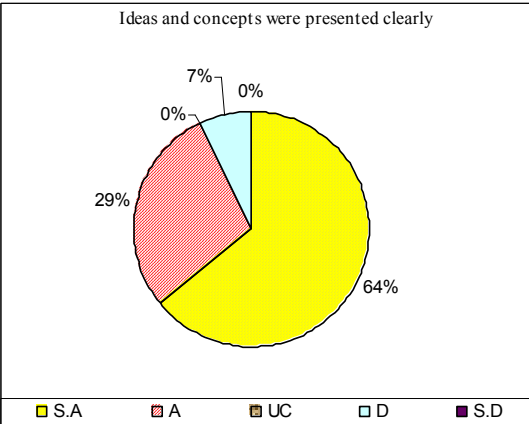
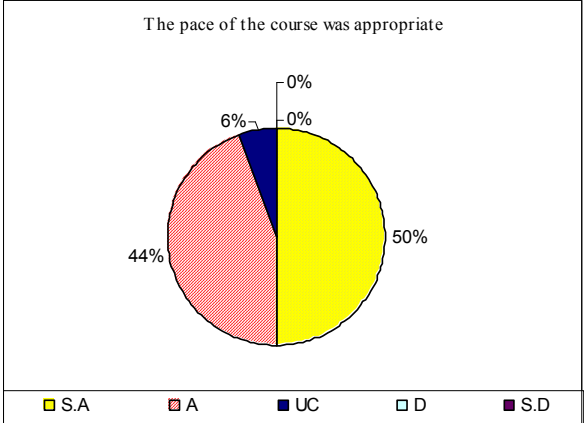
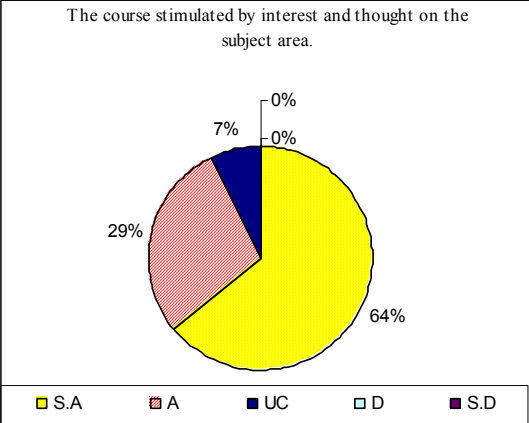
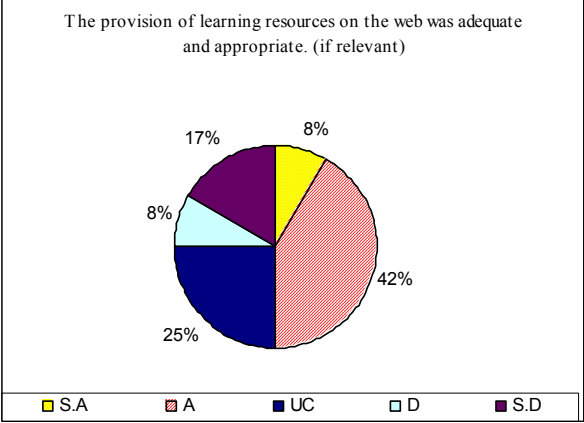
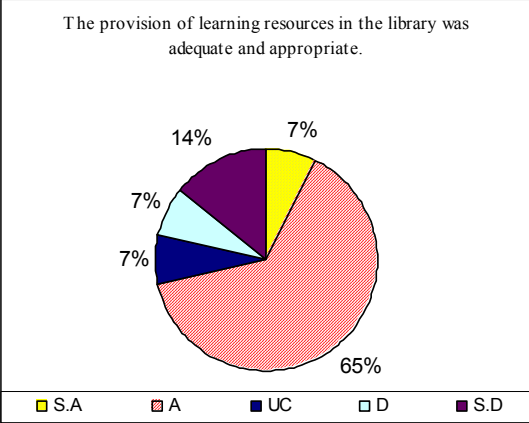


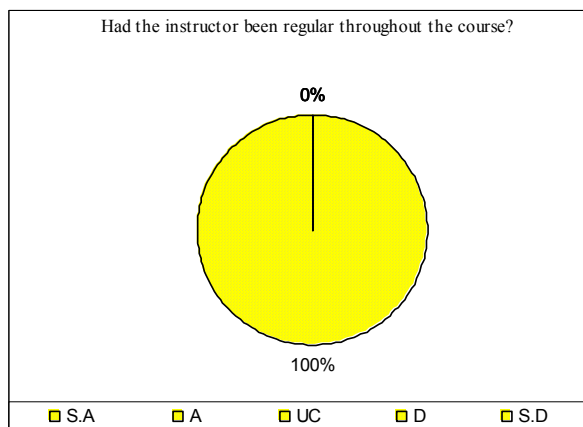
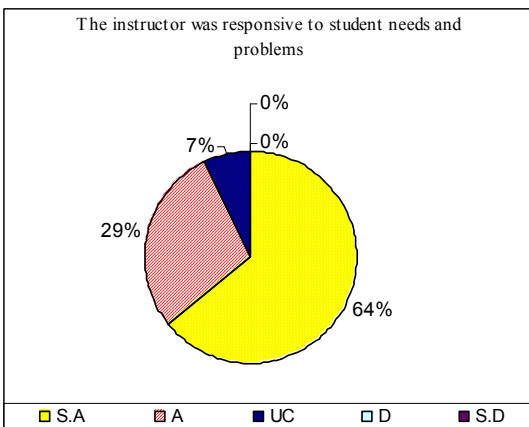
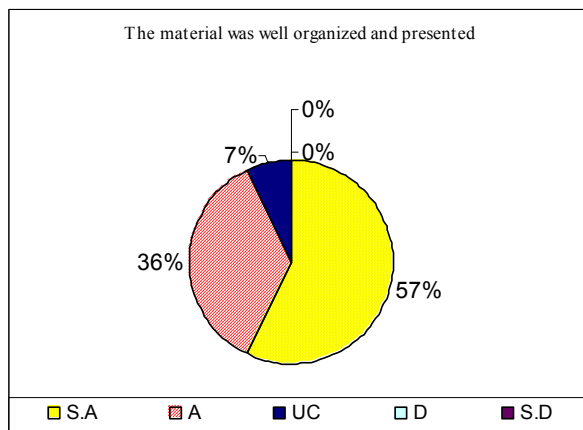
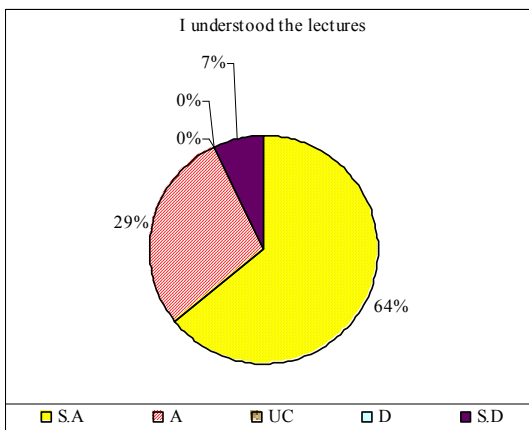
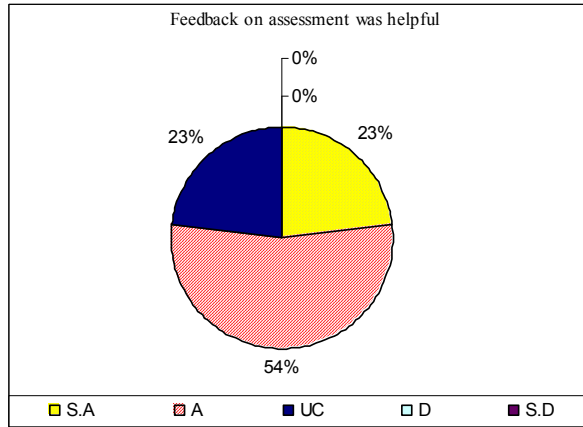
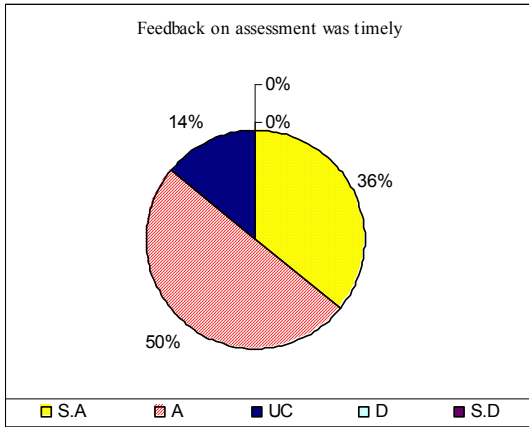
Course ENT 506 (Teacher 4)

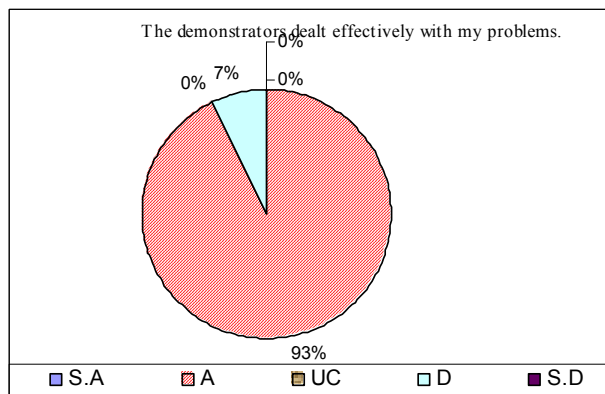
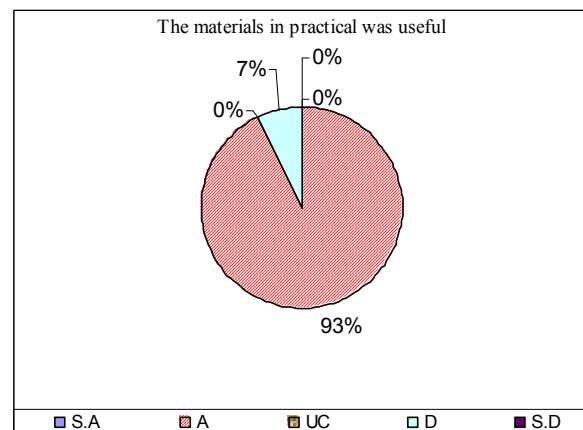
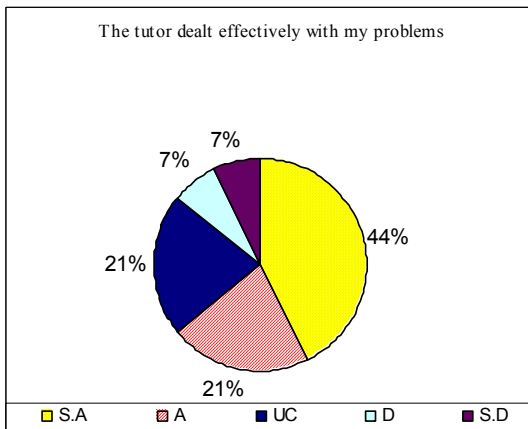
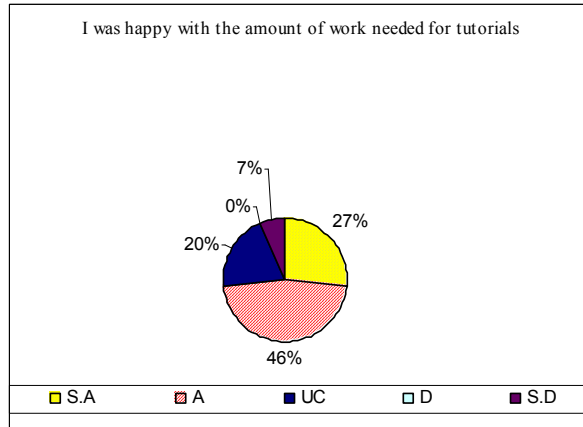
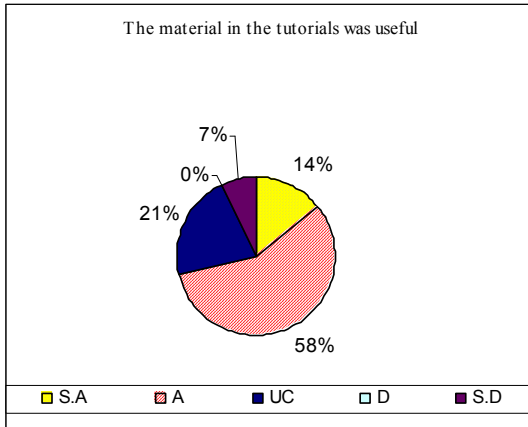
About 64 % students strongly agreed that course objectives were clear. But only 21 % students strongly agreed that the course work was manageable. Likewise 57 % did not strongly agree that the course was well organized. Whereas 50 % of the students agreed that they participated actively and made progress in the course. Most of the students were not satisfied with the overall environment of class. Only 21 % agreed that class room were satisfactory.





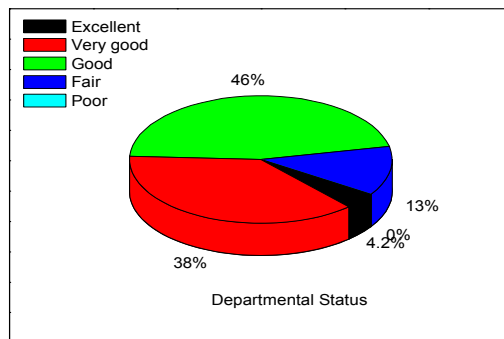
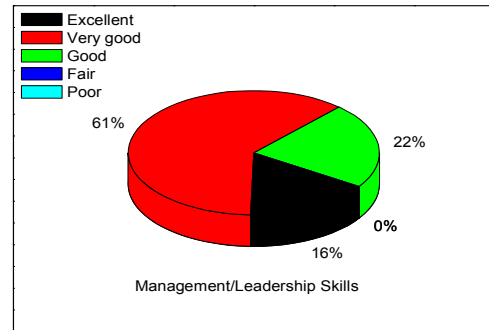
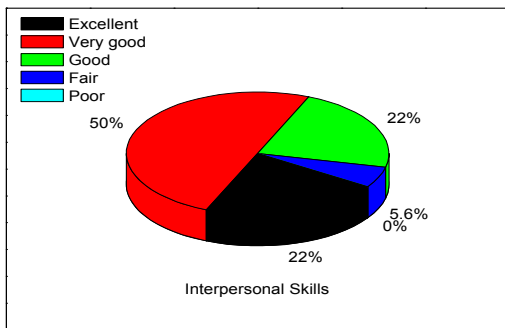
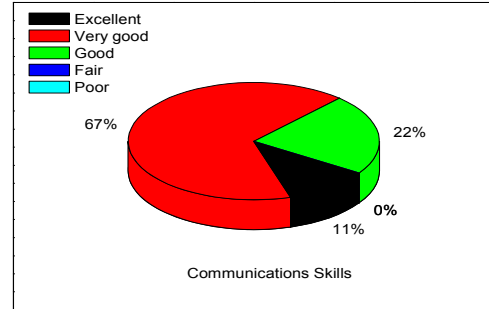
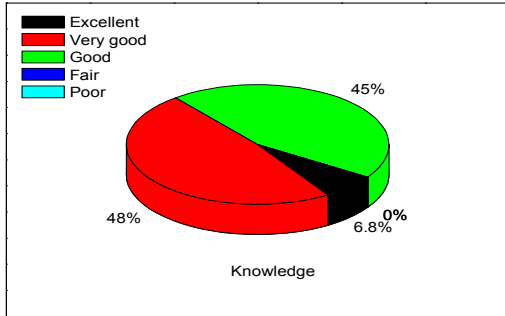






ALUMINI SURVEY

The alumni survey results was conducted associated with Proforma # 7 (Annexure-I). Six graduate students feed back was obtained from the Alumini survey. The programme assessment results are shown in the following pie graphs.

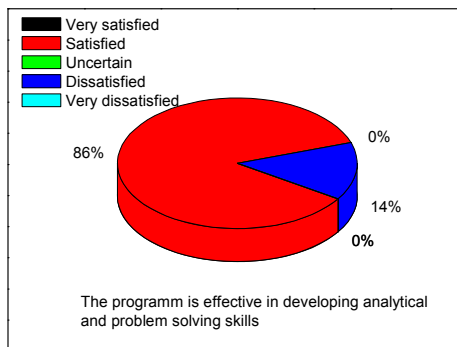
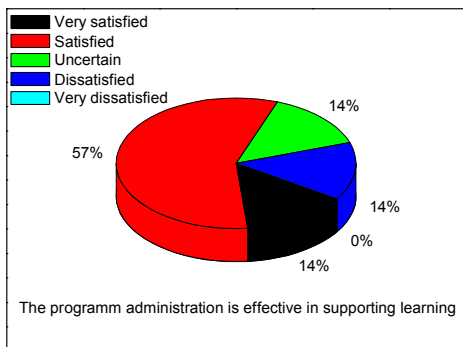
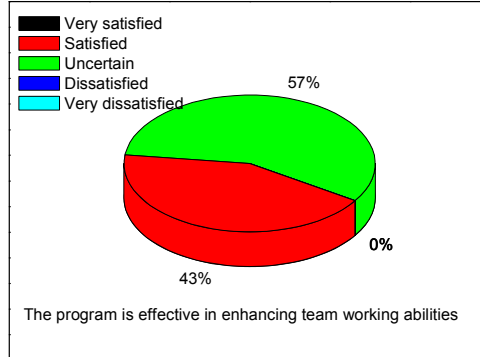
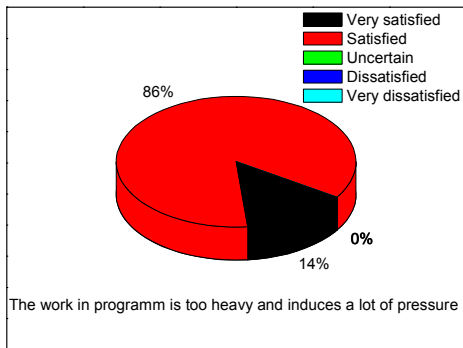


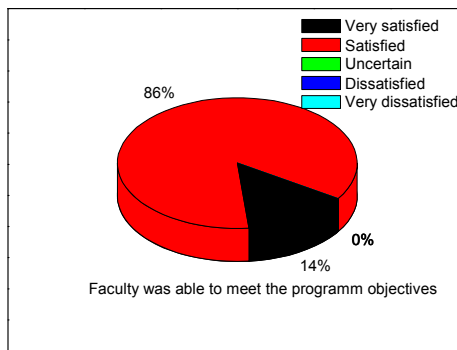
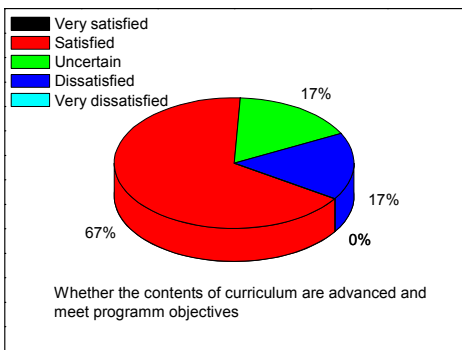
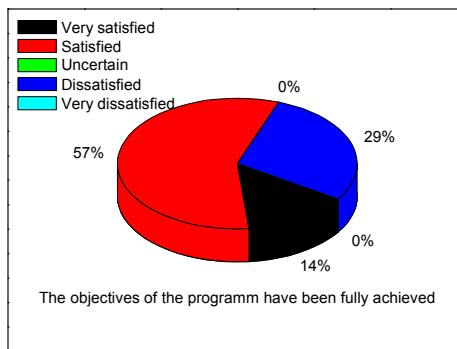
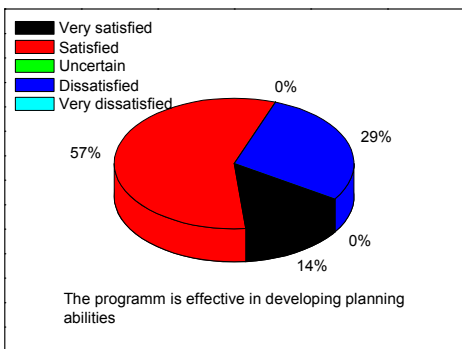
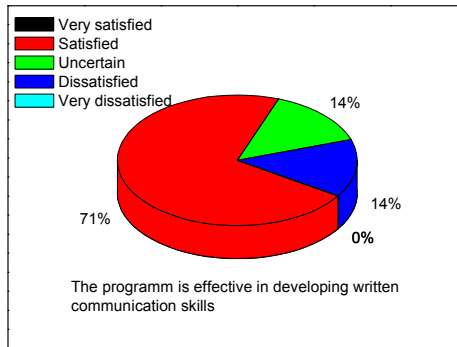
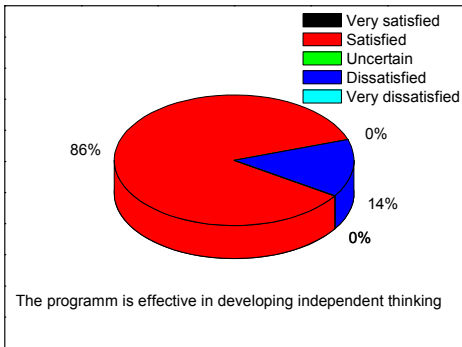
Skills and Capabilities Reflected In Performance as Entomologist.

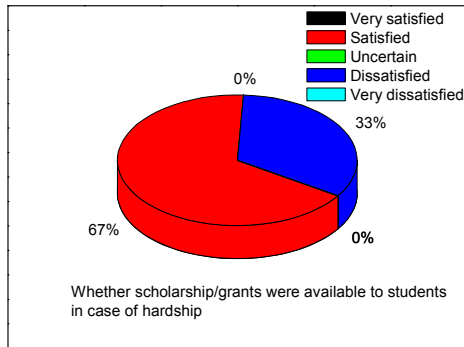
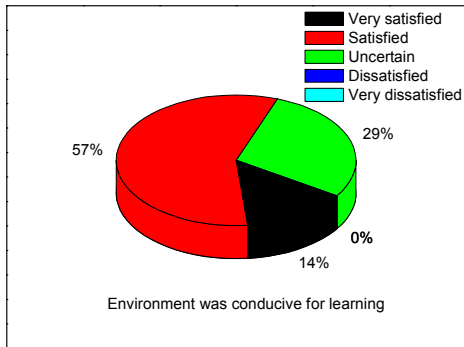
Our students develop ability to apply knowledge of Entomology to work as skilled and successful professionals in the respective field. While studying, students learn advance knowledge about the field, gain confidence, experience and skills to handle problems relating to their field of specialization independently as well as working in a team of experts.

SURVEY OF GRADUATING STUDENTS

The survey of graduate students results was conducted associated with around 20 graduate students of Proforma # 3 (Annexure-II). The programme assessment results are shown in the following pie graphs. It is evident from the charts that majority of the students were satisfied with the programme. However few students were dissatisfied with the environment, contents of the curriculum and team work abilities.

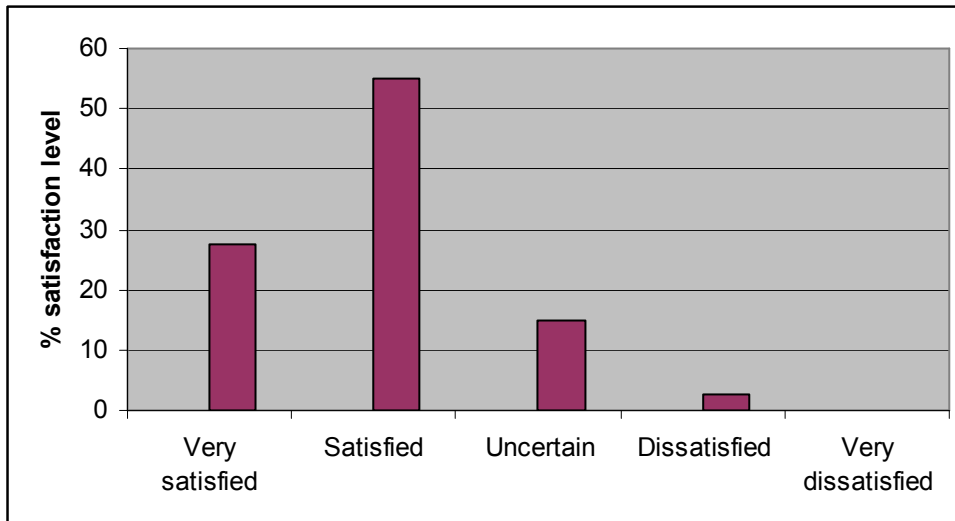






Internship Experience:

The results of internship experience was found to be satisfied which help to improve the ability to work in teams, discipline, professional development, time management skills and appreciation of esthetic values. Around 50% students showed their satisfaction considering all the parameter as represent under the figure.



Standard 1-3: The results of Program’s assessment and the extent to which they are used to improve the program must be documented.

Strength of the Department

The department hold meeting during or at the end of semester to discuss performance, attitude and regularity of the students. The main strength of the department is the urge and desire to promote the entomological knowledge and research to solve the field problems relating to crop pests, systematics, food security and economic entomology. At present two of the senior faculty members are foreign Ph.Ds, whereas three junior faculty members are doing Ph.D. abroad. It is hoped that on their return the department will be capable to touch the peaks of success in research and teaching methodologies.

Weakness Identified In the Program

The department is facing acute shortage of:

- Lab equipments i.e., Electron microscope, Microtome, Growth chambers etc.
- Shortage of funds for chemicals and glassware
- Shortage of staff and lack of temperature and humidity controlled laboratories; multimedia, computers and equipments relating to molecular techniques are deficient areas.

Standard 1-4: The department must assess its overall performance periodically using quantifiable measures

Present Performance Measures for Research Activities

Table 3 Research Performance of the Faculty

Faculty	Journal Publications (National & International)	Conference Publications (Proceedings Abstract)	Projects
Dr. Muhammad Aslam	113	41	3
Dr. Muhammad Naem	21	2	1
Mr. Humayun Javed	13	7	1

The department is under staffed and need more Ph.Ds to be inducted.

Faculty with Excellent Research Award

- PEF 8th National Education Award, 2002.
- 13th Star award, 2002.

- Quid-i-Azam Gold Medal, 2004

(Prof. Dr. Muhammad Aslam, Chairman Entomology Department was honored with these awards).

Community Services by the Department

- Workshop on “Controlled and modified atmospheres to preserve post-harvest quality of stored grains”

Faculty Satisfaction Regarding the Administrative Services

- Department regularly participate/attend all periodical/scheduled meetings including departmental, university, academic council, and syndicate).
- Corresponding to the HEC standards Entomology Department maintains a ratio of 8:3 for the academic (technical) and administrative (non-technical) staff.
- All sorts of records/inventories pertaining to personnel, students, results or thesis etc have been maintained in a regular and proper way.
- A good level of regularity has been maintained in quick office disposal, so far no complaint has been lodged from any quarter in this regard.

Major Future Improvement Plans

Thanks to industrialization, we are no more an agriculture-dependent economy only. However, a sizeable portion of our industry is agriculture-based. Crop protection and improved plant health for higher yields will always be among the prime objectives for the country.

In the light of faculty performance evaluation and monitoring surveys, the department is paying special attention on:

- Maintaining better learning environment and standards of teaching.
- Rescheduling field visits incorporating entomological problems particularly in arid areas.
- To impart quality education in Entomology through audio visual aids and modern tools along with provision of latest literature, journals, books, reviews and access to internet.
- To extend facilities for studying crops and stored grain insect pests, and develop extension material.
- To prepare hand outs, brochures and pamphlets for the farmers and advisory services.
- To establish the post-graduate laboratories in the disciplines of Toxicology, Biosystematics, sericulture and apiculture and Bio-control along with strengthening of

Stored grain research laboratories. Human Resource development in Plant Pathology to meet future challenges for sustainable agriculture leading to self sufficiency in food.

- To emphasize problem oriented research on specific and serious crop pests prevalent in the arid ecology.
- Overall enhancement of knowledge and skills of faculty members in relation to the latest global advancements in this discipline through exchange programs, short term trainings and collaborative research projects with federal and provincial government bodies.

Table: 4 Quantitative Assessment of the Department

Sr.#	Particular	No.	Remarks
i	Undergraduates B.Sc. (Hons.) produced	29	Some of the students are silver medalist, 80% of them joined M.Sc, 35% got employment
ii	M.Sc. (Hons.) degree awarded	18	3 students joined PhD program; the remaining got employment, currently holding various positions
iii	Ph.D. produced	5	In employment
iv	Post-Doc fellowship	1	UK
v	Ph.D. Scholarship for faculty	3	One for Netherland; 2 for UK.
vi	Students: Faculty rates	37:1	Fulfils HEC criteria
vii	Technical: Non Technical ratio	8:3	Fulfils HEC criteria
viii	Average grade point	Around 3	Fulfils HEC criteria

The assessment exhibited high efficiency of system and adequate impact of outcomes. Almost all the graduates and post graduates got jobs in various organizations (Federal & provincial departments, universities, research organizations, banks NGOs, pesticide companies etc.).

