



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

DEPARTMENT OF BIOCHEMISTRY

M.Sc. Degree Program

**Self Assessment Report
(2012-2014)**

Program Self Assessment Team

Prof. Dr. Muhammad Gulfraz

(Coordinator)

Dr. Muhammad Javaid Asad

(Member)

Dr. Muhammad Sheeraz Ahmad

(Member)

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Introduction

The discipline of Biochemistry in PMAS-AAUR was initially introduced under Department of Biological Sciences in 1998 and as a separate Department in 2003. Different ongoing degree programs in Biochemistry are; Ph.D, M.Phil, M.Sc. and BS initiated in 2001, 1998, 2006 and 2011 respectively. The program of Biochemistry is designed to provide necessary skills and knowledge in applying biochemical and molecular approaches for solution of problems related to health, agriculture, environment and biotechnology.

The Department of Biochemistry has the privilege to recruit highly qualified and competent faculty with doctorate/post doctoral experience from reputable International Universities/Institutes. There are eight regular faculty members having specialization in the field of Biochemistry, Environmental Biochemistry, Molecular Biology, Biotechnology, Protein Chemistry and Enzymology. Presently the department has a total enrollment of strength of 412 students in different degree programs.

The curriculum of Biochemistry is designed based on international standards with highly competitive and advanced courses. The courses offered provide students an extensive exposure of Biochemistry, Molecular Biology and Biotechnology with updates on future challenges. With the latest development in the field of Biochemistry, Molecular Biology and Biotechnology, the Department regularly updates its curriculum by keeping in view the recent advances in Biochemistry. As a result the Department has established good reputation in a very short period of time. Under Biochemistry discipline, the department is not only conducting its own degree programs but also offering compulsory taught courses to various departments in FoS, FC&FS and FV&AS at BS, M.Sc, MS, M.Phil and PhD levels. Under Biochemistry discipline a total of 872 graduates have been produced till 2014 including 742 M.Sc, 108 M.Phil and 22 PhDs.

All Biochemistry faculty members are HEC approved supervisors for Indigenous Ph.D. programme. Under this program 11 PhD scholars have successfully completed their degrees while 24 are at various stages of their research work. Besides faculty members have earned 20 personal research grants from various funding agencies of which 9 research projects are already completed, 11 are ongoing while 11 are submitted/under review. The faculty has 483 publications including 380 full length research publications in impact rated journals, 200 other publication and 3 books. The total impact factor of the Biochemistry faculty is 486.

Along with regular academic activities, the Department of Biochemistry has the tradition to conduct scientific conferences/workshops/symposia/seminars to train young scientists with modern techniques in Biochemistry, Molecular Biology and Biotechnology. Uptill now the department has organized 3 conferences and 13 workshops/seminars. To strengthen the academic and research activities, Biochemistry faculty has established active international scientific collaborations with University of California Davis (USA), Iowa State University (USA), University of Michigan (USA), Fayetteville State University (USA), Reading University (UK), University of Waterloo (Canada), McMaster University (Canada), University of Salzburg (Austria), Uppsala University (Sweden), Ghazi University (Turkey), Institute of Agra Technik Potsdam (Germany), Denmark Technical University (Denmark), University of Bologna (Italy). The Department has developed active collaborations with large number of National Universities and Research Institutes.

SECTION 1:

Components of Self Assessment Process:

This Self Assessment Report has been prepared on the basis of following eight criteria as described in Self Assessment Manual.

Criterion-1: Program Mission, Objectives and Outcomes

Mission Statement for M.ScBiochemistry:

Mission for M.Sc Biochemistry is to give theoretical and practical knowledge of Biochemistry, Molecular Biology and Biotechnology through quality teaching and experimental exposure.

Standard 1-1: Documented Measurable Objectives

1. To carry out quality teaching and research
2. To train young scientists with advanced techniques/tools in Biochemistry and Molecular Biology

Expected Outcomes

1. To produce M.Sc. students highly competent in the fields of Biochemistry
2. To make the students able to handle the different techniques independently.
3. To make students to apply their knowledge in applied fields.

Main Elements of Strategic Plan to Achieve Mission and Objectives

1. Development of a sound teaching system for the award of degrees based on the experience and vision gathered from world reviews, literature, innovations, proceedings, and symposia etc
2. Setting up of well equipped specialized laboratories depending on the available resources.
3. Designing and constantly updating the curricula involving core subjects, elective subjects and specialized areas and study tours.

TABLE-1: PROGRAM OBJECTIVES ASSESSMENT

S. #	Objective	How Measured	When Measured	Improvement Identified	Improvement made
1	To carry out quality teaching and research	On the basis of evaluation by students.	It is a continuous process as per requirement	Course Contents	Course contents time to time and more audio visuals aids are being improved
2	To train young scientists with advanced techniques	Pre requisite information and status of	At the end of semester	Regular update curriculum	Revision of curriculum as per requirement.

	in Biochemistry and Molecular Biology	knowledge of researchers and students, through entry tests and student feed back			Scheme of Studies revised from time to time
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TABLE-2 STANDARD 1-2: OBJECTIVES VS OUTCOMES

	Objectives		
	Sr. No.	1	2
Outcomes	1	+++	+++
	2	+++	++
	3	++	+++

Key: ++ = Relevant

+++ = Highly Relevant

The program outcomes are fully supportive to program objectives mentioned above.

Outcomes are based on actual details obtained from department documents.

Program Assessment Results:

It is important for student progress to be consistently evaluated and reported in relation to curricular outcomes. Information derived from the fair assessment and evaluation of students provides valuable information on the student success in relation to curriculum expectations and identifies areas of strength and challenges at the student, department and university level. At the same time, it is also important to get the feedback from the students in the form of course/instructor assessment. These assessments via performa no 1 and 10 (as per PMAS-AAUR rules) serves as an overarching framework that provides a way to structure, evaluate and improve the learning experience of our students across all programs being offered by Department of Biochemistry.

The 4th SAR for M.Phil and PhD programm assessment is divided into four sections;

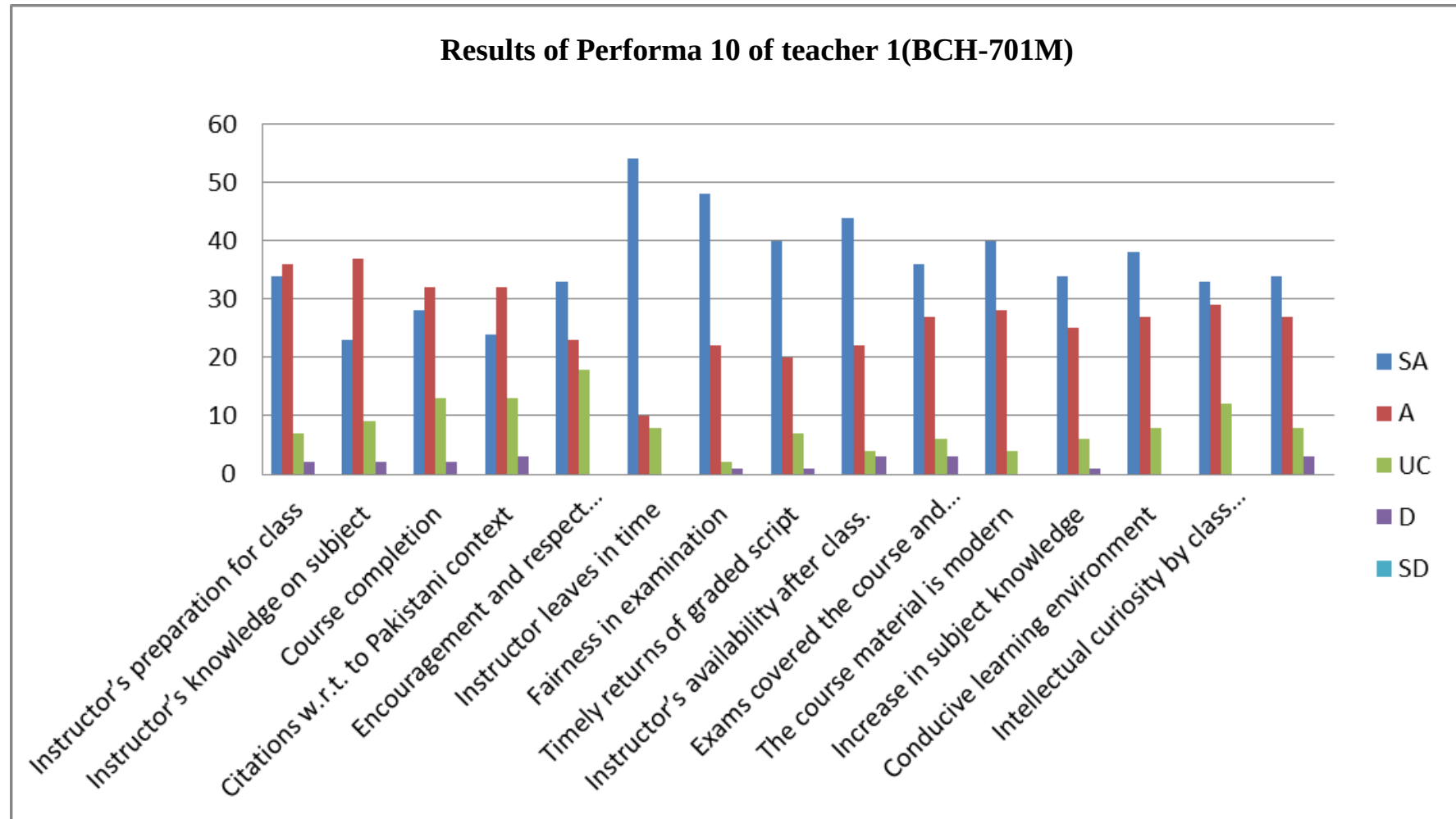
1. Assessment results of Fall, 2012
2. Assessment results of Spring, 2013
3. Assessment results of Fall, 2013
4. Assessment results of Spring, 2014

Each assessment covers a semester and is further divided into two sections, which deals with performa no 1 and 10, respectively.

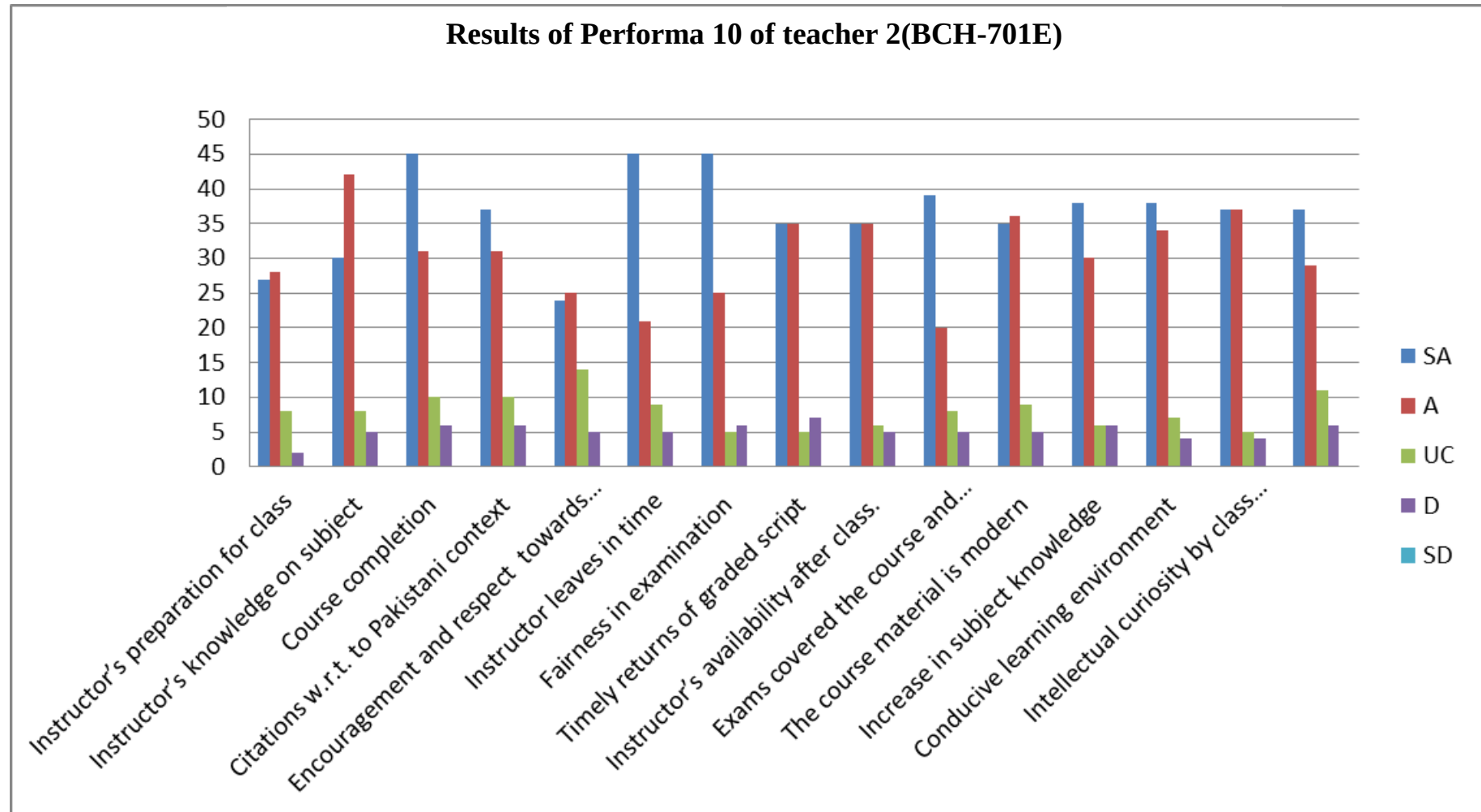
Teachers Evaluation Fall Semester 2012

Overall Results of Performa 10 of Teacher 1to 7

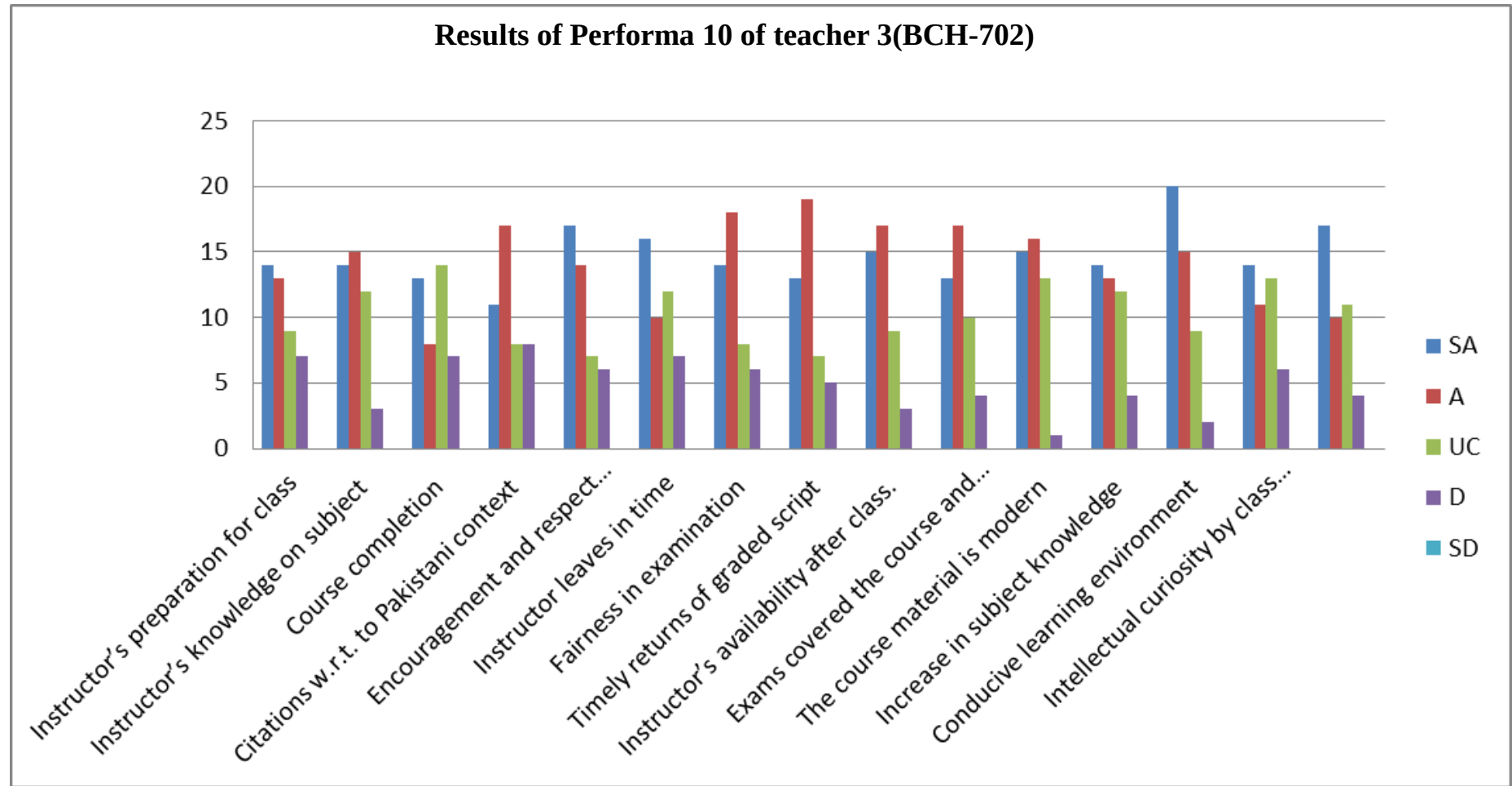
The teachers were evaluated by the students at the end of the semester in accordance with Proforma-10. In the graph teachers are represented as 1and 2 instead of mentioning their names. Results and performance of individual teachers will follow.



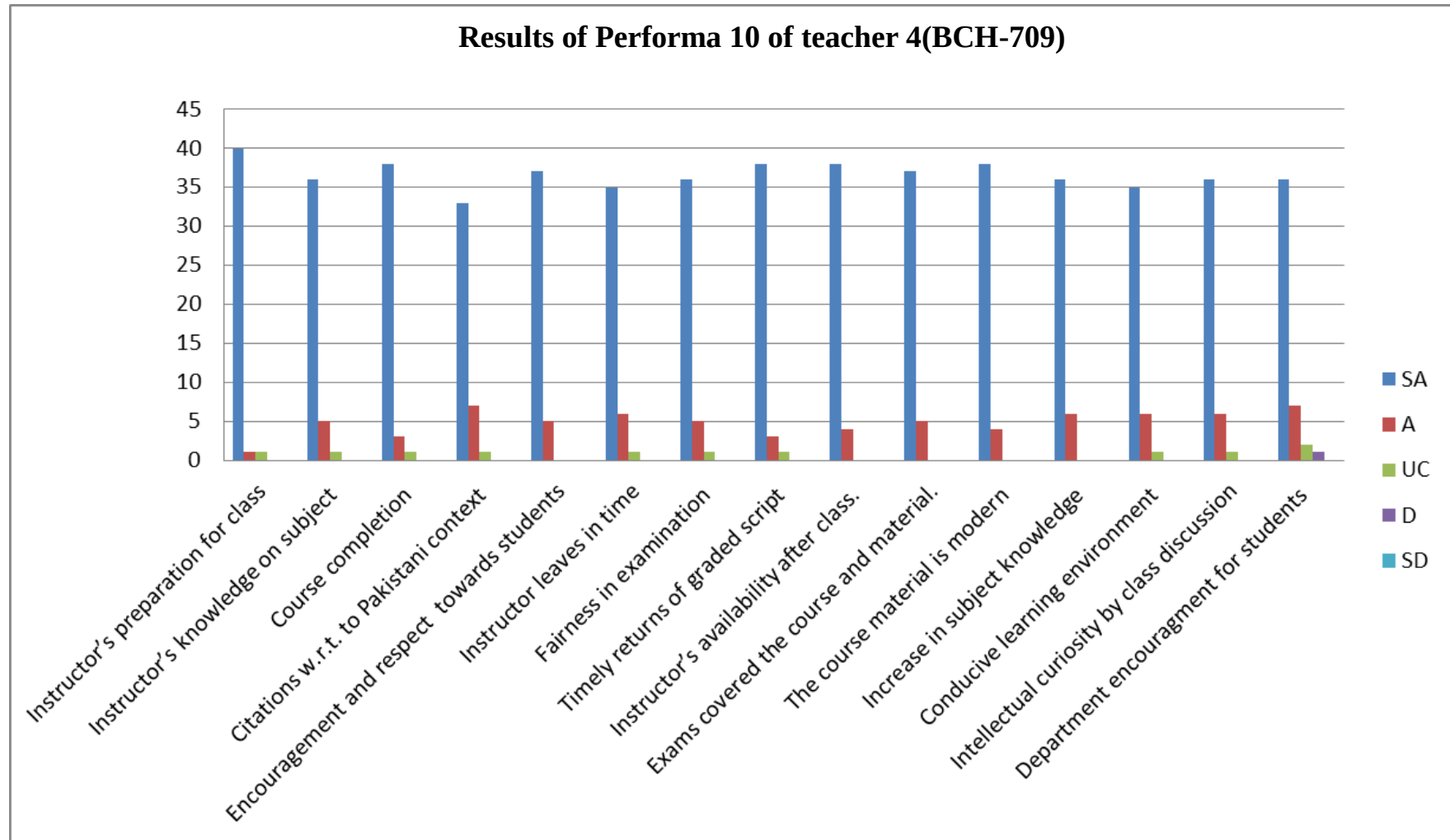
The strongest point which students like about teacher 1 is that he leaves class in time and he was fair in exams.



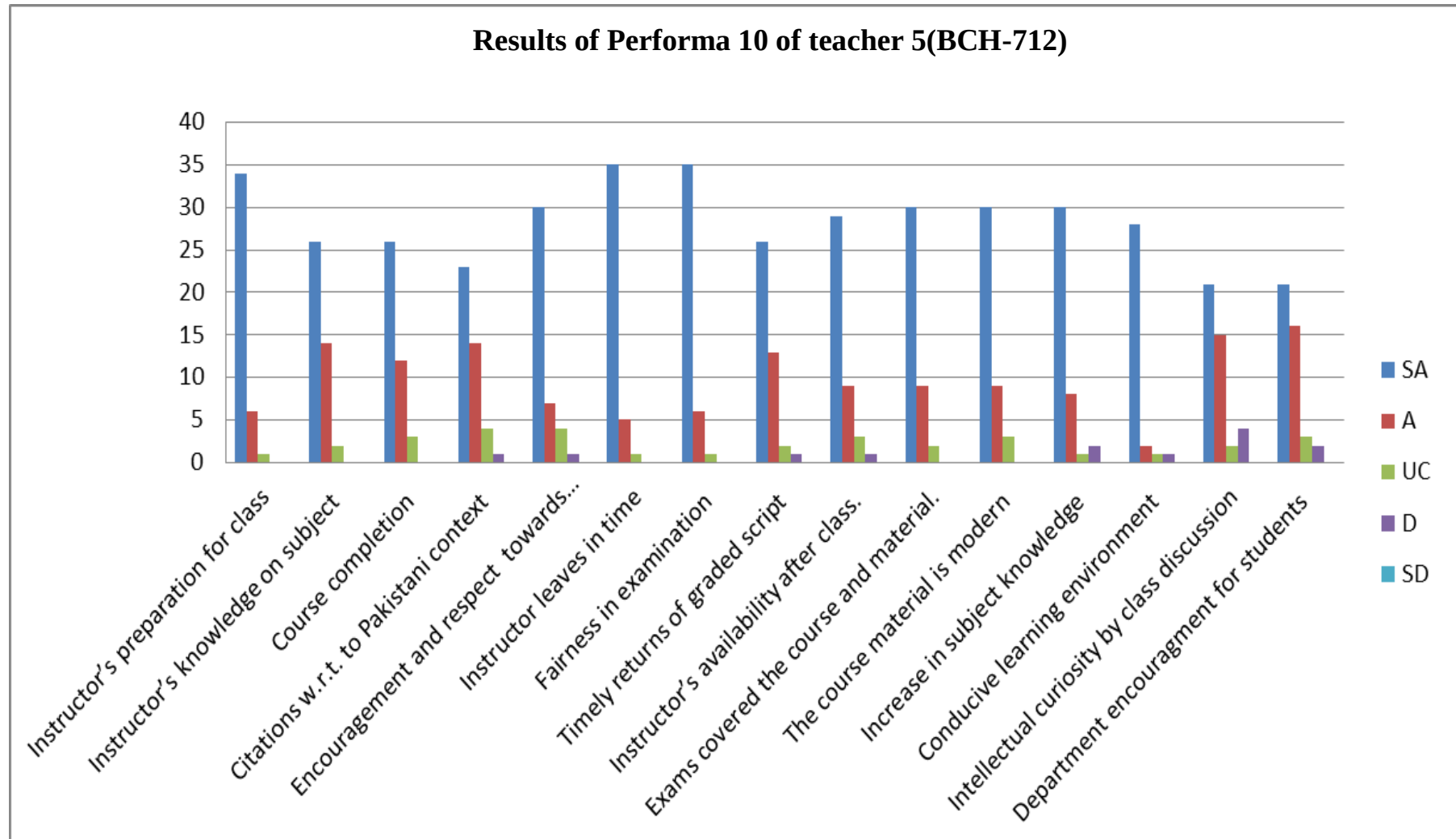
According to students, teacher 2 completed the course contents in time, leaves the class in time and he was not biased in exams.



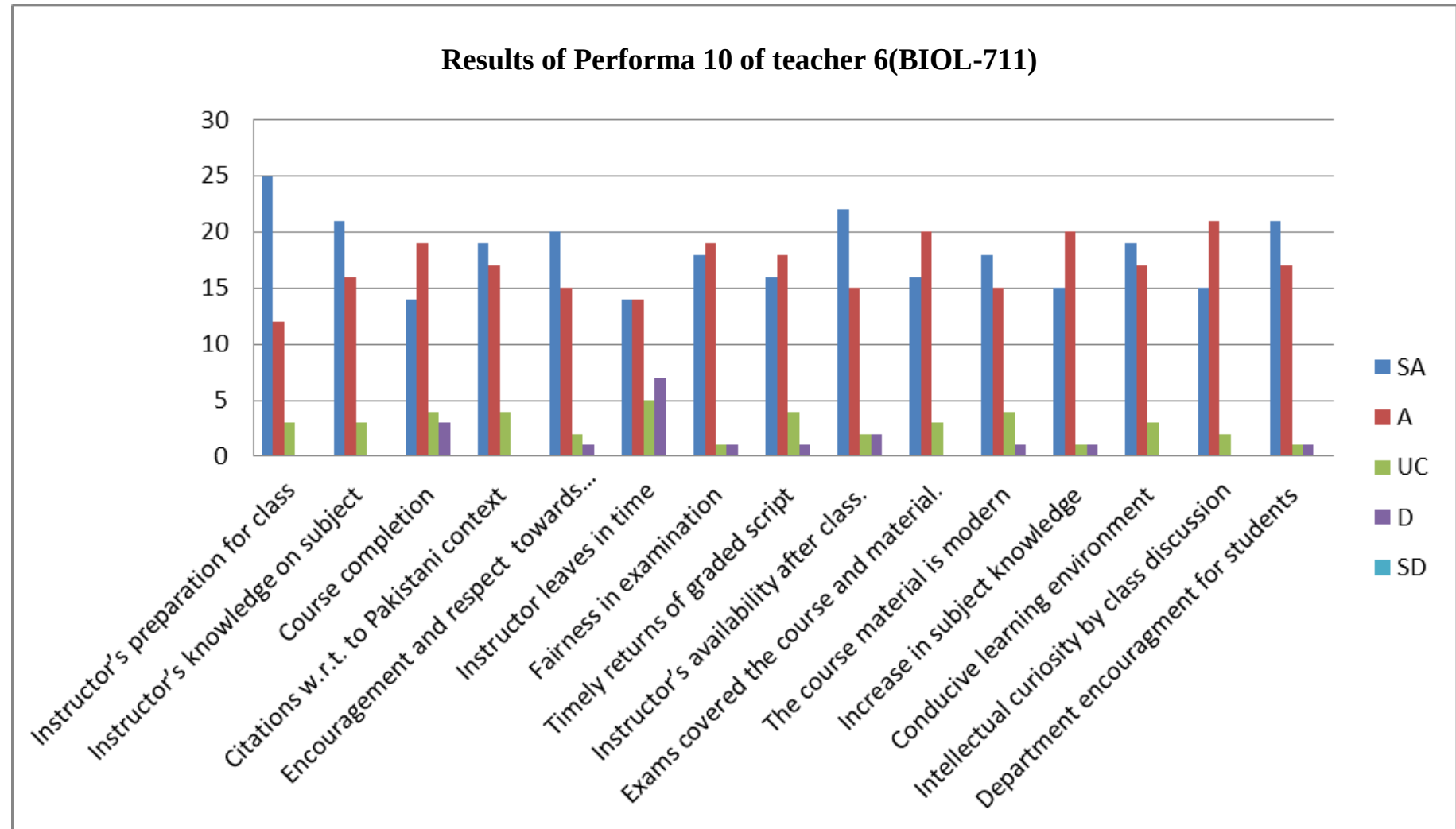
The strongest point which students like about teacher 3 is that he created conducive learning environment in the class and he encouraged students for asking questions about subject.



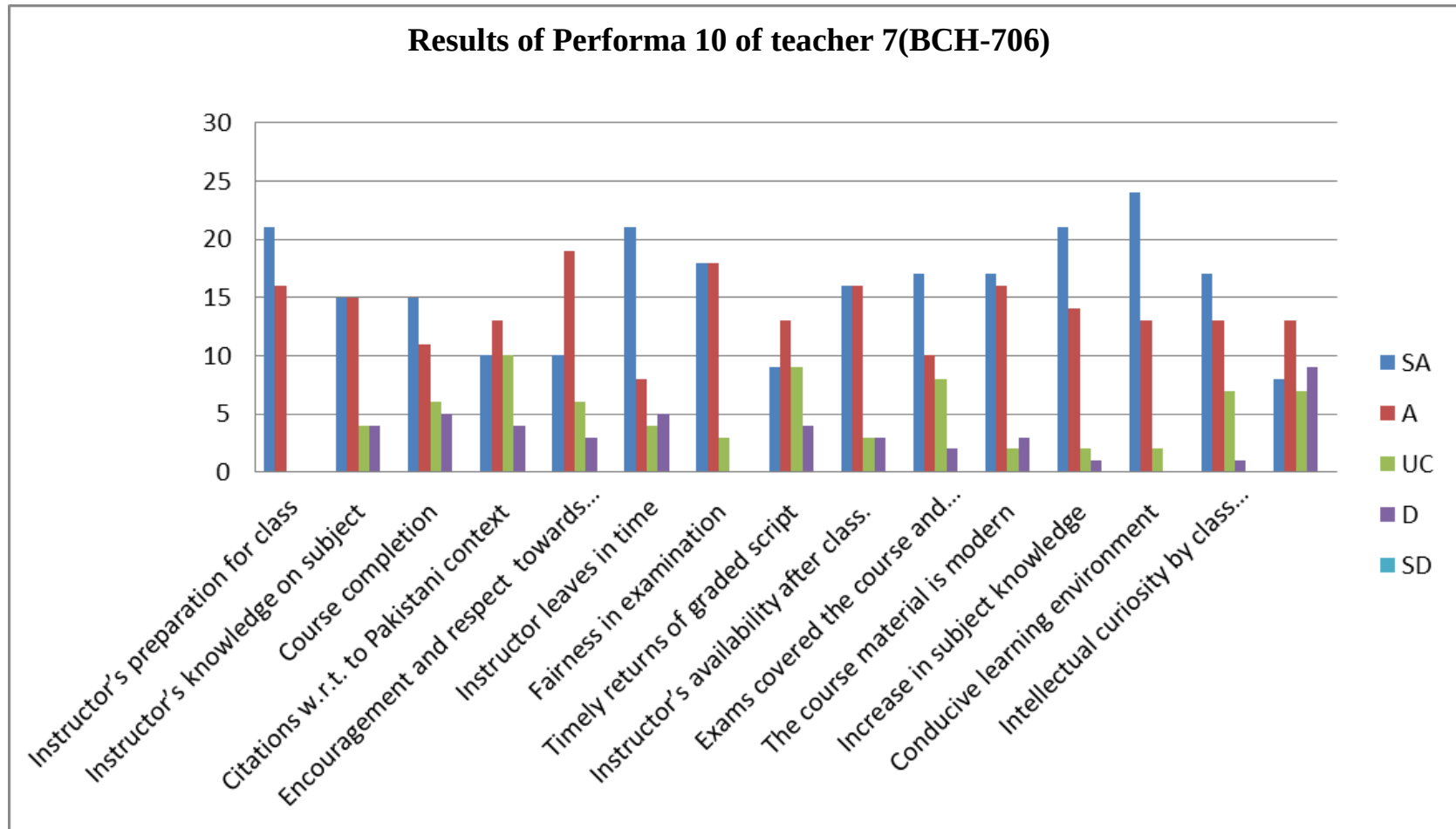
According to result of performa 10, the teacher 4 was punctual, well prepared for the class and the provided material was modern and up to date.



The strongest point which students like about teacher 5 is that he was well prepared for class, leaves the class in time and exam was conducted fairly.



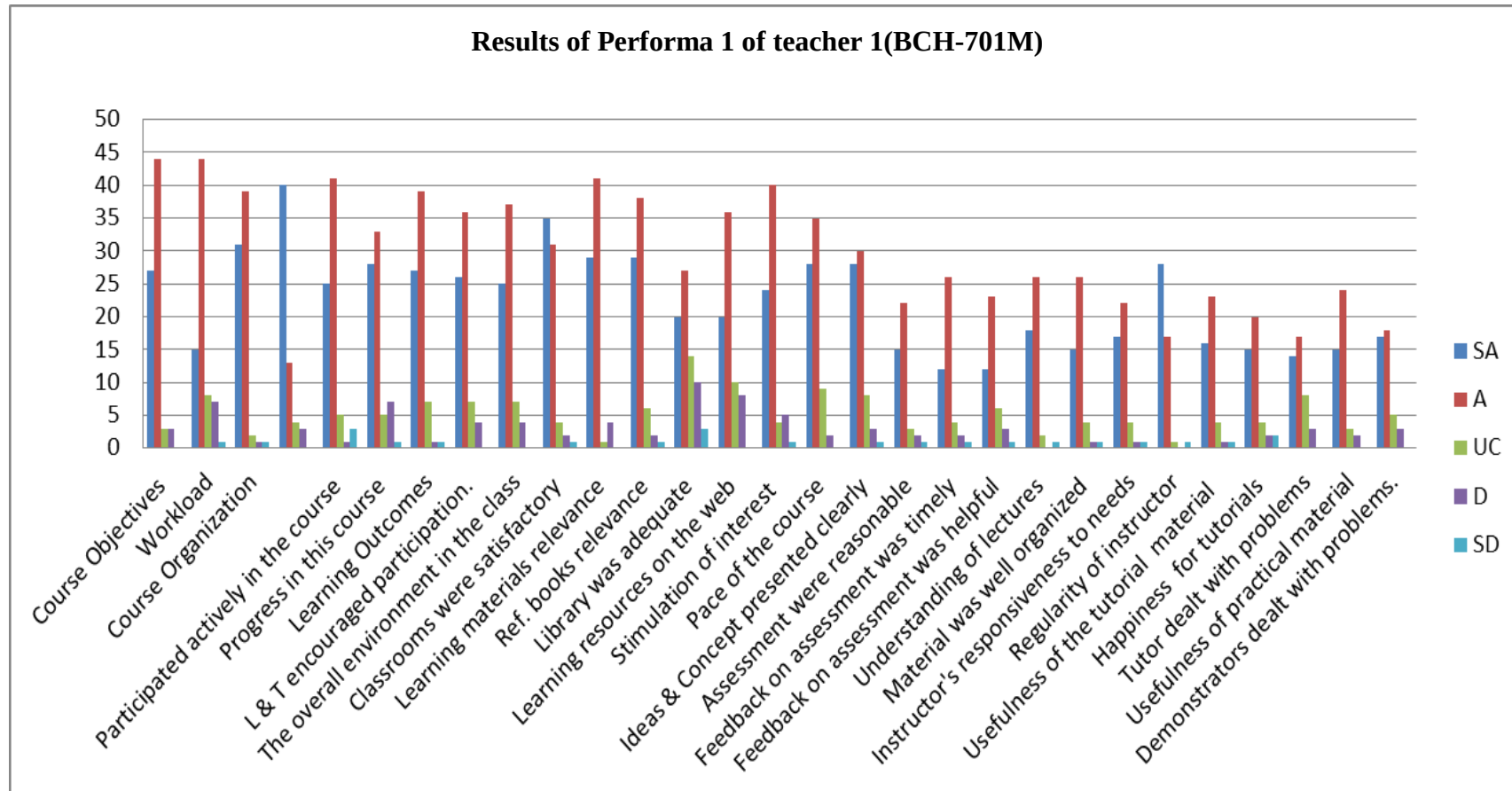
The results of performa 10 shows that the instructor was well prepared for the class and he was available after the class.



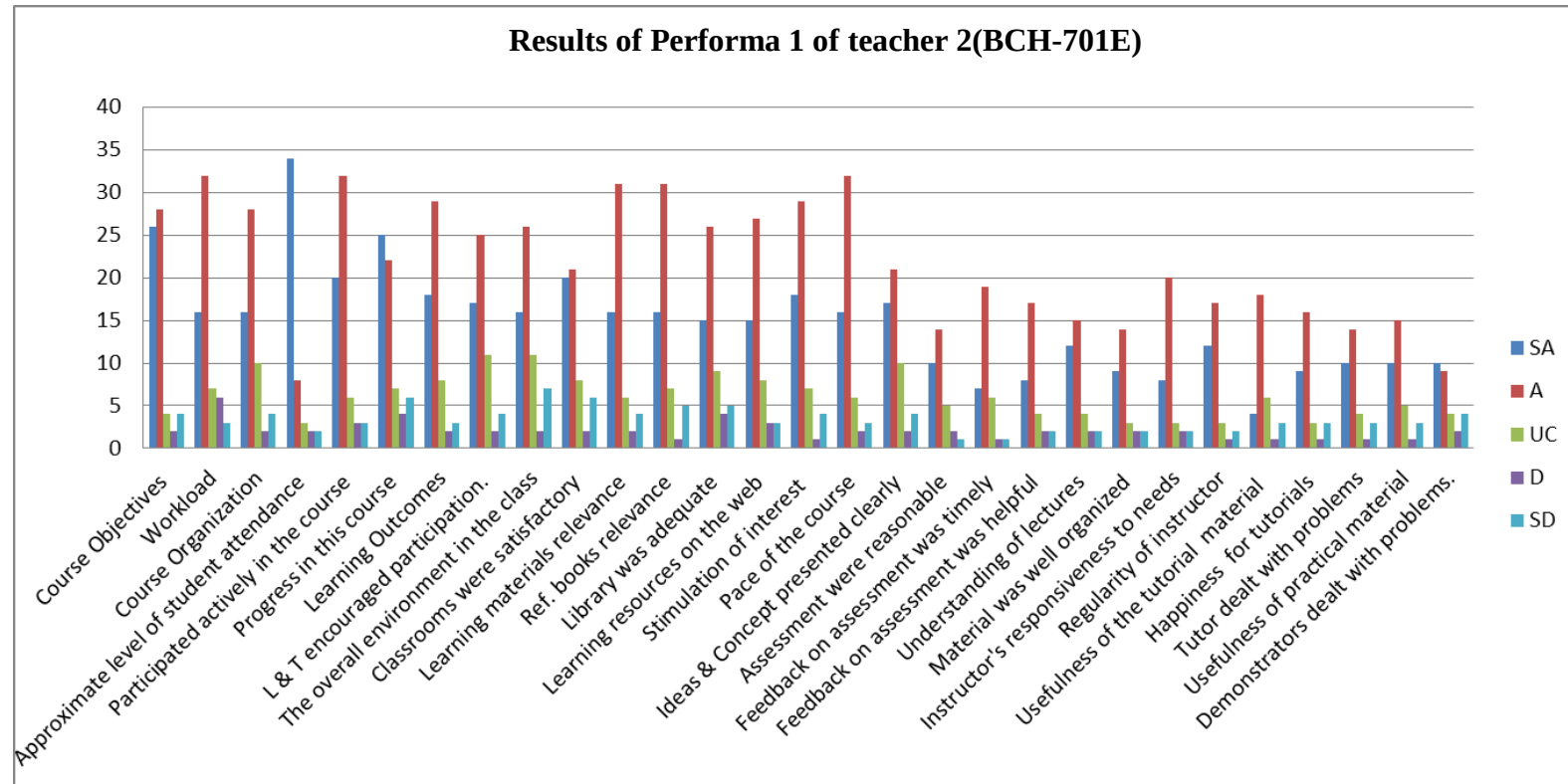
The strongest point which students like about teacher 7 is that the instructor created conducive environment for learning and he was well prepared for the class.

Student Course Evaluation Fall Semester 2012:**Over all Results of Proforma No. 1 Teacher 1 to 7**

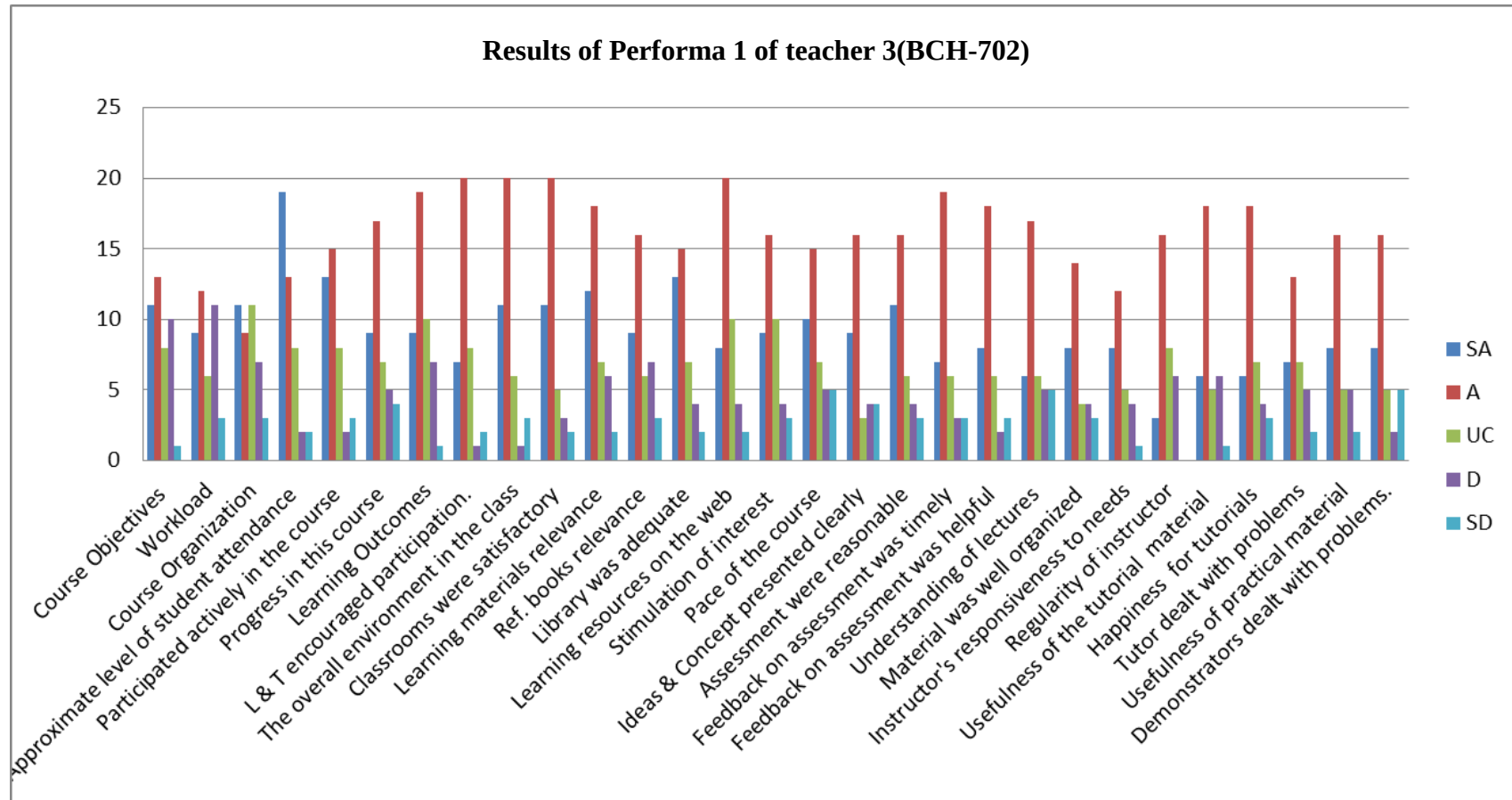
Performa No. 1, deals with study of course observation regarding design of course contents (both theoretical and practical), its relevance with subject and teaching material. It also emphasizes on instructor's role in, not only completing course within given time frame, but how instructor developed student's interest in this course, used updated literature and was fair in evaluation at the end of a study course.



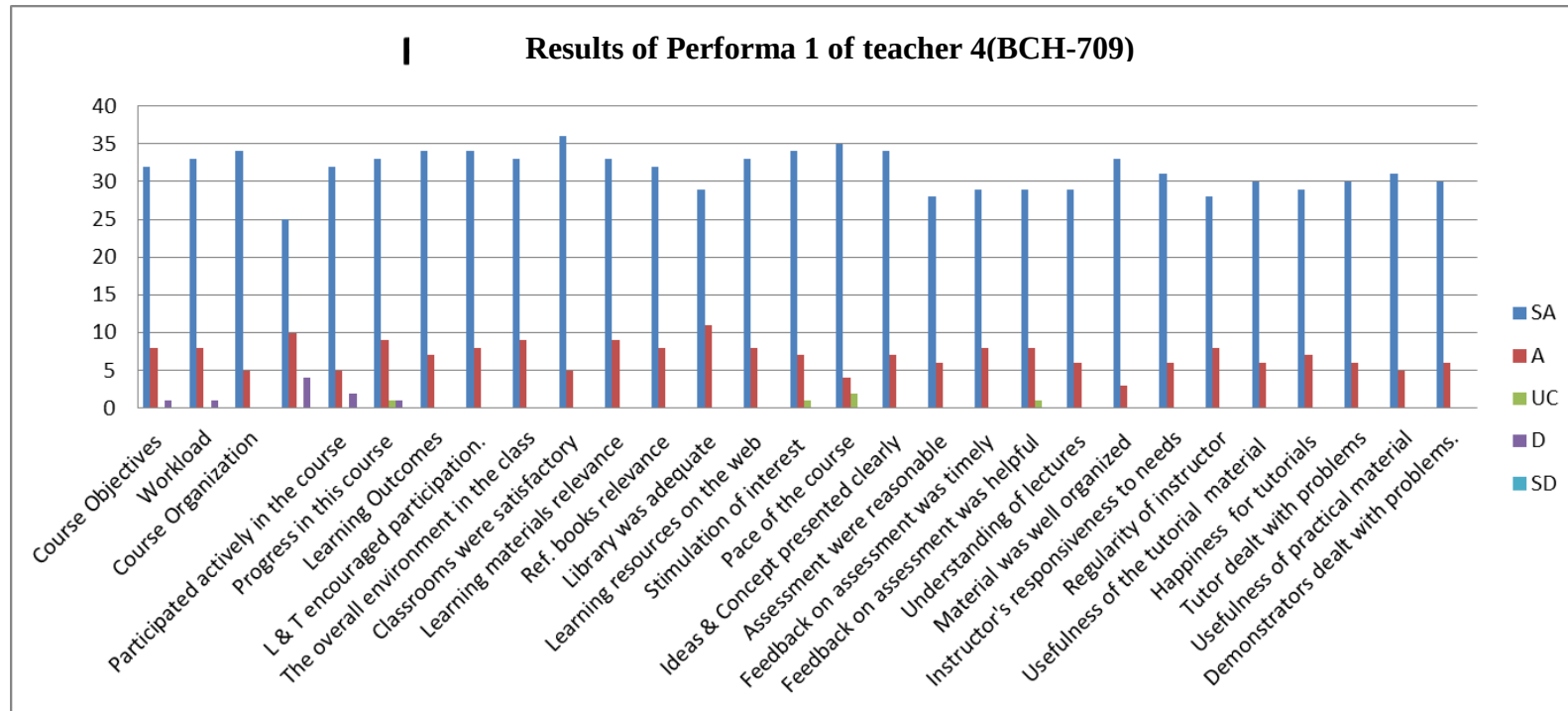
Depending upon the results of performa 1, students participated in course and class room environment was satisfactory.



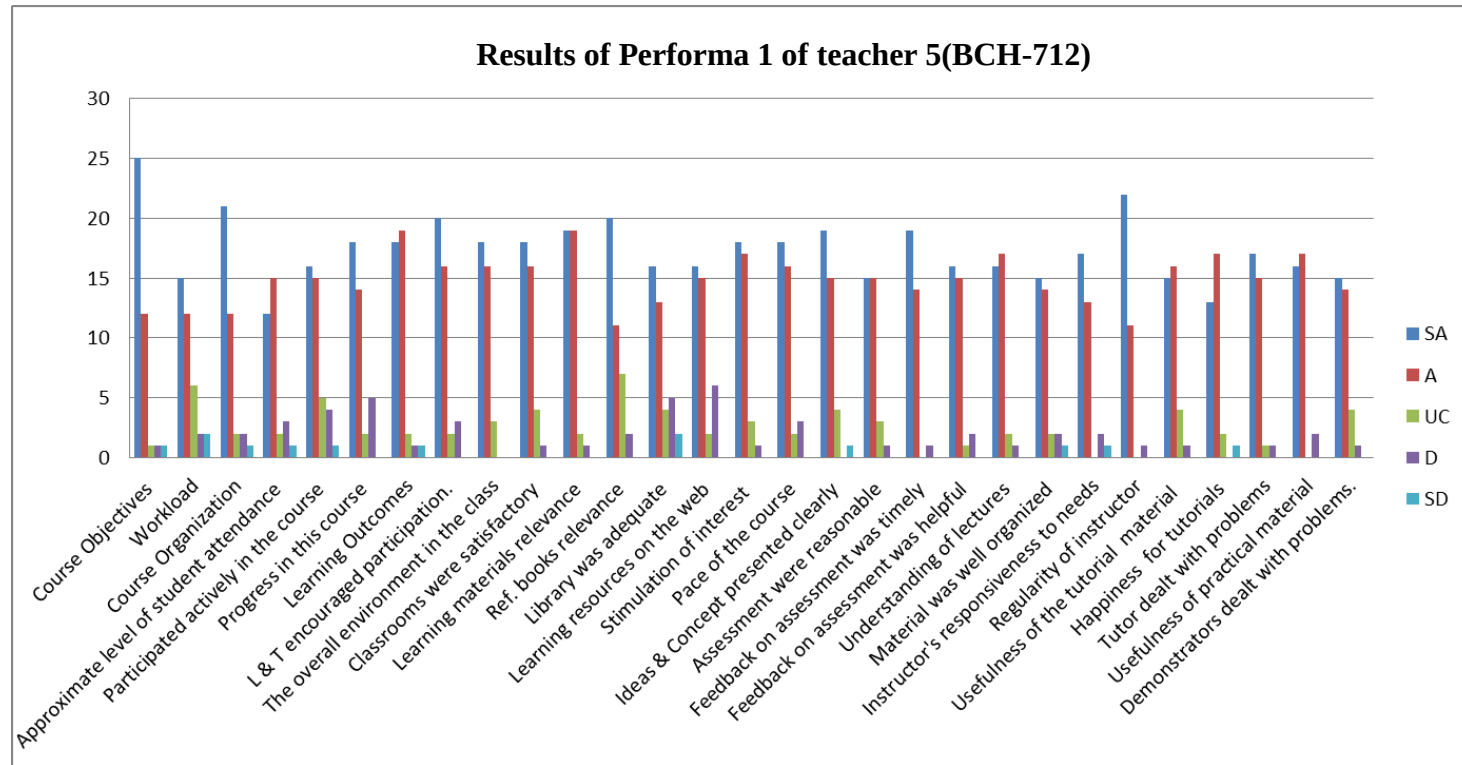
The performa 1 shows that the overall result of the course is good in terms of students' punctuality and all the objectives were achieved.



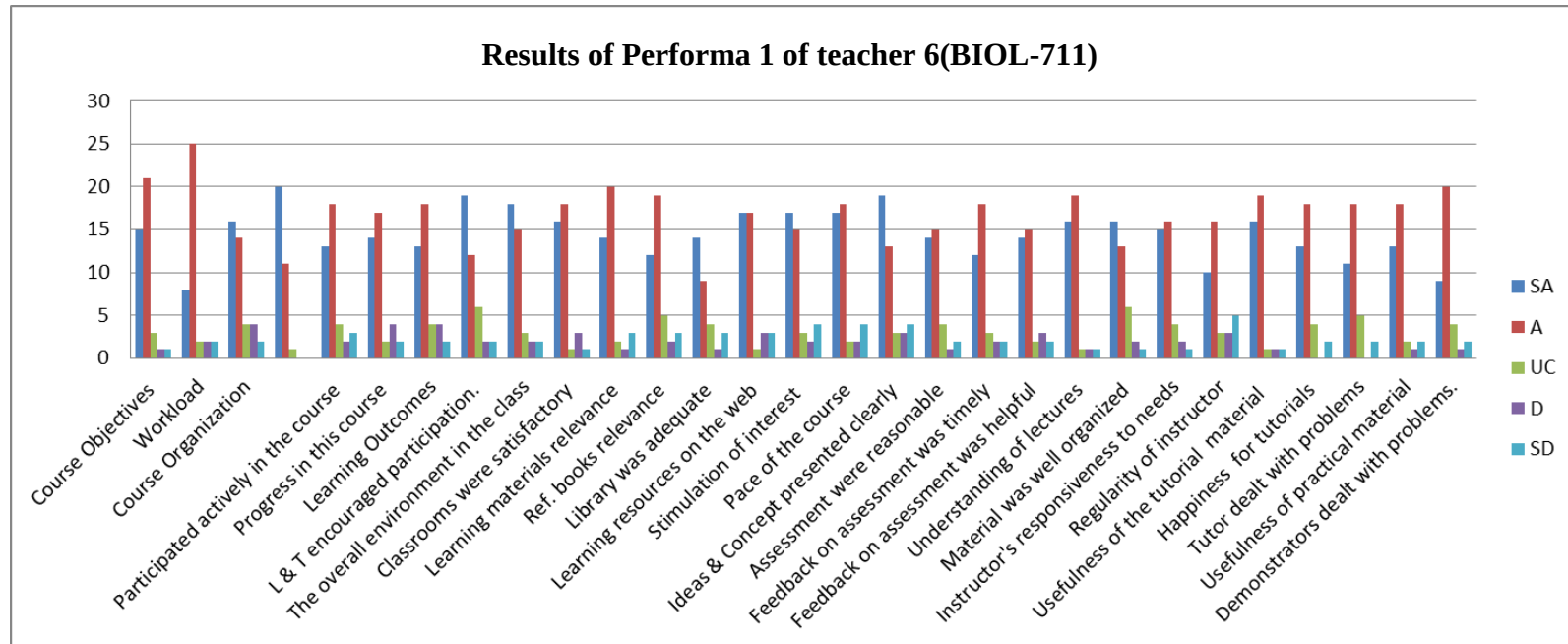
Depending upon the results of performa 1, students participated actively in the course and they were punctual.



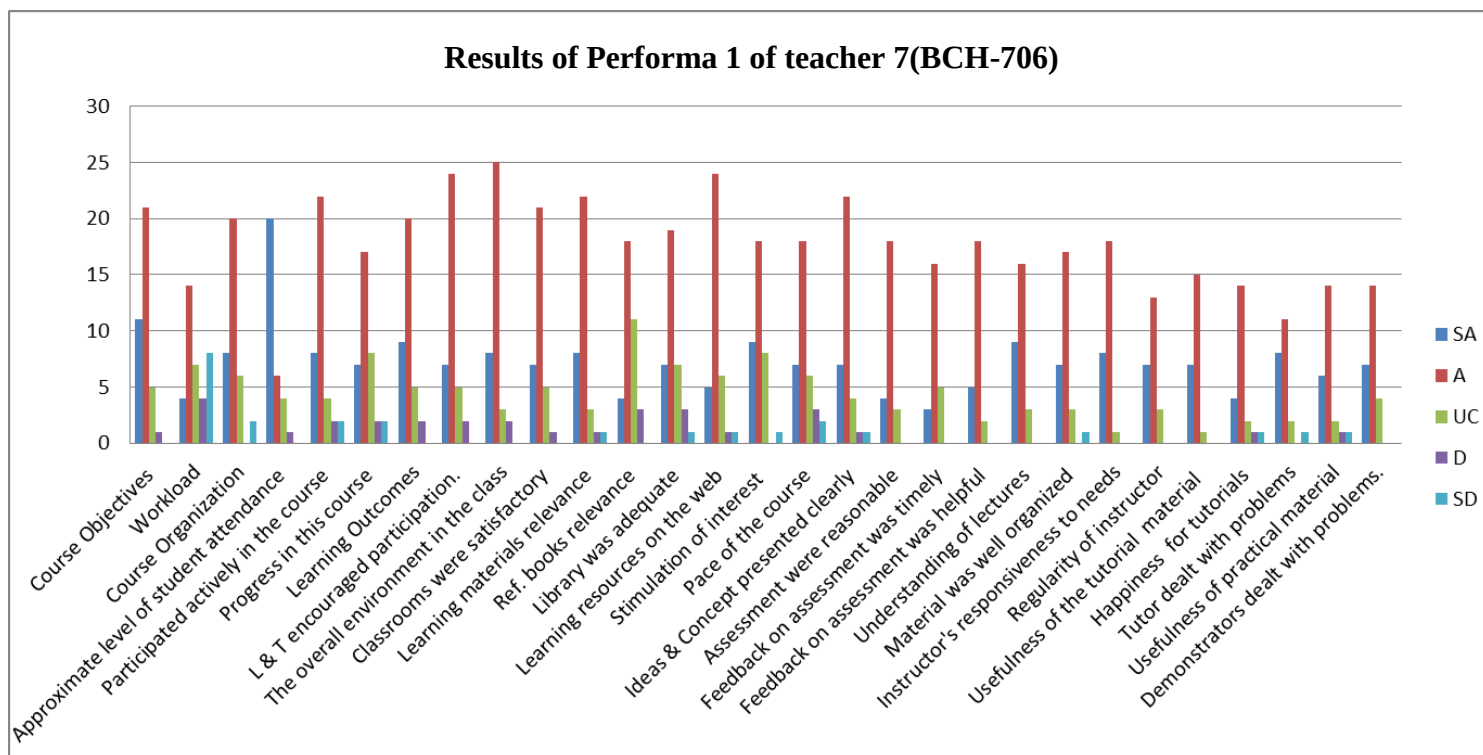
The performa 1 of teacher 4 shows the excellent performance. The pace of the course was smooth, classrooms were satisfactory, and the course material was interesting which stimulated the students' interest in the class.



The strongest point of the course is that its objectives were well focused, course was well organized and instructor was regular.



The results of performa 1 of teacher 6 are satisfactory. Ideas and concepts were clearly presented and students participated actively in the class.

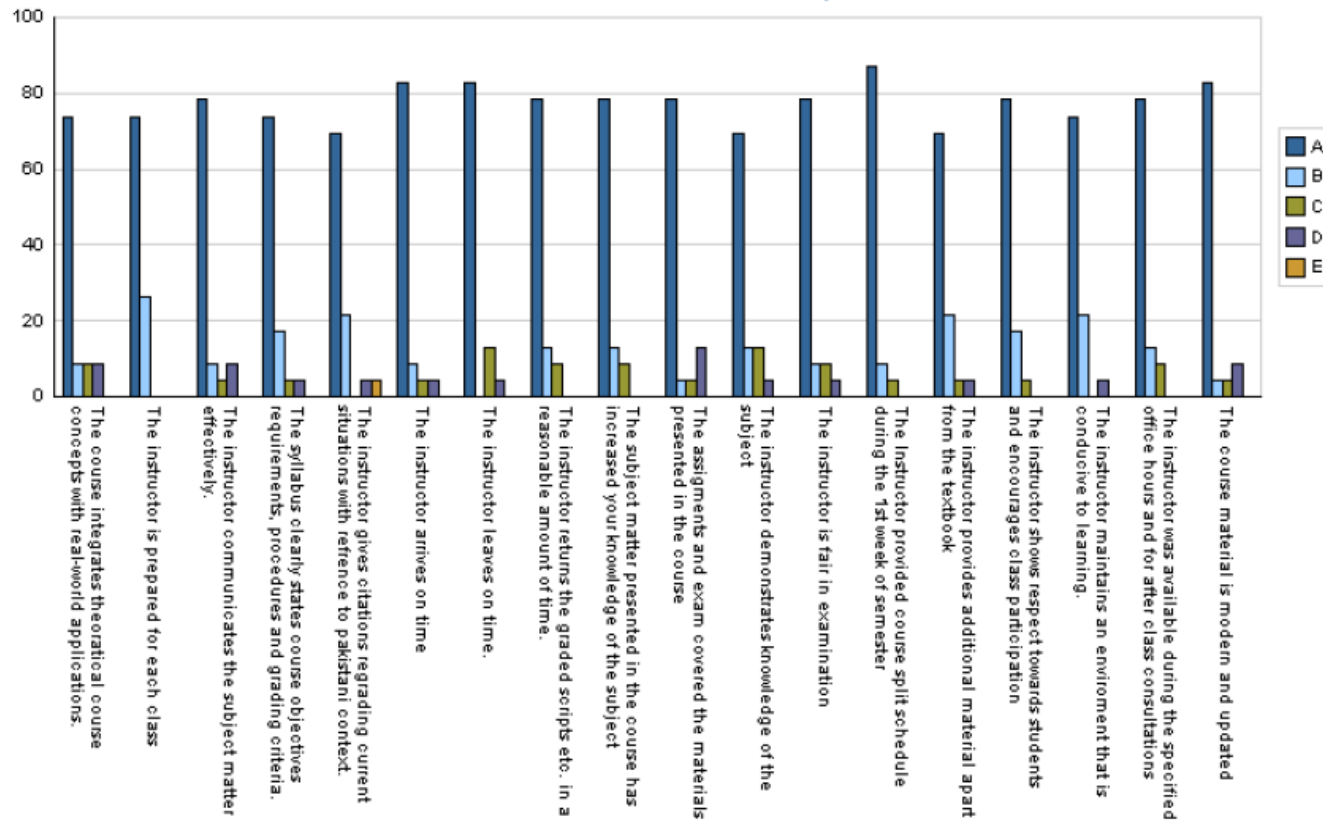


Depending upon the result of performa 1, students participated actively in the class and overall environment was satisfactory.

Program Assessment Results:**Teachers Evaluation Spring Semester 2013****Overall Results of Performa 10 of Teacher 1 to 7**

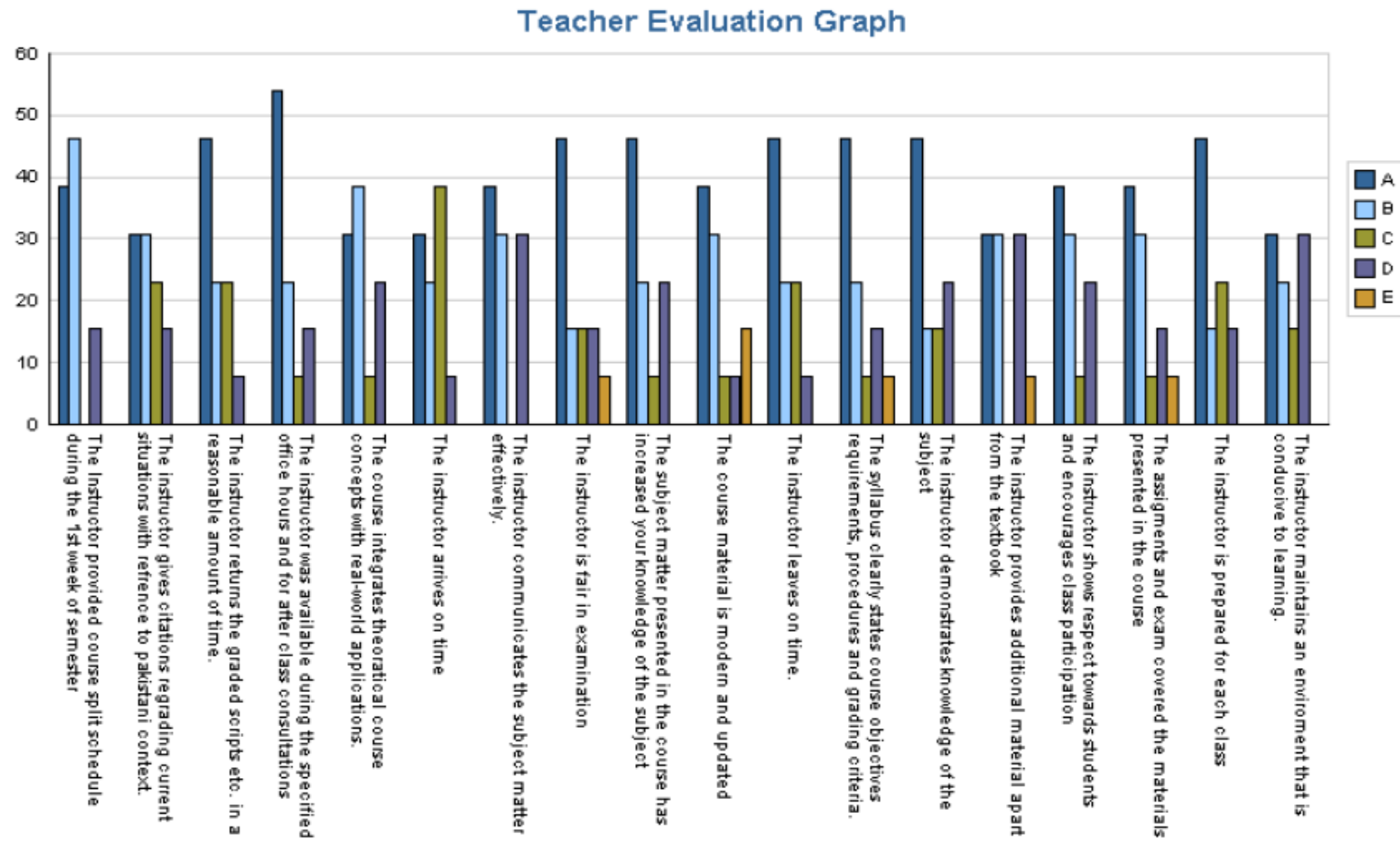
The teachers were evaluated by the students at the end of the semester in accordance with Proforma-10. In the graph teachers are represented as 1, 2, 3..., instead of mentioning their names. Results and performance of individual teachers will follow.

Results of Performa 10 of Teacher 1(BCH-711/Morning A)
Teacher Evaluation Graph



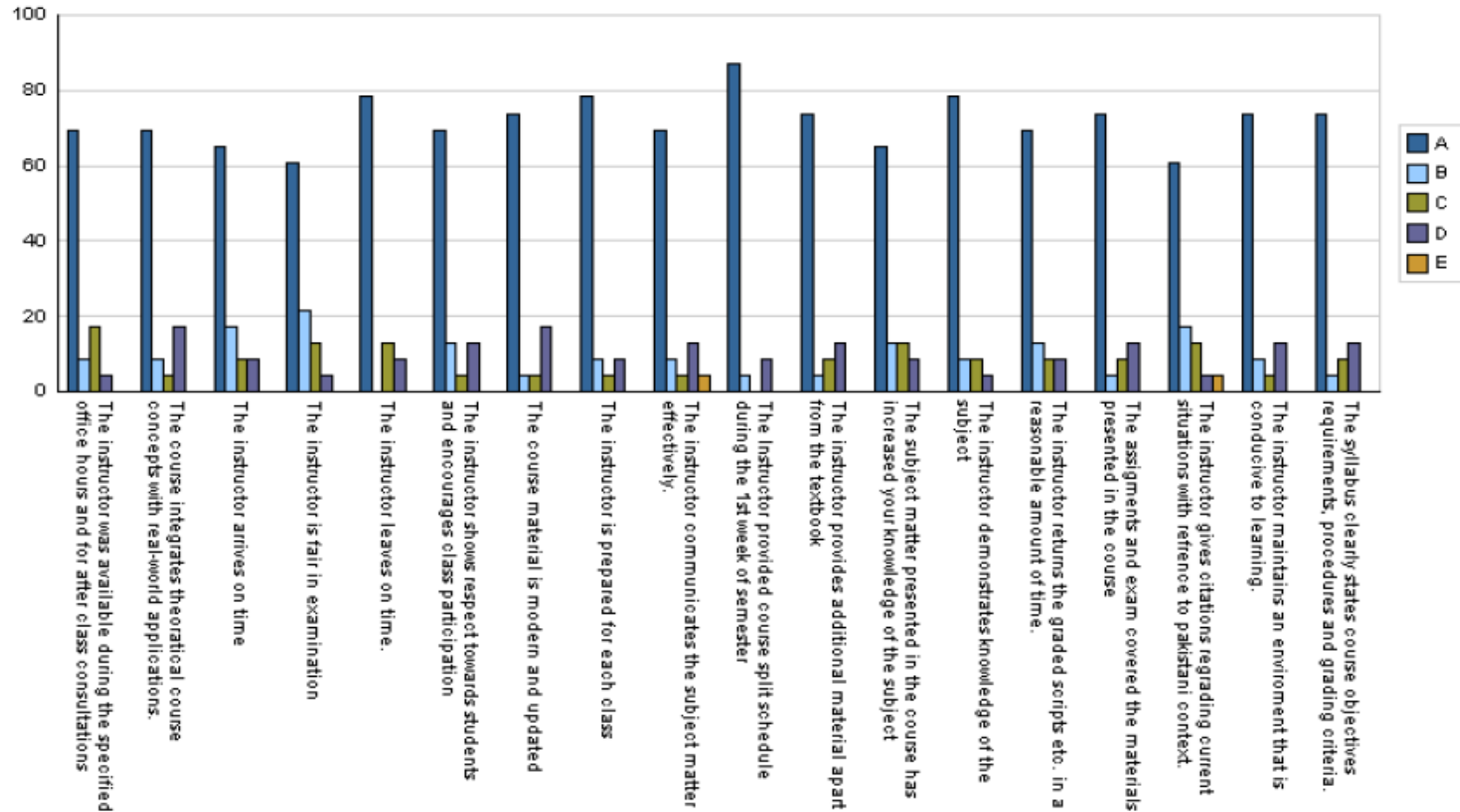
The strongest point which students like about teacher 1 is that the instructor has provided course split schedule during first week and course was modern and update.

Results of Performa 10 of Teacher 1(BCH-711/Evening A)



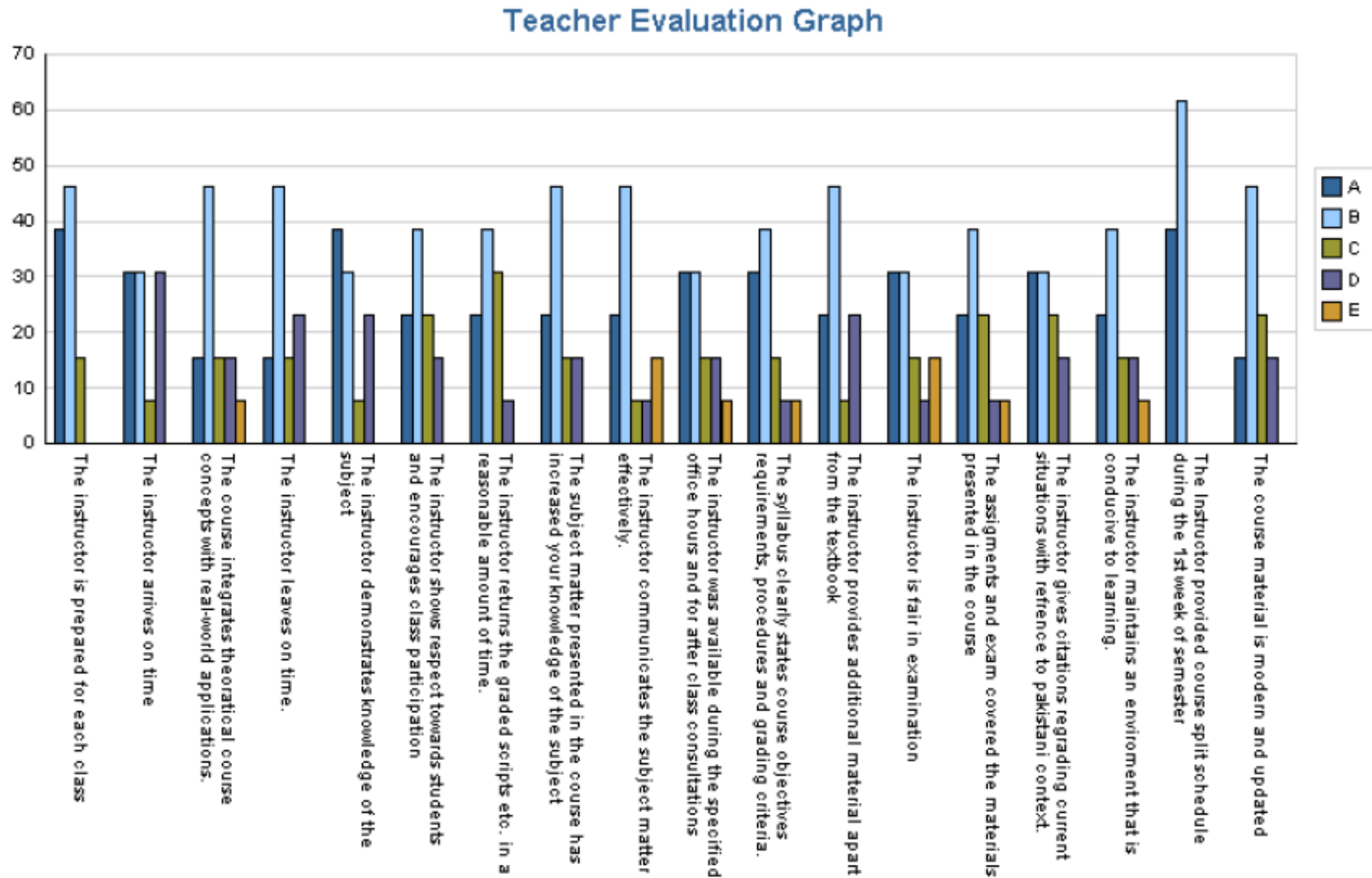
The strongest point which students like about teacher 1 was his/her availability during and after office hours for student matters and prepared well for the class.

Results of Performa 10 of Teacher 2 (BCH-706/Morning A)
Teacher Evaluation Graph



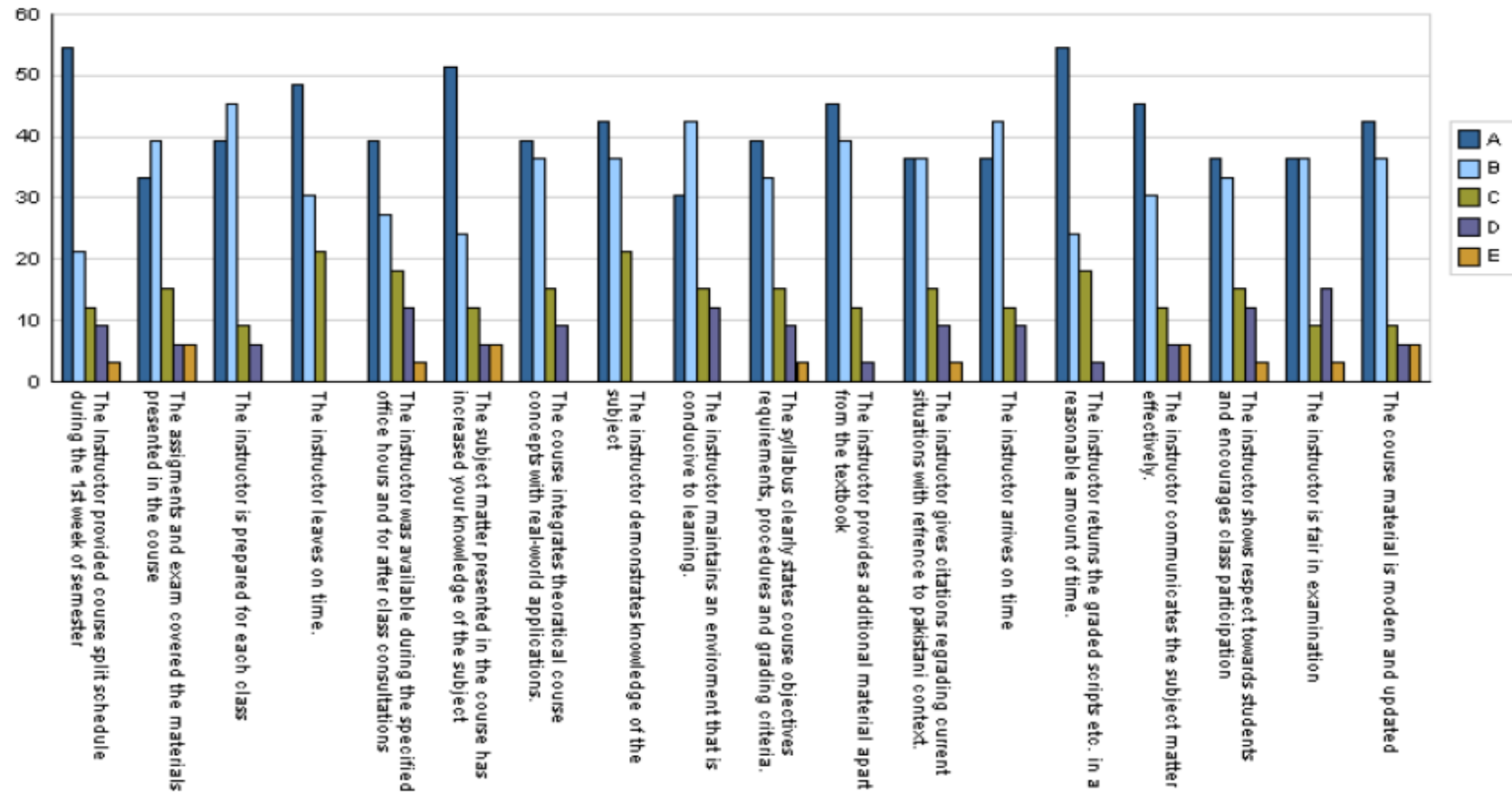
The strongest point which students like about teacher 2 is that the instructor provided course split schedule at start of semester and demonstrated knowledge of subject and leaves at time.

Results of Performa 10 of Teacher 2 (BCH-706/Evening A)



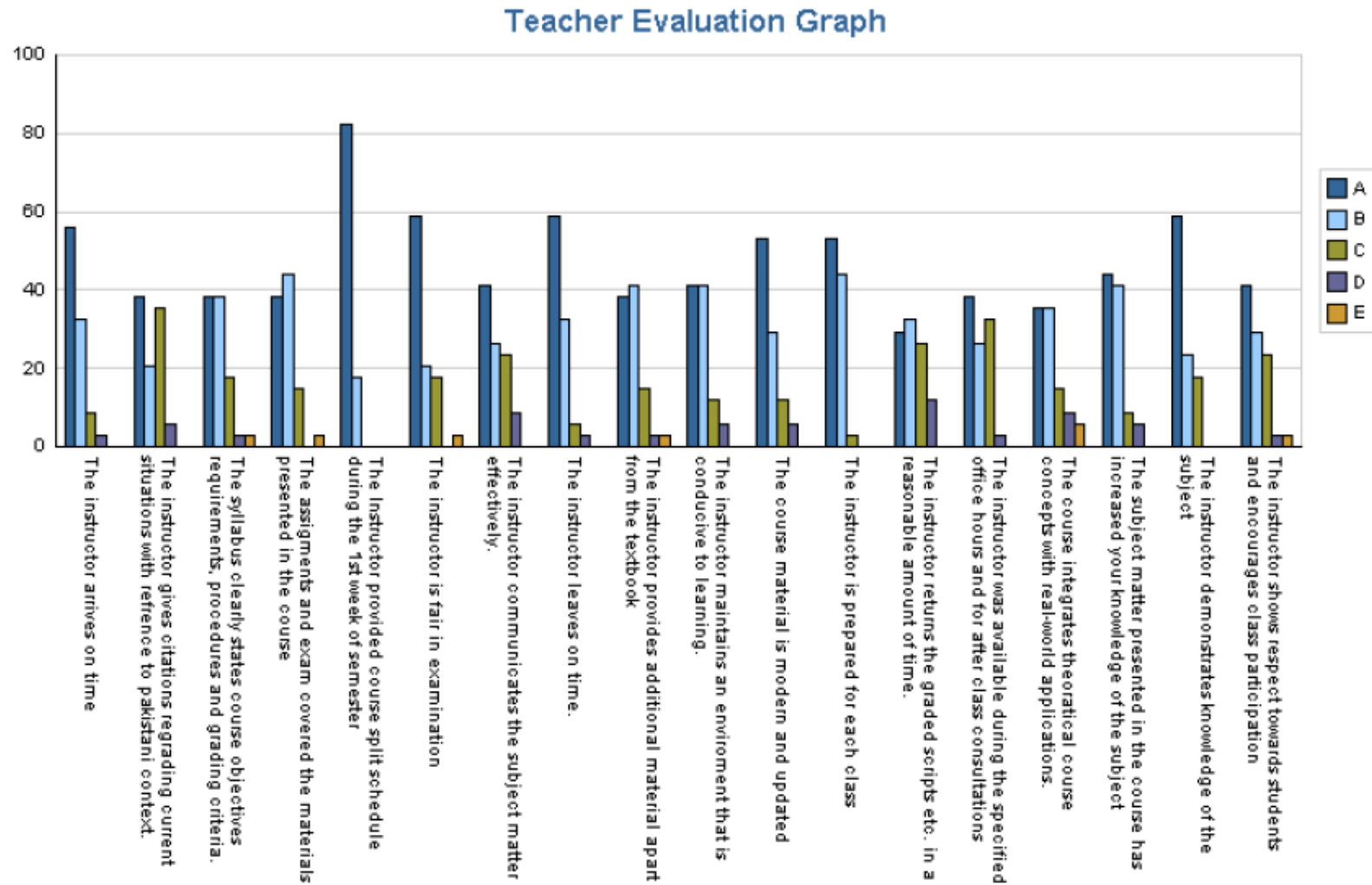
The strongest point which students like about teacher 2 is that the instructor was prepared for the class and he provided course split schedule at start of semester.

