PIR MEHR ALI SHAH
ARID AGRICULTURE UNIVERSITY RAWALPINDI

SELF-ASSESSMENT REPORT 2013-2015
MS Remote Sensing & GIS

Department of Geo-Informatics
Faculty of Agricultural Engineering & Technology

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INTRODUCTION

The increasing complexity of our environmental problems and the need to manage them has resulted in a phenomenal growth in the discipline of Geo-Information Science. Geo-information forms the basis for the development of knowledge and insights needed to analyze and solve the problems of our social and natural environment.

Owing to immense importance of geo-spatial technologies like Geographical Information System (GIS) and Remote Sensing (RS), the department of Geo-Informatics was established by the worthy chancellor, Prof. Dr. Rai Niaz Ahmed in 2013. Initially, postgraduate programs i.e MS and PhD RS & GIS were started. These programs are research oriented and focus on real world problems faced by national and international community.

The MS(RS& GIS) program at Arid University focuses on solving spatial problems in rural areas and urban fringes by using geographic information systems (GIS) and earth observation imagery (Remote Sensing). This MS program is targeted towards students with a Bachelor degree in the field of space sciences, Geo-Informatics, Environmental Sciences (planning, soil and water, hydrology, forest and nature, ecology, biology) or Information Technology. Such an individual would have the professional philosophy and skills base to progress to senior posts within the industry, or to proceed to doctoral research.

A well oriented scheme of studies has been implemented as recommended by HEC under revised syllabus of Geo informatics for post graduate degree programs. The core courses cover aspects ofAdvanced RS, Advanced GIS, Geo-Databases, computer science, agriculture and climate change.

Currently, department is offering MS 1.5 years and MS 2 years degree programs for students with relevant background and other than space sciences respectively. The MS program in

RS&GIS comprised of 30 credit hours with 24 credit hours of course work and 6 credit hours of research thesis. Students with background other than RS and GIS have to qualify zero semester comprising of deficiency courses.

The department has most modern facility for creation, processing and modeling of digital geospatial data, which caters to the multifarious needs of students, users, researchers and various projects. Technology development in the areas of GIS, database management, spatial analysis and modeling, development of decision support/expert systems is its main focus. MS research scholars at the department are currently involved in applied research relating to various fields. This is true because students from various backgrounds aim to use RS & GIS technologies for problem solving.

This report is prepared on the basis of eight criteria devised by HEC quality assurance team. This document highlights the salient features of MS program of RS & GIS.

1. CRITERION 1: PROGRAM MISSION, OBJECTIVES AND OUTCOMES

The self-assessment is based on a number of criteria. This section describes how the standards of the Criterion 1 are met.

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

PROGRAM MISSION:

The MS Remote Sensing (RS) & Geographical Information Systems (GIS) degree aims to provide an intensive educational opportunity designed to equip graduates from a variety of disciplines with the knowledge base and technical skills required to fulfill a professional role in the Geographical Information System and Remote Sensing (GIS/RS) industry. The focus of the degree is to develop high quality application specialists with practical skills in a variety of commercially available software, and excellent research design as well as written and oral communication skills. More specifically, graduates of the program will:

- Possess a sound theoretical and practical knowledge of geo-spatial technologies and apply the same in various applications.
- Possess postgraduate level intellectual, technical and communication skills as required by public service organizations, commerce, the exploration and environmental industries.
- Be able to identify and apply appropriate geospatial methodologies to support public and private sector organizations, to address significant societal issues, and to enhance understanding of the human and natural environments.
- have the professional philosophy and skills base to progress to senior posts within the industry, or to proceed to doctoral research

PROGRAM OBJECTIVES:

Our MS in Remote Sensing & GIS has following distinguishing objectives:

1. Imparting advanced knowledge of Remote Sensing & GIS required for spatial data acquisition, management, information extraction and presentation.
2. Application of geo-information science to diverse areas such as environment, agriculture and forestry, natural resources, climate change etc.
3. Develop inter-personal, communication and analytical skills of students to enhance leadership qualities of the students.

Table 1: Assessment of program objectives

Sr. No	**Objective**	**How measured**	**When measured**	**Improvements Identified**	**Improvements Made**
1.	Imparting advanced skills of geo-spatial technologies.	Quizzes, assignments, semester projects, and midterm and final exams.	Quizzes and assignments during the semester. Midterm exams in the mid of semester. Final exams and semester projects at end of the semester.	Faculty to student ratio is high.	Faculty is inducted.
2.	Application of geo-information science	MS Thesis and semester projects.	At the end of the semester and degree.	Innovative projects should come up.	Real world problems are being addressed.
3.	Develop inter-personal communication and presentation skills to enhance leadership skills of the students.	Presentations, class discussions, synopsis and thesis defense.	Throughout the semester and at the end of the degree.	Synopsis defense and research progress review should be compulsory.	Synopsis defense and research progress review is made compulsory and research log book will be implied.

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 outcome.

PROGRAM LEARNING OUTCOMES:

1. Knowledge and Understanding

Under knowledge and understanding domain, the program aims to create awareness among the students about the significance and scope of RS & GIS and develop student abilities to undertake individual research by identifying and solving practical problems using RS & GIS.

On successful completion of program, the students will be able to:

I. Understand technical issues relating to the acquisition, storage, management, analysis and display of spatial data;

II. Show their appreciation of the requirements of a variety of different user disciplines and enable the optimal use of GIS/RS technology; and

III. Propose, plan, manage and report on project work, both as individuals and as members of a team.

The program specifically relates to subject knowledge in the following areas:

- Geographic information principles, which include spatial data structures their acquisition, pre-processing, geo-databases management and analyses.
- Importance of effective visualization techniques.
- Image processing sequence and its importance in a remote sensing and spatial analysis projects.
- Programming and customization of remote sensing and GIS software.

2. Intellectual skills:

The program also has the ambition to develop strong intellectual skills among the graduates and require the students to.

I. Become a RS & GIS specialist with management and decision making skills;

II. Make informed and critical judgments when faced with an issue concerning geographic information management;

III. Appreciate and understand the spatial data and spatial analysis requirements of a remote sensing and/or GIS project;

IV. Analyze, synthesis and summarize geographic information requirement for a project;

V. Apply knowledge and understanding to address a wide range of spatial issues; and

VI. Be able to design, develop and evaluate methodologies and develop critics of them, and where appropriate, propose new techniques for research.

3. Subject Practical skills:

The program specification requires students to:

I. have gained a practical knowledge of the range of techniques and strategies related to geographic information management;

II. be able to understand the complexity of spatial data and their relationships with non-spatial information;

III. be able to perform spatial analysis on a varied range of spatial data;

IV. have gained complete understanding of spatial data acquisition procedures;

V. be able to quantitatively assess the quality of acquired spatial data;

4. Transferable/ key skills:

The MS RS & GIS program requires students to demonstrate an understanding and knowledge in the following transferable and key skill areas:

I. Communication skills

II. Interpersonal and teamwork skills

III. Numeracy and IT skills

IV. Self-management and professional development skills

Table 2: Program Objectives versus Program Outcomes

PROGRAM OUTCOMES	PROGRAM OBJECTIVES		
	Imparting advanced skills of geo-spatial technologies	**Application of geo-information science**	**Develop inter-personal communication and presentation skills**
Knowledge and Understanding	✓		
Intellectual Skills	✓	✓	
Subject Practical Skills	✓	✓	
Transferrable/Key Skills		✓	✓

Learning and Teaching/Knowledge and Understanding

Highly qualified professionals provide excellent technical and conceptual guidance to the students. Seminars and workshops are organized to invite external speakers to provide additional lectures. The program uses a variety of teaching and learning approaches with a strong emphasis on student centered learning including: lectures, classroom based and computer lab based practical exercises, guided independent study and the independent research project.

Learning and Teaching/Intellectual Skills

Intellectual skills are introduced, developed and tested in the formal taught sessions. Courses such as Introduction to GIS expose students to current geographic information policies and management strategies, testing their awareness of such using evaluative essays. Courses in Applied GIS and Remote Sensing provide students with the opportunity to reflect on the interrelationship of knowledge between academic work and real world projects; and offer students exposure to research methodologies and their application in remote sensing and GIS. The final research project is regarded as the culmination of the development of intellectual skills at master's level.

Learning and Teaching/Subject Practical Skills

Practical skills are included in all core courses with the emphasis on the application of subject knowledge, methods, techniques, and approaches to real world situations. The theoretical and practical skills gained in the computer laboratory are put into effect during the field-based exercises.

Learning and Teaching/Transferrable/Key Skills

As indicated above a variety of teaching and learning strategies are used, which are designed to facilitate the development of postgraduate level communication, numeracy, IT, interpersonal and self-management and development skills. The introduction, development and testing of generic postgraduate key skills is embedded in the program teaching and learning strategy.

Assessment Methods/Knowledge and Understanding

Assessments are designed to test the learning outcomes of the course. Students are informed of the assessment requirements in the program handbook and in the first lecture of each course. A wide variety of assessments are used, the emphasis is on assessments related to real world

situations and approaches, and these include technical reports, critical and evaluative essays, journal papers, poster presentations, field notebooks and research proposals, semester and final projects. Courses such as Introduction to GIS, Introduction to Remote Sensing, Advanced RS and Digital Image Processing and Advanced GIS & Spatial Analysis, use a combination of theory examinations, practical examinations.

Assessment Methods/Intellectual Skills

Assessments are designed to test students' master's level intellectual skills, with a strong emphasis on demonstrating intellectual and critical understanding as well as subject knowledge. The assessments include critical and evaluative essays, journal papers, project proposals and project reports and final thesis.

Assessment Methods/Subject Practical Skills

Most assessments test some subject practical skills, depending on the learning outcomes. Assessments include spatial database design, GIS software customization, multi criteria evaluation projects, image analysis project, ground validation and site surveys.

Assessment Methods/Transferrable/Key Skills

A variety of assessment strategies are used across the program, including the following:

Communication skills

- Journal paper, essays, posters and other text based reviews.
- Oral presentations
- A mixture of technical and non-technical reports.

Interpersonal and teamwork skills

- group based fieldwork
- group based mini research project
- group presentations

Numeracy and IT skills

- Collection and analysis of spatial and non-spatial data
- Use of a varied range of GIS and Remote Sensing software
- Reports including geo-statistics
- Database management, design and implementation
- Programming and software customization

Self-management and professional development skills

- Interaction and discussion with industry experts
- The final research project is particularly important in the development of professional management skills.

RESEARCH THEMES

MS level research at the Department of Geo-informatics, PMAS-AAUR is particularly carried out in compliance with the global challenges and to meet the international educational criteria and capacity development in the field of Geo-Informatics. Therefore the research areas need to be relevant to the national as well as regional challenges. Research areas aim at advancing the knowledge domains of spatial information and remote sensing technologies and methodologies. Besides that research topics are related to water resource management, food security, climate change, agricultural processes/systems and various other applications of remote sensing and GIS.

Program Assessment Results

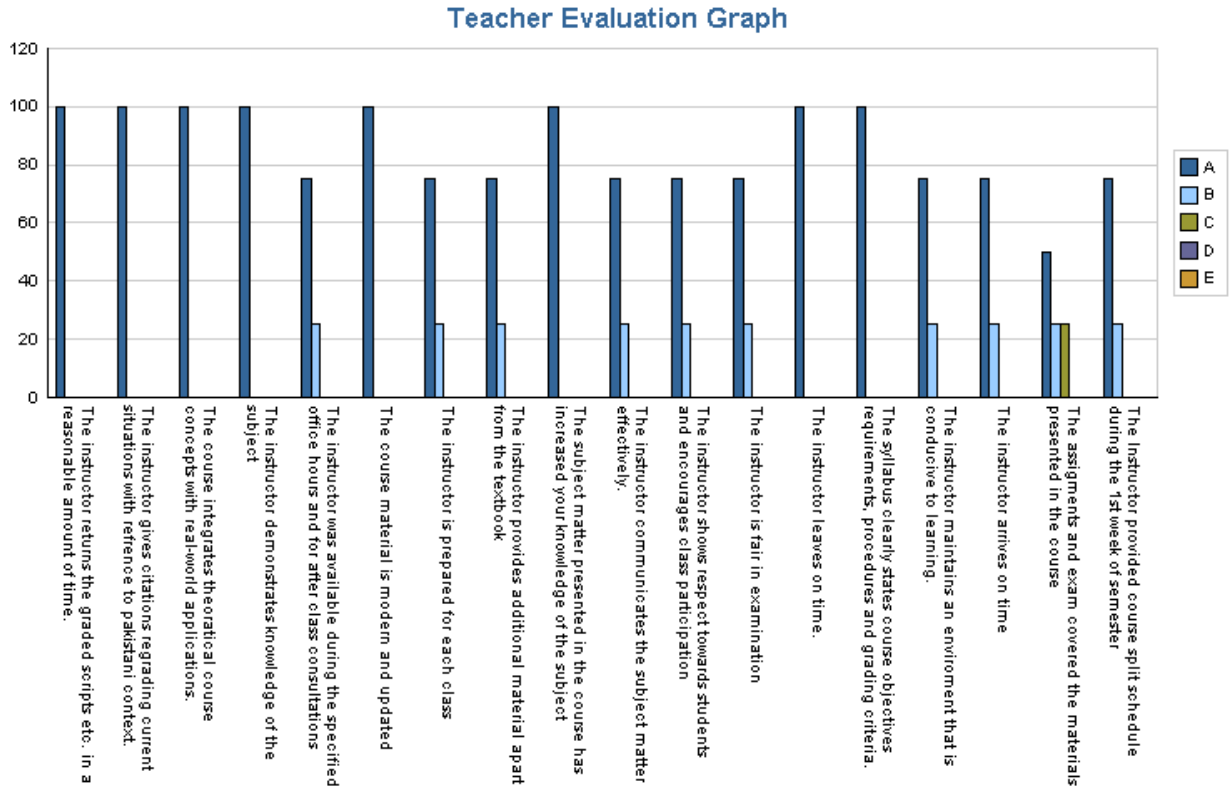
Teacher's Evaluation

Following teachers were involved in teaching and supervising and MS students namely:

1. Dr. Mobushir Riaz Khan, Associate Professor
2. Dr. Siddiqullah Baig, Assistant Professor
3. Dr. Naveed Tahir, Assistant Professor
4. Mr. Muhammad Amin, Lecturer
5. Mr. Naeem Abbas Malik, Lecturer
6. Mr. Saif ur Rehman Khalid, Visiting Faculty
7. Mr. Asmat Ali, Visiting Faculty
8. Mr. Shahzada Adnan, Visiting Faculty
9. Mr. Armagahan, Visiting Faculty

All the teachers and courses were evaluated by the students at the end of the semester in accordance with proforma 10 & 1 devised by HEC. The graphical representation of evaluations done by students is given below. Students were asked to give opinion on the various indicators relating to instructor's performance and course delivery i.e. whether they strongly agree, agree, uncertain, disagree or strongly disagree. Feedback from the overwhelming majority was positive. Only very few were uncertain about few indicators. None of the response was negative.

Evaluation: The graph shows evaluation of the instructor. 90 percent of the students strongly agreed that “the instructor communicates the subject matter effectively”, “the course material was modern and updated”, and “the instructor provides additional material apart from textbook “. 100% of the students strongly agreed that “the instructor maintains an environment that is conducive for learning”, “The instructor is fair in examination” and “The subject matter presented in the course has increased your knowledge of the subject”, "course integrates theoretical course concepts with real world applications" and “the instructor was available during the specified office hours”. Whereas 100% students strongly agreed that “the instructor shows respect towards the students and encourages class participation”.



Where:

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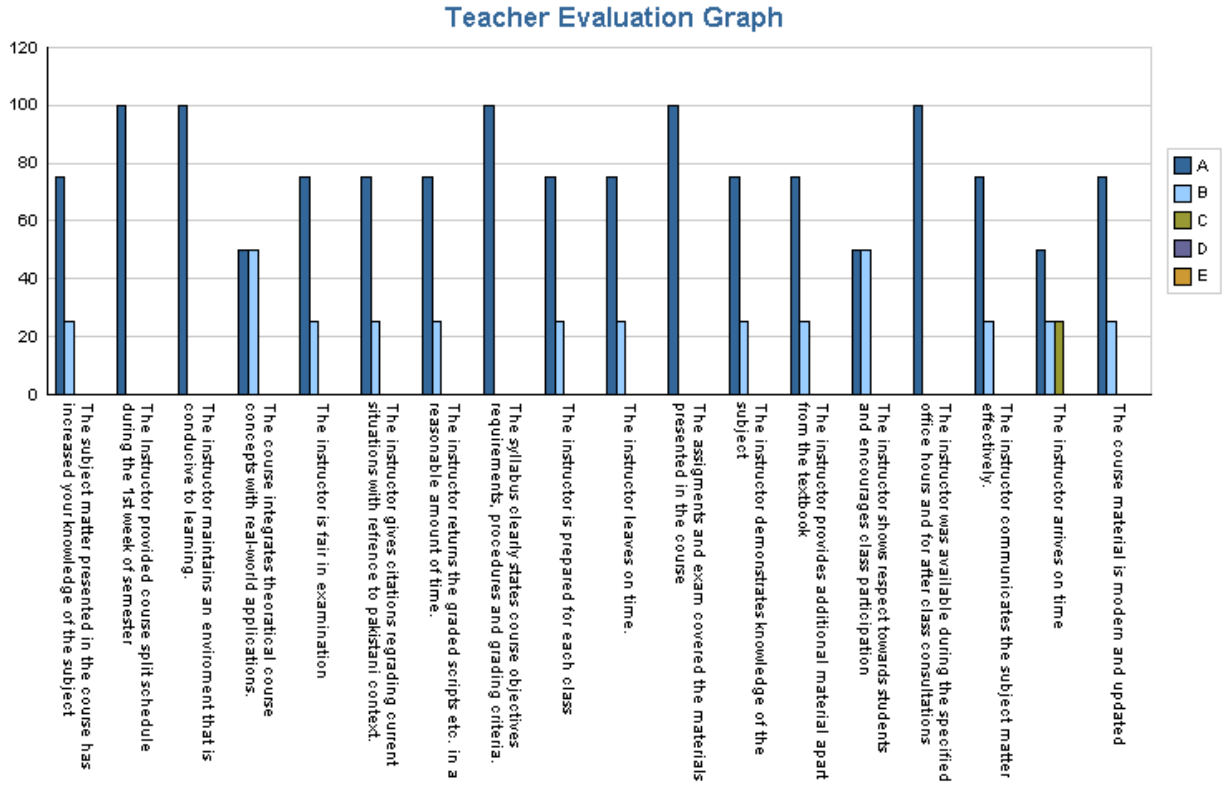

Where:

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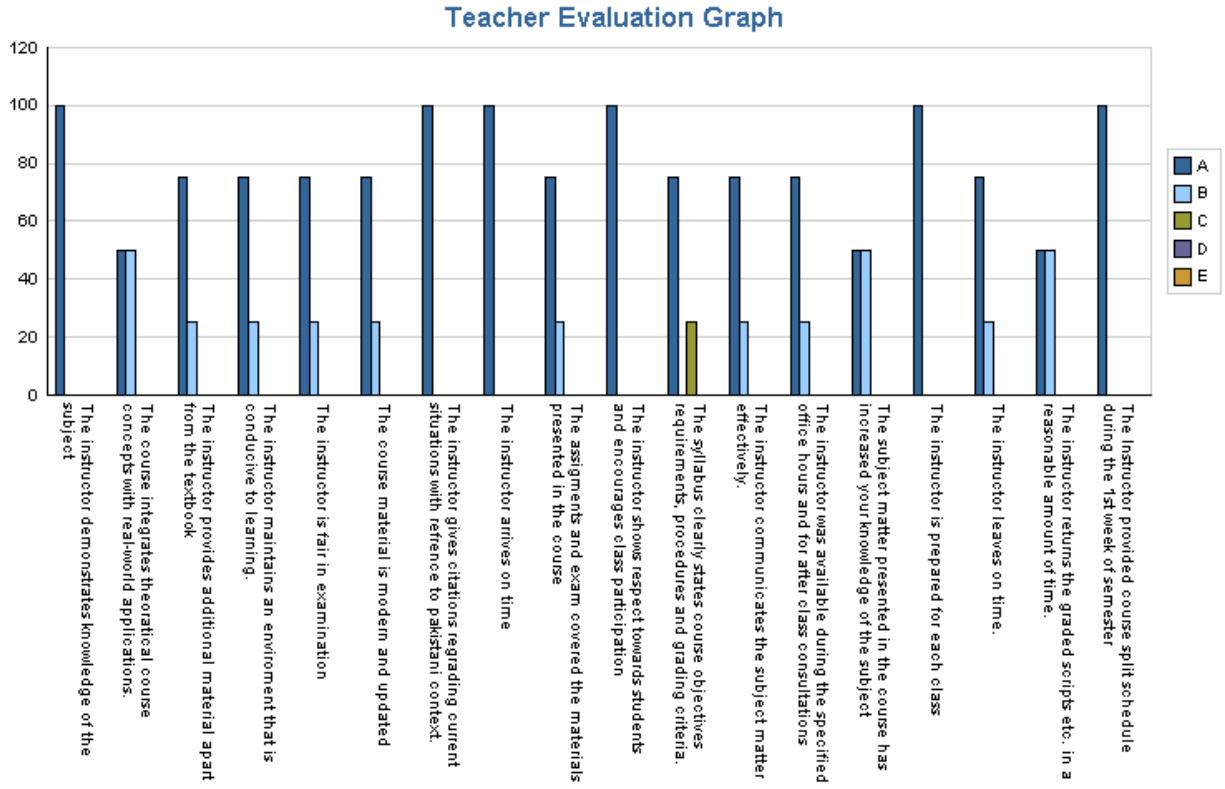
Mr. Muhammad Amin (RSG-703, Fall 2013)

Evaluation: The graph shows evaluation of the instructor. 90% percent of the students strongly agreed that “the instructor communicates the subject matter effectively”, “the course material was modern and updated”, and “the instructor provides additional material apart from textbook “. 60% of the students strongly agreed that “the instructor maintains an environment that is conducive for learning”, “The instructor is fair in examination” and “The subject matter presented in the course has increased your knowledge of the subject”, "course integrates theoretical course concepts with real world applications" and “the instructor was available during the specified office hours”. Whereas 90% students strongly agreed that “the instructor shows respect towards the students and encourages class participation”.



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Mr. Muhammad Amin (RSG-704, Fall 2013)

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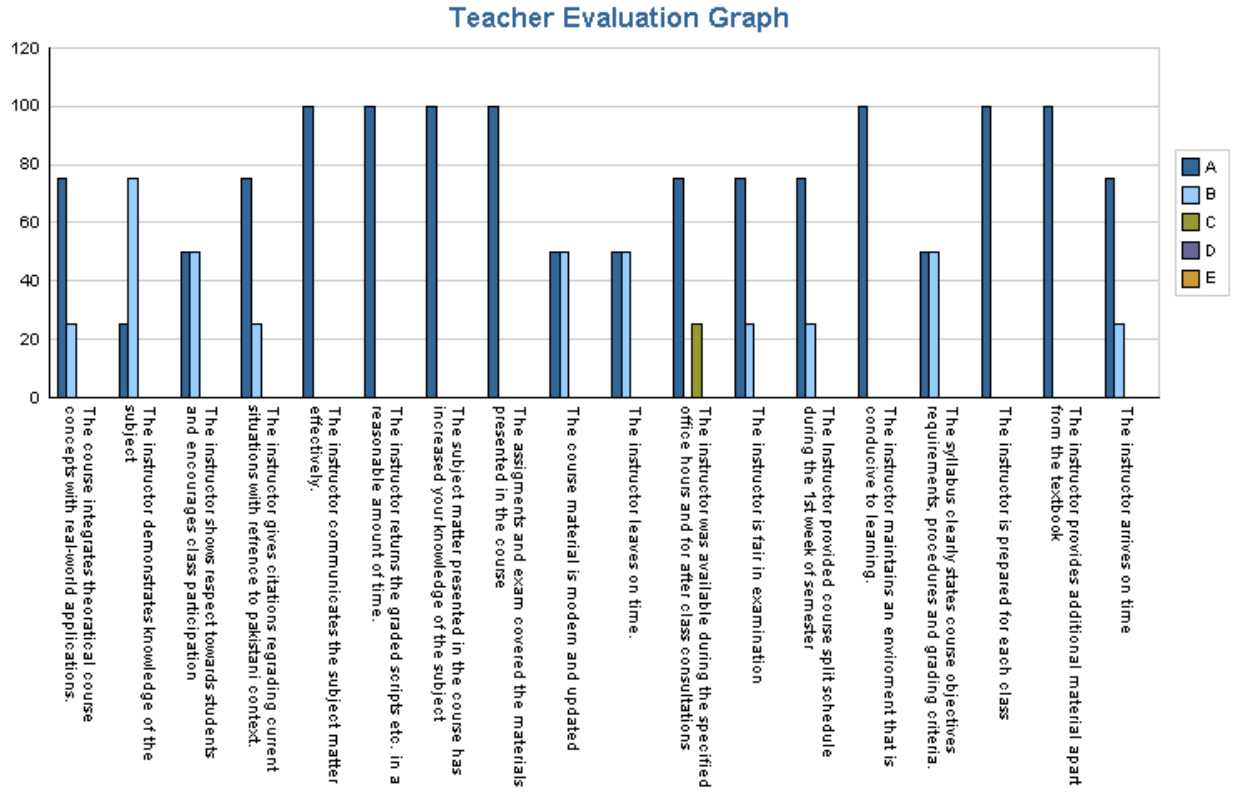
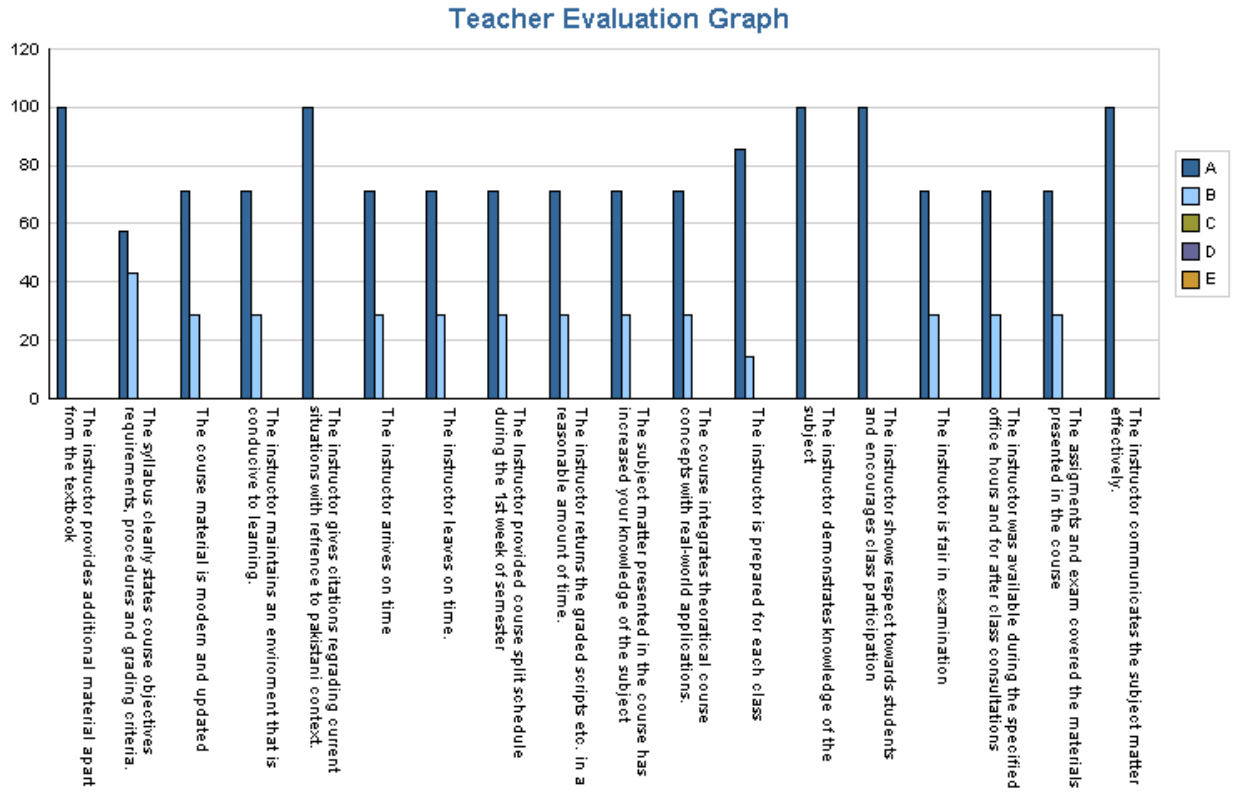


Where:

A = Strongly Agree, B = Agree, C = Uncertain, D = Disagree, E = Strongly Disagree

Mr. Muhammad Amin (RSG-701, Spring 2014)

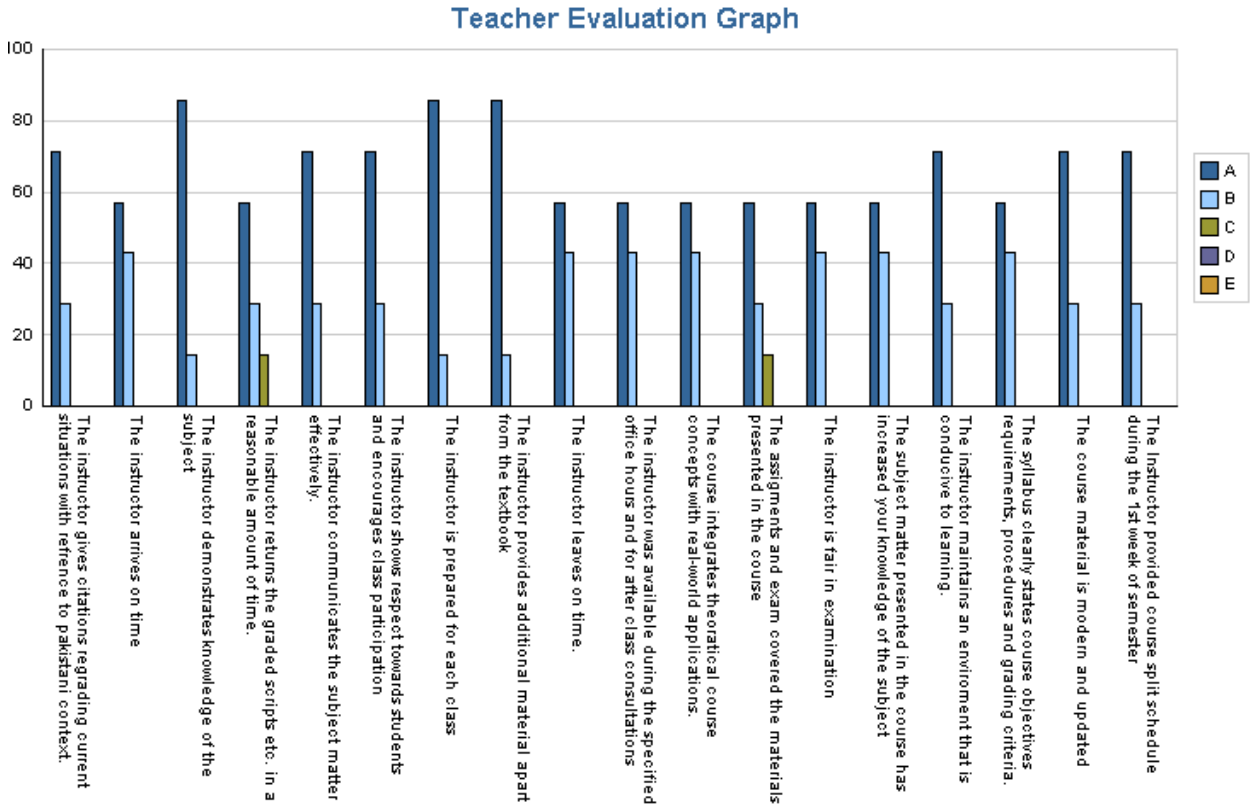
Evaluation: The graph shows evaluation of the instructor. 100% percent of the students strongly agreed that "The instructor communicates the subject matter effectively", "The instructor shows respect towards students and encourages class participation", and "The instructor gives citations regrading current situations with reference to Pakistani context ". 90% of the students strongly agreed that "The instructor is prepared for each class". Whereas 70% students strongly agreed that "The instructor arrives on time", "The instructor leaves on time" and "The assignments and exam covered the materials presented in the course".



Where:

A = Strongly Agree, B = Agree, C = Uncertain, D = Disagree, E = Strongly Disagree

Evaluation: The graph shows evaluation of the instructor. 70% percent of the students strongly agreed that “the instructor communicates the subject matter effectively”, “the course material was modern and updated”, and “the instructor provides additional material apart from textbook “. 57% of the students strongly agreed that “the instructor maintains an environment that is conducive for learning”, “The instructor is fair in examination” and “The subject matter presented in the course has increased your knowledge of the subject”, "course integrates theoretical course concepts with real world applications" and “the instructor was available during the specified office hours”. Whereas 90% students strongly agreed that “the instructor shows respect towards the students and encourages class participation”.

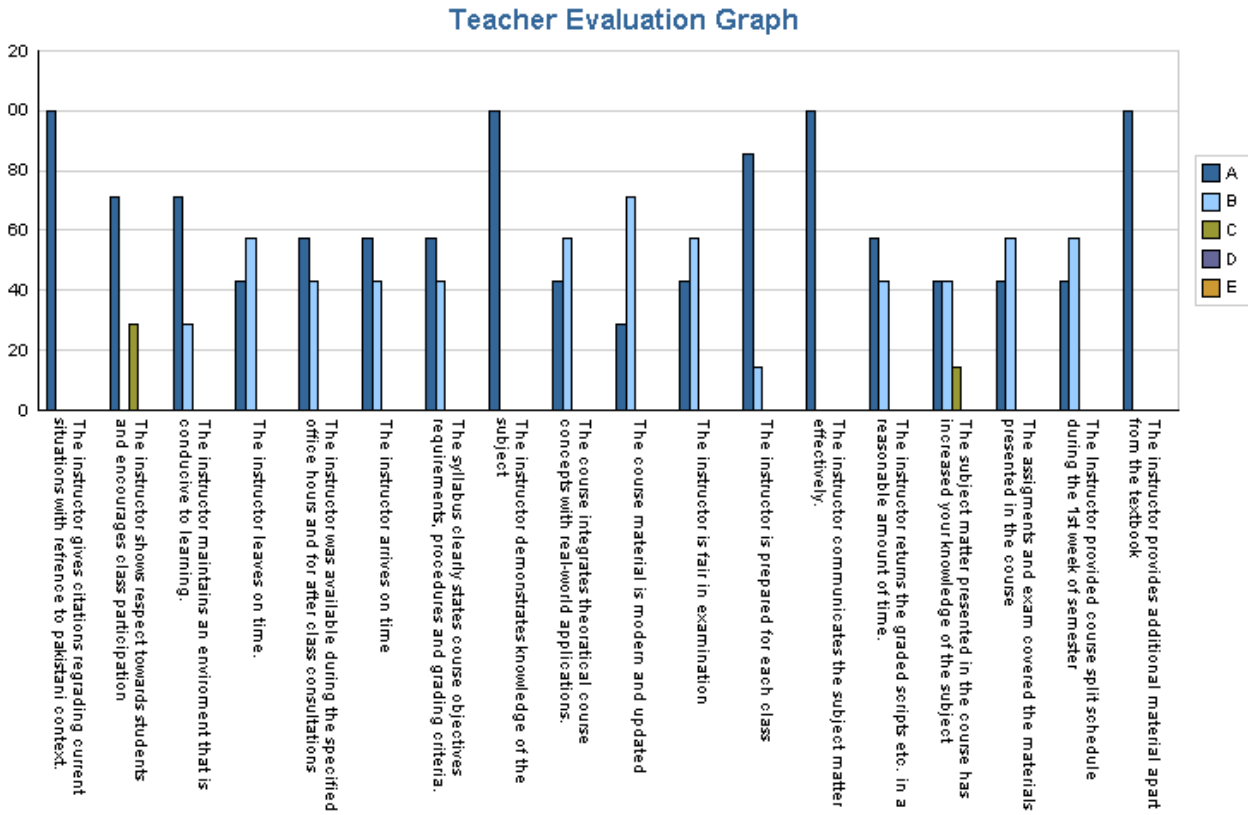


Where:

A = Strongly Agree, B = Agree, C = Uncertain, D = Disagree, E = Strongly Disagree

Mr. Muhammad Amin (RSG-703, Spring 2014)

Evaluation: The graph shows evaluation of the instructor. 100% percent of the students strongly agreed that "The instructor gives citations regarding current situations with reference to Pakistani context", "The instructor demonstrates knowledge of the subject", and "The instructor communicates the subject matter effectively. ". 90% of the students strongly agreed that "The instructor is prepared for each class. Whereas 70% students strongly agreed that "The instructor shows respect towards students and encourages class participation", "The instructor maintains an environment that is conducive to learning" and "The course material is modern and updated".



