

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



**UNIVERSITY INSTITUTE OF BIOCHEMISTRY & BIOTECHNOLOGY
(UIBB)**

PhD. Biochemistry Degree Program

**Self Assessment Report
(2014-2016)**

Program Self Assessment Team

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Introduction

The field of Biochemistry focuses on biological sciences at chemical and molecular levels. A Biochemistry Master's program focuses on a curriculum which is an excellent blend of courses designed to study the biology of all living organisms, chemical and molecular basis of the building blocks of life, biological process, cycles and reactions taking place in living cells and their regulations. This exciting field also explores the interactions between biological molecules at cellular, organelle, and organism levels under normal conditions as well as during stress and disease.

The PhD Biochemistry degree program of PMAS-AAUR was initiated in 2001 under the Department of Biochemistry and from 2013 onwards is being run under the University Institute of Biochemistry and Biotechnology (UIBB). The UIBB institute has four main academic branches; Biochemistry, Biotechnology, Bioinformatics, and Microbiology with six broad research domains;

1. Animal Biochemistry and Biotechnology
2. Enzymology and Industrial Biotechnology
3. Plant Biochemistry and Biotechnology
4. General Biochemistry
5. Bioinformatics
6. Microbiology

Keeping with the importance of this field blended with the academic/research strengths and diversity of UIBB, PhD Biochemistry is highly demanding degree program of PMAS-AAUR. The curriculum for PhD Biochemistry program is designed based on international standards with highly competitive, advanced theoretical courses, seminars, research and thesis. The curriculum follows the guidelines of Higher Education Commission (HEC), Islamabad. The courses are designed to provide updated latest discoveries in the field of biochemistry and allied disciplines especially molecular biology, biotechnology and genetic engineering with special focus on research and development. There are two seminars which aim at strengthening presentation, scientific problems identification, literature review and writing skills. Students have to defend and submit synopsis based on their research topic. A written and oral comprehensive exam is also conducted as per university rules. During research work, the students are trained to conduct independent research, literature review, data analysis and interpretation of scientific findings, thesis write-up, and manuscripts for journal publications. The PhD students are also employed as Teacher Assistant (TA) to assist in teaching at under-graduate/graduate level. All these skills and training enable PhD Biochemistry graduates with an edge for careers in teaching, research, health/ medicine, biotechnology etc. and continuation of studies at doctoral level

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 of PhD Biochemistry

To produce future scientists/academicians able to effectively disseminate gained knowledge in a cross-disciplinary job market environment.

Standard 1-1: Documented Measurable Objectives

- 1. To plan problem-oriented research project with emphasis on biochemistry/molecular biology and biotechnology.
- 2. Skilled young scientists with career in highly competitive national/international organizations.

Expected Outcomes

- 1. To conduct high quality scientific research with strong theoretical and practical skills of biochemistry/molecular biology and biotechnology.
- 2. Highly competent academicians/scientists capable to enter in higher education institutions, R&D or industry nationally/internationally.

Main Elements of Strategic Plan to Achieve Mission and Objectives

- 1. Design of goal oriented highly competitive research projects focusing on use of latest technologies and analytical tools for research and funding.
- 2. Strong theoretical and hands-on practical trainings on major scientific equipment's, analytical techniques and analytics.
- 3. High quality skills like literature review, write-up of research papers/books/manuals and presentation at national/international level scientific event.
- 4. Academic qualities enhancement through engagement in taught courses at graduate level.
- 5. Scientific collaborations and linkages with national/international research organizations.

TABLE-1: PROGRAM OBJECTIVES ASSESSMENT

S. #	Objective	How Measured	When Measured	Improvement Identified	Improvement made
1	To plan problem oriented research project with emphasis on biochemistry /molecular biology and biotechnology	Evaluation of synopsis during defense and written document.	Semester based activity per official schedule.	Training of students for research planning and dissemination	Research projects are highly focused with strong experimental design and analysis plan.
2	Skilled young scientists with career in highly competitive national/international organizations	Evaluation of thesis (Defense and written document), participation in Scientific events and research publications	Semester based activity per official schedule	Planning ahead and time management	Scientifically sound project design, scientific writing & presentation skills, hands-on laboratory skills, thesis and publications

TABLE-2 STANDARD 1-2: OBJECTIVES VS OUTCOMES

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

Key: ++ = Relevant
+++ = Highly Relevant

The program outcomes are fully supportive to program objectives mentioned above. Outcomes are based on actual details obtained from institutional 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, institute 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.

The 5th SAR for PhD program assessment is divided into four sections;

1. Assessment results of Fall, 2014
2. Assessment results of Spring, 2015
3. Assessment results of Fall, 2015
4. Assessment results of Spring, 2016

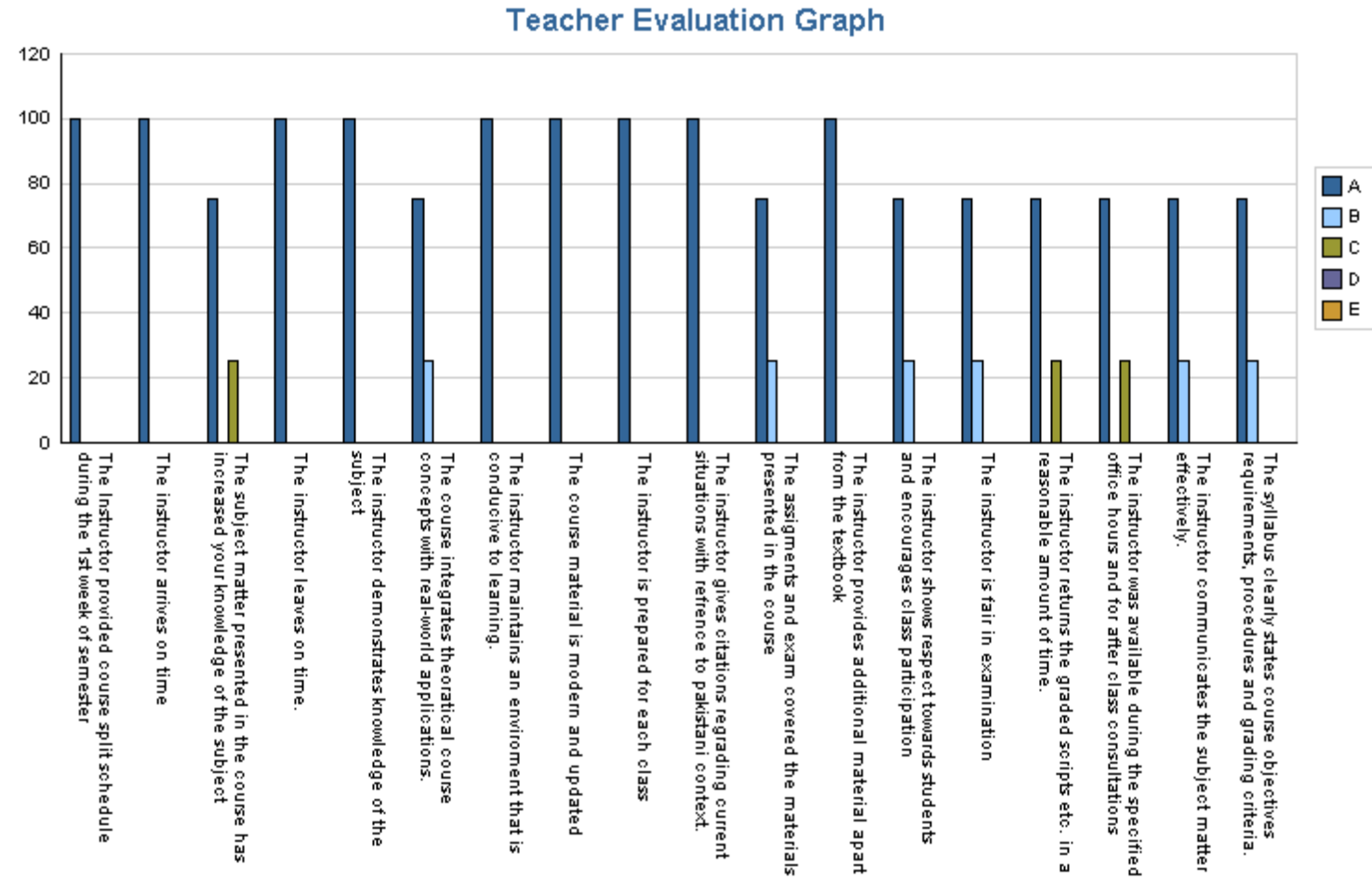
Each assessment covers a semester and is further divided into two sections, which deals with performa no 1 and 10, respectively.

Teachers Evaluation Fall Semester 2014

Overall Results of Proforma 10 of Teacher 1 to 6

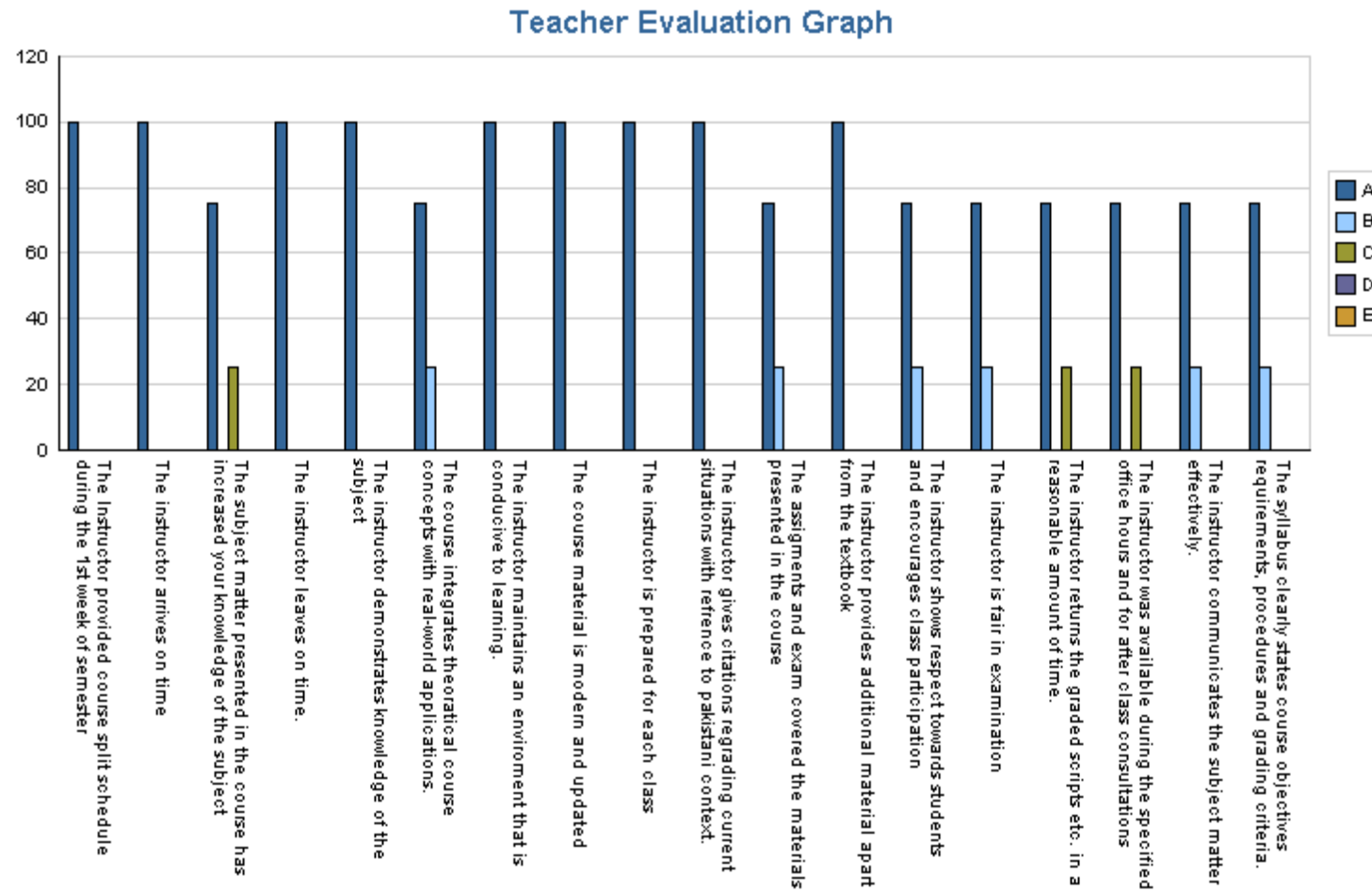
The teachers were evaluated by the students at the end of the semester in accordance with Proforma-10. In the graph teachers are represented as 1 and 2 instead of mentioning their names. Results and performance of individual teachers will follow.

Results of Performa 10 of teacher 1(BCH-718 M section A)



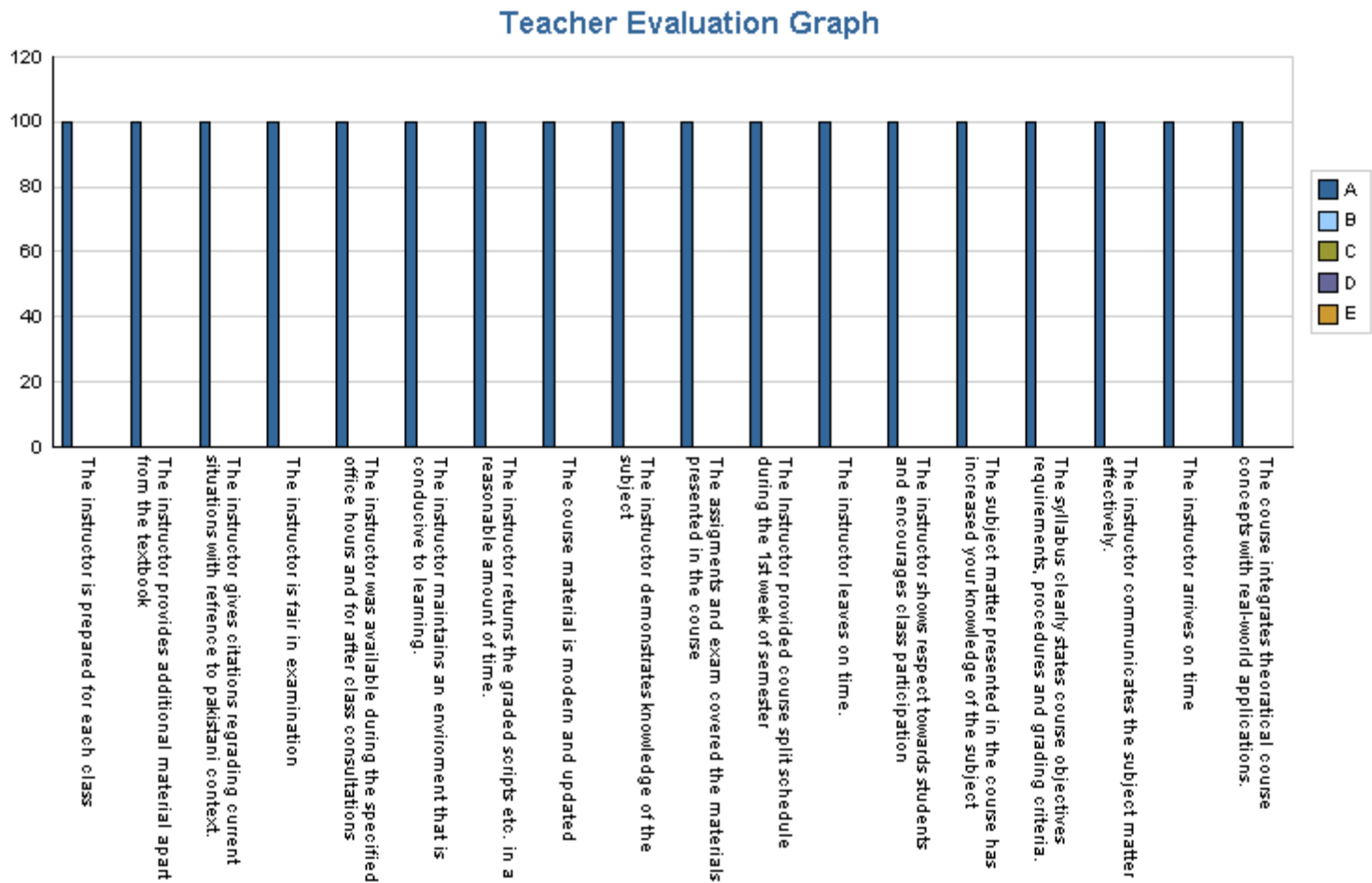
The strongest point which students like about teacher 1 is that he provides additional material apart from textbook.

Results of Performa 10 of teacher 1 (BCH-718 M section A)



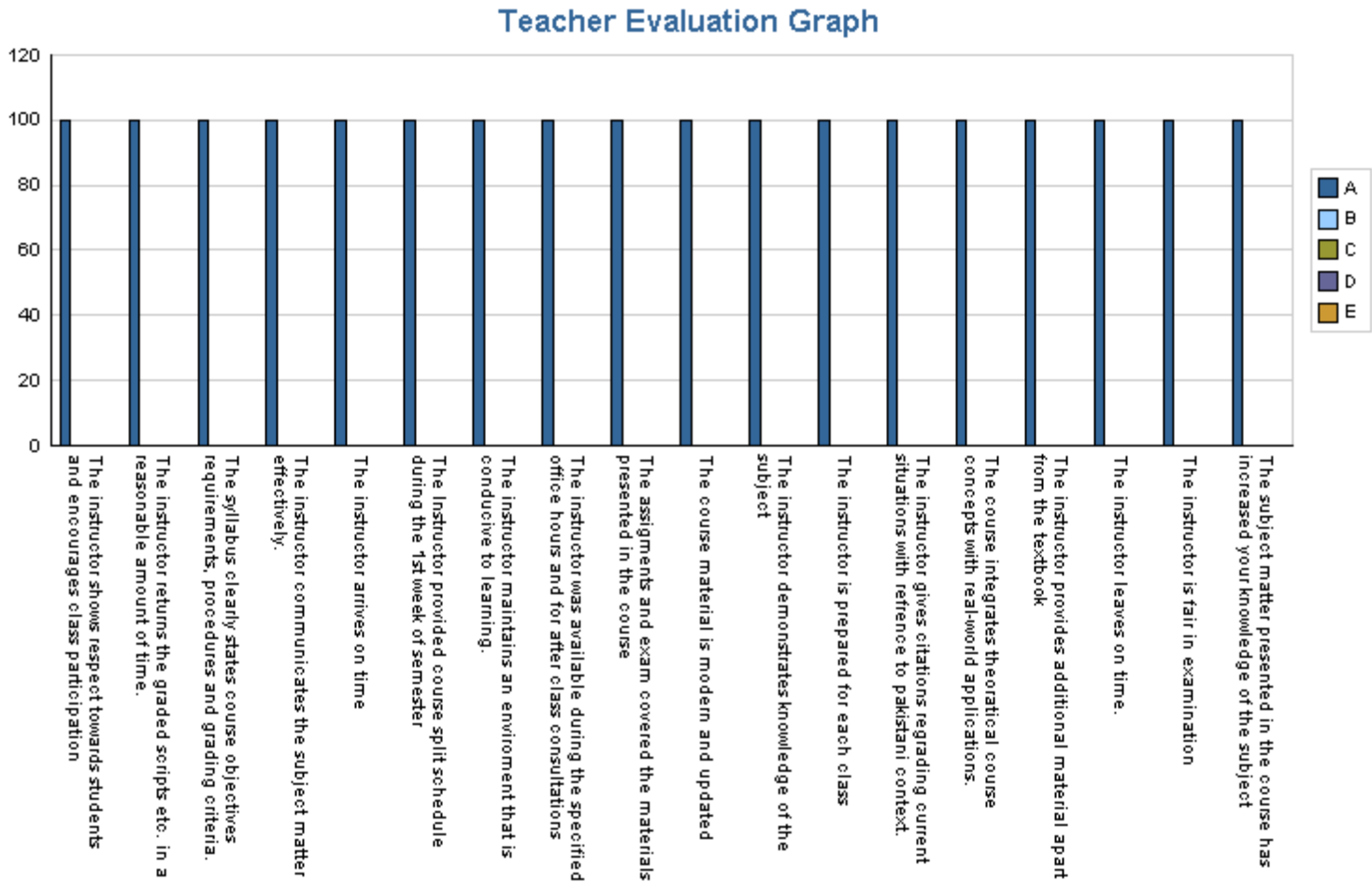
According to students, teacher 1 completed the course contents in time, leaves the class on time and he was not biased in exams.

Results of Performa 10 of teacher 1(BCH-718 M section B)



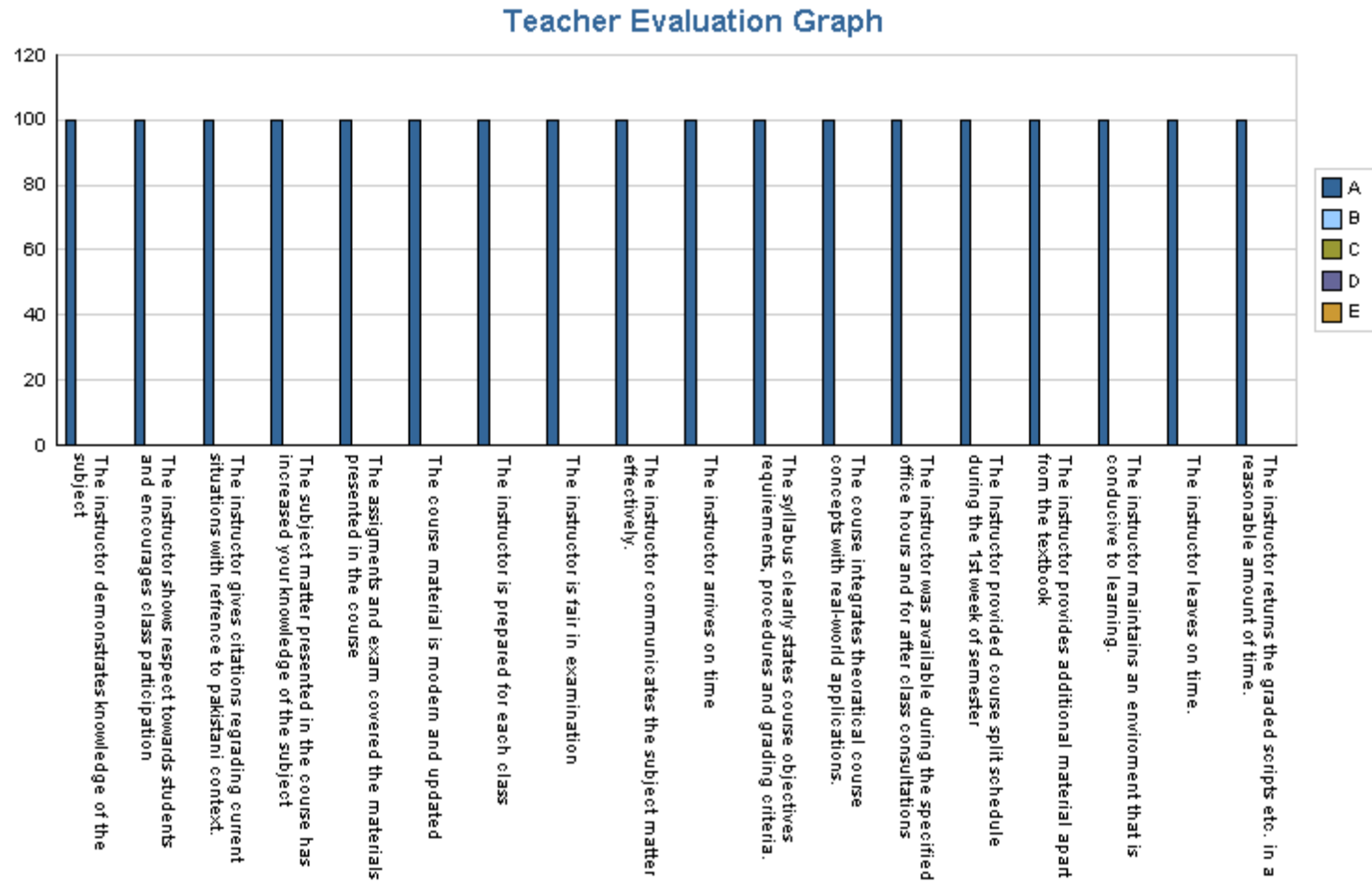
The strongest point which students like about teacher 1 is that he created conducive learning environment in the class and he encouraged students for asking questions about subject.

Results of Performa 10 of teacher 1 (BCH-720 M section A)



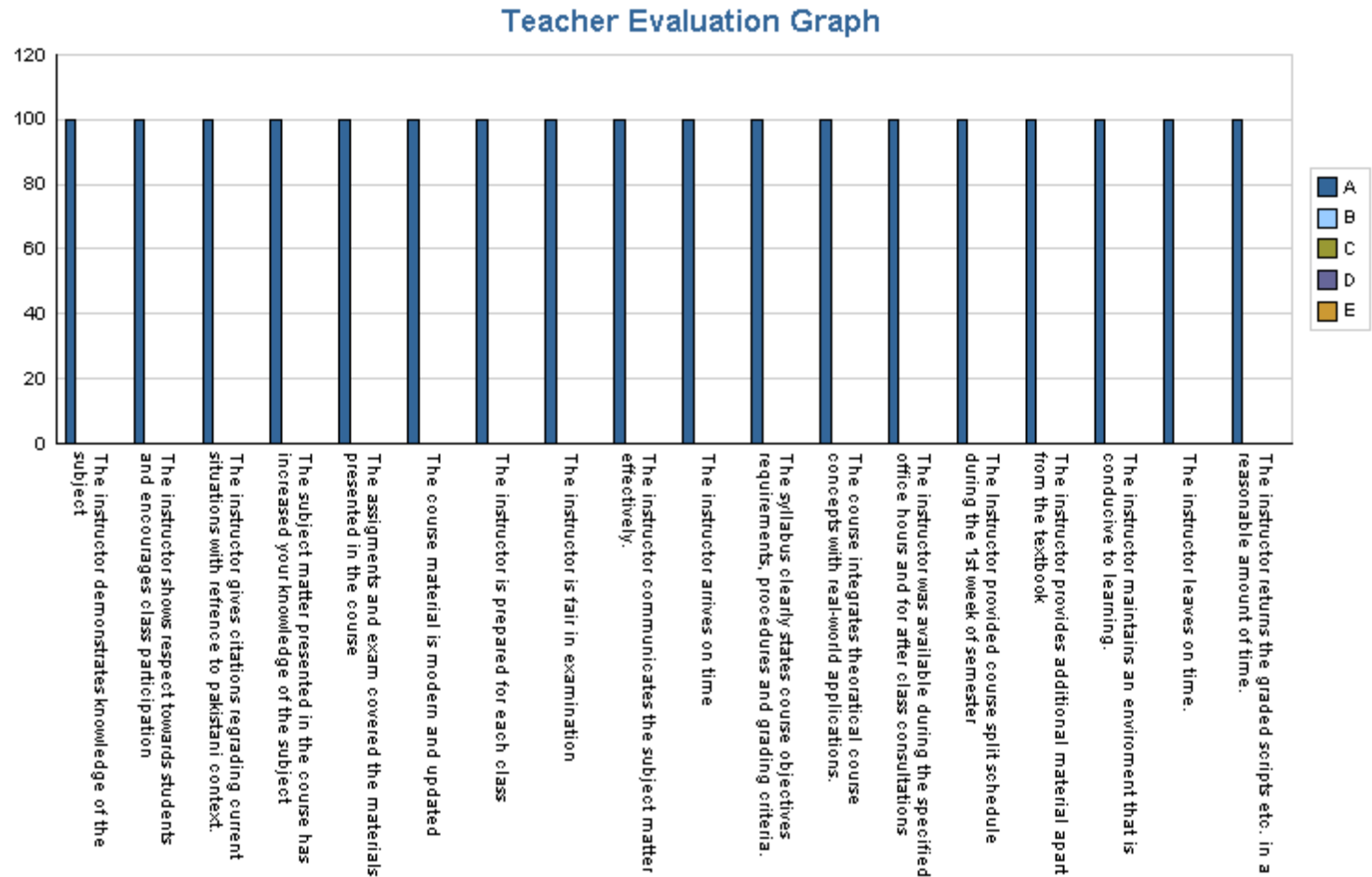
The strongest point which students like about teacher 1 is that the instructor created conducive environment for learning and he was well prepared for the class.