Results of Performa 10 of Teacher 2 (BCH-704/Morning A)
Teacher Evaluation Graph



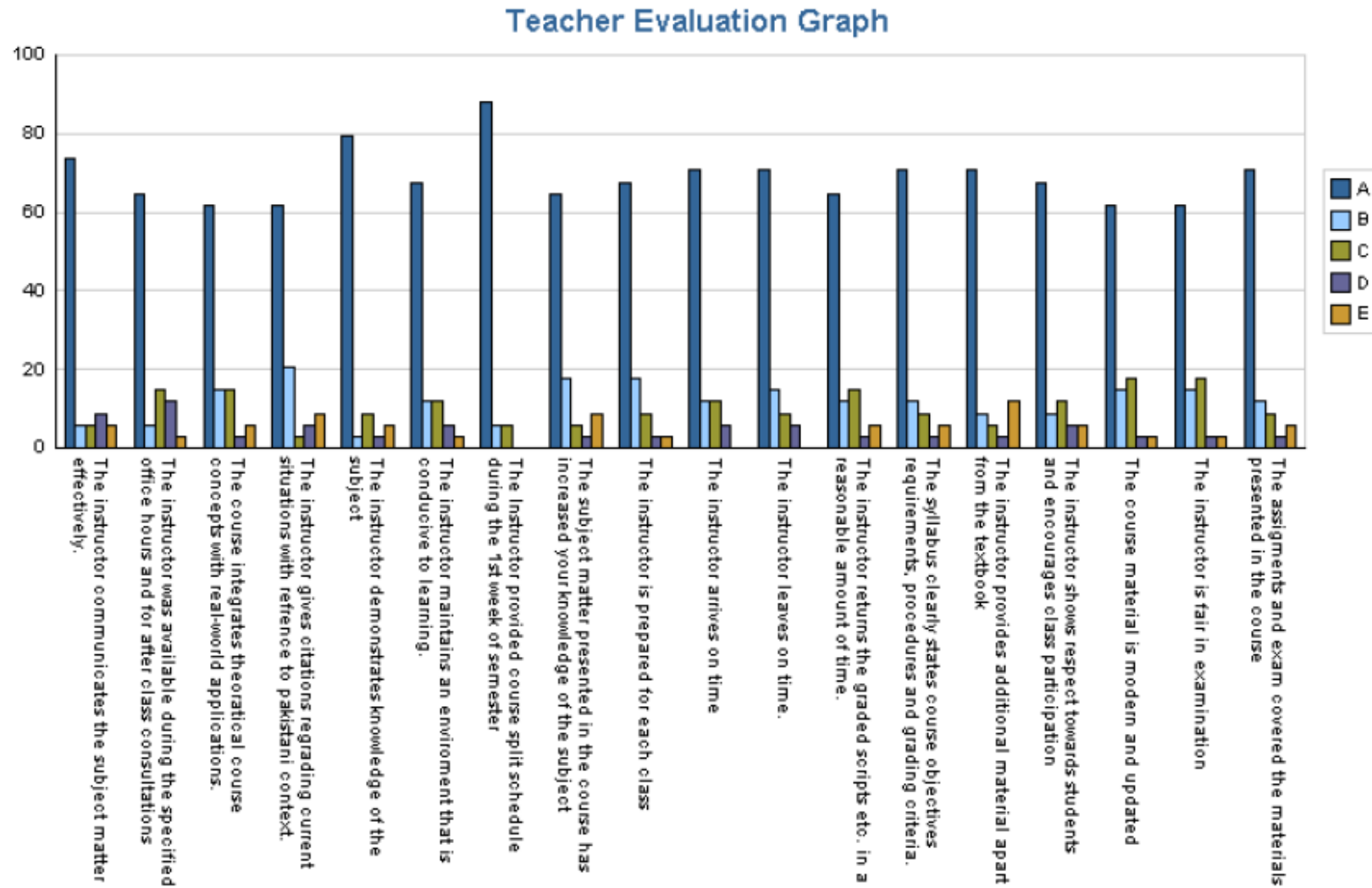
The strongest point which students like about teacher 2 is that instructor provided course split schedule at start of semester and returned graded papers on time.

Results of Performa 10 of Teacher 2 (BCH-704/Morning C)



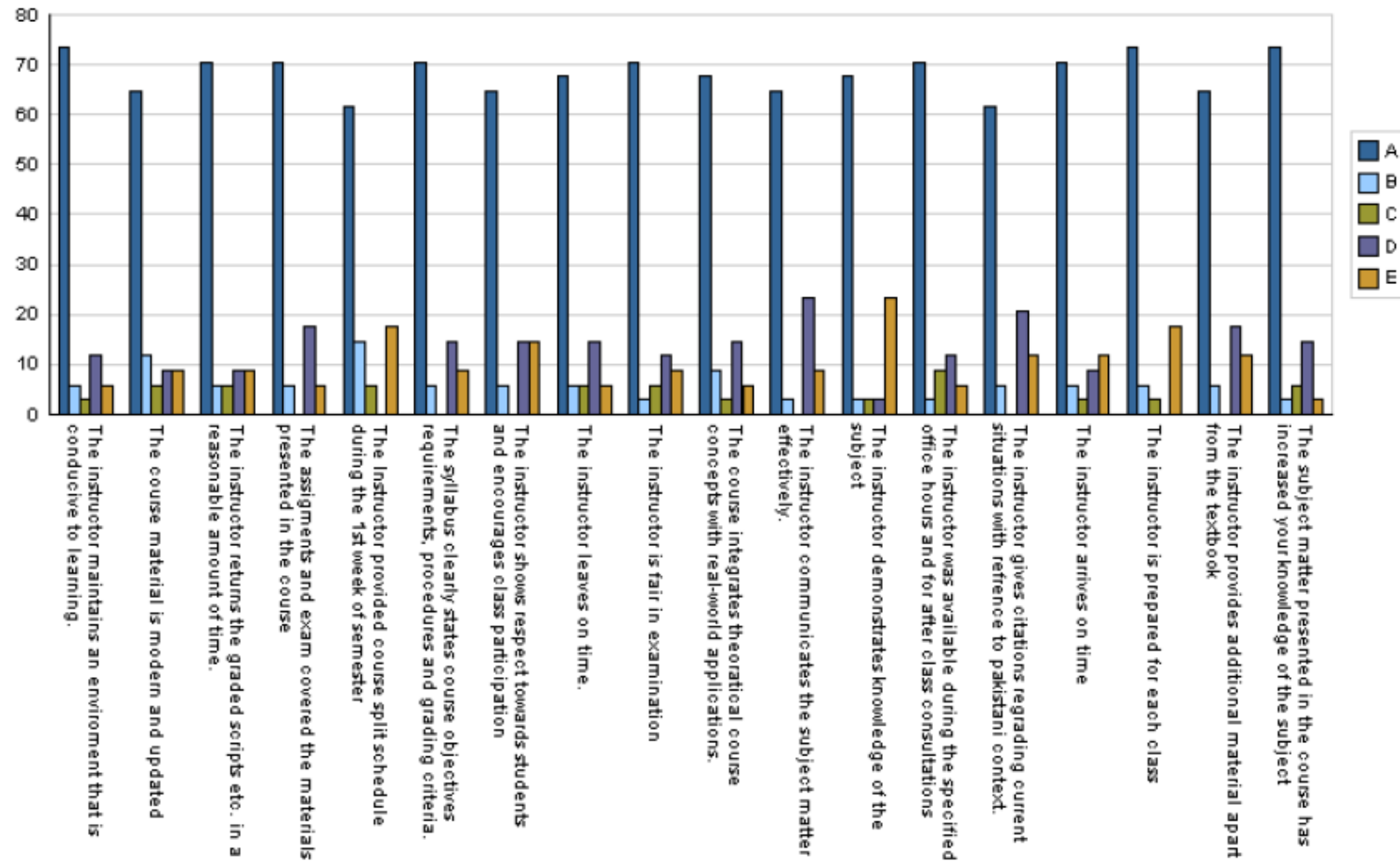
The strongest point which students like about teacher 2 is that the course content is provided in time and the demonstration of the subject knowledge is good.

Results of Performa 10 of Teacher 2 (BCH-704/Morning G)



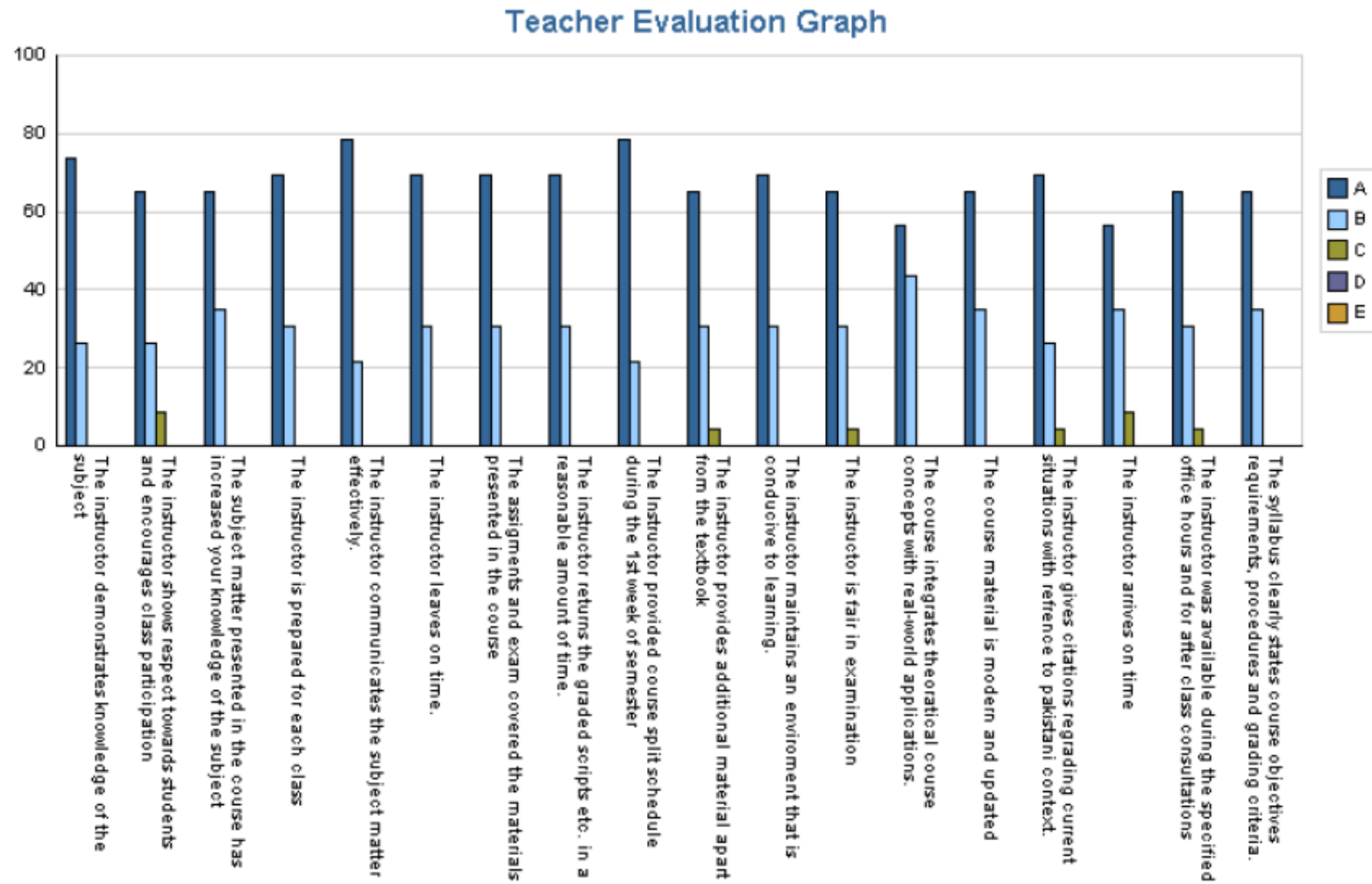
The strongest point which students like about teacher 2 is that the course content is provided in time and the demonstration of the subject knowledge is good.

Results of Performa 10 of Teacher 2 (BCH-704/Evening H)
Teacher Evaluation Graph



The strongest point which students like about teacher 2 is that the instructor has maintained a very good learning environment and was well prepared for the class.

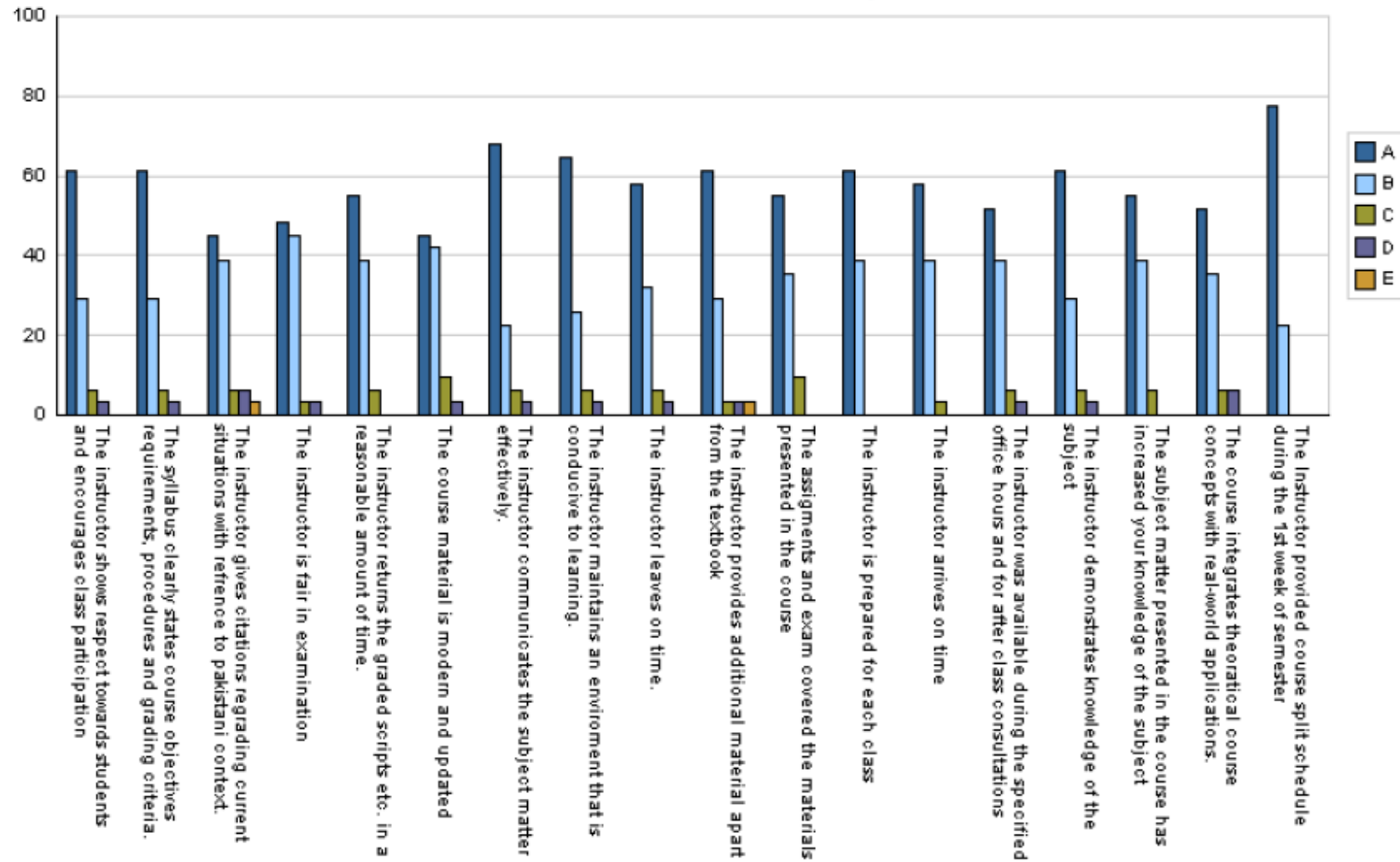
Results of Performa 10 of Teacher 2 (BCH-704/Evening F)



The strongest point which students like about teacher 2 is that the course content is provided in time and he communicated subject matter effectively.

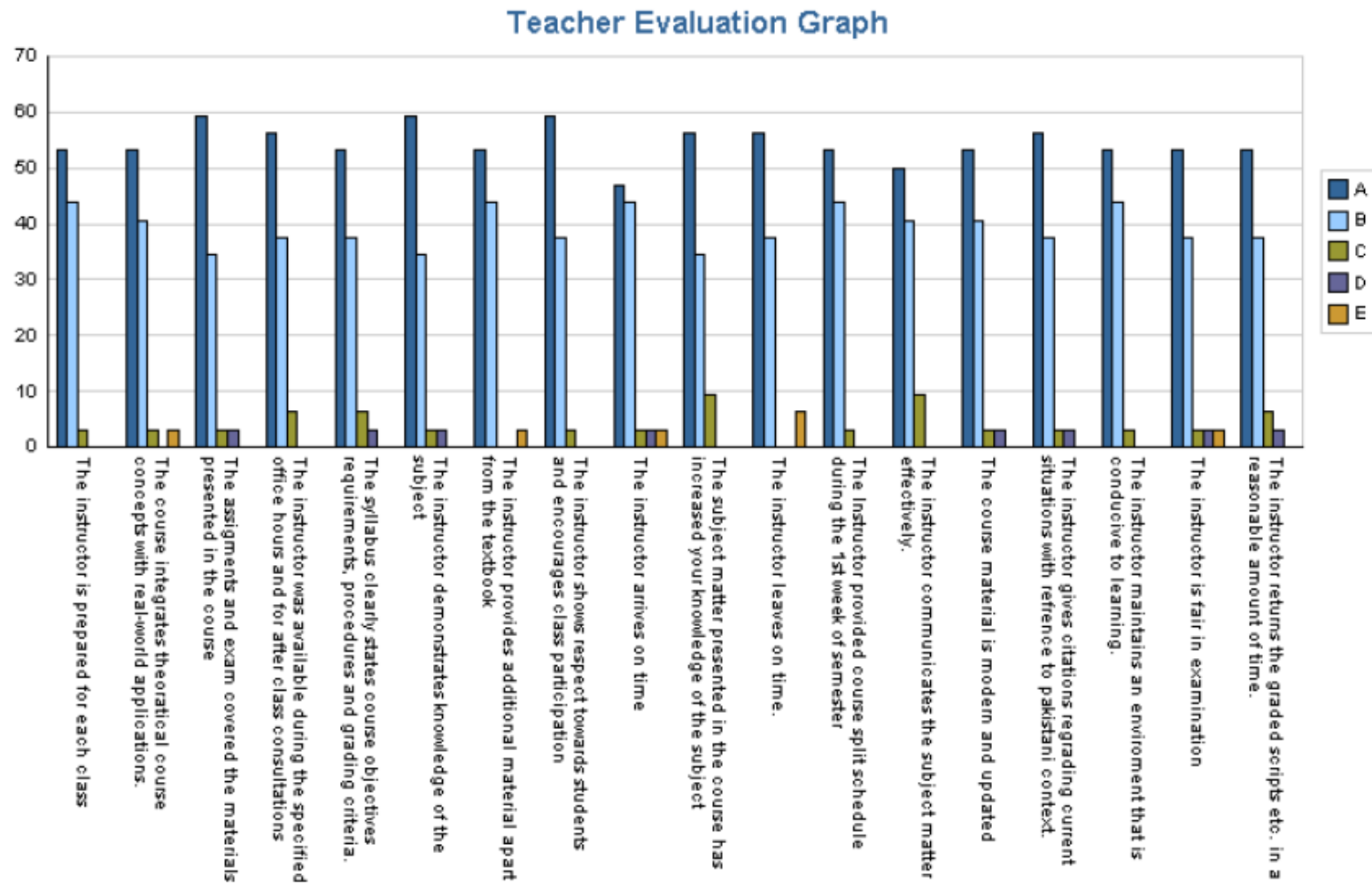
Results of Performa 10 of Teacher 2 (BCH-704/Evening D)

Teacher Evaluation Graph



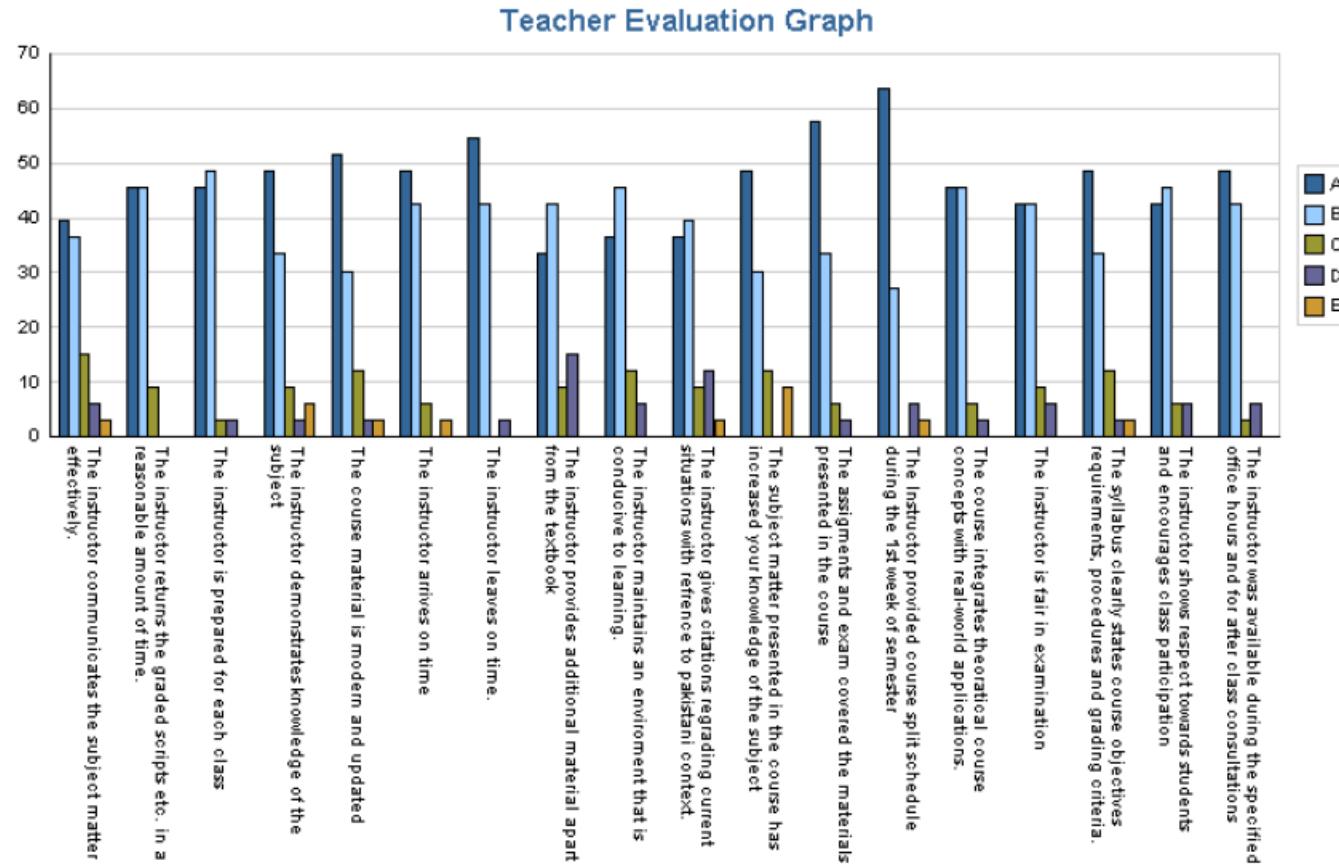
The strongest point which students like about teacher 2 is that the course content is provided in time and the communication of subject matter was very effective.

Results of Performa 10 of Teacher 2 (BCH-704/Evening B)



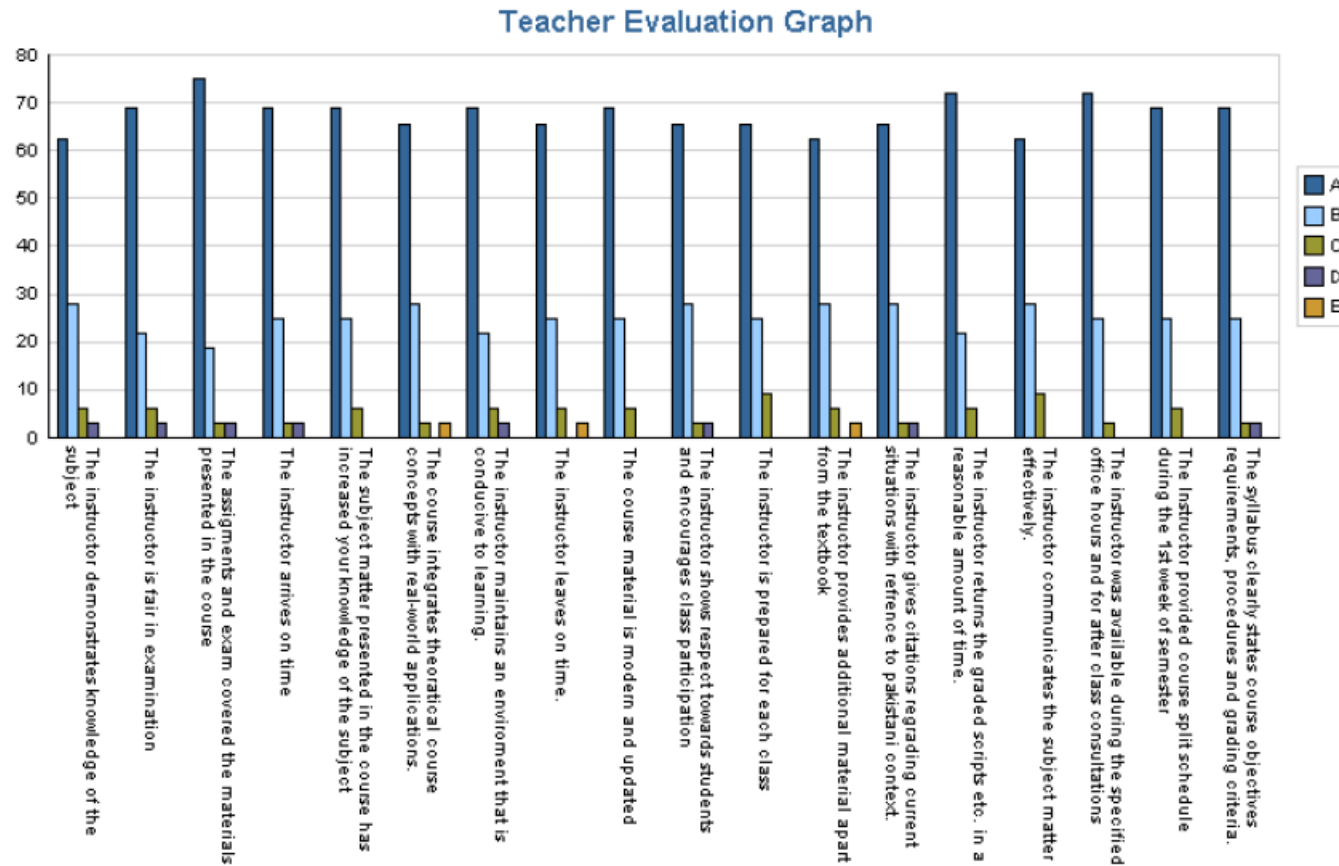
The strongest point which students like about teacher 2 is that the course content, its demonstration and examination was well balanced as well as teacher communicated effectively with students.

Results of Performa 10 of Teacher 3 (BCH-707/Morning A)



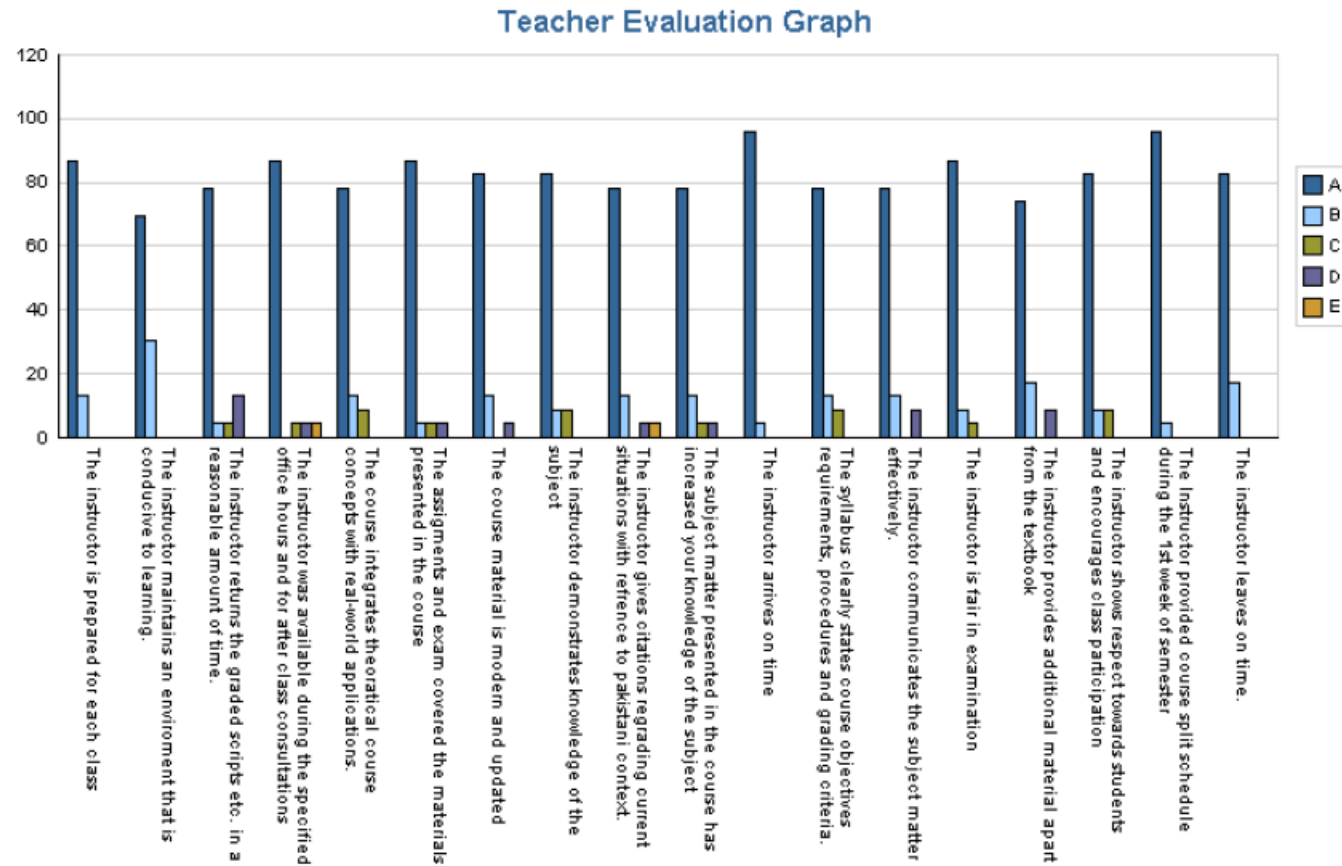
The strongest point which students like about teacher 3 is that the course content is provided in time and the provided material and examination was well balanced.

Results of Performa 10 of Teacher 3 (BCH-707/Evening A)



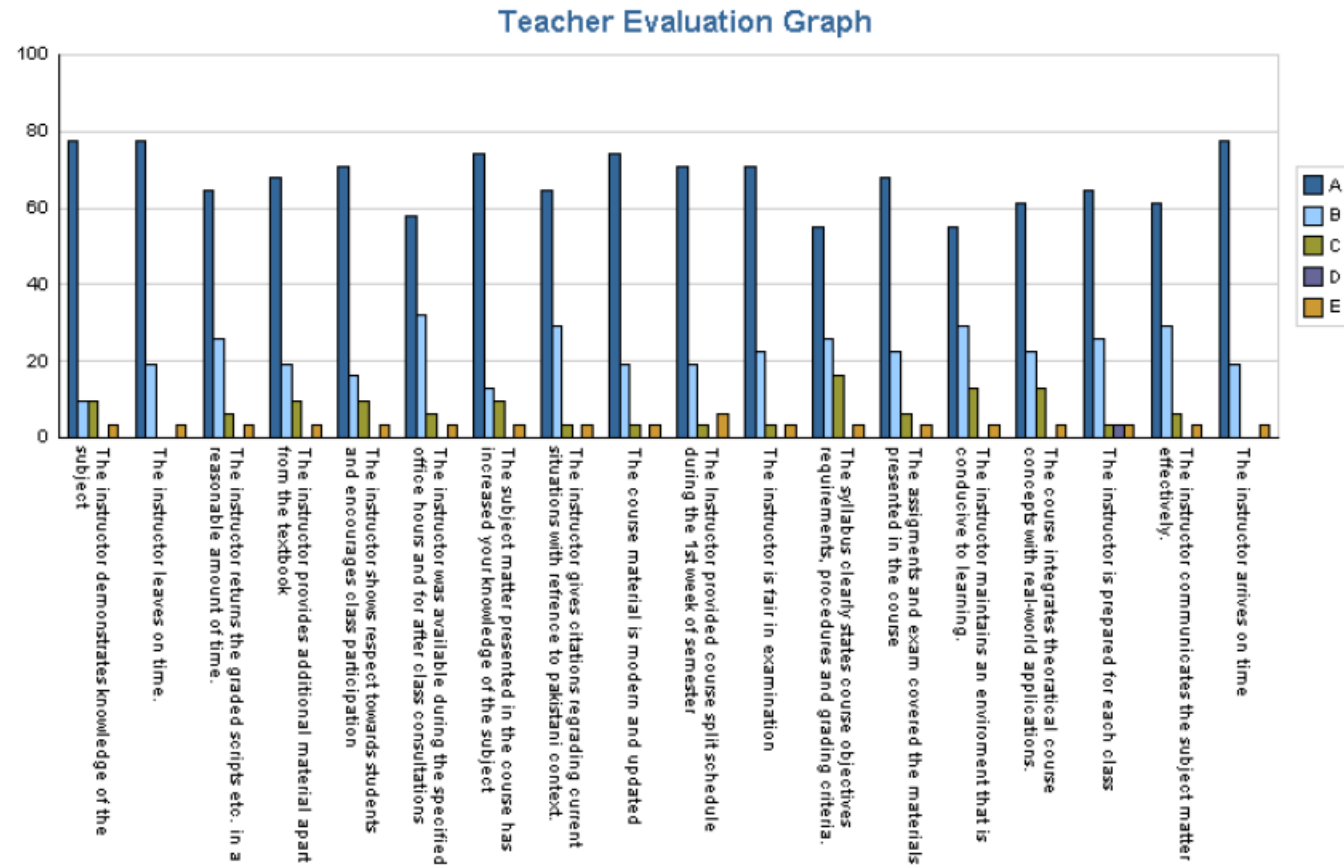
The strongest point which students like about teacher 3 is that the course related provided material and examination was well balanced. And instructor was available for the after class consultations also.

Results of Performa 10 of Teacher 3 (BCH-713/Morning A)



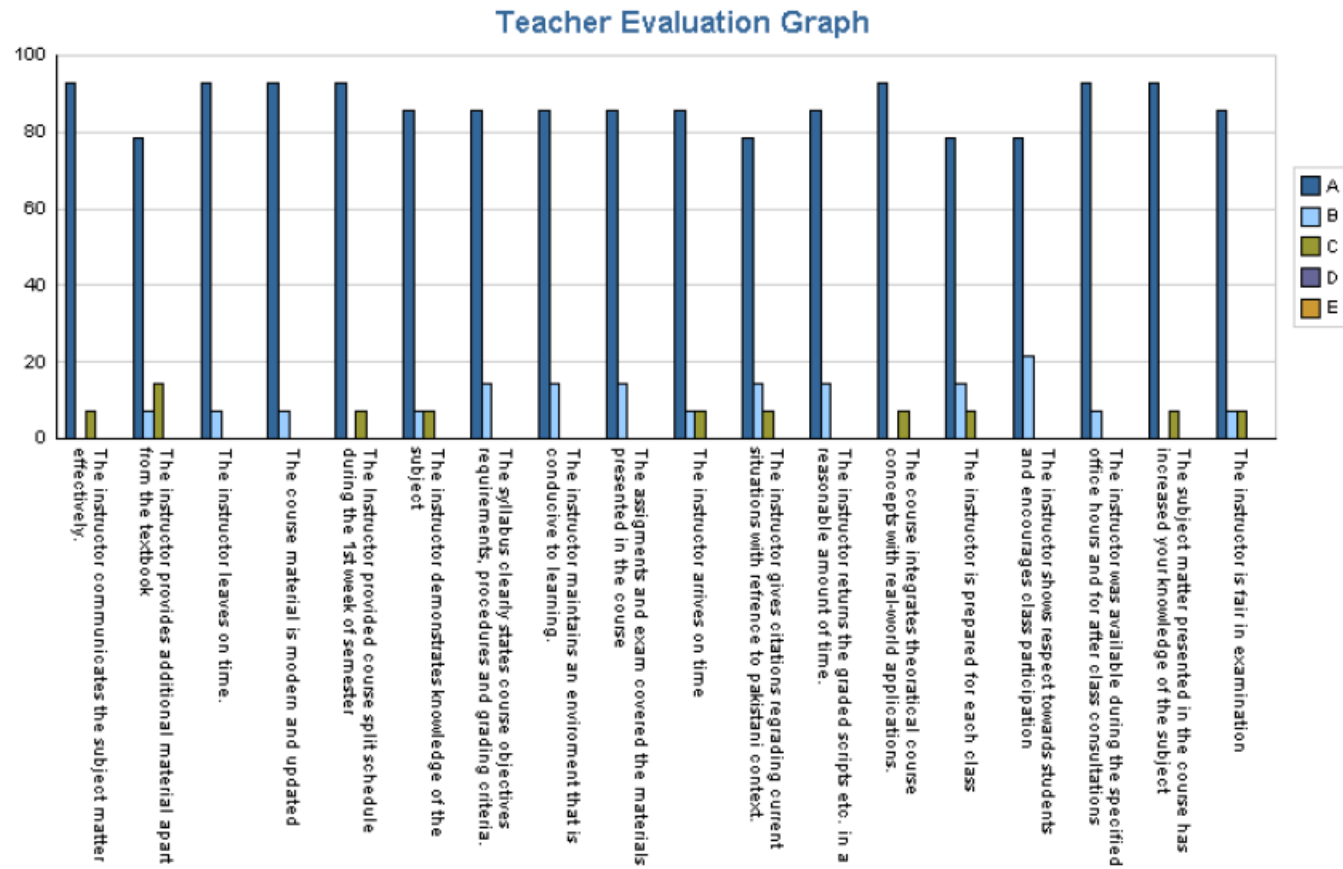
The strongest point which students like about teacher 3 is that the instructor was punctual; course related information was provided in time. Instructor was available for the after class consultations also.

Results of Performa 10 of Teacher 3 (BCH-713/Morning C)



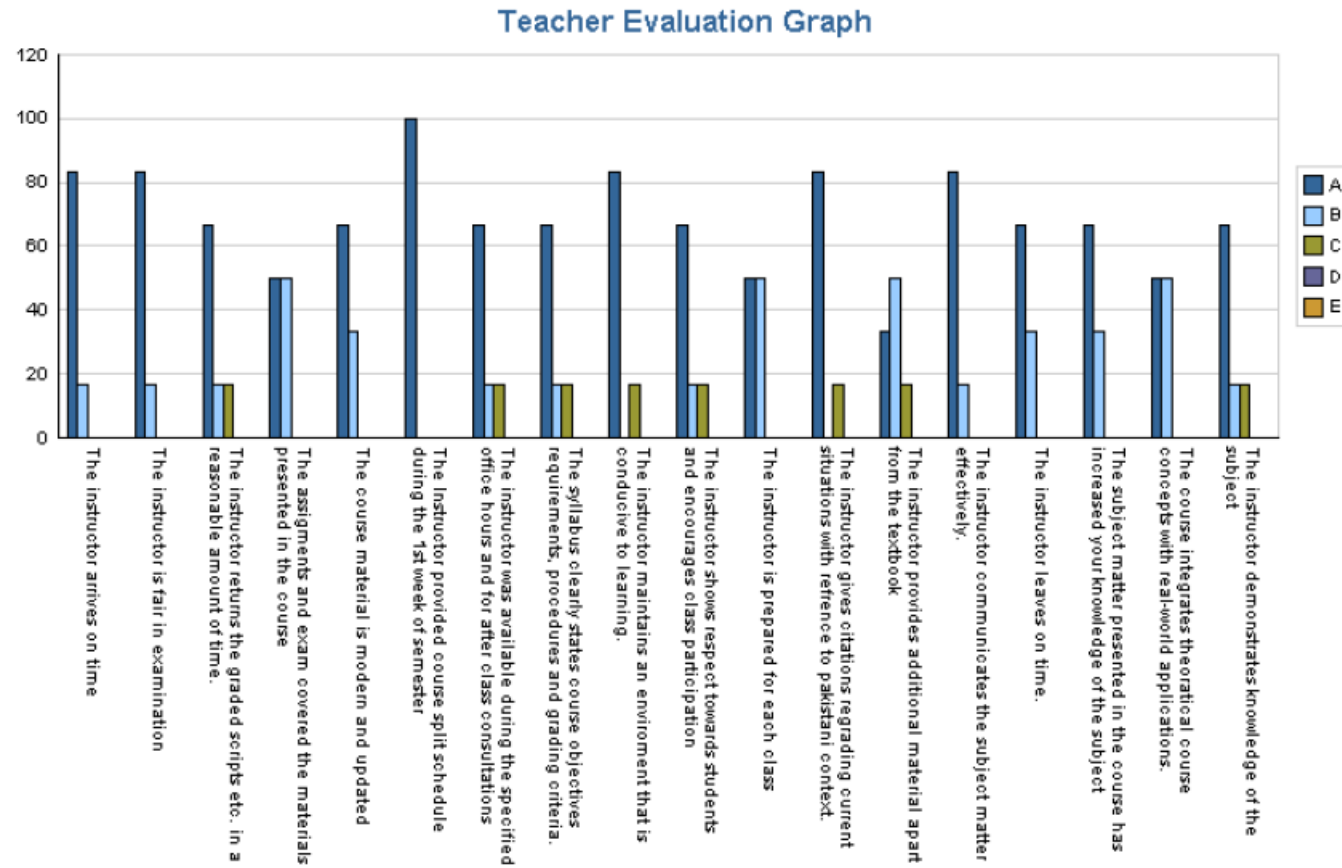
The strongest point which students like about teacher 3 is that the instructor was punctual about timings, and the knowledge demonstration of the subject was very good.

Results of Performa 10 of Teacher 3 (BCH-713/Evening B)



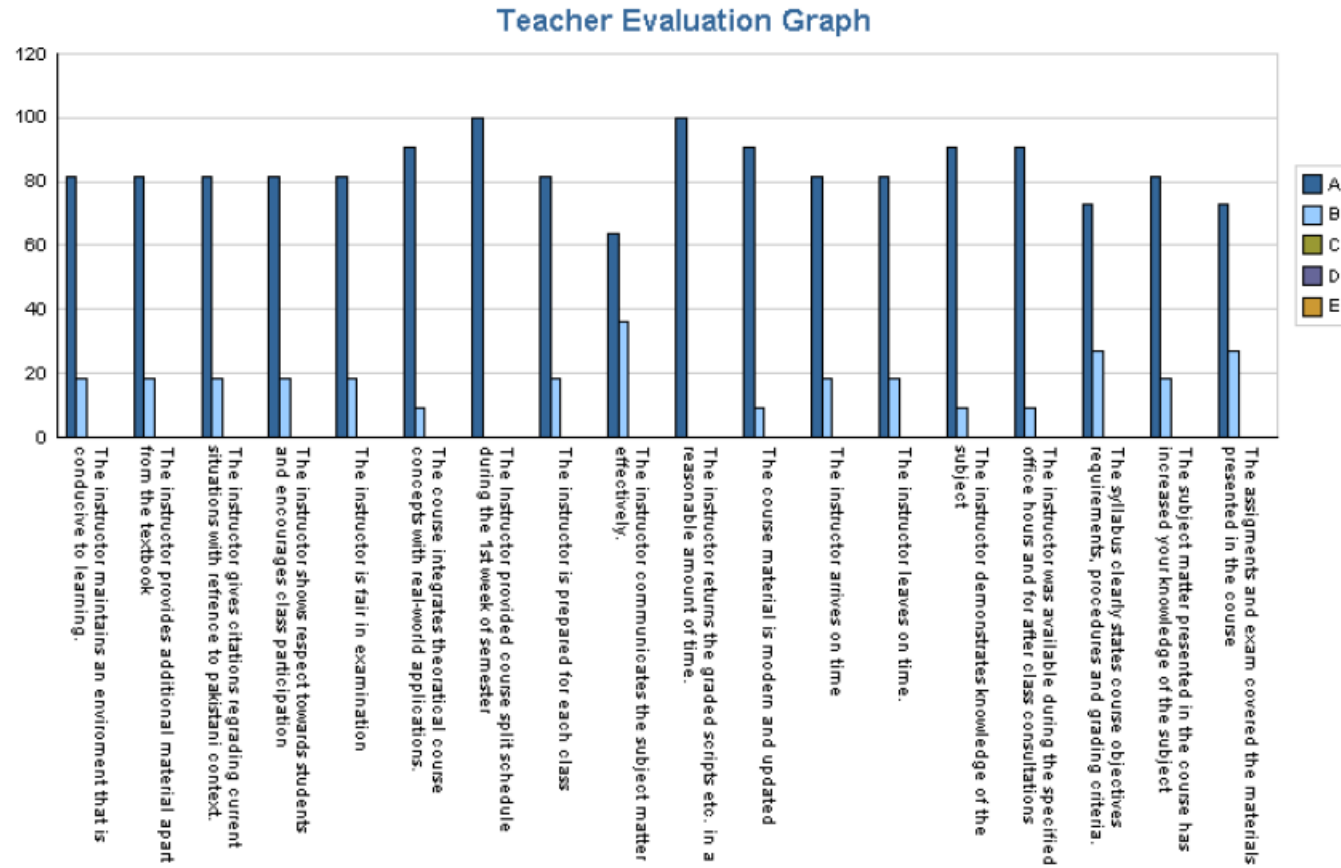
The strongest point which students like about teacher 3 is that the course material was modern updated and well communicated. Instructor communicated subject matter effectively and he was available after class consultations also.

Results of Performa 10 of Teacher 3 (BCH-713/EveningD)



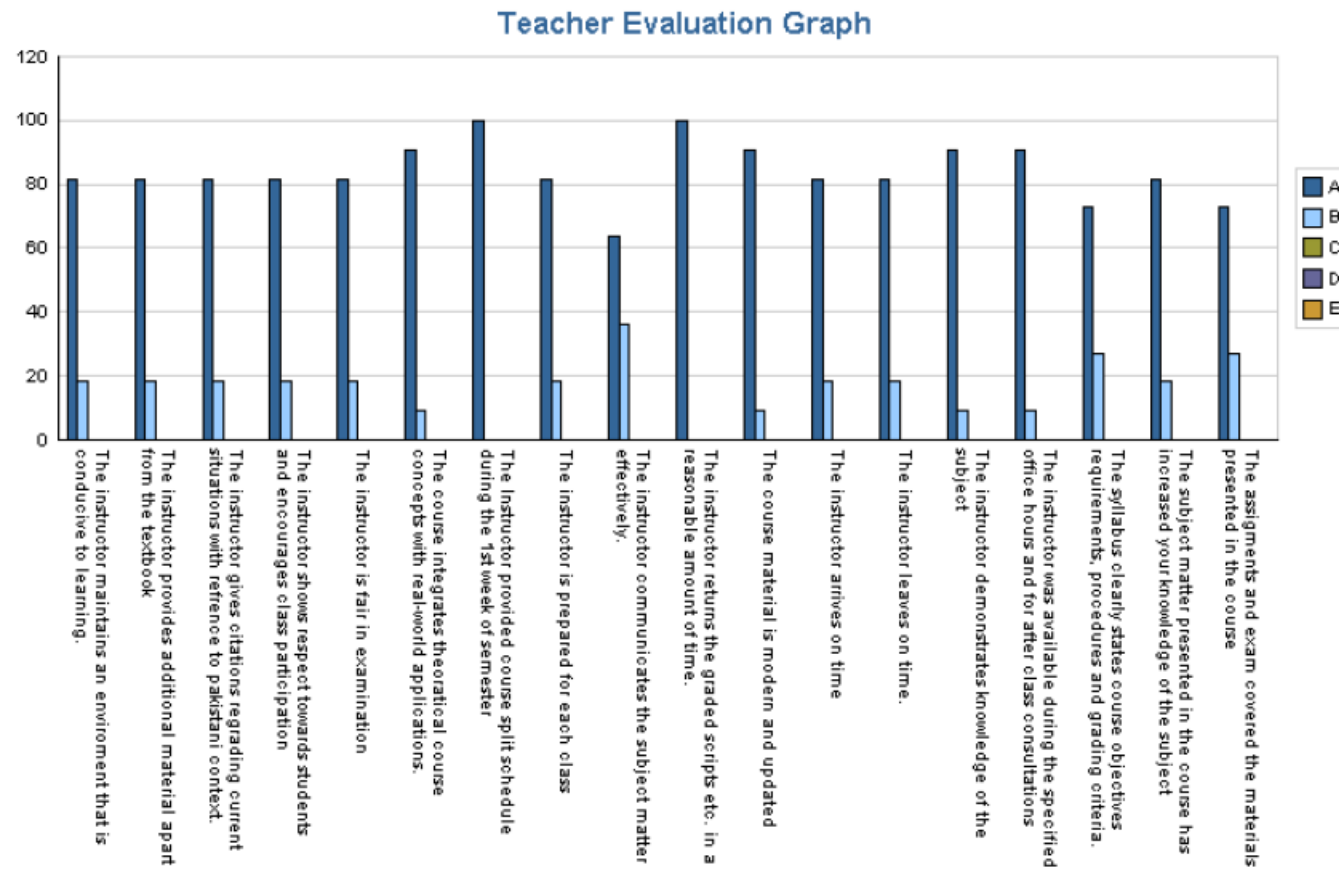
The strongest point which students like about teacher 3 is that the course related information was provided in time and maintained a good learning environment.

Results of Performa 10 of Teacher 4 (BCH-716/Morning A)



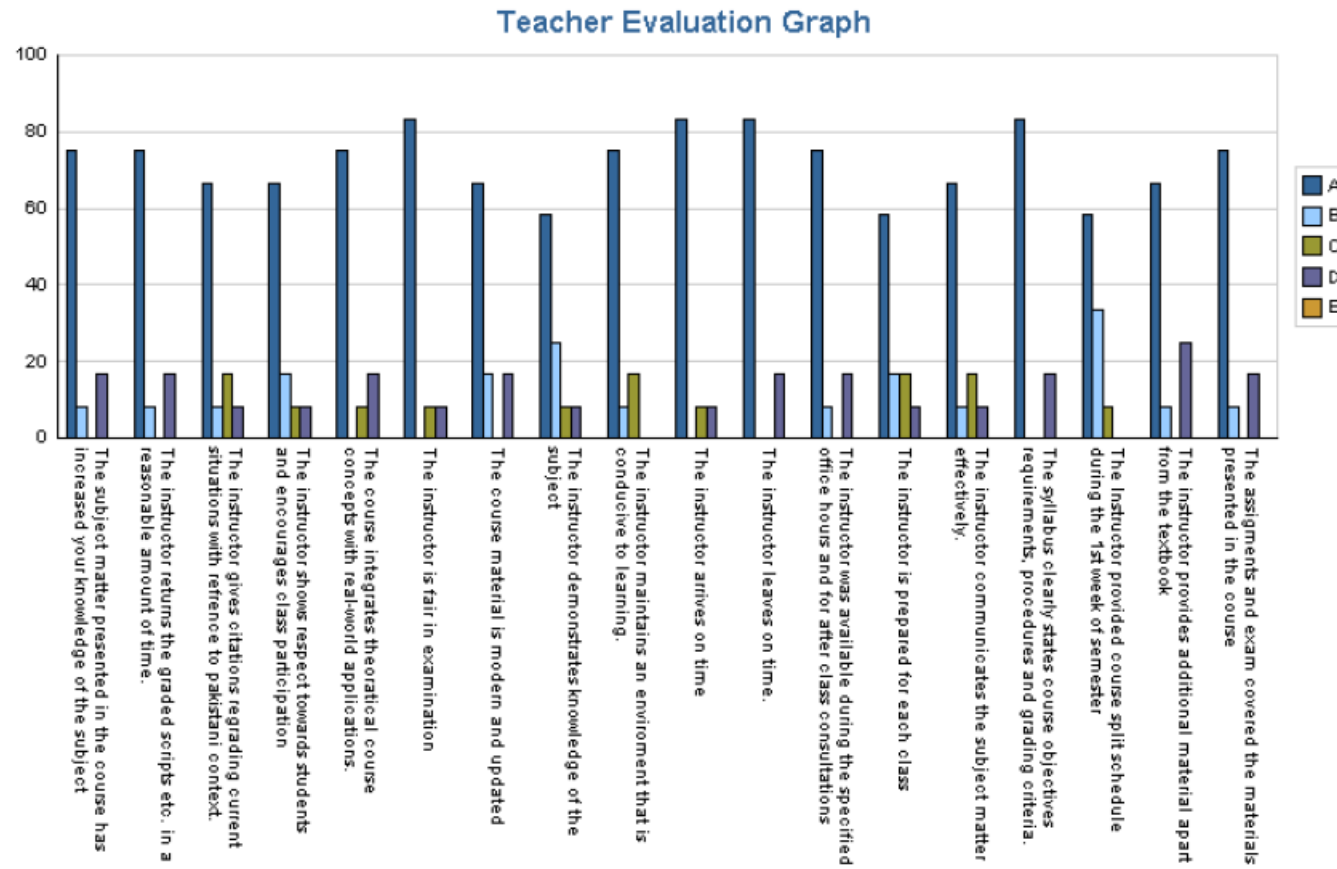
The strongest point which students like about teacher 4 is that the course related information was provided in time and the instructor graded papers in time.

Results of Performa 10 of Teacher 4 (BCH-716/EveningA)



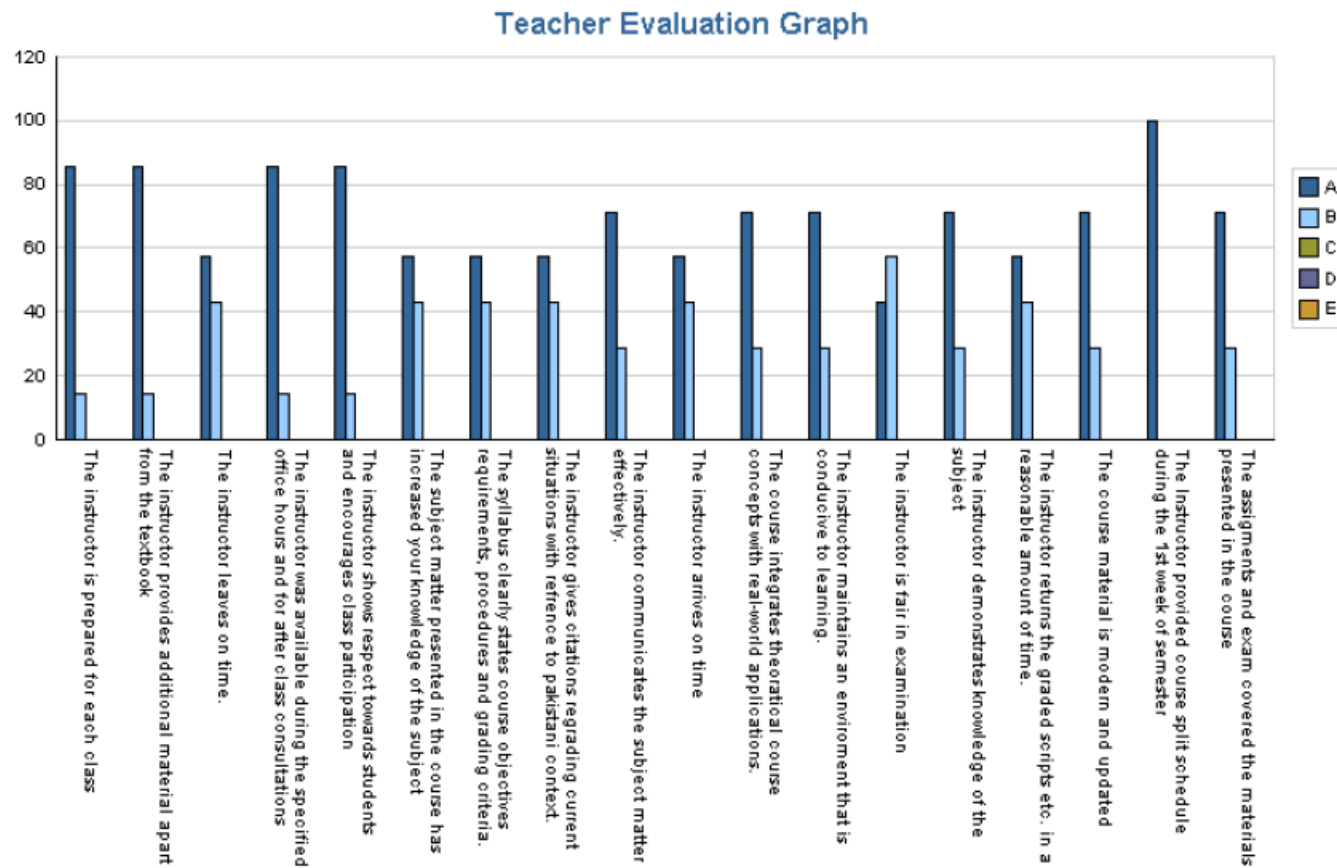
The strongest point which students like about teacher 4 is that the course related information was provided in time and graded papers in time.

Results of Performa 10 of Teacher 5 (BCH-714/Morning A)



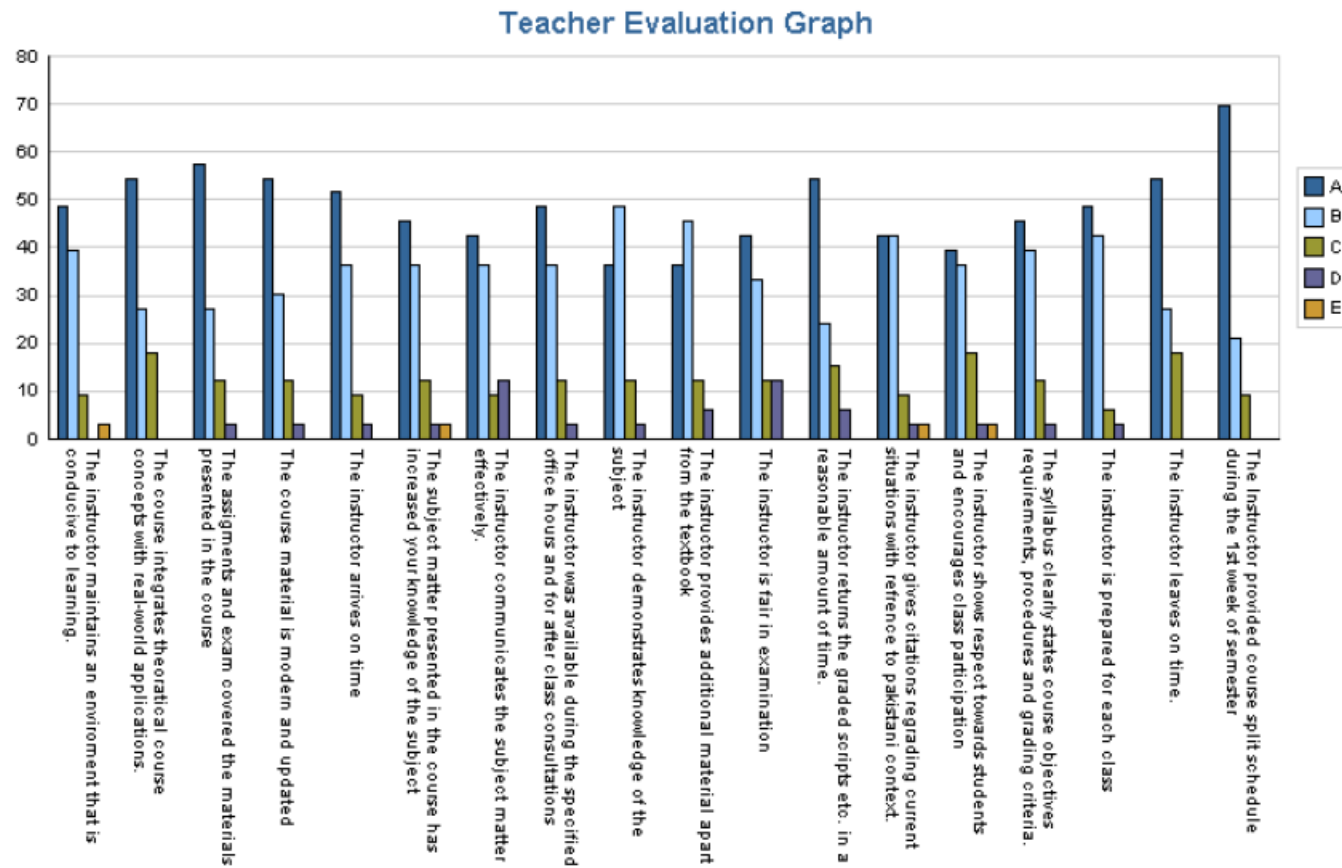
The strongest point which students like about teacher 5 is that the instructor was not biased in exams and the syllabus was very well structured.

Results of Performa 10 of Teacher 5 (BCH-714/Evening A)



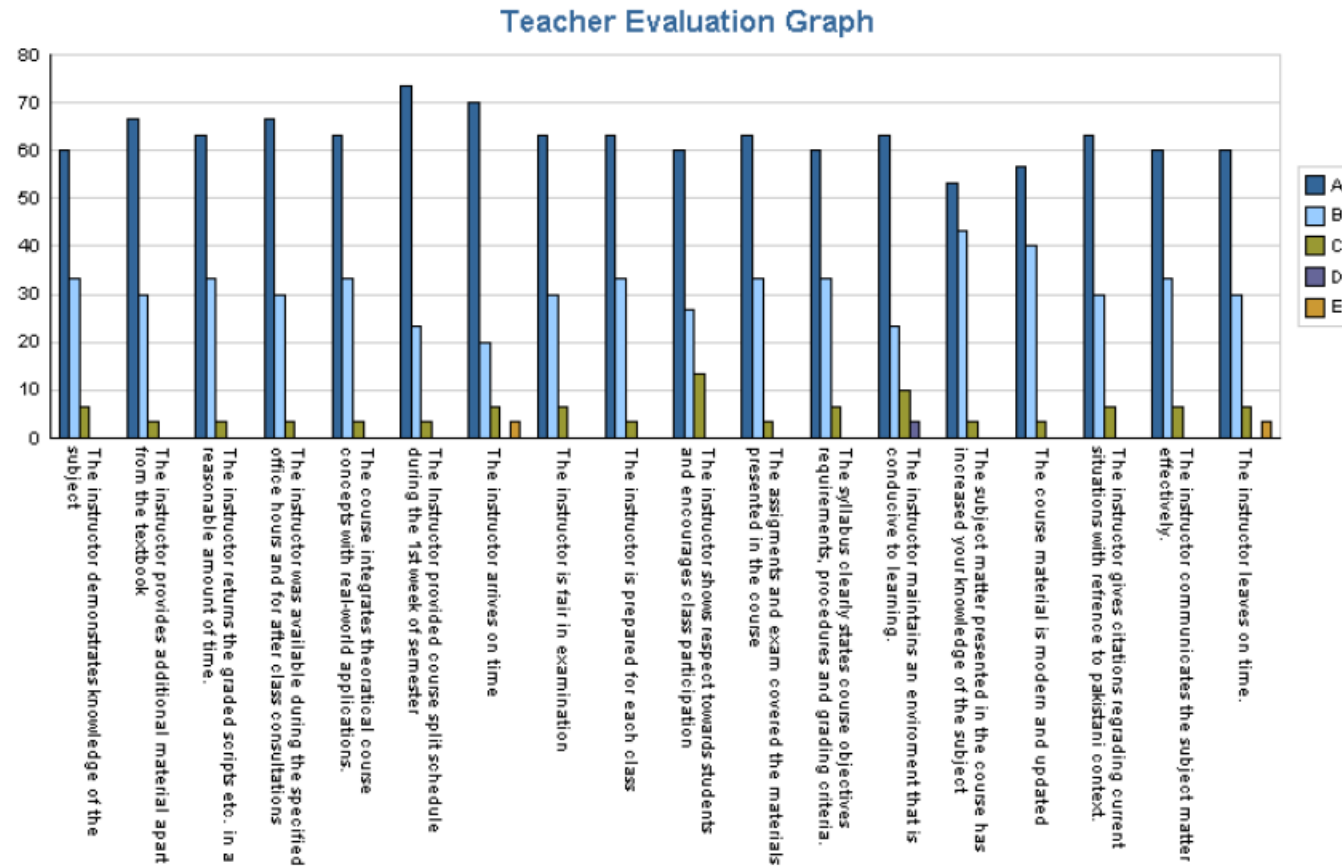
The strongest point which students like about teacher 5 is that the course related information was provided in time and the instructor encouraged students for class participation.

Results of Performa 10 of Teacher 5 (BCH-705/Morning A)



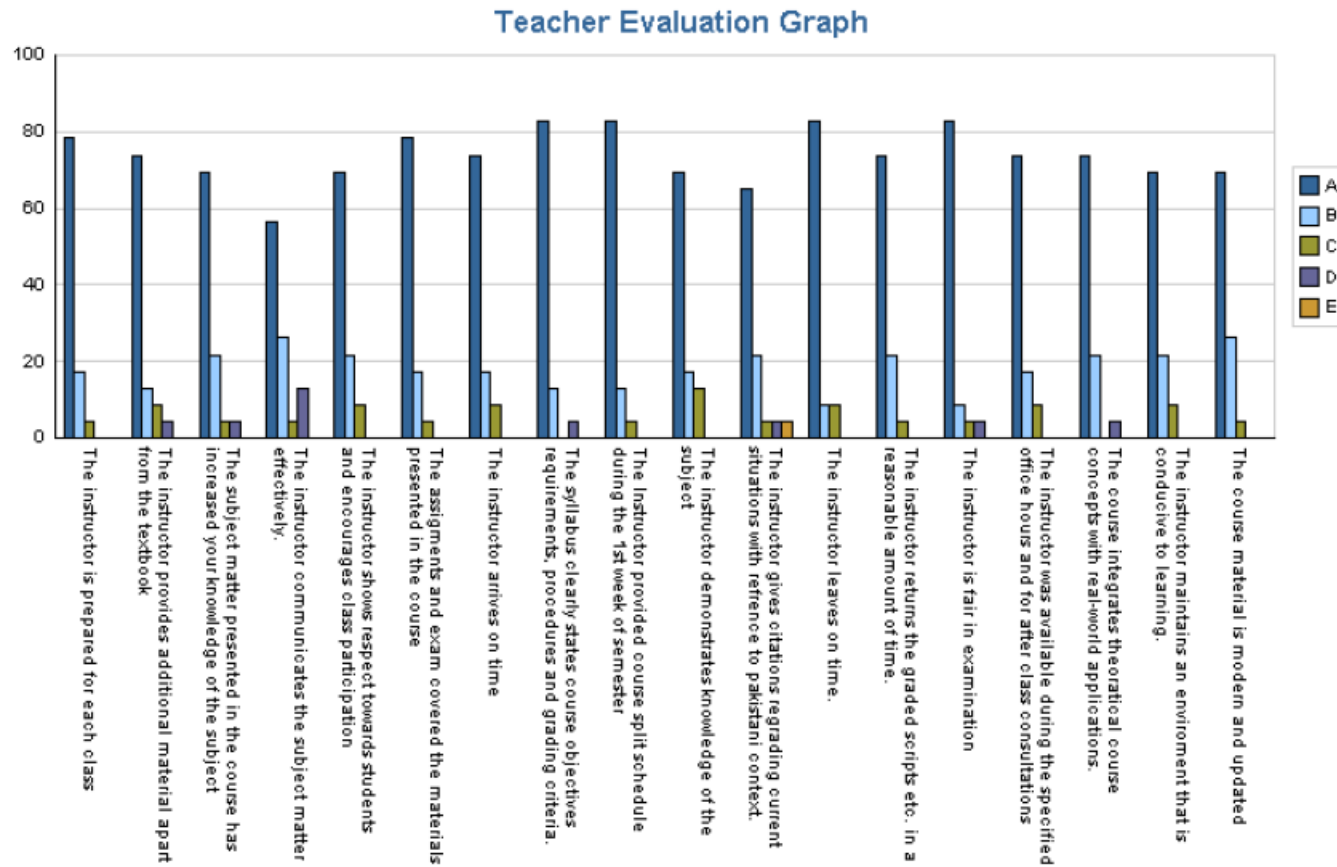
The strongest point which students like about teacher 5 is that the course related information was provided in time and the course material was updated and modern.

Results of Performa 10 of Teacher 5 (BCH-705/Evening A)



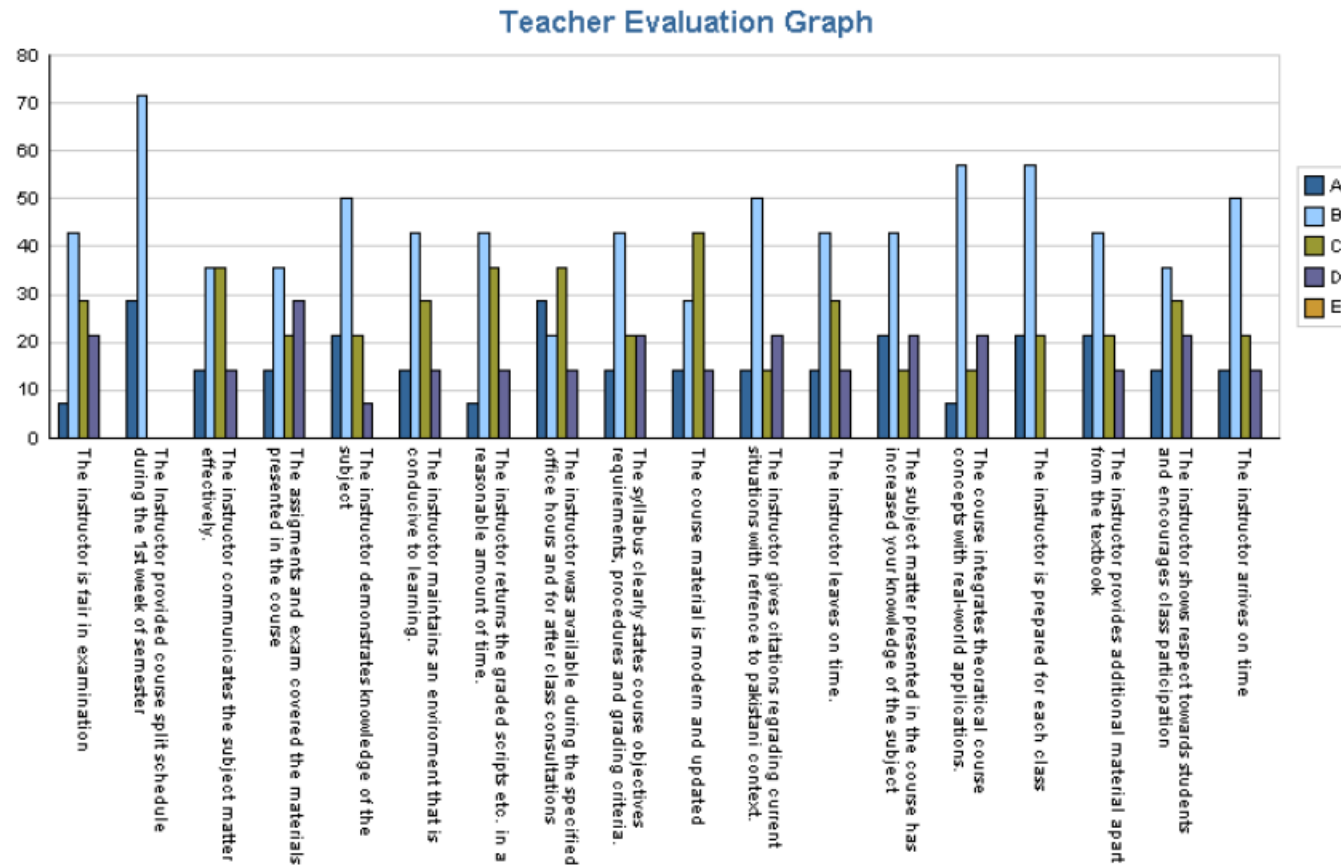
The strongest point which students like about teacher 5 is that the course related information was provided in time and the instructor was punctual and available for after class consultations as well.

Results of Performa 10 of Teacher 6 (BCH-708/Morning A)



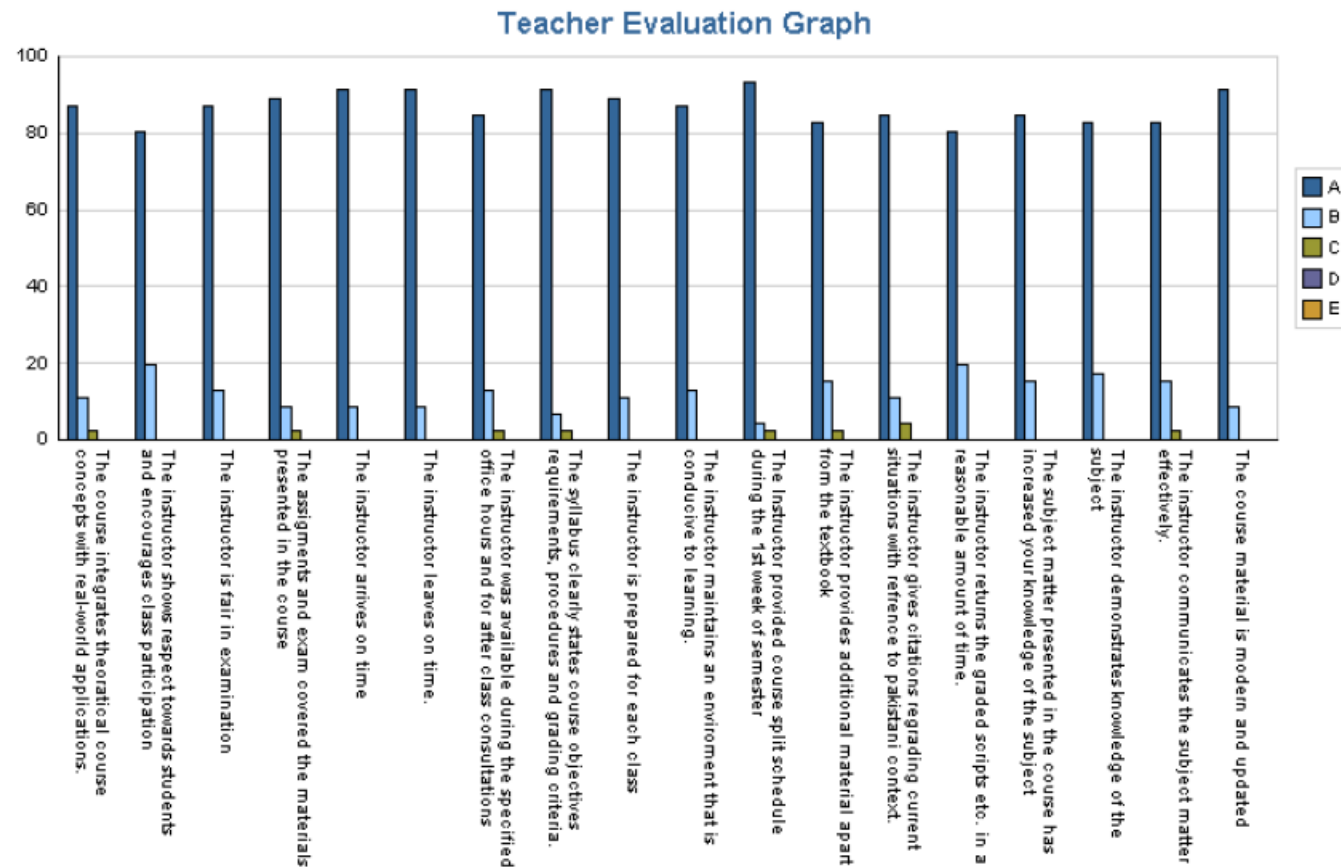
The strongest point which students like about teacher 6 is that the course related information was provided in time and the instructor was well prepared for class and syllabus was well structured.

Results of Performa 10 of Teacher 6 (BCH-708/Evening A)



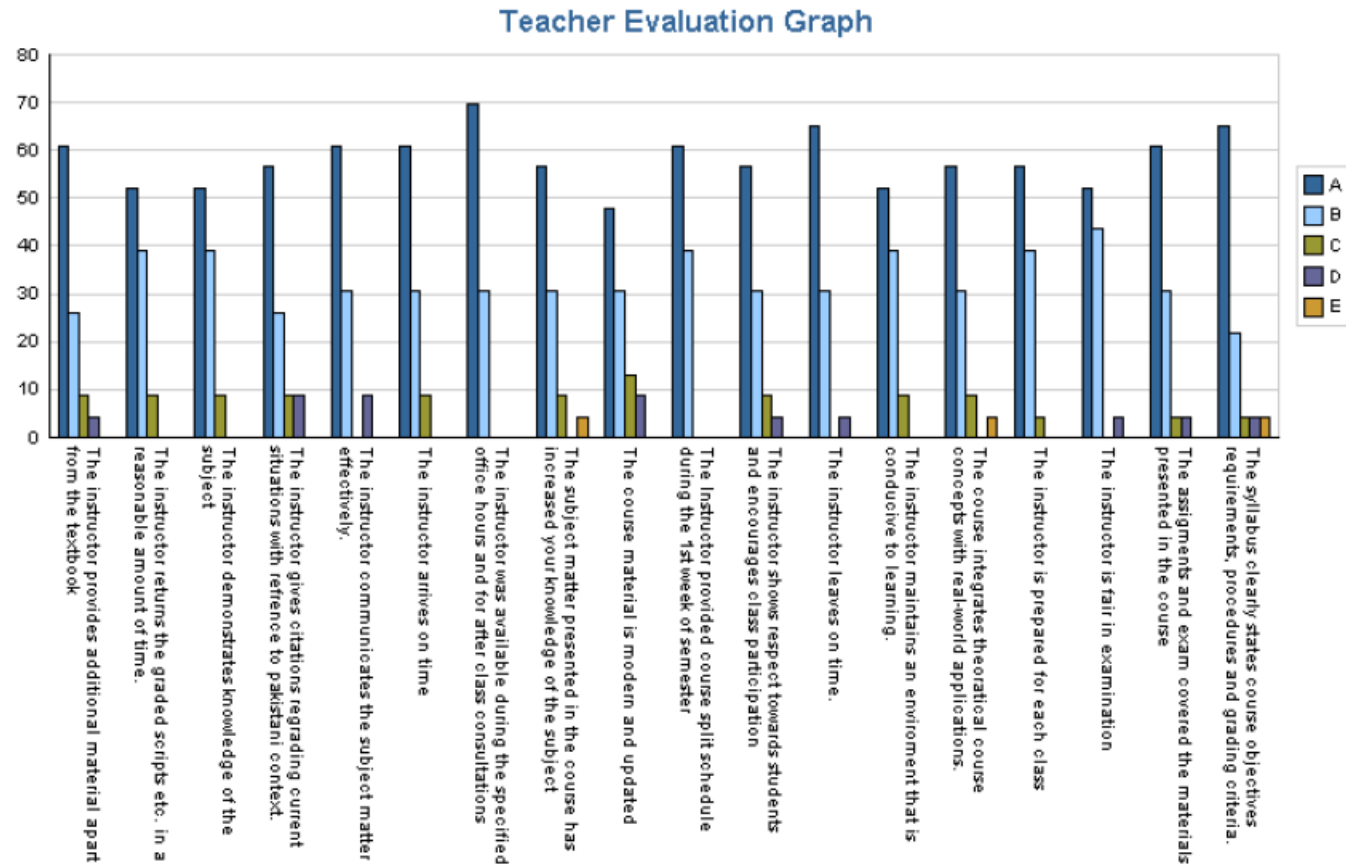
The strongest point which students like about teacher 6 is that the course related information was provided in time and the instructor was well prepared for class.