Degree

B.Sc. (Hons) Agric. Entomology

M.Sc. (Hons) Agric. Entomology

Ph.D. Entomology

Pre-requisites

F.Sc. Pre-medical and

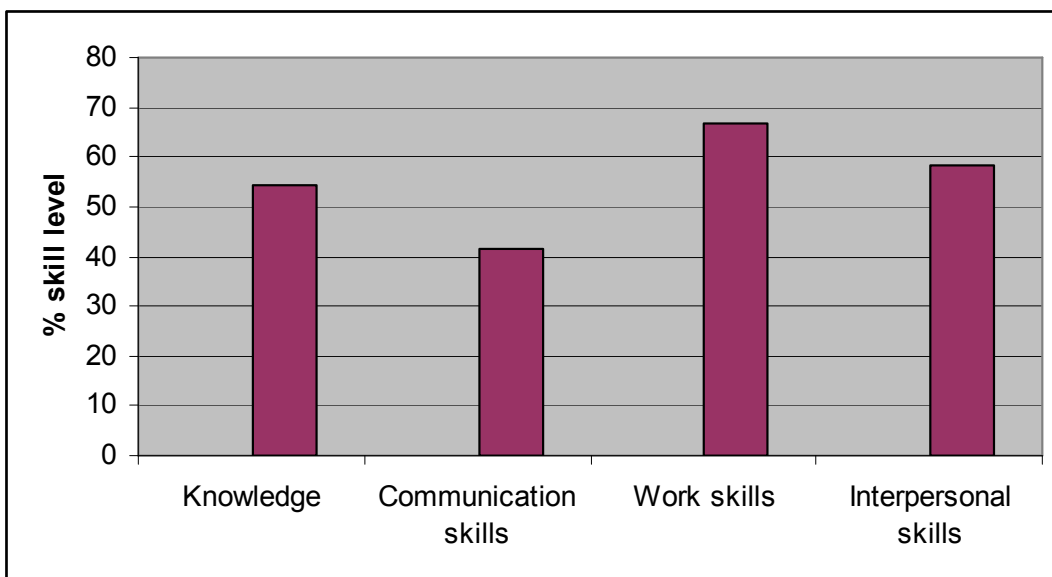
Pre-engineering, after entry test

B.Sc. (Hons) Agric. with Entomology as major subject, entry test

M.Sc. (Hons) Agric. in Entomology, Entry test, Interview

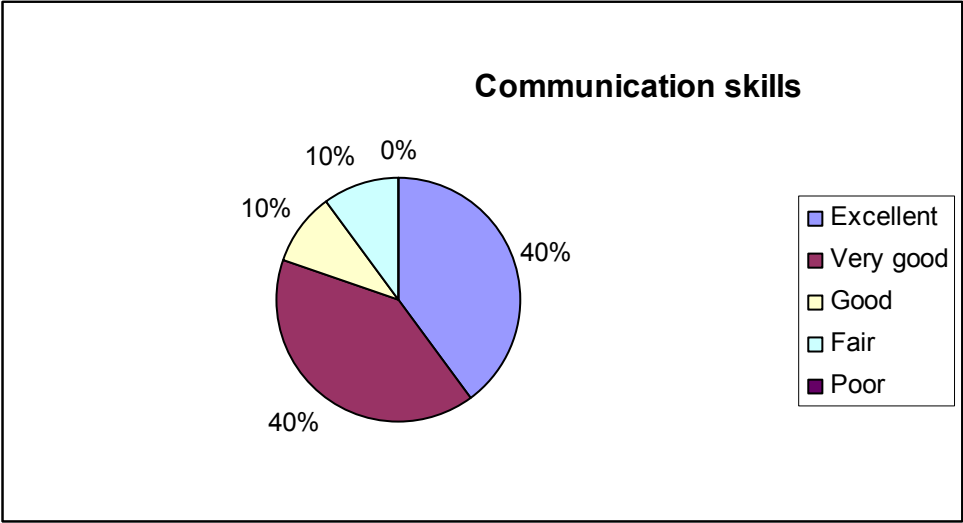
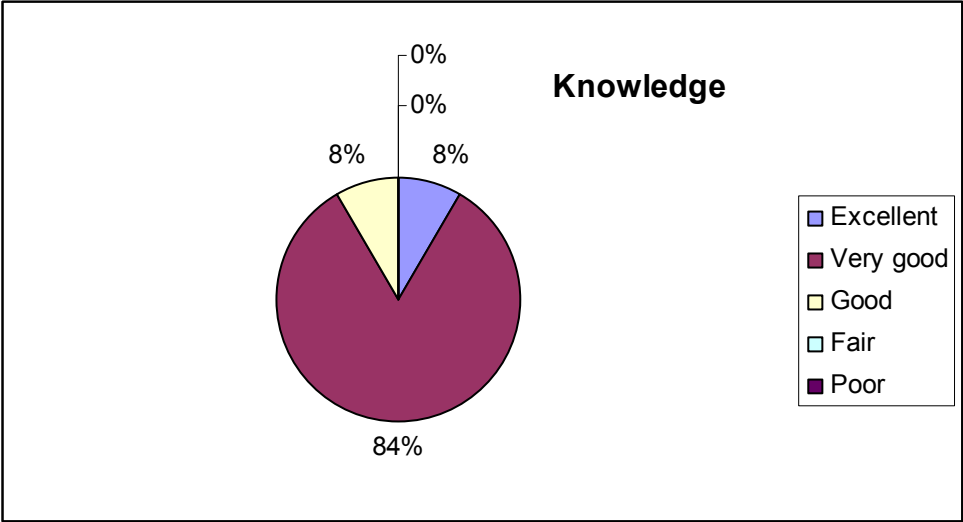
Employer Survey:

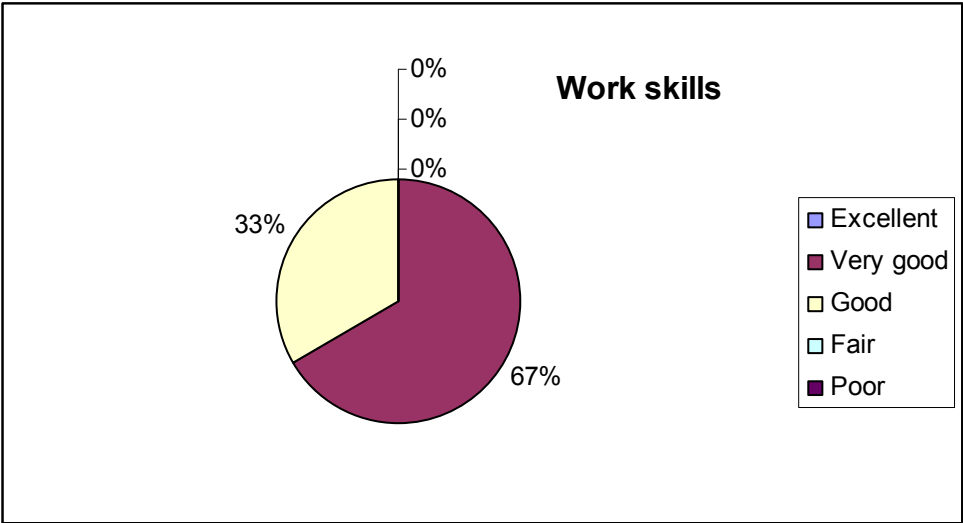
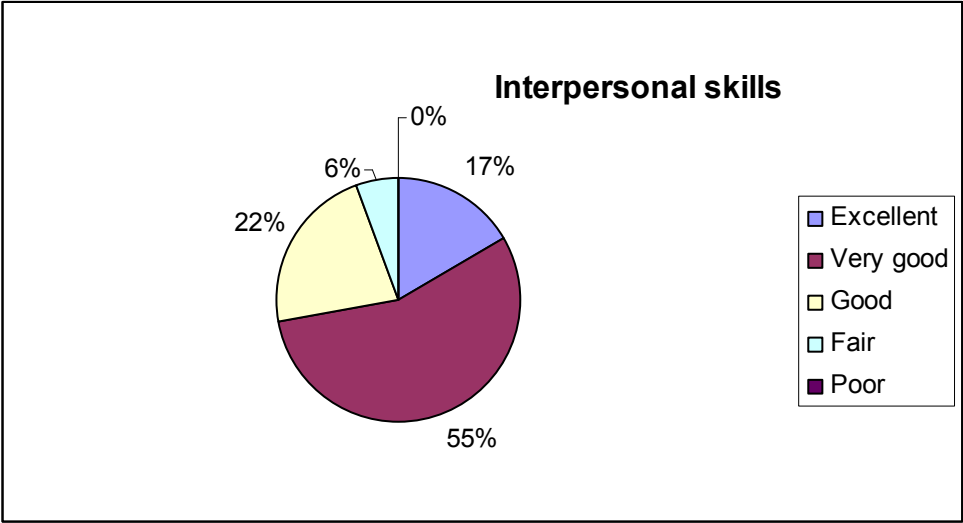
Employer survey for the determination of student skills was conducted from the different organization from proforma 8 (Annexure 8). Survey shows that our graduates are fall above average in all areas except communication skills. The weakness of communication skills will be tried to improve for our current and future students.



The most of the employers were satisfied with potential of our students in handling entomological problems independently. Performance of our students was appreciated by the employers. Some employers suggested that students should be given opportunity to take up courses on communication skills before they are awarded degrees. Besides some office management courses have also been suggested to be included in the curricula.

Pie figures shows that the overall results of employer survey were assessed. More than 80% were considered to be very good in knowledge, communication skills shows that 40% agree both in excellent and very good, 55% observed considered to be very good in interpersonal skills.





CRITERION 2: CURRICULUM DESIGN AND ORGANIZATION

Degree Title: B.Sc (Hons) Agriculture, Majoring Entomology and M.Sc (Hons) in Entomology

Intent: All the courses for degree program were developed by a committee constituted by the Higher Education Commission, Pakistan. The committee consists of experts and learned professors, subject matter specialists from the Universities and research organization from Pakistan. When and if needed, curriculum for the Department of Entomology is revised/updated through different bodies. At department level Board of Studies, which is comprised of senior faculty members, is responsible for updating the curriculum. This body is authorised to formulate syllabus and course content. The chairman of the Department is the convener of this body. The courses are then sent to the Board of Faculty for approval. The Dean of the Faculty, who is also the Convener, conducts the meeting. As per University Rules, after the approval of courses from the Faculty Board, these are placed before the University Academic Council for their approval. Final approval of all the courses is accorded by the University Syndicate for implementation.

Definition of Credit Hour

A student must complete a definite number of credit hours. One credit hour is one theory lecture or two hours laboratory (practical)/week. One credit hour carries 20 marks. Duration of a semester is 18 Weeks.

DEGREE PLAN

Presently three degree programs are organized by the department

B.Sc. (Hons.) Agric. Majoring in Entomology: The B.Sc. (Hons) degree programme consists of 4 academic years/8 semesters. As a whole a student has to study 52 credit hours of theory of the total 155 credit hours. out of this, 10% marks are assigned for evaluation through assignments, test and exercises by the concerned teacher and the remaining 90% marks from the theory part has been assigned for Mid and Final examinations as per University examination rules. In total B.Sc. (Hons.) Entomology degree requirement is 211 credit hours (101 theory + 110 practical) including 30 credit hours for internship. Degrees are awarded after completing the required number of credit hours (courses) following by internship report and its presentation.

M.Sc. (Hons) Entomology

M.Sc (Hons) degree programme consists of 2 academic years/4 semesters. As a whole a student has to study 45 credit comprising 35 credits of course work and 10 credits of research thesis. Concerning course work, 10% marks from theory part have been assigned for evaluation through assignments, test and exercises by the concerned teacher and the remaining 90% marks for Mid and Final examination as per University examination rules. Degrees are awarded after completing the required number of credit hours (courses) followed by internship report and its presentation. During M.Sc. degree course students are required to take up research and to write up thesis which is evaluated by the external examiner who is expert in the respective field and should be a Pakistani national.

Ph.D. Entomology

The Ph.D. programme was initiated in 1998. At present department has two Ph.D. faculty members. Whereas four teachers are continuing their Ph.Ds. The department has produced 5 Ph.Ds. Whereas 15 students are currently enrolled in the Ph.D. programme. The department is strictly following HEC instructions and guidelines in relation to admission, examination and performance evaluation of Ph.D. students.

➤ **Curriculum course requirements for B.Sc. (Hons) Entomology degree is summarized below**

Ent-301	Introductory Entomology	4(3-2)
Ent-302	Applied Entomology	4(3-2)
Ent-501	Insect Morphology	4(3-2)
Ent-502	Insect Physiology	3(2-2)
Ent-503	Insect Taxonomy	4(2-4)
Ent-504	Agricultural Pests	4(2-4)
Ent-505	Plant Resistance to Insect Pests	3(2-2)
Ent-506	Classification of Adult Insects	3(2-2)
Ent-507	Beneficial Insects	3(2-2)
Ent-508	Stored Product Entomology	2(1-2)
Ent-509	Household Insect Pests	2(1-2)
Ent-510	Range and Forest Entomology	2(1-2)
Ent-601	Pest Forecasting and Management	4(2-4)
Ent-602	Internship	20(0-40)
Ent-603	Insect Ecology and Behaviour	4(3-2)
Ent-605	Insecticides and Their Application	3(2-2)
Ent-607	Insect Natural History	3(2-2)
Ent-609	Project Planning and Presentation	2(1-2)
Ent-611	Agriculture & Environmental Pollution	3(2-2)

➤ **Curriculum course requirements for M.Sc. (Hons) Entomology degree is summarized below**

Ent-701	Research Methods in Entomology	4(1-6)
Ent-702	Environmental Entomology	2(2-0)
Ent-703	Advanced Insect Physiology	3(2-2)
Ent-704	Microanatomy and Histology of insects	2(0-4)
Ent-705	Advanced Forest Entomology	3(2-2)
Ent-706	Insects of Man and Animals	3(2-2)
Ent-707	Classification of Immature Insects	4(2-4)
Ent-708	Insect Pest Management systems	3(2-2)
Ent-709	Advances in Host Plant Resistance	3(2-2)
Ent-710	Insect Toxicology	3(2-2)
Ent-711	Insects in Relation to Plant Diseases	3(2-2)
Ent-712	Insect Cytogenetics	3(2-2)
Ent-713	Insect Pathology	3(2-2)
Ent-714	Insect Biochemistry	3(2-2)
Ent-715	Comparative Insect Embryology	3(2-2)
Ent-716	Biological Control of Insect pests	3(2-2)
Ent-719	Special Problem	1(1-0)
Ent-720	SEMINAR	1(1-0)

➤ **Curriculum course requirements for Ph.D. Entomology degree is summarized below.**

Ph.D Course work includes two taught courses as well as two seminar in major subjects as well as three from other departments as minor courses i.e. Biochemistry, Statistics and Agronomy to broaden the knowledge base of the students. The Ph.D. students are required to defend synopsis at the faculty level. Evaluation of Ph.D. dissertation is accomplished externally by two foreign examiners from the technically advanced countries.

Standard 2-1: The curriculum must be consistent and support the program’s documented objectives.

The assessment of curriculum is done in the following table and the courses are cross tabulated according to the program outcomes.

Table 5 Courses Taught during the semester Versus Outcome

Course/ Groups of courses	Out comes						
	1	2	3		4	5	6
Ent-301, Ent-302, Ent-510 , Ent-601, Ent-602, Ent-603, Ent-501,	+++	++	+++	++	+++	+++ +	++
Ent-705, Ent-706, Ent-707, Ent-708, Ent-709, , Ent-715, Ent-716, Ent-719,	+++	++++	++	++++	++++	+++	+++
Ent-507, Ent-508, Ent-509, Ent-605, Ent-607, Ent-609, Ent-611,	+++	++++	+	+++	++++	+++ +	++++
Ent-701, Ent-702, Ent-703, Ent-704, Ent-720, Ent-504, Ent-505, Ent-506, Ent-302	+++	++++	++++	++	+++	+++ +	++++
	++++	++++	++++	+++	++	+	+++
Ent-710, Ent-711, Ent-712, Ent-713, Ent-714, Ent-502 , Ent-503 ,	++++	++++	++++	+	+++	+	++++

- + = Relevant
- ++ = Relevant & satisfactory
- +++ = Very relevant & Very satisfactory
- ++++ = Highly relevant & Highly satisfactory

- The curriculum fits very well and satisfies the core requirements for the program, as specified the respective accreditation body.
- The curriculum satisfied the general arts and professional and other discipline required for the program according to demands and requirements set by the Higher Education Commission.

Standard 2-2: Theoretical backgrounds, problem analysis and solution design must be stressed within the program’s core material.

Table 6 Programme Courses corresponding to theoretical background, problem analysis and solution design.

Elements	Courses
Theoretical backgrounds	Ent-301, Ent-302, Ent-510 , Ent-601, Ent-602, Ent-603, Ent-501, Ent-710, Ent-711, Ent-712,
Problem analysis	Ent-713, Ent-714, Ent-502 , Ent-503 , Ent-504, Ent-505, Ent-506, Ent-507, Ent-508, Ent-509, Ent-605, Ent-607, Ent-609, Ent-611, Ent-701, Ent-702,
Solution design	Ent-703, Ent-704, Ent-705, Ent-706, Ent-707, Ent-708, Ent-709, , Ent-715, Ent-716, Ent-719, Ent-720

All these seven courses were offered during the semester (reporting period).

Standard 2-6: Information Technology Component of the Curriculum Must Be Integrated Throughout The Program:

While the curriculum was prepared, all aspects of information technology were considered and after a critical analysis, relevant aspects were integrated into the program as:

- Three computer and I.T. courses (6 credit hours) and two courses of statistics (6 credit hours) based on computer practical usage were included in the curriculum to fulfill the I.T. requirements for the students of B.Sc. (Hons) Agric. degree
- Computer and I.T. courses (3 credit hours) have been integrated in the curriculum of M.Sc (Hons) and Ph.D students which fulfill the requirements of I.T.
-

Standard- 2.7: Oral and written communication skills of the student must be developed and applied in the program.

- To develop communication skills of the students a course of 3 credit hours entitled “developing communication skills” have been integrated in in the curriculum of level.
- At post-graduate level, delivering two seminars (of one credit hour each) have been made compulsory for each student.

- Students of BSc (Hons) Agriculture, MSc (Hons) and Ph.D are assigned presentations and group works during different courses which are presented in the class to develop and enhance their written and oral communication and motivation skills.

SURVEY OF DEPARTMENT OFFERING Ph.D. PROGRAMS

The following information is required for EACH Department in which a Ph.D. program is offered.

1	General Information:	
1.1	Name of Department	Entomology
1.2	Name of Faculty	FC&FS
1.3	Date of imitation of Ph.D. program	1998
1.4	Total number of academic journals subscribed in area relevant to Ph.D. program	-
1.5	Number of Computer available per Ph.D. student	3
1.6	Total internet bandwidth available to all the students in the department	-
2	Faculty Resources:	
2.1	Number of faculty members holding Ph.D. degree in the department	3
2.2	Number of HEC approved Ph.D. Advisors in the department	1
3	Research output:	
3.1	Total number of articles published last year in International Academic Journals that are authored by faculty members and students in the department	2
3.2	Total number of articles published last year in Asian Academic Journals that are authored by faculty members and students in the department	5
3.3	Total number of ongoing research projects in the department funded by different organizations	1+2
3.4	Number of post-graduate students in the department holding scholarships/fellowships	3
3.5	Total Research Funds available to the Department from all sources	More than 20 millions
3.6	Number of active international linkages involving exchange of researchers/students/faculty etc. (Attach Details)	-
4	Student information:	
4.1	Number of Ph.D degrees conferred to date to students from the department during the past three academic years	5
4.2	Number of Ph.D students currently enrolled in the department	13
4.3	Ratio of number of students accepted to total number of applicants for Ph.D. program	-

5	Program information	
5.1	Entrance requirements into Ph.D. program (M.Sc/M.Phil.) indicate subjects or M.Sc/M.Phil	M.Sc. (Hons) Entomology (CGPA 3)
5.2	Is your Ph.D program based on research only/ (Y/N)	No
5.3	Maximum number of years in which a Ph.D. degree has to be completed after initial date of enrollment in Ph.D. program	5
5.4	Total number of post M.Sc. (16 year equivalent) courses required for Ph.D	18 credit hrs
5.5	Total number of M.Phil level courses taught on average in a term/semester	-
5.6	Total number of Ph.D. level courses taught on average in a term/semester	-
5.7	Do your students have to take/write	
	a. Ph.D. Qualifying examination (Y/N)	Yes
	b. Comprehensive examination (Y/N)	Yes
	c. Research paper in HEC approved journal	Yes
	d. Any other examination (Y/N)	-
5.8	Total number of international examiners to which the Ph.D. dissertation is sent	Two
5.9	How is the selection of an examiner from technologically advanced countries carried out?	-
5.10	Is there a minimum residency requirement (on campus) for award of Ph.D. degree?	-
6	Additional information	
6.1	Any other information that you would like to provide	-

CRITERION 3: LABORATORIES AND COMPUTER FACILITIES

There are three laboratories in the department. The facilities and shortcomings of these laboratories are listed as under.

- Laboratory Title: Entomology Laboratories for the Under-graduate and Post-graduate students.
- Location and Area: Faculty of Crop and Food Sciences, A-Block, 2nd Floor, Main Campus
- Objectives: Laboratories are used for:
- Practicle exercise and demonstrations to graduate students in their introductory and major courses.
- Research work for the graduate and post-graduate students .
- Used for execution of the research/development projects funded by HEC, PSF, PARC, and other national and international agencies/institutions.

Future Need

- More spacious and well equipped laboratories to fulfill the contemporary level of research/education are necessitated for better output.

Standard-3.1: Laboratory manuals/documentation/instructions for experiments must be available and edaily accessible to faculty and students

Laboratory manuals are not available. The department library has not all the relevant books. However, individual teachers have their books. The laboratories are not specious and inadequate. The equipments are out date and out of order. Equipments regards molecular approaches are lacking e.g. Stereoscope, centrifuge (slow and ultr), PAG-Electrophoresis apparition, PCR Spectrophotometer, NPLC, relevant software, chemicals and biochemicals.

Standard-3.2: There must be support personal for instruction and maintaining the laboratories.

Laboratories are maintained by only one laboratory assistant (equipment, glassware, chemicals, material etc). Three laboratories attendant assist the students in practicals, cleaning and washing.

Standard-3.3: The University computing infrastructure and facilities must be adequate to support program's objectives.

- To upgrade the prevailing education facilities, separate class rooms are needed as presently classes (lectures) are taken in laboratories.
- Space limitation is a major constraint as department could not initiated some of the major subjects like apiculture, sericulture, host plant resistance and biological control research activities.
- **Computing facilities support:** Not available to all faculty members and the post graduate students.
- **Shortcoming in computing infrastructure:** Computers with internet facilities should be available to all faculty members and postgraduate students.
- **Safety Arrangements:** There is no proper safety arrangements and no security plan are in place in case of emergency. The department is located on the 2nd floor, there is no emergency exits for the labs. No fire extinguishers have been installed in any laboratory. No first aid kits/facilities provided in the laboratories/department.

CRITERION 4: STUDENT SUPPORT AND ADVISING

To resolve students' issues regarding provision of guidance and information in various social and educational matters, Directorate of Students Affairs provides an effective support. University organizes various cultural activities and study tours/visits to broaden the students knowledge and experience to be utilized in their practical life.

Standard-4.1: Courses must be offered with sufficient frequency and number for students to complete the program in a timely manner

- Corresponding to the HEC guidelines and Academic Council's recommendations regarding schemes of study, all the courses are offered accordingly at graduate level. Though at Masters level all the courses are offered as per the above mentioned approvals/guidelines of the authorities but depend upon the availability of teachers and facilities.
- All the courses (number and type) are taught as per the HEC criterion/standard.
- To meet the human resource needs in public and private sector at national level, the post-graduate level courses are tailored accordingly.

Standard-4.2: Courses in the major area of study must be structured to ensure effective interaction between students, faculty and teaching assistants.

All of the courses are designed / tailored to address the teaching needs in an effective way. In this regard teaching staff and students are consulted periodically to get the feedback for further improvement. Along with theoretical aspects of the courses, practical work is also done in field/laboratories while students are also oriented to tackle their professional needs through different assignments and submission of reports. They are coupled with various institutions/organization to get updated knowledge and insight addressing their future needs.

In this regard

- Keeping in view the feedback from students and teachers, courses are structured and updated in the board of study meeting.

- It is common and general practice to maintain an effective interaction between students and faculty and inter and intra classes of the students.

Standard-4.3: Guidance on how to complete the program must be available to all students and access to qualified advising must be available to make course decisions and career choices.

Students are guided properly in relation to their on-going educational programs at university and also focusing their future needs.

- Entomology department has developed full harmony among the faculty members and students especially the post-graduate ones. Management has made all sorts of efforts to update their knowledge and information source.
- Students are informed about the program requirement through the office of the head of the department.
- Their information records related to their studies are regularly updated through teacher – student interaction.
- Directorate of Placement Bureau also helps in communicating and exploring jobs for the university students.

CRITERION 5: PROCESS CONTROL

It includes student admission, students' registration, faculty recruitment activities which are dealt by various statutory bodies and the university administration.

Standard-5.1: The process by which students are admitted to the program must be based on quantitative and qualitative criteria and clearly documented. This process must be periodically evaluated to ensure that it is meeting its objectives.

- A well established admission system works at university/department level. This is followed as per the rules and regulations set by the university. Admissions for different degree courses are properly advertised in the news papers having national level circulation.
- Admission criteria for different degree courses are described in definite terms by the university and admission system is based upon the recommendations of supervisory committee.
- Prior to the admission process, criterion for admission is revised every year as a regular process.

Standard-5.2: The process by which students are registered in the program and monitoring of students progress to ensure timely completion of the program must be documented. This process must be periodically evaluated to ensure that it is meeting its objectives

- Registration of students is done once in a degree course but evaluation is done a number of times through different examination stages. Successful completion of one semester ensures the promotion to the next semester.
- Recommendations regarding admission process for different departments are forwarded to the Registrar office for their formal registration as university student.
- On successful completion of 4th semester, graduate students are allotted major courses by the Dean Faculty of FC & FS.
- Admission merit based upon marks percentages of previous and entry test exams etc.

Standard-5.3: The process of recruiting and retaining highly qualified faculty members must be in place and clearly documented. Also processes and procedures for faculty evaluation, promotion must be consistent with institution mission statement. These processes must be periodically evaluated to ensure that it is meeting with its objectives

University follows recruitment policy given by the HEC. Induction of all positions at Faculty level is done as per rule:

- Different faculty positions are advertised in different newspapers of national circulation; Applications are received by the Registrar office, call letters are issued to the short-listed candidates on the basis of experience, qualification, publications and other qualities/activities as fixed by the University.
- The candidates are interviewed by the University Selection Board and Principal and alternate candidates are selected.
- Selection of candidates is approved by the Syndicate for issuing orders to join within a specified period.
- Induction of new candidates depends upon the number of approved vacancies.
- At present, no procedure exists for retaining highly qualified faculty members, however, the revised pay scales of structure is quite attractive.
- HEC also supports appointment of highly qualified members as foreign faculty Professor, National Professors and deputed them in various departments of the University.

Standard 5-4: The process and procedures used to ensure that teaching and delivery of course material to the students emphasizes active learning and that course learning outcomes are met. The process must be periodically evaluated to ensure that it is meeting its objectives

- To impart the most recent advances and techniques in entomology, course curriculum are regularly revised / updated time to time.
- With the emergence of new fields, new courses are set and included in the curriculum.
- Students usually buy relatively cheaper books of Asian Editions. These editions are also available in university library where computers, electronic journals and internet facility are made available to all faculty members and students.
- All sorts of audio visual aids are utilized in educational process.

- All efforts are made that the courses and knowledge imparted meet the objectives and outcome. The progress is regularly reviewed in the staff meetings.

Standard 5-5: The process that ensures that graduates have completed the requirements of the program must be based on standards, effective and clearly documented procedures. This process must be periodically evaluated to ensure that it is meeting its objectives.

- The Controller of Examinations announces the date of commencement of examination. After 10-20 days of the examinations, the controller office notifies the results of the students. The evaluation procedure involves quizzes, mid and final examinations, practicals, assignments and reports, oral and technical presentations. Candidates who secure 80% or above marks are awarded grade A; grade Gold medals are awarded to the students who secure highest marks in various fields. Degrees are awarded to the students on the annual convocation that is held annually.