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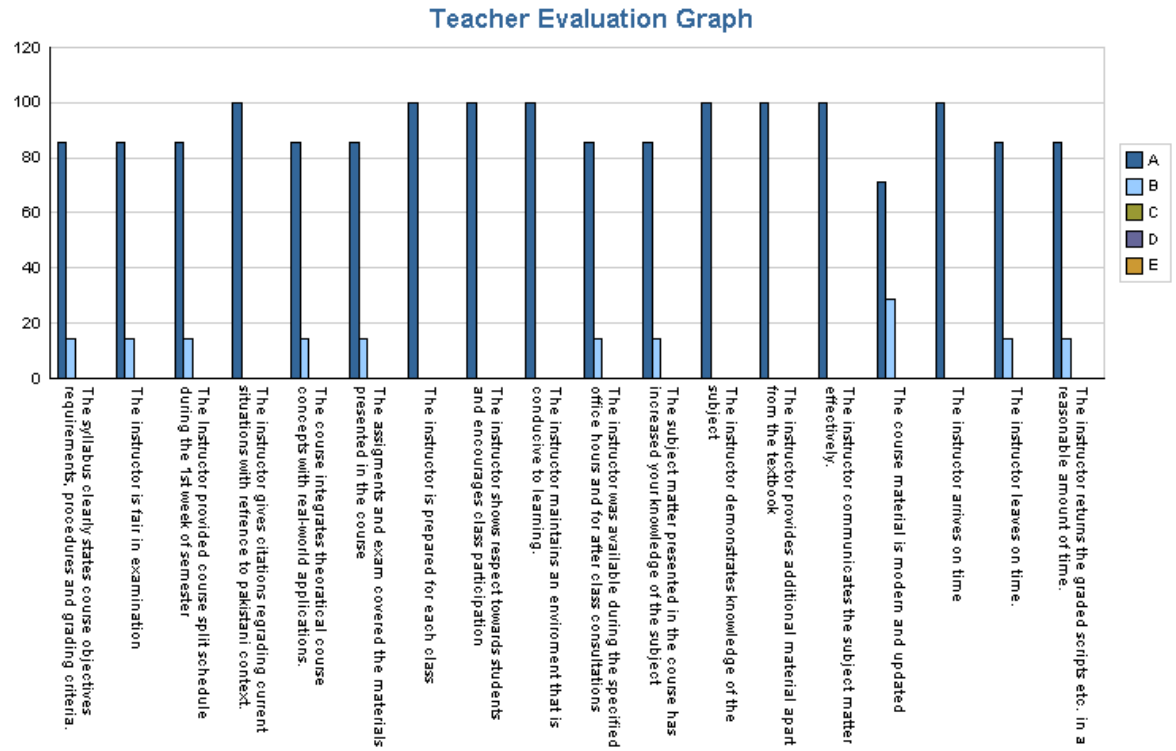
Mr. Muhammad Amin (RSG-704, Spring 2014)

Evaluation: The graph shows evaluation of the instructor. 100% percent of the students strongly agreed that "The instructor gives citations regarding current situations with reference to Pakistani context", "The instructor is prepared for each class", and "The instructor shows respect towards students and encourages class participation". 90% of the students strongly agreed that "The instructor returns the graded scripts etc. in a reasonable amount of time", "The instructor leaves on time" and "The subject matter presented in the course has increased your knowledge of the subject". Whereas 70% students strongly agreed that "The course material is modern and updated".

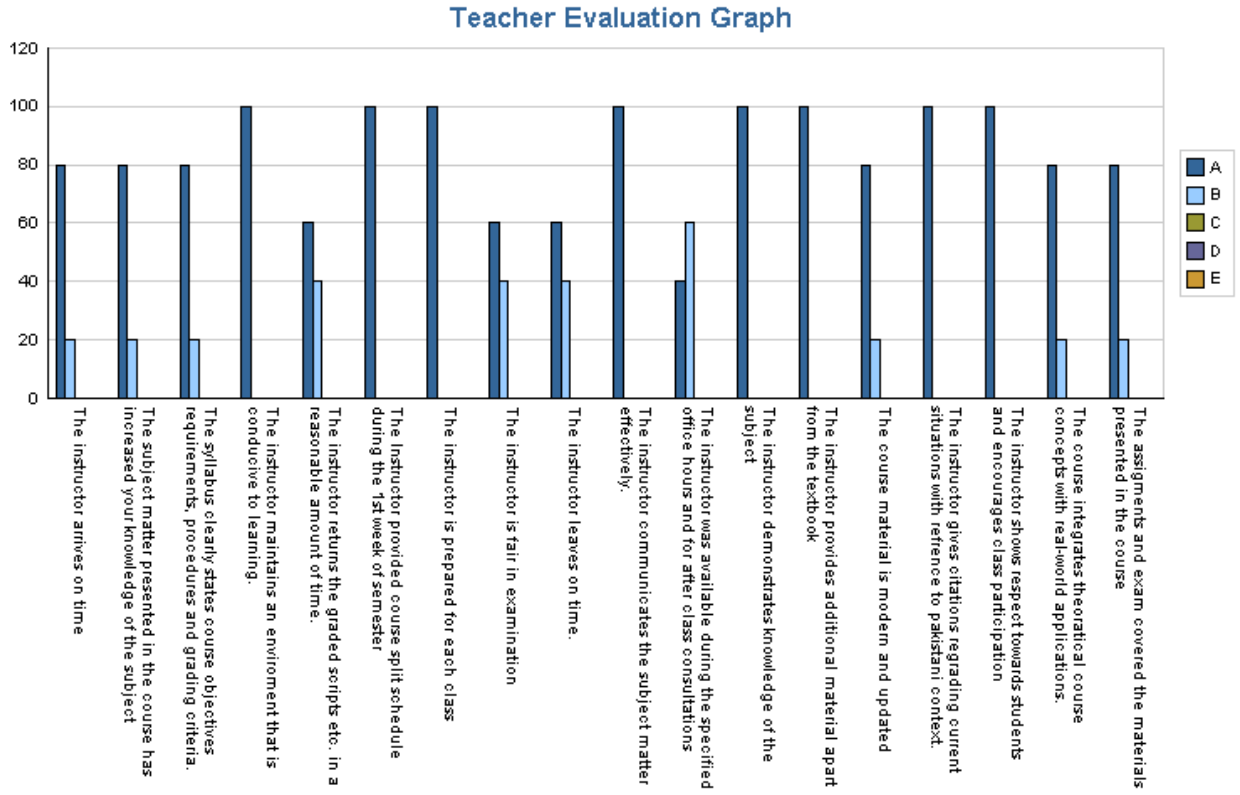


Where:

A = Strongly Agree, B = Agree, C = Uncertain, D = Disagree, E = Strongly Disagree

Dr. Mobushir Riaz Khan(RSG-705, Spring 2014)

Evaluation: The graph shows evaluation of the instructor. 100% percent of the students strongly agreed that "The instructor is prepared for each class", "The instructor provides additional material apart from the textbook", and "The instructor gives citations regarding current situations with reference to Pakistani context ". 80% of the students strongly agreed that "The course integrates theoretical course concepts with real-world applications", "The subject matter presented in the course has increased your knowledge of the subject" and "The syllabus clearly states course objectives requirements, procedures and grading criteria". Whereas 60% students strongly agreed that "The Instructor provided course split schedule during the 1st week of semester" and "The instructor leaves on time".



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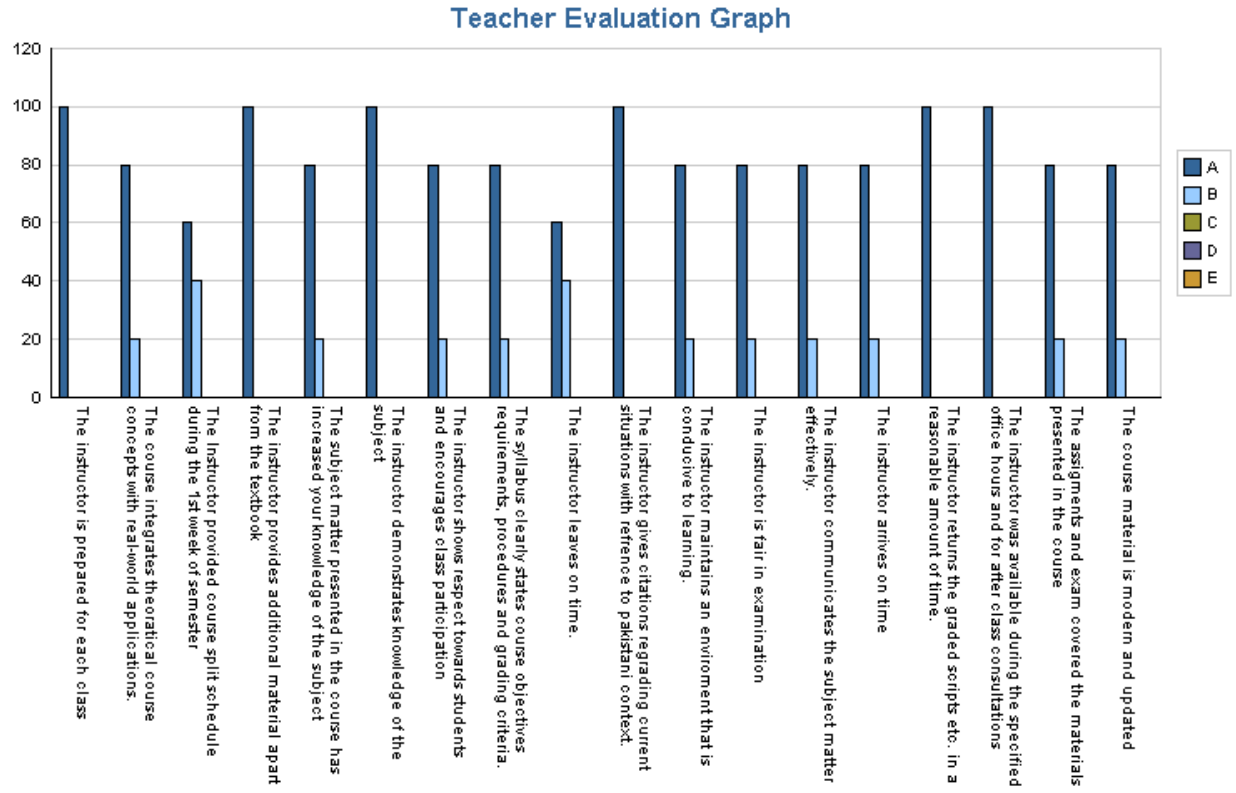
Evaluation: The graph shows evaluation of the instructor. 100% percent of the students strongly agreed that “the instructor communicates the subject matter effectively”, “the course material was modern and updated”, and “the instructor provides additional material apart from textbook “. 90% of the students strongly agreed that “the instructor maintains an environment that is conducive for learning”, “The instructor is fair in examination” and “The subject matter presented in the course has increased your knowledge of the subject”, "course integrates theoretical course concepts with real world applications" and “the instructor was available during the specified office hours”. Whereas 100% students strongly agreed that “the instructor shows respect towards the students and encourages class participation”.



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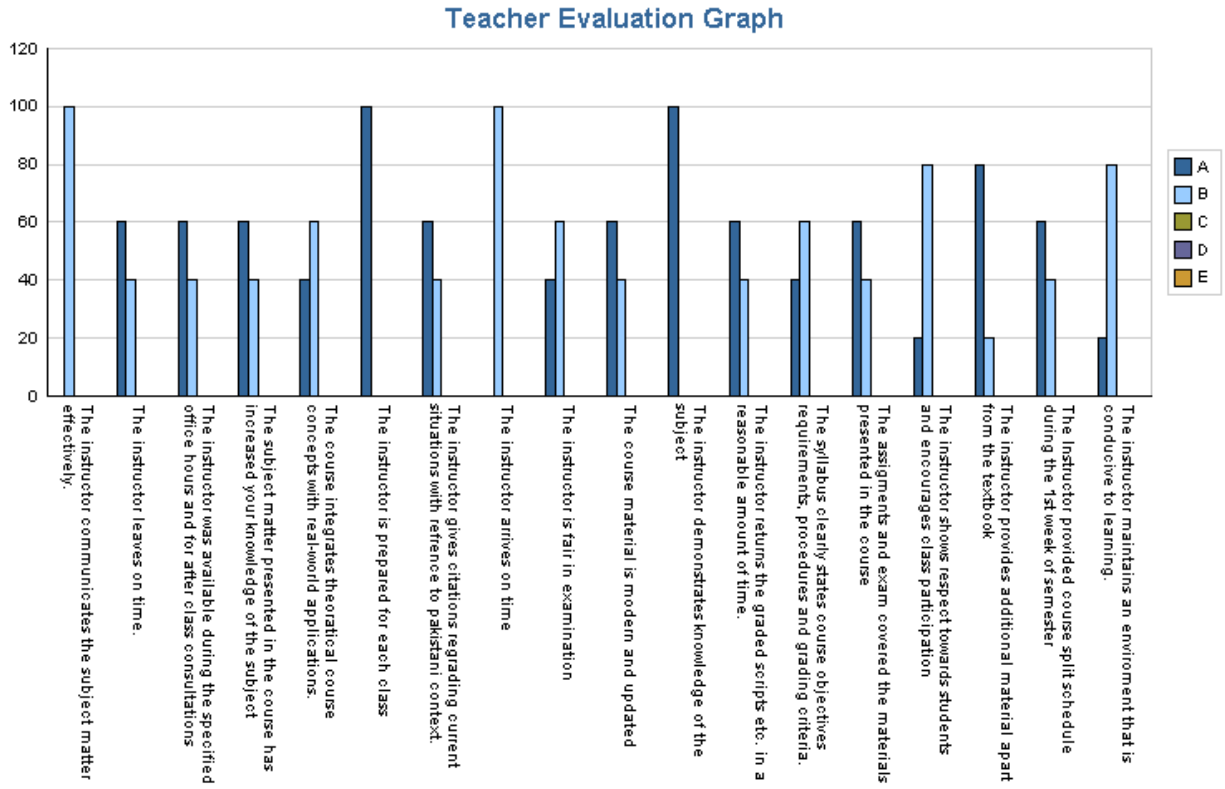
Evaluation: The graph shows evaluation of the instructor. 100% percent of the students strongly agreed that "the instructor communicates the subject matter effectively", "The instructor is prepared for each class", and "The instructor arrives on time ". 80% of the students strongly agreed that "The instructor maintains an environment that is conducive to learning", "The instructor provides additional material apart from the textbook" and "The instructor shows respect towards students and encourages class participation". Whereas 60% students strongly agreed that "The instructor leaves on time","The instructor was available during the specified office hours and for after class consultations" and "The instructor is fair in examination".



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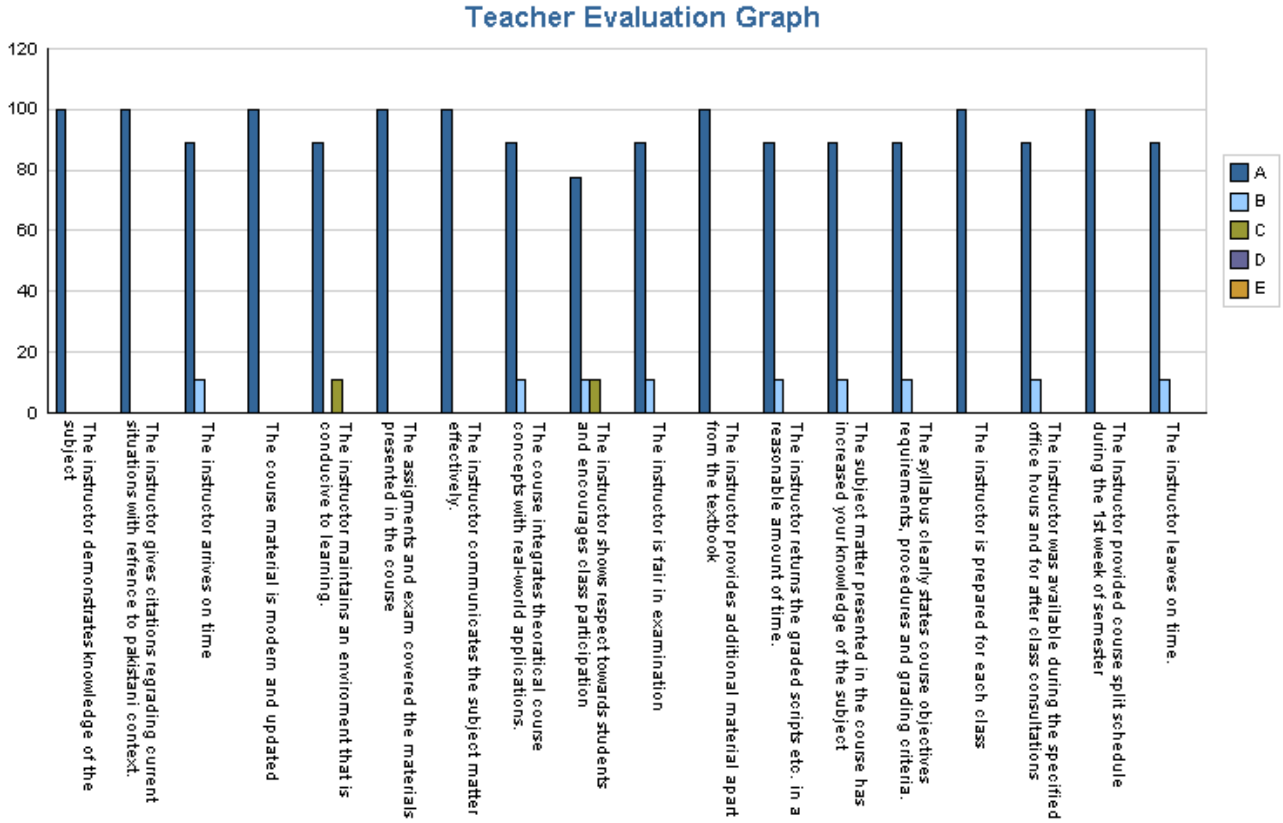
Mr. Saif ur Rehman Khalid (RSG-701, Fall 2014)

Evaluation: The graph shows evaluation of the instructor. 100% percent of the students strongly agreed that "The instructor demonstrates knowledge of the subject", "The instructor gives citations regrading current situations with reference to Pakistani context", and "The assignments and exam covered the materials presented in the course ". 90% of the students strongly agreed that "The instructor arrives on time", "The instructor maintains an environment that is conducive to learning" and "The syllabus clearly states course objectives requirements, procedures and grading criteria". Whereas 75% students strongly agreed that "The instructor shows respect towards students and encourages class participation".



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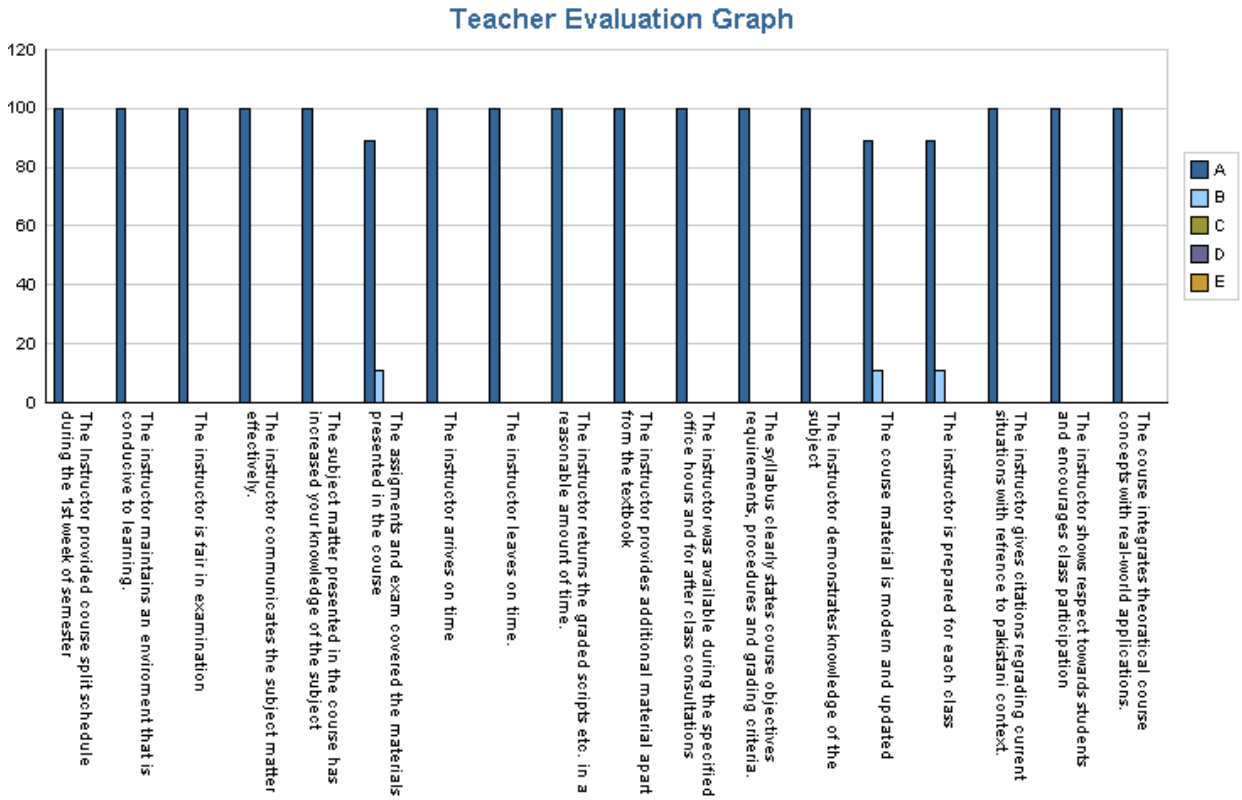
Evaluation: The graph shows evaluation of the instructor. 100 percent of the students strongly agreed that “The course integrates theoretical course concepts with real-world applications”,“The instructor shows respect towards students and encourages class participation”, "The instructor demonstrates knowledge of the subject”. Whereas 90% students strongly agreed that “The instructor is prepared for each class” and “The course material is modern and updated”.



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Mr. Muhammad Amin (RSG-703, Fall 2014)

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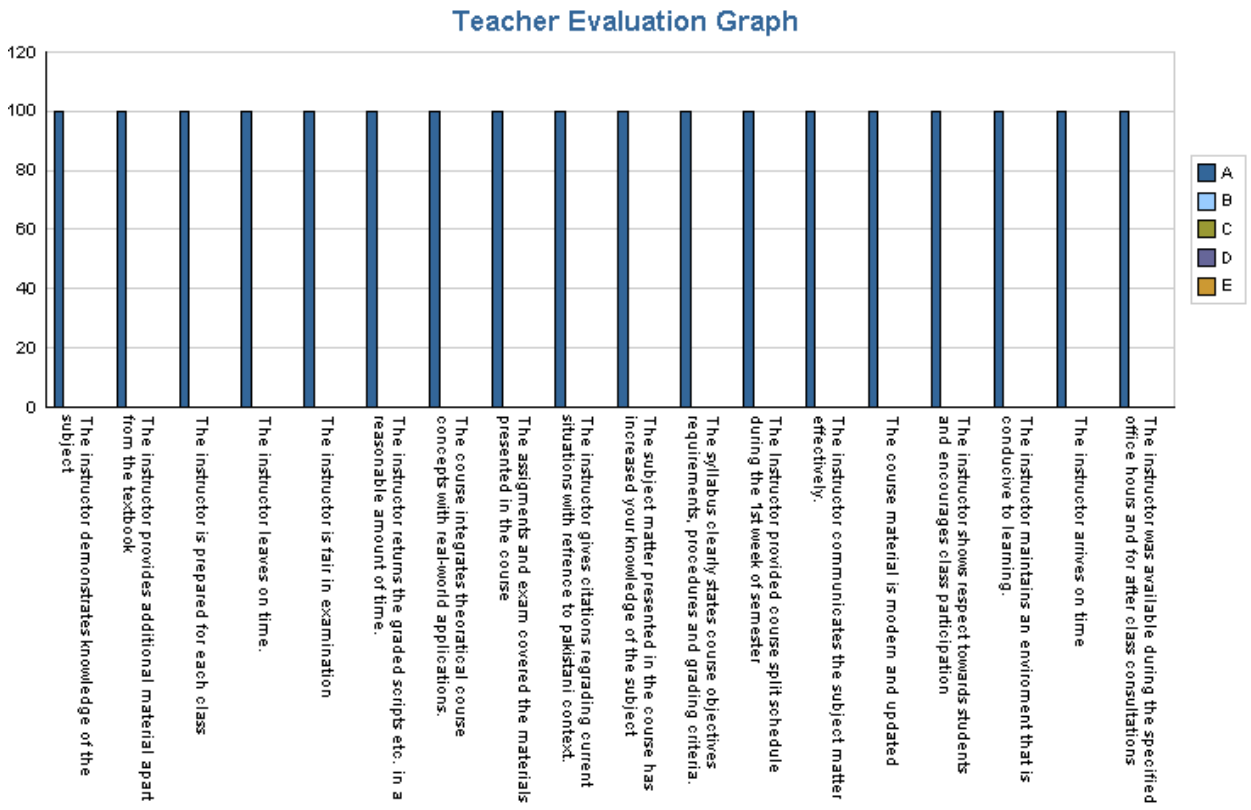

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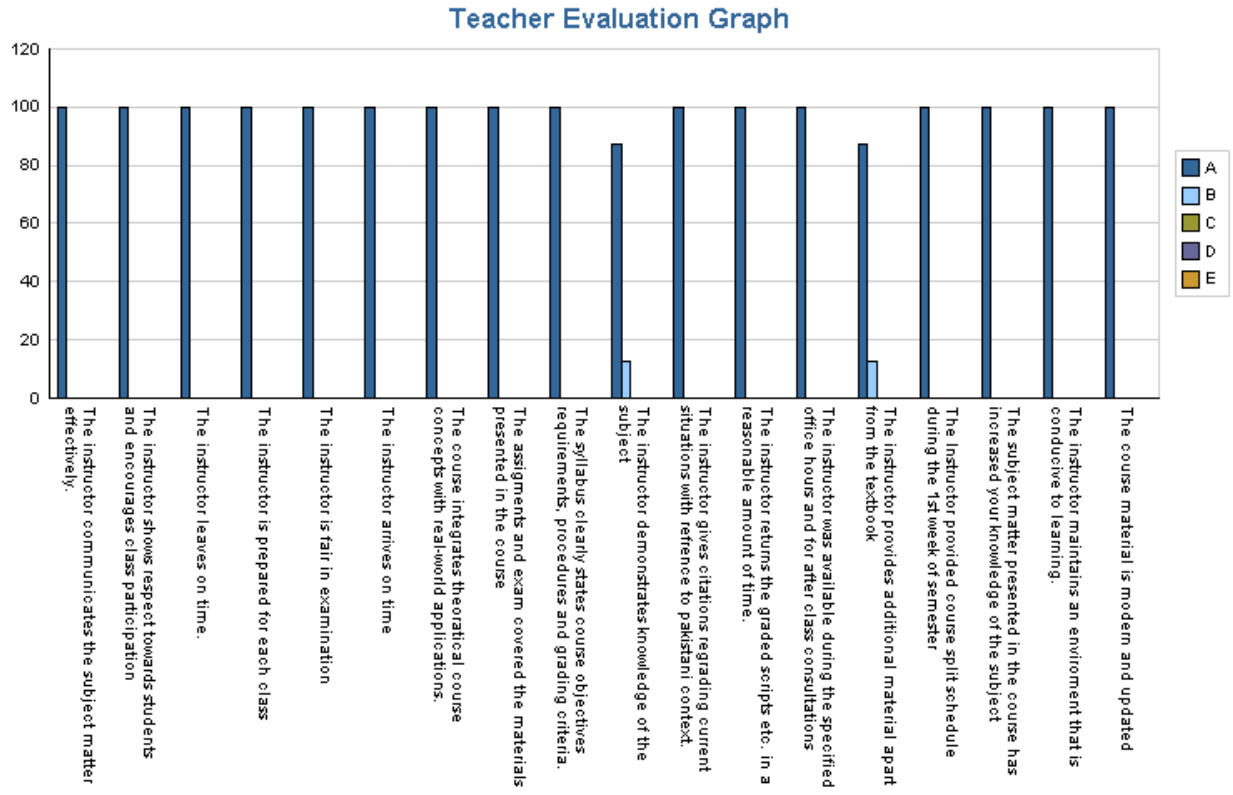
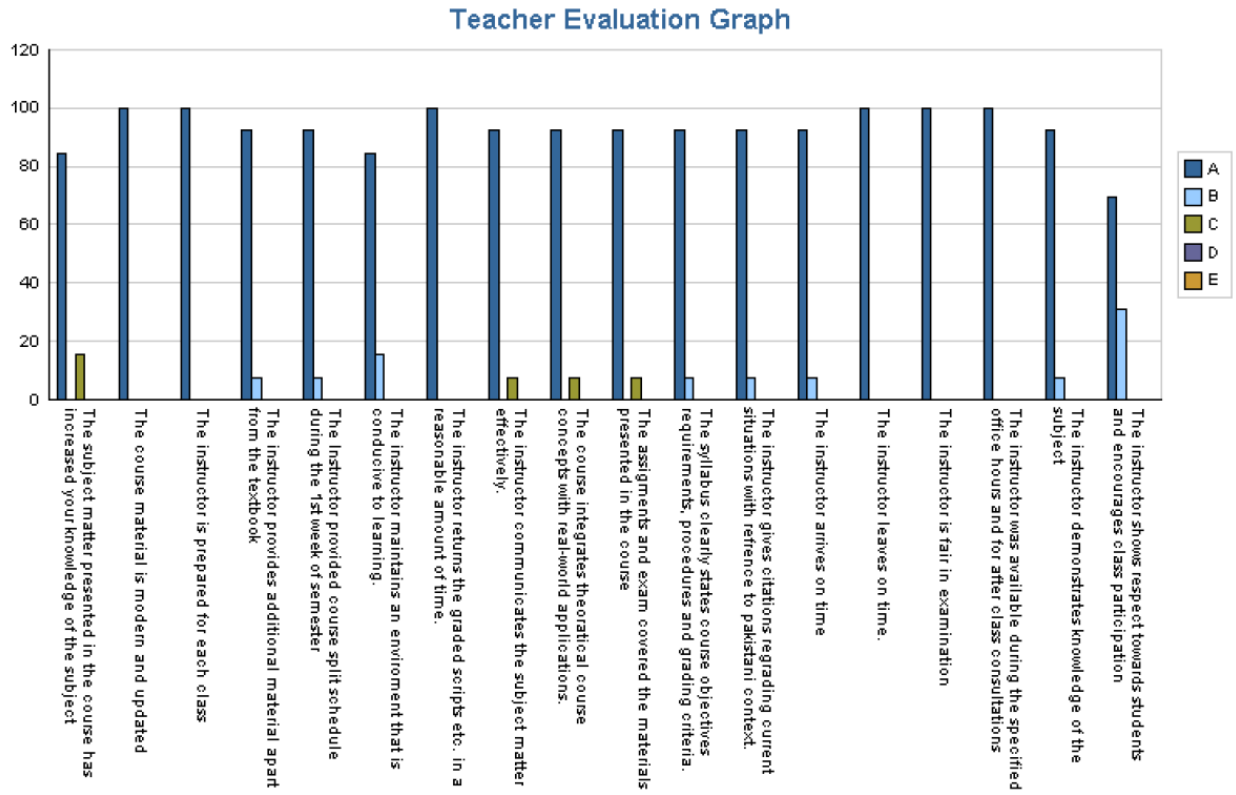


Where:

A = Strongly Agree, B = Agree, C = Uncertain, D = Disagree, E = Strongly Disagree

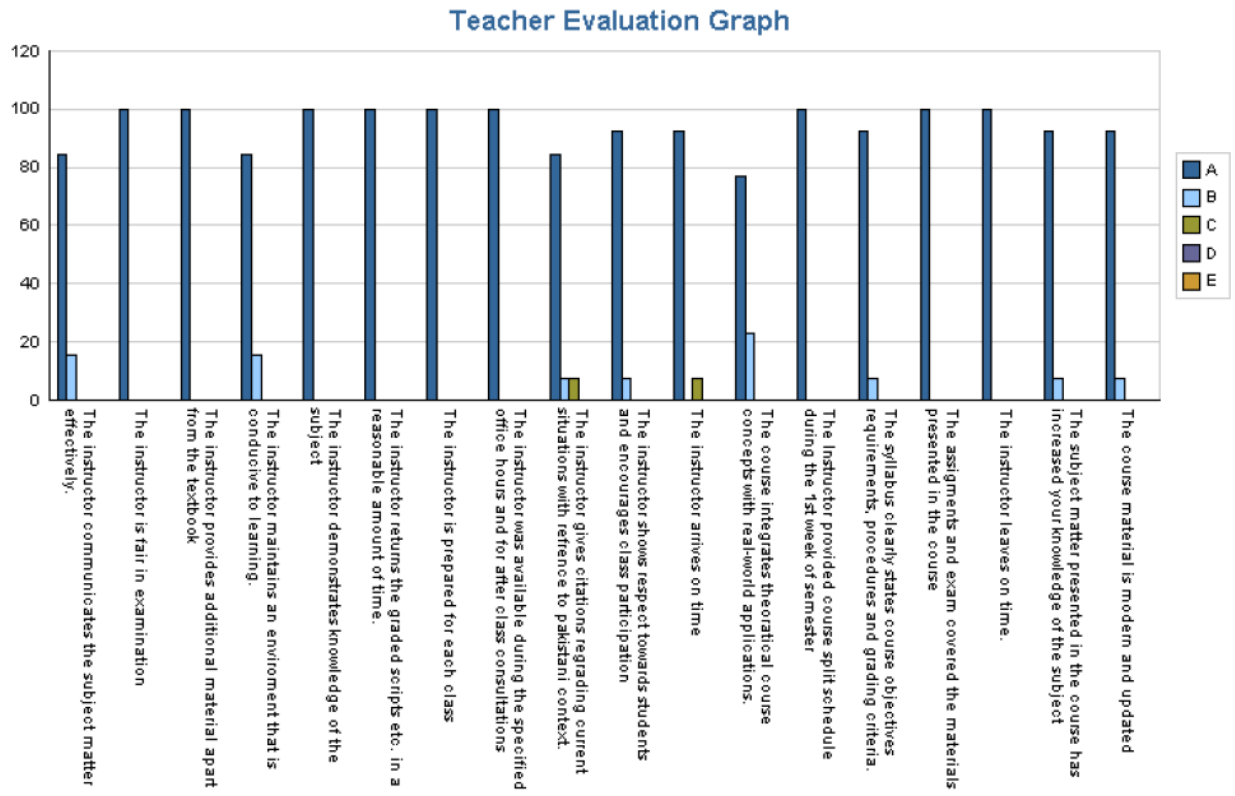
Evaluation: The graph shows evaluation of the instructor. 100 percent of the students strongly agreed that "the instructor was available during the specified office hours", "the course material was modern and updated", "the instructor is prepared for each class" and "The instructor is fair in examination". Whereas 90% students strongly agreed that "the instructor provides additional material apart from textbook" and "the instructor communicates the subject matter effectively". 85% strongly agreed that "the instructor maintains an environment that is conducive for learning" and "The subject matter presented in the course has increased your knowledge of the subject". 70% students strongly agreed that "the instructor shows respect towards students which encourage participation".



Where:

A = Strongly Agree, B = Agree, C = Uncertain, D = Disagree, E = Strongly Disagree

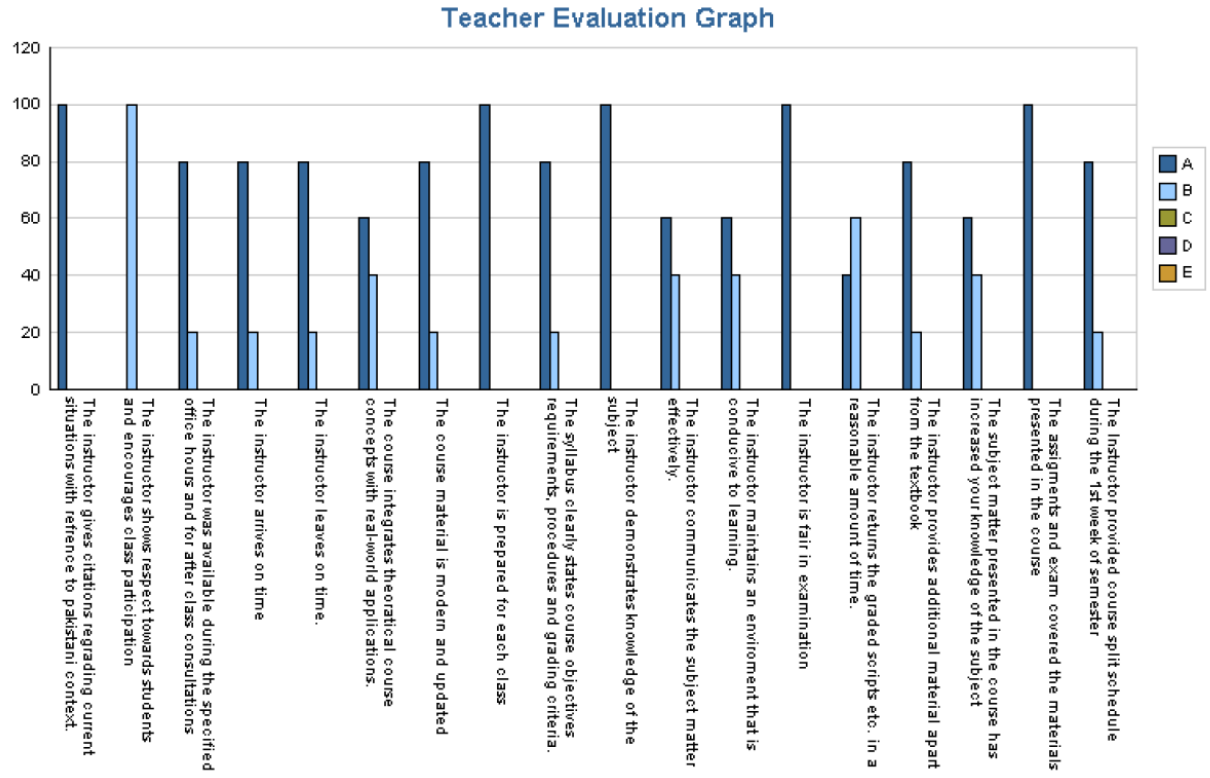
Evaluation: The graph shows evaluation of the instructor. 100 percent of the students strongly agreed that "the instructor was available during the specified office hours", "the instructor provides additional material apart from textbook", "the instructor is prepared for each class" and "The instructor is fair in examination". Whereas 90% students strongly agreed that "The subject matter presented in the course has increased your knowledge of the subject", "the instructor shows respect towards students which encourage participation" and "the course material was modern and updated". 85% students strongly agreed that "the instructor communicates the subject matter effectively" and "the instructor maintains an environment that is conducive for learning".