Results of Performa 10 of Teacher 7 (BCH-701/Morning A)



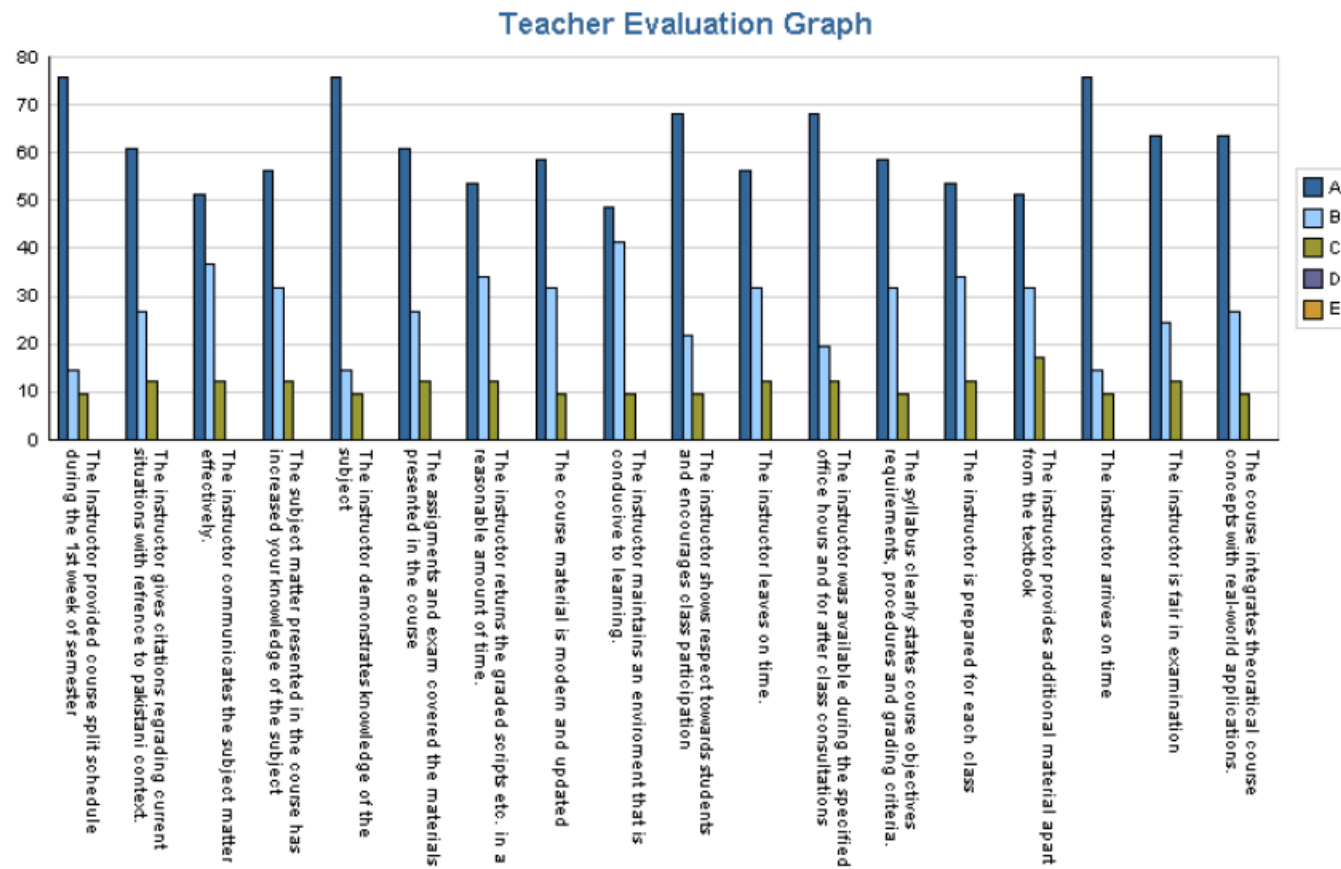
The strongest point which students like about teacher 7 is that, overall instructor did a very good job related to all the aspects of course the course related information was provided in time and the instructor was well prepared for class and was available for after class consultations as well.

Results of Performa 10 of Teacher 7 (BCH-701/ B)



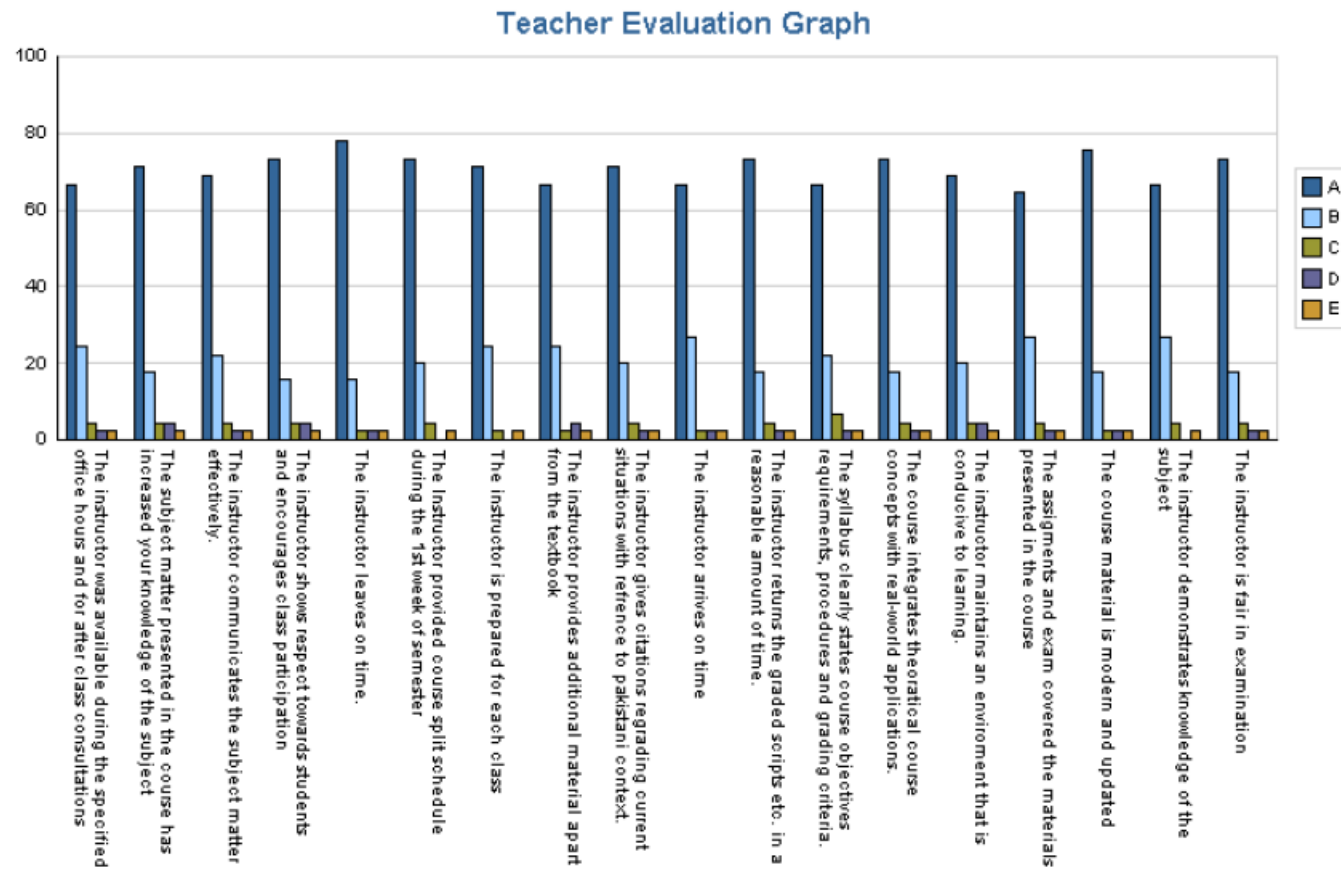
The strongest point which students like about teacher 7 is that the course related information was provided in time and the instructor was well prepared for class and was available for after class consultations as well.

Results of Performa 10 of Teacher 7 (BCH-701/ C)



The strongest point which students like about teacher 7 is that the instructor demonstrates the knowledge of the subject very well and course related information was provided in time.

Results of Performa 10 of Teacher 7 (BCH-701/ D)

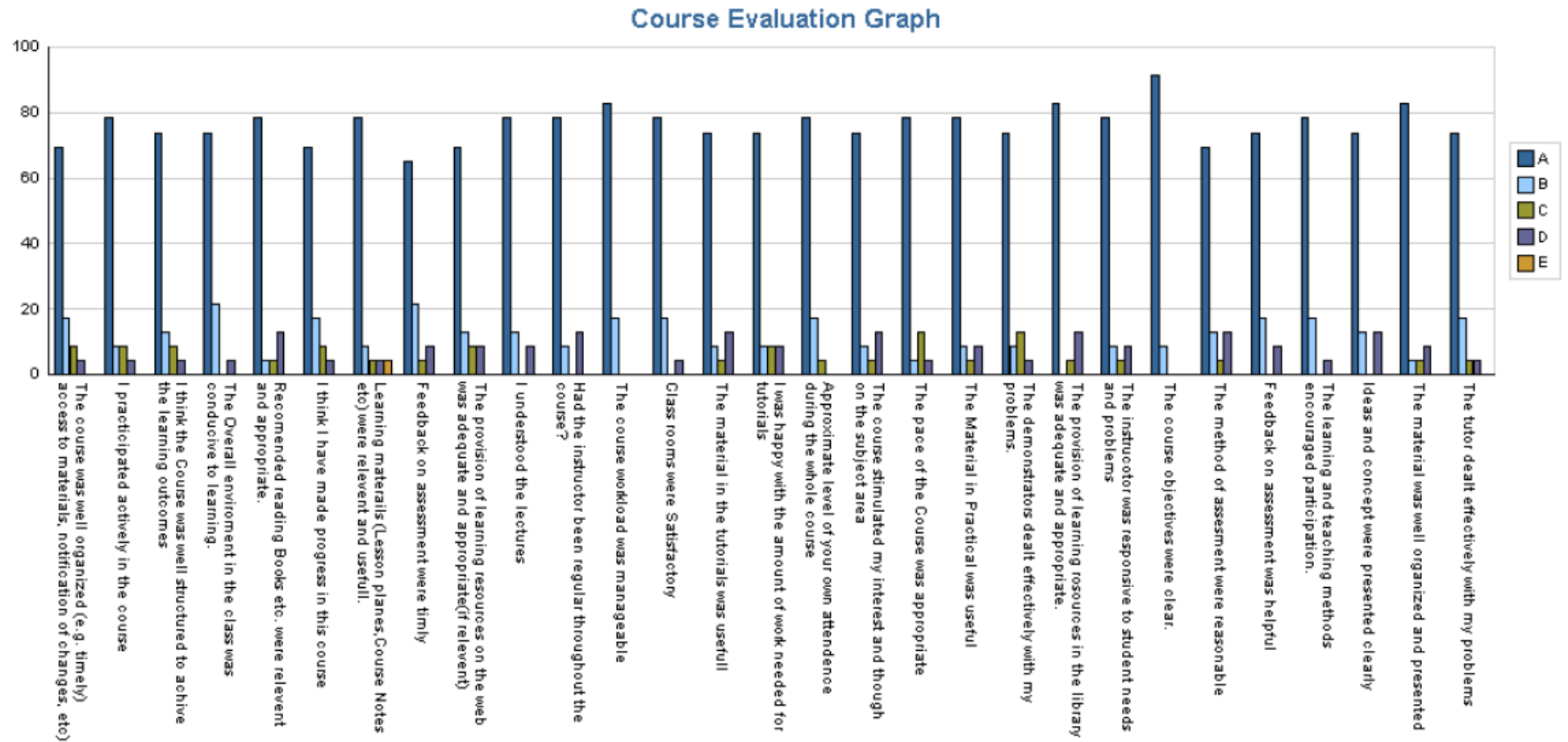


The strongest point which students like about teacher 7 is that the course material was modern updated and was provided in time. Moreover, instructor was punctual.

Student Course Evaluation Spring Semester 2013:**Over all Results of Proforma No. 1 Teacher 1 to 7**

Proforma No. 1, deals with study of course observation regarding design of course contents (both theoretical and practical), its relevance with subject and teaching material. It also emphasizes on instructor's role in, not only completing course within given time frame, but how' instructor developed student's interest in this course, used updated literature and was fair in evaluation at the end of a study course.

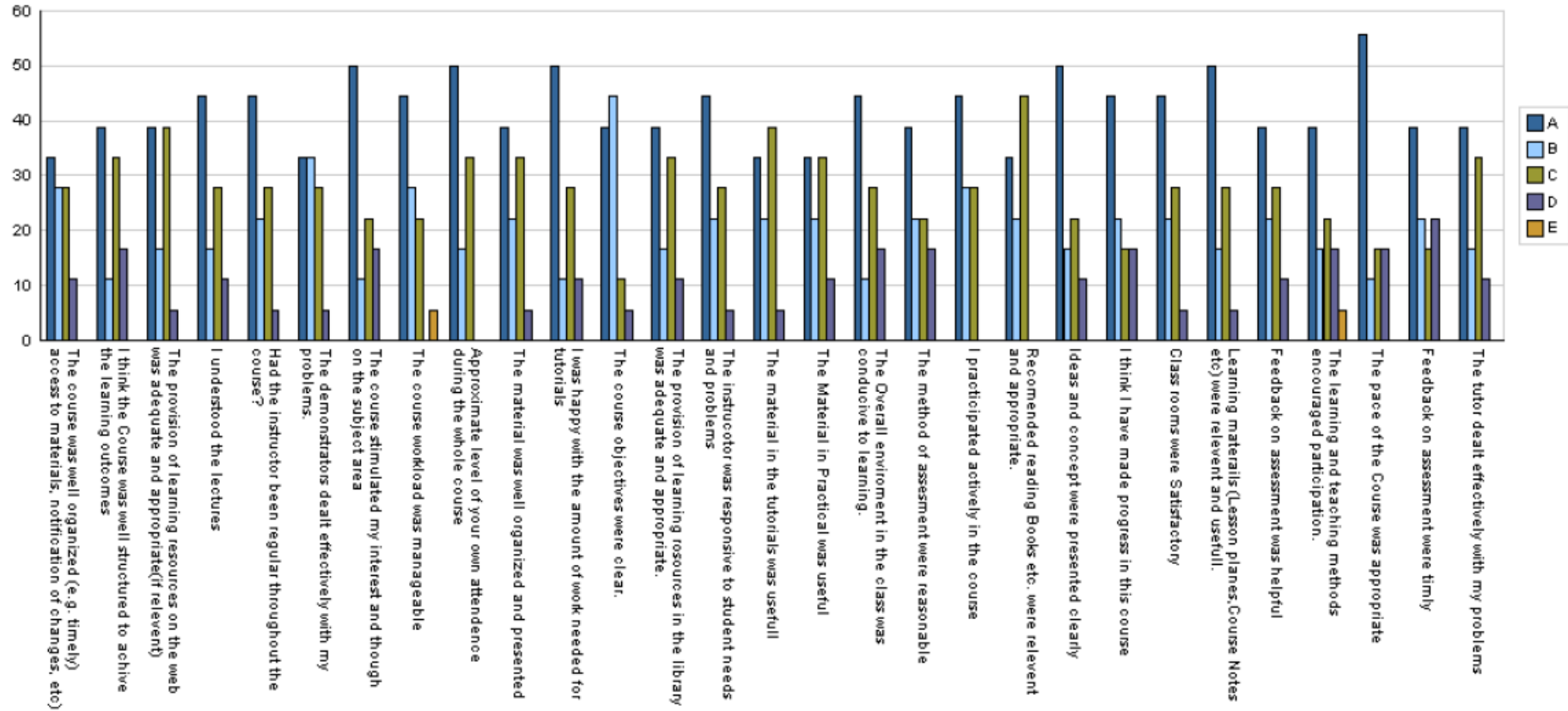
Results of Performa 1 of Teacher 1 (BCH-711/Morning A)



The strongest point which students like about teacher 1 is that the course objectives were very clear, material provided for course was well balanced and presented very well.

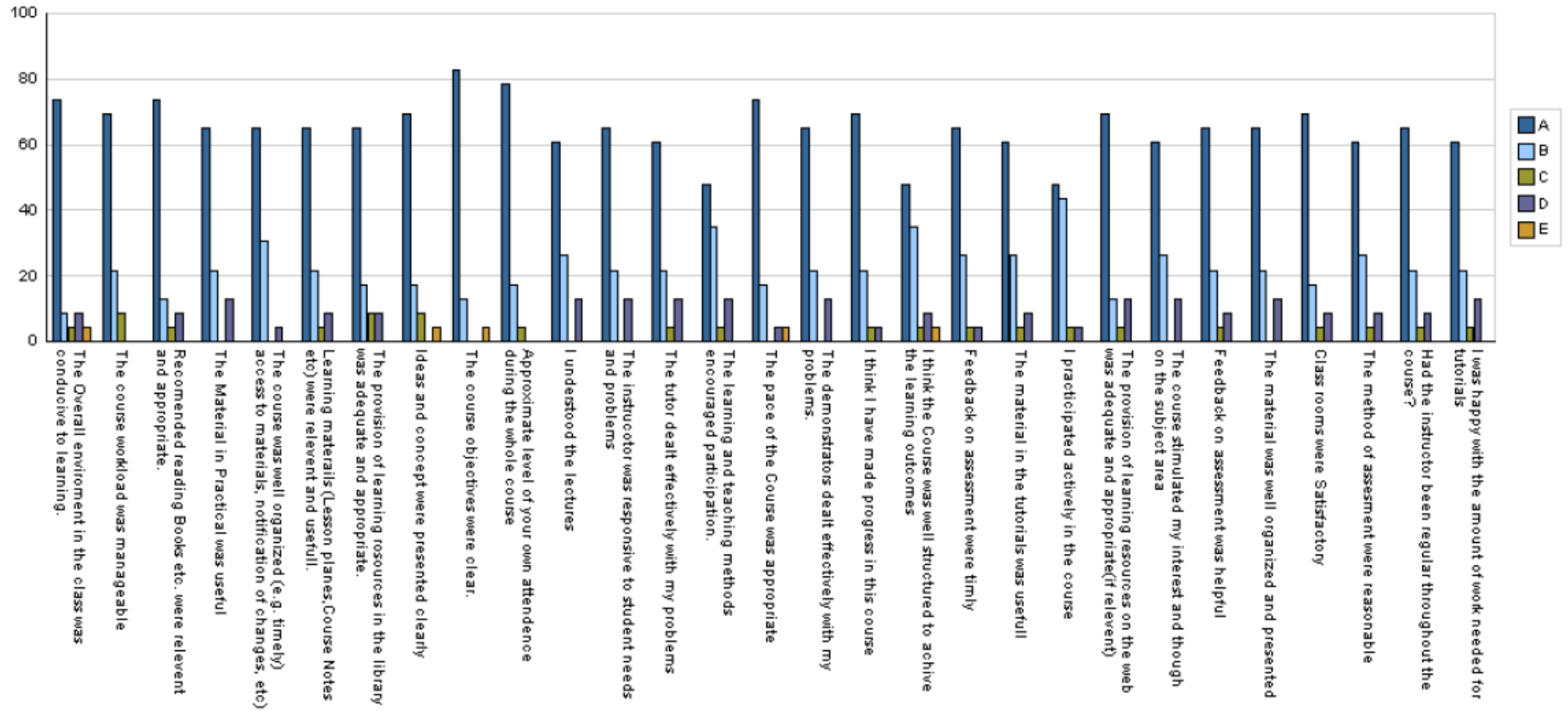
Results of Performa 1 of Teacher 1 (BCH-711/Evening A)

Course Evaluation Graph



The strongest point which students like about teacher 1 is that the course pace was appropriate and the course content also kept the interest of the students.

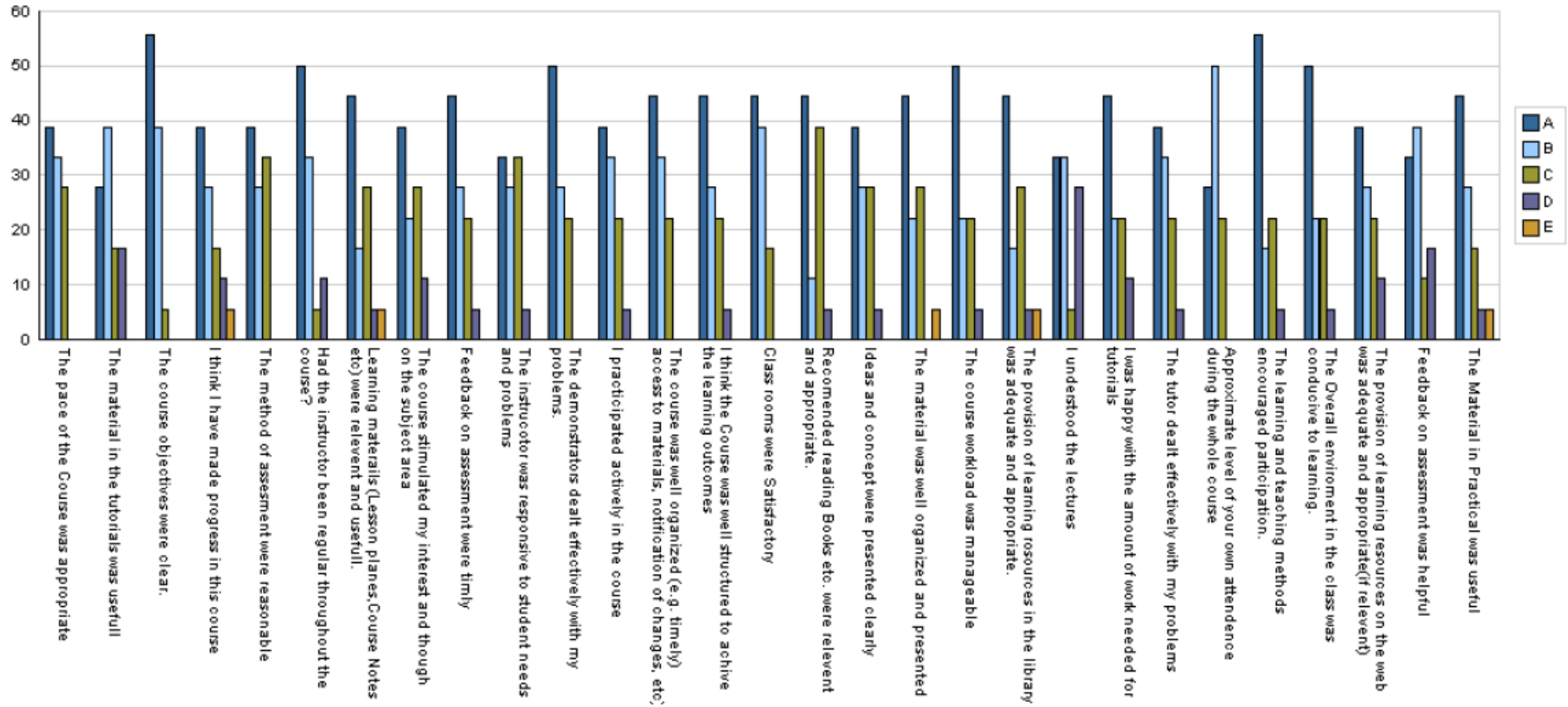
Results of Performa 1 of Teacher 2 (BCH-706/Morning A)
Course Evaluation Graph



The strongest point which students like about teacher 2 is that the course objectives were clear. Teacher was punctual and maintained a good learning environment.

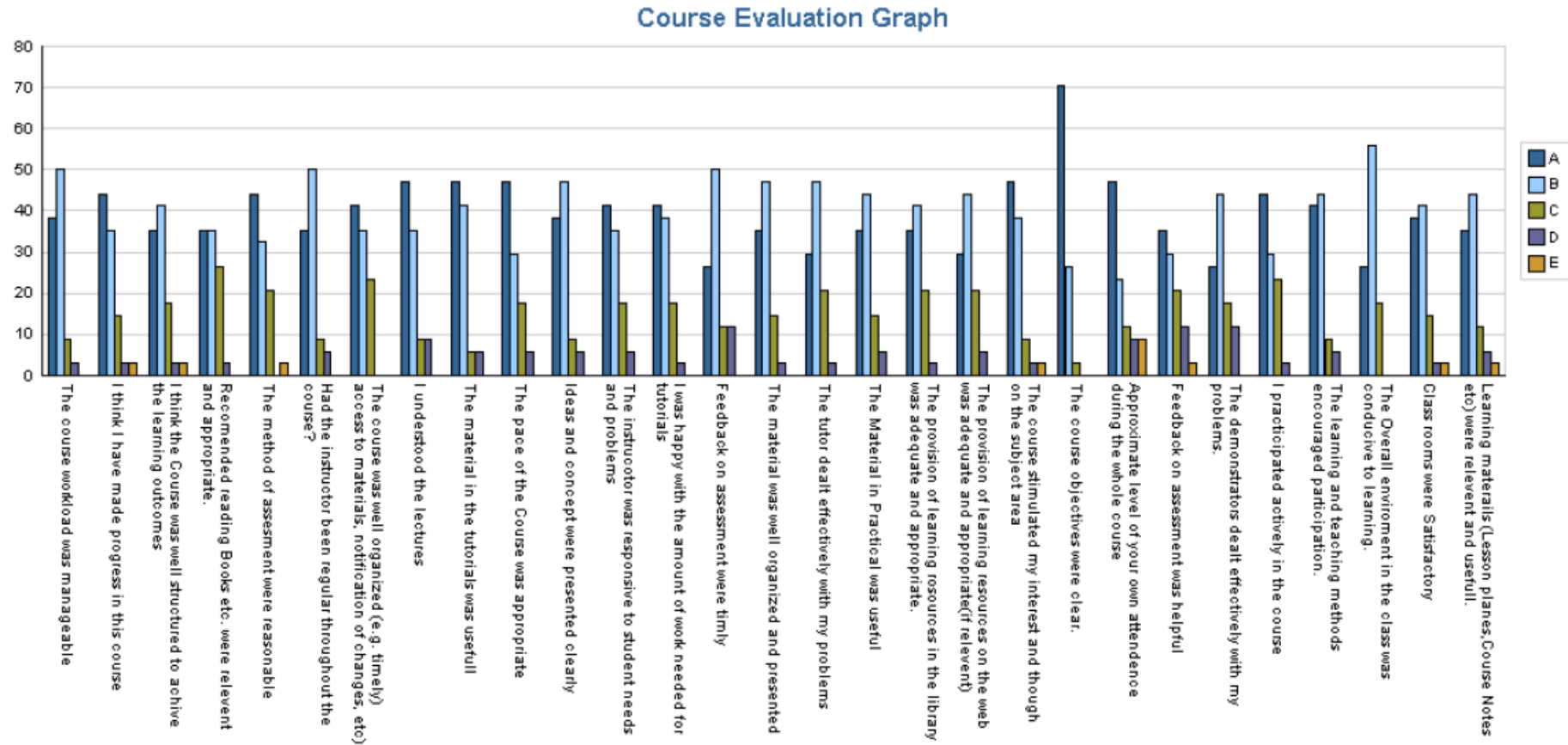
Results of Performa 1 of Teacher 2 (BCH-706/Evening A)

Course Evaluation Graph



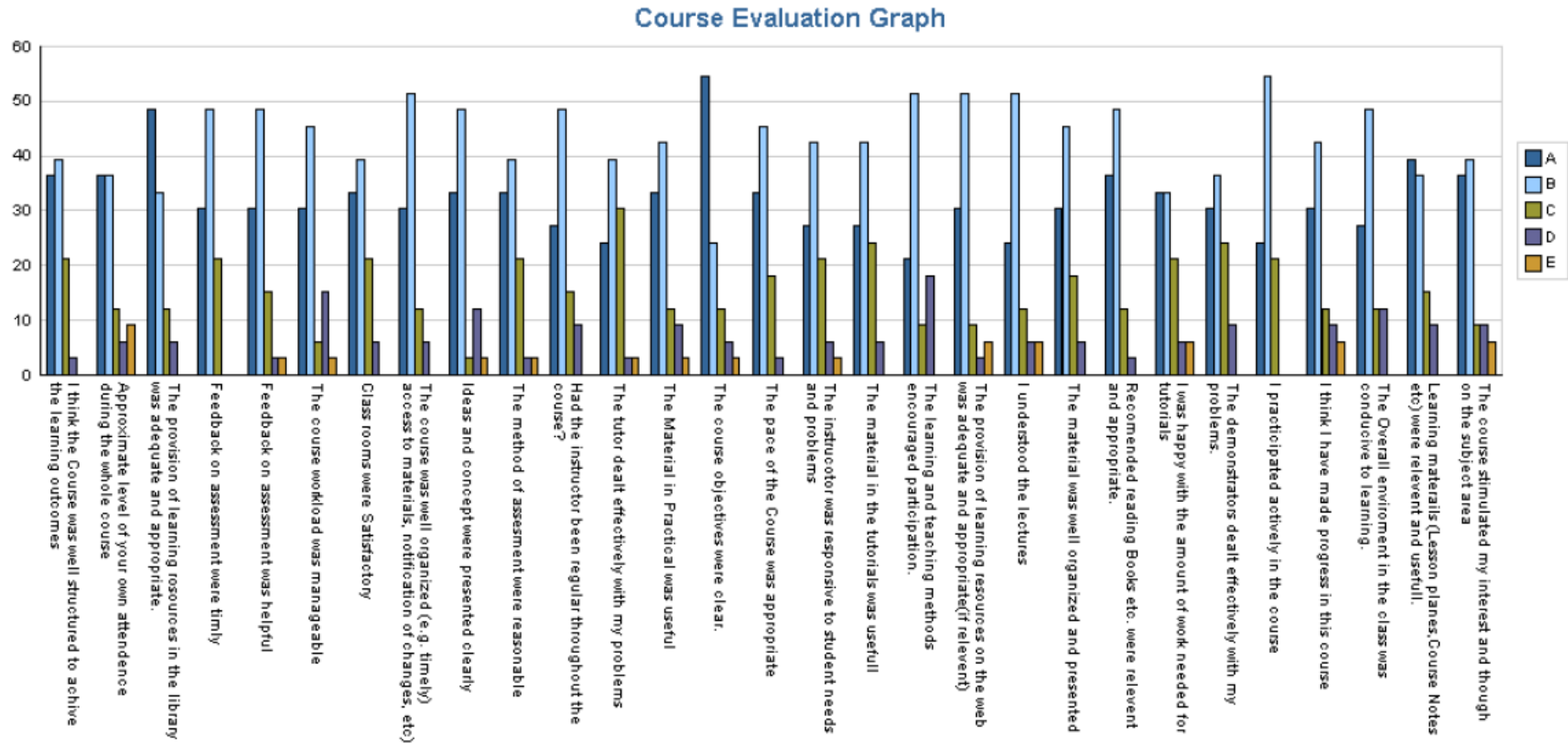
The strongest point which students like about teacher 2 is that the course objectives were clear and the teaching methodology was good.

Results of Performa 1 of Teacher 2 (BCH-704/Morning C)



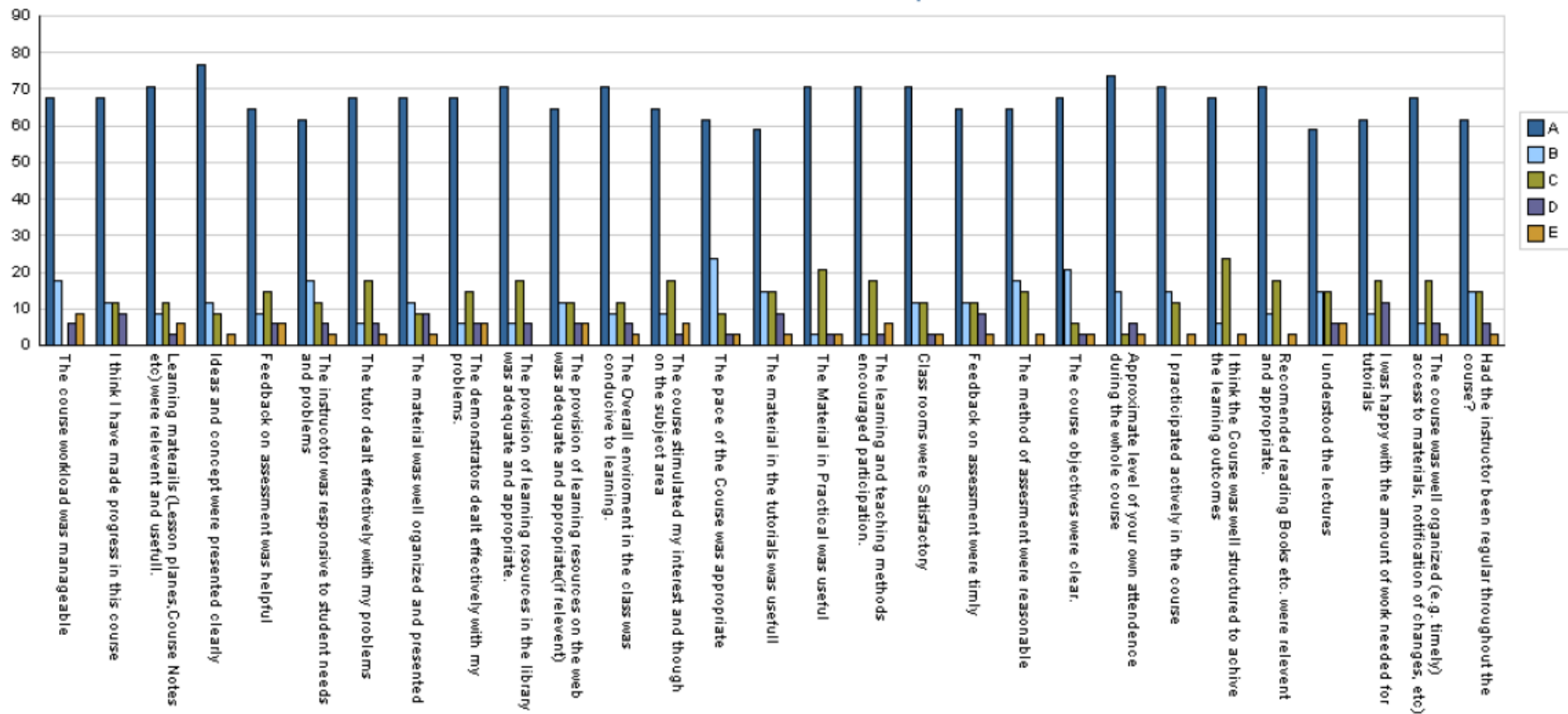
The strongest point which students like about teacher 2 is that the course objectives were clear and the material provided was appropriate.

Results of Performa 1 of Teacher 2 (BCH-704/Morning A)



The strongest point which students like about teacher 2 is that the course objectives were clear and the material provided was appropriate.

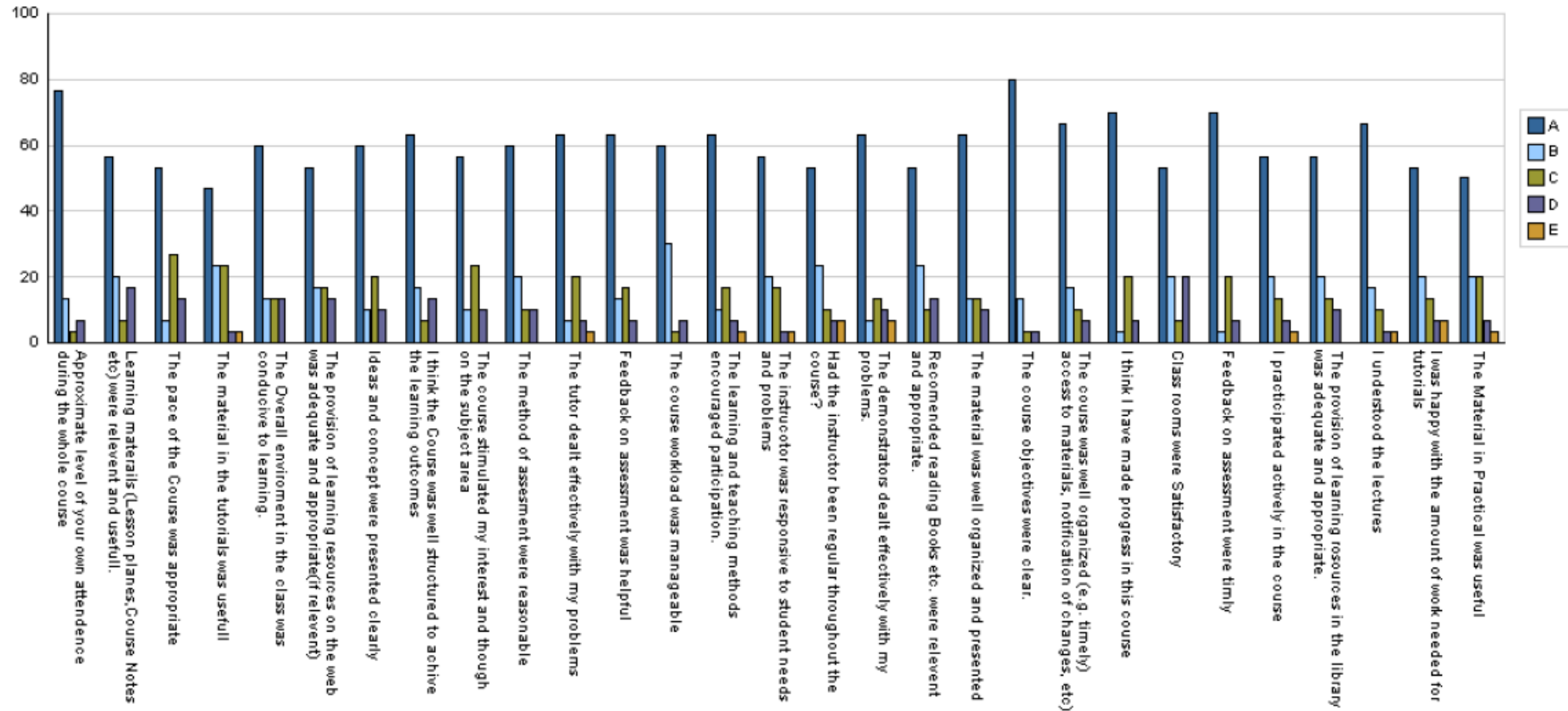
Results of Performa 1 of Teacher 2 (BCH-704/Morning G)
Course Evaluation Graph



The strongest point which students like about teacher 2 is that the course concepts were presented very clearly. The material provided was appropriate and a good learning environment was created in class.

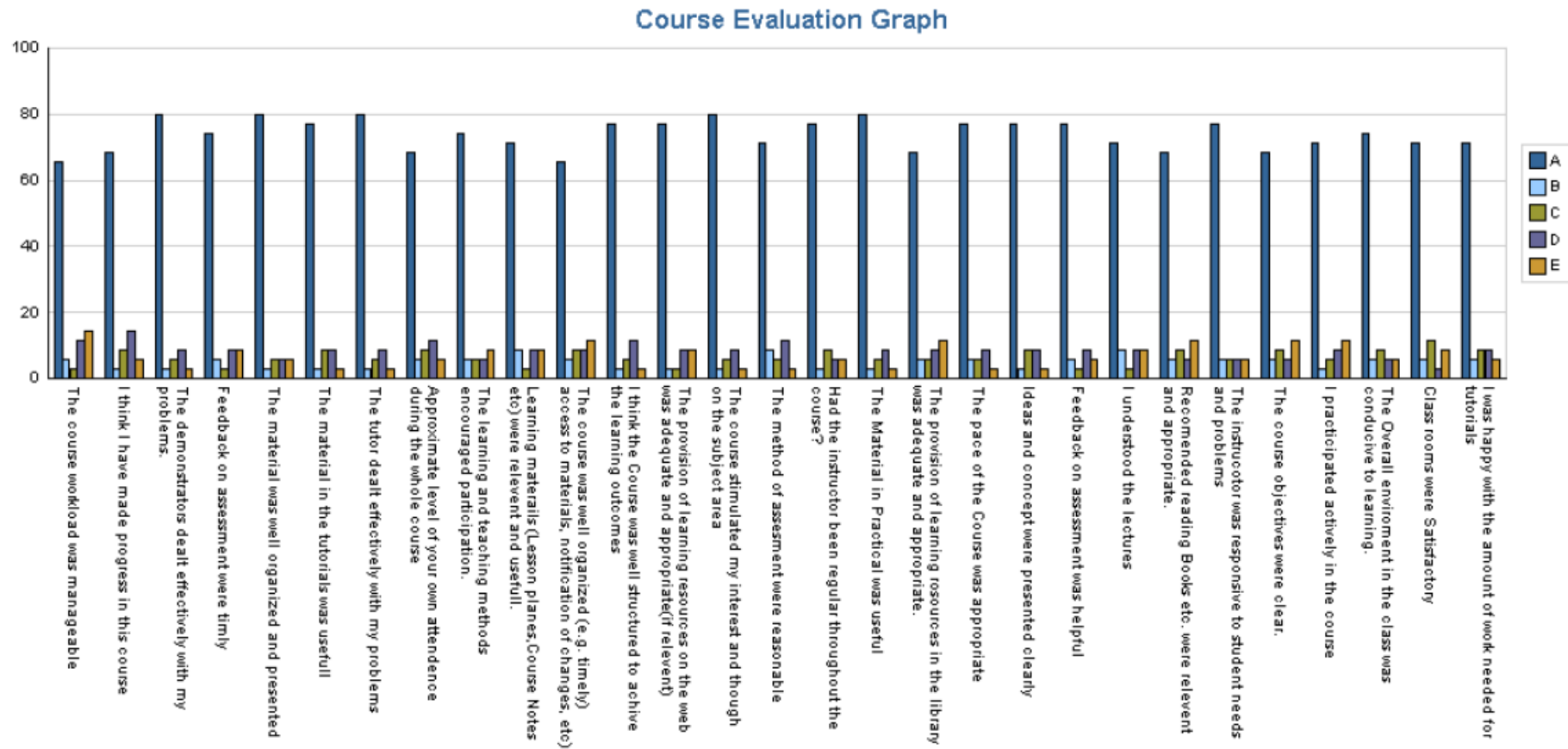
Results of Performa 1 of Teacher 2 (BCH-704/Morning E)

Course Evaluation Graph



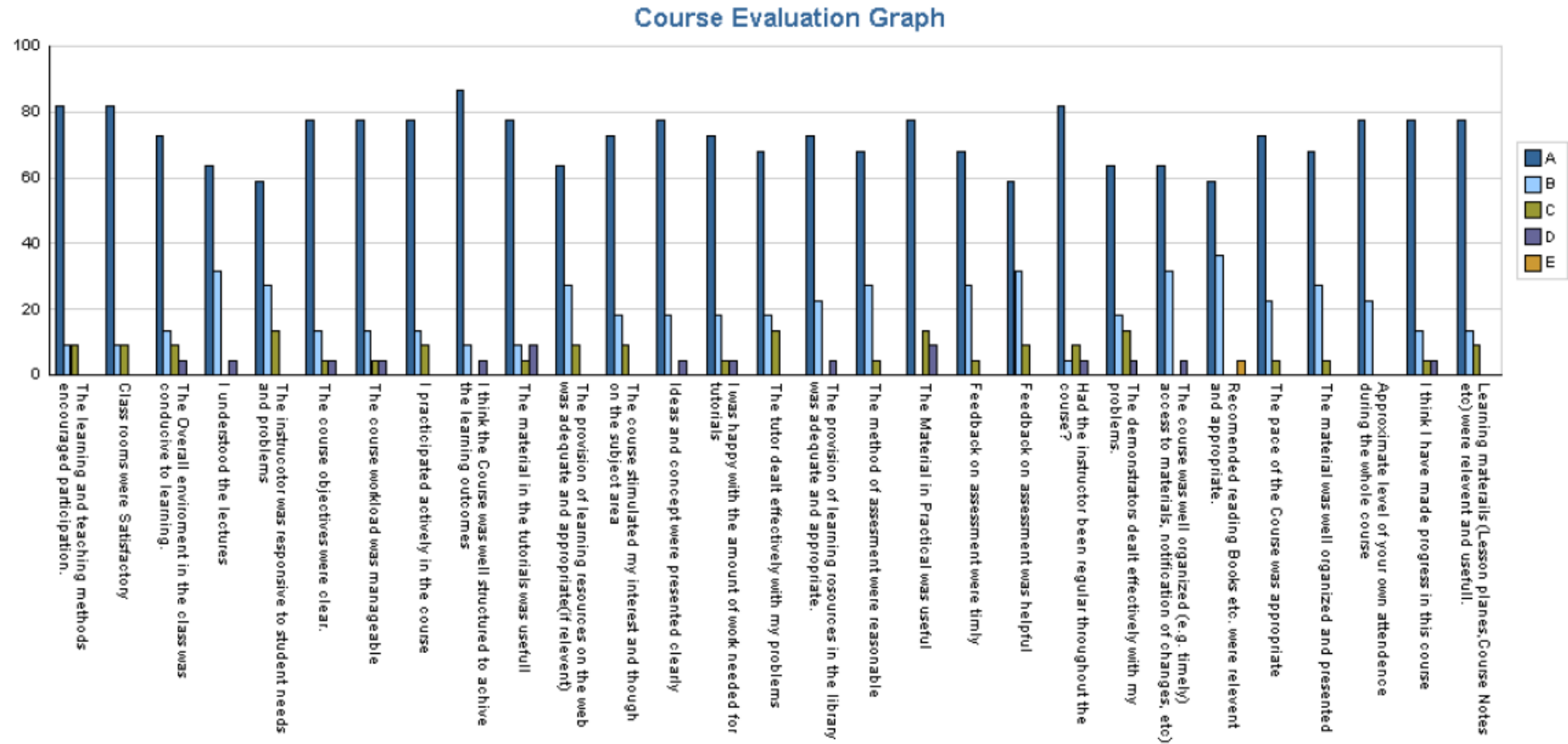
The strongest point which students like about teacher 2 is that the course objectives were made very clear to students, students were punctual and actively participated in the class and the concepts of the subject were well understood by the students.

Results of Performa 1 of Teacher 2 (BCH-704/Evening H)



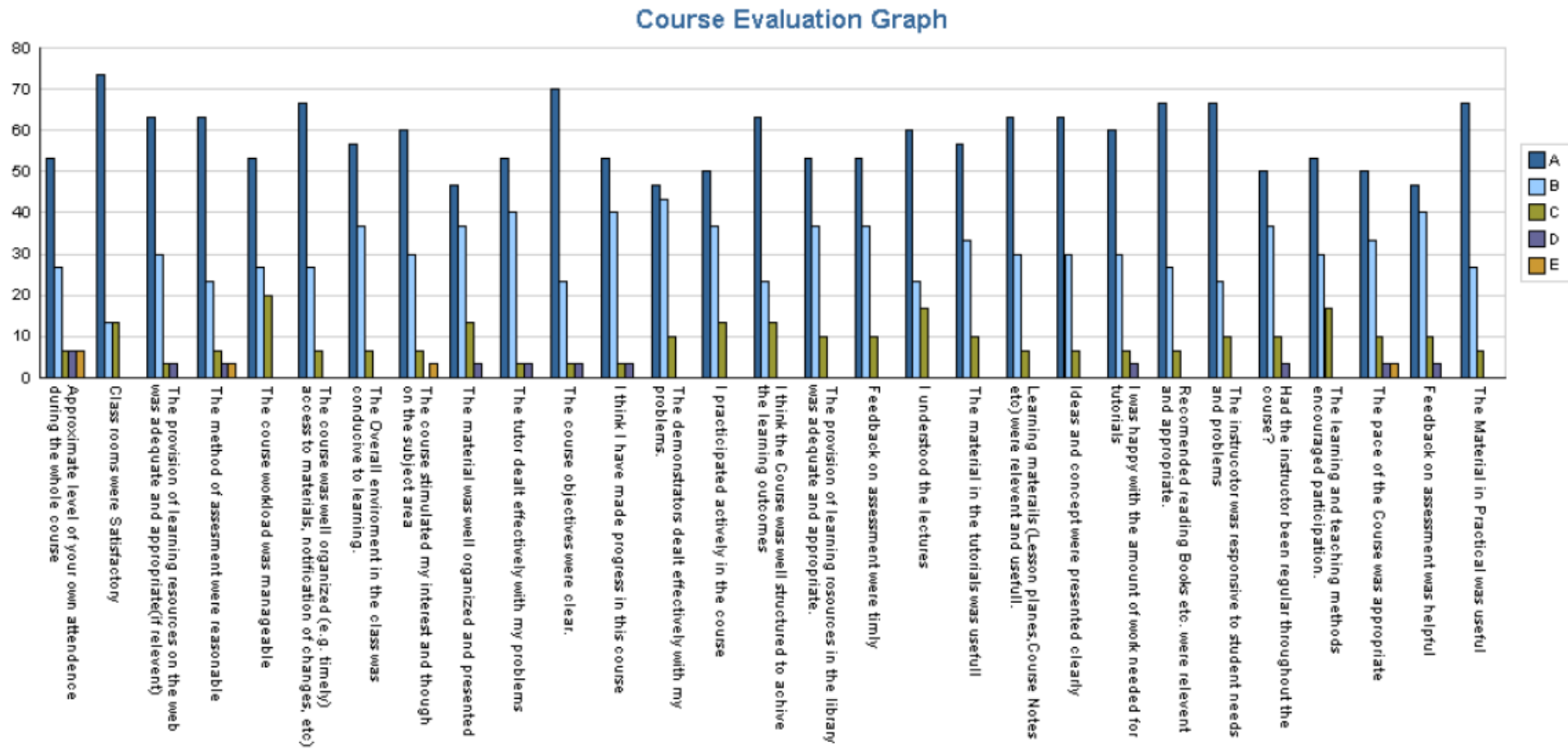
The strongest point which students like about teacher 2 is that the subject material was well presented and the communication with the students was very good.

Results of Performa 1 of Teacher 2 (BCH-704/Evening F)



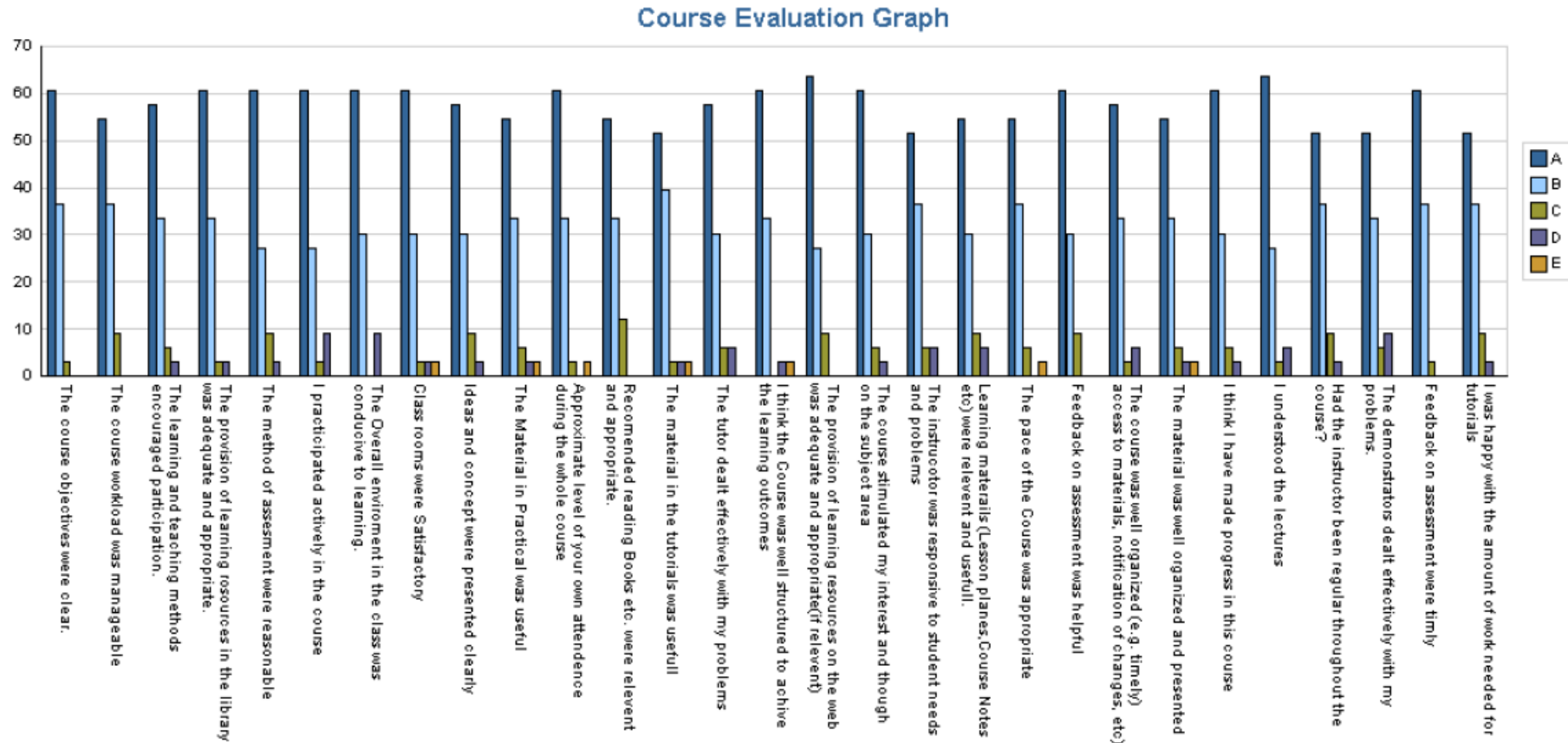
The strongest point which students like about teacher 2 is that the course was very well structured. Teacher was very regular and the teaching methodology was very encouraging.

Results of Performa 1 of Teacher 2 (BCH-704/Evening D)



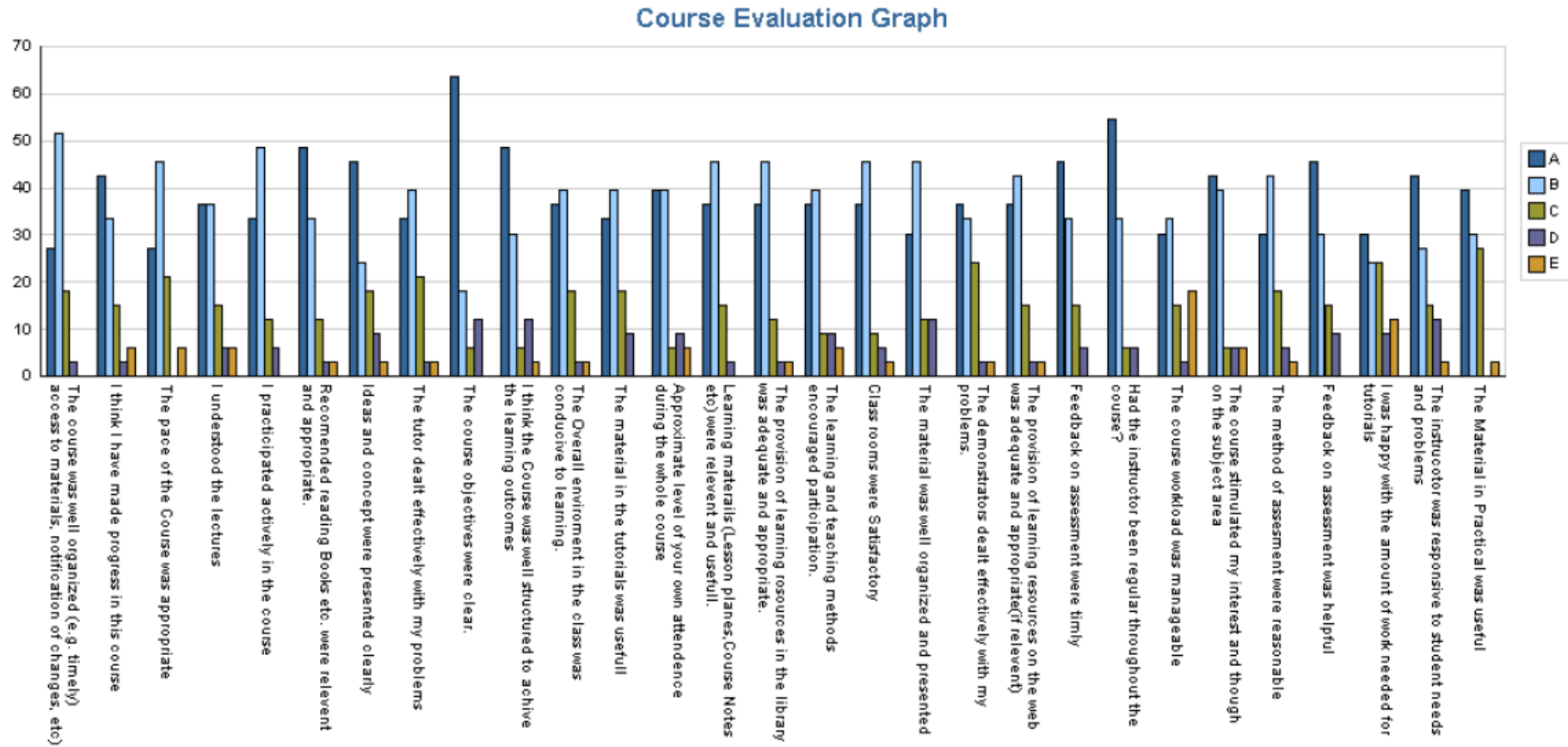
The strongest point which students like about teacher 2 is that the course objectives were clear. The material presented was well organized and useful.

Results of Performa 1 of Teacher 2 (BCH-704/Evening B)



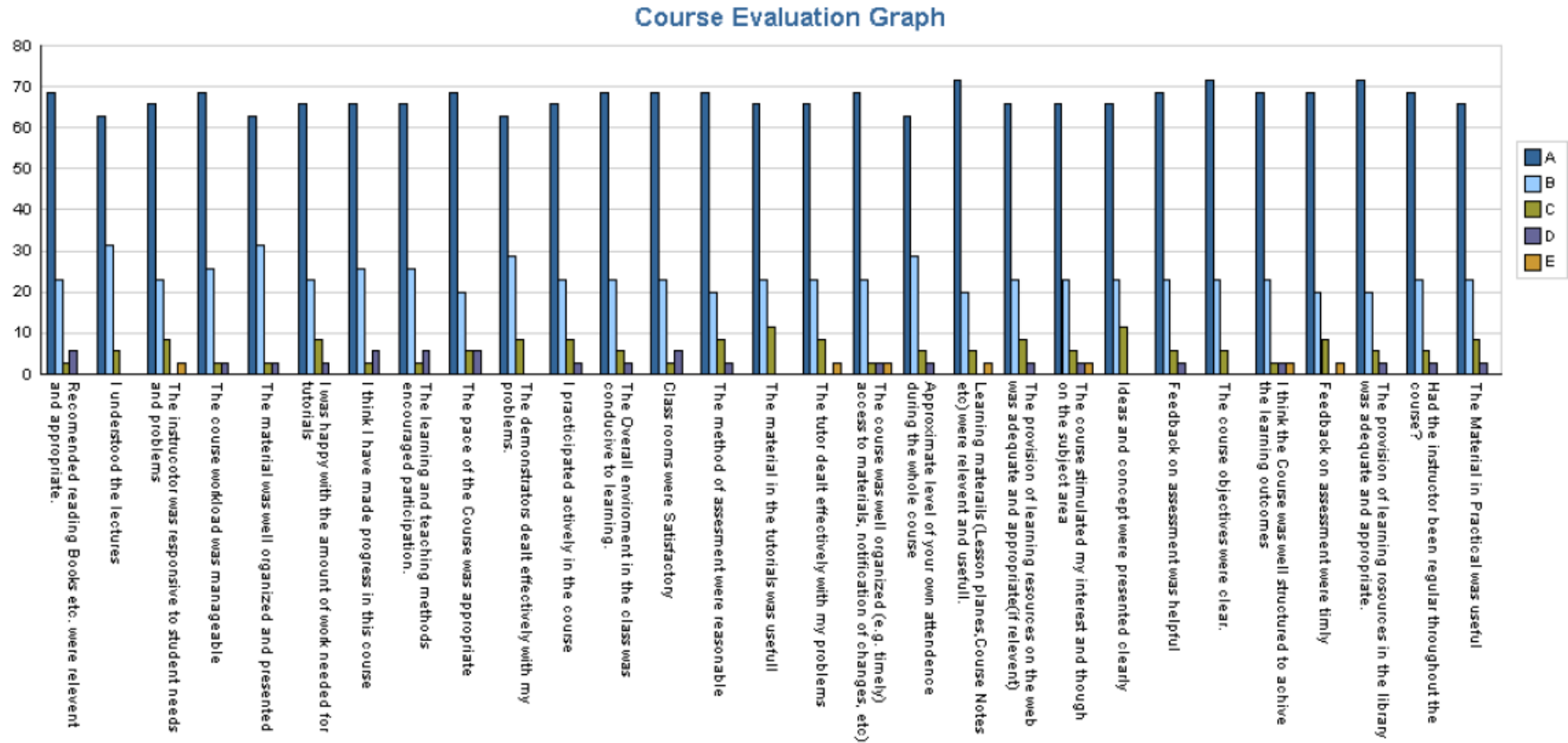
The strongest point which students like about teacher 2 is that the lectures were well presented. The course objectives were clear and the material provided was appropriate and communicated well.

Results of Performa 1 of Teacher 3 (BCH-707/Morning A)



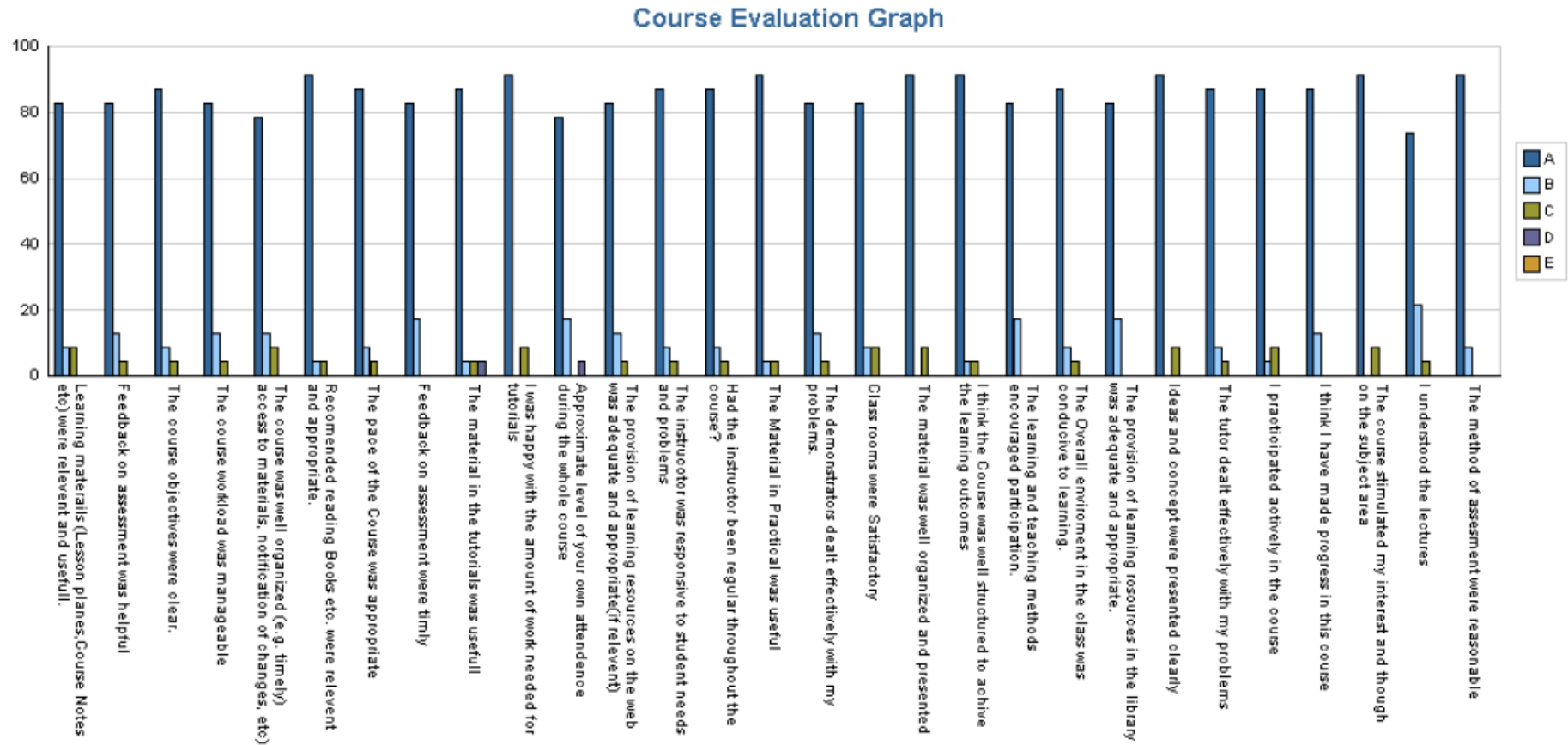
The strongest point which students like about teacher 3 is that the course objectives were very clear and the instructor was regular throughout the course.

Results of Performa 1 of Teacher 3 (BCH-707/Evening A)



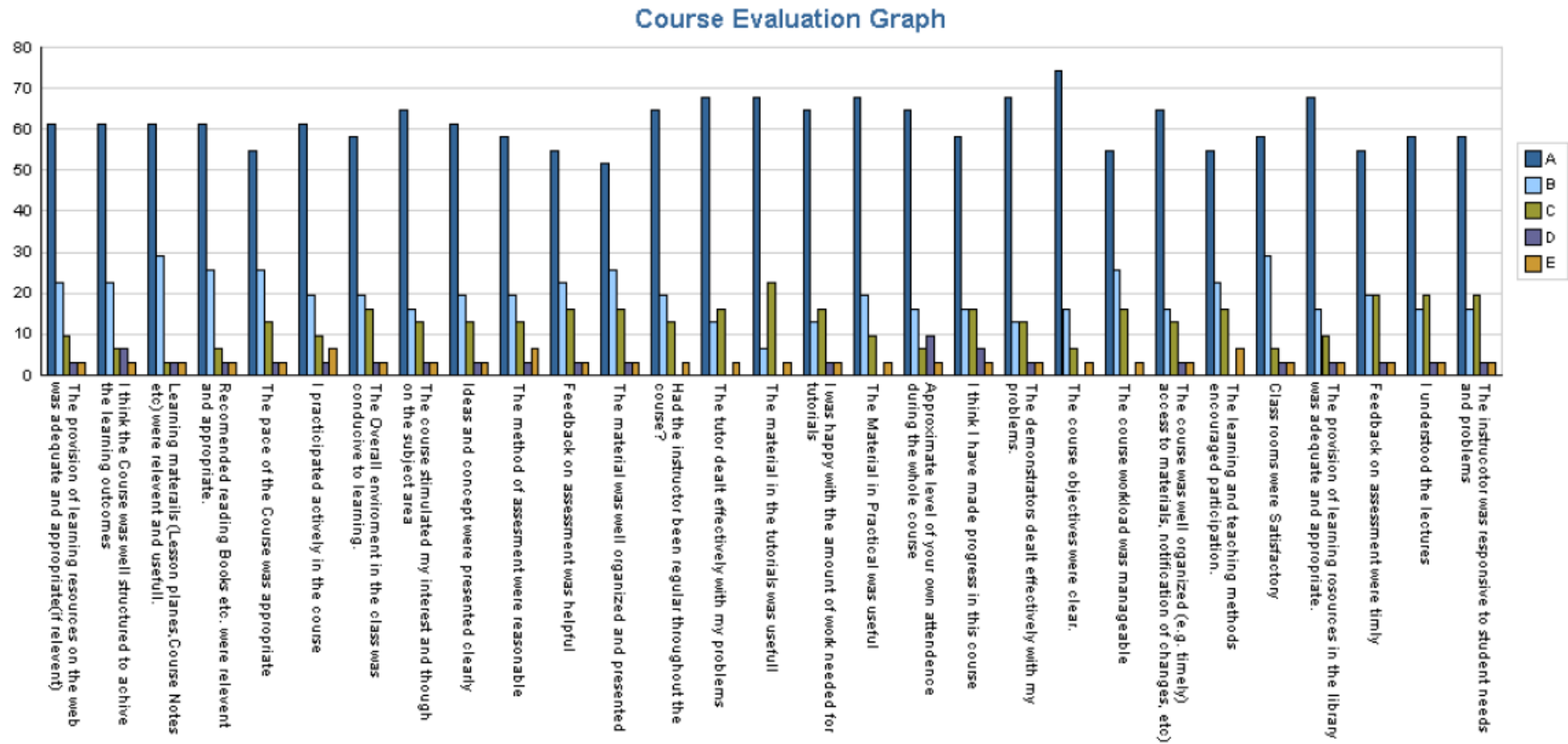
The strongest point which students like about teacher 3 is that the course material was relevant and useful and overall there was a good learning environment.

Results of Performa 1 of Teacher 3 (BCH-713/Morning A)



The strongest point which students like about teacher 3 is that the course concepts were presented very clearly and the course stimulated the student's interest.

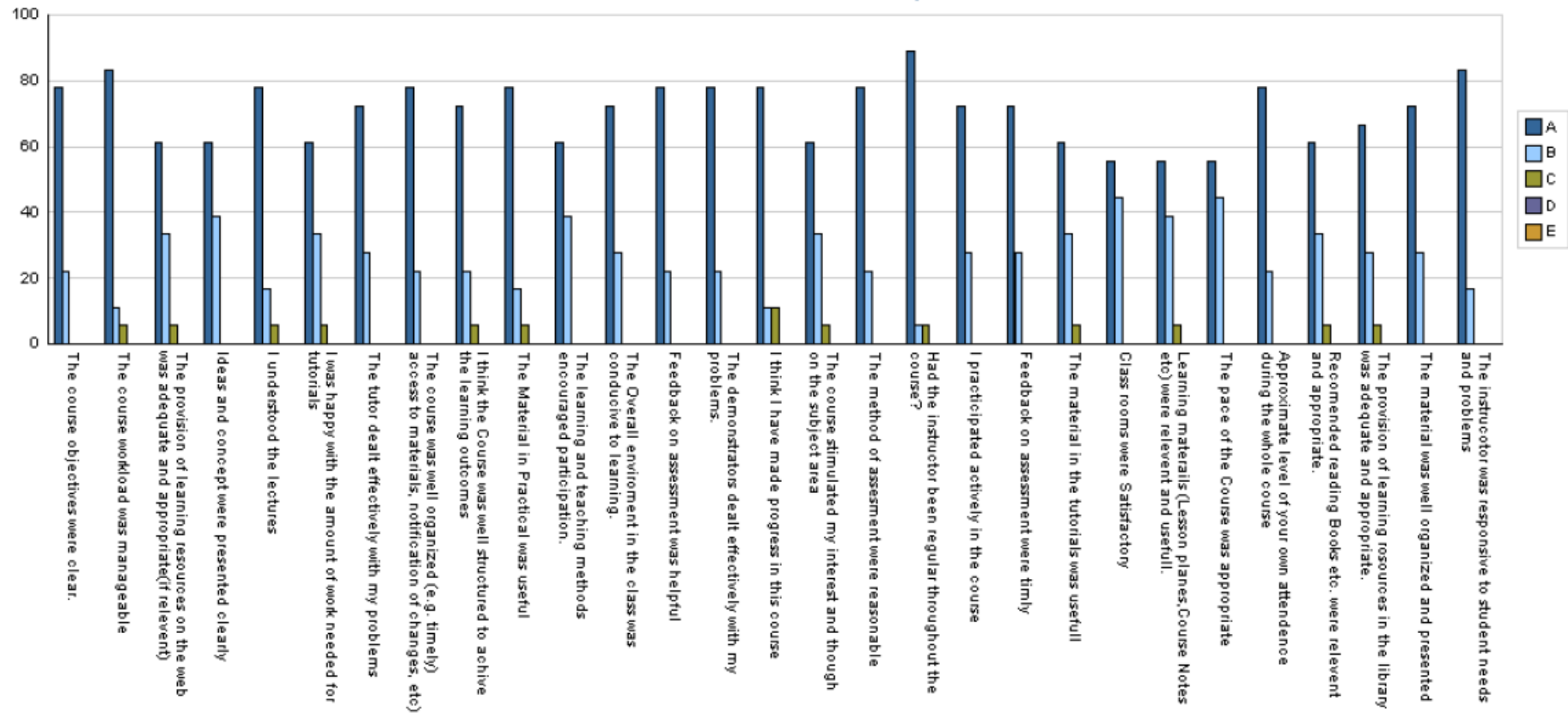
Results of Performa 1 of Teacher 3 (BCH-713/Morning C)



The strongest point which students like about teacher 3 is that the course objectives were very clear and the course stimulated the interest of students on the subject area.

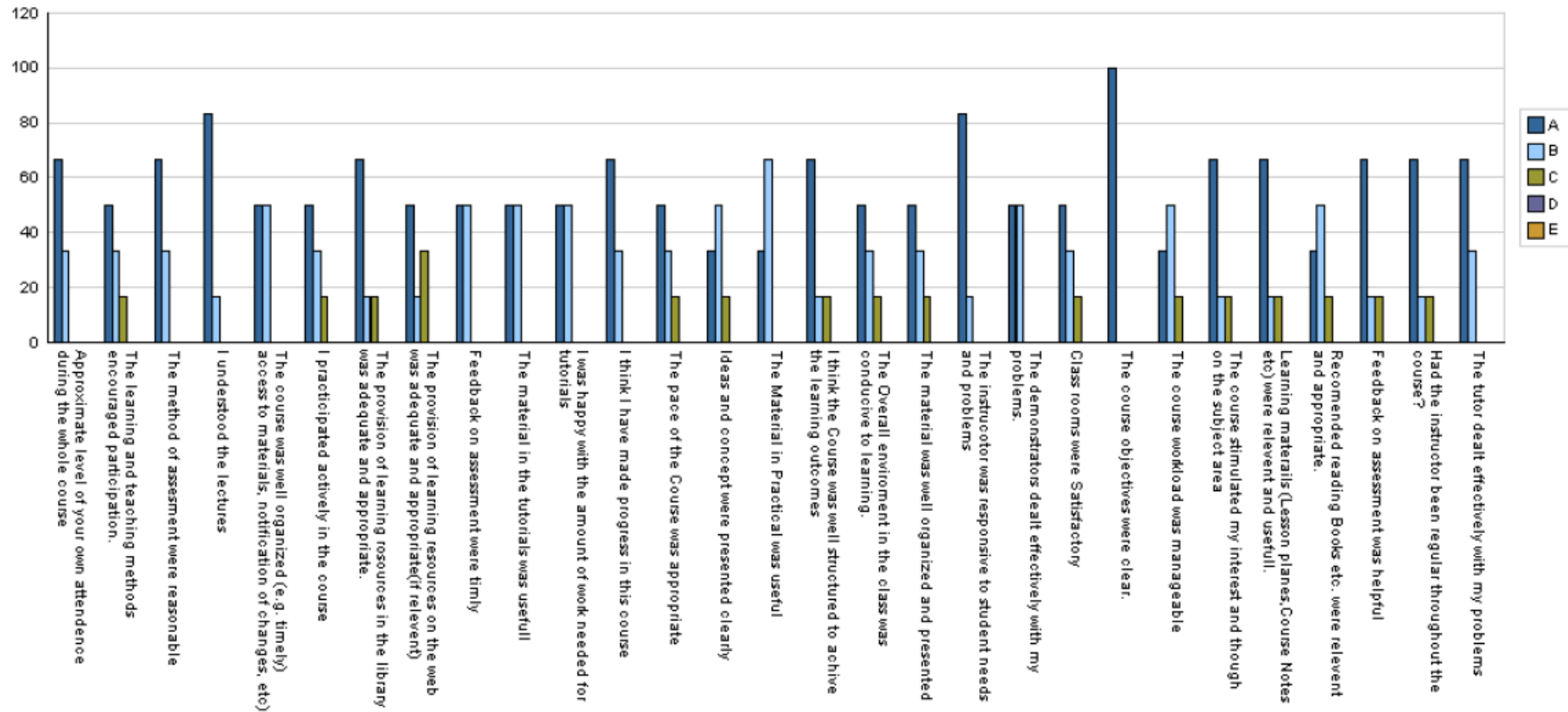
Results of Performa 1 of Teacher 3 (BCH-713/Evening B)

Course Evaluation Graph



The strongest point which students like about teacher 3 is that the instructor was very regular during the class. Course objectives were clear and the work was manageable.

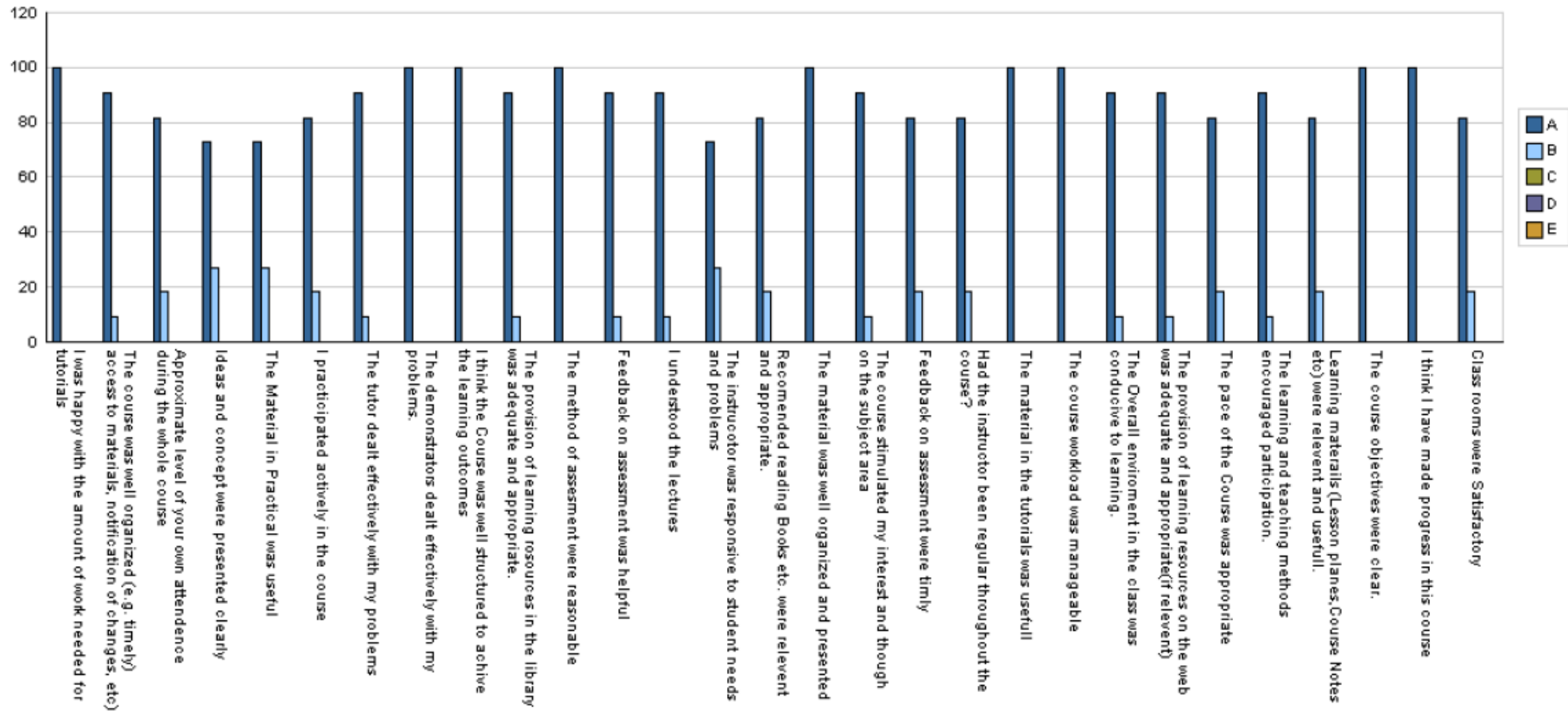
Results of Performa 1 of Teacher 3 (BCH-713/Evening D)
Course Evaluation Graph



The strongest point which students like about teacher 3 is that the course objectives were very clear and the lecture was presented in a way which students comprehended well.

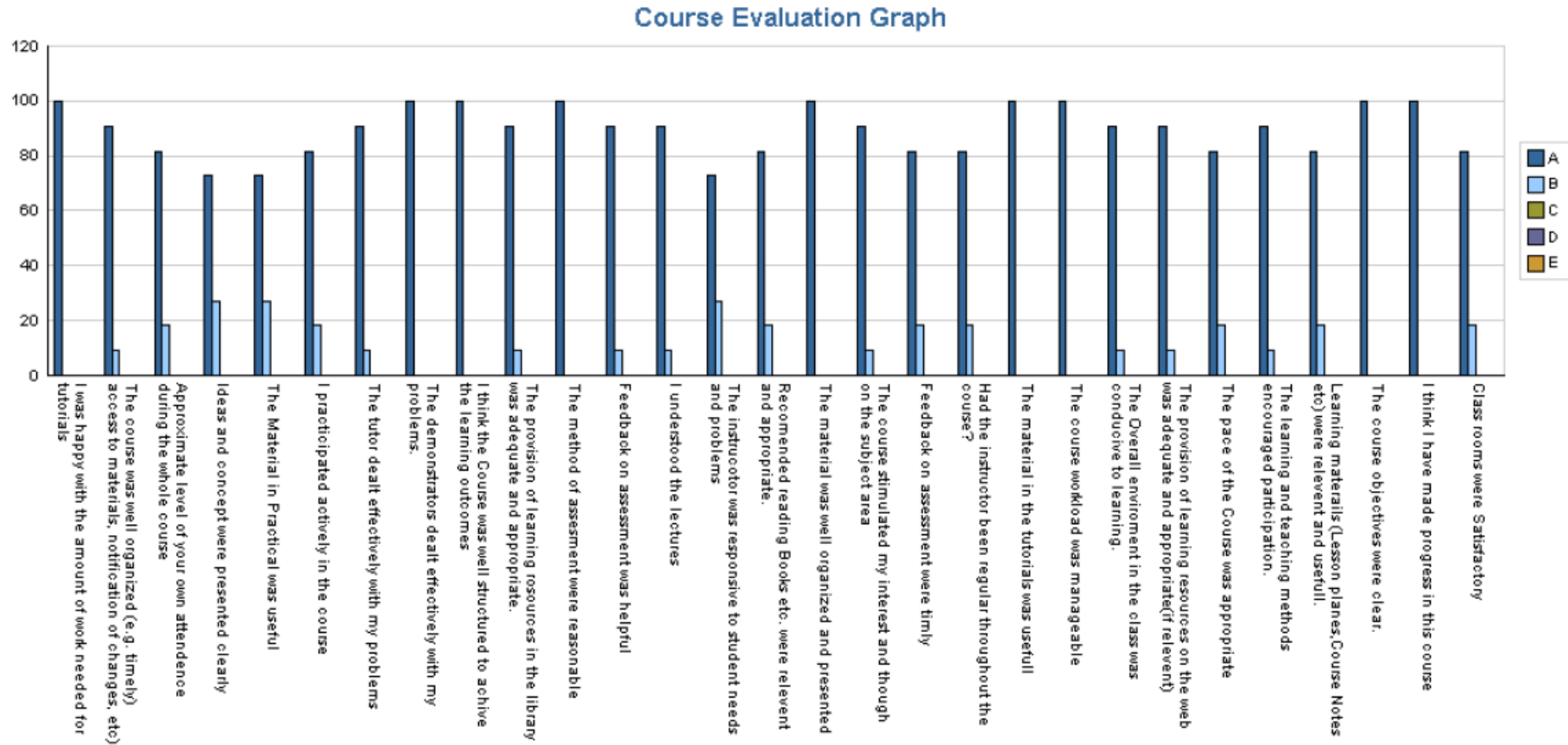
Results of Performa 1 of Teacher 4 (BCH-716/Morning A)

Course Evaluation Graph



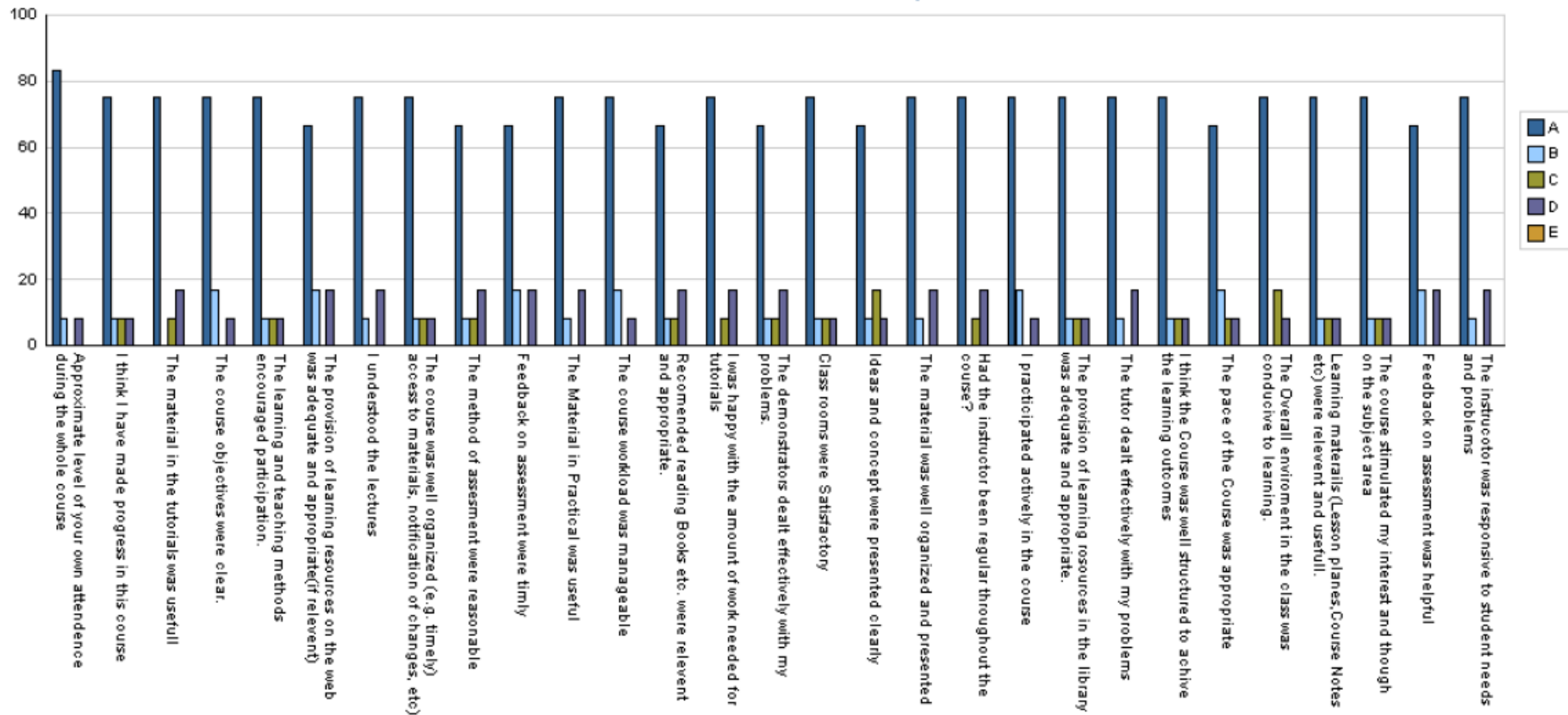
The strongest point which students like about teacher 4 is that the course was very well structured. Instructor dealt with the problems of students very well and the course objectives were very clear.