Results of Performa 10 of teacher 2 (BCH-720 M section A)



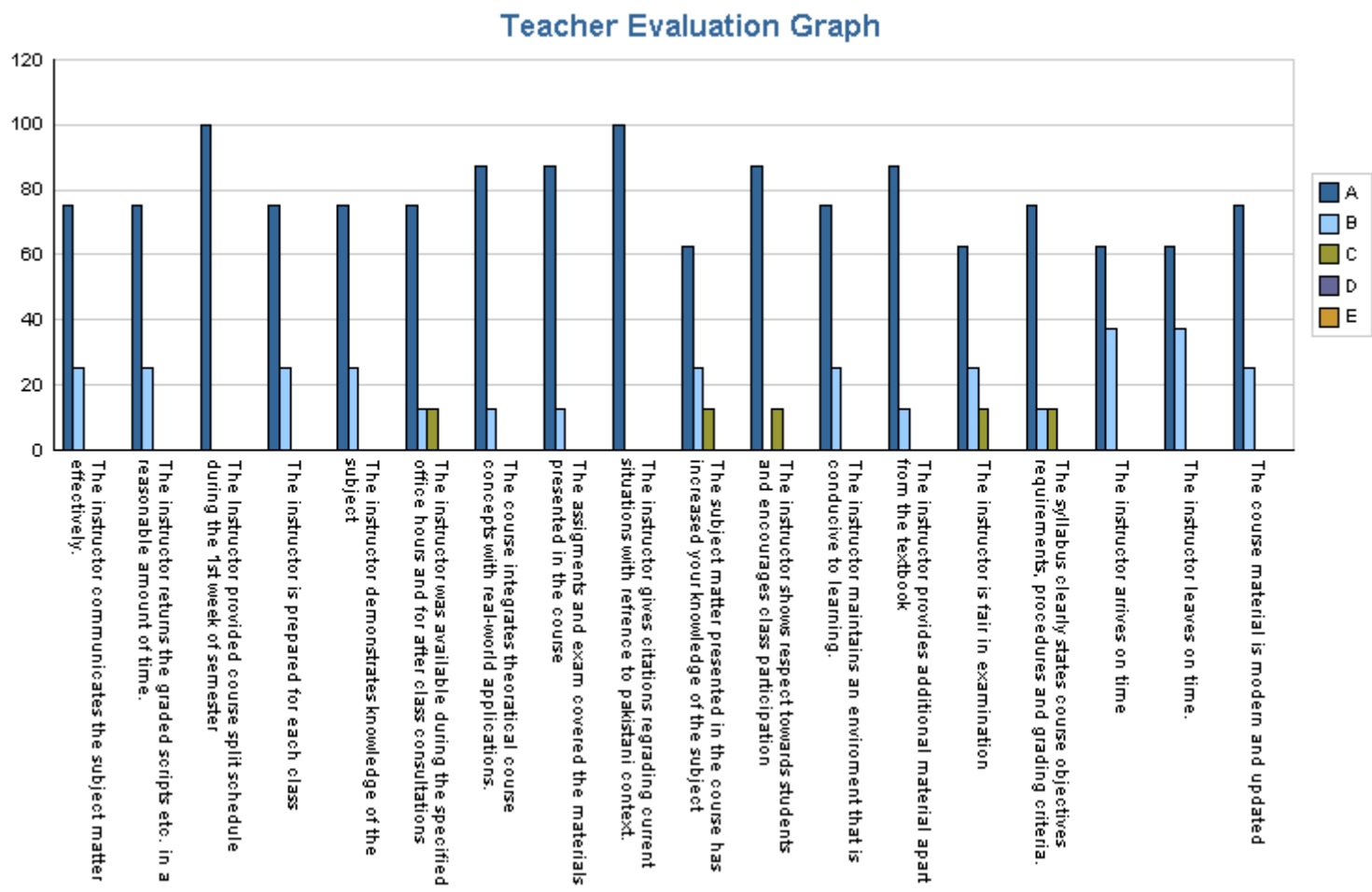
According to result of performa 10, the teacher 2 was punctual, well prepared for the class and the provided material was modern and up to date.

Results of Performa 10 of teacher 2 (BCH-734 E section A)



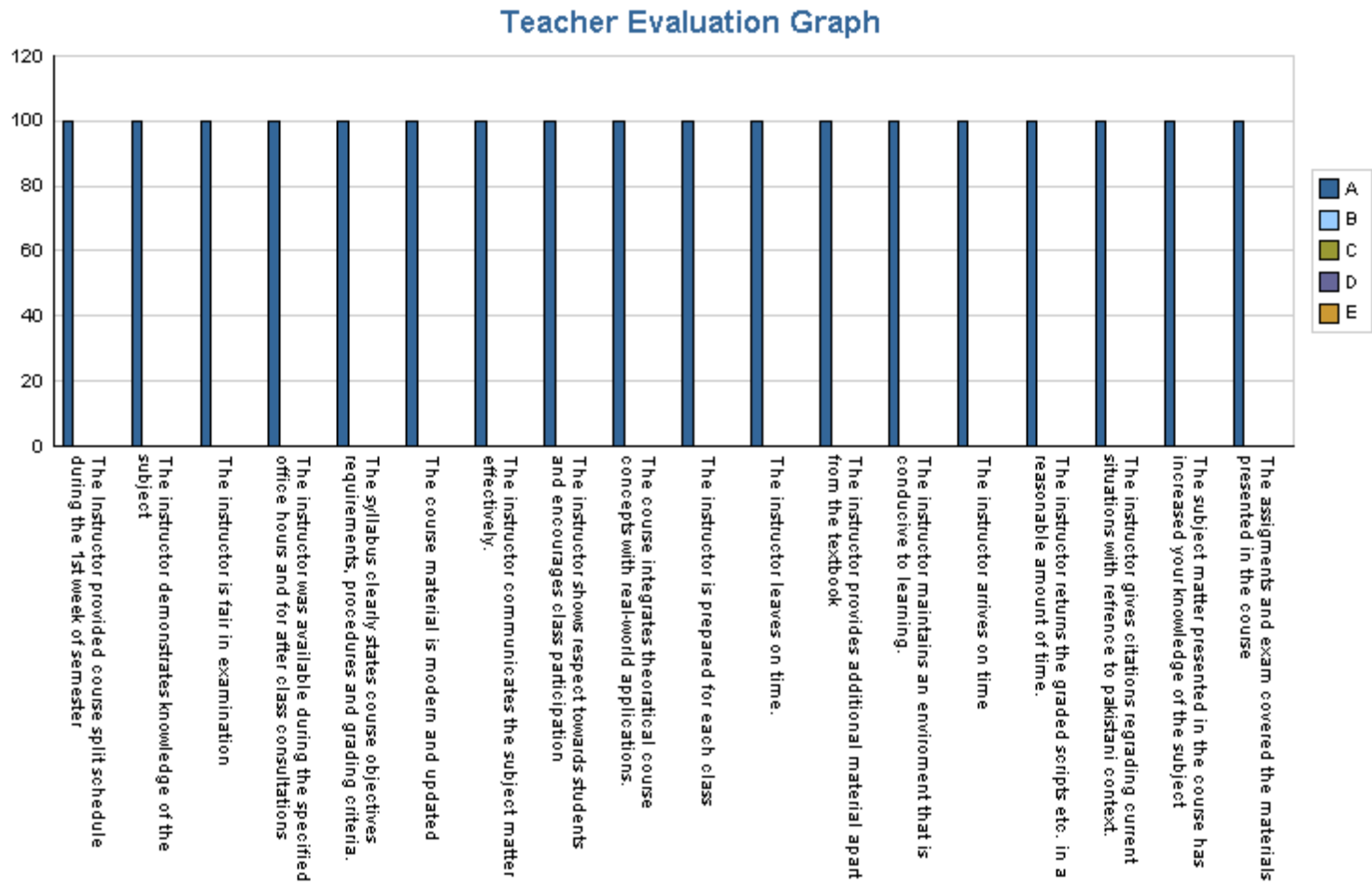
The strongest point which students like about teacher 2 is that he was well prepared for class, leaves the class in time and exam was conducted fairly.

Results of Performa 10 of teacher 2 (BCH-734 M section A)



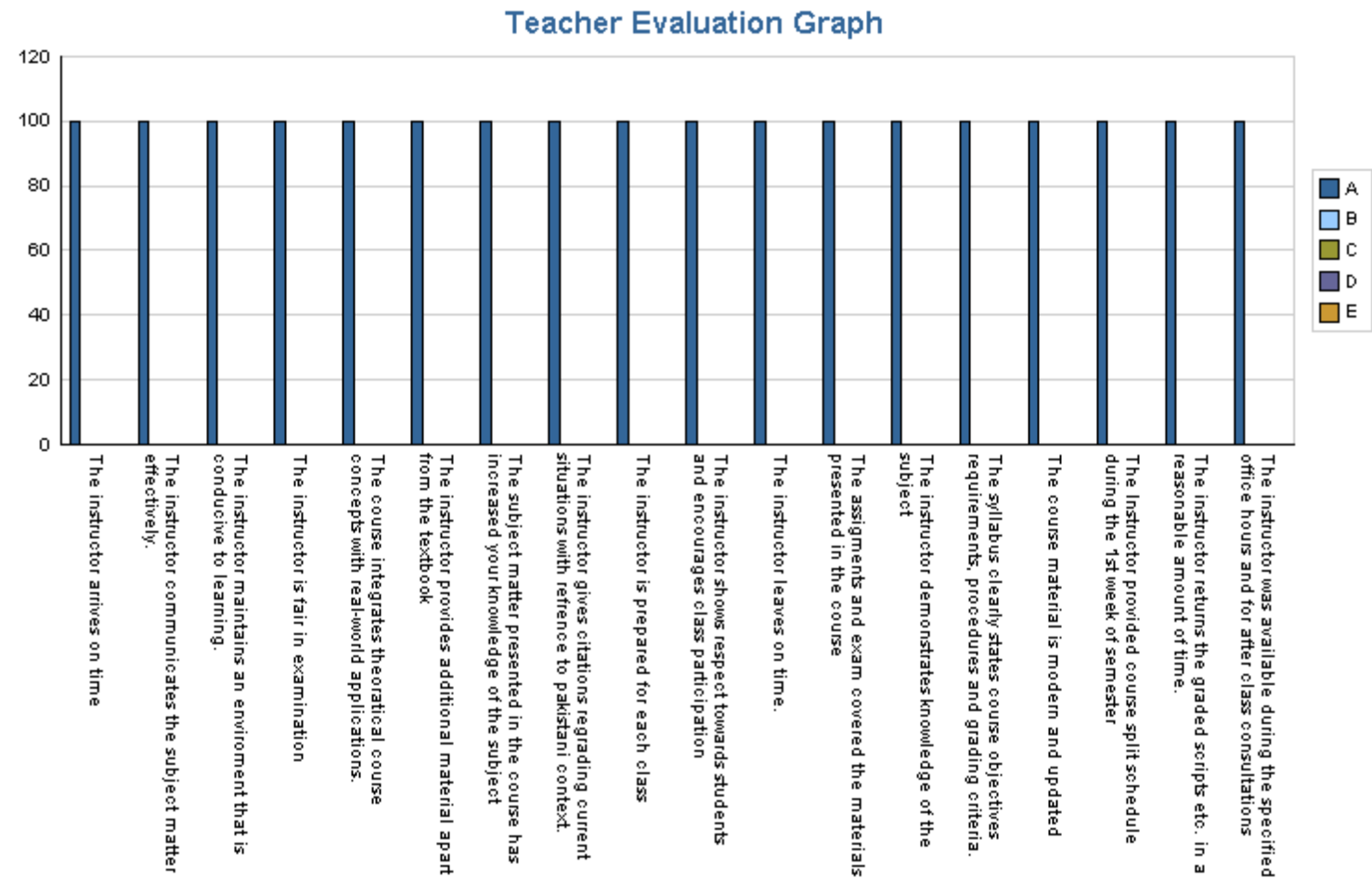
The results of performa 10 shows that the instructor provided the course split schedule during first week of semester

Results of Performa 10 of teacher 2 (BCH-734 M section B)



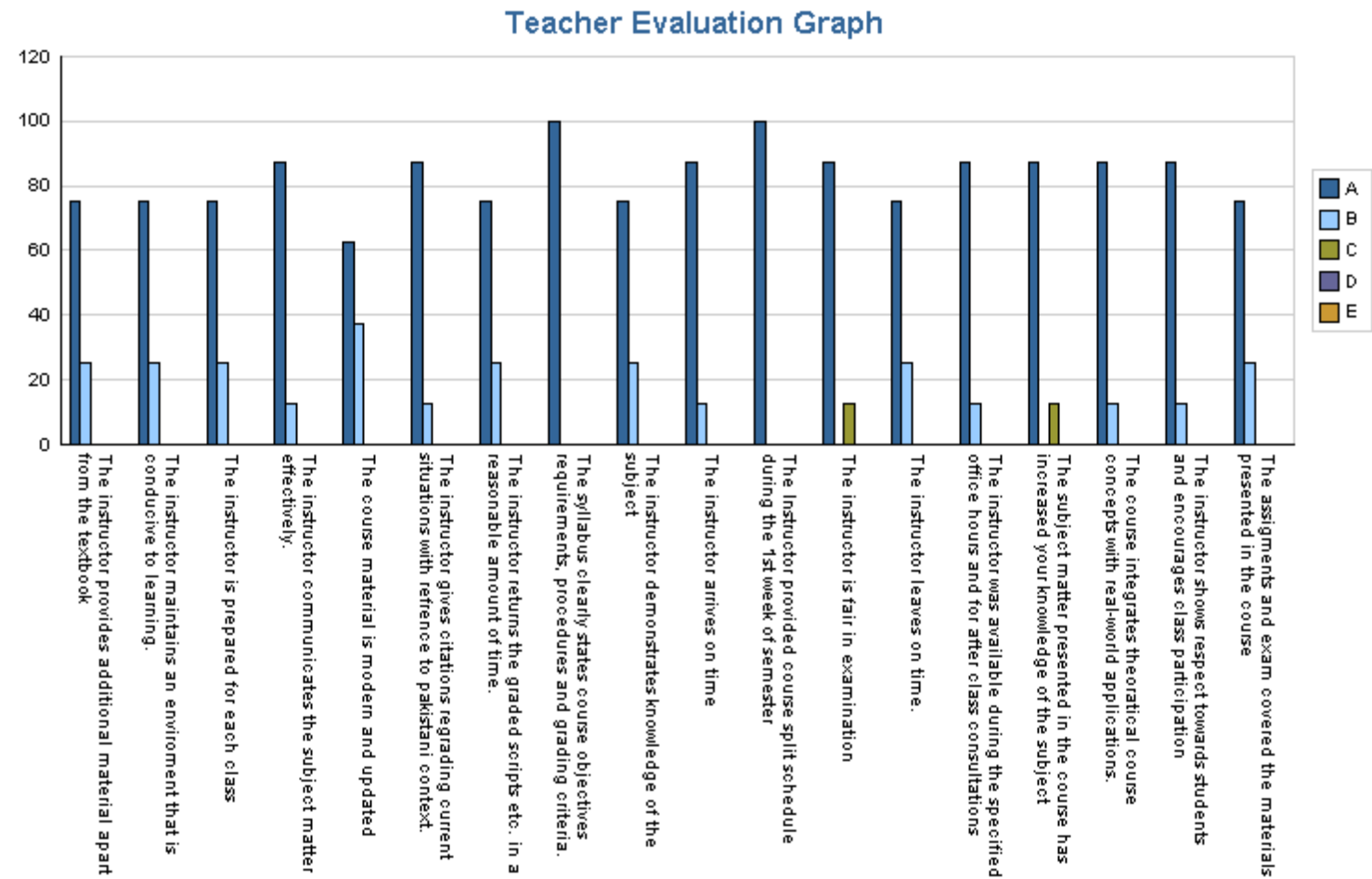
The strongest point which students like about teacher 2 is that the instructor created conducive environment for learning and he was well prepared for the class

Results of Performa 10 of teacher 3 (BCH-720-I E section A)



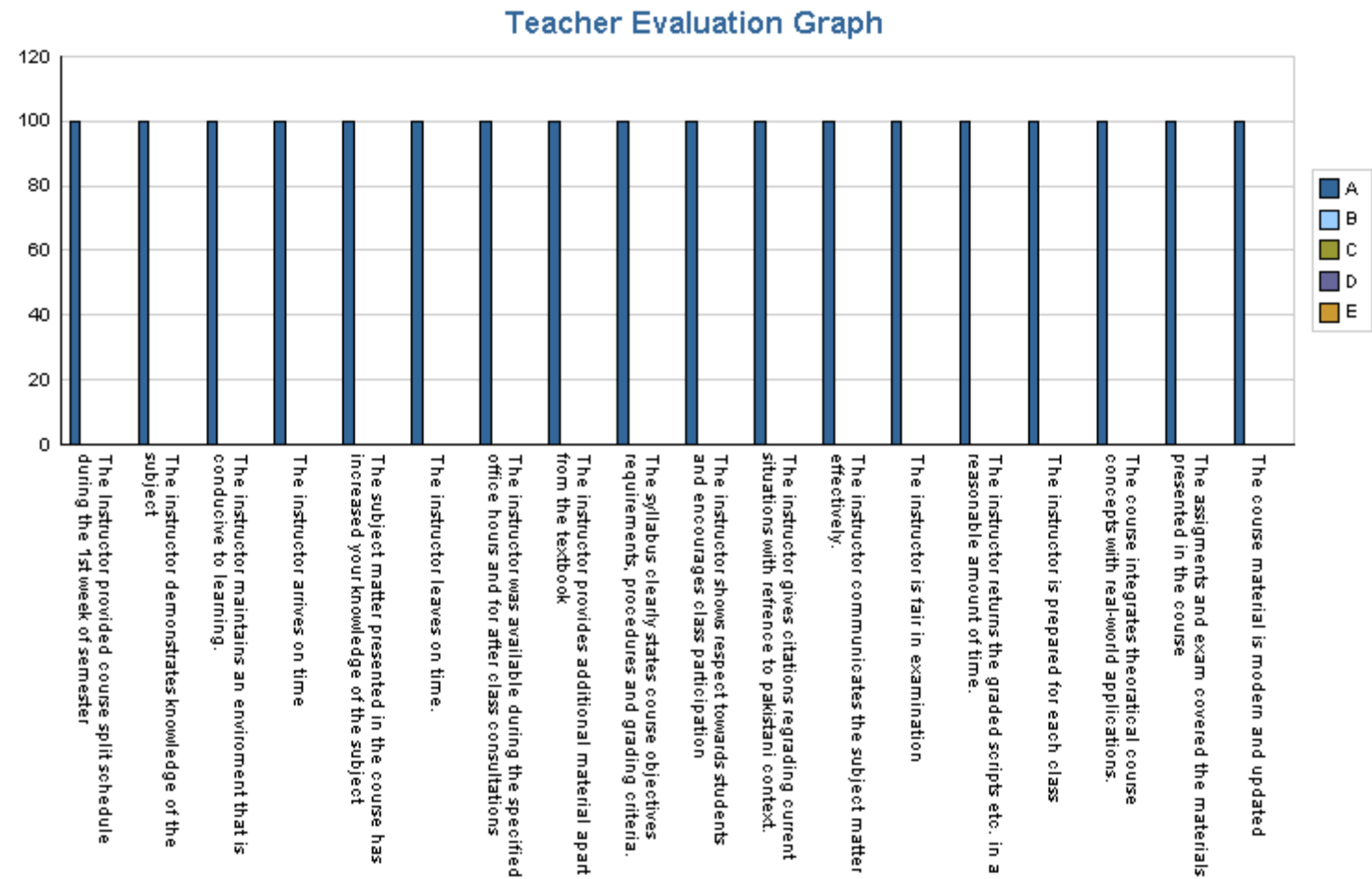
The strongest point which students like about teacher 3 is that the instructor created conducive environment for learning and he was well prepared for the class.

Results of Performa 10 of teacher 3 (BCH-720-I M section A)



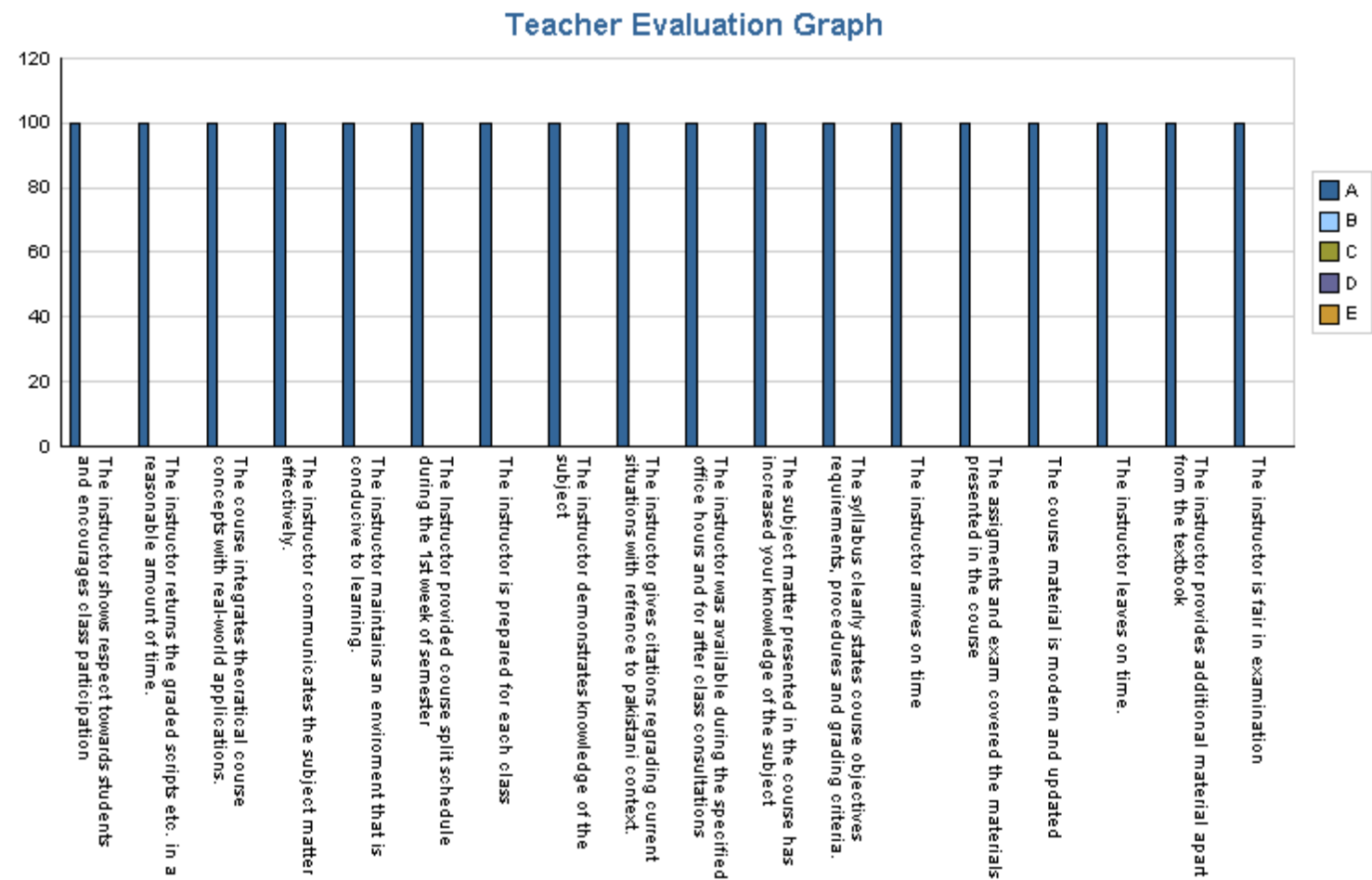
The results of performa 10 shows that the instructor provided the course split schedule during first week of semester.

