

Self Assessment Report

Of

Department of Forestry and Range Management

July 2012

(Post Graduate Programs)
M.Phil & PhD
Forestry & Range Management



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Introduction

Department of Forestry & Range Management

The Department of Forestry & Range Management was established in the year 2002 at the University of Arid Agriculture Rawalpindi, prior to this the subject of Forestry and Range Management was taught as minor subject to the undergraduate students of Faculty of Crop and Food Sciences. Now the department is offering the degree of B.Sc. (Hons.) Agriculture major in Forestry & Range Management in addition to M.Phil and Ph.D degrees.

The department of Forestry & Range Management has initiated the academic programmes at M.Phil and Ph.D levels. The department currently has enrollment of 26 students in M.Phil, and 07 scholars in Ph.D programme. The department already has published 91 research papers since its establishment

The establishment of the department of Forestry & Range Management is a new addition to the University's expanding academic programmes. The establishment of the department has a mandate to carry teaching and research, suggesting remedial measures to improve the problems of land degradation, with special emphasis on problems of rangeland degradation, deforestation and proper management of natural resources of arid and semi arid regions of the country. A new scheme of studies has been implemented as recommended by HEC under revised syllabus of Forestry undergraduate as well as post graduate degree programmes. The courses includes core forestry, range management, biodiversity and climate change aspects. The schemes of studies is also supported by adding reference to the latest text books and journals.

The current research studies focus on forest biomass and productivity estimations, above and below ground carbon stocks estimations in natural forests, nutritional quality and carrying capacity in rangelands of Pakistan, Phytosociology and effect of fire on natural forests. Future research studies of the Department would address land degradation issues (both forest and rangelands) as well as developing range improvement techniques aimed at combating

land degradation and desertification in semi-arid and arid areas of the country collaborative activities/projects. A number of seminars have also been organized to highlight the land degradation issues among various stakeholders. A consultative workshop on status implementation of NAP and UNCCD in Pakistan was organized by the University of Arid Agriculture, in collaboration with Ministry of Environment, Government of Pakistan. About fifty participants from various organizations participated in the workshop and finalized draft report to be submitted to UNCCD secretariat. The department is having five PhD and three non- PhD Teacher who are also enrolled in PhD both National and Foreign University.

Criterion 1: Program Mission, Objectives and Outcomes

The self assessment is based on a number of criteria. To meet each criterion several Standards have been established. 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

Mission statement of Forestry & Range Management Department

The mission of the department is to deliver quality education and conduct research in the field of Forestry, Range Management, Agro forestry, Watershed Management and Environmental forestry and forest degradation to ensure scientific management of the natural forests of the country to cope with the demand of wood at national level.

Objectives

1. To provide training and research in the field of Forestry and Range Management to produce educated and skilled manpower.
2. To conduct research for enhancing production on rangelands and forests in dry land areas of Pakistan.
3. The extension of newly developed technologies in the field of Forestry & Range Management to relevant stakeholders in rain fed areas through workshops, seminars and field days.
4. To establish linkages with national and international research institutions and with the industry for mutual benefit and progress in the field of Forestry & Rangeland Management.

Main elements of strategic plan to achieve mission and objective

- 1 Development of a sound teaching system based on the experience and vision gathered from world reviews, literature, innovations, proceedings, symposia etc. for the award of degrees.
- 2 Designing of curricula involving core subjects, elective subjects, specialized areas, internship programs and study tours.
- 3 Setting up of well equipped specialized laboratories for the students and researchers, depending upon the available resources.
- 4 Post-graduate research with reports and thesis.
- 5 Publication of scientific papers, books, manuals etc.
- 6 Implement of research projects funded by the Universities and other agencies.
- 7 Arranging field tours to impart first hand knowledge to the students about field and Forest Management Techniques.

The assessment of the program objectives through different criteria is presented in Table 1.

Table 1: Program Objective Assessment

S. #	Objective	How Measured	When Measured	Improvement Identified	Improvement made
1	To impart training and conduct research in the field of Forestry & Range Management. To produce educated and skilled manpower	Back ground information and status of knowledge of students through entry tests, Subject GRE and students feedback	At the time of admission semester	Some basic courses to be included in the curriculum	Revision of curriculum made in year 2009 and 2010.
2	To conduct research for enhancing production on rangelands and forests in dry land areas of Pakistan.	Assessing interest of students, students feed back	Before start up projects	Students to make presentations and reports	Presentations, seminars, communication skill development
3	To extend newly developed technologies in the field of Forestry & Range Management. To relevant stakeholders in rainfed areas.	Through surveys, monitoring of forests, assess manpower, farmers feed back and potential farmers interaction	Continuous activity	Problematic areas being identified/ New courses to be included in curriculum, research on new problem	Approval of new curriculum integrated approaches/ research initiated on identified areas.

4	To establish linkages with national and Int. research inst.&with the industry for mutual benefit and progress in the field of F& RM.	Through visiting forestry based industries/ by collaborative projects.	Continuous activity	By visiting forest based industries.	Collaboration established/ Enhancement of knowledge and vision
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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

All the students in Forestry & Range Management should possess the ability of:

1. Communication skills through presentations, oral discussions, review articles, etc.
2. Preparation of research projects based upon identification of problems. and use of new analytical techniques.
3. Identification of priority problems and their solution.
4. Enhancement of knowledge and vision.
5. Scientific writing and publication of research papers.

A number of survey based on the QEC questionnaires were conducted to assess the program outcomes of the department/graduates. Program outcomes are presented in Table2.

Table 2: Program Objectives VS Program Outcomes

Program Objectives	Program Outcomes				
	Develop communication skills	Developing Research Projects	Analytical & Problem solving skill	Develop of Knowledge & vision	Development of professionalism & Research
Education	++	++	+	+++	+++
Research	++	++	+++	+++	+++
Extension of	++	++	+	+++	+

Technologies					
Linkages with R&D institutions	++	++	+++	+++	+++

+ = Moderately satisfactory

++ = Satisfactory

+++ = Highly satisfactory.

Program Assessment Results

Teacher's evaluation

There are five teachers in the department who are teaching and supervising M.Phil and Ph.D namely:

1. Prof. Dr. Sarwat N. Mirza Professor/ DEAN
2. Dr. Irshad A. Khan, Associate Professor/ Chairman
3. Dr. Syed Moazzam Nizami, Associate Professor
4. Dr. Abdul Khaliq, Assistant Professor
5. Dr. Aamir Saleem Assistant Professor

All the teachers are involved in teaching of different subjects in the department. They were evaluated by the students at the end of the semester in accordance with proforma-10 (Annexure IX). The scoring rate were fixed between 1-5 that is 5 for out standing performance, 4 for very good, 3 for good, 2 for fair and 1 for poor performance. On these bases the results were compiled from aforesaid proforma-10 (For Fall 2010-11, spring 2011, Fall 2011-12 and Spring 2012 Semester). Results are graphically presented in figure 1. The overall compiled result showed that top scoring in the department is 4.18 and lowest is 3.67. The grading of the teachers are showed in Figure 1.

The subject taught in each semester are given below:

Semester	Subject Title	Subject Code	Teacher`s Name
Fall 2010-11	Drought Management in Range lands	FR713	Prof. Dr. Sarwat N. Mirza
Fall 2010-11	Range Vegetation Manipulation & Management	FR710	Dr. Aamir Saleem

Fall 2010-11	Forest Recreation and Park Management	FR 709	Dr, Irshad A. Khan
Fall 2010-11	Agro Forestry System	FR 703	Dr. Abdul Khaliq Choudhri
Spring 2011	Forest Disease & Pest Management	FR 714	Dr. Irshad A. Kahn
Spring 2011	Advances in Forest Utilization	FR 716	Dr. Aamir Saleem
Spring 2011	Forestry & Environment	FR 705	Prof. Dr. Sarwat N. Mirza
Fall 2011-12	Forest Ecology	FR 718	Dr. Syed Moazam Nizaami
Fall 2011-12	Forest Recreation and Park Management	FR 709	Dr, Aamir Saleem
Fall 2011-12	Drought Management in Range lands	FR713	Prof. Dr. Sarwat N. Mirza
Spring 2012	Forest Disease & Pest Management	FR 714	Dr. Irshad A. Kahn
Spring 2012	Forestry & Environment	FR 705	Prof. Dr. Sarwat N. Mirza
Spring 2012	Adaptation of Forests to Climate Change	FR 716	Dr. Aamir Saleem

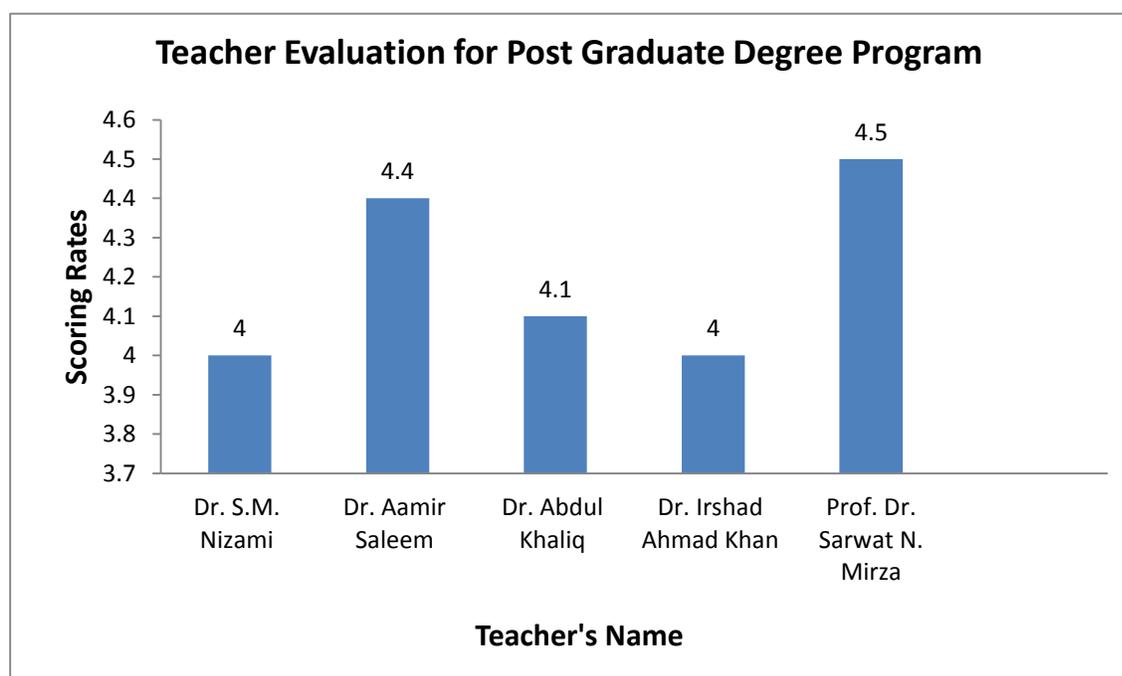


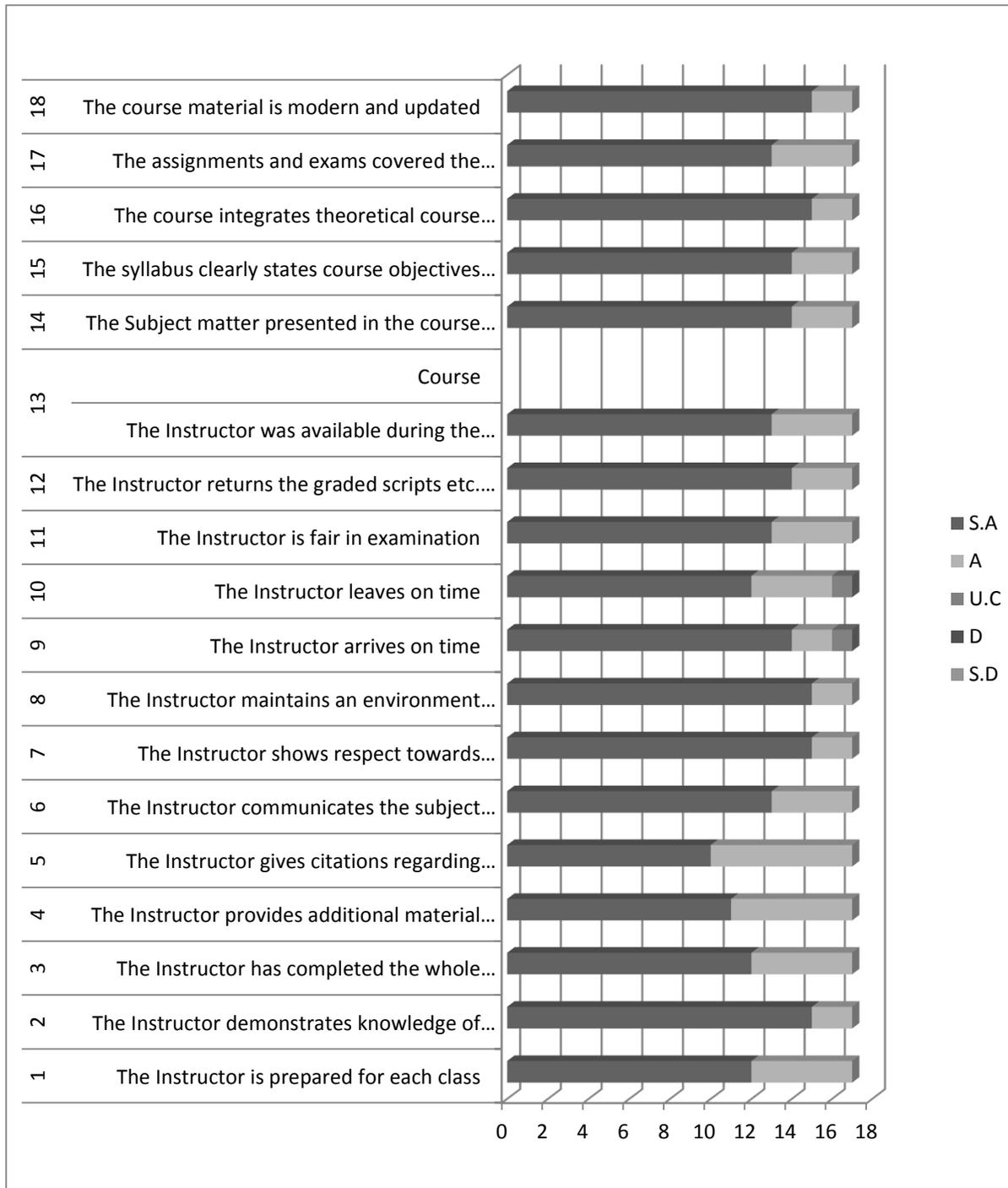
Figure 1. Teacher Evaluation for Post Graduate Degree Program

Detail of individual performance of each teacher is obvious from the data given below:

Fall 2010-11

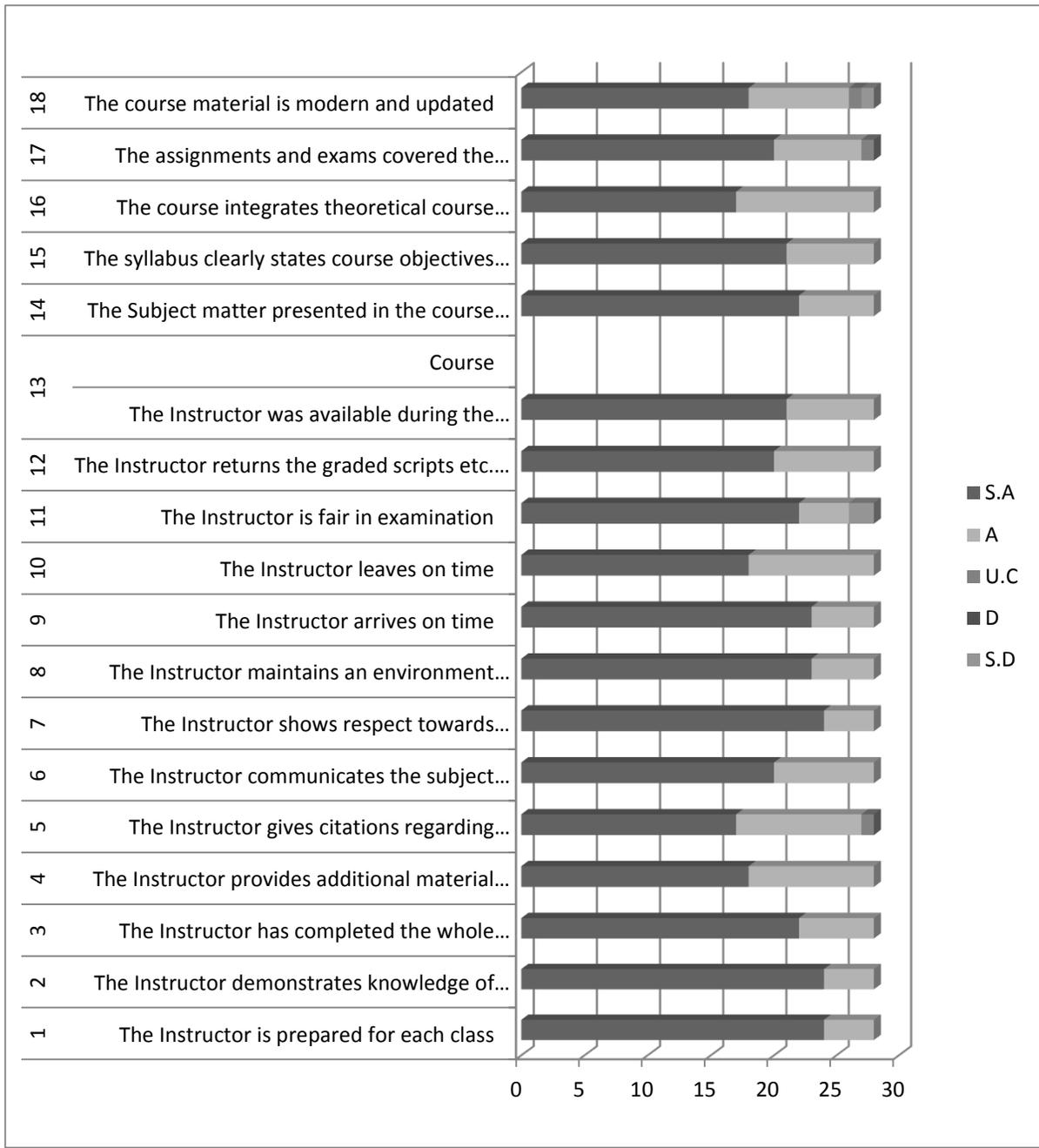
Prof. Dr. Sarwat N. Mirza (FR 713)

The detailed performance of the teacher for his course assessed by the students can be seen by the graph given below. On average it shows that students were satisfied with the performance of the teacher.