Results of Performa 1 of Teacher 4 (BCH-716/Evening A)



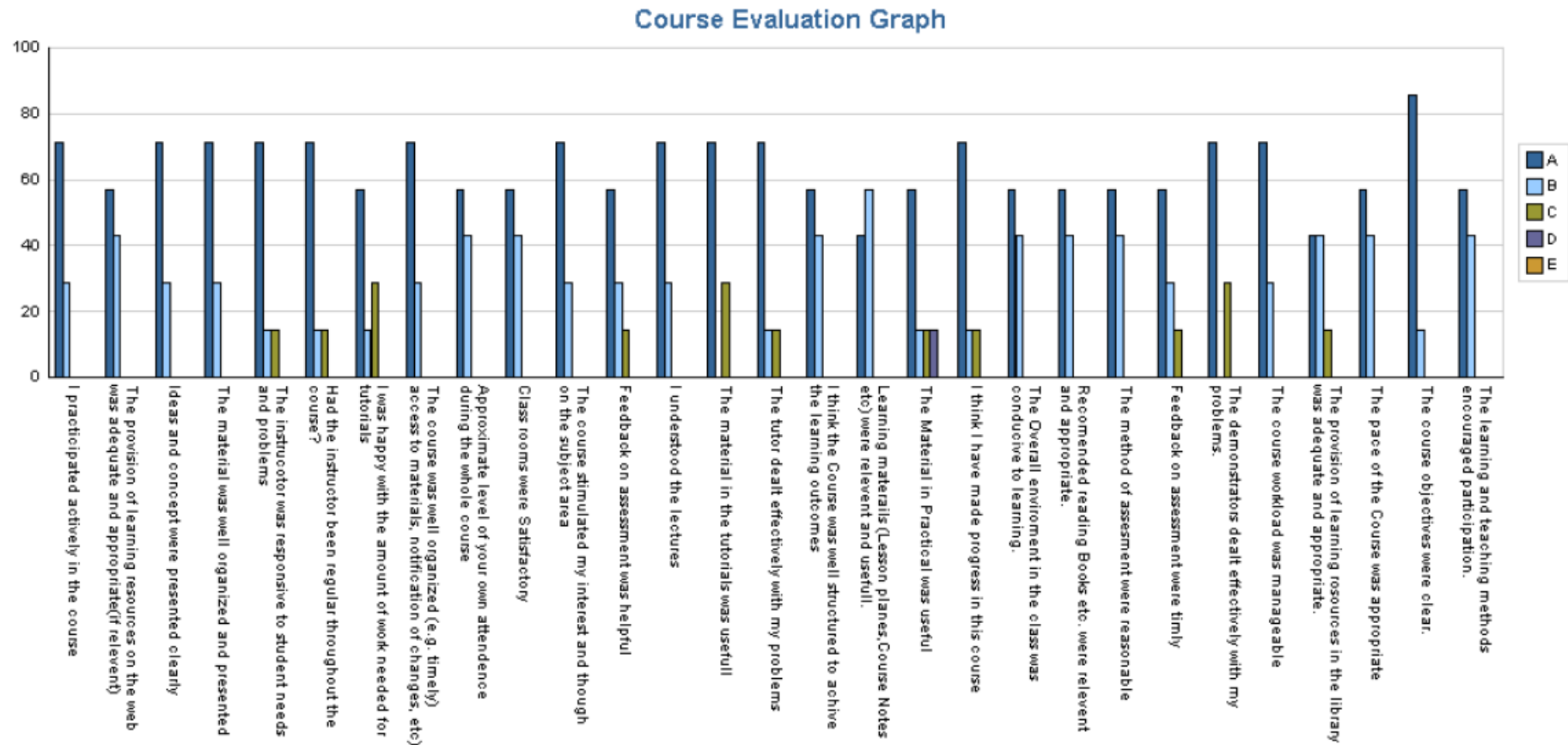
The strongest point which students like about teacher 4 is that the course objectives were very clear and the material was well organized and presented.

Results of Performa 1 of Teacher 5 (BCH-714/Morning A)
Course Evaluation Graph



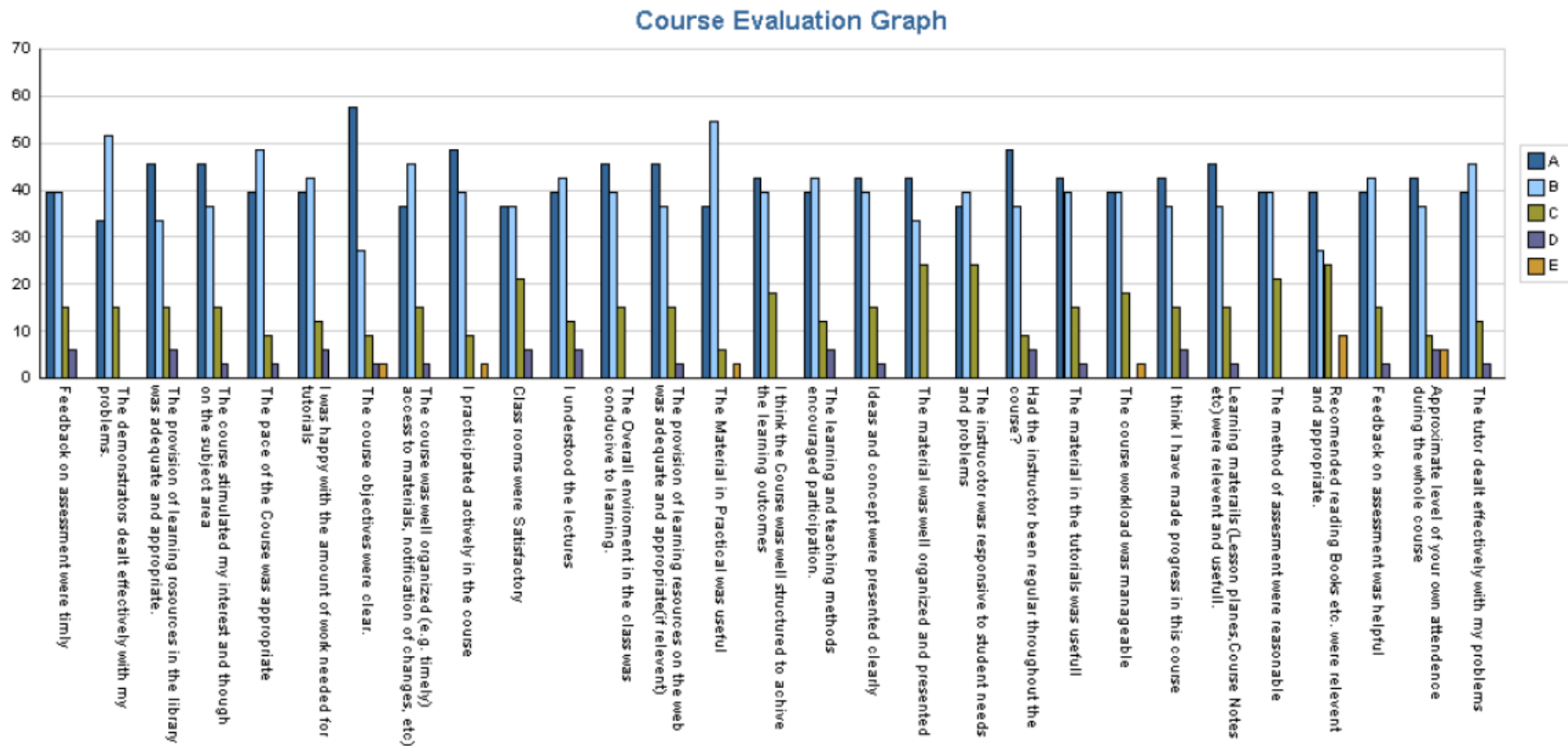
The strongest point which students like about teacher 5 is that the learning and teaching methods were very encouraging for the participants; students were punctual and understood the lectures.

Results of Performa 1 of Teacher 5 (BCH-714/Evening A)



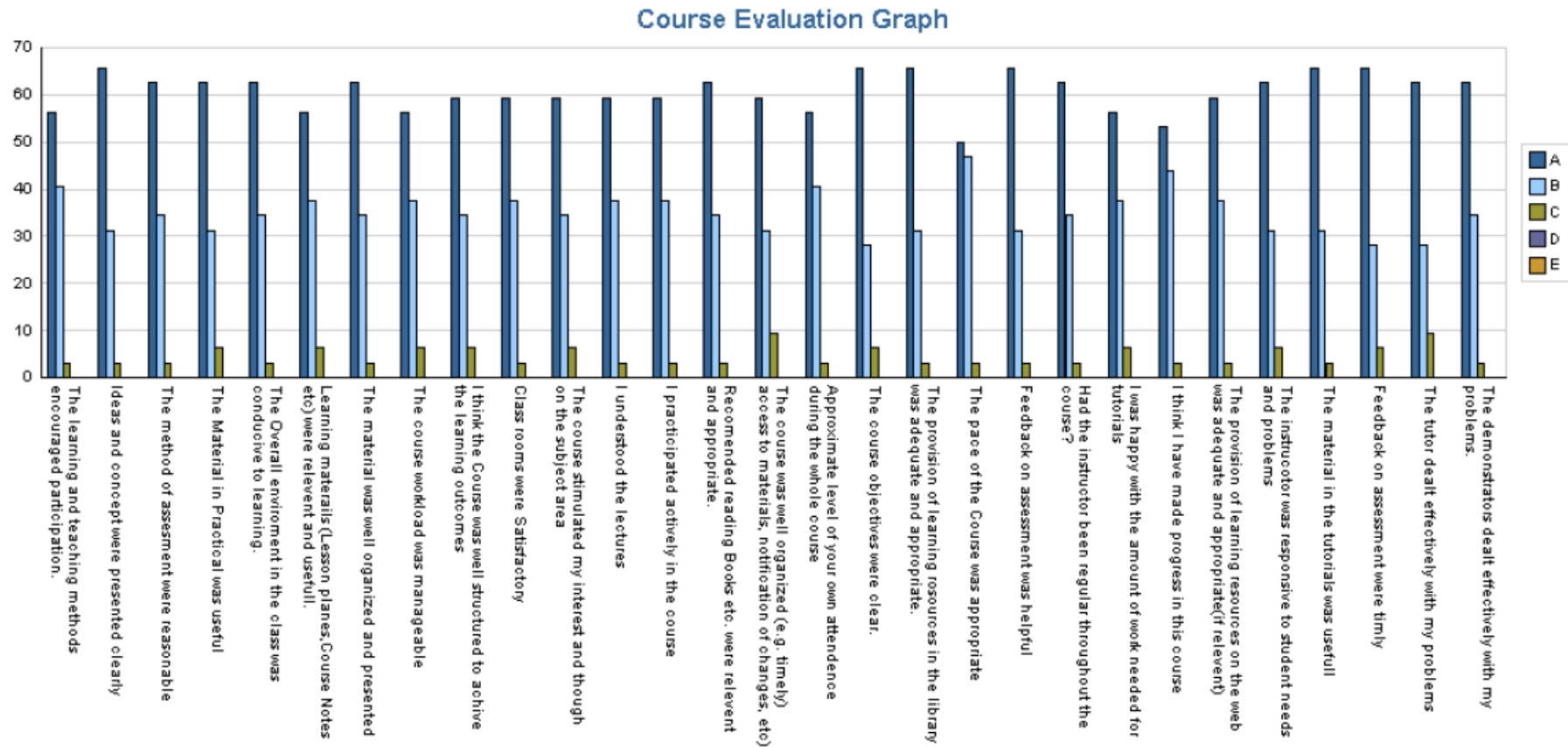
The strongest point which students like about teacher 5 is that the course objectives were very clear. The course work was manageable and students made good progress.

Results of Performa 1 of Teacher 5 (BCH-705/Morning A)



The strongest point which students like about teacher 5 is that the course objectives were very clear and the instructor was regular during the course.

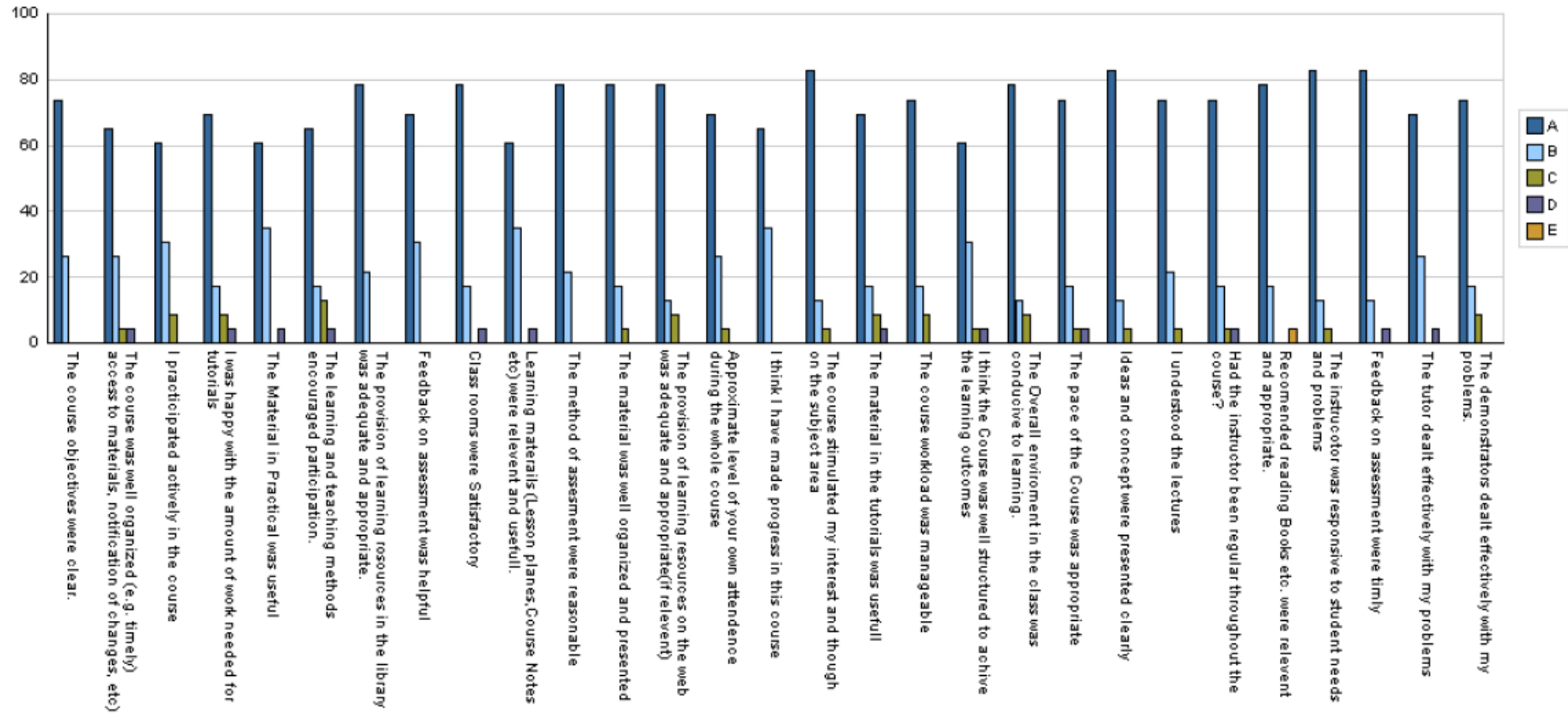
Results of Performa 1 of Teacher 5 (BCH-705/Evening A)



The strongest point which students like about teacher 5 is that the course objectives were very clear. The course was well organized; ideas and concepts were presented clearly.

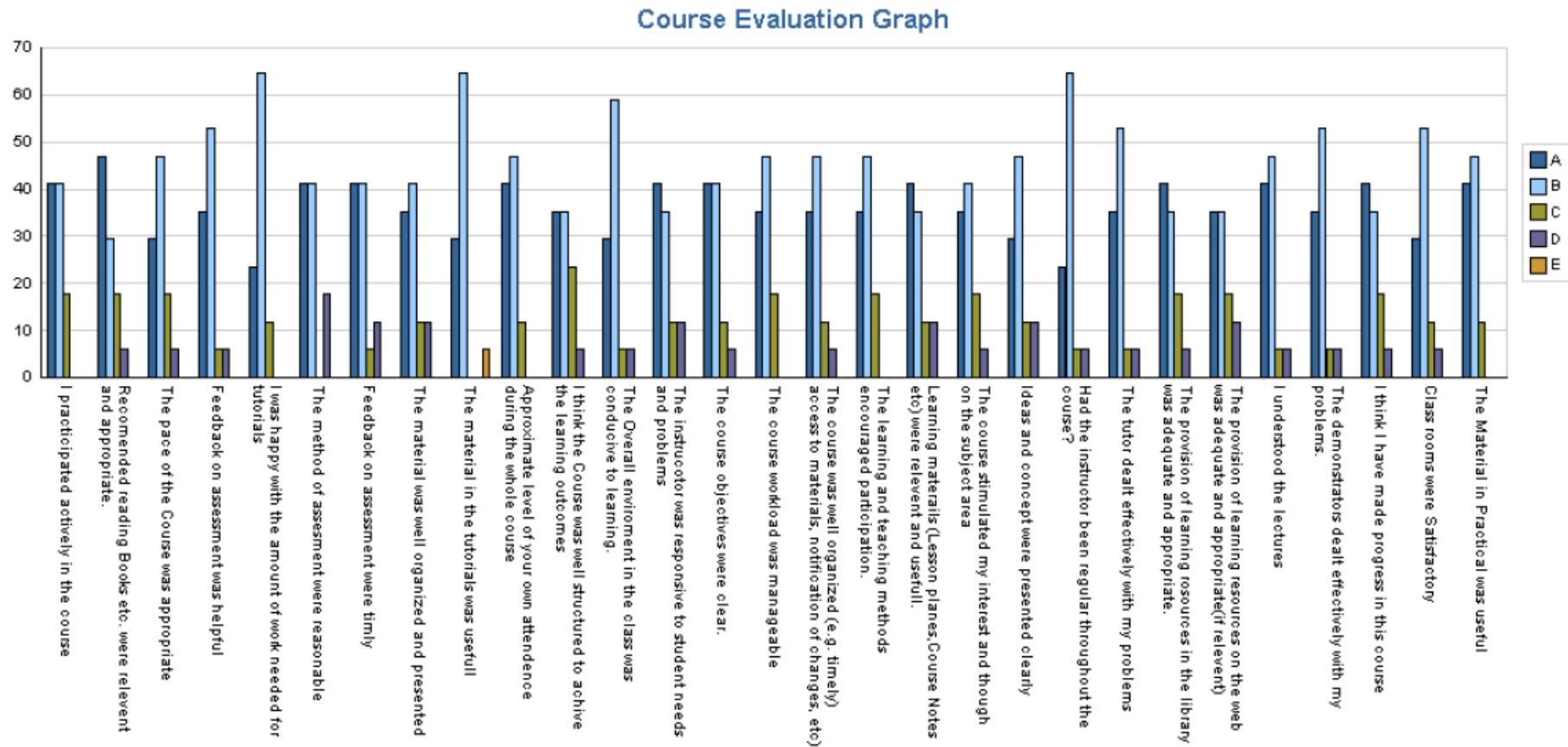
Results of Performa 1 of Teacher 6 (BCH-708/Morning A)

Course Evaluation Graph



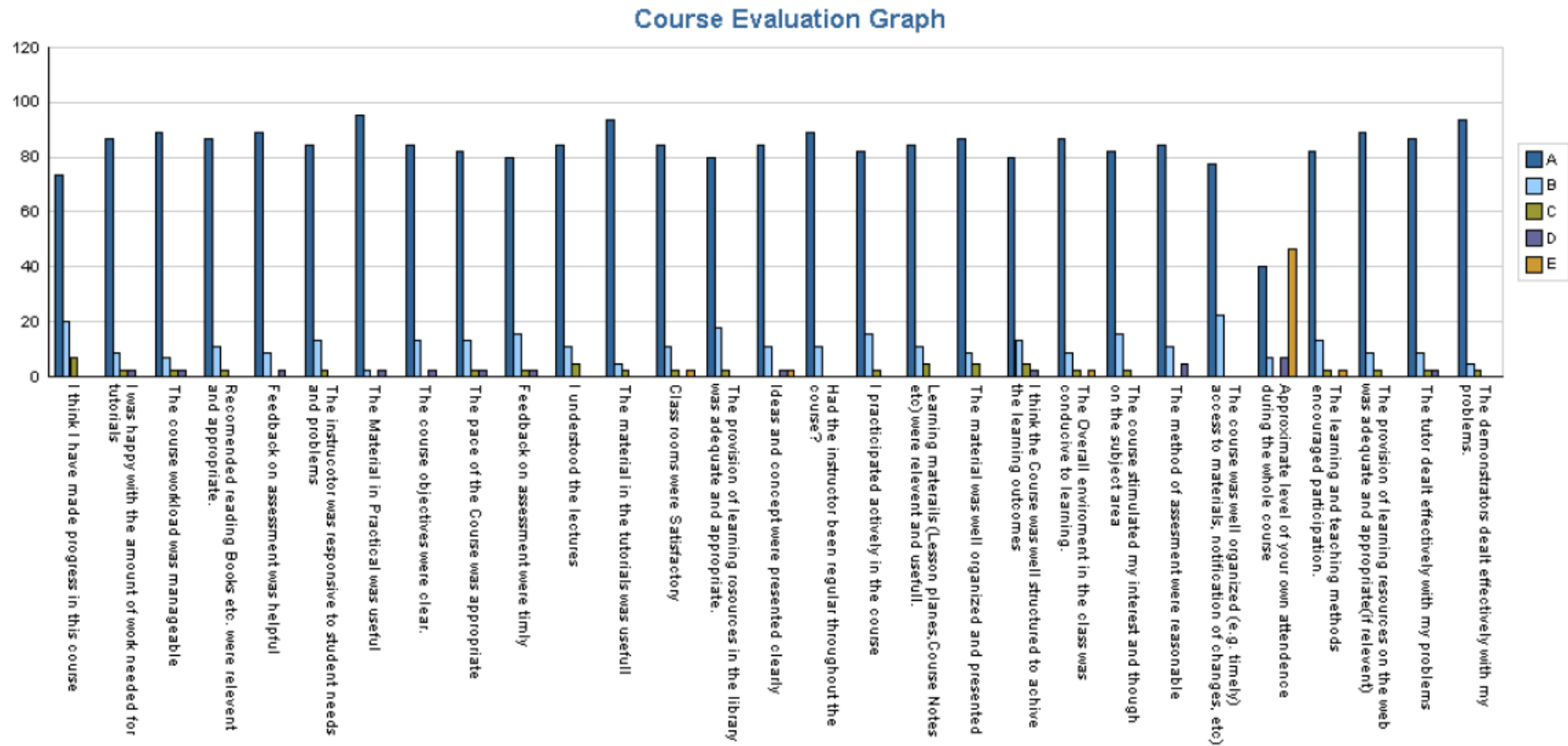
The strongest point which students like about teacher 6 is that the course really stimulated the interest of students and the course ideas/concepts were presented very well.

Results of Performa 1 of Teacher 6 (BCH-708/Evening A)



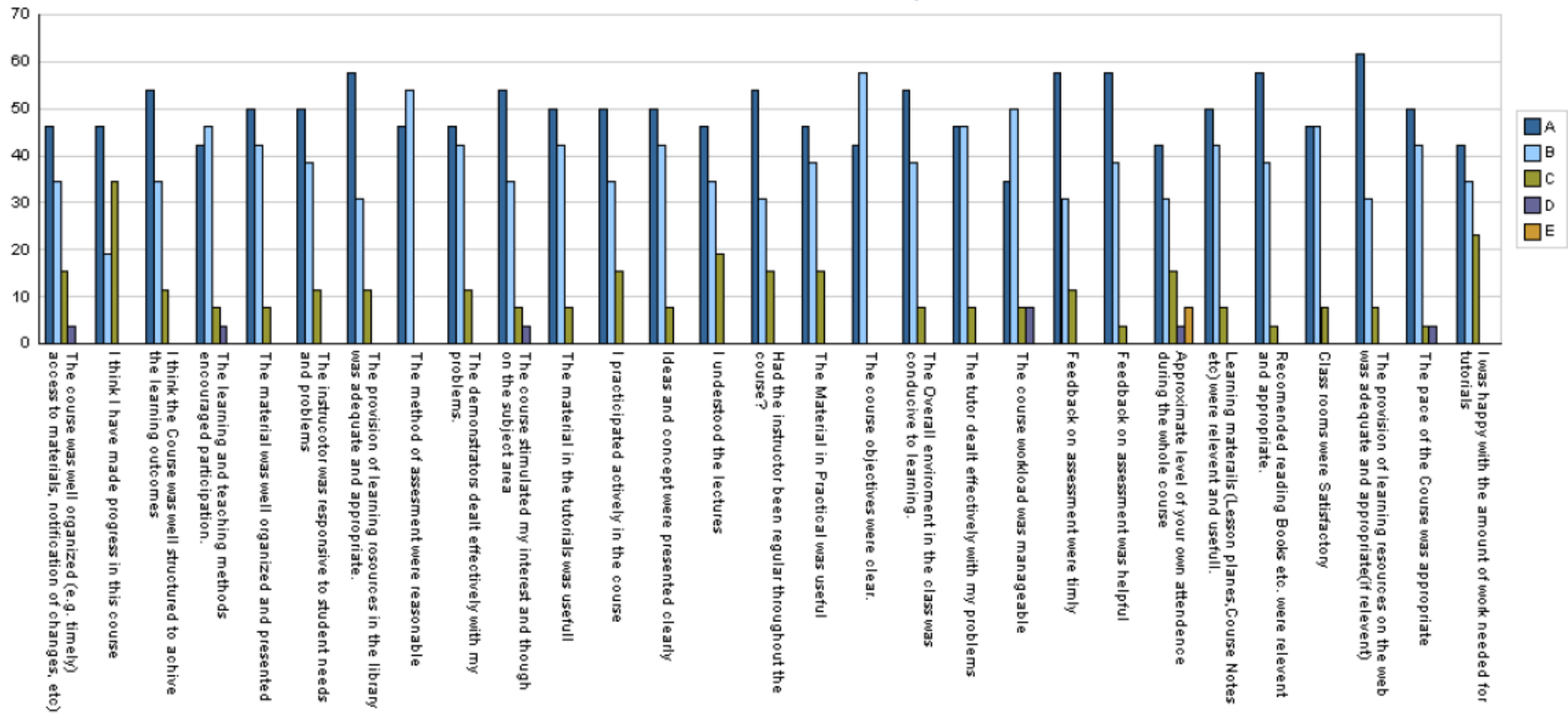
The strongest point which students like about teacher 6 is that the instructor was responsive to the student's problems and the course related recommended material was very appropriate.

Results of Performa 1 of Teacher 7 (BCH-701/Morning A)



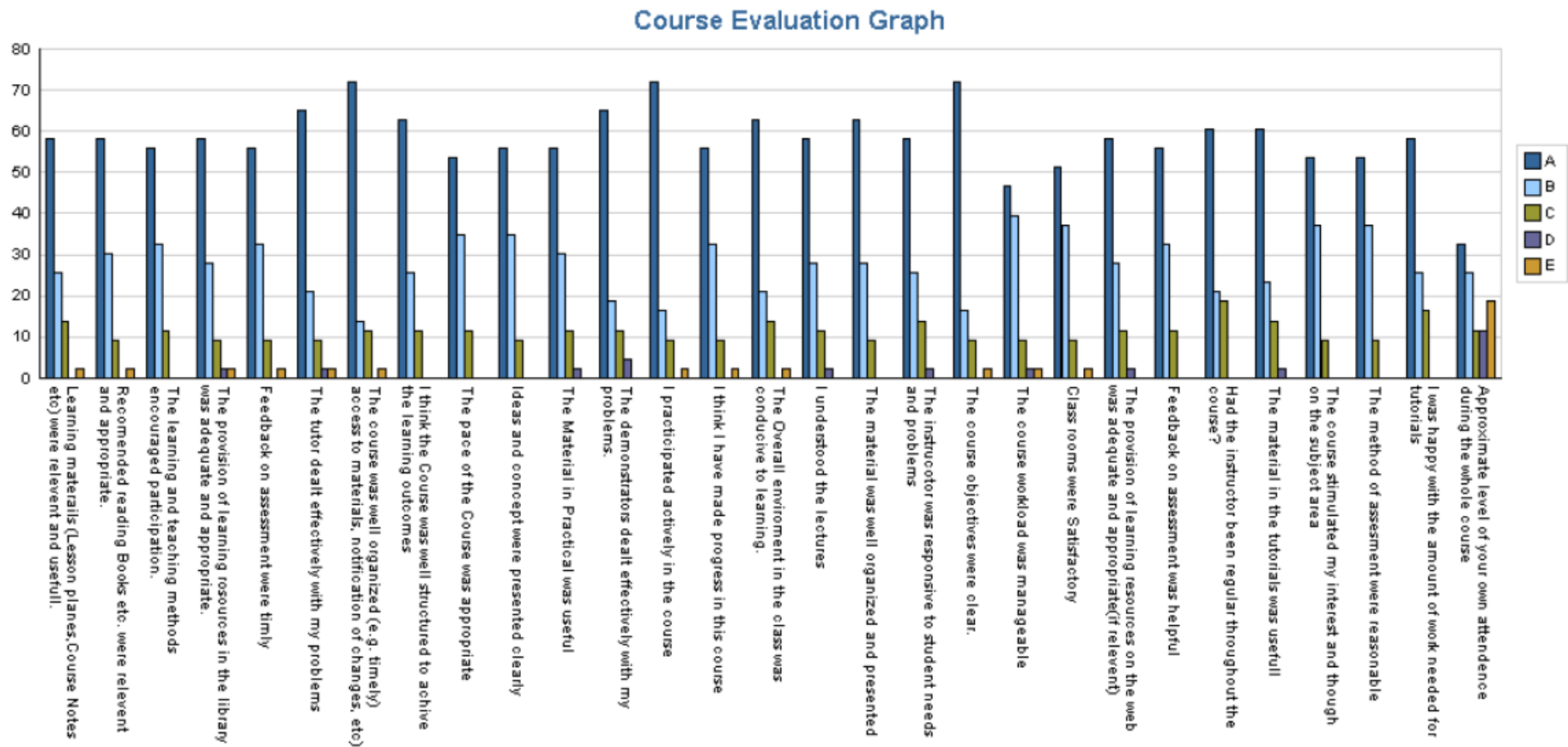
The strongest point which students like about teacher 7 is that the material of the course was very useful and the demonstrator dealt effectively with students problems.

Results of Performa 1 of Teacher 7 (BCH-701/ B)
Course Evaluation Graph



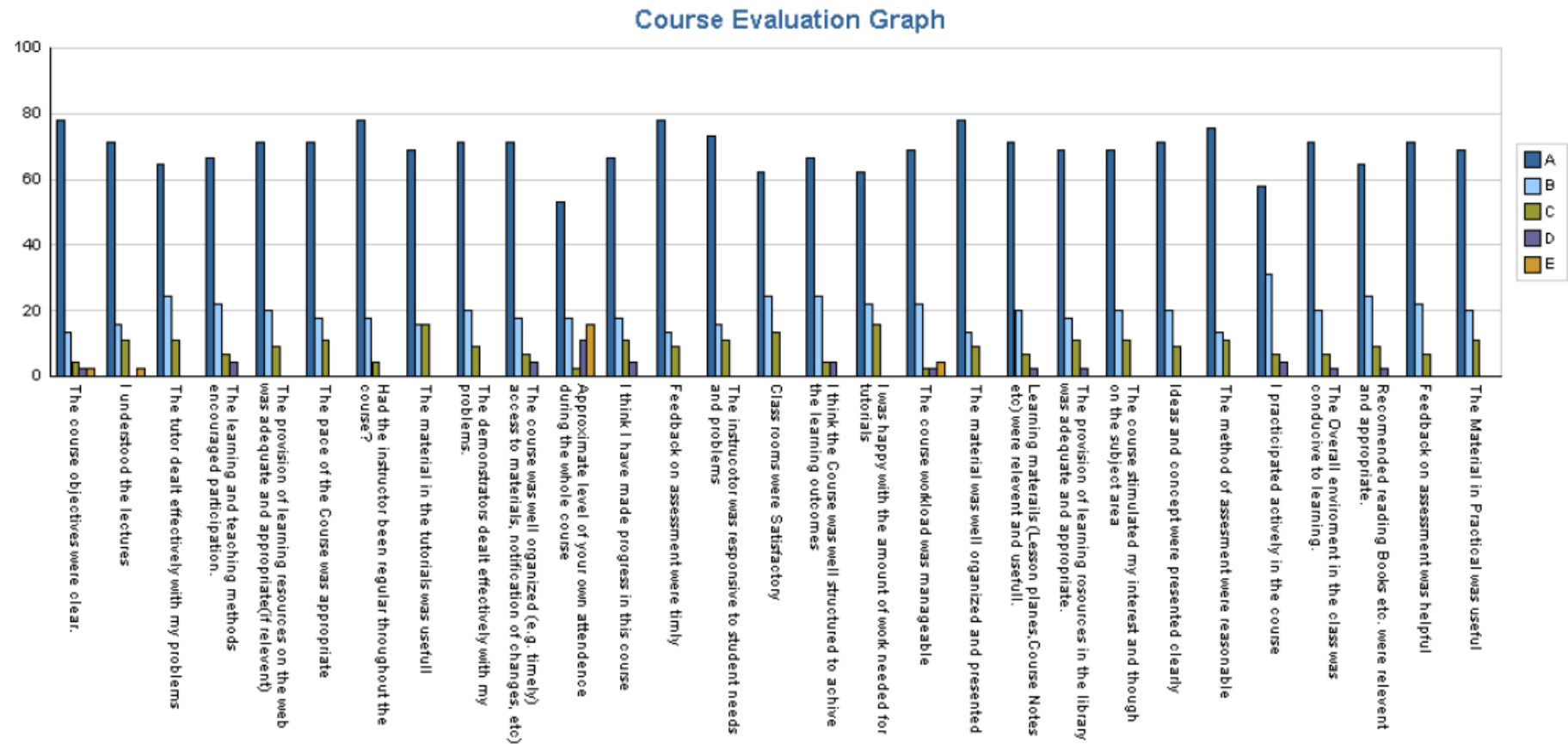
The strongest point which students like about teacher 7 is that the course was well structured and the course stimulated the interest of the students well.

Results of Performa 1 of Teacher 7 (BCH-701/ C)



The strongest point which students like about teacher 7 is that the course objectives were very clear. The course was well organized and the students participated actively in the course.

Results of Performa 1 of Teacher 7 (BCH-701/ D)



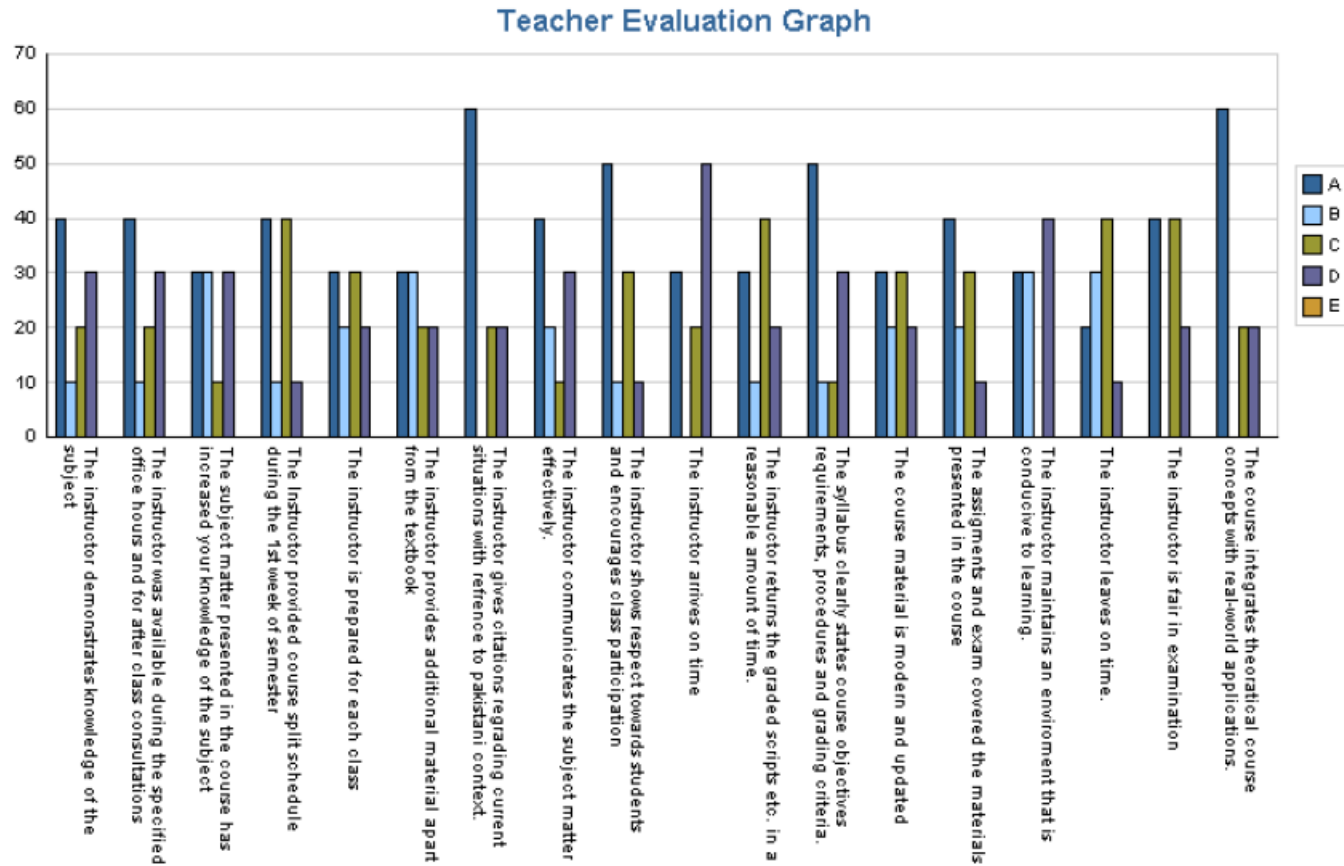
The strongest point which students like about teacher 7 is that the course objectives were clear, method of assessment was good and the teacher was regular during the course.

Teachers Evaluation Fall Semester 2013

Overall Results of Performa 10 of Teacher 1, 2, 3, 4 and 5

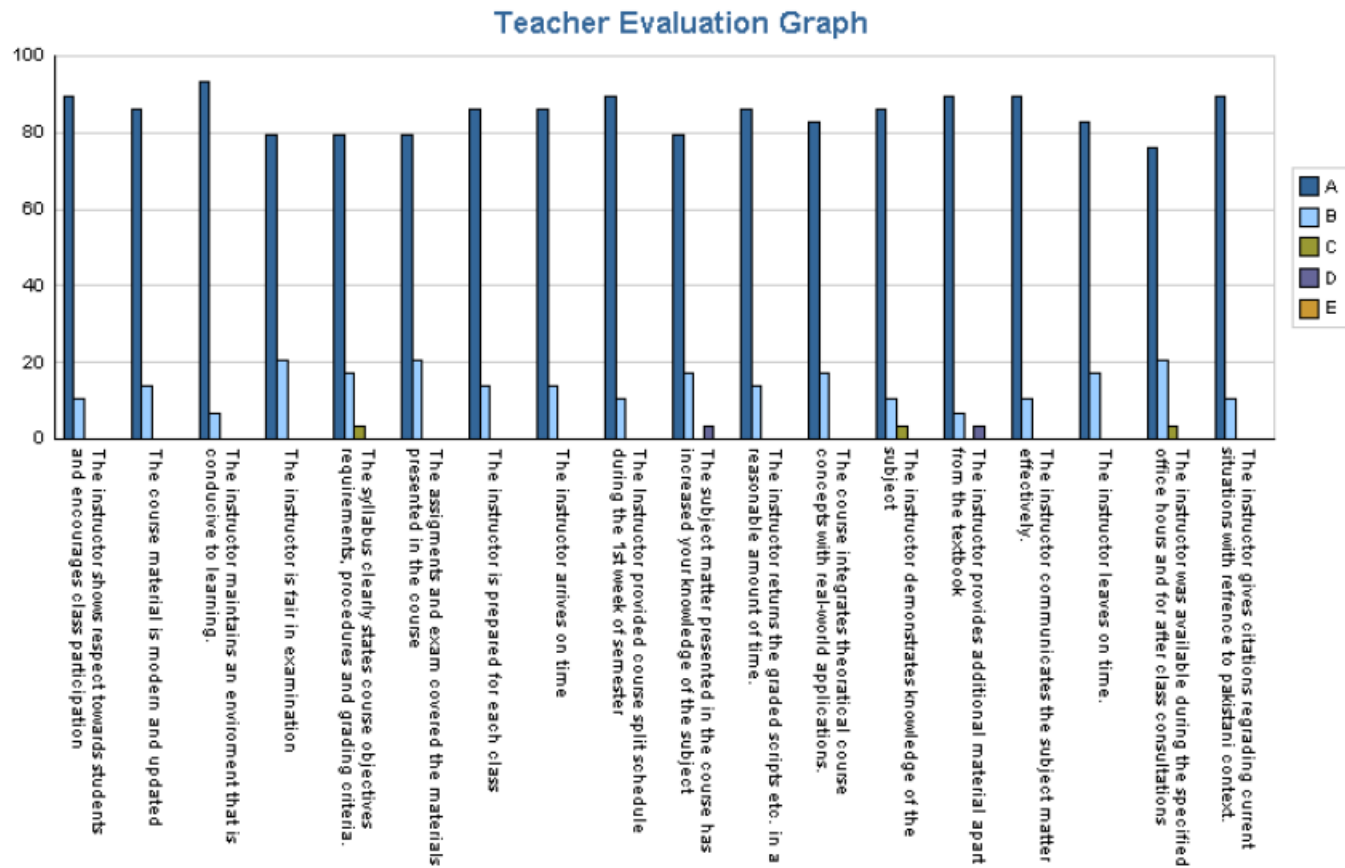
The teachers were evaluated by the students at the end of the semester in accordance with Proforma-10. In the graph teachers are represented as 1, 2, 3..., and 5 instead of mentioning their names. Results and performance of individual teachers will follow.

Results of Performa 10 of Teacher 1(BCH-720/Morning)



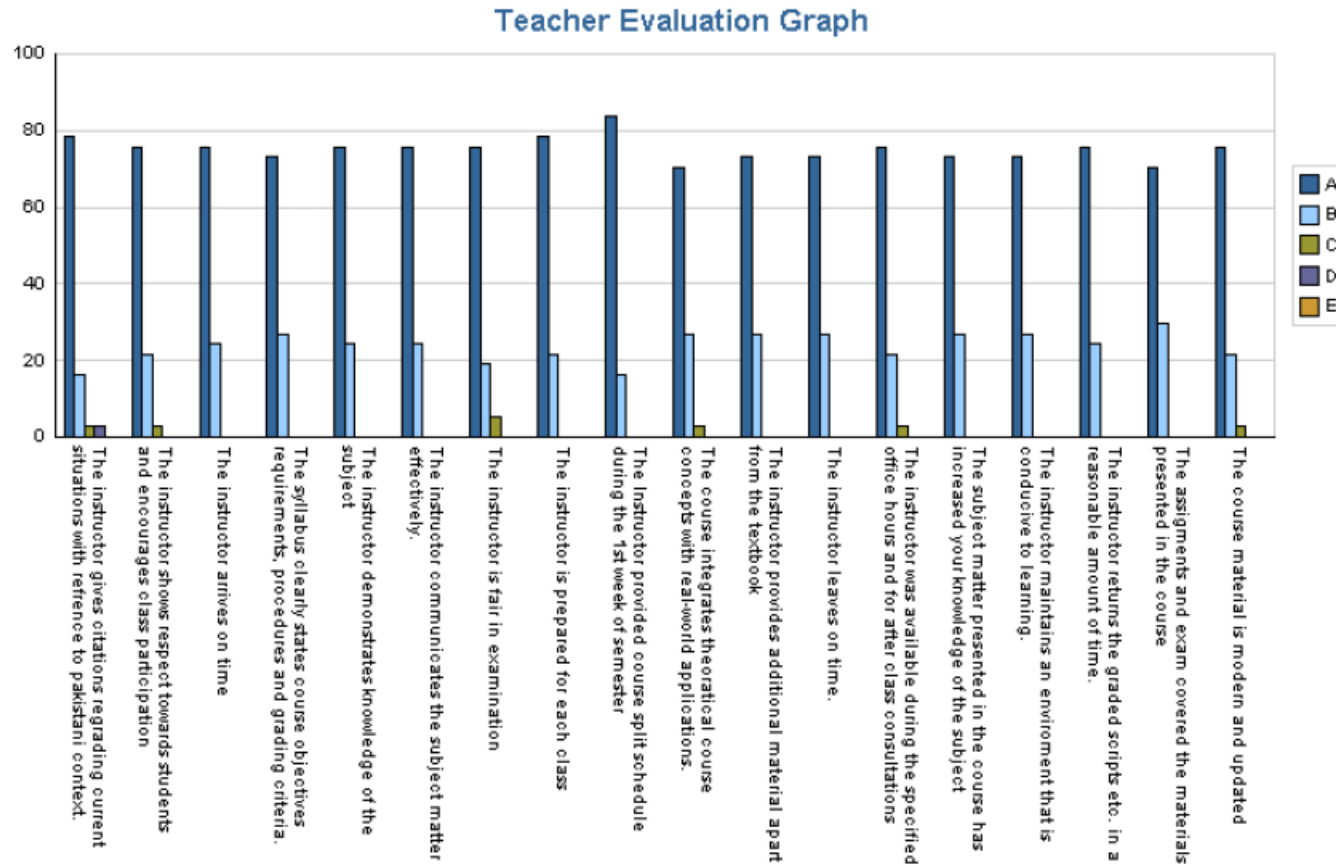
The strongest point which students like about teacher 1 is that the instructor develops a good concept of the subject with the help of practical applications regarding the subject and he gave practical examples and citations.

Results of Performa 10 of Teacher 1(BCH-720/Evening)



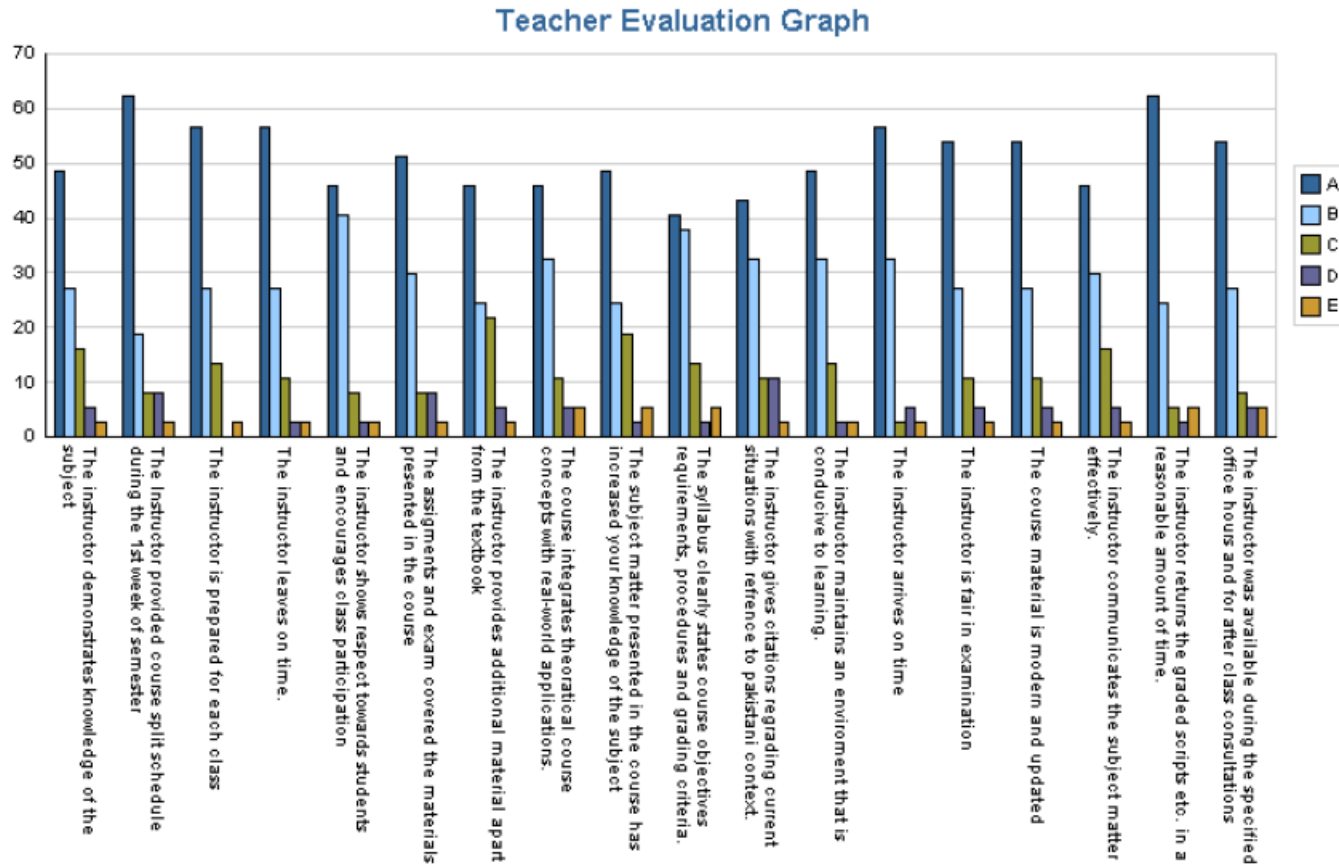
The strongest point which students like about teacher 1 is that the instructor communicates subject material very effectively and maintains a quality learning environment and gave practical life examples.

Results of Performa 10 of Teacher 2(BCH-701/Morning)



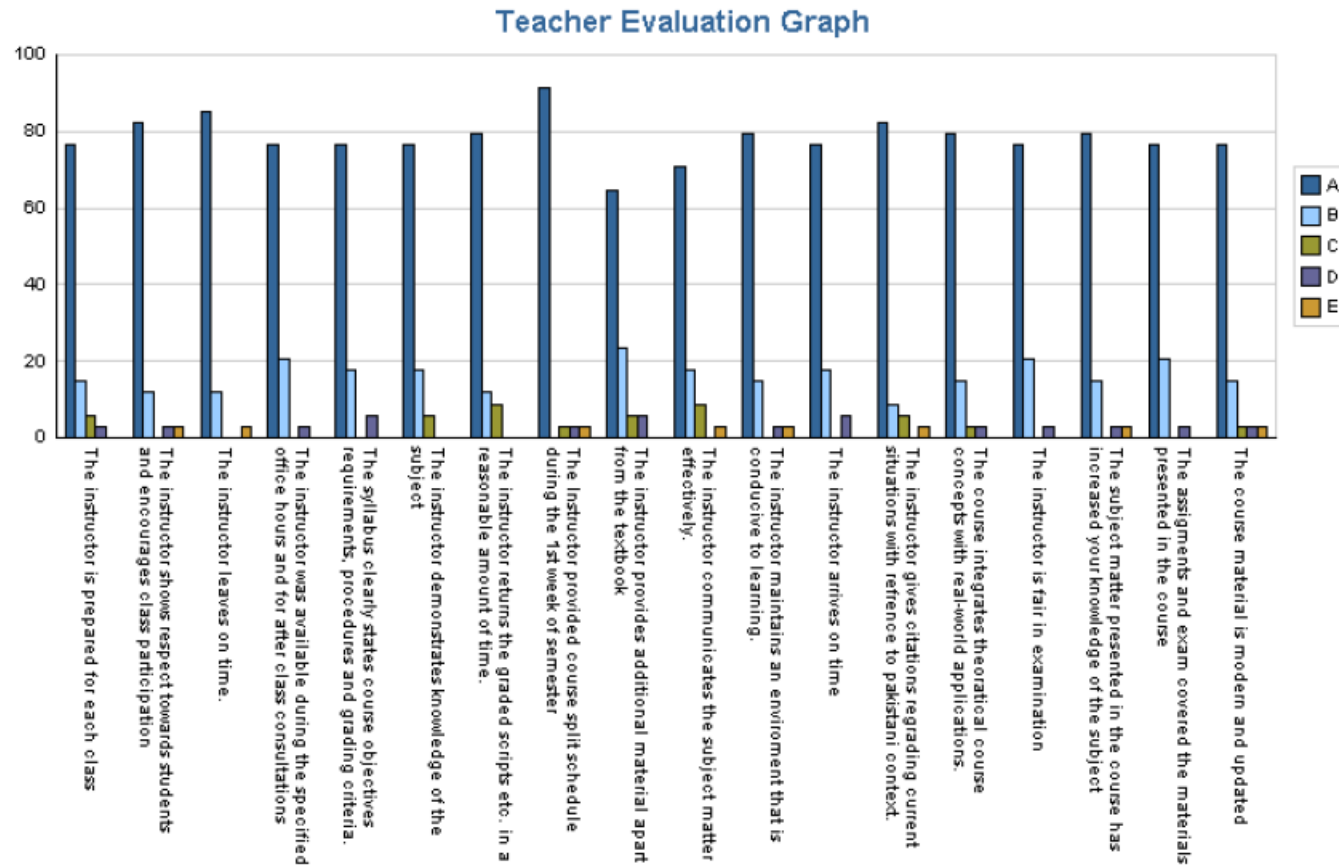
The strongest point which students like about teacher 2 is that the instructor provides course related information in time and develops a good concept regarding subject with the help of practical applications regarding the subject.

Results of Performa 10 of Teacher 2(BCH-701/Morning C)



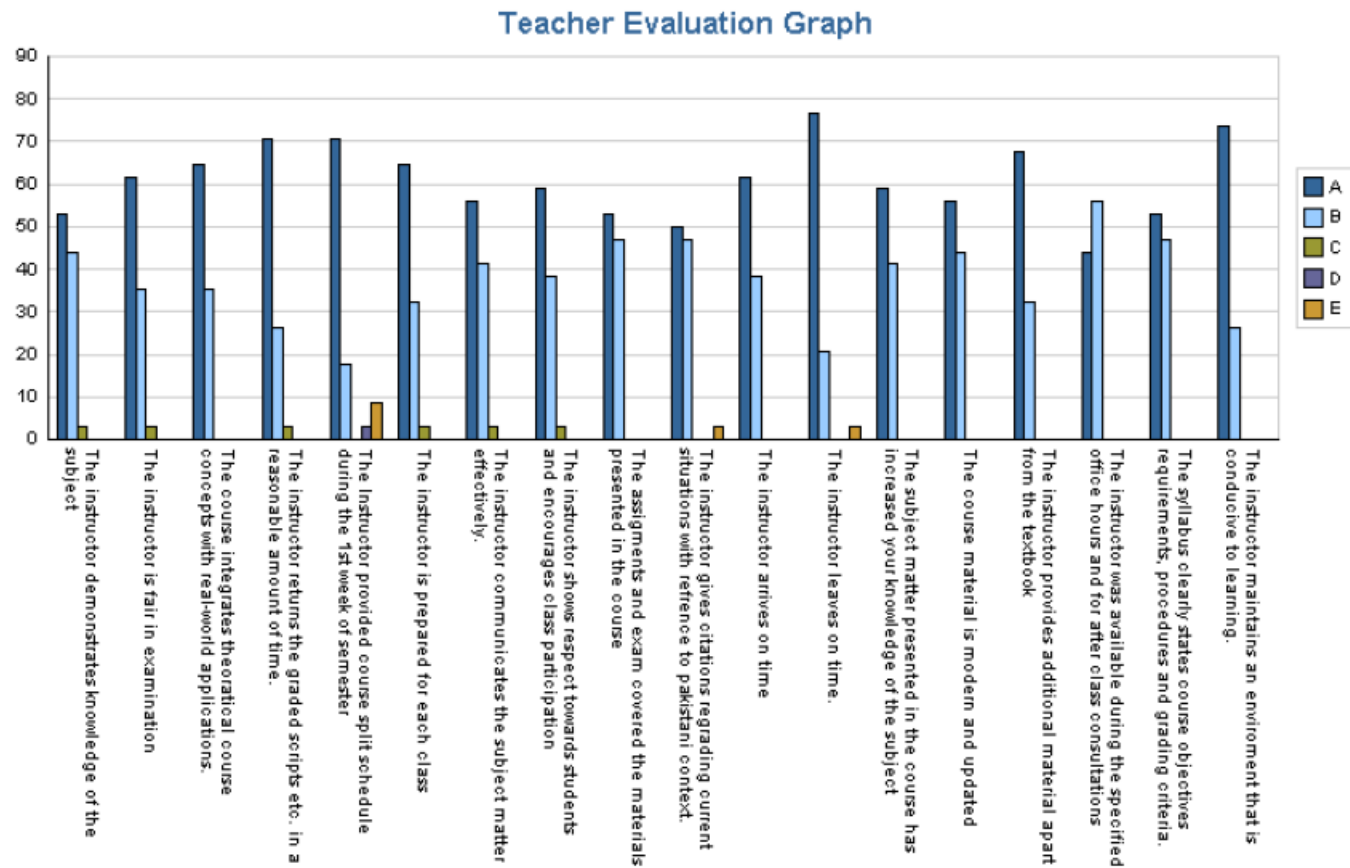
The strongest point which students like about teacher 2 is that the instructor provided course related matters in time and he was punctual.

Results of Performa 10 of Teacher 2(BCH-701/Evening D)



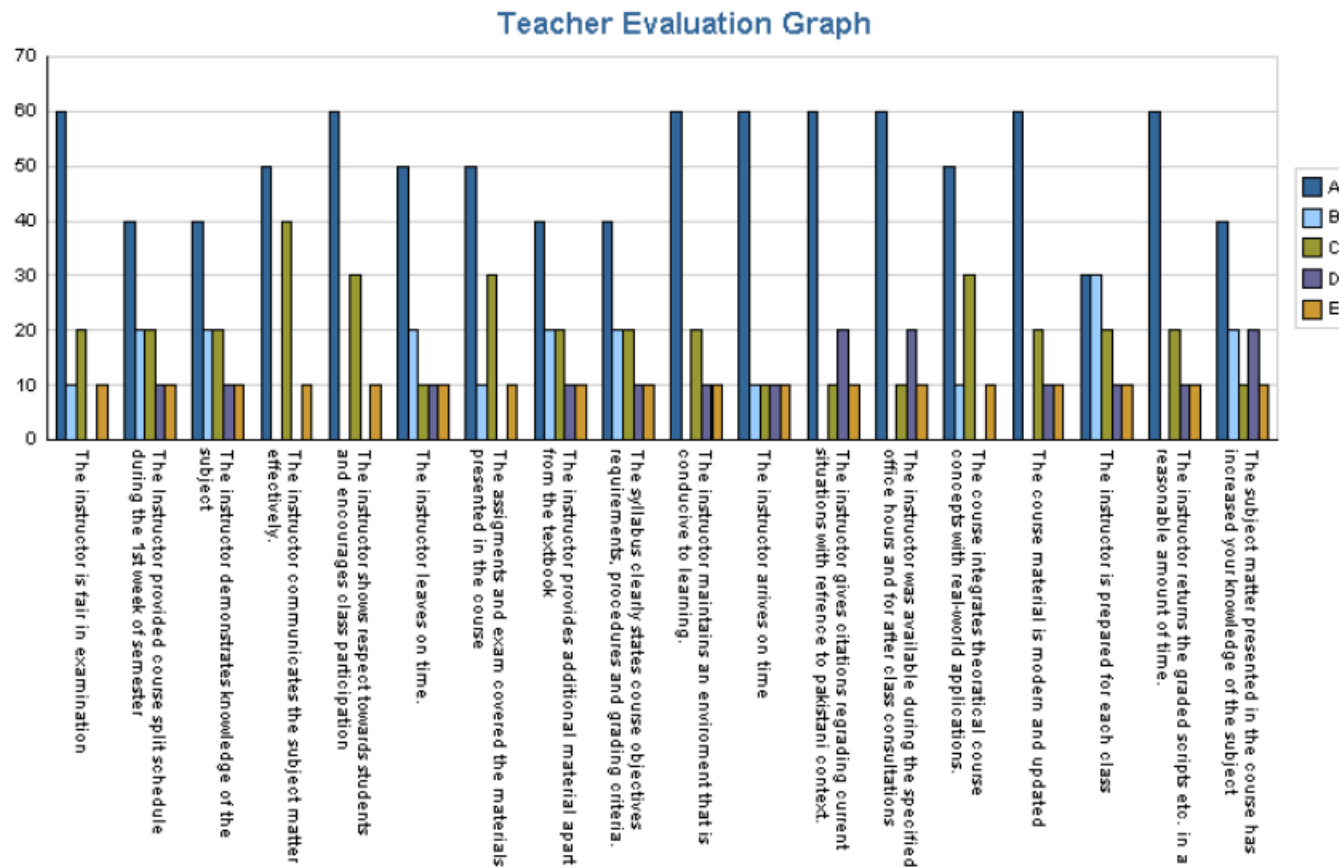
The strongest point which students like about teacher 2 is that the instructor communicates well with students and is very punctual and solves all the course related matters in time.

Results of Performa 10 of Teacher 2(BCH-701/Evening B)



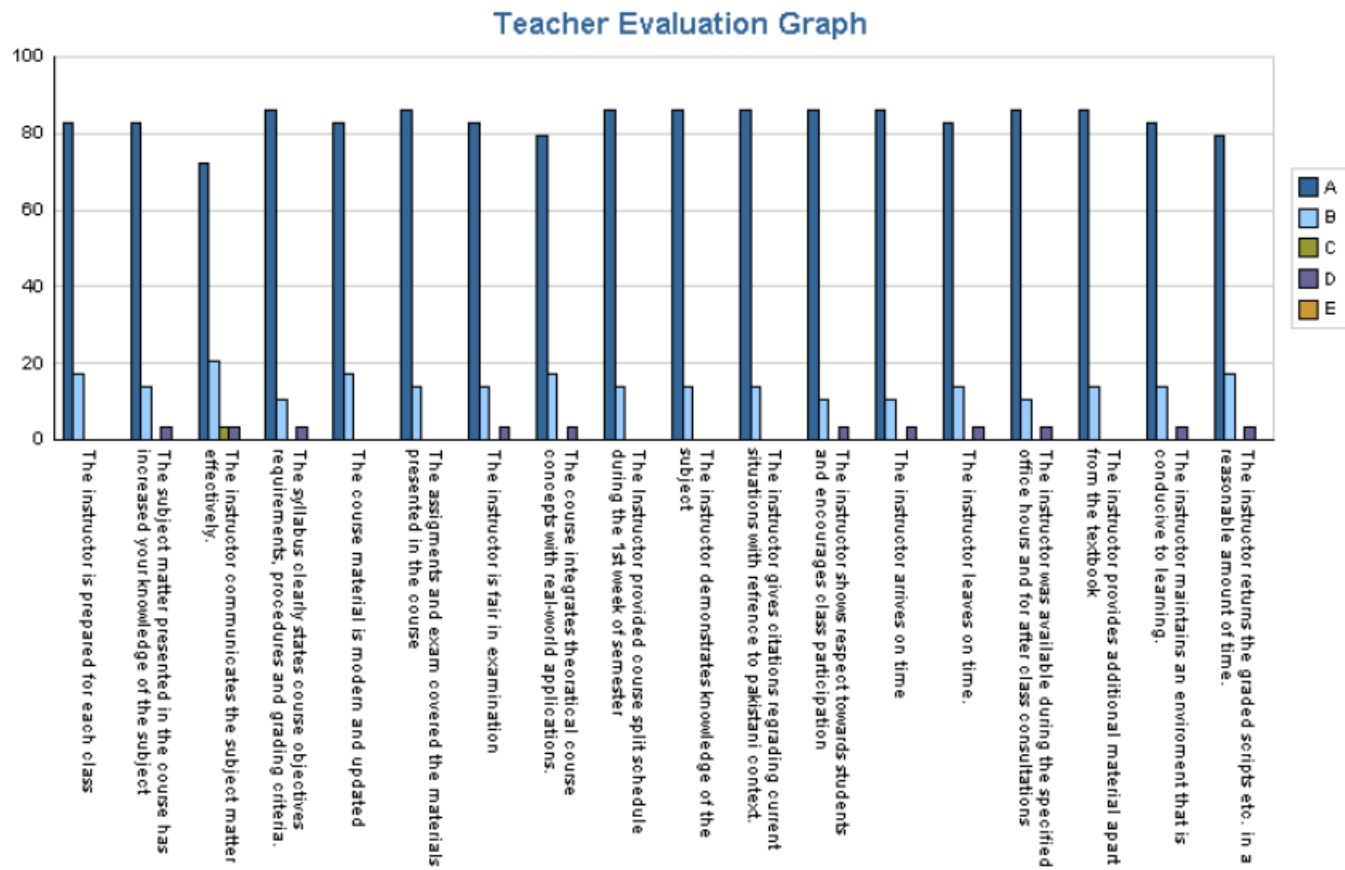
The strongest point which students like about teacher 2 is that the instructor is punctual and solves all the course related matters in time.

Results of Performa 10 of Teacher 3 (BCH-711/Morning C)



The strongest point which students like about teacher 3 is that the instructor was very punctual, maintained a good learning environment and was very respectful towards students.

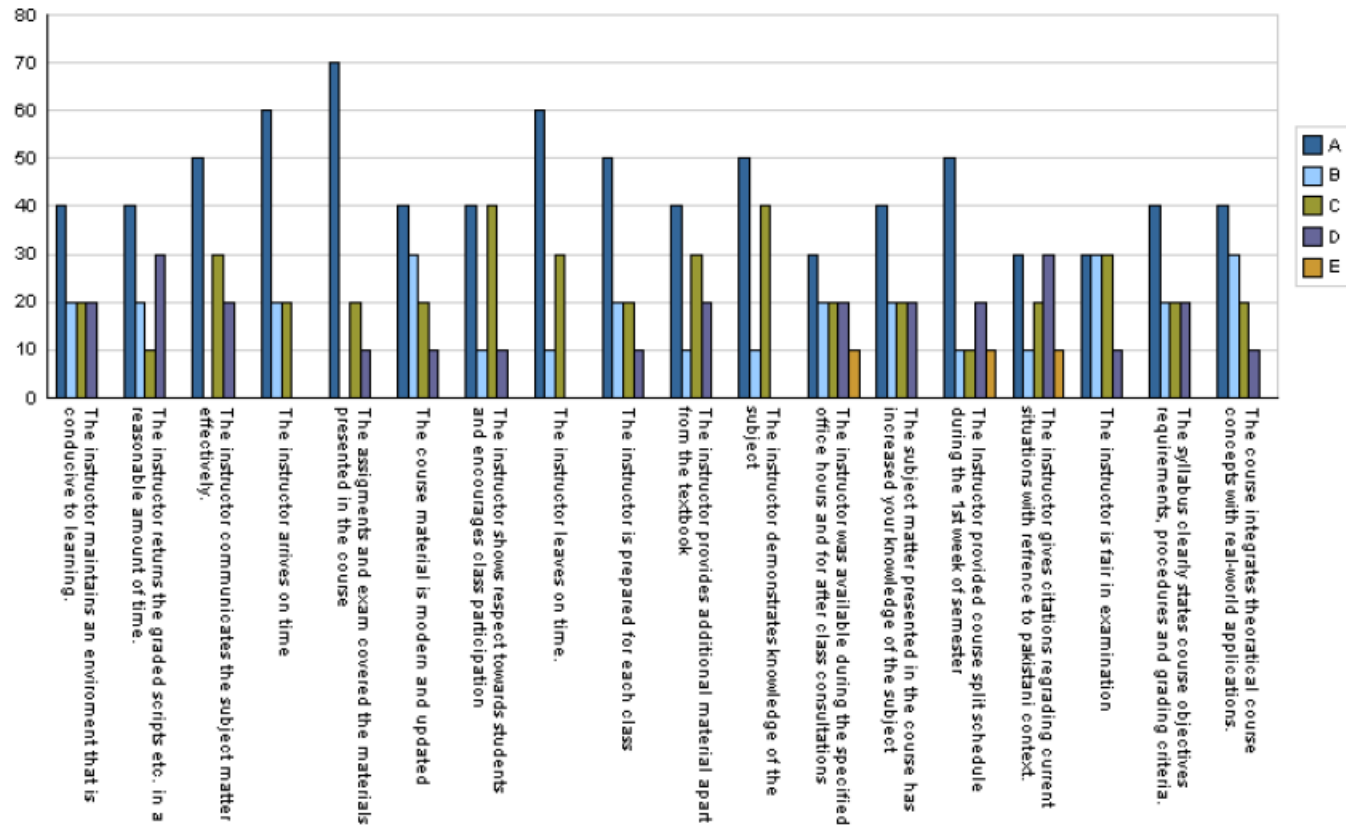
Results of Performa 10 of Teacher 3 (BCH-711/Evening D)



The strongest point which students like about teacher 3 is that the instructor was very well prepared for the class, maintained a good learning environment in the class and instructor was very punctual.

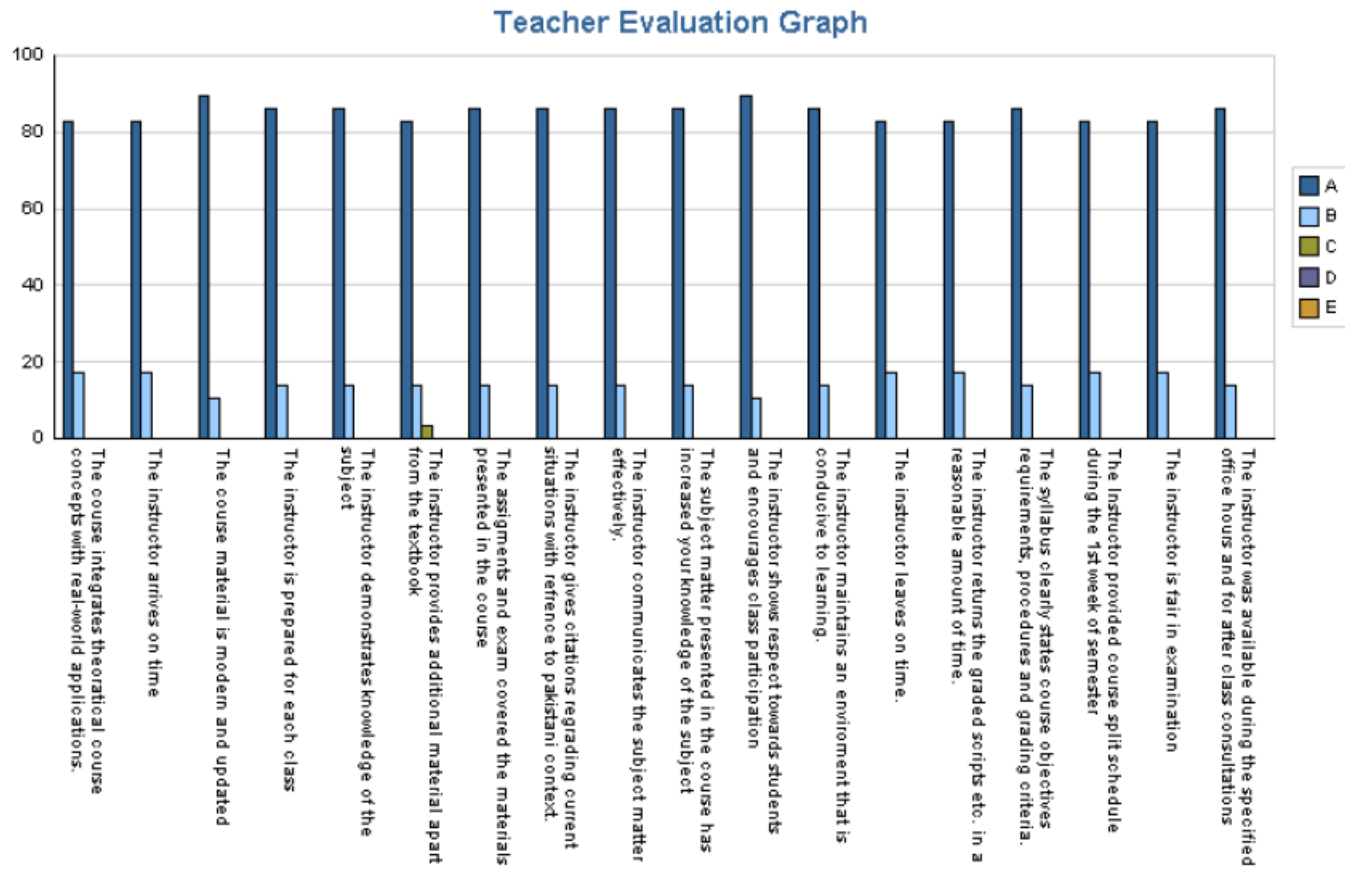
Results of Performa 10 of Teacher 4(BCH-702/Morning)

Teacher Evaluation Graph



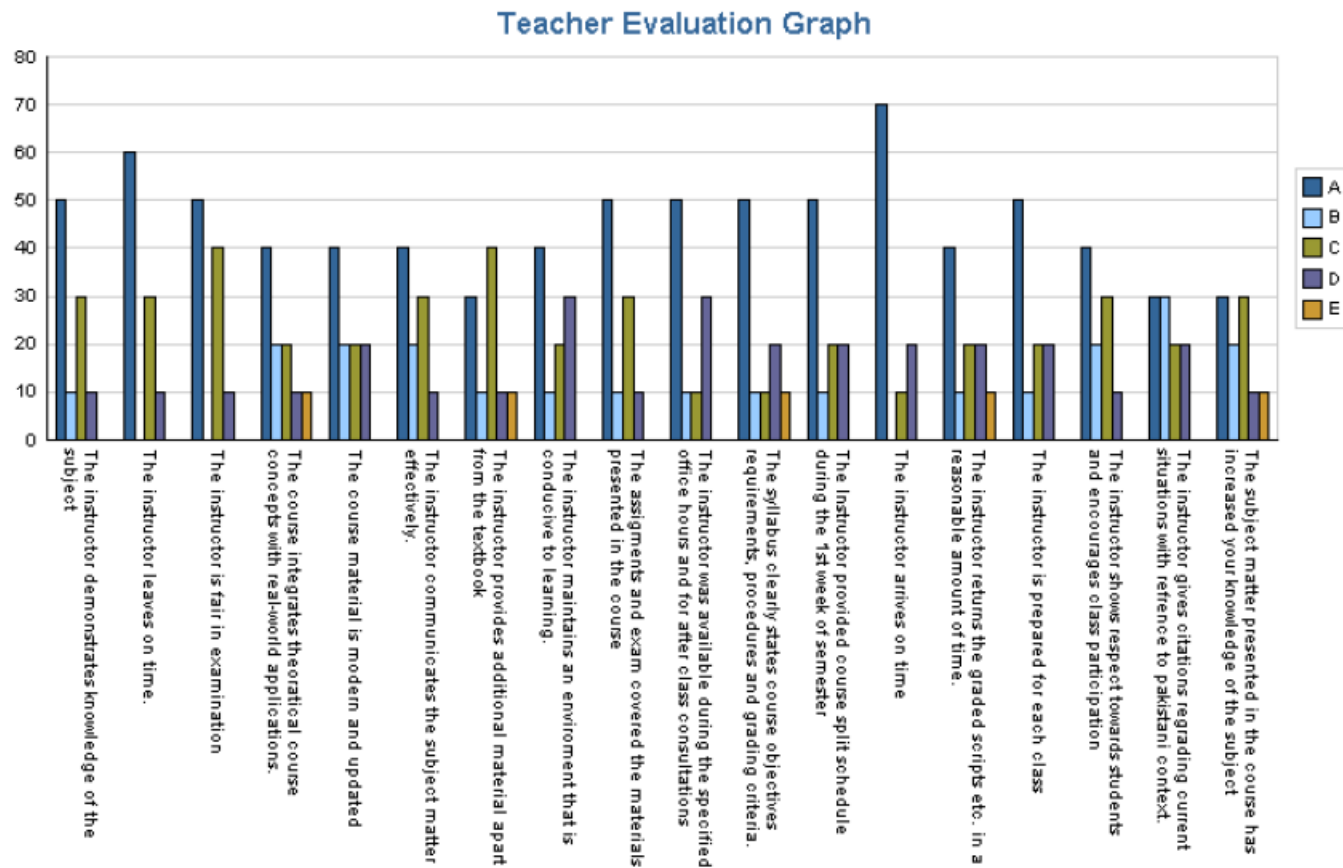
The strongest point which students like about Teacher 4 is that the instructor has maintained a very good balance regarding course content and examination relevance and is punctual.

Results of Performa 10 of Teacher 4(BCH-702/Evening)



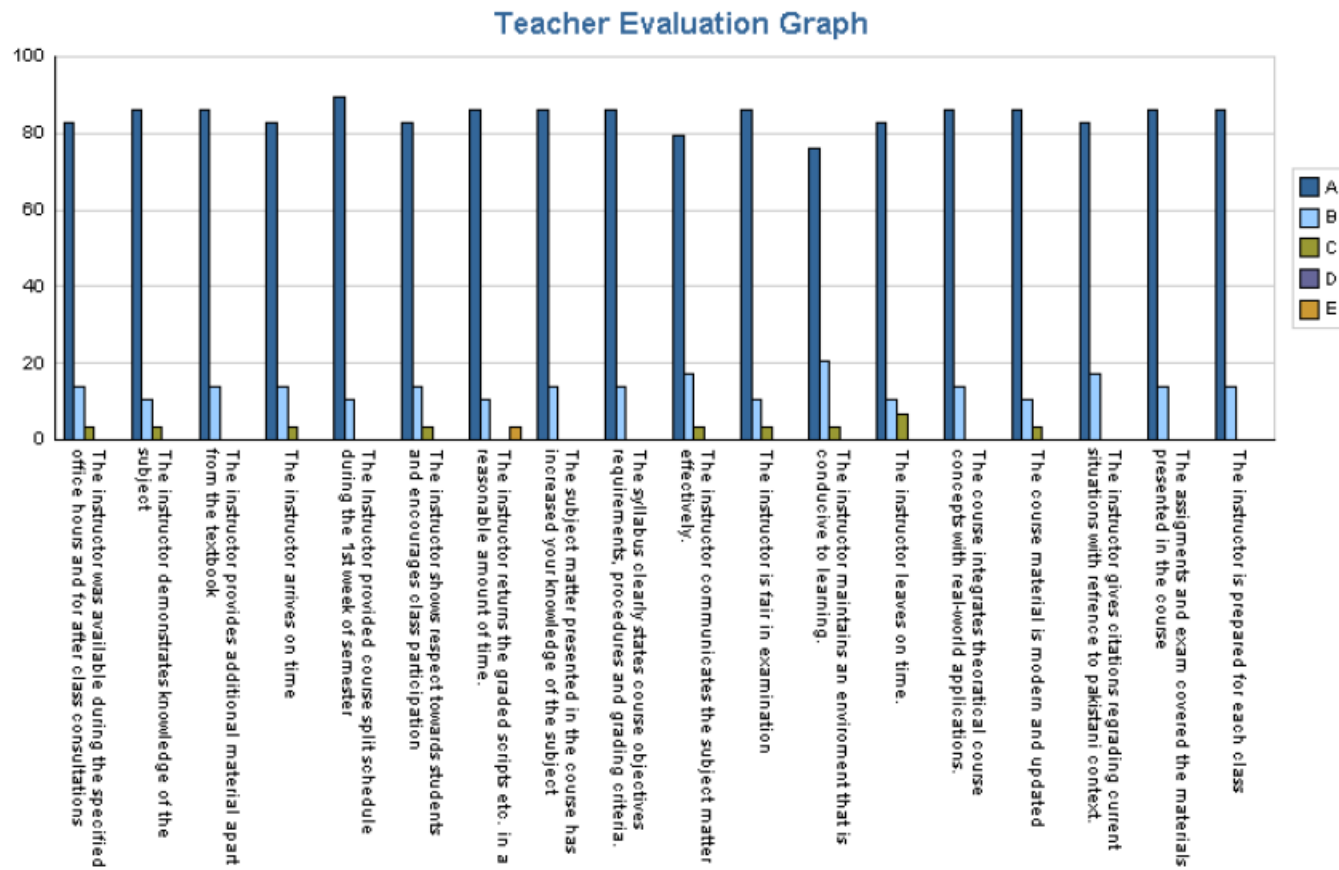
The strongest point which students like about Teacher 4 is that the instructor has communicated an upto date material regarding the course and communicates the subject matters very efficiently.