Where:

A = Strongly Agree, B = Agree, C = Uncertain, D = Disagree, E = Strongly Disagree

Evaluation: The graph shows evaluation of the instructor. 100 percent of the students strongly agreed that "the instructor is prepared for each class", "the instructor demonstrates the knowledge of the subject" and "The instructor is fair in examination". Whereas 80% students strongly agreed that "the instructor was available during the specified office hours", "the instructor provides additional material apart from textbook" and "the course material was modern and updated". 60% students strongly agreed that "the instructor communicates the subject matter effectively", "the instructor maintains an environment that is conducive for learning". "The subject matter presented in the course has increased your knowledge of the subject" and "the course integrates theoretical concepts with the real world problems"

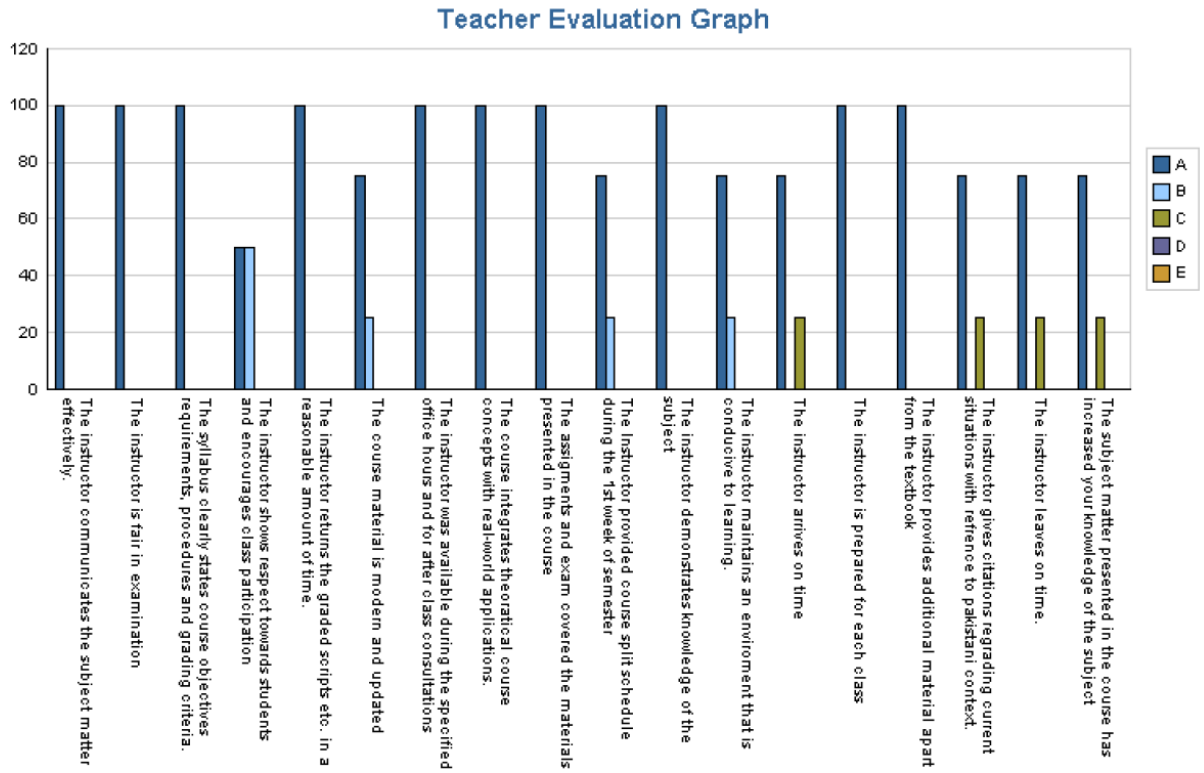


Where:

A = Strongly Agree, B = Agree, C = Uncertain, D = Disagree, E = Strongly Disagree

Mr. Asmat Ali (RSG-732, Fall 2014)

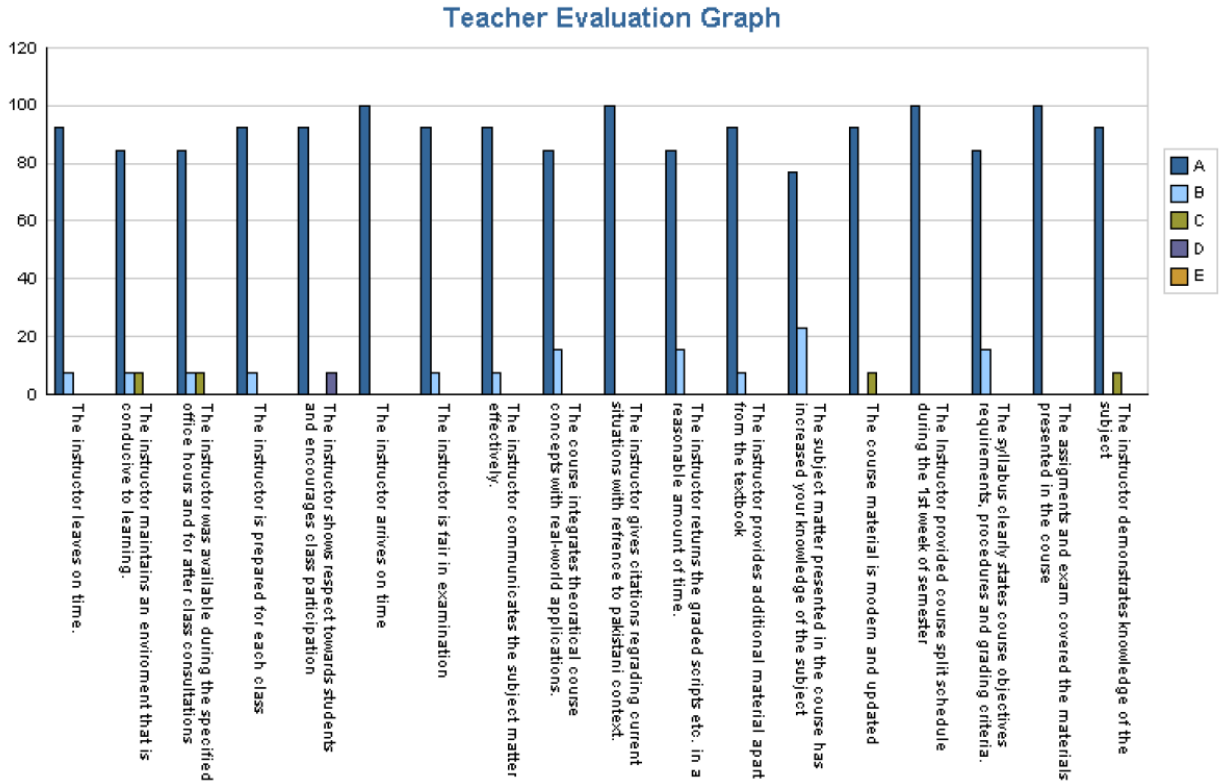
Evaluation: The graph shows evaluation of the instructor. 100 percent of the students strongly agreed that "the instructor is prepared for each class", "the instructor provides additional material apart from textbook", "the instructor was available during the specified office hours", "the course integrates theoretical concepts with the real world problems", "the instructor demonstrates subject matter effectively", "the instructor demonstrates the knowledge of the subject" and "The instructor is fair in examination". 75% students strongly agreed that "the instructor maintains an environment that is conducive for learning". "The subject matter presented in the course has increased your knowledge of the subject" and "the course material was modern and updated".



Where:

A = Strongly Agree, B = Agree, C = Uncertain, D = Disagree, E = Strongly Disagree

Evaluation: The graph shows evaluation of the instructor. 100 percent of the students strongly agreed that "The assignments and exams covered the subject matter presented in the course" and "the instructor give citations regarding current situations with reference to Pakistan". 95% students strongly agreed that "the instructor is prepared for each class", "the instructor demonstrates subject matter effectively", "the instructor demonstrates the knowledge of the subject" and "The instructor is fair in examination". 85% students strongly agreed that "the instructor maintains an environment that is conducive for learning", "the instructor was available during the specified office hours", "the course material was modern and updated" and "the course integrates theoretical concepts with the real world problems.

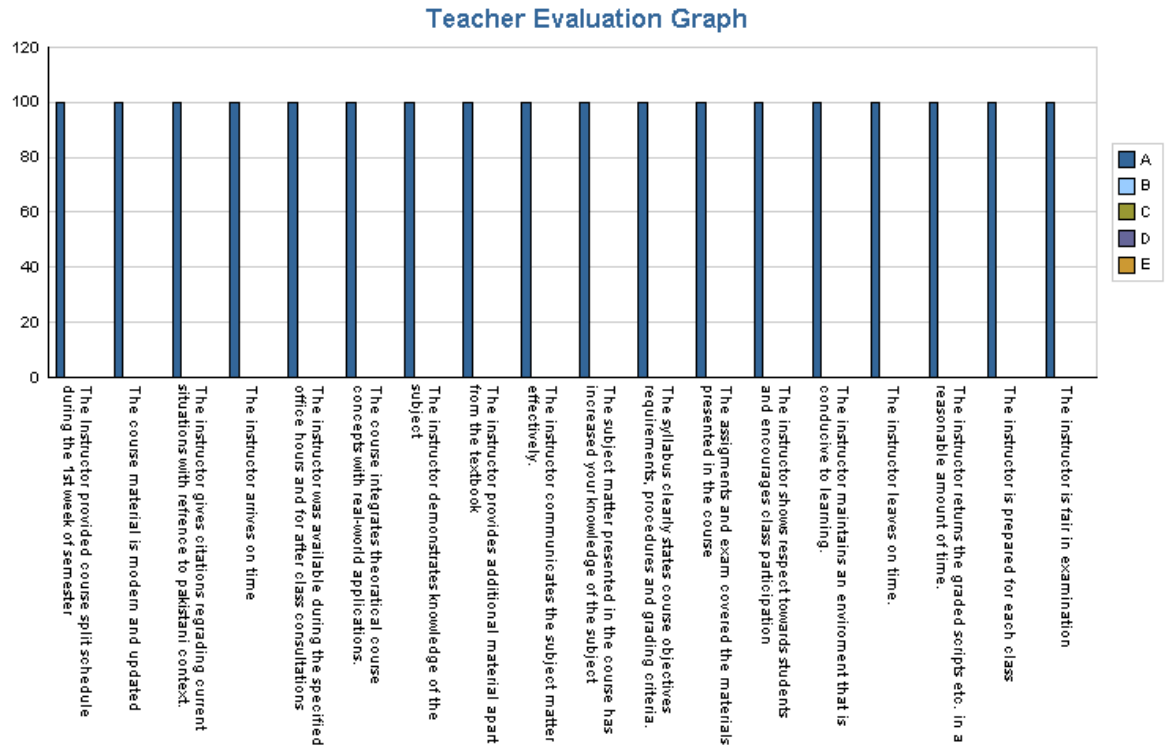


Where:

A = Strongly Agree, B = Agree, C = Uncertain, D = Disagree, E = Strongly Disagree

Muhammad Amin (RSG-701, Spring 2015)

Evaluation: The graph shows evaluation of the instructor. 100% percent of the students strongly agreed that “the instructor communicates the subject matter effectively”, “the course material was modern and updated”, “the instructor provides additional material apart from textbook“, “the instructor maintains an environment that is conducive for learning”, “The instructor is fair in examination”, “The subject matter presented in the course has increased your knowledge of the subject”, "course integrates theoretical course concepts with real world applications" and “the instructor was available during the specified office hours

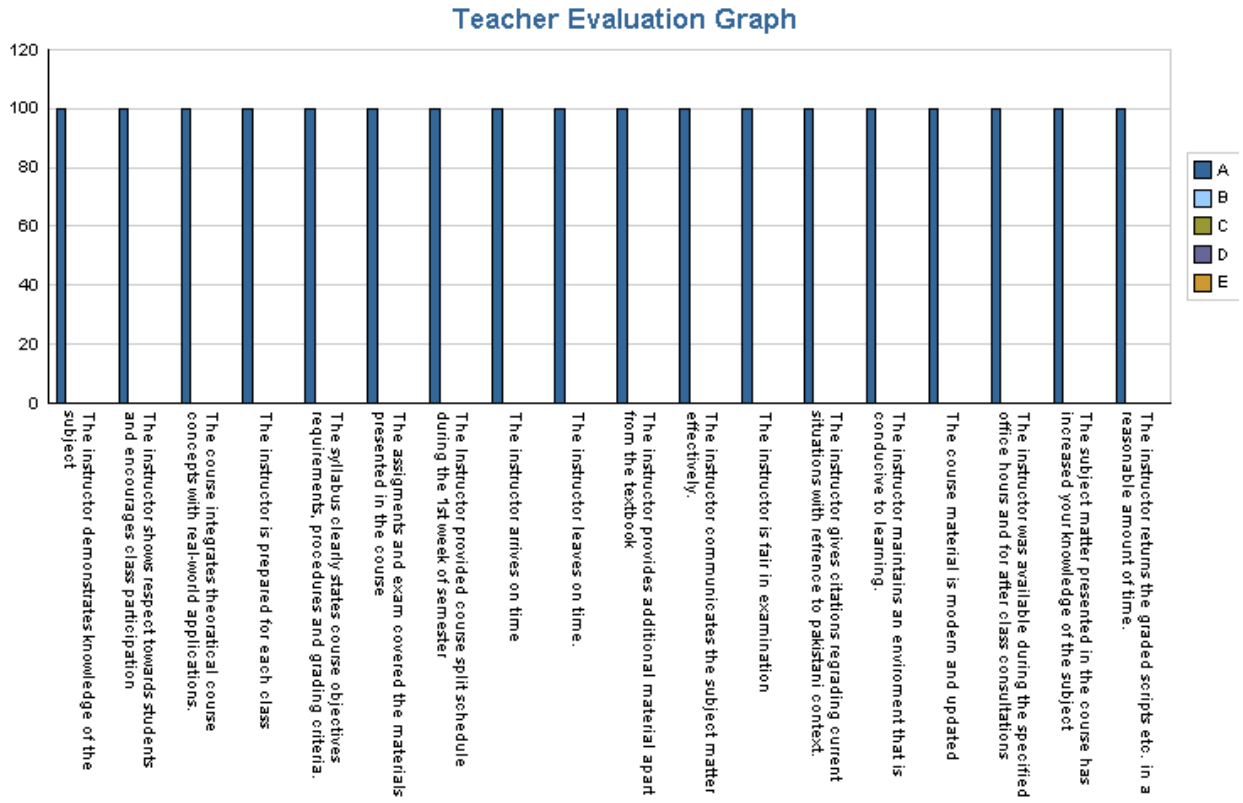


Where:

A = Strongly Agree, B = Agree, C = Uncertain, D = Disagree, E = Strongly Disagree

Muhammad Amin (RSG-702, Spring 2015)

Evaluation: The graph shows evaluation of the instructor. 100% percent of the students strongly agreed that “the instructor communicates the subject matter effectively”, “the course material was modern and updated”, “the instructor provides additional material apart from textbook“, “the instructor maintains an environment that is conducive for learning”, “The instructor is fair in examination”, “The subject matter presented in the course has increased your knowledge of the subject”, "course integrates theoretical course concepts with real world applications", “the instructor was available during the specified office hours” .

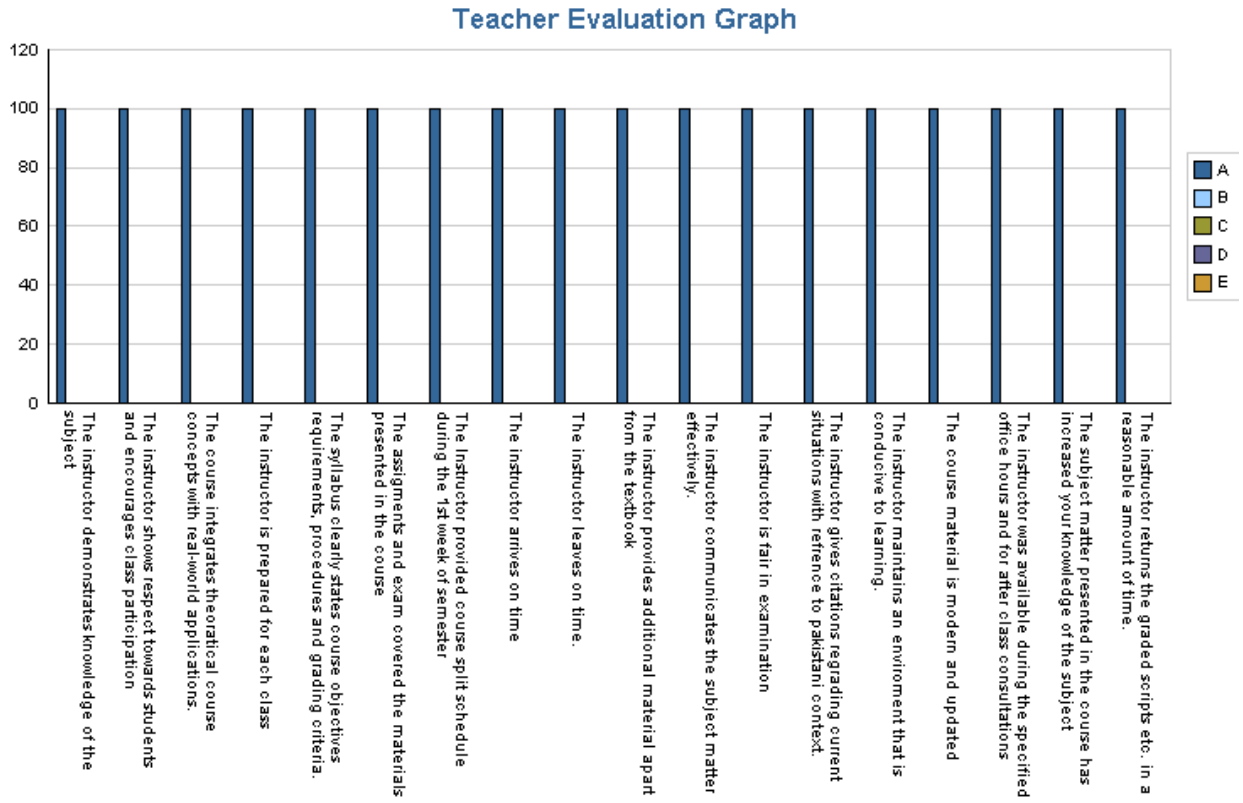


Where:

A = Strongly Agree, B = Agree, C = Uncertain, D = Disagree, E = Strongly Disagree

Muhammad Amin (RSG-703, Spring 2015)

Evaluation: The graph shows evaluation of the instructor. 100% percent of the students strongly agreed that “the instructor communicates the subject matter effectively”, “the course material was modern and updated”, “the instructor provides additional material apart from textbook“, “the instructor maintains an environment that is conducive for learning”, “The instructor is fair in examination”, “The subject matter presented in the course has increased your knowledge of the subject”, "course integrates theoretical course concepts with real world applications" and “the instructor was available during the specified office hours”.

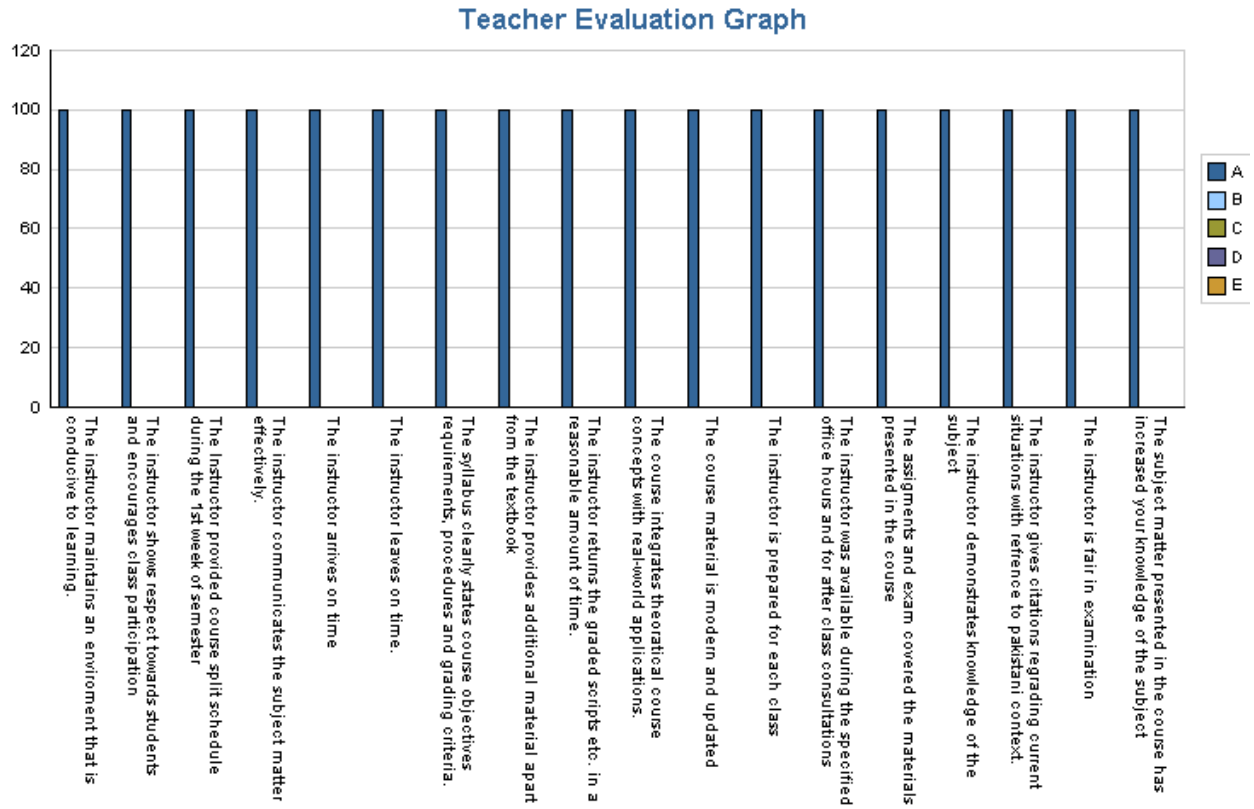


Where:

A = Strongly Agree, B = Agree, C = Uncertain, D = Disagree, E = Strongly Disagree

Muhammad Amin (RSG-704, Spring 2015)

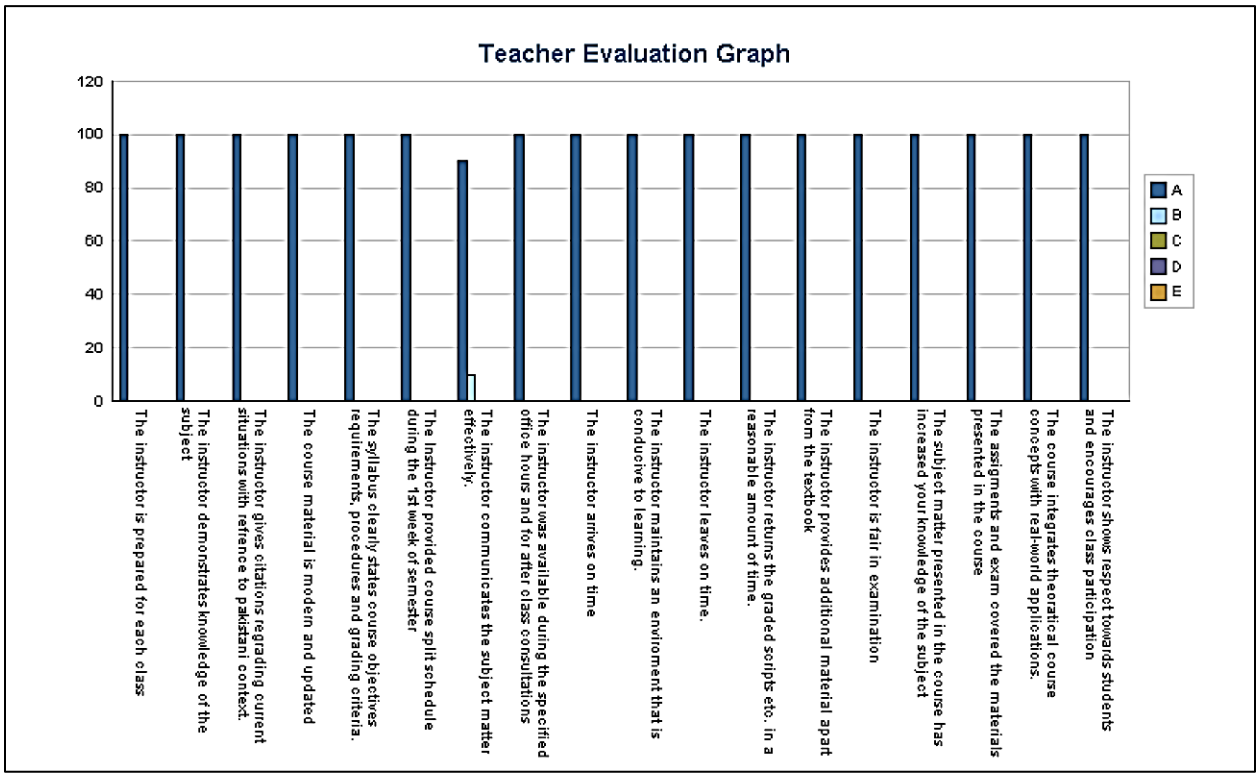
Evaluation: The graph shows evaluation of the instructor. 100% percent of the students strongly agreed that “the instructor communicates the subject matter effectively”, “the course material was modern and updated”, and “the instructor provides additional material apart from textbook“, “the instructor maintains an environment that is conducive for learning”, “The instructor is fair in examination” and “The subject matter presented in the course has increased your knowledge of the subject”, "course integrates theoretical course concepts with real world applications" and “the instructor was available during the specified office hours”.



Where:

A = Strongly Agree, B = Agree, C = Uncertain, D = Disagree, E = Strongly Disagree

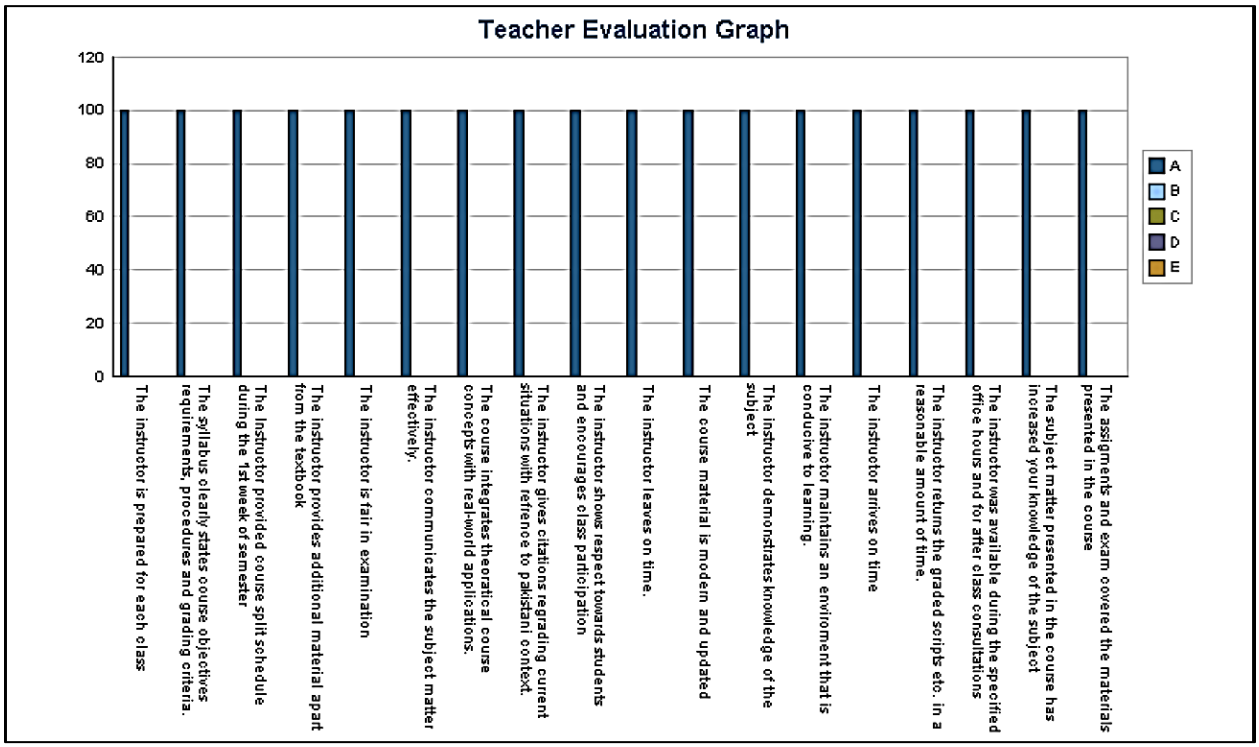
Evaluation: The graph shows evaluation of the instructor. 100 percent of the students strongly agreed that the "course integrates theoretical course concepts with real world applications", “the course material was modern and updated”, “The instructor maintains an environment that is conducive for learning”, “The instructor is fair in examination”, “The subject matter presented in the course has increased your knowledge of the subject”. 90% of students strongly agreed that “the instructor communicates the subject matter effectively”.



Where:

A = Strongly Agree, B = Agree, C = Uncertain, D = Disagree, E = Strongly Disagree

Evaluation: The graph shows evaluation of the instructor. 100 percent of the students strongly agreed that “the instructor communicates the subject matter effectively”, “the course material was modern and updated”, “The instructor maintains an environment that is conducive for learning”, “The instructor is fair in examination” and “The subject matter presented in the course has increased your knowledge of the subject”, "course integrates theoretical course concepts with real world applications" and “the instructor was available during the specified office hours”.

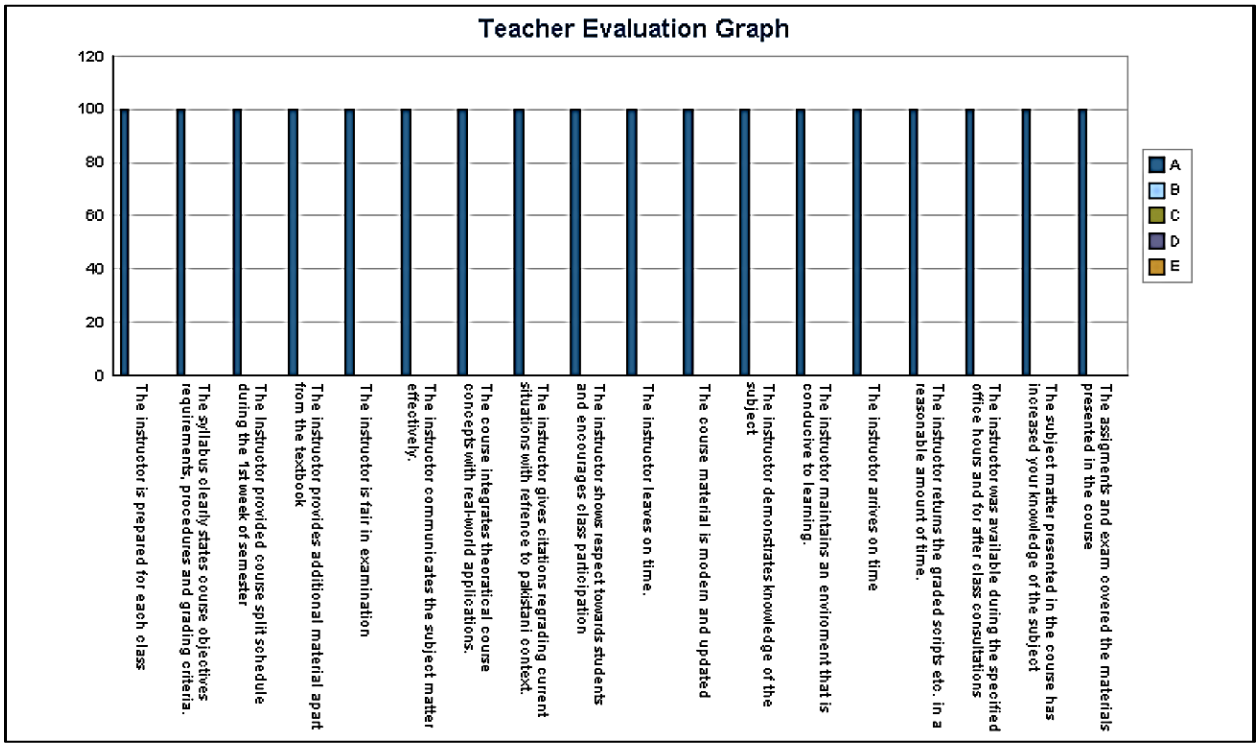


Where:

A = Strongly Agree, B = Agree, C = Uncertain, D = Disagree, E = Strongly Disagree

Dr. Muhammad NaveedTahir (RSG-711, Spring 2015)

Evaluation: The graph shows evaluation of the instructor. 100% percent of the students strongly agreed that “the instructor communicates the subject matter effectively”, “the course material was modern and updated”, and “the instructor provides additional material apart from textbook“, “the instructor maintains an environment that is conducive for learning”, “The instructor is fair in examination” and “The subject matter presented in the course has increased your knowledge of the subject”, "course integrates theoretical course concepts with real world applications" and “the instructor was available during the specified office hours”.

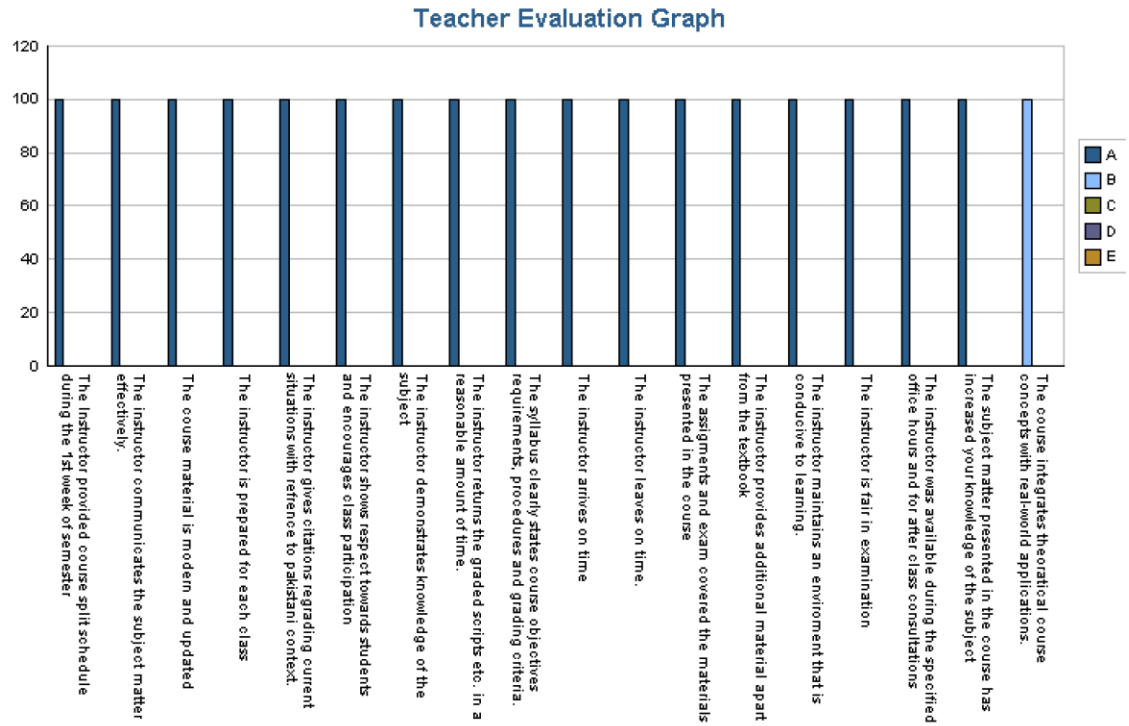


Where:

A = Strongly Agree, B = Agree, C = Uncertain, D = Disagree, E = Strongly Disagree

Muhammad Amin (RSG-717, Spring 2015)

Evaluation: The graph shows evaluation of the instructor. 100% percent of the students strongly agreed that “the instructor communicates the subject matter effectively”, “the course material was modern and updated”, and “the instructor provides additional material apart from textbook“, “the instructor maintains an environment that is conducive for learning”, “The instructor is fair in examination” and “The subject matter presented in the course has increased your knowledge of the subject”, "course integrates theoretical course concepts with real world applications" and “the instructor was available during the specified office hours”. 100%percent of the students agreed that “The course integrates theoretical course concepts with real-world applications”.

