

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



SELF ASSESSMENT REPORT 2009-10
Department of Entomology
B.Sc. (Hons.) Agric.

Program Team

Prof. Dr. Muhammad Naeem (Chairman/Coordinator)

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Introduction

It was 1980, when the Department of Entomology started working with the establishment of Agriculture College, Rawalpindi. The intention to establish this department was to educate the agriculture graduates with crop protection techniques along with production methodology. As the college took off, the department offered 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. The department is committed to provide quality education and research in the area of Entomology. The mission of this department is to produce professionally skilled and academically sound entomologists able to identify the future issues related to Entomology and resolve the challenges relating to the insect pests of our field crop, stored commodities, diseases vectors 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 periodically reviews its curriculum to meet the challenges and to keep up with the pace of development. 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.

The department never compromises on quality. 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) is comprises of 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

Insects as one of the most successful group of animals are members of the largest phylum of animal kingdom. They are arthropods and may be differentiated from other arthropods by having three well

defined body regions, head, thorax and abdomen, a single pair of segmented antenna in the head region, the thorax with three pairs of legs in adult insect and generally one or two pairs of wings. Entomology deals with the study of insects. It covers all the fields like harmful insect pests, beneficial insects including biocontrol agents, pollinators, scavengers, honey bee, silkworm and other useful insects. Management of major insect pests of field crop, stored grains, fruit trees, vegetables and ornamentals etc using IPM techniques and safe and judicious use of pesticides is also a key component of entomology. 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 pest management techniques. Application of applied knowledge regarding pest management 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 professionals of strong background and recent technical knowledge to resolve the challenges relating to the insect pests infesting field crop, fruits and vegetables and stored commodities and the beneficial insects to produce valuable products like honey and silk etc thereby helping in development of agricultural and industrial economy, and producing useful products directly and to improve quality of the human life and economy of the country indirectly.

Main elements of strategic plan to achieve the mission and objectives

- 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.
- Post-graduate research including special problems, research reports.

- Provocation of linkages with national and international research organizations to solve indigenous problems relating to research.

PROGRAM OBJECTIVES AND THEIR 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
- Policy formulation for faculty training and exposure to current advancement in the field of Entomology through various seminars, national workshops, congresses etc.
- Development of department through the submission of various projects to various funding agencies
- Periodic review of the target achievements at department level

Table: 1 Program Objectives Assessment

S. #	Objective	How Measured	When Measured	Improvement Identified	Improvement made
1	Improvement and intensification of Entomology at AAUR	Getting views of the graduate students Based on identification of insect pests infesting crop plants in the field Suggest management practices for specific pest problems	It is a regular process as per requisite	Establishing an insect pest advisory service at the department Development of Techniques of guidelines are required to be improved	For insect pest identification identified specimen are preserved for technical support Techniques regarding research and field practices developed and dissemination to the students and the growers also
2	To communicate fundamental and practical knowledge to the graduating students	Assessing the previous understanding of students through exams/tests and student response	During the already established regular and periodic exam system by the university	Incorporation of new techniques in entomology course work and accordingly some new subjects are required to be incorporated in the syllabus	Improvement of existing courses as per requisite Communication system is made better by developing the class lectures and using audio visual aids
3	Supervision of students in internship	Evaluating the students internship project topics, by the concerned committees/evaluators, etc	Existing evaluation procedure, prior to initiate the projects and at the completion of the internship	Strong scrutiny system for topics and prepare reports	Seminars, presentation sessions and class discussions, were organized for communication proficiency improvement
4	Incorporation of associated fields	Reviewed by concerned departmental or faculty level committees, and councils (academic council)	In the periodic meetings of the concerned bodies	Allied topics/courses are suggested in the light of university/ HEC	New development in related fields are incorporated for awareness and exposure regarding the field

				guidelines/recommendations.	
5	Foresee the new lines of education	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 must have ability to understand the entomological issues related to pests, their identification and management.
2. The graduates should have a substantial skill to identify the pests and biocontrol agents and its application in devising IPM techniques for sustainable pest solutions.
3. The graduate students must have capability to take up small scale research on some national issue related to entomology which they come across during their course of duty. The students shall gain advanced theoretical and practical knowledge of the subject helping them to advance in their professional life and higher studies.
4. 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.
5. The students shall have potential to contribute in national economy.

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

Table 2: Programme outcomes and their relationship with the Programme objectives

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

	5	+++	++	+++	++	++
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+ = Moderately satisfactory

++ = Satisfactory

+++ = Highly satisfactory

Programme Outcome Measurement

So as to evaluate the performance of the most concerned with regard to achievement of the stipulated objectives; information was gathered from the target groups through prescribed proforma provided by the Quality Enhancement Cell of Pir Mehr Ali Shah, Arid Agriculture University, Rawalpindi. The prescribed proformas were filled in by the respective class students, respective faculty members, department alumni, and the graduates (previously passed out from the university) working in different organizations, research institutes, and agriculture departments in different capacities/positions at national level.

PROGRAM ASSESSMENT RESULTS

Teachers' Evaluation

Regarding the teachers' performance and their assessment, evaluation was done by the respective students and their comments were gathered on prescribed proforma. This evaluation was done for different courses assigned to individual teachers through filling in Proforma 10 (Annexure-IV). During the reporting period there were 7 teachers in the department which are numbered as 1-7. They are, Dr. Muhammad Naeem¹, Mr. Humayun Javed², Dr. Ata ul Mohsin³, Dr. M. Farooq Nasir⁴, Mr. Muir Ahmad⁵, M. Asif Aziz⁶, and Mr. Imran Bodlah⁷. The results showed that the teacher # 1 & 3 were scoring 4.8, teacher 2 & 4 with 3.7, teacher 5 with 4.6 and teacher 6 & 7 with scoring 4.5.

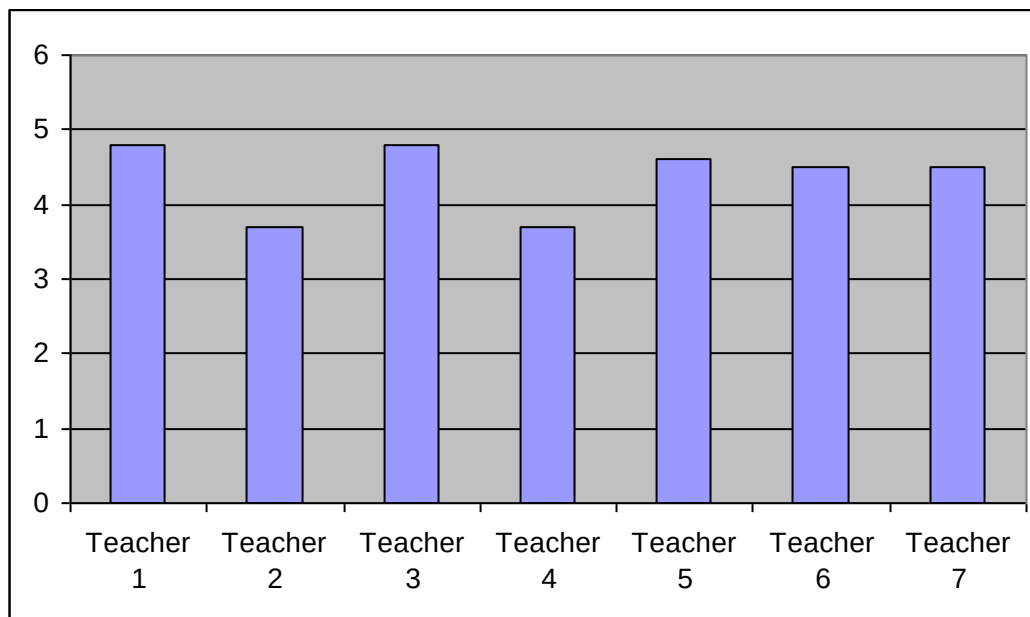
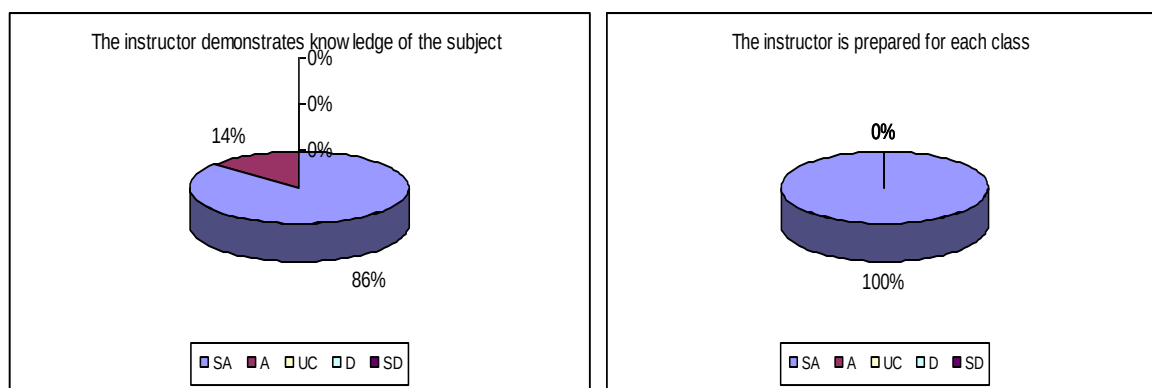
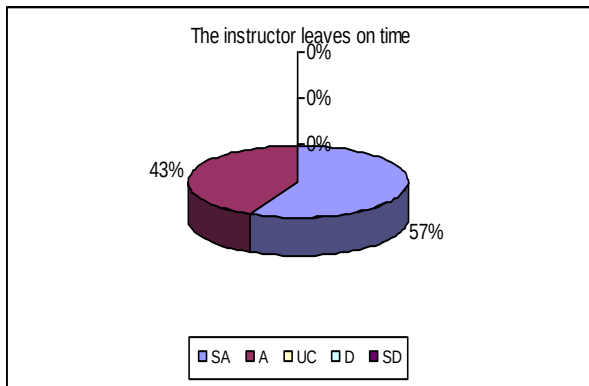
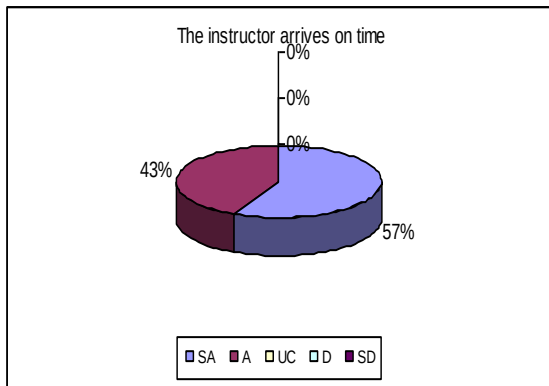
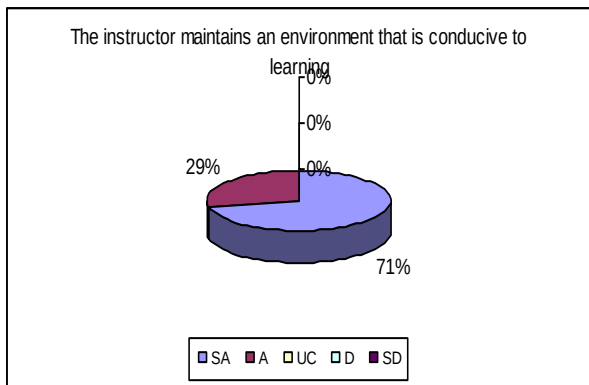
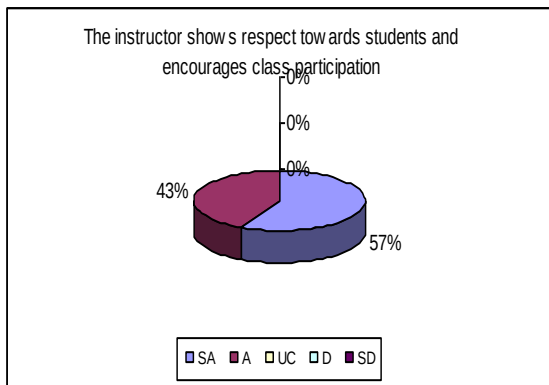
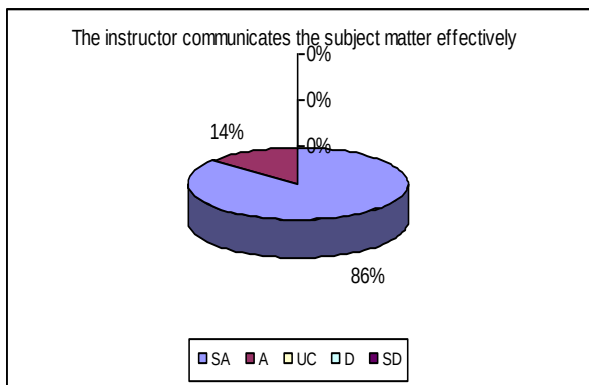
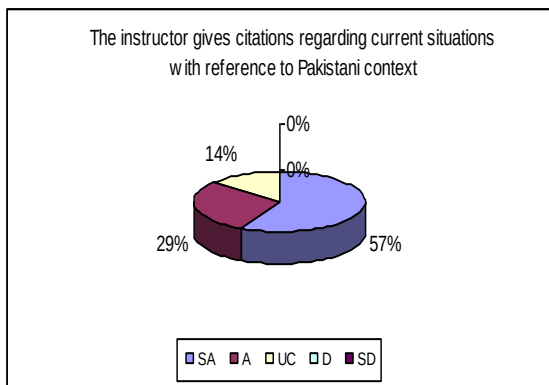
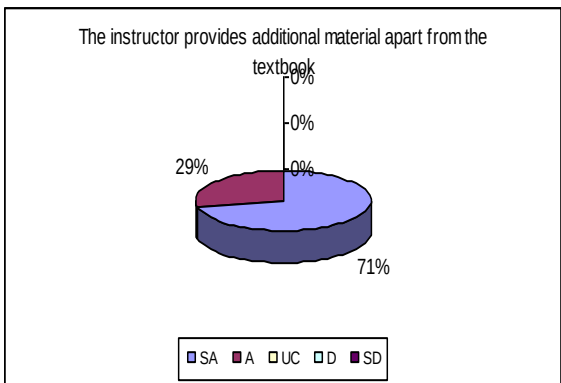
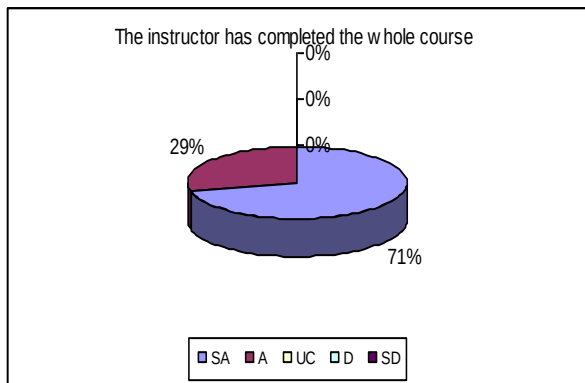


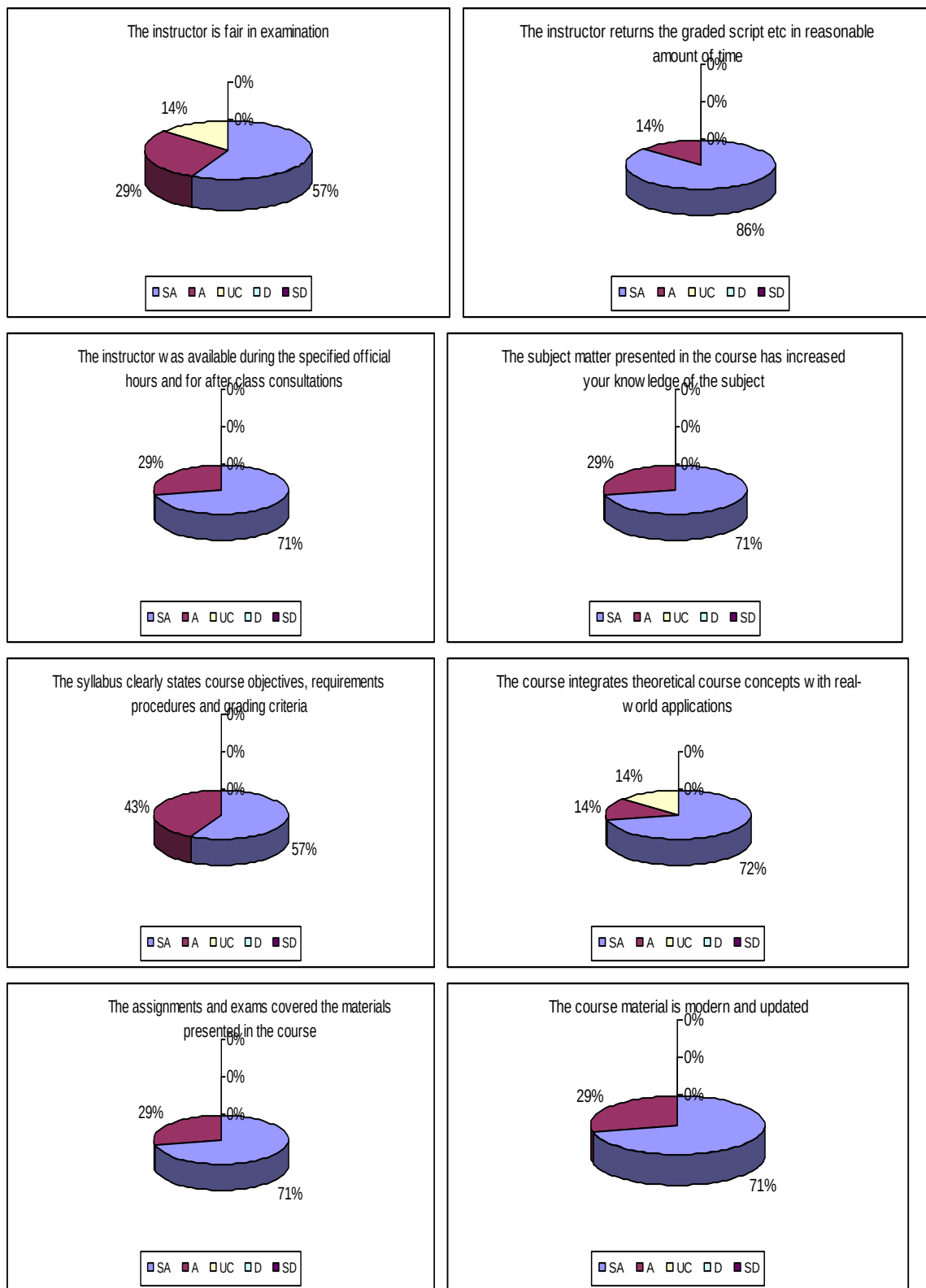
Figure: Performance level of different teachers in Entomology Department

Pie Charts Showing Teacher Evaluation

Teacher 1 Evaluation results showed very good performance of the teacher. Almost 85 - 100% of the students stated that the teacher has performed well for all the indicators to be evaluated. 14% of the students are found uncertain regarding giving citation about current situation in the country, fairness in exams and integration of theoretical concepts of course with the real world.

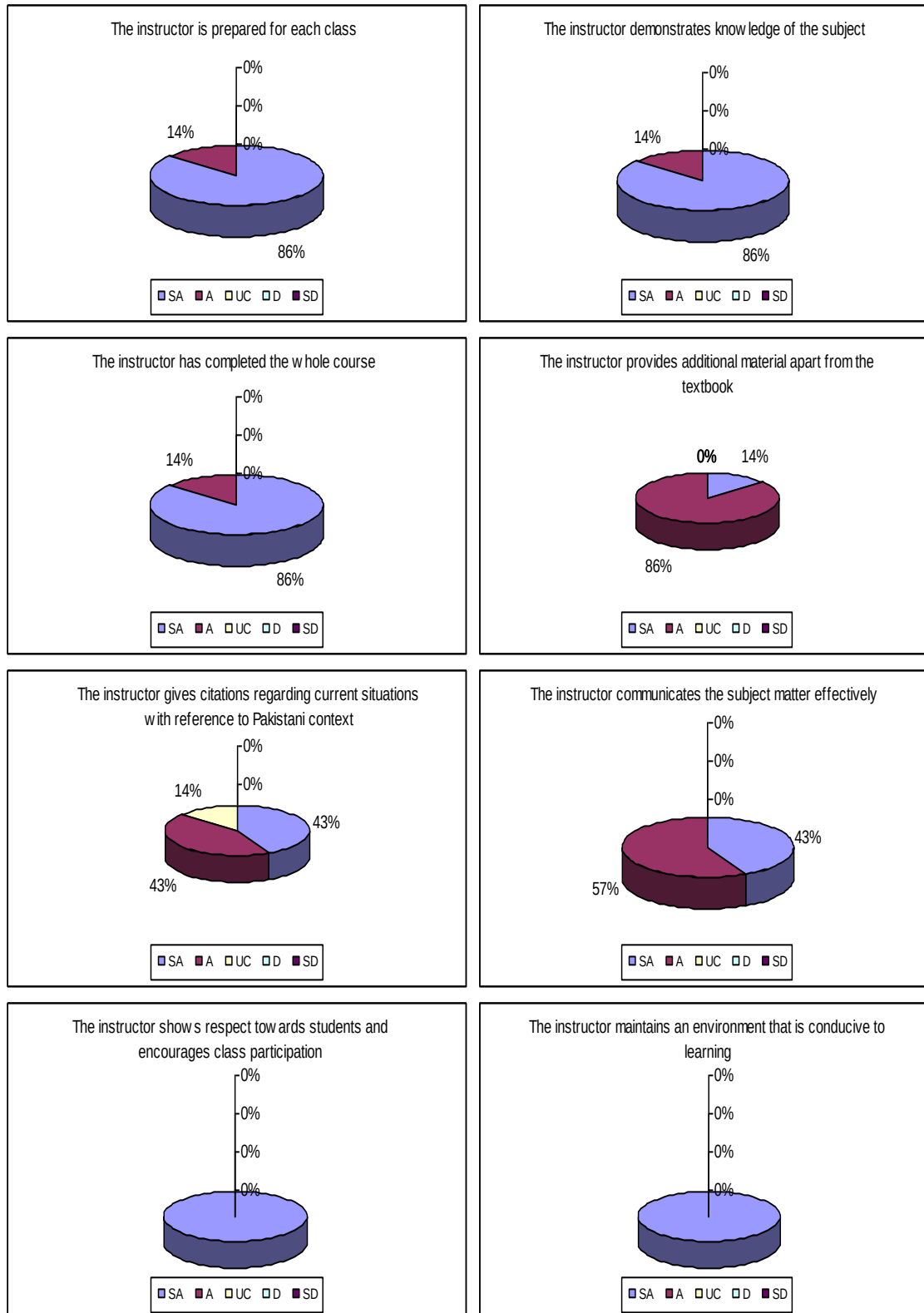


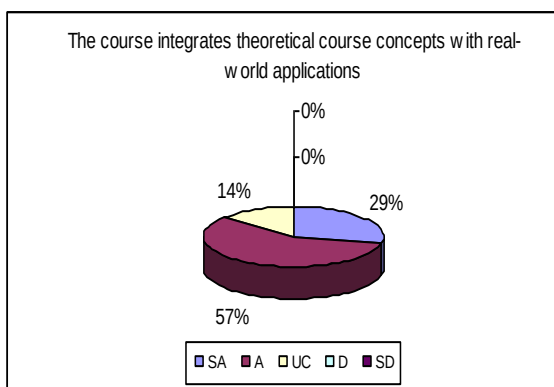
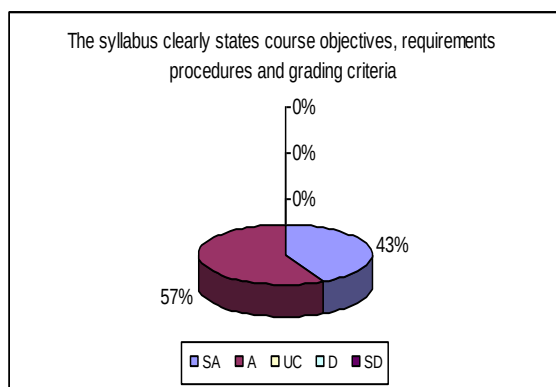
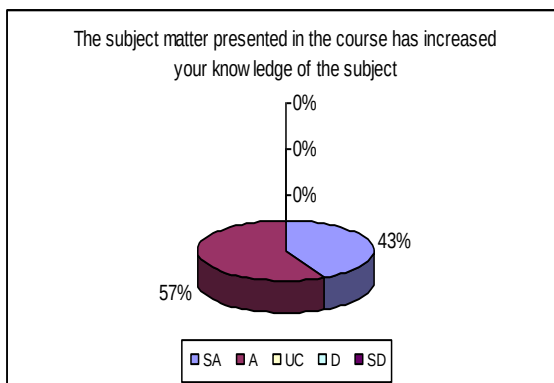
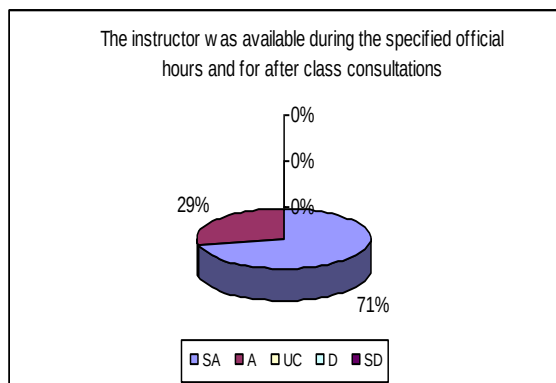
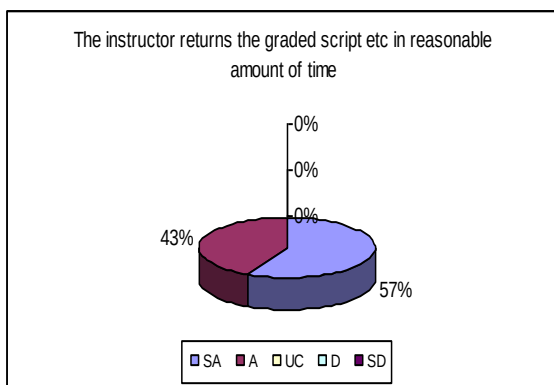
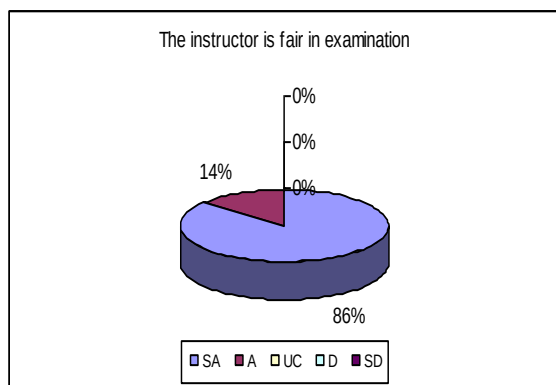
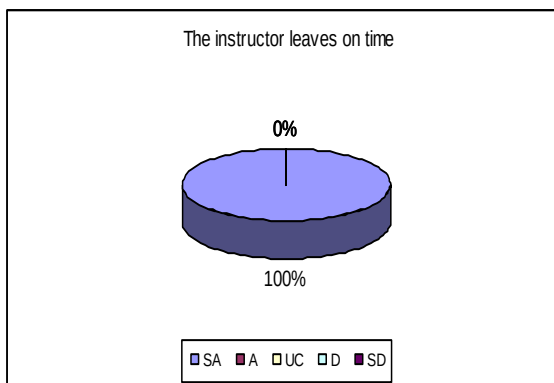
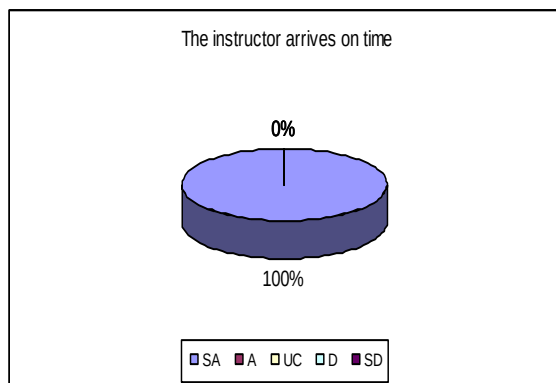


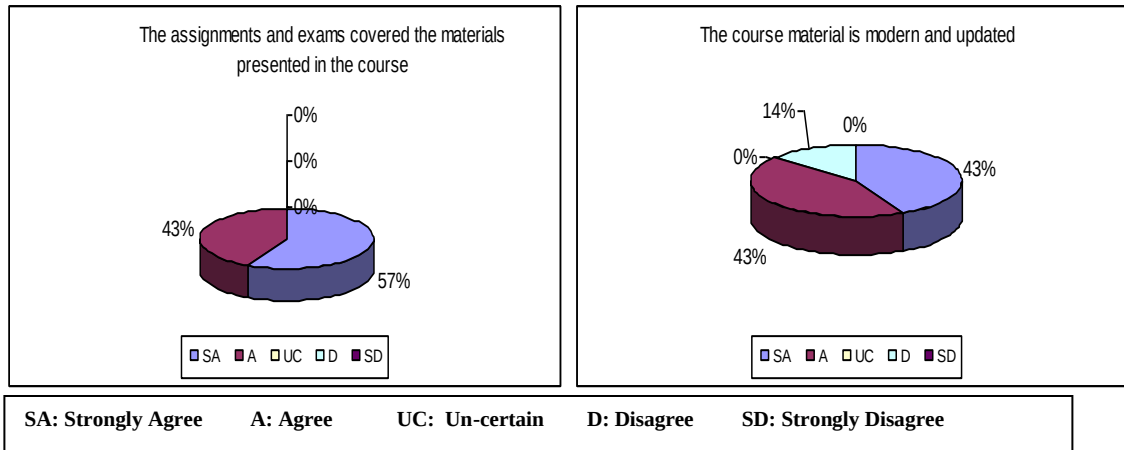


Teacher 2 Analyses of the proforma revealed good performance of the teacher on overall basis. Generally all the indicators are categorized as strongly agreed and agreed. 14% of the

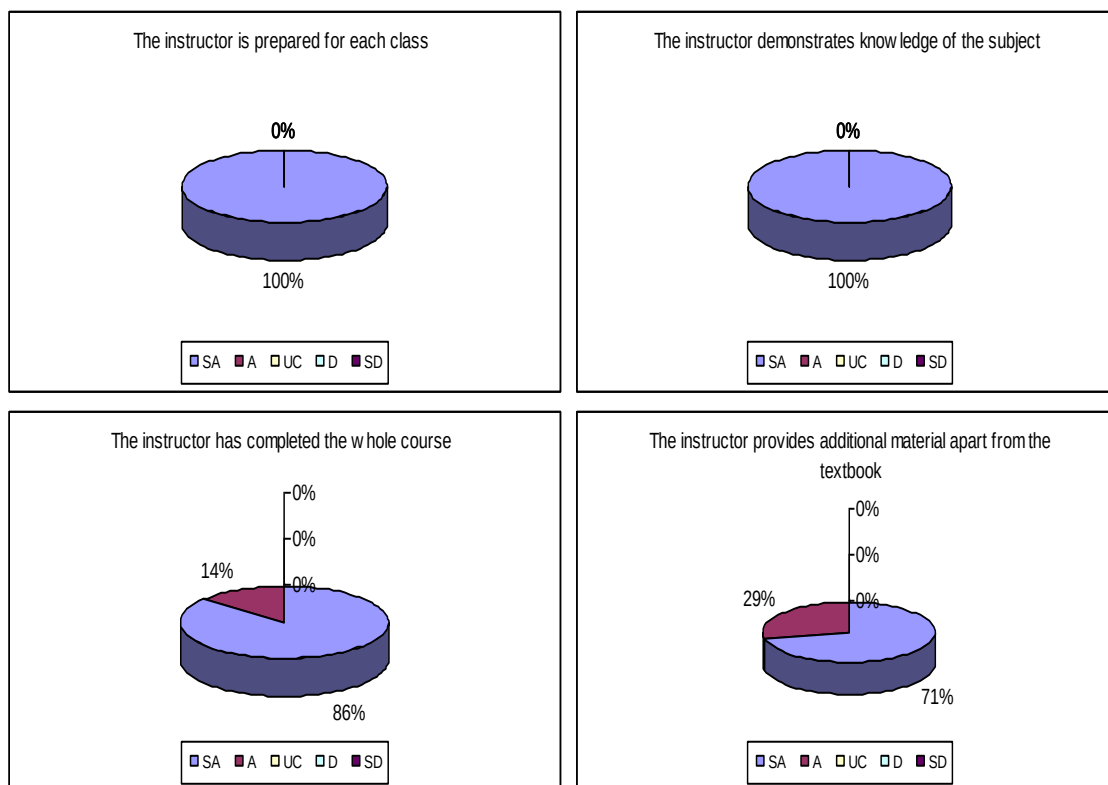
students disagree with the integration of the theoretical course with the real world applications.



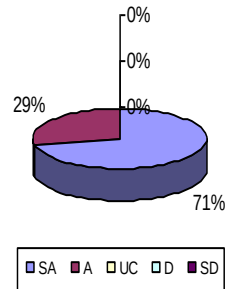




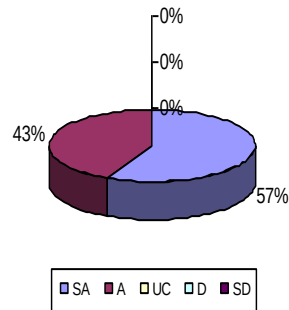
Teacher 3 The pie charts indicated that overall performance of the teacher was good. Generally all the indicators are categorized as strongly agreed and agreed by all the students.