Results of Performa 10 of Teacher 5(BCH-710/Morning A)



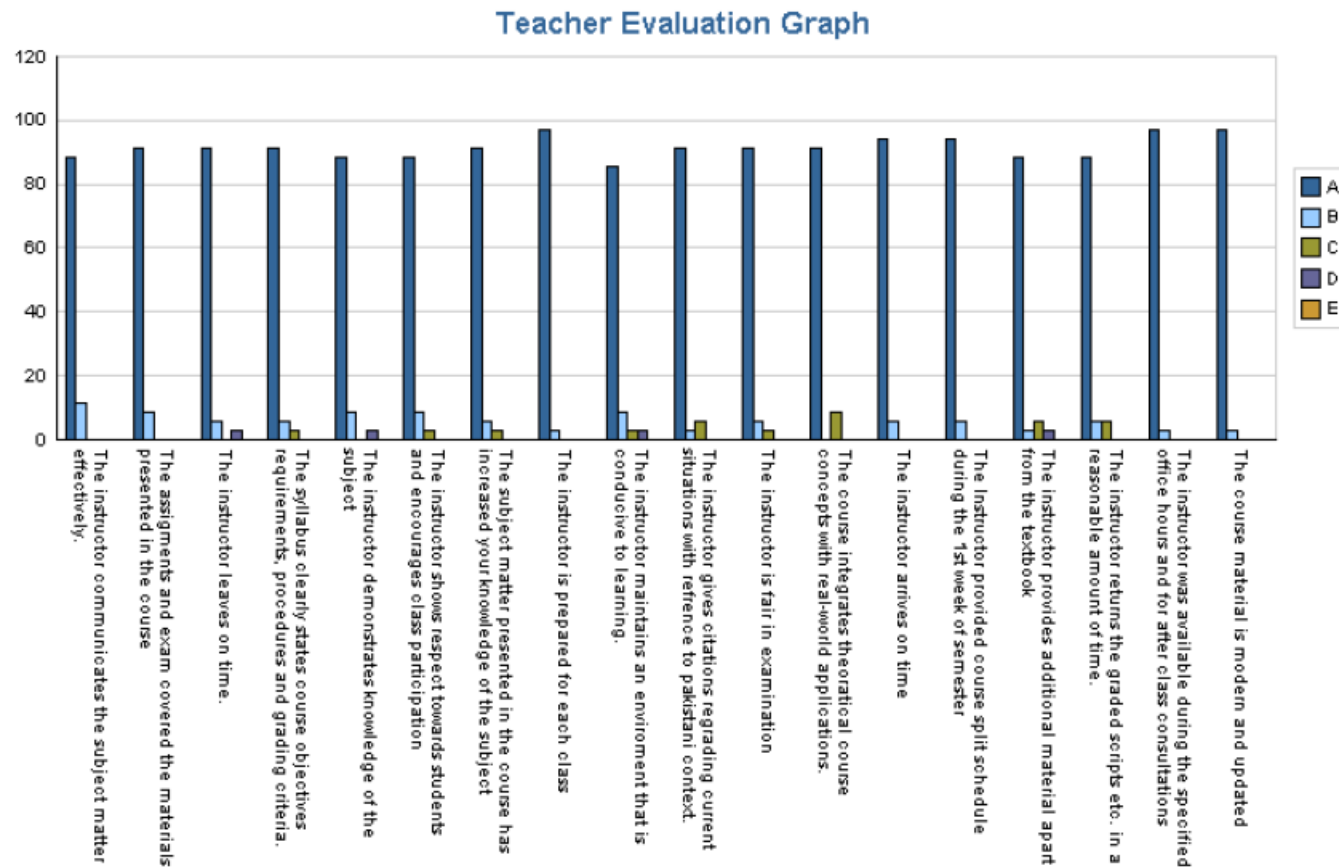
The strongest point which students like about Teacher 5 is that, the instructor is very punctual and deals with all aspects of course in a fair way.

Results of Performa 10 of Teacher 5(BCH-710/Evening A)



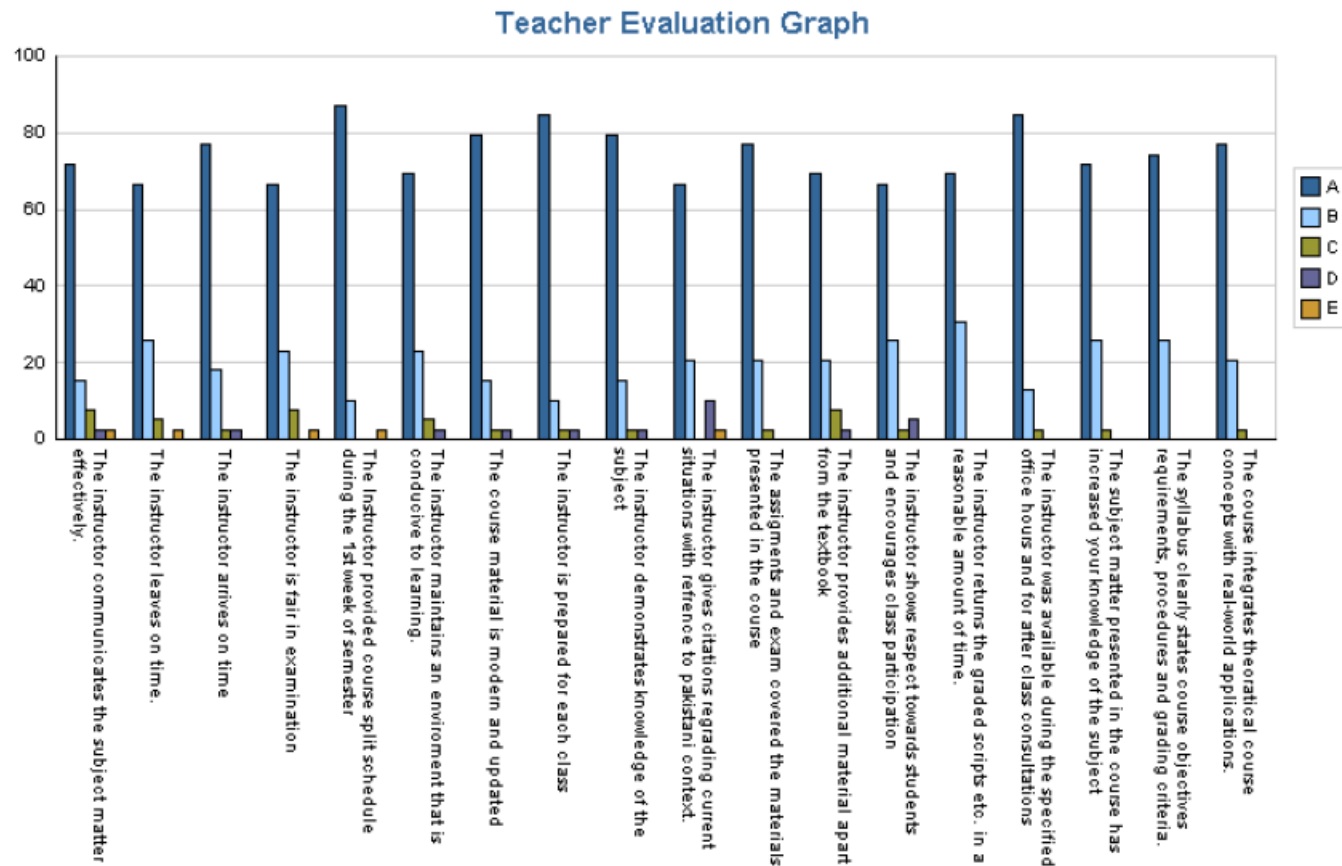
The strongest point which students like about Teacher 5 is that, overall the instructor has done a very good job in handling the entire course and students related matters.

Results of Performa 10 of Teacher 5(BCH-701/Morning H)



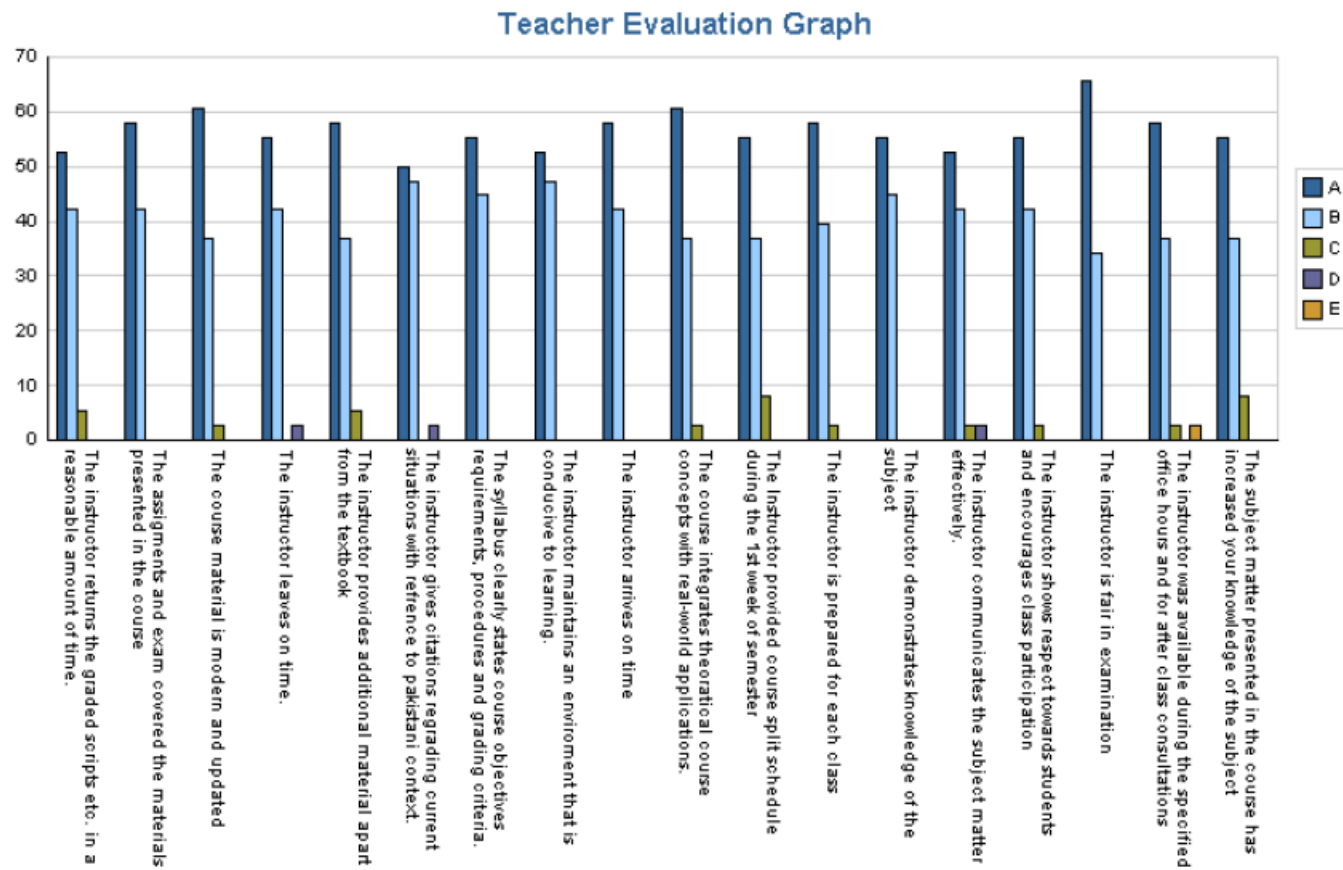
The strongest point which students like about Teacher 5 is that, overall the instructor has done a very good job in handling the entire course and students related matters.

Results of Performa 10 of Teacher 5(BCH-701/Morning G)



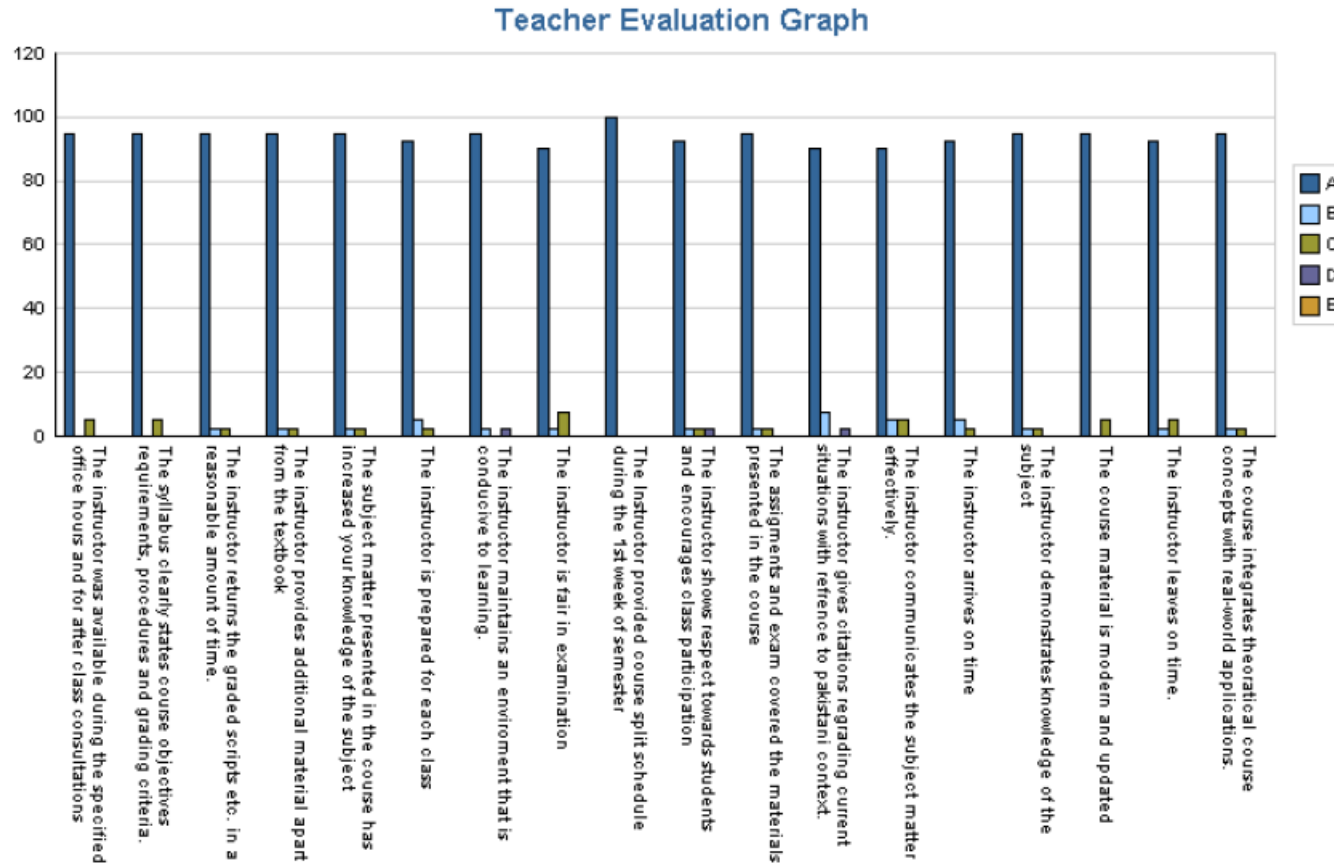
The strongest point which students like about Teacher 5 is that, the instructor is punctual in providing course related material and is well prepared for the class.

Results of Performa 10 of Teacher 5(BCH-701/Morning E)



The strongest point which students like about Teacher 5 is that, the instructor provides an uptodate course related material and examination dealing is very good.

Results of Performa 10 of Teacher 5(BCH-701/Morning F)



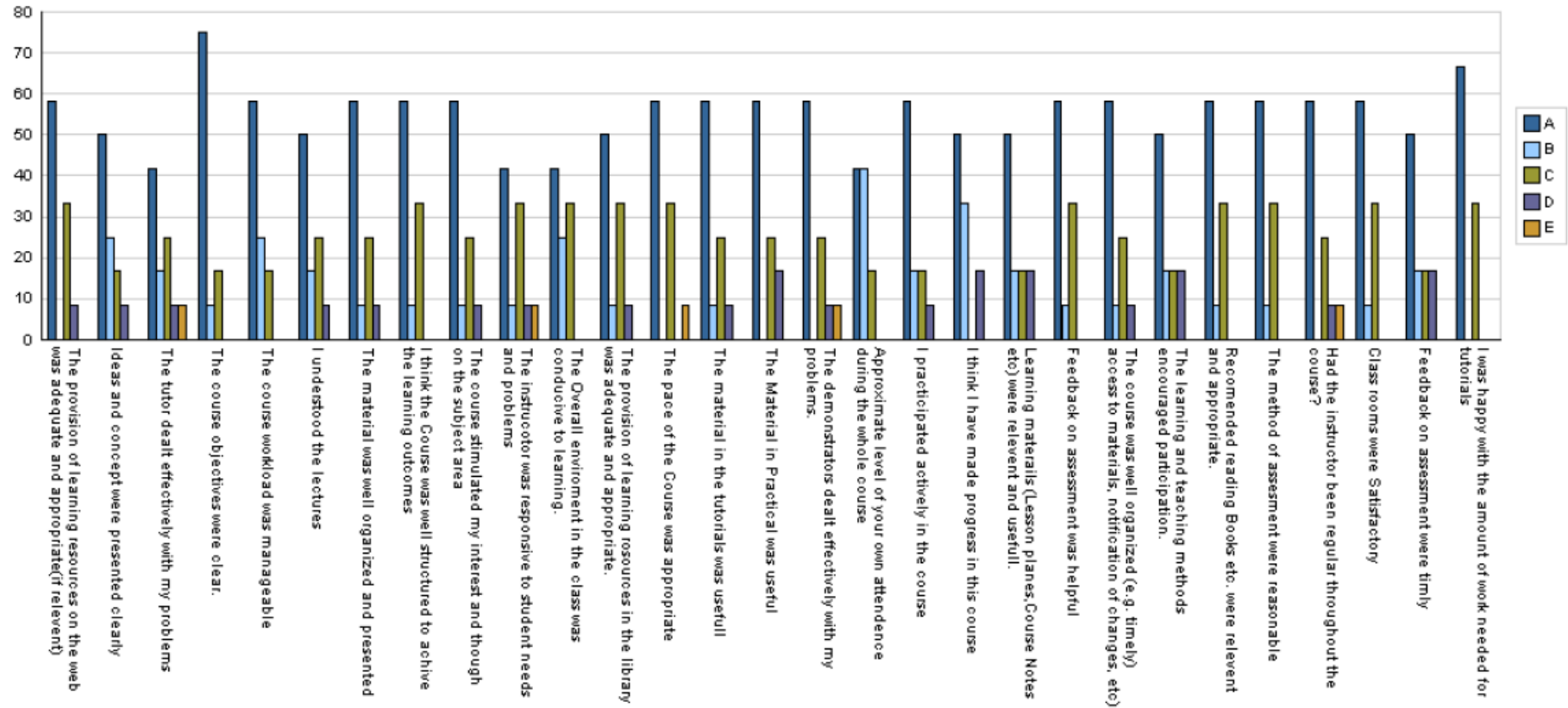
The strongest point which students like about Teacher 5 is that, overall the instructor has done a very good job in handling the entire course and students related matters

Student Course Evaluation Fall Semester 2013:**Over all Results of Proforma No. 1 Teacher 1, 2, 3, 4and 5**

Performa No. 1, deals with study of course observation regarding design of course contents (both theoretical and practical), its relevance with subject and teaching material. It also emphasizes on instructor's role in, not only completing course within given time frame, but how' instructor developed student's interest in this course, used updated literature and was fair in evaluation at the end of a study course.

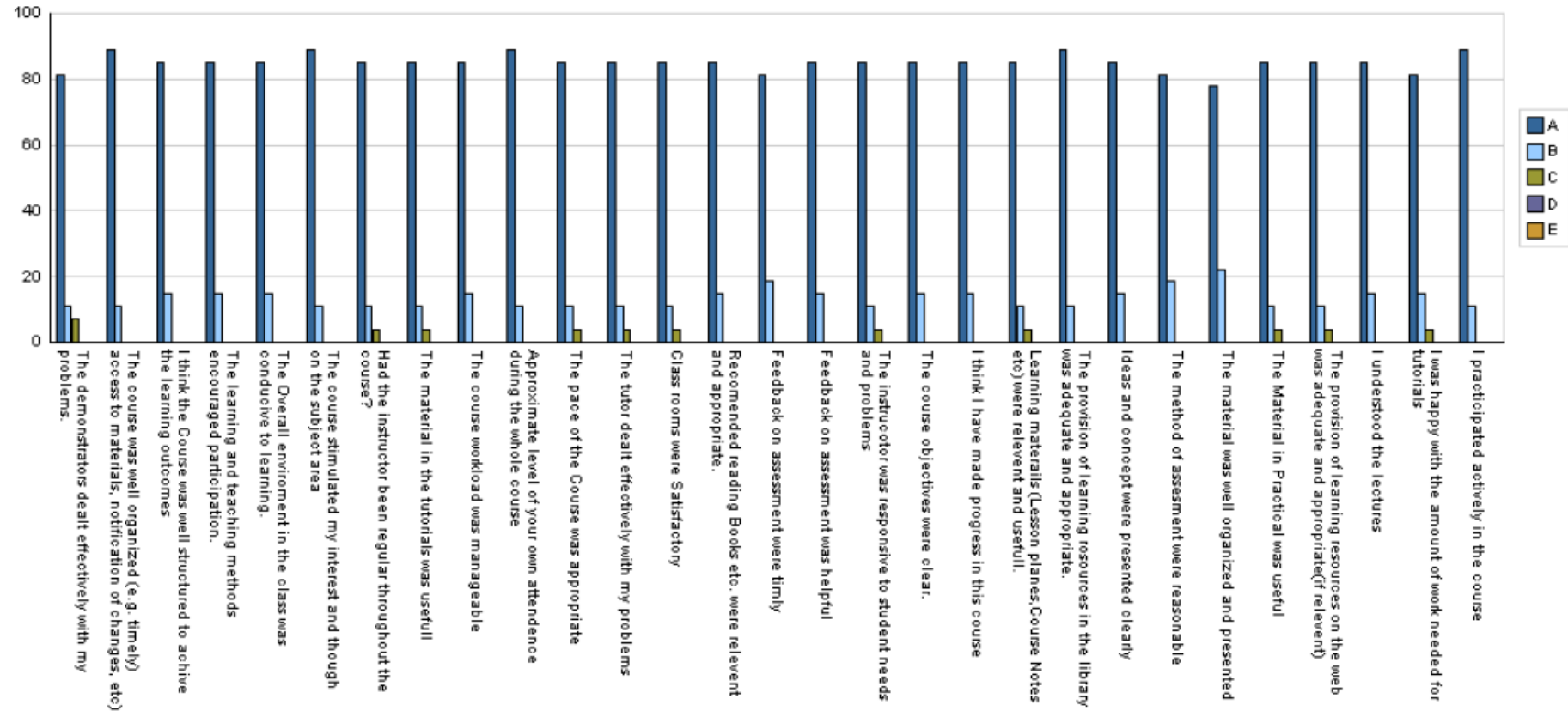
Results of Performa 1 of Teacher 1(BCH-720/Morning)

Course Evaluation Graph



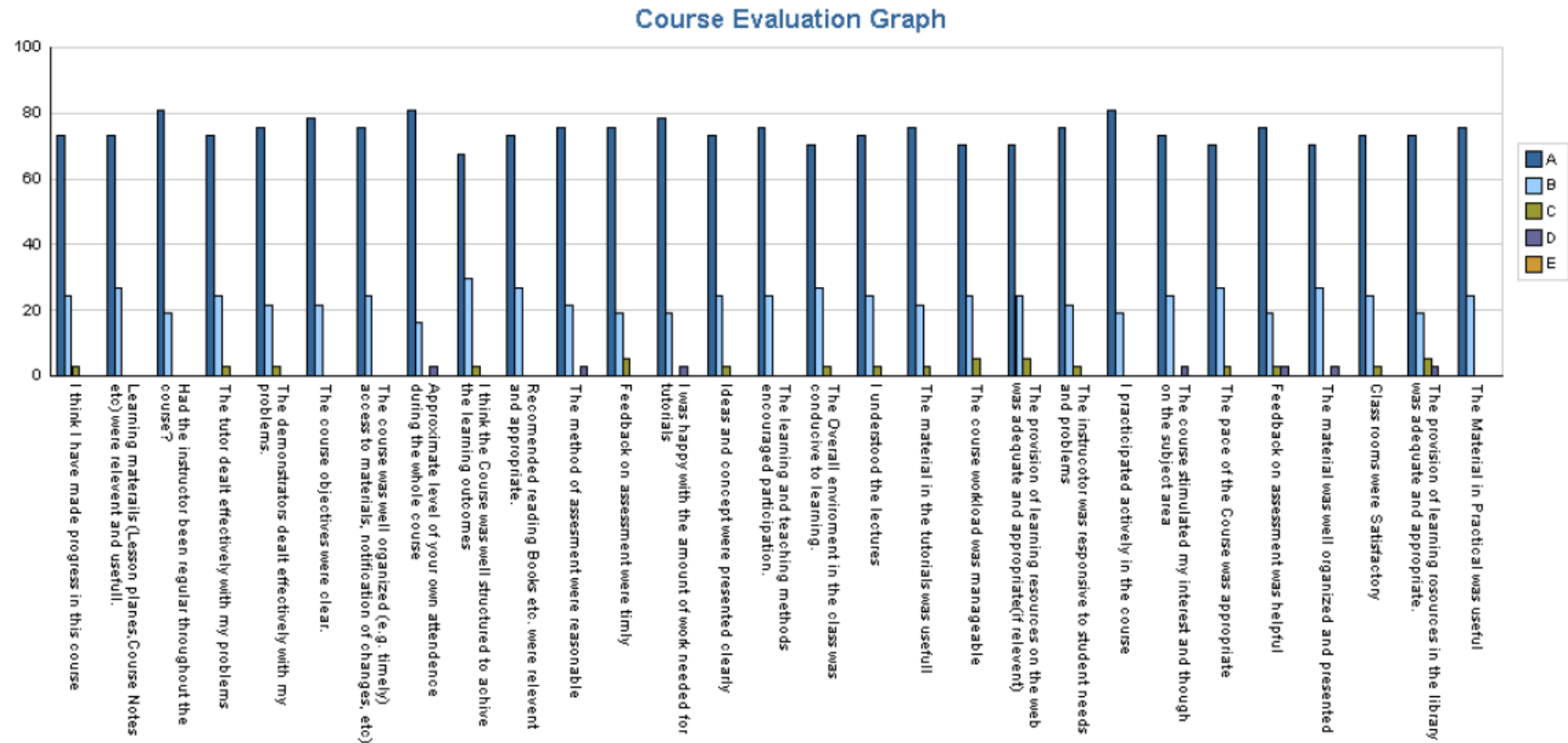
The strongest point which students like about teacher 1 is that, overall the instructor has presented the course objectives in a very clear way and the course material was effective and interesting/stimulating for students.

Results of Performa 1 of Teacher 1(BCH-720/Evening)
Course Evaluation Graph



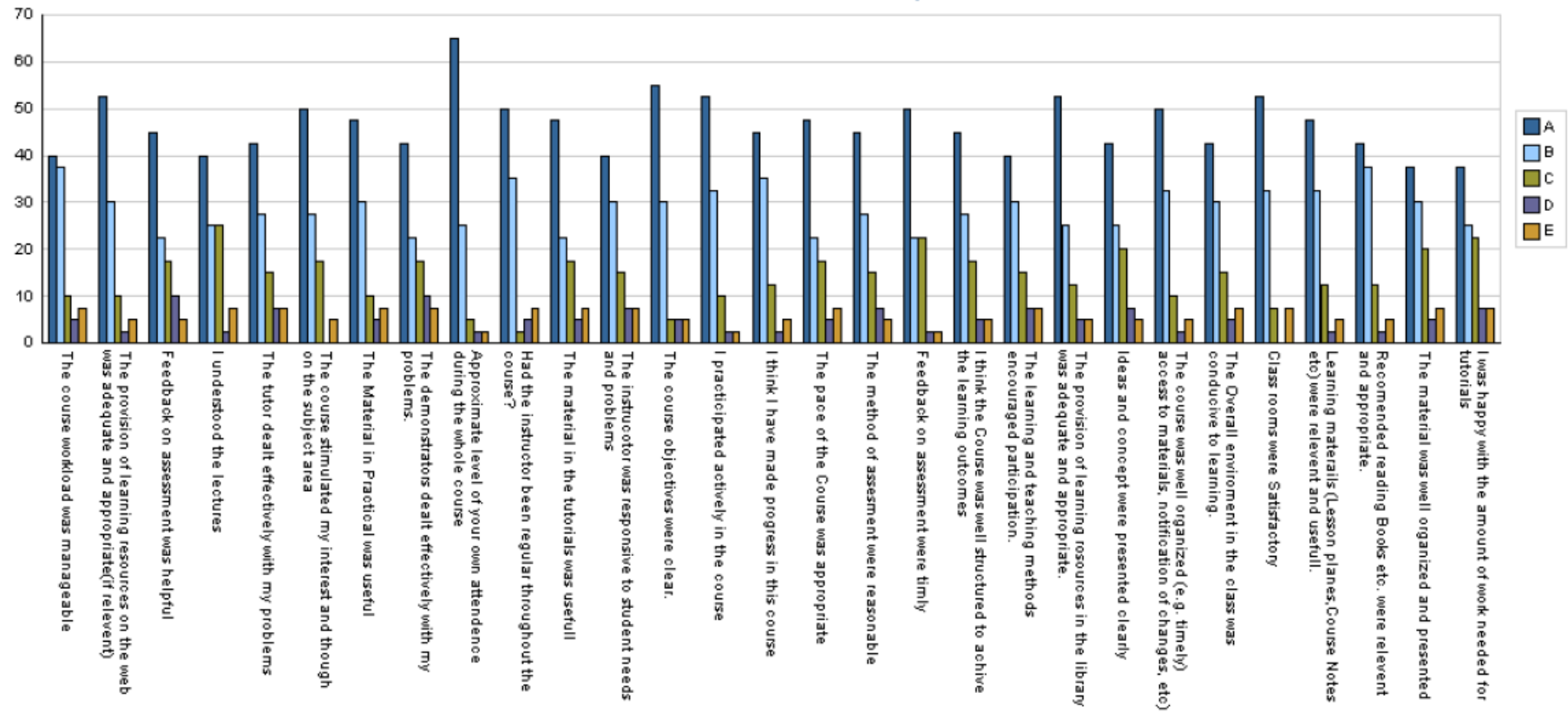
The strongest point which students like about teacher 1 is that, overall the instructor has done a very good job in handling the entire course and students related matters.

Results of Performa 1 of Teacher 2(BCH-701/Morning A)



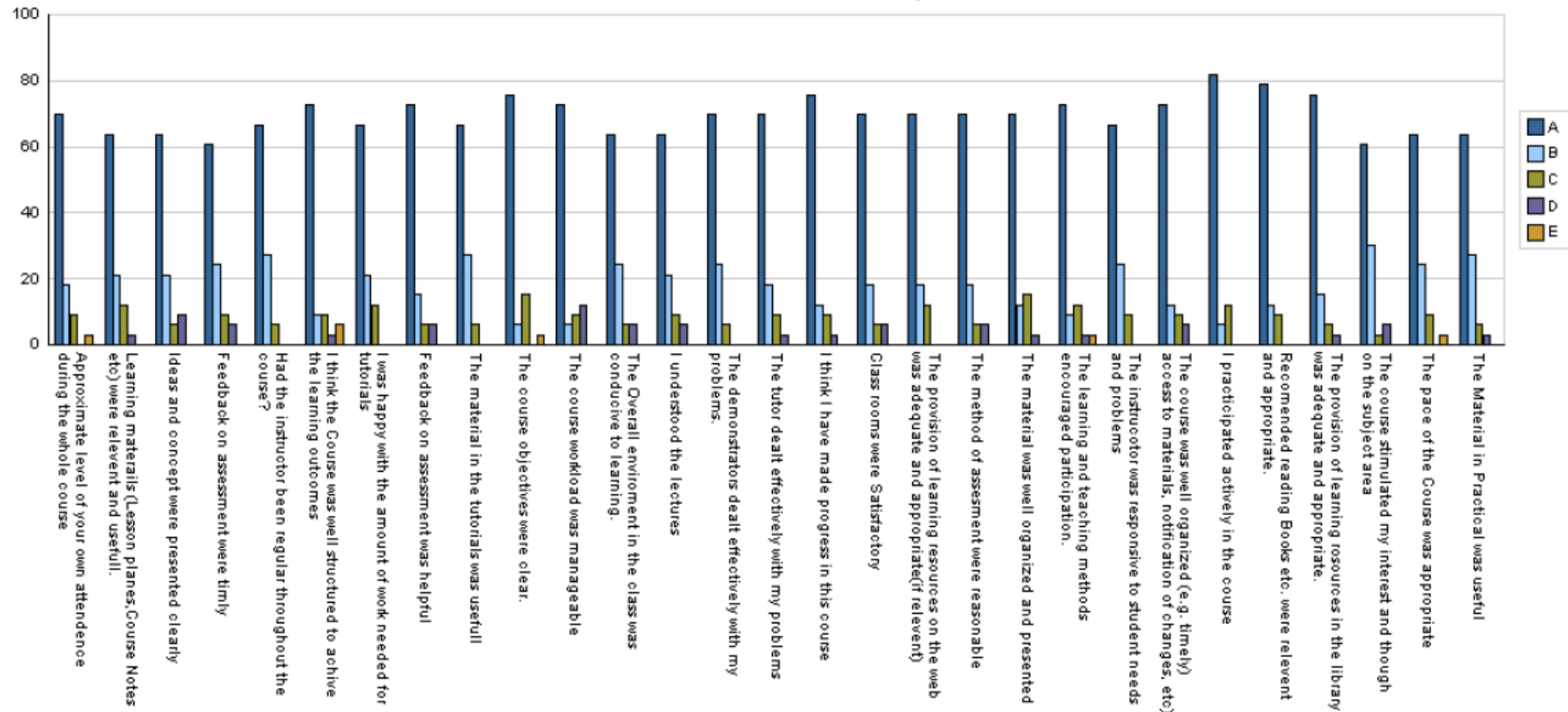
The strongest point which students like about teacher 2 is that, overall the instructor was very regular and has done a good job in handling the entire course and students related matters.

Results of Performa 1 of Teacher 2(BCH-701/Morning C)
Course Evaluation Graph



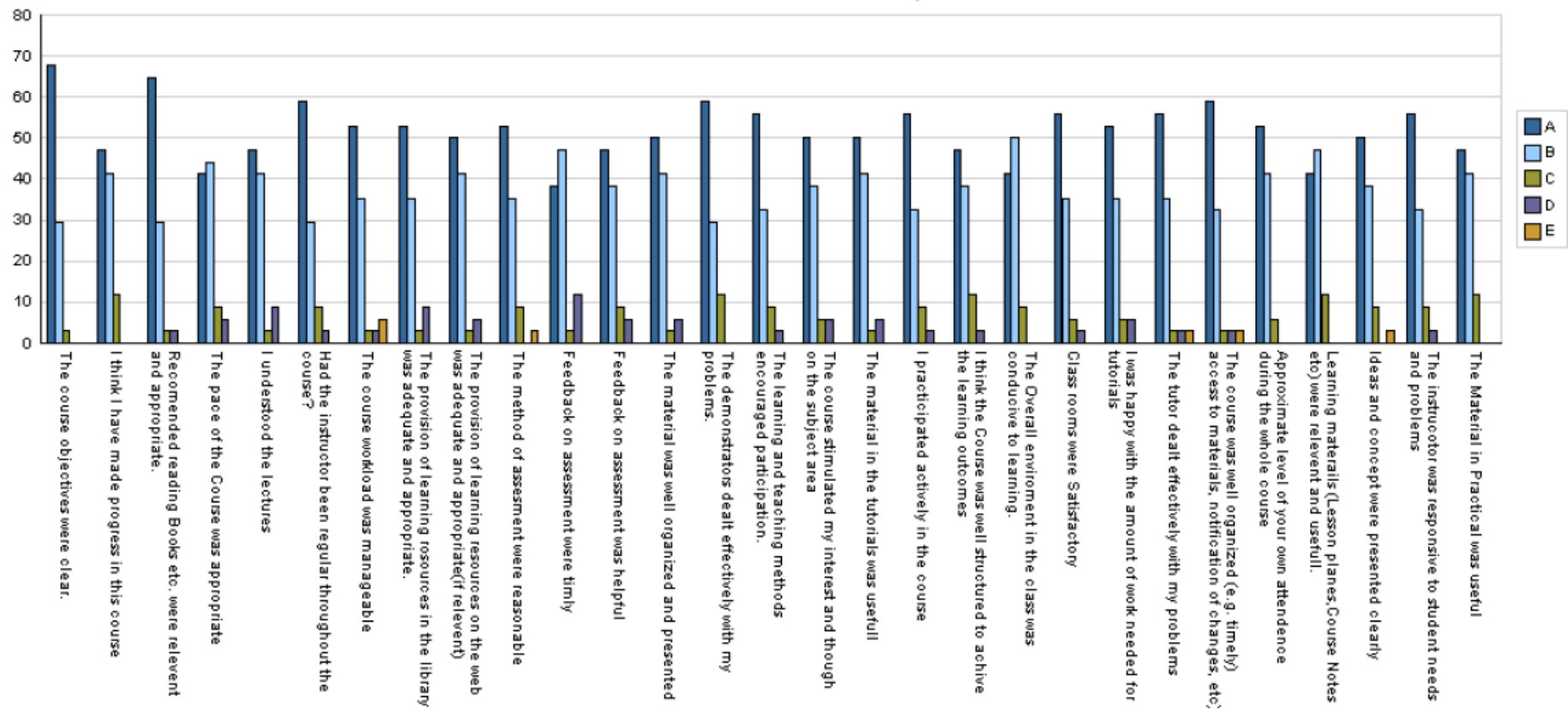
The strongest point which students like about teacher 2 is that, the instructor was punctual, course objectives were clear and the teaching method was encouraging for participants.

Results of Performa 1 of Teacher 2(BCH-701/Morning D)
Course Evaluation Graph



The strongest point which students like about teacher 2 is that, the instructor was punctual, course objectives were clear and the teaching method was encouraging for participants.

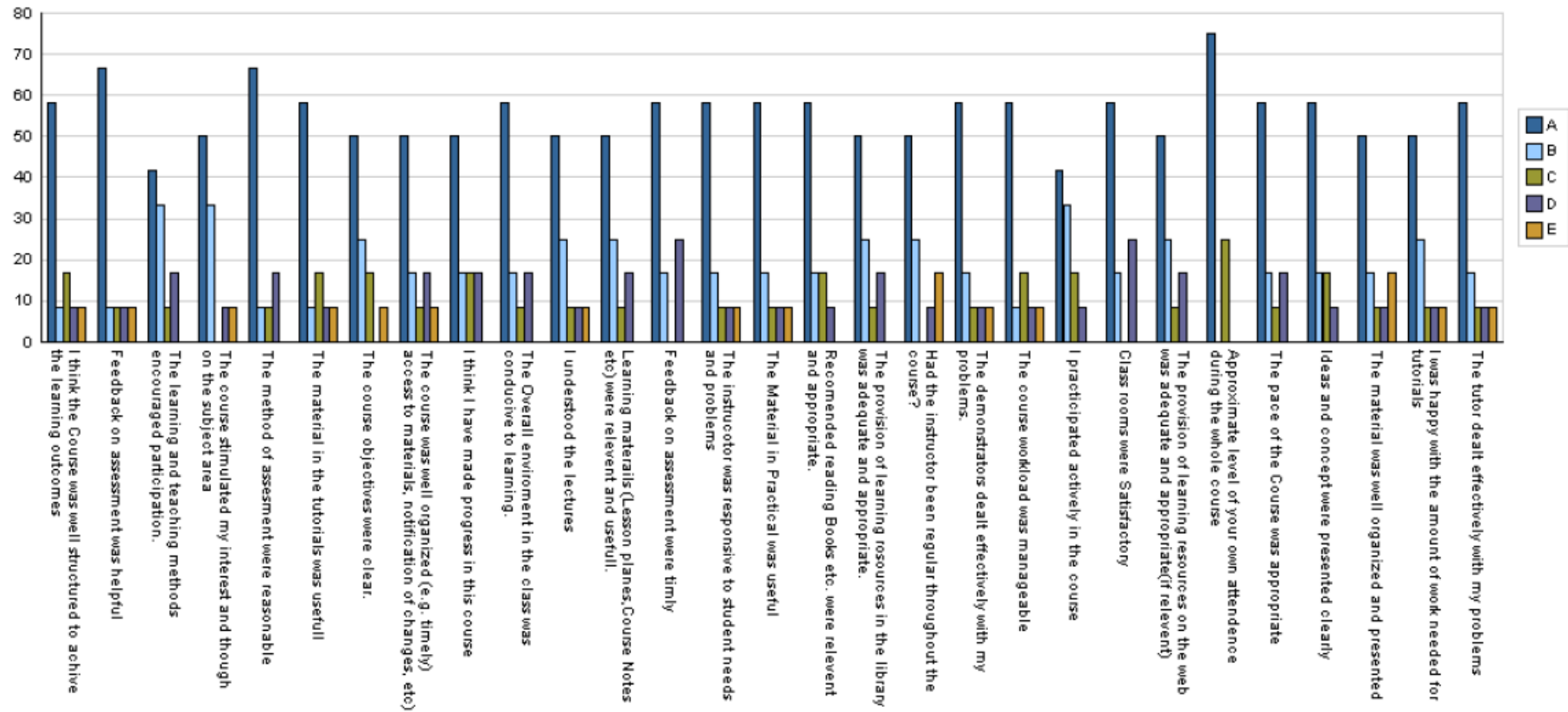
Results of Performa 1 of Teacher 2(BCH-701/Evening B)
Course Evaluation Graph



The strongest point which students like about teacher 2 is that, the instructor was punctual, course objectives were clear and the teaching method was encouraging for participants.

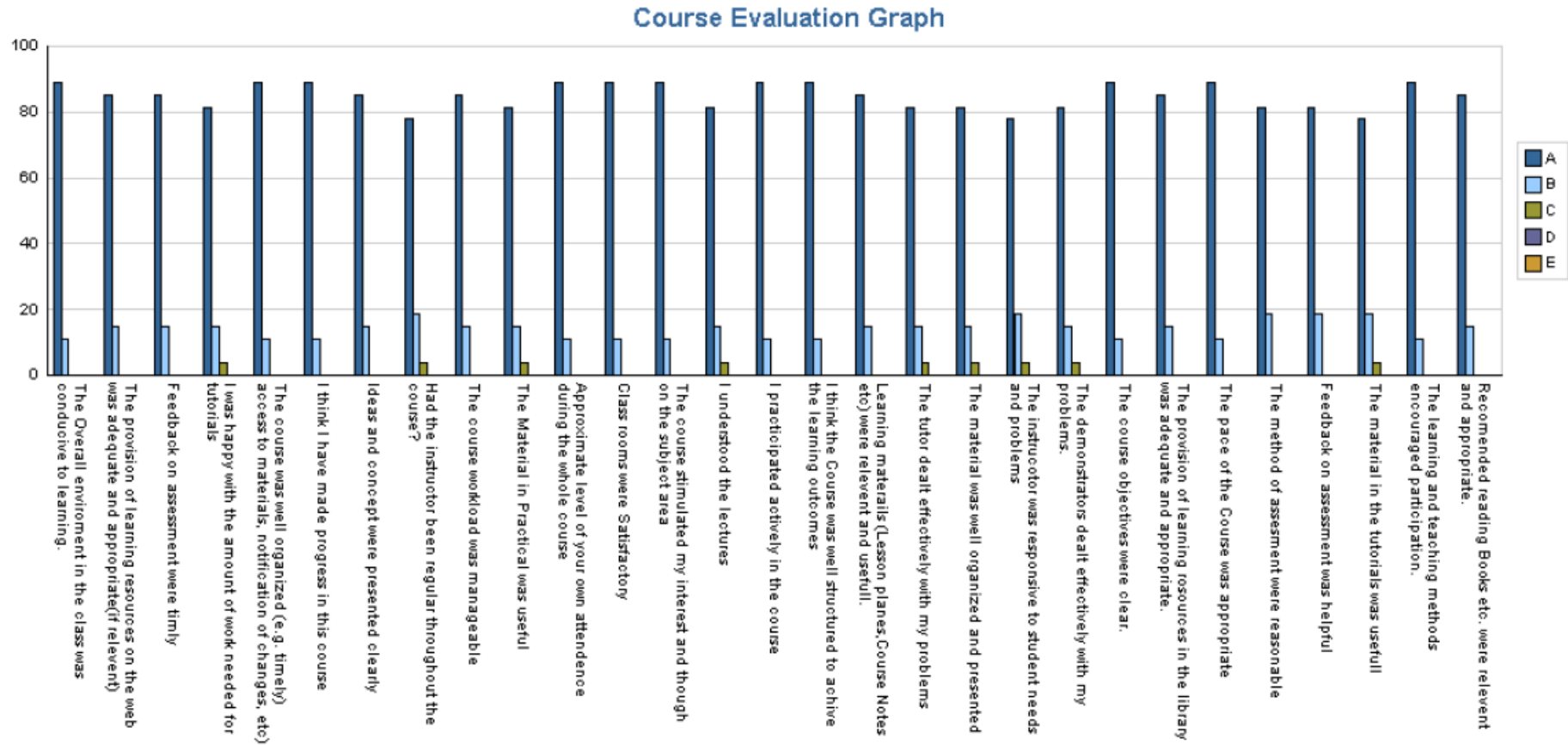
Results of Performa 1 of Teacher 3(BCH-711/Morning C)

Course Evaluation Graph



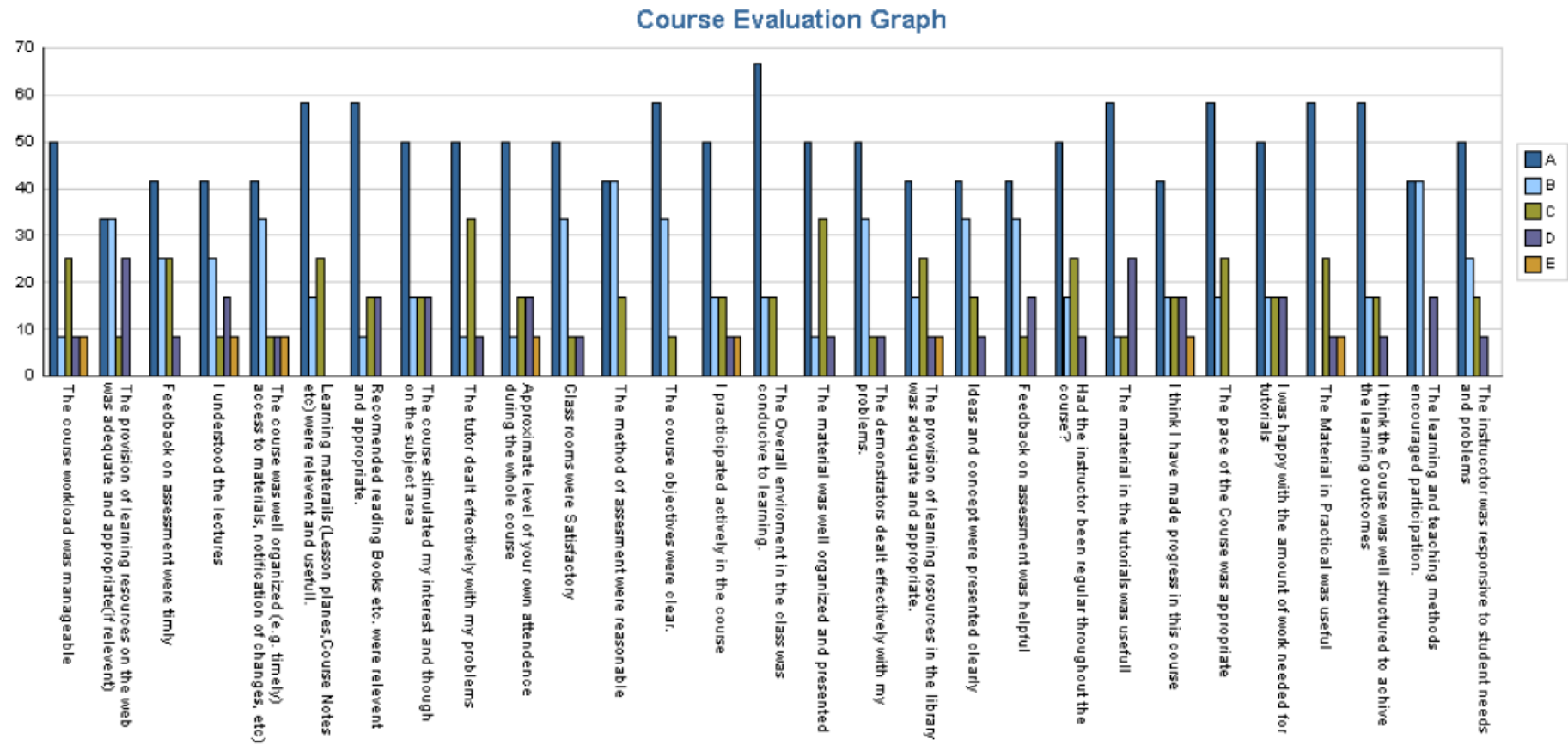
Overall the course material was useful, interesting for participants, method of assessment was good and feedback on assignments was timely and useful.

Results of Performa 1 of Teacher 3(BCH-711/Evening D)



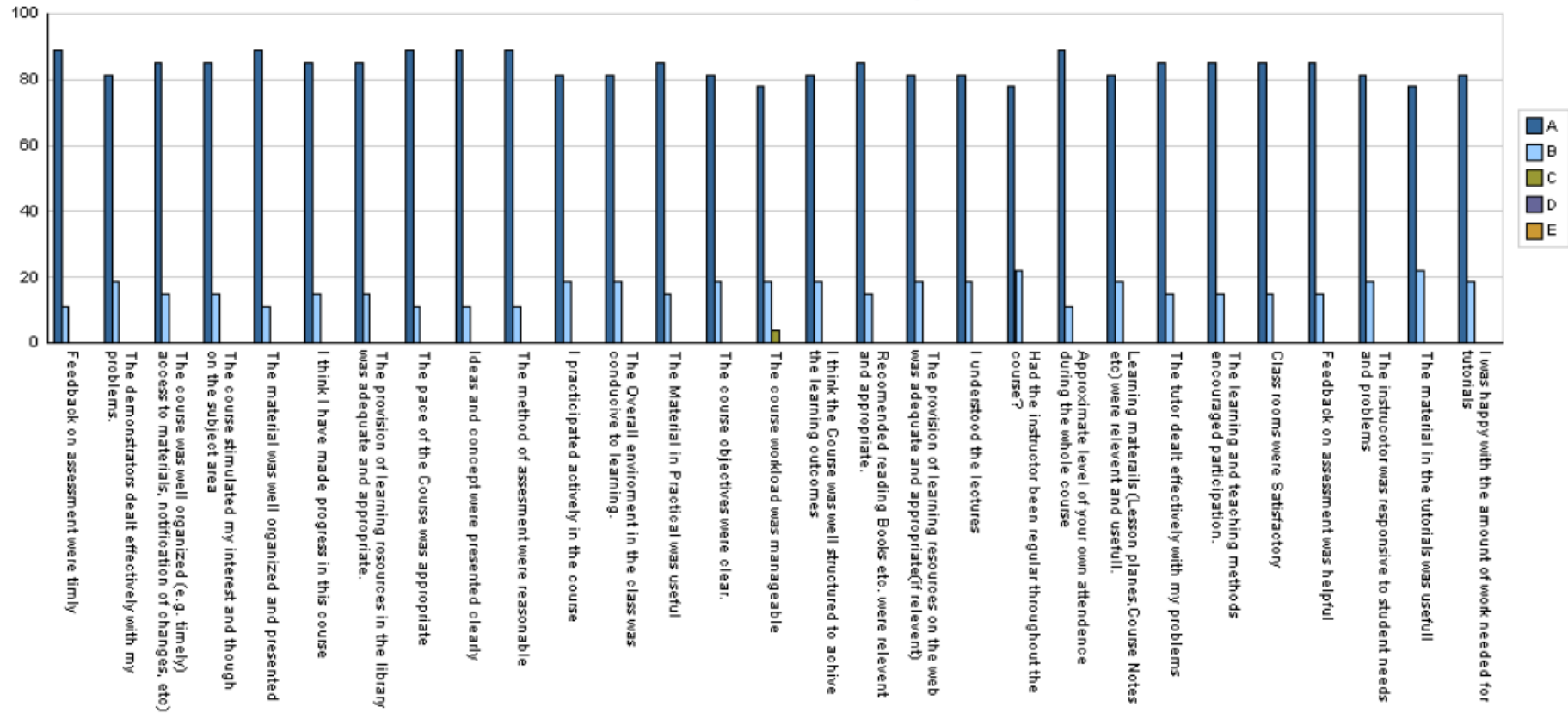
The strongest point of the instructor regarding the course was, the course objectives were clear and overall there was a very good learning environment in the class.

Results of Performa 1 of Teacher 4(BCH-702/Morning A)



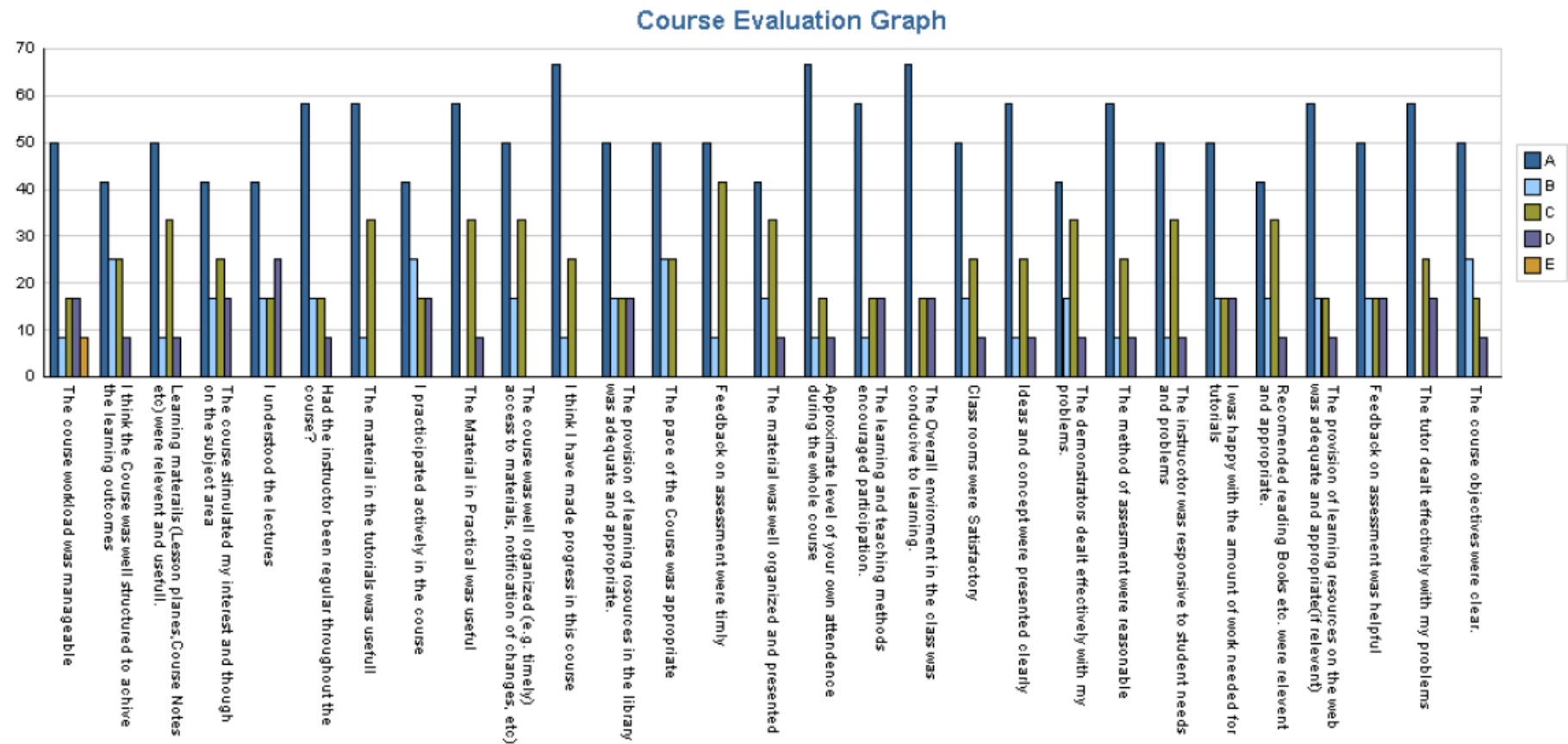
The strongest point which students like about Teacher 4 is that, the instructor has created a very good learning environment Course objectives were clear and related material was effective.

Results of Performa 1 of Teacher 4(BCH-702/Evening A)
Course Evaluation Graph



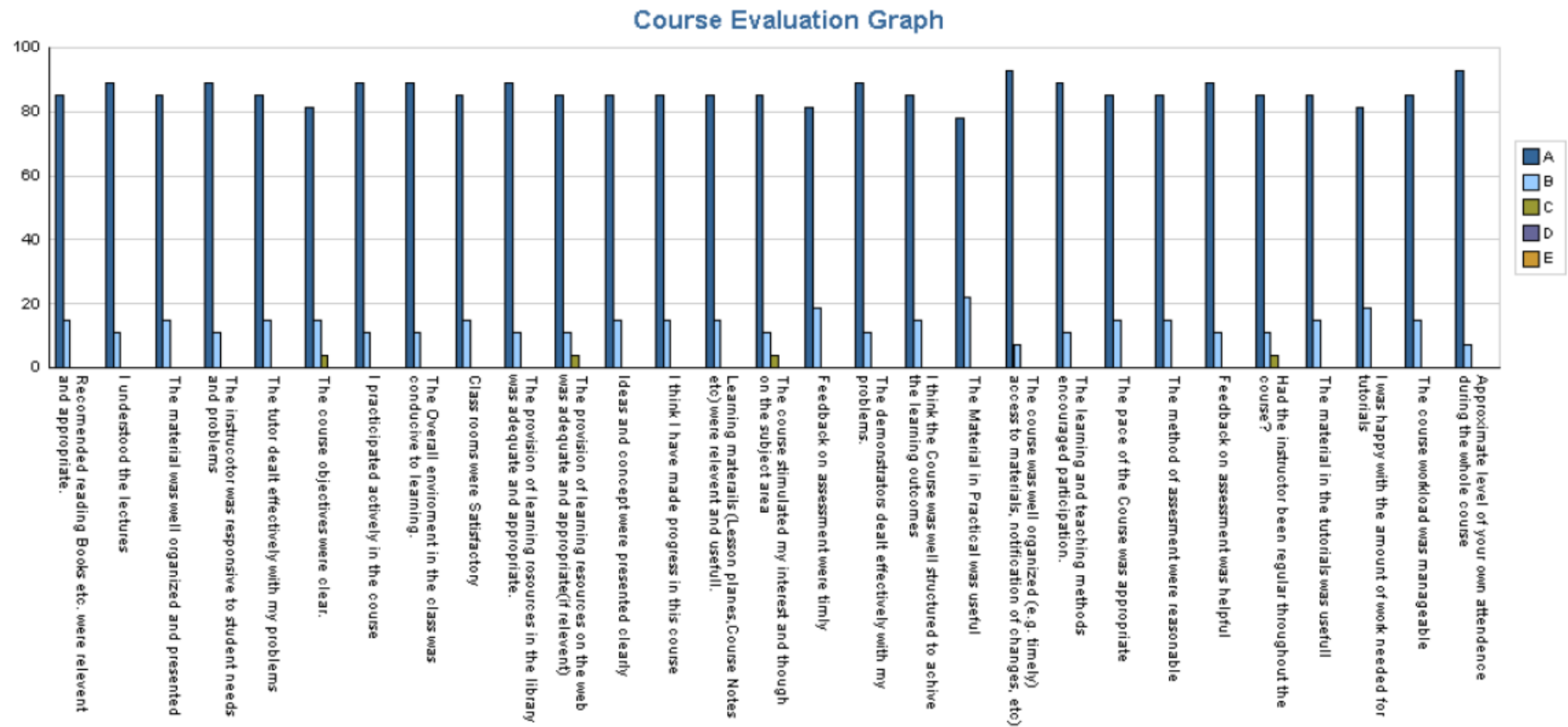
The strongest point which students like about Teacher 4 is that, overall the instructor has done a very good job in dealing with entire course and student related matters.

Results of Performa 1 of Teacher 5(BCH-710/Morning A)



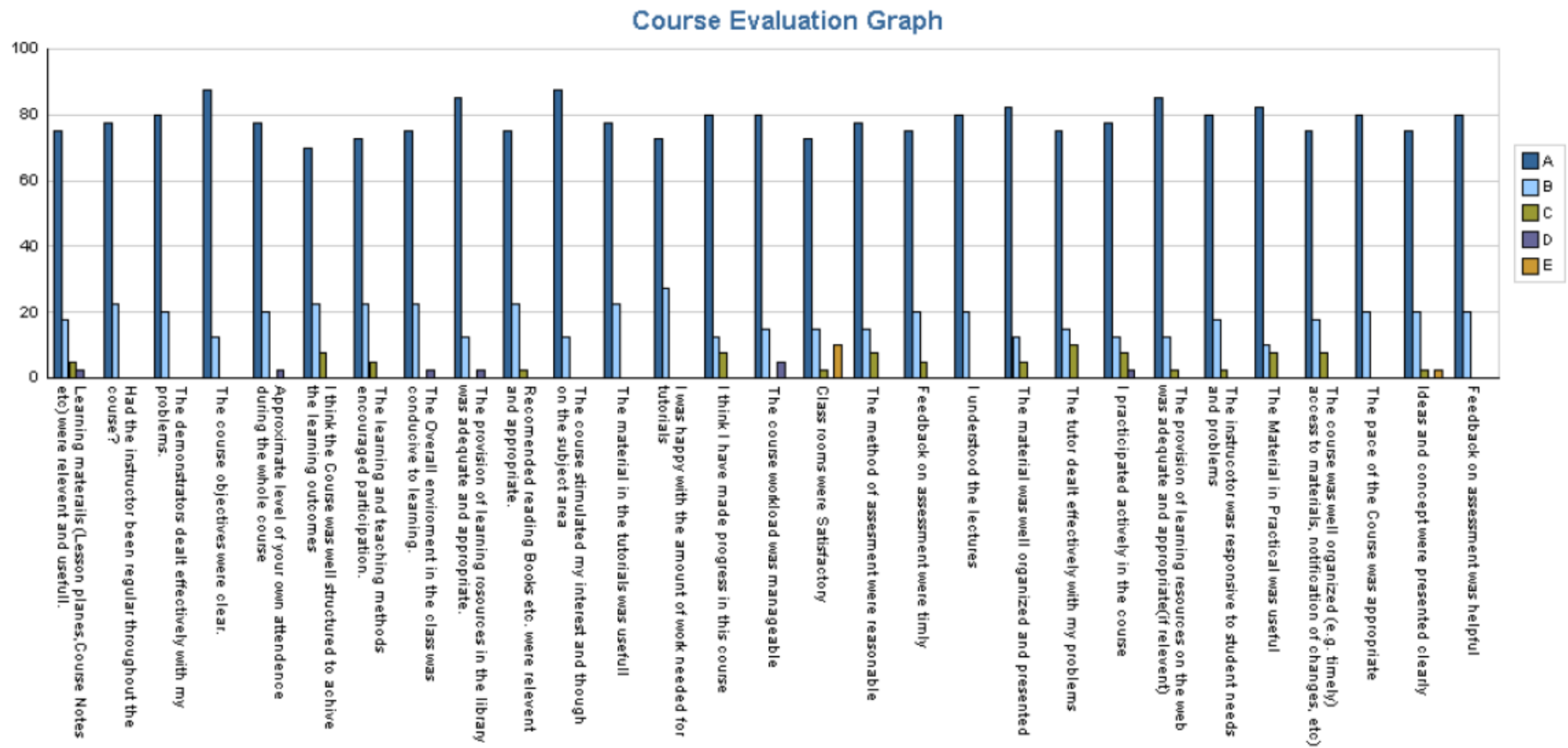
The strongest point which students like about Teacher 5 is that, the instructor was punctual, and provided a very good learning and progressive environment for the students.

Results of Performa 1 of Teacher 5(BCH-710/Evening A)



The strongest point which students like about Teacher 5 is that, overall the instructor has done a very good job in dealing with entire course and students related matters.

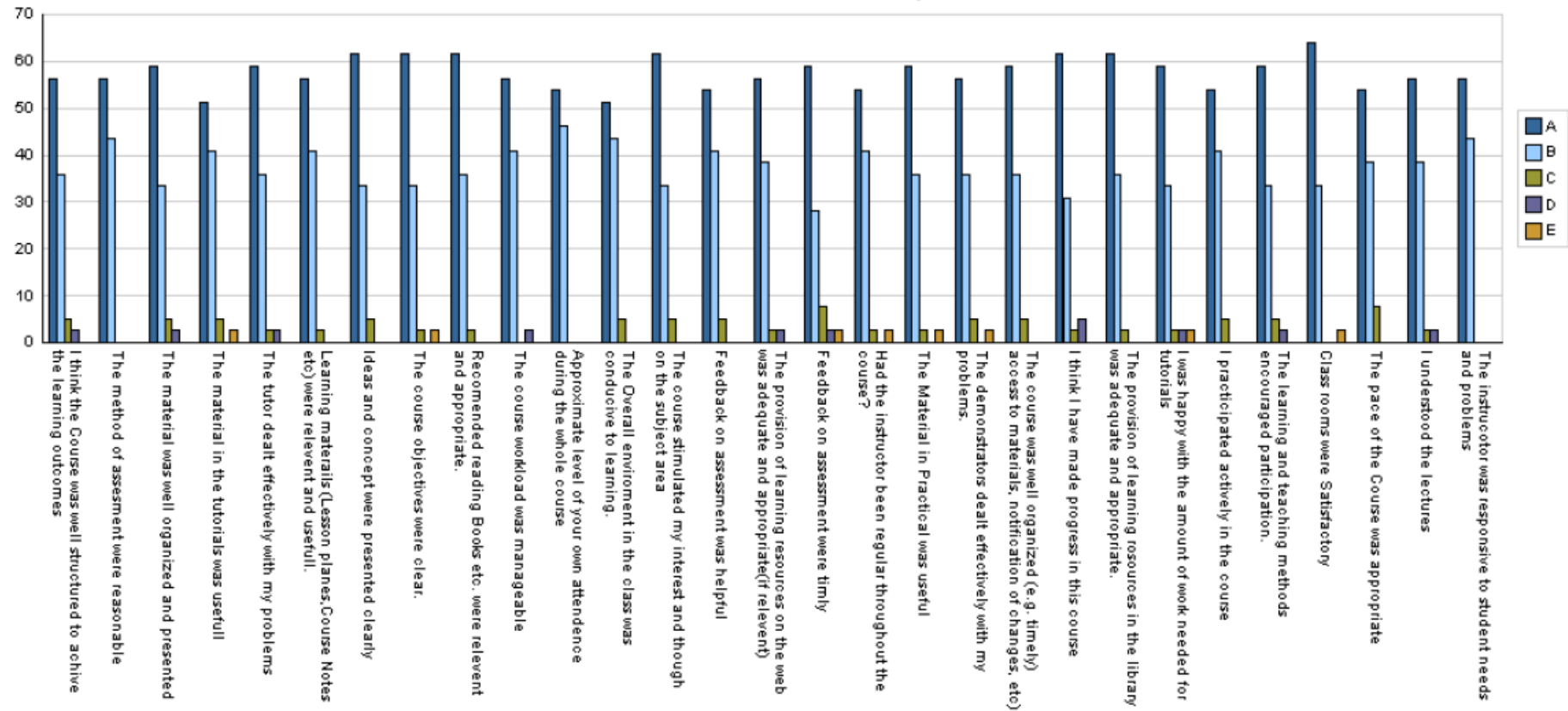
Results of Performa 1 of Teacher 5(BCH-701/Morning G)



The strongest point which students like about Teacher 5 is that, the course objectives were clear and the instructor has created a good stimulating environment for the students.

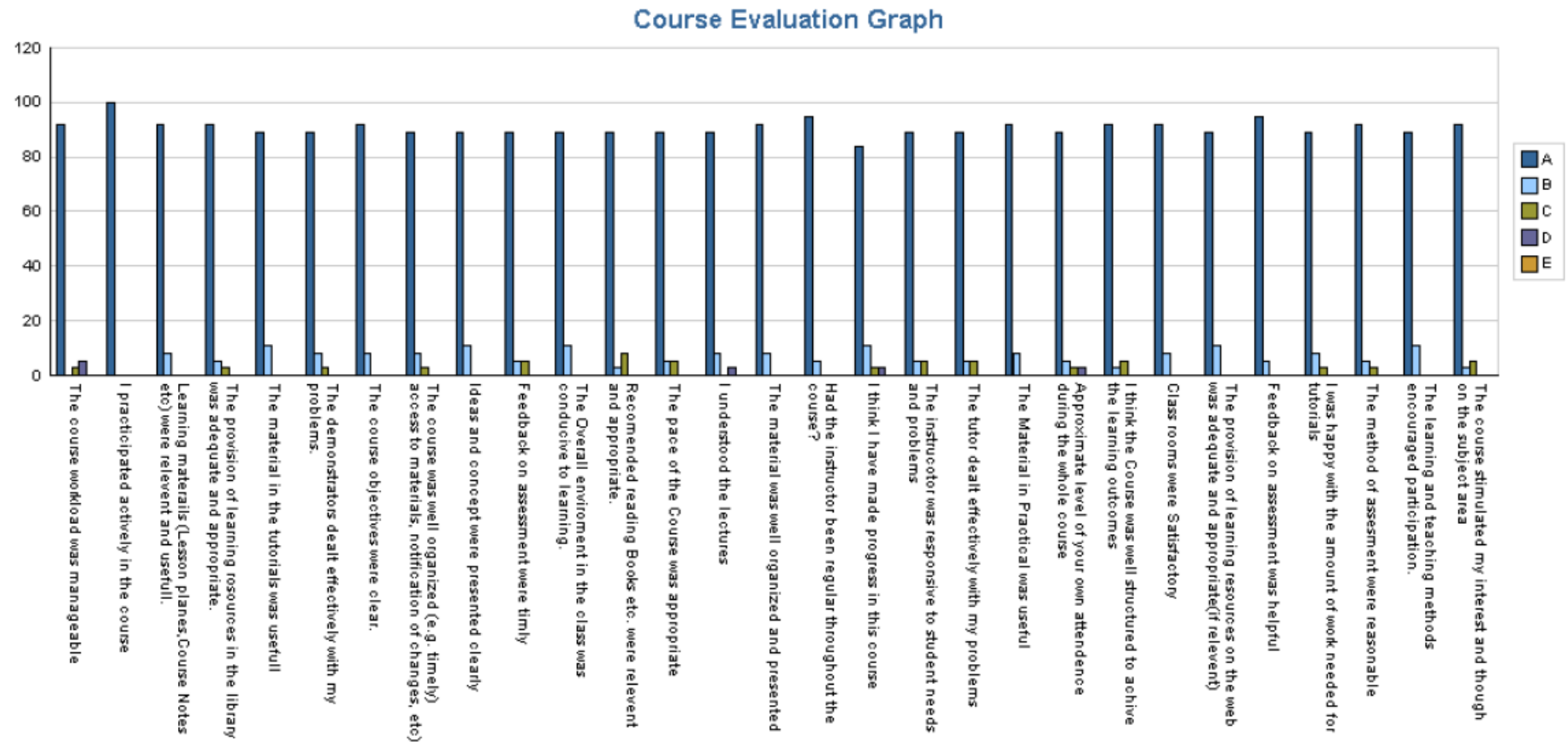
Results of Performa 1 of Teacher 5(BCH-701/Morning E)

Course Evaluation Graph



The strongest point which students like about Teacher 5 is that, the course objectives were clear and the instructor has created a good stimulating environment for the students.

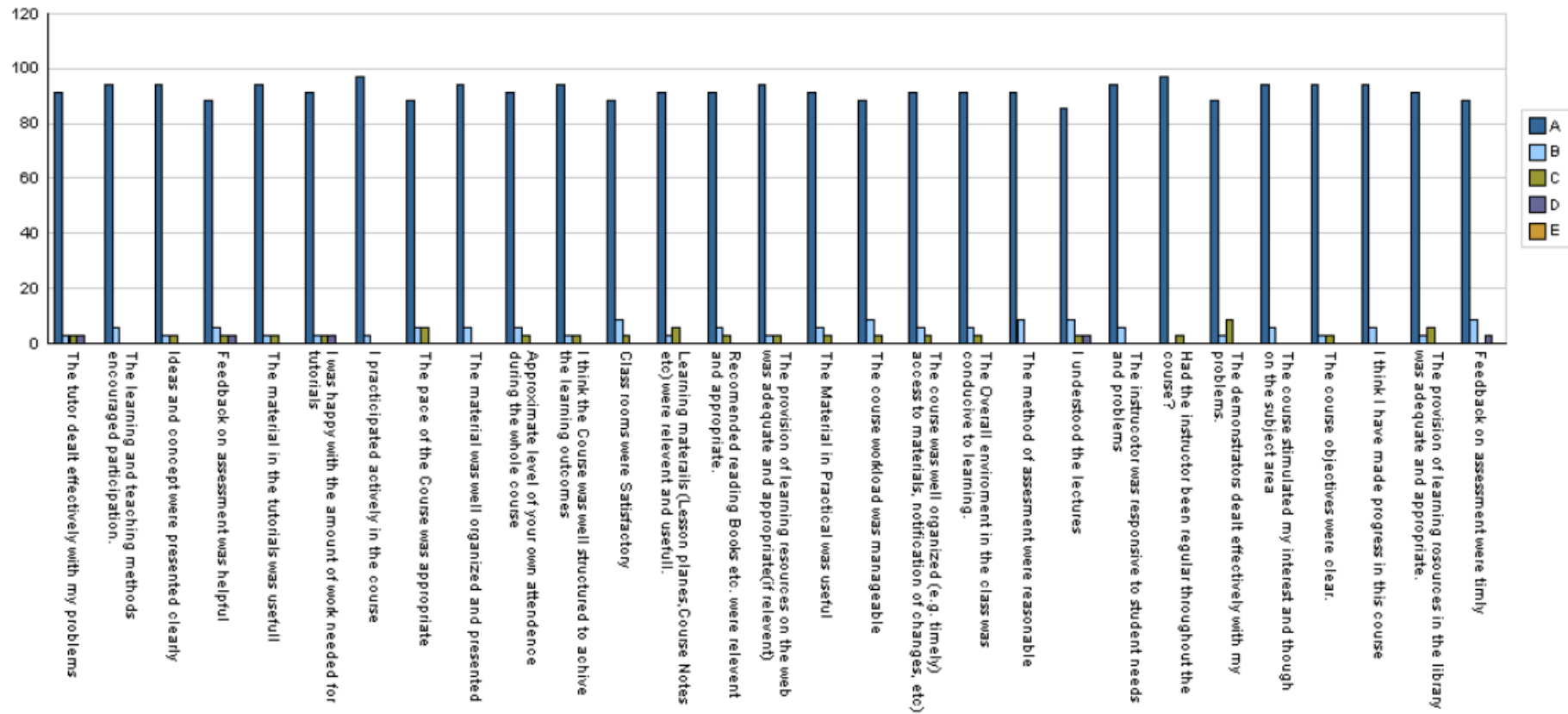
Results of Performa 1 of Teacher 5(BCH-701/Evening H)



The strongest point which students like about Teacher 5 is that, the instructor has done a very good job in keeping students interest in the course and overall the entire course was presented very effectively.

Results of Performa 1 of Teacher 5(BCH-701/Evening F)

Course Evaluation Graph



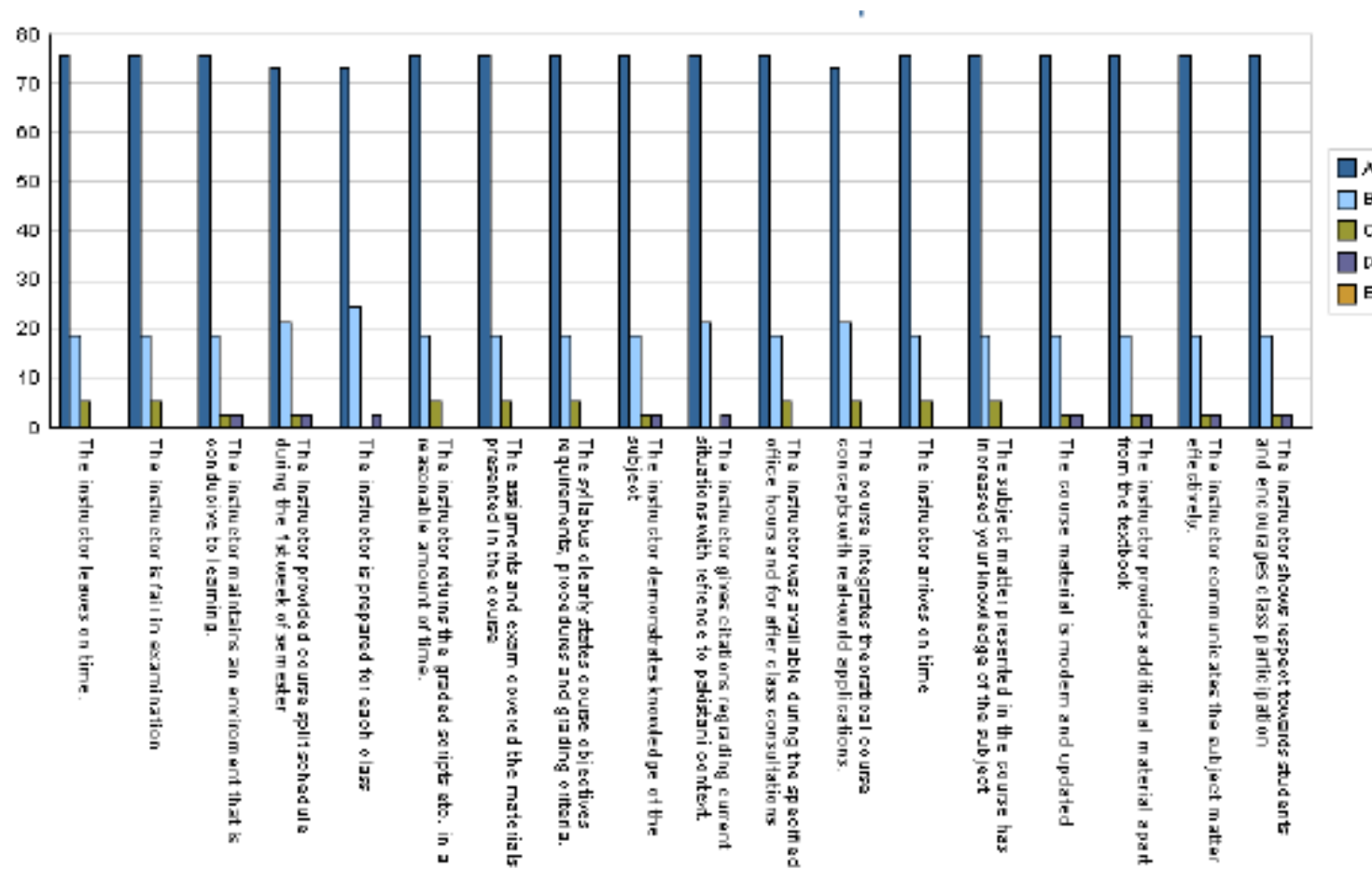
The strongest point which students like about Teacher 5 is that, the instructor has done a very good job in keeping students interest in the course and overall the entire course was presented very effectively

Teachers Evaluation Spring Semester 2014

Overall Results of Performa 10 of Teacher 1, 2, 3, 4, 5 and 6

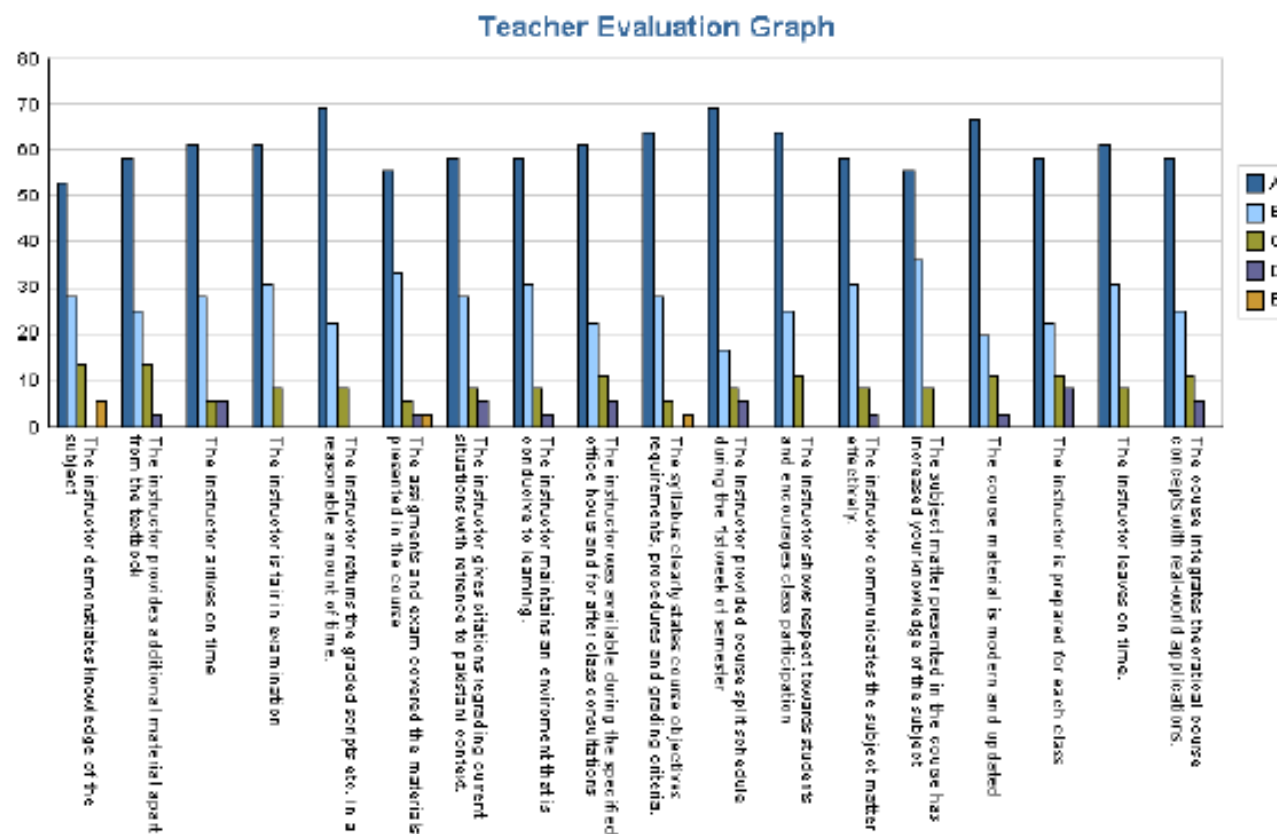
The teachers were evaluated by the students at the end of the semester in accordance with Proforma-10. In the graph teachers are represented as 1, 2, 3..., and 6 instead of mentioning their names.