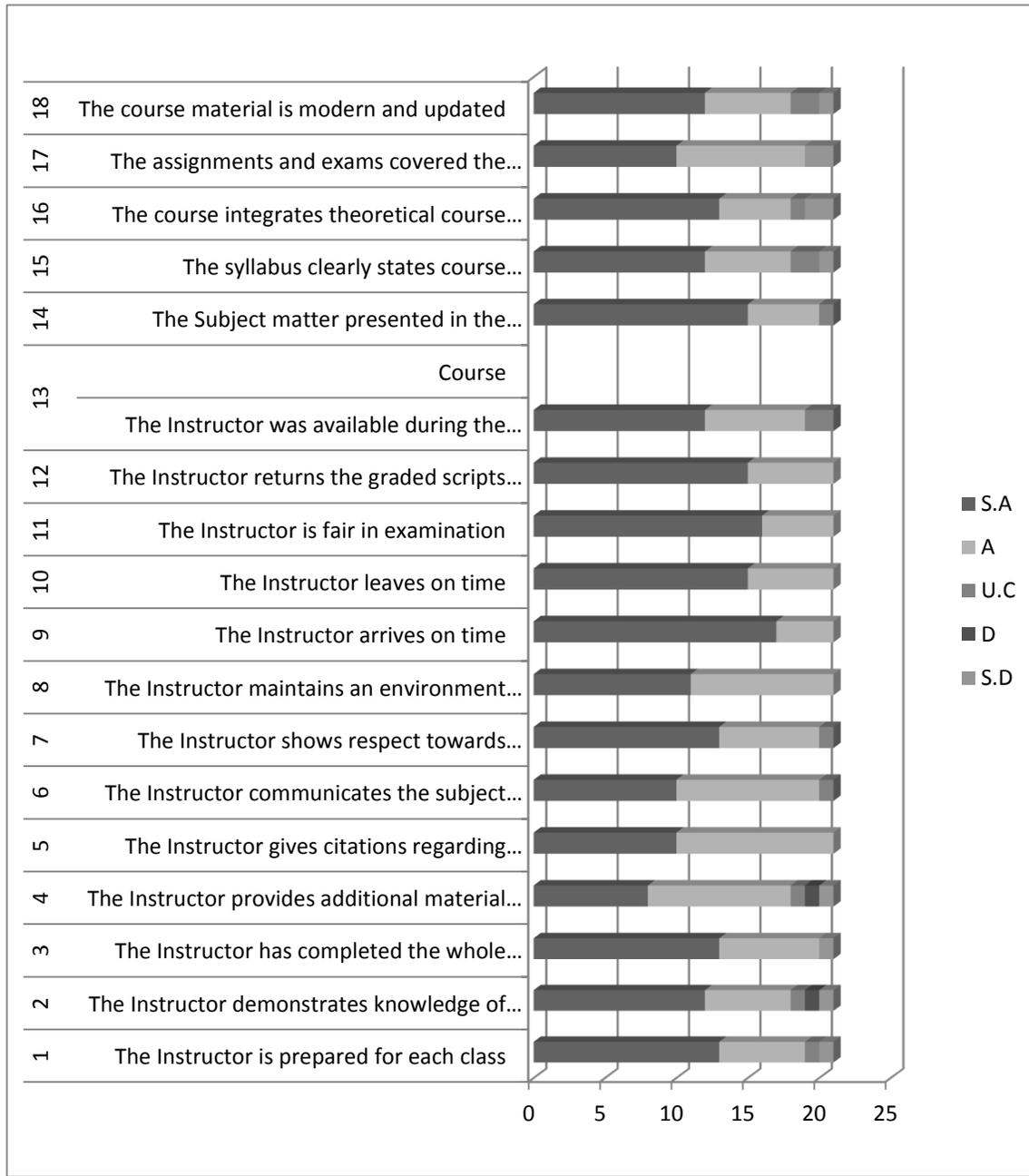
Dr. Aamir Saleem- Assistant Professor FR 710

The graph shows that students were satisfied with the teacher and are having view the teacher has demonstrated the knowledge very well



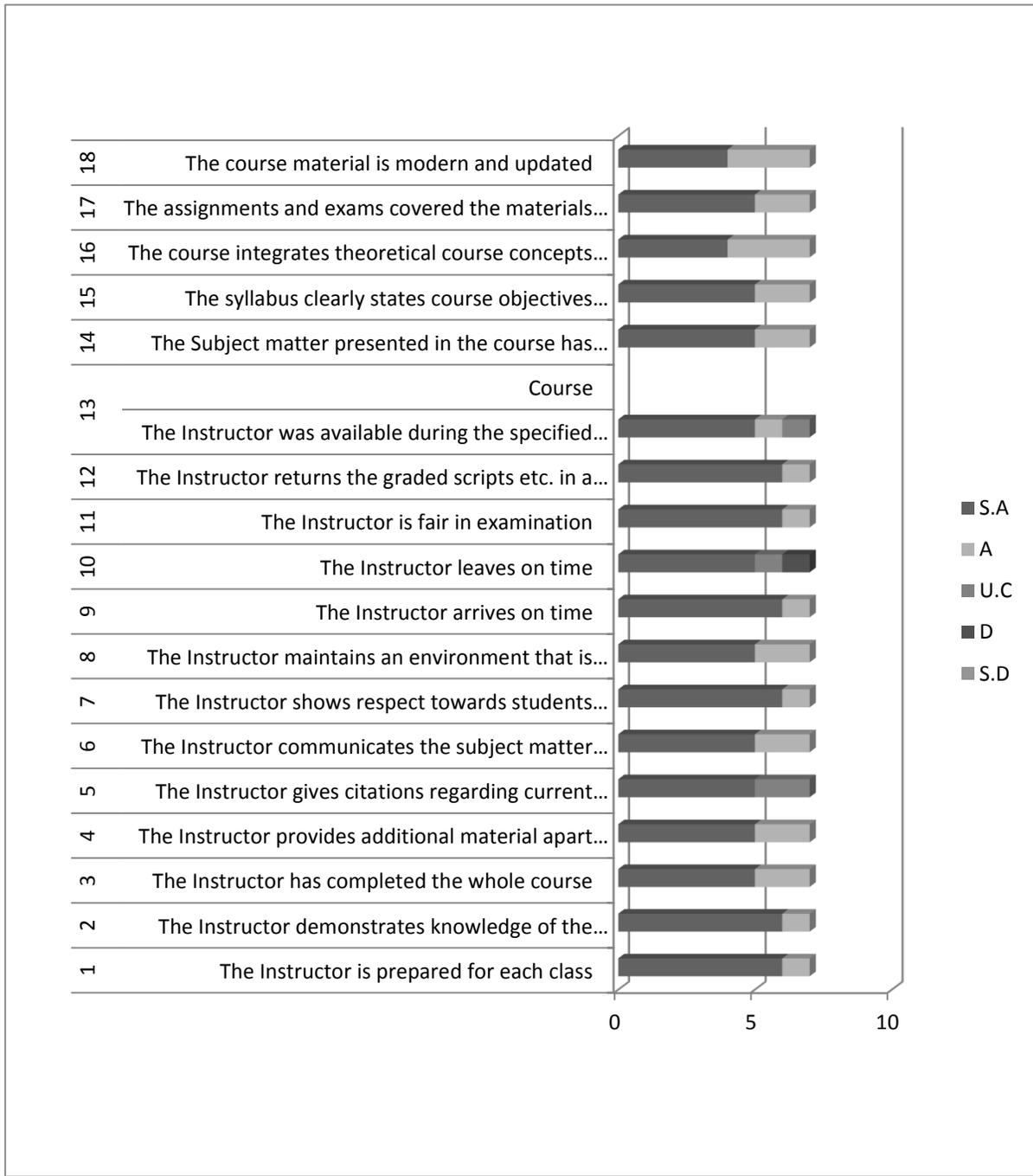
Dr. Irshad A. Khan Associate Professor (FR 709)

The course entitled was taught by Dr. Irshad A. Khan and was evaluated by the students through performa no: 10. In the following graph it is concluded that teacher is always prepared for the lecture and demonstrate the knowledge very well.



Dr. Abdul Khaliq Ch (FR 703)

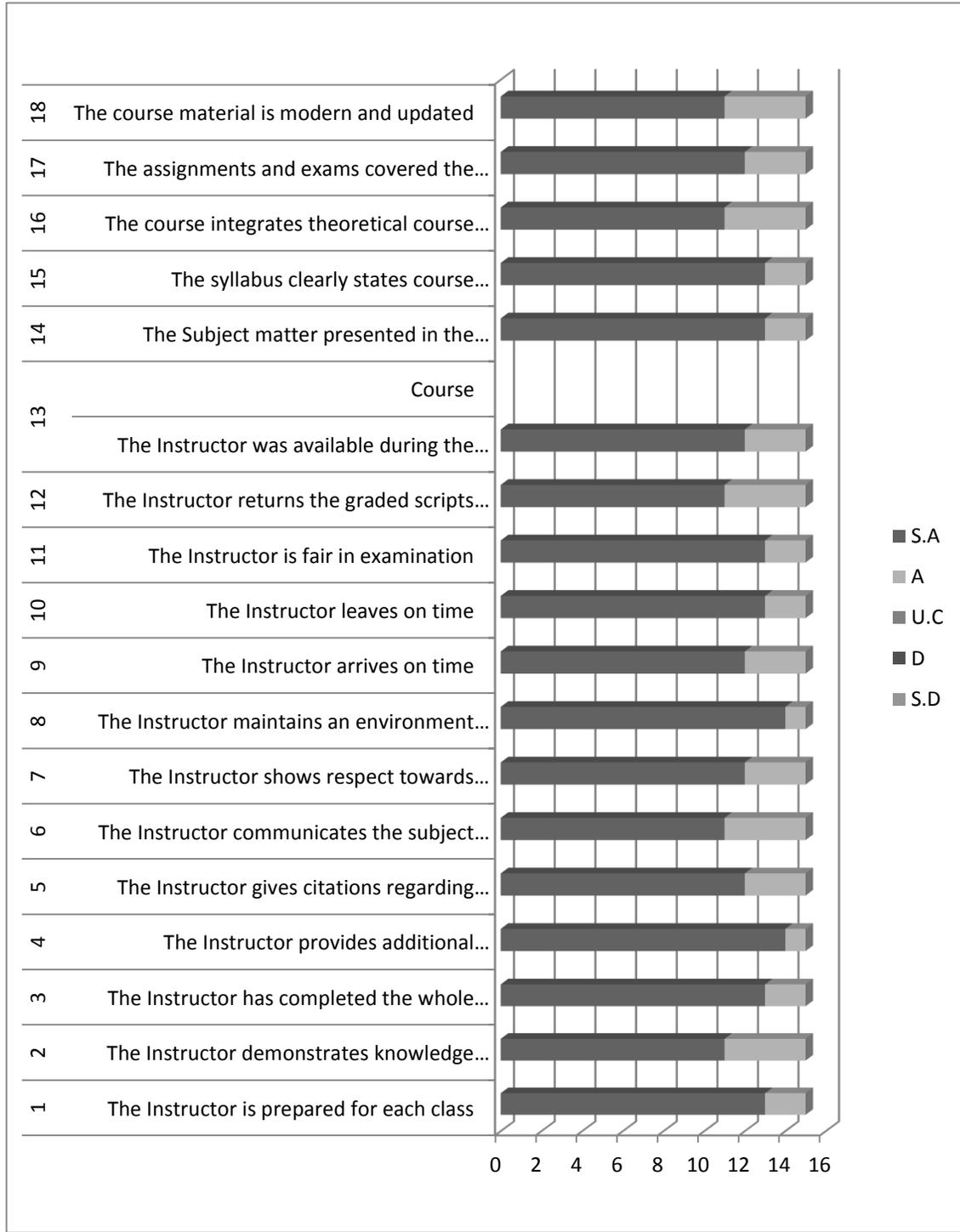
The course was taught by Dr. Abdul Khaliq and was evaluated by the students through performa no: 10. The following graph shows that teacher was always prepared and demonstrated knowledge very well.



SPRING 2011

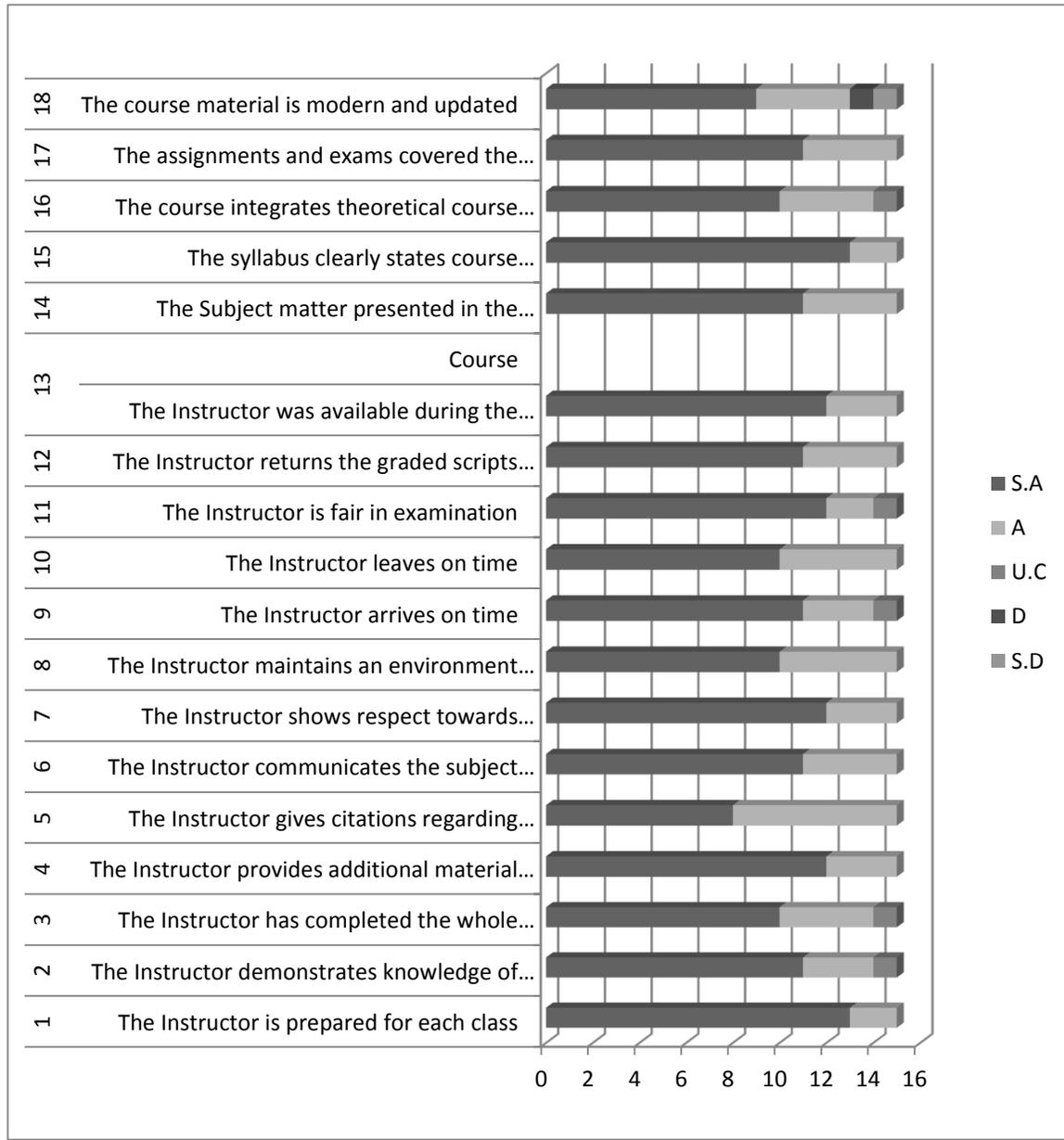
Dr. Irshad Ahmad Khan (FR-714)

The course taught by Dr. Irshad A. Khan and was evaluated by the students through performance no: 10. The following graph shows that teacher is mostly prepared for the class and tell things in context of Pakistan.



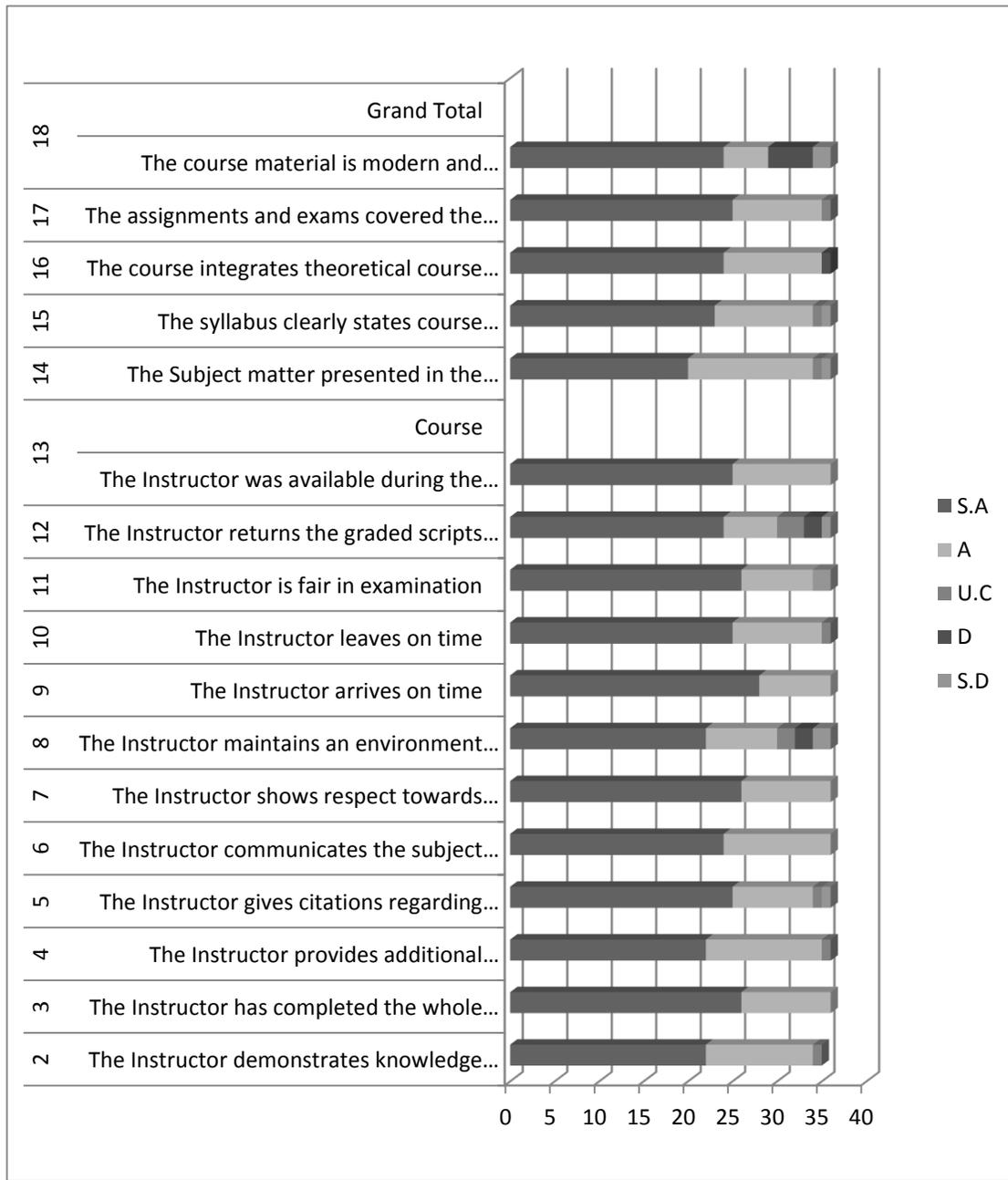
Prof. Dr. Sarwat N Mirza (FR-705)

The course was taught by Dr. Sarwat N. Mirza and was evaluated by the students through Performa no: 10. The following graph shows that teacher is mostly prepared and demonstrated knowledge very well.