Results of Performa 10 of teacher 3 (BCH-735 E section A)



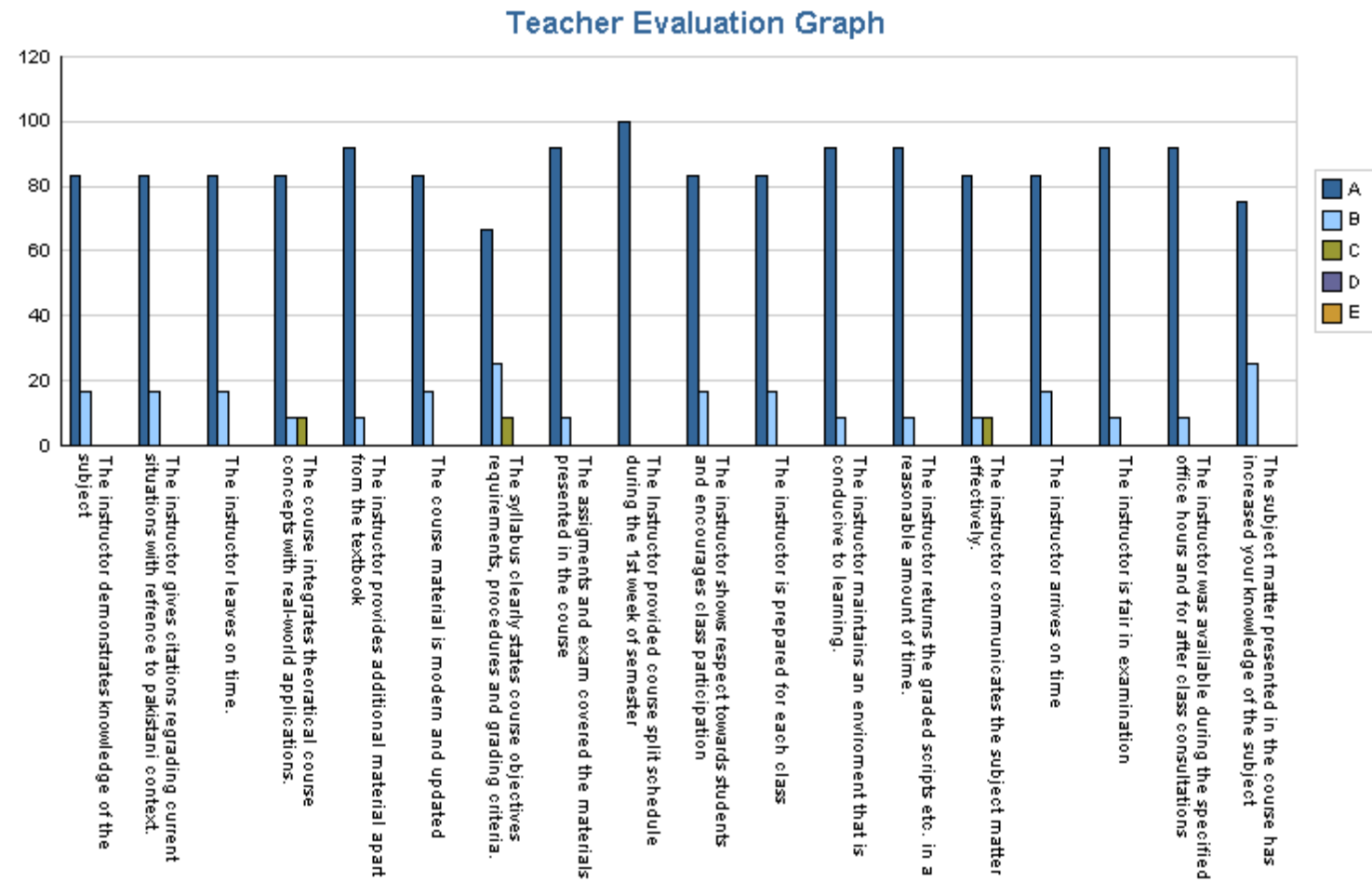
The strongest point which students like about teacher 3 is that the instructor created conducive environment for learning and he was well prepared for the class

Results of Performa 10 of teacher 3 (BCH-735 M section B)

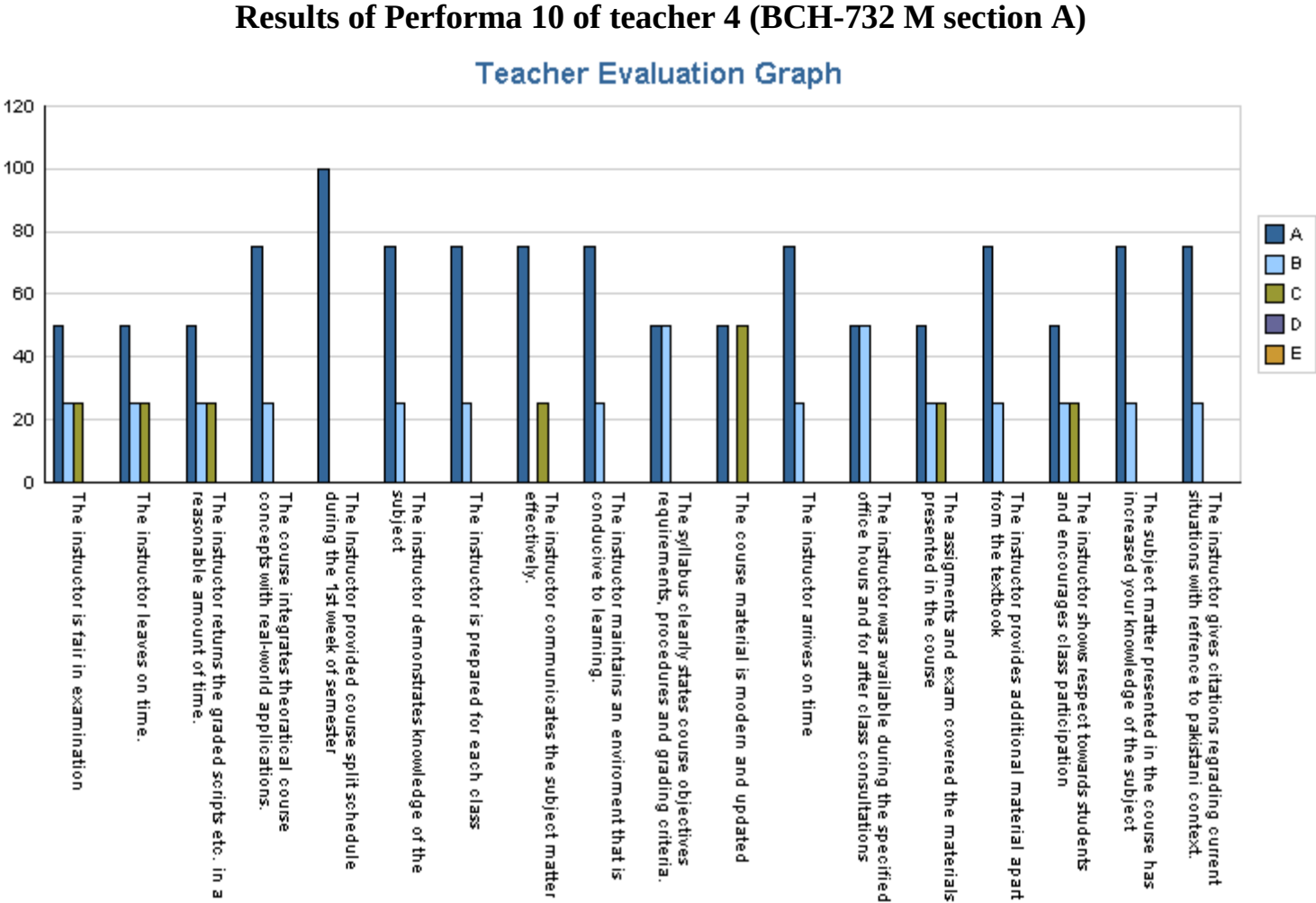


The strongest point which students like about teacher 3 is that the instructor created conducive environment for learning and he was well prepared for the class

Results of Performa 10 of teacher 3 (BCH-735 M section A)

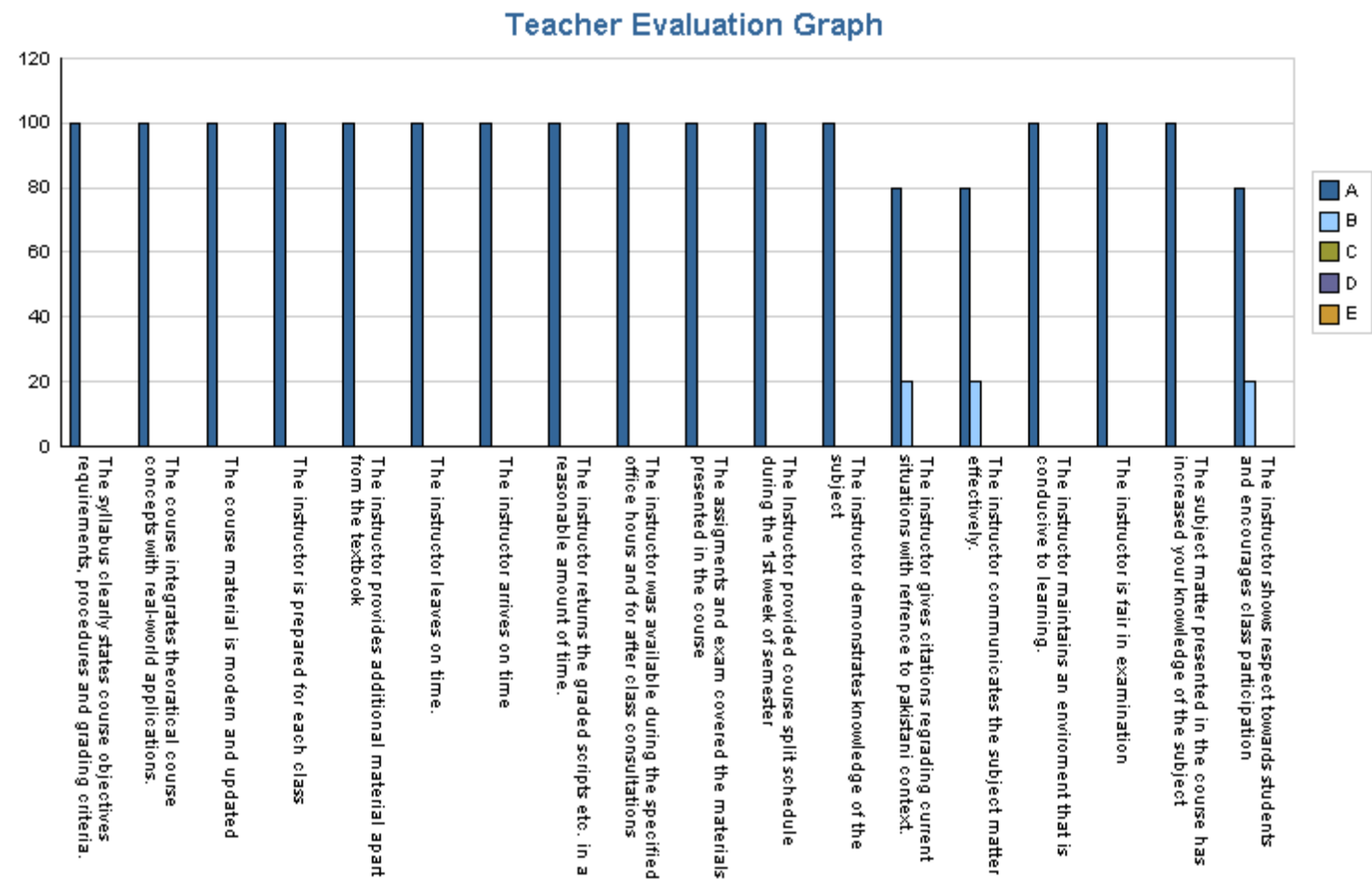


The results of performa 10 shows that the instructor provided the course split schedule during first week of semester.



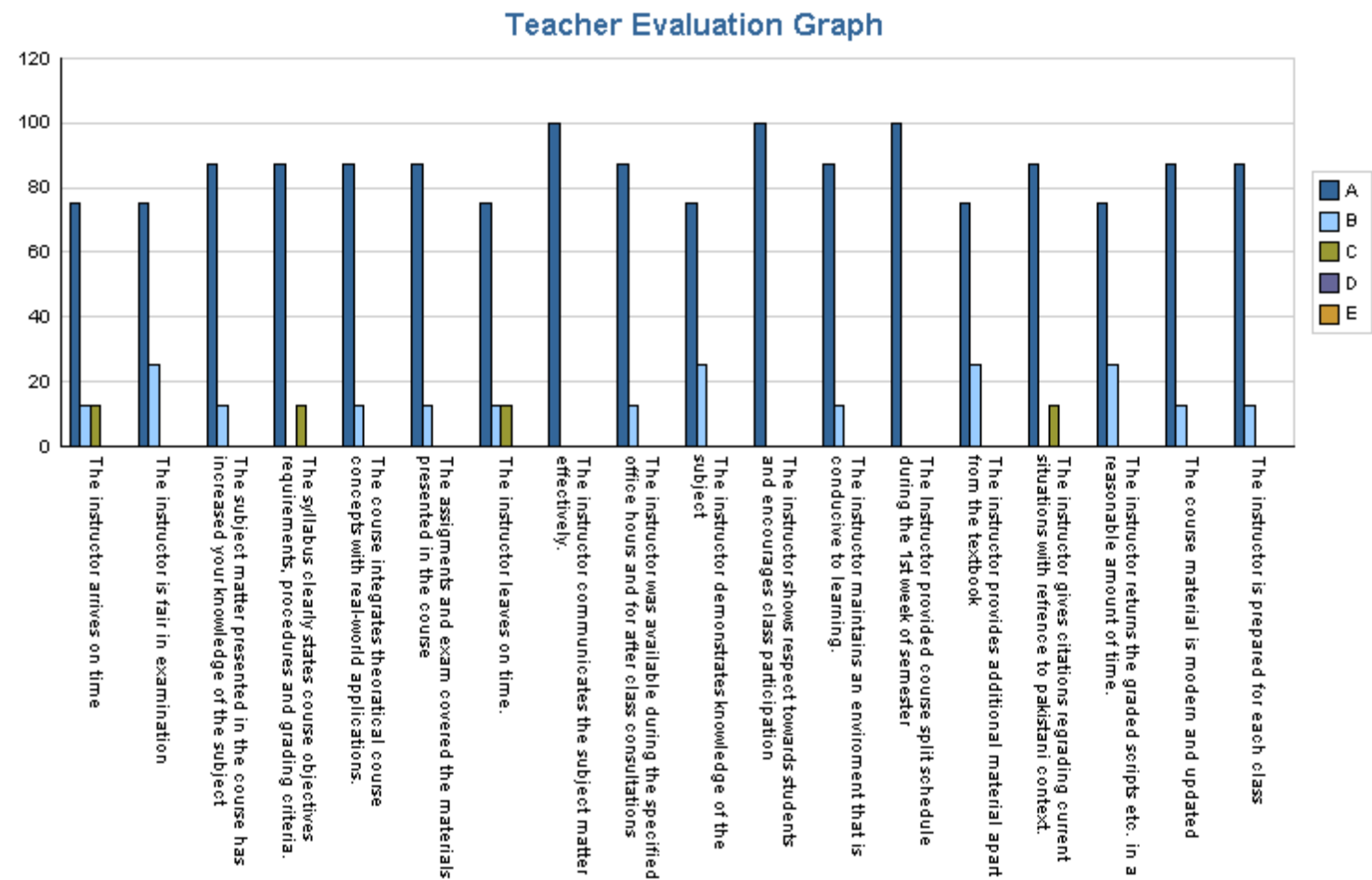
The results of performa 10 shows that the instructor provided the course split schedule during first week of semester.

Results of Performa 10 of teacher 4 (BCH-732 M section C)



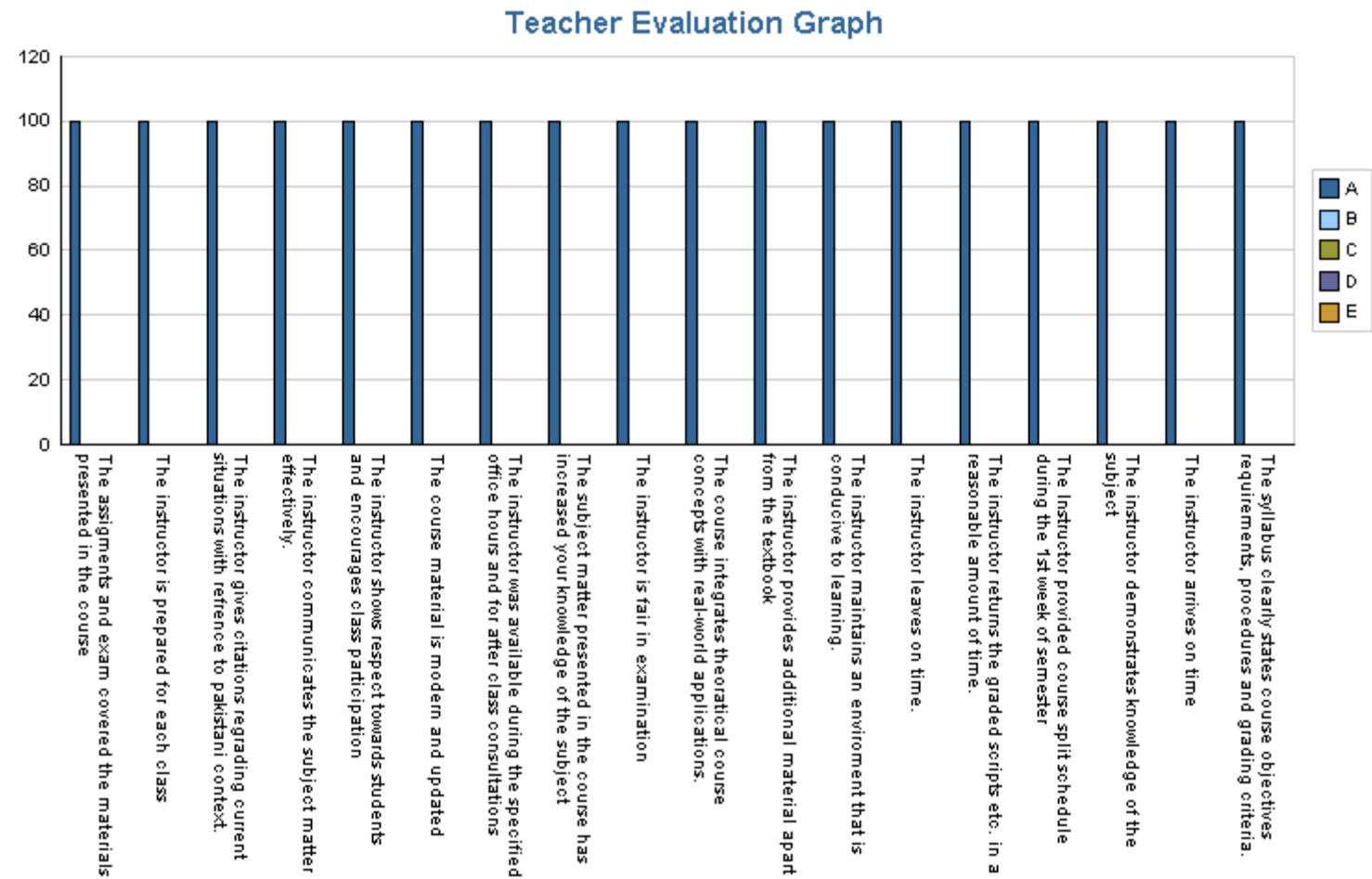
The strongest point which students like about teacher 4 is that the instructor created conducive environment for learning and he was well prepared for the class

Results of Performa 10 of teacher 5 (BIOT- 702 M section A)



The strongest point which students like about teacher 5 is that the communicates the subject matter effectively.

Results of Performa 10 of teacher 6 (BIOT- 703 M section A)

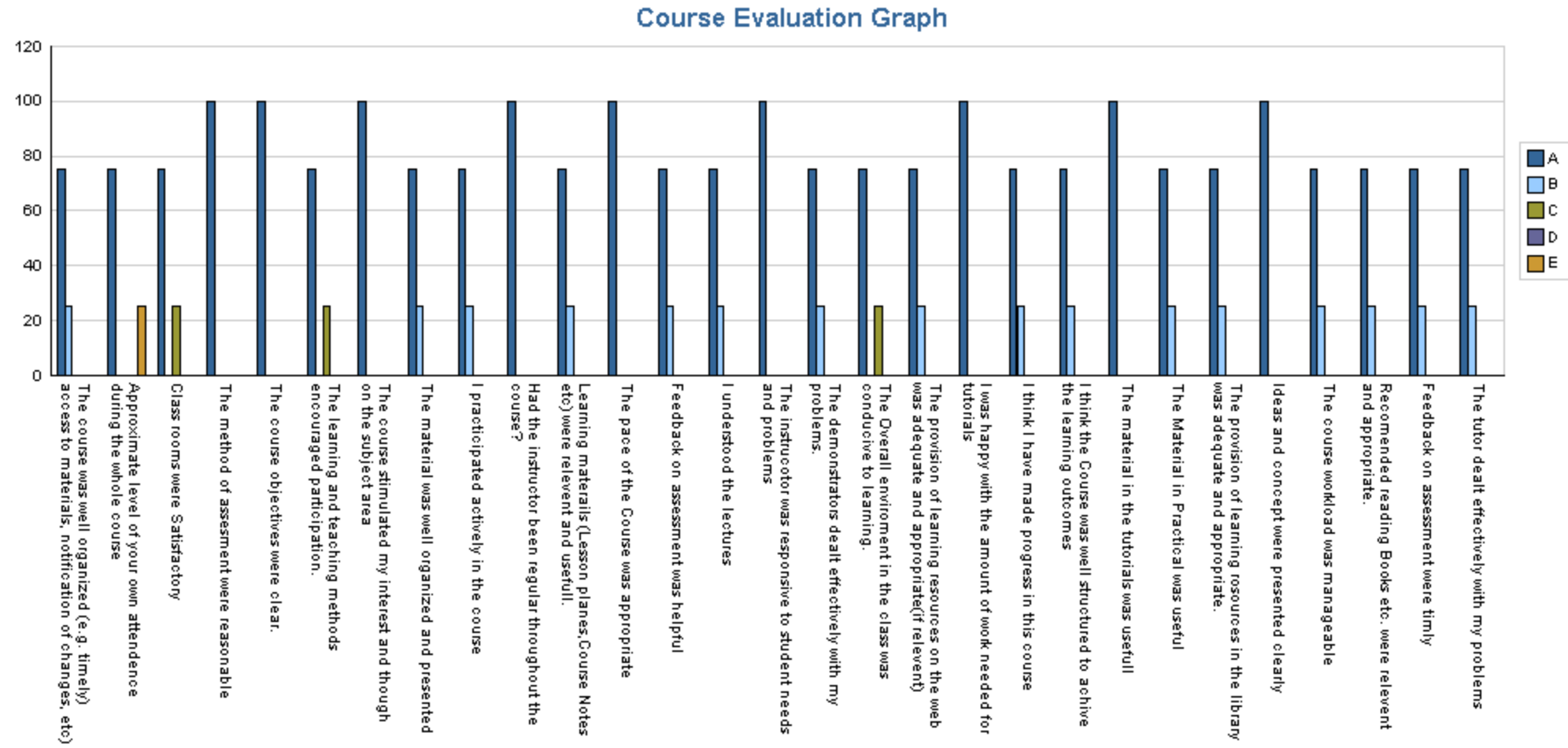


The performa 1 of teacher 2 shows the excellent performance. The pace of the course was smooth, classrooms were satisfactory, and the course material was interesting which stimulated the students’ interest in the class.

Student Course Evaluation Fall Semester 2014:**Overall Results of Proforma No. 1 Teacher 1 to 6**

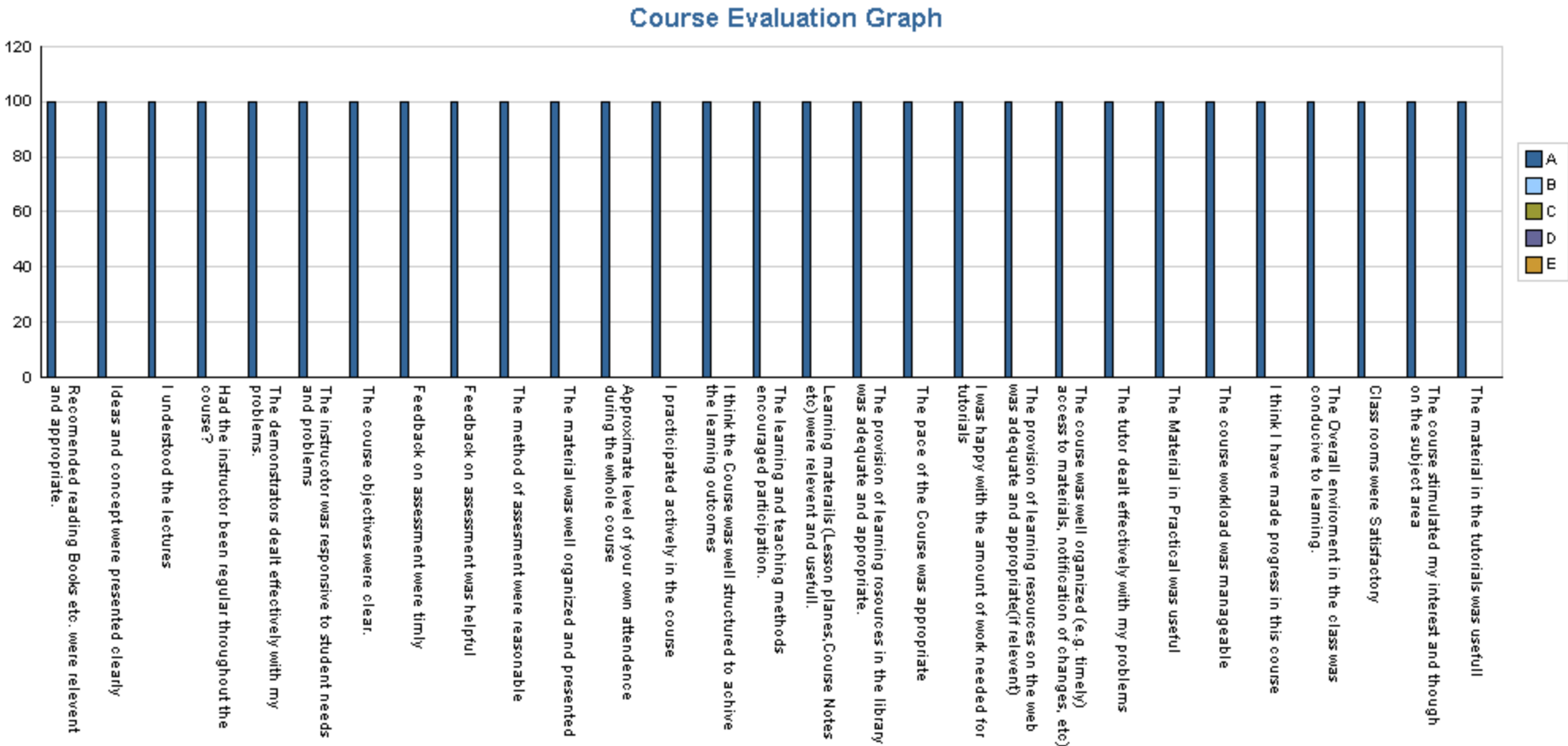
Proforma No. 1, deals with study of course observation regarding design of course contents (both theoretical and practical), its relevance with subject and teaching material. It also emphasizes on instructor's role in, not only completing course within given time frame, but how instructor developed student's 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-718 M section A)



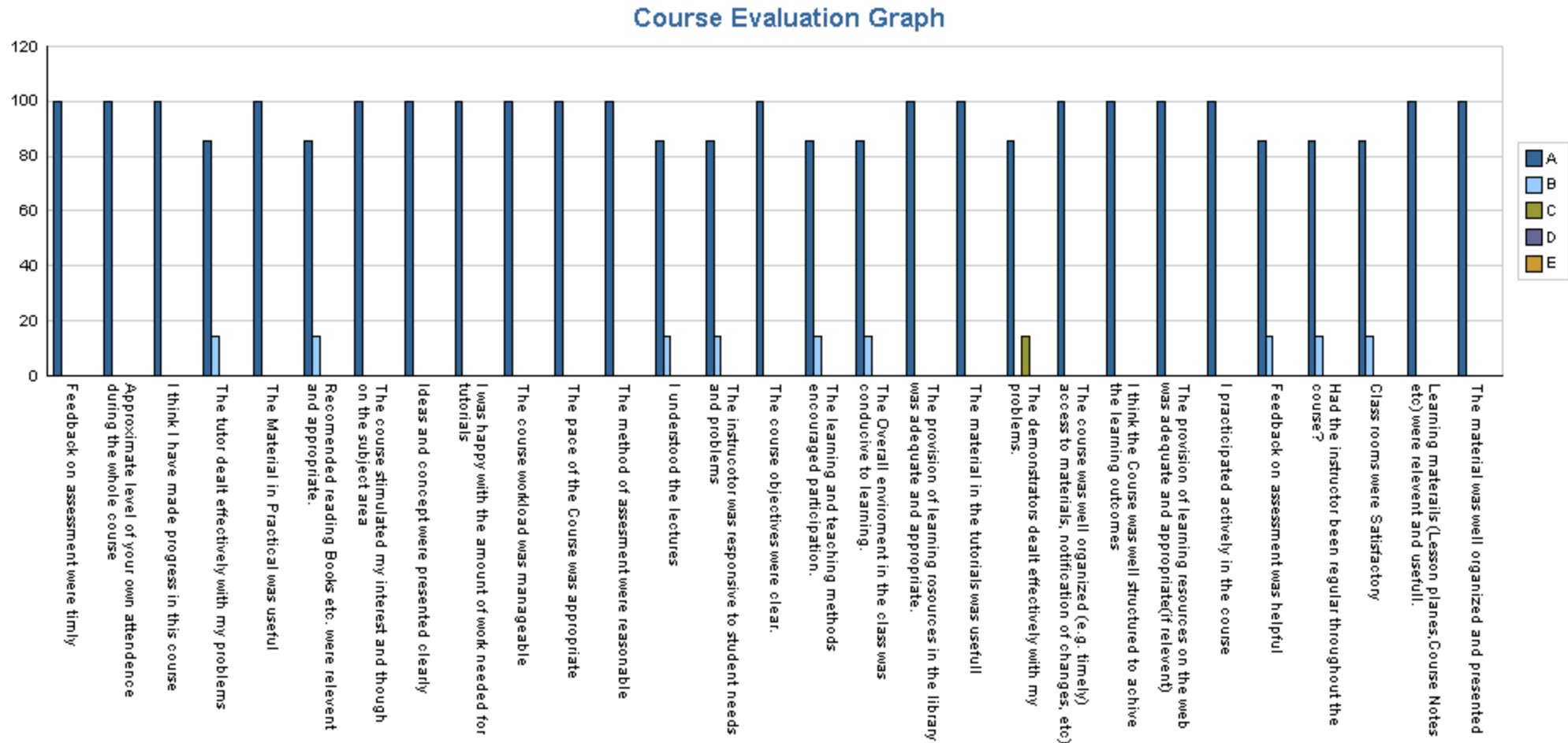
Depending upon the results of performa 1, students participated in course and pace of course was appropriate.