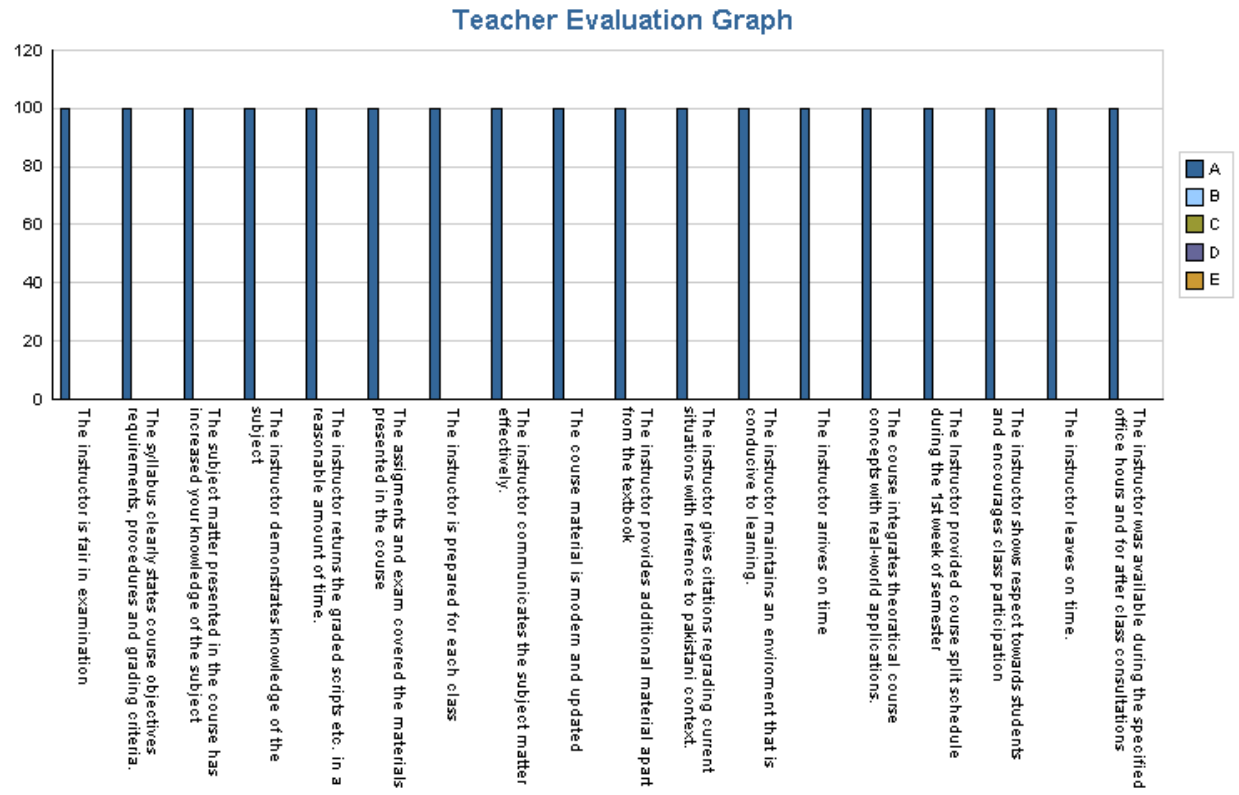


Where:

A = Strongly Agree, B = Agree, C = Uncertain, D = Disagree, E = Strongly Disagree

Mr. Muhammad Amin (RSG-720, Spring 2015)

Evaluation: The graph shows evaluation of the instructor. 100 percent of the students strongly agreed that “the instructor communicates the subject matter effectively”, “the course material was modern and updated”, “The instructor maintains an environment that is conducive for learning”, “The instructor is fair in examination” and “The subject matter presented in the course has increased your knowledge of the subject”, "course integrates theoretical course concepts with real world applications" and “the instructor was available during the specified office hours”.

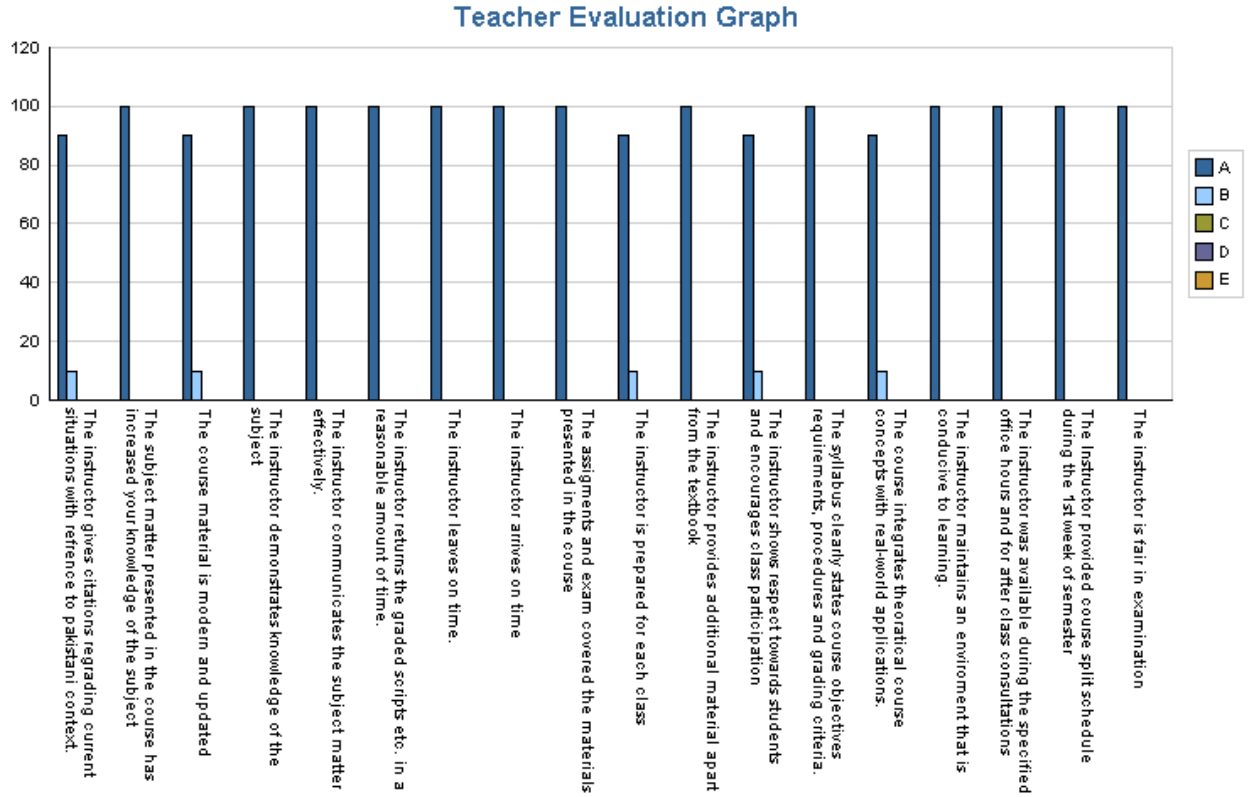


Where:

A = Strongly Agree, B = Agree, C = Uncertain, D = Disagree, E = Strongly Disagree

Mr. Shahzada Adnan(RSG-751, Spring 2015)

Evaluation: The graph shows evaluation of the instructor. 100 percent of the students strongly agreed that "The instructor is fair in examination", "The Instructor provided course split schedule during the 1st week of semester", "The syllabus clearly states course objectives requirements, procedures and grading criteria","The course integrates theoretical course concepts with real-world applications", "The instructor shows respect towards students and encourages class participation" and "The course material is modern and updated".

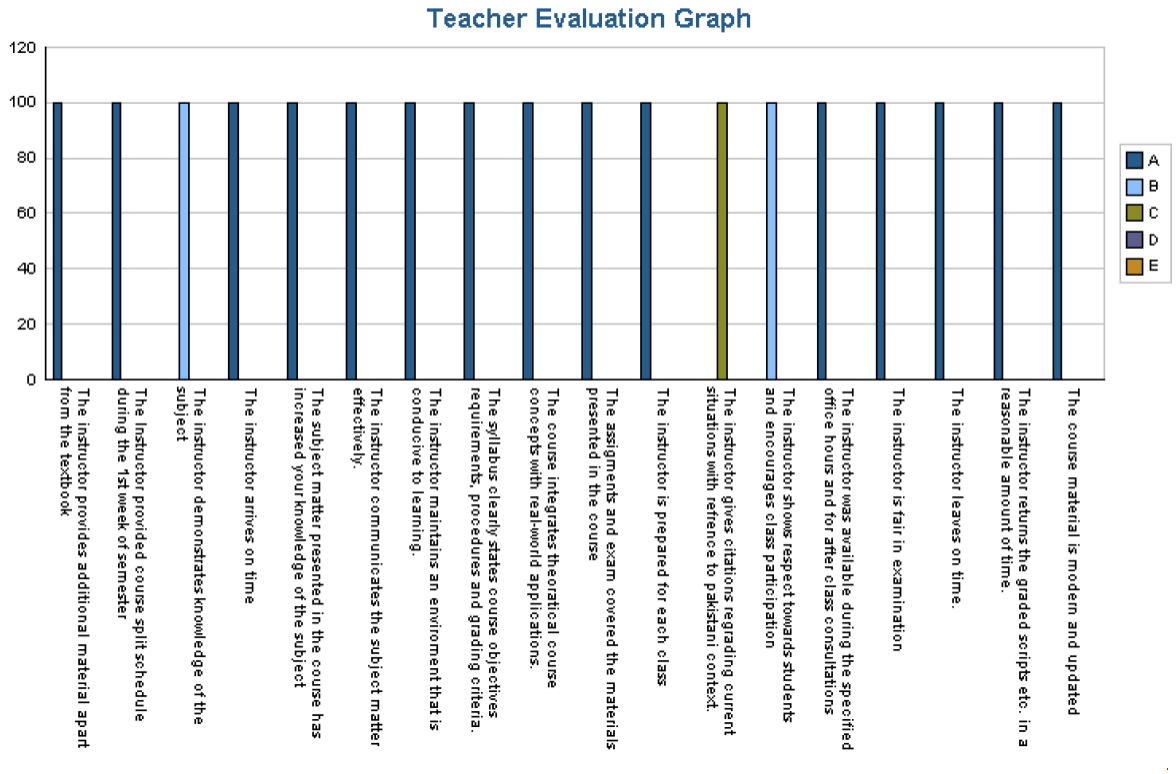


Where:

A = Strongly Agree, B = Agree, C = Uncertain, D = Disagree, E = Strongly Disagree

Mr. Armaghan (RSG-767 , Spring 2015)

Evaluation: The graph shows evaluation of the instructor. 100 percent of the students strongly agreed that "The instructor is fair in examination", "The Instructor provided course split schedule during the 1st week of semester", "The syllabus clearly states course objectives requirements, procedures and grading criteria", "The course integrates theoratical course concepts with real-world applications", "The instructor shows respect towards students and encourages class participation" and "The course material is modern and updated".



Where:

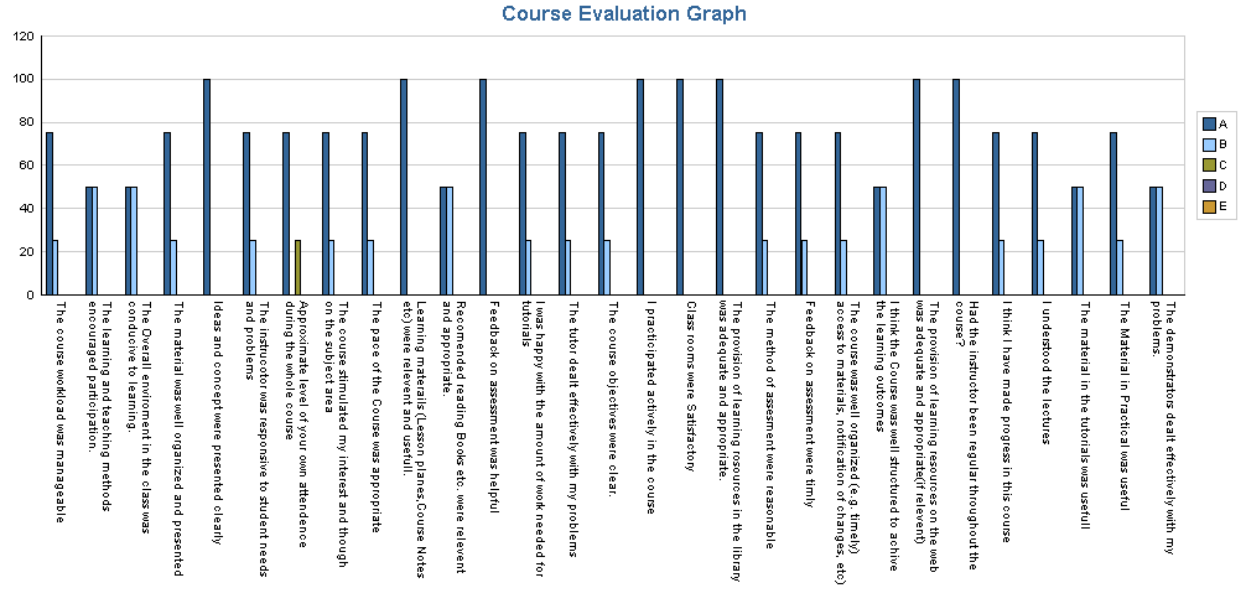
A = Strongly Agree, B = Agree, C = Uncertain, D = Disagree, E = Strongly Disagree

Courses' evaluation

Courses were evaluated by the department in the fall 2013-14, spring 2014, fall 2014-15 and spring 2015 Semester. Assessment of each course is presented in the following pie charts:

Dr. MobushirRiaz Khan (RSG-701, Fall 2013)

Evaluation: The graph shows evaluation of the course. 100 percent of the students strongly agreed that "the ideas and concepts presented clearly", "the course material was modern and updated", and "the participation of coerces is effectively ". 80% of the students strongly agreed that "the material was well organized and presented", and "The subject matter presented in the course has increased your knowledge of the subject", "course integrates theoretical course concepts with real world applications"". Whereas 55% students strongly agreed that "the learning and technical methods encourage".

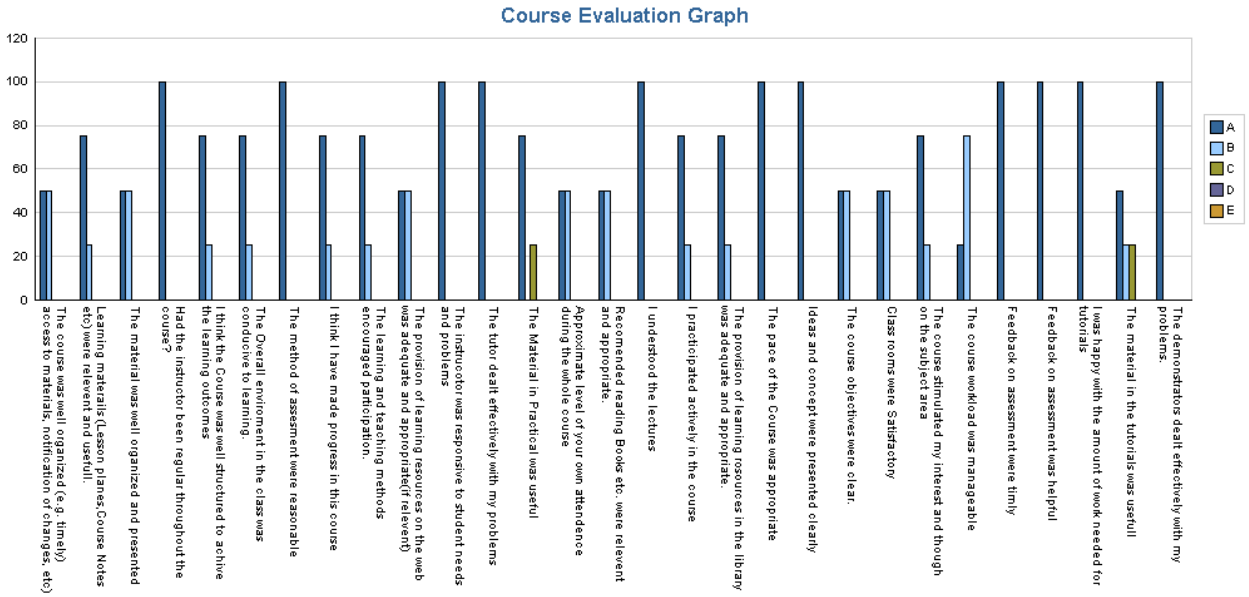


Where:

A = Strongly Agree, B = Agree, C = Uncertain, D = Disagree, E = Strongly Disagree

Dr. MobushirRiaz Khan (RSG-702, Fall 2013)

Evaluation: The graph shows evaluation of the course. 100 percent of the students strongly agreed that “the ideas and concepts presented clearly”, “the course material was modern and updated”, and “the participation of coerces was effectively and coerce was stimulated “. 87% of the students strongly agreed that “the material was well organized and presented”, and “The subject matter presented in the course has increased your knowledge of the subject”, "course integrates theoretical course concepts with real world applications"”. Whereas 53% students strongly agreed that “the learning and technical methods encourage and the course objective were clear”.

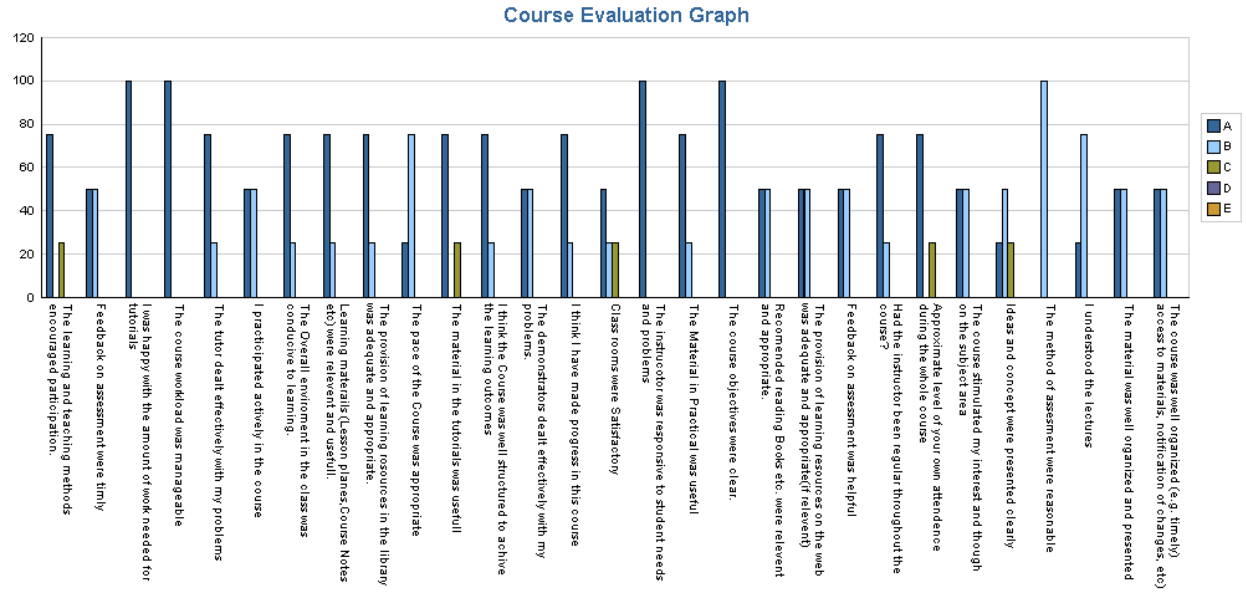


Where:

A = Strongly Agree, B = Agree, C = Uncertain, D = Disagree, E = Strongly Disagree

Mr. Muhammad Amin (RSG-703, Fall 2013)

Evaluation: The graph shows evaluation of the course. 100 percent of the students strongly agreed that "I was happy with the amount of work needed for tutorials", "The course workload was manageable", and "The instructor was responsive to student needs and problems ". 77% of the students strongly agreed that "The learning and teaching methods encouraged participation.", "The tutor dealt effectively with my problems" and "The Overall environment in the class was conducive to learning". Whereas 50% students strongly agreed that the "Feedback on assessment were timely".

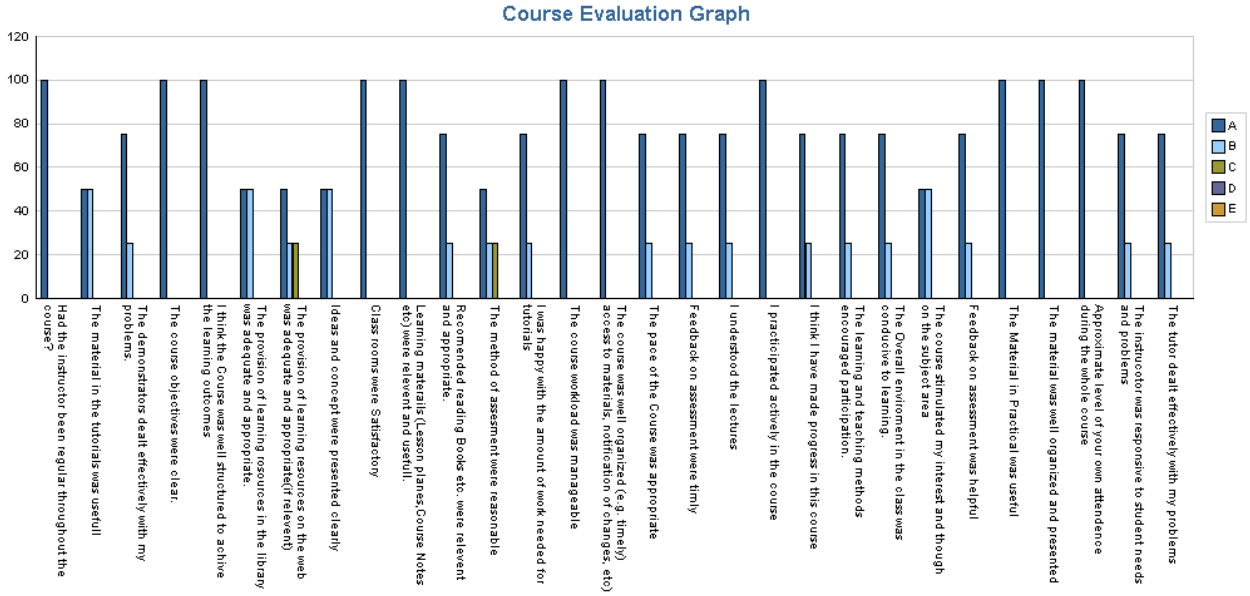


Where:

A = Strongly Agree, B = Agree, C = Uncertain, D = Disagree, E = Strongly Disagree

Mr. Muhammad Amin (RSG-704, Fall 2013)

Evaluation: The graph shows evaluation of the course. 100 percent of the students strongly agreed that “Approximate level of your own attendance during the whole course”, “The material in the tutorials was useful” and “I participated actively in the course”, 78% of the students strongly agreed that “The tutor dealt effectively with my problems”, “Feedback on assessment was helpful”, and "The pace of the Course was appropriate”. Whereas 50% students strongly agreed that “The method of assessment were reasonable”, and “The provision of learning resources in the library was adequate and appropriate”.

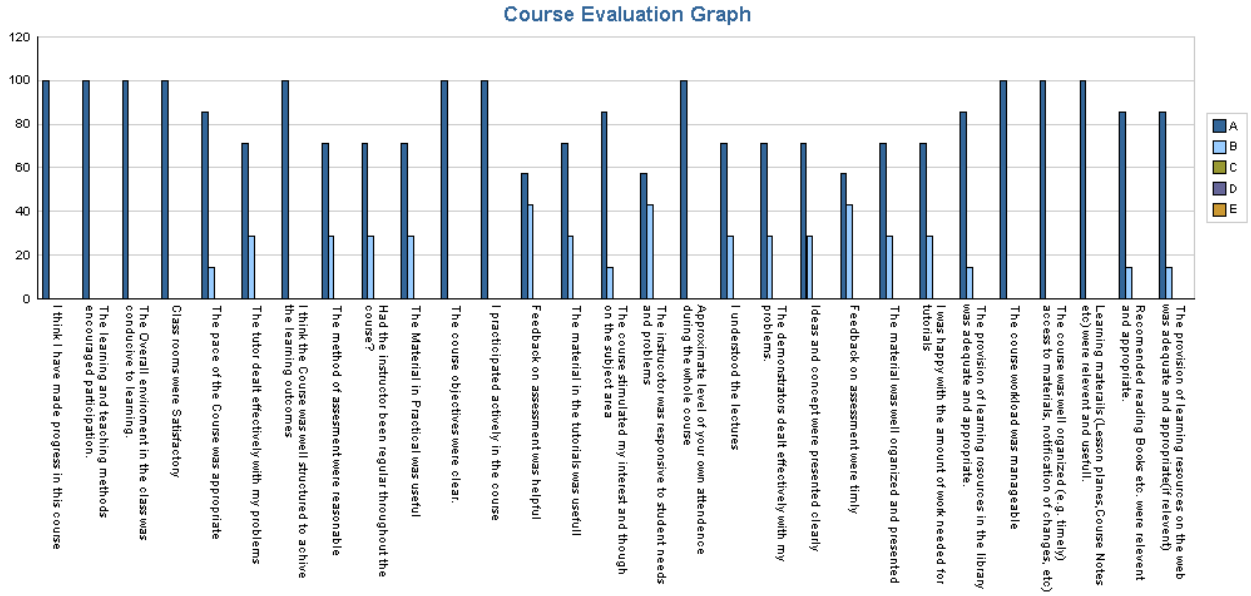


Where:

A = Strongly Agree, B = Agree, C = Uncertain, D = Disagree, E = Strongly Disagree

Mr. Muhammad Amin (RSG-701, spring 2014)

Evaluation: The graph shows evaluation of the course. 100 percent of the students strongly agreed that "I think I have made progress in this course", "Approximate level of your own attendance during the whole course", and "I think the Course was well structured to achieve the learning outcomes I understood the lectures ". 90% of the students strongly agreed that "The provision of learning resources on the web was adequate and appropriate"," The pace of the Course was appropriate" and "The course stimulated my interest and though on the subject area". Whereas 70% students strongly agreed that "The material in the tutorials was useful" and "The tutor dealt effectively with my problems".

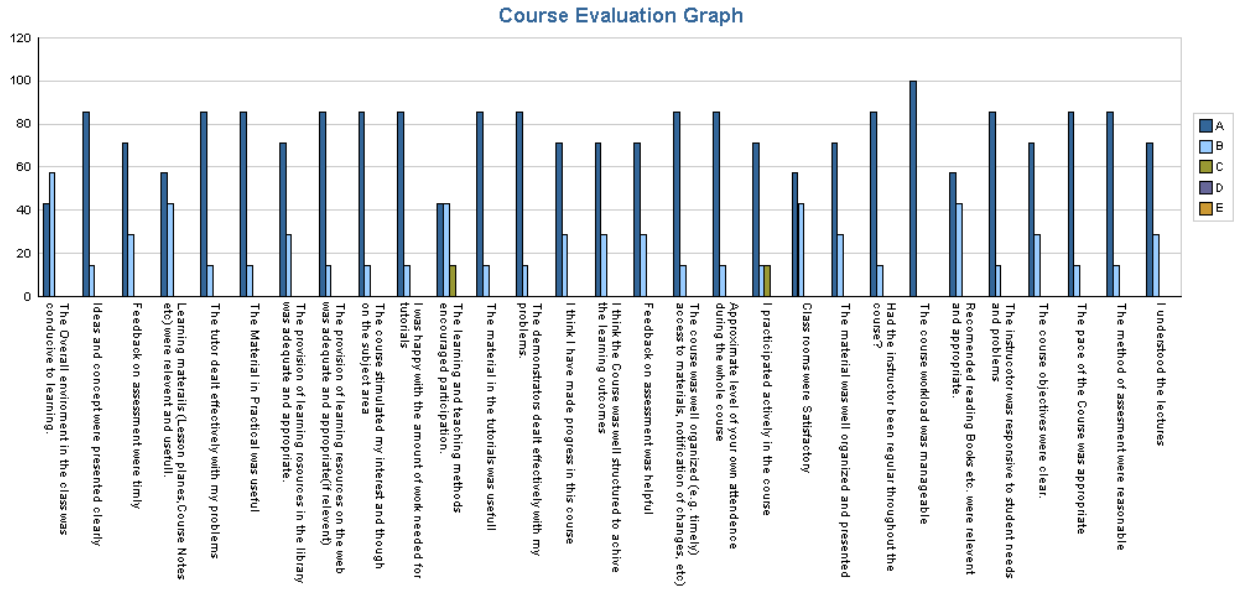


Where:

A = Strongly Agree, B = Agree, C = Uncertain, D = Disagree, E = Strongly Disagree

Dr. MobushirRiaz Khan (RSG-702, Spring 2014)

Evaluation: The graph shows evaluation of the course. 100 percent of the students strongly agreed that "The course workload was manageable". 90% of the students strongly agreed that "The method of assessment were reasonable"," The course was well organized (e.g. timely) access to materials, notification of changes, etc.)" and "The tutor dealt effectively with my problems". 70% of the students agreed that "Feedback on assessment were timely", "The provision of learning resources in the library was adequate and appropriate," and "The material was well organized and presented".

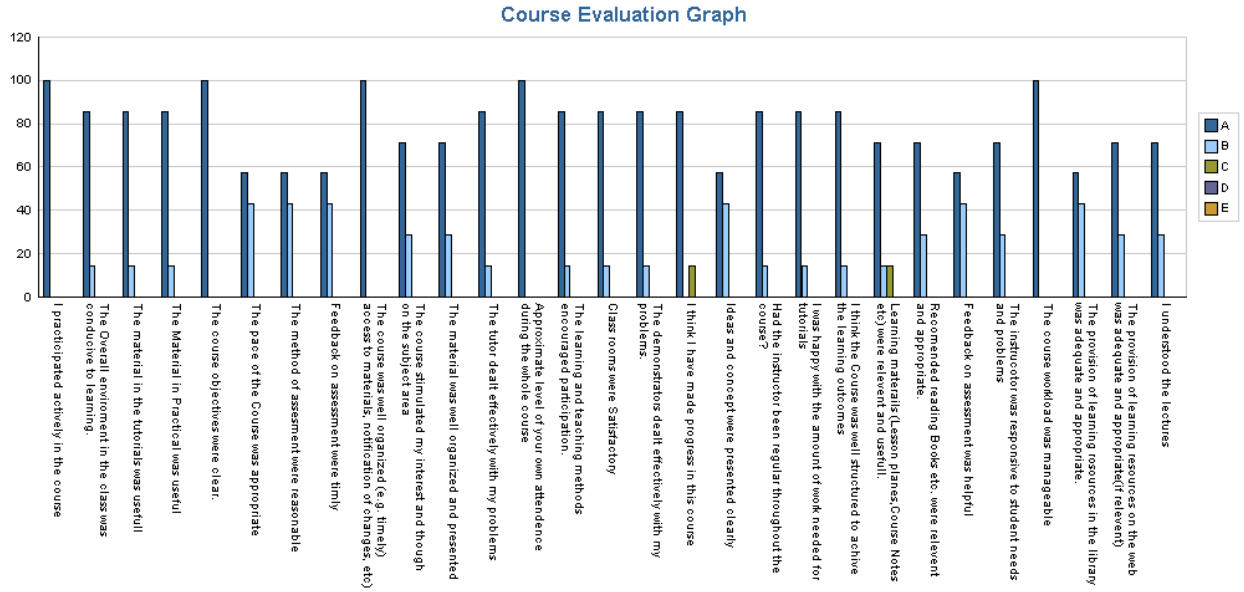


Where:

A = Strongly Agree, B = Agree, C = Uncertain, D = Disagree, E = Strongly Disagree

Mr. Muhammad Amin (RSG-703, spring 2014)

Evaluation: The graph shows evaluation of the course. 100 percent of the students strongly agreed that "The course workload was manageable", "The course objectives were clear", and "Approximate level of your own attendance during the whole course ". 90% of the students strongly agreed that "The Material in Practical was useful"". and "The learning and teaching methods encouraged participation". Whereas 70% students strongly agreed that "Learning materials (Lesson planes,Course Notes etc) were relevant and useful. Recommended reading Books etc. were relevant and appropriate" and "The material was well organized and presented".

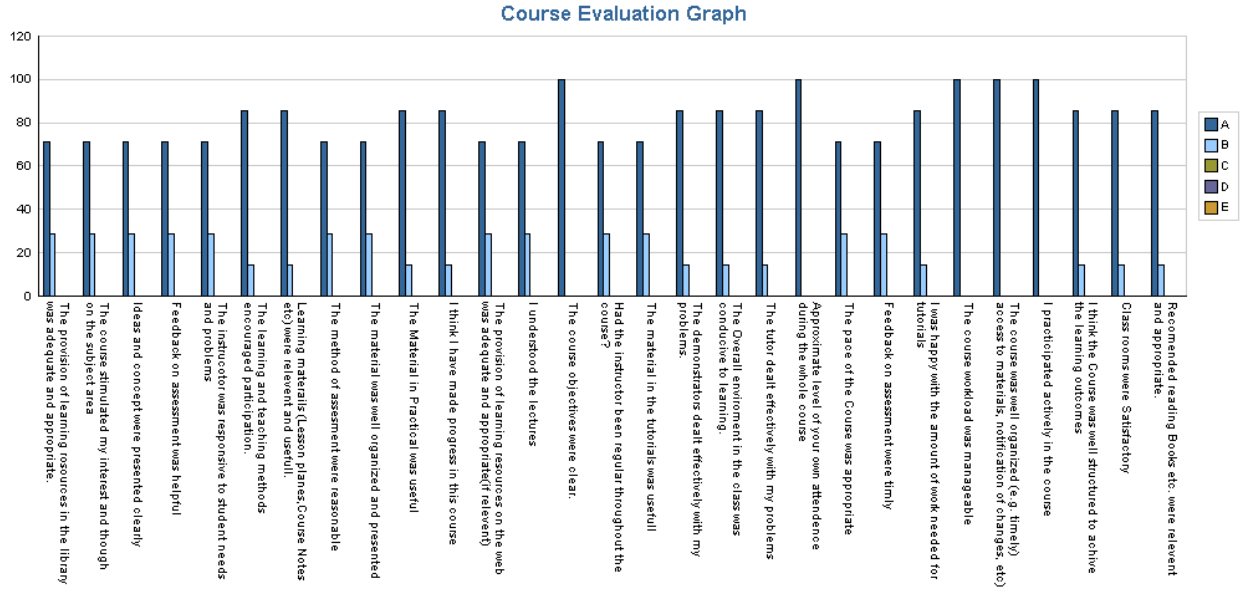


Where:

A = Strongly Agree, B = Agree, C = Uncertain, D = Disagree, E = Strongly Disagree

Mr. Muhammad Amin (RSG-704, Spring 2014)

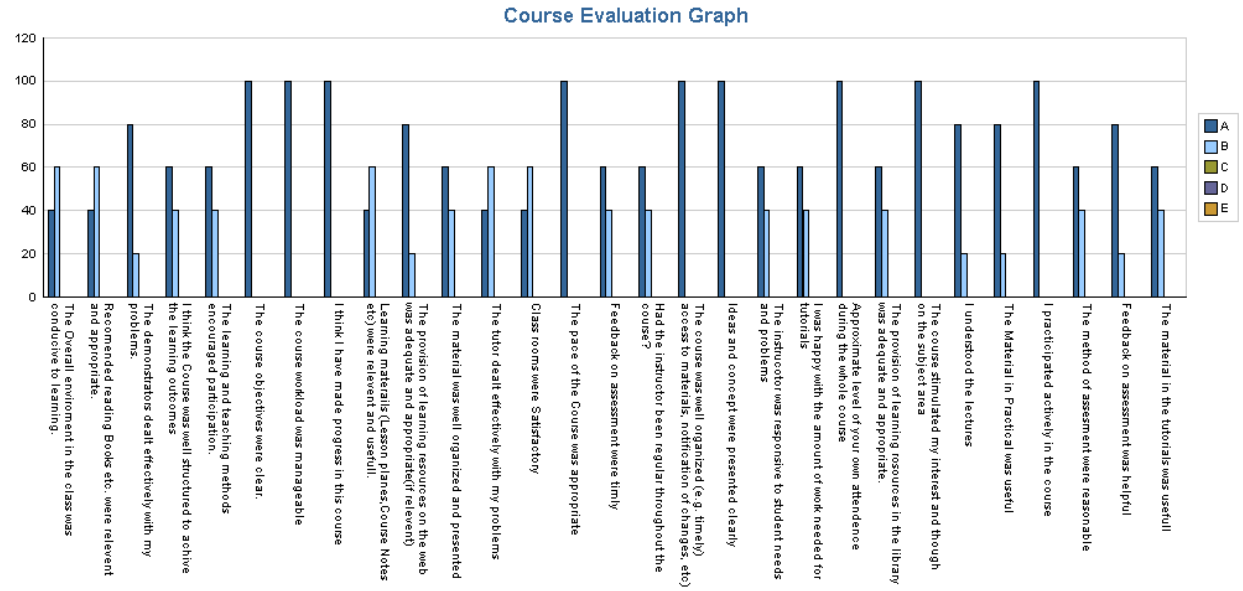
Evaluation: The graph shows evaluation of the course. 100 percent of the students strongly agreed that "The course was well organized (e.g. timely) access to materials, notification of changes, etc.)", "The course objectives were clear", and "The course workload was manageable ". 90% of the students strongly agreed that "The learning and teaching methods encouraged participation"". And "The Material in Practical was useful". Whereas 70% students strongly agreed that "The provision of learning resources in the library was adequate and appropriate" and "The pace of the Course was appropriate".



Where:

A = Strongly Agree, B = Agree, C = Uncertain, D = Disagree, E = Strongly Disagree

Evaluation: The graph shows evaluation of the course. 100 percent of the students strongly agreed that "The course stimulated my interest and though on the subject area", "Ideas and concept were presented clearly", and "The course workload was manageable ". 80% of the students strongly agreed that "Feedback on assessment was helpful" and "The Material in Practical was useful". Whereas 60% students strongly agreed that "The instructor was responsive to student needs and problems" and "The learning and teaching methods encouraged participation".