Results of Performa 10 of teacher 1(BCH-704 M section A)



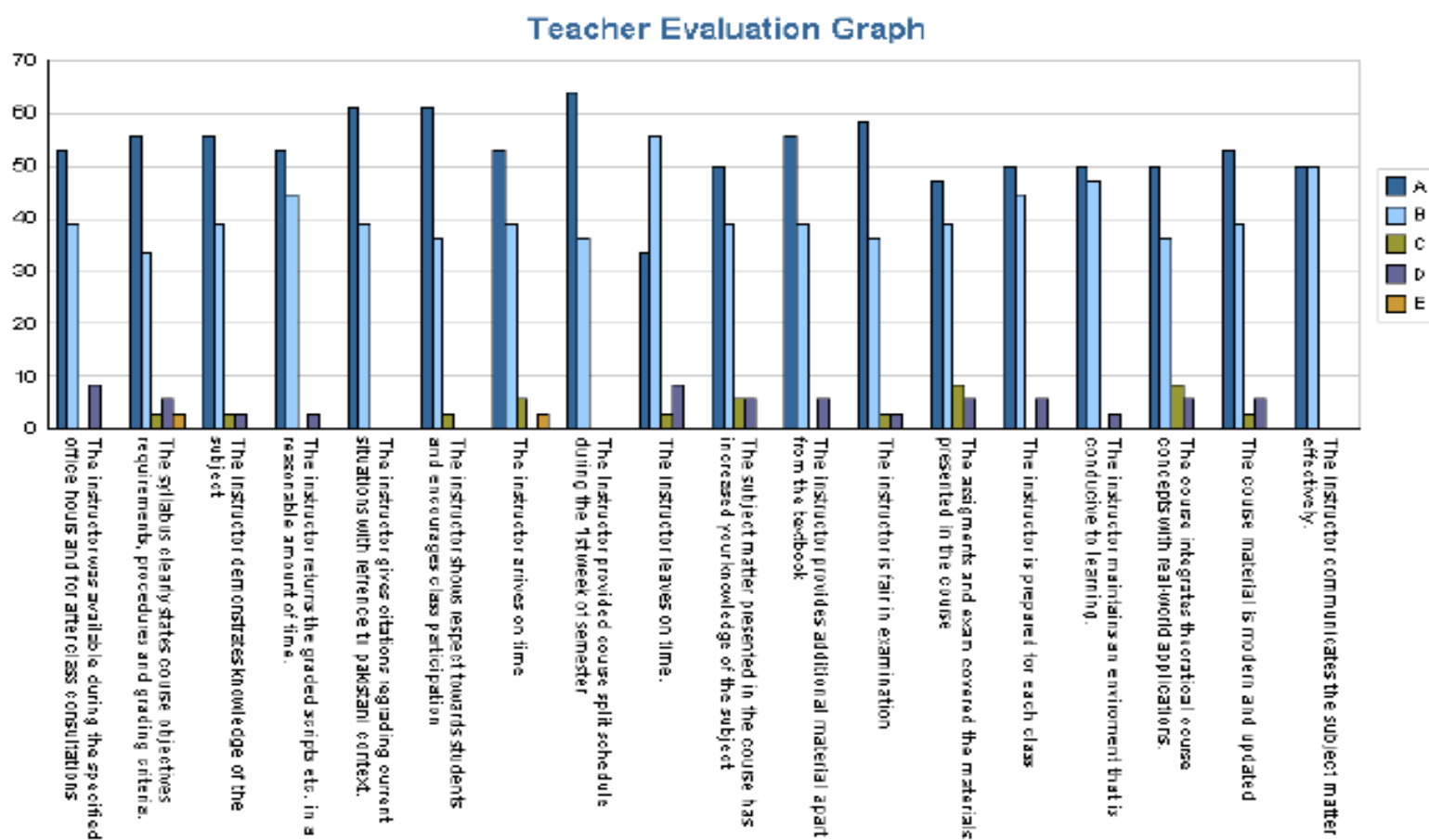
The strongest point which students like about teacher 1 is that the course material is modern and updated and the teacher is very punctual and well prepared for the class

Results of Performa 10 of teacher 1(BCH-704E section B)



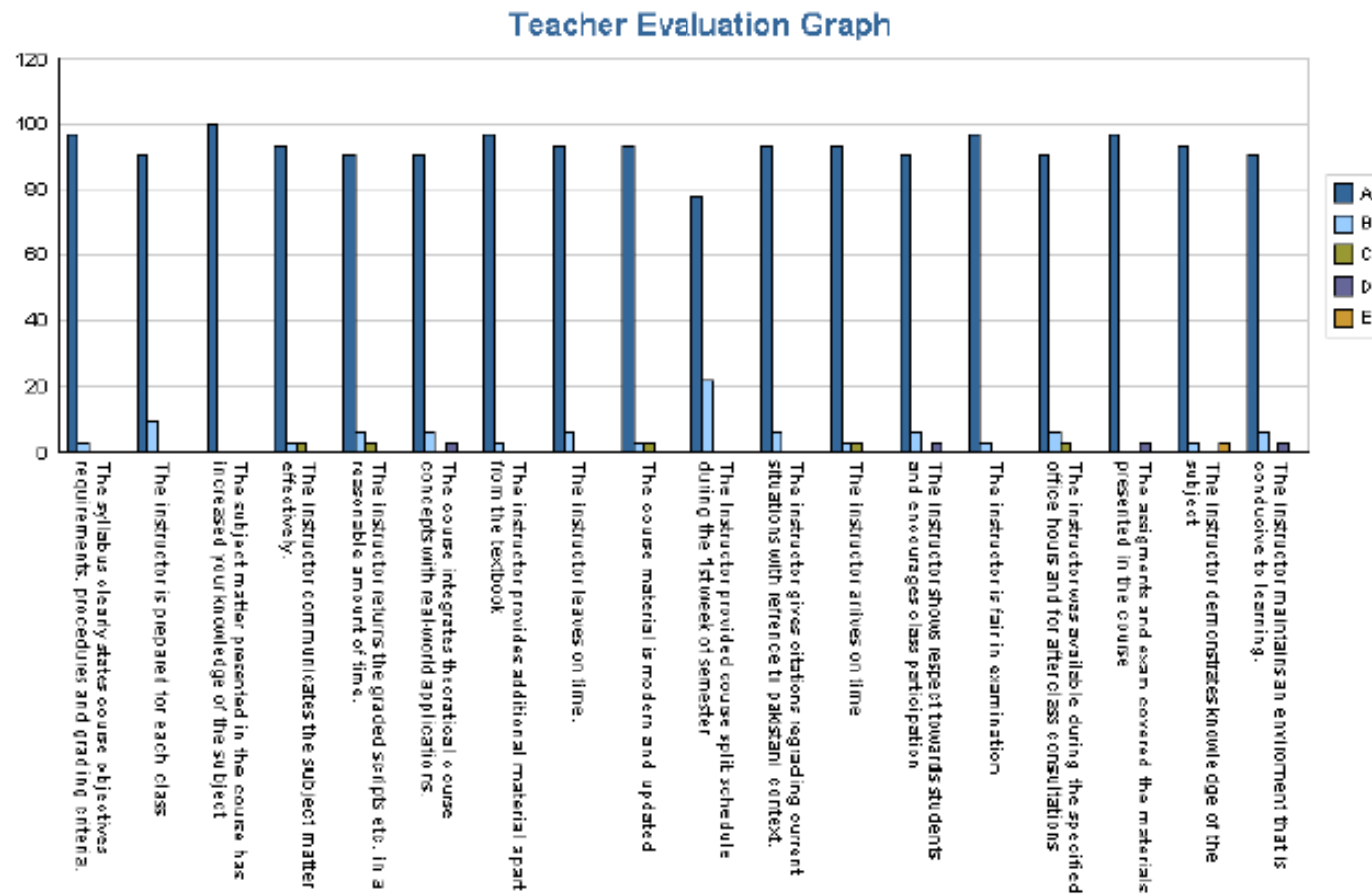
The strongest point of teacher 1 is that he is punctual and well prepared for the class and he provided all the essential materials of the course

Results of Performa 10 of teacher 1(BCH-704M section C)



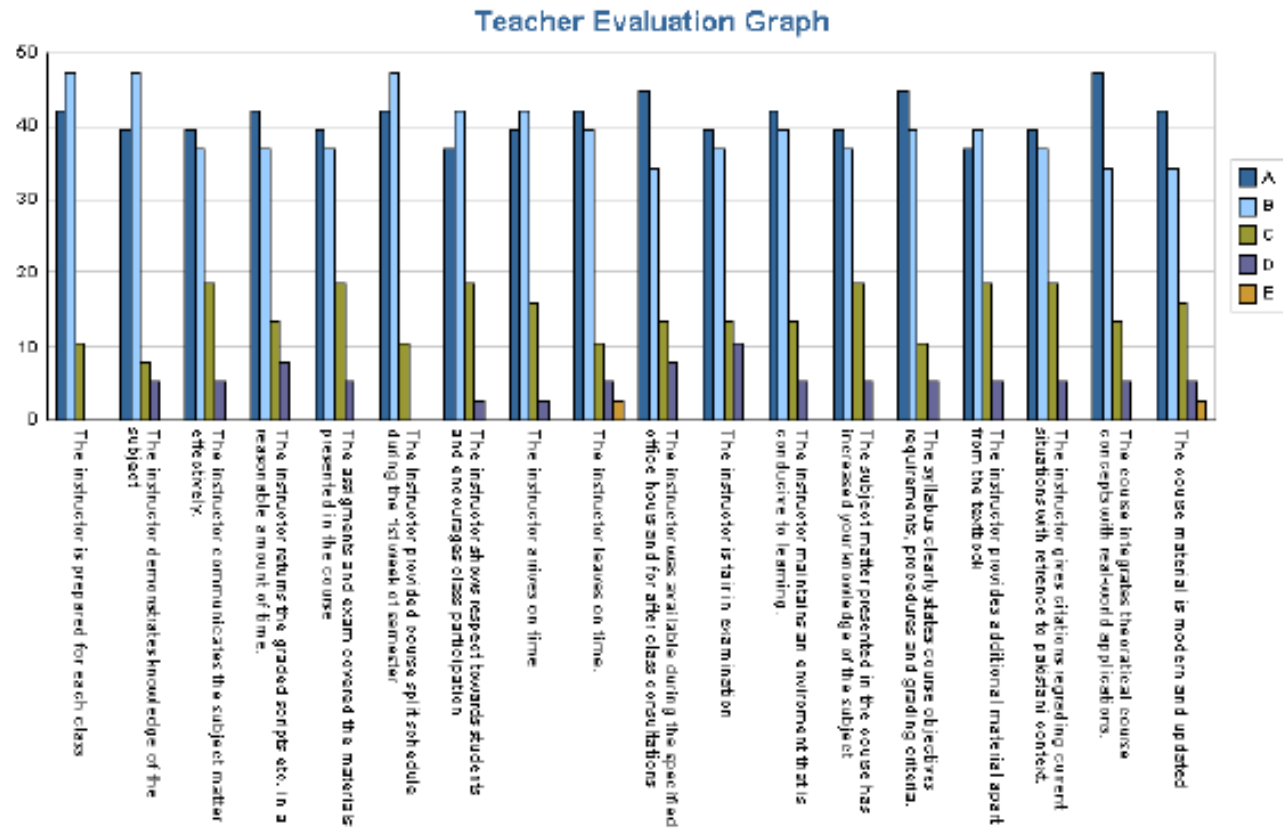
According to students teacher 1 provided course related materials to students on time, communicated subject matter effectively and encouraged class participation.

Results of Performa 10 of teacher 1(BCH-704E section D)



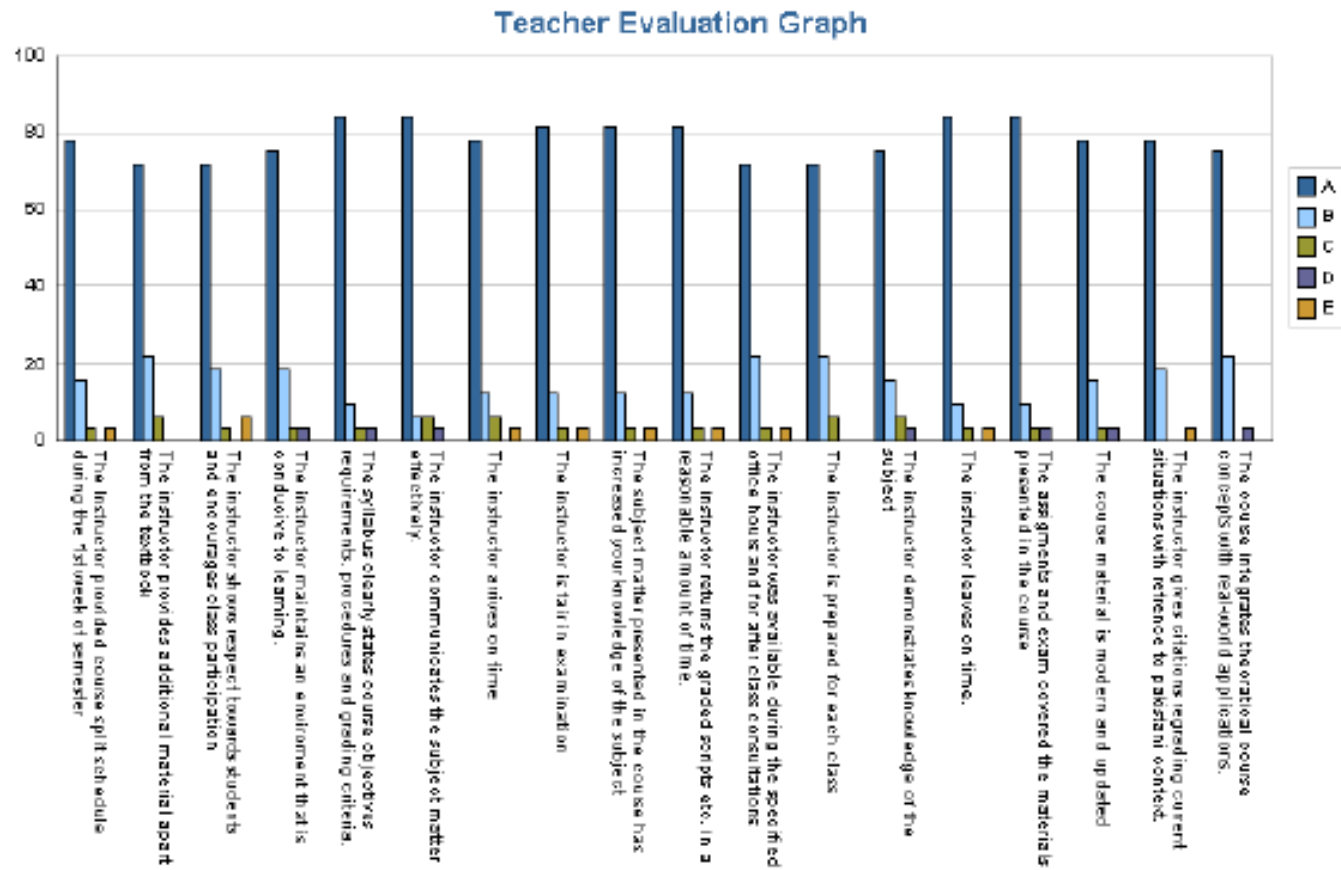
The strongest points of teacher 1 is that he was punctual, presented subject effectively and increased the knowledge of the students.

Results of Performa 10 of teacher 1(BCH-704M section E)



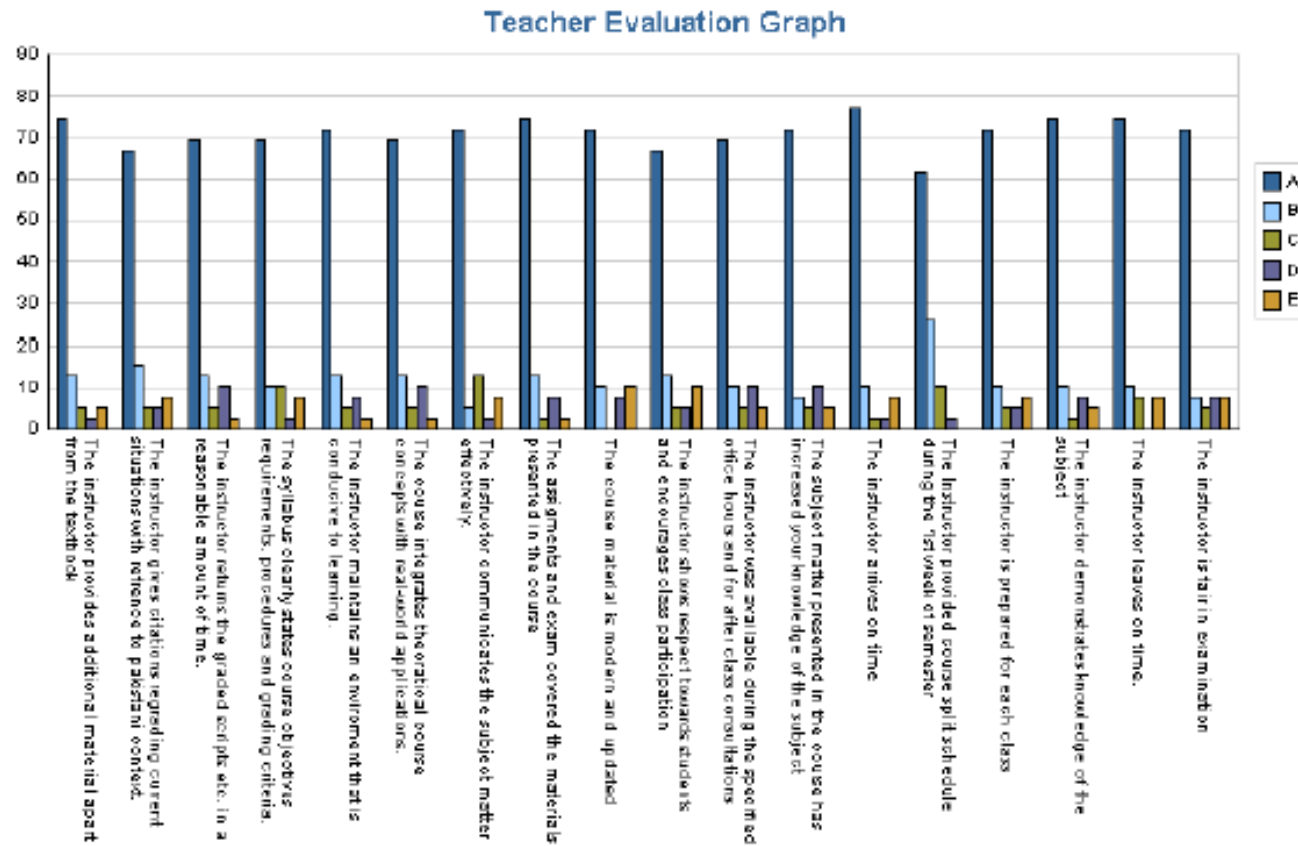
The best point of teacher 1 is that he was punctual, taught the updated and modern concepts of the course, which integrated the theoretical concepts with the real world application

Results of Performa 10 of teacher 1(BCH-704E section F)



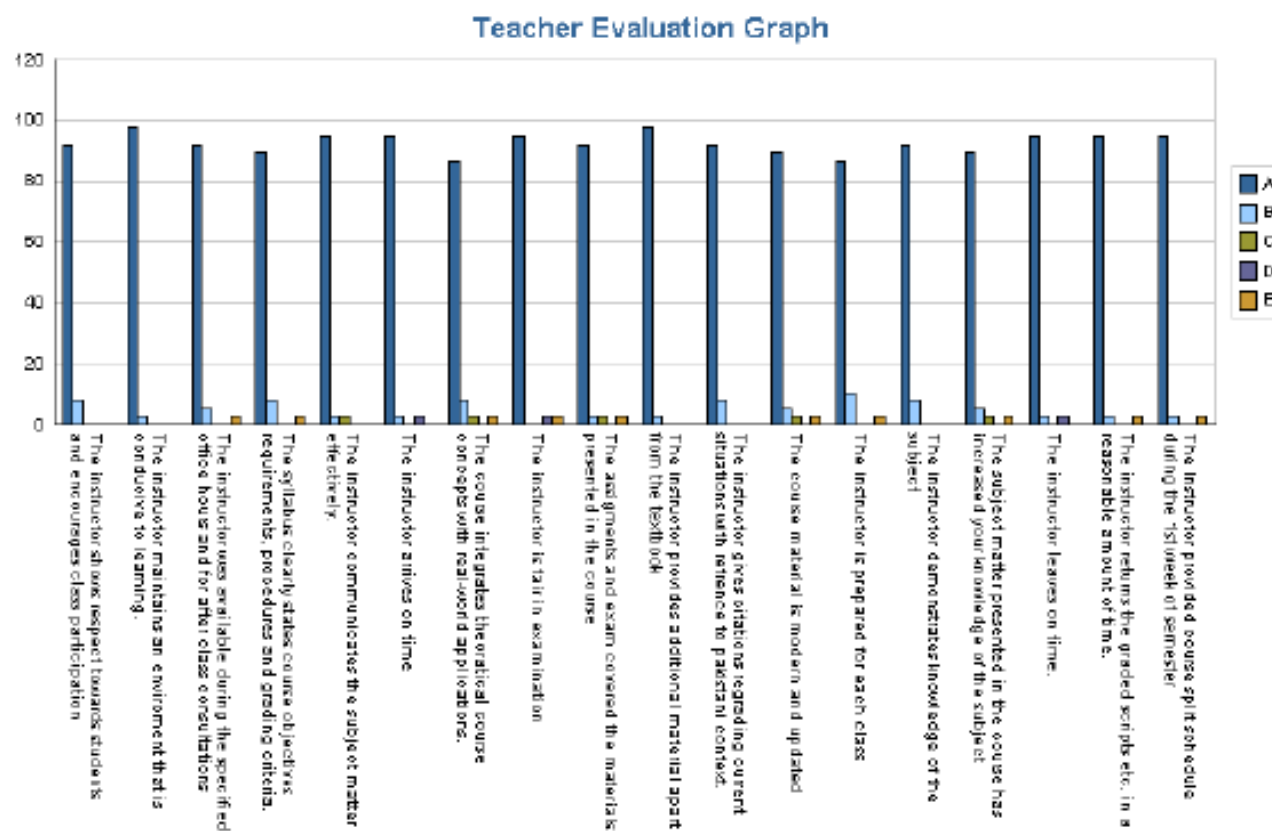
The strongest point of teacher 1 is that the assignments and exam covered the material provided in the course and teacher communicated the subject matter effectively

Results of Performa 10 of teacher 1(BCH-704M section G)



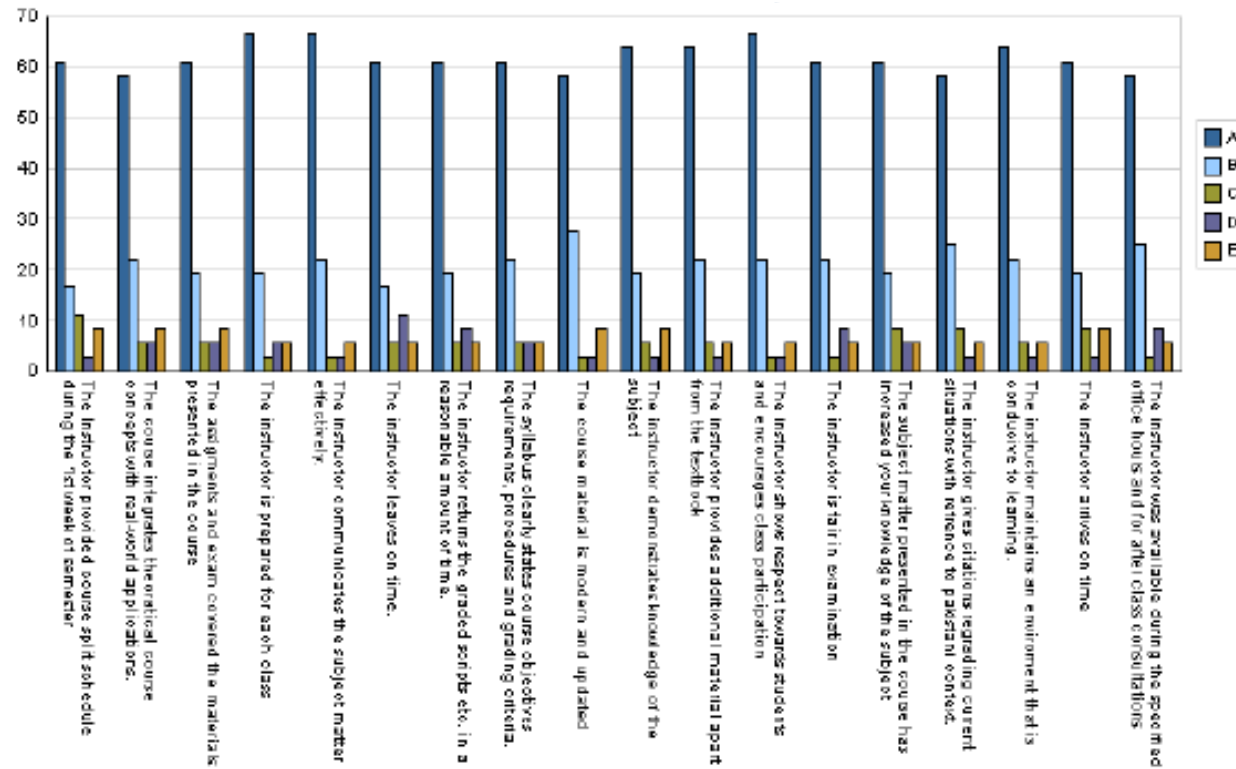
The strongest point which students like about teacher 1 is that the course material is modern and updated and the teacher is very punctual and well prepared for the class

Results of Performa 10 of teacher 1(BCH-704E section H)



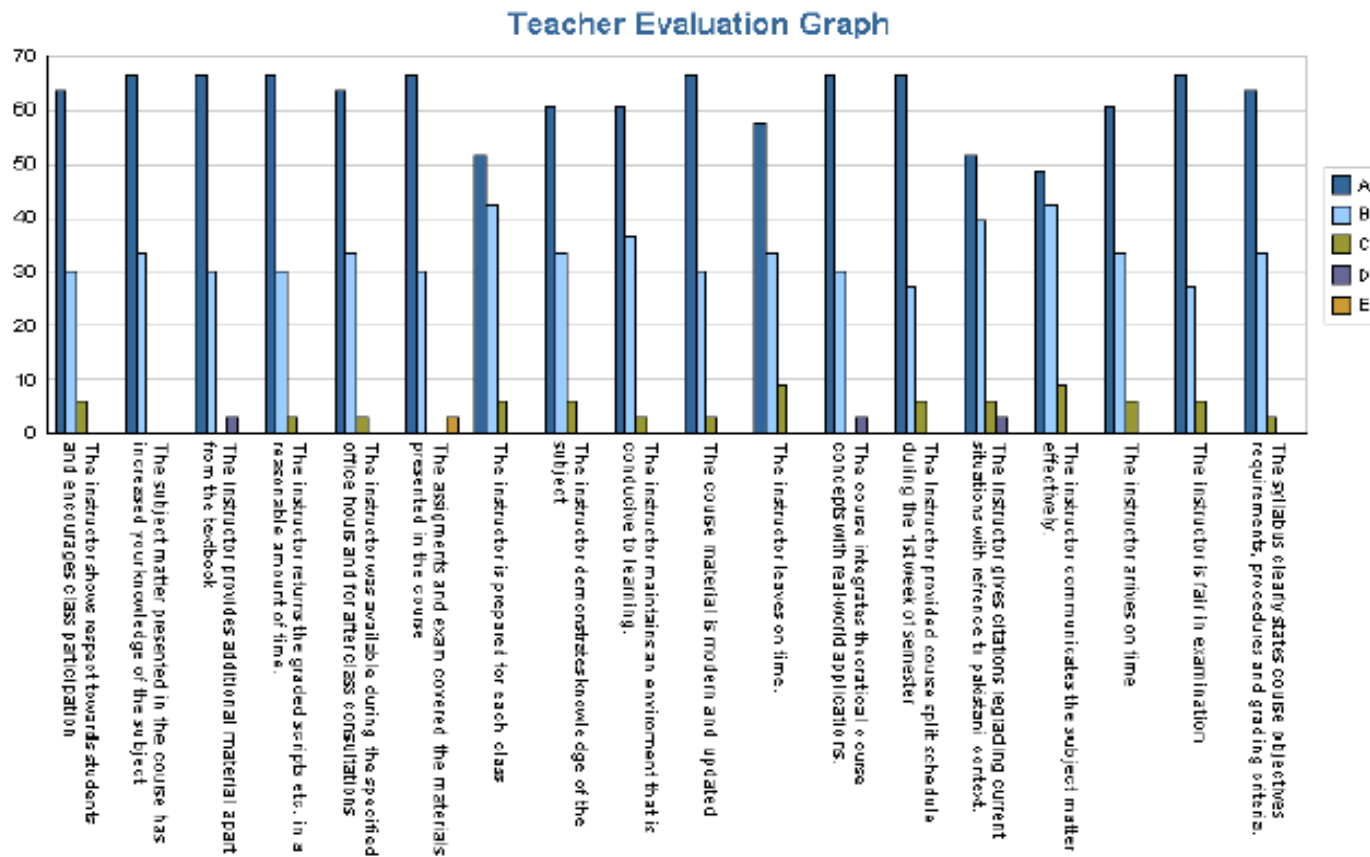
The strongest point which students like about teacher 1 is that overall he did an excellent job and he maintained an environment that is conducive to learning.

Results of Performa 10 of teacher 2 (BCH-703M)



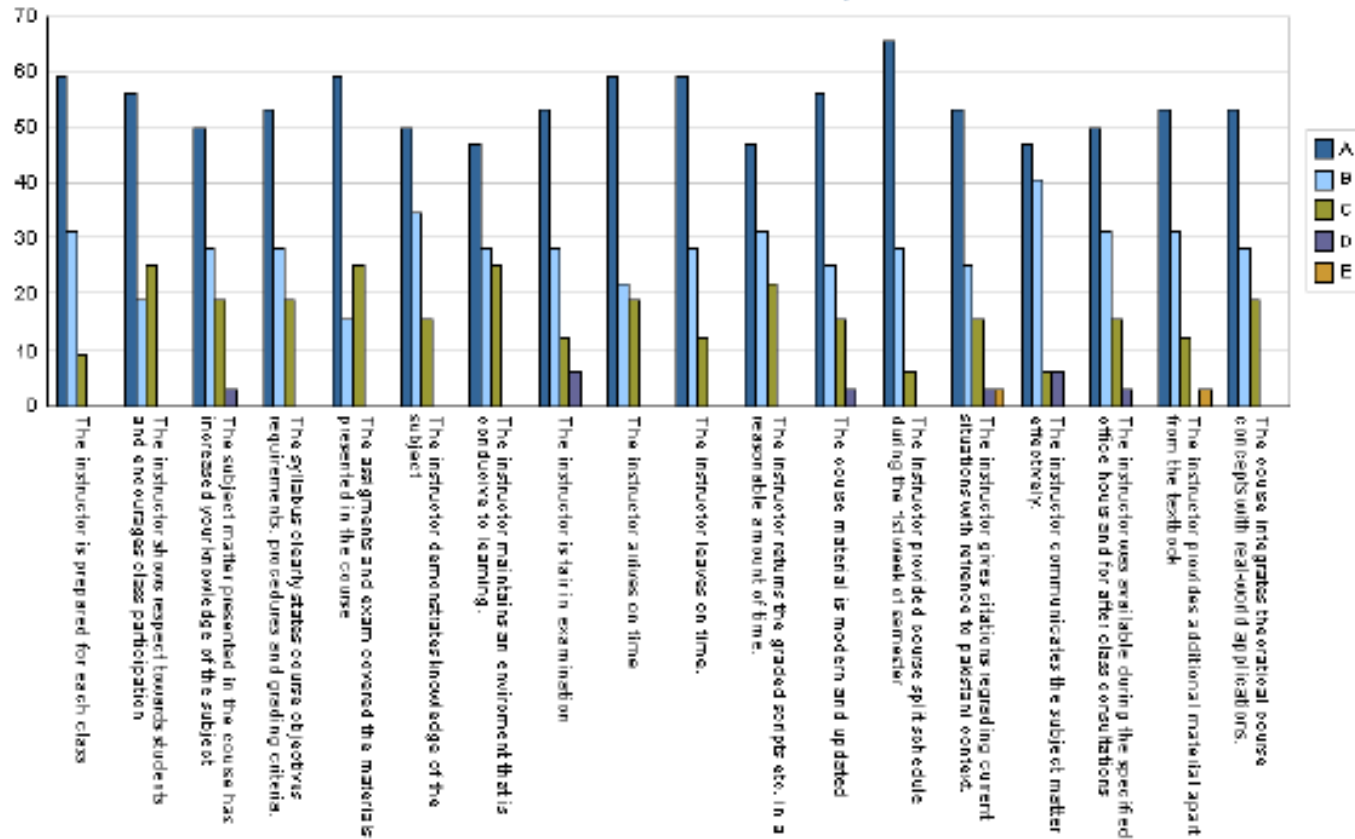
According to students teacher 2 is prepared for class and encourages class participation

Results of Performa 10 of teacher 2 (BCH-703E)



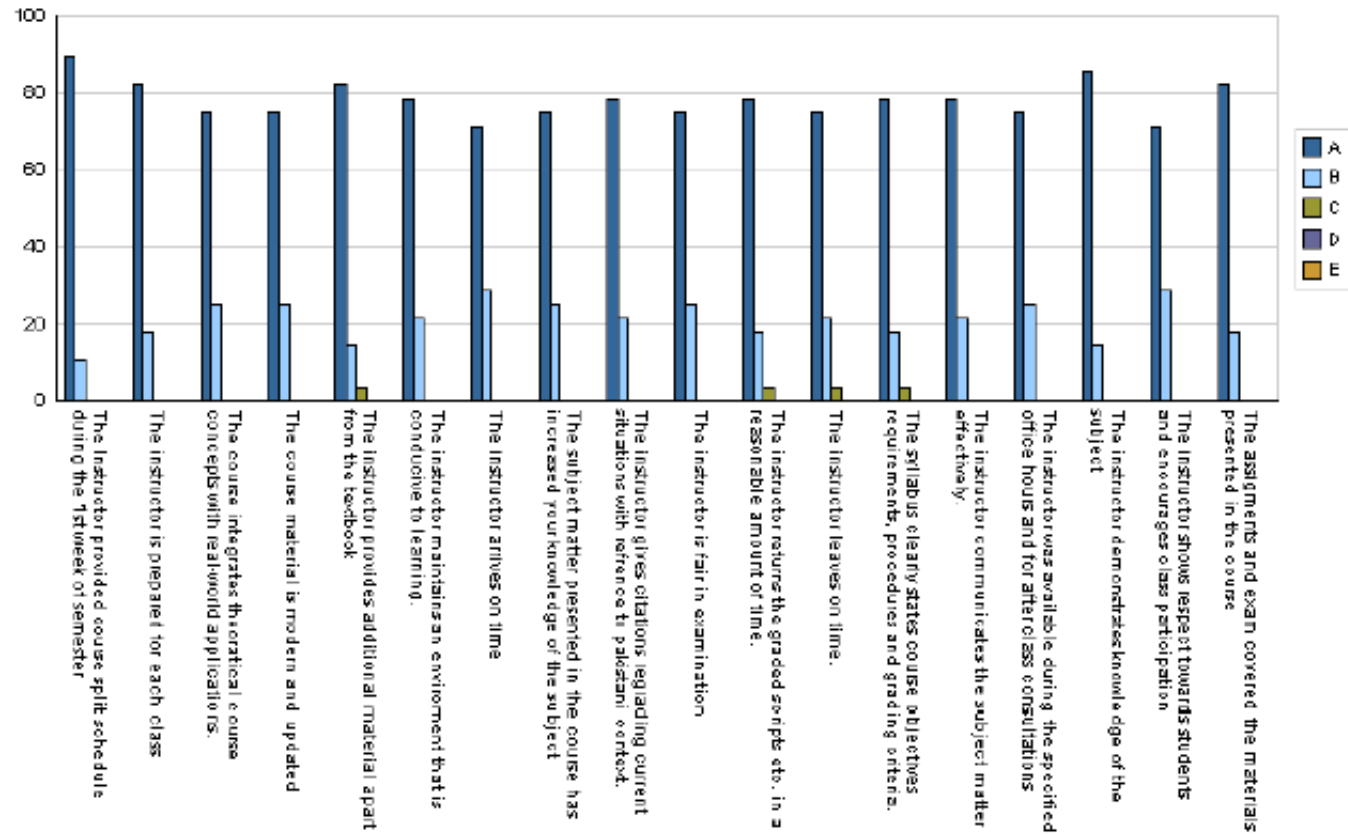
The strongest point which students like about teacher 1 is that he is very fair in examination, encouraged class participation and course material is modern and updated.

Results of Performa 10 of teacher 3 (BCH-711M)

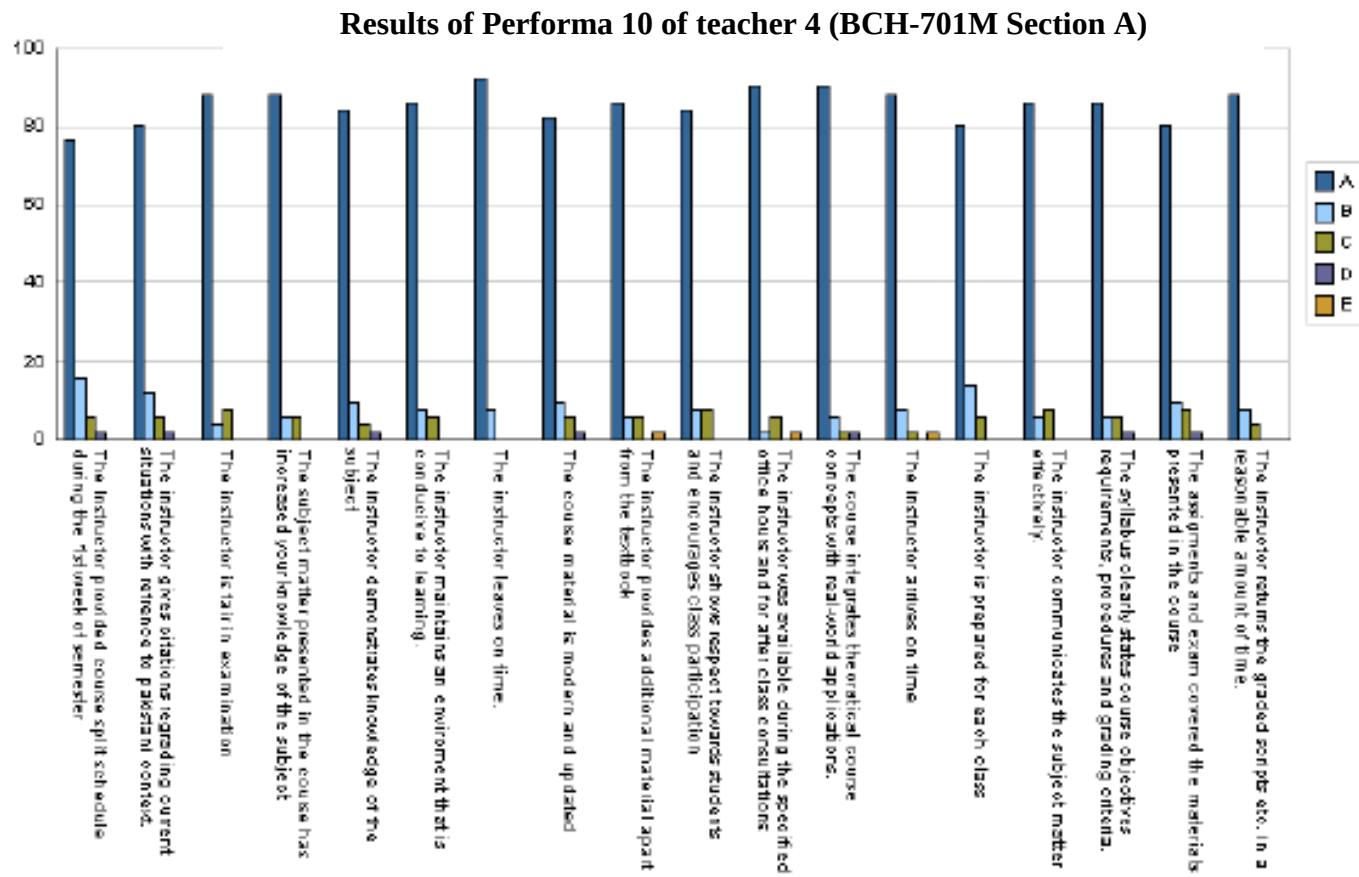


The strongest point which students like about teacher 1 is that the instructor is punctual and well prepared for the class and provided course material on time.

Results of Performa 10 of teacher 3 (BCH-711E)

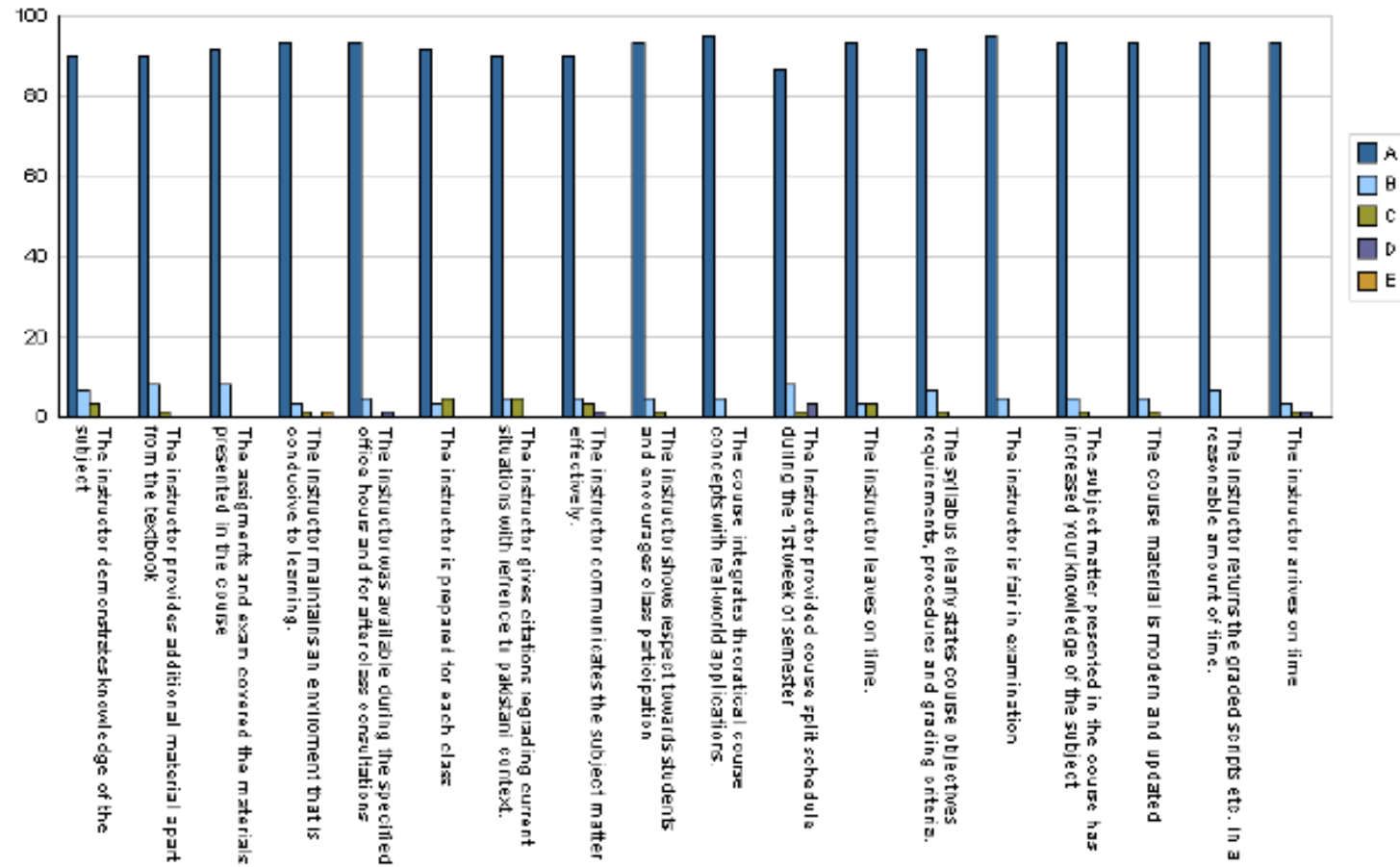


The teacher 3 demonstrated the knowledge of the course well and provided the course split schedule during the first week of the semester



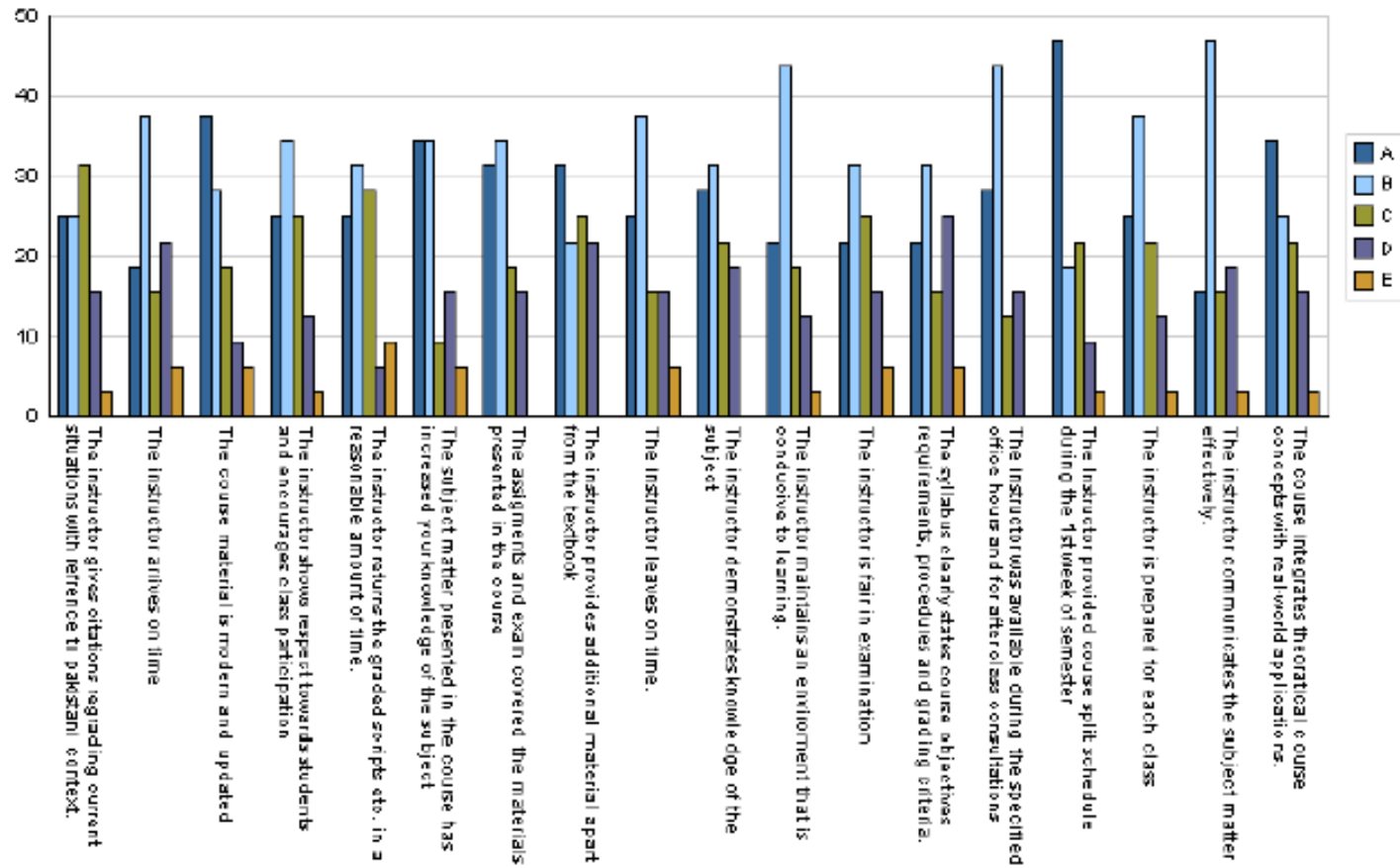
The strongest point which students like about teacher 1 is that the teacher was punctual and available in office during the specified hours.

Results of Performa 10 of teacher 4 (BCH-701M section B)



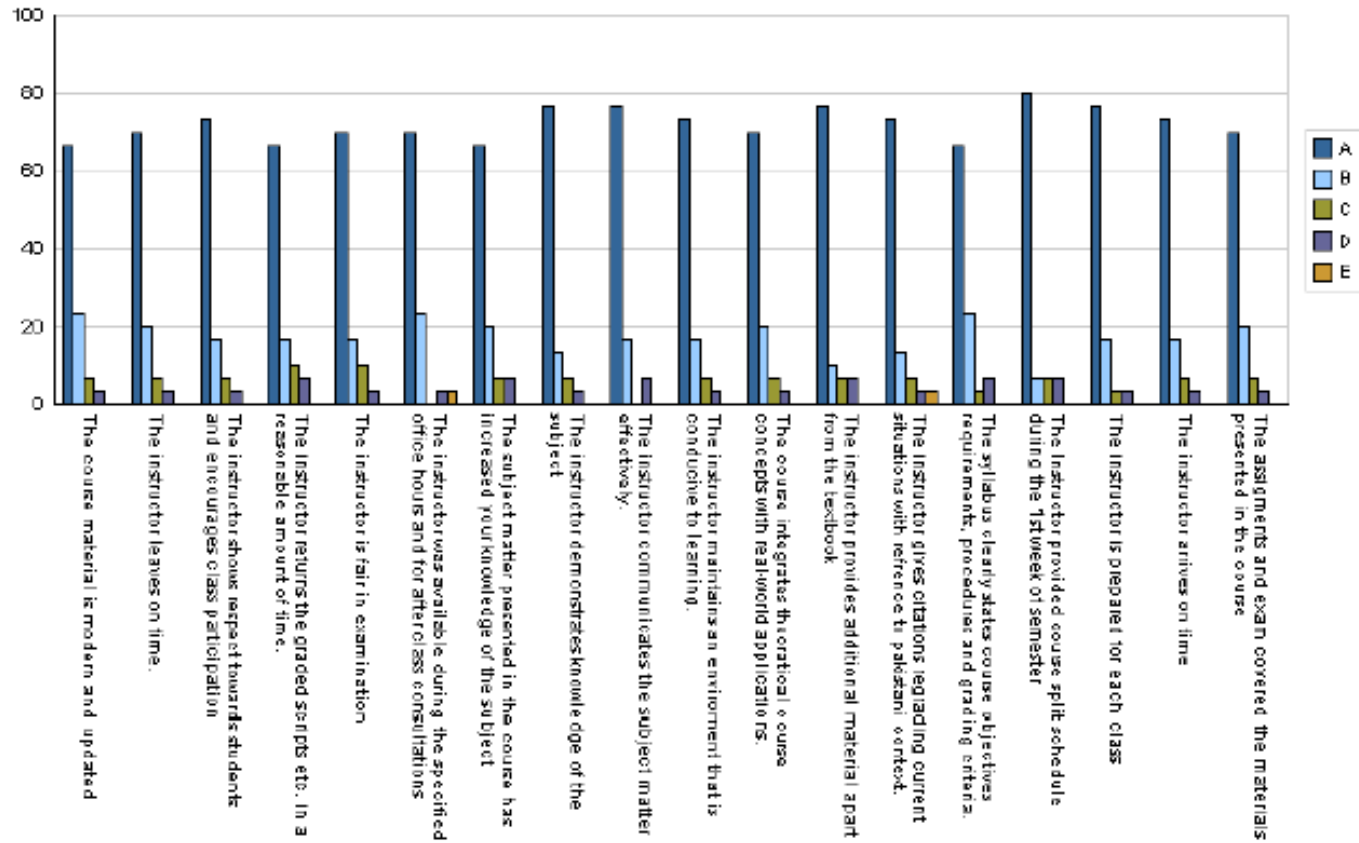
According to student's evaluation, the teacher 4 is punctual, well prepared for class and provides modern and updated knowledge of the course.

Results of Performa 10 of teacher 5 (BCH-708M)



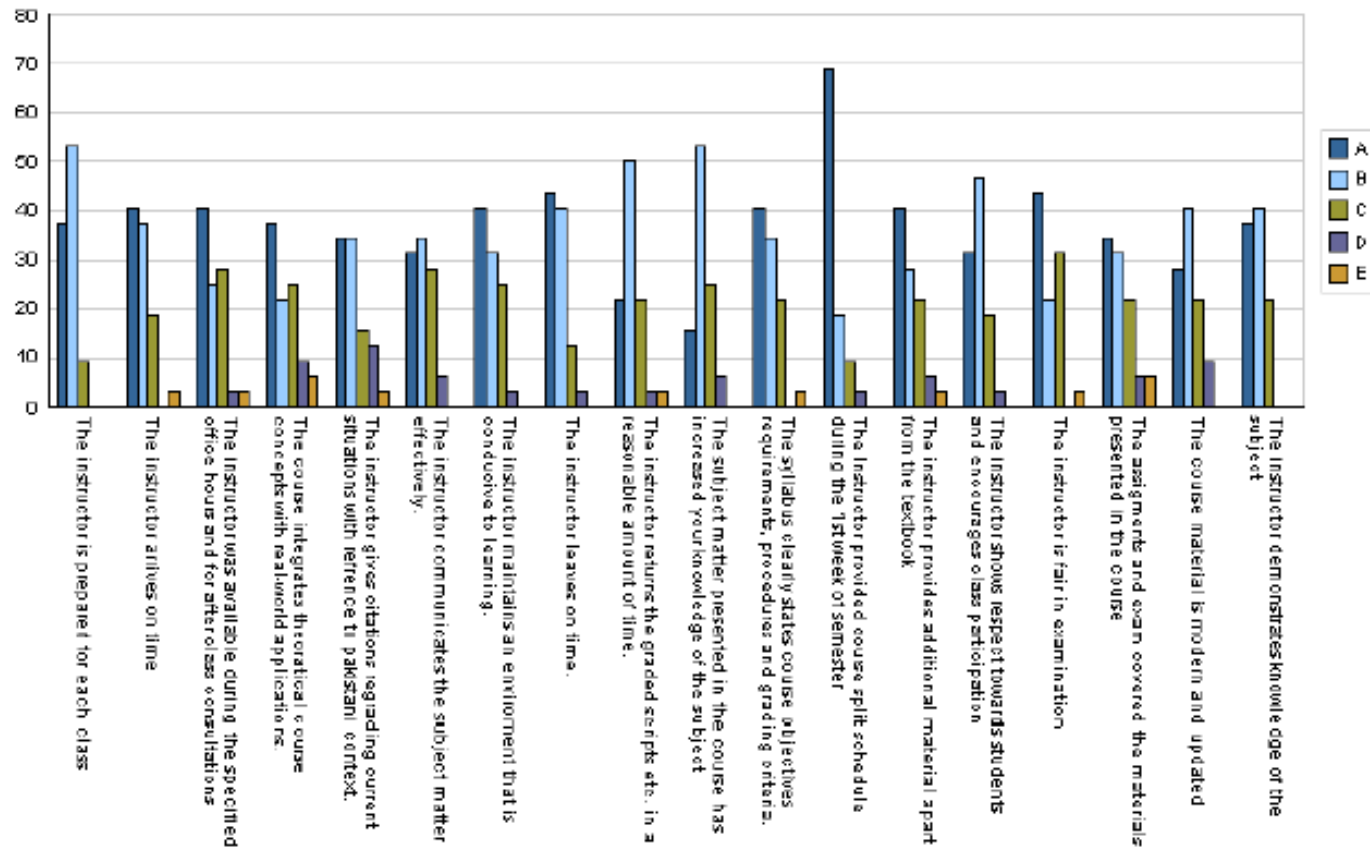
The good point of teacher 5 is that he maintained an environment that is conducive to learning and communicated the subject matter effectively

Results of Performa 10 of teacher 5 (BCH-708E)



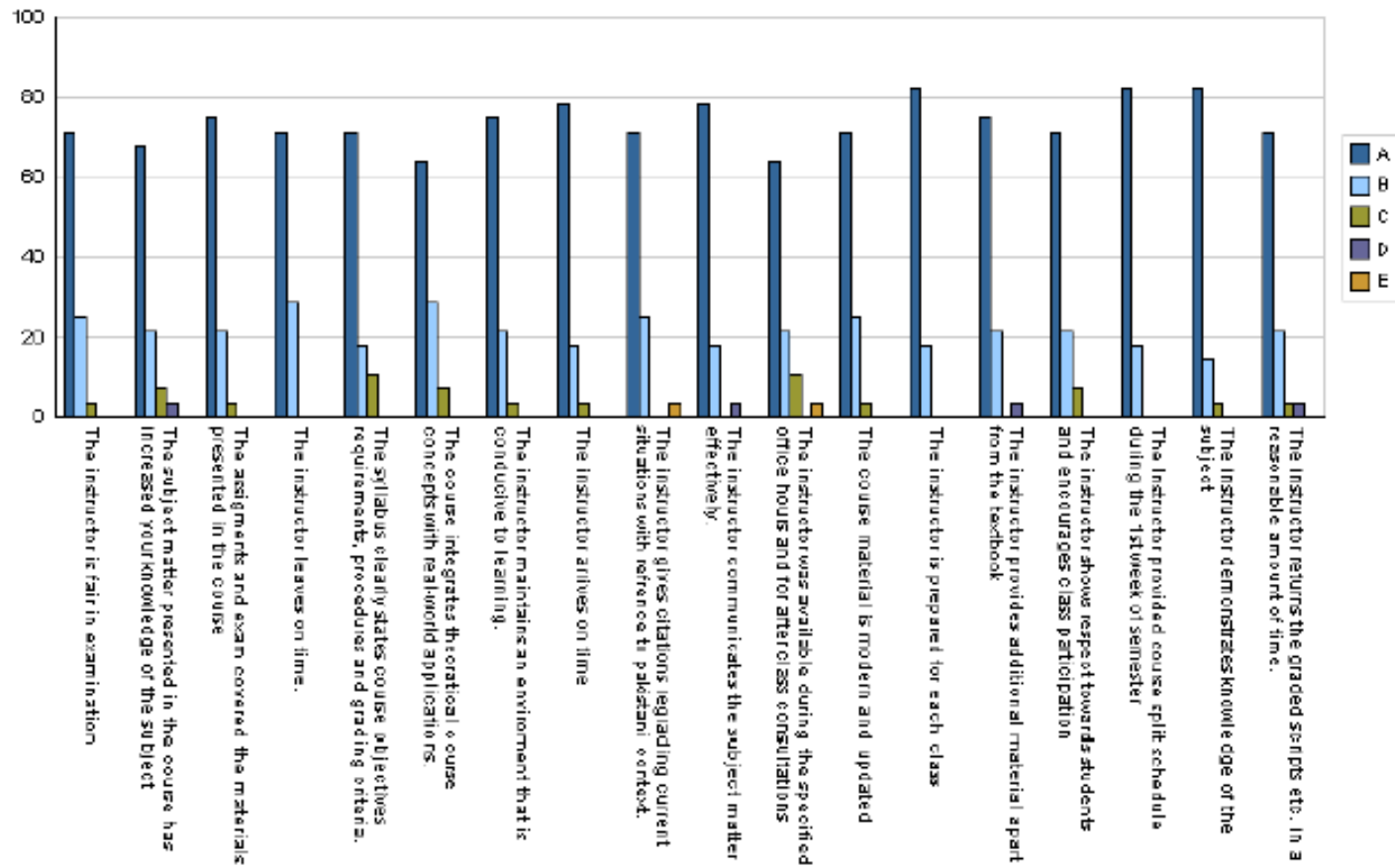
The strongest point which students like about teacher 5 is that the course material is provided in time and teacher is prepared for the class.

Results of Performa 10 of teacher 6 (BCH-706M)



The strongest point which students like about teacher 1 is that the course material is provided during the first week of the semester.

Results of Performa 10 of teacher 6 (BCH-706E)

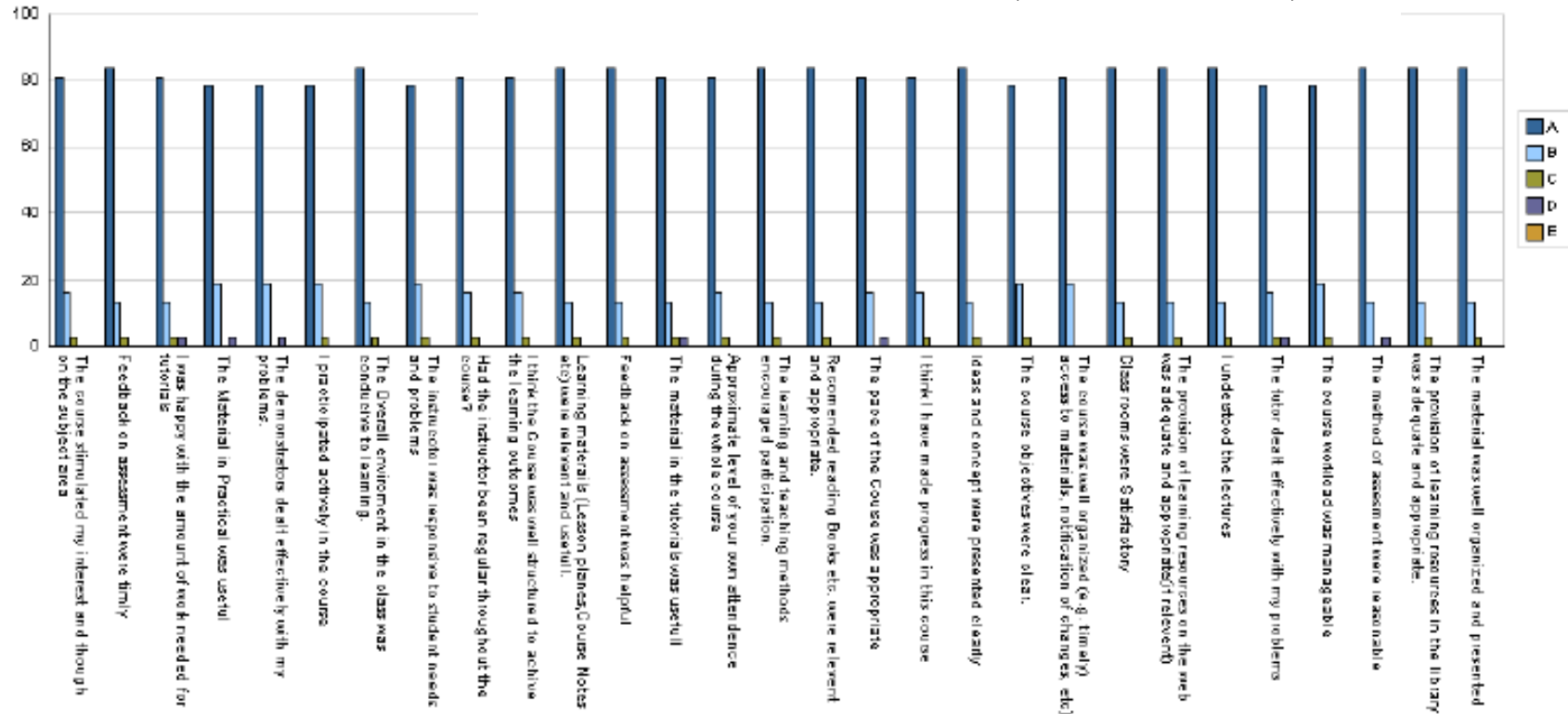


According to students the strongest point of teacher 6 is that he is well prepared for the class and demonstrated the thorough knowledge of the course.

Student Course Evaluation Spring Semester 2014:**Over all Results of Proforma No. 1 Teacher 1, 2, 3, 4, 5 and 6**

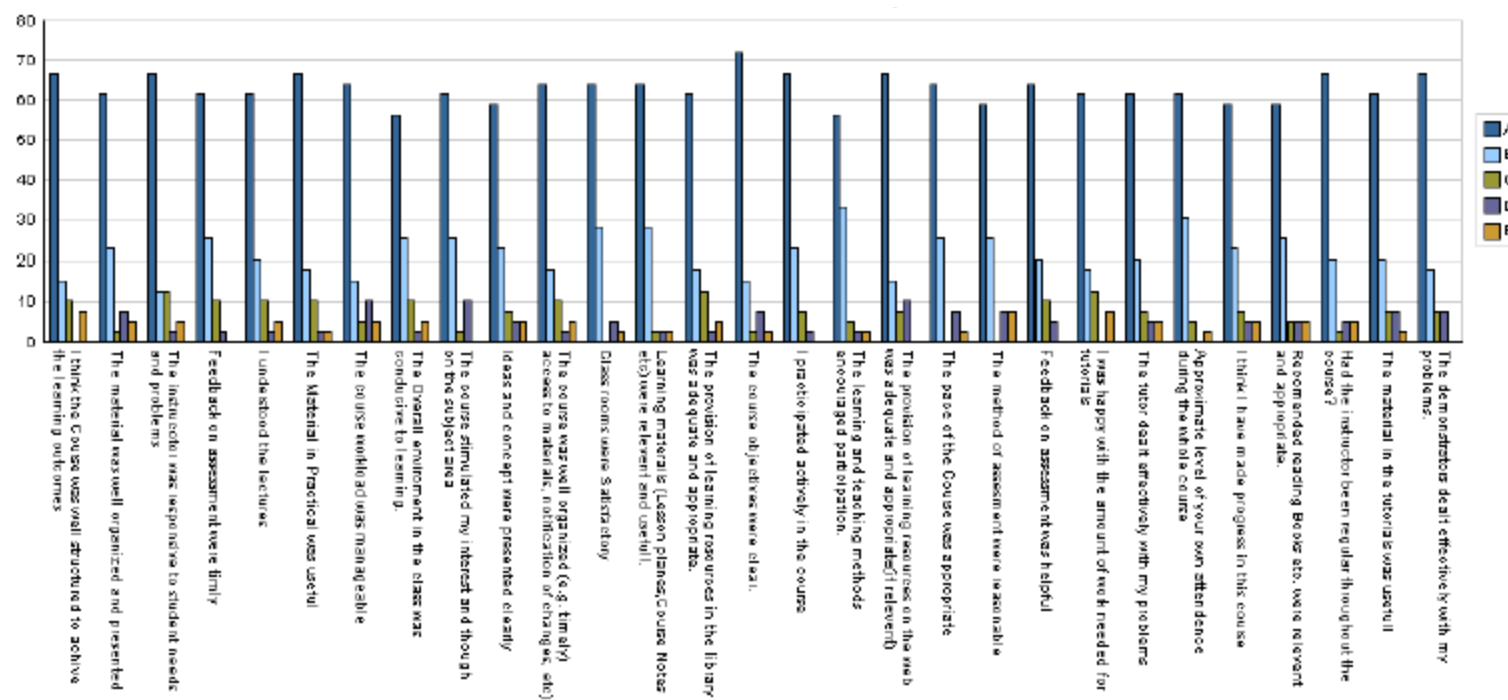
Performa No. 1, deals with study of course observation regarding design of course contents (both theoretical and practical), its relevance with subject and teaching material. It also emphasizes on instructor's role in, not only completing course within given time frame, but how' instructor developed student's interest in this course, used updated literature and was fair in evaluation at the end of a study course.

Results of Performa 1 of teacher 1(BCH-704M section A)



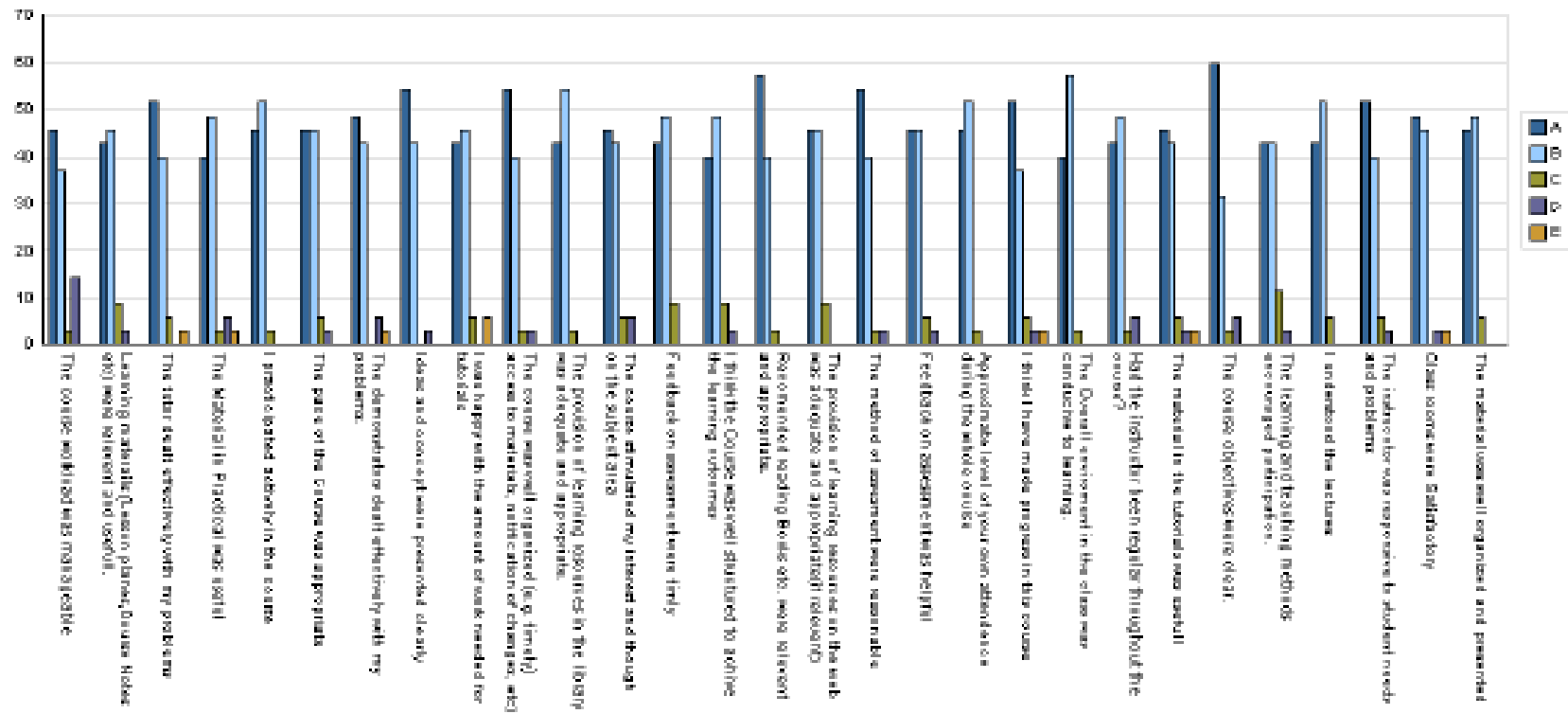
According to students the course material was well organized and teaching method of the instructor encouraged the student participation.

Results of Performa 1 of teacher 1(BCH-704E section B)



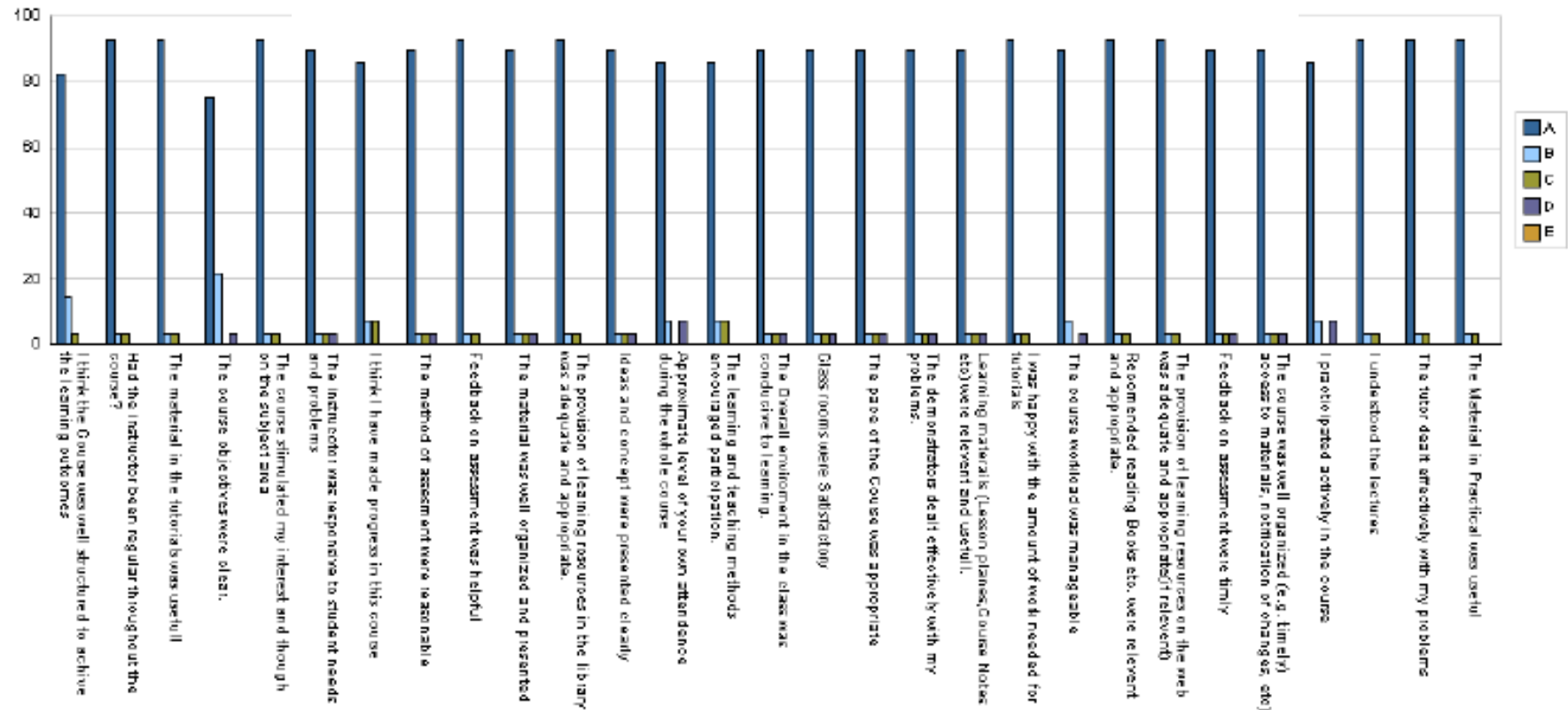
The strongest point which students like about the course is that the course objectives were clear and the demonstrator dealt with students' problem effectively.

Results of Performa 1 of teacher 1(BCH-704M section C)



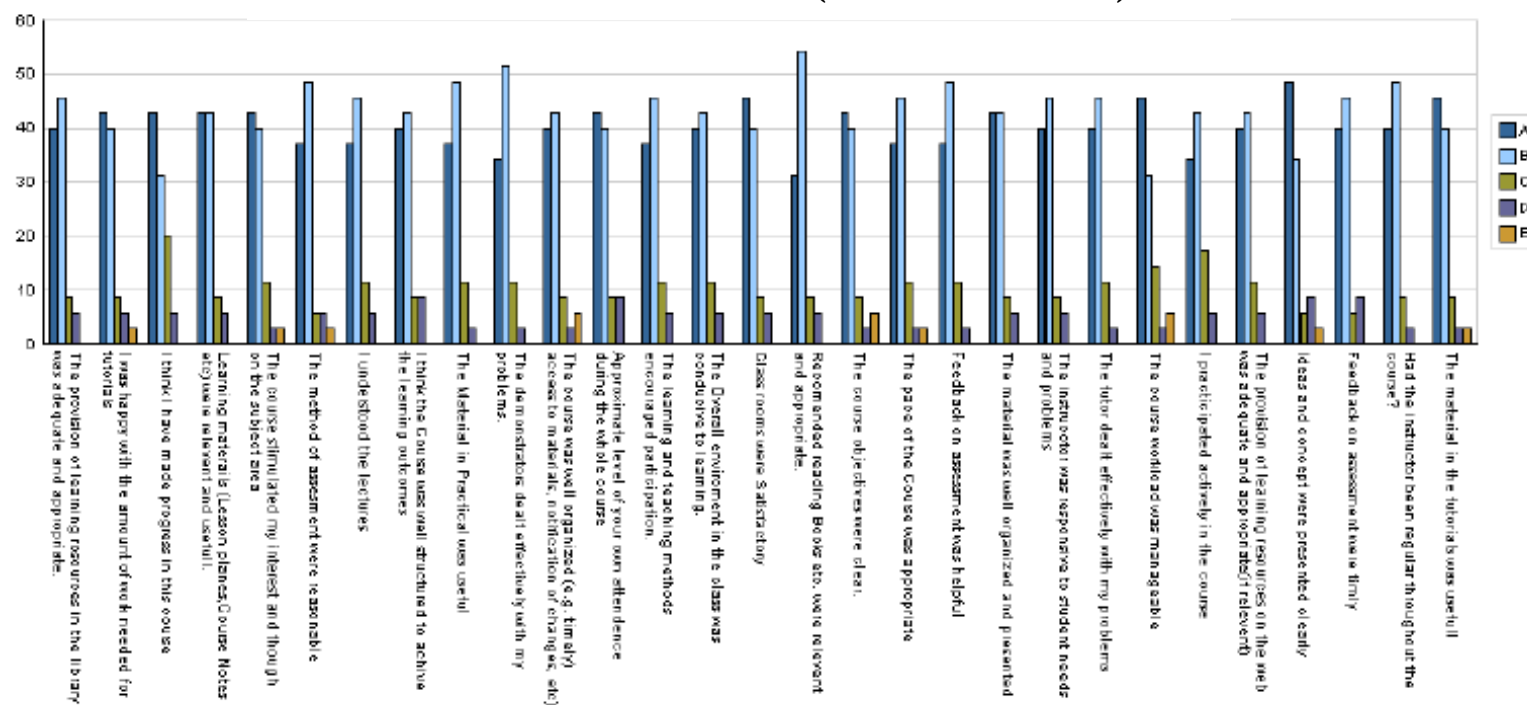
Depending upon the results of performa 1, the course objectives were clear, and ideas and concepts were presented effectively.