CRITERION 6: FACULTY

6-1: There must be enough full time faculty who are committed to the program to provide adequate coverage of the program areas/courses with continuity and stability. The interests and qualifications of all faculty members must be sufficient to teach all courses, plan, modify and update courses and curricula. All faculty members must have a level of competence that would normally be obtained through graduate work in the discipline. The majority of the faculty must hold a Ph.D. in the discipline.

At present there is one professor, one associate professor, two assistant professors and two lecturers working in the programme. One assistant professor and two lecturers are abroad pursuing Ph.D. studies.

Table 7. Faculty Distribution by Program Areas in Entomology

Program area of specialization	Courses in the area and average number of students per year	Number of faculty members in each area	Number of faculty with Ph.D. degree
General Entomology	18	03	-
Stored Product Entomology	07	01	01
Insect Biosystematics	05	01	01
Applied Entomology	02	02	01
Total	32	7	3

Standard 6-2: All faculty members must remain current in the discipline and sufficient time must be provided for scholarly activities and professional development. Also, effective programs for faculty development must be in place. Effective Programs for Faculty Development

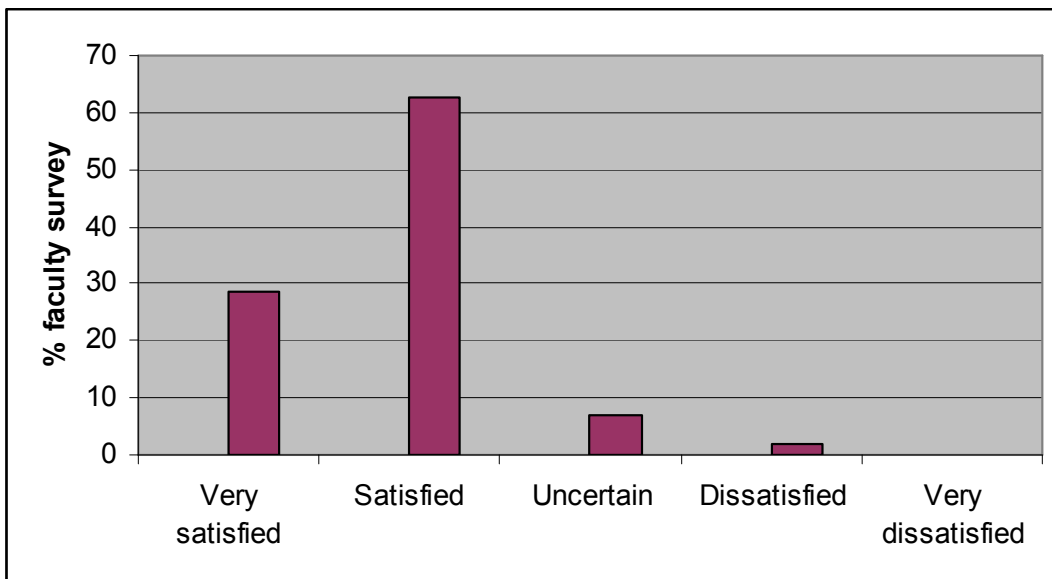
- Faculty members are provided with different academic, research and training facilities as per availability in the university system.
- Currently three faculty members are abroad for completion of their PhD degrees sponsored by HEC.
- Research supervisors are offered incentives for implementing different laboratory and field experiments to promote high standard research activities.

Standard 6-3: All faculty members should be motivated and have job satisfaction to excel in their profession.

Motivation and encouragement are among the main tools for the better performance of the faculty team members. Faculty members are contented by the initiatives undertaken by the management in this regard. Formal and informal coaching by the senior faculty members, different entertainment events, field visits and excursions etc play a vital role in motivating the young faculty members.

Faculty Survey:

A figure represent the Faculty survey from Proforma 5 (Annexure V) were summarized. The result indicated that significantly 60% are satisfied as compared to others. However around 30% are very satisfied. Our HEC strengthened project will help to improve the practical workability.



At present one Professor, one associate professor, three assistant professors and four lecturers are working in the department. Most faculty members are experienced and professionally sound in their respective fields.

Faculty Resume

PERSONAL:

Name: Professor Dr. Muhammad Aslam
 Ph.D. Entomology (UGA, USA) Gold Medallion
 M.Sc (Hons) Agri in Entomology (UAF)
 BSc (Hons) Agri in Entomology Gold Medal (UAF)
 (Star, NE Award & Quaid-e-Azam Gold Medallist)

Father's Name: Ch. Ali Muhammad
Nationality/Religion: Pakistani/Islam
Date/Place of Birth/Domicile: 15-2-1950/Sangla Hill (Sheikhupura) Punjab Pakistan
N I D C # 37405-2706966-5
Occupation: Teaching and Research at University Level.
Permanent Address: SN-312- A, Madina Town, Dhoke Kala Khan, Shamsabad, Murree Road Rawalpindi
Phone # (Residence)/ email: (051) 9062288, (051) 4423693, 0301-5502356/
 aslam502001@yahoo.com
Present Official Address: Professor (BS-21) / Chairman Department of Entomology, Pir Mehr Ali Shah Arid Agriculture University Rawalpindi (Pakistan).

CURRICULUM VITAE:

Examination	Year	TOTAL MARKS	Marks Secured	Marks %age	Division Position	Board/ University	Specialization	
GAV (Middle School Exam)	1965	900	753	83.67	1 st	Rawalpindi Region (Chak No. 267 RB Faisalabad)	Govt. Anglo Vernacular Exam	
SSC Examination	1967	900	737	81.89	1 st	BISE Lahore	Science Group	
F.Sc. (Intermediate Exam.)	1969	2000	1441	72.05	1 st	University of	Agriculture	
B.Sc.(Hons) Agriculture	1972	3000	2236	74.53	1 st , 1 st (Gold Medal)	Agriculture	Entomology	
M.Sc. (Hons) Agriculture	1981	700	520	74.28	1 st	Faisalabad	Entomology	
▪ Ph.D.	1988	CGPA= 3.50 / 4 (Gold Medallion)				University of Georgia (USA)		Entomology

DISTINCTIONS, AWARDS (NATIONAL/INTERNATIONAL) AND HONORARIA:

- **Topped** the University of Agriculture Faisalabad in 1972 and was decorated with a **GOLD MEDAL**
- Completed Ph.D in Entomology from UGA, USA in a record period of less than 3 years and got a Gold Medallion.
- Decorated with **PEF 8TH NATIONAL EDUCATION AWARD 2002** on account of quality publication of research papers on science.
- Decorated with **XIITH STAR AWARD 2002** by South Asia Publications based upon credentials and research publications par excellence.
- Decorated with **QUAID-E-AZAM GOLD MEDAL 2004** on account of best performance of duties and loyalty for the nation.
- Throughout merit scholarship holder starting from **5th class onward**. Received **Saigol Foundation Scholarship** during B.Sc.(Hons)Agric on account of having first positions in the classes.
- Received Merit Certificate from Pakistan. Statistical. Association. in an Essay Reading Contest “Application of Statistics. in Different Fields of Knowledge”.
- Received “**Honoraria**” from Pakistan. Tobacco Board in 1976 and 1978 on account of excellent performance of research duties.
- Nominated by the competent authority for best teacher award for 2001.
- Nominated by the competent authority for Presidential Award Izaz-e-Fazeelat for Academic Distinction for 2002and 2003.
- Nominated by the competent authority for 16th Khwarzmi International Award 2003.

EXPERIENCE (TEACHING, RESEARCH AT NATIONAL/ INTERNATIONAL LEVELS)

- Served Pakistan Tobacco Board (Govt of Pakistan as Tobacco Dev. Asstt. from **April 18, 1973** to October 10, 1974 and as Farm Manager from October 11, 1974 to March 26, 1982 and got experience in research on Virginia Tobacco. Established two Tobacco Research Stations (TRS) in Punjab and Founder of one TRS in Punjab.
- Served Barani Agricultural College, (BAC) RWP. as Lecturer in Entomology from **March 27, 1982** to July 31, 1984, and got experience in teaching Introductory Entomology., Insect Morphology., Applied Entomology., Insect Taxonomy, Biological Control of Insect Pests, Principles and Methods of Pest Control, Host Plant Resistance, Stored Product Entomology., Vegetable. and Fruit Pests, Beneficial. Insects, Insect Natural. History, Field Crop Pests and their Control, Forest Entomology., Literature. Review and Seminar and Laboratory Techniques and Experimental Designs in Entomology.
- Served B.A.C. as Assistant Professor of Entomology from August 1, 1984 to April 30, 1985 against a leave vacancy.
- Served B.A.C, Rawalpindi as Lecturer in Entomology from May, 1, 1985 to September 12, 1985
- Proceeded USA as OSD on September 12, 1985 on the directive of the Governor Punjab and was back on August 26, 1988 after completing **Ph.D.** in Entomology.
- Promoted as **Assistant Professor, Entomology** w.e.f. 27-08-1988 and taught Entomology courses mentioned above.
- Served as **Associate Professor of Entomology from 28-10-1999 to 04-12-2004** and taught different Entomology Courses including Introductory Entomology, Stored Product

Entomology, Plant Resistance to Insect Pests, Insecticides and Their Application, Advances in Host Insect physiology, Plant Resistance; Research Methods in Entomology, Insects of Man and Animals, Insect Pest Management Systems, Insect Biochemistry, Insect Toxicology, Special. Problem and Seminar and conducted Research at UAAR in different research projects and supervised the graduate and postgraduate students.

- Appointed as **Professor of Entomology w. e. f. 04-12-2004** and teaching different courses at graduate and post graduate levels including Introductory Entomology, Stored Product Entomology, Plant Resistance to Insect Pests, Insect physiology, Insects of Man and Animals, Insect Pest Management Systems, Insect Biochemistry, Special. Problem and Seminar and conducting Research at UAAR in different research projects and supervising the graduate and postgraduate students.
- Remained Chairman, Dept of Entomology (1^{1/2} years) and Library Incharge (3 years) in BAC and UAAR; framed library rules and prepared syllabi/curricula of Entomology at B.Sc. (Hons), M.Sc. (Hons), Ph.D. and UGC National levels. Introduced M.Sc. (Hons) in the Dept. of Entomology.
- **Appointed as Chairman Department of Entomology UAAR w.e.f 02-05-2007**
- **Upgraded as Professor of Entomology BS- 21 w. e. f. 30-05-2007**
- Incharge English Declamation Contest Team UAAR. 1994. The team contested at Islamabad College for Boys and won **“Trophy” (1st Position)**.
- HEC Ph.D Approved Supervisor in Entomology.
- Productive scientist of Pakistan as per PCST book.
- Member Research Co-ordination Board of UAAR for one year w.e.f. 15-07-1997.
- Member Advance Studies Research Board of PMASAAUR w.e.f 19-10-2007.
- Secretary, Departmental Board of Studies (for 8 years from 1991 to 1999).
- Secretary, Faculty (FCFS) Board from 14-03-1998 onward.
- Remained Secretary Tutorial Group System and Tutor group I for three years from 1998 to 2001.
- Learnt statistical & analytical techniques taking three courses in Statistics and one in Mathematics in University of Georgia (USA).
- Learnt word processing –Word Star on IBM computer in the Dept. of Entomology, University of Georgia (USA).
- Command on X-EDIT, Microsoft word, Microsoft excel, Microsoft power point, SPSS 10.1 for Windows and Network explorer.
- **Remained Deputy Director, Advanced Studies and Research, UAAR for two years (01-03-2001 to 27-03-2003) and evaluated about 15 Ph.D. and 275 M.Sc synopses/theses and dissertations.**
- Member Advanced Studies and Research Board of UAAR from 01-03-2001 to 01-03-2003.
- Declared as a resource person by Pakistan Agricultural Research Council to review and evaluate the Competitive Research Grant System, Agriculture Linkages Program Projects.
- On the panels of various admission, supervisory and comprehensive examination committees of UAAR. Remained Chairman, B.Sc. (Hons) Agric. Admission Committee for several years.
- Major advisor of several Post-graduate students (M.Sc. (Hons) and Ph.D), **Twenty two** completed degrees so far.

Dr. Aslam as Principal Investigator of the following Research Projects:

- UGC/UAAR funded Research Project. “Screening of Sunflower Cultivars against Insect Pests in the Potohar Region of Pakistan to Reduce Environmental Pollution Problems” Duration: 36 months Cost: 0.5 million.

- PSF/R&D/P-UAAR/AGR/70. Integrated Management of Stored Chickpea Beetle, *Callosobruchus chinensis* Linnaeus. Duration: 36 months Cost: 0.6 million.
- Project Director HEC Project Strengthening of Dept of Entomology (34.783 m) 2007-2009

Dr. Aslam as Editor- in- Chief / Editor / Associate Editor of the following

Magazines/Journals:

- Editor- in- Chief (Pakistan) of American–Eurasian Journal of Scientific Research, IDOSI Publications Canada w.e.f. 03-04-2006 for the session (2006-2009).
- Editor- in- Chief (Pakistan) of American–Eurasian Journal of Agricultural and Environmental Sciences, IDOSI Publications Canada w.e.f. 10-04-2006.
- Editor, World Journal of Agricultural Sciences, IDOSI Publications Canada w.e.f. 4-2-2006.
- Associate Editor, Pakistan Journal of Arid Agriculture w.e.f. 27-03-2003.
- Remained Editor of Naveed-e-Baran for one year.
- Member Univ. Publication Committee for one year (1997)
- Subject Expert to review articles in Sarhad Journal of Agriculture of NWFP agricultural University Peshawar. W.e.f. 2002.
- Subject Expert/Scientist to evaluate research papers of Pakistan Journal of Agriculture, Agricultural Engineering and Veterinary Sciences of Sindh Agriculture University Tandojam, Sindh, Pakistan Journal of Science and Technology, Federal Seed Certification and Registration Department, Islamabad.
- Referee Journal of Research (Science) of Bahauddin Zakariya University Multan **Dr. Aslam as External Examiner / Thesis Examiner of Ph.D. / M. Sc of the following Universities:**
 - Referee Ph.D. Synopses of Bahauddin Zakariya University Multan.
 - External Examiner of Postgraduate students in University of Agriculture, Faisalabad.
 - External Examiner and paper setter of Entomology courses of Gomal University, University College of Agriculture. AJ&K Univ. Muzaffarabad and University of Balochistan, Quetta.
 - Thesis Examiner of Ph. D. in Bangladesh Agricultural University Mymensingh, Bangladesh. **Dr. Aslam as Advisor, Foreign Students**
 - Advisor Foreign Students w.e.f. 14-06-2003 at UAAR to take care of the foreign student affairs. **Dr. Aslam as member of Inter University Course Curriculum Committee (IUCCC)**
 - Notified by Inter University Faculty Board (IUFB) as member IUCCC on Entomology vide University of the Punjab, Lahore letter No. D/284/R of 06-04-2004.

Interviews conducted by Prof. Dr. Aslam

- Interviews and tests of fields assistants and lower staff conducted at Tobacco Research Sub Station Kunjah (Gujrat) and appointed the employees required during 1980-82.
- Interviewed candidates (appeared for the positions of Assistant Research Officers / Agricultural Officers Plant Protection sub-group Entomology (BPS-17) in the Punjab Public Service Commission Lahore and assisted the Commission in the capacity of Advisor/Subject Expert to select the suitable candidates against these gazetted positions several times.
- Interviews of candidates (appeared for the positions of Lecturer in Entomology (BPS-17) in the Selection Board of Sargodha University were conducted in the capacity of Advisor/Subject Expert to select the suitable candidates against this gazetted position.

- Appointed by the President of Bangladesh / Chancellor of the **Bangladesh Agricultural University Mymensingh, Bangladesh** as Expert Member on the Selection Committee for the appointment Professors and Associate Professors in the Department of Entomology of the University under the article 7 (1) (a) (iv) of the first statutes of the University w.e.f. 28-04-2007.

Dr. Aslam as External Examiner of Foreign National / International Universities

Acted as external examiner of Ph.D. thesis/dissertation of the following universities:

S.#.	UNIVERSITY	TITLE OF THESIS/DISSERTATION EXAMINED	DATE
1.	Bangladesh Agricultural University Mymensingh	Bioecology and management of stemfly, <i>Ophiomyia phaseoli</i> (Tryon) (Diptera: Agromyzidae) on blackgram.	23-08-2006
2.	University of Pune India	Bioefficacy and Residue Study of Lufenuron on <i>Tribolium castaneum</i> (Herbst) (Coleoptera Tenebrionidae).	08-07-2007
3.	GC University Lahore	“Biodiversity of Entozoic Flagellates of the <i>Heterotermes indicola</i> and <i>Coptotermes heimi</i> and the effect of Wood, Wood Extracts and Anti Protozoan Drugs on Flagellates”.	12-01-2008

Memberships / fellowships and foreign training awards:

- Member of **Entomological Society of America** since 1986.
- Selected by Govt. of Pak. for higher education on competitive basis during 1985 and deputed to UGA, Athens (USA) officially as **FAO FELLOW # 30, (UTF/PAK 1073) for Ph.D.** (Entomology). Grant for Fellowship was awarded by Govt. of Pakistan., PARC Islamabad in collaboration with **FAO** of the **UN** and the **USDA, International Organization Washington D.C.**
- Member **AGRICS** since 1996.
- Founder and lifetime member of **Agricultural Foundation of Pakistan since 1996.**
- Member **LEAD Pakistan (ID#1877)**
- Member **Pakistan Botanical Society since 19-03-1996.**
- Member of research team to carry out research activities under a **UNESCO** sponsored project for Rural Education and Development during 1999.
- Life Time Member of Pakistan Education Forum Islamabad, since 31-12-2000. (R.No.261)
- **M.Sc. (HONS.) THESIS;**Effect of Dipel, Lannate and Thiodan on *Agrotis ipsilon* (Hfn) and *Heliothis armigera* (Hb) attacking Virginia Tobacco.
- **Ph.D. DISSERTATION:** Resistance to Insect Pests of Cotton Strains Grown Under Different Levels of Pest Management.
- **HOBBIES:** Reciting Holy Quran, attending “mehafilai qawwali”, observing nature (naturalist), travelling by train, patrolling on railway stations, visiting historical places, grave yards, monuments, watering, hoeing plants, loving medicinal plants.

- Literature collecting, citing, learning new computer commands, searching internet, updating biodata, writing scientific research papers, popular scientific articles, delivering scientific talks on electronic media.

**ADDITIONAL TRAININGS OF PROFESSOR DR. MUHAMMAD ASLAM
CONGRESSES/CONFERENCES/WORKSHOPS/CONVENTIONS/SCIENTIFIC
FAIRS/SEMINARS ATTENDED (NATIONAL AND INTERNATIONAL)**

Nature of Training	From To	Institution
<p>SHORT COURSES:</p> <ul style="list-style-type: none"> ▪ Tobacco Production <ul style="list-style-type: none"> ▪ -do- ▪ -do- ▪ -do- ▪ -do- ▪ Apiculture ▪ Bio Cont of Insect and weed pest ▪ Vertebrate pest Control. ▪ Bee-keeping ▪ Computer Course ▪ Biosafety and biosecurity Initiatives <p>CONFERENCES:</p> <ul style="list-style-type: none"> ▪ National Conference, Teachers, Administrators, Parents, Students Building Pakistan' Universities for 21st century. 	<p>Sep.12, 1973-Sep.29, 1973 Sep. 9,1974-Sep 14,1974 Oct, 16, 1975-Oct 25. 1975 Sep, 13, 1976-Sep 18,1976 Oct, 17, 1981-Oct 21, 1981 May, 28.1993- May 31,1983 Oct. 24,1984 -Oct. 31,1984 April 4, 1985-April 15,1985 April 28,1985-May 02, 1985 08-09-1997-22-09-1997 June 18-19, 2007</p> <p>17-05-1999 to 18-05-1999.</p>	<p>A. T.I. (Peshawar) -do- -do- -do- -do- B R S Rawalpindi CIBC. PARC Rawalpindi NARCTI, Islamabad NARCTI, Islamabad UIMS, UAA Rawalpindi Dept State, USA and PARC</p> <p>UGC, IBD</p>
<ul style="list-style-type: none"> ▪ National Conference on Rural Pakistan ▪ 3rd International Science Conference ▪ 4th National Conference of Plant Pathology ▪ 6th Sustainable Development Conference “Bridging the research policy gaps ▪ National conference on the role of agriculture In poverty alleviation. ▪ 2rd International Weed Science Conference ▪ International Conference :Biotechnology: Shaping Future Agriculture ▪ International Science Conference: Value addition in horticultural products ▪ 17th International Food Science Conference ▪ International conference on Biodiversity conservation as a renewable resource of Pakistan ▪ International conference on Role of allelopathy in Sustainable agriculture ▪ International conference on Trade liberalization and Safta: Opportunities, concerns and challenges ▪ International conference on Biological resources of Pakistan: problems, resources and future perspectives (COCHAIED ONE SECESSION) ▪ CONGRESSES: ▪ Second International Congress of Entomological Sciences ▪ 23 rd Pakistan Congress of Zoology (International) ▪ National conference on ways and means to strengthen fruit and vegetable processing 	<p>29-07-1999 to 30-07-1999</p> <p>26-09-2002 to 28-09-2002</p> <p>14-10-2003 to 16-10-2003 11-12-2003 to 13-12-2003</p> <p>21-04-2004</p> <p>20-03-2006,22-03-2006 20-06-2006-21-06-2006</p> <p>26-28 June, 2006</p> <p>16-12-2006 13-03-2007-14-03-2007</p> <p>22-03-2007 -24 -03-2007</p> <p>29-31, 3 -2007</p> <p>25, 26, 2007</p> <p>19-03-1996 to 21-03-1996.</p> <p>03-03-2003 19-08-2008 to 20-08-2008</p>	<p>Auditorium, P-Block, Pak. Sec. IBD UAAR</p> <p>UAAR Sustainable Development Institute, Islamabad.</p> <p>Agri Foundation of Pakistan, NARC, auditorium, Islamabad Weed Science Society of Pakistan, UAAR UAAR</p> <p>UAAR</p> <p>UAAR Auditorium UAAR/HEC</p> <p>UAAR/HEC/PSF</p> <p>HEC/UAAR/GTAP</p> <p>HEC, NATIONAL CORE GROUP IN LIFE SCIENCES UAAR</p> <p>Pakistan Entomological Society and PARC IBD. UAAR</p> <p>Horticultural Foundation of Pakistan, Auditorium, NARC, Islamabad.</p>

WORKSHOPS:		
<ul style="list-style-type: none"> ▪ Environmental Mutagenesis and Predictive Carcinogenesis ▪ Agricultural Genotoxicity in Developing Countries ▪ Art of Becoming a Creative Research Scientist ▪ Training Workshop on Policy and Strategy for Rational Use of Pesticides. ▪ Workshop on Urdu Fonts Development. ▪ National Workshop on WTO Challenges and Role of Agricultural Universities ▪ do ▪ Impact of Climate Change on Agriculture: Challenges and Strategies. ▪ National IPM Workshop on IPM curriculum in Universities at Mingora and Bahawalpur ▪ New trends in Agriculture: Progressive Farmers Experiences and Technologies. ▪ Wealth Generation Through Research ▪ Second Workshop of the sub-regional network: Non-formal science education and popularization of science (Breaking the poverty cycle of women) ▪ International Workshop : Intensive farming and integrated resource management: Traditional and non-traditional approaches. ▪ How to use digital library (workshop) ▪ Honey bees in the Himalayas: Promoting partnerships with the rural development networks in the HKH. ▪ Pakistan Workshop: Sustainable control of the cotton bollworm, <i>Helicoverpa armigera</i> In small scale cotton production systems. ▪ International workshop on Sanitary and phytosanitary measures in the wake of trade liberalization: Challenges to agriculture in developing countries ▪ Workshop on knowledge sharing and awareness of stakeholders regarding compliance issues for Pakistani agriculture products export to Pakistan. ▪ Workshop on Plant Molecular Biology. Biotechnology ▪ National Workshop on role of Insect Taxonomy and Systematics in Sustainable Agriculture ▪ Crop improvement, conventional and biotechnological Approaches Agro-Informatics. The future of Pakistans' Agriculture I, II ▪ Workshop on biotechnology for secondary school teachers ▪ International workshop on Phytoremediation of contaminated soils and water ▪ International workshop on techniques related to molecular biology and immunology ▪ Basic tools in isolation and identification of microorganisms. ▪ Agroinformatics the future of Pakistan's Agriculture ▪ Training workshop Controlled and modified atmospheres to preserve post harvest quality of stored grains. ▪ International workshop Carbon and water exchange in plants under changing climatic conditions 	<p>20-10-1982 to 31-10-1982</p> <p>1-11-1982 to 5-11-1982</p> <p>23-12-1984 to 31-12-1984</p> <p>05-06-2000 to 07-06-2000.</p> <p>28-01-2003 26-03-2003 to 27-03-2003</p> <p>23-06-2004 to 24-06-2004 27-08-2003 to 29-08-2003</p> <p>28-04-2003 –03-05-2003 26-09-2003 to 01-10-2003 24-10-2003</p> <p>03-12-2003 19-02-2004</p> <p>28-04-2004</p> <p>12-06-04/26-05-05/29-08-06 26-07-2004 to 28-07-2004</p> <p>20-09-2004-22-09-2004 12-01-2005 to 14-01-2005</p> <p>13-04-2005</p> <p>30-1-2006, 04-01-2006 13-02-2006 to 14-02-2006</p> <p>28-08-2006, 30-08-2006</p> <p>I 09-09-2006, II 27-04-07</p> <p>09-12-2006</p> <p>12-12-2006, 15-12-2006 18-12-2006 27-12-2006, 29-12-2006</p> <p>27-04-2007 30-07-2007 to 31-07-2007</p> <p>05-11-2007-06-11-2007</p>	<p>Held under the auspices of PARC IBD. The Associated Universities Inc. NSF, Washington, USA. NARCTI, IBD</p> <p>NARC IBD.</p> <p>UAAR Actionaid Pakistan at Holiday Inn, Islamabad -----do----- UAAR</p> <p>National IPM Programme Mingora, Swat. Bahawalpur UAAR</p> <p>PSF, Auditorium, Islamabad PSF in collaboration with UNESCO and ISESCO</p> <p>PSF auditorium, IBD</p> <p>UAAR/Pakistan Academy of Sciences, UAAR Auditorium. CIT, UAAR/UAAR auditorium (HEC) Rural support programmes network Islamabad, International centre for integrated mountain development. CFC/ICAC 014/NARC, IBD UAAR, Pakistan Academy of Sciences</p> <p>UAAR UAAR Auditorium, Agriculture Dept. Govt. of the Punjab Lahore. UAAR (seminar room) National Insect Museum, IPMP, IPEP, NARC/PARC Islamabad HEC/NCB SEMINAR ROOM UAAR I FAST House, National University, Rohtas Road G/9/4 Islamabad II NARC Islamabad Conference room UAAR HEC-PSF Seminar Room UAAR UAAR/HEC/NCB Seminar room UAAR HEC / UAAR Seminar Room UAAR NARC IBD AT Entomology Department UAAR (Principal Organizer: Prof. Dr. Muhammad Aslam) PMASAAUR</p>