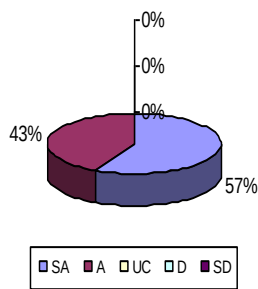
The instructor gives citations regarding current situations with reference to Pakistani context



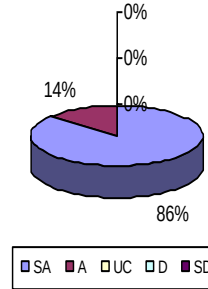
The instructor communicates the subject matter effectively



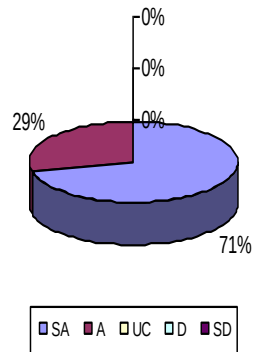
The instructor shows respect towards students and encourages class participation



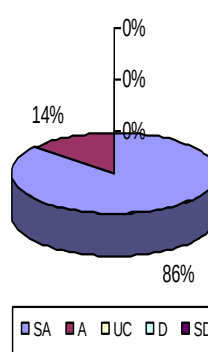
The instructor maintains an environment that is conducive to learning



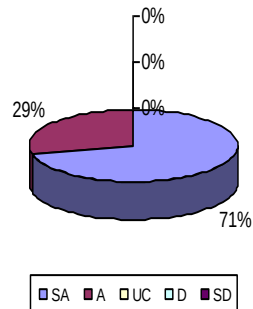
The instructor arrives on time



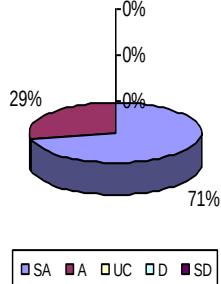
The instructor leaves on time

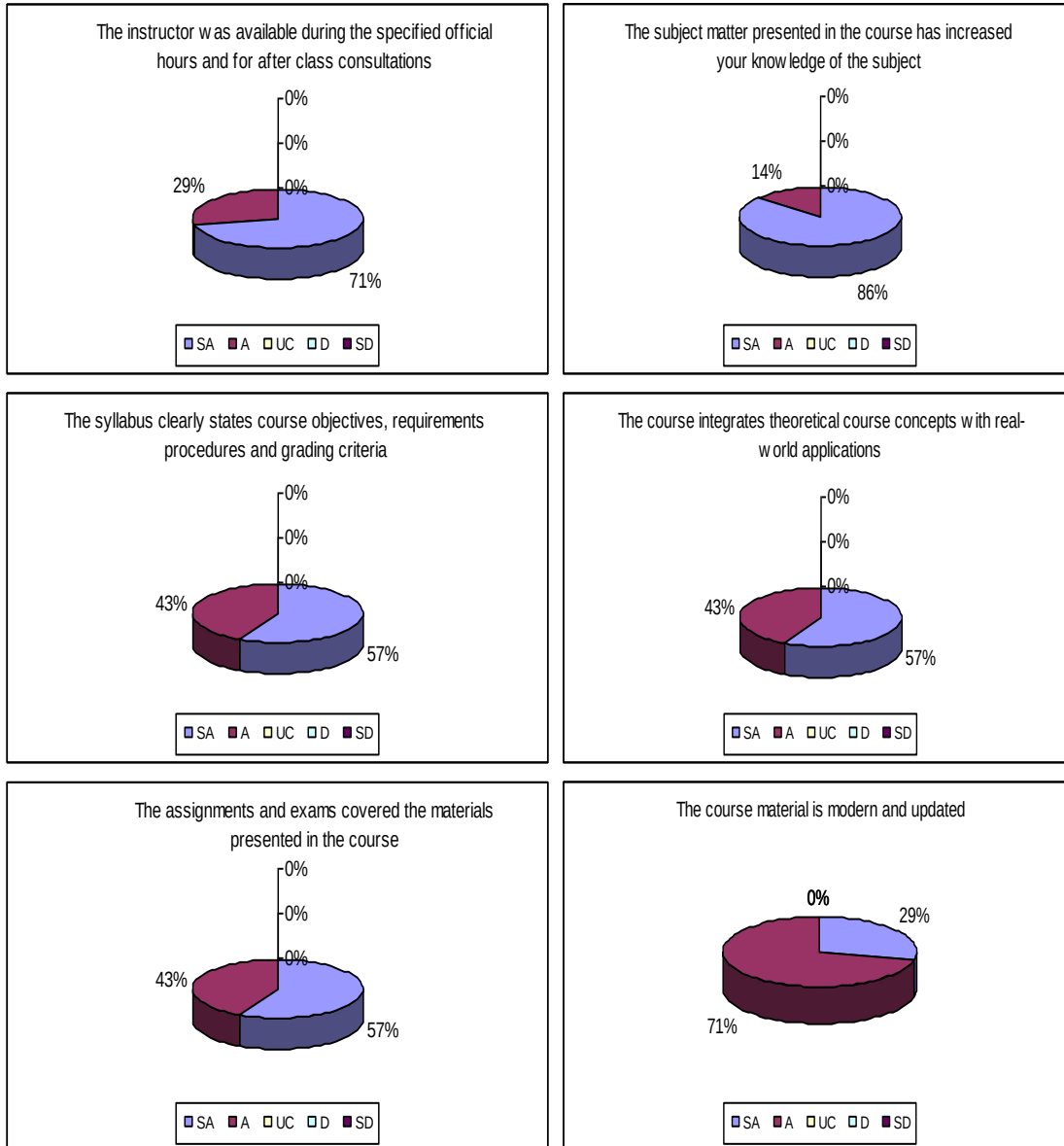


The instructor is fair in examination

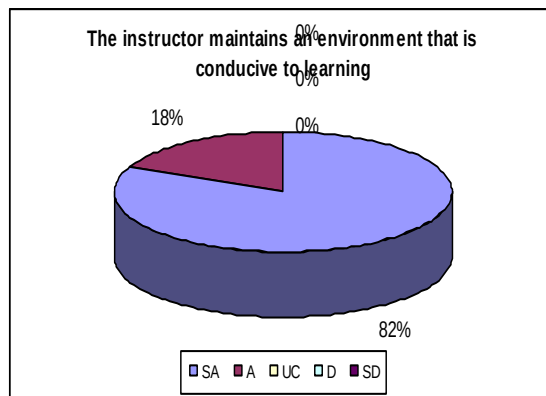
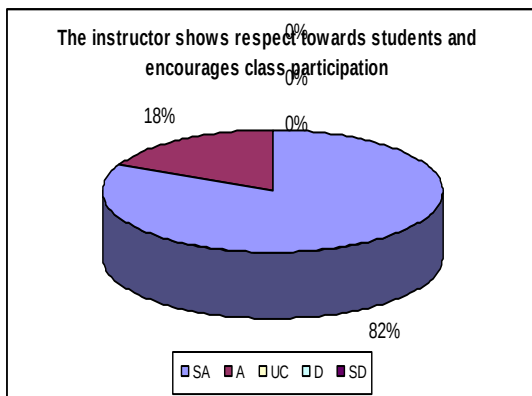
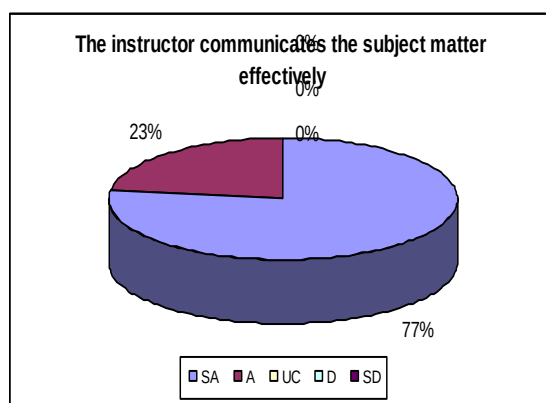
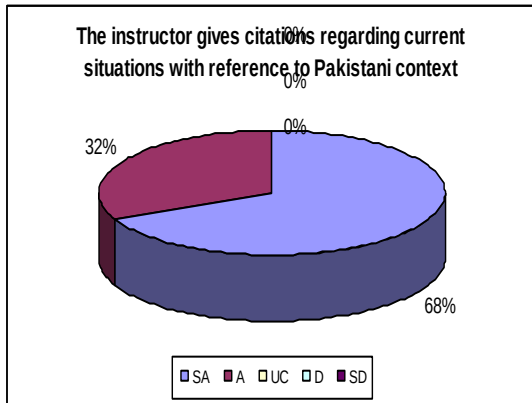
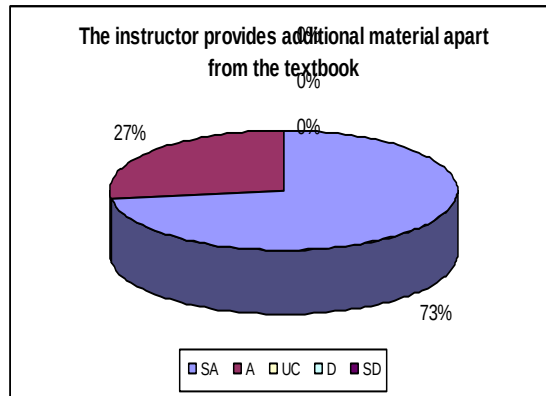
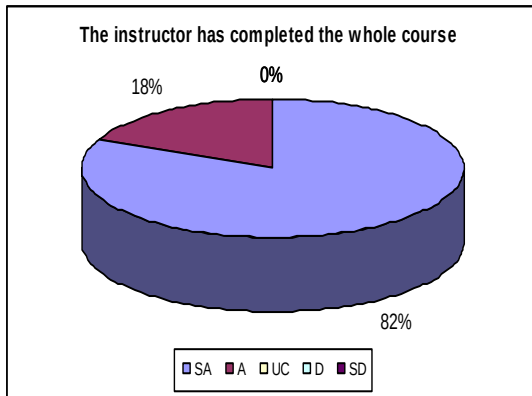
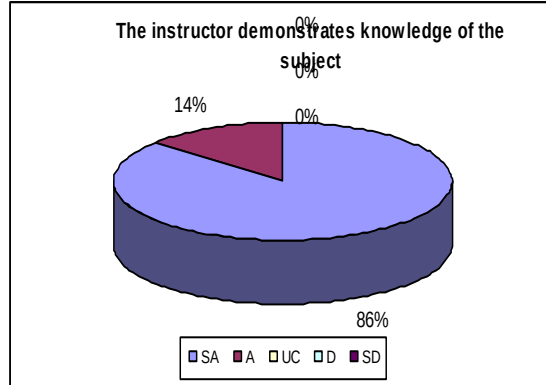
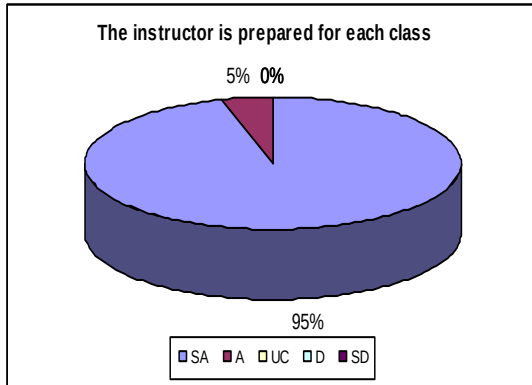


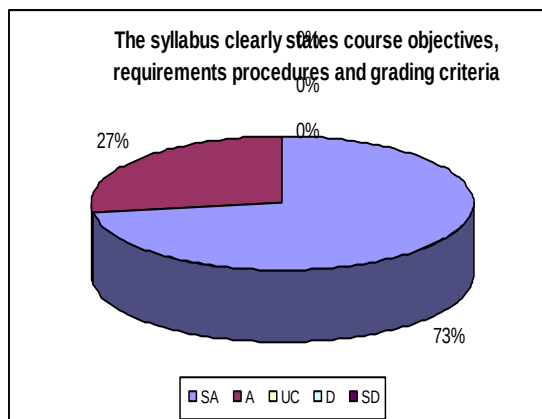
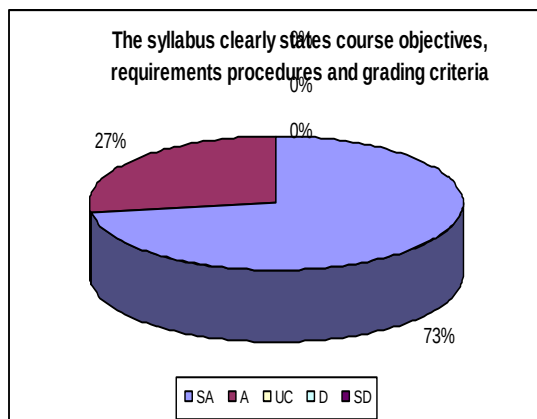
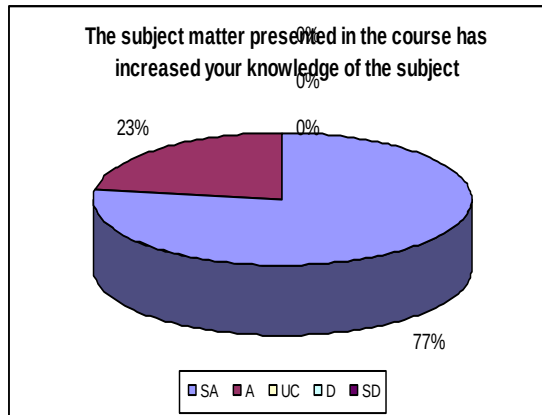
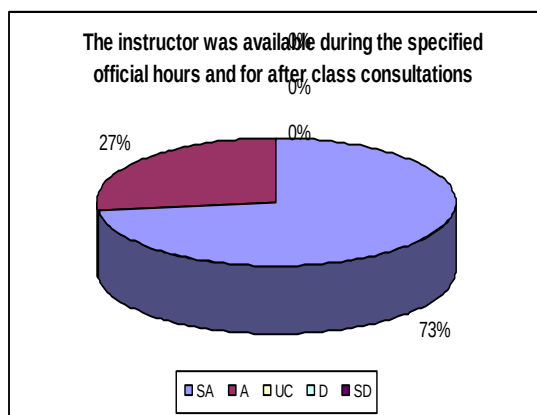
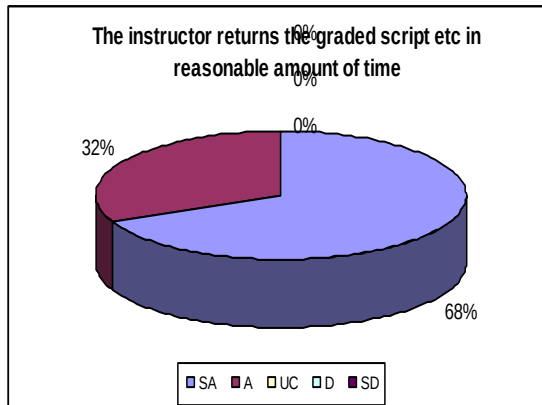
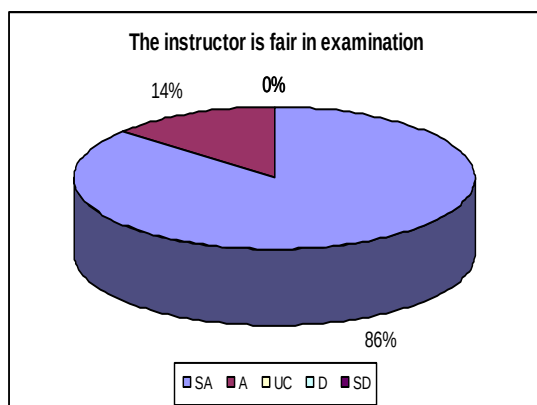
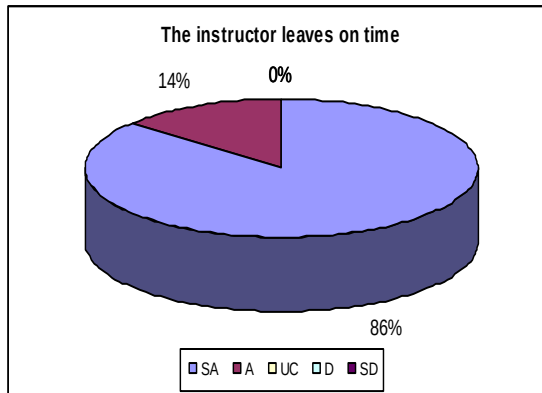
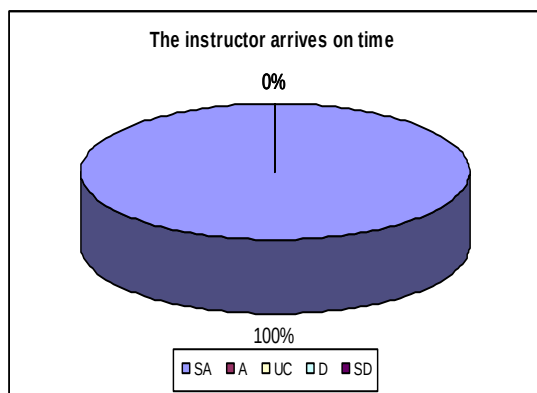
The instructor returns the graded script etc in reasonable amount of time

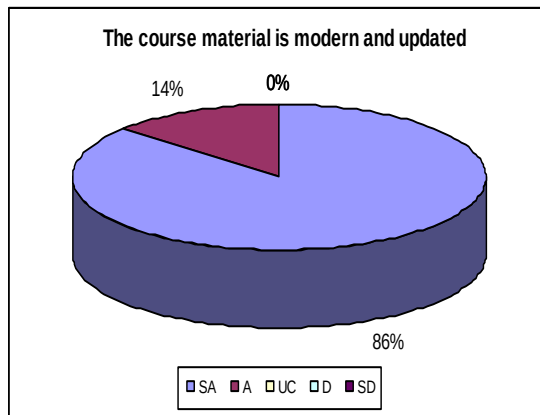
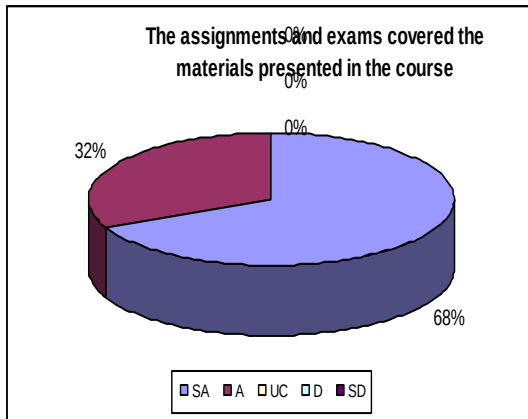




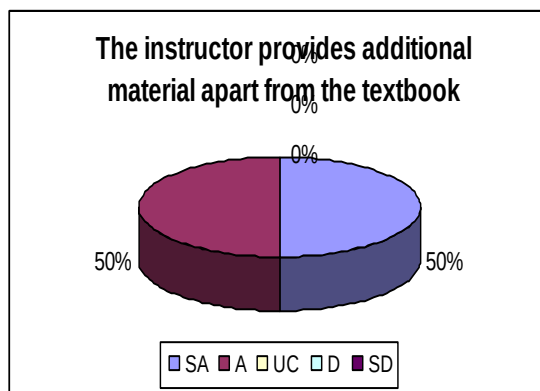
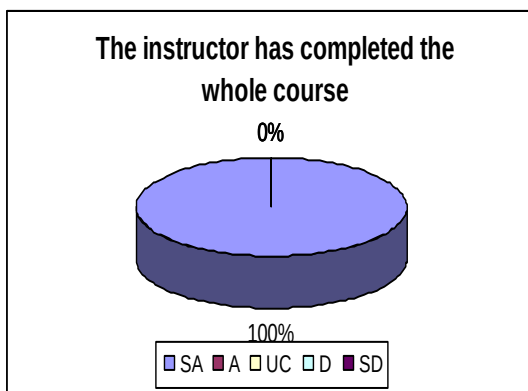
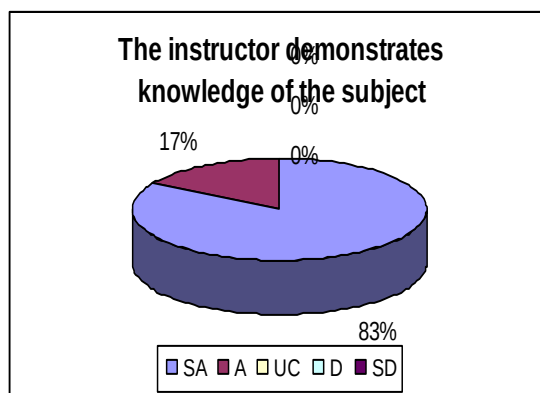
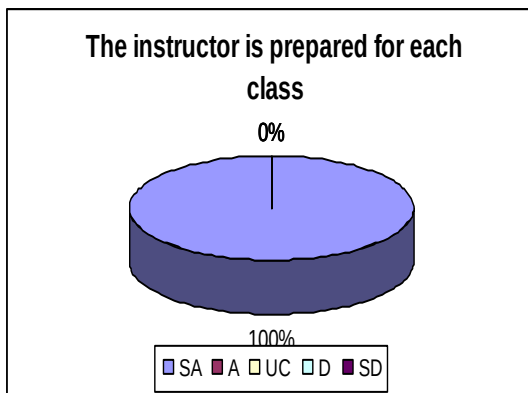
Teacher 4 The data analysis indicated that overall performance of the teacher was good. Almot 70-100 % of the respondents were found strongly agreed with the statements. Generally all the indicators are categorized as strongly agreed and agreed by all the students.



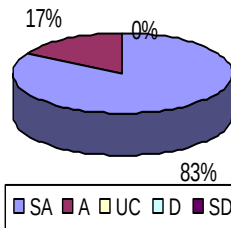




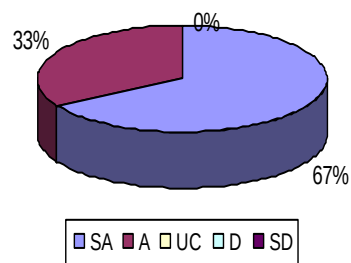
Teacher 5 The pie charts indicated that overall performance of the teacher was good. However some students (17%) were found uncertain about instructor's time management in calss, integrity of the theoretical course with the real world and course syllabus creally states objectives, requirements procedure and grading criteria.



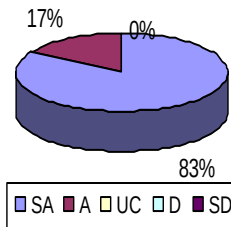
The instructor gives citations regarding current situations with reference to Pakistani context



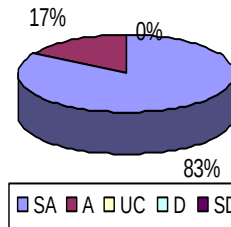
The instructor communicates the subject matter effectively



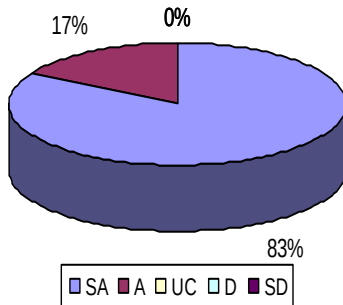
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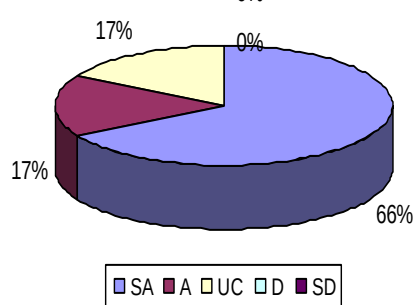
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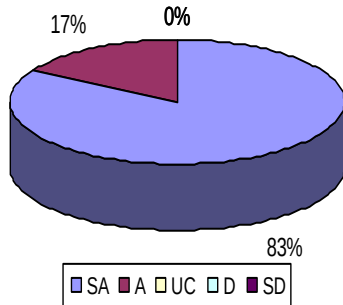
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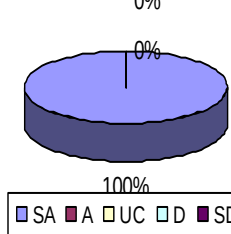
The instructor leaves on time

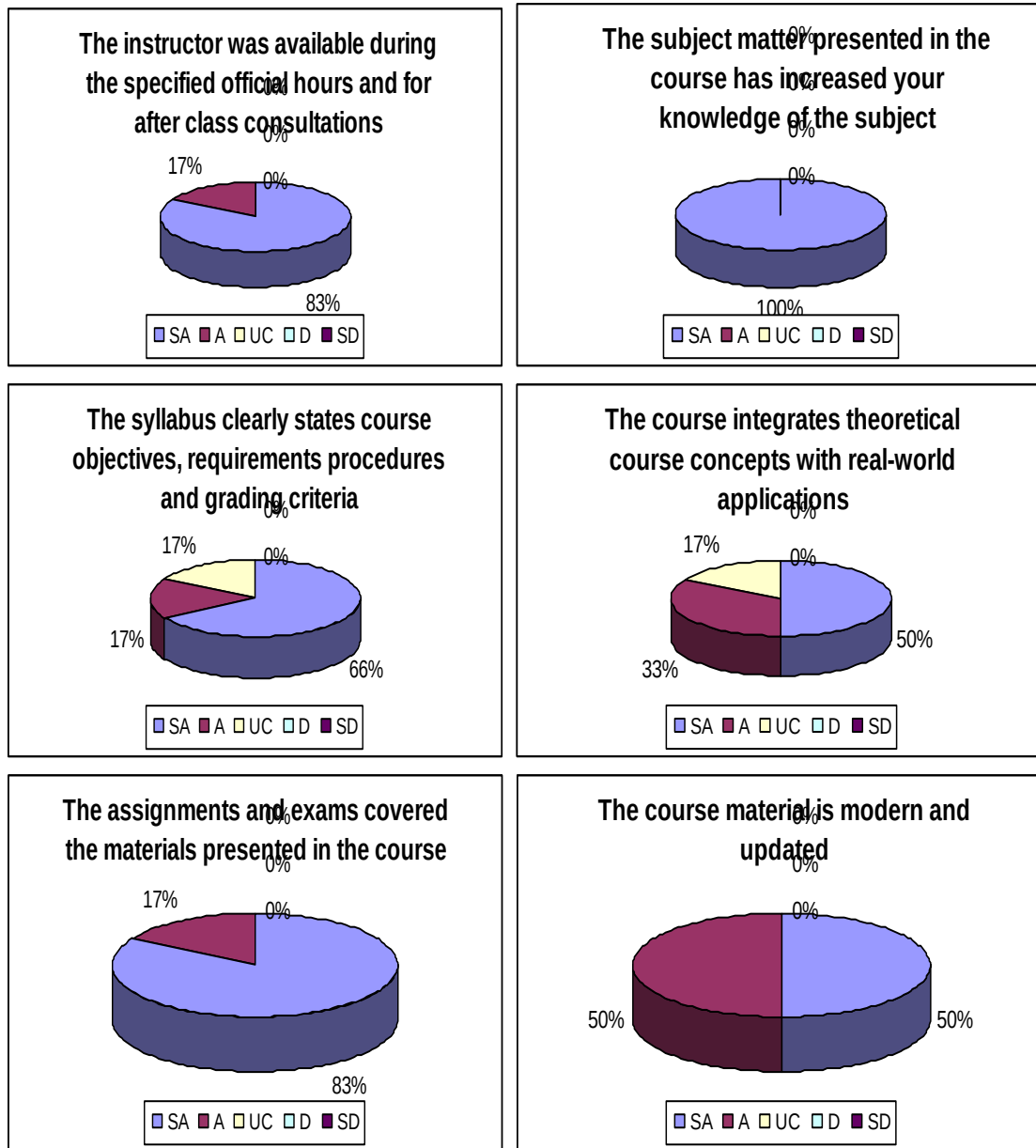


The instructor is fair in examination

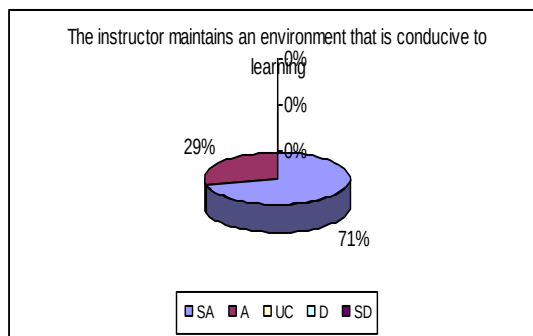
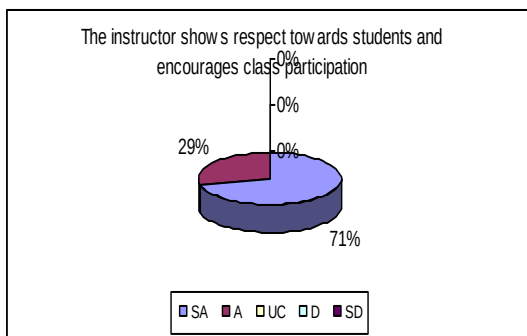
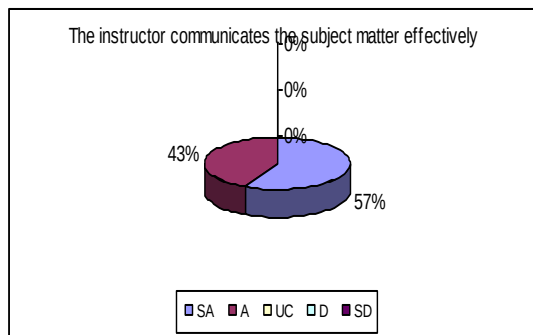
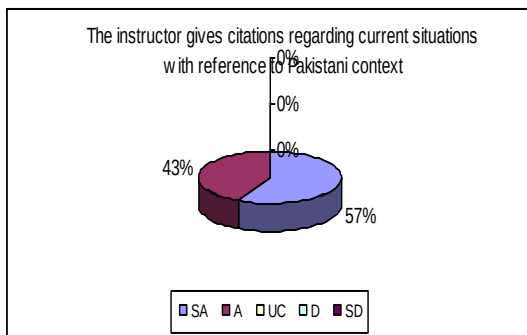
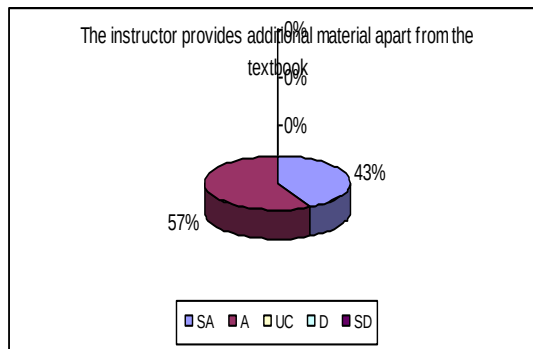
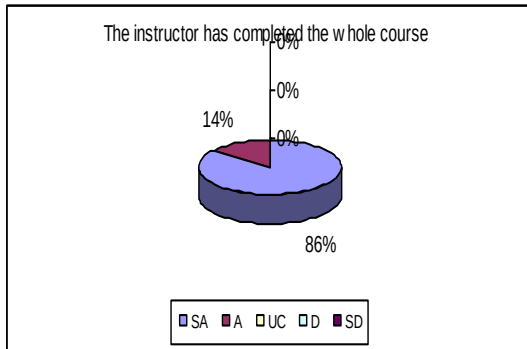
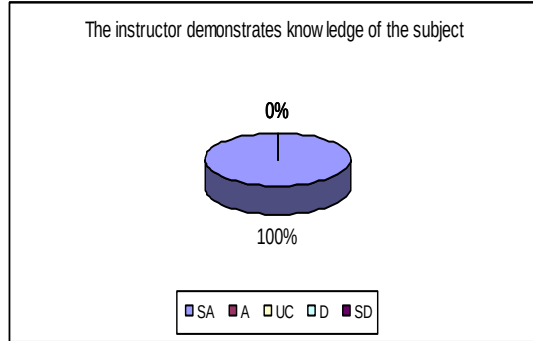
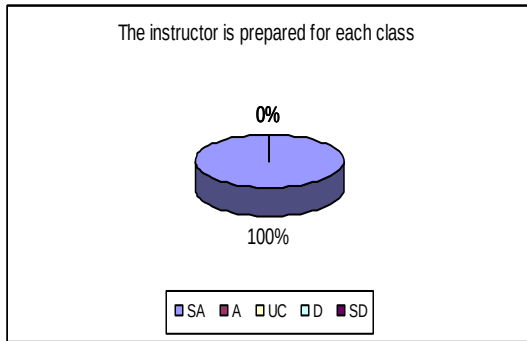


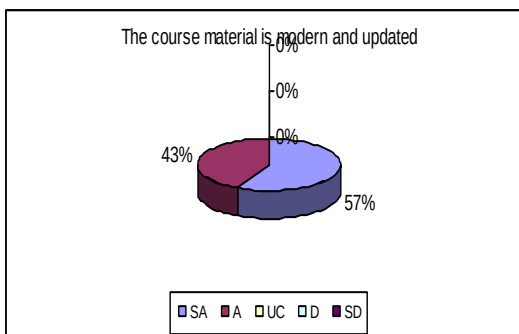
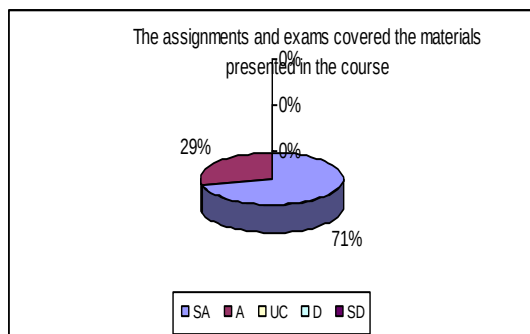
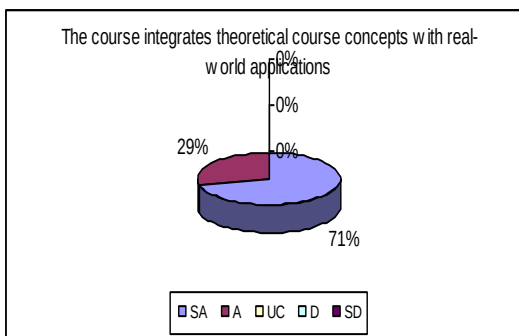
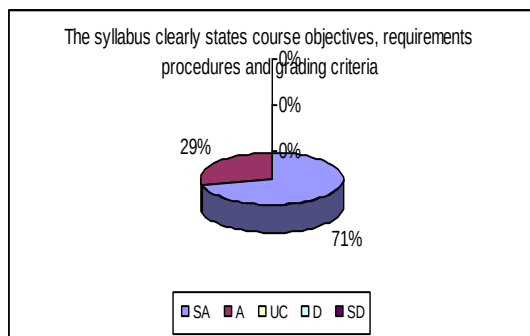
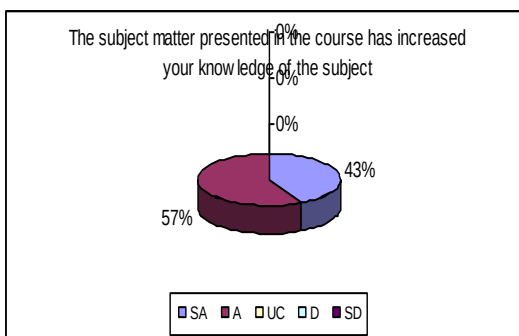
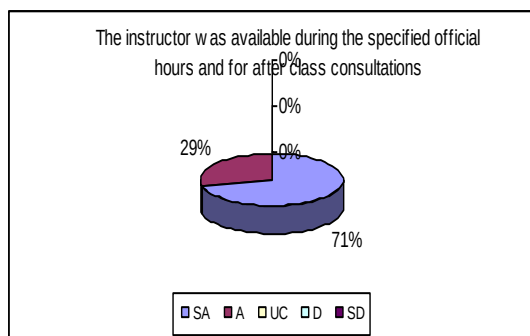
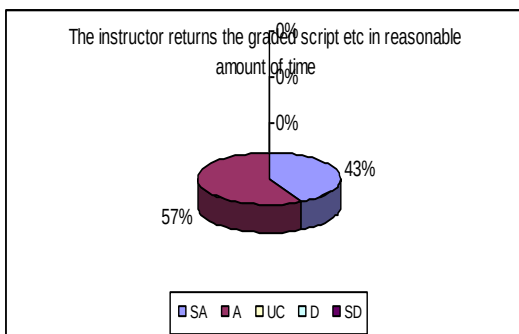
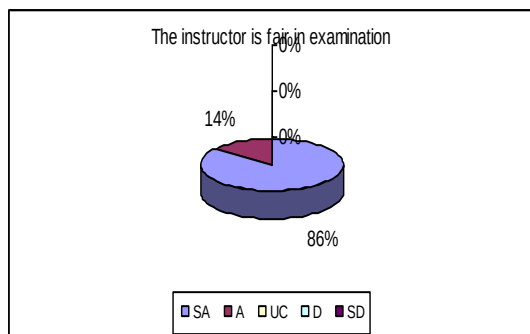
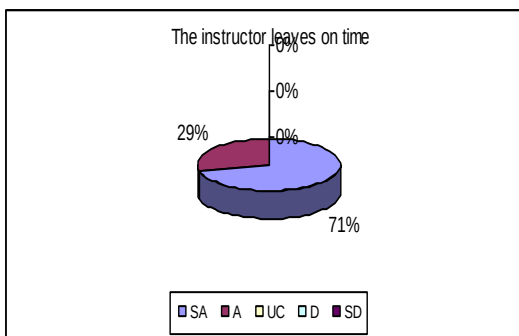
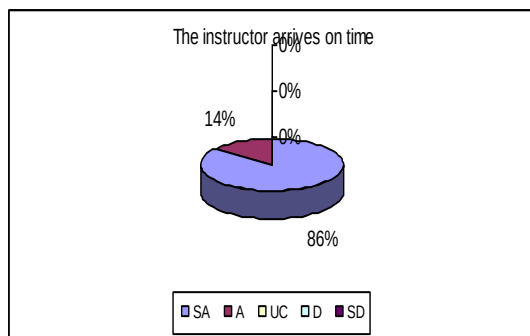
The instructor returns the graded script etc in reasonable amount of time



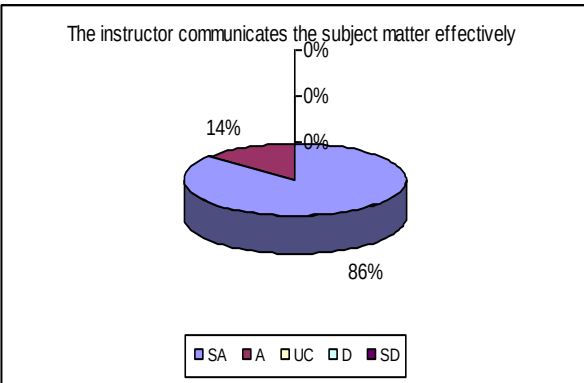
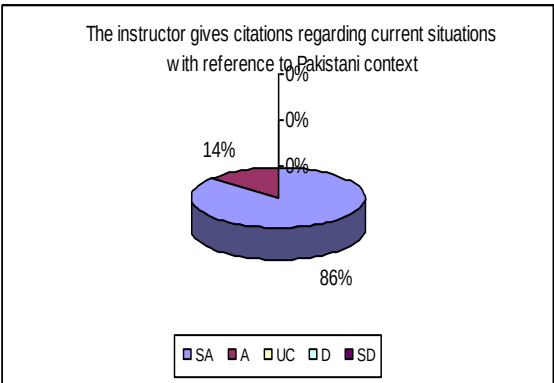
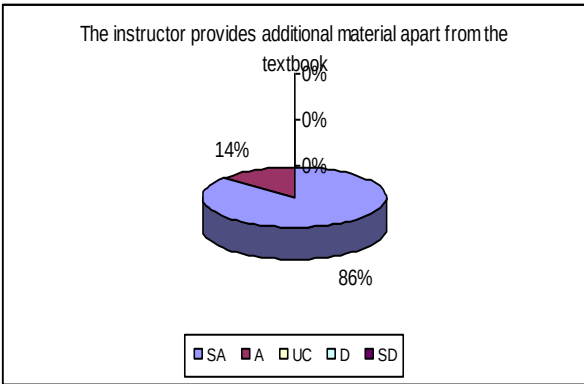
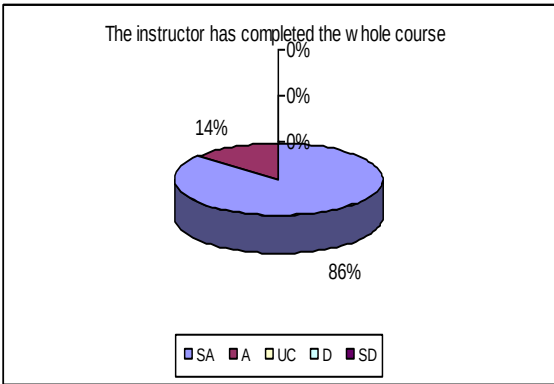
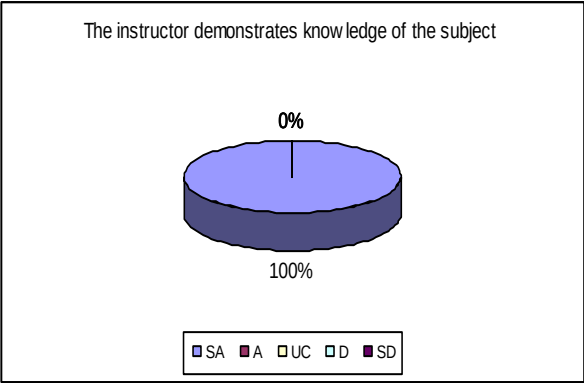
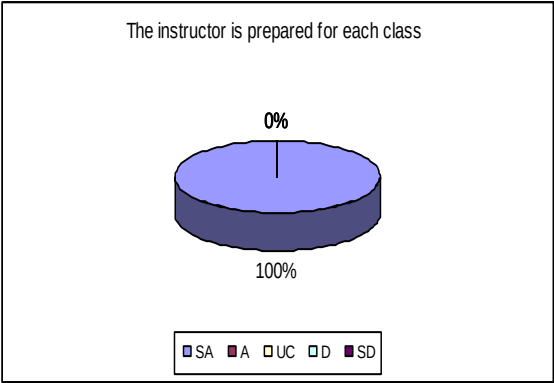


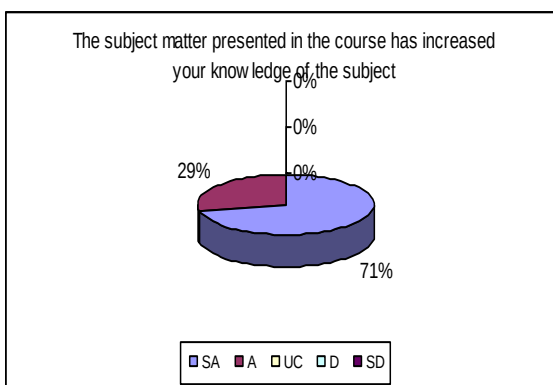
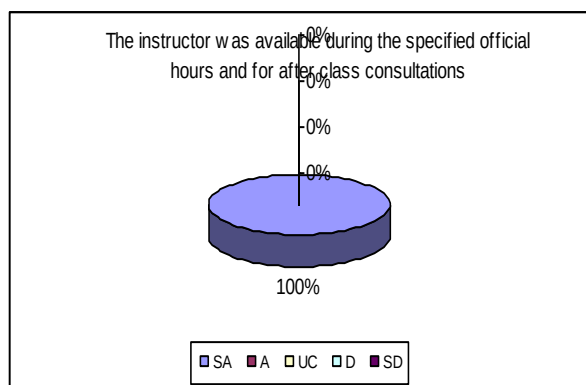
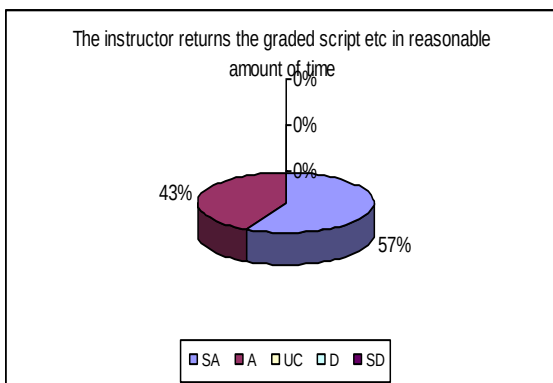
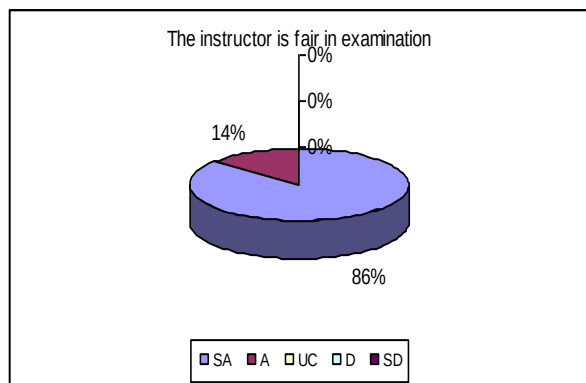
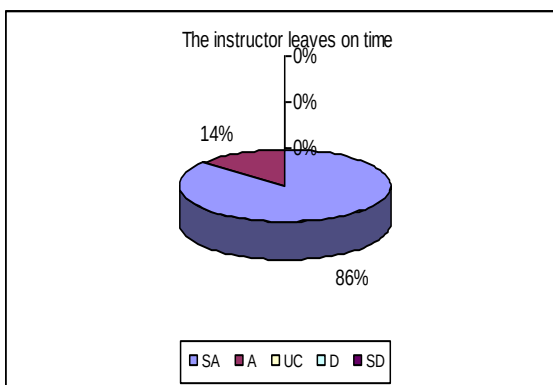
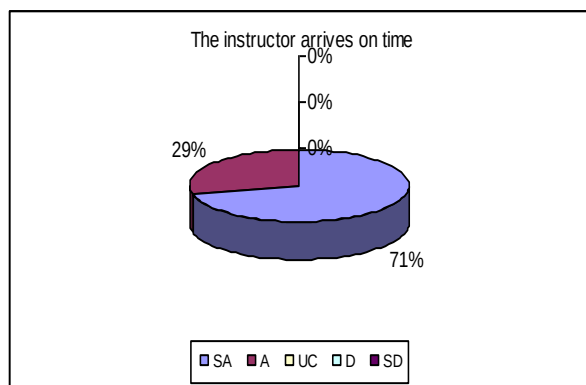
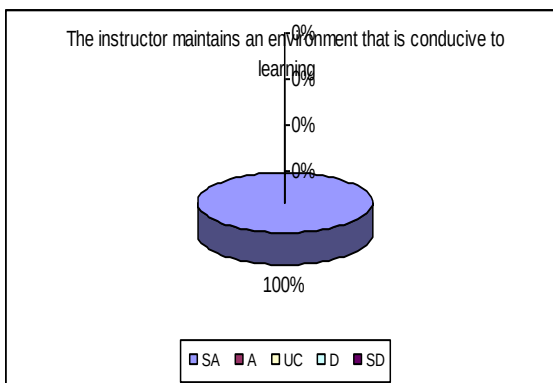
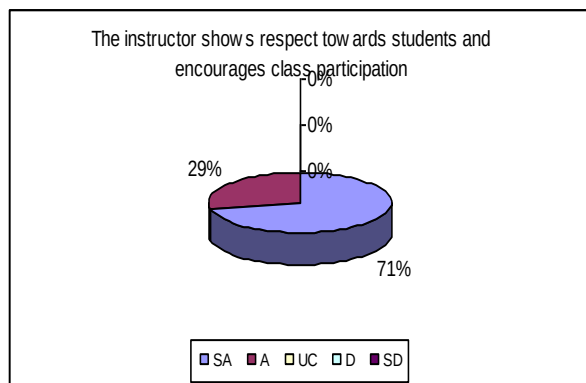
Teacher 6 The pie charts indicated that overall performance of the instructor was good. Generally all the indicators are categorized as strongly agreed and agreed by all the students.