Results of Performa 1 of teacher 1 (BCH-718 M section B)



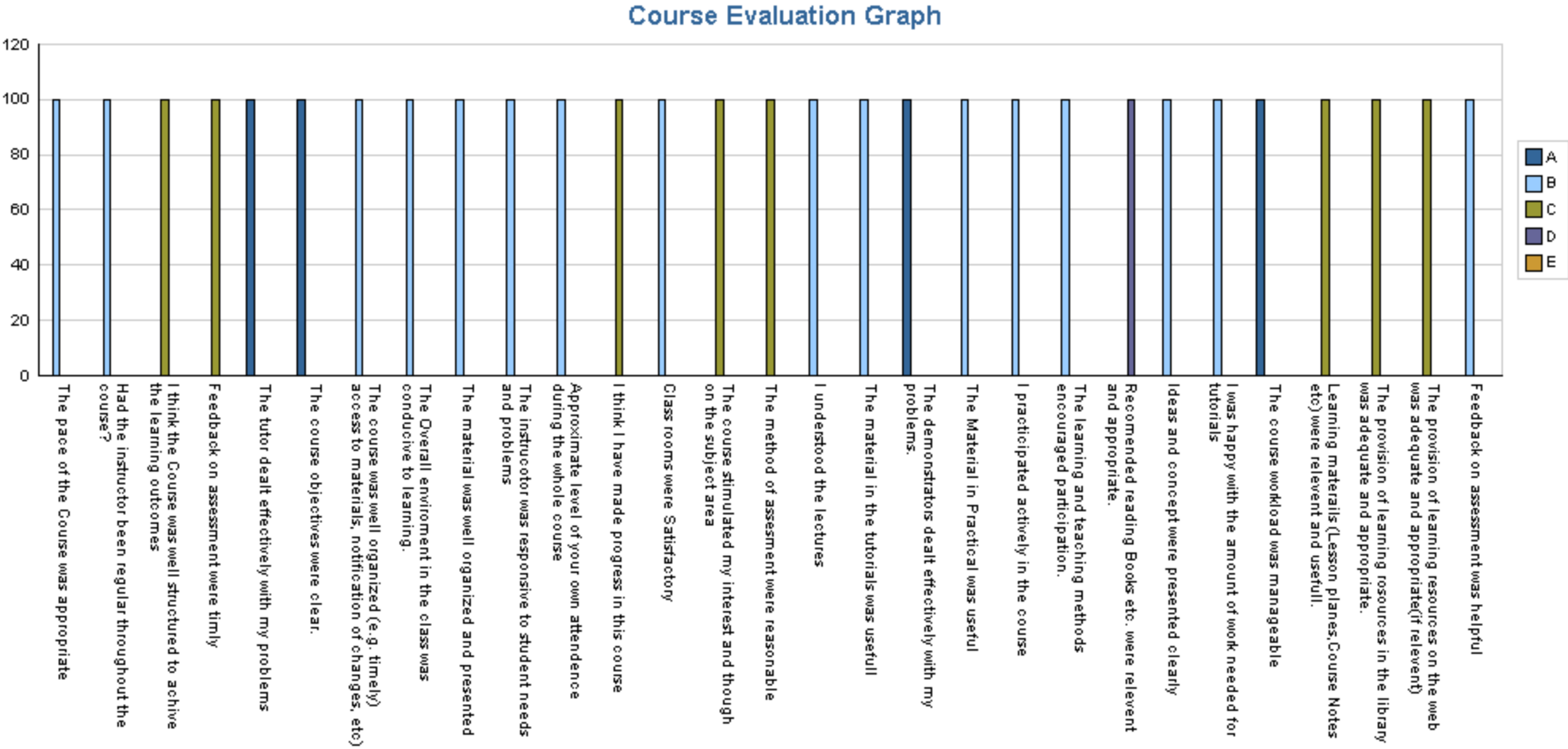
The performa 1 shows that the overall result of the course is good in terms of students’ punctuality and all the objectives were achieved.

Results of Performa 1 of teacher 1 (BIOT-720 M section A)



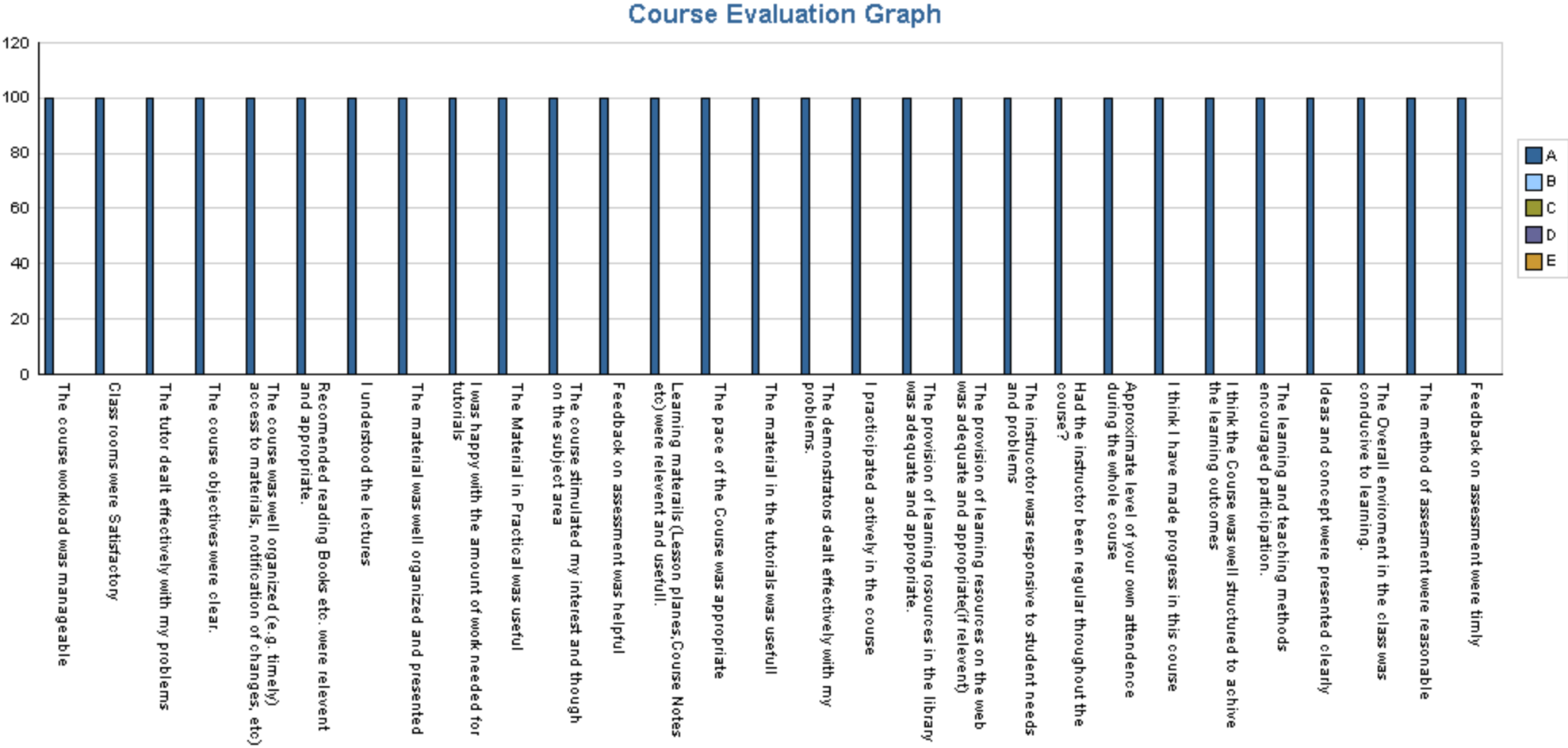
Depending upon the results of performa 1, students participated in course and pace of course was appropriate.

Results of Performa 1 of teacher 2 (BCH-720 M section A)



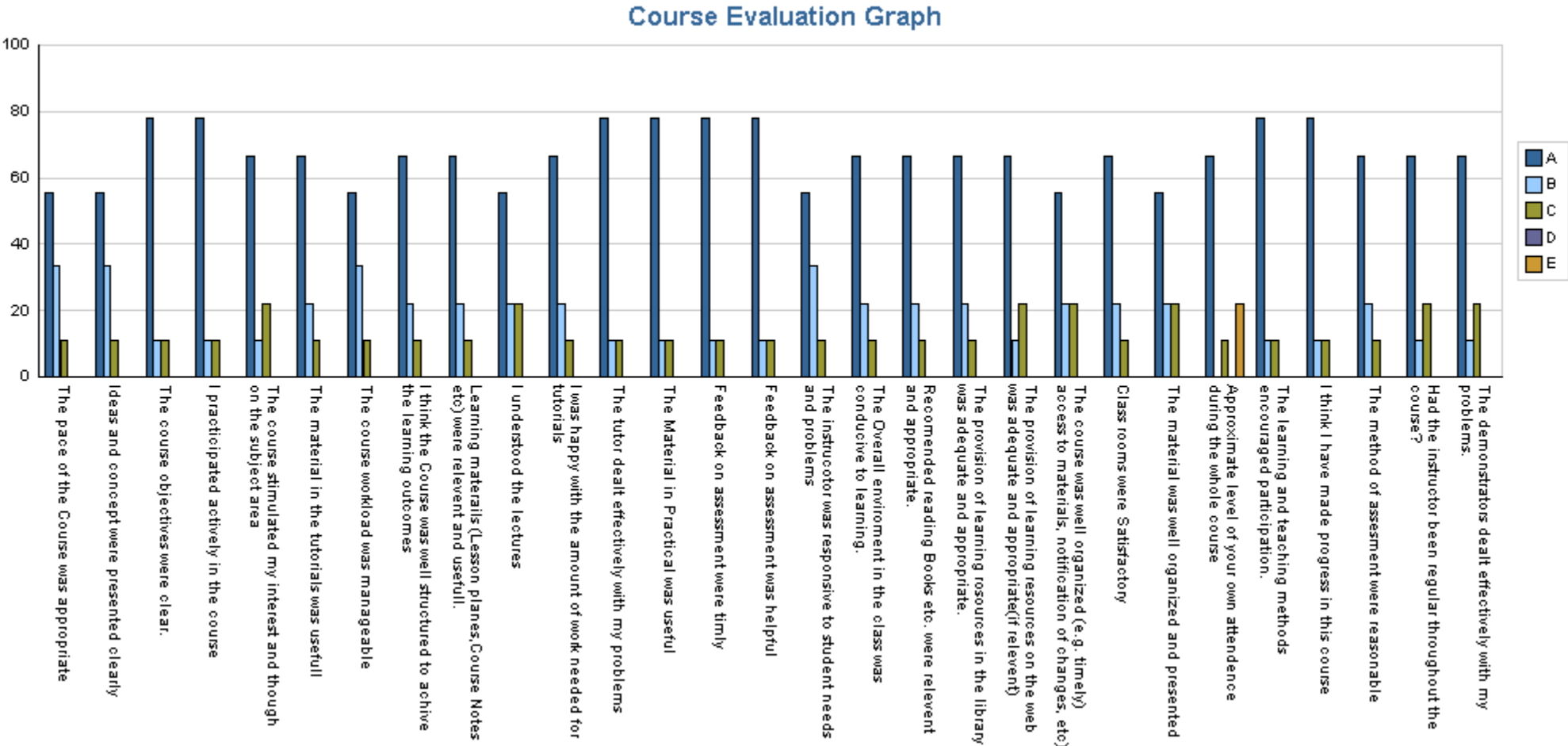
Depending upon the results of performa 1, students participated actively in the course and they were punctual.

Results of Performa 1 of teacher 2(BCH-734 E section A)



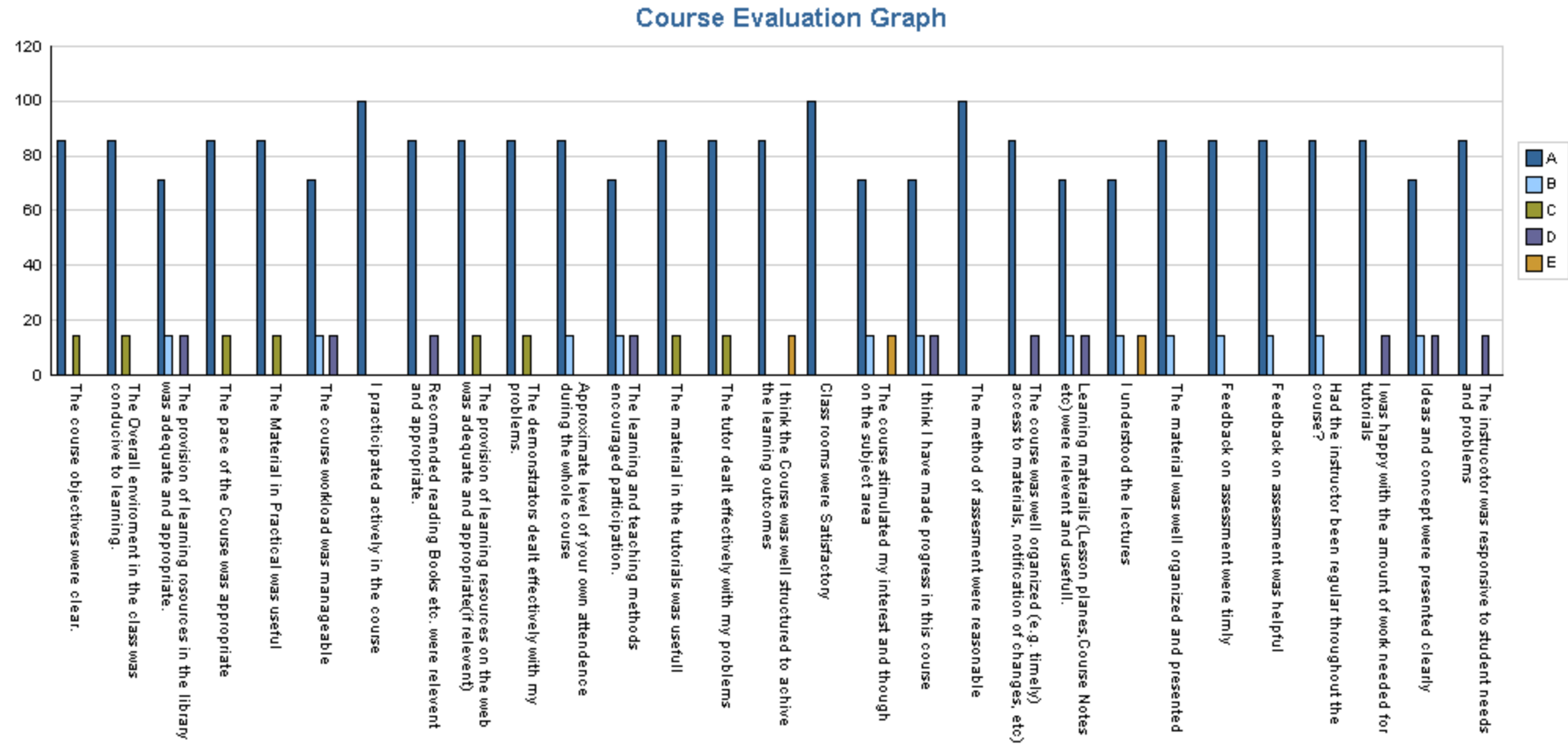
The performa 1 of teacher 2 shows the excellent performance. The pace of the course was smooth, classrooms were satisfactory, and the course material was interesting which stimulated the students’ interest in the class.

Results of Performa 1 of teacher 2(BCH-734 M section A)



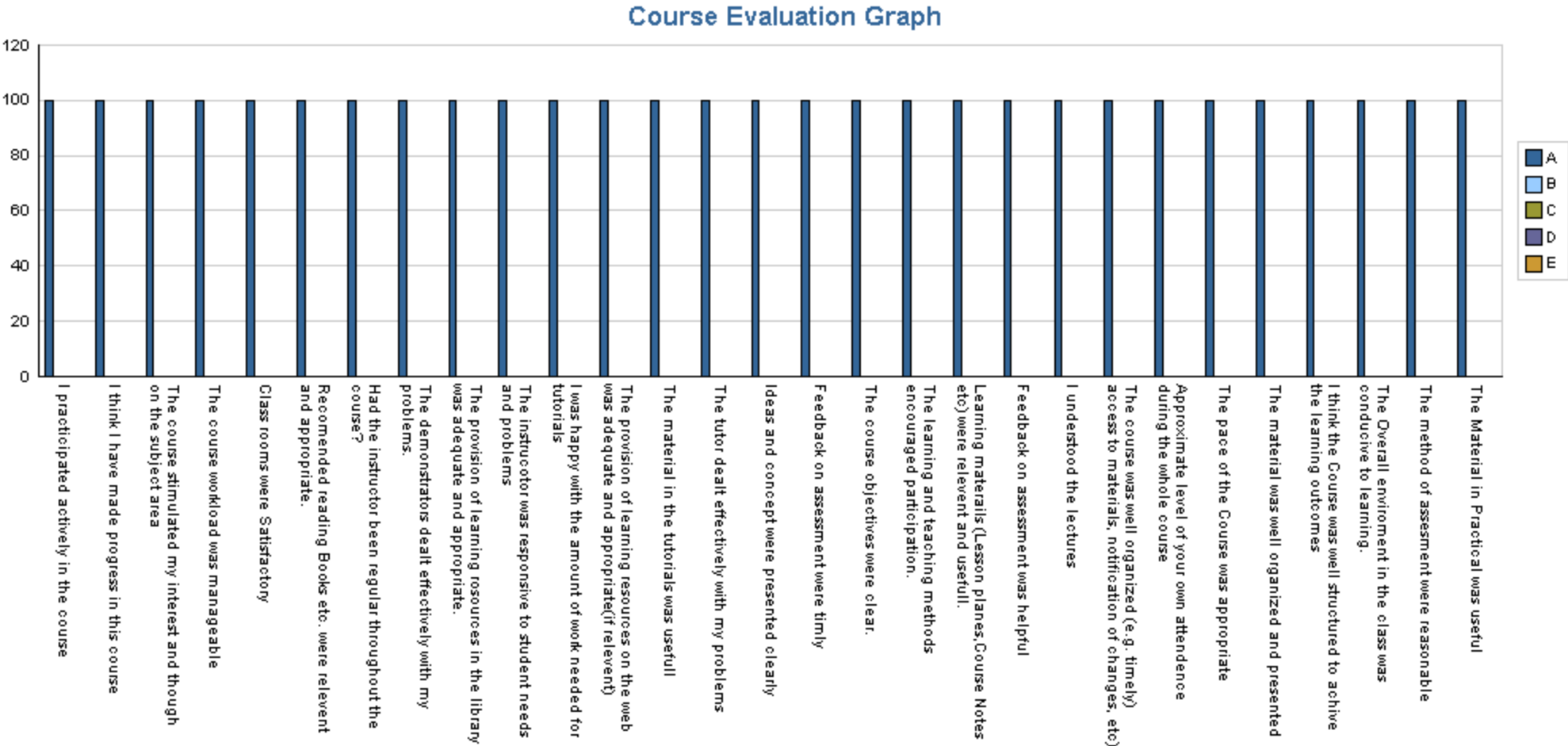
The strongest point of the course is that its objectives were clear and practical material was useful.

Results of Performa 1 of teacher 2 (BCH 734 M section B)



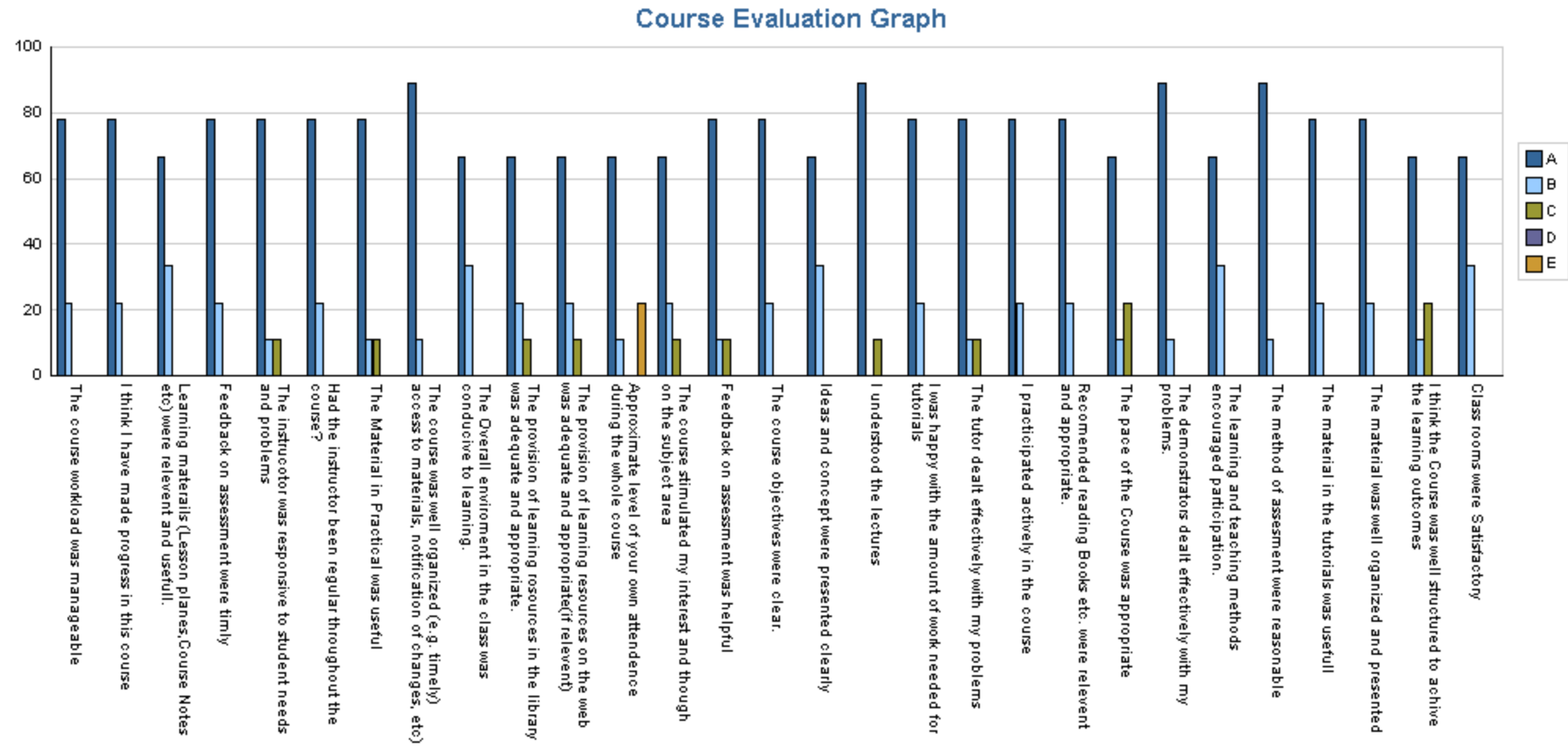
The results of performa 1 of teacher 3 are satisfactory. The method of assessment was reasonable.

Results of Performa 1 of teacher 3 (BCH-720-I E section A)



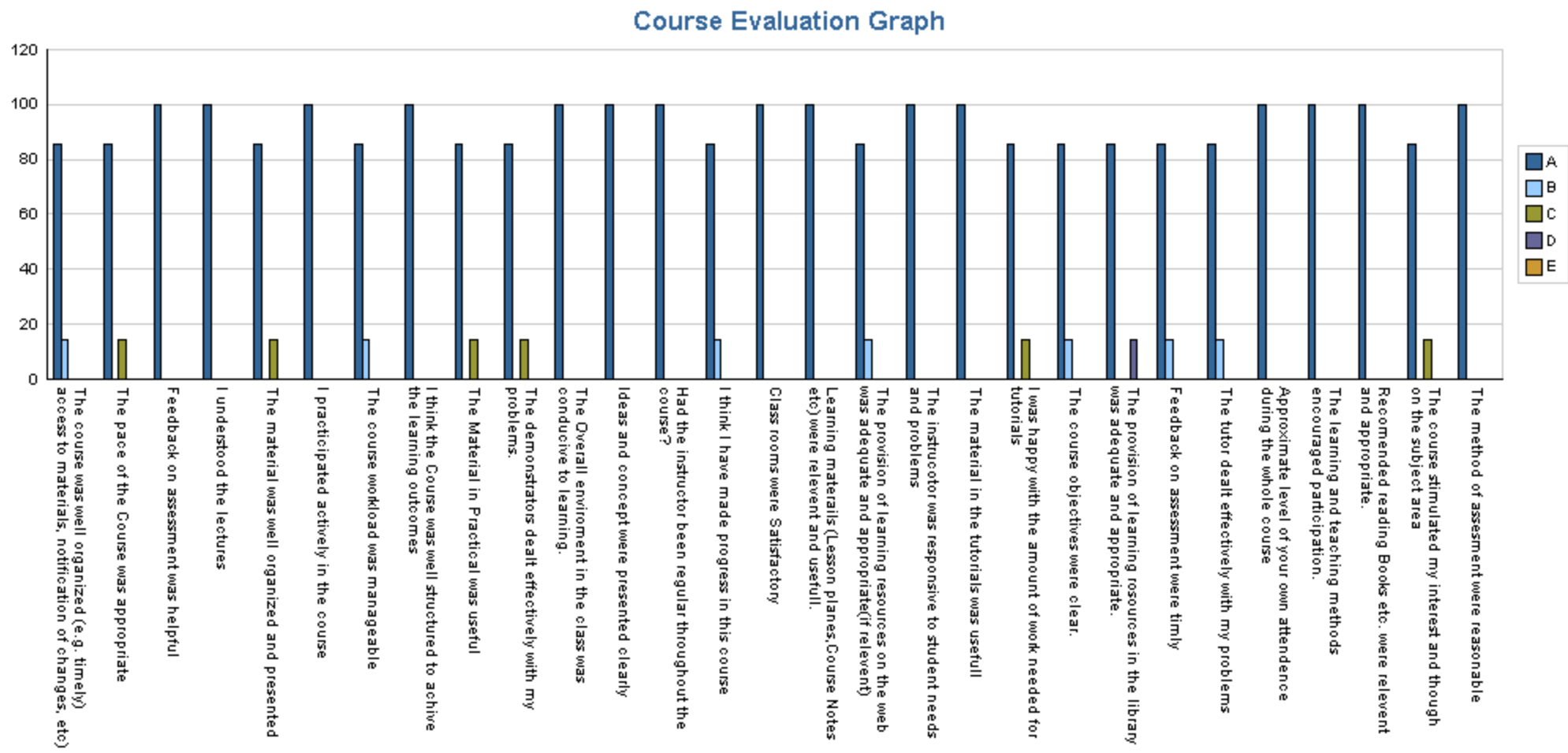
Depending upon the result of performa 1, students participated actively in the class and overall environment was good.