<ul style="list-style-type: none"> ▪ International workshop on Protected Horticulture ▪ International Training workshop on Organic Farming: Organic Production and Inspection. ▪ International Workshop on Molecular Techniques in Biological Research ▪ Sharing Biodiversity Data on Internet ▪ Integrating Agribusiness Curriculum and Practice UIMS HEC <p>CONVENTIONS:</p> <ul style="list-style-type: none"> ▪ National Convention of Scientists and Engineers ▪ Students Convention 2004,2005,2006 <p>▪ Convention of Scientists</p> <p>SCIENTIFIC FAIRS ATTENDED:</p> <ul style="list-style-type: none"> ▪ 4th National Science and Technology Fair <ul style="list-style-type: none"> ▪ BIIT Annual IT Project Exhibition ▪ Agricultural Mela, 2004 ▪ AgriKiosk and software projects Exhibition ▪ Farmers day (Kissan Mela) <ul style="list-style-type: none"> • Science and Technology EXPO 2007-shaping the future 	<p>27-02-2008 to 01-03-2008 21,25 April 2008</p> <p>06 to 10 May 2008</p> <p>21-07-2008 23-07-2008</p> <p>27-05-1999 24-05-2004,09-04-2005, 22-04-2006 20-11-2006</p> <p>23-10-1999 to 01-11-1999</p> <p>10-03-2004 15-04-2004 28-08-2004 25-03-2006</p> <p>08-04-2007</p>	<p>At Seminar Room PMAS AAUR PARC, Hotel Margala, Islamabad.</p> <p>Seminar Room PMAS AAUR</p> <p>Best Western Hotel, Club Road, Islamabad Seminar Room PMAS AAUR</p> <p>Convention Centre, IBD. Jinnah Convention Centre, IBD.</p> <p>PSF, Holiday Inn Islamabad</p> <p>Pakistan Science Foundation, Pakistan Sports Complex, Kashmir Highway, Islamabad. BIIT, St. Town, Rwp. Agri Dept. Sagri., RWP UIMS Library / CIT, UAAR Installed stall of Entomology, Problems of insect pests were discussed with the farmers, their solutions were conveyed to them. Entomology literature in urdu on stored product pests, their management, was distributed among the farmers who hailed from far off areas. Pakistan Science Foundation, Pakistan monument museum, West view point Shakarparian Islamabad.</p>
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SEMINARS:		
Seminars delivered:		
▪ Insect pests of Tobacco, delivered to the participants of 9 th refresher course.	20-10-1981	ATI, Peshawar
▪ Behavior of Pesticides in Soil, delivered to the participants of Short Course on Environmental Pollution, "Ecological Risks And Sustainable Agriculture"	11-10-2000	UAAR
▪ Automation of cottage industries of Pakistan, Seminar No 30 (software projects, technical seminar series).	08-12-2005	CIT/UAAR/LAB NO.5
▪ Biosystematics of <i>Callosobruchus chinensis</i>	31-07-2007	ENT UAAR
	16-09-1999, 1-3, 2008	Convention Centre, Islamabad
Seminars Attended:		
▪ 9 th , 13 th OIC Meeting (Ministerial Standing Committee) Seminar on Science and Technological Cooperation (Comstech)	04-04-2000	NARC, Islamabad
▪ IPMI TOT/FFS Project Seminar	01-03-2001	NARC, Islamabad.
▪ Environment and Agriculture	14-06-2001	UAAR
▪ Media War and Role of PTV	16-03-2001	Quaid-e-Azam University Islamabad.
▪ Ecological Resources of the Northern Areas – Gradients in Climate and Vegetation	04-03-2002	PARC, Islamabad
▪ Agricultural Policies	12-03-2002	UAAR
▪ Education for Rural Development	02-10-2003	UAAR
▪ Edible Oils	09-01-2003	UAAR
▪ Food Technology	17-01-2003	UAAR
▪ Development of a new rearing Technique of Chryposa	22-03-2003	UAAR
▪ Mitigation of Water Crisis in Pakistan with special reference to Barani Areas	20-05-2003	The Agri Foundation of Pak, At ZTBL Islamabad
▪ Science and Spiritualism	29-05-2003	Pakistan Academy of Sciences Islamabad
▪ Genetically modified foods	18-06-2003	The Agri Foundation of Pak, At ZTBL Islamabad
▪ Disaster Management	23-09-2003	-----do-----
▪ New Agricultural Policies And WTO	08-10-2003	Dr. Edward de Bono at National Library, Islamabad.
▪ Creative Thinking	07-04-2004	UAAR, Auditorium
▪ ----- do-----	25-12-2003	Convention Centre, Islamabad Chaired by President of Pakistan
▪ Eleventh OIC Meeting (Ministerial Standing Committee on Scientific and Technological Cooperation (Comstech)	18-06-2007 to 19-06-2007	PARC Marriott Hotel Islamabad
• National training seminar on biosafety and biosecurity initiatives		

Seminars attended continue:		
<ul style="list-style-type: none"> ▪ Understanding patentability issues of scientific research. 	30-04-2004	Pakistan scientific & technological information centre,
<ul style="list-style-type: none"> ▪ Concepts in molecular breeding 	25-02-2005	PSF auditorium, IBD.
<ul style="list-style-type: none"> ▪ Diversification of Horticulture(Floriculture) 	02-04-2005	Seminar room, UAAR.
<ul style="list-style-type: none"> ▪ Genetic transformation of wheat for salt tolerance 	14-04-2005	Dr. S.S.Sindhu Seminar Room
<ul style="list-style-type: none"> ▪ Experimental studies of arthropod community, a source based approach. 	28-04-2005	UAAR
<ul style="list-style-type: none"> ▪ Characteriization of local fennel (Foeniculum vulgar Mill)germplasm for oil contents and genetic variability. 	12-05-2005	UAAR
<ul style="list-style-type: none"> ▪ Characterization of Pakistani isolates of chili veinal mottle potyvirus (ChiVMV) 	04-08-2005	UAAR
<ul style="list-style-type: none"> ▪ Environment in relation to air pollution and Agriculture 	22-08-2005	UAAR
<ul style="list-style-type: none"> ▪ Einstein the genius of the century, world year of physics 2005 	29-12-2005	UAAR
<ul style="list-style-type: none"> ▪ PSF awards for inventions and innovations 	07-01-2006	PSF auditorium, Islamabad
<ul style="list-style-type: none"> ▪ Global perspectives in Iqbals' thoughts 	11-11-2006	
<ul style="list-style-type: none"> ▪ Chemistry and revolution in termite proofing 	20-11-2006	PSF Islamabad, auditorium
<ul style="list-style-type: none"> ▪ Precision Horticulture 	08/03/2007	Rumi Forum Pakistan G10/2
<ul style="list-style-type: none"> ▪ Global proteomics profiling technologies identify Potential novel drug targets 	01-06-2007	IBD
<ul style="list-style-type: none"> ▪ An overview of Animal Genomics 	02-06-2007	JB Holiday Inn ISLAMABAD
<ul style="list-style-type: none"> ▪ Fertilizer use in Pakistan An overview 	29-11-2007	UAAR
<ul style="list-style-type: none"> ▪ The new urban development paradigm and the civil society' resposes in Karachi 	30-11-2007	Seminar room UAAR
<ul style="list-style-type: none"> ▪ Role of agriculture and livestock in combating poverty 	07-12-2007	Seminar room UAAR
<ul style="list-style-type: none"> ▪ Impact of soil organic matter on the soils filtering and buffering capacity. 	13-12-2007	Seminar Room
<ul style="list-style-type: none"> ▪ Precision agriculture technologies to increase farm profitability and reduce environmental risks 	23-05-2008	PMASAAUR
<ul style="list-style-type: none"> ▪ Impact of climate change on agro - environment of Pakistan 	05-06-2008	UIMS PPMASAAUR
		FAO Auditorium
		PMASAAUR
		Dr. Tehseen Aslam
		AGR New Zealand
		Seminar Room
		PMASAAUR
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**ROF. DR. MUHAMMAD ASLAM ON PANEL OF VARIOUS
ADMISSION/COMPREHENSIVE EXAMINATION COMMITTEES OF
UNDERGRADUATE/POSTGRADUATE STUDENTS OF UAAR**

ADMISSION COMMITTEES

LEVEL	YEAR
▪ B.Sc.(Hons)Agr	2000-2001, 2002, 2003, 2004, 2005, 2006
▪ MSc (Hons)	1997, 1998, 1999, 2000, 2002, 2003, 2004, 2005, 2006, 2007
Entomology and Ph.D.	2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007

**PROF. DR. MUHAMMAD ASLAM AS MEMBER OF COMPREHENSIVE EXAM.
COMMITTEES (MSC AND PH.D)**

DEPARTMENT/INSTITUTION	YEAR
▪ Biology/Botany	2002, 2003
▪ Zoology	2000, 2002, 2003, 2004, 2005, 2006, 2007
▪ University Institute of Management Sci	2001, 2002, 2005, 2006, 2007
▪ Entomology-(M.Sc(Hons)	2001, 2002, 2003, 2004, 2006, 2007
▪ Entomology-Ph.D.	2002, 2003, 2004, 2006, 2007
▪ University Institute of Edu. and Research	2002
▪ Plant Pathology /Forestry &RM	2005, 2006, 2007

**PROF. DR. MUHAMMAD ASLAM AS MEMBER OF SCRUTINY COMMITTEES
(MSC AND PH.D)**

DEPARTMENT/INSTITUTION	YEAR
▪ Plant Pathology	2004, 2005, 2006, 2007.
• Biology	2005, 2006, 2007
• Zoology	2005, 2006, 2007, 2008

**PROF.DR.MUHAMMAD ASLAM ON VARIOUS PANELS OF OTHER
ORGANIZATIONS/UNIVERSITIES OF PAKISTAN**

ORGANIZATIONS/UNIVERSITIES	YEAR
▪ PARC (Agri. Linkages Programme Projects-Resource person)	2000, 2001, 2002, 2003, 2004, 2006, 2007
▪ University of AJK(External Examiner and Paper Setter)	1993, 1995, 1996
▪ Gomal University D.I. Khan(External Examiner and Paper Setter)	1996 to 2002, 2003, 2004
▪ University of Baluchistan, Quetta (External Examiner and Paper Setter)	1999, 2001, 2002, 2003, 2004
▪ Bahauddin Zakariya University (Refree Ph.D. Synopsis/Research Evaluation Committee)/Viva voce exam	1999, 2000, 2001, 2002, 2004, 2005, 2006

PROF.DR.MUHAMMAD ASLAM ON DEPARTMENTAL BOARD OF STUDIES OF OTHER DEPARTMENTS/UNIVERSITIES

DEPARTMENT	YEAR
▪ Entomology	2000, 2001, 2002, 2003, 2004, 2006, 2007,2008
▪ Biology	2008
▪ Zoology	2008

PROF. DR. MUHAMMAD ASLAM AS MEMBER OF TWG (TECHNICAL WORKING GROUP) OF INSTITUTE OF PLANT AND ENVIRONMENTAL PROTECTION (IPEP), COOPERATIVE RESEARCH PROGRAMME ON MAIZE, SORGHUM AND MILLET(MSM), NARC SINCE 01-07-2004.

IPEP, NARC, ISLAMABAD	YEAR
▪ TWG	09-07-2004, 28-05-2007, 05-09-2007
▪ MSM	
▪ Annual Planning and VCR Meeting	25-03-2005 to 26-03-2005, 13-04-2006 to 14-04-2006

PROGRAMMES OF PROF. DR. MUHAMMAD ASLAM RELEASED ON ELECTRONIC MEDIA FOR THE BENEFIT OF FARMERS, GROWERS, GARDENERS, VILLAGERS AND GENERAL PEOPLE.

Programmes on pest problems of fruit/vegetable, field crops and stored grains and their solutions were released in “Harriayali” of PTV during 1993, 1994 and 1995.

Programmes recorded/released by Prof. Dr. Muhammad Aslam on PTV World, Kissan Time

Name of the Programme	Date recorded/released
▪ “Dhara, its damages and control”	17-03-2004
▪ “Grain moth, its damages and control”	19-03-2004
▪ “Snout weevil, its damages and control”	14-02-2004
▪ “Flour beetle, its damages and control”	30-04-2004
▪ “Lesser grain borer, its damages and control”	24-02-2004
▪ “Khapra, its damages and control”	3-05-2004
▪ “Ghoon, its damages and control”	01-06-2004
▪ “Termites, advantages, disadvantages and control”	11-06-2004

▪ “Advantages of qawar gandal”	20-07-2004
▪ “Citrus butterfly, useful, harmful aspects, control”	13-08-2004
▪ “Harmful aspects of aphids, educational survey and control”	07-08-2004
▪ “Lasura weevil, its damages and control”	02-10-2004
▪ “Harms of ticks and their control”.	06-10-2004
▪ “Documentary on harmful aspects of aphids”	18-10-2004
▪ “Aloe vera documentary”	31-12-2004
▪ “Documentary on termites”	13-01-2005
▪ “Harmful effects of ticks and their control”	10-02-2005
▪ “Advantages of Aloe vera”	19-02-2005
▪ “Documentary on kawar gandal”	25-02-2005
▪ “Preying mantis-a friendly insect”	05-04-2005
▪ “Aloe vera”	26-05-2005

**POSTGRADUATE STUDENTS PRODUCED UNDER THE SUPERVISION OF
PROFESSOR DR. MUHAMMAD ASLAM (INDIGENOUS HEC SCHOLARS)
Ph.D. ENTOMOLOGY**

S.#	NAME OF STUDENT	REG. NO	COMPLETI ON YEAR	TITLE OF THESIS / DISSERTATION / RESEARCH
1.	Asia Riaz	93-ag/arid-347	2006-09	Genetic variability in egg parasitoid (<i>Trichogramma spp.</i>) of important insect pest of okra.
2.	Mubashar Hussain	95-arid -26	2006-09	Investigations on the adaptability of some silkworm lines to adverse temperature and humidity for seed cocoon production.
3.	Muhammad Shoaib Ahmadani	03-arid-371	2005-08	Phytosanitary management of <i>Trogoderma granarium</i> Everts with Methyl Bromide alternatives to ensure food security and safety.
4.	Muhammad Tariq Ch.	05-arid-1185	2005-08	Biosystematics of dragonflies (Anisoptera: Odonata) of Pakistan.

POSTGRADUATE STUDENTS SUPERVISED BY PROFESSOR DR. MUHAMMAD ASLAM Ph.D. ENTOMOLOGY

S.#	NAME OF STUDENT	REG. NO	COMPLETION YEAR	TITLE OF THESIS / DISSERTATION/ RESEARCH
1.	Habib Iqbal Javed	00-arid-352	16-06-2005	Studies on the Resistance in Maize against Stem Borer (<i>Chilo partellus</i> (Swinhoe), Pyralidae, Lepidoptera).
2.	Javed Iqbal	99-arid-751	01-08-2005	Growth inhibiting and deterrent effects of Plant Extracts on Major Insect Pests of Stored Grains
3.	Rahid Mahmood	07-arid-01	2007-10	Integrated Management for ectoparasitic mites <i>Varroa destructor</i> (Aderson and Trueman) and <i>Tropilaelaps clareae</i> (Delfindo and Baker) of honeybee <i>Apis mellifera</i> L. in relation to honey yield.
4.	Humayun Javed	98-arid-428	2006-09	Pyhico-Morphic variations among brinjal cultivars against <i>Leucinodes orbonalis</i> Guenee (Pyralidae:Lepidoptera) and its management with different techniques
5.	Arif Shah	07-arid-255	2007-10	Integrated management of Dubas bug, <i>Ommatissus lybicus</i> on date palm in Baluchistan, Pakistan.
6.	Anwaar Hyder Khan Alvi	08-arid-02	2008-11	Role of NPVs in the management of gram pod borer <i>Helicoverpa armigera</i> : a serious pest of gram in barani areas.

POSTGRADUATE STUDENTS PRODUCED UNDER THE MEMBERSHIP OF PROFESSOR DR. MUHAMMAD ASLAM Ph.D. ENTOMOLOGY / OTHERS

S.#	NAME OF STUDENT	REG. NO	COMPLETION YEAR	TITLE OF THESIS/DISSERTATION/RESEARCH
1.	S. Ahqabullah Kakakhel	00-arid-1594	2006	Tritrophic level interaction among host plant (rapeseed mustard) turnip aphid (<i>Lipaphis erysimi</i> Kalt) parasitoid (<i>Diaeretiella rapae</i> M'intosh) and its augumentation on <i>Brassica napus</i> .

2.	Muhammad Naveed Rafiq	95-arid -72	2005	Insecticide resistance in diamond back moth <i>Plutella xylostella</i> (L.) (Lepidoptera: Plutellidae) and strategies of its management.
3.	Imran Bodlah	98-arid-778	2005-08	Biosystematics of Aphid Parasitoids from Punjab Province of Pakistan.
4.	Ahmad Zia	98-arid-889	2004-08	Biosystematics of Damselflies (Zygoptera: Odonata) of Pakistan.
5.	Qamar Zia	93-ag/arid-369	2007-10	Ecological studies of <i>Cotesia</i> spp. on maize stem borer and factors contributing to its efficiency as biocontrol agent.
6.	Abdul Rehman	93-ag/arid-406	2007-10	Parasitoids associated with Fruit-Infesting Tephritidae in the Punjab Province (Pakistan).
7.	Ghulam Ali	07-arid-256	2007-10	Aphid population dynamics: A comparative evaluation of their natural enemies in wheat and brassica.
8.	Gulshan Irshad P.P.	97-arid-129	2007-10	Plant aero microbial population in the atmosphere of Rawalpindi and Islamabad (twin cities) and its impact on major crops.
9.	Muhammad Zamer Kiyani P.P	07-arid-08	2007-10	Assessment of Root-Knot nematodes (<i>Meloidogoyne</i> spp.) on some cucurbits and their integrated management.
10.	Syeda Farah Naqvi P.P.	07-arid-07	2007-10	Rapid diagnosis of <i>Xanthomonas campestris</i> PV. sesame, associated with bacterial blight, disease monitoring and identification of resistance source in sesame.
11.	Syed Haroon Akhtar P.P.	03-arid-163	2007-10	

M.Sc / M.Sc. (HONS) EQUIVALENT TO M. PHIL STUDENTS SUPERVISED BY PROFESSOR DR. MUHAMMAD ASLAM

S.#.	NAME OF STUDENT	REG. NO	COMPLETION YEAR	TITLE OF THESIS/ DISSERTATION/ RESEARCH
1.	Shazia Raja	(92-ag/arid –228)	16-01-1999 (Quaid-e-Azam scholarship holder)	Host plant effect on parasitism by <i>Cotesia lomerata</i> (Braconidae:Hymenoptera) on <i>Pieris brassicae</i> Pieridae: Lepidoptera)
2.	Khalida Hameed Abbasi	92-ag/arid 229	01-06-1999	Study of interspecific interactions between

				<i>Encarsia lutea</i> and <i>Eretomocerus near munda</i> (Hymenoptera: Aphelinidae) the parasitoids of <i>Bemisia tabaci</i> (Homoptera: Aleyrodidae)
3.	Mukaram Ali	96-arid-174	01-09-1999	Survey of Entomopathogenic Nematodes from Different Soils and Crop Areas of NWFP, Pakistan
4.	Nazia Suleman	93-ag /arid 343 (Silver Medal)	16-09-1999 (Quaid-e-Azam scholarship holder)	Evaluation of Resistance in some Wheat Cultivars to <i>Sitophilus oryzae</i> Linnaeus. (Coleoptera: Curculionidae) Under Laboratory Conditions.
5.	Asia Riaz	93-ag/arid 347	16-10-1999	Evaluation of Resistance in Different Chickpea Strains to <i>Callosobruchus chinensis</i> Linnaeus (Coleoptera:Bruchidae) under Laboratory Conditions.
6.	Saima Jamil	94-ag/arid 168 (Silver Medal)	01-09-2000	Screening of Different Wheat Cultivars Flour) Against the Attack of <i>Tribolium astaneum</i> Herbst (Coleoptera: Tenebrionidae) Under Laboratory Conditions.
7.	Muhammad Ashfaq	99-arid-735	17-09-2001	Response of different insect pests to some sunflower (<i>Helianthus annuus</i> Linnaeus, Compositae) genotypes and their correlation with yield component under field conditions
8.	Ansa Tamkeen	00-arid-353	01-04-2002	Susceptibility of Different Maize Genetic Lines to the Attack of <i>Sitotroga cerealella</i> (Olive) under Laboratory Conditions.
9.	M.Misba-ul-Haq	96-arid-52	01-10-2002	The Impact of Intercultural Operations

				And Different Genotypes on the Insect Pests Attacking Sunflower (<i>Helianthus annuus</i> (Linnaeus) at Different Localities and Their Correlation With Yield
10.	Muhammad Ijaz	98-arid-807	01-10-2004	Antixenosis and antibiosis tests on stored chickpea beetle, <i>Callosobruchus chinensis</i> Linnaeus (Coleoptera: Bruchidae) attacking different genotypes of chickpea.
11.	Syed Ahmad Zia	98-arid-889	16-09-2004	Bioefficacy of some plant materials against stored chickpea beetle, <i>Callosobruchus chinensis</i> (Coleoptera: Bruchidae) attacking chickpea.
12.	Liaquat Ali Hashmi	99-arid-736	01-12-2004	Varietal resistance in different wheat genetic lines to the attack of <i>Sitotroga cerealella</i> (Olivier) (Lepidoptera: Gelechiidae) under laboratory conditions.
13.	Muhammad Assad Abbas	99-arid-196	17-10-2005	Impact of different concentrations of some plant extracts and oils on stored chickpea beetle, <i>Callosobruchus chinensis</i> Linnaeus
14.	Muhammad Ramzan	99-arid-205	2006	Influence of different utensils on <i>Callosobruchus chinensis</i> Linnaeus on chickpea.
15.	Arshad Ayyaz	00-arid-767	2006 Gold Medal	Impact of ants on <i>Callosobruchus chinensis</i> Linnaeus on chickpea.
16.	Ambreen Saba	00-arid-804	2006	Impact of temperature on <i>Callosobruchus chinensis</i> Linnaeus on chickpea.
17.	Mehwish Hameed	01-arid-620	2007	Vulnerability of maize cultivars to insect pests due to nitrogenous fertilizer.

18.	Sundas Rana Qureshi	01-arid-617	Thesis in process	Occurrence and influx of insect vermin on baby corn under spring conditions
19.	Uzma Bibi	01-arid-1556	2004	Beneficial and Harmful Arthropods Occurring on Rose of China (<i>Hibiscus-rosa -sinensis</i>) and their Correlation with some Environmental Factors.
20.	Ishrat Mahjabeen	01-arid-1538	2004	Beneficial and Harmful Arthropods Occurring on Rose (<i>Rosa indica</i>) and their Correlation with some Environmental Factors.
21.	Ayesha Khan	03-arid-757	2005	Effect of animal and plant source ashes, turpentine oil and red soil on <i>Callosobruchus chinensis</i> in stored chickpea.
22.	Saadiya Majeed	03-arid-769	2005	Effect of temperature on <i>Callosobruchus chinensis</i> L.(Bruchidae: Coleoptera) on stored chickpea
23.	Jabeen Akhtar	04-arid-1027	2006	Nature and extent of infestation of olive plants by termites and their management
24.	Ruqyya Naz,	04-arid-1014	2006	Nature and extent of infestation of citrus plants by <i>Papilio demoleus</i> Linnaeus and its Mngement
25.	Rabia Anayat	05-arid-346	2006-07	Feeding behavior of <i>Earias insulana</i> on okra and suggestions to minimize its attack on okra
26.	Nafeesa Majeed	05-arid-368	2006-07	Feeding behavior of <i>Leucinodes orbonalis</i> Guanee on brinjal and suggestions to minimize its attack on brinjal
27.	Asma Batool	05-arid-364	2006-07	Feeding behavior of <i>Bactrocera dorsalis</i> (Hendel) on guava and suggestions to minimize

				its attack on guava
28.	Noreen Azam	05-arid-363	2006-07	Feeding behavior of <i>Helicoverpa armigera</i> on Tomatoes and suggestions to minimize its attack on Tomatoes
29.	Khalid Mahmood	02-arid -23	2006-08	Impact of <i>Tribolium castaneum</i> (Herbst) (Coleoptera: Tenebrionidae) on Maize flour under laboratory conditions.
30.	Shabnum Farid	06-arid-1441	2006-08	Impact of <i>Tribolium castaneum</i> (Herbst) (Coleoptera: Tenebrionidae) on Wheat flour under laboratory conditions.
31.	Ghulam Sarwar	04-arid-235	2007	Effect of honeybee (<i>Apis mellifera</i> L.) pollination on fruit setting and yield of cucumber (<i>Cucumis sativa</i> L.)
32.	Ishrat Kaneez	03-arid-185	2007-09	Thermal management of <i>Tribolium castaneum</i> (Herbst) (Coleoptera: Tenebrionidae) and <i>Sitophilus oryzae</i> (Linnaeus) (Coleoptera: Curculionidae) using low temperature.
33.	Mahwish Raza	03-arid-186	2007-09	Use of elevated temperature for management of <i>Tribolium castaneum</i> (Herbst) (Coleoptera: Tenebrionidae) and <i>Sitophilus oryzae</i> (Linnaeus) (Coleoptera: Curculionidae)
34.	Umer Ayyaz Aslam Sheikh	03-arid-196	2007-09	Colour variation in <i>Pediculus humanus capitis</i> (De Geer) (Anoplura: Pediculidae) in response to human host belonging

				to different demographic backgrounds.
35.	M. Khalid Rafique	07-arid-261	2007-09	Effect of thymol and formic acid against parasitic mite <i>Tropilaelaps clareae</i> (Delfinado and Baker) of honey bee <i>Apis mellifera</i> L. in relation to honey production.
36.	Qasim Alee	07-arid-263	2007-09	Physico-chemical characteristics of maize grains affected by <i>Trogoderma granarium</i> Everts (Coleoptera: Dermestidae).
37.	Salman Majeed	07-arid-265	2007-09	Biochemical and physical characteristics of wheat grains affected by <i>Sitophilus oryzae</i> (Linnaeus) infestation.
38.	Qurat-ul-Ain	07-arid-264	2007-09	Screening of different cultivars of roses against <i>Macrosiphum rosae</i> (Linnaeus) and its management.

M.Sc / M.Sc. (HONS) EQUIVALENT TO M.PHIL STUDENTS PRODUCED UNDER THE MEMBERSHIP OF PROFESSOR DR. MUHAMMAD ASLAM

S.#	NAME OF STUDENT	REG. NO	COMPLETION YEAR	TITLE OF THESIS/ DISSERTATION/ RESEARCH
1.	Abdul Rehman	93-ag-arid-406	01-06-2000	Evaluation of quality of commercially produced <i>Trichogramma</i> sp in Pakistan
2.	Muhammad Afzal	94ag/arid 202	2001	Evaluation of wooden blocks treated with Methyl Eugenol for male annihilation for on farm control of some fruit and vegetable flies (Diptera:Tephritidae) at Punjgiran (District: Islamabad) Pakistan.

3.	Muhammad Naveed Rafiq	95-arid-72	2001	Determination of resistance in Beet armyworm, <i>Spodoptera exigua</i> (Hubner) against some insecticides used in cotton.
4.	Shakeel Ahmad	96-arid-49	2002	Population dynamics and distribution of wheat aphids and their natural enemies.
5.	Naheed Akhtar	96-arid-03	2002	Screening of different maize cultivars against maize stem borer <i>Chilo partellus</i> Swinhoe) (Lepidoptera: Pyralidae).
6.	Adila shaukat	98-arid-758	2004	Effect of some botanical oils against insect pests of sesame.
7.	Sumera Aslam	00-arid-782	2007	Host plant resistance of maize against <i>Sitophilus zeamais</i> Motschulsky under laboratory conditions.
8.	Jaweria Siddique Chaudhry	01-arid-1539	2003	Growth and reproduction of earthworm (<i>Eisenia fetida</i>) in different organic media.
9.	Bushra Allah Rakha	03-arid-779	2005	Soil macrofauna variation in Margalla Hill national Park, Pakistan.
10.	Saiyed Zameer Ahmad Jaafery	98-arid 835	2004	Biological aspects of crown rot of groundnut (<i>Arachis hypogea</i>) caused by <i>Aspergillus niger</i> and its biological control.
11.	Imran Abbas	00-arid-768	2007	
12.	Gulshan Riaz	00-arid-778	2006	Biodiversity assessment and its effect on the environment of Shakar Parian Forest Resort
13.	Lubna Ansari	00-arid-807	2006	Regeneration assessment of chir (<i>Pinus roxburgii</i>) in Tret Forest Sub Division Murree Hills.
14.	Syed Sada Hussain	02-arid-31	2008	Evaluation of different varieties of brinjal against brinjal stem borer <i>Euzophera perticella</i> Rag. (Lepidoptera: pycitidae)
15.	Sohaib Shahid	02-arid128	2008	Bionomics of aphids and their parasitoids on wheat

				and brassica.
16.	Huma Shereen	06-arid-1440	2008	Responses of aphids and their natural enemies on wheat crop.
17.	Israr Arshsd	02-arid -148	2007-2008	Effect of inoculum density of root knot nematode on okra at different ages
18.	M. Daud-ul-Hassan Khan	01-arid-567	2007-09	Effect of major storage insect pests on wheat seed and their control.
19.	Tahir Mahmood Khan	03-arid-103	2007-09	“Population dynamics of insects pests on different enteries of safflower”
20.	M. Naveed Usman	03-arid-150	2007-09	Aphid population dynamics: Do natural enemies influence population size on Brassica crop?
21.	Saleha Shahid Siddiqui	03-arid-180	2007-09	Responses of aphid and their natural enemies on cauliflower varieties.
22.	M. Mohsin Hasnat	03-arid-198	2007-09	Taxonomy of Crane Flies (Tipulidae: Diptera) of Pothwar Region.
23.	Avais Jahangir	07-arid-258	2007-09	Population Dynamics Of <i>Lipaphis erysimi</i> and <i>Brevicoryne brassicae</i> On Oil Seed Brassica.
24.	Laila Khalid	07-arid-260	2007-09	Population dynamics of thrips (<i>Frankliniella tritici</i>) on different rose varieties.
25.	Muhammad Ramzan	07-arid-262	2007-09	Taxonomic studies of cetoniid beetle (<i>Cetoniidae: coleoptera</i>) of Pothwar Region.
26.	Zeb-un-Nisa	06-arid-573	2008	Diversity of soil invertebrate species of Shakarparian, Pakistan
27.	Mahjabeen Zulfiqar	06-arid-586	2008	Diversity of soil invertebrate species of Khewra Salt Range, Pakistan.
28.	Sangam Khalil	05-arid-334	2008-09	

**B.Sc. (HONS) EQUIVALENT TO M.Sc. STUDENTS SUPERVISED BY
PROFESSOR DR. MUHAMMAD ASLAM**

S #.	NAME OF STUDENT	REG. NO	COMPLETION YEAR	TITLE OF THESIS/ DISSERTATION/ RESEARCH
1.	Shakeel Ahmad	96-arid-49	2000	Influence of environmental factors on rose aphid (<i>Macrosiphum rosaeiformis</i> Das) (Homoptera: Aphididae) attacking rose <i>Rosa indica</i> var Iceburg, Rosaceae).
2.	M. Younis Jatoil	96 - arid -36	2001	Influence of environmental factors on <i>Rhipiphorothrips cruentatus</i> Hood (Thysanoptera: Heliothripidae) feeding on <i>Rosa indica</i> var Iceburg, Rosaceae).
3.	Nazia Suleman	93-ag/arid-343	1999	Biology of <i>Pieris brassicae</i> (Linnaeus) (Lepidoptera: Pieridae) under laboratory conditions.
4.	Naheed Akhtar Awan	96-arid-03	2000	Melittophily Aphidophagy found on sunflower <i>Helianthus annuus</i> Linnaeus (Compositae) genotypes.
5.	Hafiz-ur Rehman	96-arid-06	2000	Screening of some sunflower <i>Helianthus annuus</i> Linnaeus, Compositae) genotypes against insect pests.
6.	Muhammad Afzal Ghani Suleria	99-arid 232	2003	Status of bagworm <i>Thyridopteryx ephemeraeformis</i> (Haworth) on moor punkh (<i>Thuja orientalis</i> with respect to abiotic factors.
7.	Muhammad Assad Abbas	99-arid-196	2003	Population density of armyworm (<i>Mythimna separata</i> on wheat (<i>Triticum aestivum</i> ..
8.	M. Younis Jatoi	96-arid-36	2001	Antixenosis of <i>Brevicoryne brassicae</i> on different genotypes of cabbage. (<i>Brassica oleracea</i> var Capitata.