Results of Performa 1 of teacher 1(BCH-704E section D)



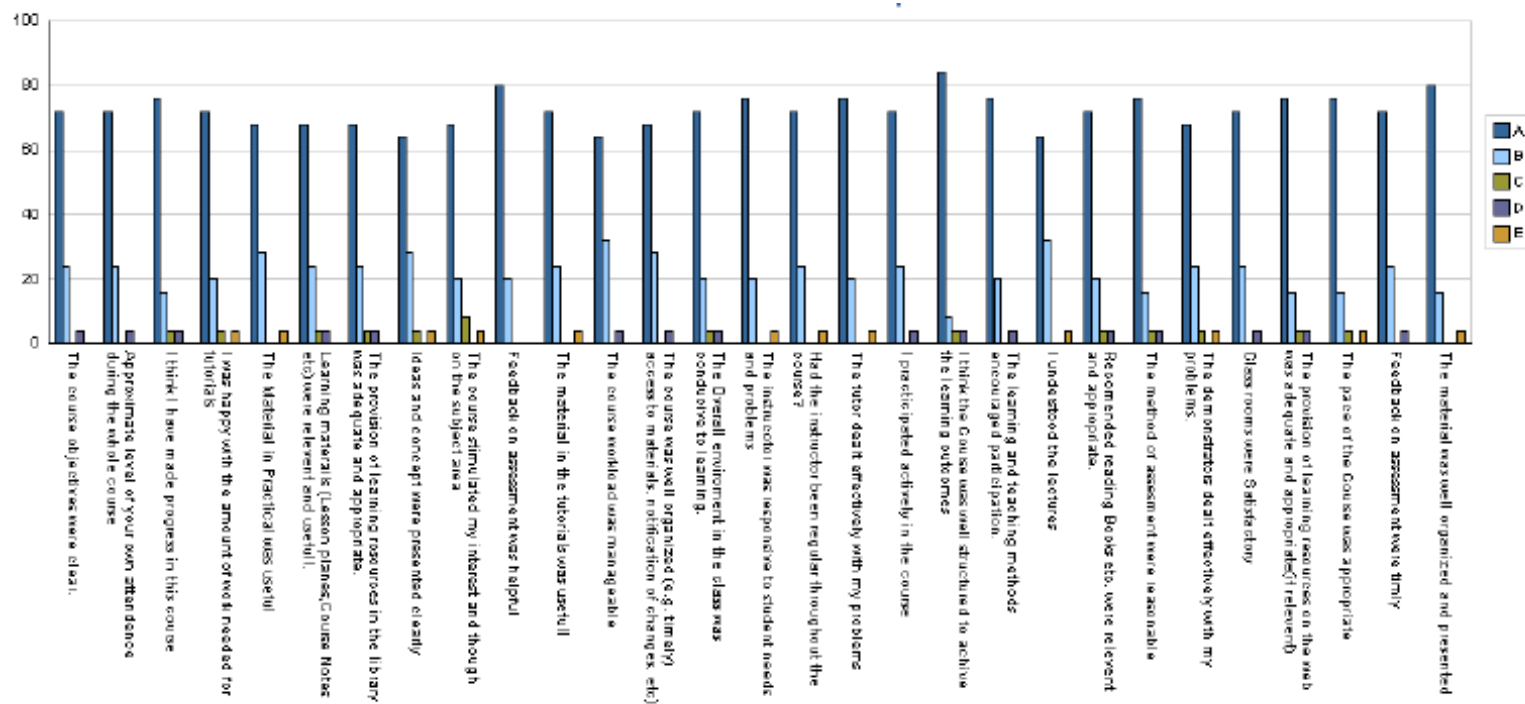
The results of performa 1 shows that the course material was useful, well organized and well presented.

Results of Performa 1 of teacher 1(BCH-704M section E)



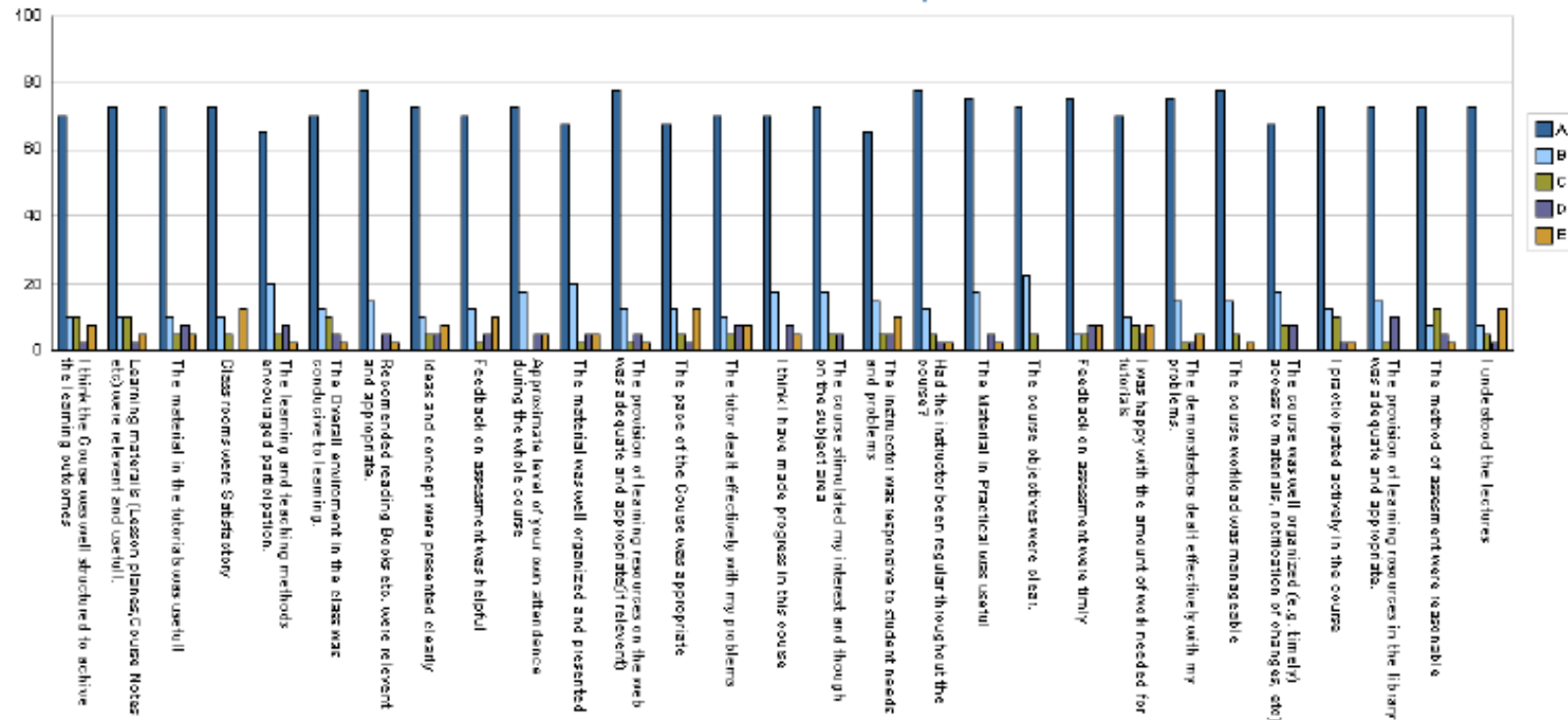
According to performa 1 results, the recommended books were relevant and appropriate, the ideas and concepts were presented clearly.

Results of Performa 1 of teacher 1(BCH-704E section F)



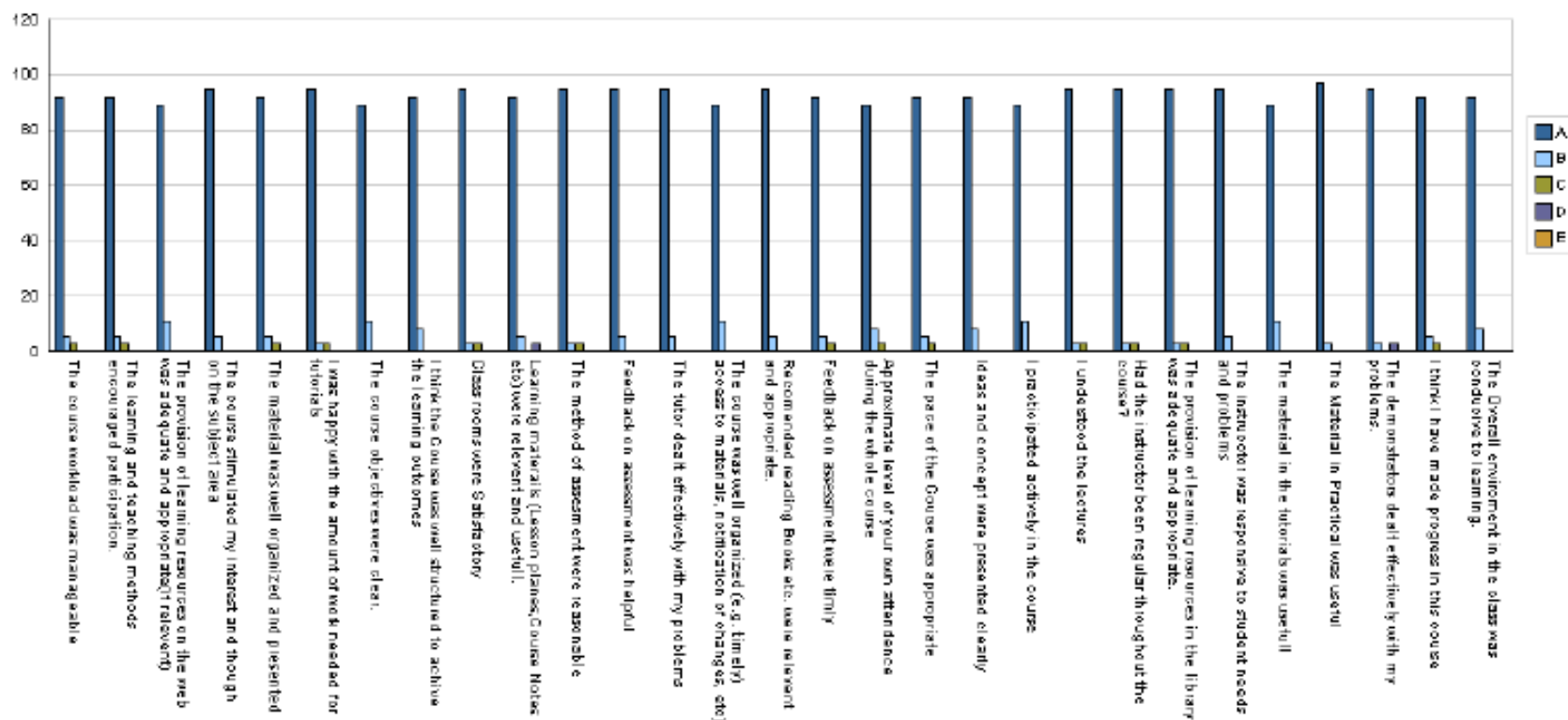
Depending upon the results of performa 1, the course was well structured to achieve the learning outcomes.

Results of Performa 1 of teacher 1(BCH-704M section G)



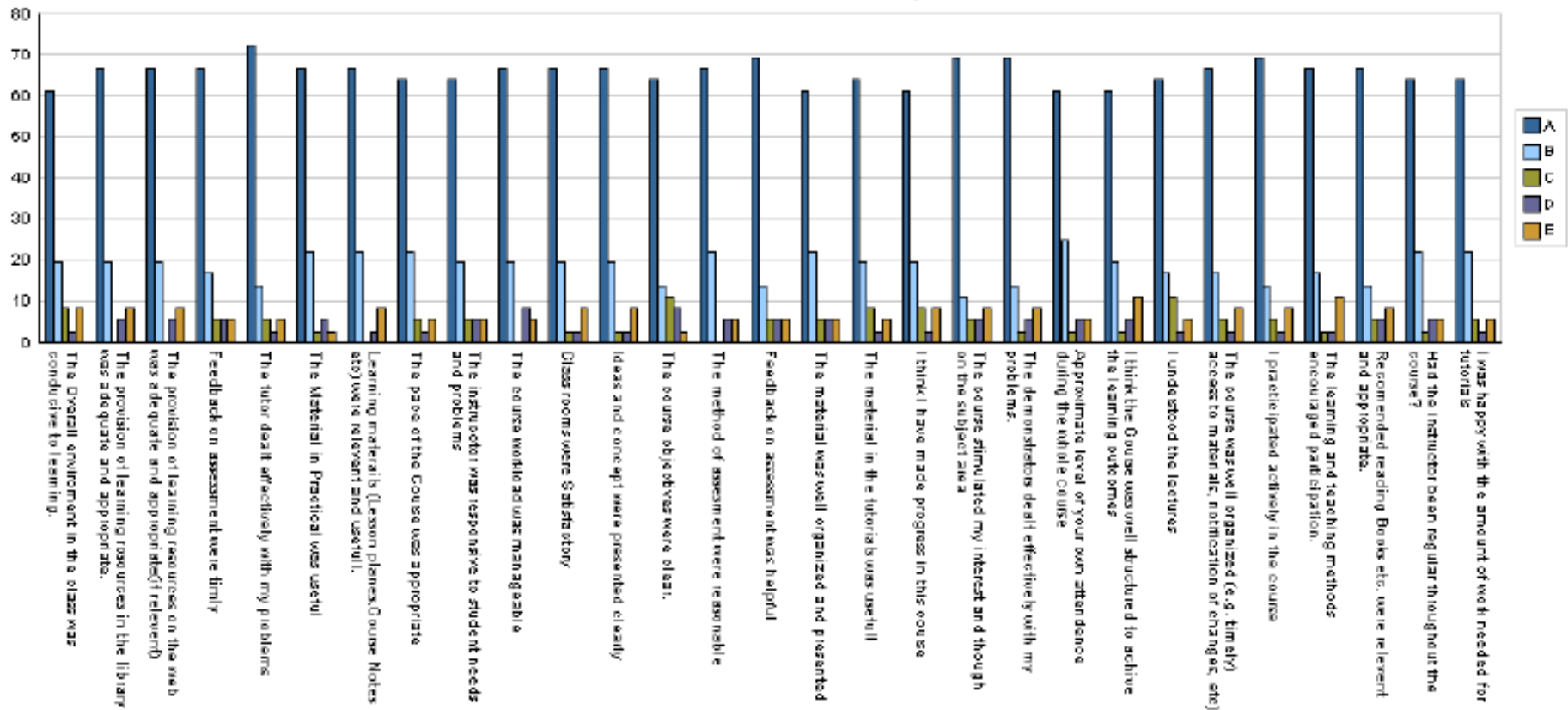
The results of performa 1 clearly indicates that the course workload was manageable and the expected outcomes were well achieved.

Results of Performa 1 of teacher 1(BCH-704E)



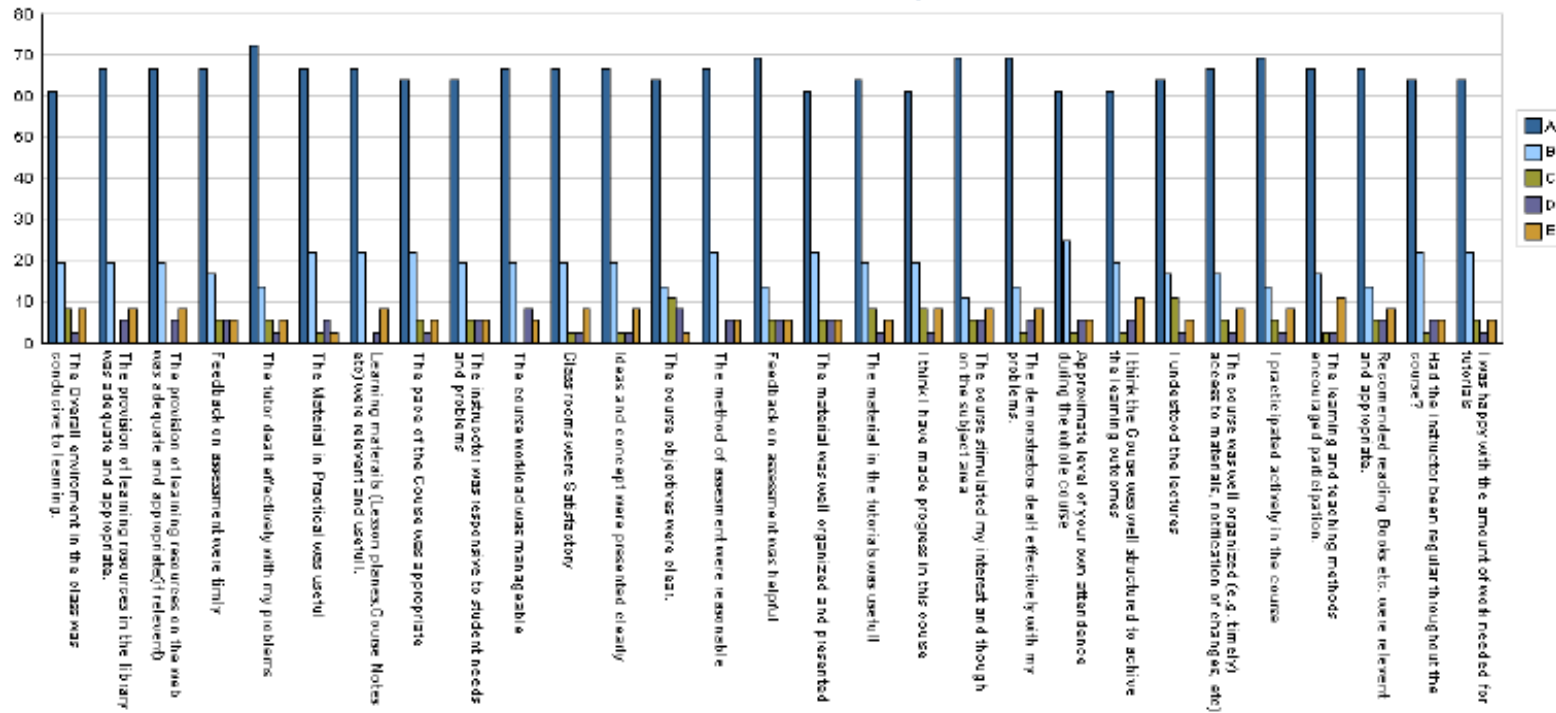
Depending upon the results of performa 1 the materials in the course were useful and students understand it easily.

Results of Performa 1 of teacher 2 (BCH-703M)



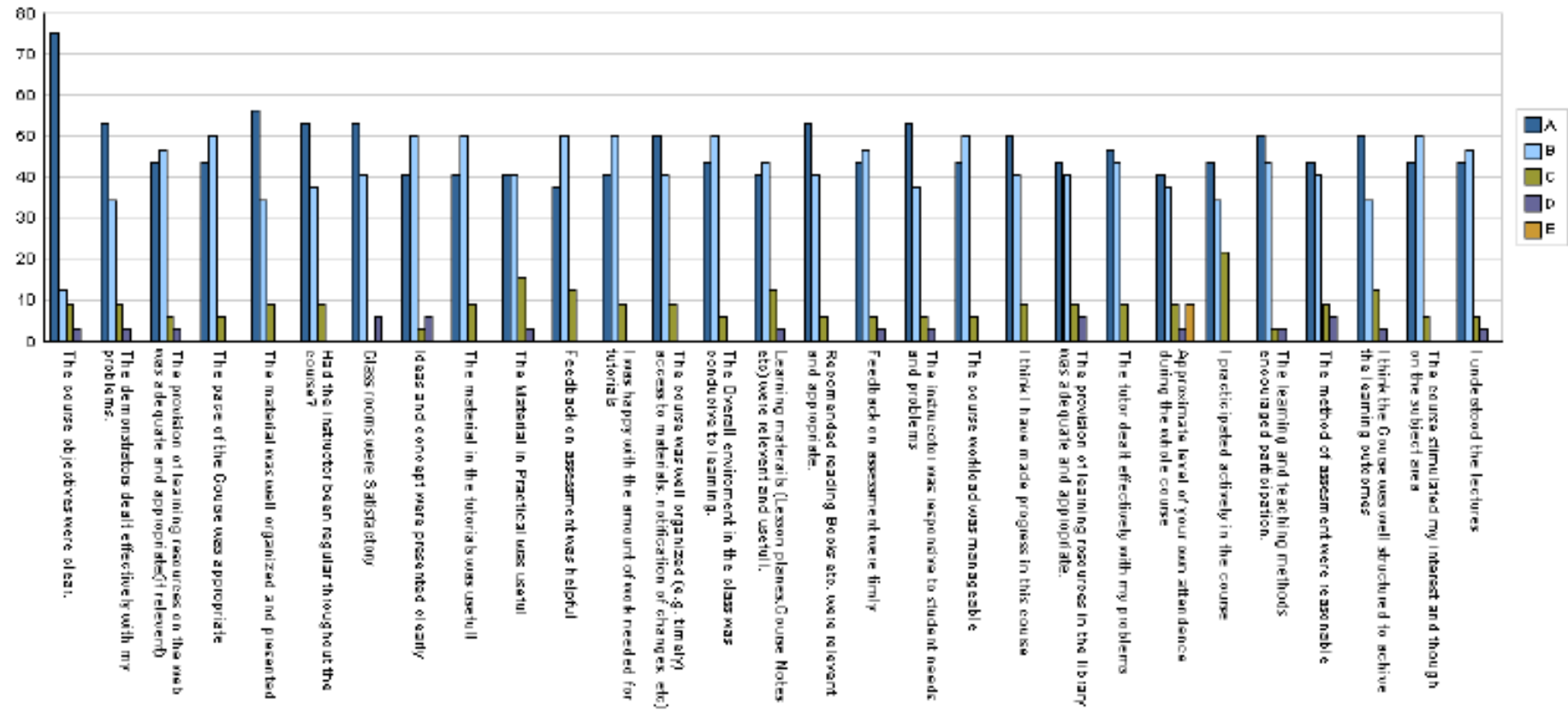
Depending upon the results of performa 1, the course stimulated the students' interest and their participation and the instructor dealt with their problems effectively.

Results of Performa 1 of teacher 2 (BCH-703E)



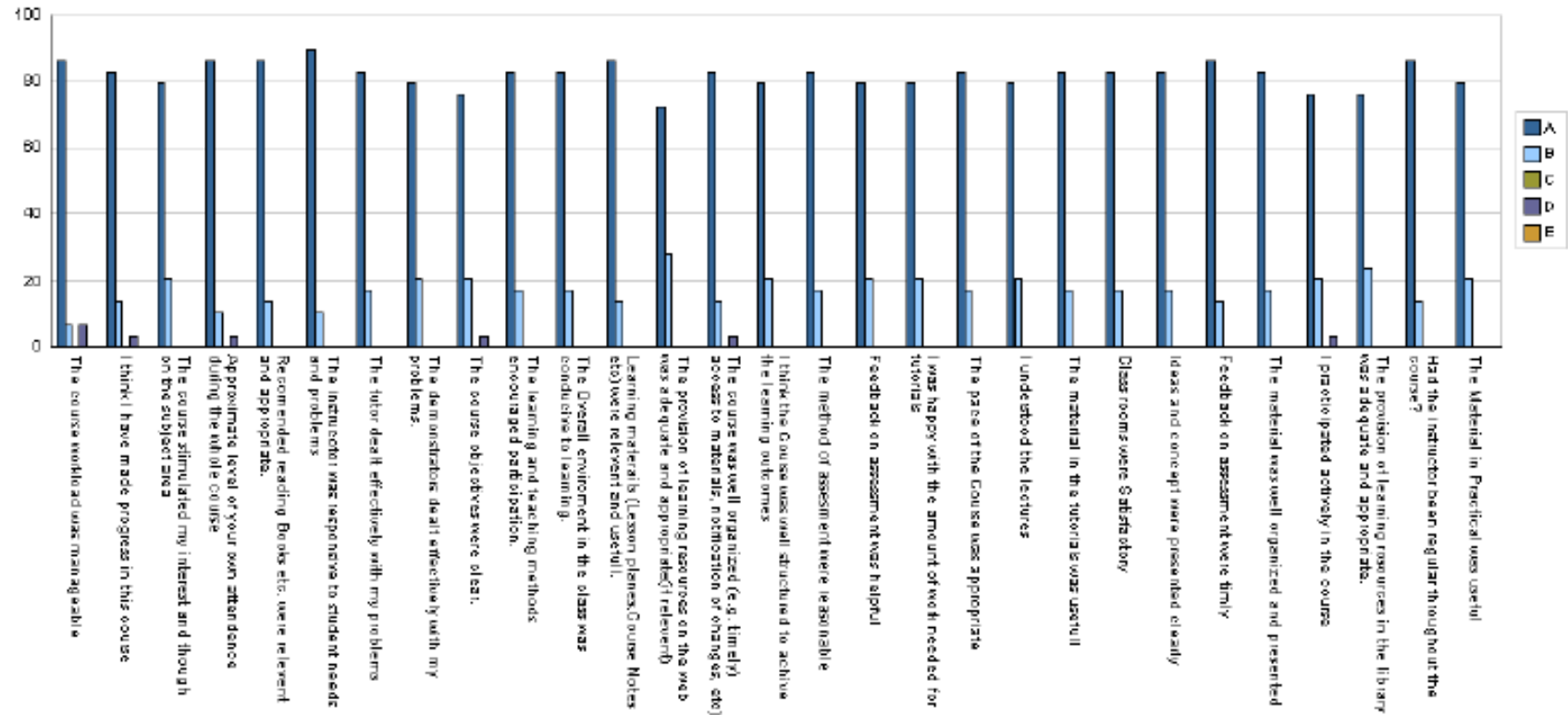
Depending upon the results of performa 1, the course stimulated the students' interest and their participation and the instructor dealt with their problems effectively.

Results of Performa 1 of teacher 3 (BCH-711M)



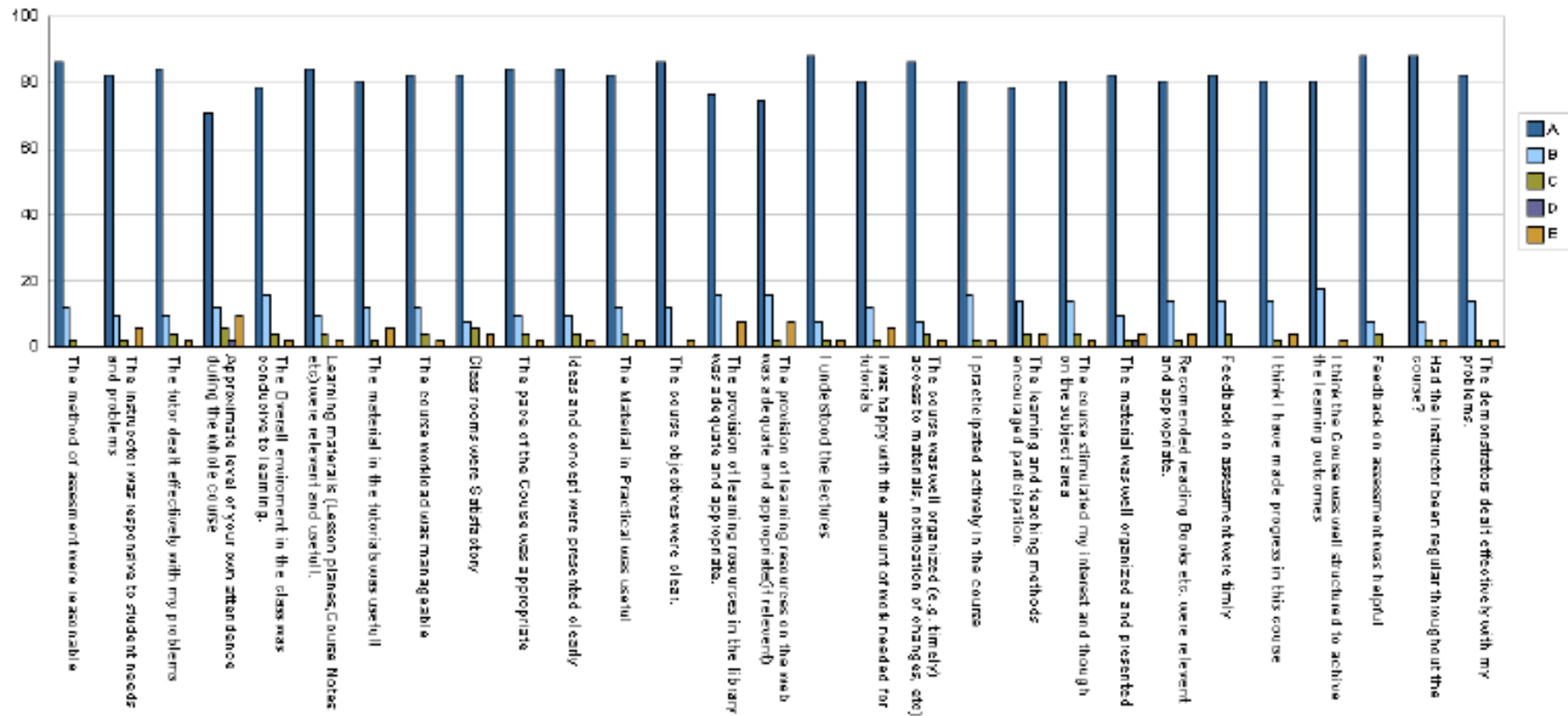
According to results of performa 1, the course objectives were clear and the materials were well organized and presented.

Results of Performa 1 of teacher 3 (BCH-711E)



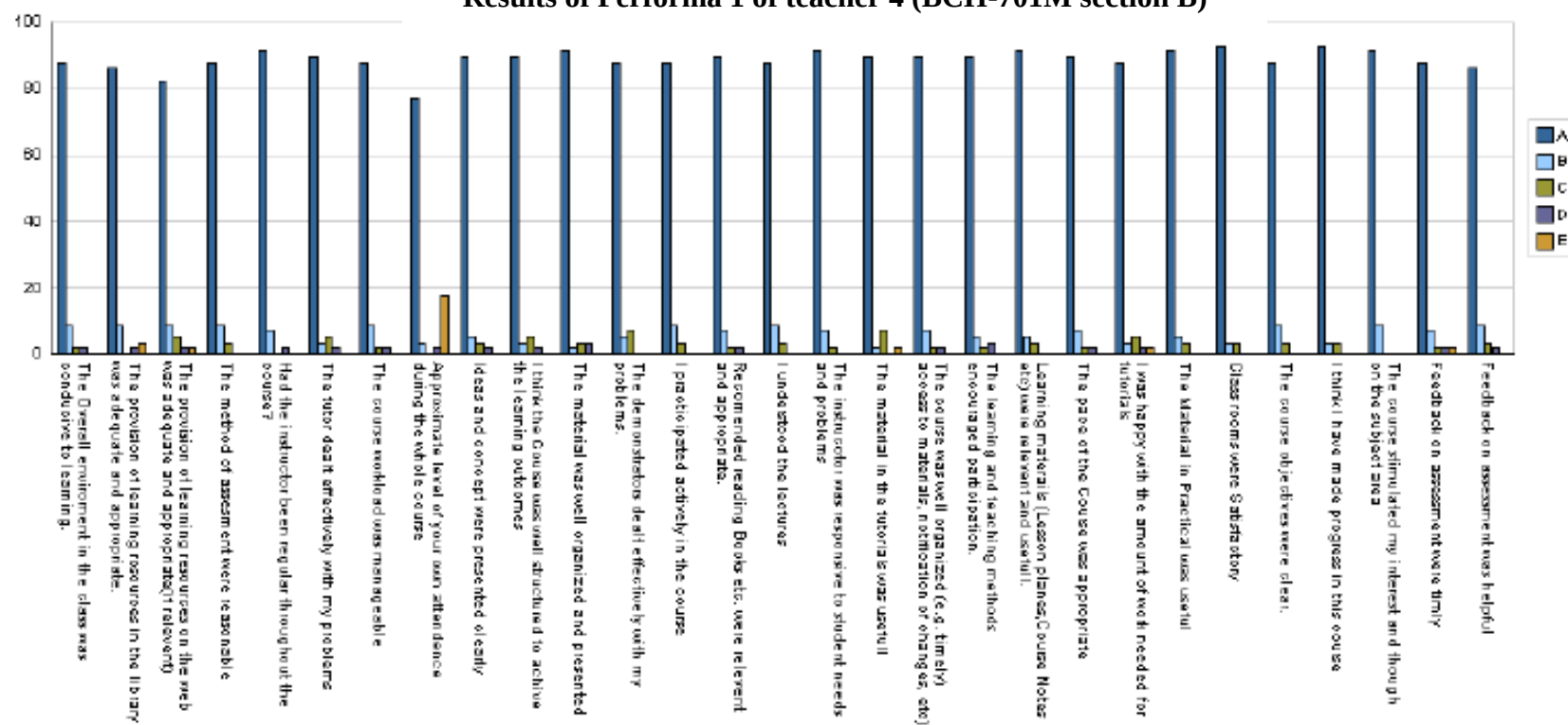
Depending upon the results of performa 1, the instructor was very cooperative and dealt with students need and problems.

Results of Performa 1 of teacher 4 (BCH-701M Section A)



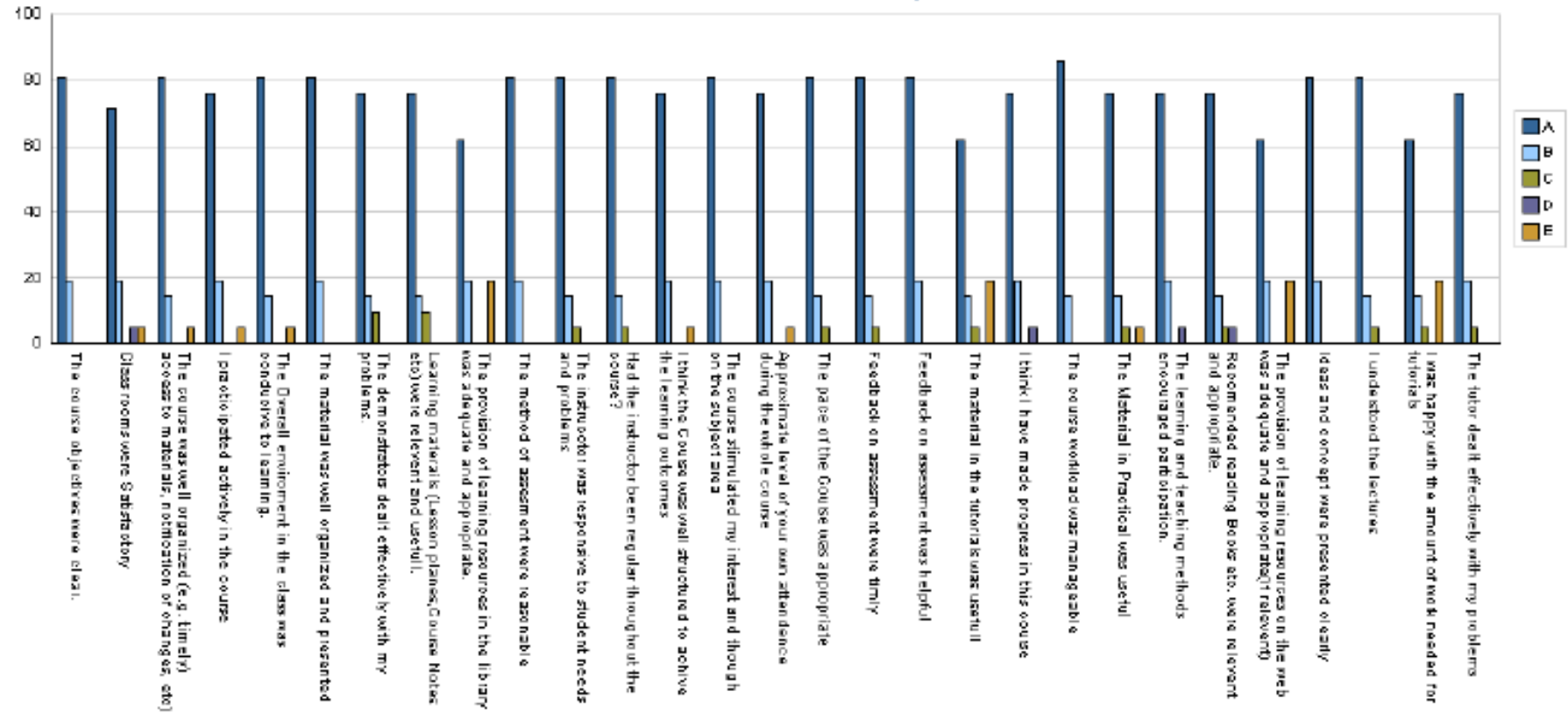
The assessment of the course is excellent in terms of teaching and learning.

Results of Performa 1 of teacher 4 (BCH-701M section B)



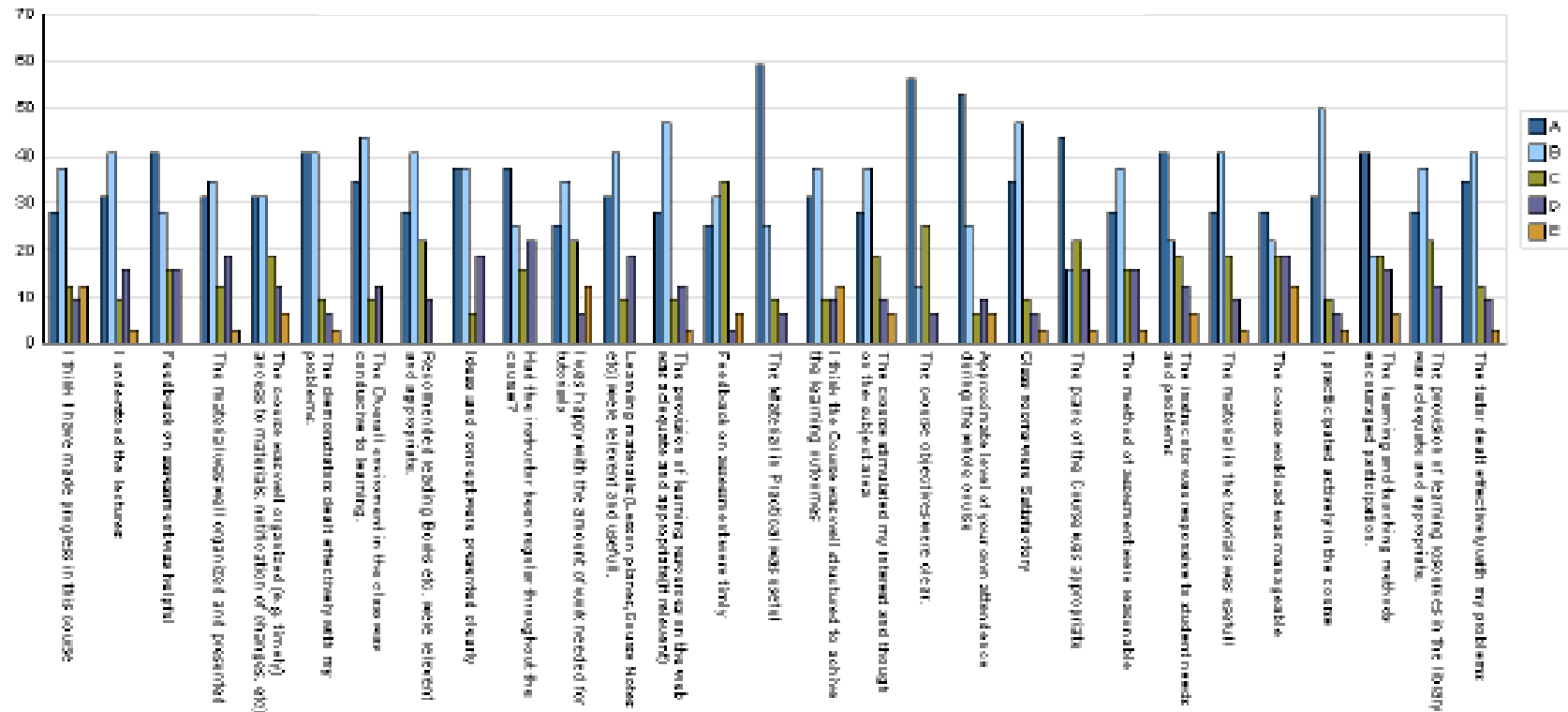
Depending upon the results of performa 1, the course on the whole is well structured, well presented and knowledgeable for students.

Results of Performa 1 of teacher 4 (BCH-701M section C)



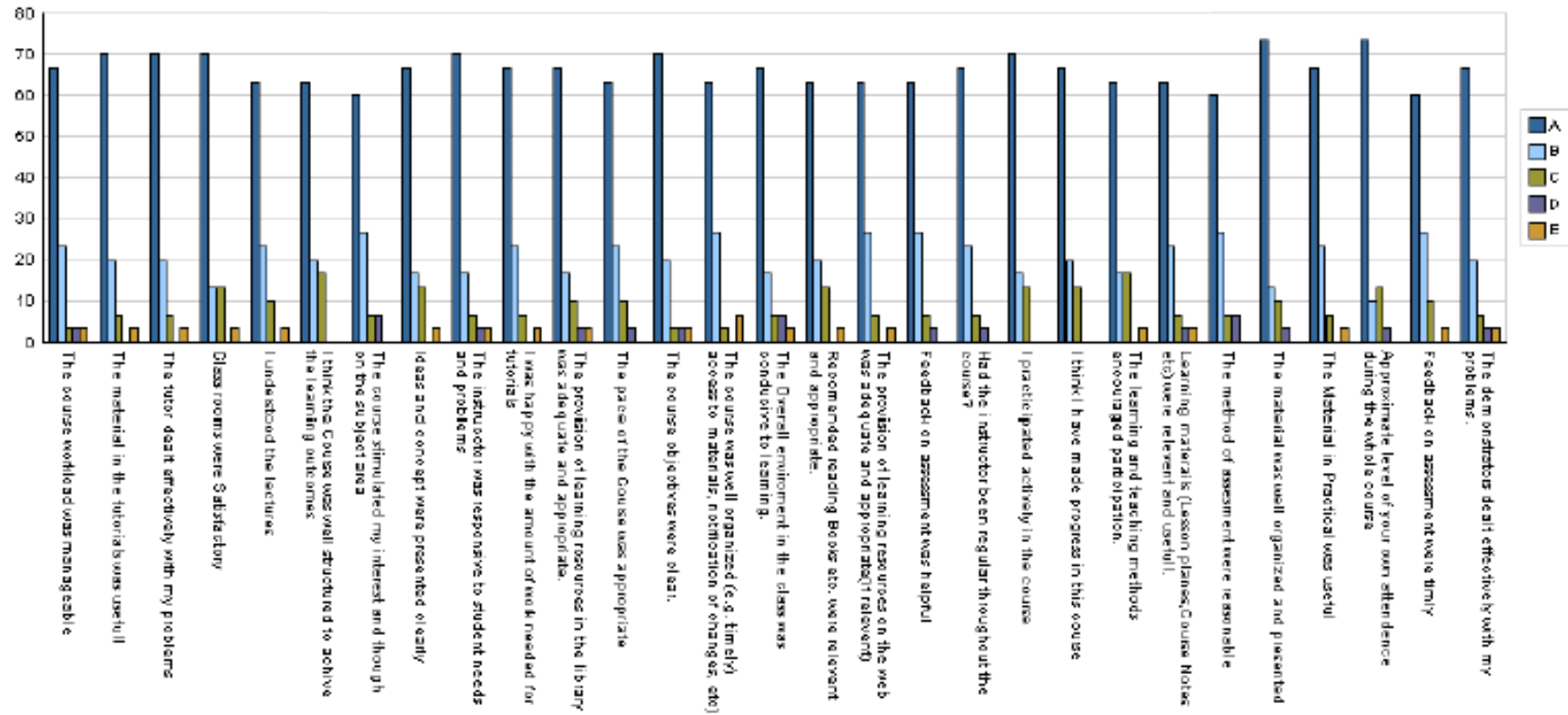
Depending upon the results of performa 1, the strongest point of the course is that the work load was manageable.

Results of Performa 1 of teacher 5 (BCH-708M)



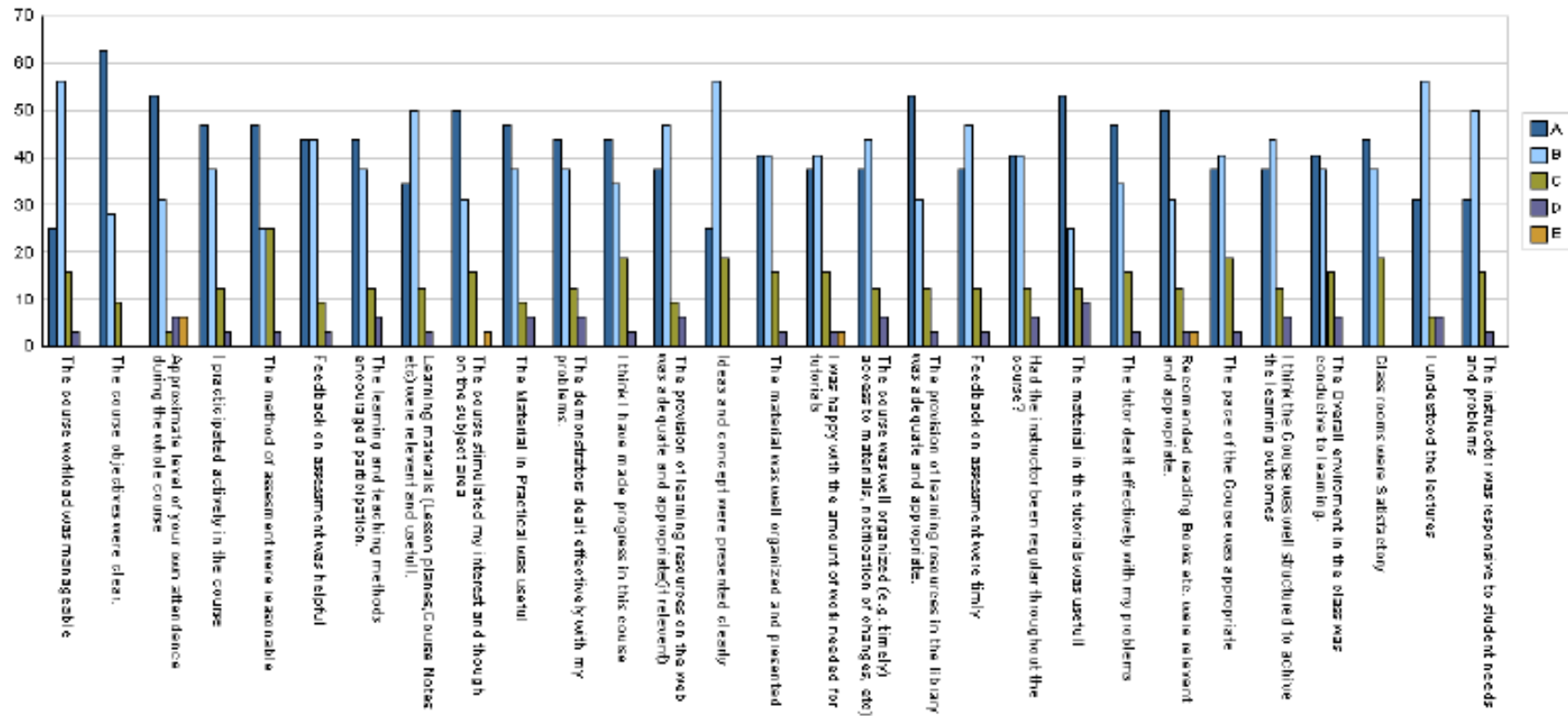
Depending upon the results of performa 1, the course material was useful and course objectives were clear.

Results of Performa 1 of teacher 5 (BCH-708E)



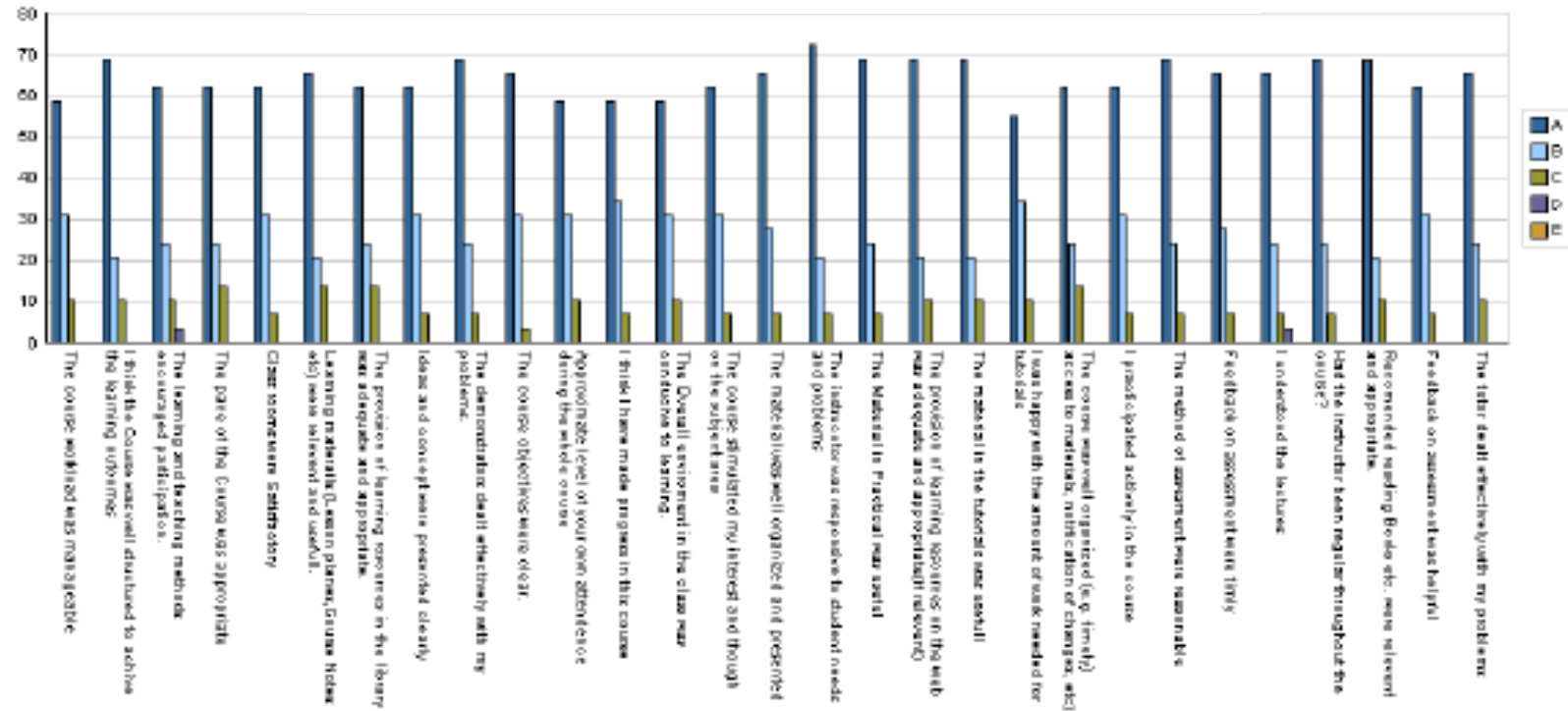
The strongest point of the performa 1 is that the course is well organized and presented, and the instructor was responsive to student's needs and problems.

Results of Performa 1 of teacher 6 (BCH-706M)



Depending upon the results of performa 1, the strongest point of the course is that the course objectives were clear and the instructor presented ideas and concepts clearly.

Results of Performa 1 of teacher 6 (BCH-706E)



Results of performa 1 clearly indicates that the instructor was responsive to students need and problem and provision of learning resources on the web was adequate and appropriate

Skills and Capabilities Reflected in Performance as Biochemistry:

Students developed ability to apply both theoretical and practical knowledge of Biochemistry. This ability will help them to work as professional biochemists in various fields of life, to build confidence and communicate effectively in writing, oral and demonstration by using modern tools, techniques and skills for their profession, to formulate and design the experiments/project and to work effectively in a team, to manage different problems and imbibe ability to recognize future needs in the field of Biochemistry which will also contribute in the development of nation.

Standard 1-3

Strength of the Department:

The department of Biochemistry has state of the art, fully equipped laboratories with latest instruments/chemicals including Multiplex, PCR thermocyclers, DNA nanodrops, RT-PCR, Biologics, HPLC, Fermenters, Plant tissue culture chambers etc. However, the main strength of the department is its highly qualified and skilled faculty, with full acquaintance of their respective subjects including plant, animal/human, environmental biotechnology and general biochemistry which covers all aspects of Biochemistry, Molecular Biology and Biotechnology. All of the faculty members have foreign research experience. They have successfully completed many National/International research projects and are remarkably active in the academic and research fields.

Weakness Identified in the Program:

Although the faculty and laboratories are outstanding for the production of quality graduates but they are not sufficient. The Department of Biochemistry has not been upgraded to University Institute of Biochemistry and Biotechnology (UIBB) yet and so there is shortage of regular faculty members. The existing faculty is over-burdened due to their heavy workload in teaching and related departmental duties. Another important issue is lack of full time qualified technicians/supporting staff. Therefore, scientific research activities (both personal research projects as well as student theses projects) are being handicapped. Besides, access to scientific literature has also been inconsistent due to regular problems in internet. Above all, the department is under extensive financial constraints due to limited annual budget compared to the seven degree programs being offered with increasing student enrollments.

Major Future Improvement Plans:

- Initiation of M.Phil and PhD Biotechnology and BS Microbiology programs.
- Strengthening graduate, post graduate and postdoctoral programmes in Biochemistry, Biotechnology and Bioinformatics.
- Up-gradation of research by integrating biochemistry, biotechnology and bioinformatics into existing traditional systems.
- To emphasize biochemical and molecular approaches for *in vitro* techniques in plant and animal biotechnology.
- Developing human resource for highly advanced fields of biochemistry, biotechnology and bioinformatics to play a crucial role in national development.

**TABLE-3: QUANTITATIVE ASSESSMENT OF THE DEPARTMENT
(2012-2014)**

Sr. #	Particular	No.	Remarks
I	M.Sc produced	157	M.Sc. Graduates from the Department are working in public as well as private sector in research, teaching, diagnostics, pharmaceuticals, chemical and equipment supplies. Many ex-students have joined M.Phil. and Ph.D. programs in PMAS-AAUR, QAU, PU & UAF
Ii	M.Phil	102	Working in public as well as private sector in research, teaching, diagnostics, pharmaceuticals, chemical and equipment supplies or pursuing PhD.
Iii	Ph.D.	11	In employment
Iv	Post-Doc fellowship by faculty	5	USA, UK, Sweden and Canada
	Short Term Training	3	
V	Students: Faculty ratio	25:1	
Vi	Technical : Non Technical ratio	2:8	

Faculty

Table-3.1: Faculty Distribution in Biochemistry

Name	Position	Qualification	Specialization
Dr. S.M.Saqan Naqvi	Professor	Ph.D., Post-Doc	Molecular Biology/ Biotechnology
Dr. M.Gulfraz	Professor	Ph. D. Post-Doc	Biochemistry/Natural Product Chemistry
Dr. Ghazala Kakub Raja	Associate Professor	Ph. D. Post-Doc	Biochemistry/ Molecular Biology
Dr.M.Javaid Asad	Assistant Professor	Ph. D, Post-Doc	Industrial/Fermentation Biotechnology
Dr. M.Sheeraz Ahmad	Assistant Professor	Ph. D, Post-Doc	Biochemistry/Plant Biotechnology
Dr.Feroza H. Watoo	Assistant Professor	Ph. D., Post-Doc	Biochemistry
Dr. Azra Khanum	Professor/ Research Consultant	Ph. D., Post-Doc	Biochemistry/Biotechnology
Dr. Pakeeza A. Shaiq	Assistant Professor	Ph.D.	Human Molecular genetics

Standard 1-4**TABLE- 4.1: PRESENT PERFORMANCE MEASURES FOR RESEARCH ACTIVITIES**

Faculty	Journal Publications (National & International) (Year 2012-2014)	Conference Publications (Proceedings/ Abstract) (Year 2012- 2014)	On-going Projects (Year 2012- 2014)
Prof. Dr. S.M. Saqlan Naqvi	12	06	2
Prof. Dr. M.Gulfraz	30	05	02
Dr. Ghazala Kaukab Raja	11	07	02
Dr.M.Javaid Asad	08	02	-
Dr. M.Sheeraz Ahmad	07	04	1
Dr. Feroza H. Wattoo	08	02	-
Dr. Pakeeza A. Shaiq	06	02	1
Total	82	28	08

The department is well established and its distinguishing feature is the availability of all expertise (Molecular Biology, Plant Biotechnology, Environment Biotechnology and Enzymology).

The Department is providing following community Services:

To enhance the quality and quantity of scientific trainings, the Department has organized the workshops and seminars. The basic aim is also to provide a forum for knowledge/information exchange between academic disciplines and raising general awareness about Biochemistry and Biotechnology. Under guidance of the Worthy Vice Chancellor, the department has established state of the art laboratory for food and water testing.

Faculty Satisfaction Regarding the Administrative Services:

- The department maintains a ratio of 25:1 and 2:8 for the student: teacher and technical: non-technical staff respectively.
- Administrative meetings (departmental, university, academic council, and syndicate) are attended and when required. Generally two meetings of academic council are held per year. Board of studies of the department meets quarterly.
- Quick office disposal; no complaint pertaining to delay has ever been received from authorities.
- Proper records of individuals, students and their theses are maintained.

CRITERION 2: CURRICULUM DESIGN AND ORGANIZATION
Degree Title: M.Sc. (Biochemistry)

Intent:

Curriculum design and update is regularly initiated by the faculty members of the Department. After approval from Departmental Board of Studies comprised of senior faculty members and subject specialist from other faculties or from other Universities or research Institutions. The approved curriculum is then sent to Board of Faculty, headed by the Dean Faculty of Sciences. This Board consist senior faculty members from all the Departments of the faculty and subject specialists. Finally the curriculum is presented before the Academic Council which is comprised of the Professor, Associate Professor, Faculty Representatives and very senior subject specialists.

Definition of Credit Hour:

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

Presently following degrees are offered by the Department:

Credit Hours					
Degrees	Min. Course Hrs	Thesis	Duration (in Semesters)		Passing CGPA
			Min	Max	
BS (Biochemistry)	132	-	8	10	2.50
M.Sc. (Biochemistry)	55	-	4	6	2.50
M.Phil. (Biochemistry)	30	10	4	6	2.50
Ph.D. (Biochemistry)	18	50	8	10	3.00

Pre-requisites

Minimum Academic Requirements:

A person holding B.Sc. in science or equivalent degree from any recognized institute with at least second division or overall 45 % marks is eligible to get admission in M.Sc.

The admission to the University is on merit which is determined by the percentage of last degree.

Degree Requirements:

Degrees are awarded after completing the required number of credit hours (courses). Minimum Grade Point Average for obtaining the degree is 2.50. To remain on the roll of the university, a student shall be required to maintain the following minimum GPA/CGPA in each semester.

Semester	CGPA
First	1.50
Second	1.75
Third	2.00
Fourth	2.50

Examination & Weight-age:**a) Theory**

During course work, students are evaluated by mid-term examination, assignments/quizzes and final examination. A student absent in the mid-term examination is not allowed for make-up examination and is awarded zero marks in the mid-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. In theory, weightage to each component of examination is as prescribed here under:

Mid Examination	30%
Assignments	10%
Final Examination	60%

b) Practical

For practical examination (if applicable) 100% weightage is given to practical as scored final examination

Eligibility for Examination:

A student is eligible to sit for the examination provided that he/she has attended not less than 75% of the classes in theory and practical, separately.

The minimum pass marks for each course are 40 % for M.Sc..

Standard 2.1: Assessment of the Biochemistry Curriculum

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

TABLE-7: CURRICULUM VS PROGRAMM OUTCOME

Course/Group of Courses	Outcomes		
	1	2	3
BCH-701,BCH-707, BCH-703, BCH-704,BCH-705,BCH-706, BCH-707	XX XX	XX XX	XXX
BCH-708,BCH-709,BCH-710, BCH-711,BCH-712,BCH-713, BCH-714,BCH-715,BCH-716, BCH-717	X XX	X XX	X XX

x	=	Satisfactory
x x	=	Relevant & satisfactory
x xx	=	Very relevant & satisfactory
x xxx	=	Highly relevant & highly satisfactory

The curriculum fulfills and satisfies the core requirements for the program, as specified by the respective accreditation body and HEC.

Standard 2-2: Theoretical backgrounds, problem analysis, solution design given asunder

Meeting Standard 2-2: Percentage of Elements in Courses

Elements	Courses
Theory only	BCH -707, BCH-710, BCH-711, BCH-719, BCH-720
Theory + Practical	BCH – 701,BCH-702,BCH – 703, BCH-704, BCH – 705,BCH – 706,BCH – 708, BCH-712, BCH – 713,BCH – 715,BCH – 716
Only Practical	BCH-709, BCH-714

Standard 2-3: The curriculum satisfied the core requirements for the programmes as specified by HEC

Standard 2-4: The curriculum satisfied the core requirements for the programmes as specified by HEC

Standard 2-5: The curriculum satisfied the core requirements for the programmes as specified by HEC

Standard 2-6: Information technology components of the curriculum has been applied by offering a course like Bioinformatics

Standard 2-7: Enhancing Oral and Written Communication Skills of the students

- One seminar in M.Sc. carrying one credit hour is compulsory.
- Students are assigned to present on recent issues/problems.
- Assignments are given on specific topics (part of the course) which are submitted as written report, to increase their writing skills as well as group presentations.

Criterion 3: Laboratories and Computer Facilities

There are two General and one computer laboratories in the department for M.Sc program;

1. Biochemistry and Molecular Biology Lab I
2. Biochemistry and Molecular Biology Lab II
3. Bioinformatics Lab

The facilities and shortcomings of these laboratories are listed as under;

- Location: UIBB Building, ground Floor and Second Floor
- Objectives: Laboratories are used for conducting practical experiments related to their introductory and major courses.

- **Safety Regulations:** Fire extinguishers and first aid kits are available as well as a Medical Dispensary for such incidents is maintained in the University.

Standard 3-1: Laboratory Manuals:

Laboratory manuals for each subject are available. The departmental library has all the relevant books. However, teachers also have their own books to prepare the relevant practicals.

Standard 3-2: Support/Laboratory Personal for Maintenance of Laboratory

Two Lab Assistants are available to maintain laboratory, equipments, glassware, chemicals, materials etc. Three laboratory attendants assist the students in practicals, cleaning and washing.

Standard 3-3:

Computing Infrastructure and Facilities

- **Computing facilities support:** Most of the faculty members and the post graduate students have computer facility available.
- **Shortcoming in computing infrastructure:** Wireless internet facilities should be available to all faculty members and postgraduate students in class rooms and laboratories.
- **Safety Arrangements:** There are proper safety arrangements and security plan is available in case of emergency. In newly constructed UIBB building; there is no emergency exits for the labs and fire safety system is not available.

Criterion 4: Student Support and Advising

Our University organizes support programs for students and provides information regarding admission, scholarship schemes etc. Department in its own capacity arranges orientation and guided tours of the department. Director Students Affairs also arranges various cultural activities and solves the students' problems.

Standard 4-1: Frequency of Courses

- Courses are taught as per policy at the University/Academic Council.
- Elective courses are offered as per policy of HEC and the University.
- For post graduate programs, a variety of courses are offered according to demand of the profession.

Standard 4-2: Structure of the Courses

To ensure effective interaction between students, faculty and teaching assistants, at the time of course formulation both theoretical and practical aspects are focused. Theoretical problems are explained and assignments are also given to the students whereas practical are carried out in the labs. Study tours to various research organizations are also organized to keep them

update on the latest developments in the area and to stimulate them for discussion through teacher/ student interaction.

Standard 4.3: Guidance to the students

Several steps have been taken to provide students guidance such as:

- Students are informed about the program requirement through the office of the head of the department.
- Through the personal communication of the teachers with the students.
- In case of some problem Director Student Affairs appointed by the university, helps the students. 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.
- Realizing the need for exploring job opportunities for the university graduates, Directorate of Student Resource Center has been established.

Criterion 5: Process Control

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

Standard 5.1: Program Admission Criteria

- The process of admission is well established and followed as per rules and criteria set by HEC and the University. For this purpose an advertisement is published in the National News Papers and university website by the Registrar Office.
- Admission criteria for M.Sc in Biochemistry is B.Sc.(with Chemistry) or equivalent.
- Admission criteria are revised whenever needed.

Standard 5.2: Process of Registration

- The student file, after completion of the admission process, is forwarded to the Registrar Office for proper registration in the specific program and the registration number is issued to the student.
- Students are evaluated through Mid, Final and Practical exams and through Assignments.
- 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 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: Recruiting Process for Faculty

Recruitment policy followed by the University is recommended by HEC. Induction of 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 Vice Chancellor 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.
- Standards set by HEC are followed.
- Tenure Track System (TTS) recommended by HEC has been adopted by the University.
- HEC also supports appointment of highly qualified members as foreign faculty Professors, National Professors and deputes them in concerned departments of the University.

Standard 5.4: Teaching and Delivery of Course Material

- To provide high quality teaching, department periodically revises the curriculum depending upon requirements, innovations and new technology.
- With the emergence of new fields, new courses are introduced, and included in the curriculum.
- Students usually buy cheap Asian editions of books published in advanced countries. These books are also available in the University library, where modest documentation, copying and internet facilities are available.
- Almost all the lectures are supplemented by multimedia, overheads, slides and animations.
- All efforts are made that the courses and knowledge imparted meet the objectives and outcome. The progress is regularly reviewed in the staff meetings.

Standard 5.5: Completion of Program Requirements

- 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 and final examinations, practicals, assignments/reports, oral and technical presentations. The minimum pass marks for each course is 40% for undergraduate and Master degree.
- 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 M.Sc. students who secure highest marks. Degrees are awarded to the students on the annual convocation that is held every year.

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

At present there are Four Lecturers (on Contract), Two Assistant Professors, Two Associate Professors and Two Professors in the Department of Biochemistry who are teaching in different degree programs. There is a need of highly qualified Faculty members to share the burden of teaching and research.

Table 7: FACULTY DISTRIBUTION BY PROGRAM AREAS IN BIOCHEMISTRY

Program area of specialization	Number of faculty members in each area
Plant Biotechnology	3
Animal Biotechnology	3
Enzyme Biotechnology	2
General Biochemistry	2

Standard 6-2: The interests and qualifications of all faculty member must be sufficient to teach all courses, plan, modify and update courses and curricula.

The interest of all Faculty members is not sufficient to meet the requirement of all the courses taught to the M.Sc program.

Standard 6-3: All faculty members must have a level of competence that would normally be obtained through graduate work in the discipline.

The majority of the faculty must hold a Ph.D in the discipline

- At present all faculty member (except for lecturers, on contract) in Biochemistry are Ph.D degree holders in relevant discipline.
- All lecturers are M.Phil and two out of three are completing their PhD degrees.

Standard 6-4: The majority of the faculty must hold a Ph.D in the Discipline

- At present all faculty members are Ph.Ds except for three lecturers (under UIBB contract).

Standard 6-5: Faculty members dedicate sufficient to research to remain current in their discipline

- All members are dedicated to research and supervising M.Phil and PhD research students and conducting their research projects.

Standard 6-6: Their mechanisms in place for Faculty development

- Yes, there is a mechanism in place for Faculty development.

Standard 6-7: 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.

Results of faculty survey employing Proforma-5 are summarized in graphical representations. The results showed satisfaction of the teachers over most of the parameters.

Criterion 7: Institutional Facilities

The institution must have the infrastructure to support new trends in learning such as e-learning including digital publications, library, video conference room and journals etc.

- The library must possess an up-to-date technical collection relevant to the program and must be adequately staffed with professional personnel.
- These aspects need to be strengthened in number and space.
- Class rooms must be air conditioned and adequately equipped and offices must be adequate to enable faculty to carry out their responsibilities.

Standard 7-1: Infrastructure:

The faculty has access to E-library which is very helpful for the high quality learning/education and access to scientific publications. The internet facility is also available to faculty members on campus which further strengthens scientific activities. However the department has the following shortcomings/problems:

- The Internet services are provided by the university; however the speed of internet is slow. Most of the faculty members have access to telephones which are also connected with the internet.
- Breach of power intermittently, due to which research and academic work both are suffered, however university has provided quite a reasonable back-up by local generator
- Drinking water facility is adequate for staff and students.
- Untrained supporting staff.
- Insufficient budget to meet with routine administrative and academic activities.
- Washrooms are inadequate for students and staff. In addition cleanliness of washrooms is not taken care of adequately.

Standard 7-2: Library Facilities:

The University Central Library has wide range of books; however journals and periodicals are limited. Department itself owns a small library with up-to-date editions of relevant books.

Standard 7.3: Class Room and Faculty Offices

Currently the class rooms are enough and multimedia are available for the lecture halls. Lecture rooms are not air conditioned, due to which teachers and students face difficulty in summer. Practical lab space is adequate however not enough for increasing number of students, this affects the quality of teaching. Faculty offices are available and provided to regular faculty members as well as to contract and IPFPs faculty members.

Criterion 8: Institutional Support

The institutional support is provided by the university however budget provision is insufficient.

- There must be sufficient support & financial resources to attract and retain high quality faculty and provide them means for to maintain competence as teachers and scholars.
- The department at present avails all the human resources.

The university administration has been struggling hard to strengthen all the departments, up-gradation of departments and establishing new faculties and Institutes.

Support and Financial Resources

- At present department is having a very meager financial resource to maintain its present needs. The main support for departmental research activities has been earned through individual research grants won by faculty and indigenous scholarships by a few students. There is a dire need for increasing the financial resources allocated to the department to strengthen academic and research activities.

Standard 8-2: High Quality Graduate Students and Research Scholars

Students are admitted in M.Sc. once in a year. A strict merit policy is applied for admissions. A detail of the students enrolled during the past years is given in the following Table.

TABLE-8: ENROLLMENT IN M.Sc PROGRAMS FROM 2012-14

Degree Program	Year-Wise Enrollments		
	2012	2013	2014
M.Sc.	80	78	78

Standard 8-3: Financial Resources

Total budget of the department for the financial year 2012-14 is only Rs. 50,000/- year which only Fulfill basic departmental needs. However, with the introduction of new degree programs along with increase in the number of students, department is under huge pressure to provide chemicals for basic laboratories as well as for research students, regular repair/maintenance of infrastructure & equipments and books/journals/periodicals for the department library.

Summary

This Self Assessment Report (SAR) contains eight sections. The first section outlines the program mission and objectives. Section-2 provides information about the curriculum development. Section-3 enlists the laboratories and other relevant information. The last four sections provide information about student support, process control, faculty characteristics, institutional facilities and support provided by the university.

The program mission, objectives and outcomes are assessed and strategic plans are presented to achieve the goal, which are again measurable through definite standards. Programme outcomes appeared to be highly relevant. The results of proforma no. 10 of 2012-14 show the scores of evaluation by students for all teachers of the Department of Biochemistry. The results of proforma no.1 presents the scores evaluation by the students for all courses offered by the Department of Biochemistry offered in 2012-14. The overall analysis based on proformas no. 1 & 10 clearly highlights that students were satisfied with the contents and teaching material of courses offered by the department as well as by the teaching abilities of course instructors.

The curriculum of M.Sc Biochemistry fully satisfies the core requirements for the programme as specified by the HEC. The information technology component of the curriculum has been applied by offering non-conventional courses like Bioinformatics. Curriculum design and update is regularly initiated by the faculty members of the Department. After approval from Departmental Board of Studies comprised of senior faculty members and subject specialist from other faculties or from other Universities or research Institutions. The approved curriculum is then sent to Board of Faculty, headed by the Dean Faculty of Sciences. This Board consist senior faculty members from all the Departments of the faculty and subject specialists. Finally the curriculum is presented before the Academic Council which is comprised of the Professor, Associate Professor, Faculty Representatives and very senior subject specialists.

Infrastructure of the department is adequate for running M.Sc degree program. The class rooms and laboratories are reasonably equipped with adequate facilities. Institutional facilities were measured through Criterion 3; infrastructure and facilities, class rooms, faculty offices, computing facility support, shortcomings in computing infrastructure and safety arrangements are highlighted. Institutional facilities need to be strengthened for the upcoming new BS and M.Phil/PhD level degree programs.

The process of admission is well established and followed as per rules and criteria set by HEC and the University. For this purpose an advertisement is published in the National News Papers by the Registrar Office. As regards the process control covering admission, registration, recruiting policy, courses and delivery of material, academic requirements, performance and grading, university as well as Higher Education Commission have set forth appropriate rules, which are properly followed.

CONCLUSIONS

Following points are being considered based on the assessment of M.Sc Biochemistry program;

- 1 The faculty survey reveals that infrastructure still needs some upgradations like; air-conditioners in class rooms, general labs and some of the research labs; cleanliness of overall building and washrooms; regular repair and maintenance of building/everyday use items.
- 2 The annual budget for the department needs to be increased for the smooth conduct of academic and research activities.
- 3 The existing faculty number is far less as compared to the number of degree programs being offered and a large number of under-graduate and post-graduate level students.
- 4 The UIBB is an isolated building with class-rooms and research laboratories holding sophisticated equipments as well as accomodating huge number of students along with faculty and staff. Thus there is dire need for the appointment of a security guard to ensure its safety.
- 5 In order to keep faculty member updated with latest research tools and techniques and to initiate/maintain productive scientific collaborations, regular foreign trainings are to be arranged.
- 6 Professional and behavioral training of the administrative and supporting staff for efficient handling of official activities.
- 7 Computers and internet facilities are available to all regular faculty members and post graduate students to boost the level of research and teaching.
- 8 The weakest point noted is the lack of quality time a faculty has for his/her personal research and family activities.

Annexture I**Results of Proforma No. 2: Results of Faculty Course Review Report**

According to the result of the proforma No. 2, most of the teachers have consensus that the courses are up to date se per HEC criteria, moreover assessment methods consisting of mid terms, final term, quizzes and assignments is good.