Results of Performa 1 of teacher 3 (BCH-720-I M section A)



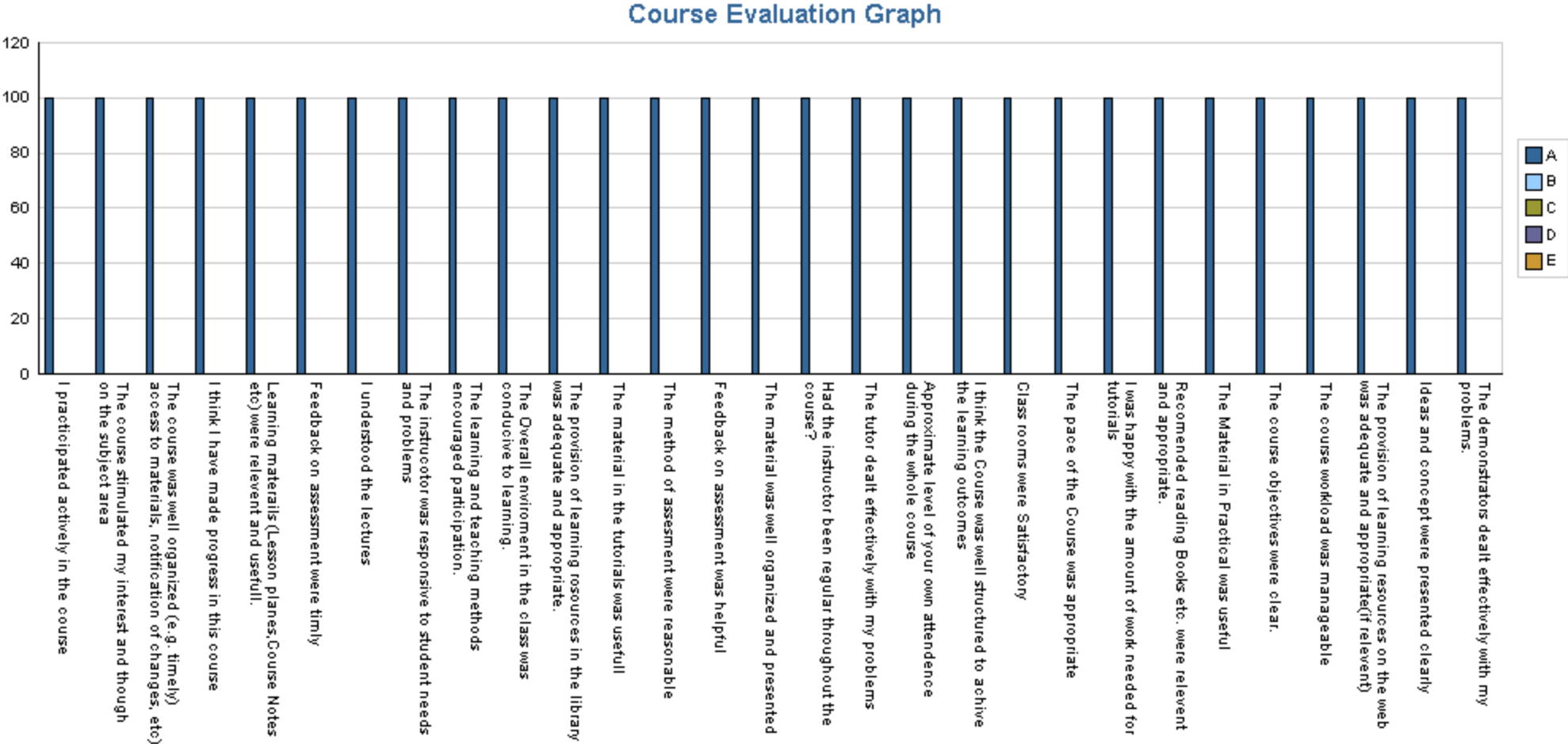
Depending upon the result of performa 1, students participated actively and understood the course.

Results of Performa 1 of teacher 3 (BCH-735 M section B)



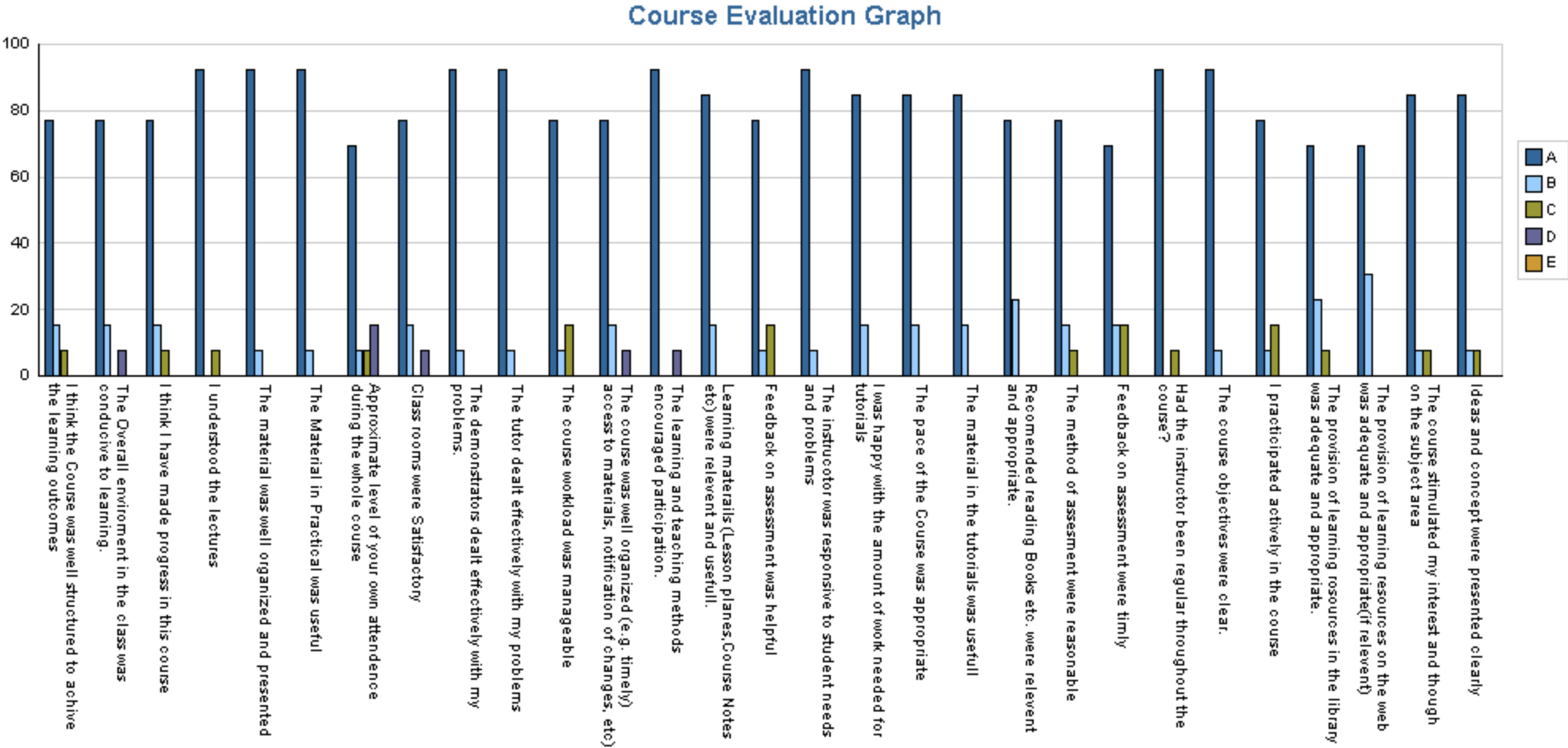
Depending upon the result of performa 1, students participated actively in the class and classrooms were satisfactory.

Results of Performa 1 of teacher 3 (BCH-735 E section A)



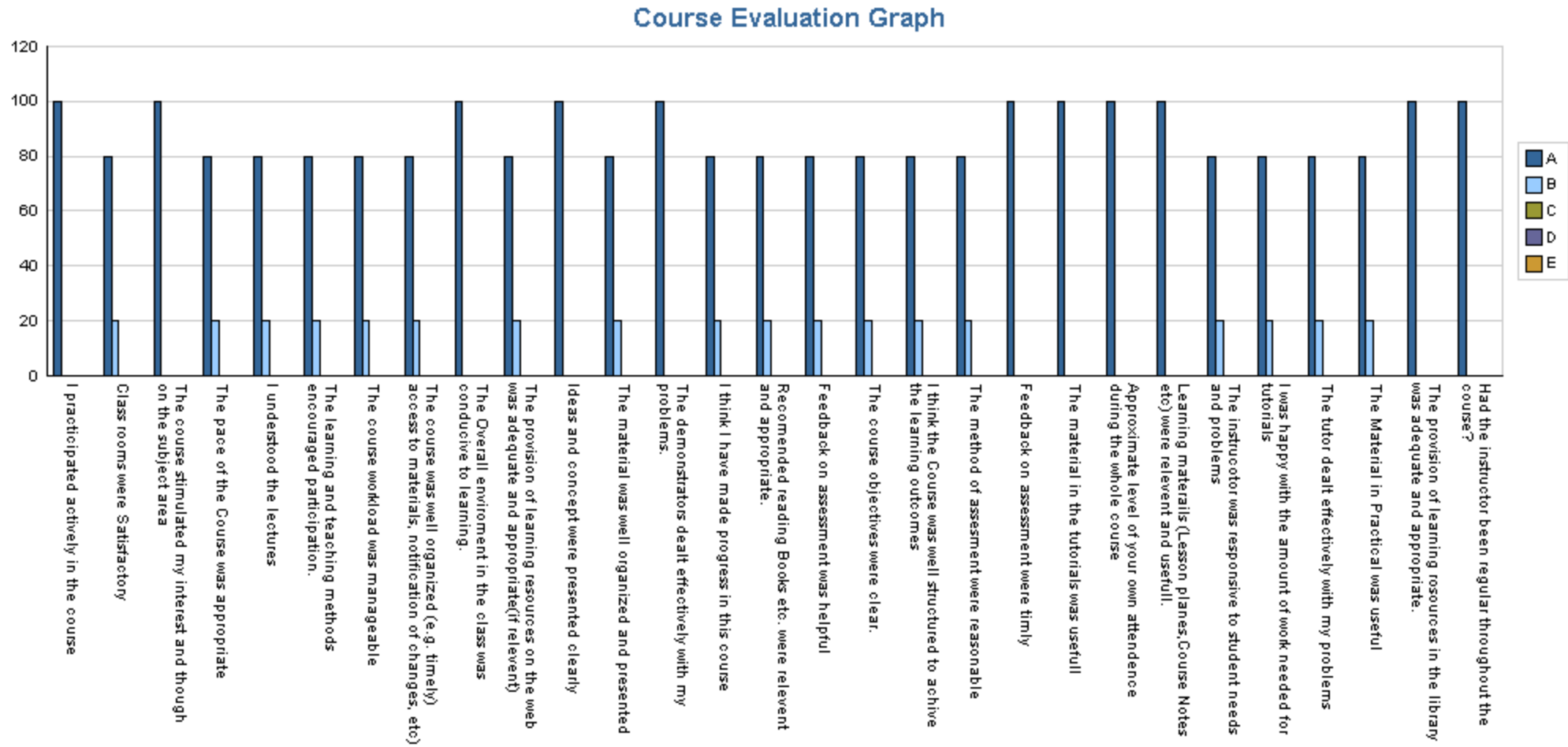
Depending upon the result of performa 1, students participated actively in the class and overall environment was good.

Results of Performa 1 of teacher 3 (BCH-735 M section A)



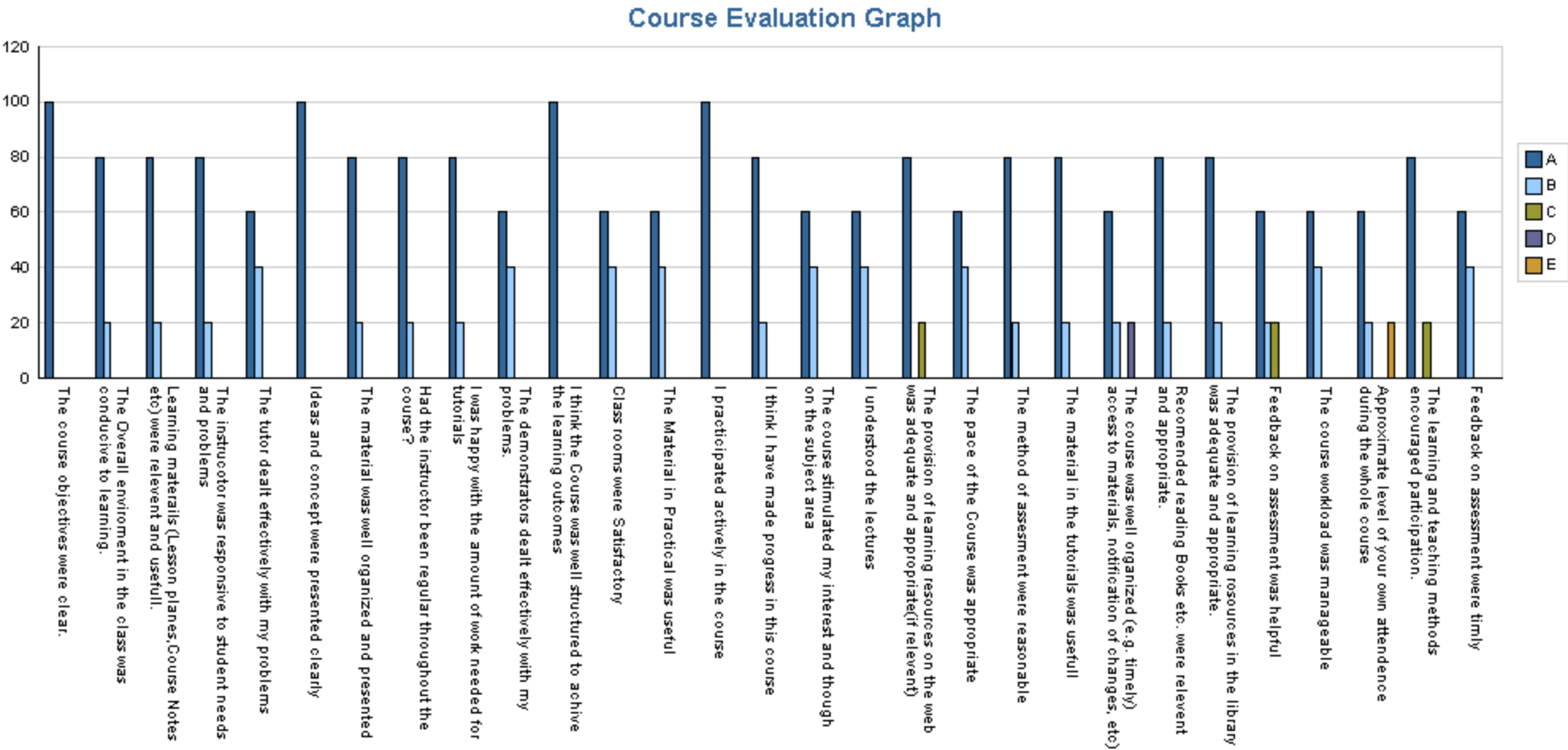
Depending upon the result of performa 1, course objectives were clear students participated actively in the class.

Results of Performa 1 of teacher 4 (BCH-732 M section C)



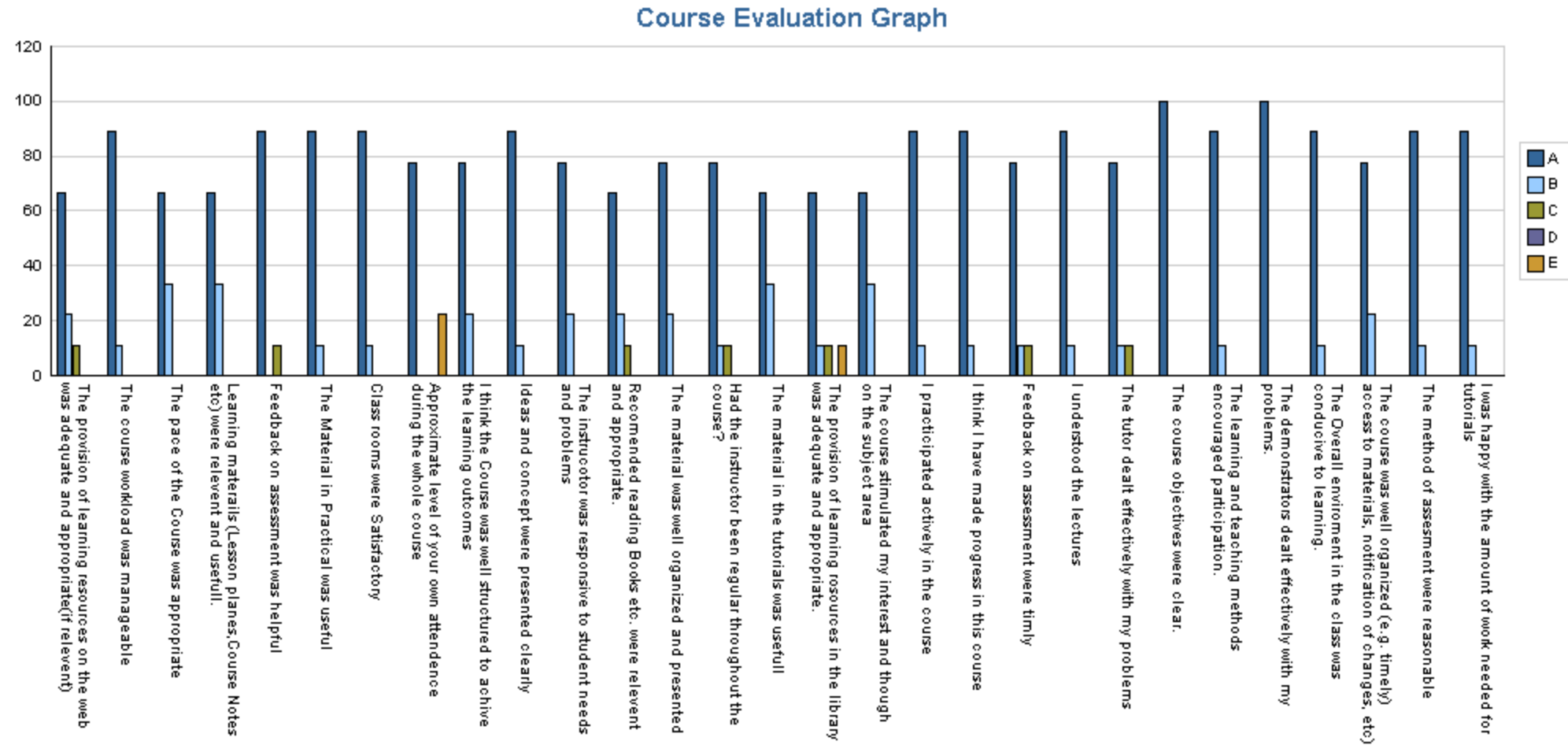
The strongest point which students like about teacher 4 is that the instructor presented the concepts very clearly.

Results of Performa 1 of teacher 4 (BCH-732 M section A)



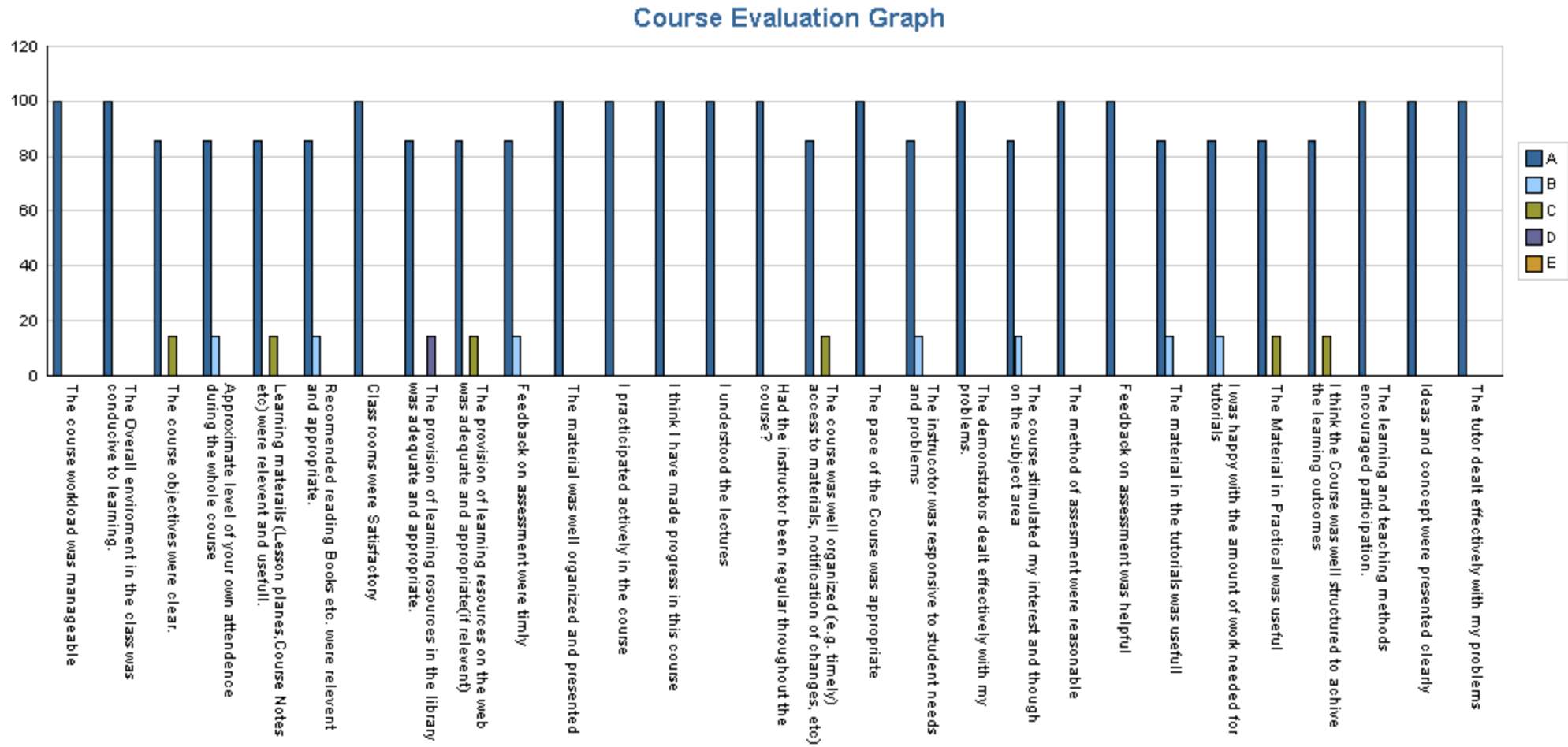
The strongest point which students like about teacher 4 is that the instructor participated actively in class and course objectives were clear.

Results of Performa 1 of teacher 5 (BIOT-702 M section A)



The strongest point which students like about teacher 4 is that the instructor dealt with their problems effectively.

Results of Performa 1 of teacher 6 (BIOT-703 M section A)

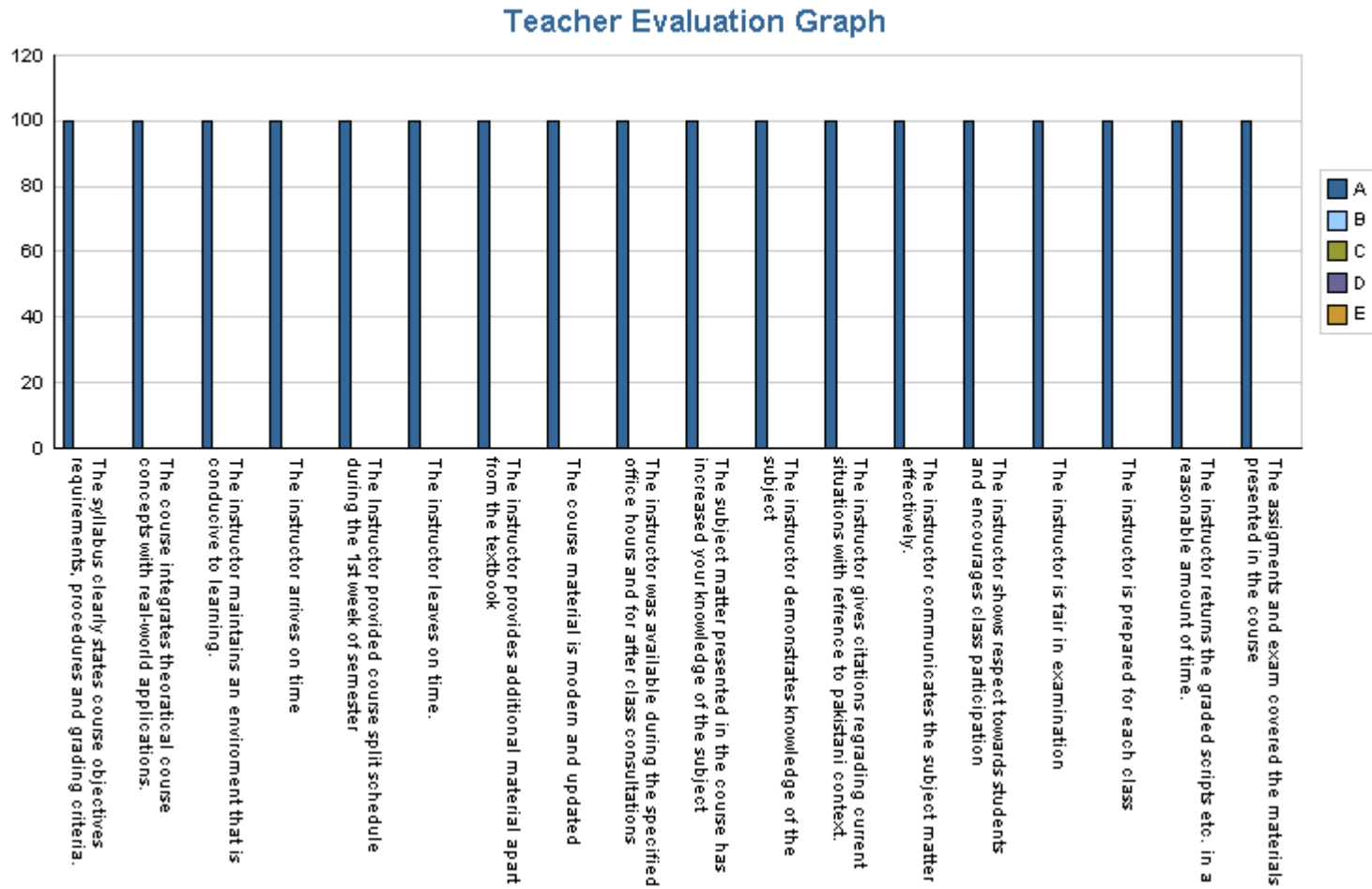


The strongest point was that the class rooms were satisfactory, course workload was manageable and material was well organized and presented.