9.	Khalid Ali Khan and M.Z.H. Bajwa	97-arid-147 97-arid-168	2002	Potency of some spices against <i>Callosobruchus chinensis</i> Linnaeus
10.	Muhammad Ijaz	98-arid 807	2003	Infestation trend of <i>Odontotermes obesus</i> (Rambur) on wheat crop (<i>Triticum aestivum</i> Linnaeus) in rainfed conditions.
11.	Ibrarul Hassan	97-arid-140	2003	Antixenosis test on Red Flour Beetle, <i>Tribolium castaneum</i> Herbst (Coleoptera:Tenebrionidae) against different stored product commodities under laboratory conditions.
12.	M.Arshad Ayyaz	00-arid-767	2004	Varietal Resistance of Canola and influence of abiotic factors on population of mustard aphid <i>Lipaphis erysimi</i> Kalt.
13.	M.Arshad Ayyaz, Imran Abbas and Riaz Hussain	00-arid-767 00-arid-768 00-arid-775	2004	Management of <i>Callosobruchus chinensis</i> Linnaeus on stored chickpea (<i>Cicer arietinum</i>) with <i>Brassica juncea</i> .
14.	Mehwish Hameed	01-arid-620	2005	Screening of maize germ plasm against insect pests of economic importance.
15.	Sundas Rana Qureshi	01-arid-617	2005	Host plant resistance in maize against major pests attacking at early stage of the crop.
16.	Khalid Mahmood	02-arid-23	2006	Evaluation of maize germplasm for resistance against major insect pests.

SCIENTIFIC ARTICLES (PROJECT PROPOSALS (UAAR, PSF, PCST, ALP PARC, BZU, SJA, INTERNATIONAL ORGANIZATIONS ETC) REVIEWED BY PROF. DR.MUHAMMAD ASLAM

S.#.	DETAIL OF THE SCIENTIFIC ARTICLES REVIEWED	DATE REVIEW COMPLETED
1.	Ph.D. UIER UAAR 2002 A study to develop a model for in service training of teachers in Pakistan	19-01-2001
2.	Ph.D. PBG UAAR 2004 Inheritance of seed and seedling vigor in rice (<i>Oryza sativa</i> L)	04-05-2001
3.	Ph.D. PBG UAAR 2004 Genetic diversity and gene action in mungbean (<i>Vigna radiata</i>) L. Wilezek	11-06-2001
4.	ALP PARC Islamabad 01-03-01-019 Integrated Management of canola	26-06-2001
5.	ALP PARC Islamabad 01-01-01-065 Studies on mycotoxins in corn through latest techniques.	26-06-2001
6.	ALP PARC Islamabad 01-01-01-076 Assessment of suitable sealant materials for measuring the gas tightness of public sector ware houses and tarpaulins used for covering the open stakes (ganjees).	26-06-2001
7.	Ph.D. UIER UAAR 2001 A study to evaluate the impact of foreign aided girls' primary education development project in Pakistan	16-08-2001
8.	ALP PARC Islamabad 01-01-01-023 Integrated management of fruitflies in Pakistan	27-08-2001
9.	Ph.D. PBG UAAR 2004 Genetic diversity of agro-morphological and high molecular weight glutennin subunits in wheat (<i>Triticum aestivum</i> L) land races	16-10-2001
10.	Ph.D. UIER UAAR 2001 A study to evaluate the infused concepts of population environment and drug education in the existing school curricula	16-10-2001
11.	Ph.D. UIER UAAR 2001 A study of practice teaching of prospective secondary school teachers and development of a practice teaching model.	14-11-2001
12.	Ph.D. UIER UAAR 2001 A study to investigate into the nature and extent of contribution of private sector in the development of primary education in Pakistan	23-11-2001
13.	Ph.D. UIER UAAR 2002 A comparative study of secondary school and GCE O-level science education programmes in Pakistan	30-11-2001
14.	Ph.D. UIER UAAR 2002 A study to evaluate five year plans in education sector from 1955 to 1998 in Pakistan	20-12-2001
15.	Ph.D. UIER UAAR 2002 A study of nature and causes of crimes in educated youth in Pakistan	01-01-2002
16.	Ph.D. UIER UAAR 2002 A study of examination system of Pakistan and development of a model for twenty first century	16-02-2002
17.	Ph.D. UIER UAAR 2002 A comparative study of teacher evaluation systems of United States of America and Pakistan	03-04-2002
18.	Ph.D. UIER UAAR 2002 Factors affecting the development of female higher education in Pakistan and and future strategies	04-04-2002
19.	Ph.D. UIER UAAR 2002 A study of science curricula to develop a	17-04-2002

	model for next mellinium	
20.	Ph.D. UIER UAAR 2004 Effectiveness of reward and punishment as modifiers of students classroom behavior	17-04-2002
21.	Ph.D. RMF UAAR 2004 Productivity and residual effects of green manure legumes in cereal based cropping system in Potowar Plateu	11-06-2002
22.	Ph.D. UIER UAAR 2002 Self financing in higher education in public and private sector :its prospects and implications	15-07-2002
23.	Ph.D. UIER UAAR 2004 Analysis of national science curriculum at secondary school level in Pakistan	25-07-2002
24.	Ph.D. UIER UAAR 2004 Study of attributions of low achievers and high achievers about the perceived causes of their success and failure	12-11-2002
25.	Ph.D. UIER UAAR 2004 Problems and prospects of technical education in Pakistan	12-11-2002
26.	Ph.D. UIER UAAR 2004 Construction and standardization of intelligence test for secondary level	12-11-2002
27.	Ph.D. PBG UAAR 2005 Genetic diversity for morpho-genetic traits and Horden seed protein in barley germ plasm	12-11-2002
28.	Ph.D. UIER UAAR 2004 Effectiveness of teacher training in developing professional attitude of perspective secondary school teacher	12-11-2002
29.	Ph.D. UIER UAAR 2004 Analysis of curriculum process and development of model for secondary level in Pakistan	12-11-2002
30.	Ph.D. UIER UAAR 2004 Effect of computer assisted instruction (CAI) on the secondary school students achievement in science	12-11-2002
31.	Ph.D. UIER UAAR 2004 Problems and prospects of higher education in Pakistan	12-11-2002
32.	Ph.D. UIER UAAR 2004 Analysis of examination system at university level in Pakistan	12-11-2002
33.	ALP PARC Islamabad CS-029 Save grain compaign for enhancing food availability at village level	05-05-2003
34.	ALP PARC Islamabad CS-065 Measuring resistance of weeds of wheat against different herbicide groups in rice wheat and cotton wheat cropping systems	05-05-2003
35.	ALP PARC Islamabad CS-063 Development of botanical pesticides from traditionally used plant derivatives against stored grain pests.	05-05-2003
36.	ALP PARC Islamabad NR-017 Studies on IPM with reduced chemical beekeeping approach to avoid related treatment resistance of parasitic mites, honey bee diseases pests	18-07-2003
37.	ALP PARC Islamabad CS-030 Monitoring of resistance to phosphine in major stored grain insect pests	16-09-2003
38.	ALP PARC Islamabad CS-120 The role of spiders to economize the use of pesticides on cotton (IPM) and to protect the environment from their harmful effect	16-09-2003
39.	ALP PARC Islamabad CS-047 Integrated management of stone fruits in Peshawar region	16-09-2003
40.	Federal Seed Certification Department Islamabad Response of	27-03-2004

	gram dhora to insecticide with contact mode of action	
41.	BZU Multan Development and field application of <i>Trichogramma chilonis</i> against bollworms of cotton	17-04-2004
42.	BZU Multan Integrated management of maize borer <i>Chilo partellus</i> (Swinhoe) in maize crop.	26-07-2004
43.	BZU Multan Sustainable management of insect pest complex of cotton through biorational pesticides and <i>Chrysoperla carnea</i> Stephen in Faisalabad Pakistan	30-07-2004
44.	Sindh Agriversity PJAAEVS Tandojam Seasonal abundance of aphidophagous predators in berseem	30-07-2004
45.	175/2004/SJA 21-10-2004 Peshawar Development of <i>Chrysoperla</i> ...	29-10-2004
46.	206/2004/SJA 13-12-2004 Peshawar Effect of pesticides Swat valley	05-01-2005
47.	30/2005/SJA 03-03-2005 Peshawar Comparative efficacy of insecticides stem borer.	07-03-2005
48.	PSF/RES/S-US/BIO(372) Biodiversity and Biogeography of Mantodea in Pakistan	02-06-2005
49.	139/2005/SJA 22-08-2005 Peshawar Effect of nitrogen wheat crop	27-08-2005
50.	141/2005/SJA 22-08-2005 Peshawar Effect of adult diets	27-08-2005
51.	Federal Seed Certification Department Islamabad Evaluating the seed reactions of certain chickpea genotypes against the action of pulse beetle (Bruchidae: Coleoptera)	01-09-2005
52.	222/2005/SJA Peshawar Dynamics of chickpea pod borer.....	01-10-2005
53.	266/2005/SJA 23-11-2005 Peshawar Effect of grains Gelechiidae	26-11-2005
54.	World Journal of Agri Sciences Boll weevil (Coleoptera:Curculionidae) and Pink boll worm (Lepidoptera:Gelechiidae) incidence in early middle and late maturing cotton with cattle grazing effects in cotton residues Mexico, USA	03-05-2006
55.	PCST Islamabad Effects of insecticides on faunal biodiversity in different ecosystems of Pak – Italy regions	31-05-2006
56.	Sindh Agriversity PJAAEVS Tandojam Biological parameters of <i>Chrysoperla carnea</i> (Stephen) on mustard and wheat aphids	27-06-2006
57.	Federal Seed Certification Department Islamabad Resistance variability within gram seeds of different genotypes against the intrusion of cowpea weevil <i>Callosobruchus analis</i> L	29-07-2006
58.	ALP PARC Islamabad CS-128 Save grain campaign for public sector storage located in Sindh	10-08-2006
59.	ALP PARC Islamabad CS-204 Management of peach flat headed borer, <i>Sphenoptera dadkhani</i> (Oben) and other borers causing gummosis problem in stone fruit orchards of Peshawar valley (NWFP)	22-08-2006
60.	Ph.D. Dissertation ENT 506 (3)/2006 02-08-2006 Bangladesh Agricultural University Mymensingh –2202 Bangladesh Bioecology and management of stemfly <i>Ophiomyi phaseoli</i> (Tryon)(Diptera:Agromyzidae) on blackgram	23-08-2006

61.	Sindh Agriversity PJAAEVS Tandojam Response of newly developed high yielding and early maturing cotton strains against population of jassid (<i>Amrasca devastans</i> Dist)	25-09-2006
62.	UAAR/PP Stripe rust analysis of D-Genome synthetic wheats and their molecular diversity	07-12-2006
63.	PSF/RES/P -NIAB/AGR(358) Use of conventional and nuclear techniques to improve mass rearing of <i>Bracon helector</i> (Say) and its host <i>Galleria mellonella</i> L	11-01-2007
64.	UAAR PP Sreeening of synthetic hexaploid subset for <i>Biolaris sorokiniana</i> (<i>Helminthosporium satvum</i>) and their D Genome diversity around microsatellite markers / or Rapds (RAPDS)	11-01-2007
65.	UAAR PP Evaluation of elite II synthetic hexaploid wheat against barley yellow dwarf virus and their molecular diversity	12-01-2007
66.	Ph.D. UAAR/PP Cellular changes induced by <i>Meloidogyne incognita</i> on okra and its management	31-01-2007
67.	Ph.D. UAAR/PP Biology and management of charcoal rot disease of mung bean (<i>Vigna radiata</i>) (L) Wilezek) and mash bean (<i>Vigna mungo</i>) (L) Hepper	08-02-2007
68.	UAAR/PP Epidemiology of yellow rust of wheat <i>Triticum aestivum</i> L.em.Thell)	16-02-2007
69.	DR UAAR/RP Characterization of epidemiology and biochemical factors in relation to resistance against mung bean yellow mosaic virus (MYMV)	26-04-2007
70.	PARC Pak J Agri Res Development and monthly percent damage of <i>Callosobruchus chinensis</i> L.	19-05-2007
71.	HEC proposal No. 993 Sustainable management of insect pests of rice crop with special reference to biocontrol agents and biorational insecticides	08-07-2007
72.	University of Pune India Ph.D Dissertation Bioefficacy and Residue Study of Lufenuron on <i>Tribolium castaneum</i> (Herbst) (Coleoptera Tenebrionidae)	08-07-2007
73.	M.Phil.biology. UAAR. Food preferences of snow leopard (<i>Uncia uncia</i>) in Himalayas, North Pakisatan.	22-09-2007
74.	M.Phil.biology. UAAR. Invitro anthelmintic activity of hydroalcoholic extracts of some <i>Artemisia</i> spp. – Indigenous of Northern areas of Pakistan.	22-09-2007
75.	Zoology UAAR. The comparative haematology of beetal and Indigenous hairy goats (Jattal) reared in Potohar region of Pakistan.	22-09-2007
76.	Zoology UAAR.Incidence of tuberculosis in dairy farms of Islamabad area of Pakistan.	23-09-2007
77.	Zoology UAAR Effect of different avian egg yolk in extender on the freezability of buffalo spermatozoa.	23-09-2007
78.	Zoology UAAR Seroprevalence of tonoplasma gondii antibodies in farm animals reared at Kharimurat Livestock reproduction and production unit, Pakistan.	23-09-2007
79.	Zoology UAAR In vitro ovicidal and larvicidal activity of some locally available plants against gastro-intestinal nematodes of	24-09-2007

	some ruminants.	
80.	Zoology UAAR Incidence and control of hypocal in dairy cattle and buffalo in Islamabad.	24-09-2007
81.	Zoology UAAR Optimization of conditions for assessment of genetic diversity in some Asiatic bears.	24-09-2007
82.	Zoology UAAR Determination of pollutants in the water and fish fauna of Kabul River, NWFP.	24-09-2007
83.	Zoology UAAR Studies on the changing in Avian community structure of the river, Lahore.	25—09-2007
84.	Faculty Sciences Evaluation of Technetium 99m radiolabeled antibiotics for use of nuclear medicine.	25-09-2007
85.	Faculty Sciences Isolation, purification, and quantification of Quercetin from onion (<i>Allium cepa</i>)	25-09-2007
86.	Zoology UAAR Haematological changes in response to gastrointestinal infection (Gin) in salt range sheep reared at livestock production unit Kharimurit Pakistan	25-09-2007
87.	Faculty Sciences Isolation and characterization of active peptides from <i>Pisum sativum</i> (garden pea) having antimicrobial activity against mammalian pathogens.	25-09-2007
88.	Faculty Sciences Isolation and characterization of antimicrobial activity conferring components from the seeds of bitter gourd. (<i>Momordica charantia</i>)	25-09-2007
89.	Faculty Sciences UAAR Expression studies and activity evaluation of bovine growth hormone using mammalian cell line	26-09-2007
90.	ZOOLOGY UAAR Prevalence and characterization of mycobacterium bovis in clinical isolates from patients of pulmonary tuberculosis.	26-09-2007
91.	Faculty Sciences UAAR Genetic transformation of rice (<i>Oryza sativa</i>) for stress tolerance.	26-09-2007
92.	ZOOLOGY UAAR Prevalence and characterization of pathogenic bacteria from fish culture in pond fertilized with different organic manures.	26-09-2007
93.	Zoology UAAR Seasonal distribution of Cercariac of <i>Fasciola gigantica</i> infecting different freshwater snails of barani region of Pakistan	26-09-2007
94.	ZOOLOGY UAAR Minerals dynamics in dairy buffaloes fed on calcium and phosphorous supplementation.	27-09-2007
95.	ZOOLOGY UAAR A cross sectional study: The regulation of anterior pituitary and adrenal hormones secretion in normal school going and working boys throughout puberty.	27-09-2007
96.	ZOOLOGY UAAR Preservation of Bull cauda epididymal spermatozoa	27-09-2007
97.	Zoology UAAR the assessment of iodine deficiency in lactating mothers residing in Islamabad and adjoining areas.	28-09-2007
98.	Ph.D. Zoology An epidemiological study on faciolirosis in large ruminants of Potohar areas Pakistan.	28-09-2007

99.	Faculty Sciences Production of Lignin peroxidase by <i>Granoderma lucidum</i> using lignocellulosic inducer substrates.	29-09-2007
100.	Zoology UAAR determination of iodine deficiency in pregnant women residing in and around Rawalpindi-Islamabad.	29-09-2007
101.	PP UAAR Effect of inoculum density of root knot nematode on okra at different ages.	10-1-2007
102.	PP UAAR Biological approach for the management of collar rot (<i>Sclerotium roefsii</i> Sacw) in Lentil (<i>Lens culinaris</i> Medik)	01-11-2007
103.	Prevalance, distribution and partial characterization of cucumber mosaic Cucumovirus (CMV) in Chilli.	12-10-2007
104.	PP PMAS AAUR Characterizing novel wheat germplasm for kernal bunt resistance using phenological and molecular diagnostics.	31-10-2007
105.	PP PMAS AAUR Evaluation and Characterization of D Genome based synthetic hexaploid wheats for yellow rust resistance	08-11-2007
106.	PP PMAS AAUR Ph.D. Genetic diversity of <i>Ralstonia solacearum</i> strains causing bacterial wilt of solanaceous crops in Pakistan	13-11-2007
107.	PP PMAS AAUR Pathogenesis and study of resistance in bread wheat (<i>Triticum aestivum</i>) against kernal bunt (<i>Tilletia indica</i>)	15-11-2007
108.	GC University Lahore, Ph.D. Dissertation. Biodiversity of Entozoic flagellates of the <i>Heterotermes indicola</i> and <i>Coptotermes heimi</i> and the effect of wood Extracts and Anti Protozoan drugs on flagellates.	21-11-2007
109.	J. AGR RES FAISALABAD. Comparative efficacy of different Fenoxaprop formulations to control monocot weeds in wheat.	05-12-2007
110.	Project proposal Hort Development and optimization of methods for determinations of pesticide residues in Kinnow mandarins	08-12-2007
111.	BZU Multan Ph.D. Biodiversity and pollination: Plant pollinator interactions in semi natural landscape and agriculture of southern irrigated zone of Punjab, Pakistan	08-12-2007
112.	BZU Multan Ph.D. The role of bark beetle as a potential vector of mango quick decline and its management in the mango orchard.	08-12-2007
113.	Biology M. Phil. PMAS AAUR Isolation, Purification and Quantification of Quercetin from Onion (<i>Allium cepa</i> L.).	15-03-2008
114.	PP Ph.D. PMAS AAUR Molecular characterization of <i>citrus tristeza</i> closterovirus (CTV) through coat protein gene sequence.	05-04-2008
115.	PP Ph.D. PMAS AAUR Plant aero microbial population in the atmosphere of Rawalpindi and Islamabad (twin cities) and its impact on major crops.	07-04-2008
116.	Zoology M.Phil PMAS AAUR in vitro ovicidal and larvicidal activity of some locality available plants species on gastrointestinal nematodes of small ruminants.	08-04-2008

117.	PP M.Sc. (Hons) Evaluation of A, B and D wheat genome derived germplasms for powdery mildew resistance: Morpho-Molecular characterization, diversity and utilization potential for wheat improvement.	20-08-2008
118.	PP M.Sc. (Hons) Stripe rust resistance and genetic diversity of some "A" genome diploid progenitor resources of wheat.	20-08-2008

DR. MUHAMMAD NAEEM
Associate Professor

Area of Research

SYTEMATICS AND ECOLOGY

Qualifications:

<u>Degree</u>	<u>Year</u>	<u>Institution</u>	<u>Position & Research Area</u>
Ph.D.	Jan. 31,1997	University of Leeds Leeds, England <i>agroforestry</i>	<i>“Responses of aphids & their natural enemies to a silvoarable environment”</i>
MSc.(Hons)	1992	University of Agriculture Faisalabad, Pakistan	First Division <i>Agricultural Entomology, Mantodea (Dictyoptera) of Punjab Province, Pakistan</i>
BSc.(Hons)	1989	University of Agriculture Faisalabad, Pakistan	First Division Agricultural Entomology

Distinctions:

The following scholarships were awarded from the Govt. of Pakistan.

- 1. Higher Education Commission** One year Postdoctorate Fellowship from Feb. 2004 to Feb. 2005 in United Kingdom
- 2. Pakistan Ministry of Education:** Three years postgraduate foreign scholarship for Ph.D. in United Kingdom
- 3. Pakistan Ministry of Education:** Two years scholarship for MSc.(Hons). UAF. Pakistan

Computer Applications:

Good knowledge and experience of the following computer softwares:
Microsoft Word, Exel, Windows Paintbrush and Draw, Power point
Idealist, Minitabe and SSPS for statistics, Cricket and Microcal Origin
Graphics, Internet

Experience Highlights Research:

Systematic of Insects:

- * Mantodea (Dictyoptera)
- * Spingidae (Lepidoptera)
- * Aphids (Homoptera)
- * Aphid parasitoids and hyperparasitoids (Hymenoptera)
- * Aphid predators (Hoverflies: Diptera; Coccinellids: Coleoptera)

Integrated Pest Management (IPM)

Biological Control of the insect pests in a silvoarable agroforestry landscape.
Experimental studies of Arthropod community structure: a resource-based approach

Research and Teaching:

1994	Demonstrator to undergraduate, Leeds University, UK. Laboratory experience, insect collection, insect setting and identification, Field experience,
1996	Served as an invigilator in Leeds University in May-June.
1998-2001	Lecturer, Department of Entomology, University of Arid Agriculture, Rawalpindi.
2001-2005	Assistant Professor, Department of Entomology, University of Arid Agriculture, Rawalpindi.
2005 to date	Associate Professor, Department of Entomology, University of Arid Agriculture, Rawalpindi.

Field Work:

1990-91	Mantids were collected various localities of the Punjab Province yielded 31 species in 21 genera under 5 families.
1994	Experience with Dr.D.Phillips in field samplings (leaf survey, yellow water-pan traps, pitfall traps and suction sampler) at Leeds University Farm. Headly Hall. Leeds.
1995	Experience with D. Blakely on Butterfly immature stages.

Associate Editor

2001 to 2003 Serving as associate editor of Pakistan Journal Of Arid Agriculture

Consultant Editor

Jan-July 2000 Worked as consultant editor for Pakistan Journal Of Arid Agriculture

Tutor group I

2001 to Jan. 2004 Serving as a tutor of group I in University of Arid Agriculture, Rawalpindi.

Secretary board of study

1999 to Jan. 2004 Serving as a secretary of the board of study of the Department of Entomology, UAAR.

Superintendent

2001 to Jan. 2004 Served as a superintendent of Boys Hostel, University of Arid Agriculture, Rawalpindi.
2006 to 2007 Superintendent of Jinnah Hall

Joint Secretary

2005 to date The AGRICS Alumni Association, Islamabad-Rawalpindi

Affiliations & Memberships:

Hold memberships of the following Organisation and Societies

- | | |
|--------------|--------------------------------------|
| 1992-97 | Agroforestry Research Group, UK |
| 1993-97 | Pakistan Overseas Society |
| 1994-95 | International Student Organisation |
| 2002 to date | The Agrics, Alumni Association, UAF. |

Voluntarily work for three months to High Commission in London and Consulate of Pakistan in Bradford.

The following students completed their M.Sc.(Hons) under my Supervision

(a) Department of Entomology

1. Sharafat Ali (94-arid-172). 2000. The Responses of Aphid Spp. On Different Varieties of Brassica Crops.
2. Nazar Iqbal (95-arid-14). 2001. The Responses of the Population Density of Insect Pests of Maize (*Zea mays* L.) in Relation to Different Fertility Regimes Using NPK, FYM and EM-Compost.
3. Shakeel Ahmed (96-arid-49). 2002. Population Dynamics And Distribution of Wheat Aphids And Their Natural Enemies.
4. Irfan Ahmed (00-arid-354). 2004. Development of the Cereal Bait Formulations for the Lesser Bandicoot Rat, *Bandicota bengalensis* (Gray).
5. Waqas Abdullah (00-arid-819). 2006. Interrelationship of Cereal Aphids and their Natural Enemies on Wheat.
6. Abrar Ali Mohsin (04-arid-234). 2006. Bionomics of Rose Aphids and their Natural Enemies.
7. Imran Abbas (00-arid-768). 2008. Comparative study of parasitoids attacking aphids on wheat and Brassica

Working

8. M. Naveed Usman (03-arid-150) Potential of biocontrol agents against population size of aphids on Brassica.
9. M. Daud-ul-Hassan Khan (01-arid-567) Responses of exotic vegetable crops of solanaceae family (brinjal, tomato, chillies) to major insect/pests under field conditions in Islamabad.
10. Saleha Shahid Siddiqui (03-arid-180) Responses of aphid and their natural enemies on cauliflower varieties
11. Ghulam Rabbani (07-arid-280) Biological studies of *Diaretiella rapae* (Mcintosh)
12. Muhammad Ramzan (07-arid-262) Taxonomic studies of cetoniid beetle (*Cetoniidae: coleoptera*) of Pothwar Region.
13. M. Mohsin Hasnat (03-arid-280) Taxonomy of crane flies of Pothwar region

(b) Department of Zoology

14. Sajida Iqbal (98-arid-160). 2000. Evaluation of the Diversity of Insects on Ground Flora of UAAR.
15. Nazish Bostan (99-arid-819). 2001 Evaluation of Resistance in some Wheat Cultivars to *T. castanemum* (Herbst) under Lab. Conditions.

16. Andleeb Sartaj (99-arid-759). Evaluation of Resistance of Wheat and Maize Cultivars.....
17. Fozia Bashir (00-arid-1012). Screening of Different Wheat cultivars

(C) Working

18. Imran Bodla. **Ph.D. Student**, Department of Entomology
19. Ahmad Zia (98-arid-889) Biosystematics of Damselflies (Zygoptera:Odonata) of Pakistan.
20. Qamar Zia (93-ag/arid-369) Ecological studies of *Cotesia* spp. on maize stem borer and factors contributing to its efficiency as biocontrol agent.
21. Abdul Rehman (93-ag/arid-406) Molecular Characterization of Parasitoids associated with Fruit-Infesting Tephritidae in the Punjab Province (Pakistan).
22. Ghulam Ali Aphid population dynamics: Aphid population dynamics: A comparative evaluation of their natural enemies in brassica.