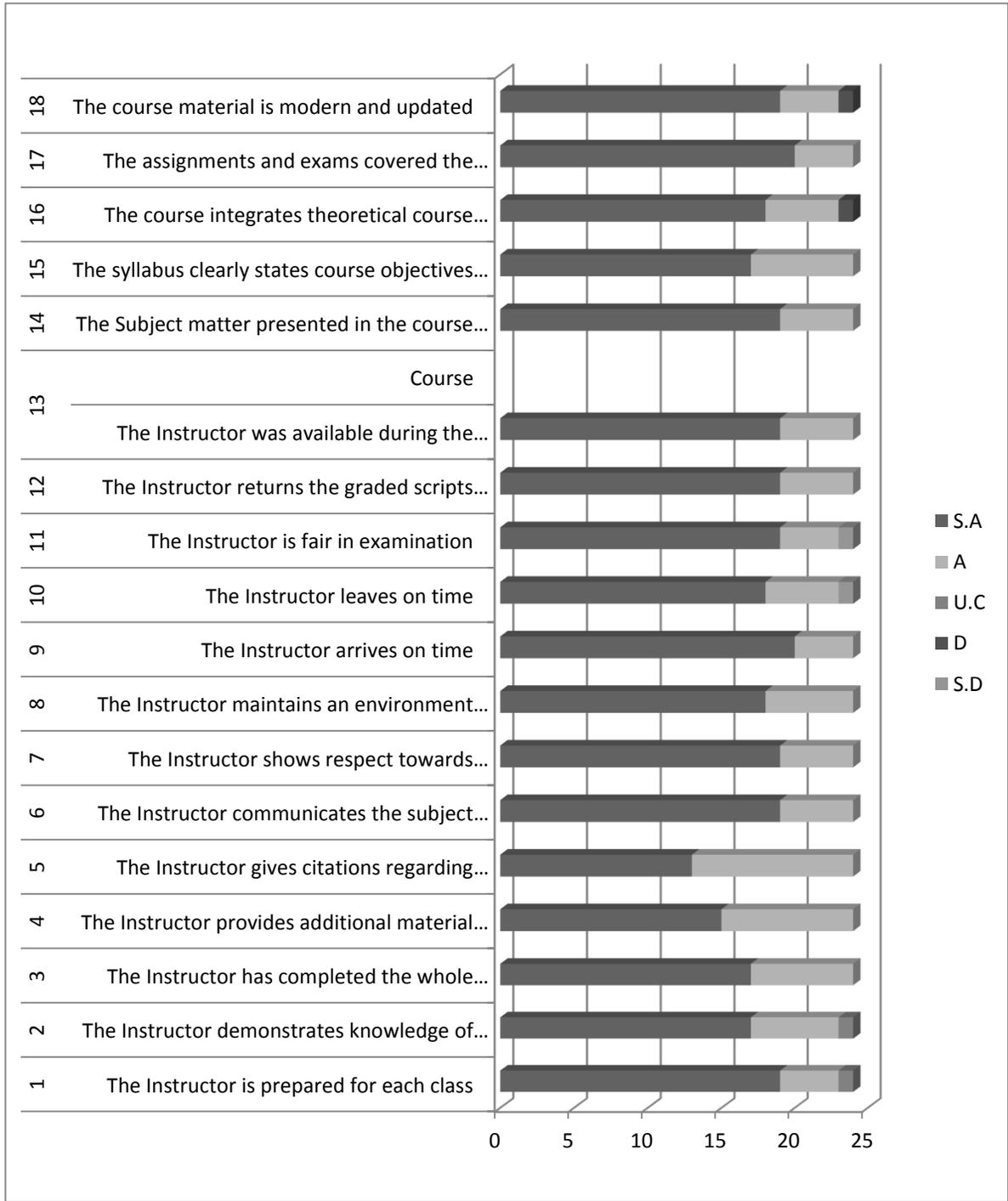
Dr. Aamir Saleem (FR-716)

The course was taught by Dr. Aamir Saleem and was evaluated by the students through Performa no: 10. The following graph shows that teacher was always prepared and demonstrated knowledge very well.



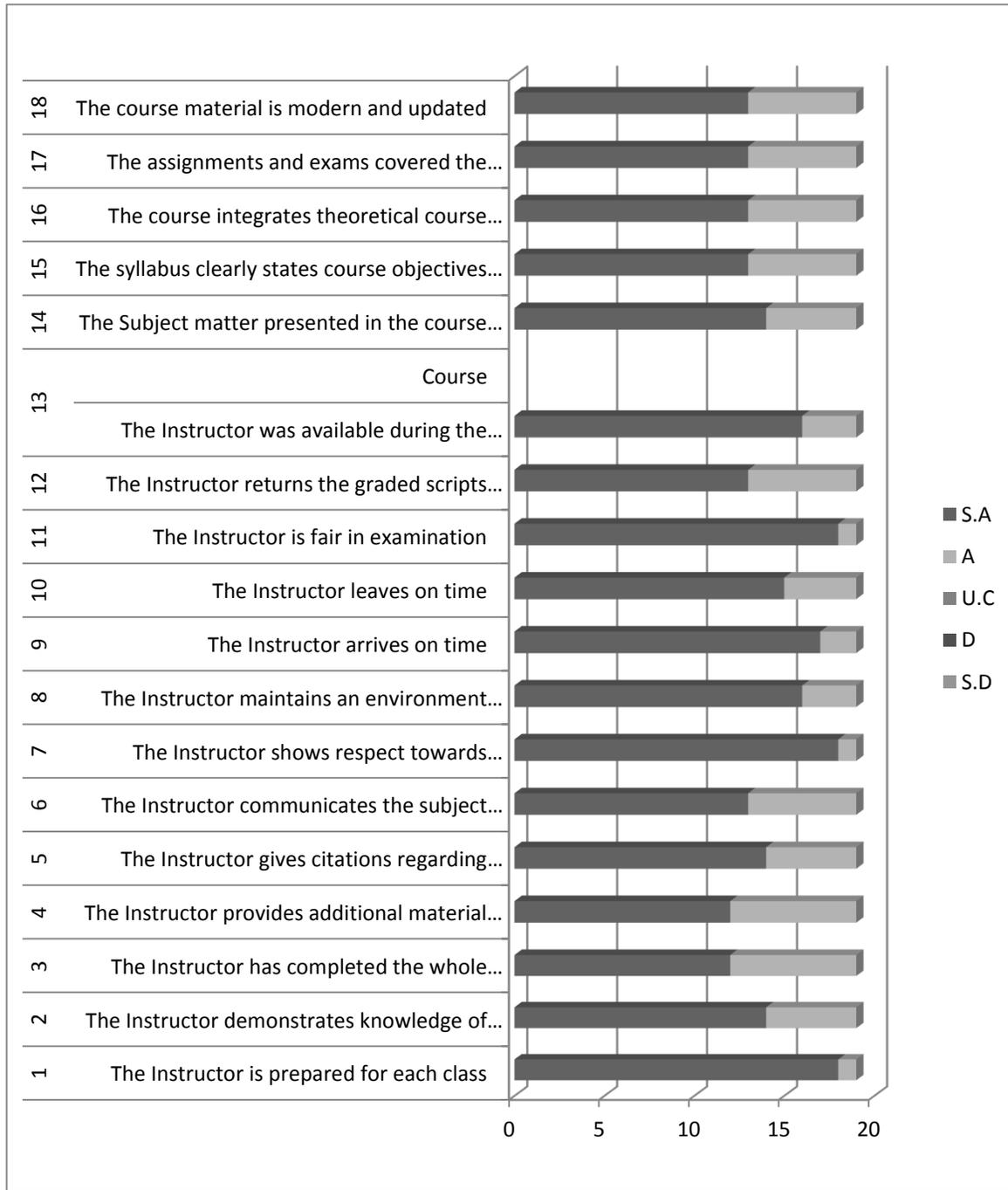
Dr. Aamir Saleem (FR-709)

The course was taught by Dr. Aamir Saleem and was evaluated by the students through performa no: 10. The following graph shows that teacher was always prepared and demonstrated knowledge very well.



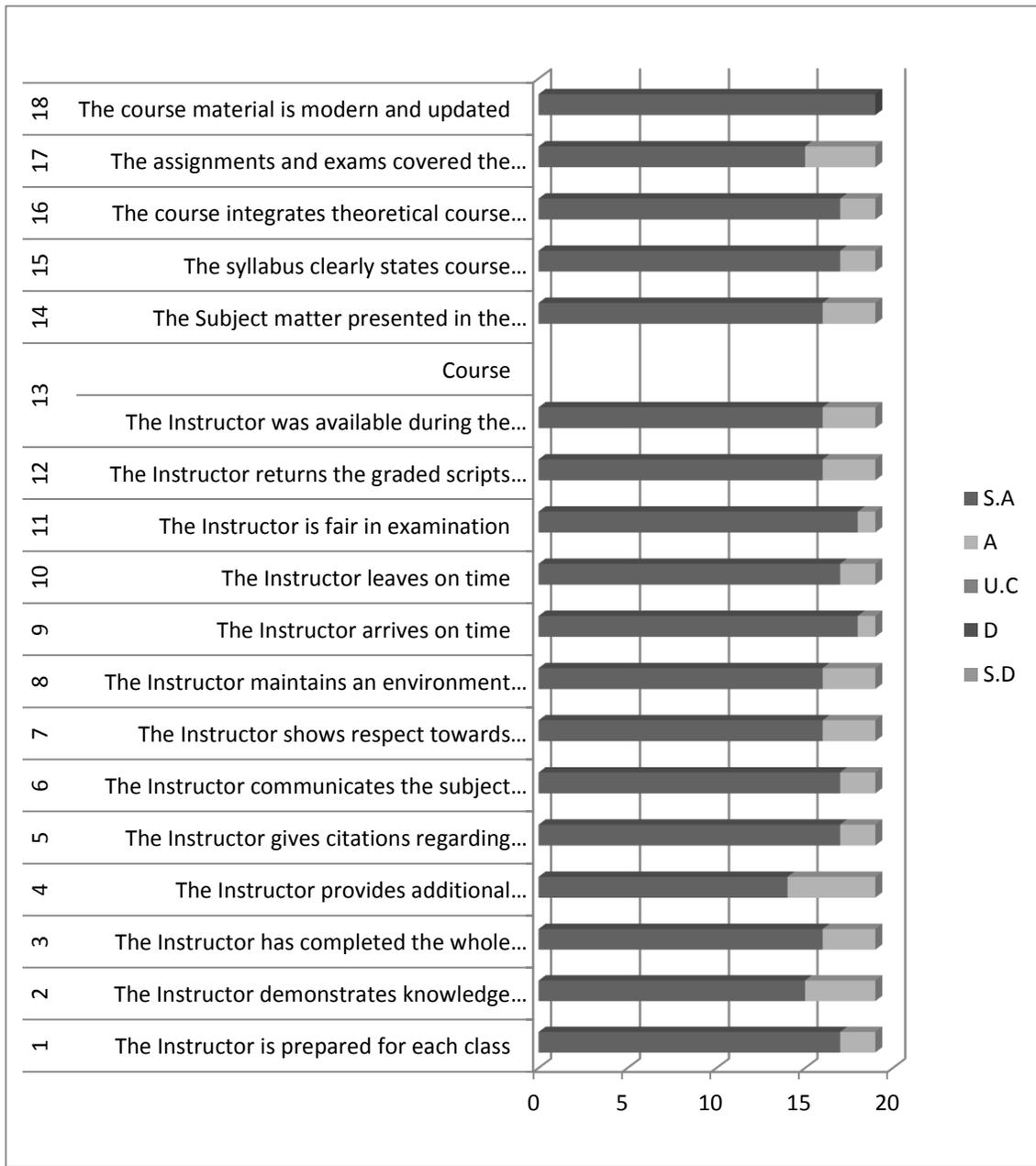
Dr. Sarwat N. Mirza (FR-713)

The course was taught by Dr. Sarwat N. Mirza and was evaluated by the students through performa no: 10. The following graph shows that teacher was always prepared and demonstrated knowledge very well.



Dr. Syed Moazzam Nizami (FR-718)

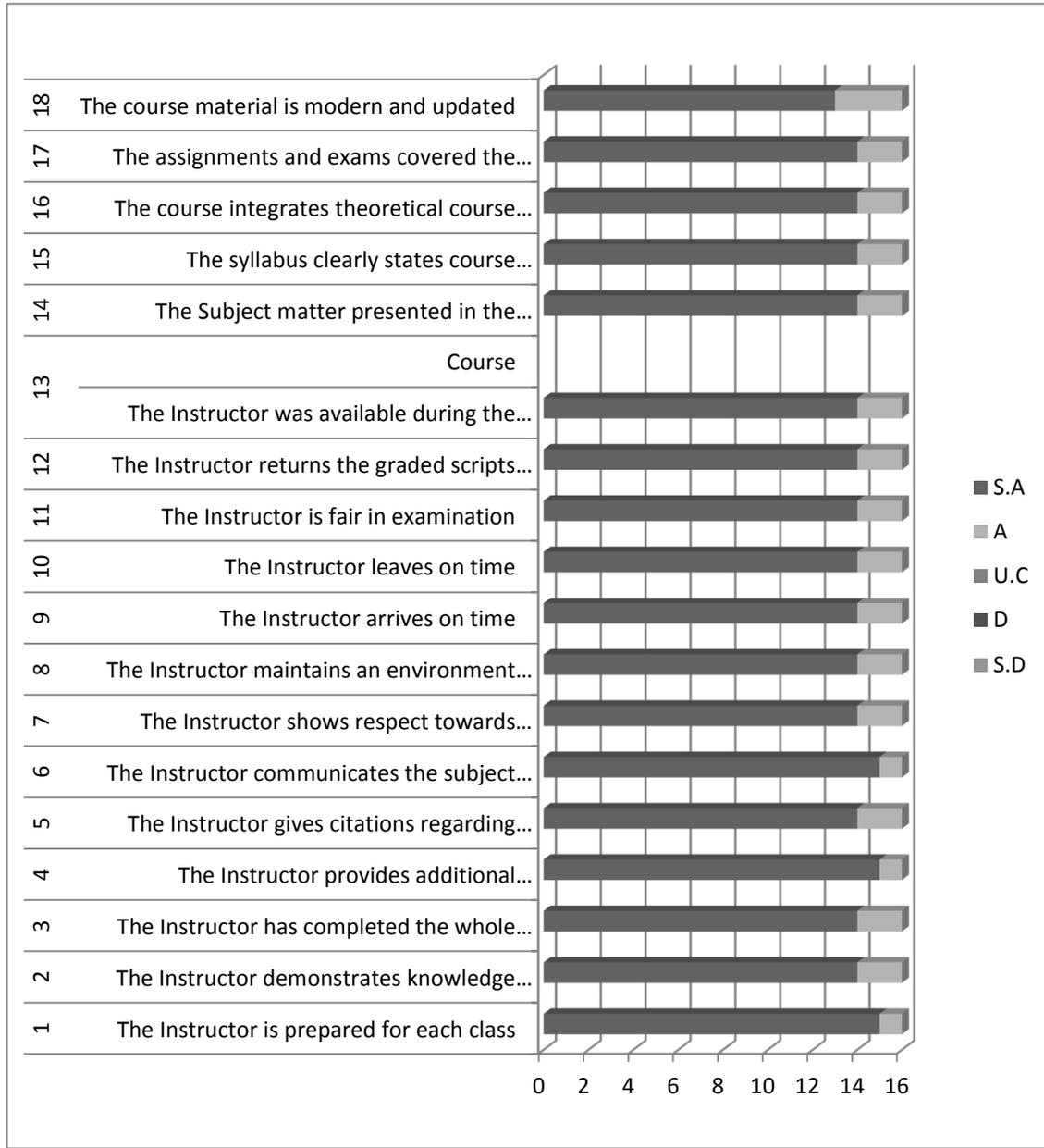
The course was taught by Dr, Moazzam Nizami and was evaluated by the students through Performa no: 10. The following graph shows that teacher was always prepared and demonstrated knowledge very well.



SPRING 2012

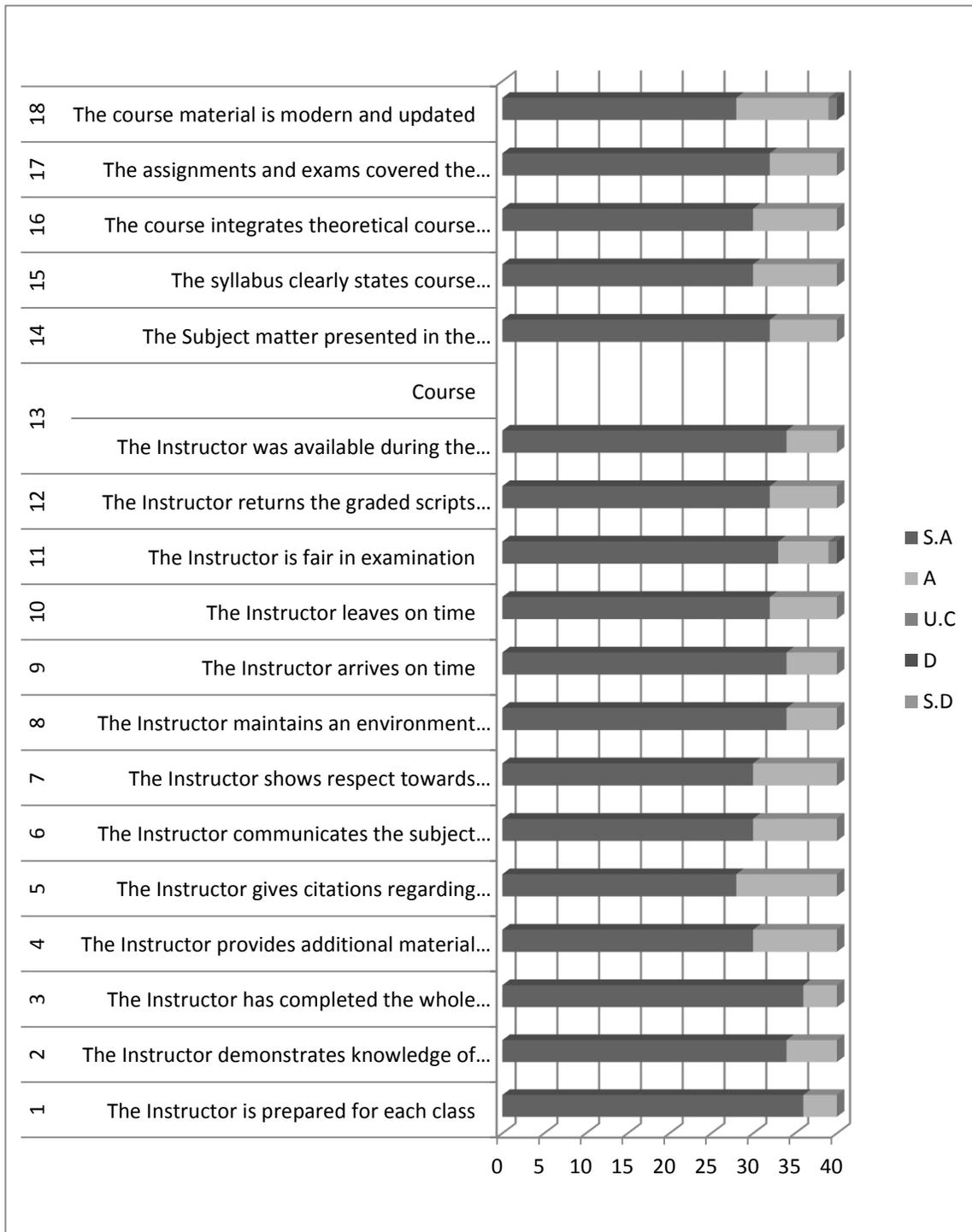
Dr. Irshad Ahmad Khan (FR-714)

The course was taught by Dr. Irshad A. Khan and was evaluated by the students through performance no: 10. The following graph shows that teacher was always prepared and demonstrated knowledge very well.