Program Assessment Results:**Teachers Evaluation Spring Semester 2015****Overall Results of Performa 10 of Teacher 1 to 7**

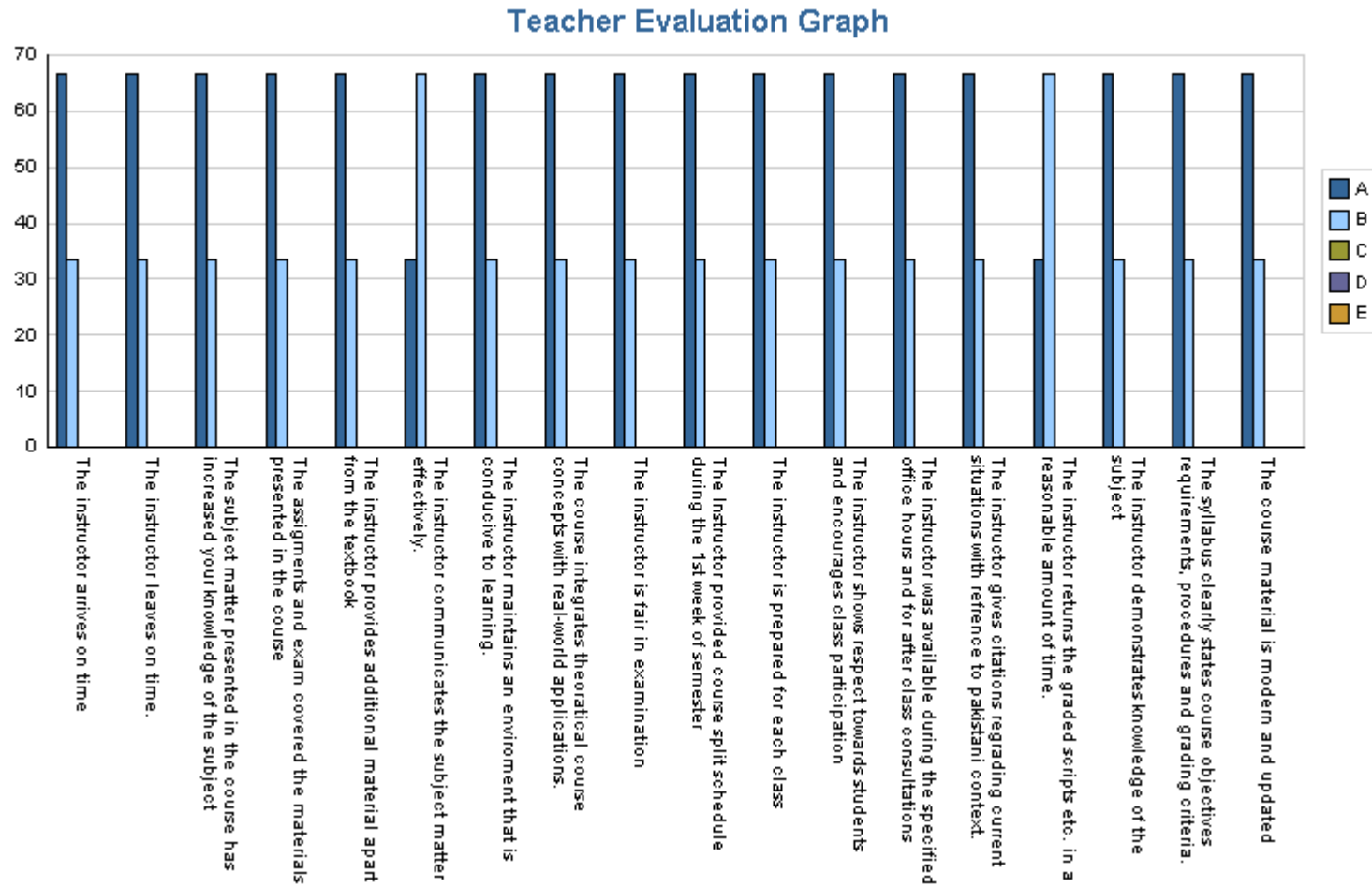
The teachers were evaluated by the students at the end of the semester in accordance with Proforma-10. In the graph teachers are represented as 1, 2, 3..., instead of mentioning their names. Results and performance of individual teachers will follow.

Results of Performa 10 of Teacher 1(BCH-719 E section C)



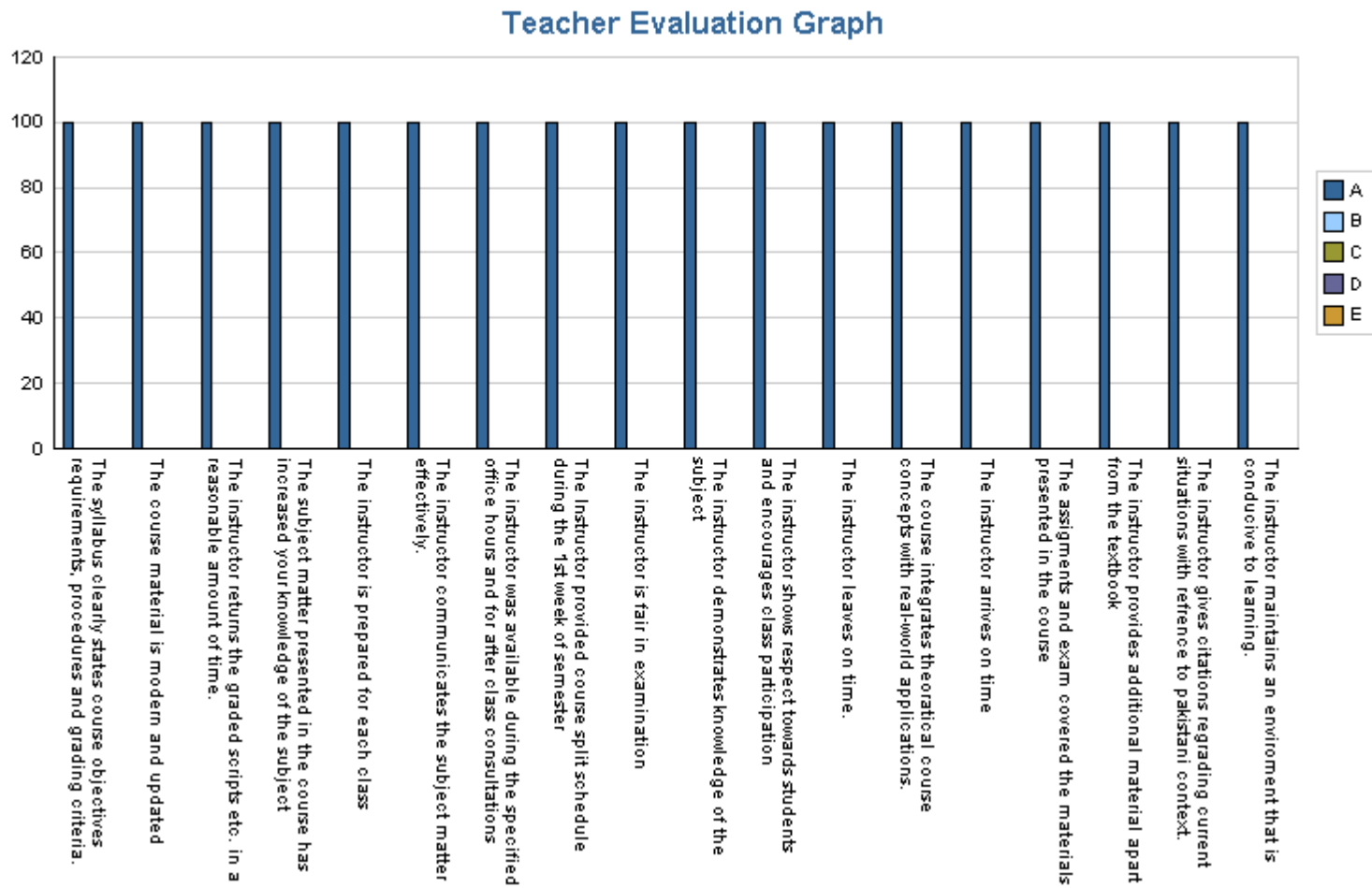
The strongest point which students like about teacher 1 is that the instructor has provided course split schedule during first week and course was modern and update.

Results of Performa 10 of Teacher 1(BCH-719 M section C)



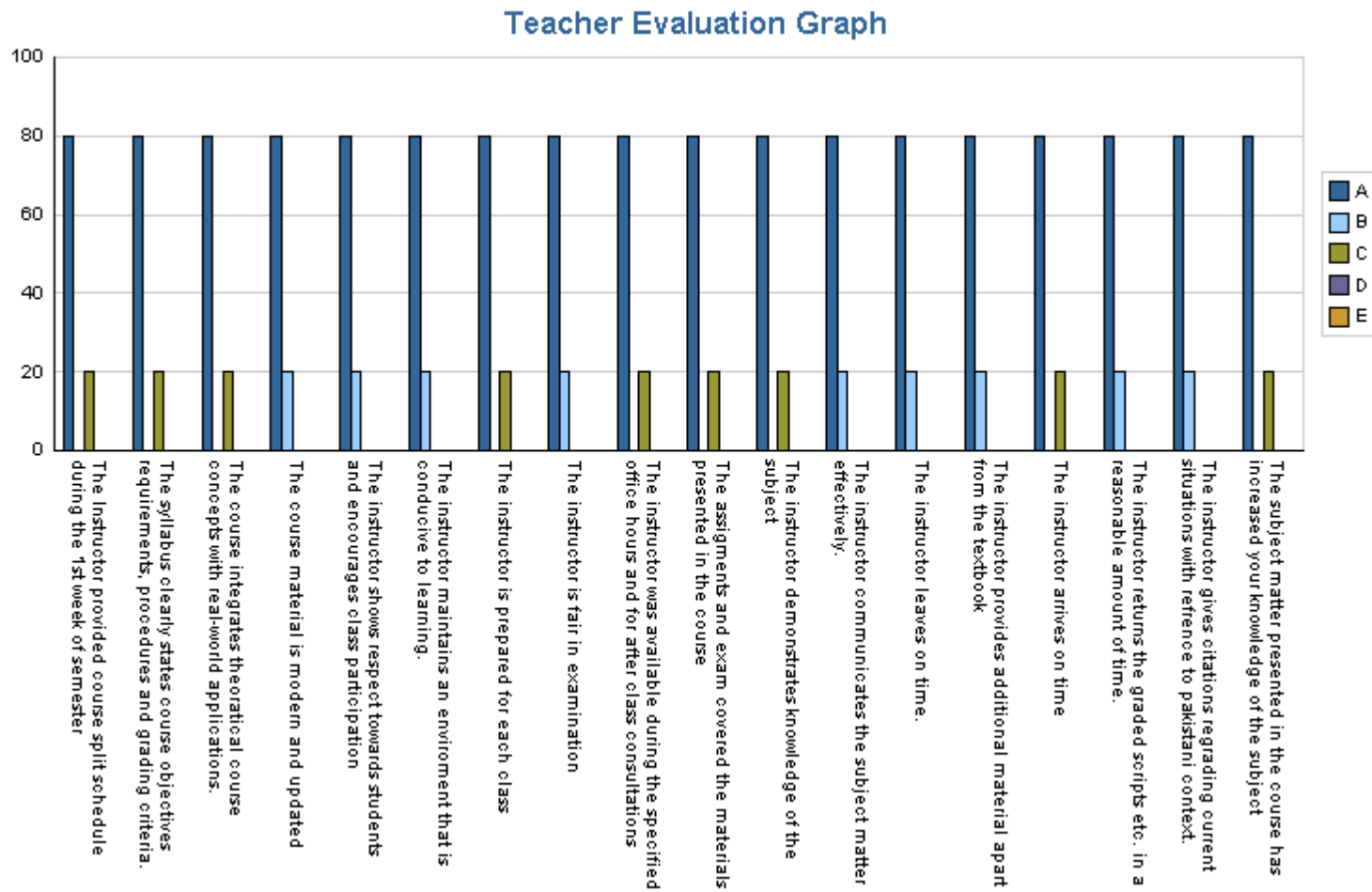
The strongest point which students like about teacher 1 was his/her availability during and after office hours for student matters and prepared well for the class.

Results of Performa 10 of Teacher 1 (BCH-720 –I M section A)



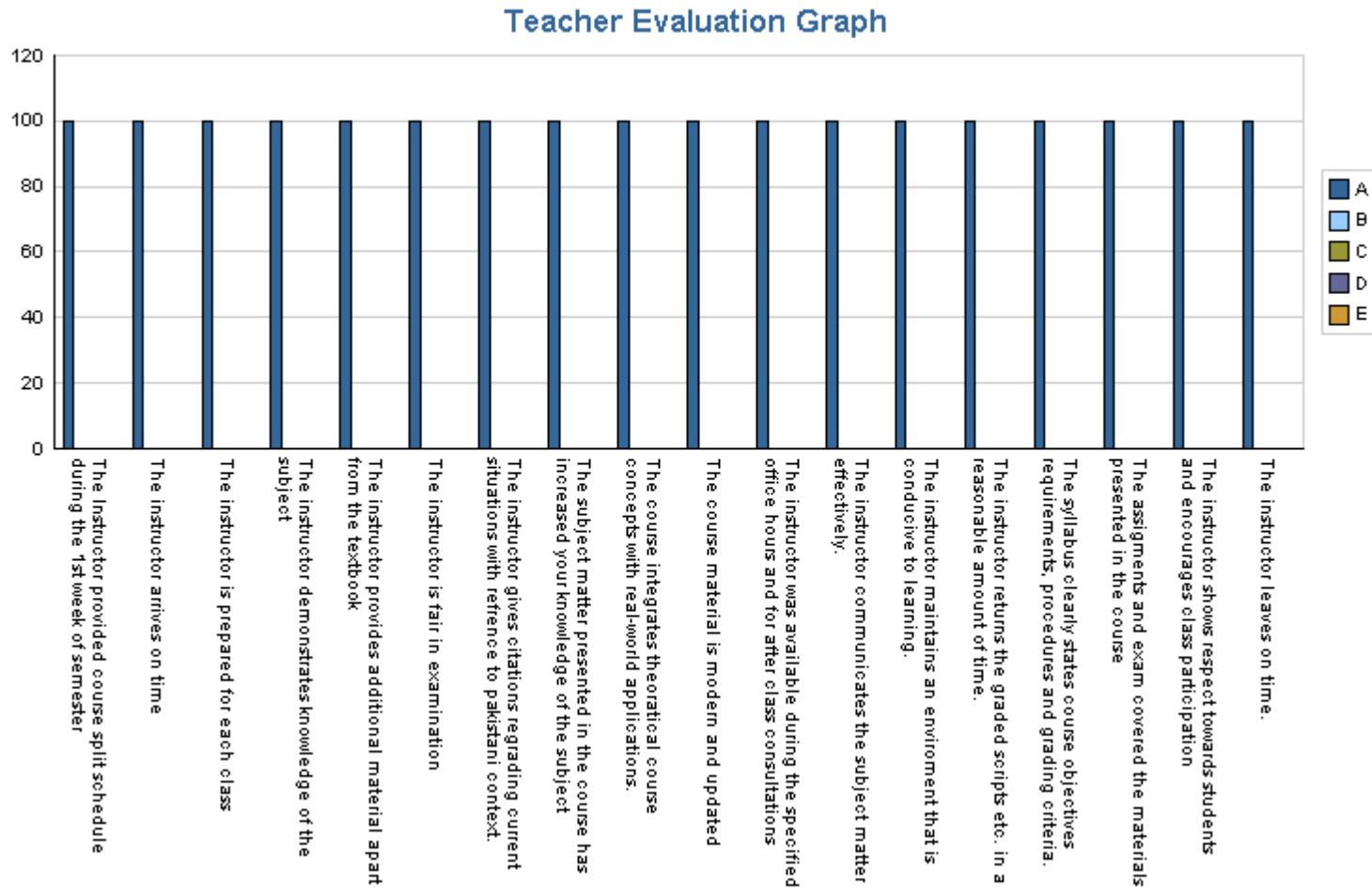
The strongest point which students like about teacher 1 is that the instructor provided course split schedule at start of semester and demonstrated knowledge of subject and leaves at time.

Results of Performa 10 of Teacher 1 (BCH-720-II M section A)



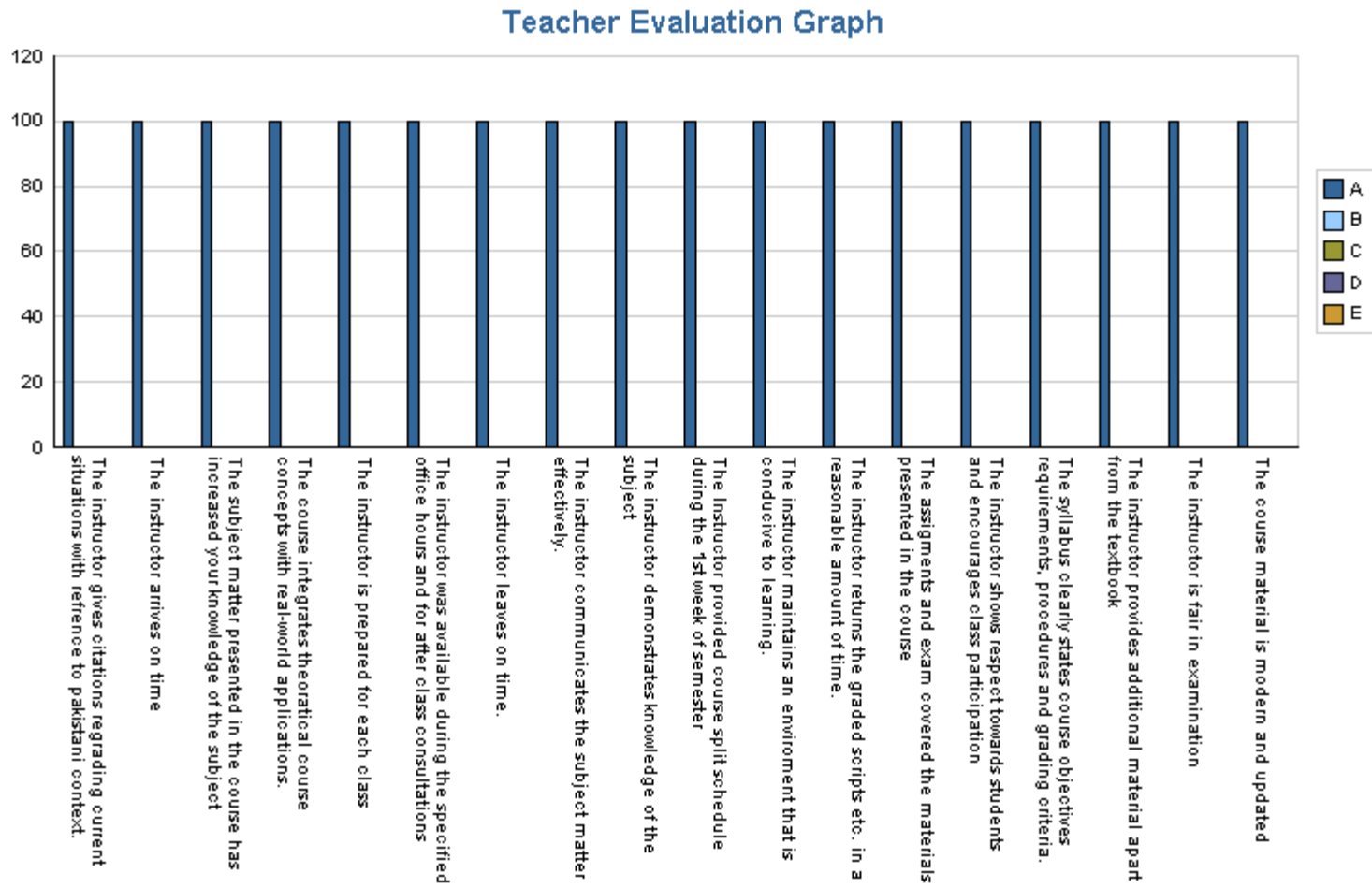
The strongest point which students like about teacher 1 is that the instructor was prepared for the class and he provided course split schedule at start of semester.

Results of Performa 10 of Teacher 1 (BIOT-719 M section D)



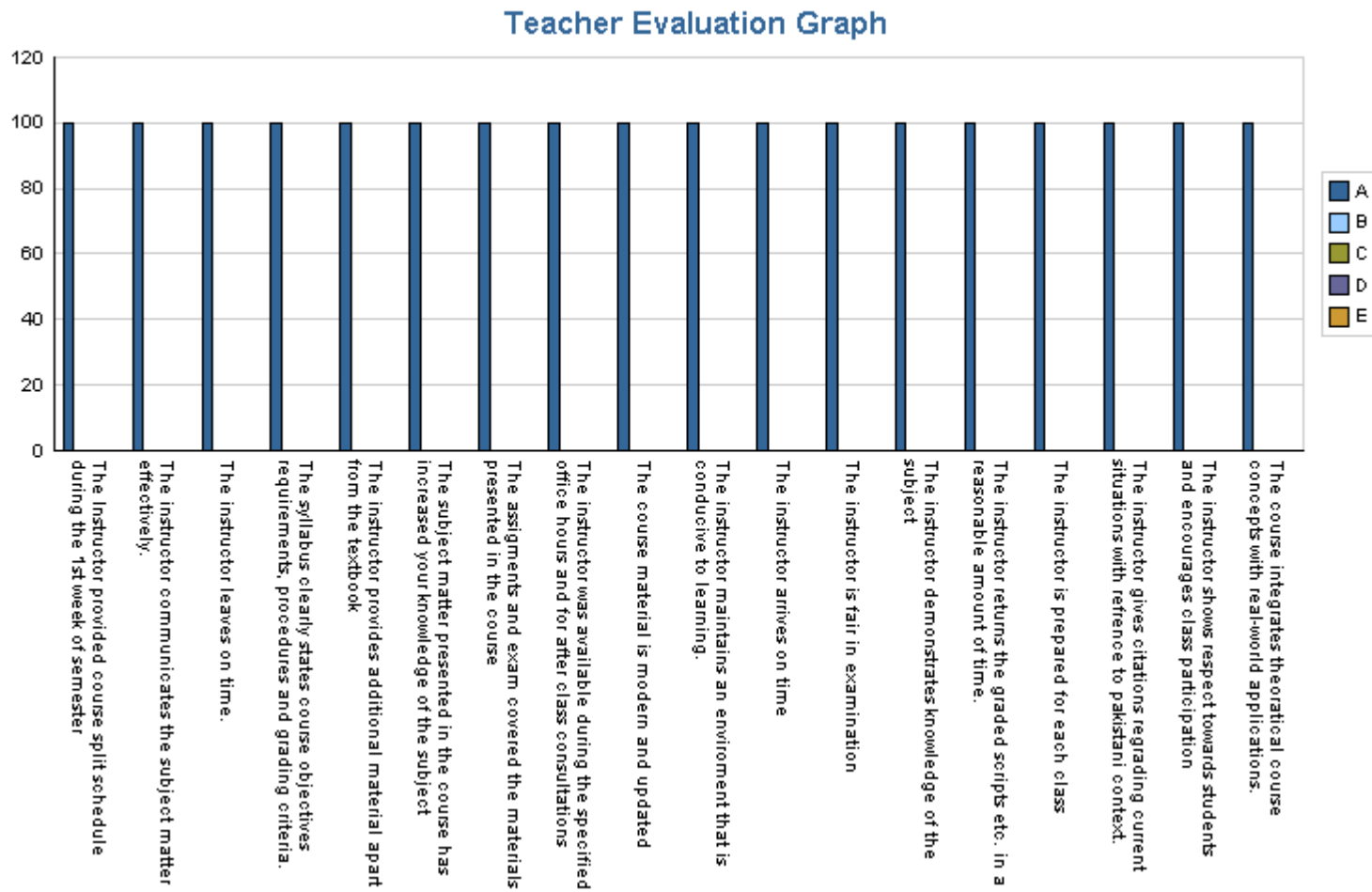
The strongest point which students like about teacher 1 is that the instructor provided course split schedule at start of semester and demonstrated knowledge of subject and leaves at time.