Department	Biochemistry
Faculty	Sciences
Courses	Described earlier in SAR Assessment method As per University rules and regulations
Distribution of Grades/Marks	As per University rules and regulations
Overview/Evaluation (course Co-coordinator's comments)	Satisfied
Students (course evaluation survey)	Satisfied
External Examiner	NA
Student/Staff Consultative committee	N/A
Curriculum	In accordance with HEC guidelines
Assessment	Course objectives well defined and well achieved
Enhancement	Proposed changes in earlier course review report incorporated
Future changes	New and modern practical approaches may be incorporated if possible

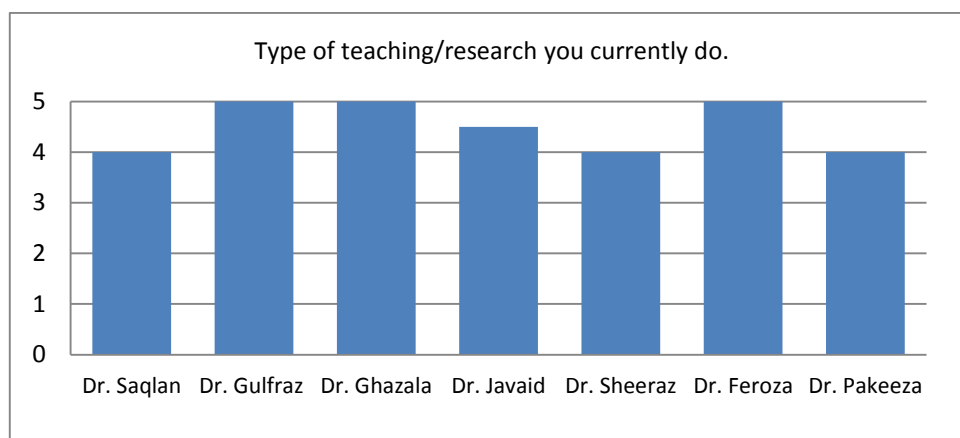
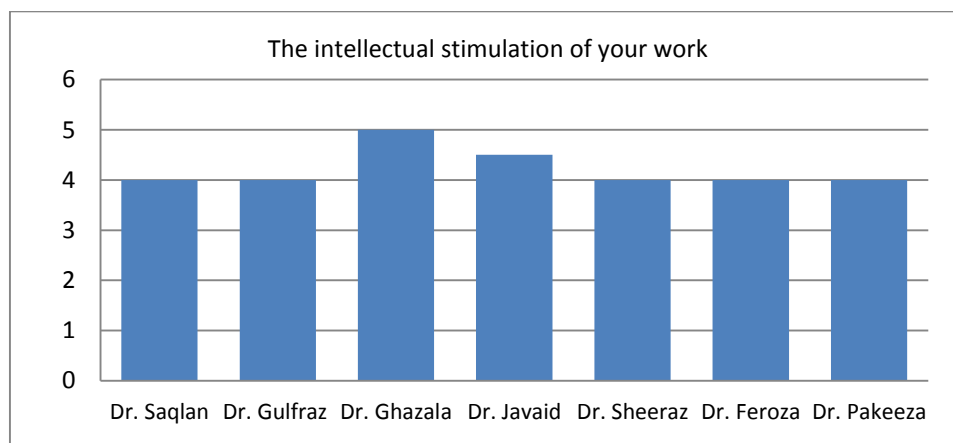
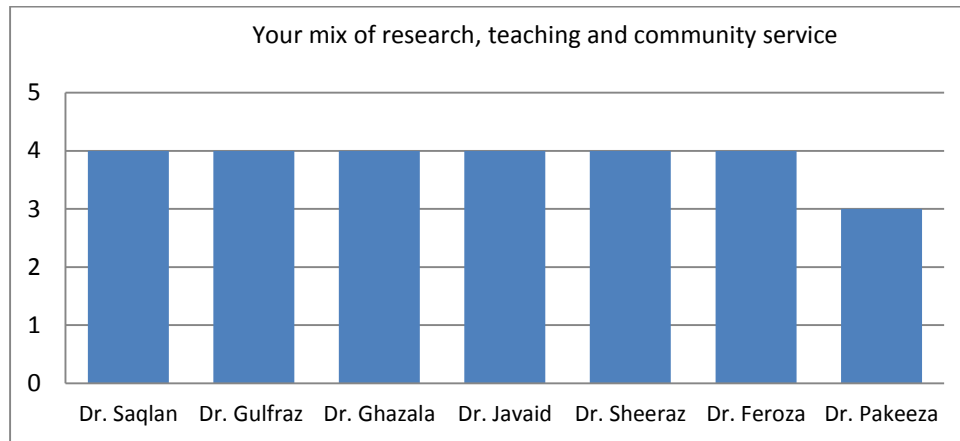
RESULT OF FACULTY COURSE REVIEW

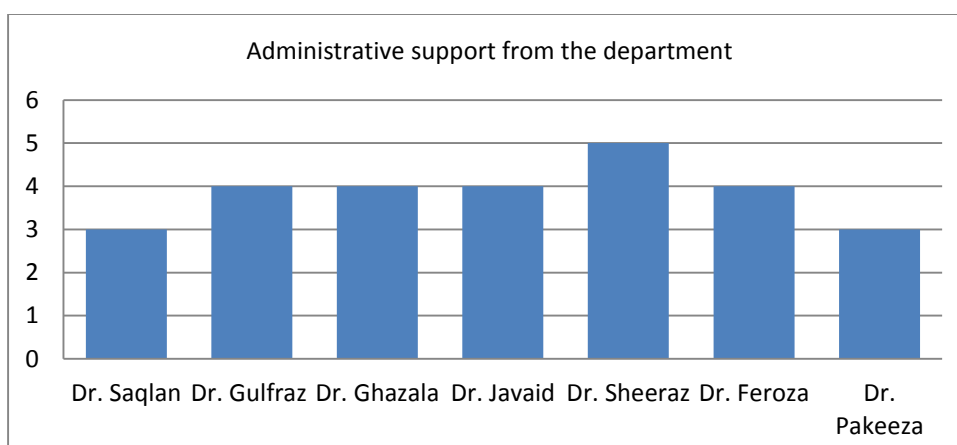
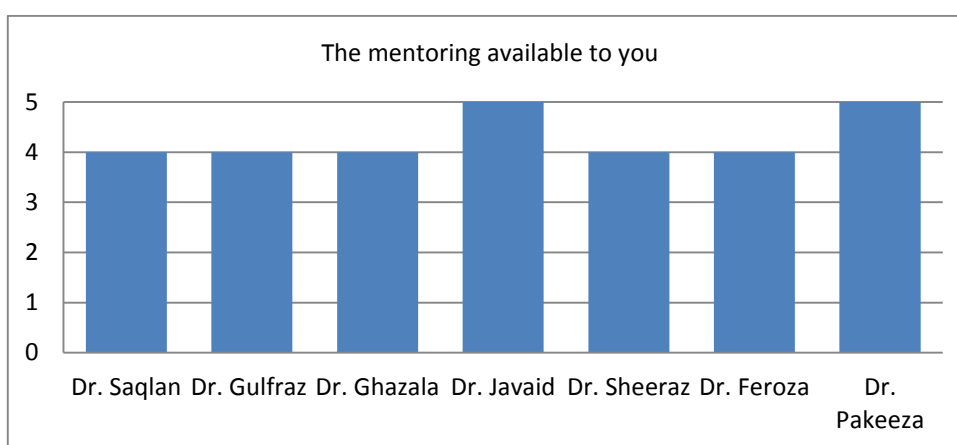
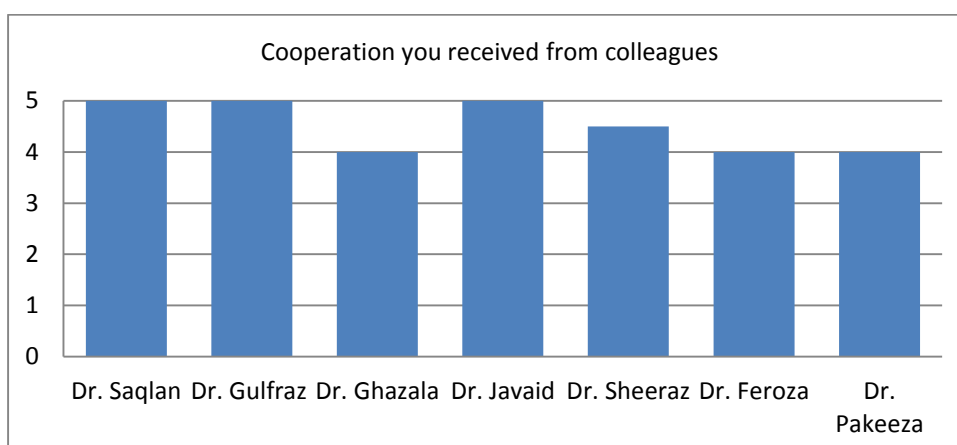
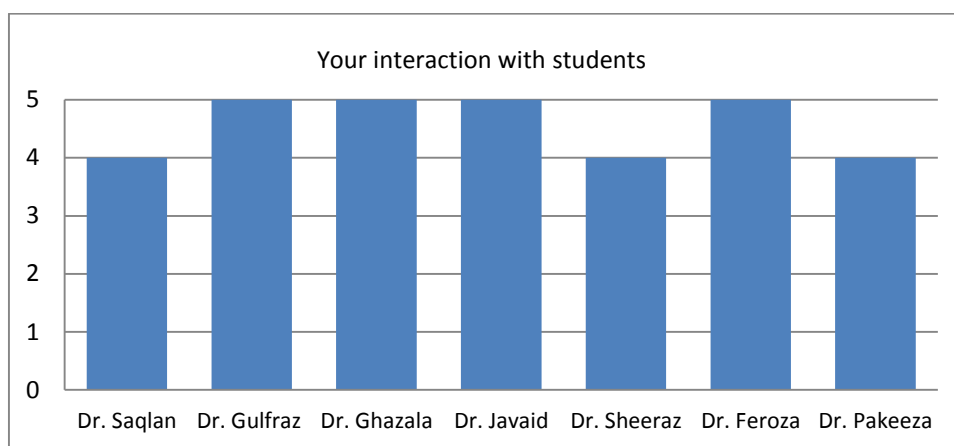
Course Code	Course Title	Credit Hour	Assessment Method/ Exam	No. of Students	Comment on curriculum	Any changes for course in future	Semester	%Grade						Course Instructors
								A	B	C	D	F	No grade	
BCH-724	Fundamentals of Biotechnology	4(3-2)	Mid = 18	29	Curriculum designed according to HEC approved guidelines	N/A	Spring 2014	30	2	17	8	0	2	Dr. Ghazala Kaukab
			Assignment =6											
			Final = 36											
BCH-736	Proteomics	3(3-0)	Mid = 18	26	Appropriate and updated	N/A	Spring 2013	26						Dr. Ghazala Kaukab
			Assignment =6											
			Final = 36											
BCH-701	Biochemistry	3(2-2)	Mid = 12	167	Course is uptodate as per HEC criteria	N/A	Fall 2012	13	43	35	6	4	1	Dr. M. Sheeraz Ahmad
			Assignment = 4											
			Final = 24											
			Practical =20											
BCH-710	Protein Chemistry	2(2-0)	Mid = 12	66	Curriculum is as per HEC criteria	NIL	Fall 13	5	24	31	6	0	0	Dr. M. Sheeraz Ahmad
			Assignment = 4											
			Final = 24											
BCH-719	Special Problem	1(1-0)	Mid = 00	3	its as per HEC criteria	NIL	Spring 13	3	0	0	0	0	0	Dr. M. Sheeraz Ahmad
			Assignment =0											
			Final = 20											
BCH-733	Plant Molecular Physiology	3(3-0)	Mid = 18	6	its as per HEC criteria	Basic requirement for enrollement of this course should be Plant Physiology	Spring 13	1	4	0	0	1	0	Dr. M. Sheeraz Ahmad
			Assignment =6											
			Final = 36											

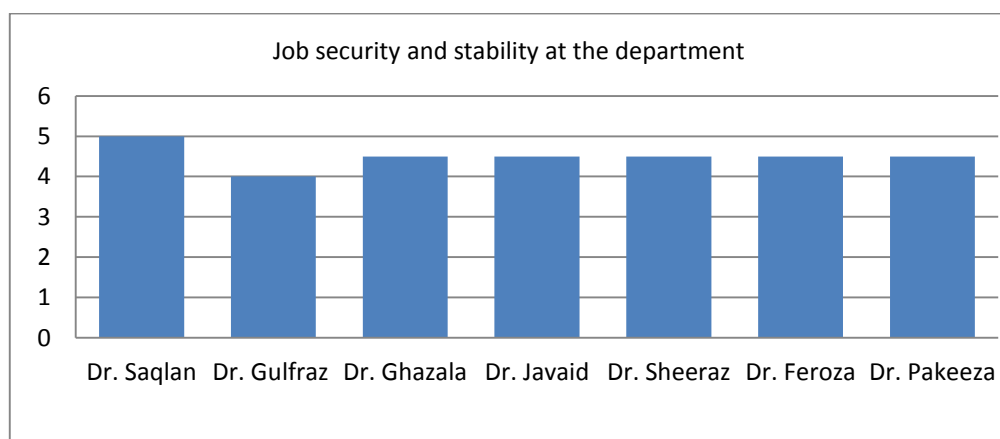
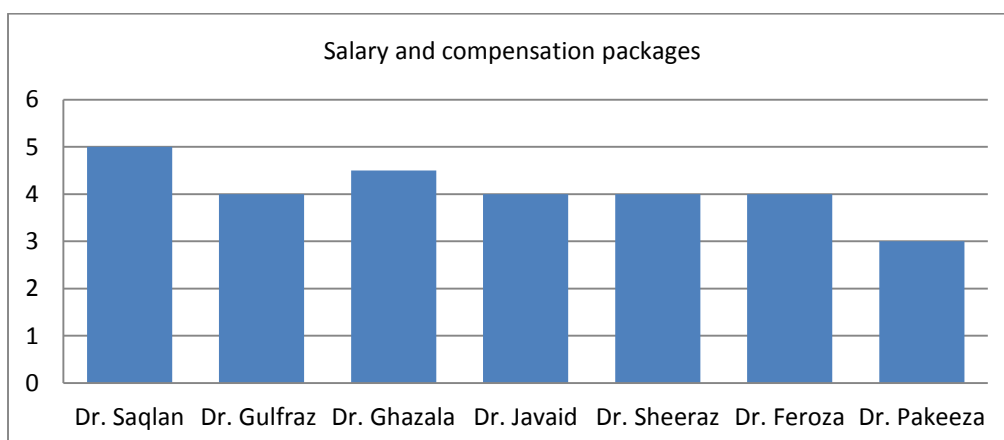
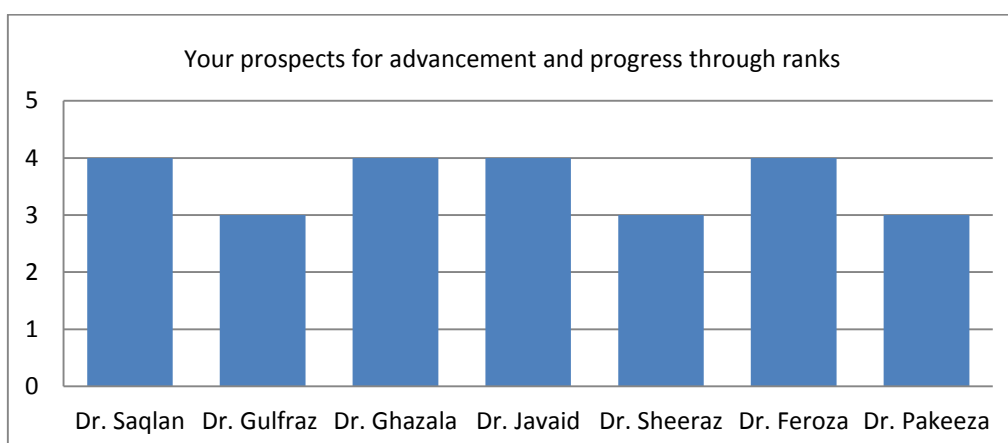
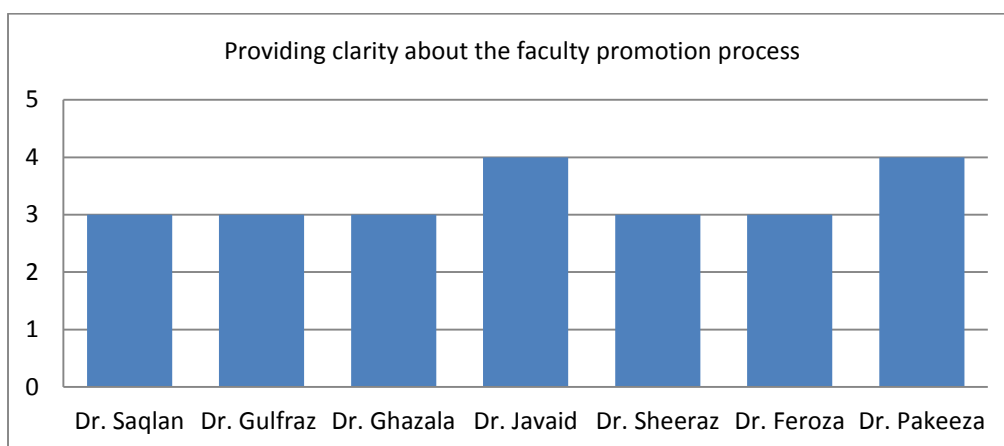
Course Code	Course Title	Credit Hour	Assessment Method/ Exam	No. of Students	Comment on curriculum	Any changes for course in future	Semester	%Grade						Course Instructors
								A	B	C	D	F	No grade	
BCH-718	Plant Biochemistry	3(3-0)	Mid = 18	7	Curriculum is as per HEC criteria		Fall 13	3	4	0	0	0	0	Dr. M. Sheeraz Ahmad
			Assignment =6											
			Final = 36											
BCH-708	Human Physiology	3(2-2)	Mid = 12	44	The course is up to date and in accordance with the HEC guidelines	The assessment methodology is satisfactory and provides good insight about learning outcomes.	Spring 2013	44	5	17	17	2	3	Dr. Pakeeza Arzoo Shaiq
			Assignment =4											
			Practical = 20											
			Final = 24											
BCH-708	Human Physiology	3(2-2)	Mid = 12	69	The course objectives are clear and are possible to achieve in term. It is in accordance with the HEC guidelines	The assessment methodology is satisfactory and provides good insight about learning outcomes	Spring 2014	69	11	42	16	0	0	Dr. Pakeeza Arzoo Shaiq
			Assignment =4											
			Practical = 20											
			Final = 24											

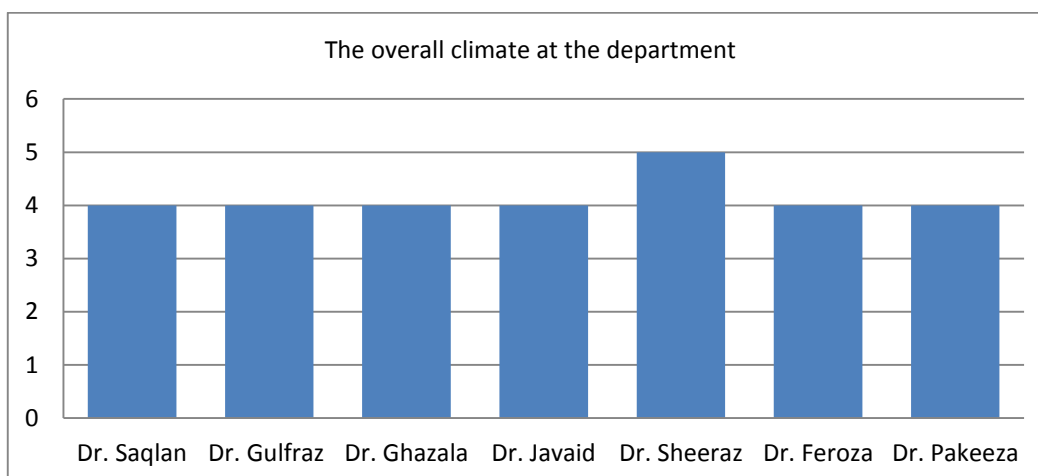
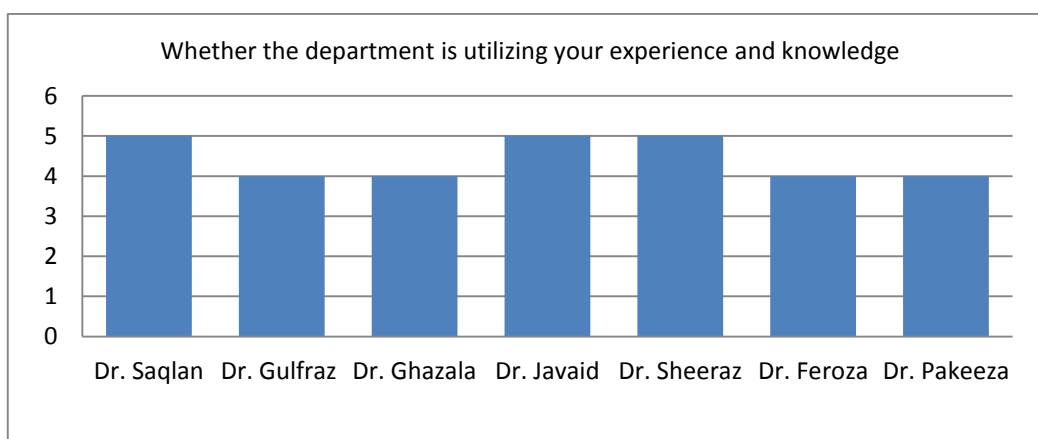
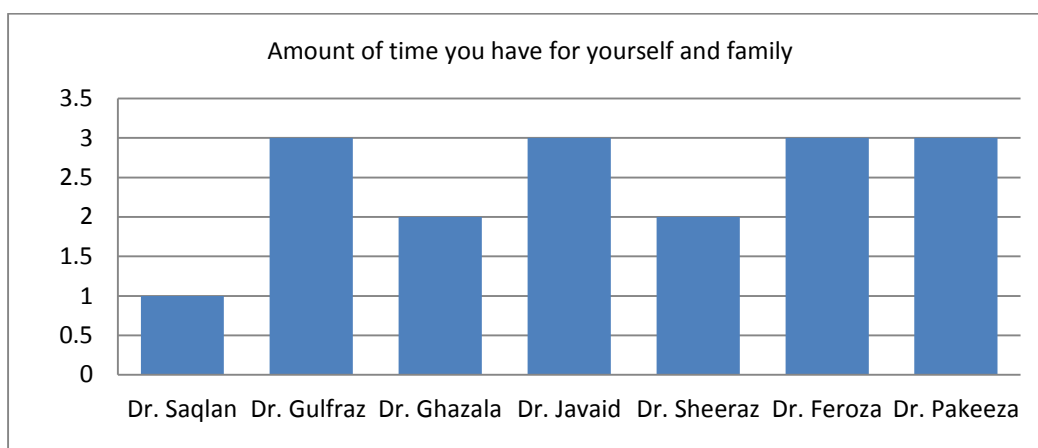
Annexture II**Proforma No. 5: Results of Faculty Survey**

According to proforma 2 regarding the satisfaction of the Faculty, the weakest aspect is the amount of time teachers find to interact with their families.







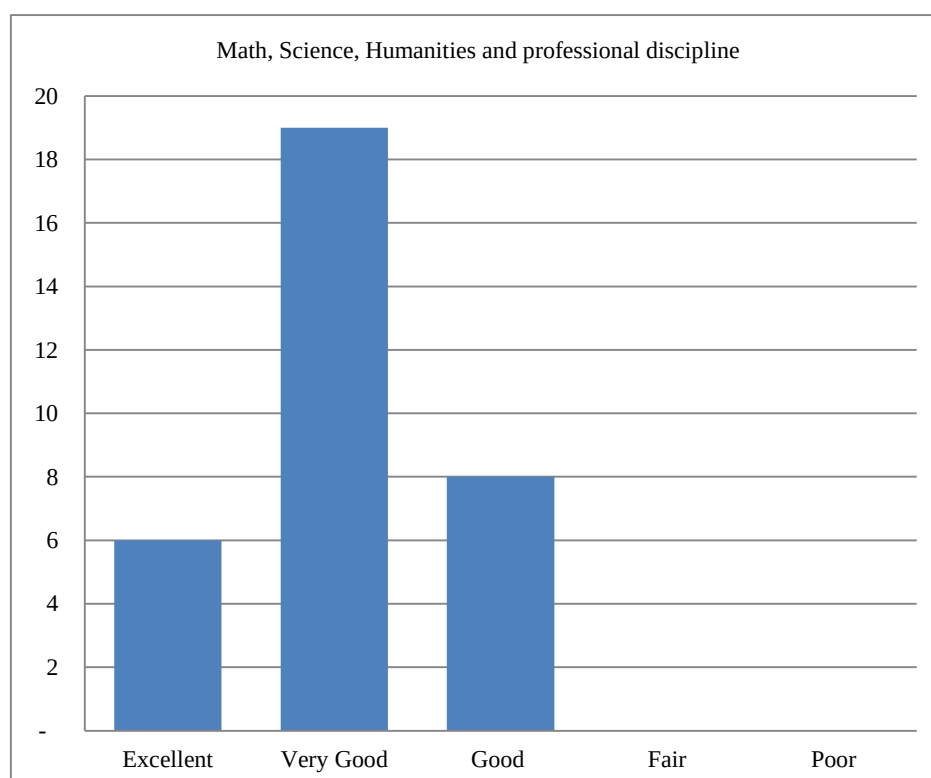


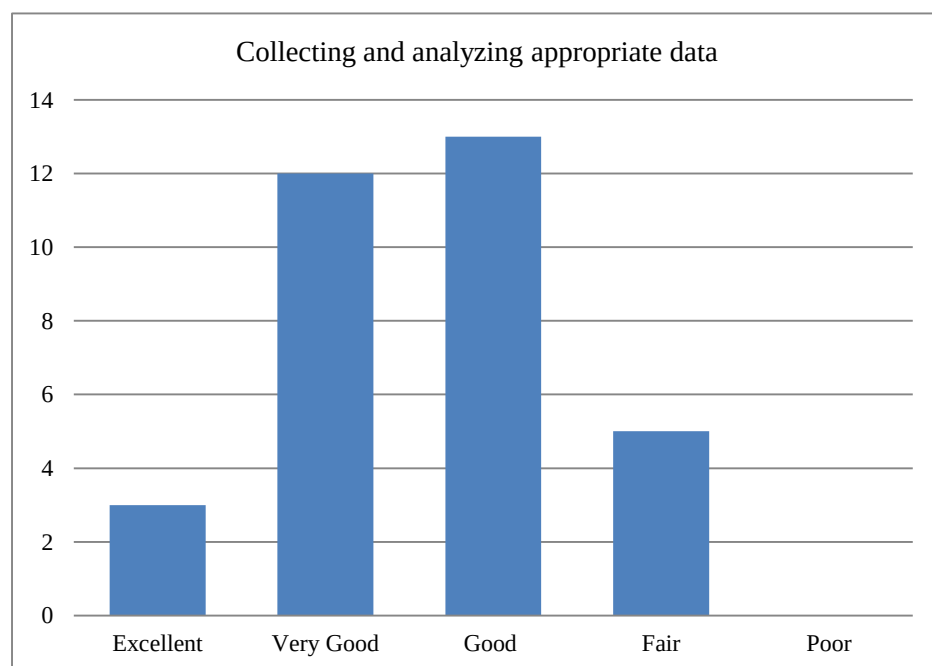
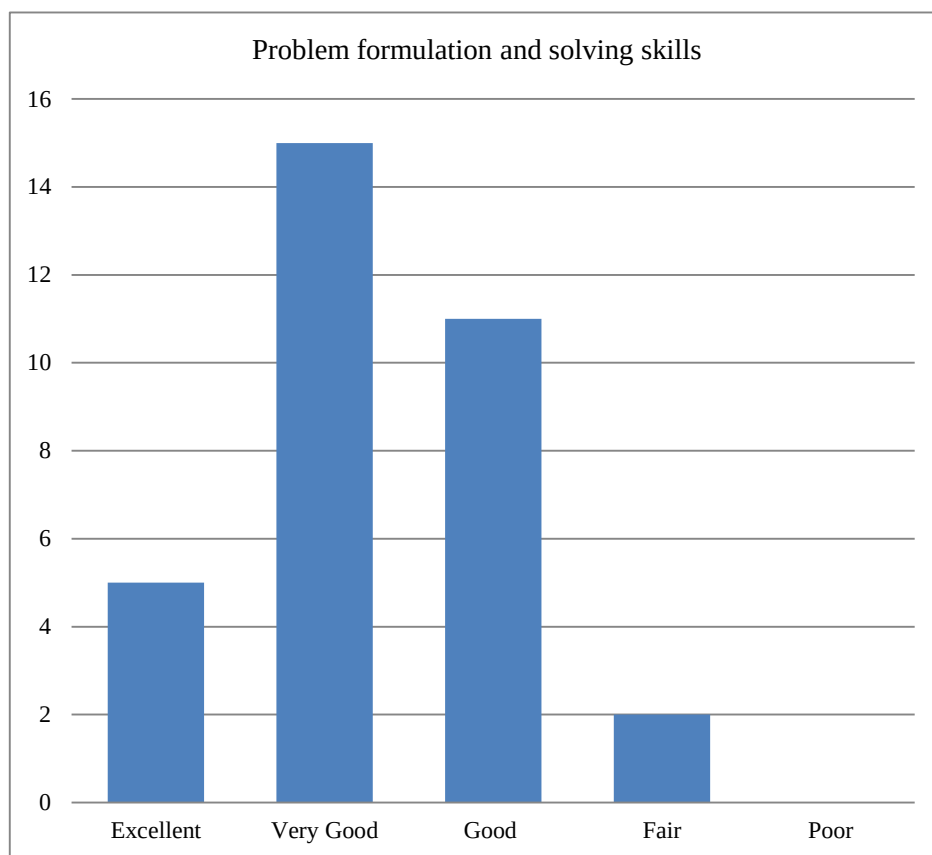
Annexure III**RESULTS OF GRADUATING STUDENTS SURVEY**

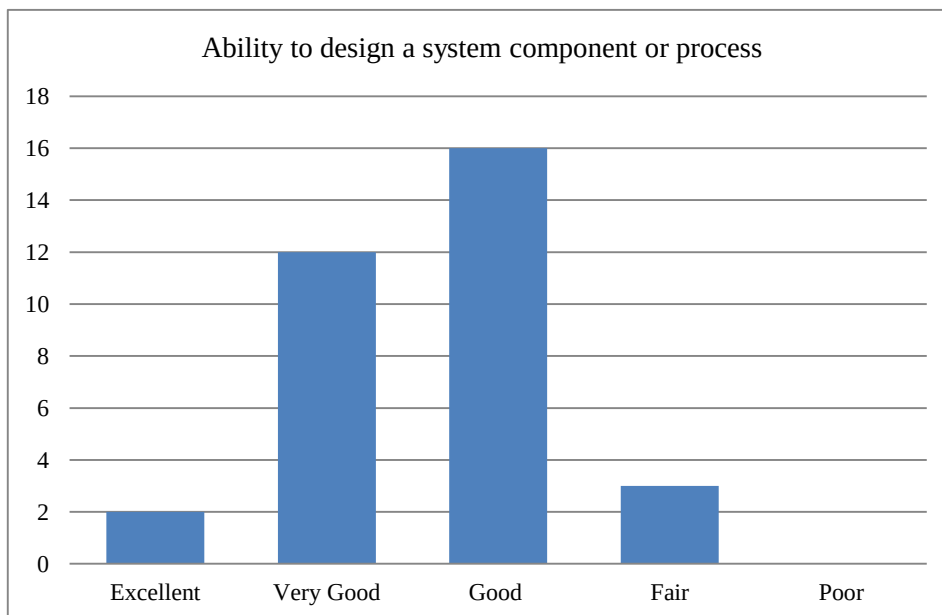
According to the results of Graduating Students Survey more than 70% student were of view that “The program is effective in enhancing team working abilities”, “ the Program administration is effective in independent”, “The infrastructure of the Department was good”.

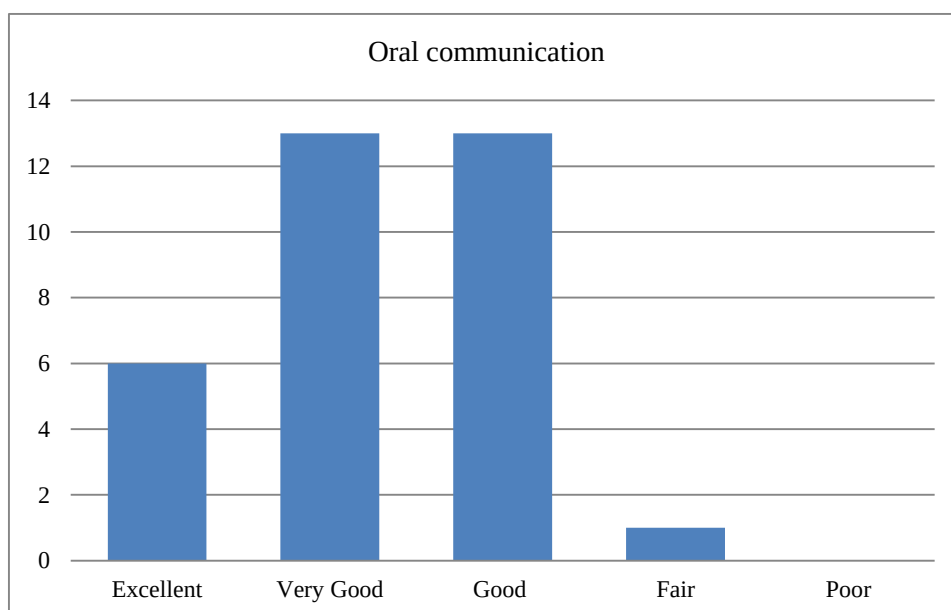
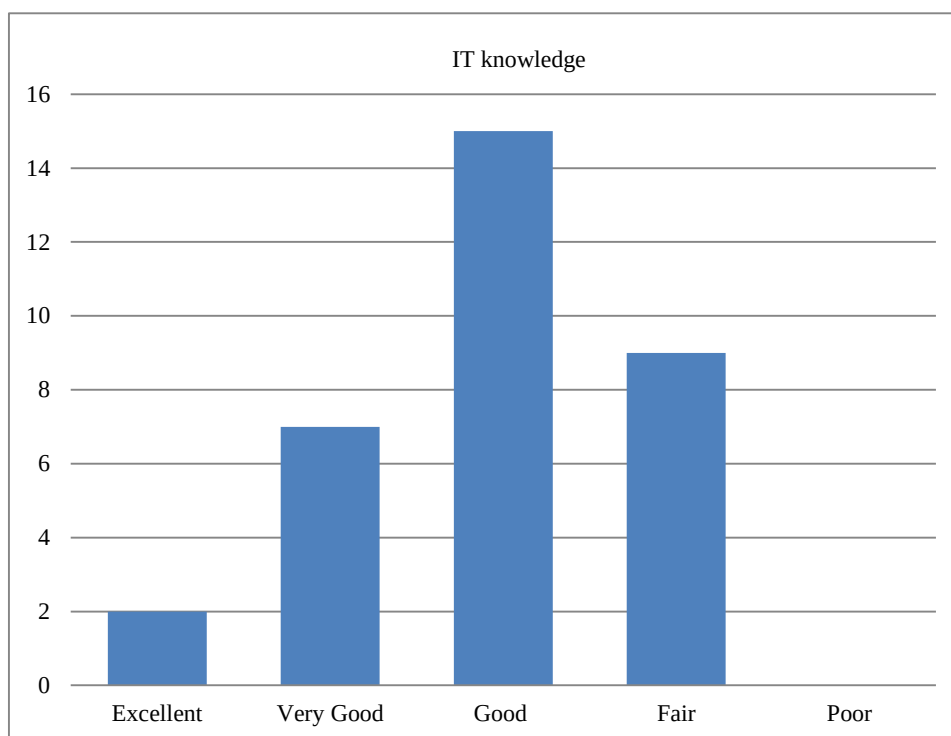
Proforma 7:ALUMNI SURVEY RESULTS:

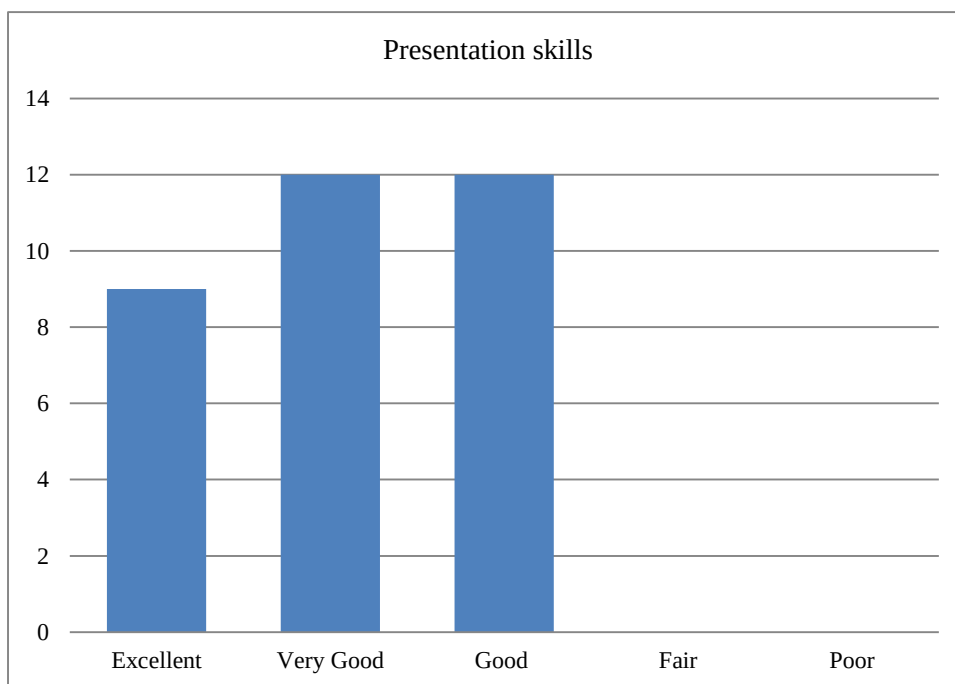
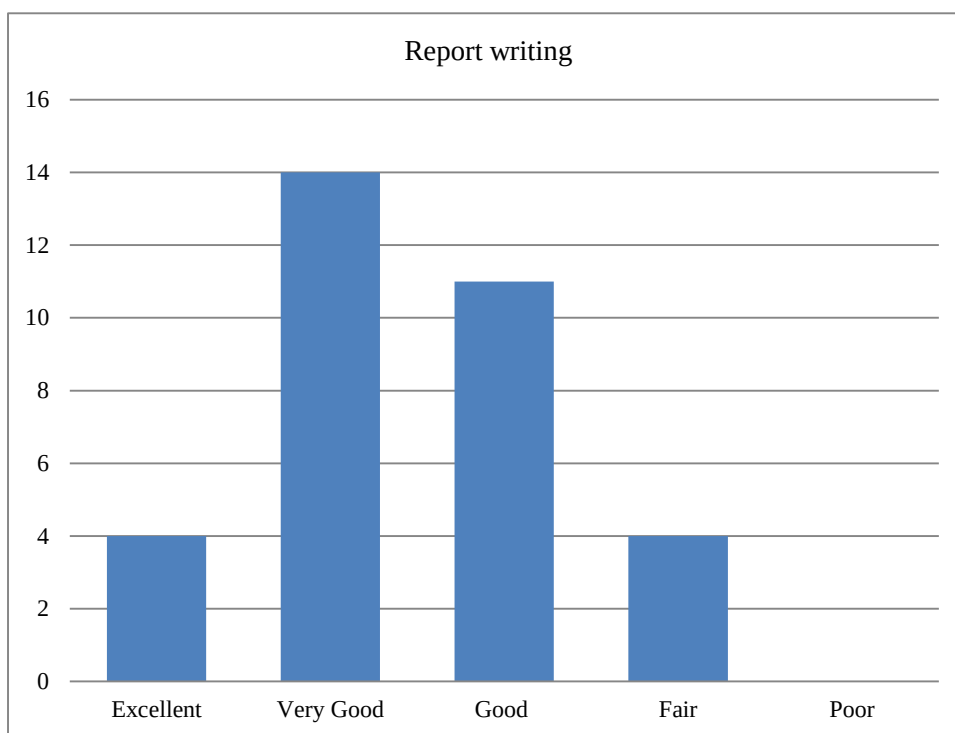
The graduates of Biochemistry Department join mostly research institutes, universities, hospitals, diagnostic lab for academic jobs, so Proforma 7 was sent to concerned institutes and overall feedback results of program assessment by the Alumni are presented in the following figure.

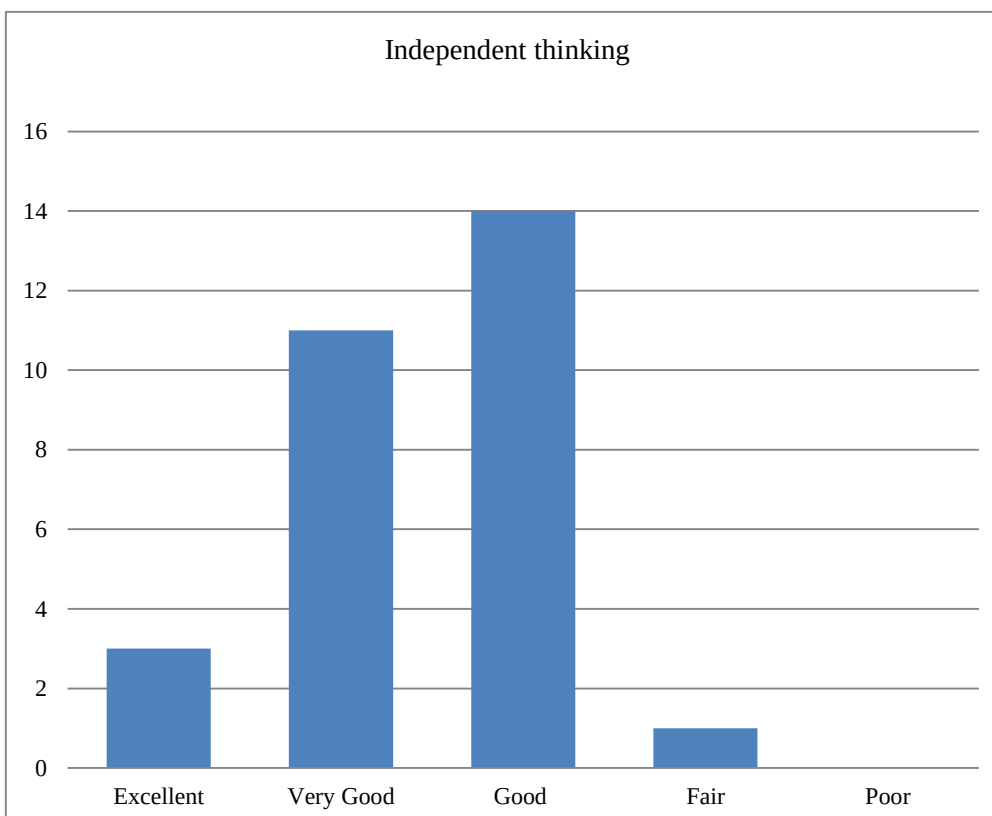


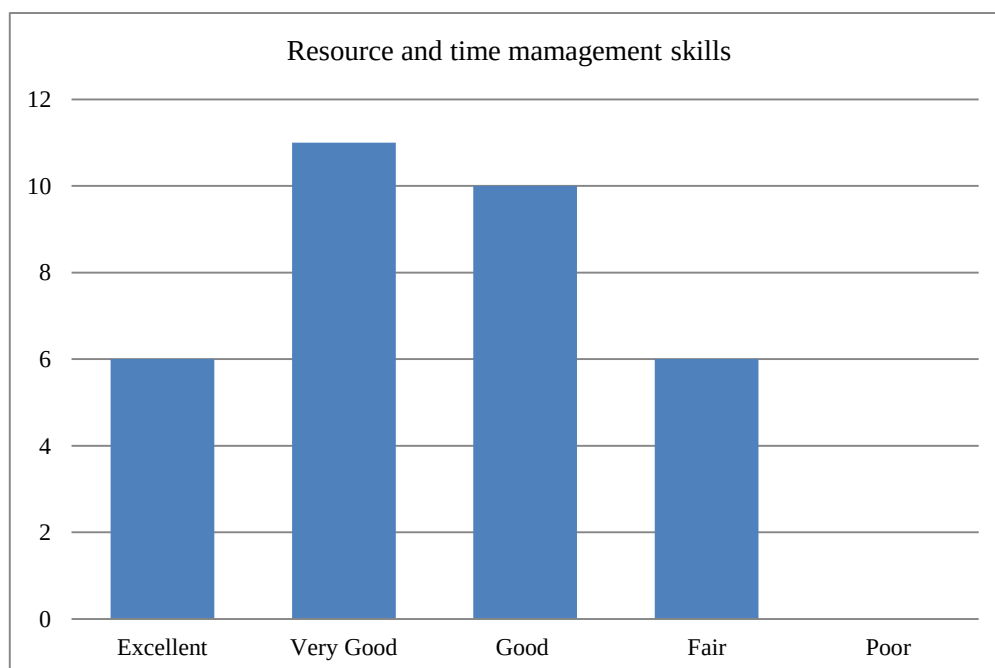
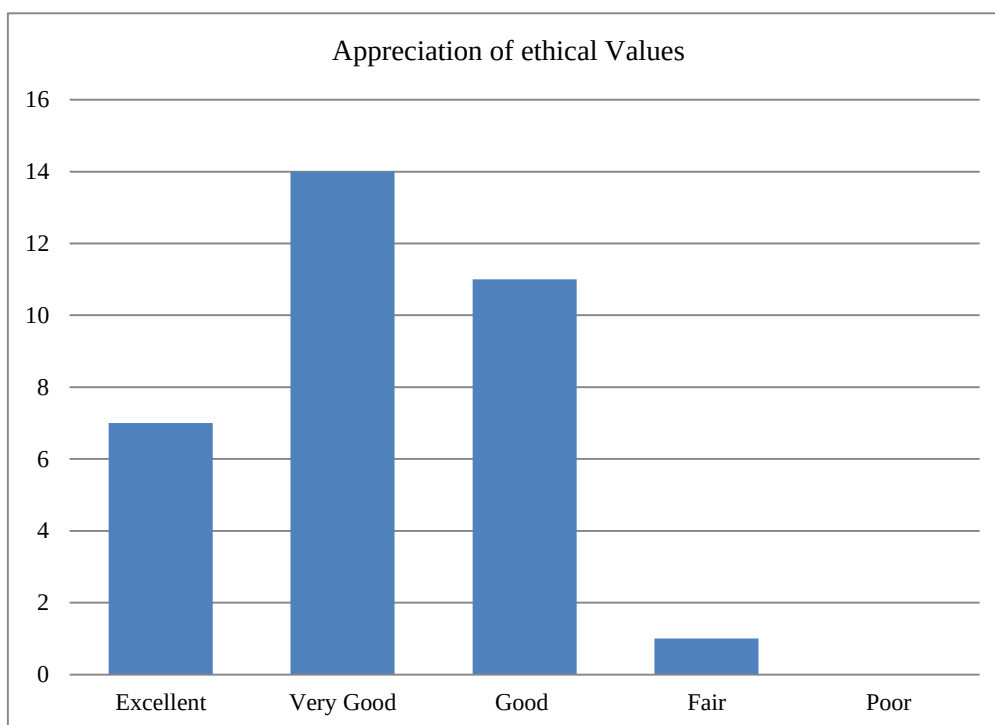




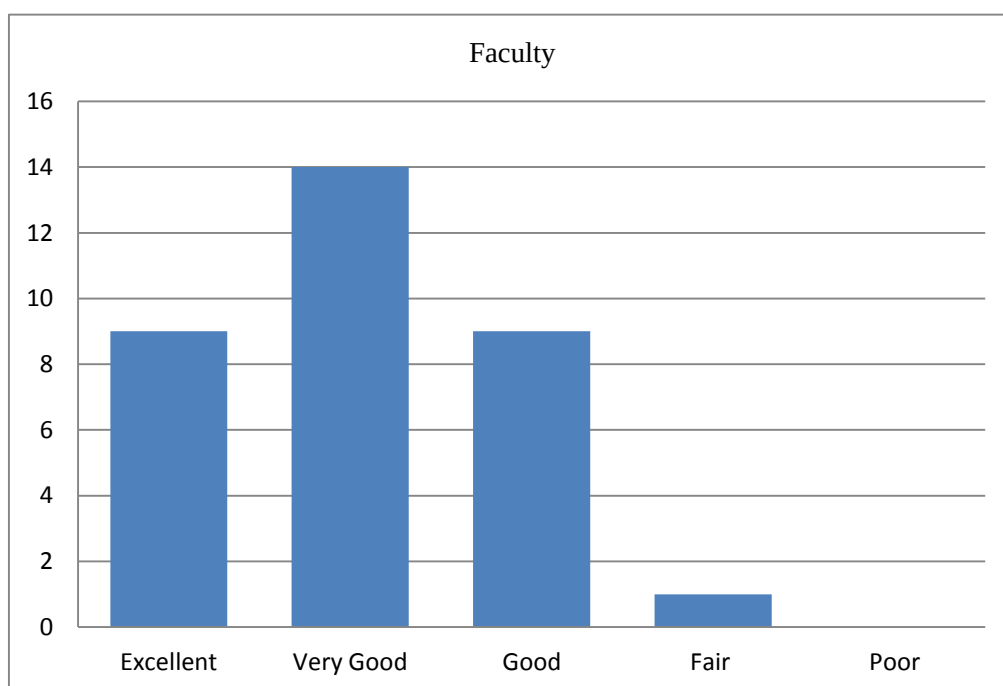
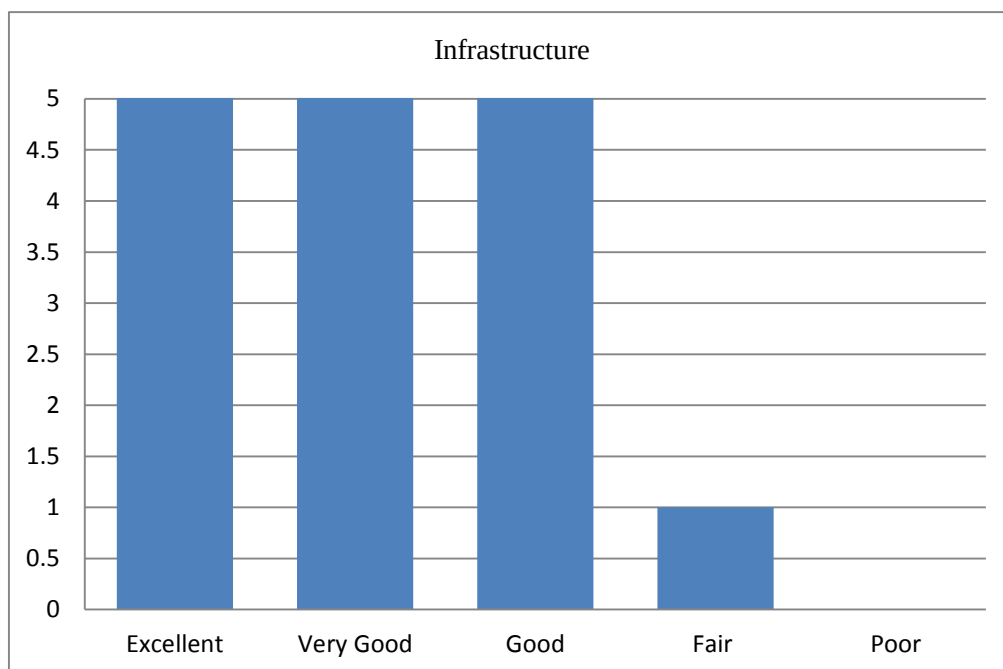


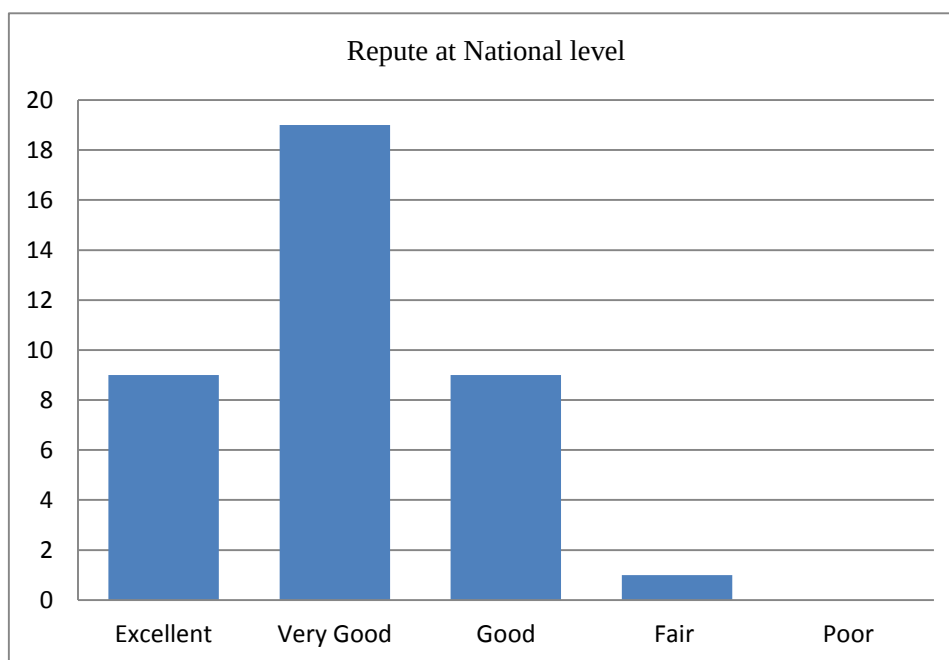








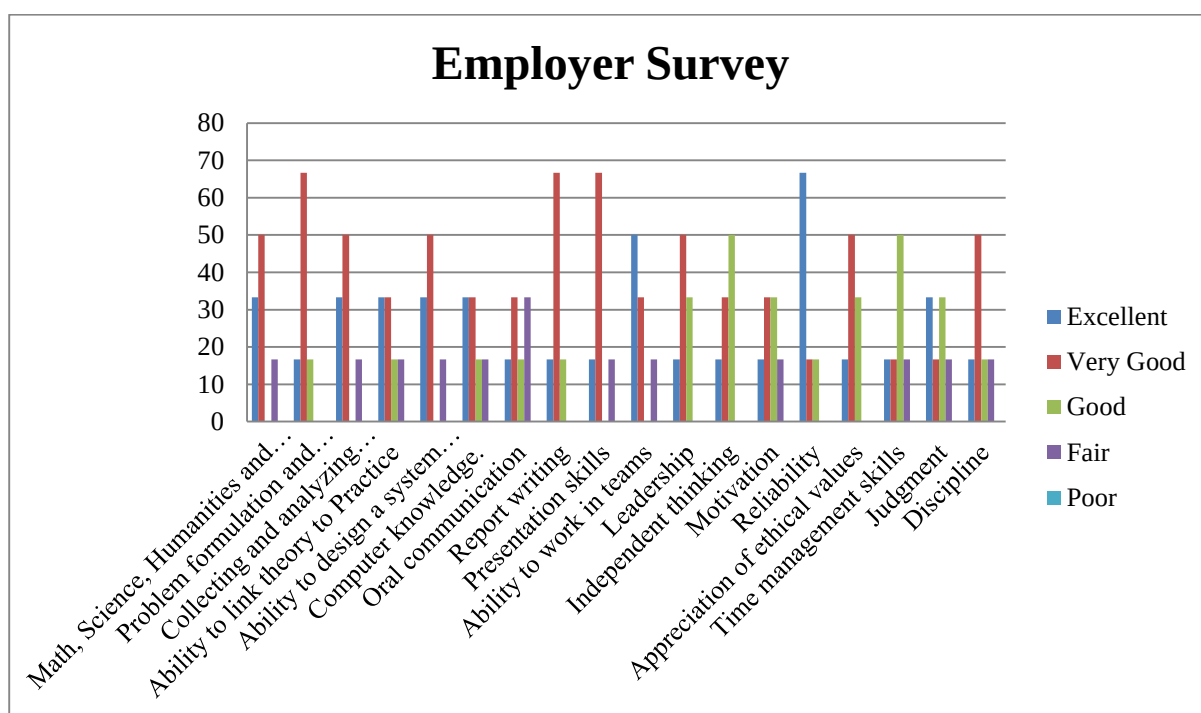




Annexture-IV

Proforma 8: Employer Survey

The following is the graph is of Employer Survey of M.Sc. Biochemistry. The responses were evaluated on working skills, interpersonal skills, knowledge, and communication skills of employee.



The values on the X-axis are in percentages whereas Y-axis represents the professional skill analysis of the alumni as assessed by their employers. The graduating students are employed in various public and private organization of the country. A few are working on research projects and the rest are associated with education sector and general public institutes

Annexure-V**Faculty Resume**

Name	Prof. Dr. S. M. Saqlan Naqvi
Designation	Professor/ Dean Sciences
Research Interest	RESEARCH INTERESTS Tissue culture for genetic transformation Cloning of genes, cDNAs and regulatory elements and their application in agriculture/food industry. Construction of transgenic plants for improved agricultural productivity. Bioinformatics & Nanobiotechnology; applications, teaching and tools development
Publication	Latest Publications 1. P. Anwar, A. Bendini, M. Gulfraz, R. Qureshi, E Valli, G. di Lecce, S.M.S. Naqvi. T.G. Toschi. (2013). Characterization of wild olive (<i>Olea ferruginea</i>) oils from Pakistan. <i>Food. Res. Int.</i>, 54(2):1965-1971. 2. T. Mahmood, R. Aslam, S. Rehman, S.M.S. Naqvi. (2013). Molecular markers assisted genetic characterization of different salt tolerant plant species. <i>J. Anim. Plant Sci.</i>, 23 (5): 1441-1447 3. F. Shamim, G.N. Johnson, S.M. Saqlan Naqvi, A. Waheed. (2013). Higher antioxidant capacity protects photosynthetic activities as revealed by Chl a fluorescence in drought tolerant tomato genotypes. <i>Pak. J. Bot.</i>, 45(5): 1631-42 http://www.pakbs.org/pjbot/PDFs/45(5)/22.pdf 4. I. Rehman, F. Deebea, M. Irfan ul Haque, S. M. Saqlan Naqvi (2013). Inhibition of sesame seedling growth by <i>Xanthomonas campestris</i> pv. <i>Sesami</i> culture secretions. <i>J. Anim. Plant Sci.</i>, 23 (4):1207-1210. http://www.thejaps.org.pk/docs/v-23-4/39.pdf 5. F. Khan, T. Sultana, F. Deebea, S.M.S. Naqvi. (2013). Dynamics of mRNA of glycine-rich RNA-binding protein during wounding, cold and salt stresses in <i>Nicotiana tabacum</i>. <i>Pak. J. Bot.</i>, 45(SI): 297-300. http://www.pakbs.org/pjbot/PDFs/45(S1)/39.pdf 6. T. Mahmood, T. Yasmin, M.I. Haque and S.M.S. Naqvi. (2013). Characterization of a rice germin-like protein gene promoter. <i>Genet. Mol. Res.</i>, 12 (1): 360-369. DOI: 10.4238/2013.February.7.6 http://www.geneticsmr.com//year2013/vol12-1/pdf/gmr2097.pdf 7. H.Ahmed, M.R. Khan, R.P.-Fontan, C.L. Sandez, I. Mustafa, A. Ghani, M. Hussain, S. Asif, A. Ahmad, S.M.S. Naqvi, M. Qayyum. (2013). Prevalence of Bovine Hypodermosis in Water Buffalo (<i>Bubalus bubalis</i>) from Jhelum District, Pakistan. <i>Kafkas Univ Vet Fak Derg.</i>, 19(1): 79-84. DOI: 10.9775/kvfd.2012.7227

8. S.K.B. Naqvi, M.S. Ahmad, C.A. Rauf and S.M.S. Naqvi. (2013). Amplification and Sequencing of Internal Transcribed Regions 1& 2, and 5.8s rDNA from Local Isolates of *Fusarium* Species. Pak. J. Bot., 45(S1): 301-307.
[http://www.pakbs.org/pjbot/PDFs/45\(S1\)/40.pdf](http://www.pakbs.org/pjbot/PDFs/45(S1)/40.pdf)
9. S.M.S. Naqvi, I. Batool, M.U. Farooq, F. Deebea, M.Z. Hyder, T. Mahmood. (2013). Seed grain polyphenol oxidase activities in wheat (*Triticum aestivum* L.). Pak. J. Bot., 45(2): 407-410.
[http://www.pakbs.org/pjbot/PDFs/45\(2\)/08.pdf](http://www.pakbs.org/pjbot/PDFs/45(2)/08.pdf)
10. M. Naeem, I. Naveed, S.M.S. Naqvi, and T. Mahmood. (2013) Standardization of tissue culture conditions and estimation of freescavenging activity in *viola odorata* L. Pak. J. Bot., 45(1):197-202.
[http://www.pakbs.org/pjbot/PDFs/45\(1\)/27.pdf](http://www.pakbs.org/pjbot/PDFs/45(1)/27.pdf)
11. F. Munir, S.M.S. Naqvi, Tariq Mahmood. (2013). In vitro and in silico characterization of *Solanum lycopersicum* wound inducible proteinase inhibitor-II gene. Turk J Biol., 37: 1:10.
<http://journals.tubitak.gov.tr/biology/issues/biy-13-37-1/biy-37-1-1-1111-23.pdf>
12. Batool,S.,M.J.Asad,S.M.S.Naqvi,R.T.Mahmood,A.Guffar,M.Gulfraz andS.H.Hadri.2013.Production and partial purification of pectin lyase by *Aspergillus niger* grown on orange peels.Afr.J.Microbiol.Res.7(13): 1144-1149. (J.Impact Factor: 0.539)

Name	Prof. Dr. Muhammad Gulfraz
Designation	Professor/ Chairman
Research Interest	Natural Product Chemistry Isolation Purification and analysis of active ingredients for drug discoveries Fermentation Biotechnology Production of Bioethanol and Biodiesel from agriculture waste and plant sources
Publications	
1. Hina gul , Mushtaq, Nabila sarwar, Saima Khalid Abbasi, Muhammad Shaeerz Ahmad and Muhammad Gulfraz.2014. Phytochemical analysis and biological activities of Diospyros lotus L. fruit extracts. Int. J. Pharmaceutical chemistry J. DOI 10.7439. 04 (03). Impact factor 0.4 2. I.Hayat, A. Ahmad, A. Ahmed S. Skhail and M. Gulfraz.2014. Exploring the potential of red kidney beans (Phaseolus Vulgaris L.) to develop protein based product for food application. The Journal of Animal and plant Science,24 (3).pp 860 -868. Impact factor 0.3 3. Abdul Rehman, Muhammad Gulfraz , Ghazala Kaukab Raja, Muhammad Inam ul Haq and Zahid Anwar.2014. A Comprehensive Approach to Utilize an Agricultural Pea peel (Pisum 2 sativum) Waste as a Potential Source for Bio-ethanol Production. Romanian Journal of Biotechnology Letter (Accepted). 4. Sajid Mehmood, M.Gulfraz,M.S. Tahir,M.S.Rehman, T.Aqil and T. Mehmood. 2014. Statistical screening and selection of sweet sorghum varieties for Bio ethanol production.Pak.J.Bot 46(3)1115-1120. Impact factor 0.9 5. Dawood Ahmad, M.Gulfraz, M.Shareez Ahmad, habiba Nazir, Hina gul and Saira Asif.2014. Protective action of Taraxacum officinale on CCL4 induced hepato toxicity in rats. African Journal of Pharmacology 8(30)pp.775-780. Impact factor 0.5 6. Muhammad Gulfraz, Muammad Imran, Sobia Khadam, Dawood Ahmed, Muhammad J. Asad, Kashis S. Abassi, Muhammad Irfan and Sajid Mehmood.2014. A comparative study of antimicrobial and antioxidant activities of garlic (Allium sativum L.) extracts in various localities of Pakistan. African Journal of plant Sciences vol.8 Impact factor 0.5 7. Atif Kamal, Khansa Qamar, Muhammad Gulfraz, Muhammad Asad Anwar, Riffat Naseem Malik. 2014. PAH exposure and oxidative stress indicators of human cohorts exposed to traffic pollution in Lahore city (Pakistan). Chemosphere. 120 (2015)59-67.Impact factor 3.5	

8. Zahid Anwar, Muhammad Gulfraz and Muhammad Irshad. 2014. Agro-Industrial lignocellulosic biomass a key to unlock the future bioenergy : A brief review. J Radiation Research and applied Sciences, pp 1-11. Impact factor 0.5
9. Dawood Ahmad, M.Gulfraz, M.Shareez Ahmad, Rahmatullah, M. Tahir and Pervez.2013. Cytoprotective potential of methanolic leaves extract on *Taraxacum officinale* on CCl₄ induce Rates. Pensee Journal. 75:11Nove.2013.), pp. 749-757. Impact factor 0.05
10. Pervez Anwar, Alessandra Bendini, Muhammad Gulfraz, Rahmatullah Qureshi, Enrico Valli, Giuseppe Di Lecee, S.M. Saqlan Naqvi and Tullia Gallna Toschi.2014. Characterizaton of wild olive (*Olea ferruginea*) oils from Pakistan. Food Research International, 54:1965-1971.Impact factor 3.5
11. M.Gulfraz, Dawood Ahmad, M.Shareez Ahmad, Rahmatullah, M. Tahir Raja , Nyla Jabeen and Kashi Sarfraz Abbasi.2013. Effect of leaf extracts of *Taraxacum officinale* on CCl₄ induce Hypatotoxicity in rats. Pakistan Journal of Pharmaceutical Sciences.27(4) 825-829. Impact factor 0.9
12. Humaira Shaheen, Rahmatullah Quershi, Abida Akram, M.Gulfraz and Daniel Potter.2013. A Preliminary Floristic Checklist of Thal Desert Punjab, Pakistan.Pak.J.Bot. 46(1):2-7. Impact factor 0.9
13. Mirza Imran Shahzad, Imran Hamayun Khan, Paul A. Luciw, Muhammad Gulfraz and Azra Khanum. 2013. Cloning, Expression and Genetic Immunization Studies of Mycobacterium tuberculosis Gene esat6. Pakistan J. Zool., vol. 45(3) Impact factor 0.5
14. Sidra Batool, M. Javaid Asad, S. M. Saqlan Naqvi, Raja Tahir Mahmood, A. Guffar, M. Gulfraz and Saqib H. Hadri.2013.Production and partial purification of pectin lyase by *Aspergillus niger* grown on orange peles. African Journal of Microbiology Research Vol. 7(13), pp. 1144-1149. Impact factor 0.54
15. Gul Rahim, Rahmatullah Qureshi, M. Arshad and Muhammad Gulfraz.2013. Phytochemical Analysis and Antioxidant Properties of *Teucrium stocksianum* Flower from Malakand Division, Pakistan. International journal of agriculture & biology. 15 (2): 377–381 Impact factor 0.6
16. Umara Afzal, Muhammad Gulfraz, Shahzad Hussain, Farnaz Malik,Sadaf Maqsood, Imam Shah and Sidra Mahmood.2013. Hepatoprotective effects of *Justicia adhatoda* L. against carbon tetrachloride (CCl₄) induced liver injury in Swiss albino mice. African Journal of Pharmacy and Pharmacology Vol. 7(1), pp. 8-14.Impact factor 0.869
17. Sadiq Noor Khan, Stefan Niemann,Muhammad Gulfraz,Mazhar Qayyum,Saima Siddiqi,Zahid , Sharif Mirza, Sabira Tahsin,Mina Ebrahimi-Rad and Azra Khanum.2013. Molecular Characterization of Multidrug-Resistant Isolates of

18. Mycobacterium tuberculosis from Patients in Punjab, Pakistan. Pak. J. Zool.45(1),pp.93-100. Impact factor 0.5
19. Hafeez Ullah, Feroza Hamid Wattoo , Muhammad Hamid Sarwar Wattoo, Muhammad Gulfraz, Syed Ahmad Tirmizi, Sadia Ata, Abdul Wadood.2012. Synthesis, spectroscopic characterization and antibacterial activities of three Schiff bases derived from dehydroacetic acid with various substituted anilines. Turkish Journal of Biochemistry. 37 (4): 386–391.Impact factor 0.3
20. Abid Mahmood, Ghazala Kaukab Raja,Tariq Mahmood,Muhammad Gulfraz and Azra Khanum.2012. Isolation and Characterization of antimicrobial activity conferring components from seed of bitter ground (Momordica charanita).Medicinal Plant Research 64(4),566-573.Impact factor 0.6
21. Muhammad Imran, Muhammad Javaid asad Muhammad Gulfraz, Rahmatullah Qureshi, Hina Gul, Nazish Manzoor and Arshad Nawaz Ch. 2012.Hyper production of glucoamylase by aspergillus niger through solid state fermentation. Pak Bot.44(6):2103-2110. Impact factor 0.9
22. Mehmooda Munazir, Rahmatullah Qureshi¹, Muhammad Arshad and Muhammad Gulfraz.2012. Antibacterial activity of root and fruit extracts of leptadenia pyrotechnica (asclepiadaceae) from Pakistan. Pak. J. Bot., 44(4): 1209-1213. Impact factor,0.94
23. Abdus Sattar Tariq, Zahid Akram¹, Ghulam Shabbir, Muhammad Gulfraz, Khalid Saifullah Khan, Muhammad Shahid Iqbal¹ and Talat Mahmood.2012. Character association and inheritance studies of different sorghum genotypes for fodder yield and quality under irrigated and rainfed conditions. Afri. J. Biot Vol. 11(38), pp. 9189-9195. Impact factor 0.57
24. Muhammad Irshad, Zahid Anwar, Muhammad Gulfraz , Hamama Islam Butt,
25. Amir Ejaz, and Haq Nawaz.2012. Purification and characterization of α -amylase from Ganoderma tsuaga growing in waste bread medium. Afri. J. Biotech. Vol. 11(33), pp. 8288-8294. Impact factor 0.57
26. Zahid Anwar, Muhammad Gulfraz, Muhammad Imran, Muhammad Javaid Asad, Aftab Iqbal Shafi, Pervaz Anwar and Rehmat ullah Quershi. 2012. Optimization of Dilute acid pretreatment using response surface methodology for bioethanol production from Cellulosic Biomass of rice polish. Pak. J.Bot.,44(1):169-176. Impact factor 0.94
27. Humaira Shaheen, Rahmatullah Qureshi, Abida Akram and Muhammad Gulfraz.2012. Some important medicinal flora of Noorpur Thal Khushab, Pakistan. Archives Des Sciences. Vol 65 (2); 57-73 Impact factor 0.7
28. Shahzad, M.I., Khan,I.H., Luciw, P.A., Gulfraz, M and Khanum, A. 2012. Cloning expression and genetic immunization studies of Mycobacterium tuberculosis gene esat 6.PJZ, Vol(44). Impact factor 0.338
29. Zahid Anwar, Muhammad Gulfraz, M. Javaid Asad, Muhammad Imran, Zahid

Akram Sajid Mehmood², Abdul Rehman¹, Pervez Anwar¹ and Alia Sadiq.2012 Bioethanol productions from rice polish by optimization of dilute acid pretreatment and enzymatic hydrolysis. African J. Biot.Vol(4),pp.992-998. Impact factor 0.57

30. Farzana S, Kiran SK, Asif A, Anwar A, M.Gulfraz and Feroza HW.2012. Development and Optimization of sweet cream butter from buffuloes at cottage scale .African J .Biot. Vol (75),pp.17265-17274 . Impact factor 0.57
31. Gul R, Rahmatullah Q, Gulfraz M, M. Arshad and Sahib R.2012. Preliminary phytochemical screening and ehtnomedicinal uses of Teucrium stocksianum from Malakand Division..J. Med.plants Res.vol 6(5),pp.704-707. Impact factor 0.5
32. Sajida Zafar, Anwaar Ahmed, Riaz Ahmad, Muhammad Atif Randhawa, Muhammad Gulfraz, Asif Ahmad, and Farzana Siddique.2012Chemical residues of some pyrethroid insecticides in egg plant and okra fruits: effect of processing and chemical solutions. J. Chem. Soc. Pak 34(5) 1169-1174.Impact factor 1.10

Name	Dr. Ghazala Kaukab Raja
Destination	Associate Professor
Research Interest	Exercise Biochemistry, Metabolism, Genetic polymorphism
Publications 1. Philip E Stuart, Trilokraj Tejasvi, Pakeeza A Shaiq, Preya Kullavanijaya, Raheel Qamar, Ghazala K Raja, Yanming Li, John J Voorhees, Gonçalo R Abecasis, James T Elder and Rajan P Nair (2014). A Single SNP Surrogate for Genotyping HLA-C*06:02 in Diverse Populations. J Invest Dermatol. doi:10.1038/jid.2014.517 2. Ghazala K. Raja, Mark A. Sarzynski, Peter T. Katzmarzyk, William D. Johnson, Yourka Tchoukalova, Steven R. Smith, Claude Bouchard. (2014) Commonality versus specificity among adiposity traits in normal-weight adults. Int J Obes (Lond). 38(5):719-23. doi: 10.1038/ijo.2013.153. Epub 2013 Aug 16. 3. Iffat Tahira, Muhammad Saqlain, Abid Mahmood, Nafeesa Qudsia Hanif, Ghazala Kaukab Raja. (2014) Study of β-Lactoglobulin Milk Protein Variants in Buffalo. Pakistan J. Zool. 46(2): 549-552 4. P.A. Shaiq, P.E. Stuart, A. Latif, C. Schmotzer, A.H. Kazmi, M.S. Khan, M. Azam, T. Tejasvi, J.J. Voorhees, G.K. Raja, J.T. Elder, R. Qamar, R.P. Nair. (2013) Genetic Associations of Psoriasis in a Pakistani Population. British J. Dermatol. 169(2):406-11. doi: 10.1111/bjd.12313. 5. P. A. Akram, A. Klausegger, A. Latif, J. W. Bauer, R. Qamar and G. K. Raja. (2012) Missense Mutation in LAMA3 Associated with Herlitz Junctional Epidermolysis Bullosa in a Pakistani Family. Pak. J. Zool. 44(6): 1697-1702 6. Shahid Mahmood Baig; Dure Sabih; Kashif Rahim; Aysha Azhar; Muhammad Tariq; Muhammad Sajid Hussain; Syed Muhammad Saqlan Naqvi; Ghazala Kaukab Raja; Tahir Naeem Khan; Muhammad Jameel; Zahra Iram; Samiya Noor; Usman Raza Baig; Javed Anver Qureshi; Shehla Anjum Baig; Syeda Marriam Bakhtiar. (2012). β-Thalassemia in Pakistan: a pilot program on prenatal diagnosis in Multan. J. Pediatr. Hematol and Oncol. 39: 90-92 7. Pakeeza A. Shaiq, Alfred Klausegger, Fawad Muzaffar, Johann W. Bauer, Muhammad I. Khan, Azra Khanum, Raheel Qamar and Ghazala K. Raja. (2012). Founder mutation c.676insC in three unrelated kindler syndrome families belonging to a particular clan from Pakistan. J. Dermatol. 39: 1-2	

Name	Dr. Muhammad Javaid Asad
Destination	Associate Professor
Research Interest	Fermentation process development Bioconversion of lignocellulosic biomass and production of amylases, cellulases and lignases, single cell protein, organic acids and other industrial products. Biocatalysis: Enzyme kinetics, purification, characterization, enzyme engineering, immobilization and industrial application of microbial enzymes; Liquid and solid waste management. Bioremediation of textile dyes and industrial effluents by white rot fungi, Biodiesel, Bioenergy and Nutrition.
Publications 1. Mehboob, N., M. J. Asad, M. Asgher, M. Gulfraz, T. Mukhtar and R. T. Mehmood. 2014. Exploring Thermophilic Cellulolytic Enzyme Production Potential of <i>Aspergillus fumigates</i> by the Solid-State Fermentation of Wheat Straw. <i>Appl. Biochem. Biotechnol.</i> DOI 10.1007/s12010-014-0796-3. 2. Amin, Noor., R. T. Raja, M. J. Asad, M. Zafar and A. M. Raja. 2014. Evaluating Urea and Creatinine Levels in Chronic Renal Failure Pre and Post Dialysis: A Prospective Study. http://www.researchpub.org/journal/jcvi/jcvi.html 3. Mahmood, R. T., M. J. Asad, N. Mehboob, M. Mushtaq, M. Gulfraz, M. Asgher, N. M. Minhas and S. H. Hadri. 2013. Production, purification and characterization of Exoglucanase by <i>Aspergillus fumigates</i>. <i>Appl. Biochem. Biotechnol.</i> 170:895–908 (DOI 10.1007/s12010-013-0227-7) (J. Impact Factor: 1.943) 4. Batool, S., M. J. Asad, S. M. S. Naqvi, R. T. Mahmood, A. Guffar, M. Gulfraz and S. H. Hadri. 2013. Production and partial purification of pectin lyase by <i>Aspergillus niger</i> grown on orange peels. <i>Afr. J. Microbiol. Res.</i> 7(13): 1144-1149. (J. Impact Factor: 0.539) 5. Ata, S., F. H. Wattoo, M. Feroz, M. H. S. Wattoo, S. A. Tirmizi and M. J. Asad. 2013. Analytical investigation of selected pesticide residues from fruits and vegetables by an improved extraction method using reverse phase high performance liquid chromatography. <i>Ethiop. J. Environ. Studies Manag.</i> 6 (4):342-347. 6. Asgher, M., Iqbal, H. M. N. and M. J. Asad. 2012. Kinetic characterization of purified laccase produced from <i>Trametes versicolor</i> IBL-04 in solid state bio-processing of corncobs. <i>BioResources</i>, 7(1):1171-1188. (J. Impact Factor: 1.418). 7. Anwar, Z., M. Gulfraz, M. Imran, M. J. Asad, A. I. Shafi, P. Anwar and R. U. Quershi. 2012. Optimization of dilute acid pretreatment using response surface methodology for bioethanol production from cellulosic biomass of rice polish. <i>Pak. J. Bot.</i>, 44(1): 169-176. (J. Impact Factor: 0.836). 8. Anwar, Z., M. Gulfraz, M. J. Asad, M. Imran, Z. Akram, S. Mehmood, A. Rehman, P. Anwar and A. Sadiq. 2012. Bioethanol production from rice polish by optimization of dilute	

acid pretreatment and enzymatic hydrolysis. *Afri.J.Biotechnol.*, 11 (4):992-998. (J. Impact Factor: 0.573).

9. Raza,A.,N.Zaman,B.G.Arshad,M.J.Asad,H.Aziz,S.N.Qureshi and J.Irfan.2012.Mutations in ISDR may be linked to HighVIREMIA and Virus Resistance toIFN-Alpha-2b But Responsiveto PEG-IFN-Alpha-2a. *Int. J Sci. Emerging Tec.*, 4(3):153-158.
10. N.Mehboob.,M.J.Asad,M.Asghar,M.Gulfraz and R. T. Mahmood. 2012. Cellulase production by *Aspergillus fumigatus* cultured on wheat straw waste.*Bioprocess J.*,11(3):38-43
11. Imran, M., M. J. Asad, S. H. Hadri and S. Mehmood. 2012. Production and industrial applications of laccase enzyme.*J.Cell.Mol.Biol.*,10(1):1-11
12. Mehmood.K.,F.H.Watoo,M.H.S.Watoo,M.Imran,M.J.Asad,S.A.Tirmizi and A.Wadood.2012. Spectrophotometric estimation of cobalt with ninhydrin.*Saudi J. Biol. Sci.*:19: 247–250

Name	Dr. M. Sheeraz Ahmed
Designation	Assistant Professor
Research Interest	Biochemistry, Plant Biotechnology.
Publications 1. Gulfraz, Muhammad; Ahamd, Dawood; Ahmad, Muhammad Sheeraz; Qureshi, Rehmatullah; Mahmood, Raja Tahir; Jabeen, Nyla; Abbasi, Kashif Sarfraz. Effect of leaf extracts of <i>Taraxacum officinale</i> on CCl₄ induced Hepatotoxicity in rats, in vivo study. <i>Pakistan Journal of Pharmaceutical Sciences</i>; 2014, 27(4), 825-829. Impact Factor: 0.95 2. Mukhtiar Hussain, Zia-Ur-Rehman, M Sheeraz Ahmad, Muhammad Altaf, Helen Stoeckli-Evans, Saqib Ali: Structural and biological studies of new monomeric, tetrameric, and polymeric organotin(IV) esters of 3-(benzo[d][1,3]dioxol-4-yl)propanoic acid. <i>Journal of Coordination Chemistry</i>, 2013. 66(5), 868 –880. Impact Factor: 2.224 3. Kanwal Batool, M. Sheeraz v Ahmad, Ch. Abdul Rauf, S.M. Saqlan Naqvi. Amplification and sequencing of internal transcribed regions 1,2, and 5.8 S RNA from local isolates of <i>Fusarium</i> species. <i>Pakistan Journal of Botany</i>, 2013, 45 (SI), 301-307. Impact Factor: 1.207 4. M Sheeraz Ahmad, S M Saqlan Naqvi, Sajida Mushtaq, Farzana Ramzan, Abdul Sami, Salma Batool, Ihsan-ul-Haq and Bushra Mirza: Phytochemical and biological evaluation of <i>Polygonum amplexicaule</i> rhizome extract, <i>Canadian Journal of Pure and Applied Sciences</i>, 2013, 7(3): 2303-2314. 5. Ihsan-ul-Haq, Nazif Ullah, Gulnaz Bibi, Semab Kanwal, Muhammad Sheeraz Ahmad, Bushra Mirza: Antioxidant and anticancer activities and phytochemical analysis of <i>Euphorbia wallichii</i> root extract and its fractions. <i>Iran. J. Pharm. Res.</i> 2012, 11 (1): 241-249. Impact Factor: 0.51	

Name	Dr. Feroza Hamid Wattoo
Designation	Assistant Professor
Research Interest	• To express and purify therapeutics using gene cloning techniques or isolate, purify antimicrobial peptide (s) against mammalian pathogens from vegetables like pea, keralaetc using conventional techniques • Development of Vaccine and Diagnostic method for tuberculosis • To understand signal transduction mechanisms in eukaryotic cell • To understand mechanism leads normal cell to become abnormal cell
Publications (1) S. Ata, F.H. Wattoo, M. Ahmed, M.H.S.Wattoo, S. A. Tirmizi, A. Wadood. "A method optimization study for atomic absorption spectrophotometric determination of total zinc in insulin using direct aspiration technique." 2014 Apr doi:10.1016/j.ajme.2014.03.004. (ISI Indexed Journal). (2) Krueger LA, Beitz DC, Onda K, Osman M, O'Neil MR, Lei S, Wattoo FH, Stuart RL, Tyler HD, Nonnecke B. "Effects of D-α-tocopherol and dietary energy on growth and health of preruminant dairy calves". J Dairy Sci. (2014) : S0022-0302(14)00237-9. doi: 10.3168/jds.2013-7315. (ISI Indexed Journal, JCR-2012 Impact factor 2.566). (3) S.Ata, F.H. Wattoo, I Qasim, M.H.S Wattoo, "Monitoring of anthropogenic influences on underground and surface water quality of Indus River at district Mianwali-Pakistan"., Turk J Biochem 3(1): 9–13,2013.(ISI Indexed Journal, JCR-2012 Impact factor 0.211). (4) S.Ata, F.H. Wattoo, Momina Feroz, M.H.S Wattoo, S.A Tirmizi, M.J Asad, "Analytical investigation of selected pesticide residues from fruits and vegetables by an improved extraction method using reverse phase high performance liquid chromatography", Ethiopian Journal of Environmental Studies and Management 6(4), 342-347, 2013 (ISI Indexed Journal). (5) K.Mahmood, F.H.Wattoo, M.H.S.Wattoo, M.Imran, M.J.Asad, S.A.Tirmizi, "Spectrophotometric Estimation of Cobalt with Ninhydrin" Saudi J. Biol. Sci.: 19(2):247–250, 2012. (ISI Indexed Journal, Sciencedirect). doi:10.1016/j.sjbs.2012.01.001) (6) M. H.S Wattoo, A. Quddos , A. Wadood, M. B. Khan , F.H.Wattoo, S.A. Tirmizi, K.Mahmood, "Synthesis, characterization and impregnation of lead sulphide semiconductor nanoparticle on polymer matrix" J.Saudi Chem Soc. 16: 257-261, 2012. (ISI Indexed Journal; JCR-2012 Impact Factor 1.288). (7) S.Ata, F.H.Wattoo, L.R.Sidra, M.H.S.Wattoo, S.A.Tirmizi Imran Din andI. U. Mohsin, "Biosorptive removal of lead and cadmium ions from aqueous solution: The use of carrot residues as low cost non-conventional adsorbent" :Turk J Biochem. 37(3): 272-279, 2012.(ISI Indexed Journal, JCR-2012 Impact factor 0.211). (8) Hafeez Ullah, F.H.Wattoo, M.H.S.Wattoo, M.Gulfraz, S.A.Trimzi, S. Ata and A.Wadood."Synthesis, spectroscopic characterization and antibacterial activities of	

Schiff bases derived from dehydroacetic acid with various substituted anilines”, Turk J Biochem. 37(4): 386-391, (2012). (ISI Indexed Journal, JCR-2012 Impact factor 0.211).

Name	Dr. Pakeeza Arzoo Shaiq
Designation	Assistant Professor
Research Interest	Human Genetics
Publications 1. Pakeeza A. Shaiq, Alfred Klausegger, Fawad Muzaffar, Johann W. Bauer, Muhammad I. Khan, Azra Khanum, Raheel Qamar, Ghazala K. Raja (2012). Founder mutation c.676insC in three unrelated Kindler syndrome families belonging to a particular clan from Pakistan. <i>J. Dermatol.</i>39(7):640-1. 2. Pakeeza A. Shaiq, Alfred Klausegger, Amir Latif, Johann Bauer, Raheel Qamar and Ghazala Kaukab Raja (2012). Missense mutation in LAMA3 associated with Herlitz Junctional Epidermolysis Bullosa in a Pakistani family. vol. 44(6), pp. 1697-1702. 3. Pakeeza A. Shaiq, P.E. Stuart, A. Latif , C. Schmotzer, A. H. Kazmi, M. S. Khan, M. Azam, T. Tejasvi, J.J. Voorhees, G.K. Raja, J.T. Elder, R. Qamar, R.P. Nair (2013). Genetic Associations of Psoriasis in a Pakistani Population. <i>Br. J. Dermatol.</i> doi: 10.1111/bjd.12313. 4. Pakeeza A. Shaiq , J. Klar, B. Bergendal and N. Dahl(2013). WNT10A mutations account for ¼ of population-based isolated oligodontia and show phenotypic correlations. <i>Am. J. Med. Genet. (A).</i> 164A(2):353-9. 5. J. Klar, A. Khalfallah, Pakeeza A. Shaiq, H. T. Gazda and N. Dahl (2014). Recurrent GATA1 gene mutations in Diamond-Blackfan anaemia. <i>Br. J. Haematol.</i> 166:949-51. 6. Schuster J., T. N. Khan, M. Tariq, P. A. Shaiq, K. Mäbert, S. M. Baig and J. Klar (2014). Exome sequencing circumvents missing clinical data and identifies a BSCL2 mutation in congenital lipodystrophy. <i>BMC med genet.</i>15:71 doi:10.1186/1471-2350-15-71. 7. Philip E. Stuart, Trilokraj Tejasvi, Pakeeza A. Shaiq, Priya Kullavanijaya, Raheel Qamar, Ghazala K. Raja, Yanming Li, John J. Voorhees, Gonçalo R. Abecasis, James T. Elder, Rajan P. Nair (2014). A Single SNP Surrogate for Genotyping HLA-C:06:02 in Diverse Populations. (Accepted in <i>J Invest Dermatol.</i>, 10 December 2014; doi: 10.1038/jid.2014.517). 8. Muhammad Fiaz, Pakeeza A. Shaiq, Raja Muhammad Saqlain, Syed M. S. Naqvi, Bernard MY Cheung, Ghazala K. Raja (2014). Association of genetic variants of Apolipoprotein A5 gene with the Metabolic Syndrome in the Pakistani population. (Submitted to <i>J Biomedical Science</i>)	

Name	Dr. Sadia Saeed
Designation	Assistant Professor
Research Interest	i. Molecular Biology ii. Epigenetic iii. Human Immune System
Publications 1. Saeed S, Quintin J, Kerstens HH, Rao NA, Aghajani-refah A, Matarese F, Cheng SC, Ratter J, Berentsen K, van der Ent MA, Sharifi N, Janssen-Megens EM, Ter Huurne M, Mandoli A, van Schaik T, Ng A, Burden F, Downes K, Frontini M, Kumar V, Giamarellos-Bourboulis EJ, Ouwehand WH, van der Meer JW, Joosten LA, Wijmenga C, Martens JH, Xavier RJ, Logie C, Netea MG, Stunnenberg HG. Epigenetic programming of monocyte-to-macrophage differentiation and trained innate immunity.Science. 2014 Sep 26;345(6204):1251086. doi: 10.1126/science.1251086 2. Cheng SC, Quintin J, Cramer RA, Shepardson KM, Saeed S, Kumar V, Giamarellos-Bourboulis EJ, Martens JH, Rao NA, Aghajani-refah A, Manjeri GR, Li Y, Ifrim DC, Arts RJ, van der Meer BM, Deen PM, Logie C, O'Neill LA, Willems P, van de Veerdonk FL, van der Meer JW, Ng A, Joosten LA, Wijmenga C, Stunnenberg HG, Xavier RJ, Netea MG. mTOR- and HIF-1α-mediated aerobic glycolysis as metabolic basis for trained immunity.Science. 2014 Sep 26;345(6204):1250684. doi: 10.1126/science.1250684. 3. Mandoli A, Singh AA, Jansen PW, Wierenga AT, Riahi H, Franci G, Prange K, Saeed S, Vellenga E, Vermeulen M, Stunnenberg HG, Martens JH. CBFB-MYH11/RUNX1 together with a compendium of hematopoietic regulators, chromatin modifiers and basal transcription factors occupies self-renewal genes in inv(16) acute myeloid leukemia. Leukemia. 2014 Apr;28(4):770-8. doi: 10.1038/leu.2013.257. Epub 2013 Sep 4. 4. Saeed S, Logie C, Francoijs KJ, Frigè G, Romanenghi M, Nielsen FG, Raats L, Shahhoseini M, Huynen M, Altucci L, Minucci S, Martens JH, Stunnenberg HG. Chromatin accessibility, p300 and histone acetylation define PML-RARα and AML1-ETO binding sites in acute myeloid leukemia. Blood. 2012 Aug 24. doi: 10.1182/blood-2011-10-386086. 5. Quintin J*, Saeed S*, Martens JH, Giamarellos-Bourboulis EJ, Ifrim DC, Logie C, Jacobs L, Jansen T, Kullberg BJ, Wijmenga C, Joosten LA, Xavier RJ, van der Meer JW, Stunnenberg HG, Netea MG.Candida albicans Infection Affords Protection against Reinfection via Functional Reprogramming of Monocytes. Cell Host Microbe. 2012 Aug 16;12(2):223-32. (*both authors contributed equally) 6. Martens JH, Mandoli A, Simmer F, Wierenga BJ, Saeed S, Singh AA, Altucci L,	

Vellenga E, Stunnenberg HG. ERG and FLI1 binding sites demarcate targets for aberrant epigenetic regulation by AML1-ETO in acute myeloid leukemia. *Blood*. 2012 Sep 14. doi: 10.1182/blood-2012-05-429050.

7. Kleinnijenhuis J, Quintin J, Preijers F, Joosten LA, Ifrim DC, Saeed S, Jacobs C, van Loenhout J, de Jong D, Stunnenberg HG, Xavier RJ, van der Meer JW, van Crevel R, Netea MG. Bacille Calmette-Guerin induces NOD2-dependent nonspecific protection from reinfection via epigenetic reprogramming of monocytes. *Proc Natl Acad Sci U S A (PNAS)* 2012 Sep 17. doi: 10.1073/pnas.1202870109.
8. Saeed S, Logie C, Stunnenberg HG, Martens JH. Genome-wide functions of PML-RARalpha in acute promyelocytic leukaemia. *Review British J Cancer*. 2011;104:554-558.