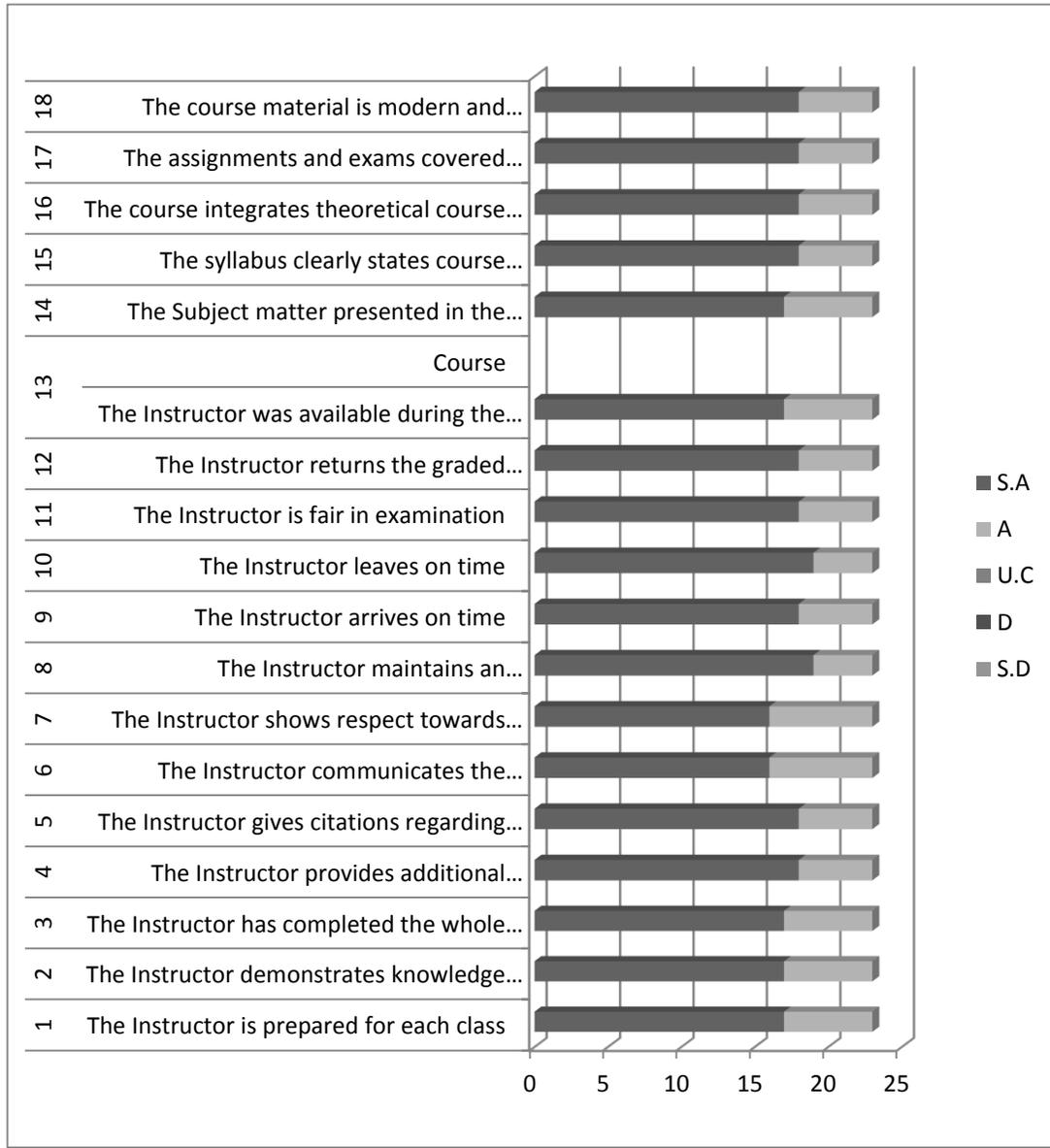
Dr. Sarwat N Mirza (FR-705)

The course was taught by Dr. Sarwat N. Mirza and was evaluated by the students through Performa no: 10. The following graph shows that teacher was always prepared and demonstrated knowledge very well.



Dr. Aamir Saleem (FR-716)

The course was taught by Dr. Aamir Saleem and was evaluated by the students through Performa no: 10. The following graph shows that teacher was always prepared and demonstrated knowledge very well. However few students were uncertain and dissatisfied.



Student course evaluation

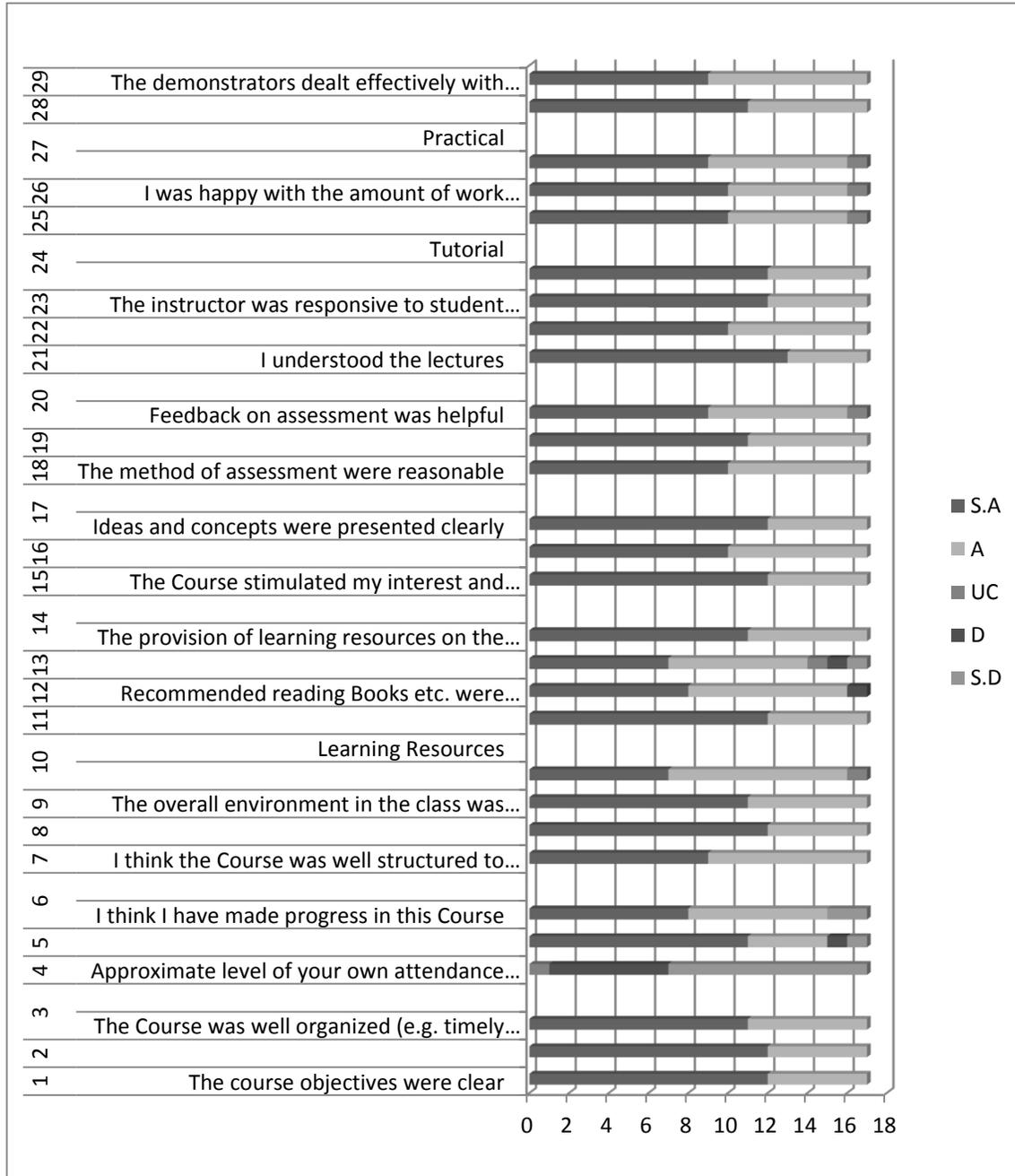
Following courses were evaluated by the department in the fall 2010-11, spring 2011, fall 2011-12 and spring 2012 Semester.

Semester	Subject Title	Subject Code	Teacher`s Name
Fall 2010-11	Drought Management in Range lands	FR713	Prof. Dr. Sarwat N. Mirza
Fall 2010-11	Range Vegetation Manipulation & Management	FR710	Dr. Aamir Saleem
Fall 2010-11	Forest Recreation and Park Management	FR 709	Dr, Irshad A. Khan
Fall 2010-11	Agro Forestry System	FR 703	Dr. Abdul Khaliq Choudhri
Spring 2011	Forest Disease & Pest Management	FR 714	Dr. Irshad A. Kahn
Spring 2011	Advances in Forest Utilization	FR 716	Dr. Aamir Saleem
Spring 2011	Forestry & Environment	FR 705	Prof. Dr. Sarwat N. Mirza
Fall 2011-12	Forest Ecology	FR 718	Dr. Syed Moazam Nizaami
Fall 2011-12	Forest Recreation and Park Management	FR 709	Dr, Aamir Saleem
Fall 2011-12	Drought Management in Range lands	FR713	Prof. Dr. Sarwat N. Mirza
Spring 2012	Forest Disease & Pest Management	FR 714	Dr. Irshad A. Kahn
Spring 2012	Forestry & Environment	FR 705	Prof. Dr. Sarwat N. Mirza
Spring 2012	Adaptation of Forests to Climate Change	FR 716	Dr. Aamir Saleem

FALL 2010-11

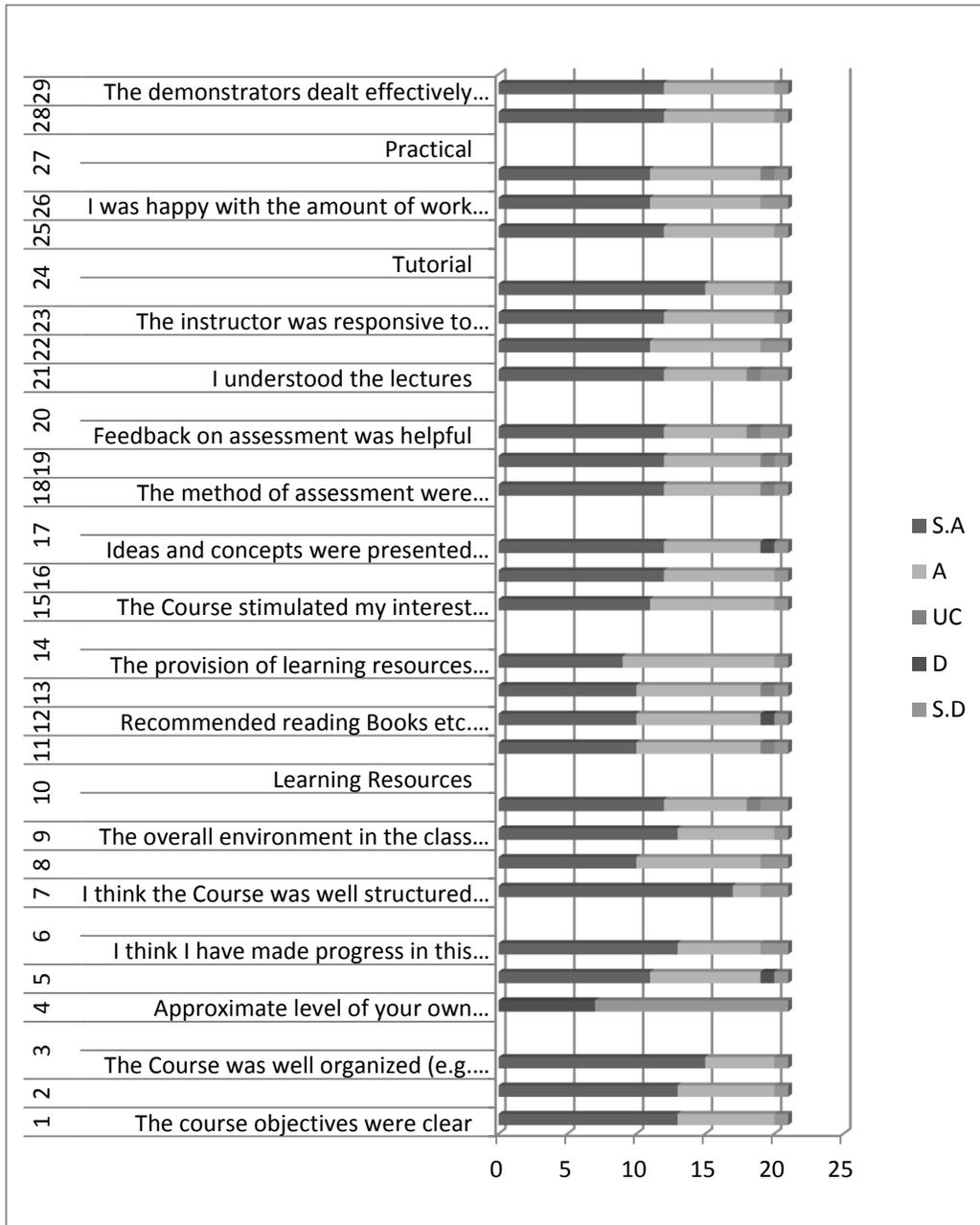
Dr. Sarwat N. Mirza FR 713

The course was taught by Dr. Sarwat N. Mirza and was evaluated by the students through Performa no: 1. The perception of the student for this course is well defined in the following graph.