Member for M.Sc.(Hons.) Students

10 students

Member for Ph.D. Students

2 student

RESEARCH PUBLICATIONS:

National

1. Naeem, M. and M. Yousuf. (1999). Taxonomy of Amorphoscelidae, Empusidae, Hymenopodidae and Eremiaphilidae (Mantodea: Dictyoptera) from Punjab Province (Pakistan). *Pakistan Entomologist's*. 21(1-2). 33-38.
2. Naeem, M. and S.G. Compton, (2000). Population Dynamics of Filbert aphid, *Myzocallis coryli* (Goetze) on Hazel bushes to an Agroforestry System. *Pakistan Journal of Biological Sciences*. V. 3(2). 306-308.
3. Naeem, M. Samina, A. Sartaj and T. Mehmood. (2000). Diversity of Soil Fauna in Hedges, Cultivated and Uncultivated Field Areas. *Pakistan Journal of Arid Agriculture* : 3(1-2): 27-32.
4. Ali, S. M. Naeem and Ehsan ul Haq. (2000). Evaluation of Cabbage Aphid, *Brevicoryne brassicae* (L.) on Different Varieties of Rapeseed Mustard Crop under Field Conditions. *Pakistan Journal of Biological Sciences*. 3(6):991-992.
5. Naeem, M. and M. Yousuf. (2000). Bisystematics of Mantidae (Mantodea: Dictyoptera) from Punjab, Pakistan. *Pakistan Entomologists*. 22(1-2):111-115.
6. Latif, M. S. T. Alam and M. Naeem. (2001). Comparative Efficacy of Different Insecticides Against Whitefly *Bemisia tabaci* (Genn) on Two Cotton Varieties. *OnLine Journal of Biological Sciences* 1(6):480-482.
7. Sartaj, A. Naeem, M. Samina and Mahmood T. (2001). Preference of Wheat and Maize by *Tribolium castaneum* (Herbst) Under Laboratory Conditions. *Pakistan Journal of Arid Agriculture* 4(1-2): 85-89.
8. Bostan N. and M. Naeem. (2002). Evaluation of Resistance in Some Wheat Cultivars to *Tribolium castaneum* (Herbst) under Laboratory Conditions. *Asian Journal of Plant Sciences*. 1(2): 95-98.
9. Naeem M., S. Ahmed and M. Latif. (2002). Effect of Orchard on the Spread of Cotton Leaf Curl Viral Disease. *Asian Journal of Plant Sciences*. 1(2): 99-100.
10. Naeem M., S. Compton and L.D. Incoll. (2002). Population Trends of Barley-feeding Aphids and Their Parasitoids to an Agroforestry Environment. *Pakistan Journal of Arid Agriculture*. 5(2): 43-52.

11. Compton SGA and M. Naeem (2005) Dispersal and Landing of Insects in silvoarable agroforestry: Implications for Better Pest Management. Proceeding of International Workshop of Sanitary and Phytosanitary Measures. 81-88pp. UAAR.
12. Mahmood K and M. Naeem (2006) Observation on animal behavior before and after earthquake in District Bagh, Azad Jammu and Kashmir. Abstracts: 26th Pakistan Congress of Zoology (International). University of the Punjab, Lahore. 83-84.

International

13. Incoll, L.D., D.T. Corry, C. Wright, D. Hardy, S.G. Compton, **M. Naeem**, D. Phillip and J. Griffiths. (1994). Silvoarable experiment with quality timber production hedges. *Agroforestry Forum*, 5(1):22-23, University of Wales, Bangor. UK.
14. **Naeem, M.** S.G. Compton, D.S. Phillips and L.D. Incoll. (1994). Factors influencing aphids and their parasitoids in a silvoarable agroforestry system. *Agroforestry Forum*, 5(2):20-23, University of Wales, Bangor. UK.
15. Phillips D.S., J. Griffiths, **M. Naeem**, S.G. Compton and L.D. Incoll. (1994). Responses of crop pests and their natural enemies to an agroforestry environment. *Agroforestry Forum*, 5(2):14-20, University of Wales, Bangor. UK.
16. **Naeem M.** and M. Yousuf. (1996). The Mantodea (Dictyoptera) of the Punjab Province of Pakistan. *Entomologists Monthly Magazine* Vol. 132: 281-284. London.
17. Mehmood, K., M. Yousuf and **M. Naeem**. (1996). The Sphingidae (Lepidoptera) of the Punjab Province of Pakistan. *The Entomologist's Record & Journal of Variation* Vol. 108: 211-215. UK.
18. **Naeem, M.** S. G. Compton, L. D. Incoll, C. Wright and D. T. Corry. (1997). Responses of aphids to a silvoarable agroforestry landscape. *Agroforestry Forum*, 8:18-20, University of Wales, Bangor. UK.
19. **Naeem, M.**, S. Compton, L. D. Incoll, Waseem Akram and Jong-Jin Lee. 2005. Interaction of English grain aphid, *Sitobion avenae* (F) and their natural enemies to an agro-forestry environment. *J. Asia-Pacific Entomol.* South Korea. 8: 175-183.
20. **Naeem M.**, F. Shahzad and M. Riaz. (2005). Biosystematics of Aphid Parasitoids (Hymenoptera: Aphidiidae) from Potohar Region of the Punjab (Pakistan). *Entomologists Monthly Magazine*. 141: 219-226. Hollickwood Avenue, London.
21. **Naeem, M.**, W. Wakil and N. Iqbal. (2005). Effects of inorganic fertilizers farm yard manure and effective microorganism compost on corn leaf aphid, *Rhopalosiphum maidis* fitch. and their predators. *Bangladesh Journal of Agriculture Research*. 30(1): 1-7.

BIO DATA OF MR. HUMAYUN JAVED
M. Sc. (HONS.) AGRI. ENTOMOLOGY.

PARTICULARS.

A. PERSONAL

1. Name Humayun Javed
2. Father's Name Abdul Wahid
3. Date of Birth 4.4.1961 (Fourth April nineteen sixty one)
4. Domicile place Punjab (Pakistan)
5. Identity card No. 37405-0677403-7
6. Permanent address DAA-House No. 4, street No. 6 Muslim Town, Kurri Road, Rawalpindi
7. Mailing address Assistant Professor Entomology,
University of Arid Agriculture, Rawalpindi.

B. EDUCATIONAL QUALIFICATION RECORD

S.#.	Name of Institute	Year of Passing	Division	Subject
1.	C.B. Tech High School Rawlapindi.	Matriculation (1976)	First	Science
2.	Govt. Zamindar Degree College, Gujrat.	F. Sc. (Pre-Medical) (1978)	Second	Pre-Medical
3.	Barani Agricultural College Rawalpindi.	B. Sc. (Hons.) Agri. Entomology (1984)	First C. G. P. A. (3.57)	Entomology
4.	University of Agri., Faisalabad	M. Sc. (Hons.) Agri. Entomology (1986)	First C. G. P. A. (3.66)	Entomology

C. DISTINCTIONS

Stood first in B. Sc. (Hons.) Agric. Department of Entomology at Barani Agricultural College, Rawalpindi.

D. EXPERIENCE

Working as Assistant Professor, Department of Entomology University of Arid Agriculture, Rawalpindi.

E. THESIS TITLE.

Studies on the Biophysico-Chemical Resistance of Some Cotton Cultivars against Cotton Pest Complex.

F. **COURSES ATTENDED.**

S.#.	Course	Attended		Institute
		From	To	
1.	N. C. C.	1976	1978	Govt. Zamindar Degree College, Gujrat.
2.	Bee-Keeping	22 nd April 1987	27 th April 1987	National Agricultural Research Centre, Islamabad.
3.	Bee-Keeping	15 th May 1989	19 th May 1989	-do-
4.	Teaching Methodology	13 th July 1988	23 rd July 1988	Barani Agricultural College in cooperation with the international Agric. Training Programme.
5.	Teaching Methodology	29 th July 1989	10 th Aug 1989	-do-
6.	Bee-Keeping	24 th April 1997	28 th April 1997	National Agricultural Research Centre, Islamabad.

G. **ACTIVITIES & RESPONSIBILITIES.**

1. Worked as Assistant Controller of Examinations, University of Arid Agriculture, Rawalpindi.
2. Laboratory Incharge Department of Entomology, University of Arid Agriculture, Rawalpindi.
3. Incharge maintenance Block-A, University of Arid Agriculture, Rawalpindi.
4. Acted as Co-ordinator Bee-Keeping short courses held during 1987 to 1988 at Barani Agricultural College, Rawalpindi.
5. Member of the Examination scrutiny Committee, during 1988-1995 in the Barani Agricultural College, Rawalpindi.
6. Tutor tutorial J. group at the University of Arid Agriculture, Rawalpindi.

H. PUBLICATIONS:

1. Javed, H. Muhammad Rafiq Khan and Mansoor Ahmad. 1992, Role of Physico-chemical factors imparting resistance in cotton against some insect pests. Pak. Entomol., 14(1-2): 53-55.
2. Javed, H. Muhammad Rafiq Khan Manzoor Ahmad. 1998. Biophysico chemical resistance of cotton cultivars against some pests Pak. and Agric. 1(1): 49-54.
3. Ahmad Bilal Nasir, Humayun Javed and Muhammad Aslam, 1998 influence of biotic factors on the population of Mustard aphid, *Lipaphis erysimi* Kaly. Sarhad J. vol 14(5): 1998.
4. Javed, H. and M. Afzal. 2001. Evaluation of Catch Efficiency of medium and Lethal Range of Blocks for Mall Annihilation (MA) on fruit fry *Bactrocera spp.* (Diptera: Tephritidae) Pakistan. J. Bio. Sci. 1:80-82.
5. Javed, H. and M. Afzal. 2001. Evaluation of Commonly Available Aphids for their suitability as Host Range of *Lysiphebus ambiguus* (Haliday) Braconidae: Hemiptera. Pak. J. Biolog. Sci. 4:426-428.
6. Afzal, M. and H. Javed. 2001. Evaluation of soaked wooden killer blocks for annihilation (MA) on fruit fly *Bctocera Spp.* (Diptera: Tephritidae). Online Journal of Biological Sciences. 1(7): 577-579.
7. Javed, H. and M. Afzal. 2002. Evaluation of Developmental and Reproductive Potential of *Lysiphebus ambiguus* (Braconidae: Hymenoptera). Asian J. Pl. Sci. 1(2): 109-111.
8. Javed, H. and M. Hussain. 2002. Effect of Food supplementation by N and Ascorbic Acid on Larval Mortality of Silkworm (*Bombyx mori* L.). Asian J. Pl. Sci. 1(5): 556-557.
9. Jatoi, M. Y., H. Javed and S. A. Kakakhel. 2002. Relative Resistance among 22 Brassica napus cultivars Kalt. Asian J. Sci. 1(5): 558-559.

10. Hussain, M. and H. Javed. 2002. Effect of 0.2% N with various combinations of Ascorbic acid on Growth and silk production of silkworm (*Bomby mori* L.). Asian J. of plant sciences. 1(6): 650-651.
11. Tariq, M., H. Javed and I. H. Akhtar 2003. Impact of environmental factors and physico-morphic character of sunflower (*Heliothus annus*) genotypes on insect pest complex. Asian J. of plant sciences 2(17-24): 1166-1169.
12. Akhtar. H. Abrar, H Javed, and A. Khaliq, 2004. Microclimatic morphs and plant distribution analysis of *Rhopalosiphum maidis* (Fitch) and *Schizaphis Graminum* (Roundani) on Wheat. Asian J. of plant sciences 3(4): 516-521.
13. Akhtar. H. Abrar, H. Javed, and A. Shakoor, 2004. Microclimatic morphs and plant distribution analysis of cereal aphids on wheat. Asian J. of plant sciences 3(5): 539-543.

LIST OF PUBLICATIONS

PUBLICATIONS OF PROFESSOR DR. MUHAMMAD ASLAM RESEARCH PAPERS (PUBLISHED)

1. **Aslam, M;** M-ul-Haq and M. Zarif Qazi, 1980. Effect of Dipel, Lannate and Thiodan on *Agrotis ipsilon* (Hfn.) and *Heliothis armigera* (Hb.) attacking Virginia Tobacco. Pak Tobacco (J) IV (2): 25-29.
2. **Aslam, M;** M-ul-Haq and M. Zarif Qazi 1982. Extent of damage to Virginia Tobacco by *Agrotis ipsilon* (Hfn.) and *Heliothis armigera* (Hb.) in Punjab. Pak Tobacco (J) VI (1): 27-28.
3. **Aslam, M.** 1996. The Infectivity of *Beauveria bassiana* to *Galleria mellonella* Journal .Science & Tech.nology, 20: 47-49. (ISSN 0250-5339)
4. **Aslam, M.** 1997. Diversity of Arthropod populations in Conventional Tillage, No. Tillage and Old Field Systems. Journal .Science & Tech.nology 21: 15-17. (ISSN 0250-5339)
5. **Aslam, M.,** R.B. Chalfant and G.A. Herzog. 1998. The influence of insecticide regimens applied to various cotton strains on the poulation of *Spodoptera exigua* (Hubner) (Lepidoptera: Noctuidue) under field conditions. Sarhad J. Agric., 14(5): 457-461. (ISSN 1016-4383)
6. **Aslam, M.** 1998. Response of *Periplaneta americana* (Linnaeus) (Dictyoptera:Blattidae) to different food materials under natural Environments. Sarhad J.Agric., 14(6): 635-639. (ISSN 1016-4383)
7. **Aslam, M.,** 1998. Study of the Pathogenic Relationship of *Neoaplectana carpocapsae* and *Achromobacter nematophilus* infecting the larvae of *Galleria mellonella*. Pak. J. Agri., Agril., Engg., Veterinary . Science. 14(1): 49-51(ISSN 1015-3055).
8. **Aslam, M.,** R. B. Chalfant., G.A. Herzog 1998. Population of harmful and beneficial arthropods on selected cotton strains under different levels of pest management. Sarhad J Agric.14 (5):463-469. (ISSN 1016-4383).
9. **Aslam, M.,** R.B. Chalfant and G.A. Herzog. 1998. Evaluation of resistance of Cotton Strains to *Heliothis virescens* (F) (Lepidoptera: Noctuidae) under laboratory conditions. Sarhad J. Agric.14 (5):471-474. (ISSN 1016-4383).
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25. Akhtar, H., Abrar, **H Javed**, and A. Khaliq, 2004. Microclimatic morphs and plant distribution analysis of *Rhopalosiphum maidis* (Fitch) and *Schizaphis Graminum* (Roundani) on Wheat. Asian J. of plant sciences 3(4): 516-521.
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CRITERION 7: INSTITUTIONAL FACILITIES

Standard- 7.1: The institution must have the infrastructure to support new trends in learning such as e-learning:

The faculty has access to e-library which is very helpful for the high quality education and producing research of international standard. They also have access to the internet. However the department lacks facilities as mentioned below:

- Majority of the faculty members do not have access to the PCs as department have only two Computers provided by the university.
- No registered softwares of computer programmes are available to be installed at departmental level.
- No regular/prompt arrangements are available to resolve IT and Telecommunication issued faced by the faculty members / students in the department.
- IT issues, Virus problems, Telephone sets/connections, Internet connections often remain out of ordered.
- Registered antivirus software is immediately required.
- Registered version s of Microsoft Windows, Office XP, Adobe reader, writer are required.
- A printer with in built scanner and fax facility is urgently needed by the department.

Standard- 7.2: The library must possess an up-to-date technical collection relevant to the program and must be adequately staffed with professional personnel

The University Central Library has very limited number of books, journals and periodicals. It's a small library in term of space and facilities with no catalogue systems. It does not meet the standards of a University Library. Department itself does not have a library. It needs funds allocation to establish a well equipped library at departmental level.

Standard- 7.3: Class-rooms must be adequately equipped and offices must be adequate to enable faculty to carry out their responsibilities

Currently the class rooms are not enough and the space is not only limited but some basic facilities are lacking. Multimedia are not available for the lecture halls. Practical lab space is also not meeting the needs which affects the quality of teaching. Although at present offices for

the faculty are sufficient, yet on the return of the remaining faculty, we will face severe problem regarding shortages of offices for the staff.

CRITERION 8: INSTITUTIONAL SUPPORT

The university administration has been striving to strengthen all the departments and up-gradation of departments and establishing new Faculties and Institutes. The university is also trying to attract highly qualified faculty members. Currently, the university has launched tenure track system which would be helpful in pooling up better human resources as faculty members.

Standard 8-1: There must be sufficient support and financial resources to attract and retain high quality faculty and provide the means for them to maintain competence as teachers and scholars

At present department is having inadequate financial resource to meet the present needs for a better education system. Individual research grants for students and faculty are mainly supporting the departmental research activities. Keeping in view the awful need for increasing the financial resources to establish a library, laboratories and computer facilities, the HEC has approved a project for strengthening the department. This project will prove beneficial in improving the quality of education and research.

Standard 8-2: There must be an adequate number of high quality graduate students, research assistants and Ph.D. students.

The department offers admission annually to graduate and M.Sc. Hons students. However Ph.D. admission are usually offered in each semester.

RESEARCH STUDENTS REVIEW

Proforma 4 was used to conduct survey to review the progress of Ph.D and M.Sc. Hons students. General inferences are drawn hereunder.

- Most of the students were satisfied with the level of supervision.
- The students had access to the available sophisticated equipments.
- The students have access to scientific literature through central laboratory.
- Some students requested provision of computers.

- Some students argued that equipments relating molecular and biochemical techniques should be made available in the department to carry out biochemical analysis of cereals, toxicological study of insecticides and biosystematics study of insects.

Standard- 8.3: Financial resources must be provided to acquire and maintain Library holdings, laboratories and computing facilities.

Although administration provides adequate financial resources, yet there is need to increase budget to carry out advance level research.

Summary and Conclusions

Since its inception, Department of Entomology, Pir Mehr Ali Shah Arid Agriculture University, Rawalpindi has been endeavoring for setting high standards both in research and human resource development. Prior to the establishment of Arid Agriculture University in 1994, this department had been working with in the domain of Barani Agricultural College, Rawalpindi. Entomology department has played an exclusive role in providing technical input in providing highly skilled man power to cater future needs of educational institutions, research organizations, international setups, private sector and extension department. Presently, 5 faculty members are performing research and educational activities.

Entomology Department deals with the production of highly skilled manpower both at graduate and post-graduate levels and providing practical and economical solution to the insect pest problems for enhancing agricultural productivity in arid agriculture setup. The major objectives of this program include equipping graduates with necessary theoretical & practical knowledge in Entomology and conduct research to devise environment friendly IPM practices. The program's mission objectives and outcomes are evaluated and strategic work plans are formulated to achieve stipulated measurable goals. Most of the Program's outcomes are found highly satisfactory. Teachers' evaluation figures of four teachers depict very much pleasing (satisfactory) standards; their performance score ranges from 4.42 to 4.73. with an average of 4.59. Student's evaluation score ranged from 3.79 to 4.32 with an average value of 4.07. Alumni survey revealed demonstrate variable results with regard to different traits like knowledge, management and leadership qualities, interpersonal communication skill etc. Bottlenecks earmarked as lack of scientific equipment in laboratories along with computers and their accessories. Meanwhile the department has also been provided community technical services in household and field pest management. Additionally, the employer survey depicted an above average level of graduates' success and was ranked above 70% with regard to their knowledge and personality traits.

Department also rendered its technical input in designing and development of courses curriculum. Observing the required terms and conditions all pre-requisites were made available. Periodic examinations were conducted as per schedules given by the Controller Exams and all

of the academic schemes were prepared strictly keeping the given timeline. The number of courses along with their titles and credit hours for each semester, their course contents for different degree programs were fully planned and finalized. The level of their efficacy also falls between satisfactory and highly satisfactory rank.

This report also indicates the available facilities and bottlenecks both in the field research and education. Presently, through an HEC funded project, facilities both for quality research and education are being developed at department level. This development will help both students and faculty members in attaining stipulated targets in an efficient manner. Proper measures have been adopted to train students in effective communication and motivation skill, organizing meetings and tutorials, conducting field visits, hunting employment and effective interaction with professionals and farming community.

In addition to that procedures and practices set forth by the HEC and the university are fully observed during different processes involved in admission, registration, recruitment policy, delivery of material, academic requirement and performance evaluation etc. To update the knowledge of the faculty members and improve their skills, training institutions at national and international level must be getting in touch with. In this regard a varied level of information was gathered but within satisfactory level (> 50%). Bottlenecks incase of availability of infrastructure, library facility, and class room/laboratory equipment were also identified; thus institutional support in this regard can play a pivotal role in streamlining the sustained development of the institution.

Annexure -1

Proforma - 1 Student Course Evaluation Questionnaire (To be filled by each Student at the time of Course Completion)



Department _____ Course No _____
 Course Title _____ Teacher Name _____
 Year of Study _____ Semester / Term _____

Please give us your views so that Course quality can be improved. You are encouraged to be frank and constructive in your comments

CORE QUESTIONS

Course Content and Organization	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
1. The course objectives were clear	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. The Course workload was manageable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. The Course was well organized (e.g. timely access to materials, notification of changes, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Comments					

Student Contribution	<input type="checkbox"/> <20%	<input type="checkbox"/> 21-40%	<input type="checkbox"/> 41-60%	<input type="checkbox"/> 61-80%	<input type="checkbox"/> >81%
	Strongly Agree	Agree	uncertain	Disagree	Strongly Disagree
5. Approximate level of your own attendance during the whole Course	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. I participated actively in the Course	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. I think I have made progress in this Course	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Comments					

Learning Environment and Teaching Methods	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
9. I think the Course was well structured to achieve the learning outcomes (there was a good balance of lectures, tutorials, practical etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. The learning and teaching methods encouraged participation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. The overall environment in the class was conducive to learning.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Classrooms were satisfactory	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Comments					

Learning Resources	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
14. Learning materials (Lesson Plans, Course Notes etc.) were relevant and useful.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Recommended reading Books etc. were relevant and appropriate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. The provision of learning resources in the library was adequate and appropriate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. The provision of learning resources on the Web was adequate and appropriate (if relevant)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18 Comments					

Quality of Delivery	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
19. The Course stimulated my interest and thought on the subject area	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. The pace of the Course was appropriate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. Ideas and concepts were presented clearly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22. Comments					

Assessment	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
23. The method of assessment were reasonable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24. Feedback on assessment was timely	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25. Feedback on assessment was helpful	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26. Comments					

Additional Core Questions

Instructor / Teaching Assistant Evaluation	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
27. I understood the lectures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28. The material was well organized and presented	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29. The instructor was responsive to student needs and problems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30. Had the instructor been regular throughout the course?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Tutorial	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
30. The material in the tutorials was useful	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
31. I was happy with the amount of work needed for tutorials	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
32. The tutor dealt effectively with my problems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Practical	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
33. The material in the practicals was useful	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
34. The demonstrators dealt effectively with my problems.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<p>Overall Evaluation</p> <p>35. The best features of the Course were:</p> <p>36. The Course could have been improved by:</p>

<p>Equal Opportunities Monitoring (Optional)</p> <p>37. The University does not tolerate discrimination on any irrelevant distinction (e.g. race, age, gender) and is committed to work with diversity in a wholly positive way. Please indicate below anything in relation to this Course which may run counter to this objective:</p>
--

Demographic Information: (Optional)			
38. Full/part time study:	Full Time <input type="checkbox"/>	Part Time <input type="checkbox"/>	
39. Do you consider yourself to be disabled:	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
40. Domicile:			
41. Gender:	Male <input type="checkbox"/>	Female <input type="checkbox"/>	
42. Age Group:	less than 22 <input type="checkbox"/>	22-29 <input type="checkbox"/>	over 29 <input type="checkbox"/>
43. Campus:	Distance Learning/ Collaborative <input type="checkbox"/>		

THANK YOU

Annexure -2

Proforma 2

Faculty Course Review Report

(To be filled by each teacher at the time of Course Completion)



For completion by the course instructor and transmission to Head of Department of his/her nominee (Dept. Quality Officer) together with copies of the Course Syllabus outline

Department:		Faculty:			
Course Code:		Title:			
Session:		Semester:	Autumn <input type="checkbox"/>	Spring <input type="checkbox"/>	Summer <input type="checkbox"/>
Credit Value:		Level:		Prerequisites:	
Name of Course Instructor:		No. of Students Contact Hours	Lectures	Other (Please State)	
			Seminars		
Assessment Methods: give precise details (no & length of assignments, exams, weightings etc)					

Distribution of Grade/Marks and other Outcomes: (adopt the grading system as required)

Undergraduate	Originally Registered	%Grade A	%Grade B	%Grade C	D	E	F	No Grade	Withdrawal	Total
No. of Students										
Post-Graduate	Originally Registered	%Grade A	%Grade B	%Grade C	D	E	No Grade	Withdrawal	Total	
No. of Students										

Overview/Evaluation (Course Co-coordinator's Comments)

Feedback: first summarize, then comment on feedback received from:
(These boxes will expand as you type in your answer.)

1) Student (Course Evaluation) Questionnaires

2) External Examiners or Moderators (if any)

3) Student /staff Consultative Committee (SSCC) or equivalent, (if any)

4) Curriculum: comment on the continuing appropriateness of the Course curriculum in relation to the intended learning outcomes (course objectives) and its compliance with the HEC Approved / Revised National Curriculum Guidelines

5) Assessment: comment on the continuing effectiveness of method(s) of assessment in relation to the intended learning outcomes (Course objectives)

6) Enhancement: comment on the implementation of changes proposed in earlier Faculty Course Review Reports

7) Outline any changes in the future delivery or structure of the Course that this semester/term's experience may prompt

Name: _____ Date: _____
(Course Instructor)

Name: _____ Date: _____
(Head of Department)



Survey of Graduating Students

(To be filled out by graduating students in last semester/year before the award of degree)

The survey seeks graduating students' input on the quality of education they received in their program and the level of preparation they had at university. The purpose of this survey is to assess the quality of the academic programs. We seek your help in completing this survey.

A: Very satisfied B: Satisfied C: Uncertain D: Dissatisfied E: Very dissatisfied

1. The work in the program is too heavy and induces a lot of pressure.
A B C D E
2. The program is effective in enhancing team-working abilities.
A B C D E
3. The program administration is effective in supporting learning.
A B C D E
4. The program is effective in developing analytical and problem solving skills.
A B C D E
5. The program is effective in developing independent thinking.
A B C D E
6. The program is effective in developing written communication skills.
A B C D E
7. The program is effective in developing planning abilities.
A B C D E
8. The objectives of the program have been fully achieved.
A B C D E
9. Whether the contents of curriculum are advanced and meet program objectives.
A B C D E
10. Faculty was able to meet the program objectives.
A B C D E

11. Environment was conducive for learning
- A B C D E
12. Whether the Infrastructure of the department was good.
- A B C D E
13. Whether the program was comprised of Co-curricular and extra-curricular activities
- A B C D E
14. Whether scholarships/ grants were available to students in case of hardship
- A B C D E

Answer question 9 if applicable.

9. The internship experience is effective in enhancing
- | | | | | | | |
|----|--------------------------------------|-----|-----|-----|-----|-----|
| a. | Ability to work in teams | (A) | (B) | (C) | (D) | (E) |
| b. | Independent thinking | (A) | (B) | (C) | (D) | (E) |
| c. | Appreciation of ethical Values | (A) | (B) | (C) | (D) | (E) |
| d. | Professional development | (A) | (B) | (C) | (D) | (E) |
| e. | Time management skills | (A) | (B) | (C) | (D) | (E) |
| f. | Judgment | (A) | (B) | (C) | (D) | (E) |
| g. | Discipline | (A) | (B) | (C) | (D) | (E) |
| h. | The link between theory and practice | (A) | (B) | (C) | (D) | (E) |

10. What are the best aspects of your program?

11. What aspects of your program could be improved?

You may use additional sheets for questions 10 & 11 if needed.

Annexure -4

Proforma 4

RESEARCH STUDENT PROGRESS REVIEW FORM



(To be filled out by Master/ M.Phil / Ph.D Research Students on six monthly basis)

To be submitted by the HoD / Dept. Quality Officer to the QEC

For Research Student to Complete:

1. Date of admission to the department
2. Date of initiation of research
3. Date of completion of Course work
4. Number of credit hours completed
5. Date of Synopsis Defense
6. Cumulative Grade Point Average (CGPA) secured
7. Please outline details of progress in your research since your last review (including any research publications):
8. Do you have any comments on the level of supervision received?
9. What do you plan to achieve over the next 6 months?
10. Do you have any comments on generic or subject-specialist training you may have received or would like to receive internally and / or externally?
11. Do you have easy access to sophisticated scientific equipment?
12. Do you have sufficient research material / commodities available?