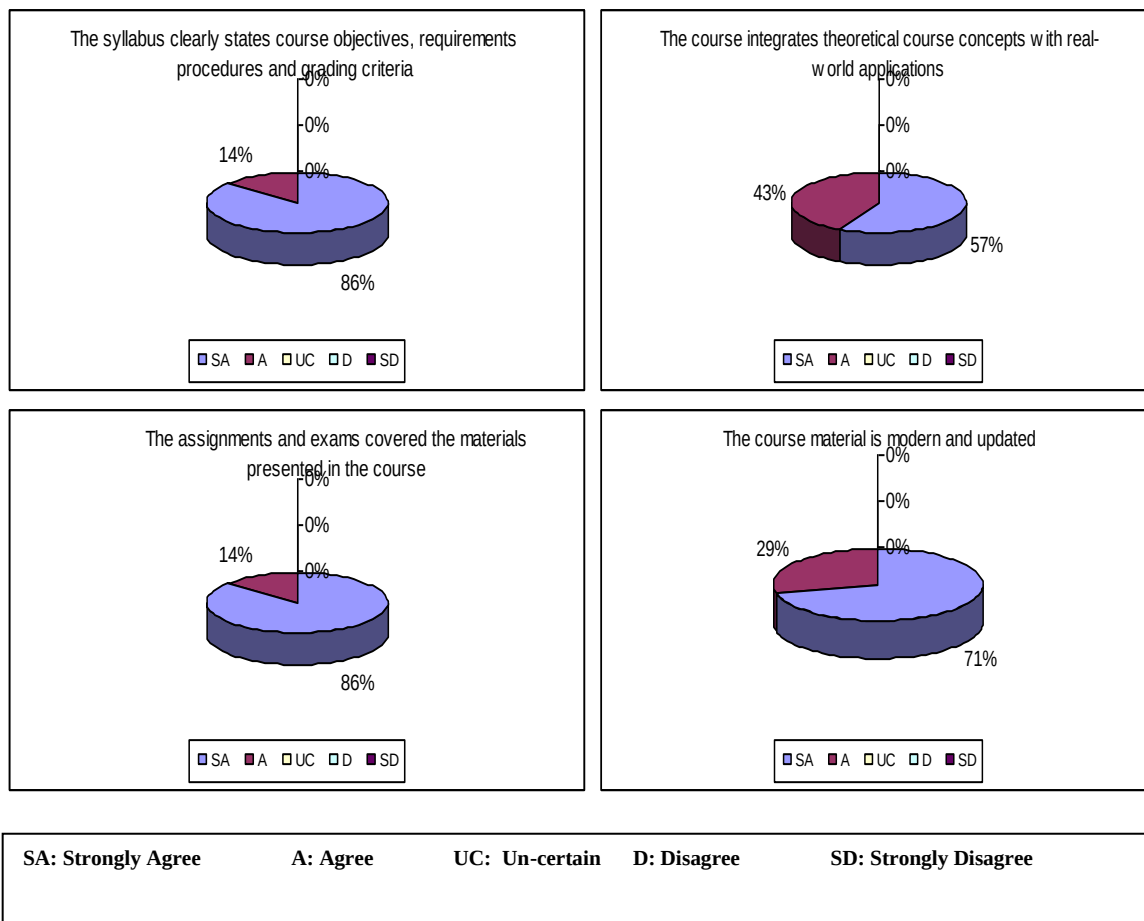




Teacher 7 The data gathered from the respondents revealed that overall performance of the instructor was good. Generally all the indicators are categorized as strongly agreed and agreed by all the students.







Students Course Evaluation

Courses taught by all the teachers at department level were also evaluated the concerned students. The course of the individual teachers was evaluated on the basis of information gathered from Proforma 1 (Annexure-III). There were 7 teachers numbered as 1-7 for evaluation purpose; they are, , Dr. Muhammad Naeem¹, Mr. Humayun Javed², Dr. Ata ul Mohsin³, Dr. Farooq Nasir⁴ Mr. Munir Ahmad⁵, Mr. Asif Aziz⁶, and Mr. Imran Bodlah⁷. The performance level for each course is depicted in figure as shown below. Evaluation of courses alongwith their scores as done by the students are given as under.

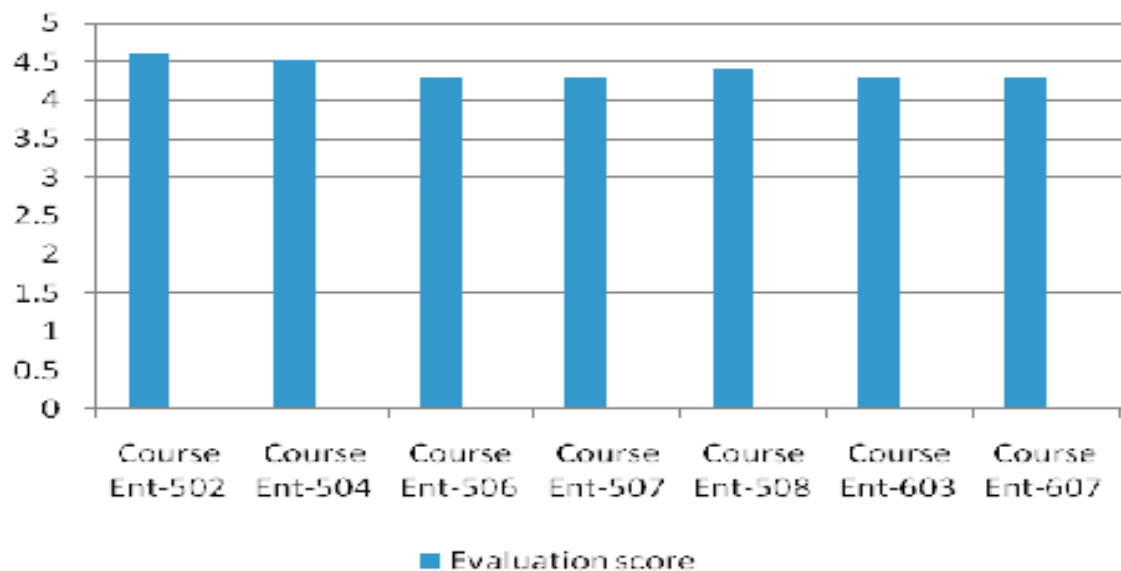
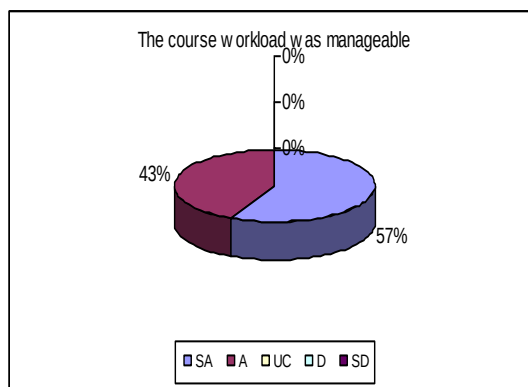
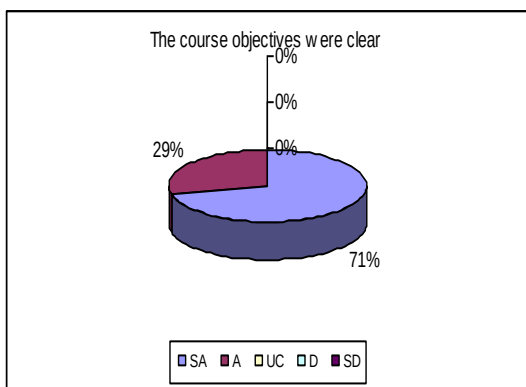


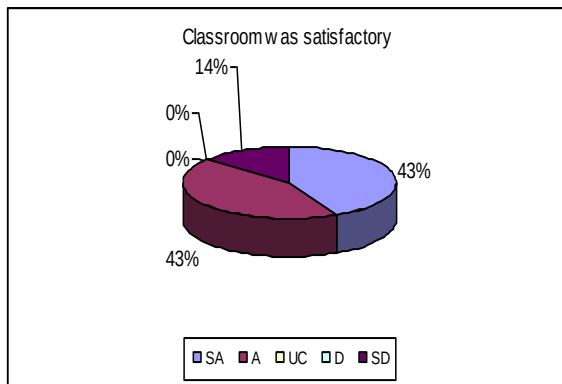
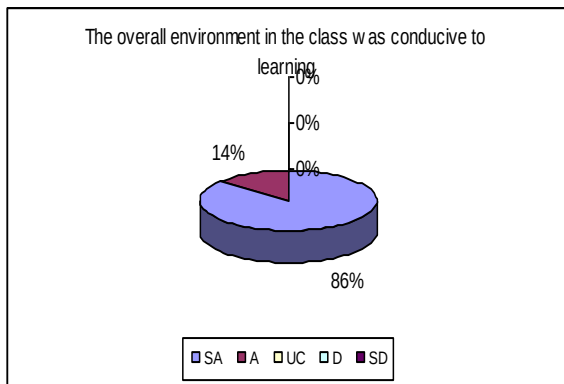
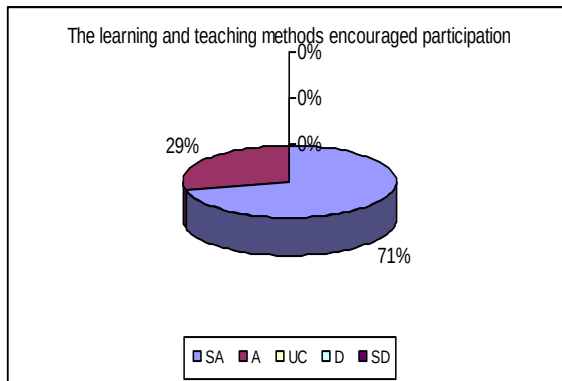
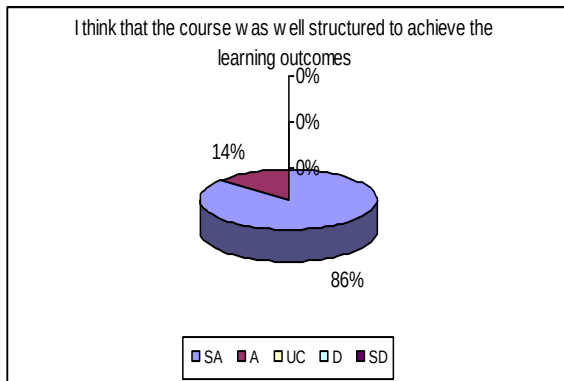
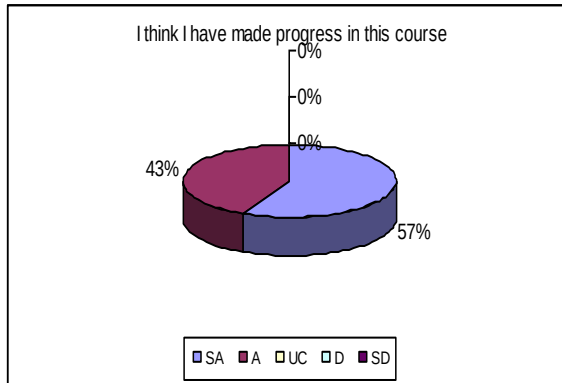
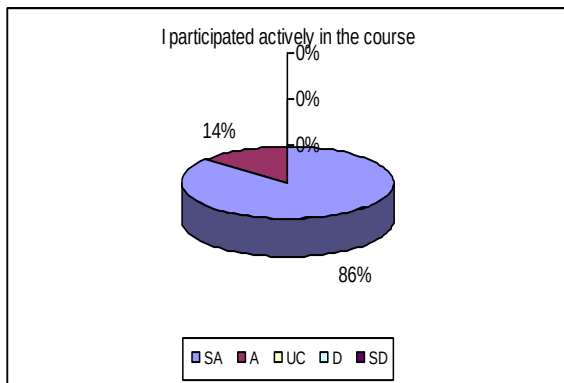
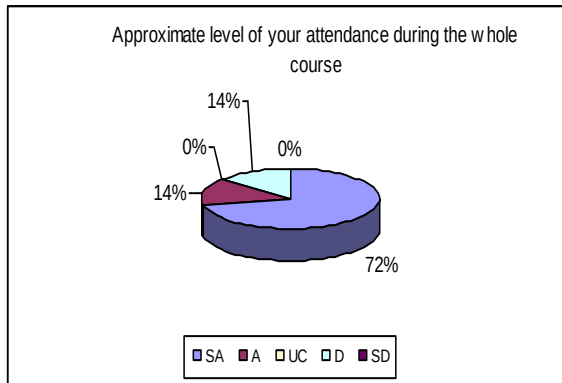
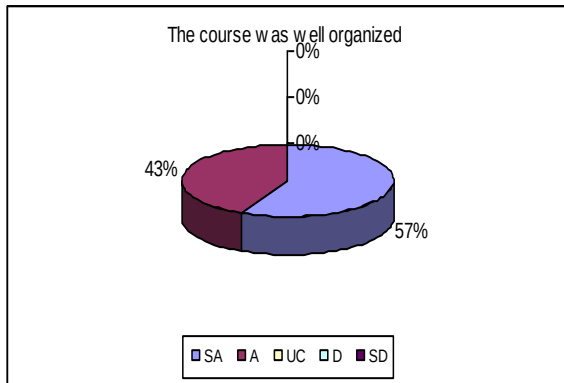
Figure: The performance level for each Entomology course

Pie Charts Showing Student Course Evaluation

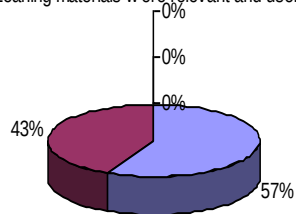
Course ENT 506 (Teacher 1)

Majority of the students were found agreed with the statement that course work was manageable, objectives were clear, and the course was well organized. 14% were found disagreed with appropriate level of attendance, 14% were uncertain about the relevancy of books recommended. 14% disagreed with adequacy of the learning material on web. Additionally 14% of the students were disagreed with the help percent of the students were not certain about their appropriate attendance level. 3 % of the students were disagreed with the statement that ideas and concepts in the course are presented clearly and they understand what is presented in class.



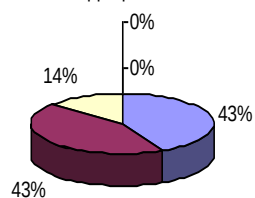


Learning materials were relevant and useful



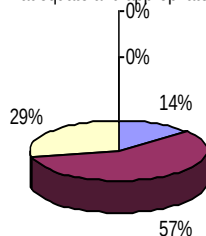
SA A UC D SD

Recommended reading books etc were relevant and appropriate



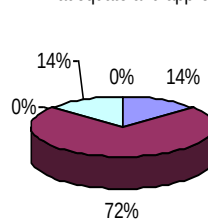
SA A UC D SD

The provision of learning resources in the library was adequate and appropriate



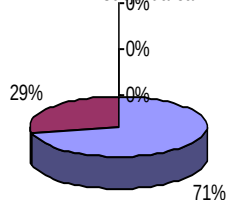
SA A UC D SD

The provision of learning resources on the web was adequate and appropriate



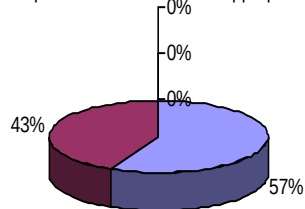
SA A UC D SD

The course stimulated my interest and thought on the subject area



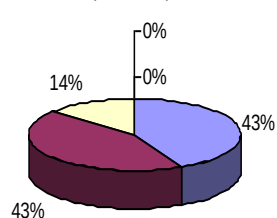
SA A UC D SD

The pace of the course was appropriate



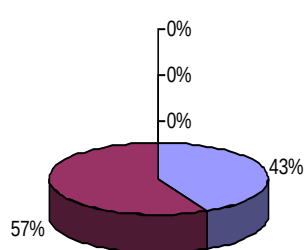
SA A UC D SD

Ideas and concepts were presented clearly



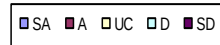
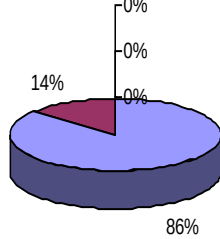
SA A UC D SD

The methods of assessment were reasonable

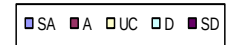
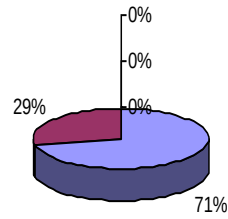


SA A UC D SD

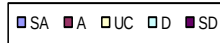
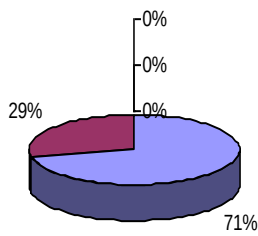
Feedback on assessment was timely



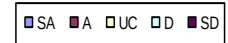
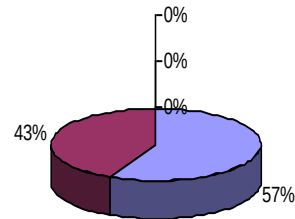
Feedback on assessment was helpful



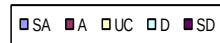
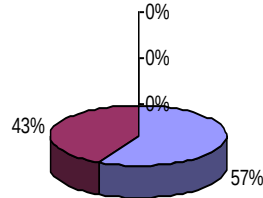
I understand the lectures



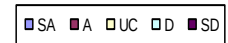
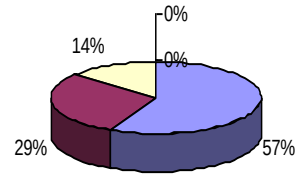
The material was well organized and presented



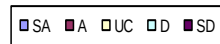
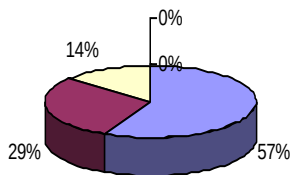
The instructor was responsive to students needs and problems



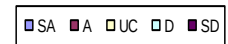
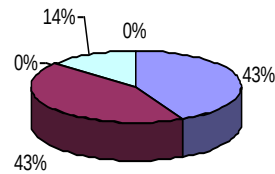
Had the instructor been regular throughout the course?

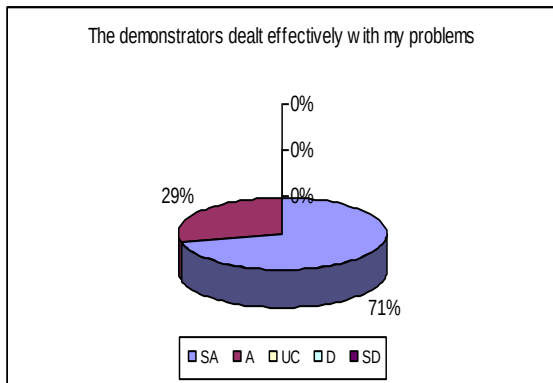
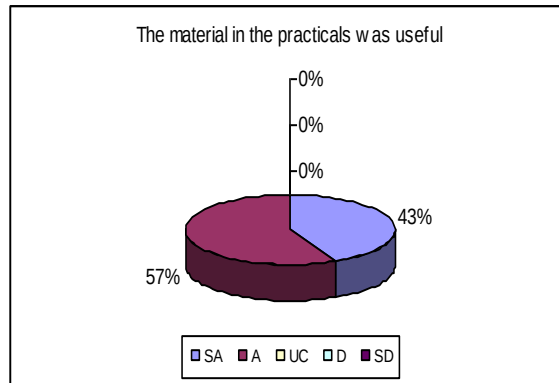


The material in the tutorials was useful



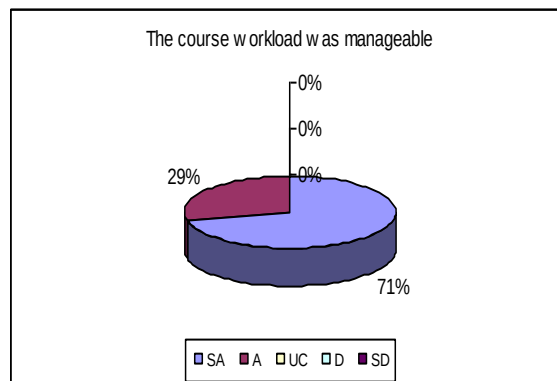
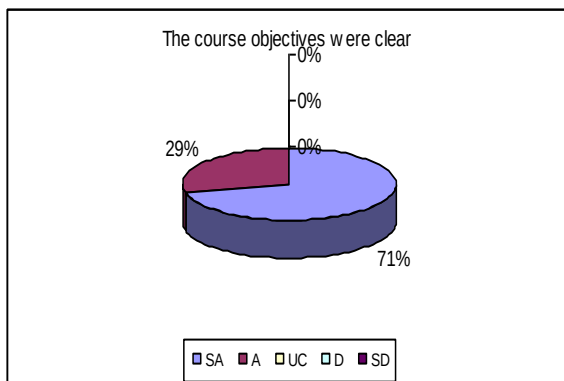
I was happy with the amount of work needed for tutorials

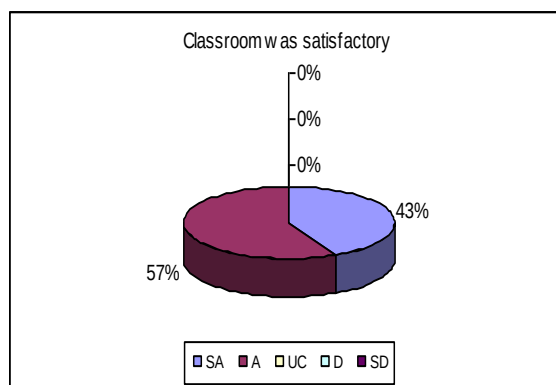
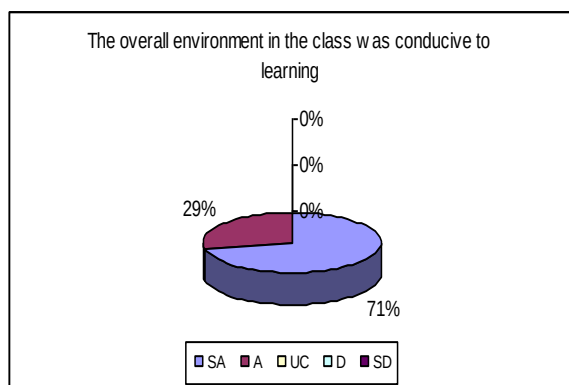
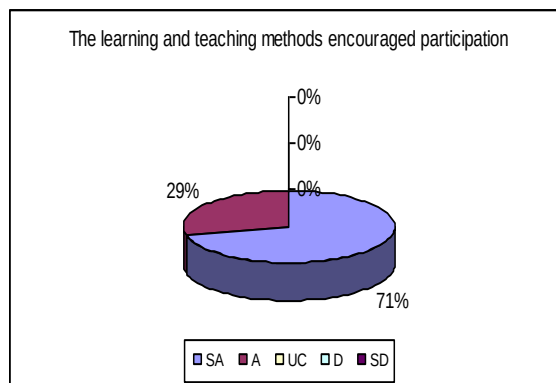
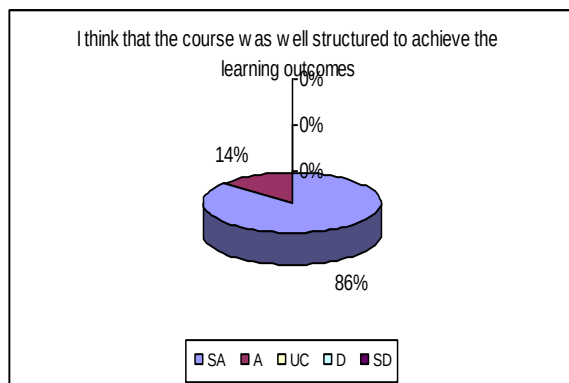
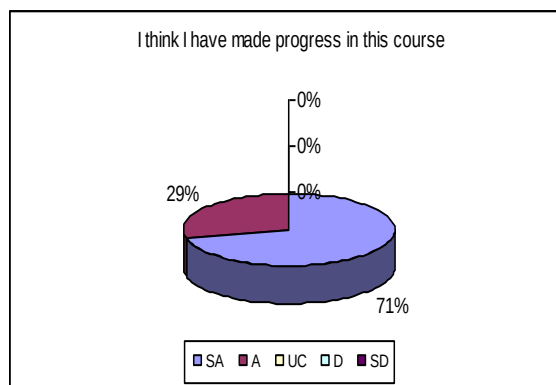
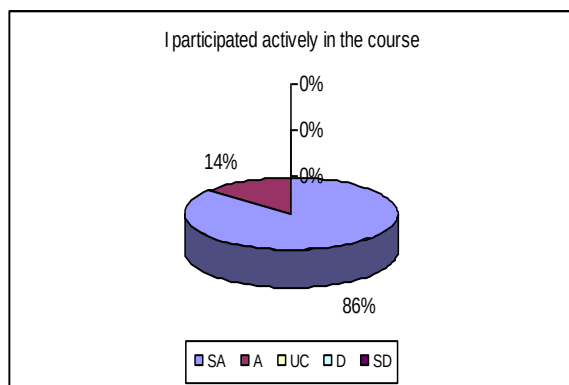
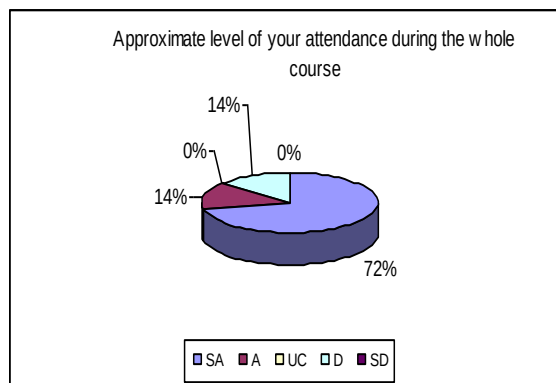
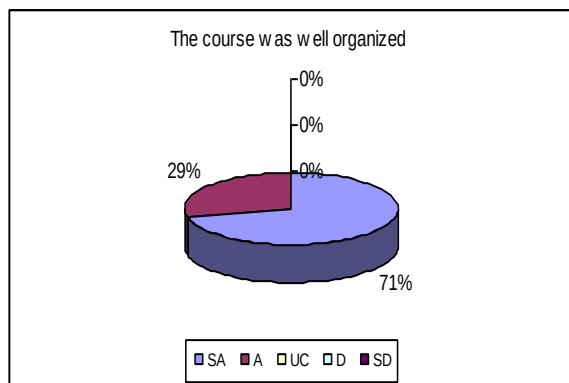


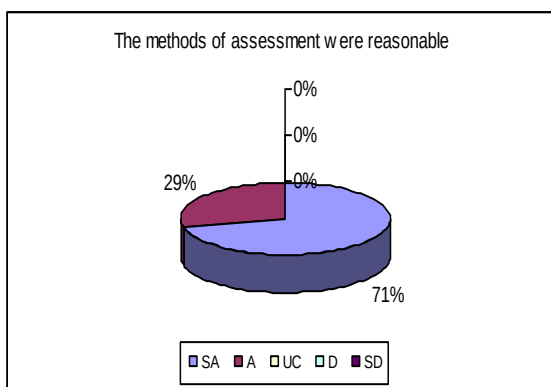
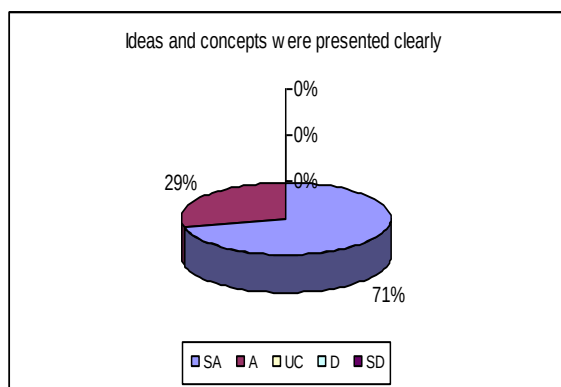
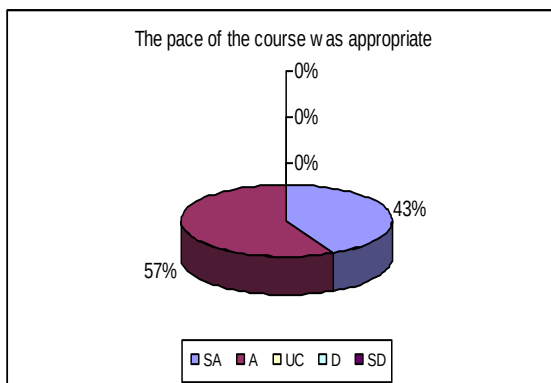
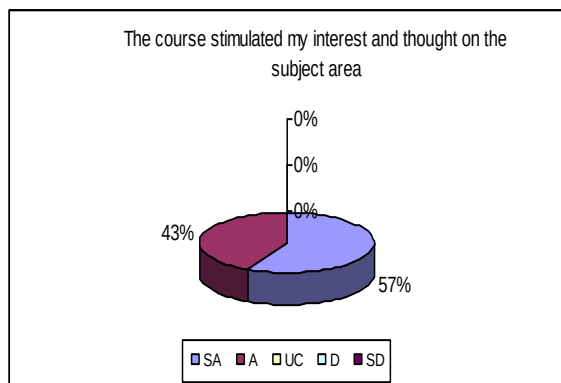
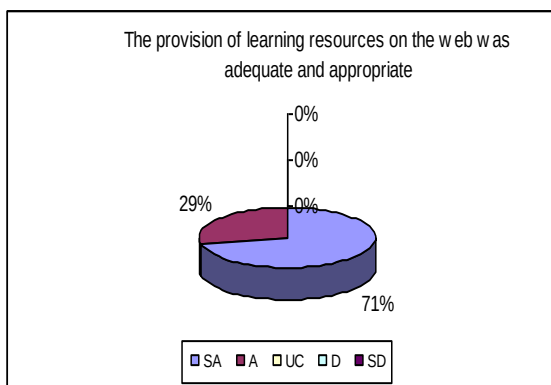
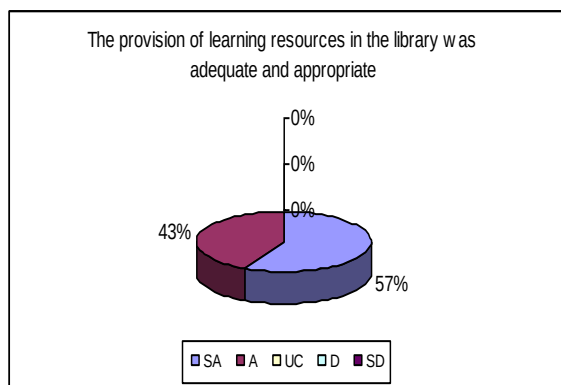
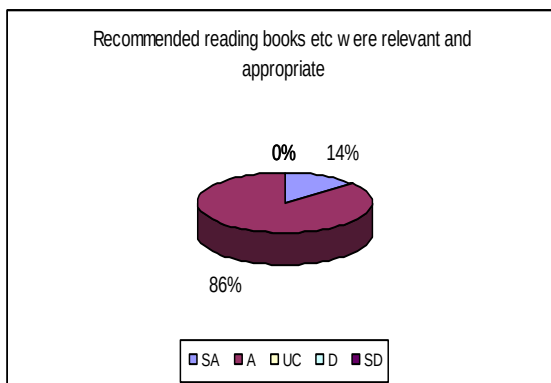
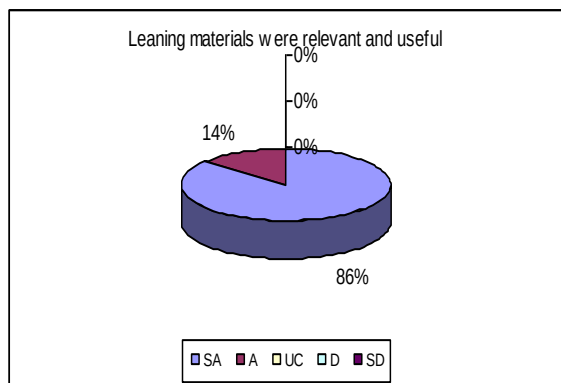


Course ENT 607 (Teacher 2)

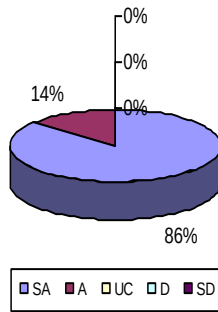
A big majority of the respondents strongly agreed with the statement that course objectives were clear, course work was manageable and the course was well organized. Participation of the students was adequate. 14 % of the students were uncertain about the appropriate level of attendance in class. Almost 70 % reported that they understand lectures and feedback on assessment was given timely.