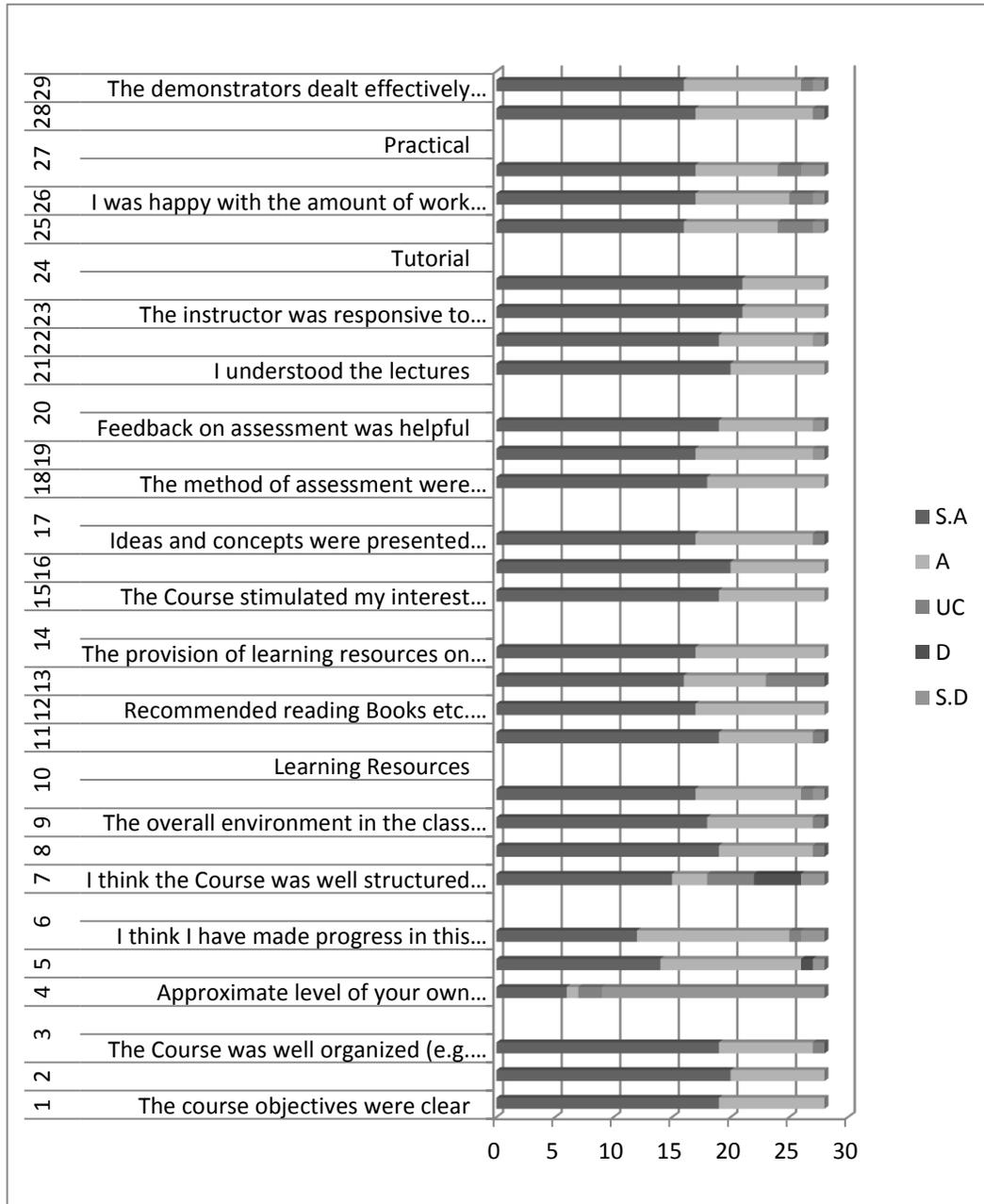


Dr. Irshad Ahmed Khan FR 709

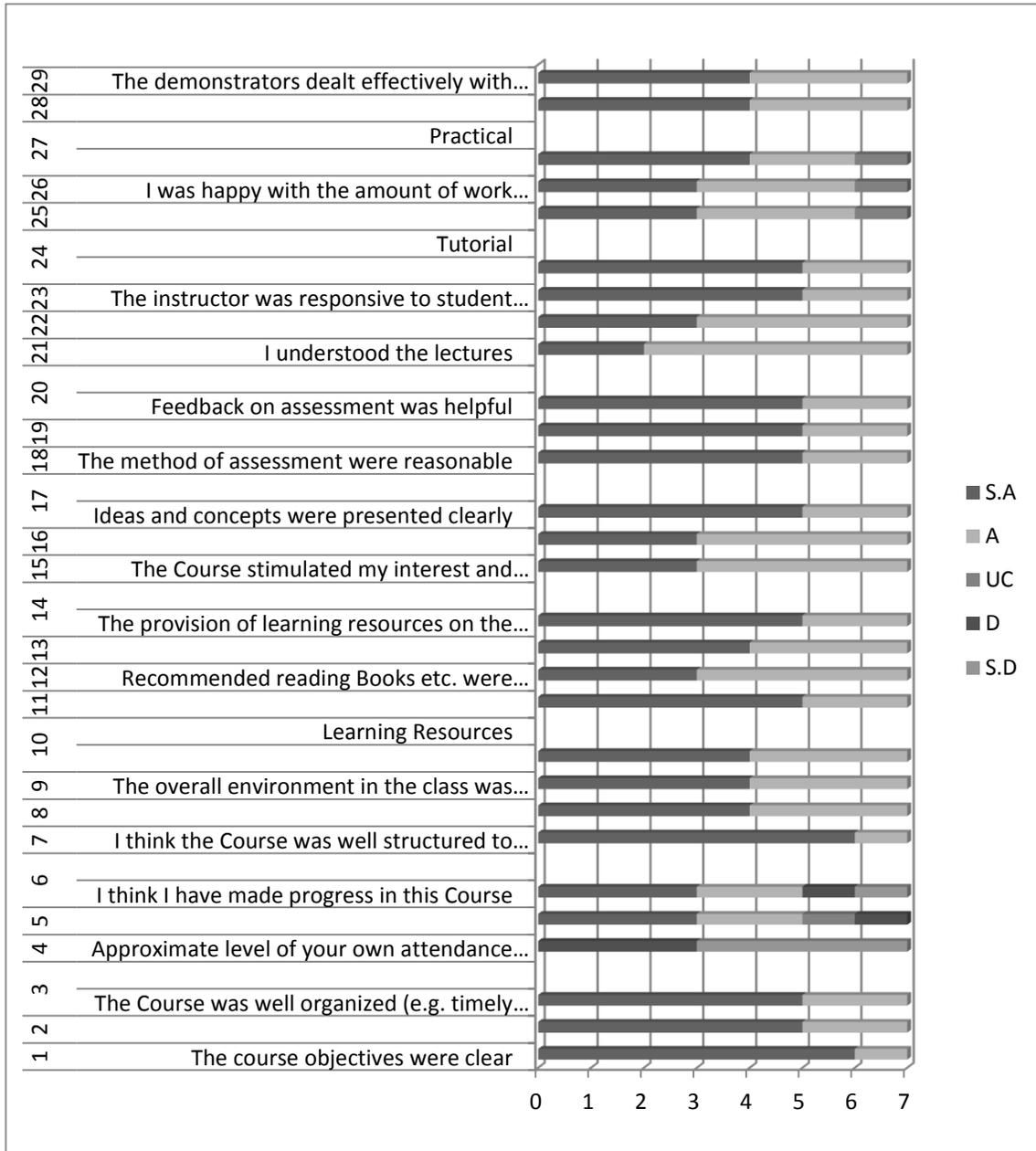
The course was taught by Dr. Irshad A. Khan and was evaluated by the students through Performa no: 1. The perception of the student for this course is well defined in the following graph.



The course was taught by Dr. Aamir Saleem and was evaluated by the students through performa no: 1. The perception of the student for this course is well defined in the following graph.

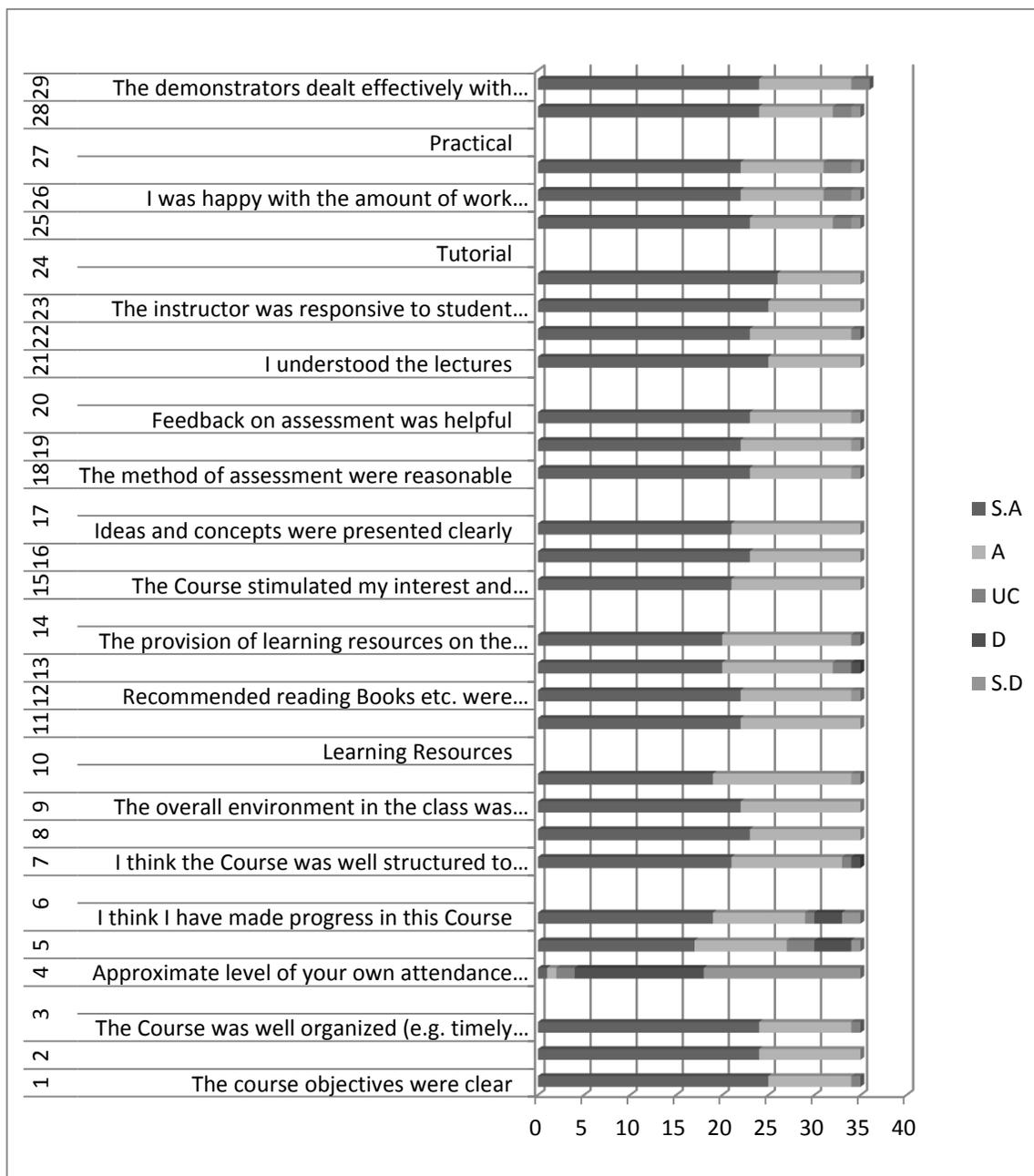


The course was taught by Dr. Abdul Khaliq and was evaluated by the students through performa no: 1. The perception of the student for this course is well defined in the following graph.



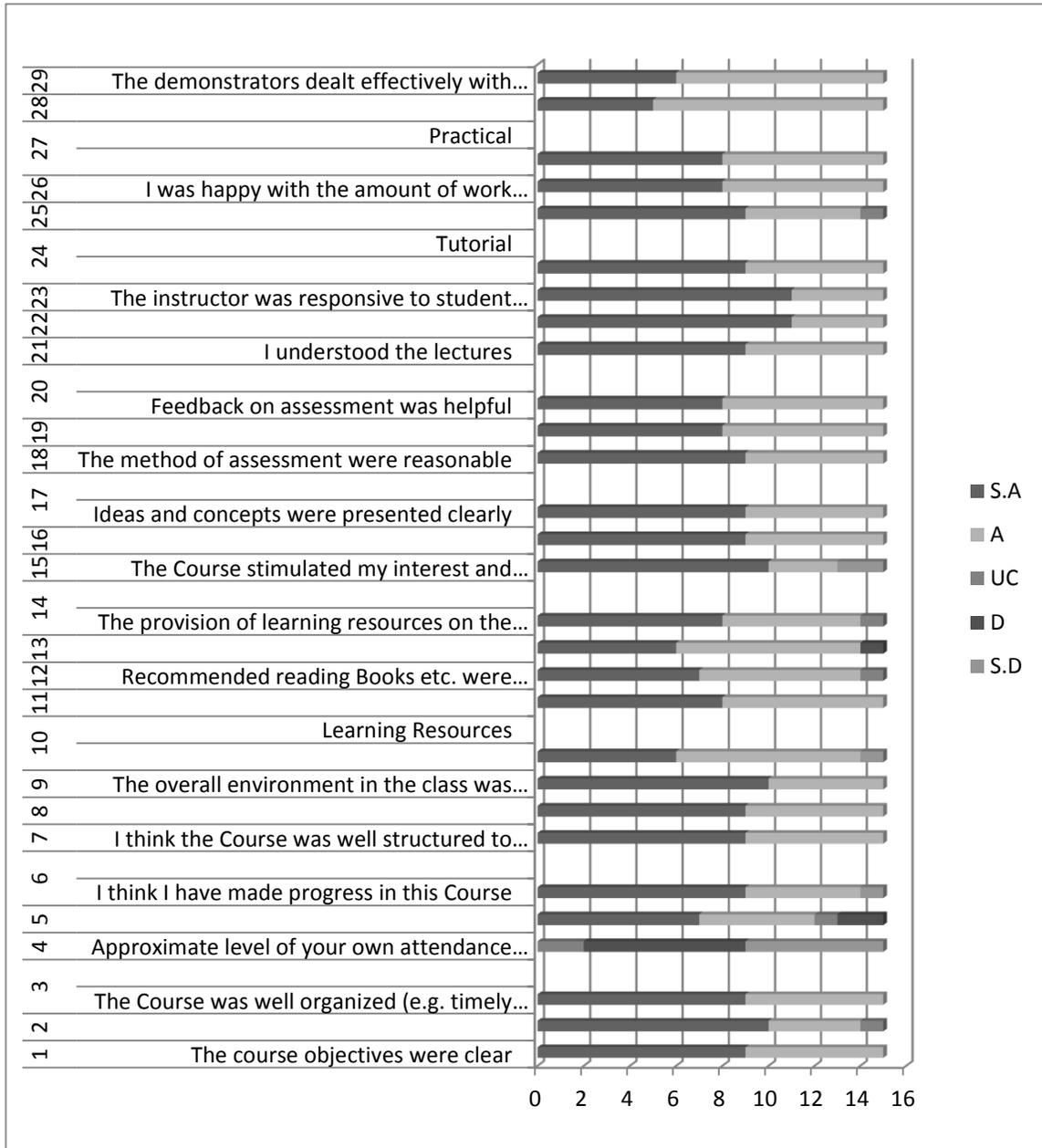
Dr. Aamir Saleem FR 716

The course was taught by Dr. Aamir Saleem and was evaluated by the students through Performa no: 1. The perception of the student for this course is well defined in the following graph.



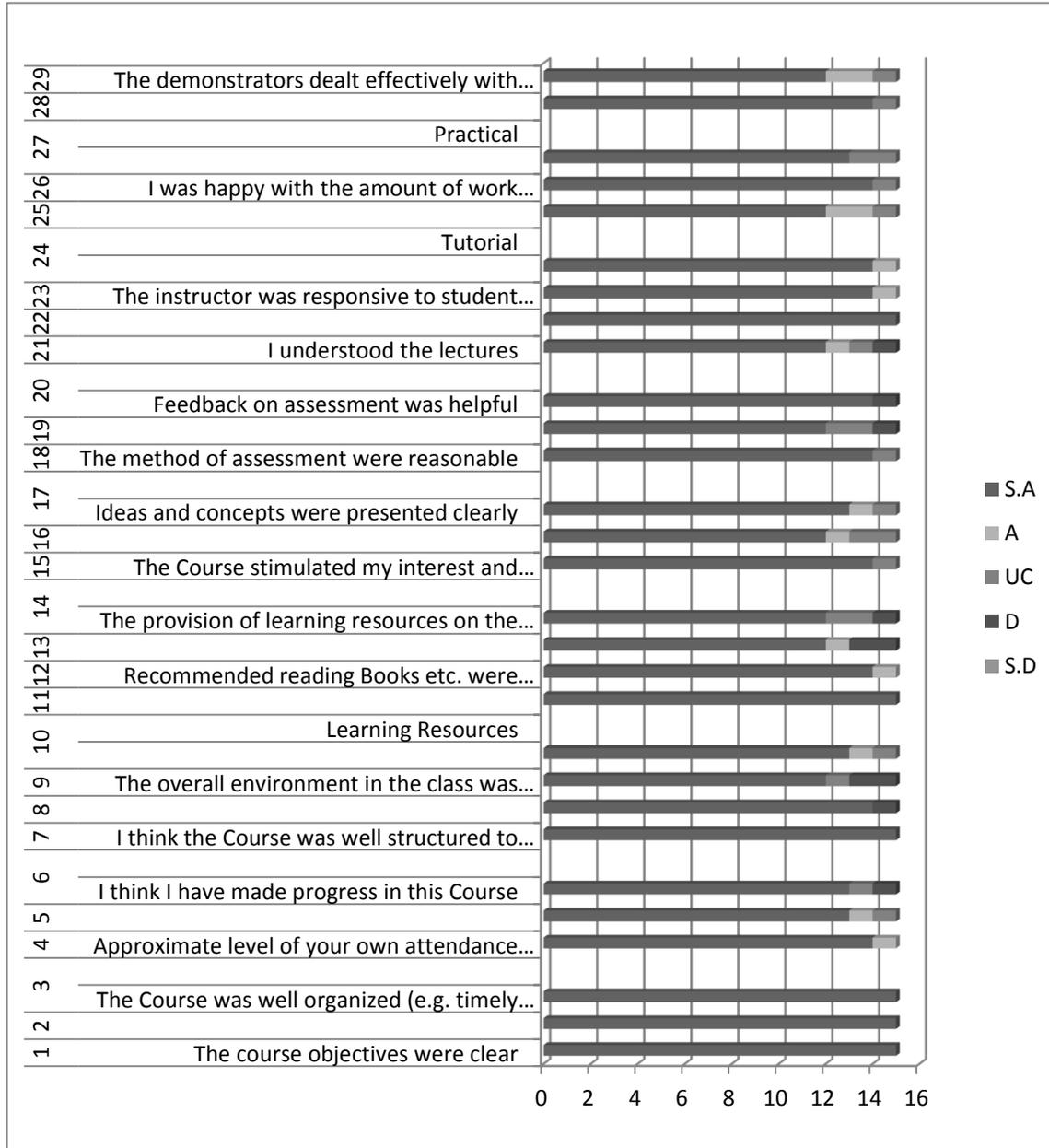
Dr. Sarwat N. Mirza FR 705

The course was taught by Dr. Sarwat N. Mirza and was evaluated by the students through Performa no: 1. The perception of the student for this course is well defined in the following graph.



Dr. Irshad Ahmed Khan FR 714

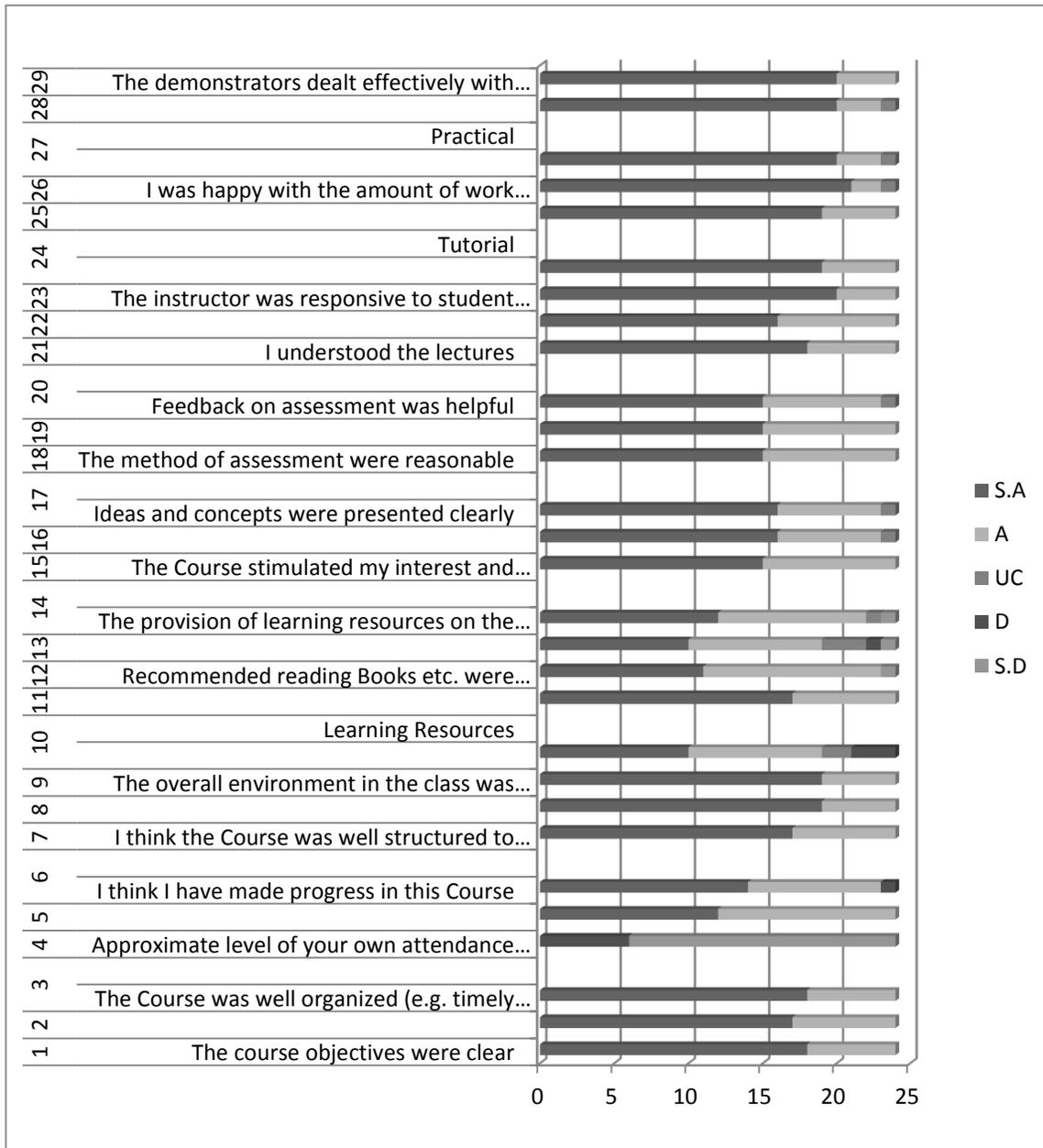
The course was taught by Dr. Irshad A. Khan and was evaluated by the students through Performa no: 1. The perception of the student for this course is well defined in the following graph.