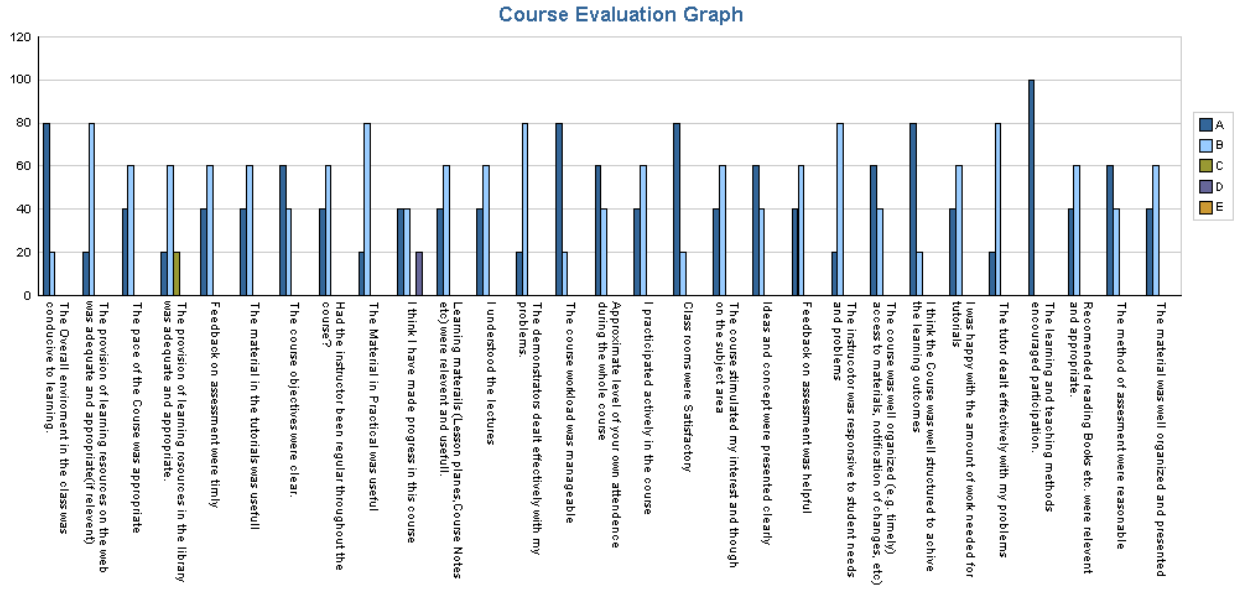


Where:

A = Strongly Agree, B = Agree, C = Uncertain, D = Disagree, E = Strongly Disagree

Mr. Muhammad Amin (RSG-706, Spring 2014)

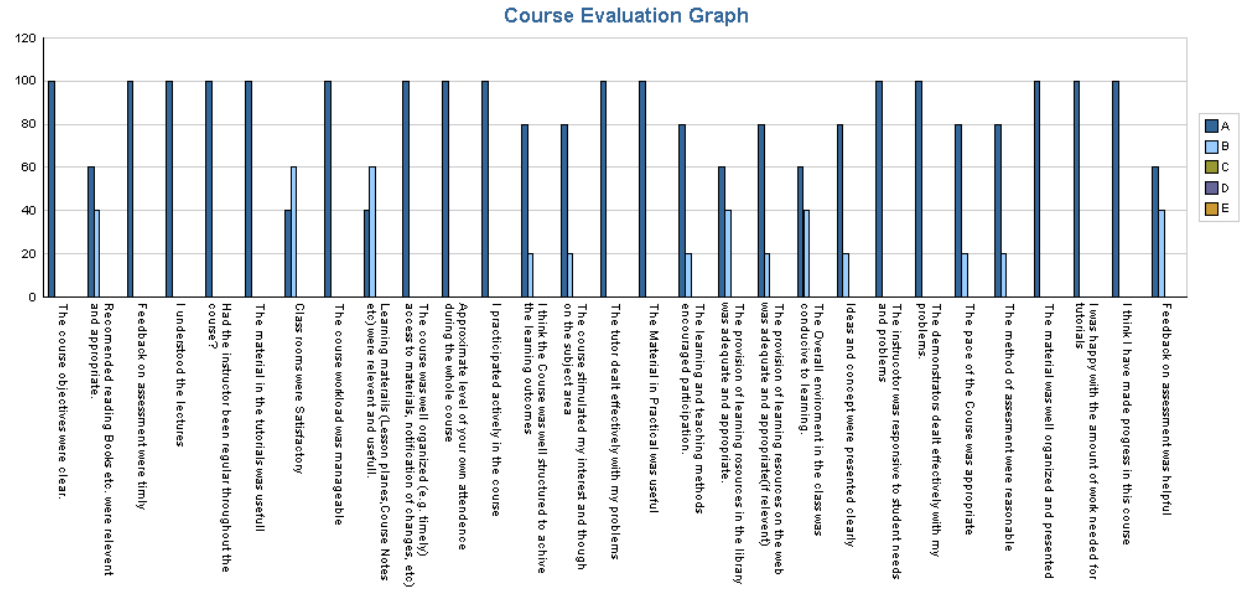
Evaluation: The graph shows evaluation of the course. 100 percent of the students strongly agreed that "The learning and teaching methods encouraged participation. 80% of the students strongly agreed that "The course objectives were clear","The course was well organized (e.g. timely) access to materials, notification of changes, etc.)" and "The method of assessment were reasonable". Whereas 60% students strongly agreed that the "Approximate level of your own attendance during the whole course" and "Ideas and concept were presented clearly".



Where:

A = Strongly Agree, B = Agree, C = Uncertain, D = Disagree, E = Strongly Disagree

Evaluation: The graph shows evaluation of the course. 100 percent of the students strongly agreed that "The material was well organized and presented", "The course was well organized (e.g. timely) access to materials, notification of changes", and "Feedback on assessment were timely". 80% of the students strongly agreed that "The method of assessment were reasonable" and "The pace of the Course was appropriate". Whereas 60% students strongly agreed that "Feedback on assessment was helpful" and "The Overall environment in the class was conducive to learning".

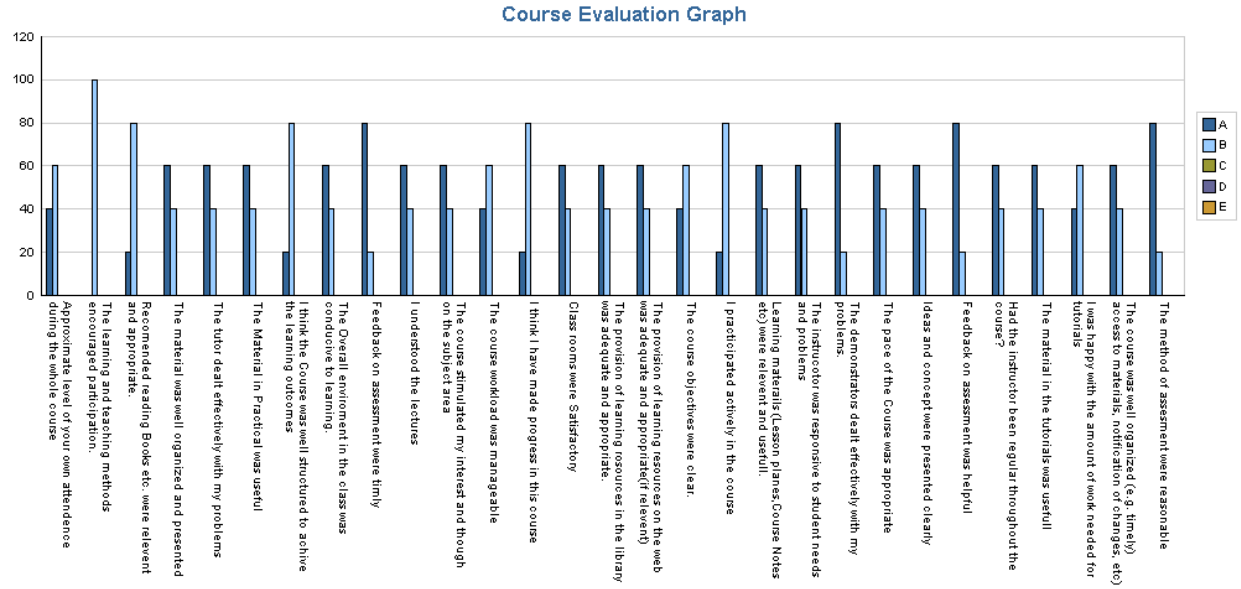


Where:

A = Strongly Agree, B = Agree, C = Uncertain, D = Disagree, E = Strongly Disagree

Mr. Muhammad Amin (RSG-748, spring 2014)

Evaluation: The graph shows evaluation of the course. 100 percent of the students strongly agreed that "The learning and teaching methods encouraged participation". 80% of the students strongly agreed that "I think the Course was well structured to achieve the learning outcomes I understood the lectures", "I think I have made progress in this course" and "I participated actively in the course". Whereas 60% students strongly agreed that the "Approximate level of your own attendance during the whole course" and "Class rooms were Satisfactory".

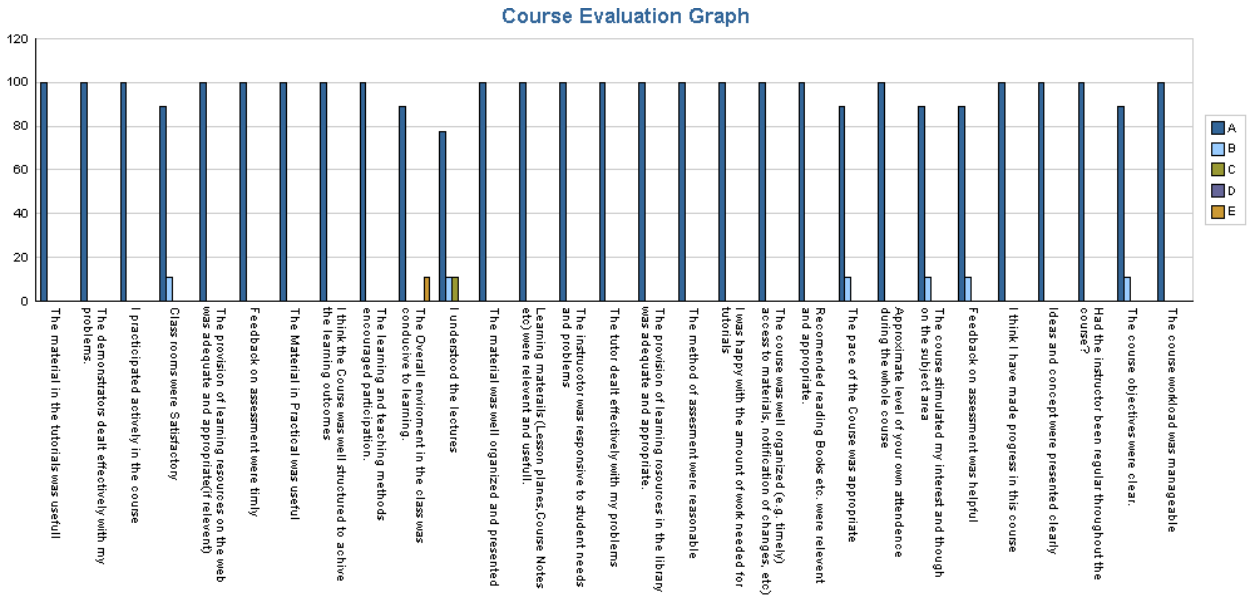


Where:

A = Strongly Agree, B = Agree, C = Uncertain, D = Disagree, E = Strongly Disagree

Mr. Saif ur Rehman Khalid (RSG-701, Fall 2014)

Evaluation: The graph shows evaluation of the course. 100 percent of the students strongly agreed that “the ideas and concepts presented clearly”, “the course material was modern and updated”, and “the participation of coerces was effectively and coerce was stimulated “. 87% of the students strongly agreed that “the material was well organized and presented”, and “The subject matter presented in the course has increased your knowledge of the subject”, "course integrates theoretical course concepts with real world applications"”. Whereas 59% students strongly agreed that “they understand the lecture very well”.

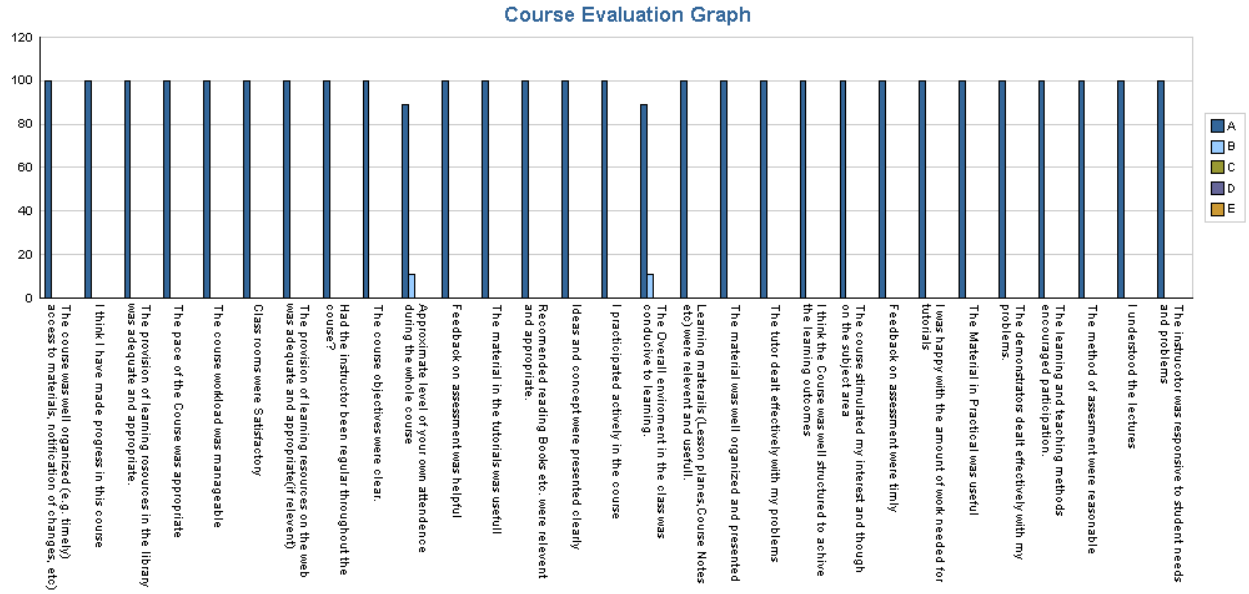


Where:

A = Strongly Agree, B = Agree, C = Uncertain, D = Disagree, E = Strongly Disagree

Dr. Mobushir Riaz Khan (RSG-702, Fall 2014)

Evaluation: The graph shows evaluation of the course. 100 percent of the students strongly agreed that “the ideas and concepts presented clearly”, “the course material was modern and updated”, and “the participation of coerces was effectively and coerce was stimulated “. 95% of the students strongly agreed that “the overall environment in the class room was conducting to"”. Whereas 100% students strongly agreed that “the learning and technical methods encourage and the course objective were clear”.

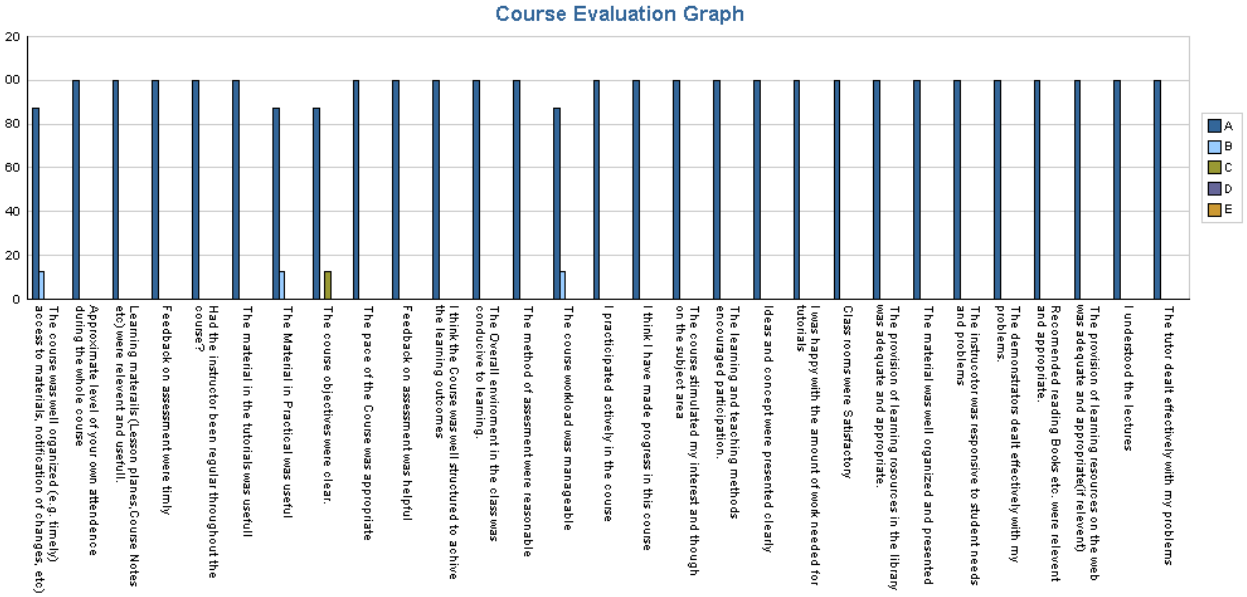


Where:

A = Strongly Agree, B = Agree, C = Uncertain, D = Disagree, E = Strongly Disagree

Mr. Muhammad Amin (RSG-703, Fall 2014)

Evaluation: The graph shows evaluation of the course. 100 percent of the students strongly agreed that “the ideas and concepts presented clearly”, “the course material was modern and updated”, “I actively participated in the course” and “The course stimulated my interest on subject”. 95% of the students strongly agreed that “the overall environment in the class room was conducting to"”. Whereas 100% students strongly agreed

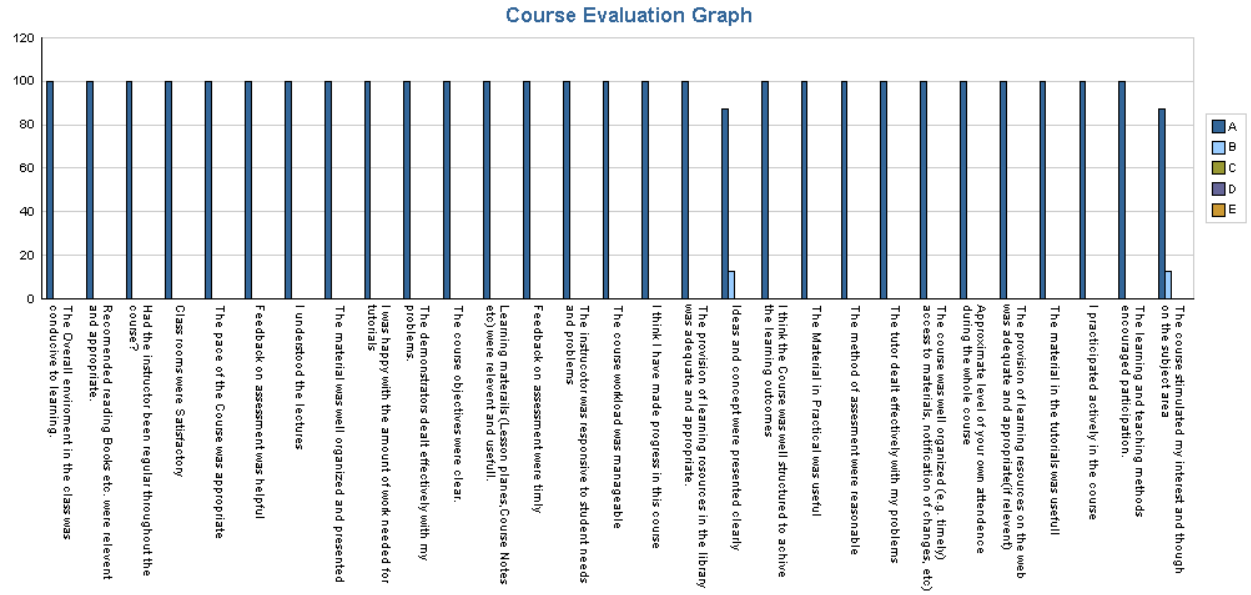


Where:

A = Strongly Agree, B = Agree, C = Uncertain, D = Disagree, E = Strongly Disagree

Mr. Muhammad Amin (RSG-704, Fall 2014)

Evaluation: The graph shows evaluation of the course. 100 percent of the students strongly agreed that “the ideas and concepts presented clearly”, “the course material was modern and updated”, “the participation of coerces was effectively and coerce was stimulated “, “the overall environment in the class room was conducting to" and “the course workload was manageable”. Whereas 90% students strongly agreed that “the overall environment in the class was conductive to learning and technical methods encourage and the course objectives were clear”.

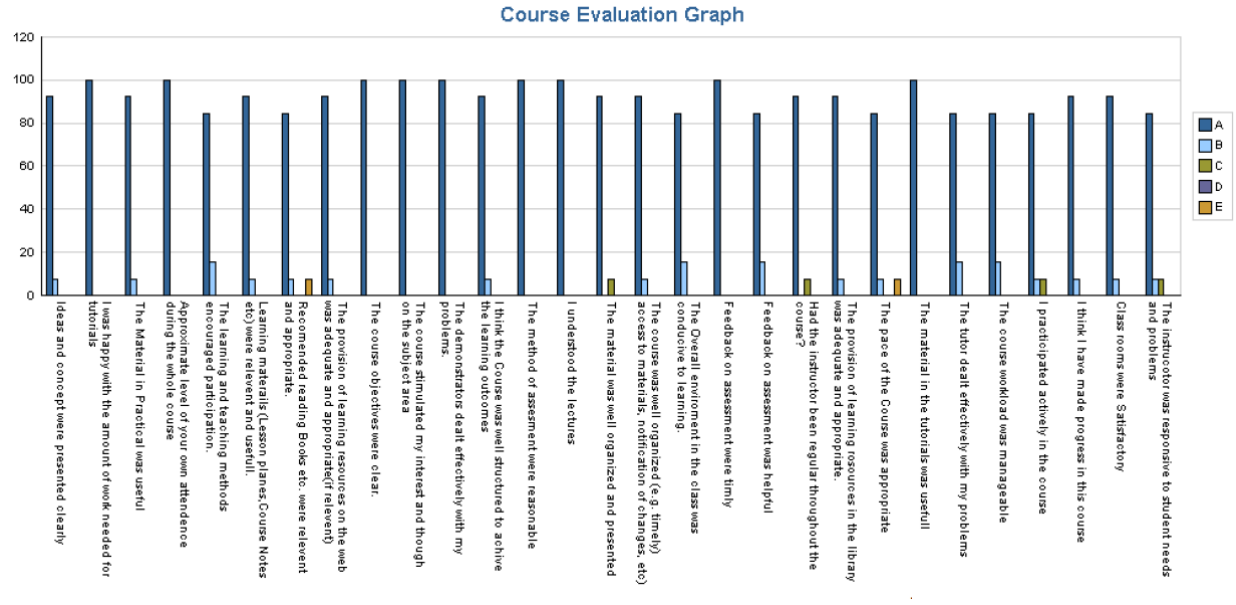


Where:

A = Strongly Agree, B = Agree, C = Uncertain, D = Disagree, E = Strongly Disagree

Dr. Mobushir Riaz Khan (RSG-705, Fall 2014)

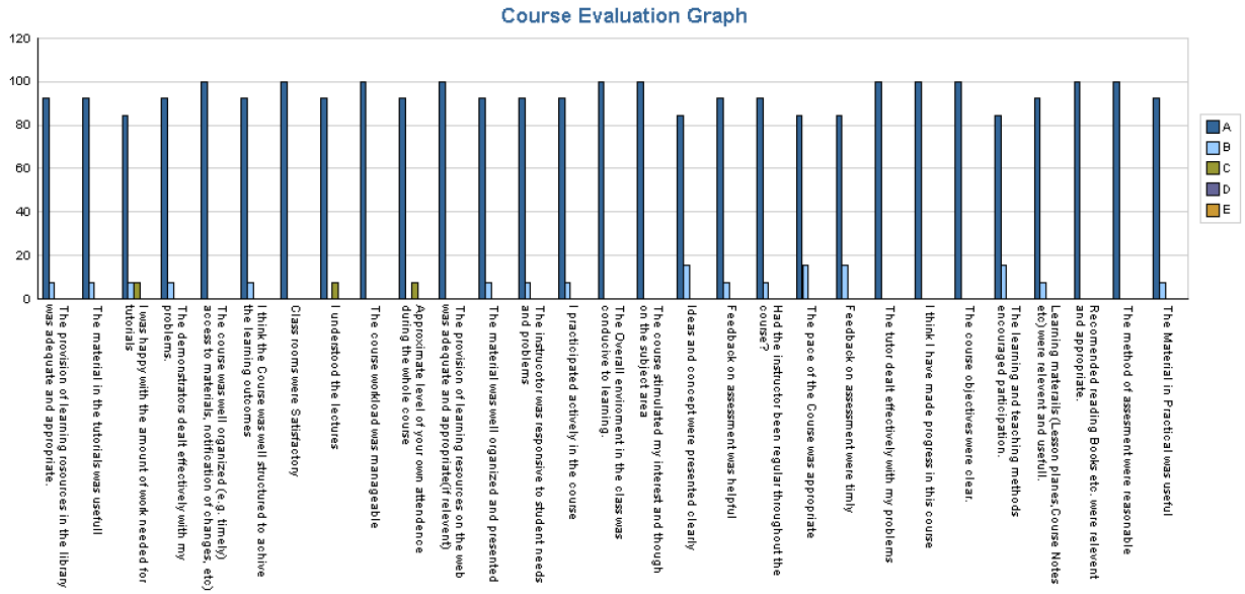
Evaluation: The graph shows evaluation of the course. 100 percent of the students strongly agreed that “the course objectives were clear”, “The course stimulated my research on the subject”, “The methods of assessment were reasonable” and “The materials in the tutorials were useful”. 90 % of the students strongly agreed that “The class rooms were satisfactory”, “The provision of learning resources was appropriate”, “the ideas and concepts were presented clearly” and “The course was well organized”. Whereas 85% students strongly agreed that “the overall environment in the class room was conducive for learning" and “the course workload was manageable”.



Where:

A = Strongly Agree, B = Agree, C = Uncertain, D = Disagree, E = Strongly Disagree

Evaluation: The graph shows evaluation of the course. 100 percent of the students strongly agreed that “The class rooms were satisfactory”, “the course workload was manageable”, “The provision of learning resources was appropriate”, “The course was well organized”, “the overall environment in the class room was conducive for learning", “The course objectives were clear”, “The course stimulated my research on the subject” and “The methods of assessment were reasonable”. 90 % of the students strongly agreed that “The materials in the tutorials were useful”, “the ideas and concepts were presented clearly”, “the course was well structured” and “The instructor was responsive to students needs and problems”.

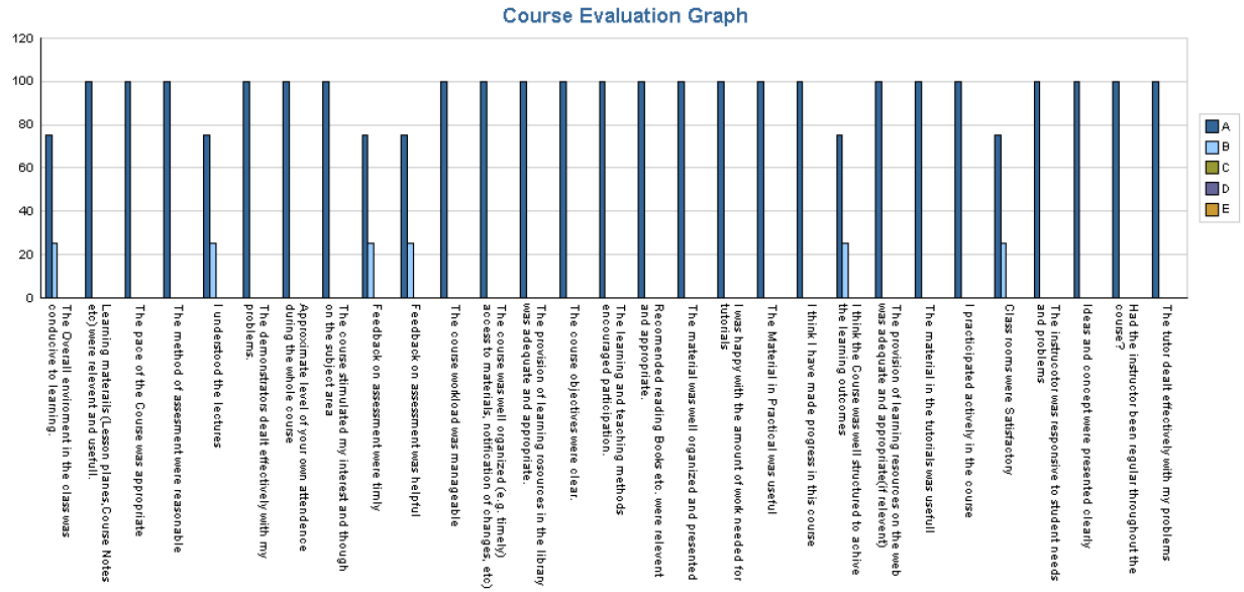


Where:

A = Strongly Agree, B = Agree, C = Uncertain, D = Disagree, E = Strongly Disagree

Dr. Mobushir Riaz Khan (RSG-711, Fall 2014)

Evaluation: The graph shows evaluation of the course. 100 percent of the students strongly agreed that “the course workload was manageable”, “The provision of learning resources was appropriate”, “The course was well organized”, “The course objectives were clear”, “The course stimulated my research on the subject” and “The methods of assessment were reasonable”, “The materials in the tutorials were useful”, “the ideas and concepts were presented clearly” and “The instructor was responsive to students’ needs and problems”. 75% of the students strongly agreed that “the overall environment in the class room was conducive for learning", “the course was well structured” and “The class rooms were satisfactory”.

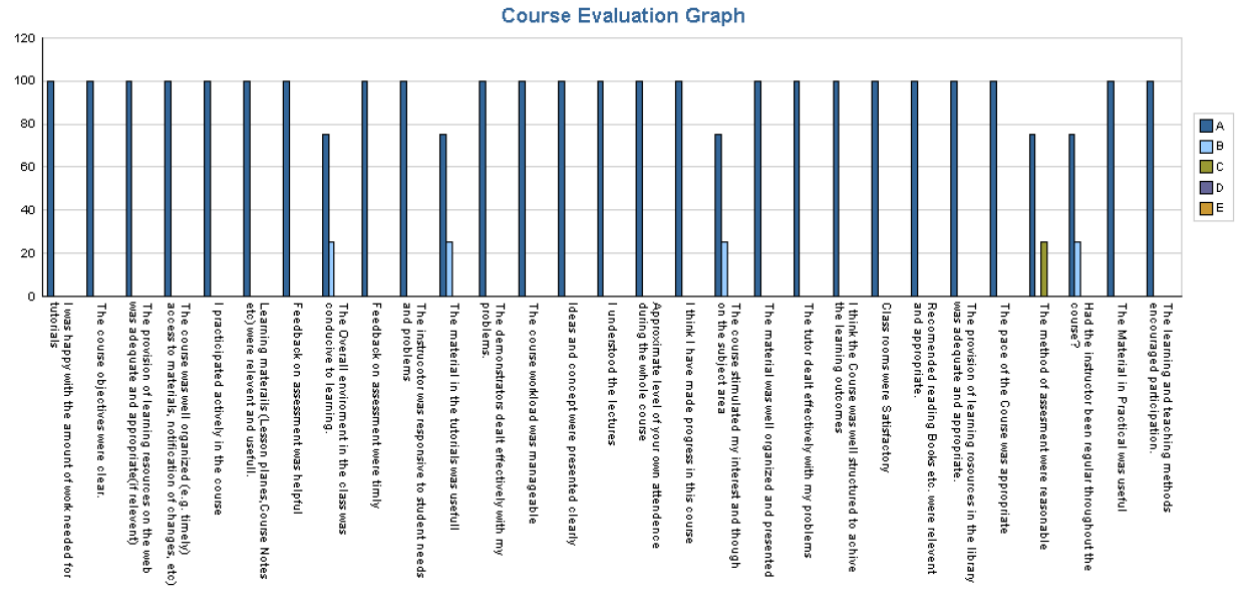


Where:

A = Strongly Agree, B = Agree, C = Uncertain, D = Disagree, E = Strongly Disagree

Mr. Asmat Ali (RSG-732, Fall 2014)

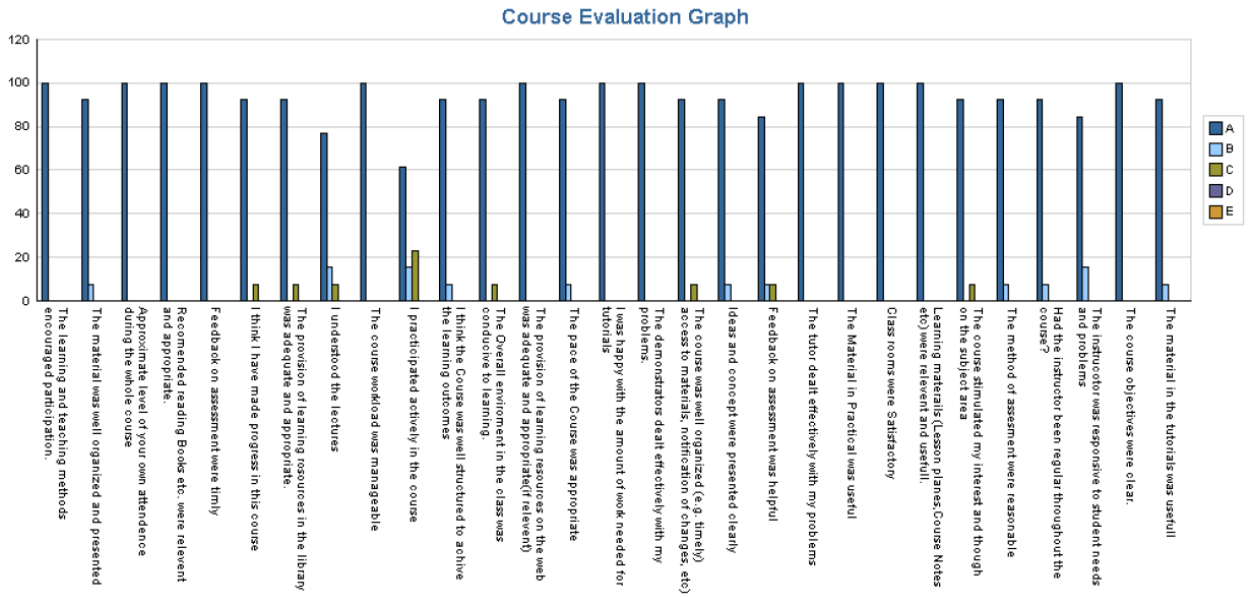
Evaluation: The graph shows evaluation of the course. 100 percent of the students strongly agreed that "the course workload was manageable", "The provision of learning resources was appropriate", "The course was well organized", "the course was well structured", "The class rooms were satisfactory", "The course objectives were clear", "The pace of the course was appropriate", "the ideas and concepts were presented clearly" and "The instructor was responsive to students' needs and problems". 75% of the students strongly agreed that "the overall environment in the class room was conducive for learning", "The methods of assessment were reasonable", "The materials in the tutorials were useful" and "The course stimulated my research on the subject".



Where:

A = Strongly Agree, B = Agree, C = Uncertain, D = Disagree, E = Strongly Disagree

Evaluation: The graph shows evaluation of the course. 100 percent of the students strongly agreed that “the course workload was manageable”, “The provision of learning resources was adequate”, “The class rooms were satisfactory” and “The course objectives were clear”. 90% of the students strongly agreed that “the overall environment in the class room was conducive for learning", “The methods of assessment were reasonable”, “The materials in the tutorials were useful”, “The course stimulated my interest on the subject”, “The course was well organized and structured”, “The pace of the course was appropriate”, “the ideas and concepts were presented clearly” and “The instructor was responsive to students’ needs and problems”.

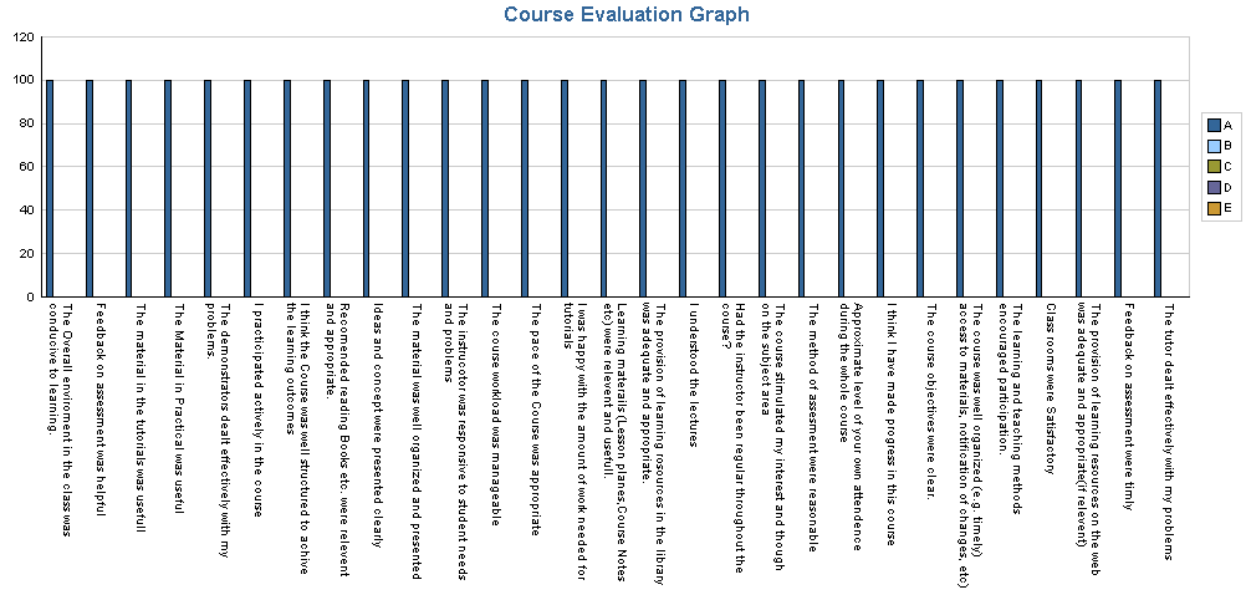


Where:

A = Strongly Agree, B = Agree, C = Uncertain, D = Disagree, E = Strongly Disagree

Mr. Muhammad Amin (RSG-701, Spring 2015)

Evaluation: The graph shows evaluation of the course. 100 percent of the students strongly agreed that “the ideas and concepts presented clearly”, “the material in the course was useful”, “the participation of coerces was effectively and coerce was stimulated“ and “the course was well organized”, “the learning and technical methods encourage and the course objective were clear”,.