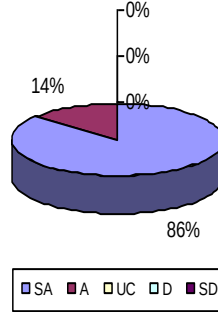




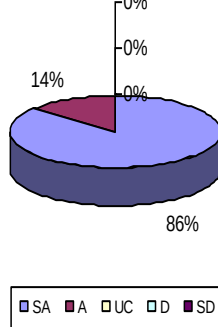
Feedback on assessment w as timely



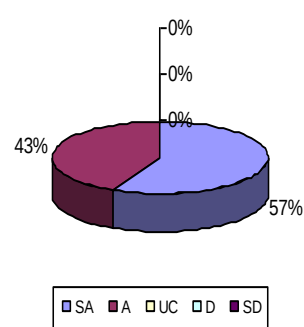
Feedback on assessment w as helpful



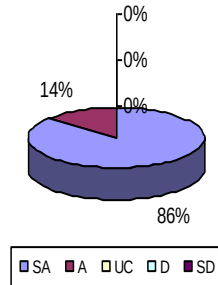
I understand the lectures



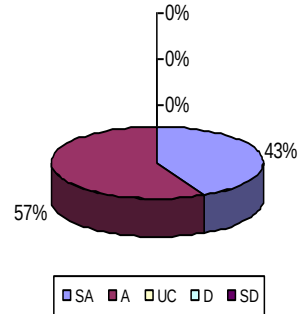
The material w as well organized and presented



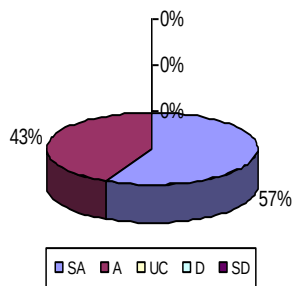
The instructor w as responsive to students needs and problems



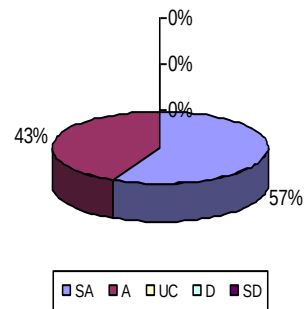
Had the instructor been regular throughout the course?

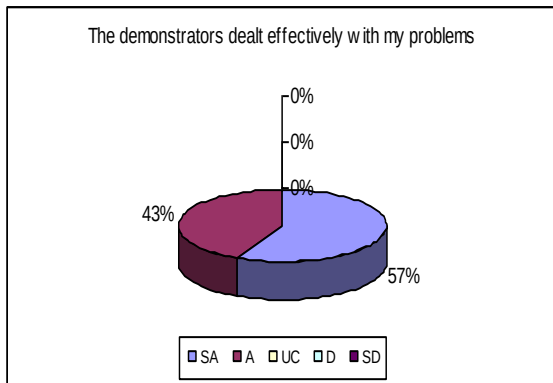
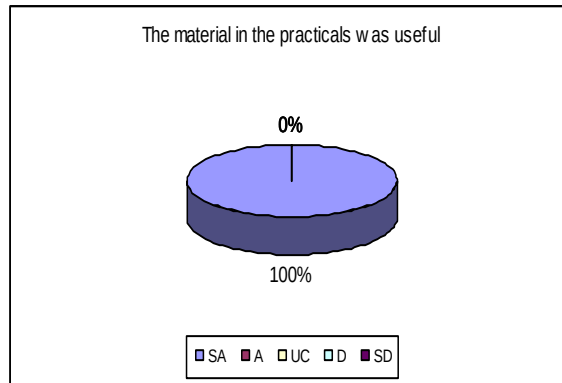
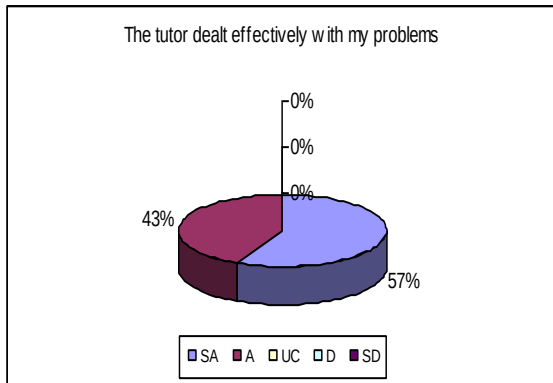


The material in the tutorials w as useful



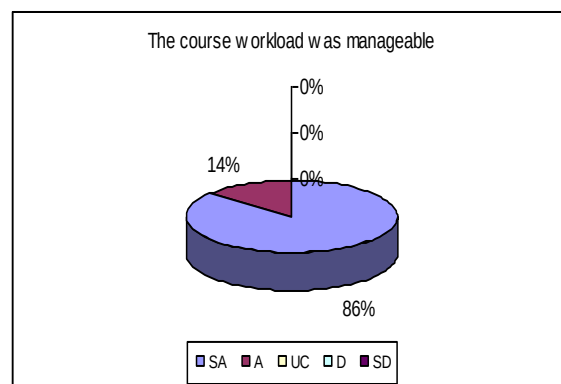
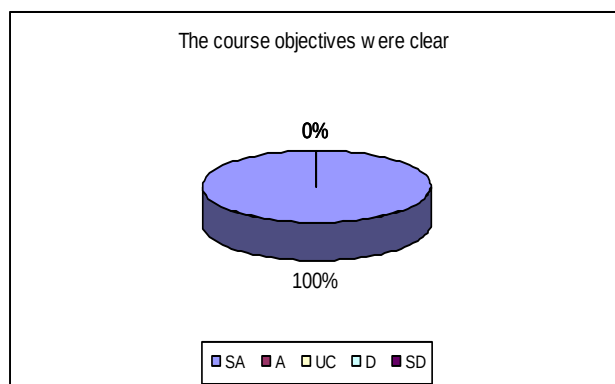
I w as happy with the amount of w ork needed for tutorials

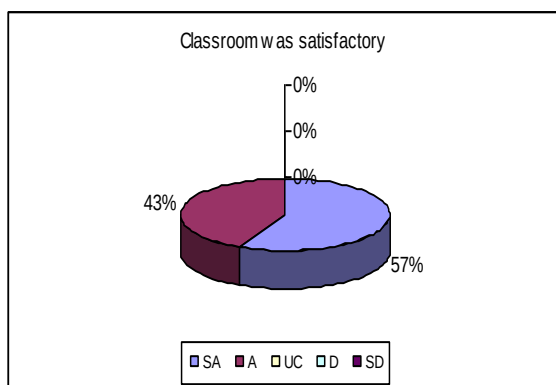
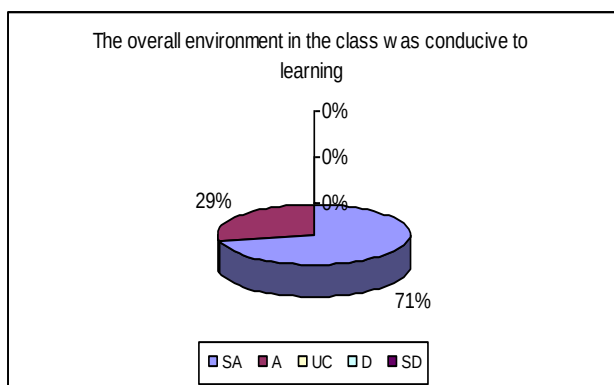
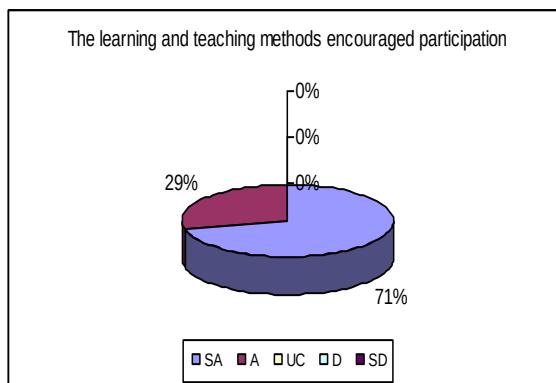
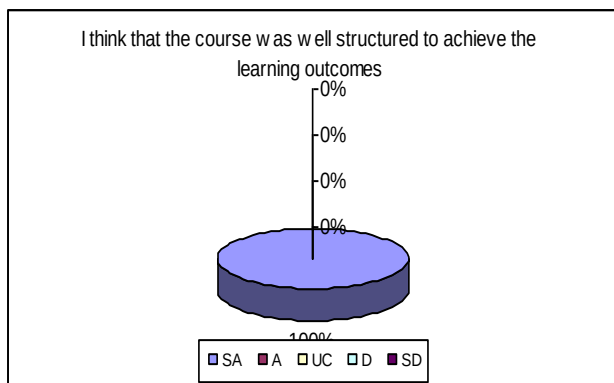
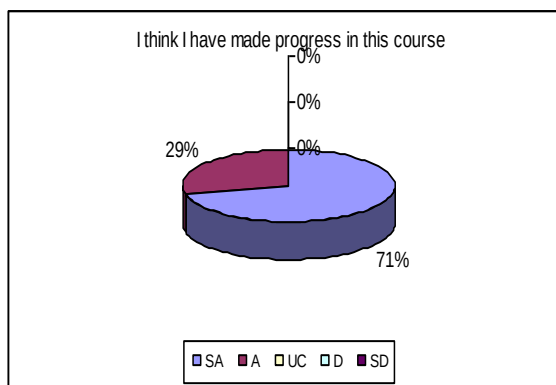
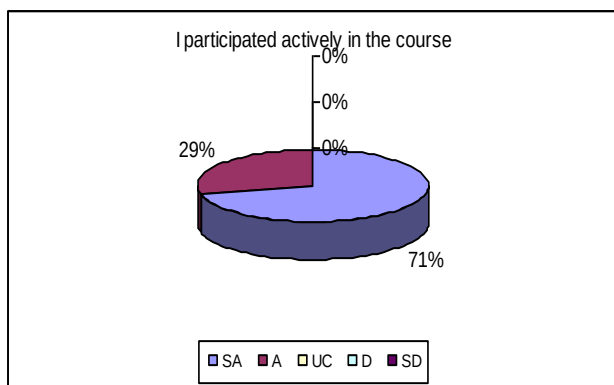
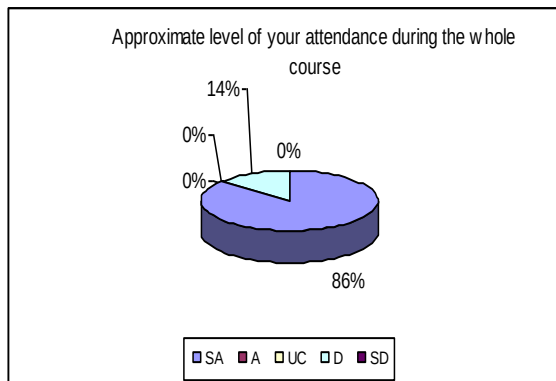
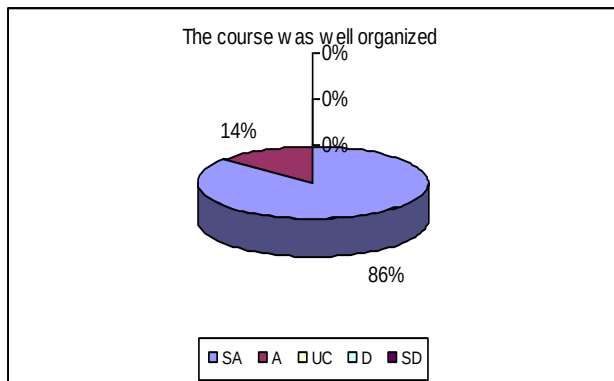




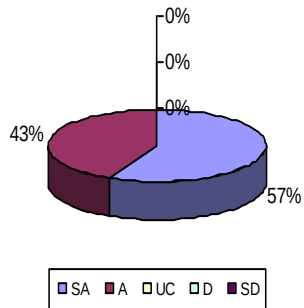
Course ENT 508 (Teacher 3)

In majority of the cases (asked statements), almost 65-70 percent of the respondents were found agreed. They were agreed with the statement that course objectives were clear, course load was manageable and they understand lectures fully and feedback was given properly for the assessments. About 14 % of the students uncertain about their appropriate attendance level in the class. A few students expressed their view as uncertain. Detail is given as below given pie charts.

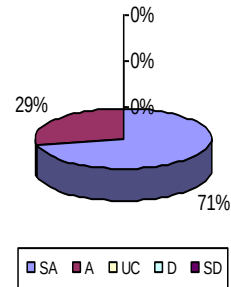




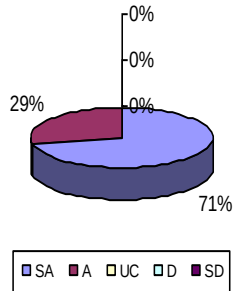
Learning materials were relevant and useful



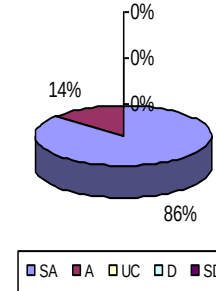
Recommended reading books etc were relevant and appropriate



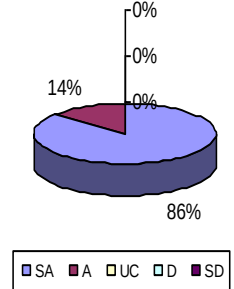
The provision of learning resources in the library was adequate and appropriate



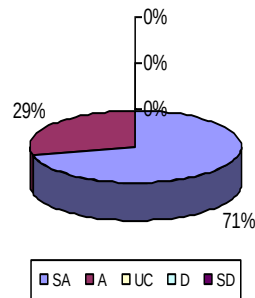
The provision of learning resources on the web was adequate and appropriate



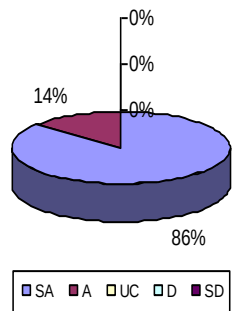
The course stimulated my interest and thought on the subject area



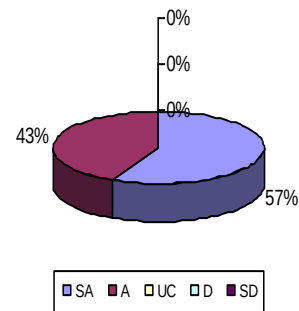
The pace of the course was appropriate



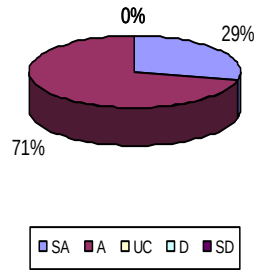
Ideas and concepts were presented clearly



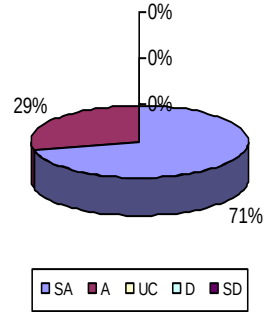
The methods of assessment were reasonable



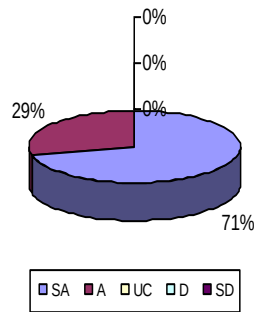
Feedback on assessment w as timely



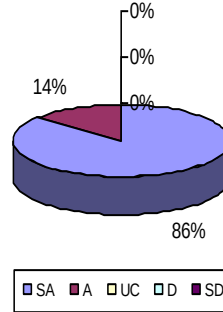
Feedback on assessment w as helpful



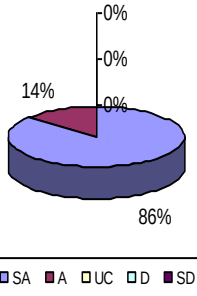
I understand the lectures



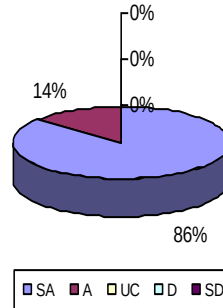
The material w as well organized and presented



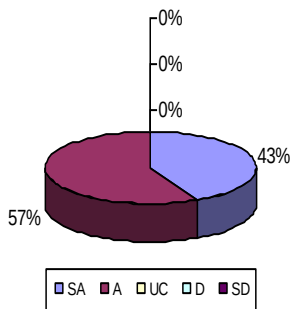
The instructor w as responsive to students needs and problems



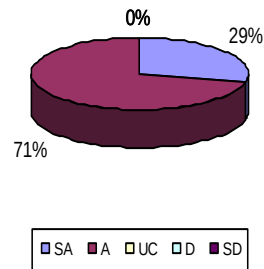
Had the instructor been regular throughout the course?

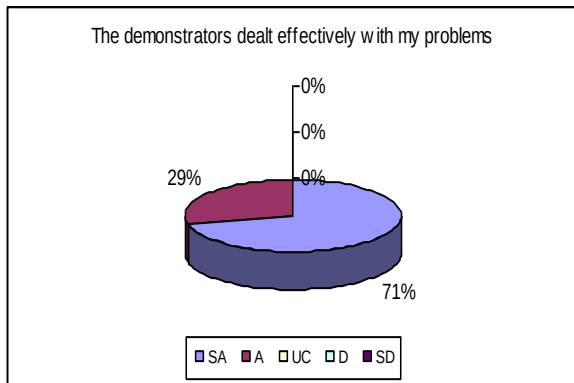
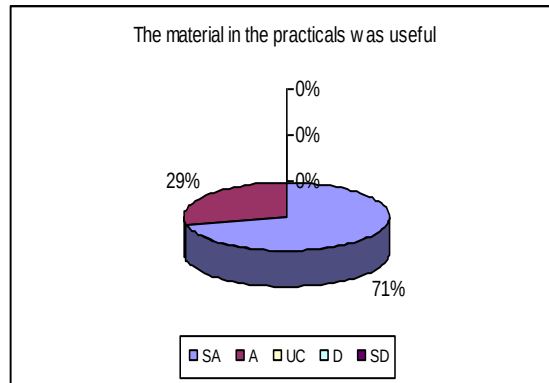
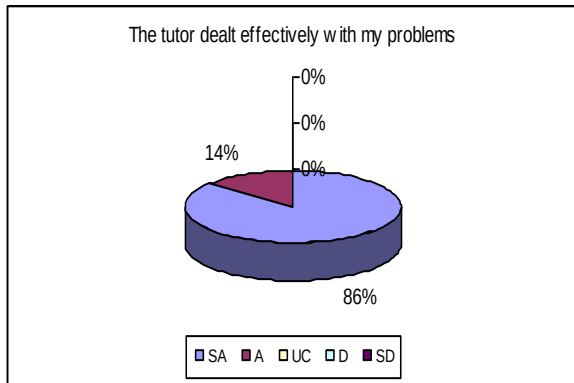


The material in the tutorials w as useful



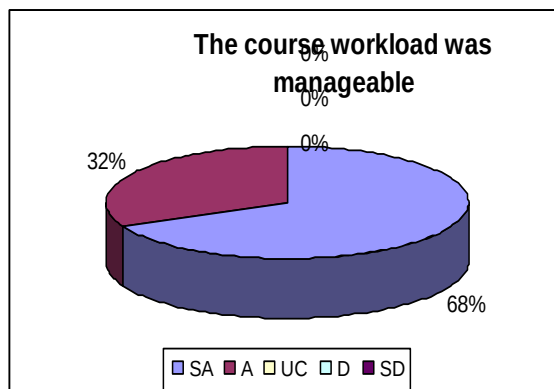
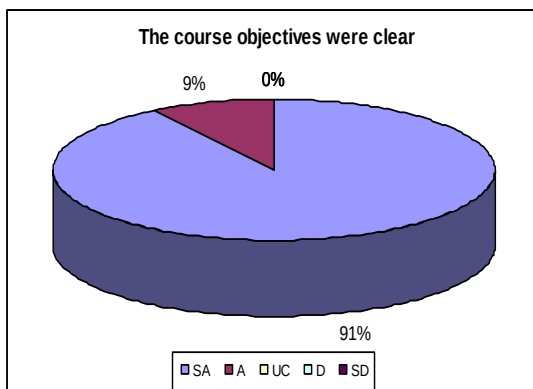
I w as happy with the amount of work needed for tutorials

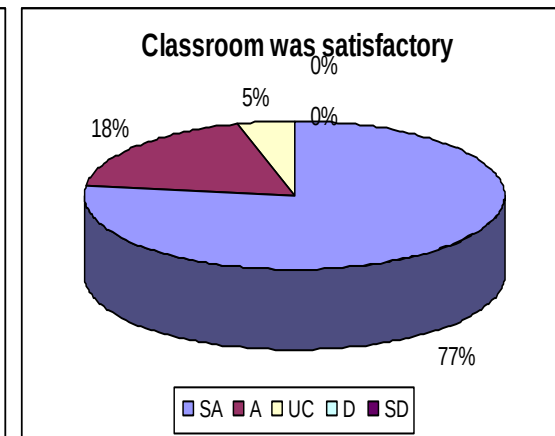
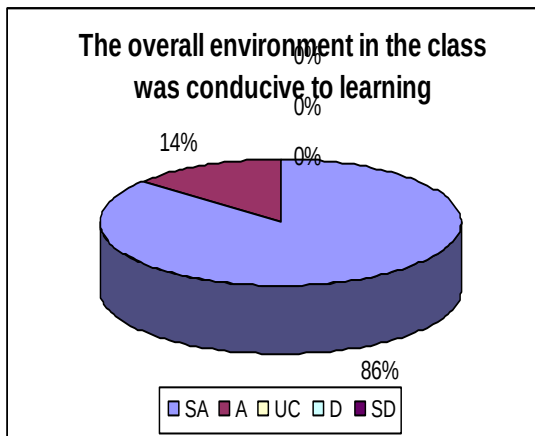
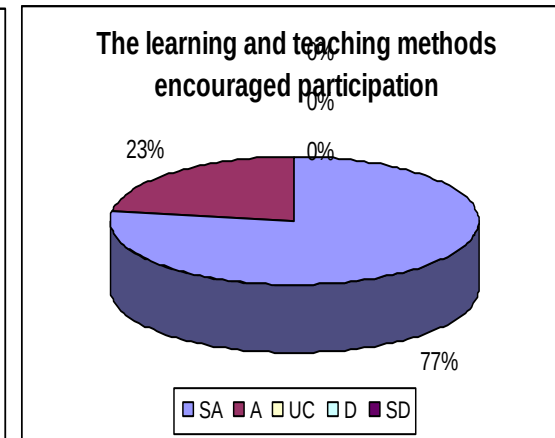
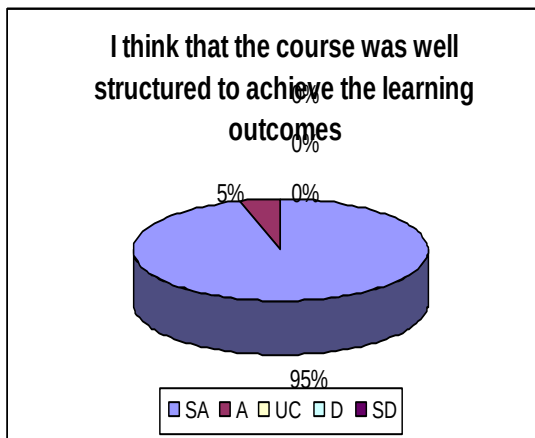
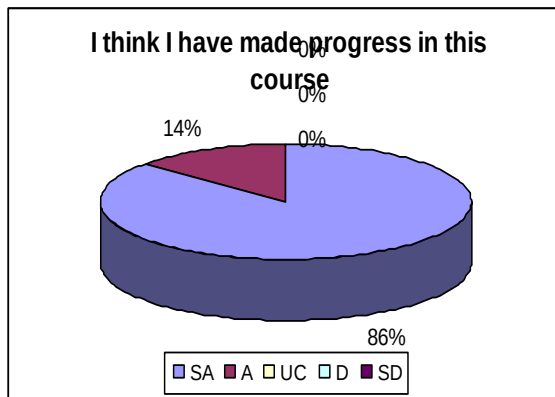
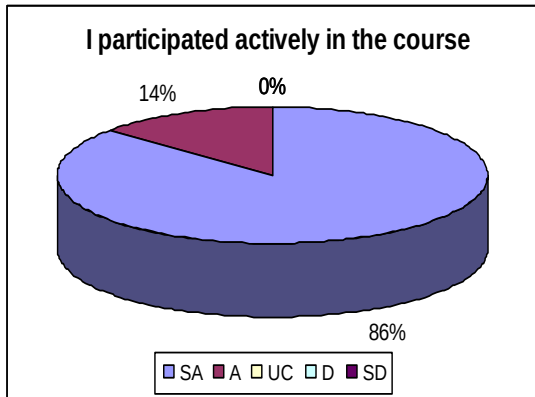
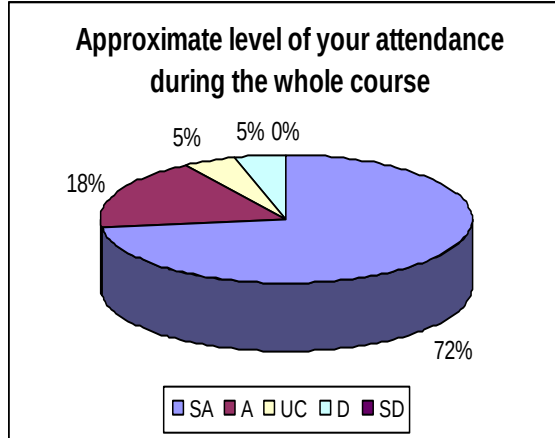
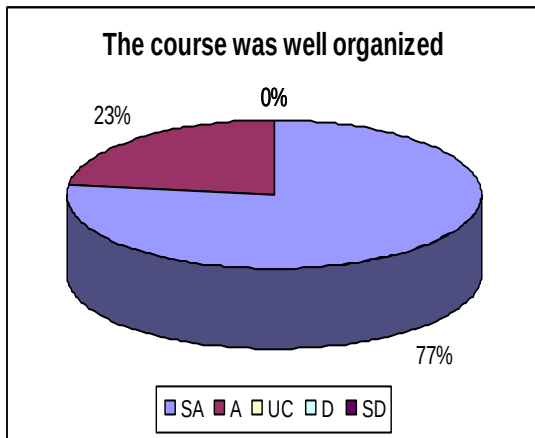




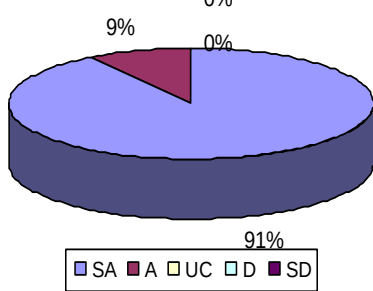
Course ENT 507 (Teacher 4)

Majority of the responding students were found agreed with the statement that course objectives were clear, course was well structured and they have made progress. 5 % were found uncertain about the approximate level of attendance. According to 5 % of th students classrooms were not satisfactory and 5% percent showed their uncertainty about the provisionof learning resources in libaray were adequate.

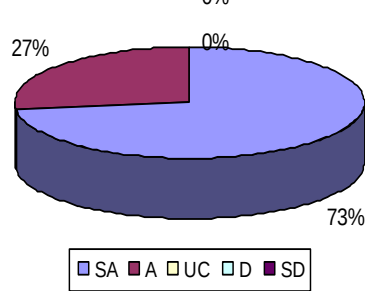




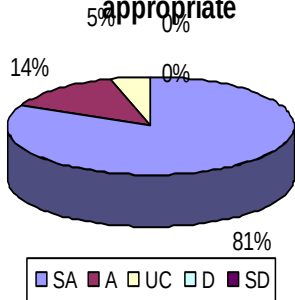
Learning materials were relevant and useful



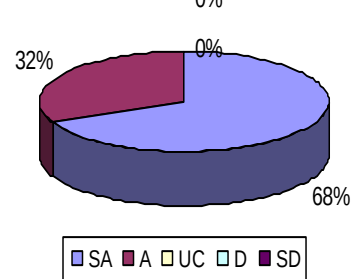
Recommended reading books etc were relevant and appropriate



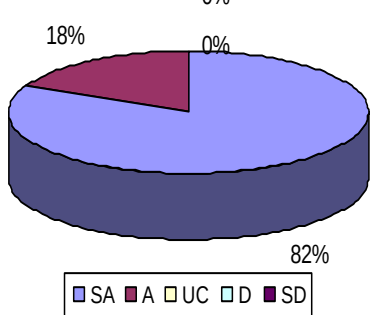
The provision of learning resources in the library was adequate and appropriate



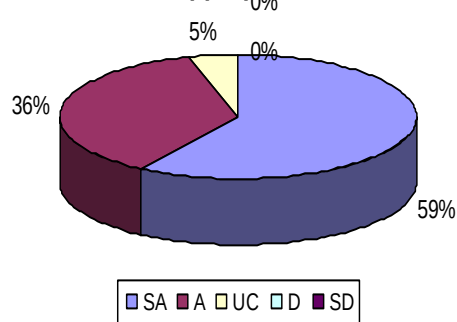
The provision of learning resources on the web was adequate and appropriate



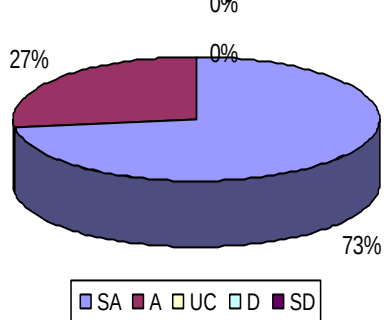
The course stimulated my interest and thought on the subject area



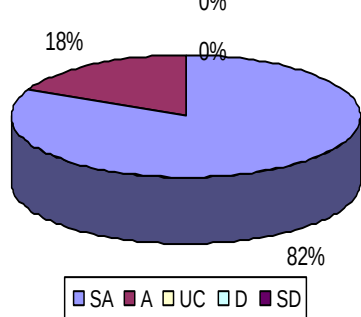
The pace of the course was appropriate



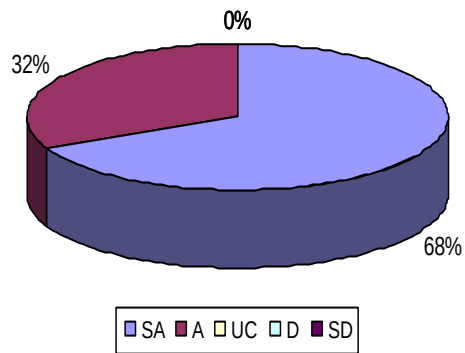
Ideas and concepts were presented clearly



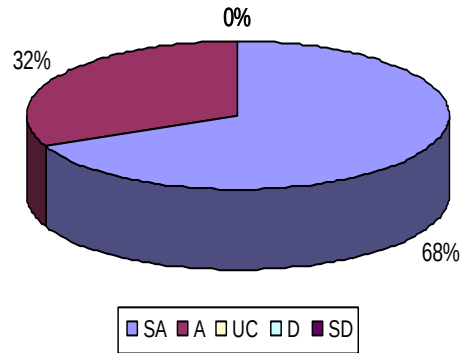
The methods of assessment were reasonable



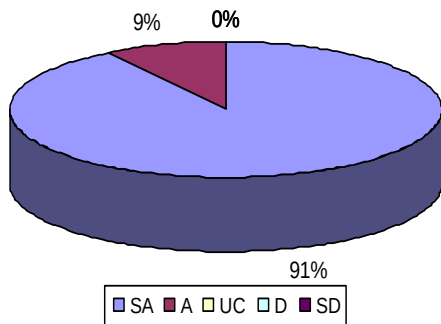
Feedback on assessment was timely



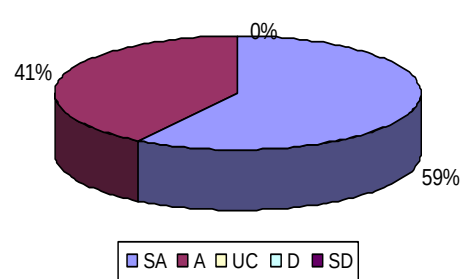
Feedback on assessment was helpful



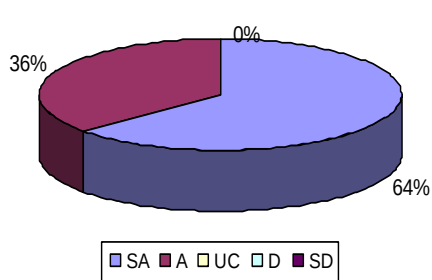
I understand the lectures



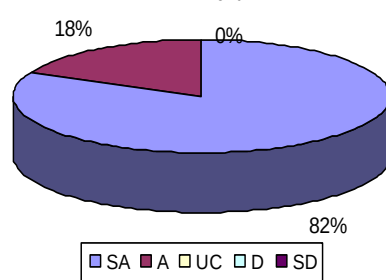
The material was well organized and presented



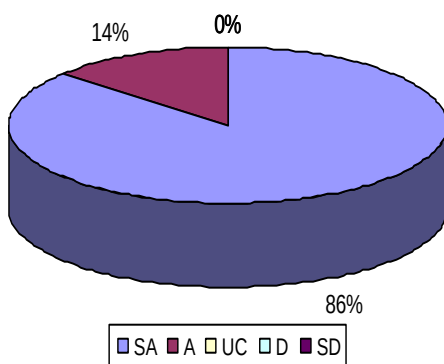
The instructor was responsive to students needs and problems



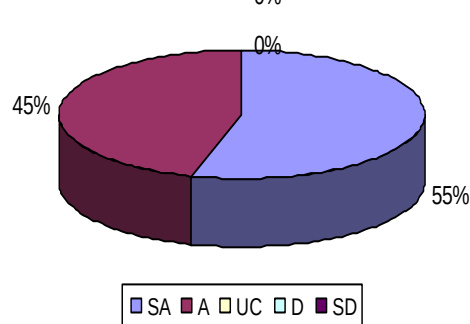
Had the instructor been regular throughout the course?

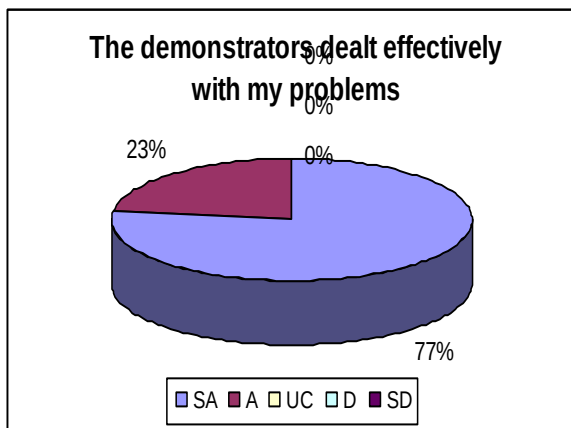
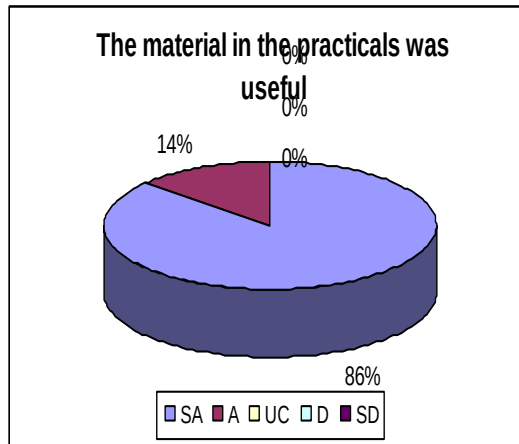
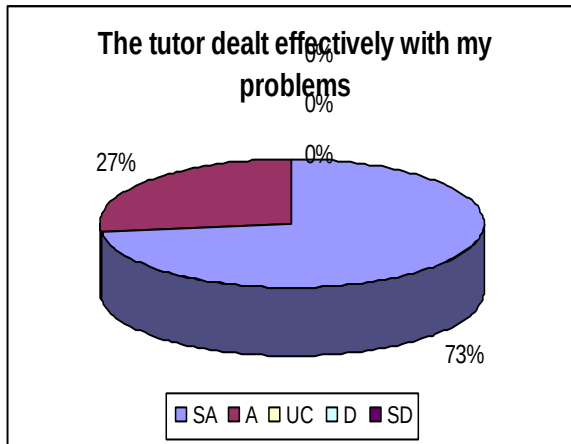


The material in the tutorials was useful



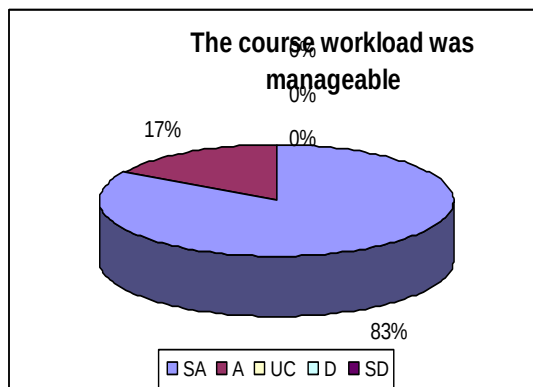
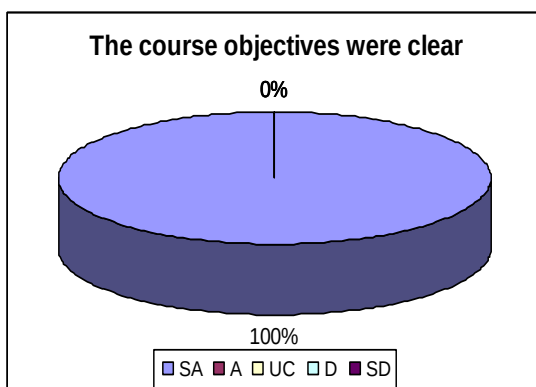
I was happy with the amount of work needed for tutorials

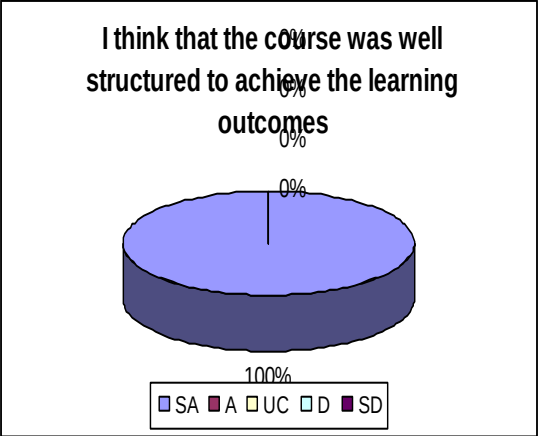
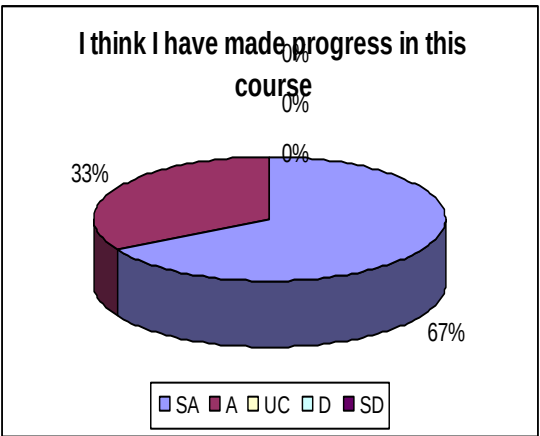
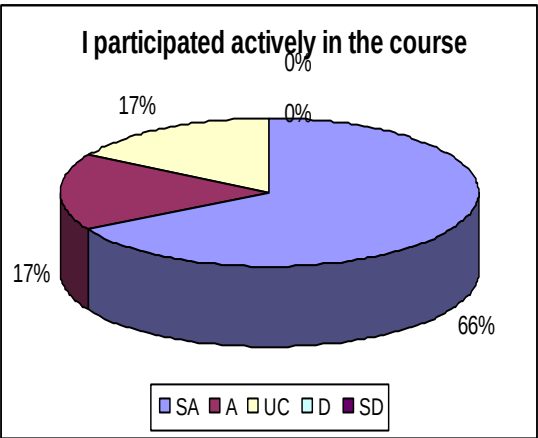
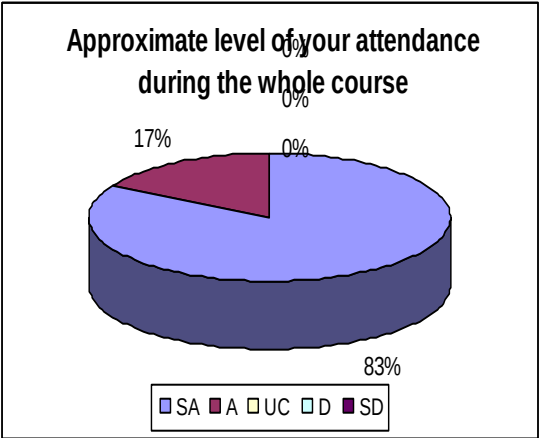
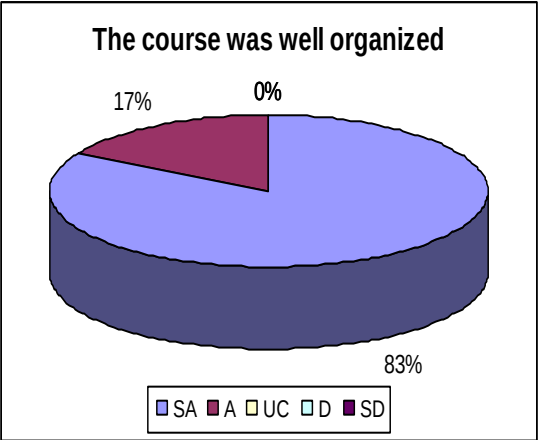
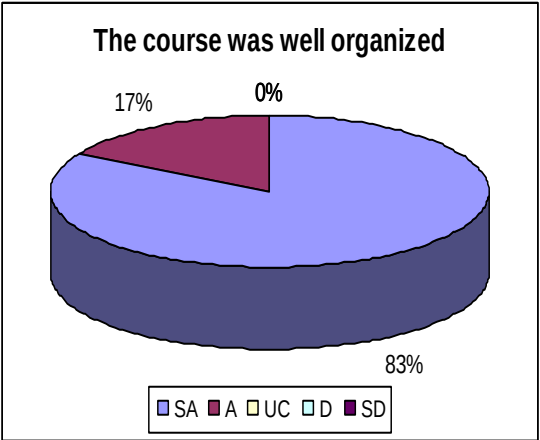




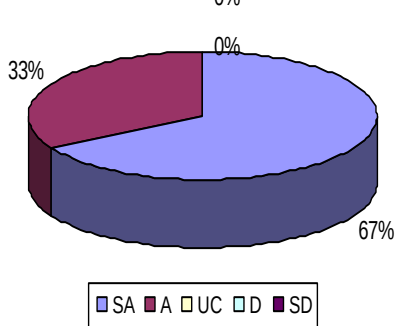
Course ENT 603 (Teacher 5)

About 60 – 90% of the students were agreed with the statement that course objectives were clear, course load was manageable and the course was well organized. They were fully agreed with the statement that course was well structured and they understood well. 17% were uncertain about their active participation in the course. 14% were uncertain about relevancy of recommended books and 17% showed their uncertainty about the provision of learning resources in library were adequate.