FALL 2011-12

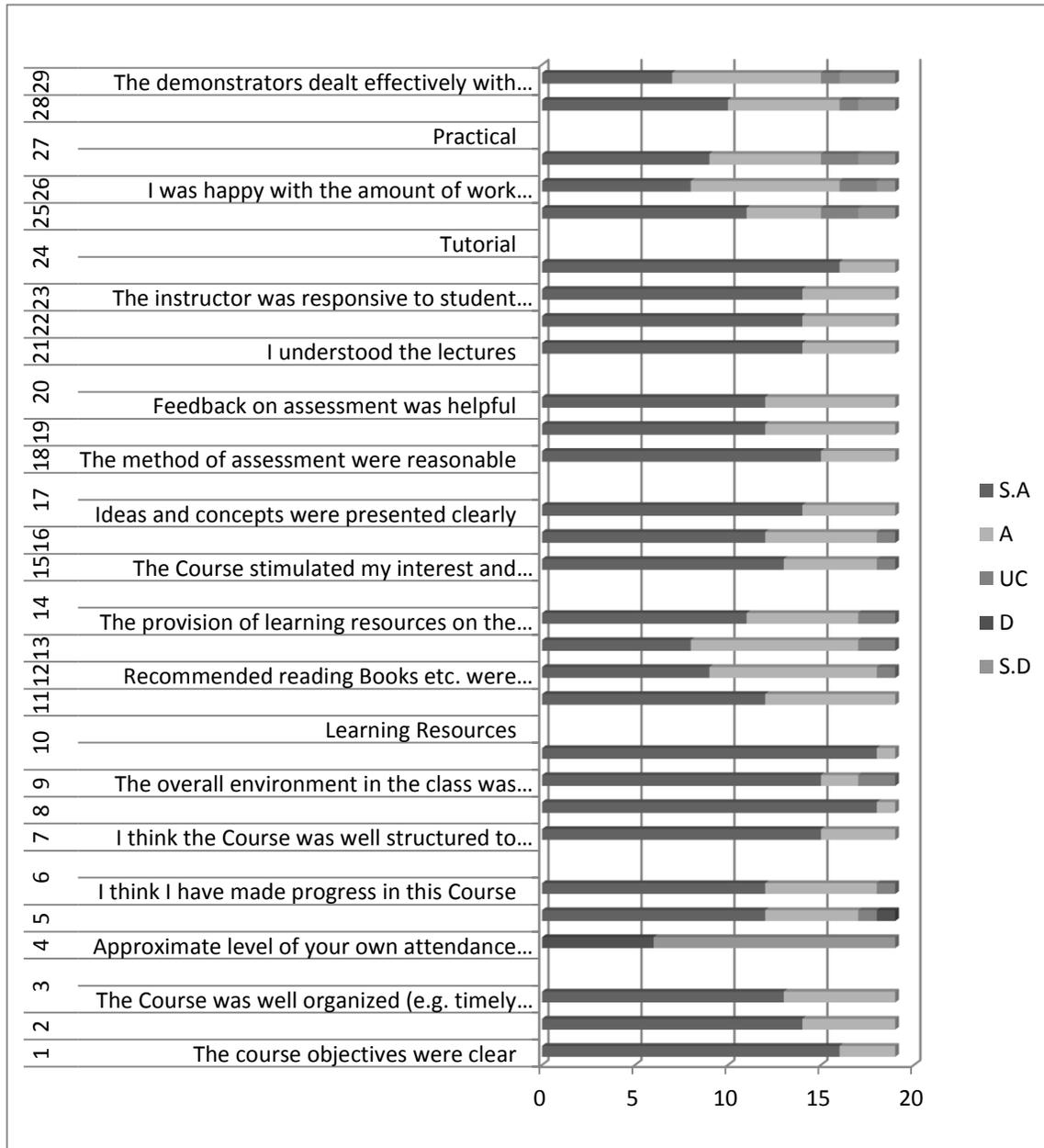
Dr. Aamir Saleem FR 709

The course was taught by Dr. Aamir Saleem and was evaluated by the students through Performa no: 1. The perception of the student for this course is well defined in the following graph.



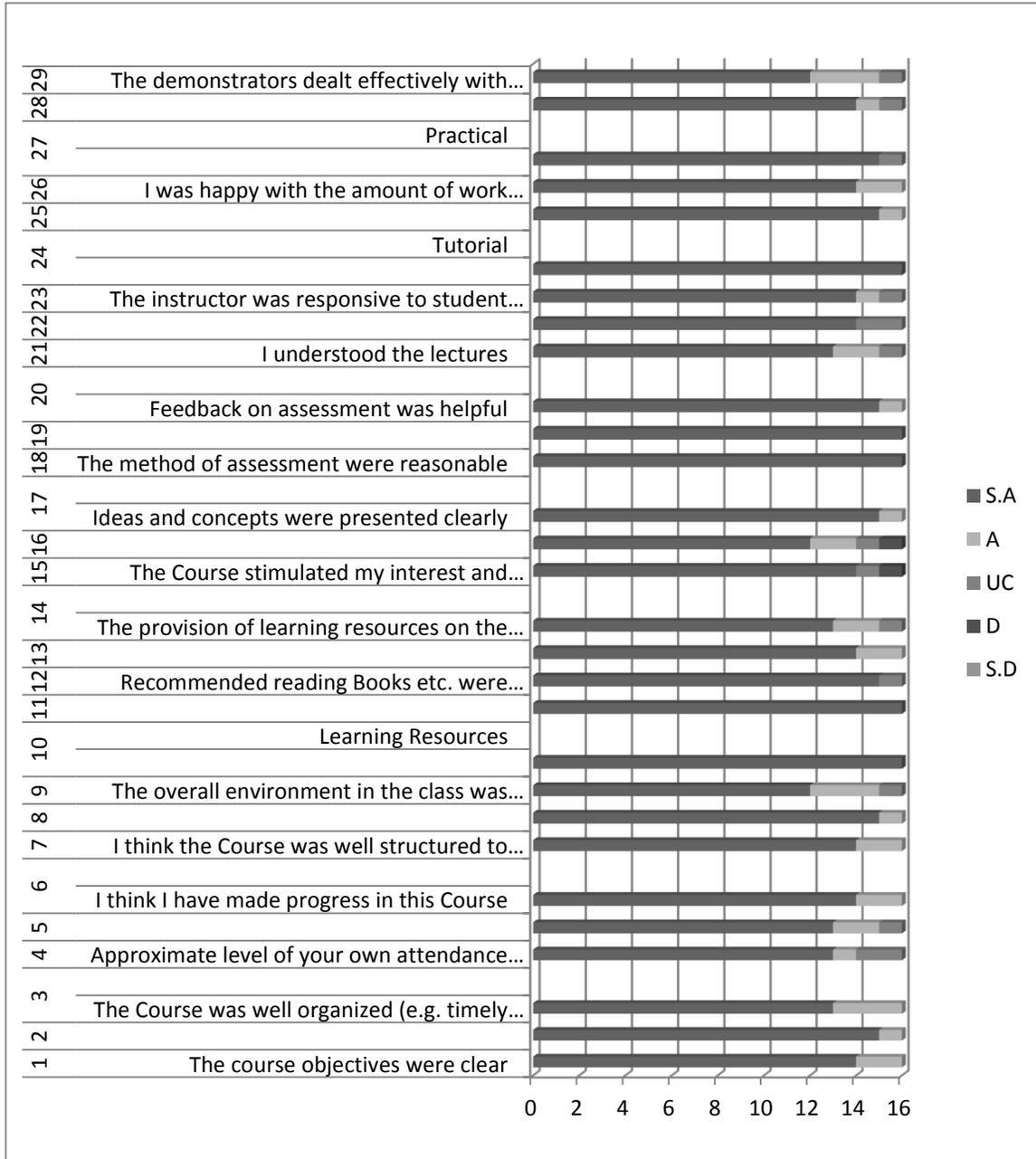
Dr. Sarwat N. Mirza FR 713

The course was taught by Dr. Sarwat N. Mirza and was evaluated by the students through performa no: 1. The perception of the student for this course is well defined in the following graph.



Dr. Syed Moazzam Nizami FR 718

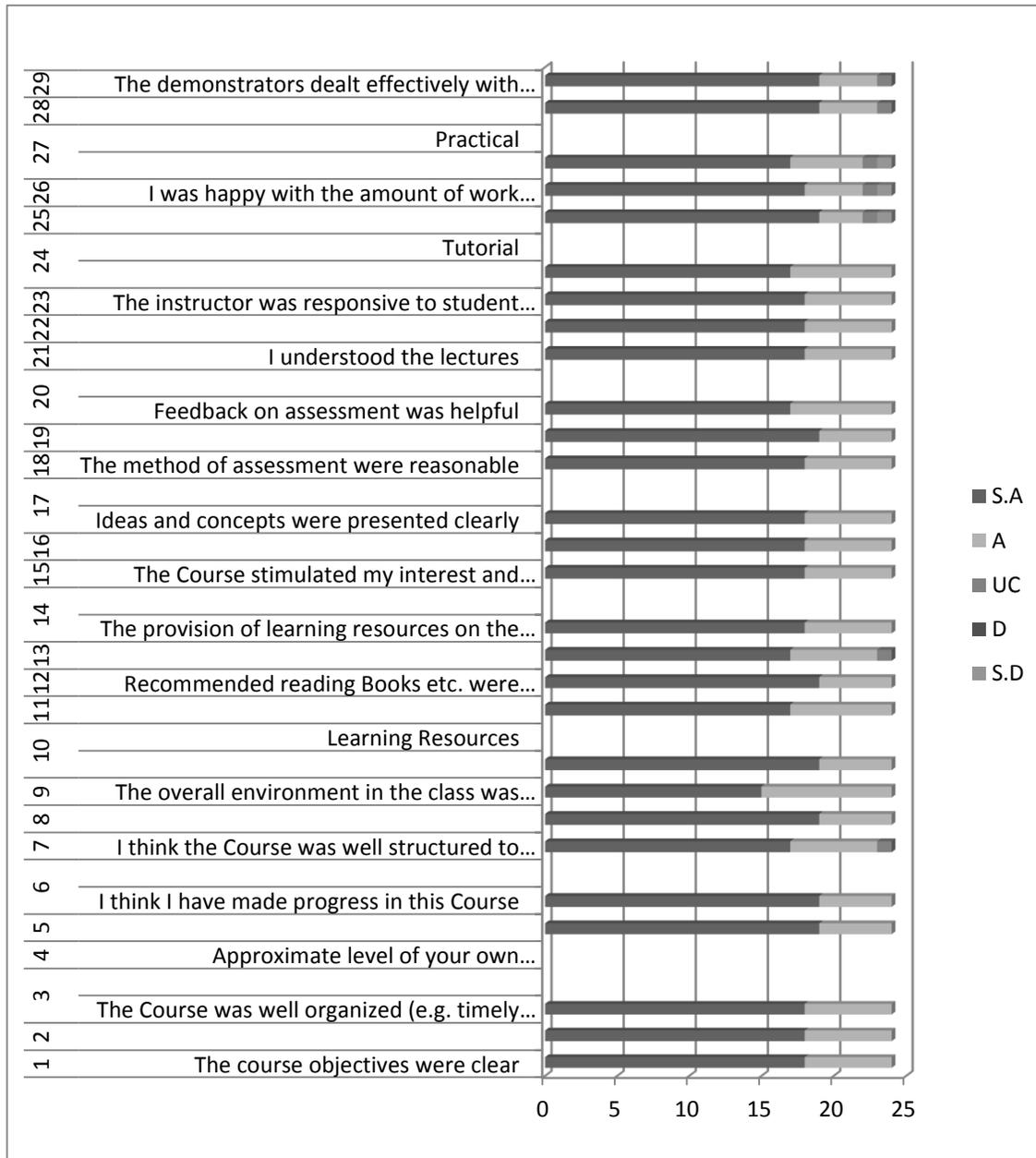
The course was taught by Dr. Syed Maazzam Nizami and was evaluated by the students through performa no: 1. The perception of the student for this course is well defined in the following graph.



SPRING 2012

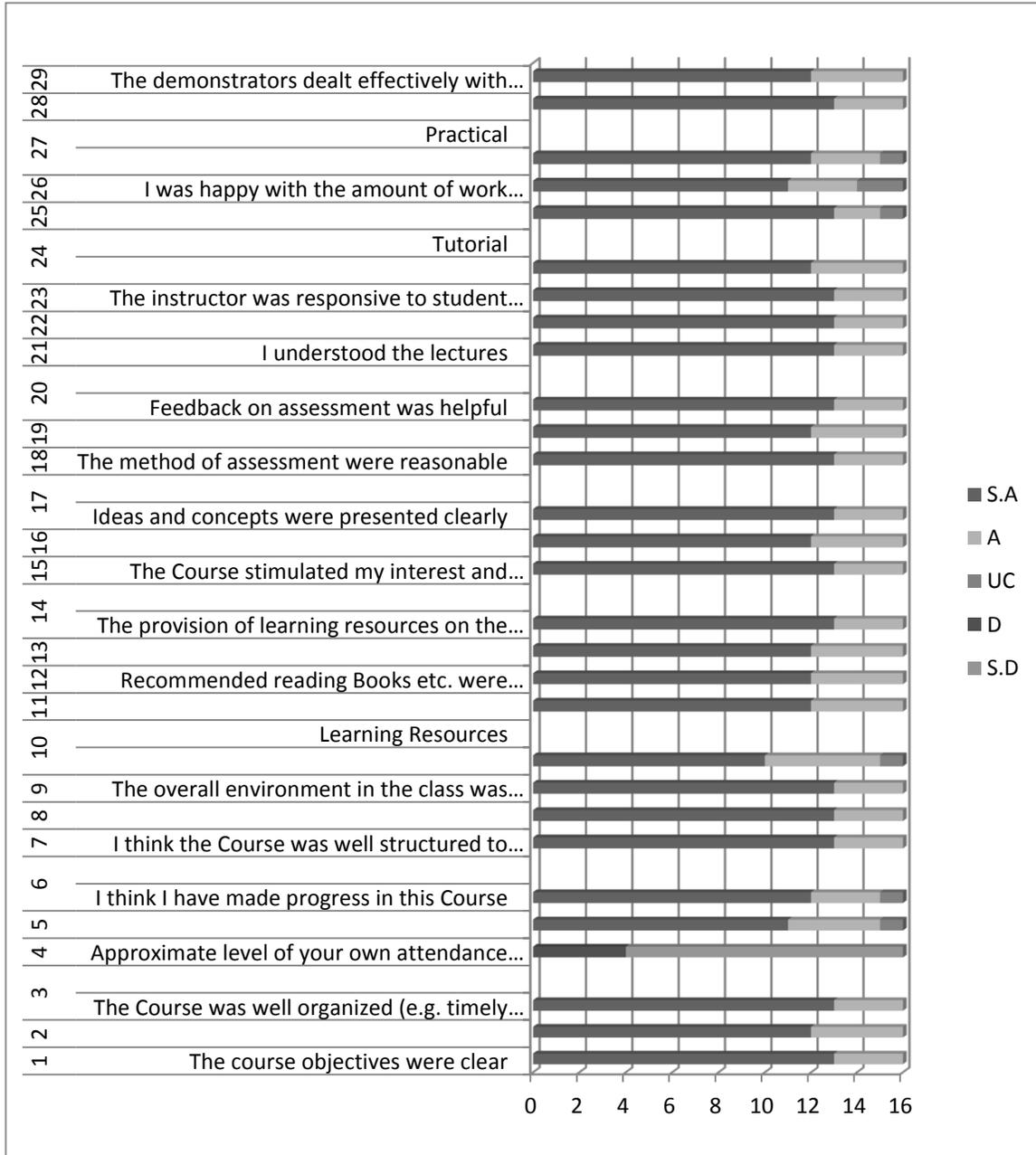
Dr. Aamir Saleem FR-716

The course was taught by Dr. Aamir Saleem and was evaluated by the students through performance no: 1. The perception of the student for this course is well defined in the following graph.



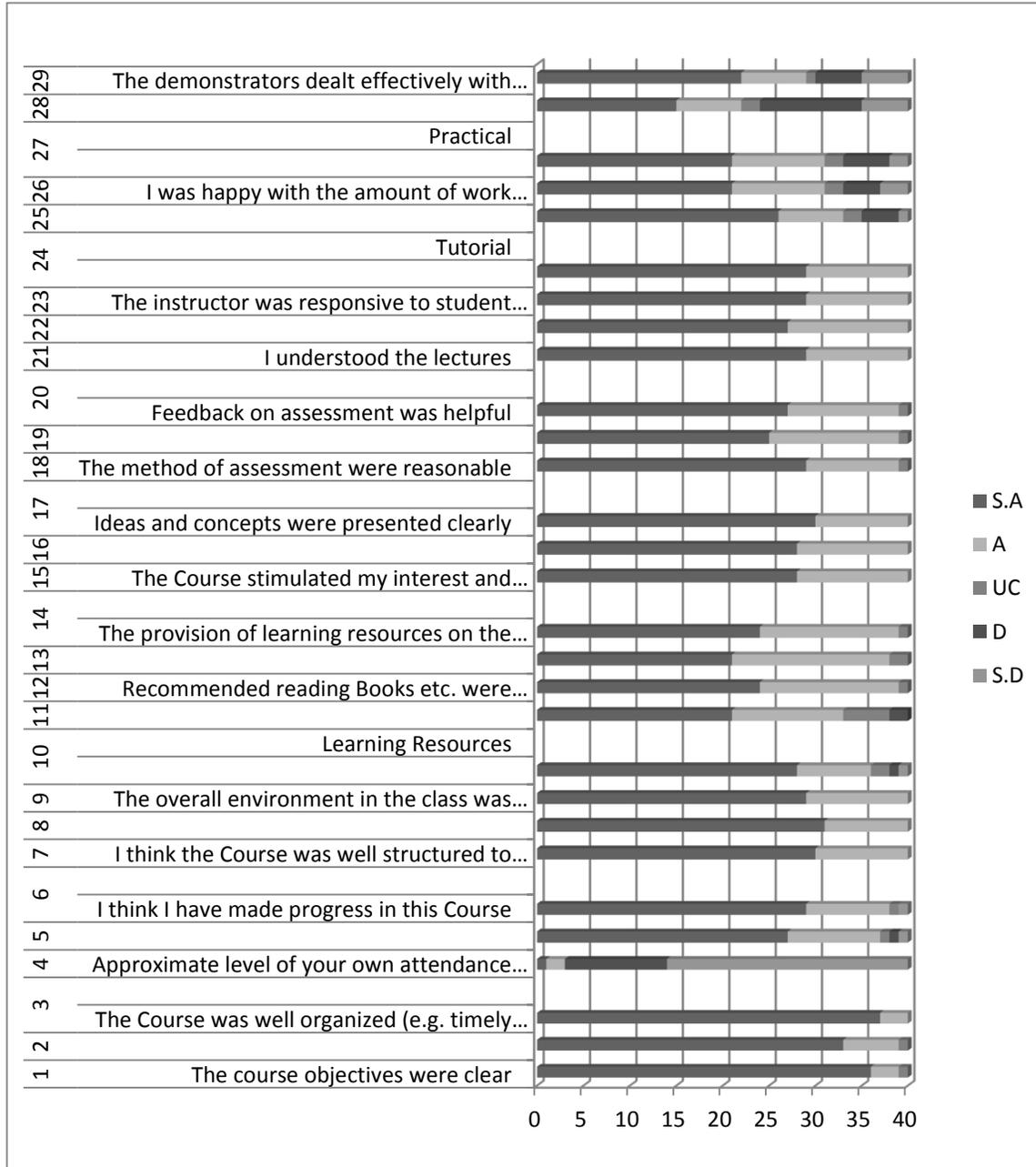
Dr. Irshad A. Khan FR-714

The course was taught by Dr. Irshad A. Khan and was evaluated by the students through performa no: 1. The perception of the student for this course is well defined in the following graph.