Student _____

Date: _____

Supervisory Committee Comments

(Please comment on and benchmark the student's progress against your University's internal and external HEC Quality Criteria for Master/PhD/MPhil Studies)

Principal Supervisor: _____

Date: _____

Co-Supervisor: _____

Date: _____

Co-Supervisor: _____

Date: _____

Head of Department Comments:

Signature: _____

Date: _____

Director, Board of Research Studies (or equivalent) Comments:

Signature: _____

Date: _____

Dean/Director, QEC Action: (including monitoring of Follow-up action) Date: _____



Annexure -5

Proforma 5

Faculty Survey

(To be submitted on annual basis by each faculty member)

The Purpose of this survey is to assess faculty members' satisfaction level and the effectiveness of programs in place to help them progress and excel in their profession. We seek your help in completing this survey and the information provided will be kept in confidence. Indicate how satisfied are you with each of the following aspects of you situation at your department?

A: Very satisfied B: Satisfied C: Uncertain D: Dissatisfied E: Very dissatisfied.

1. Your mix of research, teaching and community service.
A B C D E
2. The intellectual stimulation of your work.
A B C D E
3. Type of teaching / research you currently do.
A B C D E
4. Your interaction with students.
A B C D E
5. Cooperation you receive from colleagues.
A B C D E
6. The mentoring available to you.
A B C D E
7. Administrative support from the department.
A B C D E
8. Providing clarity about the faculty promotion process.
A B C D E
9. Your prospects for advancement and progress through ranks.
A B C D E
10. Salary and compensation package.
A B C D E

11. Job security and stability at the department.
- A B C D E
12. Amount of time you have for yourself and family.
- A B C D E
13. The overall climate at the department.
- A B C D E
14. Whether the department is utilizing your experience and knowledge
- A B C D E
15. What are the best programs / factors currently available in your department that enhance your motivation and job satisfaction:
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
16. Suggest programs / factors that could improve your motivation and job satisfaction?
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____

Information about faculty member

i. Academic rank:

- A: Professor B: Associate Professor C: Assistant Professor D: Lecturer
E: Other

ii. Years of service:

- A: 1-5 B: 6-10 C: 11-15 D: 16-20 E: >20

Name: _____ Signature: _____ Date: _____



Annexure -6

Proforma 6

SURVEY OF DEPARTMENT OFFERING Ph.D. PROGRAMS

The following information is required for EACH Department in which a Ph.D. program is offered.

1	General Information:	
1.1	Name of Department	
1.2	Name of Faculty	
1.3	Date of initiation of Ph.D. program	
1.4	Total number of academic journals subscribed in area relevant to Ph.D. program.	
1.5	Number of Computers available per Ph.D. student	
1.6	Total Internet Bandwidth available to all the students in the Department.	
2	Faculty Resources:	
2.1	Number of faculty members holding Ph.D. degree in the department.	
2.2	Number of HEC approved Ph.D. Advisors in the department.	
3	Research Output:	
3.1	Total number of articles published last year in International Academic Journals that are authored by faculty members and students in the department.	
3.2	Total number of articles published last year in Asian Academic Journals that are authored by faculty members and students in the department.	
3.3	Total number of ongoing research projects in the department funded by different organizations	
3.4	Number of post-graduate students in the department holding scholarships/fellowships.	
3.5	Total Research Funds available to the Department from all sources.	
3.6	Number of active international linkages involving exchange of researchers/students/faculty etc. (Attach Details).	

4	Student Information:	
4.1	Number of Ph.D. degrees conferred to date to students from the Department during the past three academic years.	
4.2	Number of Ph.D. students currently enrolled in the department.	
4.3	Ratio of number of students accepted to total number of applicants for Ph.D. Program.	
5	Program Information	
5.1	Entrance requirements into Ph.D. Program (M.Sc. / M.Phil.) Indicate subjects or M.Sc. / M.Phil.	
5.2	Is your Ph.D. program based on research only? (Y/N)	
5.3	Maximum number of years in which a Ph.D. degree has to be completed after initial date of enrollment in Ph.D. program.	
5.4	Total number of post M.Sc. (16 year equivalent) courses required for Ph.D.	
5.5	Total number of M.Phil. level courses taught on average in a Term / Semester.	
5.6	Total number of Ph.D. level courses taught on average in a Term / Semester.	
5.7	Do your students have to take/write:	
	a. Ph.D. Qualifying examination (Y/N)	
	b. Comprehensive examination (Y/N)	
	c. Research paper in HEC approved Journal	
	d. Any other examination (Y/N)	
5.8	Total number of International examiners to which the Ph.D. dissertation is sent.	
5.9	How is the selection of an examiner from technologically advanced countries carried out?	
5.10	Is there a minimum residency requirement (on campus) for award of Ph.D. degree?	
6	Additional Information	
6.1	Any other information that you would like to provide.	



Alumni Survey

(To be filled by Alumni - after the completion of each academic year)

The purpose of this survey is to obtain alumni input on the quality of education they received and the level of preparation they had at University. The purpose of this survey is to assess the quality of the academic program. We seek your help in completing this survey.

A: Excellent B: Very good C: Good D: Fair E: Poor

I. Knowledge

1. Math, Science, Humanities and professional disciplines, (if applicable)

(A)	(B)	(C)	(D)	(E)
-----	-----	-----	-----	-----
2. Problem formulation and solving skills (A) (B) (C) (D) (E)
3. Collecting and analyzing appropriate data (A) (B) (C) (D) (E)
4. Ability to link theory to practice. (A) (B) (C) (D) (E)
5. Ability to design a system component or process (A) (B) (C) (D) (E)
6. IT knowledge (A) (B) (C) (D) (E)

II Communications Skills

1. Oral communication (A) (B) (C) (D) (E)
2. Report writing (A) (B) (C) (D) (E)
3. Presentation skills (A) (B) (C) (D) (E)

III Interpersonal Skills

1. Ability to work in teams. (A) (B) (C) (D) (E)
2. Ability to work in arduous /Challenging situation (A) (B) (C) (D) (E)
3. Independent thinking (A) (B) (C) (D) (E)
4. Appreciation of ethical Values (A) (B) (C) (D) (E)

IV Management /Leadership Skills

1. Resource and Time management skills (A) (B) (C) (D) (E)
2. Judgment (A) (B) (C) (D) (E)
3. Discipline (A) (B) (C) (D) (E)

V General Comments

Please make any additional comments or suggestions, which you think would help strengthen our programs. (New courses that you would recommend and courses that you did not gain much from)

VI. Career Opportunities

VII. Department Status

- | | | | | | |
|----------------------------------|-----|-----|-----|-----|-----|
| 1. Infrastructure | (A) | (B) | (C) | (D) | (E) |
| 2. Faculty | (A) | (B) | (C) | (D) | (E) |
| 3. Repute at National level | (A) | (B) | (C) | (D) | (E) |
| 4. Repute at international level | (A) | (B) | (C) | (D) | (E) |

VIII Alumni Information

1. Name (Optional)_____
2. Name of organization_____
3. Position in organization_____
4. Year of graduation_____



Employer Survey

(To be filled in by Employer - after the completion of each academic year)

The purpose of this survey is to obtain employers' input on the quality of education University of Arid Agriculture, Rawalpindi is providing and to assess the quality of the academic program. The survey is with regard to University of _____ graduates employed at your organization. We seek your help in completing this survey.

A: Excellent B: Very good C: Good D: Fair E: Poor

I. Knowledge.

1. Math, Science, Humanities and professional discipline, (if applicable)

(A)	(B)	(C)	(D)	(E)
-----	-----	-----	-----	-----
2. Problems formulation and solving skills

(A)	(B)	(C)	(D)	(E)
-----	-----	-----	-----	-----
3. Collecting and analyzing appropriate data

(A)	(B)	(C)	(D)	(E)
-----	-----	-----	-----	-----
4. Ability to link theory to Practice

(A)	(B)	(C)	(D)	(E)
-----	-----	-----	-----	-----
5. Ability to design a system component or process

(A)	(B)	(C)	(D)	(E)
-----	-----	-----	-----	-----
6. Computer knowledge.

(A)	(B)	(C)	(D)	(E)
-----	-----	-----	-----	-----

II. Communication Skills

1. Oral communication

(A)	(B)	(C)	(D)	(E)
-----	-----	-----	-----	-----
2. Report writing

(A)	(B)	(C)	(D)	(E)
-----	-----	-----	-----	-----
3. Presentation skills

(A)	(B)	(C)	(D)	(E)
-----	-----	-----	-----	-----

III. Interpersonal Skills:

1. Ability to work in teams

(A)	(B)	(C)	(D)	(E)
-----	-----	-----	-----	-----
2. Leadership

(A)	(B)	(C)	(D)	(E)
-----	-----	-----	-----	-----
3. Independent thinking

(A)	(B)	(C)	(D)	(E)
-----	-----	-----	-----	-----
4. Motivation

(A)	(B)	(C)	(D)	(E)
-----	-----	-----	-----	-----
5. Reliability

(A)	(B)	(C)	(D)	(E)
-----	-----	-----	-----	-----
6. Appreciation of ethical values

(A)	(B)	(C)	(D)	(E)
-----	-----	-----	-----	-----

IV. Work skills

1. Time management skills

(A)	(B)	(C)	(D)	(E)
-----	-----	-----	-----	-----
2. Judgment

(A)	(B)	(C)	(D)	(E)
-----	-----	-----	-----	-----
3. Discipline

(A)	(B)	(C)	(D)	(E)
-----	-----	-----	-----	-----

Annexure -9



Proforma 9

Faculty Resume

Name							
Personal	<i>May include address(s) and phone number(s) and other personal information that the candidate feels is pertinent.</i>						
Experience	List current appointment first, each entry as follows: <i>Date, Title, Institution.</i>						
Honor and Awards	List honors or awards for scholarship or professional activity.						
Memberships	<i>List memberships in professional and learned Societies, indicating offices held, committees, or other specific assignments.</i>						
Graduate Students Postdocs Undergraduate Students Honour Students	List supervision of graduate students, postdocs and undergraduate honors theses showing: <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; width: 30%;">Years</th> <th style="text-align: left; width: 30%;">Degree</th> <th style="text-align: left; width: 40%;">Name</th> </tr> </thead> <tbody> <tr> <td colspan="3">Show other information as appropriate and list membership on graduate degree committees.</td> </tr> </tbody> </table>	Years	Degree	Name	Show other information as appropriate and list membership on graduate degree committees.		
Years	Degree	Name					
Show other information as appropriate and list membership on graduate degree committees.							
Service Activity	<i>List University and public service activities.</i>						

<p><i>Brief Statement of Research Interest</i></p>	<p><i>May be as brief as a sentence or contain additional details up to one page in length.</i></p>						
<p><i>Publications</i></p>	<p><i>List publications in standard bibliographic format with earliest date first.</i></p> <ul style="list-style-type: none"> ○ Manuscripts accepted for publication should be included under appropriate category as “in press;” ○ Segment the list under the following standard headings: <ul style="list-style-type: none"> ▪ Articles published by refereed journals. ▪ Books. ▪ Scholarly and / or creative activity published through a refereed electronic venue. ▪ Contribution to edited volumes. ▪ Papers published in refereed conference proceedings. ▪ Paper or extended abstracts published in conference proceedings. (refereed on the basis of abstract) ▪ Articles published in popular press. ▪ Articles appearing in in-house organs. ▪ Research reports submitted to sponsors. ▪ Articles published in non-refereed journals. ▪ Manuscripts submitted for publication. (include where and when submitted). 						
<p><i>Research Grants and Contracts.</i></p>	<p><i>Entries should include:</i></p> <table border="0" style="width: 100%;"> <tr> <td style="width: 15%;">Date</td> <td style="width: 45%;">Title</td> <td style="width: 40%;">Agency / Organization</td> </tr> <tr> <td colspan="3">Total Award Amount</td> </tr> </table> <p><i>Segment the list under following headings:</i></p> <ul style="list-style-type: none"> ▪ Completed ▪ Funded and in progress ▪ In review 	Date	Title	Agency / Organization	Total Award Amount		
Date	Title	Agency / Organization					
Total Award Amount							
<p><i>Other Research or Creative Accomplishments</i></p>	<p><i>List patents, software, new products developed, etc.</i></p>						
<p><i>Selected Professional Presentations</i></p>							



Annexure -10

Proforma 10

Teacher Evaluation Form

(To be filled by the student)

Course Title and Number: _____

Name of Instructor: _____ Semester _____

Department: _____ Degree _____

Use the scale to answer the following questions below and make comments

A: Strongly Agree B: Agree C: Uncertain D: Disagree E: Strongly Disagree

Instructor:					
1. The Instructor is prepared for each class	A	B	C	D	E
2. The Instructor demonstrates knowledge of the subject	A	B	C	D	E
3. The Instructor has completed the whole course	A	B	C	D	E
4. The Instructor provides additional material apart from the textbook	A	B	C	D	E
5. The Instructor gives citations regarding current situations with reference to Pakistani context.	A	B	C	D	E
6. The Instructor communicates the subject matter effectively	A	B	C	D	E
7. The Instructor shows respect towards students and encourages class participation	A	B	C	D	E
8. The Instructor maintains an environment that is conducive to learning	A	B	C	D	E
9. The Instructor arrives on time	A	B	C	D	E
10. The Instructor leaves on time	A	B	C	D	E
11. The Instructor is fair in examination	A	B	C	D	E
12. The Instructor returns the graded scripts etc. in a reasonable amount of time	A	B	C	D	E
13. The Instructor was available during the specified office hours and for after class consultations	A	B	C	D	E
14. Course:					
15. The Subject matter presented in the course has increased your knowledge of the subject	A	B	C	D	E
16. The syllabus clearly states course objectives requirements, procedures and grading criteria	A	B	C	D	E
17. The course integrates theoretical course concepts with real-world applications	A	B	C	D	E
18. The assignments and exams covered the materials presented in the course	A	B	C	D	E
19. The course material is modern and updated	A	B	C	D	E

Comments:

Instructor: _____

Course: _____

Annexure-XI: Detailed Course Contents of B. Sc. (HONS.) degree in Entomology

Ent-301 Introductory Entomology 4(3-2)

Theory:

Introduction; phylum Arthropoda and its classification; external and internal morphology and physiology of insects with particular reference to 'ak' grasshopper, *Poekilocerus pictus*; metamorphosis and its types; insect classification and nomenclature; salient characters of insect orders with important families and insects.

Practical:

Collection and preservation of insects; characters of classes of Arthropoda; external and internal morphology of 'ak' grasshopper; temporary mounts of different types of appendages of insects; types of metamorphosis; salient characters of insect orders with important examples.

Books Recommended:

1. Mani, M.S., 1990. General Entomology 4th ed.. Oxford & IBH Publishing Co. Pvt. Ltd. New Delhi.
2. Richards, O.W. and R. G. Davies, 1984. Imm's General Text-book of Entomology, Vol. I. and II, 10th ed. Chapman & Hall, London, N.Y.
3. Tonapi, G. T., 1994. Experimental Entomology, An Aid to Lab. and Field Studies. C.B.S. Publishers and Distributors, Delhi
4. Yousuf, M., 1996. Manual of Introductory Entomology, University of Agriculture, Faisalabad.

Ent-302 Applied Entomology 4(3-2)

Theory:

Introduction; evidence, causes of success and economic importance of insects; principles and methods of insect control; insecticides, their classification, formulations and application equipment; identification, life history, mode of damage and control of important insect pests of various crops, fruits, vegetables, stored grains and household with particular reference to barani areas, introduction to miscellaneous pests; entomological industries: apiculture, sericulture and lac-culture.

Practical:

Collection, identification and mode of damage of insect pests of various crops, fruits, vegetables, stored grains and household; insecticide formulations and their computations; use of application equipment; practical instructions in apiculture, sericulture and lac-culture.

Books Recommended:

1. Atwal, A. S., 1991. Agricultural Pests of India & Southeast Asia. Kalyani Publishers, Ludhiana.
2. Hashmi, A. A., 1994. Insect Pest Management. Vols. I, II, III. Pak. Agri. Res. Council, Islamabad.
3. Pedigo, L.P., 1996. Entomology and Pest Management 2nd ed. Prentice and Hall Intl. Limited, London.
4. Pfadt, E. R., 1985. Fundamentals of Applied Entomology, 4th Ed. The Macmillan Co., N. Y.
5. Saha, L. R., 1990. Hand book of Plant Protection. Kalyain Publishers New Delhi.
6. Shah, H.A. & M.A. Saleem, 2002. Applied Ento. 2nd Edition, Izher Sons, Printer, Lahore.

Ent-501 Insect Morphology 4(3-2)**Theory:**

Introduction; Integument and its derivatives; Body regions; Segmentation, sclerites, sulci and appendages of head, thorax and abdomen in different insects; Endoskeleton and internal organ systems; Exocrine and Endocrine organs.

Practical:

Structure of integument and its derivatives; comparative external and internal morphology of different insect orders.

Recommended:

1. Chapman, R. F., 1982. The Insects: Structure and function (3rd ed.). Hodder and Stoughton Education Ltd., U.K.
2. Richard, O.W. and R.G. Davies. 1984. Imm's General Textbook of Entomology, Vol. I, revised. 10th ed. (Structure, Physiology & Development). Chapman and Hall, London, N.Y.
3. Tonapi, G. T., 1994. Experimental Entomology. An Aid to Laboratory and Field Studies. CBS Publishers and Distributors, New Delhi, India.
4. Snodgrass, R., 1993. Principles of Insect Morphology. Cornell Univ. Press., U.S.A.

Ent-502 Insect Physiology 3(2-2)

Theory:

Introduction; Embryonic and Post-embryonic Development; Physiology of integument, digestive, respiratory, circulatory, excretory, reproductive, muscular and nervous systems; Sense organs and perception; Production and Function of hormones and pheromones.

Practical:

Study of cuticular proteins; physiology of digestion, respiration, circulation, excretion, reproduction, musculature and sensation; Hormones and pheromones.

Books Recommended:

1. Chapman, R.F. 1982. The Insects: Structure and Function (3rd ed.) Hodder and Stoughton Educational Ltd., U.K.
2. Cummins, K.W., Lee. D. Miller, Ned A. Smith & Richard M. Fox., 1985. Experimental Ento. Reinhold Publishing Corporation, Chapman & Hall Ltd., London.
3. Rockstein, M. (Edit.) 1973-74. The Physiology of Insects. Vol. 1-6, 2nd ed. Academic Press, N.Y.
4. Saxena, S. C., 1992. Biology of Insects. Oxford and IBH Publishing Co., New Delhi.
5. Tonapi, G. T., 1994. Experimental Entomology. An Aid to Laboratory and Field Studies. CBS Publishers and Distributors, New Delhi, India.
6. Richard, O.W. and R.G. Davies. 1984. Imm's General Textbook of Entomology, Vol. I, revised. 10th ed. (Structure, Physiology & Development). Chapman and Hall, London, N.Y.

Ent-503 Insect Taxonomy 4(2-4)

Theory:

Introduction; History, functions and concepts; Tasks of a taxonomist; Taxonomic categories; taxonomic procedure: Collections, samples and methods of sampling, identification, taxonomic discrimination, taxonomic characters, variations in population; Presentation of findings: Descriptions, taxonomic keys, speciation and phylogenies, preparation of taxonomic paper; Code of zoological nomenclature; Introduction to numerical taxonomy and phylogenetic systematics.

Practical:

Methods of collection, preservation and labeling of insects; Preparation of taxonomic keys; Identification of insects with taxonomic keys; Cataloguing and writing of descriptions of identified insects; Preparation of phenograms and phylogenetic trees.

Books Recommended:

1. Chamberlin, W. J. 1962. Entomological Nomenclature. Bubaque, U.S.A.
2. Henning, W., 1981. Insect Phylogenetics. Willy Inter Sciences. U.K.
3. Kapoor, V.C. 1988. Theory and Practice of Animal Taxonomy, 2nd, Ed. Oxford and IBH Publishing Co. Pvt. Ltd. New Delhi, India.
4. Mayer, E. & P. D. Ashlock, 1991. Principles of Systematic Zoology, 2nd. Ed. McGraw Hill Inc. New York.
5. The International Commission on Zoological Nomenclature, 1985. International Code of Zoological Nomenclature, adopted by XX General Assembly of the Intl. Union of Biol. Sci. Uni. Calif. Press. Los Angles.

Ent-504**Agricultural Pests****4(2-4)****Theory:**

Introduction; Identification, distribution, host plants, biology, damage and control of insect, mite and vertebrate pests of field crops, vegetables and orchards.

Practical:

Collection and identification of insect pests of agricultural importance and their damage; Demonstration of control measures.

Books Recommended:

1. Atwal, A.S. 1991. Agricultural Pests of India & South-east Asia. Kalyani Publishers, Ludhiana.
2. Davidson, R.H. and W.F. Lyon. 1977. Insect Pests of Farm, Garden and Orchards. John Wiley and Sons Inc., New York.
3. Hashmi, A.A., 1994. Insect Pest Management. Vols. I, II & III. Pak. Agric. Council, Islamabad - Pakistan.
4. Hill, D. S. 1993. Agricultural Insect Pests of the Tropics and their Control (Indian ed.). Cambridge University Press, Cambridge, 746 pp.
5. Lohar, M. K., 1994. Handbook of Agricultural and Veterinary Applied Entomology. Department of Ento., Sindh Agric. Univ. Tandojam, Pakistan.

6. Pedigo, L. P., 1996. Entomology and Pest Management (2nd ed.). Prentice & Hall, Intl., London.
7. Pfadt, R.E. 1985. Fundamentals of applied Entomology, 4th ed. Macmillan Publishing Co., N.Y.
8. Upadhyay, R.K., K.G. Mukerji, B.P. Chamola & O.P. Dubey, 1998. Integrated Pest & Disease Management. A.P.H. Pub. Crop. New Delhi 695p
9. Shah, H.A. and M.A. Saleem 2002. Applied Entomology. Izher-sons, Printer, Lahore.

Ent-505 Plant Resistance to Insect Pests 3(2-2)

Theory:

Introduction; Mechanisms of resistance: Ecological, Physiological, Asynchrony, Induced, Genetic, Antixenosis, Antibiosis and Tolerance; Factors of resistance; Genetic basis of resistance; Effect of environment on resistance; Biotypes and resistance; Measurement of resistance; Development of resistant varieties; Role of entomologists in breeding for resistance.

Practical:

Testing and measurement of relative plant resistance to insects.

Books Recommended:

1. Metcalf, R. L. & W. A. Luckmann, 1982. Introduction to Insect Pest Management, 2nd Ed. John Wiley and Sons, New York.
2. Painter, R. H., 1951. Insect Resistance in Crop Plants. Macmillan Co. New York.
3. Panda, N., 1980. Principles of Host Plant Resistance to Insect Pests. Allenheld, London.
4. Panda, N. and G. S. Khush, 1995. Host plant resistance to Insects. IRRI. Printed and Bound in U.K. Biddles Ltd. Guildford. U.K.
5. Pedigo, L. P., 1996. Entomology and Pest Management. 2nd. Ed. Prentice and Hall, Inc. London.
6. Subba Rao, N. S., C. Balagopalan and S. V. Ramakrishna (Edts.), 1992. New Trends in Biotechnology. Oxford and IBH Publishing Co. Pvt. Ltd., New Delhi.

Ent-506 **Classification of Adult Insects** **3(2-2)**

Theory:

Introduction; Types of classification; phylogenetic affinities of different orders; classification of insect orders up to family level, with particular reference to insects of Pakistan.

Practical:

Assessment of existing phylogenetic arrangement of insect orders; Collection and identification of insects up to family level with the help of taxonomic keys.

Books recommended:

1. Borror, D.J., D.M. DeLong and C.A. Triplehorn. 1981. An Introduction to the Study of Insects, 5th ed. Holt, Rinehart and Winston, N.Y.
2. Richards, O.W. and R.G. Davies. 1984. Imm's General Text Book of Entomology, Vol. II. 10th ed. (Revised), Chapman and Co. Ltd., London.
3. Ross, H.H., C.A. Ross and J.R.P Ross, 1982. A Textbook of Entomology. 4th ed. John Wiley and Sons. Inc., N.Y.
4. Suhail, A., 2002. A Notebook of Classification of Adult Insect. University of Agriculture, Faisalabad.

Ent-507 **Beneficial Insects** **3(2-2)**

Theory:

Introduction; Insects of medicinal and aesthetic value; Insect pollinators, scavengers, entomophagous and weed feeding insects; Entomological industries: apiculture, sericulture and lac-culture.

Practical:

Practical instructions in apiculture, sericulture and lac-culture; Collection and identification of pollinators, scavengers, entomophagous, medicinal, weed feeding and other beneficial insects.

Books Recommended:

1. Aruga, H. 1994. Principles of Sericulture (Translated from Japanese). Oxford & IBH Publishing Co. Pvt. Ltd. New Delhi 376 pp.
2. Ganga, G., and Chetty, J. S. 1997. An Introduction to Sericulture. Oxford & IBH Publishing Co. Pvt. Ltd. New Delhi 302 pp.
3. Hashmi, A. A., 1994. Insect Pest Management, Vol. I, II & III. Pak. Agri. Res. Council, Islamabad.
4. Hooper, T. 1991. Guide to Bees and Honey. BAS Printers Ltd. Hampshire, UK 271 pp.

5. Krishnaswami, S., Narasimhanna, M. N., Suryanarayan, S. K. and Kumararaj, S. 1993. Sericultural Manual 2: Silkworm Rearing. Oxford & IBH Publishing Co. Pvt. Ltd. New Delhi 133 pp.

Waterhouse, D. F., 1998. Biological Control of Insect Pests: Southeast Asian Prospects. Australian Centre for International Agricultural Research, Canberra, 548 pp.

Ent-508 Stored Product Entomology 2(1-2)

Theory:

Introduction; Storage principles; Types of storage; Factors affecting grain in storages; Stored grain losses and their prevention; Identification, biology and control of different stored grain pests.

Practical:

Demonstration of sampling methods and estimation of losses; Collection, identification and control of different stored grain pests.

Books Recommended:

1. Anonymous, 1984. Insect and Arachnids of Tropical Stored Products, their Biology and Identification (A Training Manual). Storage Department, TAD. R.I., Slough, Berks, U.K.
2. Anonymous, 1986. Operational Manual for Grain Quality, Inspection & Quality Control Procedure during Procurement & storage, Govt. of Pakistan, Ministry of Food, Agriculture and Co-operatives by R.L. Semple, P.A. Hicks, J.V. Lozare, and A. Castermans 1992.
3. Dichter, D. 1978. Manual on improved Farm & Village level Grain Storage Methods. German Agency for Technical Co-operation (GTZ) W. Germany.
4. Hall, D.W. 1970. Handling and Storage of Food Grains in Tropical and Sub-tropical Areas. F.A.O., U.N. Rome.
5. Wilbur, D.A. and R.B. Mills and J.R. Pedersen. 1977. Manual of Grain and Cereal Product Insects and their Control., Kansas State University, U.S.A.
6. Zaklandvoi, G.A. and V.F. Ratanova. 1987. Stored Grain Pests and their Control. Oxonian Press Pvt. Ltd., London.

Ent-509**Household Insect Pests****2(1-2)****Theory:**

Introduction; Identification, biology and control of different household pests like ants, termites, cockroaches, silver-fish, house flies, crickets, mosquitoes, powder-post and carpet beetles, cloth-moths, psocids, lice, bed-bugs, and fleas.

Practical:

Collection, identification and demonstration of control of different household insect pests.

Books Recommended:

1. Atwal, A.S. 1991. Agricultural Pests of India & Southeast Asia. Kalyani Publishers, Ludhiana.
2. Metcalf C.L. and W.P. Flint 1978. Destructive and Useful Insects, Their Habits and Control. 2nd ed. McGraw Hill Book Co. Inc., N.Y.
3. Pfadt. R.E. 1985. Fundamentals of Applied Entomology, 4th ed. The Macmillan Co., N.Y.

Ent-510**Range and Forest Entomology****2(1-2)****Theory:**

Importance of range and forest entomology in range lands and forest ecosystems; Insect pests of range and forest trees; Identification, distribution, host plants, biology, mode of damage and control. Competing and complementary role of insects with range livestock.

Practical:

Collection, Preservation and Identification of insect pests of Range and Forest Trees. Practical study of mode of damage and demonstration of Control Methods.

Books Recommended:

1. Anderson, J.F. & M.K. Kaya, 1976. Perspectives in Forest Entomology. Acad. Press, New York Sac Francisco, London.
2. Knight. F.B. & H.J. Heiknen. 1980. Principles of Forest Entomology. McGraw Hill Book Co., New York.
3. Barbose, P. & M.B. Wagner. 1989. Introduction to Forests and Shade Tree Insects. Academic Press, New York, London.
4. Dent. D. 2000. Insect Pest Management, 2nd Ed. A.B.I. Publ. Comp.
5. Thakur, M.I. 2000. Forest Entomology (Ecology & Management) S.A.I. Publishing Comp.