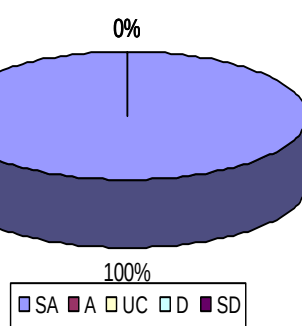




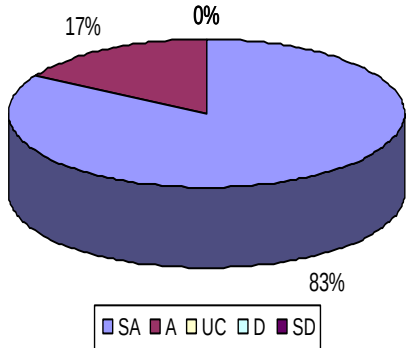
The learning and teaching methods encouraged participation



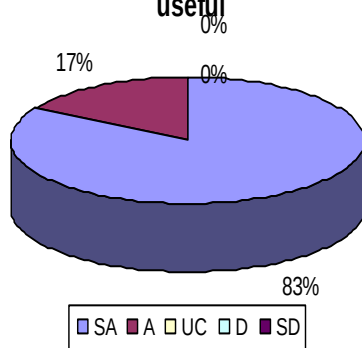
The overall environment in the class was conducive to learning



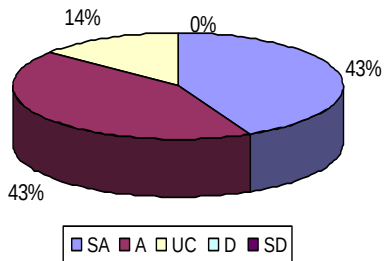
Classroom was satisfactory



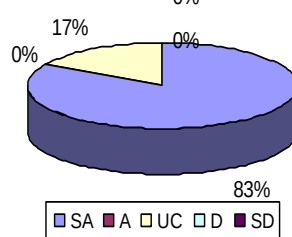
Learning materials were relevant and useful



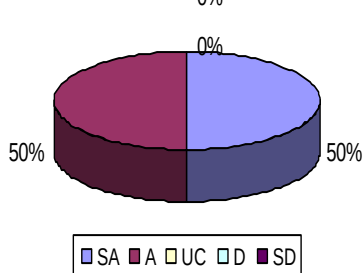
Recommended reading books etc were relevant and appropriate



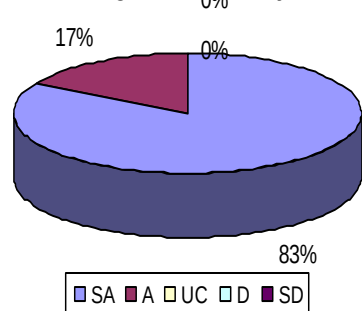
The provision of learning resources in the library was adequate and appropriate

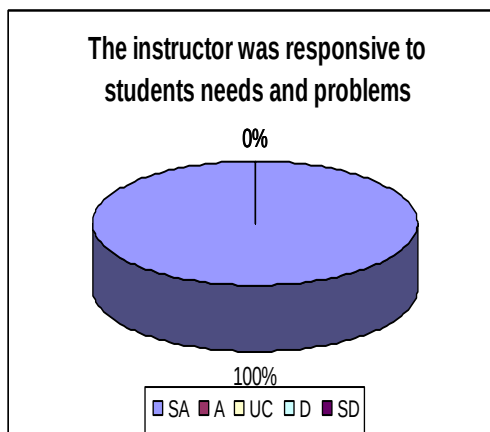
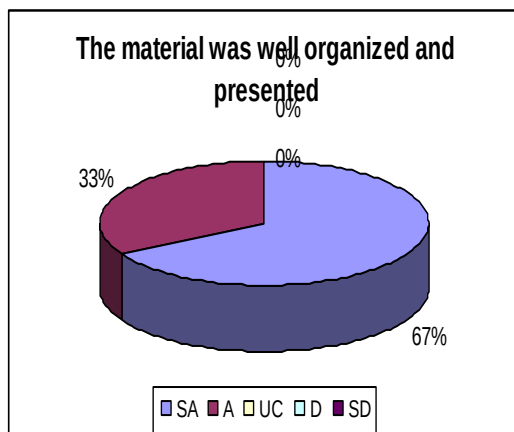
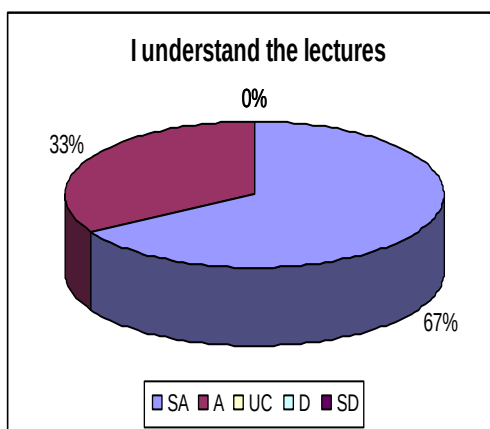
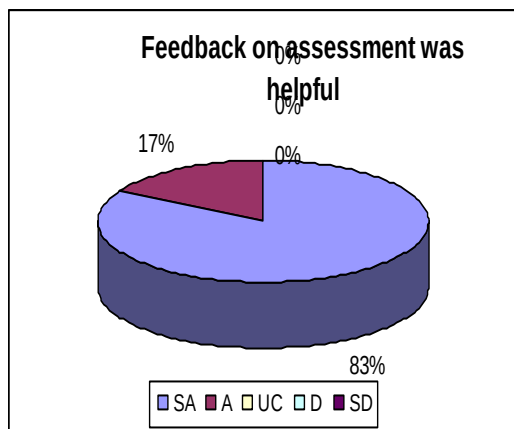
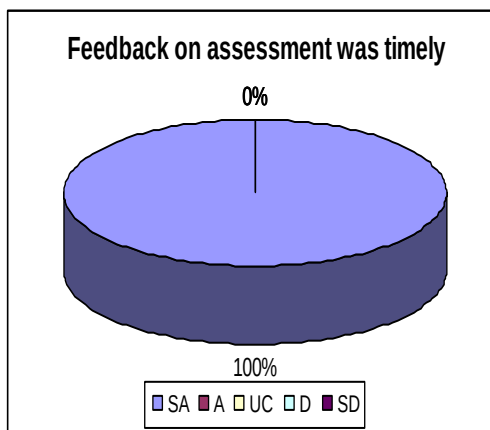
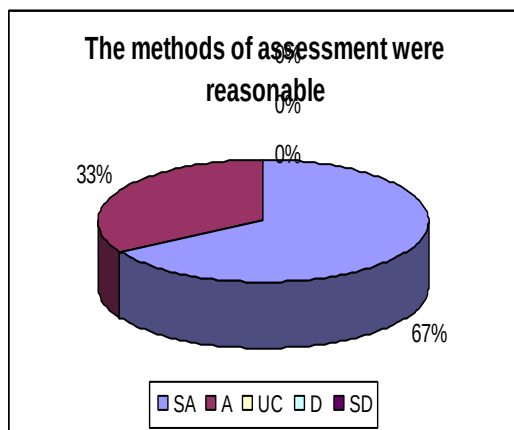
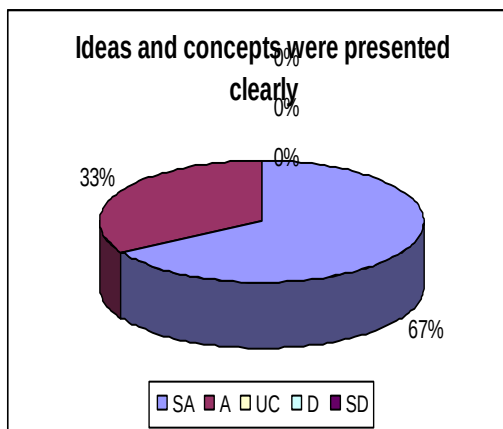
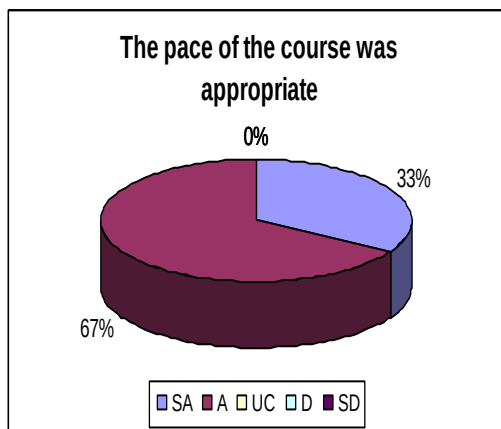


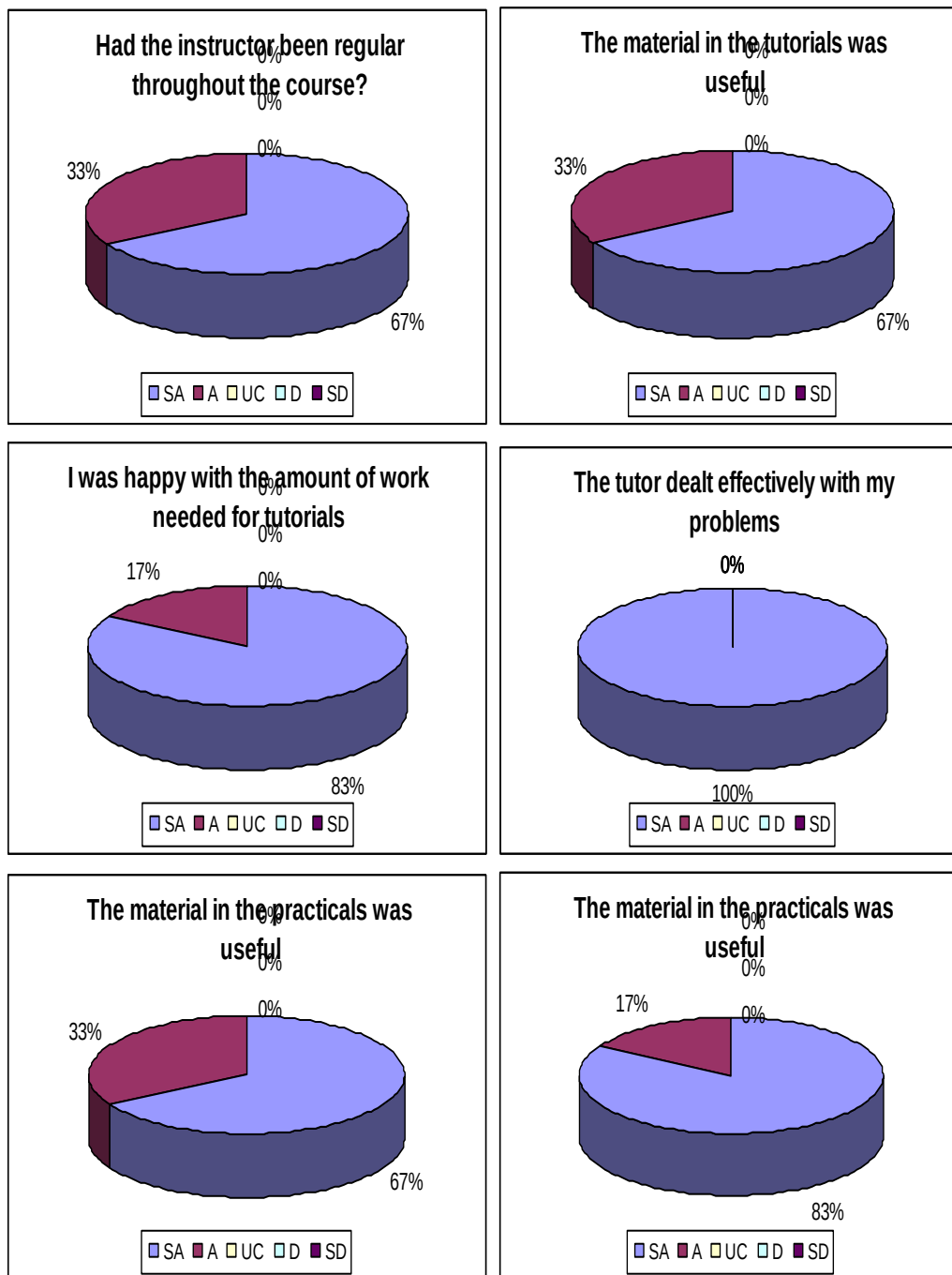
The provision of learning resources on the web was adequate and appropriate



The course stimulated my interest and thought on the subject area



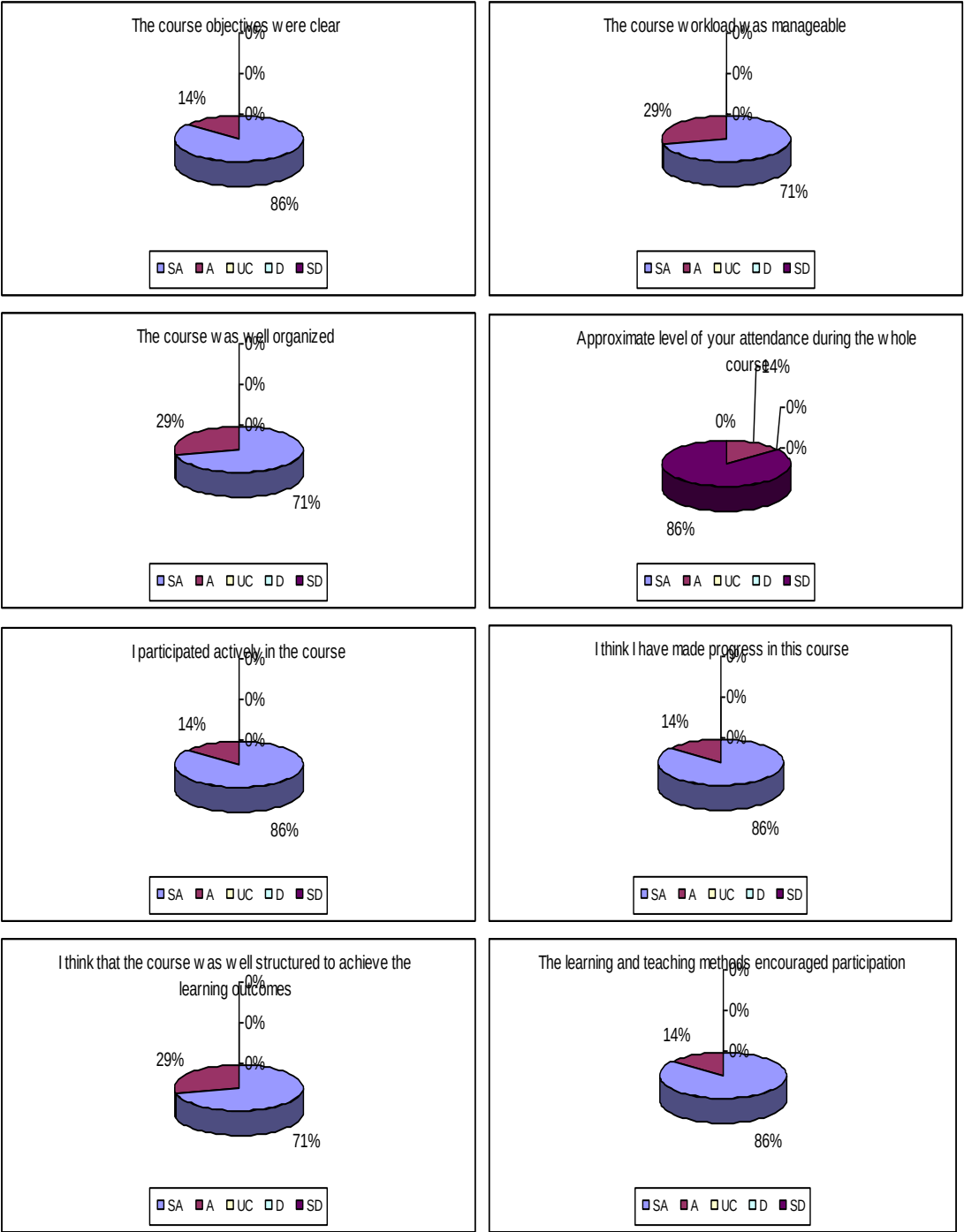


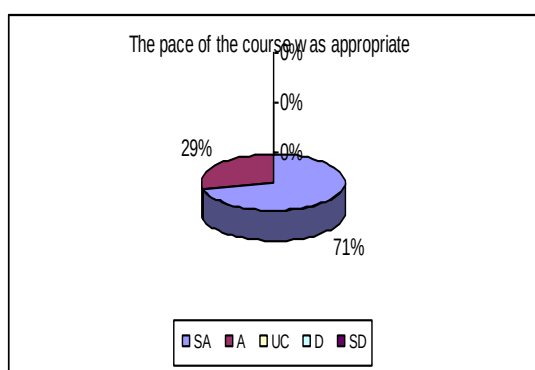
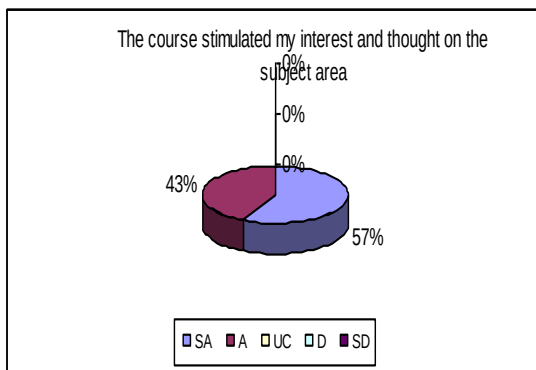
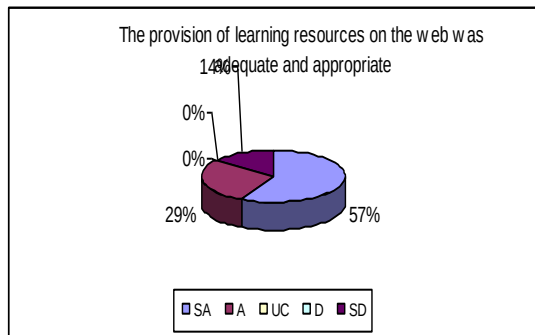
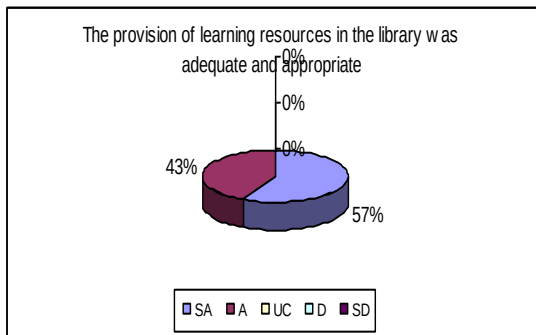
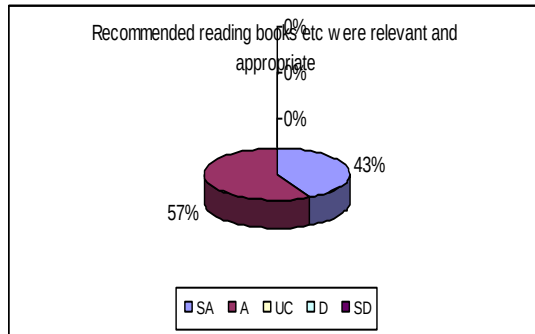
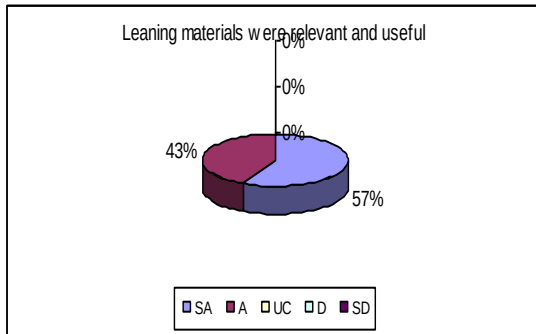
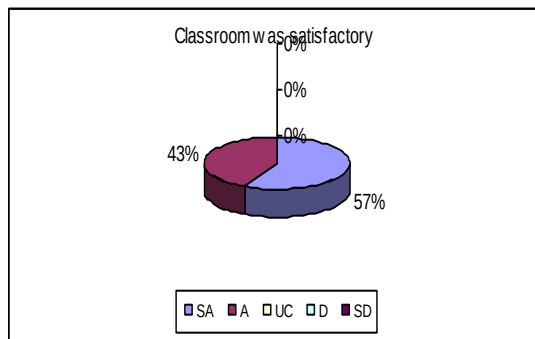
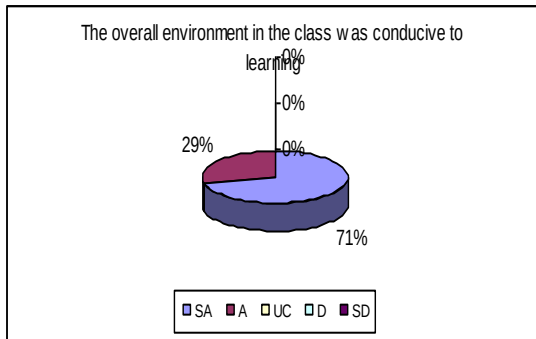


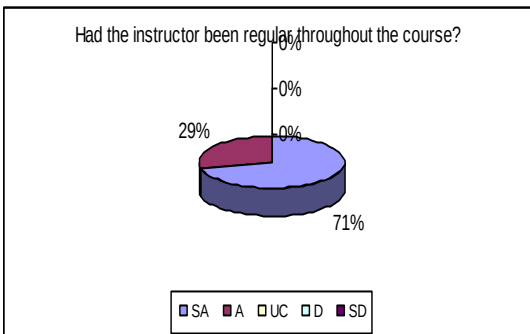
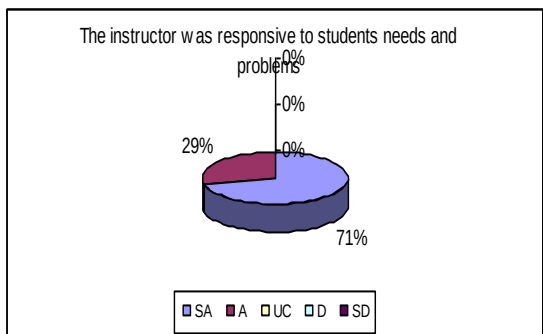
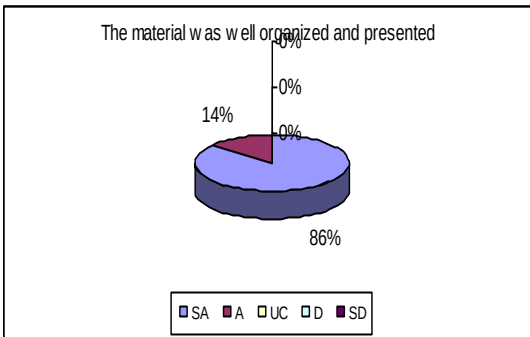
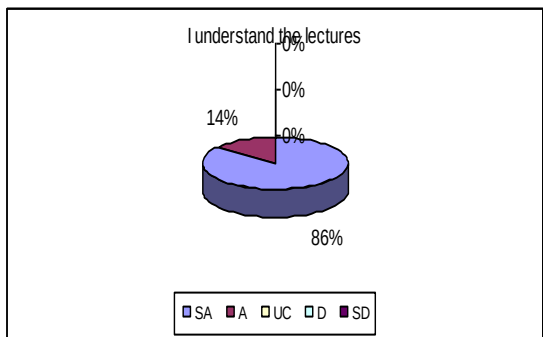
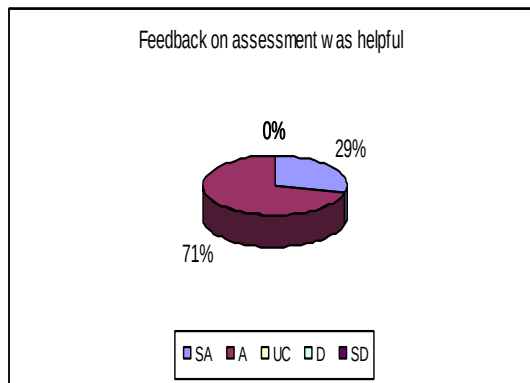
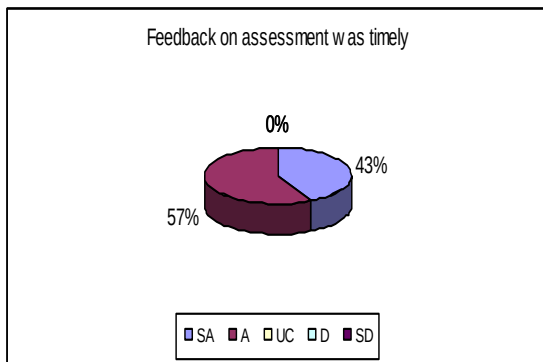
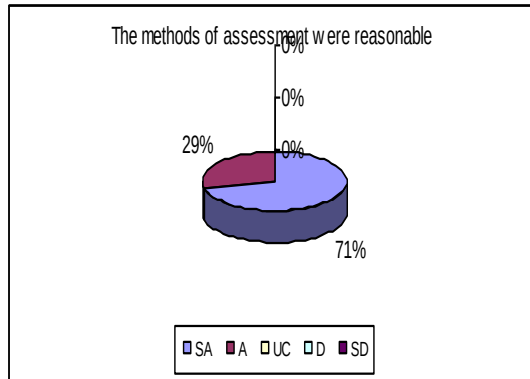
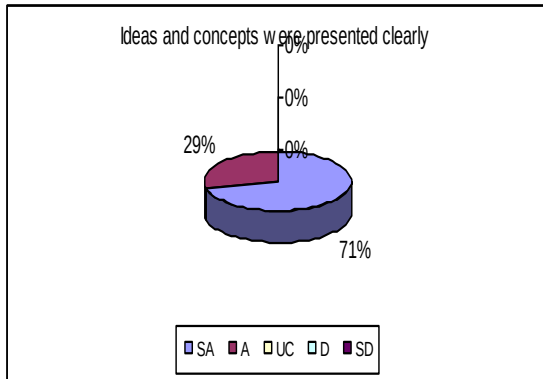
Course ENT-502 (Teacher 6)

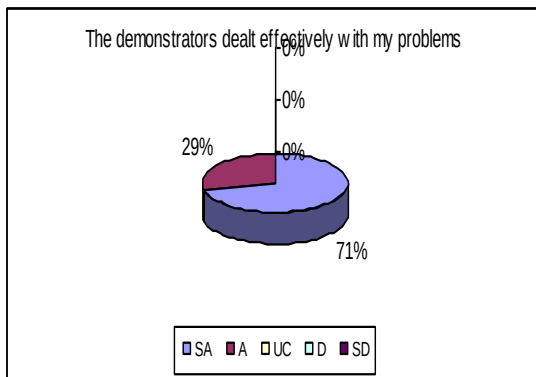
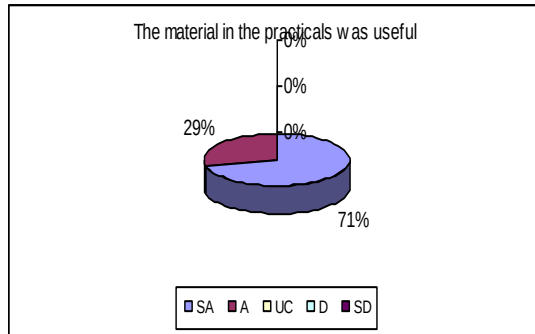
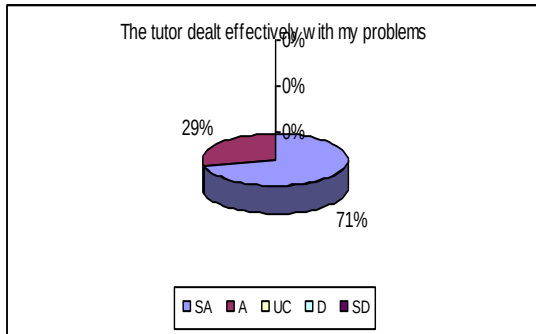
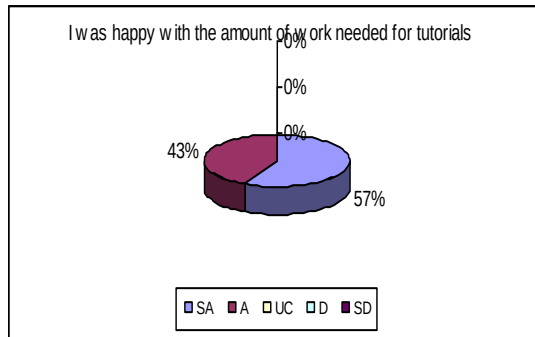
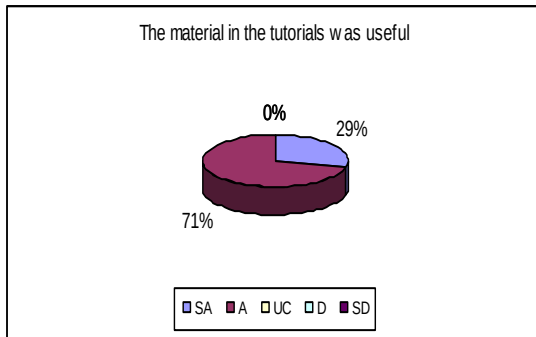
A big majority of the students were found to agree with the statement that course objectives were clear, course work was manageable and the course was well structured and well organized. They agreed with the impact of the course from the point of view of increase in knowledge. A majority of the students

disagreed with appropriate attendance level and 14% were found disagree with provision of learning resources on the web are adequate and appropriate.





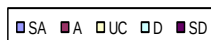
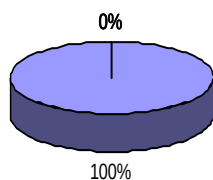




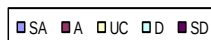
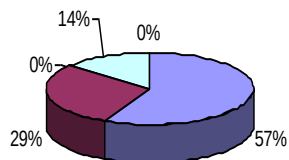
Course ENT-504 (Teacher 7)

Almost 50-100% of the students were found agreed with the statement that course objectives were clear, and the course was well structured and well organized. 14 percent of the students were uncertain that the course load was manageable. About 70% were disagreed with the statement that attendance was up to appropriate level during the whole course.