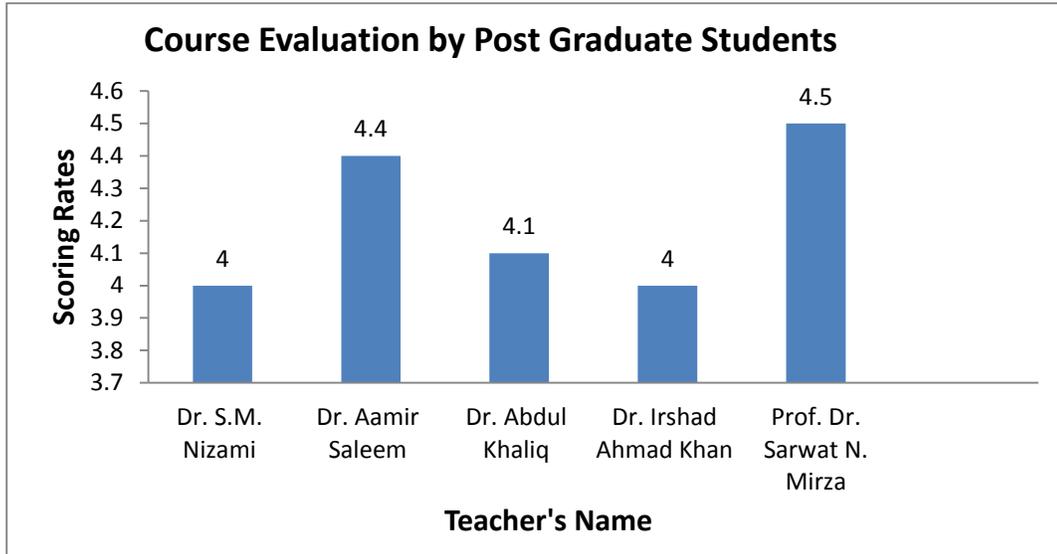


Prof. Dr. Sarwat N. Mirza FR-705

The course was taught by Dr. Sarwat N. Mirza and was evaluated by the students through Performa no: 1. The perception of the student for this course is well defined in the following graph.

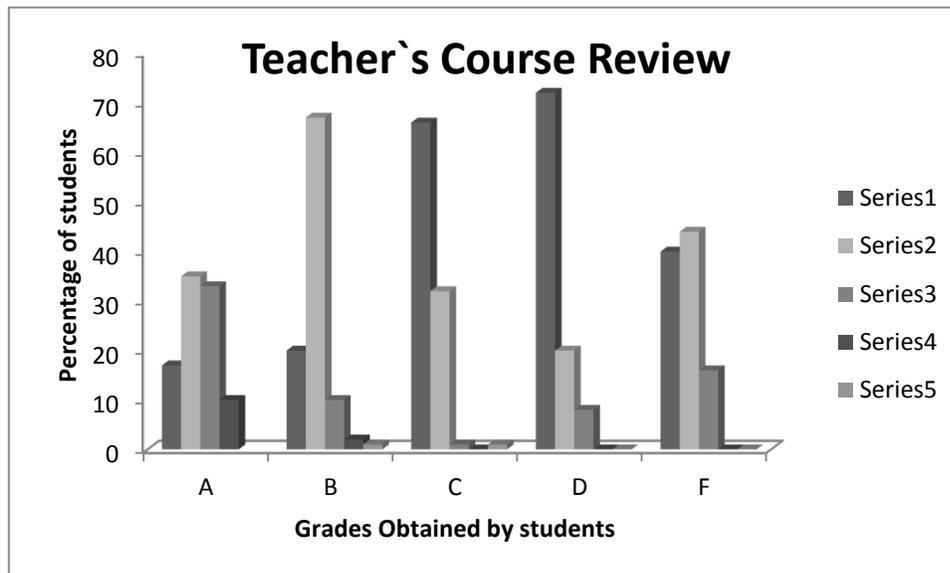


The courses of the respective teachers were evaluated per Performa 1 (Annexure II) and the results are shown in graphical form in the graph below. It is clear from the graph that the course number FR-705 (Dr. Sarwat N Mirza) is on the top and Course FR 709 (Dr. Irshad A. Khan) and FR-718 (Syed Moazzam Nizami) is at lowest rank as per student evaluation. The position of other courses can be well judged from the graph below.



Teacher`s Course Review Reports

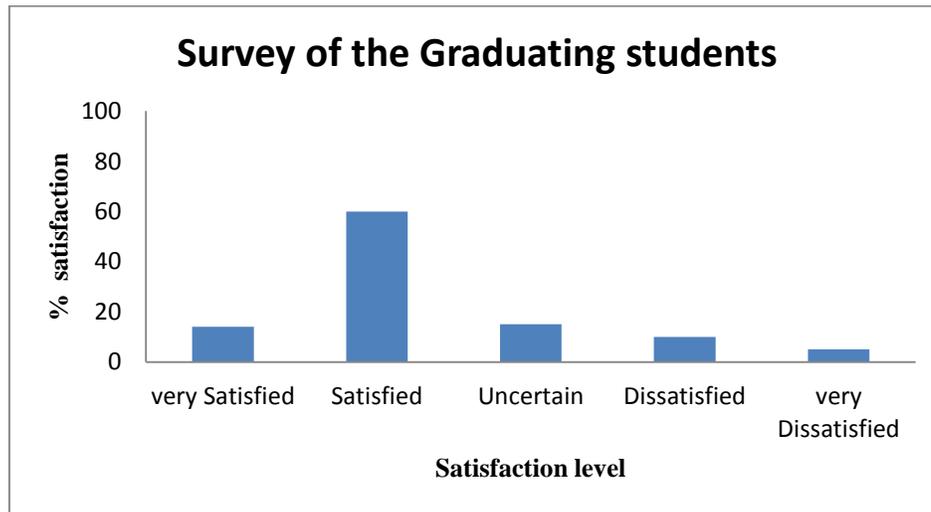
Revision of courses offered during fall 2010-11 and spring 2011 were reviewed by the teachers and their evaluation is given under (vide proforma 2).



Each teacher was satisfied with the students evaluation of course and teacher vide performa 1 and 10. All the courses run in conducive manner. More courses are required by the department to offered at PhD and M. Phil Level regarding burning issues of the forestry world over.

Survey of Graduating Students

Results of survey of graduating students based on Proforma 3 (Annexure III) are given in Figure- 3. The graduating students in the last semester were surveyed before the award of degree. On the average basis 60.66 % students showed their satisfaction regarding all the parameters. The results of graduating students are summarized and given in Figure No: 3.



Best Aspects of the Program

- Highly qualified faculty
- Integration of all science (Biology, Engineering and Computer based subjects) for practical applicability in the field.
- High level of co-operation & Helping attitude of the chairperson & majority faculty members for all students in research and extra curricular activities
- Field tours for clarity of actual forest management in Pakistan.
- Encouragement to work as team in the field.
- Use of tree measuring and sampling instruments in the field individually by each student with in the groups.

Weaknesses:

- Field tours should be frequent to understand the every aspect of Forest Management right in the field.
- The department is not having its own field station for Surveys and Working plan preparations.
- There should be computers for use of students in the laboratory.
- Internship duration is less. It should be for at least 2 semesters.

- Summer semester should be started in the university (10% is demanding this students)

Opportunities

- ❖ The Faculty / department members and students can have effective contact, conversation and collaboration, and closer partnership with local employees and NGOs owing to peculiar geographical location of the University / department.
- ❖ Having Agriculture degree, the graduates are eligible to apply in multiple (brown and green) sectors e.g., Agriculture, Forestry, Environment, Banking, corporate sectors
- ❖ Out standing students and those with high caliber may opt for Competitive Exams
- ❖ The graduates may change their professional career from one field to other e.g., from agriculture to wildlife, environment, ecology etc.

Threats

- PFI has already taken a lead and possess all infrastructure in the forestry training
- Degree is not getting priority sometimes in the PPSC because of the monopoly of Forestry department
- Loss of potential faculty staff if no incentives in future in the field of Forestry and range Management

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 having highly qualified teachers with full acquaintance of their respective subjects, having vast knowledge of local and international techniques for Forest & Range Management.
2. There is one Professor in the department who is foreign qualified in the field of Range Management.
3. There are two partial local PhD as they have visited Foreign Universities under HEC IRSIP and other two are purely local Ph. Ds.
4. Rest of the three faculty members are enrolled in PhD out of which one is doing PhD from Canada in University of New Brunswick Canada.
5. The entire faculty members are involved in research directly or indirectly as supervisor and committee member of the post graduate students.
6. Department has successfully completed 2 research and 1 developmental project.
7. Currently three research projects funded both by university and United Nations Development Project_ Sustainable Land Management Project (UNDP_SLMP) are in progress.

Weakness Identified in Program

1. Advanced teaching and research is being handicapped due to lack of infrastructure and instruments. Still there is not a single computer for post graduate students in the laboratory.
2. As Forestry is field based subject so there is always need of field tours for imparting firsthand knowledge to under graduate and post graduate students for which department is required with own transport facility like coaster.
3. There is a need for short foreign training and participation in international conferences to faculty members.
4. Each faculty member is not having personal computers for carrying out research analysis and daily routine work.

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. Almost all the graduate and post graduates got jobs in various organizations (Provincial Department, Universities, Research Organizations, Banks and Private Firms.)

Table 3: Present performance measures for research activities

Faculty	Jour, Publications (National and International)	Conference Publications (Proceedings Abstract)	Projects
Prof. Dr. Sarwat N. Mirza	30	12	1
Dr. Irshad A. Khan	19	0	0
Dr. Abdul Khaliq	19	4	2
Dr. S. Moazzam Nizami	15	2	1
Dr. Aamir Saleem	5	0	2

The department is well staffed with availability of expertise in all major fields of Forestry & Range Management.

Significant Future Development Plans

The Department of Forestry & Range Management has planned a number of future research studies addressing the land degradation issues of fragile arid and semi arid environments. Some of the studies include:

- i) Rangeland improvement through introduction of high yielding forage grasses and legumes and plantation of multipurpose trees and shrubs by using various moisture conservation techniques.
- ii) Environmental impact assessment of land degradation caused by development activities like road construction and urbanization.
- iii) Agro-forestry studies of promising multipurpose trees as an economically feasible enterprise for the farming communities.
- iv) Feeding studies on small ruminants by integrating grazing with crop based products.
- v) Assessment of carbon sequestration through forest plantation in different ecological zones of Pakistan.
- vi) To impart quality education in Forestry through audio visual aids and modern tools along with provision of latest literature, journals, books, reviews and access to internet.
- vii) To extend facilities for field tours, herbarium, museum and field laboratory.
- viii) To prepare hand outs, brochures and pamphlets for the farmers and advisory services
- ix) To equip the post-graduate laboratories (Forest Surveying & Engineering, Forest ecology, and taxonomy) with the advanced equipments.
- x) Human Resource development in Forest & Range Management to meet future challenges for sustainable Forestry to cope with demand & Supply of wood.
- xi) To emphasize problem oriented research on specific and serious issues prevalent in the arid ecology.
- xii) Over all enhancement of knowledge and skills of faculty members in relation to the latest global advancements in this discipline through exchange programs, short training and collaborative research project within and outside Pakistan.

Community services by the department

- o Organization of farmers' day (local Pothowar area)
- o Advisory services to the farmers for tree growing as and when desired
- o Guidance and supervision of students of various departments numbers about research
- o Supervision of students on internship in various organizations in the Punjab.

A number workshops and seminars organized are given in Table 5.

Table 4 : Short courses, Seminars, Workshops and Conferences arranged by the Department Year Short Courses Seminars Workshops/Conferences

Year	Short Courses	Seminars	Workshops/Conferences
2002-2004	1	0	1
2004-2006	0	3	0
2006-2008	0	2	1
2008-2010	1(with ICARDA)	0	1

Faculty satisfaction regarding the administrative services

- The department maintains a ratio of 4:1 for the academic (technical) and administrative non-technical staff which fulfils this standard set by HEC
- Administrative meetings (departmental, university, academic council, and syndicate) are attended as and when required. Normally 1 meeting is held per month.
- Quick office disposal are never delayed, so far no complaint in this regard, received from authorities
- Proper records of each individuals, students thesis etc. are maintained.
- Quantitative assessment of the department since its establishment is given in the table 6.

Table 5: Quantitative assessment of the department (Last 3 years)

Sr. #	Particular	No.	Remarks
I	M. Sc(Hons)/ M.Phil degree awarded	7	6 Nos got jobs e.g, One joined PMAS-AAUR as lecturer. the remaining got employment, in banks and NGOs now holding various positions. Only one is still trying for job.
ii	Ph.D.	4	Doing job in University, NARC and MoE.
iii	Post-Doc fellowship	1	One faculty member is on Post Doc. In Canada
iv	Students: Faculty ratio	7:1	Fulfils HEC criteria
V	Technical: Non-technical Ratio	4:1	Fulfils HEC criteria

Conclusion: The evaluation process indicated high efficiency of system and satisfactory impact of outcomes. Almost 90% of the graduate and post graduates got jobs in various organizations (Provincial Forest departments, universities, research organizations, banks and NGO`s and Environmental Research based organization. private firms). About 34 under graduate, 27 Postgraduate and 7 PhD Scholars are still involve in completing their higher education.

Criteria 2: CURRICULUM DESIGN AND ORGANIZATION

Degree Title: M.Phil in Forestry & Range Management

A. Intent:

All the courses for degree program are being taught under HEC approved scheme of study for forestry. The scheme was approved by NCRC. The committee consisted of experts and learned professors, subject matter specialists from other universities and research organizations from Pakistan. When and if needed, curriculum for the Department of Forestry & Range Management is revised/updated through different bodies. At department level, Board of Studies, which comprised of senior faculty members, is responsible for updating the curriculum. This body is authorized to formulate syllabus and course content. The chairperson of the Department is the convener of this body. The courses are then sent to the Board of Faculty for approval. The Dean of the Faculty, who is also the convener, conducts meeting. As per university rules courses after the approval from the Faculty Board, are placed before the University Academic Council for their approval.

B. Definition of Credit Hour:

A student must complete a definite number of credit hours. One credit hour is one theory lecture or two hours laboratory practical per week. A credit hour carries 20 marks.

C. Degree Plan

The department of Forestry & Range Management offers 2 degree programs at Post Graduate level namely; M.Phil (Forestry & Range Management) and Ph. D (Forestry & Range Management).

Name of Degree

Pre-requisites

M.Phil (Forestry)

B.Sc. (Hons) Agri. with Range Mgt.& Forestry as major subject, passed GAT Test

Ph.D. Forestry & Range Management

M.Sc. (Hons) Agri. Major in Range Mgt. & Forestry/ M.Phil Forestry, GRE/ Entry test and Interview

The list of course and elective courses is attached in Table 2. The selection criterion for each course is:-

- That the course is relevant to the degree program
- It meets the material and international requirements for the degree
- Adequate facilities are available in the department
- The program contents meet the program objectives as highlighted and provided by the Higher Education Commission of Pakistan.

D. **For each course in the program that can be complete for credit** Specifying the following:

- Course title (FR)
- Course objectives and outcome (Given in course breakdown into lectures separately)
- Catalogue description (yes)
- Text book and reference (Given in course contents)
- Syllabus breakdown lectures (yes supplied to QEC separately)
- **Computer usage:** Internet facility is used by the faculty members to update their knowledge regarding each course, research, documentation of references. This facility is also by the students to solve their problems, facilitate their assignments and presentations.
- **Laboratory facilities** are provided to the students for their practical exercise, given in the curricula. Post-graduate students also do the work for their theses in the laboratories, basic equipment, material and chemicals and biochemical are provided.

M.Phil Forestry & Range Management

A minimum of 2 years/ four semesters duration program after B.Sc.(Hons) Agriculture majoring Forestry & Range Management/ M.Sc Forestry (2years)/ M.Sc Botany, M. Sc Biology / M.Sc Natural Sciences

Pre-requisites

A candidate seeking admission to the course must have passed the B.Sc. (Hons) Forestry & Range Management Degree, M.Sc Forestry (2years)/ M.Sc Botany, M. Sc Biology / M.Sc Natural Sciences with a minimum C.G.P.A. of 2.75 and must be a resident of the Punjab Barani Area. Merit for post graduate program is determined by considering the marks in last degree attended and the candidate was eligible to M.Phil degree if he/she has passed the GAT with 50% Marks.

Degree requirements M.Phil Forestry

The requirement is 45 credits comprising 35 credits of course work and 10 credits of Research thesis. All M.Phil. students are required to pass a comprehensive examination and thesis evaluation and examination by an external examiner and supervisory committee.

Ph.D (Forestry & Range Management)

The duration of course of the degree of Doctor of Philosophy in full residence is not less than six semesters and not more than ten semesters.

Pre-requisites

A candidate seeking admission to the Course must have passed the Master Degree with CGPA of 3.00. Merit for post graduate program is determined as per following formula.

Matric 05%
Intermediate 10%

B.Sc. (Hons) 15%
M.Sc. (Hons) 30%
GRE/Entry test 70%

Degree Requirements

The program contents meet the program objectives as highlighted and provided by the Pakistan Higher Education Commission. Minimum 18 credits of course work is compulsory; out of which 9 credits are of core/compulsory courses. Course work following a synopsis defense, seminar, comprehensive exam and submission of thesis to be approved by the supervisory committee, Quality Enhancement Cell (QEC) for plagiarism/ similarity Index checking and examined by two foreign internationally recognized scientists from the university of technologically advanced countries. Detailed course contents of Post-graduate schemes of studies are given in Table 6.