Results of Performa 10 of Teacher 1 (BIOT-720 M section A)



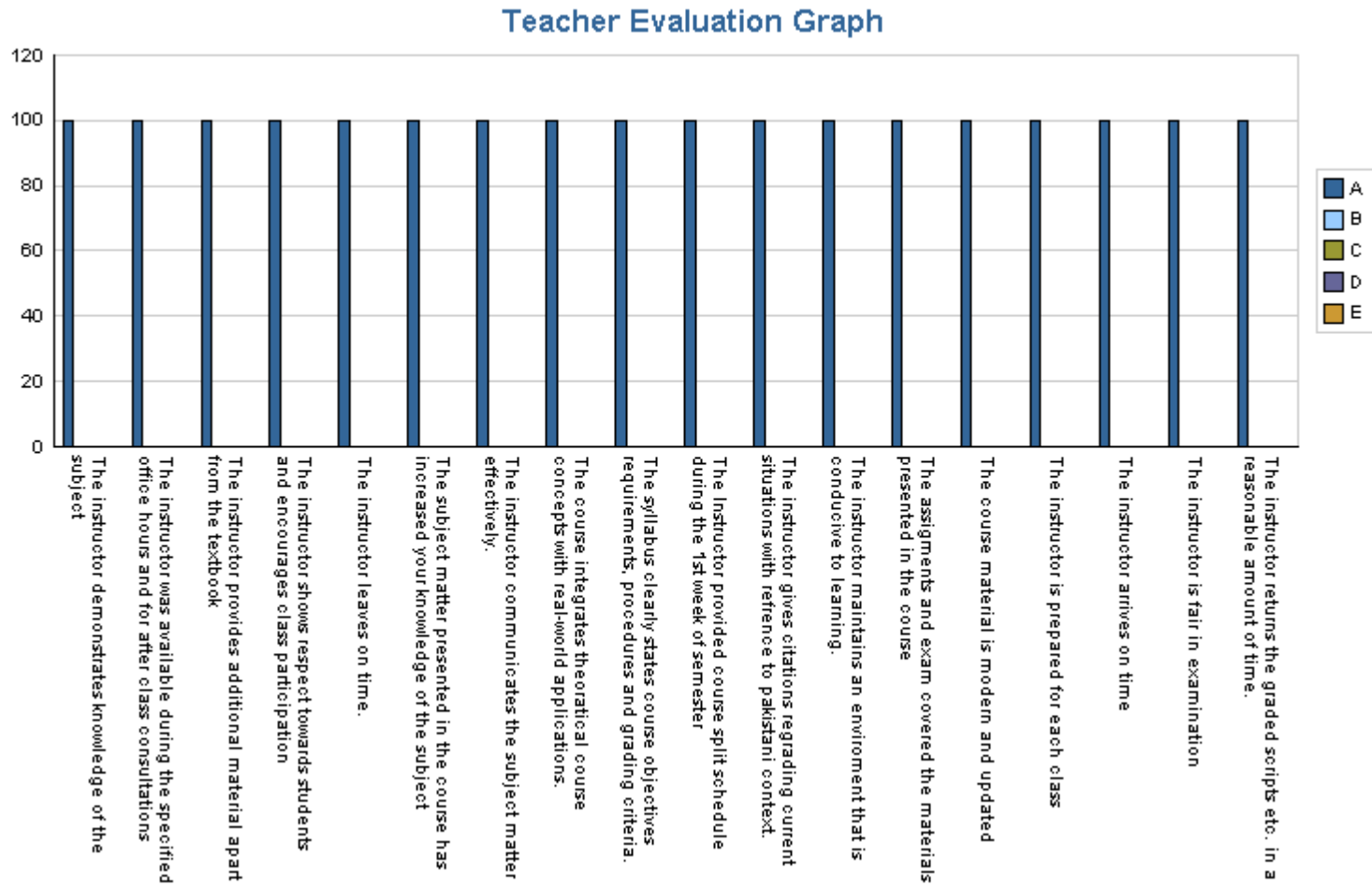
Depending upon the result of performa, students participated actively in the class and overall environment was good.

Results of Performa 10 of Teacher 2 (BCH-719 M section B)



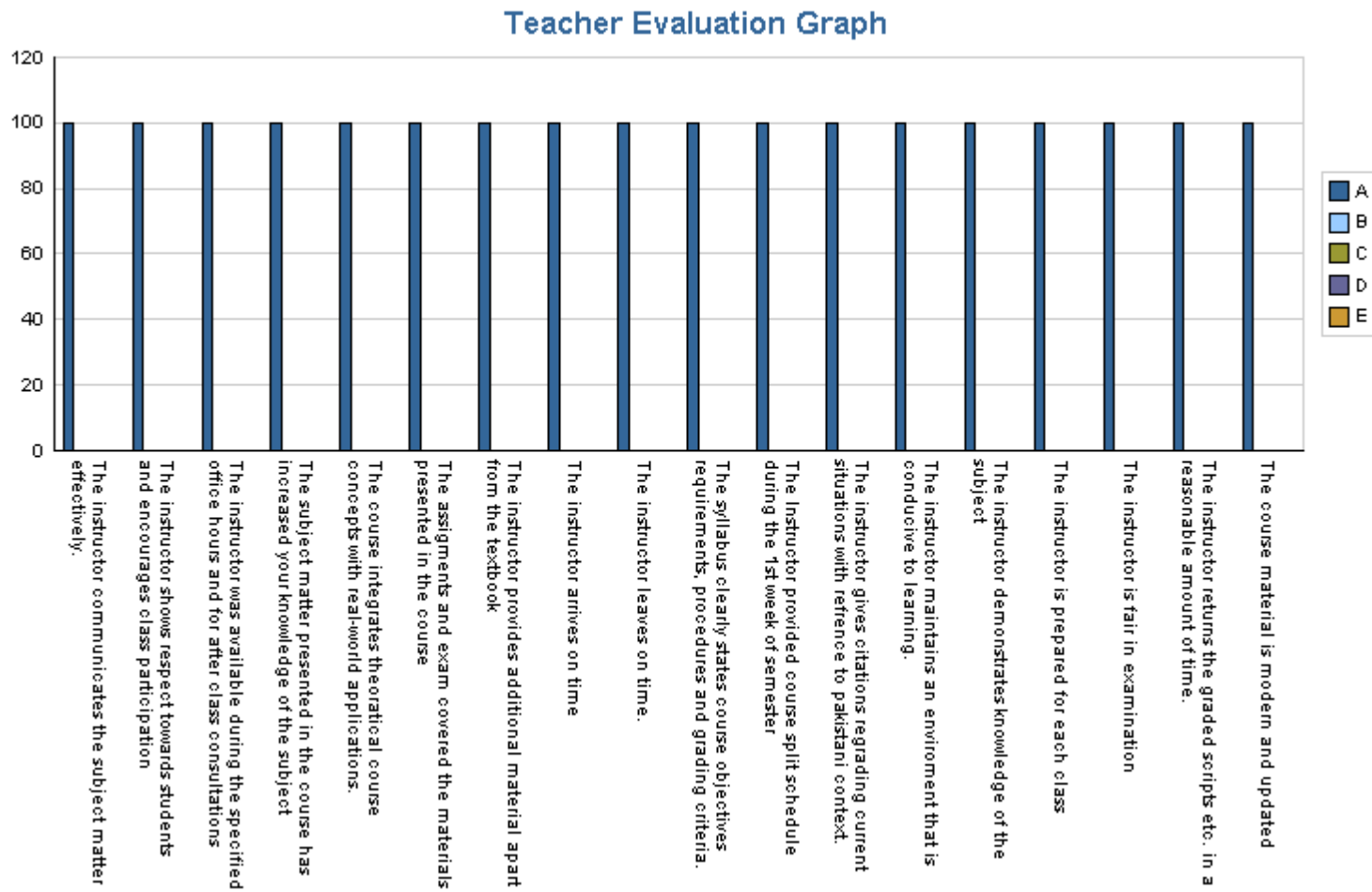
The strongest point which students like about teacher 2 is that instructor provided course split schedule at start of semester and returned graded papers on time.

Results of Performa 10 of Teacher 3 (BCH-719 E section F)



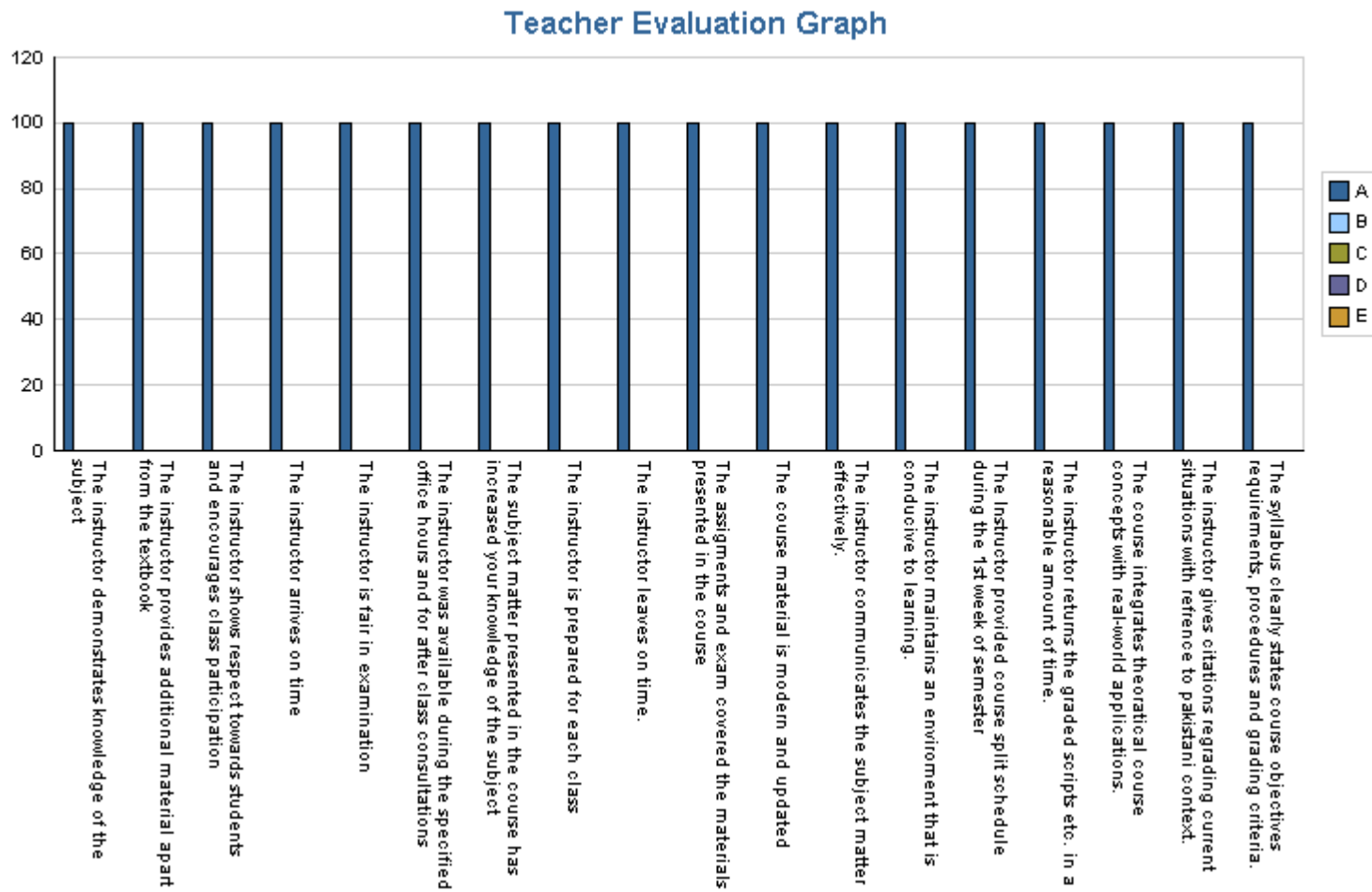
The strongest point which students like about teacher 3 is that the course content is provided in time and the demonstration of the subject knowledge is good.

Results of Performa 10 of Teacher 3 (BCH-719 m section F)



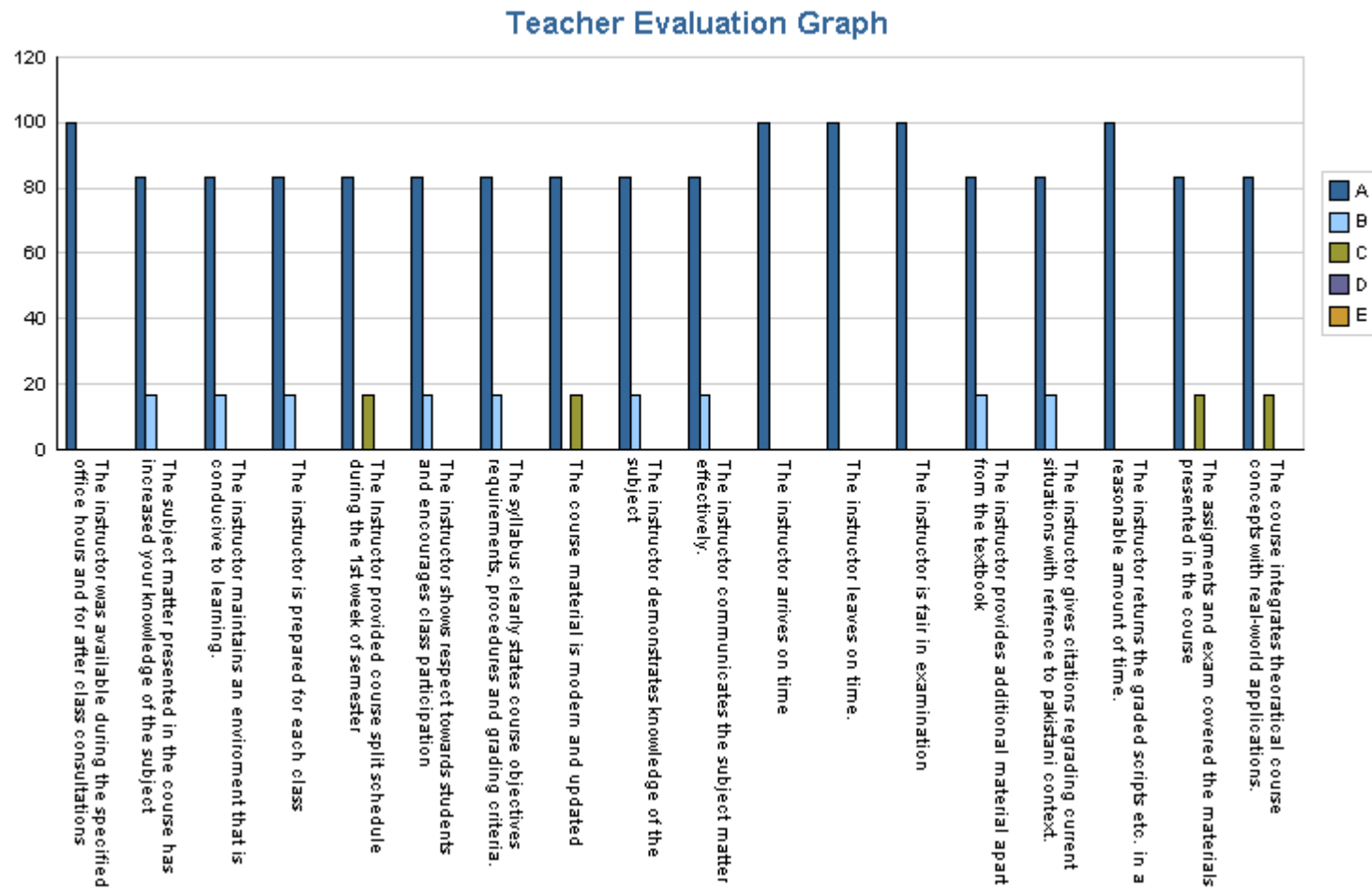
The strongest point which students like about teacher 3 is that the course content is provided in time and the demonstration of the subject knowledge is good.

Results of Performa 10 of Teacher 3 (BIOT-719 M section B)



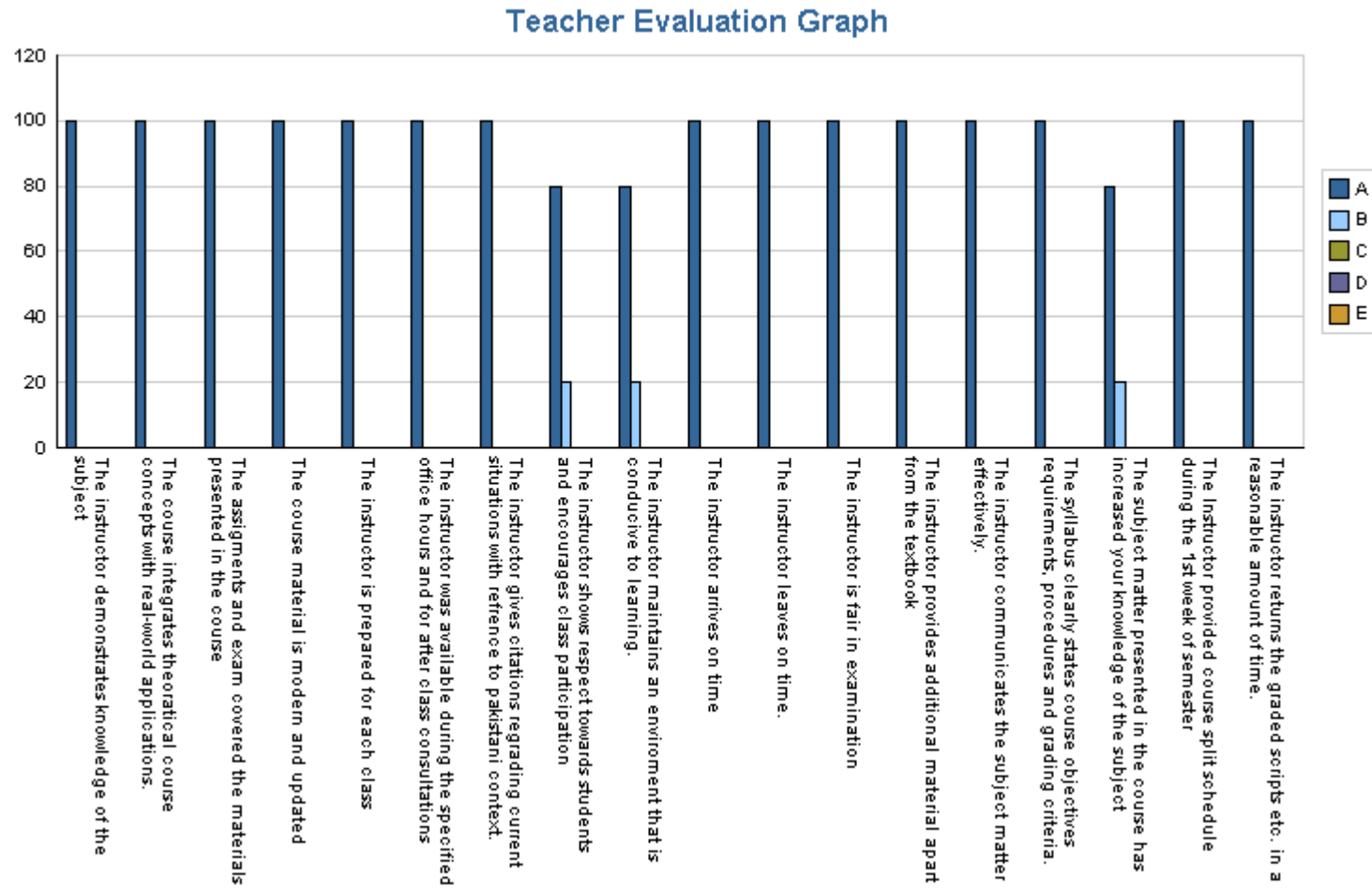
The strongest point which students like about teacher 4 is that the course content is provided in time and he communicated subject matter effectively.

Results of Performa 10 of Teacher 4 (BCH-719 E section A)



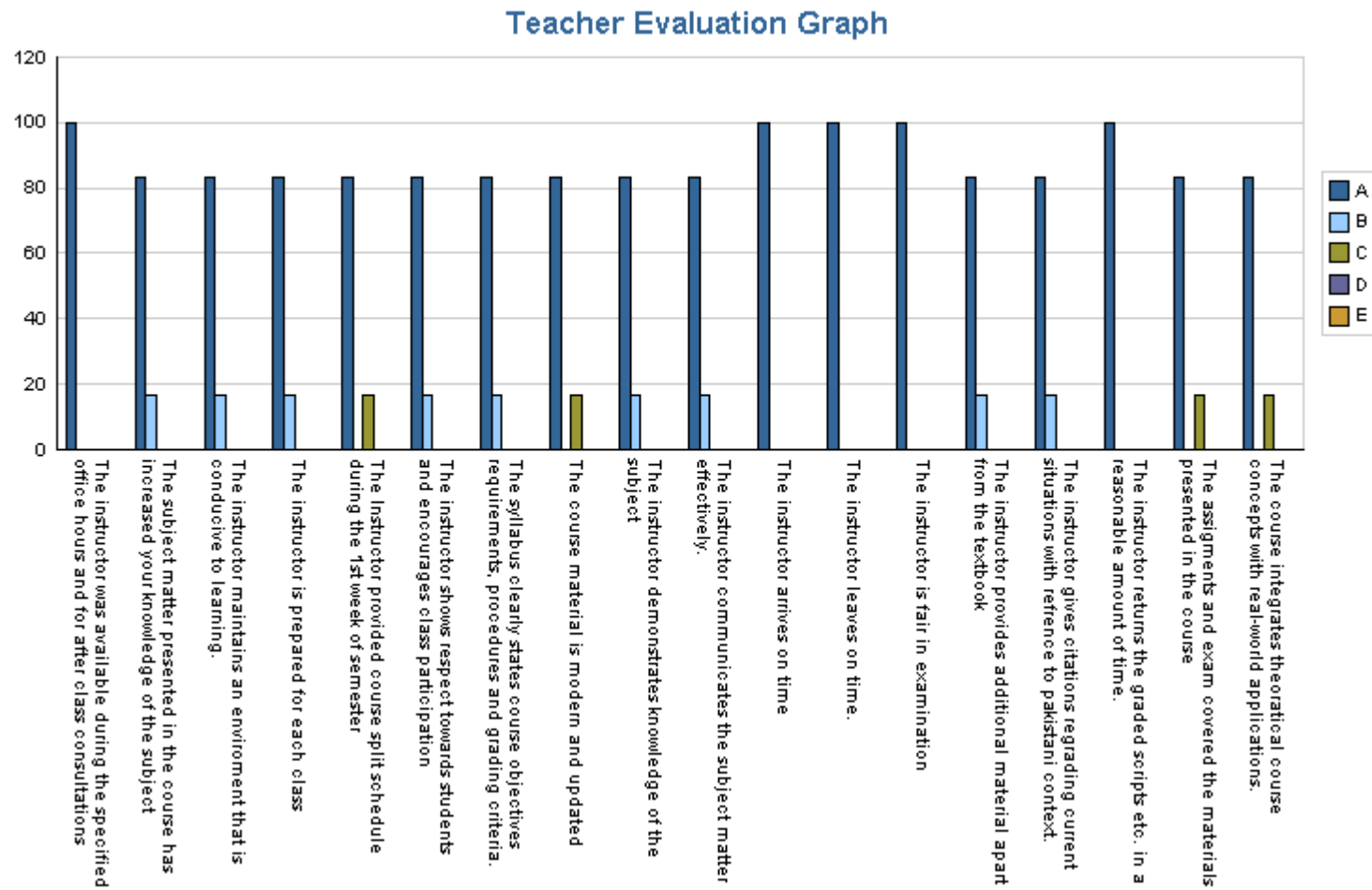
The strongest point which students like about teacher 4 is that the instructor arrives on time and is fair in examinations.

Results of Performa 10 of Teacher 4 (BCH-719 M section A)



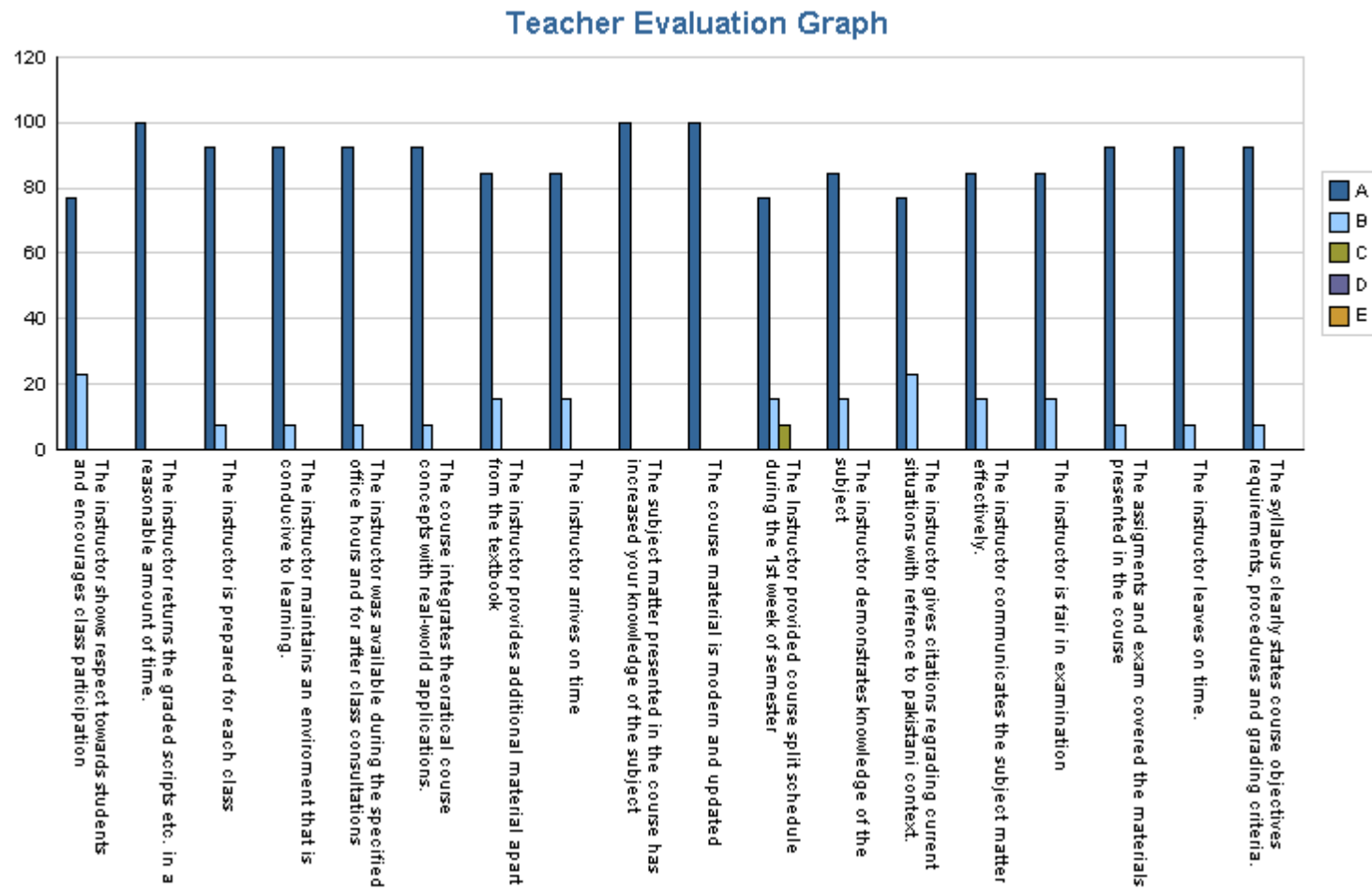
The strongest point which students like about teacher 4 is that the course content is provided in time and he communicated subject matter effectively.