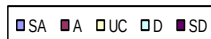
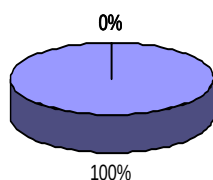
The course objectives were clear



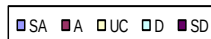
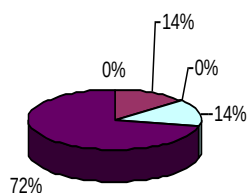
The course workload was manageable



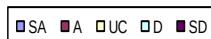
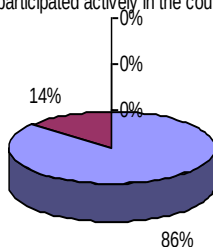
The course was well organized



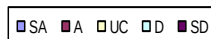
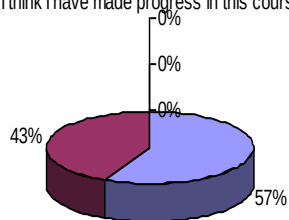
Approximate level of your attendance during the whole course



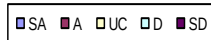
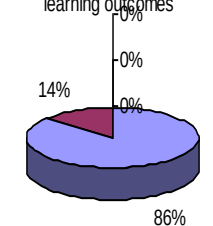
I participated actively in the course



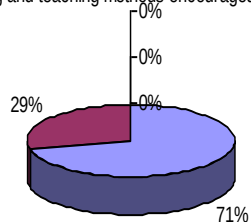
I think I have made progress in this course

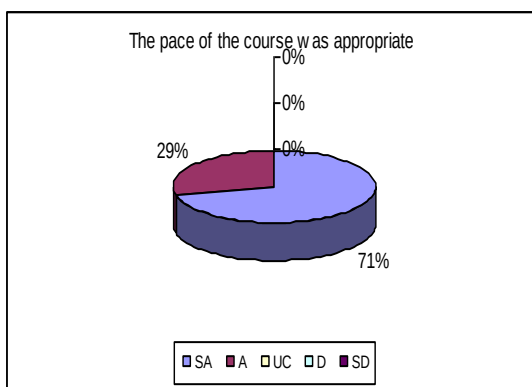
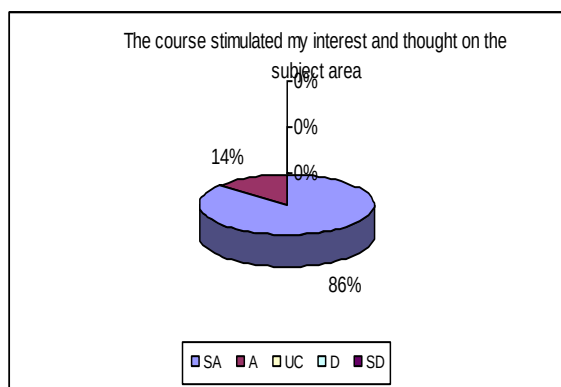
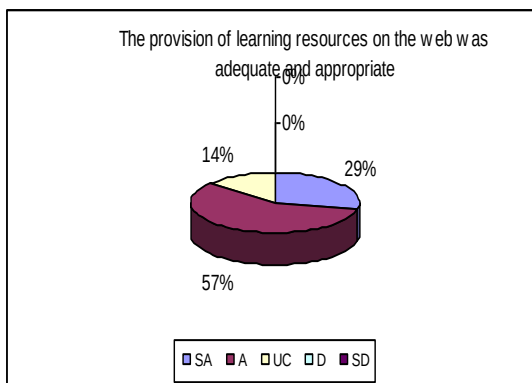
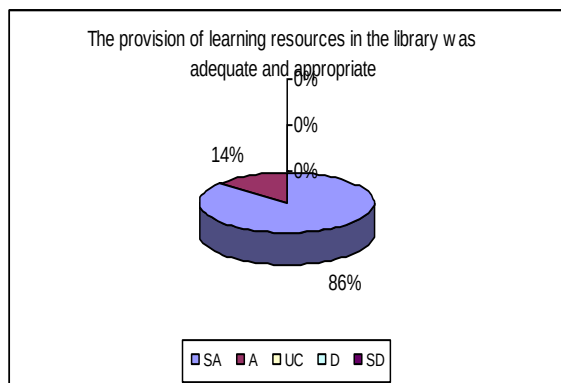
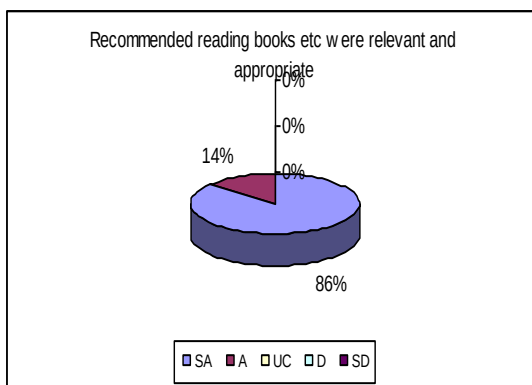
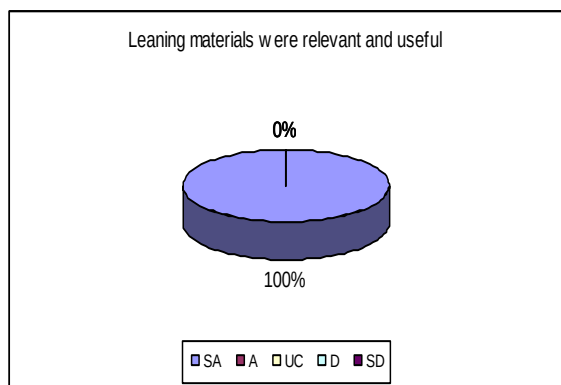
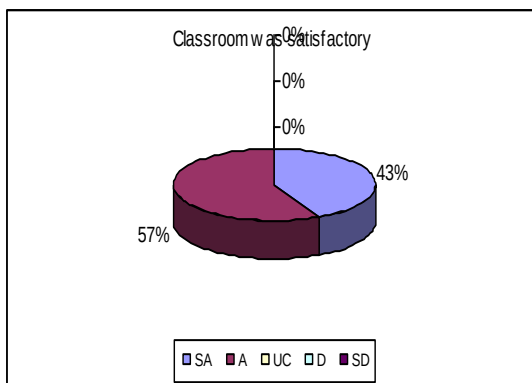
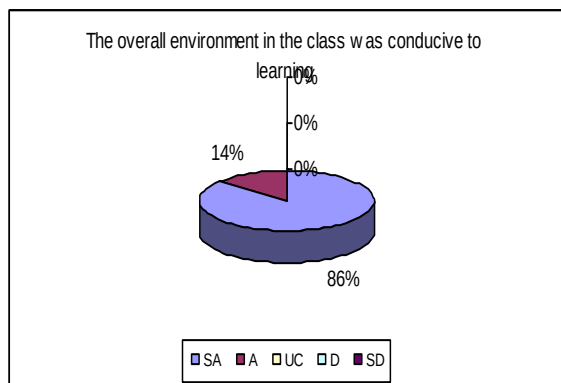


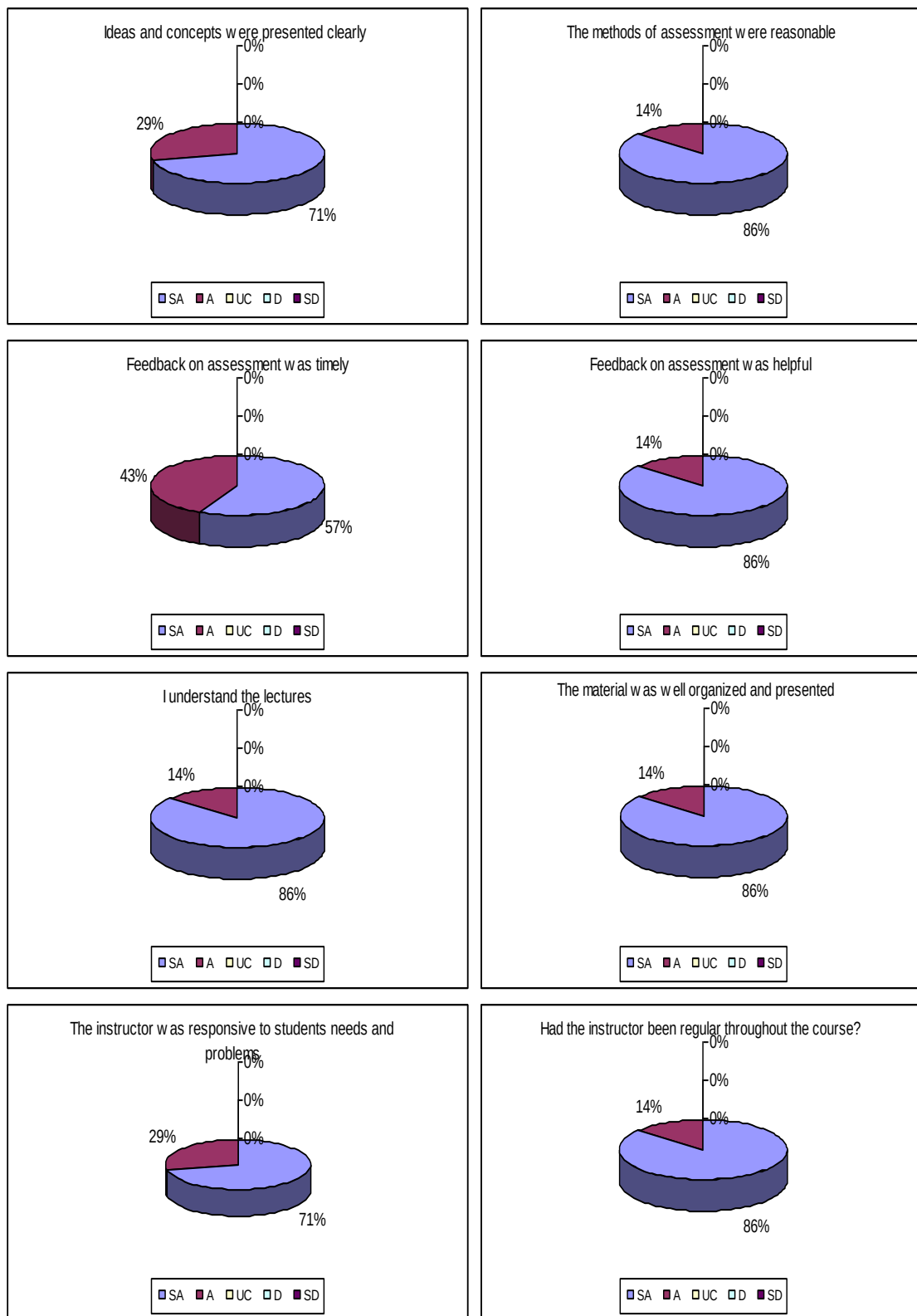
I think that the course was well structured to achieve the learning outcomes

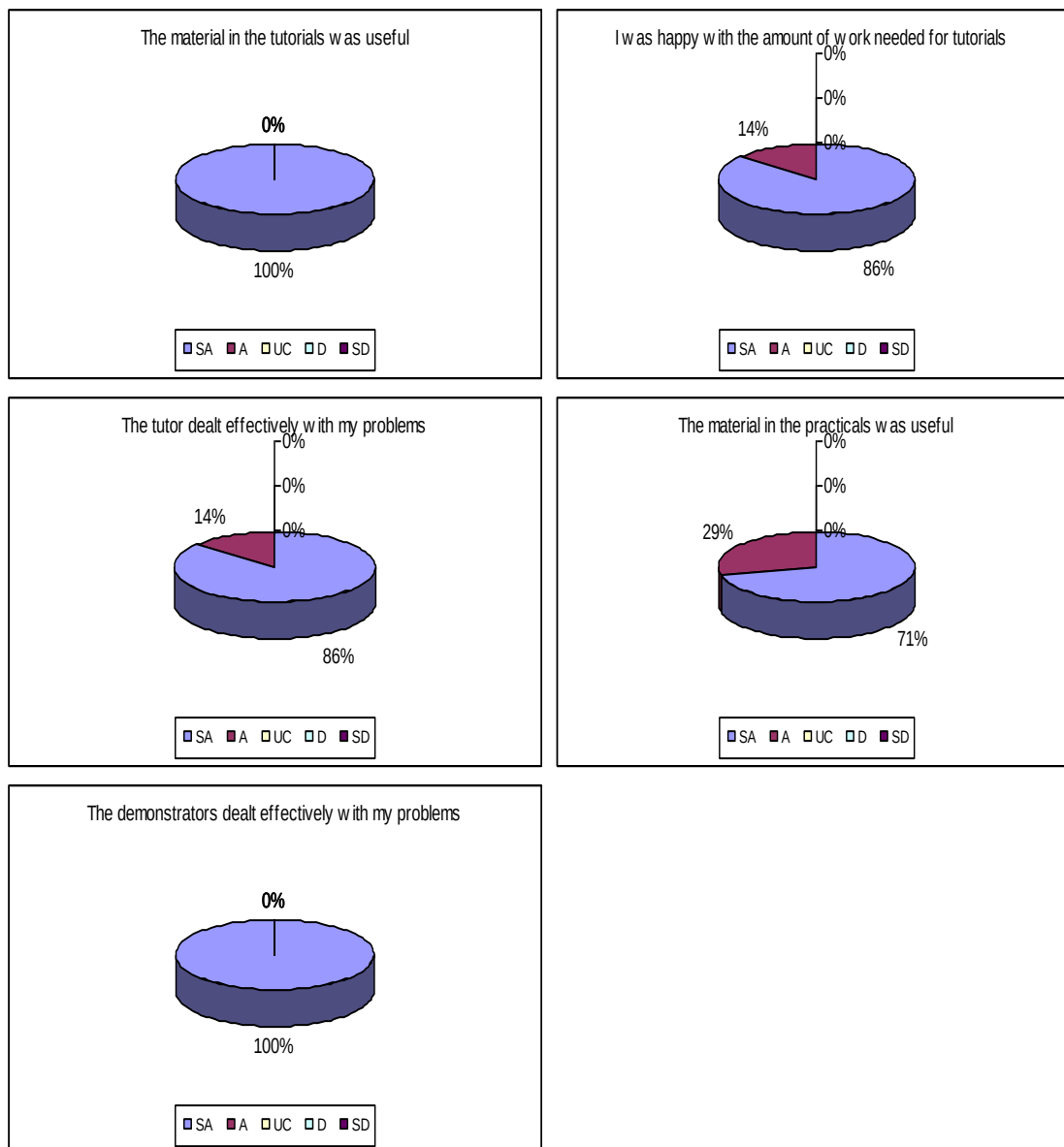


The learning and teaching methods encouraged participation









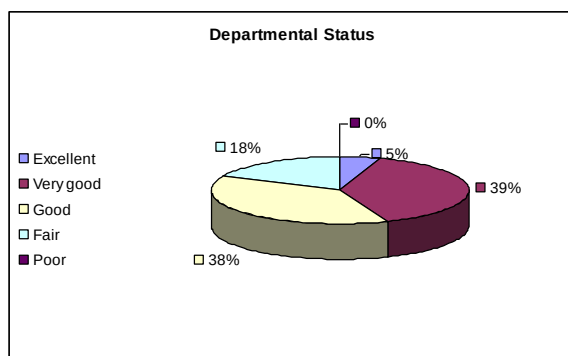
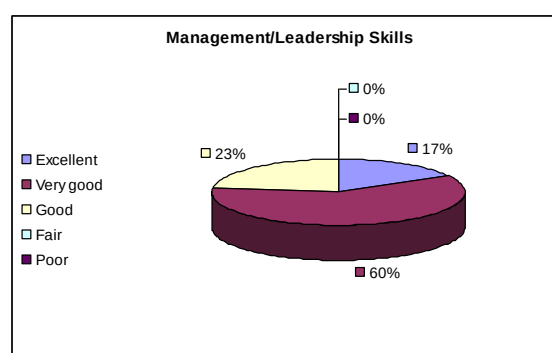
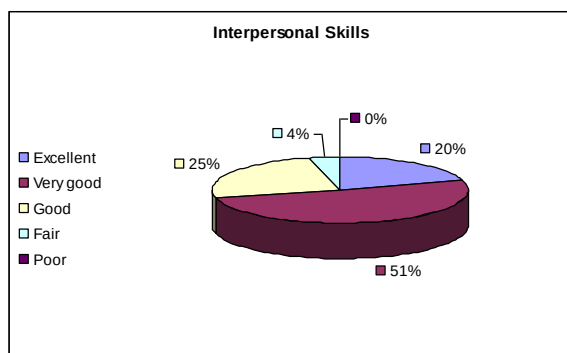
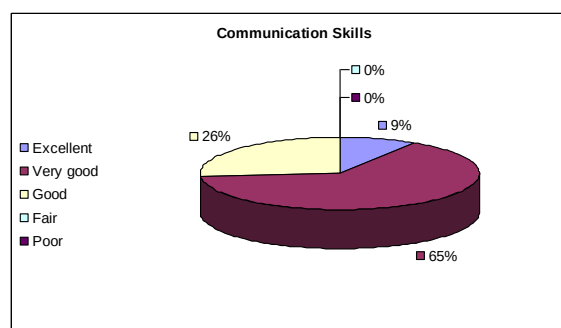
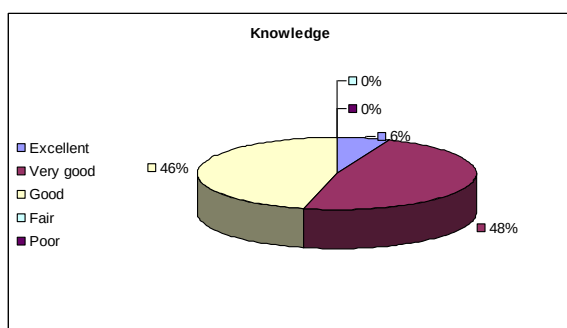
SA: Strongly Agree A: Agree UC: Un-certain D: Disagree
SD: Strongly Disagree

FACULTY COURSE REVIEW REPORT

In total seven courses were taught during the reported period (Proforma-2). A total of 21-39 students got registered in these courses; among these 9.5-47% scored A grade, 34.78-86 % scored B grade and 4.8-33% scored C grade. The courses were found very much appropriate and in line with the curriculum and intended objectives.

ALUMINI SURVEY

The alumni survey was conducted through gathering information using Proforma # 7 (Annexure-I). The feed back of five graduate students was obtained through Alumni survey. The results of this assessment are given in the form of following pie graphs. The information gathered from these respondents revealed that indicators like knowledge, communication skills, Interpersonal skills, leadership skills and Departmental status are mostly labeled with excellent, very good and good categories. In case of interpersonal skills and departmental status there observed 4 % and 18 percent share, respectively.

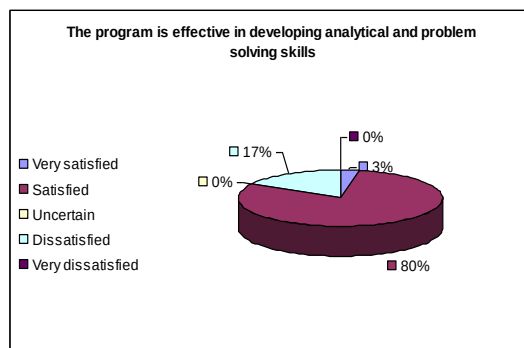
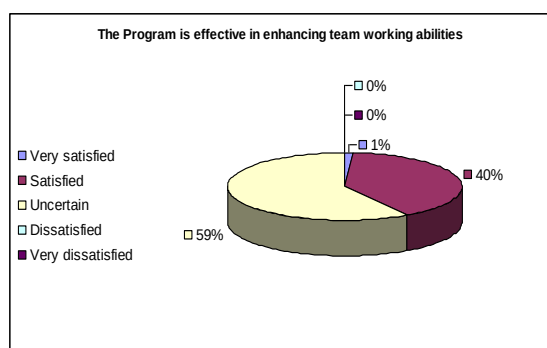


Skills and Capabilities enhanced as an Entomologist.

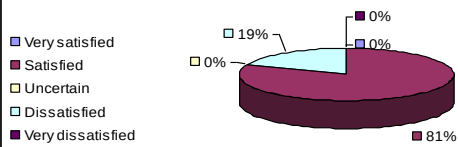
The graduates of this department developed their ability to apply knowledge of Entomology and specifically pest management to work as a skilled and successful professional in research, extension and development fields. While studying, students learn advanced theoretical and practical knowledge about the subject, build confidence, experience and skills to handle problems relating to their field of specialization independently. Meanwhile they are also trained to work efficiently as a member of a team.

SURVEY OF GRADUATING STUDENTS

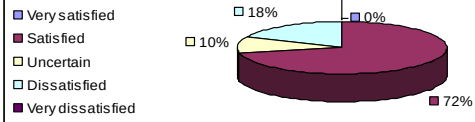
The survey regarding graduate students' was conducted associated with around 18 graduate students using proforma # 3 (Annexure-II). The programme assessment results are given in the following graphical format. It is evident from the graphical data that majority of the students reported about their satisfaction with the programme. However, a few students were dissatisfied with the environment, contents of the curriculum and team work abilities. A segment of the respondents also expressed dissatisfaction with regard to development of analytical and problem solving skills, program's support in learning process, development of written communication skills, achievement of objectives and effective in developing planning abilities.



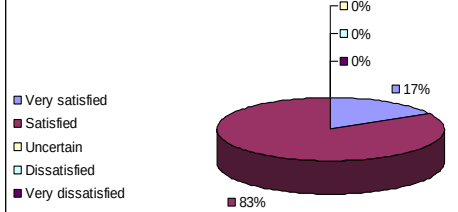
The Program is effective in developing independent thinking



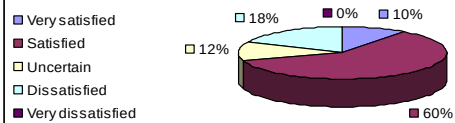
The Program is effective in developing written communication skills



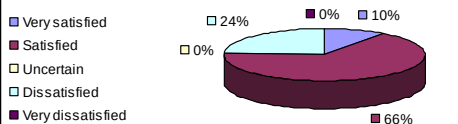
The work in Programme is too heavy and induces a lot of pressure



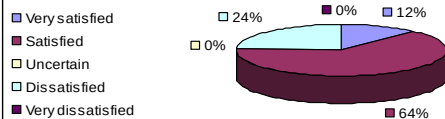
The program administration is effective in supporting learning



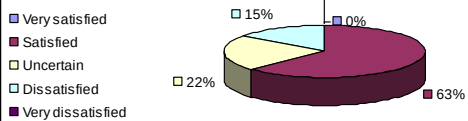
The Program is effective in developing planning abilities



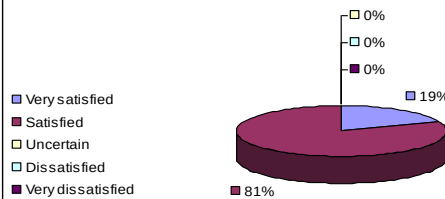
The objectives of the program have been fully achieved

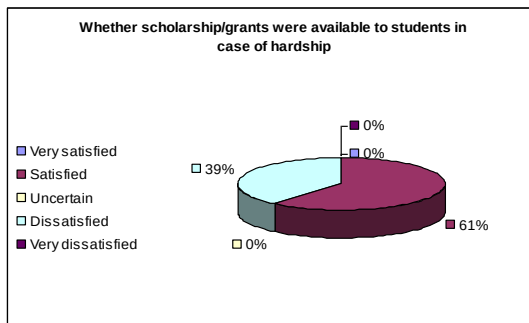
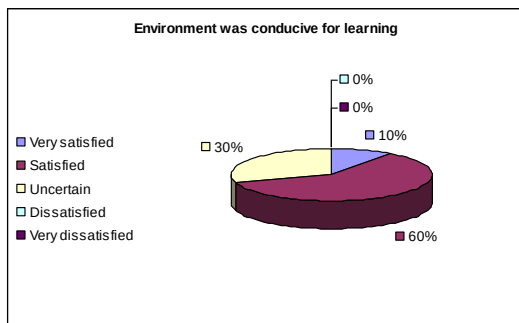


Whether the contents of curriculum are advanced and meet program objectives



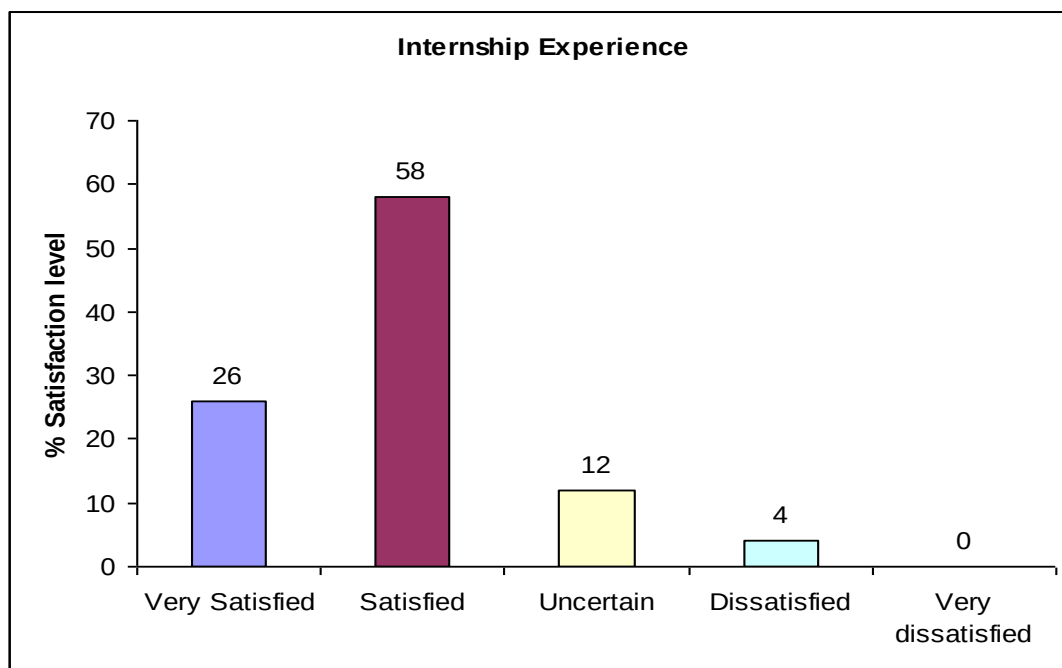
Faculty was able to meet the program objectives





Internship Experience:

Feed back regarding internships of the students was very encouraging. The respondents reported that this activity was found helpful in improving the ability to work in teams, discipline, professional development, time management skills and appreciation of esthetic values. Around 58% students expressed their satisfaction considering all the parameter as represented in the figure given below. 26% expressed their views as very satisfied while 12% were uncertain about it. Only 4% were expressing dissatisfaction about the above mentioned indicators.



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

Entomology department has a regular activity regarding inhouse accountability or review of the previous semester to discuss achievements, 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, pesticide resistance, food security and economic entomology. At present three of the senior faculty members are foreign qualified Ph.Ds, one local Ph. D whereas three junior faculty members are doing Ph.D. abroad. It is hoped that on their return the department will be capable to achieve the targets of success in research and teaching methodologies. So far as equipment and laboratories are concerned; through HEC funded project entitled” Strengthening of Entomology Department” procurement of required equipment and upgradation of laboratories is being done which would be a big support in upgradation of both educational and research activities at the department.

Weakness Identified In the Program

The department is facing acute shortage of:

- Lack of Electron microscope, Microtome, Growth chambers and equipment related to molecular techniques etc.
- With the increase in students’ registration a severe dearth of space (class rooms) is being felt.

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	-	-	1
Dr. Muhammad Naeem	5	-	1
Mr. Humayun Javed	4	1	-
Dr. Ata-ul-Mohsin	7	-	2
Mr. Mobushir Riaz Khan	Abroad for PhD studies		
Dr. Javaid Iqbal	-	2	1
Dr. Munir Ahmed	2	2	1
Dr. Asif Aziz	4	1	1
Mr. Imran Bodlah	1	-	-
Dr. Muhammad Farooq Nasir	1	-	-
Mr. Muhammad Tariq	Abroad for PhD studies		

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

- Participated in “Kisan Mela” organized by PMAS-Arid Agriculture University Rawalpindi at Koont Farm near Chakwal.
- Pest identification service for the visiting farmers and recommendation of pest management methodology

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.
- Regular Review meeting at the end of semester has become a usual feature of the department.

Major Future Improvement Plans

Keeping under consideration the previous evaluation / monitoring activity, the following improvements will be in future related with the programme.

1. Course contents will be revised time by time with updated knowledge in order to meet international standards of education.
2. Practicals will be supported with field trips, seminars, and visits of various national organizations and research organizations related with Entomology.
3. Graduating students will be involved in various research projects in the department in order to make them scientific minded at graduate level.

4. Establishment of separate graduate laboratories equipped with all high-tech instruments required for various courses of B.Sc (Hons.)

Table: 4 Quantitative Assessment of the Department

Sr.#	Particular	No.	Remarks
i	Undergraduates B.Sc. (Hons.) produced	7	85% of them joined M.Sc, 15% got employment
ii	M.Sc. (Hons.) degree awarded	18	One got scholar Scholaship for PhD in Germany. A few of the students got employment, currently holding various positions
iii	Ph.D. produced	1	In employment
iv	Post-Doc fellowship	-	
v	Ph.D. Scholarship for faculty	-	
vi	Students: Faculty ratio	35:1	Fulfil HEC criteria
vii	Technical: Non Technical ratio	8:3	Fulfil HEC criteria
viii	Average grade point	Around 3	Fulfil HEC criteria

The periodic assessment of the departmental activities exhibited high efficiency of system and adequate impact of outcomes. Two students have got admission in PhD (one inland and the other abroad) and most of them (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:

Information gatered from different organizations helped in conducting employer survey for the determination of student skills. This activity was conducted using proforma 8 (Annexure 8). Survey shows that students graduating from Entomology Department fall above average in all areas under study. An improvement needed in communication skills and interpersonnel will be improved during future.

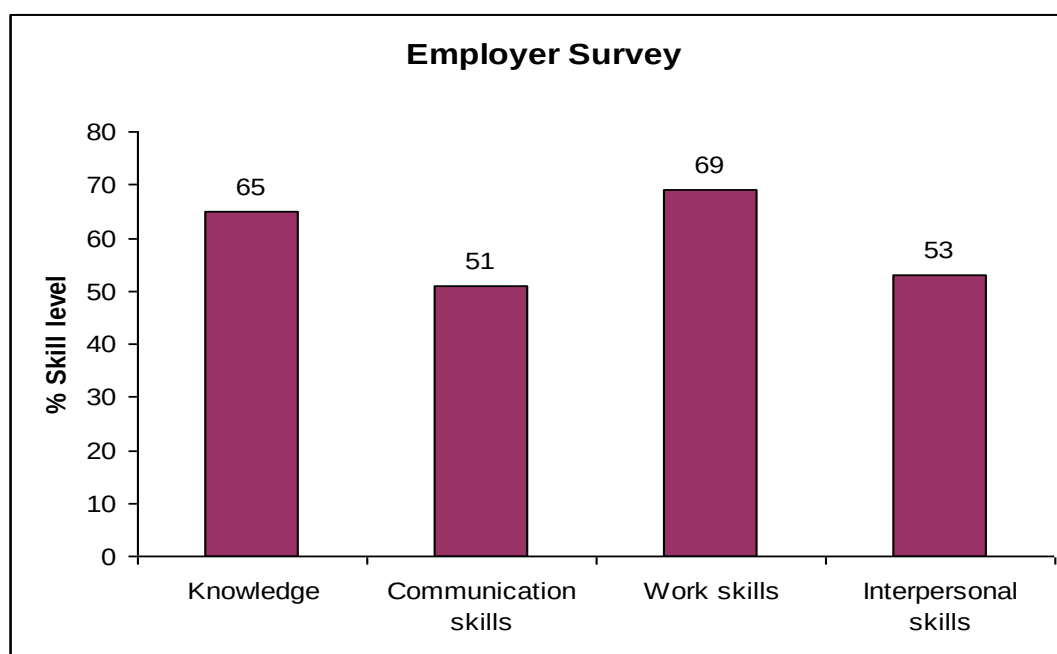
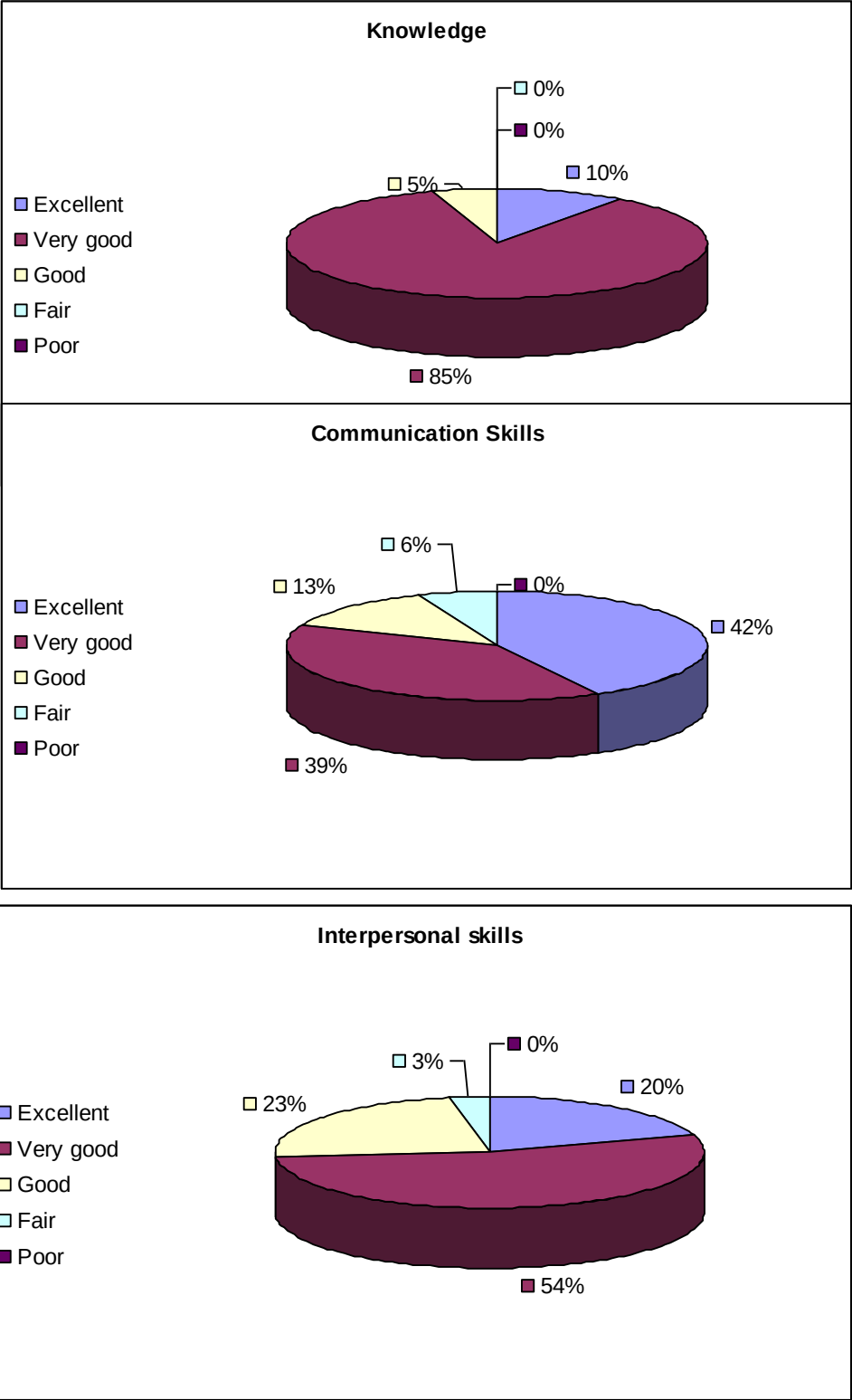
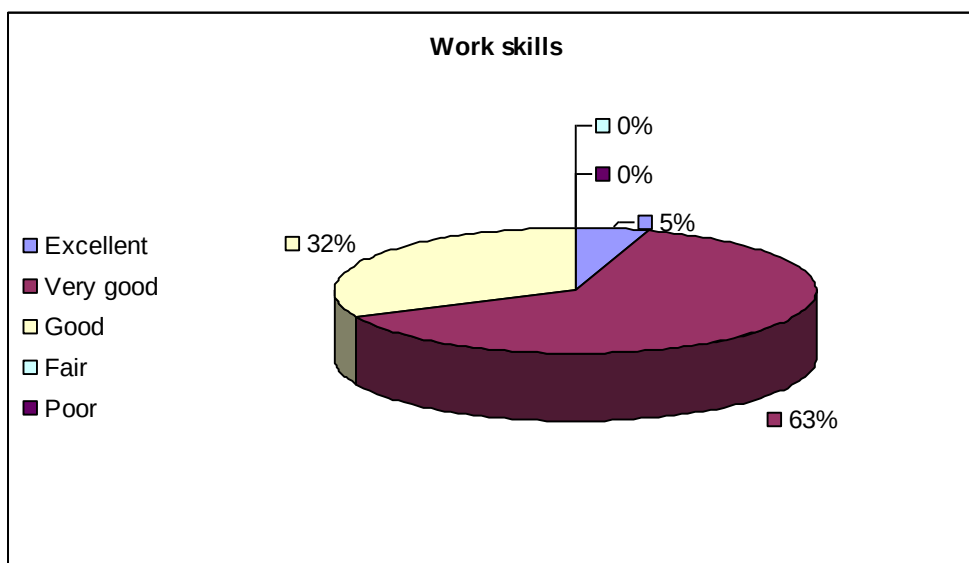


Figure: Results of employer survey

A majority of the employers were found contented with knowledge and potential of the students in handling entomological problems independently and as a team member. Performance of our students was appreciated by the employers. Some employers suggested that students should be given opportunity to take up courses on communication and motivational skills before they are awarded degrees. Besides some suggested for improvement of managerial skills of the students by incorporating courses in their curricula.

Pie figures shows the overall results of employer survey as assessed during the reporting period. More than 80-85% graduates were considered to be excellent/very good in knowledge and communication skills. The study aslo shows that there is segment of students which yet needs improvement in interpersonnel and work skills.





CRITERION 2: CURRICULUM DESIGN AND ORGANIZATION

Degree Title: B.Sc (Hons) Agriculture, Majoring 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.

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

Ent-401	Introductory Entomology	2(1-2)
Ent-402	Applied Entomology	3(2-2)
Ent-501	Insect Morphology	3(2-2)
Ent-502	Insect Physiology	3(2-2)
Ent-503	Principales of Insect Taxonomy	3(2-2)
Ent-504	Insect Biodiversity and Evolution	3(2-4)
Ent-505	Insect Ecology and Behaviour	3(2-2)
Ent-506	Agricultural Pests and Their Management	3(2-2)
Ent-507	Insect Pests of Household, Man and Animals	3(2-2)
Ent-508	Stored Products Pests and Their Management	3(2-2)
Ent-509	Beneficial Insects	3(2-2)
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	Range and Forest Entomology	3(2-2)
Ent-609	Project Planning and Scientific Writing	2(1-2)
Ent-611	Agriculture & Environmental Pollution	3(3-0)

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-401, Ent-402, Ent-607, Ent-601, Ent-602, Ent-603, Ent-501	+++	++	+++	++	+++	++++
Ent-507, Ent-508, Ent-509, Ent-605, Ent-607, Ent-609, Ent-611	+++	++++	+	+++	++++	++++
Ent-504, Ent-505, Ent-506, Ent-302	++++	++++	++++	+++	++	+
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 and problem analysis.

Elements	Courses
Theoretical backgrounds	Ent-401, Ent-402, Ent-607 , Ent-601, Ent-602, Ent-603, Ent-501
Problem analysis	Ent-502 , Ent-503 , Ent-504, Ent-505, Ent-506, Ent-507, Ent-508, Ent-509, Ent-605, Ent-607, Ent-609, Ent-611

All these 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.

- At graduate level, delivering of presentations on various topics related with course have been made compulsory for each student.
- Students of BSc (Hons) Agriculture 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.

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:
 - Biosystematics laboratory
 - Biocontrol laboratory
 - Insect Toxicology Laboratory
 - Stored grain insect laboratory
 - Apiculture laboratory
- 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 easily accessible to faculty and students

Laboratory manuals are not available. Presently the department library has all the relevant books. Though laboratories are not specious but serving the purpose at limited level. The equipments being procured and replaced as per availability of funds. Equipments regarding molecular approaches are lacking e.g. centrifuge (slow and ultr), PAG-Electrophoresis apparition, PCR Spectrophotometer, relevant software, and some 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 sericulture, host plant resistance and insect vectors' research activities.
- **Computing facilities support:** Available to a limited number of 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.