Table 6: Curriculum Courses for M.Phil & PhD Forestry & Range Management

Course No	Course Title	Credit Hours
FR-701	Range Vegetation Ecology	3(2-2)
FR-702	Advances in Forest Utilization	3(2-2)
FR-703	Agroforestry Systems	3(2-2)
FR-704	Grazing Management of Rangeland	3(3-0)
FR-705	Forestry & Environment	3(3-0)
FR-706	Forest Biometrics & Resource Economic	3(2-2)
FR-707	Development in Watershed Management	3(3-0)
FR-708	Range Forestry Research Methods	3(1-4)
FR-709	Forest Recreation & Park Management	3(3-0)
FR-710	Range Vegetation Manipulation & Management	3(3-0)
FR-711	Forest Surveying & Engineering	3(2-2)
FR-712	Pastoral Communities & Range Developments	3(3-0)
FR-713	Drought Management in Rangelands	1(1-0)
FR-719	Special Problem	1(1-0)
FR-720	Seminar I & II	1(1-0)

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

Table 7 shows that the curriculum of the Department of Forestry & Range Management is consistent with the program objectives

Table 7: COURSES Vs OUTCOME

Courses	Outcomes				
	Develop communication skills	Developing Research Projects	Analytical & Problem solving skill	Develop of Knowledge & vision	Development of professionalism & Research
FR 701, FR 703, FR 705, FR 707, FR 709, FR 711, FR 713, FR 719	+++	+++	++	++	+++
FR 702, FR 704, FR 706, FR 708, FR 710, FR 712, FR720	++	+	+++	+++	++++

+ = Moderately satisfactory

++ = Satisfactory

+++ = Highly satisfactory.

Assessment of the Department of Forestry & Range Management Curriculum

The assessment of curriculum given in Table 10 and the courses are cross tabulated according to the program outcomes.

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

Standard 2.2: Theoretical background, problem analysis and solution design must be stressed within the program's core material

Table-8: Detailed Courses representing theoretical background, Problem analysis and solution design:

Elements	Courses	Title of Courses
Theoretical Background	FR-701	Range Vegetation Ecology
	FR-703	Agro forestry Systems
	FR-712	Pastoral Communities & Range Developments
Problem Analysis	FR-706	Forest Biometrics & Resource Economic
	FR-707	Development in Watershed Management
	FR-712	Pastoral Communities & Range Developments
	FR-719	Special Problem
Solution Designs	FR-702	Advances in Forest Utilization
	FR-704	Grazing Management of Rangeland
	FR-705	Forestry & Environment
	FR-708	Range Forestry Research Methods
	FR-709	Forest Recreation & Park Management
	FR-710	Range Vegetation Manipulation & Management
	FR-713	Drought Management in Rangelands
	FR-720	Seminar I & II

Standard 2-6: *Information technology component of the curriculum must be integrated throughout the program*

While the curriculum was prepared, all aspects of information technology were considered and after a critical analysis, relevant aspects were integrated into the program. Three computer and I.T. courses (6 credit hours) and two courses of statistics (6 credit hours) based on computer practical usage were included in the curriculum to fulfill the I.T. requirements for the students of B.Sc (Hons) Agri. (major in Range Management & Forestry) degree.

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

- Two seminars each of one credit hours are compulsory at the Post-graduate level
- Assignments are given to M.Phil & Ph.D students on specific titles (part of the course) which are presented orally and given as written report (assignments) by the students which increases their oral and written communication skills.

Criteria 3: LABORATORIES AND COMPUTER

- Laboratory Title: Forestry and Range Management Laboratory for the Post-graduate students.
- Location and Area: Faculty of Forestry, Range Management & Wildlife, D- Block Ground Floor
Floor, Main Campus
- Objectives: Laboratory is used for:
Practical exercise and demonstrations to graduate students in their introductory and major courses.
Research work for the graduate and post-graduate students
- Adequacy for instruction: There is no computer for under graduate and postgraduate students in the laboratory.
- Major apparatus: The equipments like Microscopes, autoclave, incubator, deep freezer, refrigerators, laminar flow cabinet, pH meter, elective balance, slide and overhead projectors, shaker, hitter, puppeteers, etc have been purchased under HEC project & installed in the newly established laboratories for proper utilization.
- Major Equipments: The main equipments like saw mill, wood seasoning plant will also soon be installed in the newly established field lab.
- Safety Regulations: Safety measures are available against fire (Extinguishers), minor hazards and accidents, injuries (First Aid Kit). However, the University maintains a Medical Dispensary for such incidents.

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

Laboratory manuals of each subject are not available. The department library has not all the relevant books and manuals. However, individual teachers have their own books and manuals. Some manuals will be prepared by the academic staff themselves.

Shortcomings in the laboratory

The laboratory is not spacious and inadequate. The equipments purchased will soon be installed in newly established labs Equipments regarding molecular approaches are lacking e.g. Stereoscope, PCR Spectrophotometer, relevant software.

Standard 3.2: *There must be adequate support personnel for instruction and maintenance of laboratory*

Laboratory is maintained by:

The 2 laboratory assistant (responsible for equipment, glassware, chemicals, materials, etc) and one laboratory attendant who assist the students in practical, cleaning and washing, etc.

Standard 3.3: *The university computing infrastructure and facilities must be adequate to support program's objectives*

The University has limited computer facility for undergraduate and post graduate level students. However, this facility is available at the department level to almost all faculty members independently.

Criteria 4: STUDENT SUPPORT AND ADVISING

The University organizes support programs for students and provide information regarding admission, scholarship schemes etc. Department in its own capacity arranges orientation and guided tours of the department. Director Students Affairs is also there and arranges various cultural activities and solves the students' problems. However currently there is no Parent/Teacher association.

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

- a. Courses are taught as per strategy of HEC.
- b. At undergraduate level subjects courses are offered as per scheme of study provided by HEC and approved by Academic Council and at postgraduate level courses are offered according to the availability of the teachers.
- c. Elective courses are offered as per policy of HEC and University

Standard 4.2: *Courses in the major must be structured to ensure effective interaction between students, faculty and teaching assistants*

- Courses are structured and decided among the departmental faculty members and in board of study meeting
- Decided at the commencement of the semester and the faculty members interact frequently among themselves and with students. Students are welcome to ask question in class and even after the class.
- Emphasis is always given for an effective interaction between undergraduate and post graduate students.

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

- Students are informed about the program requirements through the office of the head of the department (Chairman) and through the personal communication of the teachers with the students
- The counseling of the students is continuous process and students can also contact with relevant teachers whenever they face any professional problem.
- Student can interact with the teachers / scientist in Universities or research organization whenever they needed and there is open option for the students to get the membership in the professional societies like WWF-Pakistan, Wetland and Houbra foundation, etc.

Criteria 5: PROCESS CONTROL

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

- The process of admission is well established and followed as per rules and criterion set by University both for undergraduate and post graduate programs

- Admission criteria for undergraduate program: F.Sc. pre medical / pre engineering and marks in last attended certificate.
- Admission criteria for postgraduate program: Sixteen years of education in relevant field/subjects and GAT for M.Phil degree.
- Admission criteria for Ph.D. program: Eighteen years of education in relevant field/subjects and entry test (GRE type) for Ph.D. degree.
- All these entries are based on the recommendations of supervisory committee
- Admission criteria is revised every year before the announcement of admissions

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.*

- In the 4th semester students are allotted different majors (Like forestry, PP, ENTO, etc) by the Dean faculty of FC & FS
- Students are evaluated through Mid, Final and Practical exams and through assignments
- Registration is done once every year at the time of admission while a student once admitted for each degree is evaluated through his result of each semester. If the students fulfill the criteria of the University they are promoted to the next semester.
- In general, the students are registered on competition bases keeping in view the academic and research standards

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 HEC. Induction of all posts is done as per rule.
- Posts are advertised in the national newspapers, and the applicants are short listed on the basis of experience, qualification, publications and other qualities / activities as fixed by the University
- The candidates are interviewed by the University Selection Board and Principal and alternate candidates are selected.
- Selection of candidates is approved by the Syndicate for issuing orders to join within a specified period.
- Induction of new candidates depends upon the number of approved vacancies
- Standard set by HEC are considered
- At present, no procedure exists for retaining highly qualified faculty members. However, the revised pay scales of structure is quite attractive

- HEC also supports appointment of highly qualified members as foreign faculty Professor, National Professors and deposes them in various departments of the University.

Standard 5.4: *The process and procedures used to ensure that teaching and delivery of course material to the students emphasizes active learning and that course learning outcomes are met. The process must be periodically evaluated to ensure that it is meeting its objectives.*

- It is done by periodically revising the curriculum depending upon requirements, innovations and new technology.
- With the emergence of new fields, new courses are set and included in the curriculum
- Students usually buy cheap Asian editions of technology books. These are also available in the University library where documentation, copying and internet facilities are available off and on.
- Students make their own notes using class notes and consulting library books and journals.
- All efforts are made that the courses and knowledge imparted meet the objectives and outcomes.

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.*

- According to the examination system of the University which is clearly documented.
- The evaluation procedure consists of quizzes, mid and final examinations, practical, assignments and reports, oral and technical presentations.
- The controller of examinations announces the date regarding commencement of examination. After each semester, the controller office notifies results of the students.
- The evaluation procedure consists of quizzes, mid and final examinations, practicals, assignments, reports, oral and technical presentations.
- The minimum pass marks for each course is 40% for Master of Philosophy degree and 50 % for Ph.D. in theory and practical, separately.
- In theory, weightage to each component of examination is as prescribed here under:

Mid Examination 30%
 Assignments 10%
 Final Examination 60%

- Grade points are as follows

Marks Obtained	Grade	Grade point	Remarks
80-100 %	A	4	Excellent
65-79 %	B	3	Good
50-64 %	C	2	Satisfactory
40-49 %	D	1	Pass
Below 40 %	F	0	Fail

- Gold medals are awarded to the students who secure highest marks. Degrees are awarded to the students on the convocation that is held every year

Criteria 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 interests and qualifications of all faculty members must be sufficient to teach all courses, plan, modify and update courses and curricula. All faculty members must have a level of competence that would normally be obtained through graduate work in the discipline. The majority of the faculty must hold a Ph.D. in the discipline.*

Currently there are eight full time faculty members out of which five are Ph.D. There are currently involve in Phd. The field of specialization of faculty members is Forest Management, Forest Ecology, Range Management, Watershed Management, Agro forestry/ Social Forestry, Forest Biomass estimations, Carbon Sequestration assessments and wood technology (Table 9).

Table 9: Faculty distribution by program area in Forestry & Range Management

Program area of specialization	Courses in the area & average number of sections per year	Number of faculty members in each area	Number of faculty with Ph.D. degree in each area
Forest/Agro-forest Management	10	4	1
Forest/ Range ecology & Management	9	3	3
Watershed Management	3	-	-
Wood technology	2	-	-
Forest Carbon Budgeting	1	1	1
Total	25	8	5

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

- In each semester mixed courses are offered according to work load of faculty members
- Division of students for supervision is made on the basis of faculty expertise/research interests

Existing faculty development programs at department and university level

- From the project “strengthening of Forestry & Range Management department” two faculty members got chance for abroad for their professional development
- Faculty members attended workshops/seminars out side and within university
- Laboratory, Library and internet facilities are available for scholarly work and academics improvement
- Support for attending conferences can lead to enhancement of research initiatives at the university.
- There is university-funded program, which provides financial support for research projects by the young faculty members

Frequency of faculty program evaluation

- As and when required

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

The young faculty is mobilized by timely back up and appreciation by the senior faculty members. Avenues for research funding are provided through university research fund.

There should be the programs and processes in place to attract good faculty members e.g. teaching and research awards annually, reasonable teaching load and class size, social activities and better salary package.

Results of faculty survey employing Proforma 5 (Annexure-V) were summarized and are given Table 12. It was filled by all the 6 faculty members during year 2009-10(Two faculty members are outside the country on study leave)

The results showed satisfaction of the teachers over most of the parameters. However, level of monitoring, cooperation with colleagues and the cooperation of teachers needs to be addressed.

Table 10. Results of the Faculty Survey (Proforma - 5)

S.No	Core Questions	Prof. Dr. Sarwat	Dr. Irshad	Dr. S.M. Nizami	Dr. Aamir Saleem
1	Your mix of research, teaching and community service.	B	B	B	B
2	The intellectual stimulation of your work.	B	C	B	B
3	Type of teaching /research you currently do.	B	C	B	C
4	Your interaction with students.	A	B	A	A
5	Cooperation you receive from colleagues.	B	B	A	D
6	The mentoring available to you.	C	C	A	C
7	Administrative support from the department.	A	A	A	A
8	Providing clarity about the faculty promotion process.	A	B	C	D
9	Your prospects for advancement and progress through ranks.	A	C	C	B
10	Salary and compensation package.	B	B	B	D
11	Job security and stability at the department.	A	A	B	A

12	Amount of time you have for yourself and family.	C	C	B	B
13	The overall climate at the department.	B	A	B	B
14	Whether the department is utilizing your experience and knowledge	A	A	B	A
15	What are the best programs/ factor currently available in your department that enhance your motivation and job satisfaction:	Cooperation of all faculty	Cooperation from Dean	Cooperation from Dean	Cooperation from Dean
16	Suggest programs /factors that could improve your motivation and job satisfaction?	Provision of Infra structure, Vigilant monitoring	Provision of more budget.	Easy access to field tours & Research	House hiring & SPS

A= Very Satisfied; B= Satisfied; C= Uncertain; D= Dissatisfied; E= Very Dissatisfied

Criteria 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. Insufficient library's technical collection of books. Recommended books and relevant journals of the programs are not available to the students. These aspects need to be strengthened in number and space. Class rooms must be adequately equipped and offices must be adequate to enable faculty to carry out their responsibilities.

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

Supportive Infrastructure and Facilities in learning:

- a. The labs. are available in the department and students sits in them for reading and research.
- b. Hot & Cold facilities, Dept. library with easy access make working/ research/ study environment conducive for higher learning. Unfortunately such facilities are not adequately / properly available and there is no continuity in their delivery.

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.*

- First of all library do not have space capacity as per number of students in the University.
- Secondly technical book collection is general not specifics to courses offered and books not properly arranged rather lying haphazardly.
- Thirdly scientific journals in take are negligible that is back bone of any scientific/technical writing.
- Fourthly library is not computerized and internet facility is very meager to the number of students at university level.
- Fifthly library should remain open from 08am to 10pm without any break including Sunday's.

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

The properly designed classrooms are less in number and are without proper maintenance and facilities. They are not updated according to new trends/ technologies. Most of the graduate & post graduate (Major) classes held in labs which badly affects their research use. Similarly faculty offices are very less in number and not fully furnished to make working environment comfortable, rather they are over crowded and unattended on the part of works & finance department.

Criteria 8: INSTITUTIONAL SUPPORT

The university administration has been struggling hard to strengthen all the Departments, upgrade them and establish 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*

There is no proper maintenance/ documentation and investment of GPF deducted from salary. Similarly no benefit/ welfare from BF deduction available to faculty. Very meager benefit for faculty children's education at university level is available. Similarly very little attention is being paid for faculty residential facilities development at university campus and major proportion of the facility available mostly allotted to administrative staff and majority of faculty members remain in waiting list for a long time. Transport facility is not frequently and easily available for field works/ touring. Financial support is too low to meet the expenses in dept., only about Rs. 26000/- is available per annum for office and lab expenses including student's research.

Technical Staff: Works and internet net working depts. are very slow in response. Financial and accounting depts. are also slow in their delivery.

Office equipment: Sufficient office equipment is available to under take teaching and research activities.

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

The intake of B.Sc. (Hons) and M.Phil students is once in a year. However Ph.D. students are enrolled in each semester. A strict merit policy is applied during admission Coupled with GRE/NTS . A detail of the students enrolled in the year 2009-10 is given in Table 11.

Table 11: Enrollment in Different Programs from 2009-10

Year	No. of Graduate students		Research assistants	Ph.D. students for last 3 years
	M.Phil	Ph.D.		
2009	17	7	0	5
2010	15	9	0	4
Total	26	16	0	9

Graduate students and Faculty Ratio for 2009-10

Year	Faculty Nos.	Students Nos.	Ratio
2009	6	54	1 : 9
2010	7	58	1 : 8.2

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

The amount of about Rs. 32000/- per annum for books, laboratories and equipment and computer maintenances and consumable supplies etc in addition to projects funding if available is considered sufficient. Otherwise it is too low to maintain and run the departmental business and dept has to depend on central store for necessary supplies and maintenance.

SUMMARY AND CONCLUSION

The Department of Forestry and Range Management (F&RM) is offering the degrees of M.Phil & Ph.D (Forestry & Range Management) at post graduate level. The department has been mandated to focus arid and semiarid regions in teaching and research and take into account the dynamics of land degradation, with special emphasis on improving / solving the problems of rangeland degradation, deforestation and proper management of the natural resources. The program mission of the department is in consonance with outlined objectives and the elements of the strategic plan to achieve mission and objectives of degree programs are clearly spelled out. Various criteria have been in place to assess the program objectives within the institutional framework/set up.

The Self Assessment Report (SAR) of the degree programs prepared by the Department of F&RM reflects well the ambition of fulfilling the criteria set by HEC for the award of the degree programs. It is silent about the name and number of CBO's involved in R&D and their significant willingness / contribution if any, in accepting the research guidance and recommendation of the department with whom effective collaboration of the Department exists. However the increasing number of workshops and seminars organized by the department are indicative of the progression in this regards.

The quantitative assessment of the department for the last three years is impressive in various categories of the degree programs thus fulfilling the HEC criteria. Various surveys based on QEC questionnaires conducted by the Department are indicative of the successful attempts of the department to achieve degree program objectives. Each faculty member has been evaluated in terms of teaching experience, research, publications and satisfaction level depicted by the students.

Faculty stability computed index was found corroborative with the working environment which was rendered good and qualitative. Full time faculty requirements include one Timber Expert and one Watershed Management expert. At present, there is only one leave vacancy. Teaching load on faculty members is variable and justified as per HEC standard. Students Assessment instruments are adequately used by the faculty members.

No system of teachers training is in place at the University / department level. So far, two Ph.D students were supervised by HEC approved professors. At present four M.Phil students are being supervised by each faculty member on an average.

Faculty has been learnt to use variety of appropriate instructional techniques and dialogue and discussion in class rooms is predominantly followed. Faculty performance summary as reflected in the SAR is impressive and ranges between 3.67 to 4.18 (out of 5).

Curriculum contents of the offered degree programs are compatible with changing and emerging need to the extent of 10% and its objectives are supportive to the degree programs. The curriculum of undergraduate as well as post graduate level is revised regularly in the light of HEC and international requirements. Textbooks and reference material are available in the University library but inadequate to cater for the demand by students and lack recent new editions. Course evaluation system is effective and in place in the department and has been aptly reflected in the SAR. Course files are regularly and properly maintained and submitted to QEC for timely appraisal and record. Record is indicative of the Meeting of Board of Studies / Faculty which is held regularly and in the last two years, changes in the curriculum and subsequent updating has been suggested thrice. Stakeholders feedback is incorporated in the curriculum as reflected in HEC Performa 8 in SAR. The SAR is silent on the courses of agriculture for first four semesters taught to students of the B.Sc Hons majoring in Forestry and Range Management as Curriculum requirement for the degree offered.

Laboratory manuals for some important instruments were not available in laboratory. The lab support staff for adequate and timely instructions / supervision, in-situ work and maintenance of laboratory is lacking. Annual budget allocation for operation and maintenance of lab is negligible (Rs. 10000 only). No chart exhibiting precautionary steps / measures while using sophisticated instruments and chemicals in laboratory was on display.

The budget for department library is inadequate and annual allocation is negligible (Rs. 5000 only). The Book Bank does not exist even at the University level.

The department computing infrastructure and facilities were inadequate to the faculty members. Students' access to various facilities was found insufficient, limited and restricted in the Central Library of the University. Local and foreign journals pertaining to the department discipline are either non-existing or available in meager number.