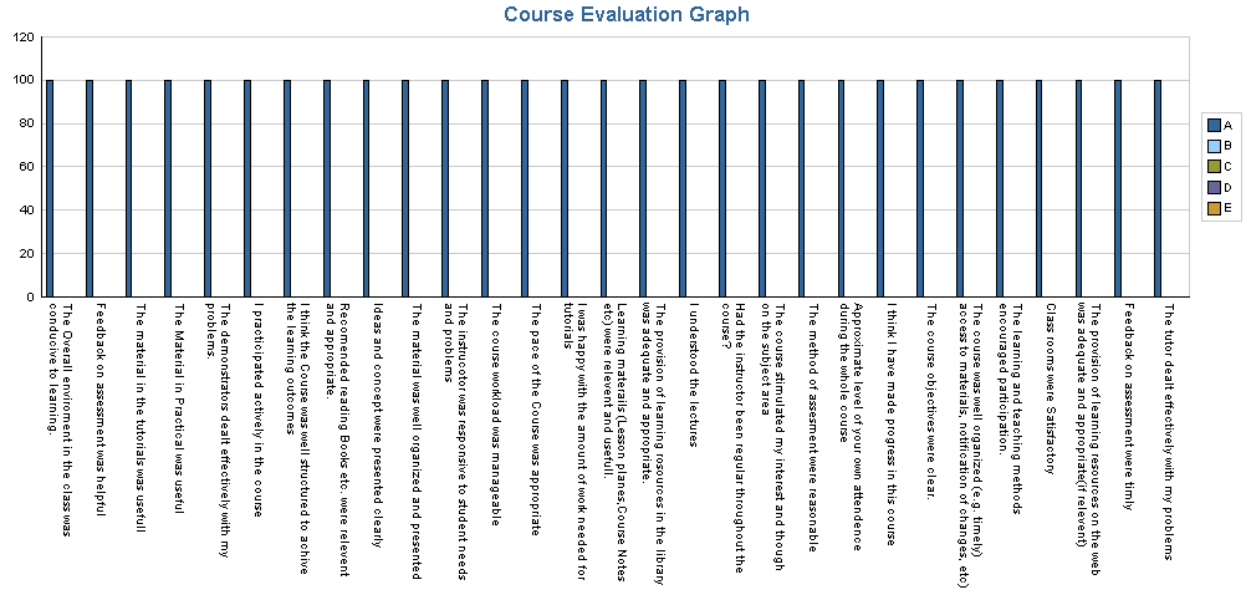


Where:

A = Strongly Agree, B = Agree, C = Uncertain, D = Disagree, E = Strongly Disagree

Mr. Muhammad Amin (RSG-702, Spring 2015)

Evaluation: The graph shows evaluation of the course. 100 percent of the students strongly agreed that "the ideas and concepts presented clearly", "the course was well organized", "the learning and technical methods encourage and the course objective were clear", "the material in the course was useful" and "the participation of coerces was effectively and coerce was stimulated ".

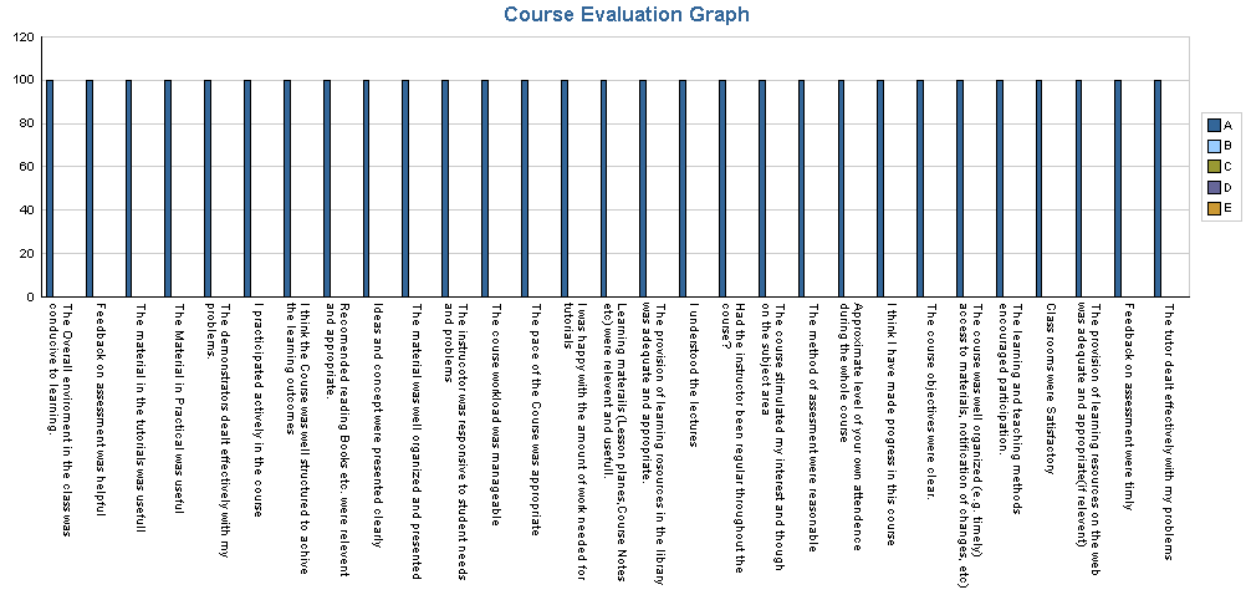


Where:

A = Strongly Agree, B = Agree, C = Uncertain, D = Disagree, E = Strongly Disagree

Mr. Muhammad Amin (RSG-703, Spring 2015)

Evaluation: The graph shows evaluation of the course. 100 percent of the students strongly agreed that "the ideas and concepts presented clearly", "the course was well organized", "the learning and technical methods encourage and the course objective were clear", "the material in the course was useful" and "the participation of coerces was effectively and coerce was stimulated ".

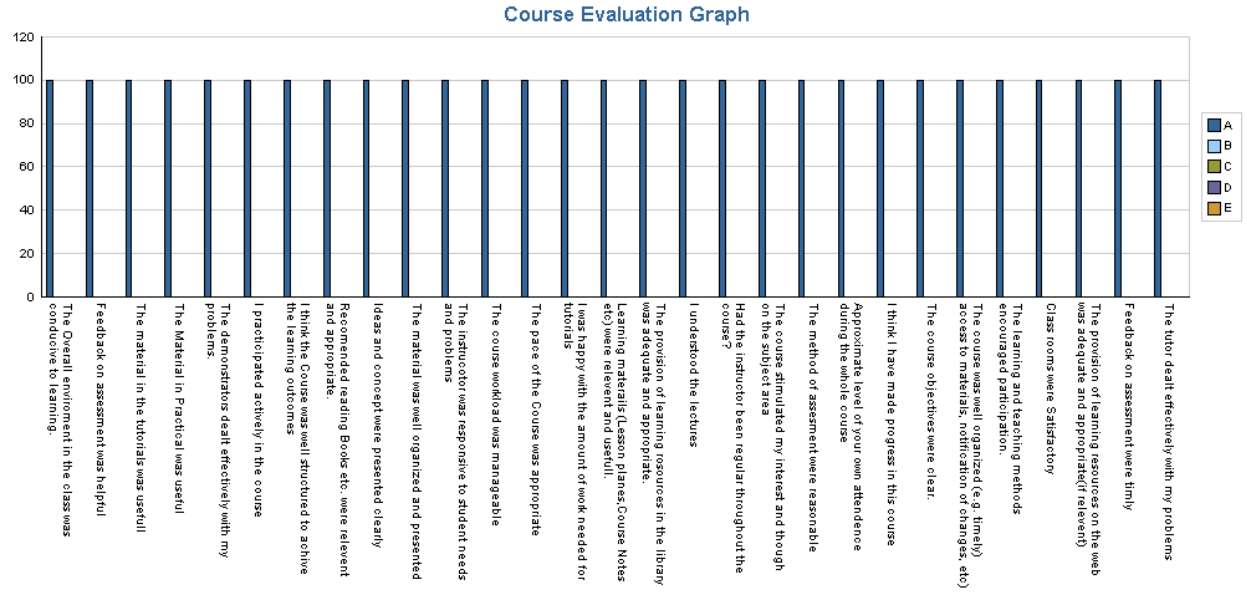


Where:

A = Strongly Agree, B = Agree, C = Uncertain, D = Disagree, E = Strongly Disagree

Mr. Muhammad Amin (RSG-704, Spring 2015)

Evaluation: The graph shows evaluation of the course. 100 percent of the students strongly agreed that "the ideas and concepts presented clearly", "the course was well organized", "the learning and technical methods encourage and the course objective were clear", "the material in the course was useful" and "the participation of coerces was effectively and coerce was stimulated ".

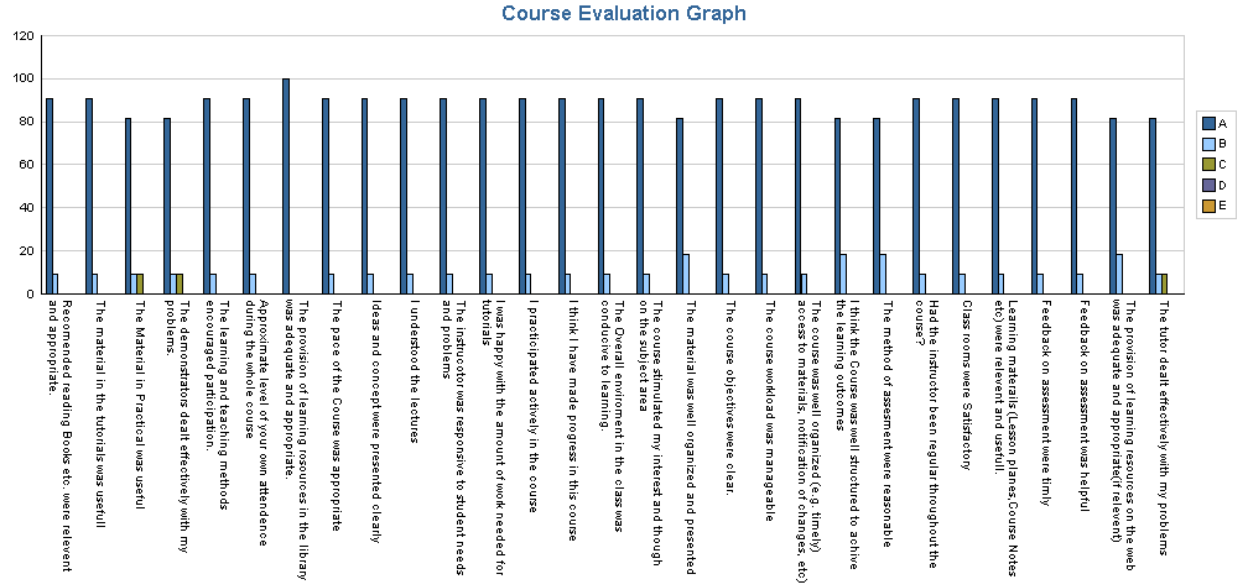


Where:

A = Strongly Agree, B = Agree, C = Uncertain, D = Disagree, E = Strongly Disagree

Mr. Muhammad Amin (RSG-705, Spring 2015)

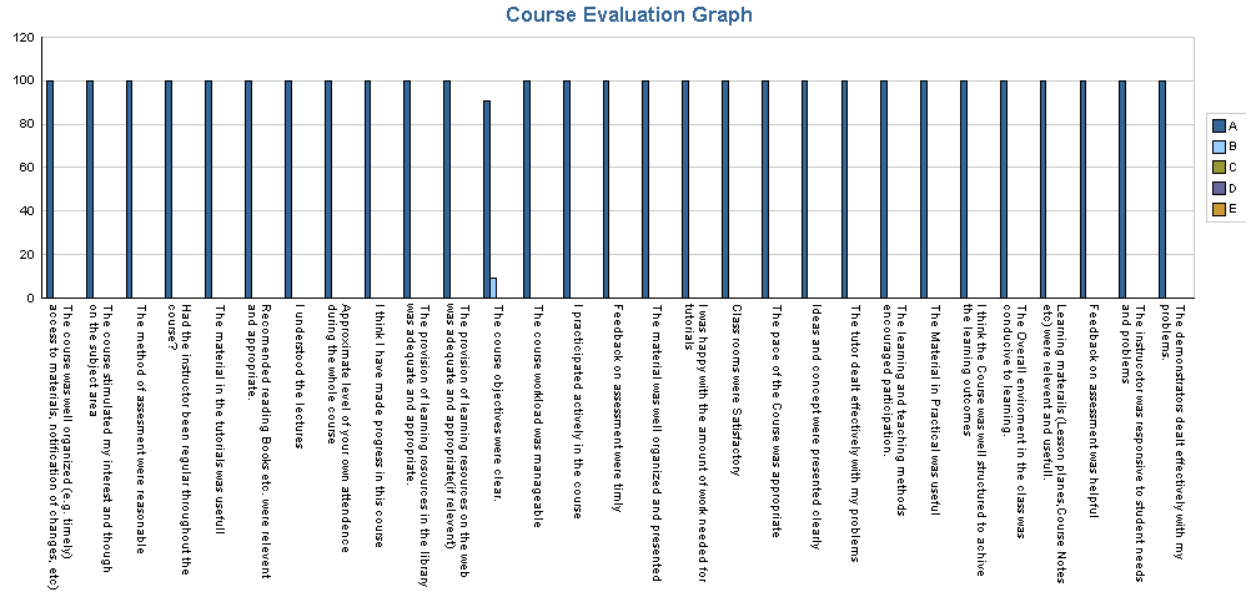
Evaluation: The graph shows evaluation of the course. 100 percent of the students strongly agreed that "The provision of learning resources in the library was adequate and appropriate.".and 90 percent of the students strongly agreed that "Recommended reading Books etc. were relevant and appropriate.", "The material in the tutorials was useful", "I understood the lectures" and "I participated actively in the course ". 80 percent of the students strongly agreed that "The Material in Practical was useful", and "The method of assessment were reasonable".



Where:

A = Strongly Agree, B = Agree, C = Uncertain, D = Disagree, E = Strongly Disagree

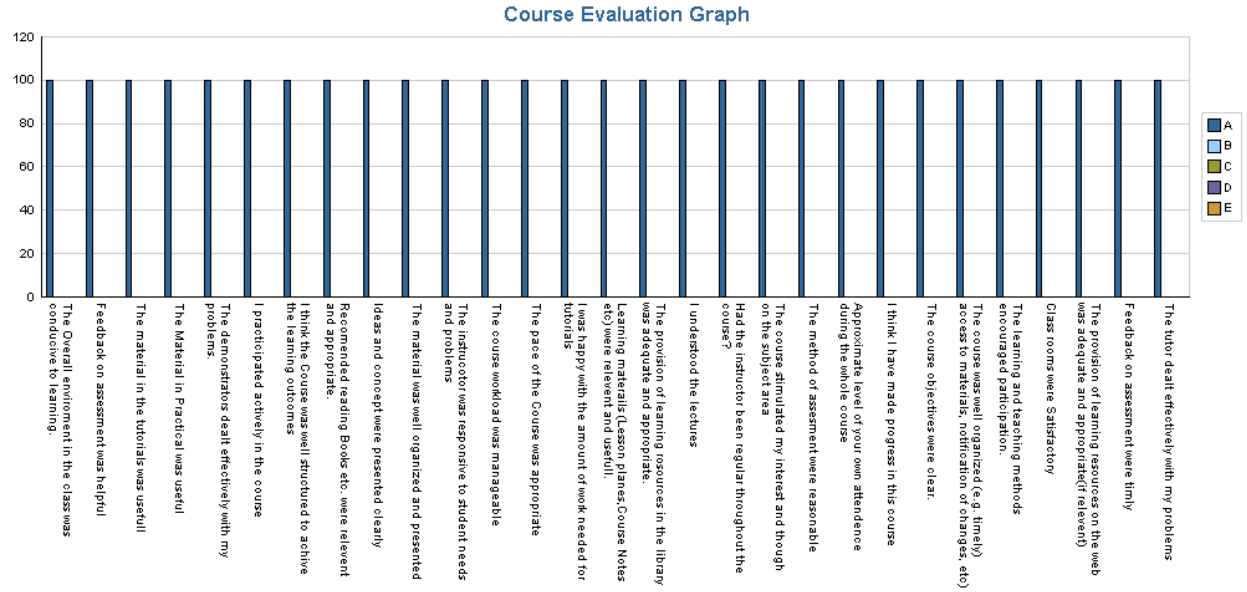
Evaluation: The graph shows evaluation of the course. 100 percent of the students strongly agreed that "The instructor was responsive to student needs and problems", "The course was well organized (e.g. timely) access to materials, notification of changes, etc.)", "The course workload was manageable", "The course stimulated my interest and though on the subject area" and "The demonstrators dealt effectively with my problems". and 90 percent of the students strongly agreed that" The course objective were clear".



Where:

A = Strongly Agree, B = Agree, C = Uncertain, D = Disagree, E = Strongly Disagree

Evaluation: The graph shows evaluation of the course. 100 percent of the students strongly agreed that "The instructor was responsive to student needs and problems", "The course was well organized (e.g. timely) access to materials, notification of changes, etc.)", "The course workload was manageable", "The course stimulated my interest and though on the subject area" and "The demonstrators dealt effectively with my problems".

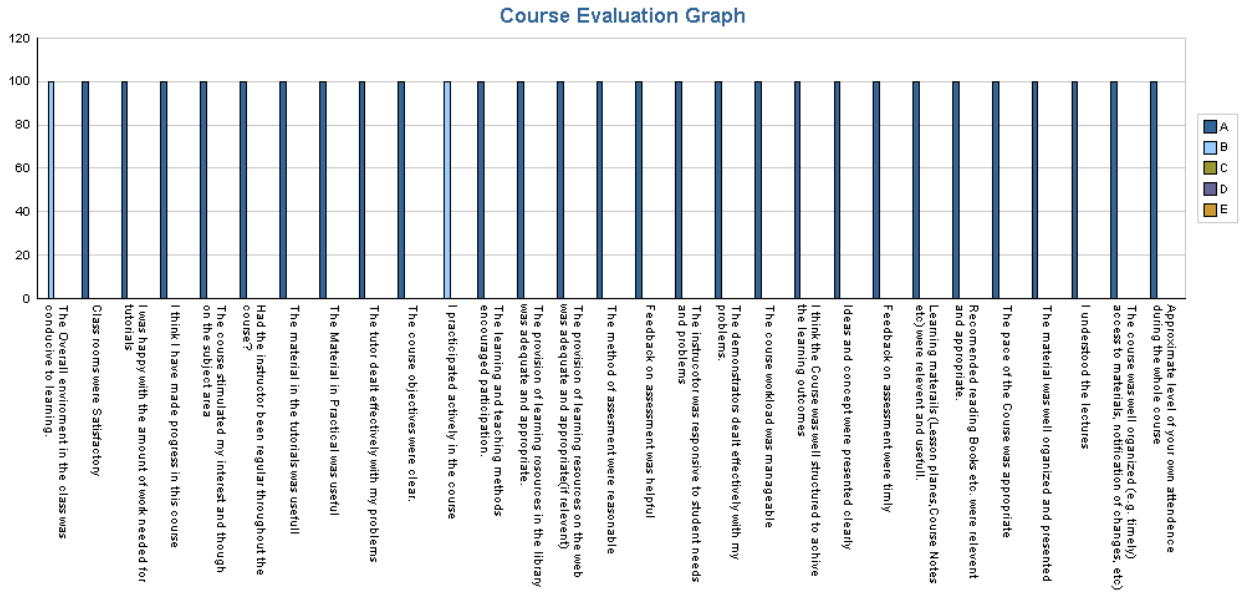


Where:

A = Strongly Agree, B = Agree, C = Uncertain, D = Disagree, E = Strongly Disagree

Dr. MobushirRiaz Khan (RSG-717, Spring 2015)

Evaluation: The graph shows evaluation of the course. 100 percent of the students strongly agreed that "The instructor was responsive to student needs and problems", "The course was well organized (e.g. timely) access to materials, notification of changes, etc)","The course workload was manageable", "The course stimulated my interest and though on the subject area" and "The demonstrators dealt effectively with my problems".100 percent of the students agreed that "I participated actively in the course" and "The Overall environment in the class was conducive to learning".

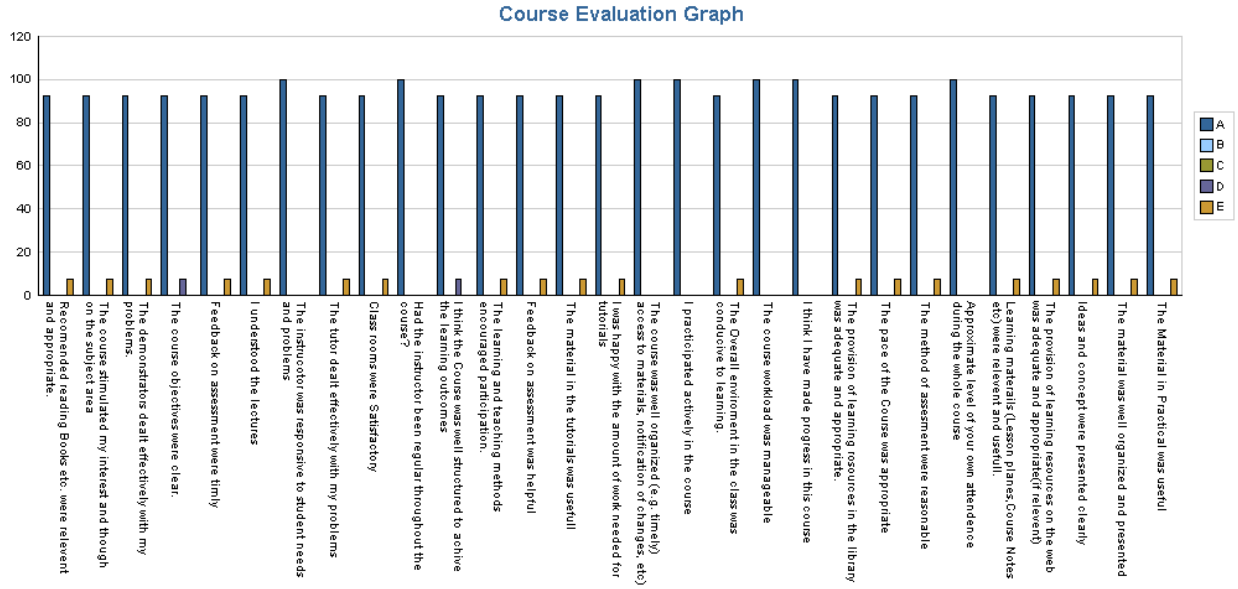


Where:

A = Strongly Agree, B = Agree, C = Uncertain, D = Disagree, E = Strongly Disagree

Mr. Muhammad Amin (RSG-720, Spring 2015)

Evaluation: The graph shows evaluation of the course. 100 percent of the students strongly agreed that "The instructor was responsive to student needs and problems", "The course was well organized (e.g. timely access to materials, notification of changes, etc)" and "The course workload was manageable", 90 percent of the students strongly agreed that "The course stimulated my interest and though on the subject area" and "The demonstrators dealt effectively with my problems".

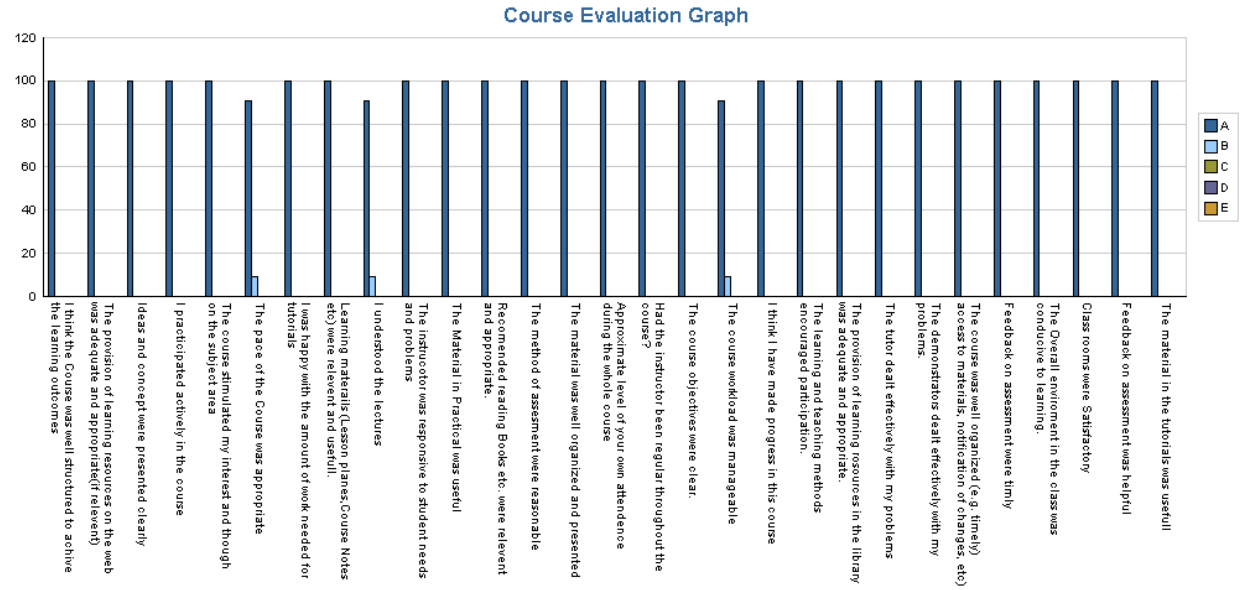


Where:

A = Strongly Agree, B = Agree, C = Uncertain, D = Disagree, E = Strongly Disagree

Mr. Shahzada Adnan (RSG-751, Spring 2015)

Evaluation: The graph shows evaluation of the course. 100 percent of the students strongly agreed that "The instructor was responsive to student needs and problems", "The course was well organized (e.g. timely) access to materials, notification of changes, etc)" and "The demonstrators dealt effectively with my problems". 90 percent of the students strongly agreed that "The pace of the Course was appropriate", and "The course workload was manageable".

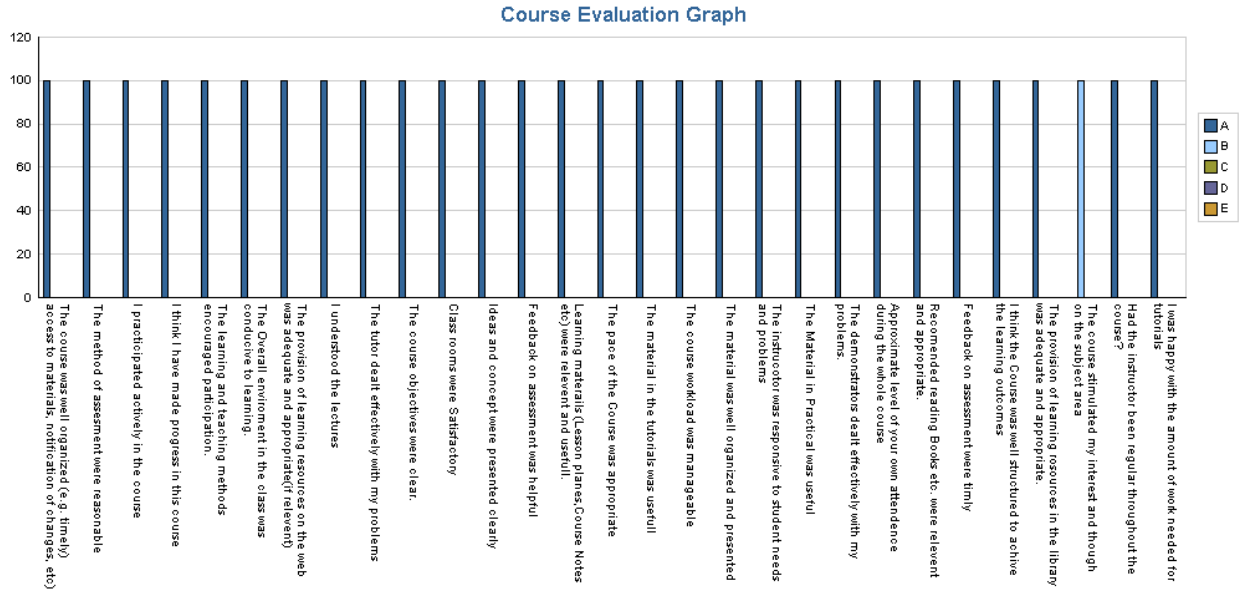


Where:

A = Strongly Agree, B = Agree, C = Uncertain, D = Disagree, E = Strongly Disagree

Mr. Armaghan (RSG-767, Spring 2015)

Evaluation: The graph shows evaluation of the course. 100 percent of the students strongly agreed that "The instructor was responsive to student needs and problems", "The course was well organized (e.g. timely) access to materials, notification of changes, etc)" , "The demonstrators dealt effectively with my problems", "The pace of the Course was appropriate", and" The course workload was manageable".



Where:

A = Strongly Agree, B = Agree, C = Uncertain, D = Disagree, E = Strongly Disagree

Best Aspects of the Program

- Highly qualified and dedicated faculty with diverse background caters the needs of students of various fields.
- High level of co-operation & helping attitude of the chairperson & majority faculty members for all students in research and extra-curricular activities.
- Curriculum is in line with current developments in the field and HEC recommendations.
- Encouragement to work as team in the department.
- Independence in research thus promoting creativity.
- Research collaboration with national and international agencies.

Weaknesses:

- Lack of mechanism for dissemination of every kind of departmental information.
- Process and mechanisms of the degree requirements and communication procedure for various exams and events is not functional.
- Lack of mechanism for reviewing the progress of the final research of MS students.
- Funding is not available for MS students to pursue their research.

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

Regular Assessment Process started recently and in future assessments results will be incorporated accordingly. Following are the strength and weaknesses identified.

Strengths of the Department

1. The department is enriched with highly qualified faculty graduated from prestigious international research institutes. The faculty members have full acquaintance of their respective subjects and having vast knowledge of current geo-spatial technologies.

2. Our faculty believes in quality research and had successfully completed national and international projects.
3. The entire faculty members are involved in research directly or indirectly as supervisor and committee member of the post graduate students and in research projects.
4. The program curriculum is meeting the international job market and HEC requirements. Thus developing the necessary subject theoretical, practical and analytical skills in the students to excel in their fields.
5. The program always promotes the innovative research ideas to solve the real world problems of the world in general and Pakistan in particular.
6. Administration of the department is always kind to the students in resolving their academic problems.

Weaknesses of the Department

1. Work load of teachers is more than enough according to the criteria set by HEC. Due to this teachers have no time to focus on their individual research along with other team members for publications in reputed journals as a first author. This tremendous work load also hinders their progress to write good projects.
2. Faculty members are not provided with internet connection and desktop system.
3. Lack of dedicated internet connection and data processing lab for postgraduate students.
4. There is shortage of faculty members of each cadre. Although more faculty members are inducted but faculty to student ratio is still very high.
5. Currently, very few books are available on the subjects of RS & GIS in the main library as well as in departmental library.

6. Faculty members are over loaded with administrative responsibilities other than department.
7. There is even no telephone communication setup for contacting each other and people outside the department.
8. GIS lab engineers and network administrator are not available for resolving hardware, software and data related problems of the student.

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

The evaluation process indicated high efficiency of system and satisfactory impact of outcomes.

Table 1: Present performance measures for research activities:

Faculty	Journal Publications	Conference Proceedings	Projects
Dr. MobushirRiaz Khan	23	07	09
Dr. SiddequllahBaig	02	07	03
Dr. NaveedTahir	15	01	05
Mr. Muhammad Amin	03	01	02
Mr. Naeem Abbas Malik	02 submitted	--	01

Table 2: Short courses, Seminars, Workshops and Conferences arranged by the Department Year Short Courses Seminars Workshops/Conferences

Year	Short Courses	Seminars
2013-14	01	01
2014-15	01	02

2. CRITERION 2: CURRICULUM DESIGN AND ORGANIZATION

Degree title: MS in Remote Sensing & GIS

The scheme of studies for MS in Remote Sensing & GIS was designed in agreement with the international educational standards as well as in compliance with the guidelines provided by national HEC (Higher Education Commission). Experts and learned professors, subject specialists form other universities and research organizations at national were involved to design the curriculum. Depending upon need curriculum is revised and updated. At department level, Board of Studies, which is comprised of senior faculty members, is responsible for updating the curriculum. This body is authorized to formulate syllabus and course contents. The Chairman of the Department in this regard acts as a convener. The courses are then sent to the Board of Faculty for approval. The Dean of the Faculty conducts the meetings in this regard. As per university rules, courses after the approval from the Faculty Board, are placed before the University Academic Council for final approval.

Criteria for 1.5 Year MS Remote Sensing & GIS Admission

Candidates with sixteen years education in the field of space sciences, Geo-Informatics or related field are eligible for this program.

Criteria for 2 Year MS Remote Sensing & GIS Admission

Bachelor degree in science filed like Environmental Sciences, Urban Planning, Agriculture, Hydrology, Forestry, natural sciences, computer sciences or Information Technology.

Degree Requirements:

As a whole, a student has to study 30 credit hours. First two semesters in 1.5 year degree program are of 24 credit hour course work and afterwards the research thesis of 06 credit hours. However, students with not relevant background enrolled in 2 year degree program have to passzero semester of 12 credit hours.Grade Point Average for obtaining the degree is 2.50.

Examination & Weightage:

Theory

In theory exam, student's evaluation is done by mid-term examination, assignments and quizzes during the semester and final examination. Both the mid-term and final examinations are compulsory. A student, who misses the mid-term examination, is not allowed a make-up examination and is awarded zero marks in that examination. In case a student does not appear in the final examination of a course, he/she shall be deemed to have failed in that course.

Practical

For practical subject courses evaluation is done by mid-term examination, assignments and quizzes during the semester and final examination and a practical exam.

Eligibility for Examination

A student is eligible to appear in the examination provided with at least 75% attendance.

Program Structure & Scheme of studies of MS Remote Sensing & GIS

The following is the list of courses offered to MS in remote sensing & GIS students.

S.No	Course Structure	Credit Hours	Courses
01	Core Courses	12	4
02	Elective/Specialized	12	4
03	Thesis	10	-
	Total	**34**	**8**

Table 3: MS Core Courses

Course Code	Course Title	Credit Hours
RSG-705	Advanced Remote Sensing and Digital Image Processing	3 (2-1)
RSG-706	Advanced Geographic Information Systems	3(2-1)
RSG-707	Spatial Data Warehouse and Mining	3 (3-0)
RSG-708	Advanced Research Methods	3 (3-0)
RSG-711	Applied Remote Sensing and GIS	3(2-1)
RSG-712	Statistical Data Analysis	3(2-1)
RSG-713	Geospatial Data Modeling	3(2-1)

Those students who have not done their MS in Remote Sensing and GIS as core subjects are also taught deficiency courses.