Ent-601 Pest Forecasting and Management 4(2-4)

Theory:

Introduction; Population sampling; Population fluctuation & its measurement; Different methods of pest scouting & forecasting; Principles & requirements of Pest Management; Losses caused by insect pests to different crops; Methods of control: cultural, physical, mechanical, legislative, chemical, biological, microbial & genetical alongwith antimetabolites, feeding deterrents, hormones and pheromones; Concept of Integrated Pest Management (IPM); Economics of pest management.

Practical:

Demonstration of cultural practices and different methods of pest scouting and forecasting; Nature and extent of damage; Assessment of crop losses by different methods; Determination of economic threshold of insects on different crops; identification of important bio-control agents; Installation of light and pheromone traps; Computation, preparation and field application of insecticide formulations; Familiarity with irradiation techniques.

Books Recommended:

1. Atwal, A. S. and S. S. Bains, 1974. Applied Animal Ecology. Kalyani Publishers, Ludhiana.
2. Dent, D., 1996. Integrated Pest Management. Chapman & Hall, London.
3. Hill, D. S., 1993. Agricultural Insect Pests of the Tropics and Their Control. Cambridge University Press, Cambridge, 746 pp.
4. House, P., I. Stevens and O. Jones, 1998. Insect Pheromones and their use in Pest Management. Chapman and Hall, London.
5. Metcalf, R.L. & W.H, Luckmann. 1994. Introduction to Insect Pest Management. 3rd ed. Intercept Ltd. U.K.
6. Paimental, D., 1981. Handbook of Pest Management I - III. C.R.C. Press Inc. Florida, USA.
7. Pedigo, L.P., 1996. Entomology and pest management 2nd ed. Prentice and Hall, Intl. Limited, London.
8. Upadhyay, R. K., K. G. Mukerji, B. P. Chamola and O.P. Dubly, 1998. Integrated Pest and Disease Management. A. P. H. Publ. Co., New Delhi.

Ent-602 Internship 20(0-40)

Ent-603 Insect Ecology and Behaviour**4(3-2)****Theory:**

Introduction; Divisions of ecology; Habitat and niche; Intra and inter-specific interactions; Natural and agro-ecosystems; Flow of energy in ecosystem; Trophic relations: Food chain, food web and food mesh concepts; Ecological succession; population and its characteristics; Introduction to life tables. Types of behaviour: reflexes, kineses and taxes; learning; Periodicity; Patterns of behaviour; communications: Aisual, auditory, tactile, chemical. Territoriality; Control of behaviour: nervous, endocrine and genetic; biological functions of behaviour: host finding, feeding and reproductive; escape, defence, offence and predation; Dispersal and migration; Dormancy.

Practical:

Maintenance and measurement of Temperature, Humidity and light with different instruments; population estimation and construction of life tables. Study of types and patterns of insect behaviour under laboratory and field conditions.

Books Recommended:

1. Atwal, A.S. and S.S. Bains. 1974. Applied Animal Ecology, Kalyani Publishers, Ludhiana.
2. Evans, H. E., 1984. Insect Biology; A Textbook of Ento. Addison-Wesley Publishing Company.
3. Huffaker, C.B. & Robert L. Rabb. 1984. Ecological Entomology. Wiley Inter-sciences.
4. Price, P.W. 1984. Insect Ecology. John Wiley and Sons, N.Y.
5. Yazdani, S. S. and M. I. Agarwal, 1997. Elements of Insect Ecology. Narosa Publishing House, New Delhi.
6. Saleem, M.A. and M. Ashfaq, 2004. Environmental Pollution and Agriculture. B.Z. University Press, Multan.

Ent-605 Insecticides and Their Application**3(2-2)****Theory:**

Introduction; Nomenclature, classification, formulations, compatibility, physico-chemical properties, mode of action, residues, hazards and safety measures of insecticides; Structure and working of various types of hand and power operated equipment for insecticide application.

Practical:

Computation, Preparation and Field Application of different formulations of insecticides; identification, Classification, Handling and Maintenance of Application Equipment.

Books Recommended:

1. Alam, M.Z. 1965. Modern Insecticides and their Uses. Agri. Information Service. Deptt. of Agri. 3, R.K., Mission Road, Dhaka.
2. Hartley, G.S. and T.F. West. 1969. Chemicals for Pest Control. Pergamon Press, London.
3. Ishaaya, I. and D. Degheele, 1998. Insecticides with novel modes of action: Mechanism and application. Norosa Publishing House, New Delhi.
4. Mathews G.A., 1992. Pesticide application methods 2nd ed. Johnwiley & Sons Inc., N.Y.
5. Otto, D., B. Weber, 1991. Insecticides Mechanism of Action and Resistance. Intercept Ltd., U.K.
6. Saleem, M.A., 2002. Principal of Insect Toxicology. Izhar Sons Printer, Lahore.

Ent-607 Insect Natural History 3(2-2)**Theory:**

Introduction; Evolution of phytophagous insects; Insect adaptations in various geographical regions; Insect adaptive radiation and diversity; Sonification insect associations; Solitary, gregarious, sub-social, and colonial; Boring; Leaf-mining, Leaf-rolling, Gall-forming; Litter inhabiting; Subterranean; Terrestrial; Aquatic; Acrial; Iest-building and case-making insects.

Practical:

Collection and identification of solitary, gregarious, sub-social, social, colonial, boring, leaf-mining, leaf-rolling, gall-forming, litter- inhabiting, subterranean, terrestrial, aquatic, aerial, nest-building and case-making insects; study of adaptations in insects; demonstration of auditory and sound producing organs.

Books Recommended:

1. Frost, S.W., 1959. Insect life and Natural Hisotry (2nd ed.). Petersmith Dover Publications Inc., New York.
2. Daly, V.H., Doyen, T.H. and Ehrlich, R.P., 1978. Introduction to Insect Biology & Diversity, McGraw-Hill Book Company. New York.
3. Gullam P.J. and Cranston, P.S., 1994. The Insects an outline of Entomology. Chapman X Hall. New York.

4. Ahmed, S., R.R. Khan and M.A. Khan, 2003. A Laboratory Manual of Natural History & Behavior of Insects. Mas Computers, Fsd., Pakistan.

Ent-609 Project Planning and Presentation 2(1-2)

Theory:

Entomological literature; Internet Sources of entomological information; layout of experiment; collection; tabulation, analysis and interpretation of research data; instruction in research paper monograph and catalogue writing.

Practical:

Library exercises in internet sources of Entomological information; collection and analysis of data on field experiment.

Books Recommended:

1. Gilbert, I. and C.J. Hamilton, 1983. Entomology. A guide to information sources. Mausel Publishing Co., Ltd.
2. Ghani, M.A. and M. Ashfaq (Edit.) 1987. A Resume of Post Graduate Research, 1929-85. Deptt. Entomology, Univ. of Agri. Faisalabad.

Ent-611 Agriculture & Environmental Pollution 3(2-2)

Theory:

Introduction; General concept of pollutants; Sources and nature of pollutants; Environmental deterioration, its effect on agriculture; Green house effect; Types of pollution with reference to agriculture and forestry; Effect of pollution on soil, water, air, plants, living organisms, etc.; management of pollution.

Practical:

Identification and determination of sources of pollution in various substrates.

Books Recommended:

1. Berger, J. J., 1990. Environmental Restoration. Science & Strategies for restoring the health. EBL Publishers, London.
2. Suhail, A. & S. Ahmad, 2003. A workbook of Agriculture & Environmental Pollution. Univ. of Agric., Fsd.
3. Saleem, M.A. and M. Ashfaq, 2004. Environmental Pollution & Agriculture, B.Z. University Press, Multan.

4. Misra, S.G. and D. Mani, 1994. Agricultural Pollution, Vols. 1 & 2, Ashish Pub. House, New Delhi.
5. Praksh, R. & S. M. Choubey, 1990. Environmental pollution and health hazards. Publication of Society of Biochemistry of India.
6. Rizvi, S.M.H.,1994 Fundamentals of Environmental Pollution CBS Pub. & Distributors, 485, Jain Bhawan, Bhola Nath Nagar, Shahdara, Delhi - 32.

Annexure-XII: Detailed Course Contents of M.Sc. (Hons) and Ph.D in Entomology

ENT-701 RESEARCH METHODS IN ENTOMOLOGY 4(1-6)

THEORY:

Introduction; techniques and apparatus employed in entomological research: temporary and permanent mounts, microtomy, use of camera lucida. micrometry and scientific photography; bio-assay for insecticide residues; use of Potter's tower, atomic absorption spectrophotometer, gas chromatography, high performance liquid chromatography, ultraviolet visual spectrophotometer, amino acid analyser, electrophoresis, ultra centrifugation, scanning and transmission, electron microscopy and computer software in entomology; methods of sampling, analysis of data and report writing.

PRACTICAL:

Insect collection apparatus and preservation techniques; rearing and culturing; exercises in microtomy, permanent slides, micrometry and scientific photography; maintenance and measurement of microclimate; use of different equipments in entomological experiments, sampling, tabulation, analysis and interpretation of data.

BOOKS RECOMMENDED:

1. Bancroft, J. D. and A. Stevens, 1990. Theory and practice of histological techniques. Chaschill Livingstone, London.
2. Blaker, A.A. 1977. Handbook for Scientific Photography. W.H. Freeman and Co., San Francisco-3, Erlich, H., 1992. PCR Technology: Principles and Applications for Amplification. W.H.
3. Freeman & Company, New York. Peterson, A. 1976. Kntomological Techniques. Edward Bros. Inc. Ann. Arbor. Michigan. U.S.A
4. Singh, P. & R.F. Moore, 1985. Handbook of Insect Rearing VoU & II, Hlsevier, U.S.A.
5. Smith, I. 1960. Chromatographic and Electrophoretic Techniques William Heinemann Medical Books Ltd., London. Vol.1 (4th edition) XII.
6. Tonapai, G. T. 1994. Experimental Entomology - An aid to Laboratory and Field Studies. CBS Publishers and Distributors-Delhi, India.

ENT-702

ENVIRONMENTAL ENTOMOLOGY

2(2-0)

THEORY:

Introduction; diversity and stability of insects in different environments; interactions of various groups of insects with biological, chemical and physical constituents of their environment; physical and chemical characterization of environmental contaminants, impact of pollutants on insects and non-target organisms at different levels; biological responses to pollutants and biogeochemical cycles; insects as indicators of levels of pollution. Insects as environment cleaners and soil builders.

BOOKS RECOMMENDED:

1. Annual Review of Entomology, 1965 to date Palo Alto, California, Ann. Rev. Ent. U.S.A.
2. Anonymous, 1983, Agrochemical Fate in Food and Environment. Published by I.A.E.A., Vienna.
3. McEwen, F.L. and G.I. Stephenson, 1979. The Use and Significance of Pesticides in the Environment. John Wiley and Sons Inc.- N.Y.
4. Perry, A.S. 1998. Insecticides in Agriculture and Environment: Retrospects and Prospects. Elsevier, New York.

ENT 703

ADVANCED INSECT PHYSIOLOGY

3(2-2)

THEORY:

Introduction; advances in physiology of integument, growth, development, diapause, digestion, respiration, circulation, excretion, reproduction, reception and perception; neuromuscular physiology; physiology of locomotion and resistance; hormones, pheromones and light production.

PRACTICAL:

Hormonal control of insect growth, development and breaking of diapause; estimation of digestive enzymes. Oxygen consumption, carbon dioxide production and determination of respiratory quotient. Qualitative and quantitative analysis of haemocytes and free amino acids in haemolymph; determination and estimation of blood proteins, uric acid in excreta and water loss; pheromones as sex attractants; determination of visual, gustatory/olfactory responses and wing beat frequency.

BOOKS RECOMMENDED:

1. Agarwal, O.P., 1994. Perspectives in Entomological Research. Scientific Publishers, India.
2. Blum, M.S., 1985. Fundamentals of Insect Physiology. John Wiley and Sons, N.Y.

3. Chapman, R.F. 1982. The Insects; Structure and Function, 3rd ed. American Elsevier Publishing Co., Inc. N.Y.
4. Howse, P., 1. Stevens and 0. Jones, 1998. Insect Pheromones and Their Use in Pest Management. Chapman and Hall, London.
5. Kerkut. G. A. and L. I. Gilbert. 1985. Comprehensive Insect Physiology, Biochemistry and Pharmacology, Vols. 1-12, Pergamon Press, Oxford, New York, Toronto, Sydney, Paris, Frankfurt.
6. Rockstein, M. (Ed.) year. Advances in Insect Physiology Vol. 1-todate. Academic Press, London, N.Y.
7. Tonapi, G.T., 1994. Hxperimental Entomology; An Aid to Laboratory and Field Study. CBS, Publisher; India.

ENT-704 MICROANATOMY AND HISTOLOGY OF INSECTS 2(0-4)

PRACTICAL:

Use of microtome and other apparatus in the study of microanatomy and histology of insects. Fixation and fixatives. Nuclear and cytoplasmic stains. Preparation of temporary and permanent mounts of various body parts and study of histological structure.

BOOKS RECOMMENDED:

1. Gray, P. 1965. The Microtomists Formulary and Guide. The Blakiston Co., Inc. New York.
2. Smith, D.S. 1968. Insect cells, their structure and function. Olive and Boid, Edinburgh.
3. Tonapai, G. T. 1994. Experimental Entomology - An aid to Laboratory and Field Studies. CBS Publishers and Distributors-Delhi, India.

ENT-705 ADVANCED FOREST ENTOMOLOGY 3(2-2)

THEORY:

Ecological and behavioral aspects of forest insects and their management. Population dynamics of forest trees in relation to phytophagous insects. Monitoring pest populations damaging forest trees; defoliating, sap sucking, terminal, shoot, twig and phloem boring insects, wood boring insects and gall makers.

PRACTICAL:

Collection, preservation and identification of insect groups damaging forest plantations. Development of pest management systems for insects attacking forest trees.

BOOKS RECOMMENDED:

1. Coulson, R.N. and J.A. Witter. 1984. Forest Entomology. Ecology and Management. John Wiley and Sons, New York.
2. Barbosa, P. and M.R. Wagner. 1989. Introduction to Forest and Shade Tree Insects. Academic Press, New York.
3. Dent. D. 2000. Insect Pest Management. 2nd Ed. A.B.I. Publishing Co.
4. Thakur, M. L. 2000. Forest Entomology (Ecology and Management). S. A. 1. Publishing Co.

ENT-706 INSECTS OF MAN AND ANIMALS 3(2-2)**THEORY:**

Scope of Medical Entomology. Insects and other arthropods of medical and veterinary importance., their biology and control measures. Management strategies for major insects attacking man and domestic animals. Important diseases of man and animals where insects act as vectors.

PRACTICAL:

Collection, identification and control of different arthropod pests in relation to the diseases of man and domestic animals.

BOOKS RECOMMENDED:

1. Metcalf, R.L. and W.H. Luckman. 1982. Introduction to Insect Pest Management. John Wiley and Sons, New York.
2. James, M.T. and R.F. Harwood. 1969. Herm's Medical Entomology. The Mcamillan Company, Collier Macmillan Limited, London.
3. Pedigo,L.P.1996. Entomology and Pest Management. Prentice Hall Inc. N.J.679pp.
4. Wall, R. and D. Shearer. 1997. Veterinary Entomology. Chapman and Hall. London.

ENT-707 CLASSIFICATION OF IMMATURE INSECTS 4(2-4)**THEORY:**

Introduction; collection and preservation of immature stages of insects; preparation of immature insects for identification; identification and classification of immature stages of Ephemeroptera, Plecoptera, Odonata, Diptera, Lepidoptera, Trichoptera, Hymenoptera, Neuroptera and Coleoptera up to family level.

PRACTICAL:

Collection, preservation, preparation and identification of immature stages up to family level.

BOOKS RECOMMENDED:

1. Chu, H.Y., 1983. How to know the Immature Insects. W.M.C. Brown Co., Publishers, Iowa, USA.
2. Peterson, A.R., 1960. Larvae of Insects, Part-1.1. 4th ed. Edwards Brothers Inc., Arbor, Michigan.
3. Peterson, A., 1962. Larvae of Insects, Part-1, 4th ed. Edwards Brothers Inc.; Arbor, Michigan.
4. Stehr, F., 1991. Immature Insects. Vol. I&II. Kendall - Hunt Publishing, U.S.A.

ENT-708 INSECT PEST MANAGEMENT SYSTEMS 3(2-2)**THEORY:**

The pest management concept. Ecological considerations for the collection of data for the management of pest populations. The economics of pest management. Pest management strategies for insects attacking different crops grown in barani tracts of Pakistan. Transgenic and genetically modified crops, insect growth regulators, allelopathy, remote sensing and other currents, development in suppressing insect pests.

PRACTICAL:

Estimation of losses done by insects to various crop plants. Demonstration of pest scouting techniques for insects attacking different crops grown in barani areas. Development of pest management systems for key pests of major crops.

BOOKS RECOMMENDED:

1. Dent, D. 1991. Insect Pest Management. Univ. Arizona Press, USA.
2. Dent, D. 1996. Integrated Pest Management. Chapman and Hall, London
3. Metcalf, R.L. and W.H. Luckman. 1982. Introduction to Insect Pest Management. John Wiley and Sons, New York.
4. Teng, P.S. 1987. Crop Loss Assessment and pest Management. APS Press, Minnesota.
5. Frisbie, R. 1989. Integrated Pest Management systems and Cotton Production. John Wiley and Sons, New York.
6. Inayatullah, Ch. 1987. Integrated Pest Management. PARC, Islamabad.
7. Saxena, S.C. 1992. Biology of Insects. Oxford and IBH Publishing Co. Pvt. Ltd., New Delhi, Bombay, Calcutta.

8. Upadhyay, R. K., K. G. Mukerji, B. P. Chawla and O. P. Dubey, 1998. Integrated Pest and Disease Management. A. P. H. Publishing Corp. New Delhi.

ENT-709 ADVANCES IN HOST PLANT RESISTANCE 3(2-2)

THEORY:

Types and classification of resistance. Physio-chemical basis of plant resistance against insects. Epidemiological types of resistance. The use of plant and insect models in host plant resistance. Germplasm sources and needs. Techniques for screening different plant strains (especially in barani areas) showing resistance to insect pests. The relationship of resistant variety development to biotechnology.

PRACTICAL:

Demonstration of techniques for screening crop plants showing resistance to insect pests. Testing of mechanisms of host plant resistance under laboratory and field conditions.

BOOKS RECOMMENDED:

1. Maxwell, F.G. and P.R. Jennings. 1980. Breeding Plants Resistant to Insects. John Wiley and Sons, New York.
2. Barbosa, P. and D.K. Letourneau. 1988. Novel Aspects of Insect Plant Interactions. John Wiley and Sons, New York.
3. Smith, C.M. 1989. Plant Resistance to Insects. John Wiley and Sons, New York.
4. Pedigo, L.P. 1996 Plant Resistance to Insects. Entomology and Pest Management. Prentice Hall, Inc. N.J. pp 679.

ENT-710 INSECT TOXICOLOGY 3(2-2)

THEORY:

Introduction; general concepts of insect toxicology; theory and principles of bioassay; classification of insecticides on the basis of chemical nature and mode of action; chemistry and comparative toxicology of some common insecticides from each group; mechanism of action of major groups of insecticides; phytotoxicity of insecticides; energy production and inhibition by insecticides at various levels; detoxification mechanisms; joint action of insecticides, (synergism and antagonism).

PRACTICAL:

Laboratory equipment used in toxicology experiment; gross symptoms produced by representative insecticide groups; relationship between dosages and responses; use of

time-mortality determination in comparing the relative toxicity of insecticides; preparation of spectral transmittance and concentration transmittance curves; chemical assay of insecticides.

BOOKS RECOMMENDED:

1. Gupta, H.C.L., 1999. Insecticides: Toxicology and Uses. Agrotech Publishing Academy, Udaipur.
2. Hassal, K.A., 1990. The Biochemistry and Uses of Pesticides: Structure, Metabolism, Mode of Action and Uses in Crop Protection. BLRS/Macmillan, U.K.
3. Ishaaya, I. and D. Deghecle, 1998. Insecticides With Novel Modes of Action: Mechanism and Application. Norosa Publishing House..New Delhi, Madras, Bombay, Calcutta, London.
4. Kerkut, G.A. and L. I. Gilbert Year Comprehensive Insect Physiology, Biochemistry and Pharmacology. Pergamon Press. Oxford. N.Y., Toronto, Sydney. Paris, Frankfurt.
5. Pedigo, L.P., 1996. Entomology and Pest Management. Macmillan Publishing Co. N. Y., London.
6. Rockstein, M., 1978. Biochemistry of Insects. Academic Press, N.Y., San Francisco, London.
7. SreeRamulu.U.S., 1995. Chemistry of Insecticides and Fungicides Second Edition), Oxford & IBH Publishing Co. Pvt. New Delhi, Bombay, Calcutta.
8. Wilkinson, C.F., 1976. Insecticides Biochemistry and Physiology- Heyden, London, New York, Rheine.

ENT-711 INSECTS IN RELATION TO PLANT DISEASES

3(2-2)

THEORY:

Introduction; identification, biology and control of insect and mite vectors; mode of transmission of plant pathogens by insects and mites; study of causal organisms, etiology, symptoms and control of important fungal, bacterial and viral diseases of crop plants transmitted by insects and mites.

PRACTICAL:

Identification of insect and mite vectors and pathogens; rearing and handling of insect vectors for plant pathological studies. Study of mode of transmission of plant pathogens by insect and mite vectors.

BOOKS RECOMMENDED:

1. Atkins. M. D., 1978. Insects in Perspective. Macmillan Publishing Company, inc. New York.
2. Boner, D.1., D. M. DeLong and C. A. Triplehom, 1981. An Introduction to the study of insects. 5111 ed. Rainhart and Winston. N.Y.
3. Boucias, D.G. 1998. Principles of Insect Pathology. Chapman Hall, London.
4. Jeppson, L.R., H.H. Keifer and E. W. Baker, 1975, Mites Injurious to Economic Plants. Univ. Calif. Press.

ENT-712 INSECT CYTOGENETICS 3(2-2)**THEORY:**

Introduction, cell structure, characteristics and cell division in insects, chromosomes structure, number, diversity and types in insects; chromosomes and parthenogenesis in insects; chromosomes and ecology; modern concept of gene; genedetermined characters; environmental effect on gene expression; sex determination in insects; mutations and variations; genetic engineering; evaluation and speciation in insects.

PRACTICAL:

Study of insect cell, cell division, types and number of chromosomes in important insects like grasshoppers, crickets, cockroaches, flies and dragonflies; study of insect resistance in genetically engineered crops; study of different types of genetic variations in insects; genetical identification of species and biotypes in insects.

BOOKS RECOMMENDED:

1. Sinha, V. and Sunita Sinha. 1984. Cytogenetics. Plant Breeding & Evolution. VANI Educational Books, New Delhi.
2. Demere M. and B.P. Kaufmann. 1967. Drosophila guide. Washington D.C. Carnegie Institute of Washington.
3. Bahi, P.I. and P.M. Salimath. 1996. Genetics, Cytogenetics and Breeding of Crop Plants. Oxford and IBH Publishing Co. Pvt. Ltd. New Delhi.
4. Ashburner. M., H.L. Carson and J.N. Thompson Jr. 1986. The Genetics and Biology of Proshpila. Academic Press. New York.
5. Rinderer, I.T. 1986. Bee Genetics and Breeding. Academic Press. New York.

ENT-713 INSECT PATHOLOGY 3(2-2)

THEORY:

Introduction; history definition and scope; resistance and immunity in insects; types of insect pathogens; transmission, host range/persistence and virulence of insect pathogens; types of injuries and methods of infection by pathogens in insects; pathogenic diseases and their diagnosis in insects; extra-cellular and intracellular microbiota of healthy insects; control of microbial diseases of useful insects; role of pathogens in IPM of insects.

PRACTICAL:

Isolation, purification, culture and identification of insect pathogens from the diseased insects; diagnosis of different pathogenic diseases in insects; control of microbial diseases of useful insects: control of insect pests with microbial insecticides; determination of extent of parasitism by pathogens in insects.

BOOKS RECOMMENDED:

1. Boucias, D.G. 1998. Principles of Insect Pathology. Chapman Hall, London
2. Burges, H.D. and N.W. Hurrey, 1972, Microbial control of Insect and Mites. Academic Press London.
3. Poinar, G.O. Jr. and G.M. Thomas, 1978. Diagnostic for the Identification of Insect Pathogens, Press. N.Y.
4. Sleinhous, E.A., 1949. Principles of Insect Pathology. McCiraw-Hill Book Co. Inc. New York. 757 pp.
5. Tanada, Y. and H, Kaya, 1992. Insect Pathology. Academic Press, New York. 613pp.

ENT-714 INSECT BIOCHEMISTRY 3(2-2)

THEORY:

Introduction; energy metabolism and production in insects; biochemistry of cuticle, muscles, flight, synaptic transmission, light production, biochromes, hormones; insect growth regulators and diapause in insects; metabolism and role of carbohydrates, proteins and lipids in insects; chemical reactions involved in insect resistance to insecticides, chemical control of insect behaviour; biochemical defences in insects.

PRACTICAL:

Chemical identification of insect species and biotypes; pheromone extraction, its identification and control in insects; hormonal control of insect growth and development.

BOOKS RECOMMENDED:

1. Candy, D.J. and BA, Kilby, 1978, Insect Biochemistry and Function (2nd ed.) C 1. pman and Hall London. 314 pp.
2. Chapman, R.F., 1998. Insects: Structure and Function. 4111 ed. American Elsevier. Publ. Co. Inc., New York.
3. Gilmour, D., 1961. The Biochemistry of Insects. Academic Press London, .343 pp.
4. Turner, R.B., 1977. Analytical Biochemistry of Insects. Elsevier Scientific Publishing Company New York. 315 pp.
5. Rockstein. M., 1978. Biochemistry of Insects. Academic Press, New York, U.S.A., 649 pp.

ENT-715 COMPARATIVE INSECT EMBRYOLOGY 3(2-2)**THEORY:**

Introduction; structure of insect egg, fertilization of egg; early organization and development; segmentation; development of organs and organ systems; study of comparative embryology indifferent groups of insects.

PRACTICAL:

Identification of different types of insect eggs; structure of an insect egg, study of cleavage, Blastodein germ band, embryonic envelopes and blastokins different eggs; study of insect embryo at different durations.

BOOKS RECOMMENDED:

1. Chapman, R.F., 1998. The insects. Structure and 1-unction. 4111 ed. American Elsevier. Pubt. Co. Inc., New York.
2. Nagabhushanam, R. and R. Sarojini, 1985. Invertebrate Embryology. Oxford and IBH Publishing Co. New Delhi 580 pp.
3. Richards, O.W. and R.G. Davies, 1984. Imms General textbook of Entomology (10 ed.) Vol. 1 (Structure Physiology and development) Chapman and Hal 1 London.
4. Roeder, K-D., 1963. Insect Physiology 3rd Ed. John Wiley and Sons. Inc. New York.

ENT-716 BIOLOGICAL CONTROL OF INSECT PESTS 3(2-2)**THEORY:**

Introduction; history, development and scope of biological control with special reference to Pakistan; ecological basis of biological control; biological characteristics of emomophagous insects; introduction, culture, release and establishment of entomophagous

insects; conservation and augmentation of natural enemies; role of micro-organisms in biological control; integration of chemical and biological control.

PRACTICAL:

Collection, laboratory rearing, culturing and identification of parasitoids, predators and micro-organisms of economic importance; study of extent of parasitism / predation of different biocontrol agents.

BOOKS RECOMMENDED:

1. Burges, H.D. and N.W. Hussey, 1971. Microbial control of insects and mites. Academic press, London.
2. De'Bach, 1976. Biological Control of Pests and Weeds, Chapman & Brotes.
3. Gunasekaran, M. and D, Weber, 1996. Molecular Biology of the Biological Control of Pests and Diseases of Planls. I-SA Publications. U.S.A.
4. Maramorosch. K., 1991. Biotechnology for Biological Control of pests and Vectors. CRC Press, U. S. A.
5. Pedigo, L. P., 1996. Lntomology and Pest Management, 2"a ed. Prentic Hall Intl., London.

ENT-719 SPECIAL PROBLEM 1(1-0)

ENT-720 SEMINAR 1(1-0)

INSTITUTIONAL FACILITIES

The institution must have the infrastructure to support new trends in learning such as e-learning

- Electronic library books and journals are available for learning purpose.
- Insufficient facilities regarding the infrastructure to support new trends in learning are prevalent
- The library must possess an up-to-date technical collection relevant to the program and must be adequately staffed with professional personnel.
- In sufficient library's technical collection of books
- Recommended books, relevant journals of the programs are not available to the students
- However, this aspect needs to be strengthened in number and space.

Class rooms must be adequately equipped and offices must be adequate to enable faculty to carry out their responsibilities.