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 deposes 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

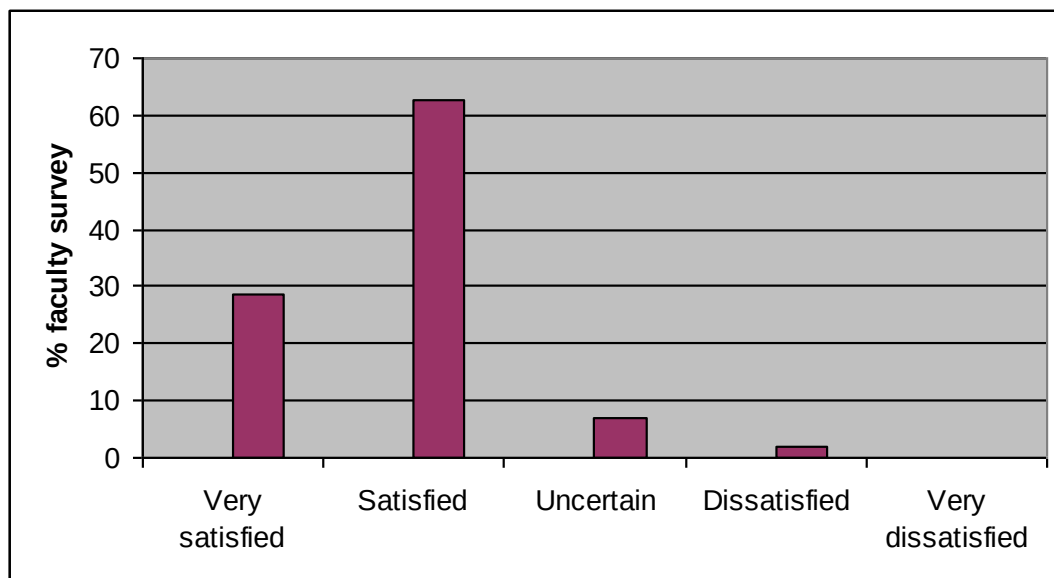
- Faculty members are provided with different academic, research and training facilities as per availability in the university system.
- Currently three faculty members are abroad for completion of their PhD degrees sponsored by HEC.
- Research supervisors are offered incentives for implementing different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

Below given figure represents the Faculty survey (Proforma 5, Annexure V). The results 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



1. **DR. MUHAMMAD NAEEM** Associate Professor

Name	Dr. Muhammad Naeem
Personal	Associate Professor Department of Entomology, Pir Mehr Ali Shah, Arid Agriculture University, Rawalpindi E-mail: naeem18ap@yahoo.co.uk muhammad.naeem@uaar.edu.pk Phones: Office: +92-519062206 Cell: 03335751475
Experience	<u>PROFESSIONAL EXPERIENCE:</u> 1.Associate Professor (2006-2010): Served in Department of Entomology, PMAS-Arid Agriculture University, Rawalpindi, Pakistan. 2.Assistant Professor (2001-2005): Served as Assistant Professor, Department of Entomology, University of Arid Agriculture, Rawalpindi. 3.Lecturer (1998-2001): Served as Lecturer, Department of Entomology, University of Arid Agriculture, Rawalpindi..
Honor and Awards	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 M.Sc.(Hons). UAF. Pakistan

Membership	Hold memberships of the following Organisation and Societies 1992-97 Agroforestry Research Group, UK 1993-97 Pakistan Overseas Society, England 1994-95 International Student Organisation, Leeds 2002 to date The Agrics, Alumni Association, UAF. MEMBERSHIP OF VARIOUS COMMITTEES OF THE UNIVERSITY:																																							
	<table><tr><td>S/#</td><td>Name of the Committee</td><td>Served as</td></tr><tr><td>1</td><td>Tour Coordinator</td><td>Convener</td></tr><tr><td>2</td><td>Time table and Date sheet Committee</td><td>Convener</td></tr><tr><td>3</td><td>Comprehensive (Written & Oral) Examination Committee, Dept. Zoology, Dept. Wild life</td><td>Member</td></tr><tr><td>4</td><td>Applications Scrutiny Committee for admission to B.Sc.(Hons.) Agri.</td><td>Member</td></tr><tr><td>5</td><td>Scrutiny of Synopsis and Thesis, Department of Sociology and Anthropology</td><td>Member</td></tr><tr><td>6</td><td>Quality control</td><td>Member</td></tr><tr><td></td><td></td><td></td></tr></table>					S/#	Name of the Committee	Served as	1	Tour Coordinator	Convener	2	Time table and Date sheet Committee	Convener	3	Comprehensive (Written & Oral) Examination Committee, Dept. Zoology, Dept. Wild life	Member	4	Applications Scrutiny Committee for admission to B.Sc.(Hons.) Agri.	Member	5	Scrutiny of Synopsis and Thesis, Department of Sociology and Anthropology	Member	6	Quality control	Member														
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Graduate Students Postdocs Undergraduate Students Honour Students	<u>STATUS FOR M.Sc.(Hons.) STUDENTS UNDER MY SUPERVISION</u> (a) Department of Entomology <table><tr><td>S.No.</td><td>Name</td><td>Year</td><td>Title</td><td>Status</td></tr><tr><td>1</td><td>Sharafat Ali. (94-arid-172)</td><td>2000</td><td>The Responses of Aphid Spp. On Different Varieties of Brassica Crops.</td><td>Completed</td></tr><tr><td>2</td><td>Nazar Iqbal. (95-arid-14)</td><td>2001</td><td>The Responses of the Population Density of Insect Pests of Maize (<i>Zea mays</i> L.) in Relation to Different Fertility Regimes Using NPK, FYM and EM-Compost.</td><td>Completed</td></tr><tr><td>3</td><td>Shakeel Ahmed (96-arid-49)</td><td>2002</td><td>Population Dynamics And Distribution of Wheat Aphids And Their Natural Enemies</td><td>Completed</td></tr><tr><td>4</td><td>Irfan Ahmed (00-arid-354)</td><td>2004</td><td>Development of the Cereal Bait Formulations for the Lesser Bandicoot Rat, <i>Bandicota bengalensis</i> (Gray).</td><td>Completed</td></tr><tr><td>5</td><td>Waqas Abdullah (00-arid-819)</td><td>2006</td><td>Interrelationship of Cereal Aphids and their Natural Enemies on Wheat.</td><td>Completed</td></tr><tr><td>6</td><td>Abrar</td><td>2006</td><td>Bionomics of Rose Aphids and</td><td>Completed</td></tr></table>					S.No.	Name	Year	Title	Status	1	Sharafat Ali. (94-arid-172)	2000	The Responses of Aphid Spp. On Different Varieties of Brassica Crops.	Completed	2	Nazar Iqbal. (95-arid-14)	2001	The Responses of the Population Density of Insect Pests of Maize (<i>Zea mays</i> L.) in Relation to Different Fertility Regimes Using NPK, FYM and EM-Compost.	Completed	3	Shakeel Ahmed (96-arid-49)	2002	Population Dynamics And Distribution of Wheat Aphids And Their Natural Enemies	Completed	4	Irfan Ahmed (00-arid-354)	2004	Development of the Cereal Bait Formulations for the Lesser Bandicoot Rat, <i>Bandicota bengalensis</i> (Gray).	Completed	5	Waqas Abdullah (00-arid-819)	2006	Interrelationship of Cereal Aphids and their Natural Enemies on Wheat.	Completed	6	Abrar	2006	Bionomics of Rose Aphids and	Completed
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		A.Mohsin (04-arid-234)		their Natural Enemies	
7	Imran Abbas (00-arid-768)	2008	Comparative study of parasitoids attacking aphids on wheat and Brassica	Completed	
8	Sohaib Shahid (02-arid-128)	2009	Bionomics of Aphids and Their Parasitoids on Wheat and Brassica	Completed	
9	M.Naveed usman (03-arid-150)	2009	Potential of biocontrol agents against population size of aphids on Brassica.	Completed	
10	Saleha S. Siddiq. (03-arid-180)	2009	Responses of aphid and their natural enemies on cauliflower varieties	Completed	
11	Ghulam Rabbani (07-arid-280)	2009	Biological studies of <i>Diaretiella rapae</i> (Mcintosh)	Completed	
12	M. Mohsin Hasnat (03-arid-280)	2009	Taxonomy of Crane flies of Pothwar region	Completed	
13	M. Ramzan (07-arid-262)	2010	Taxonomic studies of Cetoniid beetle (<i>Cetoniidae: Coleoptera</i>) of Pothwar Region.	in process	
14	M. Umair (04-arid-111)	2010	Taxonomy study of ants in Islamabad and Rawalpindi	in process	
15	Imtinan Akram Khan (04-arid-63)	2010	The pattern of an aphid-parasitoid community in field and horticultural crops	in process	
16	Tanzeel Ahmad (08-arid-724)	2010	Systematics of Pyralidae (Lepidoptera) from Pothwar region	in process	
17	S.M. Shahzad Ali (04-arid-214)	2010	Taxonomic study of Dung beetles (Coleoptera: Scarabidae) from Pothwar region	in process	
<u>STATUS FOR Ph.D. STUDENTS UNDER MY SUPERVISION</u>					
S.No.	Name	Year	Title	Status	
1	Ahmad Zia (98-arid-889)	2010	Biosystematics of Damselflies (Zygoptera:Odonata) of Pakistan	Completed	
2	Imran Bodla (98-arid-778)	2010	Biosystematics of aphid parasitoids from Punjab Province of Pakistan	Completed	
3	Mubashar		Investigations on adaptability	In progress	

		Hassan (05-arid-26)		of some silkworm lines to adverse temp. and humidity for seed cocoon production	
	4	Abdul Sattar (08-arid-772)		Ecology and management of Termites in Urban environment (Islamabad)	In progress
	5	Anwaar Hyder Khan Alvi (08-arid-02)		Role of Nucleopolyhedrovirus in the Management of Chickpea pod borer (<i>Helicoverpa armigera</i> Hubner)	In progress
	6	Asia Riaz (93-ag/arid-347)		Relative efficacy of potent biocontrol agents of <i>Earias vitella</i> (FAB.)	In progress
Member of M.Sc.(Hons.) Students (15 Students)					
Member for Ph.D. Students (07 Students)					
Service Activity	Termite treatment, Household insect management in University				
Brief Statement of Research Interest	Insect biosystematics and ecology				

Publications	1. Naeem, M. and M. Yousuf. (1999). Taxonomy of Amorphoscelidae, Empusidae, Hymenopodidae and Eremiaphilidae (Mantodea: Dictyoptera) from Punjab Province (Pakistan). <i>Pakistan Entomologist's</i>. 21(1-2). 33-38. 2. Naeem, M. and S.G. Compton, (2000). Population Dynamics of Filbert aphid, <i>Myzocallis coryli</i> (Goetze) on Hazel bushes to an Agroforestry System. <i>Pakistan Journal of Biological Sciences</i>. 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. <i>Pakistan Journal of Arid Agriculture</i> : 3(1-2): 27-32. 4. Ali, S. M. Naeem and Ehsan ul Haq. (2000). Evaluation of Cabbage Aphid, <i>Brevicoryne brassicae</i> (L.) on Different Varieties of Rapeseed Mustard Crop under Field Conditions. <i>Pakistan Journal of Biological Sciences</i>. 3(6):991-992. 5. Naeem, M. and M. Yousuf. (2000). Bisystematics of Mantidae (Mantodea: Dictyoptera)
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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.

CONFERENCES /PROCEEDING

1	2007	M. Naeem and I. Bodla	Biosystematics of <i>Tribolium castaneum</i> (Herbst).	Proceedings of training workshop on "Controlled and modified atmospheres to preserve post harvest quality of stored grains"		
2	2006	Mahmood K and M. Naeem	Observation on animal behavior before and after earthquake in District Bagh, Azad Jammu and Kashmir. (Abstracts)	26 th Pakistan Congress of Zoology (International). University of the Punjab, Lahore		
3	2005	Compton SGA and M. Naeem	Dispersal and Landing of Insects in silvoarable agroforestry: Implications for Better Pest Management	Proceeding of International Workshop of Sanitary and Phytosanitary Measures		

Research Grants and Contracts	<u>HEC FUNDED PROJECT</u> 1. Project No. 20-305/R&D Project Title “ Biosystematics of Odonata of Pakistan” Worked as Principle Investigator (<u>Completed with National & International publications in 2008</u>)
Other Research or Creative Accomplishments	Three species of aphid parasitoids new to science
Selected Professional Presentations	

2. RESUME OF MR. HUMAYUN JAVED

Name	Humayun Javed		
Personal	PMAS-AAUR 0333-5154954		
Experience	28-02-1987 Working as Lecturer Jan, 1998 Working as Assistant Professor up till now		
Honor and Awards	Member Syndicate		
Membership	Membership Pakistan Journal of Botany Incharge Refreshment Committee		
Graduate Students Postdocs Undergraduate Students			
Honour Students	Years	Degree	Name
	2009	M.Sc. (Hons)	Soaib Ali Hassan (03-arid-22)
	2009	M.Sc. (Hons)	Zia-ul-Hassan (07-arid-266)
	2009	M.Sc. (Hons)	Laila Khalid (07-arid-260)
	2009	M.Sc. (Hons)	Tahir Mehmood Khan (03-arid-103)
	2010	M.Sc. (Hons)	Hassan Yasoob (08-arid-719)
	2010	M.Sc. (Hons)	Saifullah (08-arid-722)

Service Activity	Advise to the farmers for the management of insect/pests in field as well as in houses
Brief Statement of Research Interest	Host plant resistance/integrated pest management

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, <i>Lipaphis erysimi</i> 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 Mass Annihilation (MA) on fruit fly <i>Bactrocera</i> 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 <i>Lysiphebus ambiguus</i> (Haliday) Braconidae: Hymenoptera. 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 <i>Bactrocera</i> 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 <i>Lysiphebus ambiguus</i> (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 (<i>Bombyx mori</i> L.). Asian J. Pl. Sci. 1(5): 556-557.
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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.
14. Akhtar. H., Ibrar, H. Javed and Ehsan-ul-Haq. 2007. Microclimatic distribution analysis of bird cherry at aphid, *Rhopalosiphum padi* L. on wheat. Pak. J. Zoo., Vol. 39(1):21-25.
15. khtar, I.H., M. Naeem, H. Javed and M.A. Aziz. 2009. Could host plant resistance effect on cereal aphids (Aphididae: Homoptera) population on wheat crop. I.J.A.V.M.S. (Accepted).
16. Javed, H., M. A. Aziz and R.A.K. Leghari. 2010. Varietal resistance of different cultivars of okra (*Abelmoschus esculentus* L.) against American Bollworm (*Helicoverpa armigera* Hub.). J.A.R. 47(4).
17. K. Amjad, Humayun Javed, Ata Ul Mohsin and M. Naeem. 2009. Host plant resistance in mash bean *Vigna mungo* (L.)

	against <i>Callosobruchus analis</i> under laboratory conditions. International journal of agriculture and veterinary medical sciences. (Accepted). 18. Hassan S.A., M.A. Rafi., H. Javed., A. Zia., M. Naeem., I.A. Khan., and H. Bilal.,2010 19. Aphidoidea (Homoptera) from the Northern areas of Pakistan. Sarhad J. Agric: 26(4):609-611.
Research Grants and Contracts	
Other Research or Creative Accomplishments	Evaluated comparative resistant cultivar (Nirala) during PH.d. research
Selected Professional Presentations	Physico-Morphic variations among brinjal cultivars against <i>Leucinodes orbonalis</i> Guenee [Pylalidae: Lepidoptera] and its management with different techniques

3. RESUME OF DR. ATA UL MOHSIN



Performa 9

Name	Dr. Ata ul mohsin
Personal	House No. 7, St. # 1, Sanobar Hill, Satra Meel, Bhara Kaho, Islamabad mohsin.malik1@hotmail.com Tel. 0300-5504577, 051-2550567
Experience	May 07, 2008 – To date Assistant Professor (Higher Education Commission Pakistan) Department of Entomology Arid Agriculture University, Murree road, Rawalpindi July 01, 2004 - To Jan. 31, 2008 National Project Coordinator National Urban Poverty Alleviation Programme (United Nations Development Programme) Services Block, Univ. of Arid Agriculture Murree Road, Rawalpindi February 01, 2004-June 30, 2004 Project Manager National Urban Poverty Alleviation Program – AJK (United Nations Development Programme) Planning & Development Department, New Secretariat Muzaffarabad, AJK October, 2002 – December 2003 Assistant Project Manager/IPM

	Specialist Area Development Project South AJK (United Nations Development Programme) Forest Office Premises, Allama Iqbal Road Mirpur, AJK January 1998 to Oct. 2002 IPM Specialist Neelum and Jhelum Valleys Community Development Project, Muzaffarabad (UNDP) Area Development Project South AJK Mirpur (UNDP) Area Development Program, AJ&K. (PAK/96/005) (UNDP) May 1997 to December 1997 Scientific officer Integrated Pest Management Institute NARC, Islamabad August 1986-May 1992 Scientific officer Entomological Research Laboratories December 85 - August 86 Assistant Research Officer Fodder Research Institute Sargodha, Pakistan
Honor and Awards	SCHOLARSHIPS AWARDED • Benevolent Fund Scholarship during Higher Secondary School Certificate • University Merit Scholarship during B.Sc. (Hons.) degree course • Pakistan Atomic Energy Commission Talent Scholarship, during Master degree course • Cultural Exchange Scholarship during Ph.D. DISTINCTIONS/ AWARDS • <i>Silver medal in university Debates Univ. of Agriculture Faisalabad</i> Certificate of Merit, 1985-86. • 2nd position in M.Sc. (Hons.) degree course among 50 students class Entomology Deptt. U.A. Faisalabad • 2nd position in B.Sc. (Hons.) degree course among 45 students class Entomology Dept.U.A. Faisalabad • 3rd position in Arabic language Diploma Course at University of Agri. Faisalabad • Letter of Appreciation from Chairman, Pakistan Agricultural Research Council, Islamabad. • A number of shields awarded in recognition of developmental work in UNDP funded projects
Membership	ASSOCIATION WITH SCIENTIFIC AND PROFESSIONAL ORGANIZATIONS • Member of Pakistan Congress of Zoology • Member of Pakistan Entomological Society • Professional Member of Human Resource Development Network (HRDN), Islamabad, Pakistan. MEMBER OF EDITORIAL BOARD • Co-Editor of “Idrak” a quarterly news paper of Neelum and

	Jhelum Valleys Community Development Project, Muzaffarabad. 1998-2001. • Editor of “Telepest” A pest management Newsletter of Neelum and Jhelum Valleys Community Development Project, Muzaffarabad.1998-2001. • Editor of Quarterly Newsletter “AKS”, ADP South AJK,Mirpur. • Editor of “NUPAP Newsletter” of National Urban Poverty Alleviation Programme, a UNDP founded project .
Graduate Students	Nil
Postdocs	Nil
Undergraduate Students	22 students in Entomology major subject
Honour Students	Nil
Service Activity	
Brief Statement of Research Interest	Biological control of insect pests
Publications	20. Published papers = 12 21. Submitted for publication = 3
Research Grants and Contracts	Nil
Other Research or Creative Accomplishments	Establishment of Trichogramma chilonis rearing laboratory at Entomology Dept. Directorate General of Agriculture, Muzaffarabad, AJK Development of Pest Management system for Walnut Borer in Neelum and Jhelum Vallies Muzaffarabad AJK
Selected Professional Presentations	Pest Management of insect pests in Barani Areas. Natural resource Development with special focus on agriculture

4. RESUME OF DR. M. FAROOQ NASIR

Name	Dr. M. Farooq nasir
Personal	House # 234, Street # 31, Sector I-8-2, Islamabad, Pakistan cell: 03005215084
Experience	Assistant Professor PMAS-Arid Agriculture University Rawalpindi (Oct. 2009 to date)

	thesis, Humboldt University Berlin, ISBN 3-89820-996-2. 61pp. - Farooq, M. N., C. Buttner, C. Reichmuth and M. Schoeller (2007). A new species of the genus <i>Trichogramma</i> Westwood (Hymenoptera: Trichogrammatidae) from Pakistan similar to <i>T. chilonis</i> Ishii (ready for submission). - Second Annual Progress Report of the project "IPM Advisory Group: Advancing IPM for Development". CABI: DR03043. (2006).
Research Grants and Contracts	
Other Research or Creative Accomplishments	
Selected Professional Presentations	- Participated in the 2nd International Symposium on Biological Control of Arthropods 12-16 September 2005, Davos, Switzerland. - Participated in the Conference of the German Entomological Society (DgaaE) 21-24 March 2005, Dresden, Germany. - Participated in 2nd Global workshop of Bio-Net International at Cardiff, Wales, United Kingdom from 22 to 29 August 1999.

5. RESUME OF MR. MUNIR AHMAD

Name	Munir Ahmad	
Personal	Department of Entomology, PMAS-Arid Agriculture University Rawalpindi 03006361618	
Experience	18.09.2008 to date	Lecturer, Department of Entomology, Pir Mehr Ali Shah, Arid Agriculture University Rawalpindi
	May 2008 to 15.09.2008	Scientific Officer, Central Cotton Research Institute, Old Shujabad Road, Multan under Project "Biological control of cotton insect pests of cotton in Pakistan"
	Sep 2002 – April 2004	Scientific Officer, Central Cotton Research Institute, Old Shujabad Road, Multan under CFC Project "Sustainable control of cotton bollworm, <i>Helicoverpa armigera</i> under

	Sep 2000 – Sep 2002 small scale cotton production systems” Technical Sales Officer, Helb Pesticide and Chemicals Co. Mall Plaza, Multan Cantonment, Multan Fieldwork for pesticides’ sales and marketing May 2000 - Jun 2000 Part time lecturer in Entomology, University College of Agriculture, Bahauddin Zakariya University, Multan, taught an undergraduate course of “Store grain pests and their management”
Honor and Awards	3. International Research Support Initiative Program for PhD studies, Higher Education Commission, Government of Pakistan (Jan, 31st – July 04th, 2007). 2. Merit Scholarship under 200 Scholarship Scheme for PhD Studies, Ministry of Science and Technology, (Higher Education Commission) Government of Pakistan (September, May, 2004 – May 16, 2008) 1. Merit Scholarship for F. Sc studies by Board of Education, Multan, Pakistan (1991-1993)
Membership	Entomological Society of America (for year 2007)
Graduate Students Postdocs Undergraduate Students Honour Students	Not applicable
Service Activity	In-charge laboratories of Entomology department
Brief Statement of Research Interest	Insecticide resistance management and control

Publications	1 Munir Ahmad, Mushtaq A. Saleem and Ali H. Sayyed (2009) Efficacy of insecticide mixtures against pyrethroids and organophosphates resistant populations of <i>Spodoptera litura</i> (Lepidoptera: Noctuidae). Pest Management Science 65: 266-274. 2 Ali H. Sayyed, Munir Ahmad and Neil Crickmore (2008) Fitness costs limit the development of resistance to indoxacarb and deltamethrin in <i>Heliothis virescens</i> (Lepidoptera: Noctuidae) Journal of Economic Entomology 101(6): 1927-1933. 3 Mushtaq A Saleem, Munir Ahmad, Mushtaq Ahmad, Muhammad Aslam and A. H. Sayyed (2008) Resistance to selected
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	organochlorine, organophosphate, carbamates and pyrethroid insecticides in <i>Spodoptera litura</i> (Lepidoptera: Noctuidae) from Pakistan Journal of Economic Entomology 101(5): 1667-1675.
4	Munir Ahmad, Ali H Sayyed, Mushtaq A. Saleem, Mushtaq Ahmad (2008) Evidence for field evolved resistance to newer insecticides in <i>Spodoptera litura</i> (Lepidoptera: Noctuidae) from Pakistan Crop Protection 27: 1367-1372.
5	Ali H. Sayyed, Munir Ahmad and Mushtaq A. Saleem (2008) Cross-resistance and genetics of resistance to indoxacarb in <i>Spodoptera litura</i> (Lepidoptera: Noctuidae). <u>Journal of Economic Entomology</u> 101(2):472-479.
6	Munir Ahmad, Ali H. Sayyed, Neil Crickmore and Mushtaq A. Saleem (2007) Genetics of resistance to deltamethrin in a field population of <i>Spodoptera litura</i> (Lepidoptera: Noctuidae) Pest Management Science. 63: 1002-1010.
7	Mushtaq Ahmad, M. Iqbal Arif and Munir Ahmad (2007) Occurrence of insecticide resistance in field populations of <i>Spodoptera litura</i> (Lepidoptera: Noctuidae) in Pakistan, Crop Protection 26(6): 809-817.
8	Shafqat Saeed, Munir Ahmad and Mushtaq Ahmad (2007) Insecticidal control of mealybug <i>Phenacoccus gossypiphilous</i> (Homoptera: Pseudococcidae) – a new pest of cotton in Pakistan Entomological Research 37: 76-80.
9	Munir Ahmad and Muhammad Aslam (2002) Evaluation of different pest scouting methods for monitoring whitefly populations in cotton fields at Multan (Pakistan) Arab Journal of Plant Protection 20: 52-54.
10.	Munir Ahmad, Mushtaq Ahmad Saleem, Mushtaq Ahmad and Ali H. Sayyed (2006) Time trend mortality for conventional and new insecticides against leaf worm, <i>Spodoptera litura</i> (Lepidoptera: Noctuidae) Pakistan Journal of Biological Sciences 9(3): 360 – 364.
11.	Munir Ahmad and Muhammad Aslam (2005) Resistance of cabbage aphid, <i>Brevicoryne brassicae</i> (Linnaeus) to endosulfan, organophosphates and synthetic pyrethroids Pakistan Journal of Zoology 37(4): 293-295.
12.	Munir Ahmad, Mushtaq Ahmad Saleem and Mushtaq Ahmad (2005) Time-oriented mortality in leaf worm, <i>Spodoptera litura</i> (Fab.) Lepidoptera: Noctuidae) by some new chemistry insecticides Pakistan Entomologist 27(1): 67-70.
13.	Munir Ahmad and Mushtaq Ahmad Saleem (2004) Comparative efficacy of ten conventional and new chemistry insecticides against armyworm, <i>Spodoptera litura</i> (Fabricius) (Lepidoptera: Noctuidae) under laboratory conditions Pakistan Entomologist 26(2): 1-4.
14.	Muhammad Aslam and Munir Ahmad (2002) Effectiveness of some insecticides against cabbage aphid, <i>Brevicoryne brassicae</i> (Linnaeus) (Aphididae: Homoptera) Journal of Research (Science) 13(2): 145-150.

	15. Munir Ahmad and Muhammad Aslam (2002) Pollinators visiting carrot (<i>Daucus carota</i> L.) seed crop. Journal of Research (Science) 13(1): 31-35 16. Muhammad Aslam, Munir Ahmad, Zafar-ul-Islam and Shahzad Anjum (2002) Population of aphid, <i>Lipaphis erysimi</i> (Kalt.) on canola (<i>Brassica napus</i>) Science, Technology and Development 21(3): 41-42. 17. Muhammad Aslam and Munir Ahmad (2001) Effectiveness of some insecticides against mustard aphid, <i>Lipaphis erysimi</i> (Kalt.) (Aphididae: Homoptera) on three different crops Journal of Research (Science) 12(1): 19-25. 18. Munir Ahmad, Nighat Perveen, Muhammad Sultan, Muhammad Aslam and Muhammad Aulakh (2001) Effects of monocrotophos and methamidophos on jassid, <i>Amrasca devastans</i> (Distant) in different okra (<i>Abelmoschus esculentus</i> L.) cultivars Online Journal of Biological Science 1(4): 218-219. 19. Anjum Suhail, Rehana Bibi, Nighat Perveen and Munir Ahmad (2001) Population dynamics of aphid (<i>Macrosiphum mesanthi</i> Tak.) on different wheat varieties Pakistan Journal of Biological Sciences 4(2): 131-132. 20. Anjum Suhail, Munir Ahmad, Tariq Fareed, Javaid Iqbal and M. Iqbal (2001) Insecticidal mortality and pollination role of honeybee (<i>Apis mellifera</i> L.) on some solanaceous crops Pakistan Journal of Biological Sciences 4(6): 565-566. 21. Nighat Perveen, Muhammad Al-Hariri, Munir Ahmad and Anjum Suhail (2000) Insecticidal mortality, foraging behaviour and pollination role of honeybee (<i>Apis mellifera</i> L.) on sarson (<i>Brassica campestris</i> L.) crop. International Journal of Agriculture and Biology 2(4): 332-333. 22. Munir Ahmad, Muhammad Aslam and Muhammad Aulakh (2000) Comparative efficacy of some insecticides against cotton whitefly (<i>Bemisia tabaci</i> Genn.) Pakistan Journal of Agricultural Sciences 37(3-4): 83-85.
Research Grants and Contracts	Not applicable
Other Research or Creative Accomplishments	Not applicable
Selected Professional Presentations	International 8. Shafqat Saeed, Ali H Sayyed, Munir Ahmad (2008) Influence of plants originated diet on physiology of cotton bollworm, <i>Helicoverpa armigera</i> (Lepidoptera: Noctuidae). 23rd International Congress of Entomology, 6-12th July, 2008 Durban, South Africa, No. ICE 2008_0857. 7. Mushtaq Ahmad, Muhammad Iqbal Arif, Munir Ahmad, Abid Khan

	and Derek Russell (2004) Current status of pyrethroid resistance, its mechanisms and management strategies of <i>Helicoverpa armigera</i> Proceedings of the 15th International Plant Protection Congress, Beijing, China, May 11-16, 2004. National 6. Munir Ahmad, Muhammad Rafiq Khan, Mushtaq Ahmad Saleem and Mushtaq Ahmad (2009) Toxicity of some chitin synthesis inhibitors against some important insect pests. International Conference on Advances in agriculture: Prospects and Potentials of Natural Resources in Food Security, July 14–16, 2009, Rawalakot, Pakistan by University of Azad Jammu and Kashmir. 5. Muhammad Ishtiaq, Mushtaq A. Saleem and Munir Ahmad (2009) Baseline susceptibility data for four insecticides against beet armyworm, <i>Spodoptera exigua</i> (Hubner) (Lepidoptera: Noctuidae). 29th Pakistan Congress of Zoology. February 24-26, 2009, University of Sindh, Jamshoro, Pakistan 4. Munir Ahmad, Mushtaq Ahmad Saleem and Mushtaq Ahmad (2006) Occurrence of time-oriented mortality against leaf worm, <i>Spodoptera litura</i> (Fab.) (Lepidoptera: Noctuidae) of some new chemistry insecticides. 26th Pakistan Congress of Zoology (International) April 4-6, 2006. University of the Punjab, Lahore, Pakistan 3. Munir Ahmad, Mushtaq Ahmad Saleem and Shafqat Saeed (2006) Larval parasitism of <i>Helicoverpa armigera</i> (Hubner) (Lepidoptera: Noctuidae) from unsprayed field crops 26th Pakistan Congress of Zoology (International) April 4-6, 2006. University of the Punjab, Lahore, Pakistan 2. Muhammad Rafiq, Abdul Ghaffar and Munir Ahmad (2006) Host plant survey of <i>Spodoptera litura</i> (Fab.) (Lepidoptera: Noctuidae) from 2004-05. 26th Pakistan Congress of Zoology (International) April 4-6, 2006. University of the Punjab, Lahore, Pakistan 1. Munir Ahmad, Mushtaq Ahmad Saleem and Mushtaq Ahmad (2005) Comparative efficacy of some conventional and new chemistry insecticides against armyworm, <i>Spodoptera litura</i> (F.) (Lepidoptera: Noctuidae) under laboratory conditions. 25th Pakistan Congress of Zoology (International) March 1-3, 2005. Sind Agricultural University, Tandojam, Pakistan
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6. RESUME OF M. ASIF AZIZ

Name	Dr. Muhammad Asif Aziz
Personal	Village Ghazi Minara P/O Tehsil and District Sheikhpura, Punjab (Pakistan) (Cell.) 03226862246 (E-mail) asifaziz572@gmail.com

	asifaziz@uaar.edu.pk		
Experience	Lecturer in Department of Entomology in PMAS- Arid Agriculture University Rawalpindi from 26-01-2008 to present		
Honor and Awards	N/A		
Membership	N/A		
Graduate Students Postdocs Undergraduate Students	List supervision of graduate students		
	2010	M.Sc. (Hons)	Bushra Siddique, 04-arid-190
	List s of undergraduate (B.Sc. Hons) students supervised during internship		
	2008	B.Sc. (Hons)	Bushra Siddique, 04-arid-190
	2008	B.Sc. (Hons)	Muhammad Arslan Anwar, 04-arid-96
	2008	B.Sc. (Hons)	Muhammad Younas, 04-arid-115
	2010	B.Sc. (Hons)	Huma Nazir Kayani, 06-arid-43
	2010	B.Sc. (Hons)	Zahid Iqbal,06-arid-211
Honour Students	Show other information as appropriate and list membership on graduate degree committees.		
Service Activity	• Teaching and Research • Member of Admission Committee of B. Sc. (Hons.) students		
Brief Statement of Research Interest	May be as brief as a sentence or contain additional details [to one page in length] • Sustainable management of Spotted Bollworm of Okra • Eco-friendly management of wheat aphids with botanicals • Monitoring of insecticide resistance in Cotton bollworm and Whitefly		
Publications			

Research Grants and Contracts	Entries should include:		
	Date	Title	Agency/ Organization
	2010	Exploration of pesticidal effect of different neem products for the management of wheat aphids	PMAS-AAUR
	Total Award Amount: 106900		
	Segment the list under following headings:		
	• Completed	One	
	• Funded and in progress	Nil	
	• In review	Nil	
Other Research or Creative Accomplishments	N/A		
Selected Professional Presentations	List patents, software, new products developed, etc. N/A		

7. RESUME OF MR. IMRAN BODLAH

Name	IMRAN BODLAH
Personal	District Layyah, wariach garden near police line, 03228758287
Experience	April, 2008, Lecturer, Department of Entomology-PMAS-AAUR October 2004, Water Management Officer, Own farm water management district Muzafar Garh.
Honor and Awards	Teachings assistantship scholarship during PhD

Membership	N/A
Graduate Students Postdocs Undergraduate Students Honour Students	2010 BSc. Hons. Muhammad Naeem N/A
Service Activity	Teaching classes to B.Sc (Hons) and M.Sc. (Hons) and in the Project activities entitled: Strengthening of Department of Entomology:.
Brief Statement of Research Interest	Biosystematics of Aphids ,aphid parasitoids and hyperparasitoids and their Biology

Publications	Bodlah, I., M. Ahmad, M. F. Nasir and M. Naeem. 2010. Record of <i>Aenasius bambawale</i> Hayat, 2009 (Hymenoptera: Encyrtidae) from Punjab, Pakistan. Pakistan J. Zool. 42(5). 533-536. Naeem, M. and I. Bodlah.2007.Biosystematics of <i>Tribolium castaneum</i> (Herbst).Proceedings of training workshop on Controlled and modified atmospheres to preserve post harvest quality of stored grains.164-170.
Research Grants and Contracts	N/A
Other Research or Creative Accomplishments	Three species of Aphid parasitoids
Selected Professional Presentations	N/A

LIST OF PUBLICATIONS

1. RESEARCH PUBLICATIONS BY DR MUHAMMAD NAEEM

RESEARCH PUBLICATIONS:

National

22. 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.
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1. I. Chudhary., Ehsan-ul-Haq, Ata-ul-Mohsin, A. Rehman and P. R. Hobbs. 1989. Management of Rice Stem Borers and the Feasibility of Adopting No-tillage in Wheat. Pak. Agri. Res. Council, Islamabad. 60 pp. PanGraphics Press, Islamabad.
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10. Second Annual Progress Report of the project "IPM Advisory Group: Advancing IPM for Development". CABI: DR03043. (2006).

6. RESEARCH PUBLICATIONS BY MR. MUNIR AHMAD

International Research papers

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22. Ali H. Sayyed, **Munir Ahmad** and Neil Crickmore (2008) Fitness costs limit the development of resistance to indoxacarb and deltamethrin in *Heliothis virescens* (Lepidoptera: Noctuidae) **Journal of Economic Entomology** 101(6): 1927-1933.
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4. Anjum Suhail, Rehana Bibi, Nighat Perveen and **Munir Ahmad** (2001) Population dynamics of aphid (*Macrosiphum mesanthi* Tak.) on different wheat varieties **Pakistan Journal of Biological Sciences** 4(2): 131-132.
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2. Nighat Perveen, Muhammad Al-Hariri, **Munir Ahmad** and Anjum Suhail (2000) Insecticidal mortality, foraging behaviour and pollination role of honeybee (*Apis mellifera* L.) on sarson (*Brassica campestris* L.) crop. **International Journal of Agriculture and Biology** 2(4): 332-333.
1. **Munir Ahmad**, Muhammad Aslam and Muhammad Aulakh (2000) Comparative efficacy of some insecticides against cotton whitefly (*Bemisia tabaci* Genn.) **Pakistan Journal of Agricultural Sciences** 37(3-4): 83-85.

Presentations in conferences

International presentation

8. Shafqat Saeed, Ali H Sayyed, **Munir Ahmad** (2008) Influence of plants originated diet on physiology of cotton bollworm, *Helicoverpa armigera* (Lepidoptera: Noctuidae). 23rd International Congress of Entomology, 6-12th July, 2008 Durban, South Africa, No. ICE 2008_0857.
7. Mushtaq Ahmad, Muhammad Iqbal Arif, **Munir Ahmad**, Abid Khan and Derek Russell (2004) Current status of pyrethroid resistance, its mechanisms and management strategies of *Helicoverpa armigera* Proceedings of the 15th International Plant Protection Congress, Beijing, China, May 11-16, 2004.

National presentation

6. **Munir Ahmad**, Muhammad Rafiq Khan, Mushtaq Ahmad Saleem and Mushtaq Ahmad (2009) Toxicity of some chitin synthesis inhibitors against some important insect pests. International Conference on Advances in agriculture: Prospects and Potentials of Natural Resources in Food Security, July 14–16, 2009, Rawalakot, Pakistan by University of Azad Jammu and Kashmir.
5. Muhammad Ishtiaq, Mushtaq A. Saleem and Munir Ahmad (2009) Baseline susceptibility data for four insecticides against beet armyworm, *Spodoptera exigua* (Hubner) (Lepidoptera: Noctuidae). 29th Pakistan Congress of Zoology. February 24-26, 2009, University of Sindh, Jamshoro, Pakistan
4. **Munir Ahmad**, Mushtaq Ahmad Saleem and Mushtaq Ahmad (2006) Occurrence of time-oriented mortality against leaf worm, *Spodoptera litura* (Fab.) (Lepidoptera: Noctuidae) of some new chemistry insecticides. 26th Pakistan Congress of **Zoology (International)** April 4-6, 2006. University of the Punjab, Lahore, Pakistan
3. **Munir Ahmad**, Mushtaq Ahmad Saleem and Shafqat Saeed (2006) Larval parasitism of *Helicoverpa armigera* (Hubner) (Lepidoptera: Noctuidae) from unsprayed field crops 26th **Pakistan Congress of Zoology (International)** April 4-6, 2006. University of the Punjab, Lahore, Pakistan
2. Muhammad Rafiq, Abdul Ghaffar and **Munir Ahmad** (2006) Host plant survey of *Spodoptera litura* (Fab.) (Lepidoptera: Noctuidae) from 2004-05. 26th Pakistan Congress of Zoology (International) April 4-6, 2006. University of the Punjab, Lahore, Pakistan
1. **Munir Ahmad**, Mushtaq Ahmad Saleem and Mushtaq Ahmad (2005) Comparative efficacy of some conventional and new chemistry insecticides against armyworm, *Spodoptera litura* (F.) (Lepidoptera: Noctuidae) under laboratory conditions. 25th Pakistan Congress of Zoology (International) March 1-3, 2005. Sind Agricultural University, Tandojam, Pakistan

7. RESEARCH PUBLICATIONS BY M. ASIF AZIZ

1. Abstracts: Aziz, M.A., M. Hasan, M. Sagheer, J. Iqbal and A. Ali. (2008). Host plant resistance against Spotted Bollworm (*Earias* spp.) in okra (*Abelmoschus esculentus* L.). In. Modern approaches and techniques in agriculture to ensure food security in Pakistan. pp79-80.