Table 4: List of MS deficiency courses

Course Code	Course Title
RSG-701	Introduction to GIS and Spatial Analysis
RSG-702	Introduction to Remote Sensing and Digital Image Processing
RSG-703	Introduction to GIS Database and Programming
RSG-704	Prescribed Mathematics Course

Table 5: List of postgraduate core courses:

Course Code	Course Title	Credit Hours
RSG-705	Advanced Remote Sensing and Digital Image Processing	3(2-1)
RSG-706	Advanced Geographic Information Systems & Spatial Analysis	3(2-1)
RSG-707	Spatial Data Warehouse and Mining	3(3-0)
RSG-708	Advanced Research Methods	3(3-0)
RSG-709	Advanced Programming for Image Analysis	3(2-1)
RSG-710	Food security and Climate Change	3(3-0)
RSG-711	Applied Remote Sensing and GIS	3(2-1)
RSG-712	Statistical Data Analysis	3(2-1)
RSG-713	Geospatial Data Modeling	3(2-1)
RSG-714	Climate Data Analysis & Modeling	3(2-1)
RSG-715	Climatology	3(3-0)

Table 6: List of MS elective courses

Course Code	Course Title	Credits Hours
RSG-717	Geo-Information for Agriculture Monitoring	3(2-1)
RSG-720	Geo Spatial Analysis for Hydrology	3(2-1)
RSG-721	Biodiversity	3(3-0)
RSG-722	Management of Energy Resources	3(3-0)
RSG-723	Management of Mineral Resources	3(3-0)
RSG-724	Coastal Zone Management	3(3-0)
RSG-725	Natural Resources Exploration	3(3-0)
RSG-726	Natural Hazards and Disaster Management	3(3-0)
RSG-727	Environmental Pollution	3(3-0)
RSG-728	Environmental Impact Assessment	3(2-1)
RSG-729	Environmental Decisions and Conflict Resolution	3(2-1)
RSG-730	Disease Ecology	3(3-0)
RSG-731	Dynamics of Climate Change	3(3-0)
RSG-732	Land use Planning and Management	3(3-0)
RSG-733	District Planning and Management	3(2-1)
RSG-734	Urban Planning	3(2-1)
RSG-735	Infrastructure and Transport Planning	3(2-1)
RSG-736	E-Governance	3(3-0)
RSG-737	Planning and Management of Housing	3(2-1)
RSG-738	Poverty Alleviation	3(3-0)
RSG-739	Tourism Development	3(3-0)
RSG-740	Education and Health Services	3(3-0)
RSG-741	Business and Marketing	3(3-0)
RSG-742	Land Information and Management System	3(2-1)
RSG-743	Utilities and services Management	3(3-0)
RSG-744	Advanced Geodesy	3(3-0)

RSG-745	GIS Standards, Security and Ethics	3(3-0)
RSG-746	Integrated Geo-Technologies	3(2-1)
RSG-747	Corporate GIS	3(3-0)
RSG-748	Web GIS	3(2-1)
RSG-749	Fuzzy GIS	3(3-0)
RSG-750	Neural Networks and Artificial Intelligence	3(3-0)
RSG-751	Climate Change	3(3-0)
RSG-752	Emergency Response Planning and Management	3(3-0)
RSG-753	Flood Modeling	3(2-1)
RSG-754	Archeology	3(3-0)
RSG-755	GIS for Energy Management	3(3-0)
RSG-756	Advanced Agro-meteorology	3(2-1)
RSG-757	Ground Water Modeling	3(2-1)
RSG-758	Watershed Modeling and Management	3(2-1)
RSG-759	Climate Change & Sustainable Development	3(2-1)
RSG-760	Advanced Mobile GIS	3(2-1)
RSG-761	Advanced topics in GIS	3(2-1)
RSG-762	Advanced topics in Remote Sensing	3(2-1)
RSG-763	Risk Assessment and Mapping	3(2-1)
RSG-764	Early Warning System	3(2-1)
RSG-765	Spectroscopy Theory	3(3-0)
RSG-766	Numerical Modeling	3(3-0)
RSG-767	GPS and Applications	3(2-1)
RSG-768	Digital Photogrammetry	3(3-0)
RSG-769	Terrain Mapping and Modeling	3(2-1)
RSG-770	Land Information System	3(3-0)
RSG-771	Forest Management	3(3-0)

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

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

Table 7: Core Courses versus program objectives

Courses	Program objectives			
	1	**2**	**3**	**4**
RSG-701 Introduction to GIS and Spatial Analysis	+++	+++	+	+
RSG-702 Introduction to Remote Sensing and DIP	+++	+++	+	+
RSG-703 Introduction to GIS Database and Programming	+++	+++	+	+
RSG-704 Prescribed Mathematics Course	+	+	+	+
RSG-705 Advanced Remote Sensing and DIP	++++	++++	++	+++
RSG-706 Advanced Geographic Information Systems	++++	++++	++	+++
RSG-707 Spatial Data Warehouse and Mining	+++	+++	++	+++
RSG-708 Advanced Research Methods	+	+	+	+++
RSG-711 Applied Remote Sensing and GIS	++++	++++	++++	+++
RSG-712 Statistical Data Analysis	++	++	++	+++
RSG-713 Geospatial Data Modeling	+	+++	+++	+++

+ = Relevant, ++ = Relevant & satisfactory, +++ = Very relevant & Very satisfactory, ++++ = Highly relevant & Highly satisfactory, NA= Not applicable

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

The courses taught here is the blend of theoretical and practical knowledge. Moreover, the subject practical and intellectual skills are also evaluated through term projects.

Table 7: Content wise grouping of core courses

Elements	Courses
Theoretical Background	RSG-701, RSG-703, RSG-702, RSG-705, RSG-706
Problem Analysis	RSG-705, RSG-706, RSG-707, RSG-711, RSG-713
Solution Design	RSG-705, RSG-706, RSG-707, RSG-711, RSG-713, RSG-712, RSG-726, RSG-732, RSG-708, RSG-709

Standard 2-3: The curriculum must satisfy the core requirements for the program, as specified by the respective accreditation body.

The curriculum is designed to meet the international educational standards as well as the HEC requirements.

Standard 2-4: The curriculum must satisfy the major requirements for the program as specified by HEC, the respective accreditation body / councils.

The curriculum also satisfies the general and professional as well as other discipline requirements for the program according to the demands and requirements set by HEC.

Standard 2-5: The curriculum must satisfy general education, arts, and professional and other discipline requirements for the program, as specified by the respective accreditation body/council.

The postgraduate core courses offered by the department of Geo-Informatics not only fulfill the requirements of MS degree in RS& GIS but also satisfy the general education, arts, and professional and requirements other than the field of RS and GIS.

Standard 2-6: Information technology component of the curriculum must be targeted throughout the program.

Information Technology (IT) is the integral component of the MS program as the students have to acquaint well with the relevant software along with programming skills for customization of GIS & RS applications.

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

Assignments are given to students on specific titles (part of the course) which are presented orally and are submitted as written report, to increase their oral and written communication skills.

3. CRITERION 3: LABORATORIES AND COMPUTING FACILITIES

The information about the laboratories at the department of Geo-Informatics is as under.

Location and Area:

GIS lab is in the premises of Faculty of Agricultural Engineering & Technology, Main Campus of the university. This lab is serving currently as the facility of computing and processing for MS students.

Objectives:

GIS lab is being used for practical exercises and demonstrations to the students in their introductory and major courses.

Adequacy for instruction:

Course instructor instructs students in completing practical exercises.

Software Available:

ArcMap, ArcGIS Server, Erdas Imagine, Envi,Ecognition Developer are installed in the lab.

4. CRITERION 4: STUDENT SUPPORT AND ADVISING

The university organizes support programs for students and provide information regarding admission, scholarship schemes etc. Director Students Affairs also arranges various cultural activities and solve the students' problems. The Students Resource Center also advises students about future planning and job placement.

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

Courses are taught as per criteria of HEC& international standards in the field of RS and GIS. Elective courses are also offered as per policy of HEC and the University.

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

Courses are structured and decided in the departmental and then in faculty board of studies meetings. To ensure effective interaction between students and faculty, at the time of course formulation both theoretical and practical aspects are focused. Students are welcomed to ask question in class and even after the class. Theoretical problems are explained and assignments are also given to the students, whereas practical are carried out in the laboratory with the involvement of instructor directly.

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 usually informed about the program requirement through the office of the head of the department. However, advising and counseling is also available through the personal communication of the teachers with the students.

In addition, students can also contact with the relevant teachers whenever they face any problem. In case of some problem Director Students Affairs, appointed by the university, helps

the students. Tutorial System in all departments has also been introduced. Two classes on Thursday are reserved for students for extracurricular activities. Students can interact with the teachers/scientist in universities or research organization whenever they needed and there is an open option for the students to get the membership in the professional societies. Students Recourse Centre has been established for exploring job opportunities for the university graduates.

5. 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.

The admission criterion for MS in Remote Sensing & GIS degree program is well established and approved by the University Academic Council and Syndicate. An admission advertisement is published in the national newspapers by the Registrar Office.

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.

The student name, after completion of the admission process, is forwarded to the Registrar Office for proper registration and the registration number is issued to the student. Students are evaluated through Mid, Final and Practical examinations and through assignments and surprise quizzes.

Registration is done for one time for each degree but evaluation is done through the result of each semester. Only those students, who fulfill the criteria, as notified by the Controllers of Examinations of the University, are promoted to the next semester.

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.

Recruitment policy followed by the University is recommended by the HEC. Faculty recruitment for all posts is done as per rule. Vacant and newly created positions are advertised in the national newspapers, applications are received by the Registrar office, and call letters are

issued to the short-listed candidates on the basis of experience, qualification, publications and other qualities/activities as determined 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.

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.

Department periodically review the curriculum depending upon new innovations and technology advancement as well as industry demands. Course books are also available in the university main library, where documentation, copying and internet facilities are available. Photocopy material (book chapters, recent research papers) are also given to the students. Most of the lectures are supplemented by multimedia presentations.

All efforts are made that the courses and knowledge imparted meet the objectives and outcome. The progress is regularly reviewed in the staff meetings and through university quality control cell.

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 dates of commencement of examination. After each semester, the controller office notifies the results of the students. The evaluation procedure consists of quizzes, mid, final and practical examinations, assignments and reports, oral and technical presentations.

6. CRITERION 6: FACULTY

Standard 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 interest 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.

The full time faculty distribution by program areas is given in the following table. The faculty resume are attached as Annexure.

Table 9: Research area wise faculty distribution

Program area of specialization	Courses in the area and average number of sections per year	Number of faculty members in each area	Number of faculty with Ph.D. degree
Applied Remote Sensing	14	2	2
Applied GIS	17	3	1

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.

Professional training and availability of adequate research and academic facilities are provided to the faculty members according to the available resources. Incentives in the form of allowances to theses supervisors have been implemented to promote high standard research.

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

Motivation and appreciation by the senior faculty members provides enthusiasm to the young faculty members. Factors for motivation and satisfaction for faculty were facilitation, cooperation and compensation by colleagues; independence for office duties and research work; job security and pay package. Faculty members were given full independence in conducting research and co-curricular activities. Most of the faculty members were satisfied in term of research, teaching, interaction with student salary and compensation package.

7. CRITERION 7: INSTITUTIONAL FACILITIES

According to this criterion, the institution must have the infrastructure to support new trends in learning such as e-learning including digital publications, journals etc.

The library must possess an up-to-date technical collection relevant to the program and must be adequately staffed with professional personnel. Class rooms must be adequately equipped and offices must be adequate tenable faculty to carry out their responsibilities.

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

The faculty and students have access to E-library through university internet facility at main library. This facility is helpful for the high quality education and producing research of international standard. However, a dedicated internet connection for the department is lacking thus hindering the process of research.

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 department of Geo-Informatics is establishing its own library with appreciable number of books related to Geo-Informatics. The University Central Library is requested to provide sufficient books on the subject. Currently, very few books are available in the central library on the subject.

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

Currently there are three main class rooms for teaching Geo-Informatics courses. However, after the construction of new building more class rooms and faculty offices will be available. Multimedia are available for the lecture halls/laboratories.

8. CRITERION 8: INSTITUTIONAL SUPPORT

The university administration has been struggling hard to strengthen and upgrade all the departments and establishing new faculties and Institutes. The university is also trying to attract highly qualified faculty.

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 the budget requirements of the faculty are met through the project approved from Planning & Development Department of Pakistan. There is an allocation of budget for the purchase of laboratory equipment and hardware/software in the PC-1.

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

The intake of MS Remote Sensing & GIS students was twice in a year but now it is once in a year. A detail of the students input during the past years is given below.

Table 10: Year wise intake of MS students

DESCIPLINE	2013-2014	2014-2015
MS RS & GIS	15	27

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

There is an allocation of budget for the purchase of laboratory equipment, software through the mega project “Construction of Faculty of Agriculture Engineering Building”.

SUMMARY & CONCLUSIONS

The department of Geo-Informatics is offering degrees of MS and PhD in the fields of Remote Sensing and GIS at postgraduate level. The department focuses teaching and research in the areas of natural resource management, hazards and disaster management, water resource management and land use land cover changes. The program mission corresponds well with the objectives of the program. There were different criteria to assess the program objectives with the institutional framework. The self-assessment report of the degree programs prepared by the department of Geo-Informatics attempts to reflect the level of fulfilling the criteria devised by HEC for the award of degree programs.

The quantitative assessment of the department for the period from 2013-2015 is impressive in various categories of the degree programs thus fulfilling the HEC criteria. Each faculty member has been evaluated in terms of teaching, research output and satisfaction level depicted by students.

Teaching load among faculty members is variable and faculty to student ratio is high. Average intake of MS students by the department in both 1.5 and 2 years scores around 20 annually. The faculty members use a variety of appropriate instructional techniques, dialogues and interactive discussions for dissemination of knowledge.

Curriculum contents of the program are compatible with contemporary emerging and changing needs. The curriculum is revised regularly in the light of HEC and international requirements. Textbooks and reference materials are available in the central library. However, these facilities are inadequate to cater the needs of the students. In this regard, the departmental library is being established with updated books and material. Course evaluation system is quite

effective and is being efficiently utilized by the department for quality assessment. The results of the assessment are aptly reflected in this report.

Course files are regularly and properly maintained and submitted to QEC for timely appraisal and record. Moreover, record is indicative of the meetings regularly held by the faculty board.

Laboratory setup is weak and needs to be strengthened gradually. However, lab will be improved and separate cubes will be allocated to students with dedicated internet connection. The lab supporting staff for adequately and timely instructions/supervision and guidance is lacking. There should be a centralized access to study support material/lectures/assignments etc. State of the art software/equipment is required to be purchased and made available for well-equipped laboratory.

The department computing infrastructure and facilities needs to be improved for the faculty members and postgraduate students. The ground breaking ceremony for the construction of new academic block for the faculty was held which will improve the infrastructure of the department. New building will have sufficient space for class rooms, library, seminar hall and laboratories. Internet facilities are insufficient for the faculty. However, these are planned and soon will be implemented.

Students are engaged in classes through presentations, class projects and interactive sessions which tend to provide friendly learning environment. The interaction of the students with teaching staff is encouraging and getting stronger day by day. The average CGPA of the students is around 3.5.

Since its inception in 2013, the department of Geo-Informatics has been making continuous progress in terms of class room based skills and knowledge pertaining to use of geospatial technologies in solving real world issues through simulation and modeling of real world

phenomenon, as well as practical application of these tools in various fields of research ranging from conservation and management of natural resources, geological studies, to wildfire habitat and later recourse management, over these years the department has advanced remarkably and has made notable contribution in the areas of curricula development, research metrology and dissertation of knowledge associated with geo spatial technologies. The enrolled students of MS have chosen different areas of research that have practical application and real life utility. The registered MS students are working on the themes that have been selected while keeping the real world issues in mind and their work will make a substantial contribution in the research areas covered by Geo-Informatics. The current research studies of MS students focusvarious fields. The selected area of research will prove to be very beneficial for government departments, private organizations and societal applications. Latest evolved and improved methodologies are being employed in MS studies that have global level acceptability and likely to produce reliable and trust worthy information.

Further research studies would address natural hazards, ground water system studies, application of Synthetic Aperture Radar (SAR) and Light Detection and Ranging (LIDAR) technologies in 3D modeling, development of web based applications and services, detailed topographic analysis Air quality monitoring and regional and urban planning.

It is stated that the program is running successfully. However, room for improvement in every aspect of the program is always there. Owing to success and importance of the program, continuation of this program is highly recommended.

ANNEXURE

ANNEXURE I

Performa 2: Faculty Course Review Report

Department	Geo-Informatics	Faculty	Agricultural Engineering & Technology		
Course Code	RSG-701	Title	Introduction to GIS & Spatial Analysis		
Session	2013	Semester	**Autumn**	Spring	Summer
Credit Value:	3(3-0)	Level: MS	Prerequisites:		
Name of Course Instructor:	No. of Students: 07	Lectures Theory: 45	Other (Please State)		
Dr. Mobushir Riaz Khan	Contact Hours: 15	Lectures Practical:	Seminars		
Practical assignments and projects were given for evaluation in addition to mid and final term exams.					

Distribution of Grade/Marks and other Outcomes:

Post-Graduate	Originally Registered	%Grade A	%Grade B	%Grade C	%Grade D	%Grade F	No Grade	With-drawl	Total
No. of Students	07	85.71	14.29						07

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

1) Student (Course Evaluation) Questionnaires
More Than 90 % of the students who enrolled in the course were satisfied both with the instructor and course contents.

2) External Examiners or Moderators (if any).

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

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

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

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

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

Name: _____ Date: _____
(Course Instructor)

Name: _____ Date: _____
(Head of Department)

Performa 2: Faculty Course Review Report

Department	Geo-Informatics	Faculty	Agricultural Engineering & Technology		
Course Code	RSG-702	Title	Introduction to RS & DIP		
Session	2013	Semester	**Autumn**	Spring	Summer
Credit Value:	3(3-0)	Level: MS	Prerequisites:		
Name of Course Instructor:	No. of Students: 07	Lectures Theory: 45	Other (Please State)		
Dr. Mobushir Riaz Khan	Contact Hours: 15	Lectures Practical:	Seminars		
Practical assignments and projects were given for evaluation in addition to mid and final term exams.					

Distribution of Grade/Marks and other Outcomes:

Post-Graduate	Originally Registered	%Grade A	%Grade B	%Grade C	%Grade D	%Grade F	No Grade	With-drawl	Total
No. of Students	07	28.57	42.86	28.57					07

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

1) Student (Course Evaluation) Questionnaires More Than 90 % of the students who enrolled in the course were satisfied both with the instructor and course contents.
2) External Examiners or Moderators (if any).
3) Student /staff Consultative Committee (SSCC) or equivalent, (if any).
4) Curriculum: comment on the continuing appropriateness of the Course curriculum in relation to the intended learning outcomes (course objectives) and its compliance with the HEC Approved / Revised National Curriculum Guidelines. The course is in compliance with the HEC guidelines.
5) Assessment: comment on the continuing effectiveness of method(s) of assessment in relation to the intended learning outcomes (Course objectives)
6) Enhancement: comment on the implementation of changes proposed in earlier Faculty Course Review Reports.
7) Outline any changes in the future delivery or structure of the Course that this semester/term's experience may prompt.

Name: _____ Date: _____
(Course Instructor)

Name: _____ Date: _____
(Head of Department)

Performa 2: Faculty Course Review Report

Department	Geo-Informatics	Faculty	Agricultural Engineering & Technology		
Course Code	RSG-703	Title	Intro to GIS Databases & Programming		
Session	2013	Semester	**Autumn**	Spring	Summer
Credit Value:	3(3-0)	Level: MS	Prerequisites:		
Name of Course Instructor: **Mr. Muhammad Amin**	No. of Students: 07	Lectures Theory: 45	Other (Please State)		
	Contact Hours: 15	Lectures Practical:	Seminars		
Practical assignments and projects were given for evaluation in addition to mid and final term exams.					

Distribution of Grade/Marks and other Outcomes:

Post-Graduate	Originally Registered	%Grade A	%Grade B	%Grade C	%Grade D	%Grade F	No Grade	With-drawl	Total
No. of Students	07	28.57	71.43	28.57					07

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

1) Student (Course Evaluation) Questionnaires More Than 90 % of the students who enrolled in the course were satisfied both with the instructor and course contents.
2) External Examiners or Moderators (if any).
3) Student /staff Consultative Committee (SSCC) or equivalent, (if any).
4) Curriculum: comment on the continuing appropriateness of the Course curriculum in relation to the intended learning outcomes (course objectives) and its compliance with the HEC Approved / Revised National Curriculum Guidelines. The course is in compliance with the HEC guidelines.
5) Assessment: comment on the continuing effectiveness of method(s) of assessment in relation to the intended learning outcomes (Course objectives)
6) Enhancement: comment on the implementation of changes proposed in earlier Faculty Course Review Reports.
7) Outline any changes in the future delivery or structure of the Course that this semester/term's experience may prompt.

Name: _____ Date: _____
(Course Instructor)

Name: _____ Date: _____
(Head of Department)

Performa 2: Faculty Course Review Report

Department	Geo-Informatics	Faculty	Agricultural Engineering & Technology		
Course Code	RSG-704	Title	Prescribed Mathematics		
Session	2013	Semester	**Autumn**	Spring	Summer
Credit Value:	3(3-0)	Level: MS & PhD	Prerequisites:		
Name of Course Instructor: **Mr. Muhammad Amin**	No. of Students: 07	Lectures Theory: 45	Other (Please State)		
	Contact Hours: 15	Lectures Practical:	Seminars		
Practical assignments and projects were given for evaluation in addition to mid and final term exams.					

Distribution of Grade/Marks and other Outcomes:

Post-Graduate	Originally Registered	%Grade A	%Grade B	%Grade C	%Grade D	%Grade F	No Grade	With-drawl	Total
No. of Students	07	57.14	14.29	28.57					07

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

1) Student (Course Evaluation) Questionnaires More Than 90 % of the students who enrolled in the course were satisfied both with the instructor and course contents.
2) External Examiners or Moderators (if any).
3) Student /staff Consultative Committee (SSCC) or equivalent, (if any).
4) Curriculum: comment on the continuing appropriateness of the Course curriculum in relation to the intended learning outcomes (course objectives) and its compliance with the HEC Approved / Revised National Curriculum Guidelines. The course is in compliance with the HEC guidelines.
5) Assessment: comment on the continuing effectiveness of method(s) of assessment in relation to the intended learning outcomes (Course objectives)
6) Enhancement: comment on the implementation of changes proposed in earlier Faculty Course Review Reports.
7) Outline any changes in the future delivery or structure of the Course that this semester/term's experience may prompt.

Name: _____ Date: _____
(Course Instructor)

Name: _____ Date: _____
(Head of Department)

Performa 2: Faculty Course Review Report

Department	Geo-Informatics	Faculty	Agricultural Engineering & Technology		
Course Code	RSG-701	Title	Introduction to GIS & Spatial Analysis		
Session	2014	Semester	Autumn	**Spring**	Summer
Credit Value:	3(3-0)	Level: MS	Prerequisites:		
Name of Course Instructor: **Mr. Muhammad Amin**	No. of Students: 10	Lectures Theory: 30	Other (Please State)		
	Contact Hours: 15	Lectures Practical: 15	Seminars		
Practical assignments and projects were given for evaluation in addition to mid and final term exams.					

Distribution of Grade/Marks and other Outcomes:

Post-Graduate	Originally Registered	%Grade A	%Grade B	%Grade C	%Grade D	%Grade F	No Grade	With-drawl	Total
No. of Students	10	45.45	9.09	27.27				01	10

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

1) Student (Course Evaluation) Questionnaires More Than 90 % of the students who enrolled in the course were satisfied both with the instructor and course contents.
2) External Examiners or Moderators (if any).
3) Student /staff Consultative Committee (SSCC) or equivalent, (if any).
4) Curriculum: comment on the continuing appropriateness of the Course curriculum in relation to the intended learning outcomes (course objectives) and its compliance with the HEC Approved / Revised National Curriculum Guidelines. The course is in compliance with the HEC guidelines.
5) Assessment: comment on the continuing effectiveness of method(s) of assessment in relation to the intended learning outcomes (Course objectives)
6) Enhancement: comment on the implementation of changes proposed in earlier Faculty Course Review Reports.
7) Outline any changes in the future delivery or structure of the Course that this semester/term's experience may prompt.

Name: _____ Date: _____
(Course Instructor)

Name: _____ Date: _____
(Head of Department)

Performa 2: Faculty Course Review Report

Department	Geo-Informatics	Faculty	Agricultural Engineering & Technology		
Course Code	RSG-702	Title	Introduction to RS & DIP		
Session	2014	Semester	Autumn	**Spring**	Summer
Credit Value:	3(3-0)	Level: MS	Prerequisites:		
Name of Course Instructor:	No. of Students: 07	Lectures Theory: 30	Other (Please State)		
Dr. Mobushir Riaz Khan	Contact Hours: 15	Lectures Practical: 15	Seminars		
Practical assignments and projects were given for evaluation in addition to mid and final term exams.					

Distribution of Grade/Marks and other Outcomes:

Post-Graduate	Originally Registered	%Grade A	%Grade B	%Grade C	%Grade D	%Grade F	No Grade	With-drawl	Total
No. of Students	07	12.5	50	12.5		25			06

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

1) Student (Course Evaluation) Questionnaires More Than 90 % of the students who enrolled in the course were satisfied both with the instructor and course contents.
2) External Examiners or Moderators (if any).
3) Student /staff Consultative Committee (SSCC) or equivalent, (if any).
4) Curriculum: comment on the continuing appropriateness of the Course curriculum in relation to the intended learning outcomes (course objectives) and its compliance with the HEC Approved / Revised National Curriculum Guidelines. The course is in compliance with the HEC guidelines.
5) Assessment: comment on the continuing effectiveness of method(s) of assessment in relation to the intended learning outcomes (Course objectives)
6) Enhancement: comment on the implementation of changes proposed in earlier Faculty Course Review Reports.
7) Outline any changes in the future delivery or structure of the Course that this semester/term's experience may prompt.

Name: _____ Date: _____
(Course Instructor)

Name: _____ Date: _____
(Head of Department)

Performa 2: Faculty Course Review Report

Department	Geo-Informatics	Faculty	Agricultural Engineering & Technology		
Course Code	RSG-703	Title	Intro to GIS Databases & Programming		
Session	2014	Semester	Autumn	**Spring**	Summer
Credit Value:	3(3-0)	Level: MS	Prerequisites:		
Name of Course Instructor:	No. of Students: 07	Lectures Theory: 45	Other (Please State)		
Mr. Muhammad Amin	Contact Hours: 15	Lectures Practical:	Seminars		
Practical assignments and projects were given for evaluation in addition to mid and final term exams.					

Distribution of Grade/Marks and other Outcomes:

Post-Graduate	Originally Registered	%Grade A	%Grade B	%Grade C	%Grade D	%Grade F	No Grade	With-drawl	Total
No. of Students	07	25	37.5	12.5					06

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

1) Student (Course Evaluation) Questionnaires More Than 90 % of the students who enrolled in the course were satisfied both with the instructor and course contents.
2) External Examiners or Moderators (if any).
3) Student /staff Consultative Committee (SSCC) or equivalent, (if any).
4) Curriculum: comment on the continuing appropriateness of the Course curriculum in relation to the intended learning outcomes (course objectives) and its compliance with the HEC Approved / Revised National Curriculum Guidelines. The course is in compliance with the HEC guidelines.
5) Assessment: comment on the continuing effectiveness of method(s) of assessment in relation to the intended learning outcomes (Course objectives)
6) Enhancement: comment on the implementation of changes proposed in earlier Faculty Course Review Reports.
7) Outline any changes in the future delivery or structure of the Course that this semester/term's experience may prompt.

Name: _____ Date: _____
(Course Instructor)

Name: _____ Date: _____
(Head of Department)

Performa 2: Faculty Course Review Report

Department	Geo-Informatics	Faculty	Agricultural Engineering & Technology		
Course Code	RSG-704	Title	Prescribed Mathematics		
Session	2014	Semester	Autumn	**Spring**	Summer
Credit Value:	3(3-0)	Level: MS & PhD	Prerequisites:		
Name of Course Instructor: **Mr. Muhammad Amin**	No. of Students: 07	Lectures Theory: 45	Other (Please State)		
	Contact Hours: 15	Lectures Practical:	Seminars		
Practical assignments and projects were given for evaluation in addition to mid and final term exams.					

Distribution of Grade/Marks and other Outcomes:

Post-Graduate	Originally Registered	%Grade A	%Grade B	%Grade C	%Grade D	%Grade F	No Grade	With-drawl	Total
No. of Students	07	57.14	14.29	28.57					07

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

1) Student (Course Evaluation) Questionnaires More Than 90 % of the students who enrolled in the course were satisfied both with the instructor and course contents.
2) External Examiners or Moderators (if any).
3) Student /staff Consultative Committee (SSCC) or equivalent, (if any).
4) Curriculum: comment on the continuing appropriateness of the Course curriculum in relation to the intended learning outcomes (course objectives) and its compliance with the HEC Approved / Revised National Curriculum Guidelines. The course is in compliance with the HEC guidelines.
5) Assessment: comment on the continuing effectiveness of method(s) of assessment in relation to the intended learning outcomes (Course objectives)
6) Enhancement: comment on the implementation of changes proposed in earlier Faculty Course Review Reports.
7) Outline any changes in the future delivery or structure of the Course that this semester/term's experience may prompt.

Name: _____ Date: _____
(Course Instructor)

Name: _____ Date: _____
(Head of Department)

Performa 2: Faculty Course Review Report

Department	Geo-Informatics	Faculty	Agricultural Engineering & Technology		
Course Code	RSG-705	Title	Advanced RS & DIP		
Session	2014	Semester	Autumn	**Spring**	Summer
Credit Value:	3(3-0)	Level: MS & PhD	Prerequisites:		
Name of Course Instructor: **Mr. Muhammad Amin**	No. of Students: 08	Lectures Theory: 45	Other (Please State)		
	Contact Hours: 15	Lectures Practical:	Seminars		
Practical assignments and projects were given for evaluation in addition to mid and final term exams.					

Distribution of Grade/Marks and other Outcomes:

Post-Graduate	Originally Registered	%Grade A	%Grade B	%Grade C	%Grade D	%Grade F	No Grade	With-drawl	Total
No. of Students	08	37.5	62.5	28.57					08

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

1) Student (Course Evaluation) Questionnaires More Than 90 % of the students who enrolled in the course were satisfied both with the instructor and course contents.
2) External Examiners or Moderators (if any).
3) Student /staff Consultative Committee (SSCC) or equivalent, (if any).
4) Curriculum: comment on the continuing appropriateness of the Course curriculum in relation to the intended learning outcomes (course objectives) and its compliance with the HEC Approved / Revised National Curriculum Guidelines. The course is in compliance with the HEC guidelines.
5) Assessment: comment on the continuing effectiveness of method(s) of assessment in relation to the intended learning outcomes (Course objectives)
6) Enhancement: comment on the implementation of changes proposed in earlier Faculty Course Review Reports.
7) Outline any changes in the future delivery or structure of the Course that this semester/term's experience may prompt.

Name: _____ Date: _____
(Course Instructor)

Name: _____ Date: _____
(Head of Department)

PMAS-Arid Agriculture University Rawalpindi

Faculty of Agricultural Engineering & Technology

Department of Geo-Informatics

Performa 2: Faculty Course Review Report

Department	Geo-Informatics	Faculty	Agricultural Engineering & Technology		
Course Code	RSG-705	Title	Advanced Remote Sensing & DIP		
Session	2015	Semester	Autumn	**Spring**	Summer
Credit Value:	3(2-1)	Level: MS & PhD	Prerequisites:		
Name of Course Instructor:	No. of Students: 14	Lectures Theory: 30	Other (Please State)		
Dr. MobushirRiaz Khan	Contact Hours: 04	Lectures Practical: 15	Seminars		
Practical assignments and projects were given for evaluation in addition to mid and final term exams.					

Distribution of Grade/Marks and other Outcomes:

Post-Graduate	Originally Registered	%Grade A	%Grade B	%Grade C	%Grade D	%Grade F	No Grade	With-drawl	Total
No. of Students	14	71.43	28.57						14

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

1) Student (Course Evaluation) Questionnaires More Than 80 % of the students who enrolled in the course were satisfied both with the instructor and course contents.
2) External Examiners or Moderators (if any).
3) Student /staff Consultative Committee (SSCC) or equivalent, (if any).
4) Curriculum: comment on the continuing appropriateness of the Course curriculum in relation to the intended learning outcomes (course objectives) and its compliance with the HEC Approved / Revised National Curriculum Guidelines. The course is in compliance with the HEC guidelines.
5) Assessment: comment on the continuing effectiveness of method(s) of assessment in relation to the intended learning outcomes (Course objectives)
6) Enhancement: comment on the implementation of changes proposed in earlier Faculty Course Review Reports.
7) Outline any changes in the future delivery or structure of the Course that this semester/term's experience may prompt.

Name: _____ Date: _____

(Course Instructor)

Name: _____ Date: _____

(Head of Department)

ANNEXURE II

Performa 3: 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. 15 students filled this Performa.

S.No:	Question	A: Very satisfied	B: Satisfied	C: Uncertain	D: Dissatisfied	E: Very dissatisfied
01.	The work in the program is too heavy and induces a lot of pressure	0%	22%	0%	45%	33%
02.	The program is effective in enhancing team-working abilities.	22%	78%	0%	0%	0%
03.	The program administration is effective in supporting learning.	11%	56%	0%	22%	11%
04.	The program is effective in developing analytical and problem solving skills.	22%	56%	11%	11%	0%
05.	The program is effective in developing independent thinking.	22%	34%	33%	11%	0%
06.	The program is effective in developing written communication skills.	11%	56%	33%	22%	0%
07.	The program is effective in developing planning abilities.	11%	67%	11%	11%	0%
08.	The objectives of the program have been fully achieved	0%	78%	0%	22%	0%
09.	Whether the contents of curriculum are advanced and meet program objectives	0%	100%	0%	0%	0%
10.	Faculty was able to meet the program objectives	11%	67%	11%	11%	0%
11.	Environment was conducive for learning	0%	78%	0%	22%	0%
12.	Whether the Infrastructure of the department was good.	0%	67%	33%	0%	0%
13.	Whether the program was comprised of Co-curricular and extra-curricular activities	0%	33%	22%	45%	0%
14.	Whether scholarships/ grants were available to students in case of hardship	11%	45%	22%	11%	11%

ANNEXURE III

Curriculum Vitae of Faculty Members

1.

Name	**Dr. MobushirRiaz Khan**
Personal	Telephone: 0092 300 8305334 E-Mail: mobushir_riaz@yahoo.com; Web site: http://www.mriazkhan.com
	Ph.D.Applied Remote Sensing and GIS
Experience (16 Years)	Remote sensing and GIS Development expert **PMAS University of Arid Agriculture, Rawalpindi Jan 2014 till now.** **Director University Institute of Information Technology** Managing the Institute with more than 2000 students in 6 teaching and research programs in both morning and evening sessions. Responsibilities include providing conducive learning environment to promote high quality Computer Science and Information Technology education to produce dedicated, hardworking and learned graduates. **Associate Professor, Geo-Informatics** Successfully launched the department of Geo-Informatics in the Faculty of Agricultural Engineering and Technology (AE&T). Developed and started the programs of MS and Ph.D. in Remote Sensing and GIS. Responsible for teaching and undertaking multiple research activities both independently as well as with local and international collaborations. Supervising Students and development of degree programs.
	Cardiff University, United Kingdom July 2013 till September 2013 **Visiting Researcher, Department of Computer Science and Informatics** For research and joint project formulation and building research collaborations
	Institute of Space Technology (IST), Islamabad March 2013 till January 2014 **Associate Professor, Department of Space Science** Responsible for teaching and undertaking multiple research activities both independently as well as with local and international collaborations. Supervising Students and development of degree programs. Instrumental in starting MS Remote Sensing and GIS program at IST.
	COMSATS Institute of Information Technology, Islamabad May 2011 till March 2013 **Assistant Professor, Department of Meteorology** Responsible for teaching and undertaking multiple research activities both independently as well as with local and international collaborations. Have been teaching courses at PhD and MS/MPhil level. -Additionally, worked as In-charge MS program Remote Sensing and GIS. - Designed the program of BS Geo-Informatics with the help of junior faculty members and defended in Board of Studies. The program is academically approved. - Designed the program of MS Geo-Informatics for Disaster Management with the help of junior faculty members and presented to HOD for onward submission to Chairperson for meeting of BOS. - Designed the program of MS Global Warming and Climate Change with thehelp of junior faculty members and defended in Board of Studies.

	- Secretary Organizing Committee for International Workshop on climate change and sustainable management of water resources in the Asia Pacific Region November 22-24, Islamabad. - Main Resource Person for the International Training Workshop on Use of Information Technology in Irrigation Management for Small Scale Farming Communities in Rural Areas. The Workshop is tentatively scheduled to be held from 25 - 27 December 2012 at Islamabad, Pakistan organized by CIIT, INIT and ISESCO. - MS and Ph.D. student Supervision (MS 09 and Ph.D. 02)
	Assistant Professor , PMAS University of Arid Agriculture Rawalpindi **Jan 2008 - May 2011** Was responsible for teaching and undertook multiple research activities both independently as well as with local and international collaborations. Taught a number of courses at PhD and M.Sc. (Hons.) and Ph.D. level.
Journal Publications	1. **Khan, M.,** Ahmed, H., Panadero-Fontan, R., Lopez-Sandez, C., Khan, M., Asif, S., Mustafa, I., Ali, M., Raza, H., &Qayyum, M. (2015). Risk mapping of bovine hypodermosis using geographical information system (GIS) in cattle of subtropical region, Pakistan. The Journal Of Infection In Developing Countries, 9(08), 872-877. doi:10.3855/jidc.5387 2. S. Hasson, V. Lucarini**, M. R. Khan**, M. Petitta, T. Bolch, and G. Gioli. (2013) Early 21st century climatology of snow cover for the western river basins of the Indus River System. **Hydrol. Earth Syst. Sci. Discuss., 10, 13145-13190, 2014 (IF JOURNAL)** 3. Arshad M, Ahmed N, Mustafa I, **Khan M R,** Ahmed H." Avifauna Studies in Co-Relation with Alteration in Climatic Patterns and Hydrology of Uchalli Lake, Punjab, Pakistan". **Pakistan J. Zool., vol. 46(2), pp. 0-0, 2014 (PJZ-1583-13) 2014. ISI Indexed, NATIONAL (Impact factor: 0.333).** 4. **Khan, M.R.,** de Bie, C.A.J.M., van Keulen, H., Smaling, E.M.A. and Real, R. (2010) Disaggregating and mapping crop statistics using hypertemporal remote sensing. **International Journal of Applied Earth Observation and Geoinformation 12, 36-46. (IF JOURNAL)** 5. Ahmed, H., **Khan, M. R**., Fontan, R. P.Sandez C. L., Iqbal, M. F., Naqvi, S. M. S. and Qayyum, M.(2012) Geographical Distribution of Hypodermosis (Hypoderma sp.) in Northern Punjab, Pakistan, **Kafkas Univ. Vet. Fak. Derg. 18: A215-1219, 2012. (IF Journal).** 6. de Bie, C.A.J.M., **Khan, M.R.,** Smakhtin, V.U., Venus, V., Weir, M.J.C. and Smaling, E.M.A. (2011). Analysis of multi temporal NDVI SPOT images for small scale land use mapping. **International Journal of Remote Sensing, 32 (2011)21 pp. 6673-6693. (IF JOURNAL)** 7. Naeem M., F. Shahzad and **M. R. Khan,** (2005) Biosytematics of Aphid Parasitoids (Hymenoptera: Aphidiidae) from Potohar Region of the Punjab (Pakistan). **Entomologists Monthly Magazine 141:219-226 London. (INDEXED, HEC RECOGNIZED)**

8. Bodlah, I, M. A. Bodlah, T. Akhtar, M. Naeem and **M. R. Khan**., (2011) Record of Delta dimidiatipenne in space and time (de Saussure, 1852) (Hymenoptera: Eumininae, Vespidae) from Barani areas of Punjab Province of Pakistan. **Pakistan Journal of Zoology. 43(5).1019-1020. (IF JOURNAL)**

9. Khaliq A., **M. R. Khan**., Khan L., (2003) Incidence of Infestation and Parasitization of Codling Moth, Cydiapomonella (L.), in Murree Hills (Punjab). **Pak Entomol. 25: 69-72. (INDEXED, HEC RECOGNIZED)**

10. Bodlah I., Naeem, M., **Khan, M. R.**, Bodlah M. A., and Akhter T., (2012) Genus Delta De Saussure (Hymenoptera: Eumininae, Vespidae) from Punjab Province of Pakistan. **Pakistan Journal of Zoology. 44 (3). 759-7644. (IF JOURNAL)**

11. Mustafa, I., Raza, A., Arshad, M., Ahmed, H., **Khan, M. R.,** and Ahmad, I., (2013) Correlation of Citrus Leaf Miner (PhyllocnistiscitrellaStainton) with Snail Population in District Sargodha Punjab, Pakistan, **Pakistan Journal of Zoology, vol. 45(2), pp.** 453-458**, 2013 (PJZ-1158-12). (IF JOURNAL)**

12. Iqbal, M. F., Khan, M.R., and Malik, A.H. (2012) Land Use Change Detection in the Limestone Exploitation area of Margalla Hills National Park (MHNP), Islamabad, Pakistan using Geo-spatial techniques, **Journal of Himalayan Earth Sciences,** V**olume 46 (1), (INDEXED, HEC RECOGNIZED)**

13. Ahmed H, **Khan M R**, Panadero-fontan R, Sandez C L, Mustafa I, Ghani A, Hussain M, Asif S, Ahmad A , Naqvi SMS, Qayyum M. Prevalence of Bovine Hypodermosis in Water Buffalo (*Bubalusbubalis*) from Jhelum District, Pakistan. *Kafkas Univ. Vet. Fak..Derg.* 19 (1): 79-84, **2013, ISI Indexed, INTERNATIONAL (*Impact factor*). DOI: 10.9775/kvfd.2012.7227**

14. Ahmed H, **Khan M. R**, Panadero-fontan R, Sandez C L, Qayyum M. Development of Indirect ELISA for the Diagnosis of Bovine Hypodermosis (*Hypodermalineatum*) in the Cattle of Subtropical Region of Pakistan. *Kafkas Univ. Vet. Fak. Derg.* 19 (6), 1017-1022, **2013, ISI Indexed, INTERNATIONAL (*Impact factor*: 0.495). DOI: 10.9775/kvfd.2013.9348**

15. Ahmed H, **Khan M R**, Panadero-fontan R, Sandez C L, Qayyum M. Influence of epidemiological factors on the prevalence and intensity of Hypoderma sp. in cattle of Potowar Region, Pakistan. **(Pak. J. Zoo). Pakistan J. Zool., vol. 45(6), pp. 1495-1500. 2013 ISI Indexed, NATIONAL (Impact factor: 0.333).**

16. Mustafa I, Raza ABM, Arshad M, Ghani A, **Khan M R** Ahmed H. Population Dynamics of Citrus Leaf Miner (CLM) (Phyllocnistiscitrella: Stainton) on Different Species of Citrus in Correlation with Abiotic Environmental Factors in District Sargodha Punjab Pakistan**. (Phytoparastica). 2013, ISI Indexed, INTERNATIONAL (Impact factor:**

0.80). DOI: 10.1007/s12600-013-0365-2

17. Arshad M, Siddique F, Ahmed S, Mustafa I, Anwar P, Asif S, **Khan M. R**. Ahmed H. An epidemiological study on prevalence of Goat Warble Fly Infestation (GWFI) in Punjab Province, Pakistan. **Kafkas Univ. Vet. Fak. Derg. 20 (1): 35-40, 2014, ISI Indexed, INTERNATIONAL (Impact factor: 0.495). DOI: 10.9775/kvfd.2013.9402**

18. **Khan, M.R.,** de Bie, C.A.J.M., van Keulen, H., Smaling, E.M.A. and Real, R. (2013) Integrating soil maps in a model to map crop areas using hypertemporal remote sensing and crop statistics. **Revised and Resubmitted in International Journal of Applied Earth Observation and Geoinformation. (IF JOURNAL)**

19. Mustafa I, Saman, Asif S, **Khan M R,** Ahmed H.". "Association of citrus leaf miner with leaf biochemical factors (Ca+2, K+ and Mg+2) in kinnow leaves of district Sargodha, Punjab Pakistan". (Pak. J. Zoo). Accepted. In Press. 2014. ISI Indexed, NATIONAL (Impact factor: 0.333).

20. Mustafa I, Kamran R, **Khan M R,** Ahmed N, Ahmed H." Comparative metal profile in different organs of House Sparrow (Passer domesticus) and Black kite (Milvusmigrans) in Sargodha district, Punjab Pakistan. Pak. J. Zoo, vol. 47(4), pp. 1103-1108, 2015, NATIONAL (IF: 0.40).

21. Arshad M, Ahmed N, Ghani A, **Khan M R** Mustafa I, Ahmed H." Population Dynamics of House Sparrow (Passer domesticus) and House Crow (Corvussplendens) in Punjab (District Sargodha), Pakistan. Pak. J. Zooll. 47(4), pp. 1147-1155, 2015. ISI Indexed, NATIONAL (IF: 0.40).

22. Mustafa I, Abrar M, Waheed M, Ahmed H, **Khan M R,** Panadero-fontan R, Sandez C L, Farooq M, Naqvi SMS, Qayyum M. "Newcastle disease as an emerging disease in Peacock of Tharparkar region of Pakistan. Journal of Infection in Developing Countries (JIDC). Accepted. In Press. xx(x), pp. xxx-xxx, 2015. DOI: 10.3855/jidc.5258 ISI Indexed, INTERNATIONAL (Impact factor: 1.30).

23. Mustafa I. Shahbaz M. Asif S, **Khan MR,** Saeed U, Sadiq F, Mehmood T, Ahmed H, Simsek S. Prevalence & characterization of Hydatidosis (Echinococcusgranulosus) isolates in different organs of ruminants (Cattles, Sheeps, Goat) in Central Punjab, Pakistan. Kafkas Univ. Vet. Fak. Derg Accepted. In Press. xx(x), pp. xxx-xxx, 2015. ISI Indexed, INTERNATIONAL (IF: 0.26). DOI: 10.9775/kvfd.2015.13755

More research papers on **Remote Sensing and GIS applications and Climate Change Impact Assessment** are also in the status of submission and preparation.

Keynote/professional Presentations	**1.** Resource person for Training on Farm Water Management for Baluchistan Farmers' & Agriculture Staff **jointly organized by FAO and PMAS-AAUR, Pakistan January 16-25, 2014** **2.** Remote Sensing and GIS based analyses for identification of potential rainwater harvesting sites, Presentation delivered to **Minister Food Security and Research, Delegates from Agricultural research organizations and faculty members September 27, 2013 at Koont Research Farms, PMAS-Arid Agriculture University, Rawalpindi.** **3.** Invited speaker on Rehabilitation of livelihood of Earthquake hit areas of Awaran, Baluchistan in September, 2013 **at Ministry of defense** **4.** Main Resource Person for **the International Training Workshop on Use of Information Technology in Irrigation Management for Small Scale Farming Communities in Rural Areas. The Workshop is tentatively scheduled to be held from 25 - 27 December 2012 at Islamabad, Pakistan organized by CIIT, INIT and ISESCO.** Following presentations were made: a. Information Technology and the irrigation management b. Agro-meteorology and its role in irrigation management and crop production c. Developing web based decision support systems d. Mapping and Monitoring of small scale agricultural land use systems using Information extracted from Satellites e. Hands on Training of "Remote Sensing Image Analysis Mapping and Monitoring of small scale agricultural land use systems with special focus on water management" **5.** Resource person for **International Workshop on "Adaptation to Natural Hazards in Changing Global Climate Scenario"** and presented Food Security with Remote Sensing in the Wake of Changing climates: Towards a Decision Support System for Policy Makers. 25-27th September, 2012 COMSTECH Building, 33 Constitution Avenue, G-5/2, Islamabad Organized by: NCEG, Peshawar-COMSTECH, Islamabad Monitoring. **6. Resource person for Inter Islamic Network on Space Sciences and Technology ISNET/CSE Workshop on Applications of Space Technology for Food Security**; 9-14 July 2012 (Training Workshop 11-14 July 2012); Dakar, Senegal. Following presentations were made: a. Remote Sensing based Food Security Assessments b. Hyper-temporal Remote Sensing based Image Analysis for Crop Monitoring c. Hands on Training of "Hyper-temporal Remote Sensing Image Analysis for Crop Monitoring d. Remote Sensing and Statistical Analysis of Specific Crop Area Mapping e. Hands on Training of "Remote Sensing and Statistical Analysis of Specific Crop Area Mapping f. Crop Production Estimation and Crop Growth Algorithms **7.** Remote Sensing and GIS based food security system and climate change impact assessment and mitigation for Pakistan , **March 16-21, 2012 (Bhurban) Food Security in Pakistan: Future Challenges and Coping Strategies Jointly organized by National Ministry of Food Security and Research, FAO, WFP and National NGO'S** **After this national workshop, the Food Security Policy was announced in the presence of Prime Minister of Pakistan.** **8.** Remote Sensing and GIS based sustainable water resource management and

	food security in Pakistan, **March 22, 2012 Jointly organized by COMSATS Institute of Information Technology & UNESCO – Islamabad** **9.** Remote Sensing and GIS based analysis agricultural land use mapping in perspective of climate change, Training Course on "**Understanding Natural Resources and Climate Change using Geospatial Techniques" March 12 - 16, 2012, Institute of Space Technology, SUPARCO and Leads International** **10.** Resource person for **ICIMOD, Nepal's Training in Pakistan on the role of remote sensing and GIS for climate change** **11.** Presentation to Ph.D. students at the **Faculty of GeoInformation and Earth Observation, University of Twente during Ph.D. weekend (2010, Germany) on Efficiently Managing Ph.D. Studies** **12.** Quantitative mapping and monitoring of crop production systems. Presented to the scientific community on **ITC Ph.D. day. The Netherlands** **13.** Estimation of crop production by using crop growth modeling and remote sensing inputs in the models for accurate estimation. **Presented to the head and members of statistics department of Ministry of agriculture and fisheries, Andalucia, Spain** **14.** Impact of Climate Change on Water Resources and food security in Pakistan (together with Prof. Dr. BadarGhauri, HOD, RS&GIS, IST, Karachi) at **Pak-China Business Forum April, 15-18, 2012**.
Research Projects	**1. Dengue monitoring system development using RS, GIS and Web development** **2. DSS for irrigation management using remote sensing and GIS** 3. **RESEARCH FOR AGRICULTURAL DEVELOPMENT PROGRAM (RADP) of PAKISTAN AGRICULTURAL RESEARCH COUNCIL (PARC) Project**. Title: Site Selection of rain water harvesting through GIS and Remote Sensing Technology for hilly areas of D.G. Khan and Rajanpur Districts. (cost: 3.0 million PKR; Status: Approved and ongoing) (Investigator) 4. Rain water harvesting project for all villages in Potohar area **by Agency For Barani Areas Development, (Abad)** Twenty sites have been completed and 200 sites will be conducted afterwards 5. Remote Sensing and GIS based **risk assessment in the northern areas under command of FCNA for Pakistan Army. (Team leader)** 6. Costal Communities and Climate Change: Case study of Thatta and Badin Districts. (Team leader). **Funding Agency: Asian Development Bank**) 7. Remote Sensing based natural resource mapping of Chagai District, Baluchistan, Pakistan **(Funding agency: Quantum Energy) Principal Investigator** 8. "Biosystematics of dragonflies (Odonata) of Pakistan" (1405560 Rs.) by **Higher Education Commission of Pakistan (HEC)** (1-1-2005-30-09-2008) 9. Remote sensing and GIS based mapping and monitoring of agricultural land use of Pakistan **(In review at PARC, cost PKR 6.5 Million)**

2:

<table>
<tr><td>Name</td><td>Dr. Muhammad NaveedTahir</td></tr>
<tr><td>Personal</td><td>Permanent Address House # 10, LalaZar Colony, Sahiwal, Pakistan Contact No. 0092-300- 6917208
E-mail: naveed@uaar.edu.pk Alternate E-mail naveednwsuaf@gmail.com</td></tr>
<tr><td>EXPERIENCE</td><td>Presently working as a regular Assistant Professor since 30th June, 2014, Department of Agronomy, PMAS-Arid Agriculture University Rawalpindi

Lecturer since 21st December 2004 to 29th June 2014, Department of Agronomy, PMAS-Arid Agriculture University Rawalpindi</td></tr>
<tr><td>RESEARCH ACTIVITIES</td><td><u>List of Projects On-going / submitted for financial assistance</u>
<table>
<tr><th>Sr. No.</th><th>PI / Co-PI</th><th>Title of the project</th><th>Amount (millions Rupees)</th><th>Funding Agency</th><th>Status</th></tr>
<tr><td><u>1</u></td><td>PI-Dr. ShahzadaSohail Co-PI- Dr. Muhammad NaveedTahir</td><td>Inter-Comparison of Century and DSSAT Model Simulations to improve Soil Based Climate Change Resilience and Adaptation of Rainfed Crop Production System in Pakistan</td><td>3.5167</td><td>Higher Education Commission, Pakistan</td><td>On-going</td></tr>
<tr><td><u>2</u></td><td>PI- Dr. Muhammad NaveedTahir C0-PI- Prof. DrGerritHoogenboom, Dr. Syed AftabWajid, Dr. GhulamRasool</td><td>Modelling approach for assessing the impact of climate change on growth and yield of wheat and groundnut and possible adaptation/management strategies under rainfed condition</td><td>4.47</td><td>(United State-PAK, Center for Advance Studies, Agriculture Food Security</td><td>In Review</td></tr>
<tr><td><u>3</u></td><td>PI- Dr. Muhammad NaveedTahir C0-PI- Prof. Dr</td><td>Evaluating the potential of time series LANDSAT 8 imagery for real</td><td>3.513</td><td>(United State-PAK, Center for</td><td>In Review</td></tr>
</table></td></tr>
</table>

	Yang Chenghai, Dr. JhanzaibMasood Ahmad Cheena, DrJavedIqbal	time estimation of wheat chlorophyll contents under rainfed condition		Advance Studies, Agriculture Food Security	

List of Ph.D and M.Sc/MS Students as a Major supervisor

Sr. No.	Title	Degree	Remarks
1	**Remote Estimation of Wheat Chlorophyll Contents by using Satellite images**	**M.Sc (Hons.)** Agriculture/Agronomy	Completed (2015)
2	**Estimation of Wheat Yield by using Artificial Neural Networks**	**M.Sc (Hons.)** Agriculture/Agronomy	Completed (2015)
3	**Impact Assessment of Climate Change on Development and Yield of Newly Developed Wheat Cultivars: Future Scenario between 2040 and 2070**	**M.Sc (Hons.)** Agriculture/Agronomy	Completed (2015)
4	**Estimation of Wheat Yield based on DSSAT Model and Remote Sensing Data**	**Ph.D** Agriculture/Agronomy	In Progress
5	**Impact Assessment of Climate Change on Growth and Yield of Barley (*Hordeumvulgare*L.) Crop by using DSSAT Model**	**M.Sc (Hons.)** Agriculture/Agronomy	In Progress
6	**Determining Nitrogen Content in Wheat by using Fourier Transform Infrared Spectroscopy (FTIR)**	**M.Sc (Hons.)** Agriculture/Agronomy	In Progress
7	**Evaluating the potential of Weeds for biofuel production**	**M.Sc (Hons.)** Agriculture/Agronomy	In Progress

Published papers	**1. Muhammad NaveedTahir**, Jun Li, Bingfeng Liu and Chengfeng Cui. **2015.** Hyperspectral remote estimation of leaf nitrogen content of summer corn based on red edge inflection point. Science International, 27 (2), 1689-1691. (ISI Indexed, HEC Recognized).

	2. Muhammad NaveedTahir, Wang Xue Chun, Li Jun and Hao Ming De. **2015.** Verification of soil moisture simulating accuracy on dry-land winter wheat and spring maize field by EPIC model on the loess plateau of China. International Journal of Biology and Biotechnology (ISI Indexed, HEC Recognized) **Accepted.** **3. Muhammad NaveedTahir**, Jun Li, Bingfeng Liu and Chengfeng Cui. **2015**. Remote estimation of leaf total nitrogen by using derivative reflectance spectra and their parameters. Science International, 27 (2), 1691-1693. (ISI Indexed, HEC Recognized) **4.** Nasir Jamal, Muhammad Hanif, **Muhammad NaveedTahir**, Muhammad Amjad and AsimGulzar. **2015**. Comparative study of crop estimation techniques: a case study of District Bhakkar. International Journal of Biology and Biotechnology (ISI Indexed, HEC Recognized) **Accepted.** **5.** Muhammad Hanif, MunibaTahir, **M. NaveedTahir**, Nasir Jamal, Dr. Saima Mustafa, and Nasir Ali. **2015**. An evaluation of various forecasting methods for wheat supported prices through statistical techniques. Science International, 27 (2), 1681-1687. (ISI Indexed, HEC Recognized). **6.** AsimGulzar, MaviaHafeez, Kamran Yousaf, Majid Ali, Muhammad Tariq and **Muhammad NaveedTahir. 2015.** Toxicity of some conventional insecticides against mango mealybugs, *Drosichamangiferae*(Pseudococcidae; Hemiptera). Science International, 27 (2), 1693-1695. (ISI Indexed, HEC Recognized). **7. Muhammad NaveedTahir**, Jun Li, Bingfeng Liu, Gangfeng Zhao, Fuqi Yao, Chengfeng Cui. **2013**. Hyperspectral estimation model for nitrogen contents of summer corn leaves under rainfed condition. Pakistan Journal of Botany, 45 (5): 1623-1630. (**Impact factor 1.21**). **8.** Wang X, C., J. Li. **M. NaveedTahir**, M. Hao. **2012**. Sustainable recovery of soil desiccation after alfalfa (*Medicago sativa L*.) by grain crop rotation system in the semi-humid region on the Loess Plateau. Agriculture, Ecosystem and Environment, 161: 152– 160 (**Impact factor 3.94**). **9.** Liu Bingfeng, Li Jun, Zhao Gangfeng, **M. NaveedTahir**and He Jia. **2012**. Total nitrogen contents estimation model of summer maize leaves using hyperspectral remote sensing. Plant nutrition and fertilizer science, 18 (14), 813-824 (In Chinese with English abstract). **10.** Zhao ganfeng, Li Jun, Liu Bingfeng, **M. NaveedTahir**. **2012**. Monitoring model of leaf nitrogen contents of winter wheat in guanzhong district by hyperspectral remote sensing. Journal of triticeae crops, 32 (3): 530-536 (In Chinese with English Abstract). **11.** Wang X, C., **M. NaveedTahir**, M. Hao and J. Li. **2011**. Sustainable recovery of soil desiccation in semi-humid region on the Loess plateau. Agricultural Water Management, 98: 1262-1270. (**Impact factor 2.64**). **12.** Wang Xuechun, Li Jun, Fang Xinyu, Sun Jian and **Muhammad NaveedTahir**. **2011**. Simulation on the restoration effect of soil moisture in alfalfa (*Medicago sativa*) grain rotation system in semi-arid and drought prone regions of Loess Plateau. Chinese Journal of Applied Ecology, 22(1): 105-113. (In Chinese with English abstract). **13.** Wang X, C., J. Li, **M. NaveedTahir**and M. Hao. **2010**. Validation of

	the EPIC model using a long-term experimental data on the semi-arid Loess Plateau of China. Mathematical and Computer Modeling, 54: 976-986 (**Impact factor: 1.1643**). **14.** Imran, M., A. Razzaq, S.A.H Bukhari and **M. NaveedTahir**. **2010**. Optimization of lentil cultivars response to NPK under rainfed condition. J. Agric. Res. 48: 343-351. (ISI Indexed, HEC Recognized) **15. M. NaveedTahir**, Abid Hussain. 2003. Modeling the growth and yield of new wheat cultivars under varying nitrogen management strategies. University of Agriculture Faisalabad, Pakistan, M.Sc (Hons.) Dissertation. **INTERNATIONAL CONFERENCE PAPER** **1. Muhammad NaveedTahir**, Jun Li, Bingfeng Liu, Gangfeng Zhao, Fuqi Yao, Chengfeng Cui. Model for remote estimation of nitrogen contents of corn leaf using hyperspectral reflectance under semi- arid condition was presented on **July, 2012** at **11 ICPA Conference, Indiana polis, USA.**

3:

NAME	**SiddiqueUllahBaig**
PERSONAL	House No. 155, St. No. 36B, G-9/1, Islamabad 03425264393 siddiquebaig@gmail.com htt://scholar.google.com/citations?user=NMvwXuEAAAAJ&hl=en(Google Scholar) www.linkedin.com/pub/siddique-baig/6/ab8/417 (Linked In) Sex Male | Date of Birth 01/03/1980 | Nationality Pakistani
EXPERIENCE	**POST – PHD** Sept 2014 - August, 2015 Post doctorate Technical University of Eindhoven (TU/e), Netherlands, http://www.tue.nl/ Part of Visualization and Algorithms group within Mathematics and Computer Science department. Work on 3D city modelling, spatial data structure and CityGML March 2014 - to – continue Assistant Professor University of Arid Agriculture Rawalpindi (UAAR), http://www.uaar.edu.pk/ ▪ Teaching GIS and Remote Sensing subjects to PhD and MS Students ▪ Introduction to GIS, Advanced GIS, Web GIS ▪ Part of GIS team to design and develop BS (RS&GIS) study scheme **PRE – PHD** Jan 2010 - August GIS Specialist FATA Livelihood Development Program (A project of USAID), Islamabad, http://fatada.gov.pk/ Spatial analysis, Image Processing March 2002 - July, 2007 MIS/GIS Officer Aga Khan National Council (Aga Khan Development Network), Karachi ▪ Software development, Development of maps, socio-economic surveys
ACHIEVMENTS, EDUCATION AND TRAINING	2010 – 2014 PhD (Geo-informatics) UniversitiTeknologi Malaysia (UTM), Johor Bahru, http://www.utm.my Area of Specialization Geoinformatics Thesis title A three-step strategy for generalization of three-dimensional (3D) buildings modelled in City Geography Markup Language 2007 – 2009 MSc. Photogrammetry and Geoinformatics HochschulefürTechnik, Stuttgart, Germany, http://www.hft-stuttgart.de/ Area of Specialization Photogrammetry & Geographic Information System (GIS) Thesis title Investigation of spatial reasoning with GIS vector data 2003 – 2006 Masters of Computer Science University of Karachi, Karachi, http://www.utm.my Area of Specialization Computer Science

PERSONAL SKILLS

International Language(s)

UNDERSTANDING			SPEAKING		WRITING
Listening		Reading	Spoken interaction	Spoken production	
English	C2	C2	C2	C2	C2

IELTS

German	A2	A1	A1	A1	A1
Dutch	A2	A1	A1	A1	A1

Levels: A1/2: Basic user - B1/2: Independent user - C1/2 Proficient user
Common European Framework of Reference for Languages

Scholarships

- Erasmus Mundus Action 2 Scholarship for Post Doc (European Commission)
- International Doctoral Fellowship (UTM)

DAAD funding for conference in Kenya organized by HochschulefürTechnik, Stuttgart

Academic Awards

- Best Student, PhD (Geo-informatics), 2014 UTM
- High Achiever Award, Aga Education Board, 2014, Islamabad

2nd Position (PhD Research Category), National Geomatic / Geoinformatic Student Competition, 2012, Malaysia

International Experience

- Netherlands, Post Doc Researcher , TU/e, Eindhoven (01/09/2014 to to-date)
- Germany, studied at the HochschulefürTechnik Stuttgart (05/09/2007 to 04/06/2009)
- France, 15thAssociation of Geographic Information Laboratories for Europe (AGILE) International Conference (23/04/2012 to 27/04/2012)
- Kenya, 4th International Summer School and Applied Geoinformatics for Society and Environment (AGSE) conference (15/08/2011 to 19/08/2011)
- Malaysia, Studied at the UniversitiTeknologi Malaysia (18/09/2010 to 08/01/2014)

Singapore, Far East Conference organized by IMTEX TRADING PTE (28/03/2012 to 02/04/2012)

PUBLICATIONS

Journal papers

- Baig SU, Rahman AA (2013) A three-step strategy for generalization of 3D building models based on CityGML specifications. GeoJournal, 78:6, 1013–1020. doi:10.1007/s10708-013-9475-0
  http://link.springer.com/article/10.1007%2Fs10708-013-9475-0

- Baig SU, Rahman AA (2013) Generalization of buildings within the framework of CityGML, Geo-spatial Information Science, 16:4, 247-255, DOI: 10.1080/10095020.2013.866617
  http://www.tandfonline.com/doi/full/10.1080/10095020.2013.866617

Book Chapters

- Baig SU, Rahman AA (2013) Generalization and Visualization of 3D Building Models in CityGML. In: Pouliot J, Daniel S, Hubert F, Zamyadi A (eds) Progress and New Trends in 3D Geoinformation Sciences. Lecture Notes in Geoinformation and Cartography. Springer Berlin Heidelberg, pp 63-77. doi:10.1007/978-3-642-29793-9_4 http://link.springer.com/chapter/10.1007%2F978-3-642-29793-9_4?LI=true

- Baig SU, Rahman AA, Duncan EE (2013) A Review and Conceptual Framework for Generalization of Maps. In: Abdul Rahman A, Boguslawski P, Gold C, Said MN (eds) Developments in Multidimensional Spatial Data Models. Lecture Notes in Geoinformation and Cartography. Springer Berlin Heidelberg, pp 191-206. doi:10.1007/978-3-642-36379-5_12, http://link.springer.com/chapter/10.1007%2F978-3-642-36379-5_12

International Archives, Conference Proceedings

- Baig, SU, Khan AA, and Baig, Saranjam (2014), Recommendations for A Regional Spatial Data Infrastructure to Mobilize Knowledge for Mountain Area Development in Hindu Kush Himalaya (HKH) Region, Applied Geoinformatics for Society and Environment 2014 (AGSE 2014), Stuttgart, Germany, 4-5 – November, 2014 http://www.applied-geoinformatics.org/ocs/index.php?conference=agse2014&schedConf=agse2014&page=paper&op=view&path%5B%5D=21

- Behnam, A and Baig, SU (2014), Framework for Malaysian 3D SDI in CityGML, XXV International Federation of Surveyors Congress, Kuala Lumpur, Malaysia, 16 – 21, June, 2014 http://www.fig.net/pub/fig2014/papers/ts11d/TS11D_alizadehashrafi_baig_6899_abs.pdf

- Baig SU, Rahman AA (2013) A Unified 3D Generalization Approach for 3D Building Models Represented in CityGML. Paper presented at the International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences, 29th Urban Data Management Symposium, London, United Kingdom, 29 – 31 May, 2013 http://www.int-arch-photogramm-remote-sens-spatial-inf-sci.net/XL-4-W1/93/2013/isprsarchives-XL-4-W1-93-2013.pdf

- Baig SU, Rahman AA (2013) Reconstruction of 3D Objects of Assets and Facilities by Using Benchmark Points. International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences, Volume XL-2/W2, ISPRS 8th 3DGeoInfo Conference & WG II/2 Workshop, 27 – 29 November 2013, Istanbul, Turkey. http://www.int-arch-photogramm-remote-sens-spatial-inf-sci.net/XL-2-W2/7/2013/isprsarchives-XL-2-W2-7-2013.pdf

- Baig, SU., A. A. Rahman, et al. (2012) Generalization and Visualization of Multiple Levels of Details (LoDs) of Buildings Modeled in CityGML. workshop "3D Web Visualization of Geographic Data" of 15th AGILE International Conference on Geographic Information Science, Avignon, France. http://3dwebgis.di.uminho.pt/wiki/index.php/Complete_program

- Baig, SU., M. Suarez, et al. (2011) Integration of Area Frame Sampling Technique and Classification of Satellite Images for Crop Area Estimation. 4th International Summer

	School and Applied Geoinformatics for Society and Environment (AGSE), Nairobi, Kenya. http://www.applied-geoinformatics.org/index.php/agse/agse2011/paper/view/336
Projects	Sept 2014 - Aug, 2015 ▪ As part of Post Doc, currently working as a Principal investigator (PI) in "Tracing Knowledge Gaps and Deficiencies in Generalization and Visualization Techniques" at TechnischeUniversiteit Eindhoven (TU/e), Netherlands funded by Erasmus Mundus (European Commission). Mar 2012 - Sept 2013 Worked as Co-PI in "Terrestrial Laser Scanning for The New Approach of Large Scale Three -Dimensional (3D) Topographic Mapping" funded by Research Management Certer (RMC) of Universiti Teknologi Malaysia, Vote No. R.J130000.7927.4S016. Jan 2011 - Dec 2011 ▪ Worked as PI in "Automatic Generalization and Compression of 2D and 3D city objects" project funded by Research Management Certer (RMC) of Universiti Teknologi Malaysia, Vote No. Q.J130000.7127.04J81.

4:

NAME	**NAEEM ABBAS MALIK**
PERSONAL	Address (Postal): Department of Geo-Informatics, Faculty of Agricultural Engineering & Technology, PMAS Arid Agriculture University, Rawalpindi, Pakistan Address (Permanent): Near Govt Girls High School Nurpur Thal, Tehsil Nurpur Thal, District Khushab Cell: +92 313 8612758, +92 334 6569580 E-Mail: naeem.malik@uaar.edu.pk , malikuaar@yahoo.com
EDUCATION	**1. *MS (GIS & Remote Sensing)* – October 2011** National University of Sciences & Technology NUST, Islamabad Secured 3.1 CGPA out of 4.0 **Course Work** ▪ Advance Geographical Information Systems ▪ Advance Remote Sensing ▪ Geo-Database & Spatial Decision Support Systems (SDSS) ▪ Natural Hazards & Disaster Management ▪ GIS Applications in Agriculture ▪ GIS Environmental Impact Assessment ***2. BS (Hons) Agronomy – March 2008*** Arid Agriculture University, Rawalpindi Secured 3.25 GPA out of 4.0
EXPERTISE	Precision Agriculture **Mobile GIS data collection application development in android system** Model Based GIS Analysis Geo-Databases, Access, SQL Server 2008 R2 GIS Data Development & Analysis ArcGIS Server 10, ArcGIS Desktop 10, ArcSDE 10, Global Mapper, ERDAS Imagine 9.x Open Data Kit, development of data collection tools SPSS, Sigmaplot 12.0 ArcGIS Server 10 Manager's Web Services and Web Editing Applications HTML, JavaScript
PROJECTS	***Projects worked at are listed below*** ***1) Electric Consumer Census for PESCO in Peshawar*** *a. Creation of census questionnaire* *b. Conversion of paper based questionnaire to digital format* *c. Establishment and maintenance of data collection and management server* *d. Training of enumerators on data collection using android devices* *e. Selection of appropriate android devices for data collection*

	f. Analysis of census data *g. Preparation of Base Maps* *h. Preparation of Electricity Distribution Network Map* *i. Weekly progress map of area enumerated through mapping consumers* ***2) Electric Consumer Census for PESCO in Charsadda*** *a. Creation of census questionnaire* *b. Conversion of paper based questionnaire to digital format* *c. Establishment and maintenance of data collection and management server* *d. Training of enumerators on data collection using android devices* *e. Selection of appropriate android devices for data collection* *f. Analysis of census data* *g. Preparation of Base Maps* *h. Preparation of Electricity Distribution Network Map* *i. Weekly progress map of area enumerated through mapping consumers* ***3) Hazard Risk Reduction in Dera Ghazi Khan*** *a. Development and implementation of Mobile data collection mechanism* *b. Analysis of survey data* *c. Preparation of Base Maps* *d. Development of Hazard Zones in the study area* *e. Helping engineers in proposing mitigation structures through contours* ***4) Drought Profiling in District Layyah*** *a. Preparation of Base Maps* *b. Helping digitizers in digitization process* ***5) Capacity Building of Local Communities in Layyah*** *a. Disaster Risk Reduction Training delivered* *b. Community Motivation and Awareness* ***6) Expansion of Flood Early Warning System in Bhakkar*** *a. Digitization of Land Features* *b. Development of Base maps* *c. Development of Flood Layers* *d. GIS support to software development team* *e. Training of data collection teams*

5:

NAME	**Muhammad Amin, MS RS/GIS**
PERSONAL	Mob +92-321-7210752 ------- Office +92-51-4580388 ---Ext:107 36501-6150192-5 Married District Sahiwal Tehsil ChichawatniChak no. 117/7DR Pakistan 11-D 6th Road Satellite Town Rawalpindi Pakistan aminspacian@gmail.com
EXPERTISE	**Manager GIS & RS** • Project Management • Digital Data Preparation • Data Management • Finalization of Project • Trimble GPS Authorized Trainer in Pakistan • GPS Survey Monitoring • Surveyed Data Management • Digital Maps Preparation at Different Scales • Team Management • Training New Employees • Finding New Projects & Clients • Responsible for configuring information-processing on assigned computer systems, assisting less experienced employees in the installation and maintenance writing, analyzing, editing, testing and modifying digital data.
PROJECTS	**During job following projects have been completed** **With International Companies** • **Pakistan Project Road/Highways Navigation** Road Navigational Map for Nokia of Islamabad, Rawalpindi, Lahore, Karachi, Peshawar, Quetta, Faisalabad, Sialkot, Gujranwala, Jhelum, Gujrat, Abbottabad, Murree, Muzaffarabad, Taxila, Wah, Sargodha, Multan, Hyderabad, Bahawalpur, Sukkur, Larkana, Highways and Motorways: and working on all Cities of Pakistan with the Collaboration of ***Navteq International*** (subsidiary of Nokia). **Collection of POIs of top 54 cities of Pakistan with the help of Trimble GPS.** Work on all Pakistan Water Features(River, Canal, Lakes Reservoir) from satellite Imagery and draw their Network for Navigation purpose • **Bangladesh Project** Currently working With the Collaboration of ***Navteq International and Mappaltd*** 137/D/1 Jahanara Garden, Green Road, Farmgate, Dhaka-1205 Bangladesh Prepare Digital Road Navigational maps of Bangladesh all Cities. Working all Bangladesh water Feature for the purpose of Ferry Route Network through Satellite Imagery and designing their routes. **Collect Point data of Bangladesh top 12 Cities with Trimble GPS**

	• **Indonesia POIs Project** Manage and handling Navigational POIs data Collection project of Jakarta, Bekasi, Tangerang, Bogor Cities as a training consultant with Collaboration of ***NavteqInternational with Trimble GPS.*** • **Thailand Navigation Project** Manage and handling Navigational POIs data Collection project of Bangkok City as a training consultant with Collaboration of ***Navteq and EDA International*** with the help of Trimble Juno SB GPS. Office: 41/35 Watcharaphol Road, Taraeng, BangKhen Bangkok. • **Thailand APT Project** I currently look after the designing, preparation, editing, and testing of POI & Apt Projects by GPS with collaboration of ***Teleatlas (Tom Tom)*** (GIS services provider for Google Inc***).*** I am assisting our Thailand office in Post processing of GIS data collected from field. Providing Navigational digital maps for survey.
	During job following projects have been completed **With National Companies & Govt. Sectors** • **Ministry of Science and Technology Project** Pakistan Council Of Research In Water Resources, Islamabad, Pakistan Digital Topographic Maps at 1,000,000 / 500,000 and 250,000 scale. Extract water Feature from DEM with the help of Hydrological Tools *www.pcrwr.org.pk* • **Population Censes Organization Project** Population Censes Organization Islamabad, Pakistan. Worked on Digital Data on 500, 00 scales for Different Districts of Pakistan and application for PC (Population Council Pakistan) marking "Health Facilities in Rural Areas of Pakistan" *www.popcouncil.org* • **Govt. of AJK Project** AJK Mineral Management and Information System Worked on Digital Data related Problems MMIS (Mineral Management and Information System) of AJK Government Research Report on MMIS System. • **KPK & Fata Project** Prepare all 50k scale data of KPK and Fata Layers in 50k scale data (Motorway, Highway, Provincial Roads, Provincial Boundary, District Boundary, Main City Boundary, Land use, Graveyard, Railway Line, Nalas& Canal, Rivers, Water Reservoirs, Settlements, Contours 50m) • **Computerization of Property tax Record Through GIS** I currently supervise the project of Computerization of Property tax Record Through GIS with Directorate of IT KPK. Prepare parcel Mapping of Peshawar Urban area. Collect all parcels from field with Trimble GPS Juno Sb.

	Delivered GPS Training in Pakistan and out of Pakistan **Training 1:** Trained Daleelteq Surveyor team in Pakistan for Navigational POIs Collection **Training 2:** Trained Buraq Integrated solutions and EDA International GPS surveyor Team in Bangkok Thailand for Navigational POIs collection. **Training 3:** Trained Daleelteq international GPS Surveyor team in Dhaka Bangladesh **Training 4:** Trained Directorate of IT and Excise & Taxation GPS surveyor team of KPK for tax collection data.