8. RESEARCH PUBLICATIONS BY MR. IMRAN BODLAH

1. First record of *Binodoxys basicurvus* Shujauddeen, 1973 (Hymenoptera: Braconidae, Aphidiinae) from the Punjab Province of Pakistan. (Accepted)
2. Record of *Aenasius bambawale* Hayat, 2009 (Hymenoptera: Encyrtidae) from Punjab, Pakistan. (Published)
3. Checklist, distribution, host range, and ecology of Aphidoidea (Homoptera) from the rainfed region of Punjab Province of Pakistan (Accepted)

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 three Computers provided by the university.
- No registered softwares of computer programmes are available to be installed at departmental level.
- Registered antivirus software is immediately required.
- Registered versions 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 is developing its own 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.

- Majority of the students were found satisfied with the level of supervision maintained at department.
- The students had access to the available sophisticated equipments through a well managed system.
- The students have access to scientific literature through central laboratory.

- Some students have requested for the provision of computers or their research work.
- 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 Conclusion

Department of Entomology, Pir Mehr Ali Shah Arid Agriculture University, Rawalpindi is giving its input in production of highly skilled manpower at graduate level and providing practical and economical solution to the insect pest problems for enhancing agricultural productivity in arid agriculture setup. During present self assessment activity, the program's mission objectives and outcomes are evaluated. Most of the Program's outcomes are found highly satisfactory. Teachers' evaluation figures of eight teachers depict high standards; their performance score ranges from 4.60 to 4.70. with an average of 4.65. Student's evaluation score ranged from 4.2 to 4.3 with an average value of 4.25. Alumni survey revealed variable results with regard to different traits like knowledge, management and leadership qualities, interpersonal communication skill etc. Bottlenecks earmarked as lack of labs, classrooms, some sort of high tech equipment in laboratories along with computers and other accessories.

To design and develop degree courses curriculum, department also rendered its technical input in designing and development of course curriculum. All periodic activities related to education, department played its role very effectively and efficiently. All the examinations were conducted as per schedules given by the Controller Exams and all of the academic schemes were prepared as per guidelines provided. The number of courses along with their titles and credit hours for each semester, their course contents for degree program were fully planned and finalized. The evaluation score concerning their effectiveness was found very much above the satisfactory level.

Assessment activity also incorporates a survey about the available facilities and blockage in the field of education. Presently, through an HEC funded project, facilities for quality education are being developed at department level. This development will help both students and faculty members in attaining stipulated targets in an efficient manner. In a very much planned manner, measures have been adopted to guide students in development of communication skills through organizing meetings and tutorials, conducting field visits, hunting employment and effective cooperation and interaction with all stakeholders.

Besides, the guidelines and the course of action formulated by the Higher Education Commission and the university itself are fully followed in all sort of activities related to admissions, teaching, research, examinations, procurement and recruitment processes etc. In order to build capacity of the faculty and the staff members there is a felt need to be in contact with the educational and training institutions at

national and international level. Incidentally, sorts of diverse level of findings were gathered through this assessment activity but within satisfactory level. Restricted access incases of availability of additional infrastructure and classrooms/laboratory needs were also identified. This sort of support to the department can enhance its effectivety and capability in meeting the stipulated targets and objectives.

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	☐	☐	☐	☐	☐
2. The Course workload was manageable	☐	☐	☐	☐	☐
3. The Course was well organized (e.g. timely access to materials, notification of changes, etc.)	☐	☐	☐	☐	☐
4. Comments					

Student Contribution	☐ <20%	☐ 21-40%	☐ 41-60%	☐ 61-80%	☐ >81%
	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
5. Approximate level of your own attendance during the whole Course					
6. I participated actively in the Course	☐	☐	☐	☐	☐
7. I think I have made progress in this Course	☐	☐	☐	☐	☐
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.)	☐	☐	☐	☐	☐
10. The learning and teaching methods encouraged participation.	☐	☐	☐	☐	☐
11. The overall environment in the class was conducive to learning.	☐	☐	☐	☐	☐
12. Classrooms were satisfactory	☐	☐	☐	☐	☐
13. Comments					

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

Quality of Delivery	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
19. The Course stimulated my interest and thought on the subject area	☐	☐	☐	☐	☐
20. The pace of the Course was appropriate	☐	☐	☐	☐	☐
21. Ideas and concepts were presented clearly	☐	☐	☐	☐	☐
22. Comments					

Assessment	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
23. The method of assessment were reasonable	☐	☐	☐	☐	☐
24. Feedback on assessment was timely	☐	☐	☐	☐	☐
25. Feedback on assessment was helpful	☐	☐	☐	☐	☐
26. Comments					

Additional Core Questions

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

Tutorial	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
30. The material in the tutorials was useful	☐	☐	☐	☐	☐
31. I was happy with the amount of work needed for tutorials	☐	☐	☐	☐	☐
32. The tutor dealt effectively with my problems	☐	☐	☐	☐	☐

Practical	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
33. The material in the practicals was useful	☐	☐	☐	☐	☐
34. The demonstrators dealt effectively with my problems.	☐	☐	☐	☐	☐

Overall Evaluation

35. The best features of the Course were:

36. The Course could have been improved by:

Equal Opportunities Monitoring (Optional)

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:

Demographic Information: (Optional)

38. Full/part time study: Full Time ☐ Part Time ☐
39. Do you consider yourself to be disabled: Yes ☐ No ☐
40. Domicile:
41. Gender: Male ☐ Female ☐
42. Age Group: less than 22 ☐ 22-29 ☐ over 29 ☐
43. Campus: Distance Learning/ Collaborative ☐

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 (Deputy Quality Officer) together with copies of the course syllabus outline.

Department	Entomology		Faculty	FC&FS	
Course code	Ent-607		Title	Range and forest Entomology	
Session	2009-10	Semester	Autumn	Spring	Summer
Credit Value					
Name of Course instructor	Humayun javed	No. of Students contact hours	Lectures 36	Others (Please state)	
			Seminars		
Assessment Methods Give precise details (No. and length of assignments, exams and weightings etc.)		Assignment given to each student individually and evaluated. Assignment 10% Mid Exam 30%; Final Exam.60%			

Distribution of grade marks and other outcomes: (Adopt the grading system as required)

Undergraduate	Originally Regd.	Percent Grade A	Percent Grade B	Percent Grade C	D	E	F	No. of Grades	Withdrawal	Total
No. of Students	23	7 30.43	8 34.78	8 34.76	-	-	-	-	-	23
Post-Graduate	Originally Regd.	Percent Grade A	Percent Grade B	Percent Grade C	D	E	F	No. of Grades	Withdrawal	Total
No. of Students										

Overview Evaluation (Course Coordinator's Comments)

Feedback: First summarize then comment on Feedback received from:

Students (course Evaluation)Questionnaires ok
External Examiner/Moderator (if any) -----
Students/Staff consultative committee or Equivalent (if any) -----
Curriculum comment on the continuing on the appropriateness of the course curriculum in relation to the intended learning outcome (course objectives) and its compliance with the HEC approved /Revised National Curriculum guidelines. The course was found vry much appropriate and in line with curriculum and objectives.
Assessment comment on the continuing effectiveness of methods of assessment in relation to the intended learning outcomes (course objectives) - To explain forest pests to students - To explain upto date knowledge of insect pests with reference to range and forest
Enhancement comments on the implementation of changes proposed in earlier faculty review report) Each year revised
(7) Outline any changes in the future delivery or structure of the course that this semester turns experience may prompt ok

Name : <u>Humayun javed</u> Course Instructor	Date: _____
Name <u>Dr. Muhammad Naeem</u> Head of Department	Date : _____

Students (course Evaluation)Questionnaires

ok

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 (Deputy Quality Officer) together with copies of the course syllabus outline.

Department	Entomology		Faculty	FC&FS	
Course code	ENT- 504		Title	Insect biodiversity and evolution	
Session	2009-2010	Semester	Autumn	Spring	Summer
Credit Value	Ent-3 (2-2)	6			
Name of Course instructor	Imran Bodlah	No. of Students contact hours	Lectures 36	Others (Please state)	
			Seminars		
Assessment Methods Give precise details (No. and length of assignments, exams and weightings etc.)		Assignment given to each student individually and evaluated. Assignment 10% Mid Exam 30%; Final Exam.60%			

Distribution of grade marks and other outcomes: (Adopt the grading system as required)

Undergraduate	Originally Regd.	Percent Grade A	Percent Grade B	Percent Grade C	D	E	F	No. of Grades	Withdrawal	Total
No. of Students	21	7 33%	11 52%	3 15%	--	-	-	-	-	21
Post-Graduate	Originally Regd.	Percent Grade A	Percent Grade B	Percent Grade C	D	E	F	No. of Grades	Withdrawal	Total
No. of Students										

Overview Evaluation (Course Coordinator's Comments)

Feedback: First summarize then comment on Feedback received from:

External Examiner/Moderator (if any)
Students/Staff consultative committee or Equivalent (if any) -----
Curriculum comment on the continuing on the appropriateness of the course curriculum in relation to the intended learning outcome (course objectives) and its compliance with the HEC approved /Revised National Curriculum guidelines. - To provide knowledge about biodiversity of insect if various orders - Practical knowledge of insect biodiversity
Assessment comment on the continuing effectiveness of methods of assessment in relation to the intended learning outcomes (course objectives) -----
Enhancement comments on the implementation of changes proposed in earlier faculty review report) -----
(7) Outline any changes in the future delivery or structure of the course that this semester turns experience may prompt -----

Name : <u>Mr. Imran Bodlah</u> Course Instructor	Date: _____
Name <u>Dr. Muhmmad Naeem</u> Head of Department	Date _____

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 (Deputy Quality Officer) together with copies of the course syllabus outline.

Department	Entomology		Faculty	FC&FS	
Course code	ENT-506		Title	Agricultural Pests And Their Management	
Session		Semester	Autumn	Spring	Summer
Credit Value	3(2-2)	6			
Name of Course instructor	DR. Asif Aziz	No. of Students contact hours	Lecture 36	Others (Please state)	
			Seminars		
Assessment Methods Give precise details (No. and length of assignments, exams and weightings etc.)		Assignment given to each student individually and evaluated. Assignment 10% Mid Exam 30%; Final Exam.60%			

Distribution of grade marks and other outcomes: (Adopt the grading system as required)

Undergraduate	Originally Regd.	Percent Grade A	Percent Grade B	Percent Grade C	D	E	F	No. of Grades	Withdrawal	Total
No. of Students	21	3 14%	11 52%	7 33%	-	-	-	-	-	21
Post-Graduate	Originally Regd.	Percent Grade A	Percent Grade B	Percent Grade C	D	E	F	No. of Grades	Withdrawal	Total
No. of Students										

Overview Evaluation (Course Coordinator's Comments)

Feedback: First summarize then comment on Feedback received from:

ok
External Examiner/Moderator (if any) -----
Students/Staff consultative committee or Equivalent (if any) -----
Curriculum comment on the continuing on the appropriateness of the course curriculum in relation to the intended learning outcome (course objectives) and its compliance with the HEC approved /Revised National Curriculum guidelines. To give knowledge about the insects pests of various crops, fruits and vegetables
Assessment comment on the continuing effectiveness of methods of assessment in relation to the intended learning outcomes (course objectives) -----
Enhancement comments on the implementation of changes proposed in earlier faculty review report) -----
(7) Outline any changes in the future delivery or structure of the course that this semester turns experience may prompt -----

Name : <u>Mr. Asif Aziz</u> Course Instructor	Date: _____
Name <u>Dr. Muhammad Naeem</u> Head of Department	Date _____

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 (Deputy Quality Officer) together with copies of the course syllabus outline.

Department	Entomology		Faculty	FC&FS	
Course code	Ent-502		Title	Insect physiology	
Session	2009-2010	Semester	Autumn	Spring	Summer
Credit Value	3(2-2)	6			
Name of Course instructor	Dr. Asif aziz	No. of Students contact hours	Lectures 36	Others (Please state)	
			Seminars		
Assessment Methods Give precise details (No. and length of assignments, exams and weightings etc.)		Assignment given to each student individually and evaluated. Assignment 10% Mid Exam 30%; Final Exam.60%			

Distribution of grade marks and other outcomes: (Adopt the grading system as required)

Undergraduate	Originally Regd.	Percent Grade A	Percent Grade B	Percent Grade C	D	E	F	No. of Grades	Withdrawal	Total
No. of Students	21	2 9.5	18 86	1 4.8	-	-	-	-	-	21
Post-Graduate	Originally Regd.	Percent Grade A	Percent Grade B	Percent Grade C	D	E	F	No. of Grades	Withdrawal	Total
No. of Students										

Overview Evaluation (Course Coordinator's Comments)

Feedback: First summarize then comment on Feedback received from:

Students (course Evaluation)Questionnaires ok
External Examiner/Moderator (if any) -
Students/Staff consultative committee or Equivalent (if any) -
Curriculum comment on the continuing on the appropriateness of the course curriculum in relation to the intended learning outcome (course objectives) and its compliance with the HEC approved /Revised National Curriculum guidelines. To give basic knowledge about insect physiology
Assessment comment on the continuing effectiveness of methods of assessment in relation to the intended learning outcomes (course objectives) -----
Enhancement comments on the implementation of changes proposed in earlier faculty review report) -----
(7) Outline any changes in the future delivery or structure of the course that this semester turns experience may prompt -----

Name : <u>Dr. Asif aziz</u> Course Instructor	Date: _____
Name <u>Dr. Muhmmad Naeem</u> Head of Department	Date _____

Students (course Evaluation)Questionnaires

OK

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 (Deputy Quality Officer) together with copies of the course syllabus outline.

Department	Entomology		Faculty	FC&FS	
Course code	Ent-603		Title	Plant resistance to insect pests	
Session		Semester 7	fall	Spring	Summer
Credit Value	3(2-2)				
Name of Course instructor	Munir Ahmed	No. of Students contact hours	Lectures 36	Others (Please state)	
			Seminars		
Assessment Methods Give precise details (No. and length of assignments, exams and weightings etc.)		Assignment given to each student individually and evaluated. Assignment 10% Mid Exam 30%; Final Exam.60%			

Distribution of grade marks and other outcomes: (Adopt the grading system as required)

Undergraduate	Originally Regd.	Percent Grade A	Percent Grade B	Percent Grade C	D	E	F	No. of Grades	Withdrawal	Total
No. of Students	39	8 20%	25 64%	6 15%	-	-	-	-	-	39
Post-Graduate	Originally Regd.	Percent Grade A	Percent Grade B	Percent Grade C	D	E	F	No. of Grades	Withdrawal	Total
No. of Students										

Overview Evaluation (Course Coordinator's Comments)

Feedback: First summarize then comment on Feedback received from:

External Examiner/Moderator (if any) -----
Students/Staff consultative committee or Equivalent (if any) -----
Curriculum comment on the continuing on the appropriateness of the course curriculum in relation to the intended learning outcome (course objectives) and its compliance with the HEC approved /Revised National Curriculum guidelines. - To enable the students for incorporation of crop characters as control management - To strengthen their knowledge about plant characters and their interaction in pest management
Assessment comment on the continuing effectiveness of methods of assessment in relation to the intended learning outcomes (course objectives) -----
Enhancement comments on the implementation of changes proposed in earlier faculty review report) -----
(7) Outline any changes in the future delivery or structure of the course that this semester turns experience may prompt -----
Name : <u>Munir Ahmed</u> Course Instructor Name <u>Dr. Muhmmad Naeem</u> Head of Department Date: _____ Date _____

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 (Deputy Quality Officer) together with copies of the course syllabus outline.

Department	Entomology		Faculty	FC&FS	
Course code	Ent-507		Title	Insect pests of household , man and animals	
Session	2009-10	Semester	fall	Spring	Summer
Credit Value	3(2-2)	5			
Name of Course instructor	Dr. Farooq Nasir	No. of Students contact hours	Lectures 36	Others (Please state)	
			Seminars		
Assessment Methods Give precise details (No. and length of assignments, exams and weightings etc.)		Assignment given to each student individually and evaluated. Assignment 10% Mid Exam 30%; Final Exam.60%			

Distribution of grade marks and other outcomes: (Adopt the grading system as required)

Undergraduate	Originally Regd.	Percent Grade A	Percent Grade B	Percent Grade C	D	E	F	No. of Grades	Withdrawal	Total
No. of Students	21	10 47	11 52	--	-	-	-	-	-	21
Post-Graduate	Originally Regd.	Percent Grade A	Percent Grade B	Percent Grade C	D	E	F	No. of Grades	Withdrawal	Total
No. of Students										

Overview Evaluation (Course Coordinator's Comments)

Feedback: First summarize then comment on Feedback received from:

Students (course Evaluation)Questionnaires ok
External Examiner/Moderator (if any) -----
Students/Staff consultative committee or Equivalent (if any) -----
Curriculum comment on the continuing on the appropriateness of the course curriculum in relation to the intended learning outcome (course objectives) and its compliance with the HEC approved /Revised National Curriculum guidelines. To give basic knowledge about various insect pests of man ,animals and household and their management
Assessment comment on the continuing effectiveness of methods of assessment in relation to the intended learning outcomes (course objectives) -----
Enhancement comments on the implementation of changes proposed in earlier faculty review report) -----
(7) Outline any changes in the future delivery or structure of the course that this semester turns experience may prompt -----

Name : <u>Dr. Farooq Nasir</u> Course Instructor	Date: _____
Name <u>Dr. Muhammad Naeem</u> Head of Department	Date: _____

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 (Deputy Quality Officer) together with copies of the course syllabus outline.

Department	Entomology		Faculty	FC&FS	
Course code	Ent-508		Title	Stored product pests and their management	
Session	2009-01	Semester	Autumn	Spring	Summer
Credit Value	3(2-2)				
Name of Course instructor	Humyun javed	No. of Students contact hours	Lectures 36	Others (Please state)	
			Seminars		
Assessment Methods Give precise details (No. and length of assignments, exams and weightings etc.)		Assignment given to each student individually and evaluated. Assignment 10% Mid Exam 30%; Final Exam.60%			

Distribution of grade marks and other outcomes: (Adopt the grading system as required)

Undergraduate	Originally Regd.	Percent Grade A	Percent Grade B	Percent Grade C	D	E	F	No. of Grades	Withdrawal	Total
No. of Students	21	9 43%	12 57%	-	-	-	-	-	-	21
Post-Graduate	Originally Regd.	Percent Grade A	Percent Grade B	Percent Grade C	D	E	F	No. of Grades	Withdrawal	Total
No. of Students										

Overview Evaluation (Course Coordinator's Comments)

Feedback: First summarize then comment on Feedback received from:

ok
External Examiner/Moderator (if any) -----
Students/Staff consultative committee or Equivalent (if any) -----
Curriculum comment on the continuing on the appropriateness of the course curriculum in relation to the intended learning outcome (course objectives) and its compliance with the HEC approved /Revised National Curriculum guidelines. To give basic knowledge about the identification and management of Stored product pests
Assessment comment on the continuing effectiveness of methods of assessment in relation to the intended learning outcomes (course objectives) -----
Enhancement comments on the implementation of changes proposed in earlier faculty review report)
(7) Outline any changes in the future delivery or structure of the course that this semester turns experience may prompt -----

Name : <u>Humyun javed</u> Course Instructor Name <u>Dr. Muhammad Naeem</u> Head of Department	Date: _____ Date _____
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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.

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: _____

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. 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. 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)

V. General Comments

Please make any additional comments or suggestions, which you think would help strengthen our programs for the preparation of graduates who will enter your field. Did you know as to what to expect from graduates?

[illegible]

VI Information About Organization

1. **Organization Name**_____
2. **Type of Business**_____
3. **Number of Graduates (specify the program) in your Organization:**

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	<i>List supervision of graduate students, postdocs and undergraduate honors theses showing:</i> <table border="0"> <thead> <tr> <th>Years</th> <th>Degree</th> <th>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>						

<i>Brief Statement of Research Interest</i>	<i>May be as brief as a sentence or contain additional details up to one page in length.</i>												
<i>Publications</i>	<i>List publications in standard bibliographic format with earliest date first.</i> ○ Manuscripts accepted for publication should be included under appropriate category as "in press;" ○ Segment the list under the following standard headings: ▪ 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).												
<i>Research Grants and Contracts.</i>	<i>Entries should include:</i> <table border="1"> <thead> <tr> <th>Date</th> <th>Title</th> <th>Agency / Organization</th> <th>Total Award Amount</th> </tr> </thead> <tbody> <tr> <td colspan="4">Segment the list under following headings:</td> </tr> <tr> <td colspan="4"> ▪ Completed ▪ Funded and in progress ▪ In review </td> </tr> </tbody> </table>	Date	Title	Agency / Organization	Total Award Amount	Segment the list under following headings:				▪ Completed ▪ Funded and in progress ▪ In review			
Date	Title	Agency / Organization	Total Award Amount										
Segment the list under following headings:													
▪ Completed ▪ Funded and in progress ▪ In review													
<i>Other Research or Creative Accomplishments</i>	<i>List patents, software, new products developed, etc.</i>												
<i>Selected Professional Presentations</i>													

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-401 INTRODUCTORY ENTOMOLOGY 2(1-2)

THEORY:

Introduction; phylum Arthropoda and its classification; external and internal morphology and physiology with particular reference to a typical insect; metamorphosis and its types; insect classification, salient characters of insect orders and families of economic importance with examples of each family.

PRACTICAL:

Characters of classes of Arthropoda; Collection and preservation of insects; external and internal morphology of typical insects; temporary mounts of different types of appendages of insects; types of metamorphosis.

BOOKS RECOMMENDED:

1. 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.
2. Shahid, M. 1984. Lab Manual of General Entomology. National Book Foundation, Pakistan.
3. Mani, M.S., 1990. General Entomology 4th ed.. Oxford & IBH Publishing Co. Pvt. Ltd. New Delhi.
4. Gullan, P.I. & P.S. Crauston, 1994. The Insects (An outline of Entomology) Chapman & Hall New York.
5. Yousuf, M., 1996. Manual of Introductory Entomology, University of Agriculture, Faisalabad.
6. Lohar, M.K. 1998. Introductory Entomology, Kashif Publications, Hyderabad, Pakistan.
7. Elzinga, R.T. 2003. Fundamentals of Entomology. Prentice Hall. ISBN 0130480304.
8. Jhonson, N.F., Triplehorn, C.A. Borror and DeLong's. 2004 Introduction to the study of Insects. Brooks Cole. 7th ed.

ENT-402 APPLIED ENTOMOLOGY 3(2-2)

Causes of success and economic importance of insects; principles and methods of insect control i.e. cultural, biological, physical, mechanical, reproductive, legislative and chemical; introduction to IPM; insecticides, their classification, formulations and application equipment; identification, life histories, mode of damage and control of important insect pests of various crops, fruits, vegetables, stored grains, household, termites and locust; entomological industries: apiculture, sericulture and lac-culture.

PRACTICALS

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

BOOKS RECOMMENDED

1. P.fadt, E. R., 1985. Fundamentals of Applied Entomology, 4th Ed. The Macmillan Co.,N. Y.
2. Saha, L. R., 1990. Hand book of Plant Protection. Kalyani Publishers New Delhi.
3. Mathews, G.A., 1992. Pesticide Application Methods, 2nd. Ed. John Wiley & Sons, Inc. N.Y.
4. Hashmi, A. A., 1994. Insect Pest Management. Vols. I, II, III. Pak. Agri. Res. Council, Islamabad.
5. Tonapi, G. T., 1994. Experimental Entomology, An Aid to Lab. and Field Studies. C.B.S. Publishers and Distributors, Delhi.
6. Pedigo, L.P., 2002. Entomology and Pest Management 4th ed. Prentice and Hall Intl.Limited, London.
7. Atwal, A. S., 2005. Agricultural Pests of Southeast Asia and their Management. Kalyani. Publishers, Ludhiana.

ENT-501 INSECT MORPHOLOGY 3(2-2)

THEORY:

Introduction; integument and its derivatives; body regions; segmentation, sclerites, sulci and appendages of head, thorax and abdomen in different insect orders; 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. Preparation for illustrations.

BOOKS RECOMMENDED:

1. Romoser, W.S. 2001. The Science of Entomology. 3rd ed. WCB Inc.
2. Chapman, R. F., 2000. The insects: Structure and function (4th ed.). Hodder and Stoughton Education Ltd., U.K.
3. Tonapi, G. T., 1994. Experimental Entomology. An Aid to Laboratory and Field Studies. CBS Publishers and Distributors, New Delhi, India.
4. 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.
5. Snodgrass, R., 1935. Principles of Insect Morphology. Cornell Univ. Press., U.S.A.

6. Zombori, L. , Strawmann, H. 1999. Dictionary of Insect Morphology. De Gruyter.
7. Romoser, W.S. 2001. The Science of Entomology, 3rd Ed. WCB Inc.

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 PRINCIPLES OF INSECT TAXONOMY 3(2-2)

THEORY:

Introduction; history, functions and concepts; tasks of a taxonomist; taxonomic categories; taxonomic procedures: collection, samples and methods of sampling, identification, taxonomic discrimination, taxonomic characters, variations in population; descriptions, taxonomic keys, speciation and phylogenies, preparation of taxonomic paper; code of zoological nomenclature; introduction to numerical taxonomy and cladistics.

PRACTICAL:

Methods of collection, preservation and labelling of insects; preparation of taxonomic keys; identification of insects with taxonomic keys; cataloguing and writing descriptions of identified insects; preparation of phenograms and phylogenetic trees.

BOOKS RECOMMENDED:

1. Mayer, E. & P. D. Ashlock, 1991. Principles of Systematic Zoology, 2nd. Ed. McGraw Hill Inc. New York.
2. Kapoor, V.C. 1988. Theory and Practice of Animal Taxonomy, 2nd, Ed. Oxford and IBH Publishing Co. Pvt. Ltd. New Delhi, India.
3. Henning, W., 1981. Insect Pylogenetics. Willy Inter Sciences. U.K.
4. Chamberlin, W. J. 1962. Entomological Nomenclature. Bubaque, U.S.A.
5. The International Commission on Zoological Nomenclature, 1985. International Code of Zoological Nomenclature, adopted by XX General Assembly of the Int. Union of Biological Sciences. Uni. Calif. Press. Los Angles.
6. Daly, H.V. , Doyen J.T. Purcell A.H. Daly, B.B. 1998. Introduction to Insect Biology and Diversity. Oxford University Press.

ENT-504 INSECT BIODIVERSITY AND EVOLUTION 3(2-2)**THEORY:**

Introduction; schemes of classification; phylogenetic affinities of different orders; insect adaptation in various geographical regions; insect adaptive radiation and diversity classification of insect orders up to family level with particular reference to insect fauna of Pakistan; progress and extinction. Gene library.

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. Fellows, M. Holloway, G. 2005. Insect Entomology Behaviour. CABI.
2. Gupta, R.K. 2003. Advances in Insect Biodiversity. Agrobios, New Delhi, India.
3. Quicke, D. (1993) Principles and Techniques in Contemporary Taxonomy. Blackie.
4. Kim, K.C. 1993. Evolution of Insect Pests: Pattern of Variation. Pak.
5. Starr, C. and Taggart, R. (1989) Biology - the unity and Diversity of Life. Wadsworth Publishing Co.
6. Kershaw, D. (1988) Animal Diversity (2nd edition). Unwin Hyman.
7. 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.

8. 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.
9. Afzal, M.; S.A. Mufti. Natural History Research. Pakistan Scientific and Technological Information Center, Islamabad.
10. Daly, H.V., Doyen, J.T. Purcell, A.H. Daly, B.B. 1998. Introduction to Insect Biology and Diversity. Oxford University Press.

ENT-505 INSECT ECOLOGY AND BEHAVIOUR 3(2-2)

THEORY:

Introduction; divisions of ecology; habitat and niche; intra and interspecific 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 behavior: reflexes, kineses and taxes; learning; periodicity; patterns of behavior; communications; visual; auditory; tactile; chemical. Territoriality; control of behavior; nervous; endocrine and genetic; biological functions of behavior, host finding, feeding and reproductive, escape, defence, offence and predation; dispersal and migration; dormancy. Diversity indices.

PRACTICAL:

Maintenance and measurement of temperature, humidity and light with different instruments; population estimation and construction of life tables.

BOOKS RECOMMENDED:

1. Goulson, D. 2003. Bumble bees, Behaviour and Ecology. Oxford University Press.
2. Bourtzis, K. and T. Miller. 2003. Insects Symbiosis. CRC Press
3. Parihar, R. 2001. Reproductive behaviour and biology of sex. Dominant
4. Southwood, T.R.E. and P.A. Henderson. 2000. Ecological Methods. 3rd ed. Blackwell Science.
5. Yazdani, S. S. and M. I. Agarwal, 1997. Elements of Insect Ecology. Narosa Publishing House, New Delhi.
6. Anantakrishn. 1993. Chemical Ecology of Pytophagous Insects. 50448
7. Huffaker, C.B. & Robert L. Rabb. 1984. Ecological Entomology. Wiley Intersciences.
8. Price, P.W. 1984. Insect Ecology. John Wiley and Sons, N.Y.
9. Evans, H. E., 1984. Insect Biology; A Textbook of Entomology. Addison-Wesley Publishing Company.
10. Atwal, A.S. and S.S. Bains. 1974. Applied Animal Ecology, Kalyani Publishers, Ludhiana.

11. Daly, H.V., Doyen J.T. Purcell A.H. Daly, B.B. 1998. Introduction to Insect Biology and Diversity. Oxford University Press.

ENT-506 AGRICULTURAL PESTS AND THEIR MANAGEMENT 3(2-2)

THEORY:

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

PRACTICAL:

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

BOOKS RECOMMENDED:

1. Ignacimut. 2005. Sustainable Insect Pest Management. 96351.
2. Atwal, A.S. 2005. Agricultural Pests of South-east Asia and their Management. 5th ed. Kalyani Publishers, Ludhiana.
3. Emden, H. Service, M. 2004. Pest and Vector Control.
4. Altieri, M.A. 2004. Biodiversity and Pest Management in Agro-Eco System, 2nd ed. 94195.
5. Horowitz. 2004. Insect Pest Management; Field and Protected Crops. 99295.
6. Hill, D.S. 2002. Pests of Stored Food Stuff and their Control. Kluwer.
7. Pedigo, L. P., 2002. Entomology and Pest Management (4th ed.). Prentice and Hall, Intl., London.
8. Shah, H.A. and M.A. Saleem. 2000. Applied Entomology. 2nd ed. Izharsons Printers, Lahore.
9. Upadhyay, R. K., K.G. Mukerji, B.P. Chamola & O.P. Dubey, 1998. Integrated Pest and Disease Management. A. P. H. Publishing Corp. New Delhi, 695 pp.
10. Hashmi, A.A., 1994. Insect Pest Management. Vols. I, II and III. Pak. Agric. Council, Islamabad - Pakistan.
11. Lohar, M. K., 1994. Handbook of Applied Entomology. Kashif Publications, Hyderabad, Pakistan.
12. Hill, D. S. 1993. Agricultural Insect Pests of the Tropics and their Control (Indian ed.). Cambridge University Press, Cambridge, 746 pp.
13. Pfadt, R.E. 1985. Fundamentals of applied Entomology, 4th ed. Macmillan Publishing Co., N.Y.
14. Davidson, R.H. and W.F. Lyon. 1977. Insect Pests of Farm, Garden and Orchards. John Wiley and Sons Inc., New York.
15. Koul, O. and G.S. Phalimal. 2004. Integrated Pest Management Protection, Constraint and Challenges. CABI Publishers.

ENT-507 INSECT PESTS OF HOUSHOLD, MAN AND ANIMALS 3(2-2)

THEORY:

Introduction; identification, biology and control of different insect pests like ants, termites, cockroaches, silver-fish, cricket, powder-post and carpet beetles, cloth-moths, psocids, lice, bedbugs, fleas, mosquitoes, house flies, sand flies, stable flies, flesh flies, blow flies, tse tse flies, black flies, midges etc.

PRATICAL:

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

BOOKS RECOMMENDED:

1. Atwal, A.S. 2005. Agricultural Pests of Southeast Asia and their Management. Kalyani Publishers, Ludhiana.
2. Eldridge, B. 2004. Medical Entomology. Text book of Public Health and Veterinary Sciences. 77095
3. Meds, D. 2002. Venoms and Poisonous Animals. CRC Press.
4. Pfadt. R.E. 1985 Fundamental of Applied Entomology, 4th ed. The Macmillan Co., N.Y.
5. Metcalf C.L. and W.P Flint 1978. Destructive an Useful Insects. Their Habits and control 2nd addition McGraw Hill Book Co. Inc. N.Y.
6. Goddard. Physsion Guide to Arthropods of medical Importance. 4th ed. CRC Press.

ENT-508 STORED PRODUCTS PESTS AND THEIR MANAGEMENT 3(2-2)

THEORY:

Introduction; Identification, biology and control of different stored products pests. storage principles; types of storages; Factors affecting grain and other products in storages; stored product losses and their prevention.

PRACTICAL:

Visits to the godowns and demonstration of sampling methods and estimation of losses; collection, identification and control of different stored products pests.

BOOKS RECOMMEDED:

1. Hill, D.S.2002. Pests of Stored Food Stuff and their Control. Kluwer.
2. Ashfaq, M., M.A. Saleem and F. Ahmad 2000. Zari Agnas ki Mahfooz Zakhira Kari (in Urdu). Pak Book Empire, Lahore.
3. Morriel, W.L.1995. Insect Pests of Small Grains. 61492

4. Zaklandvoi, G.A. and V.F. Ratanova. 1987. Stored Grain Pests and their Control. Oxonian Press Pvt. Ltd., London.
5. Anonymous, 1986. Operational Manual for Grain Quality, Inspection and Quality Control Procedure during Procurement and storage, Govt. of Pakistan, Ministry of Food, Agriculture and Co-operatives by R.L. Semple P.A. Hicks, J.V. Losare, and A. Castermans 1992.
6. Anonymous, 1984. Insect and Arachnids of Tropical Stored Products, their Biology and Identification. Storage Department, TAD. R.I., Slough, Berks, U.K.
7. Dichter, D. 1978. Manual on improved Farm and Village level Grain Storage Methods. German Agency for Technical Co-operation (GTZ) W. Germany.
8. 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.
9. Hall, D.W. 1970. Handling and Storage of Food Grains in Tropical and Sub-tropical areas. F.A.O., U.N. Rome.

Rees, D. Insects of Stored Products.

ENT-509 BENEFICIAL INSECTS 3(2-2)

THEORY:

Introduction; insects of medicinal, food, aesthetic value; insect pollinators and environmental indicators; 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, food, weed feeding and other beneficial insects.

BOOKS RECOMMENDED

1. Sigh, T. 2004. Principles and Techniques of Silk Worm Seed Production. 60328.
2. Sathe, T.V. 2004. Shoots Feeding and Sericulture Trends. 93191.
3. Ashfaq, M. and A.Suhail. 2001. Magasbani kay Jadeed Treeqay (in Urdu), Deptt. of Entomology. U.A.Faisalabad.
4. Devillers, J. and M. Phame. Delege. 2002. Honey Bees.
5. Irshad, M. and R.Ahmad. 2000. Insect Pests and their Parasitoids, Predators, Pathogens in Pakistan. PIPS (Pvt.) Ltd. Islamabad.
6. Ashfaq, M. and W. Akram. 2000. Rasum ke Keeray Palna (in Urdu), Deptt. of Entomology. U.A.Faisalabad.

7. Waterhous, D.F., 1998 Biological Control of Insect Pests: Southeast Asian Prospect. Australian Centre for International Agricultural Research, Canberra, 548 pp.
8. Ganga, G., and Chetty, J. S. 1997. An Introduction to Sericulture. Oxford & IBH Publishing Co. Pvt. Ltd. New Delhi 302 pp.
9. Hashmi, A. A., 1994. insect Pest Management, Vol. I, II & III. Pak. Agri. Res/ Council, Islamabad.
10. Aruga, H. 1994. Principles of Sericulture (Translated from Japanese). Oxford & IBH Publishing Co. Pvt. Ltd. New Delhi 376 pp.
11. Krishnawami, S., Narasimhanna, M. N., Suryanarayan, S.K. and Kumaraj, S. 1993. Sericultural Manual II: Silkworm Rearing. Oxford & IBH Publishing Co. Pvt. Ltd. New Delhi 133 pp.
12. Hooper, T. 1991. Guide to Bees and honey BAS Printers Ltd. Hampshire, UK 271 pp.
13. Ahmad, R. 1979. A Guide to Bee Keeping in Pakistan. Extension Book.

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 RANGE AND FOREST ENTOMOLOGY 3(2-2)

THEORY:

Importance of range in forest entomology in range land and forest ecosystem; insect pests on range and forest trees, their identification, distribution, host plants, biology, mode of damage and control. Competition and complementary role of insects with range livestock.

PRACTICAL:

Collection, preservation and identification of insects pests of forest trees. Practical study of mode of damage and demonstration of control methods.

BOOKS RECOMMENDED:

1. Jha, K. 2003. Forest Entomology. Ashish Publishing House. India.
2. Thakur, M.I., 2000, Forest Entomology (Ecology and Management) S.A.I. Publishing Co.
3. Dajoz, R. 2000. Insects and Forests. Intercept Ltd. UK.
4. Dent, D., 2000, Insect Pest Management, 2nd ed, A.B.I. Publishing Co.
5. Barbose, P. and M.B. Wagner, 1989, Introduction to Forest and Shade Tree Insects, Academic Press, NY, London

6. Knight, F.B. and H.J. Heeiknen, 1980, Principles of Forest Entomology, McGraw Hill, Book Co. NY
7. Anderson, J.F. and M.K. Kaya, 1976, Perspectives in Forest Entomology, Acad Press, NY, San Francisco, London

ENT-609 PROJECT PLANNING AND SCIENTIFIC WRITING 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(3-0)

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.

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.