Results of Performa 10 of Teacher 4 (BCH-720-II E section A)



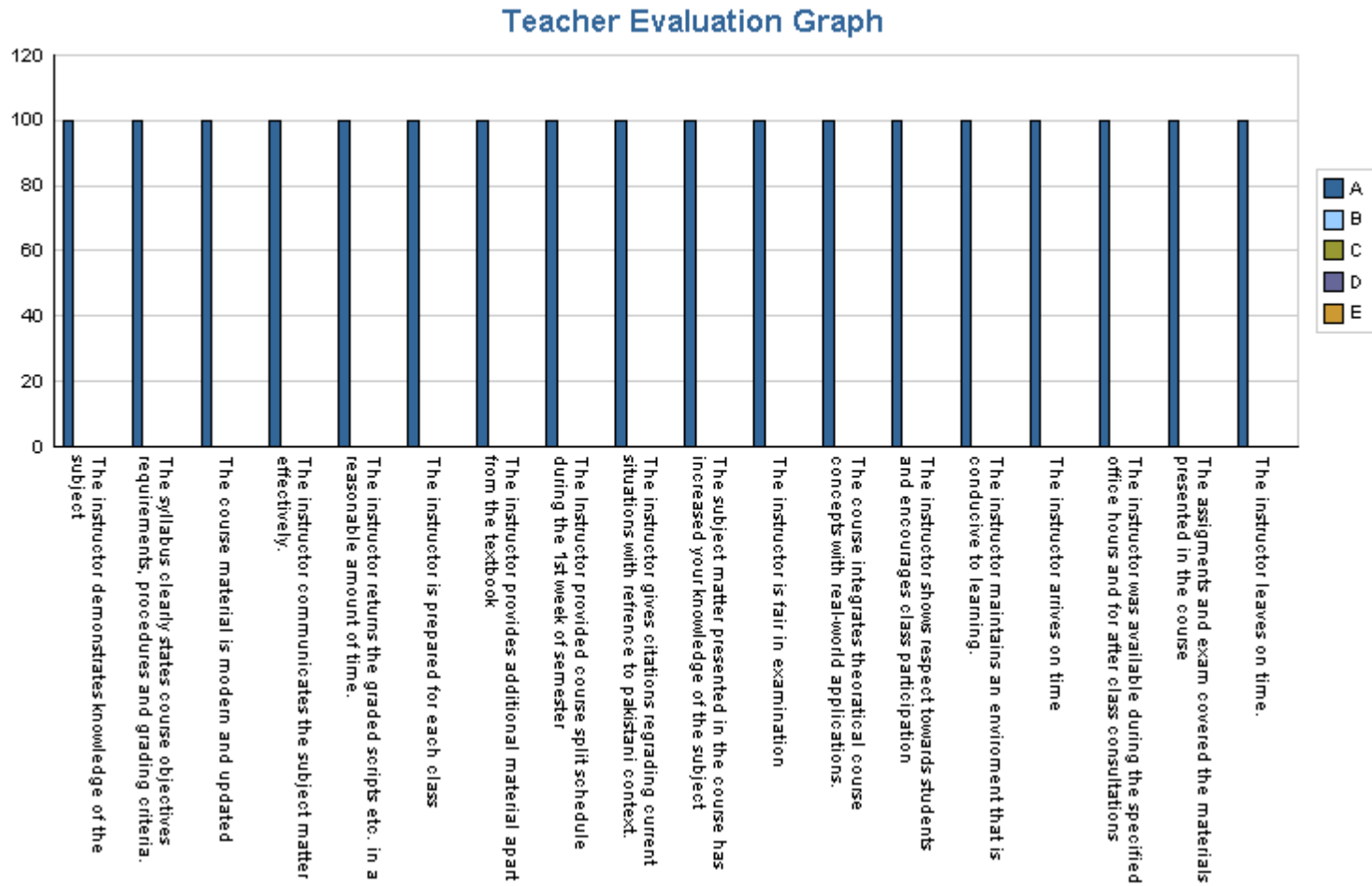
The strongest point which students like about teacher 4 is that he is punctual and fair in examinations.

Results of Performa 10 of Teacher 4 (BCH-720-II M section A)



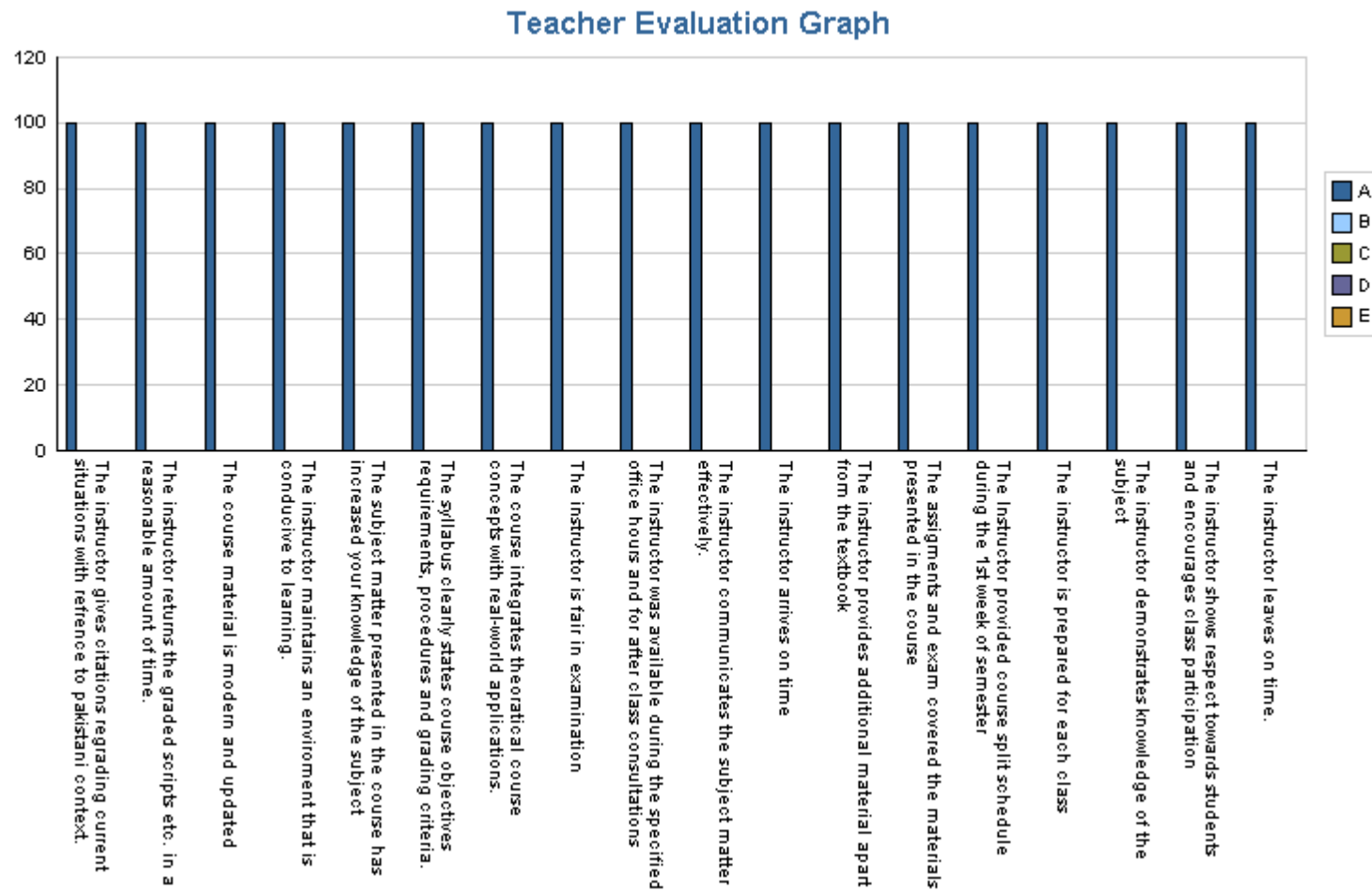
The strongest point which students like about teacher 2 is that the course content was modern and updated.

Results of Performa 10 of Teacher 5 (BCH-719 E section E)



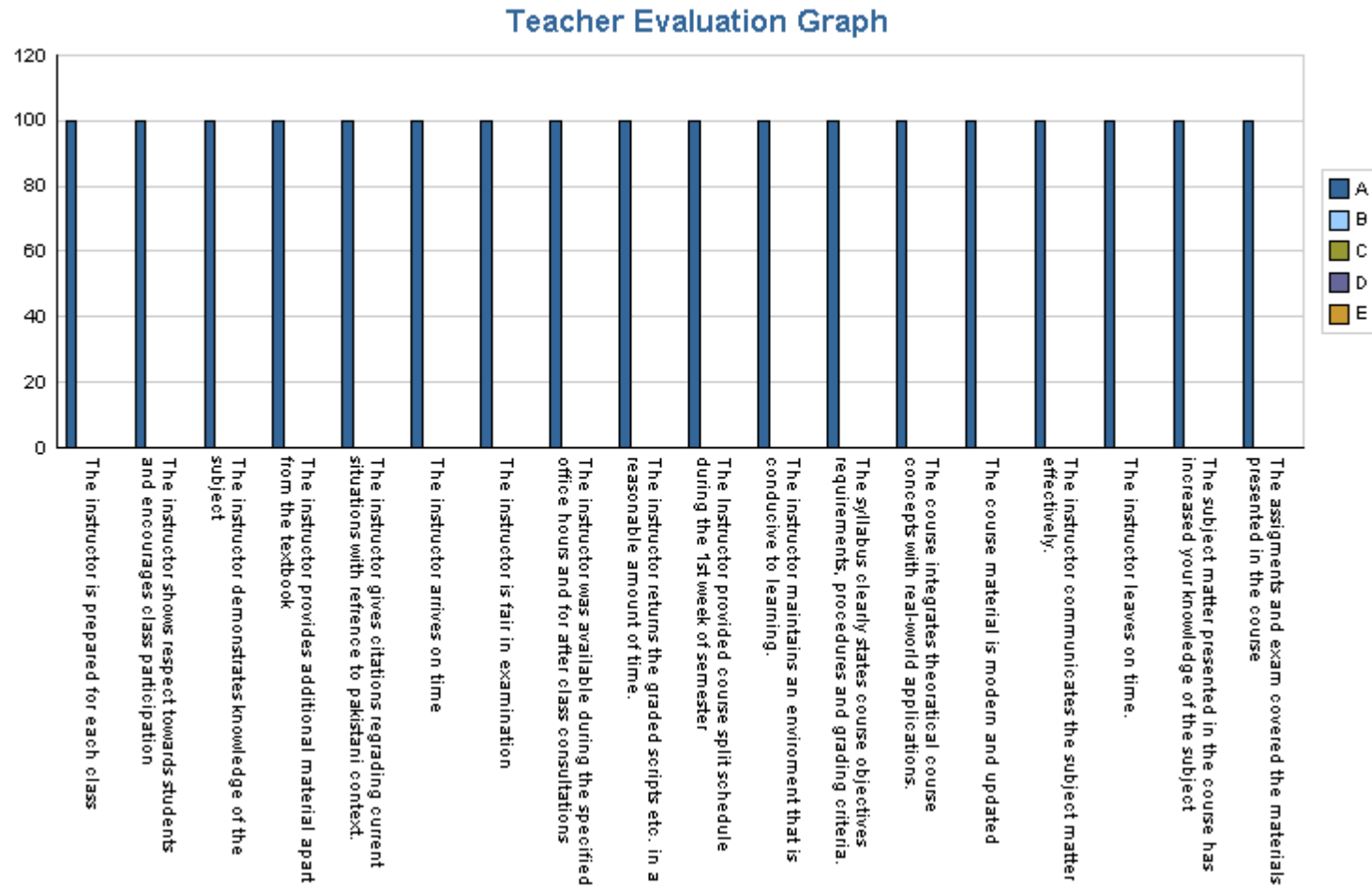
The strongest point which students like about teacher 5 is that the course content is provided in time and the provided material and examination was well balanced.

Results of Performa 10 of Teacher 5 (BCH-719 M section E)



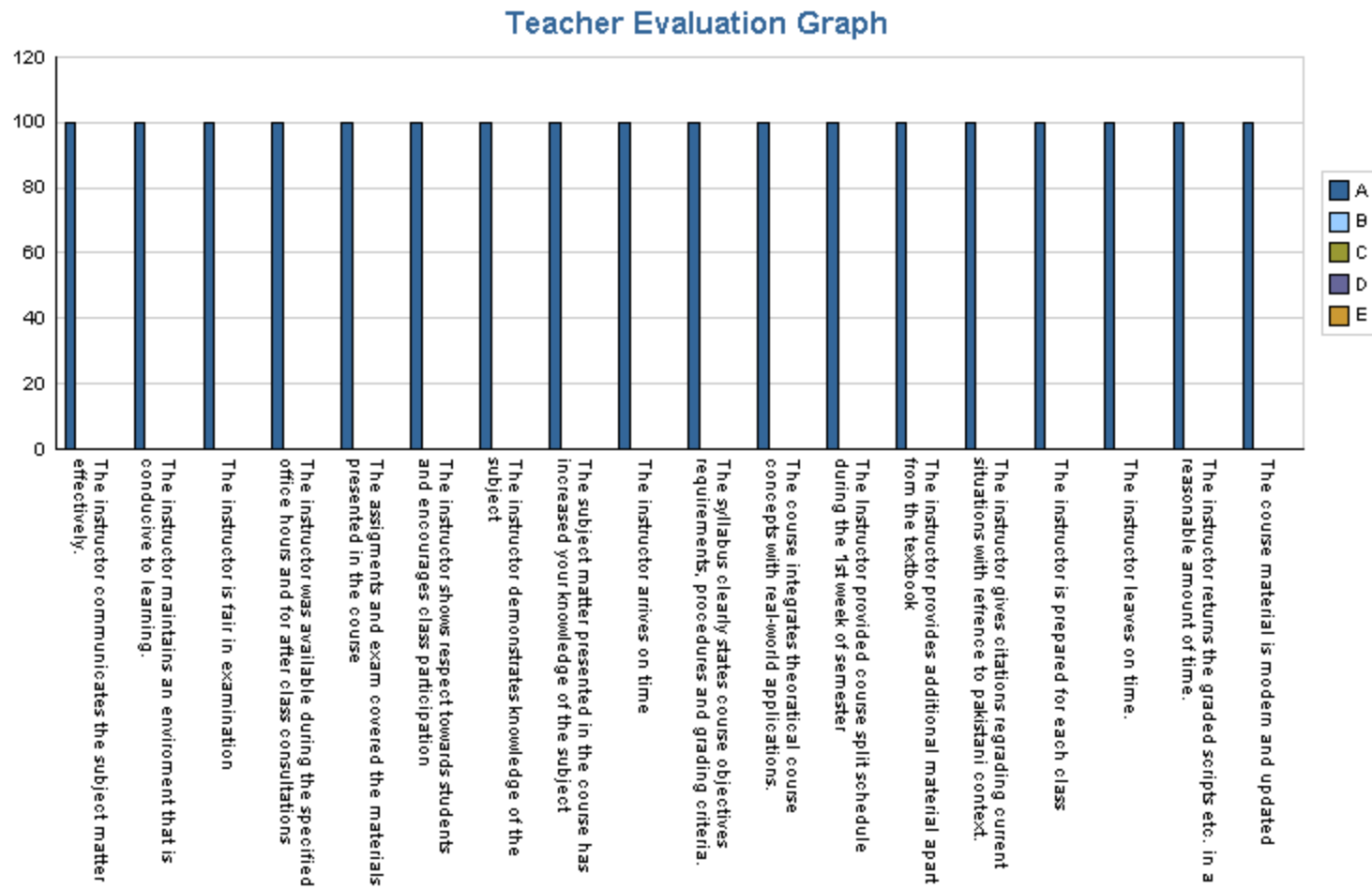
The strongest point which students like about teacher 3 is that the course related provided material and examination was well balanced. And instructor was available for the after-class consultations also.

Results of Performa 10 of Teacher 5 (BCH-733 M section A)



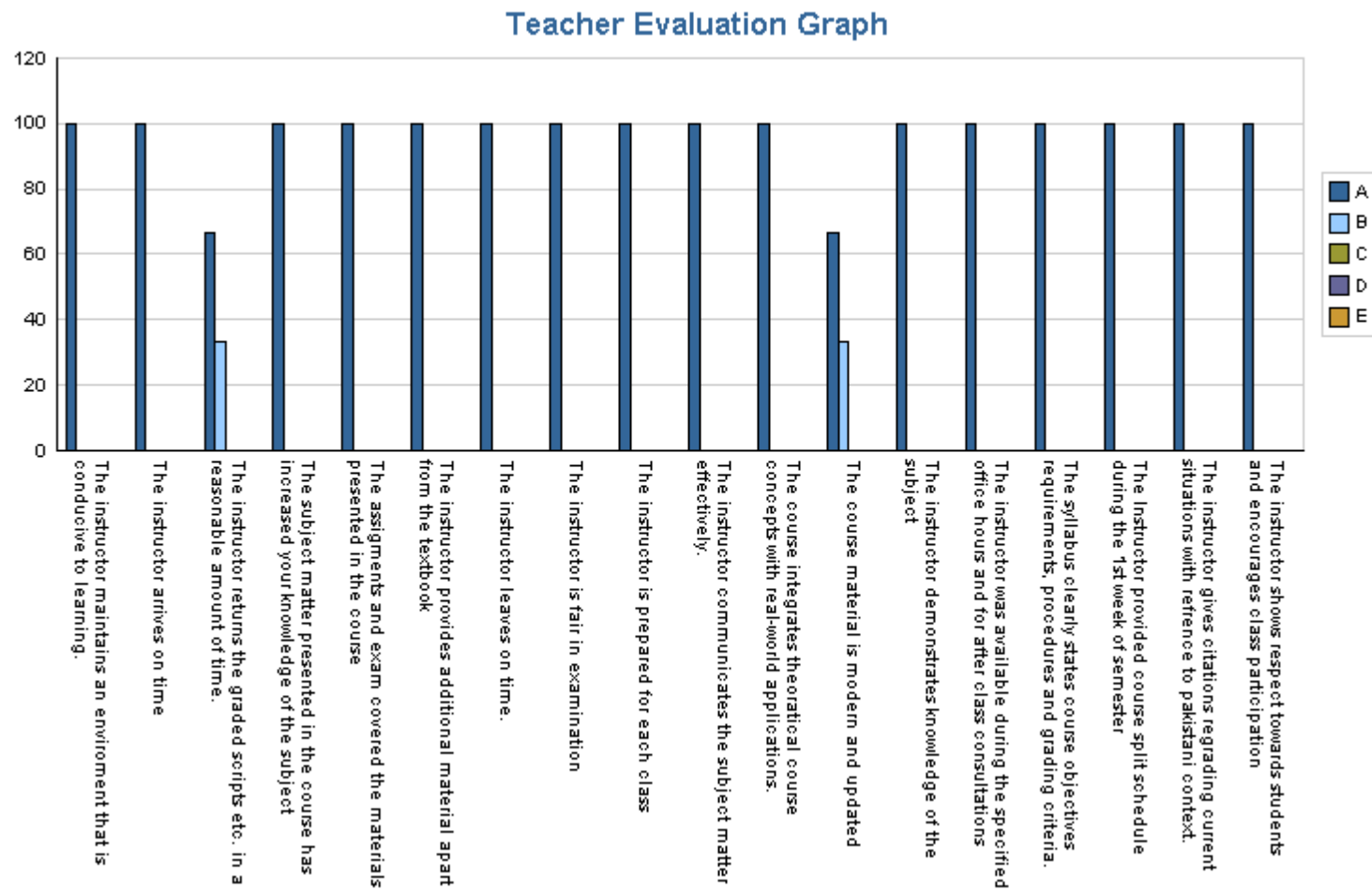
The strongest point which students like about teacher 5 is that the instructor was punctual; course related information was provided in time. Instructor was available for the after-class consultations also.

Results of Performa 10 of Teacher 5 (BIOT-719 M section A)



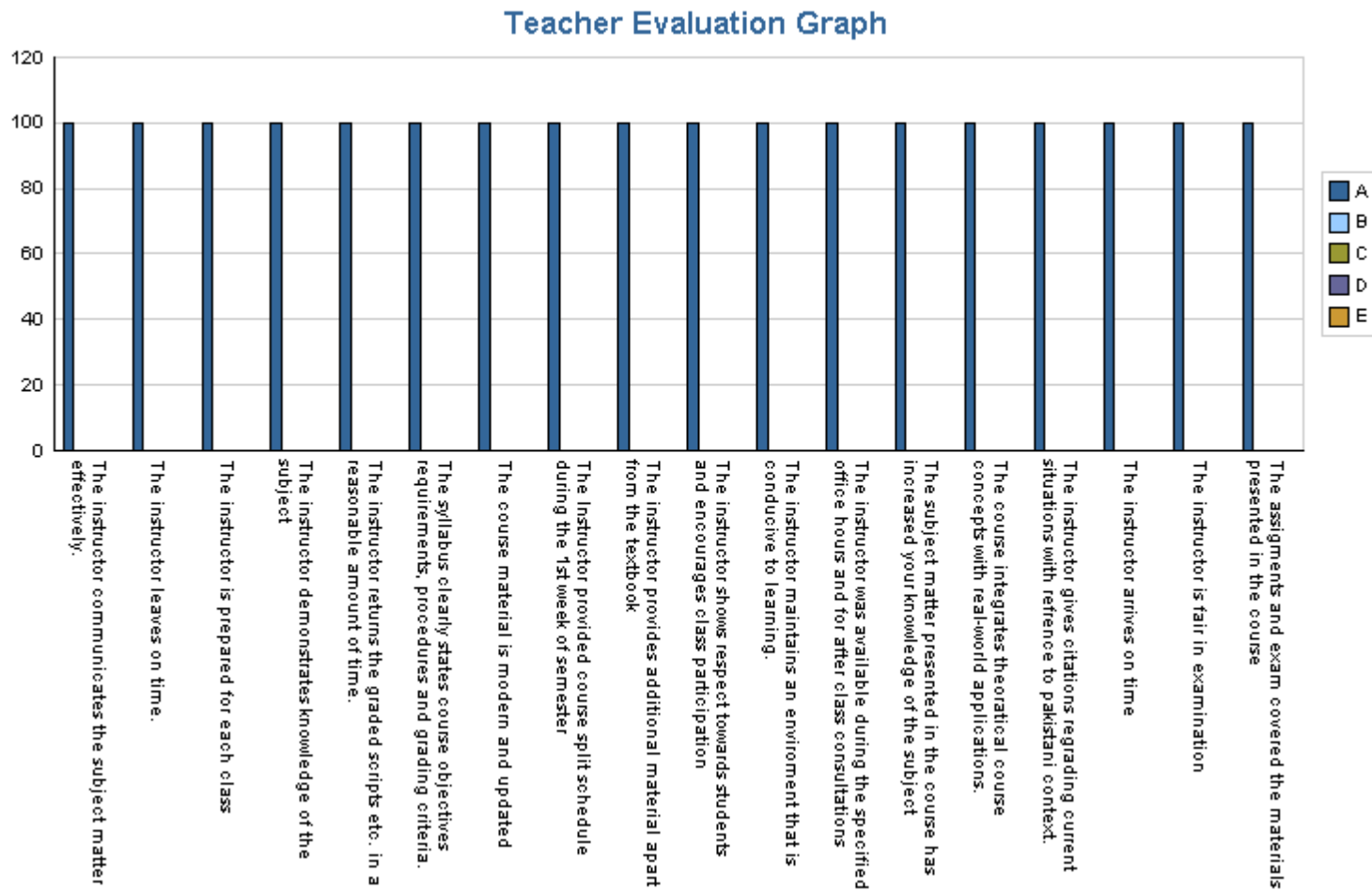
The strongest point which students like about teacher 5 is that the instructor was punctual; course related information was provided in time. Instructor was available for the after-class consultations also.

Results of Performa 10 of Teacher 5 (BCH-733 M section B)



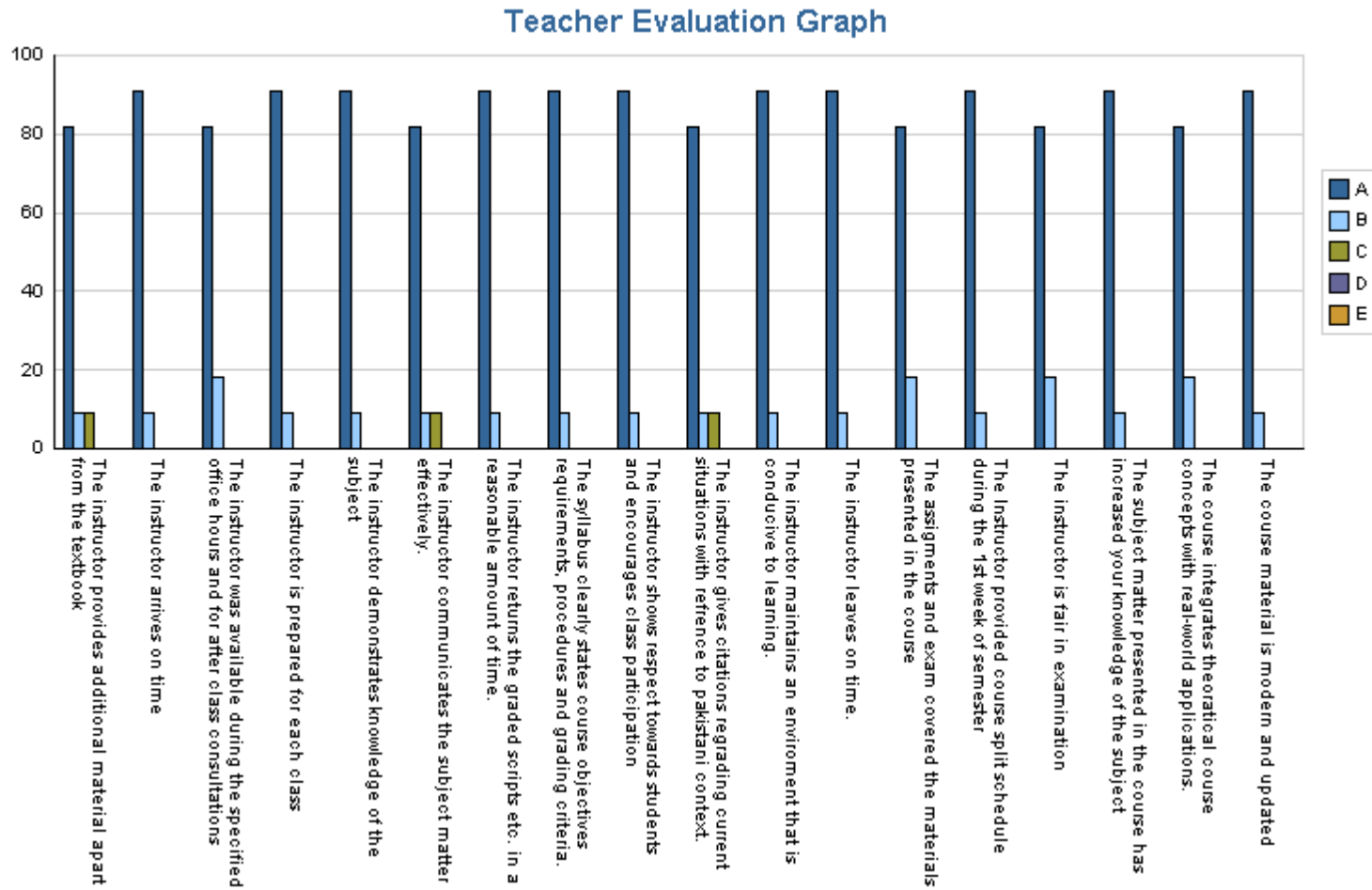
The strongest point which students like about teacher 3 is that the instructor was punctual about timings, and the knowledge demonstration of the subject was good.

Results of Performa 10 of Teacher 6 (BCH-719 E section G)



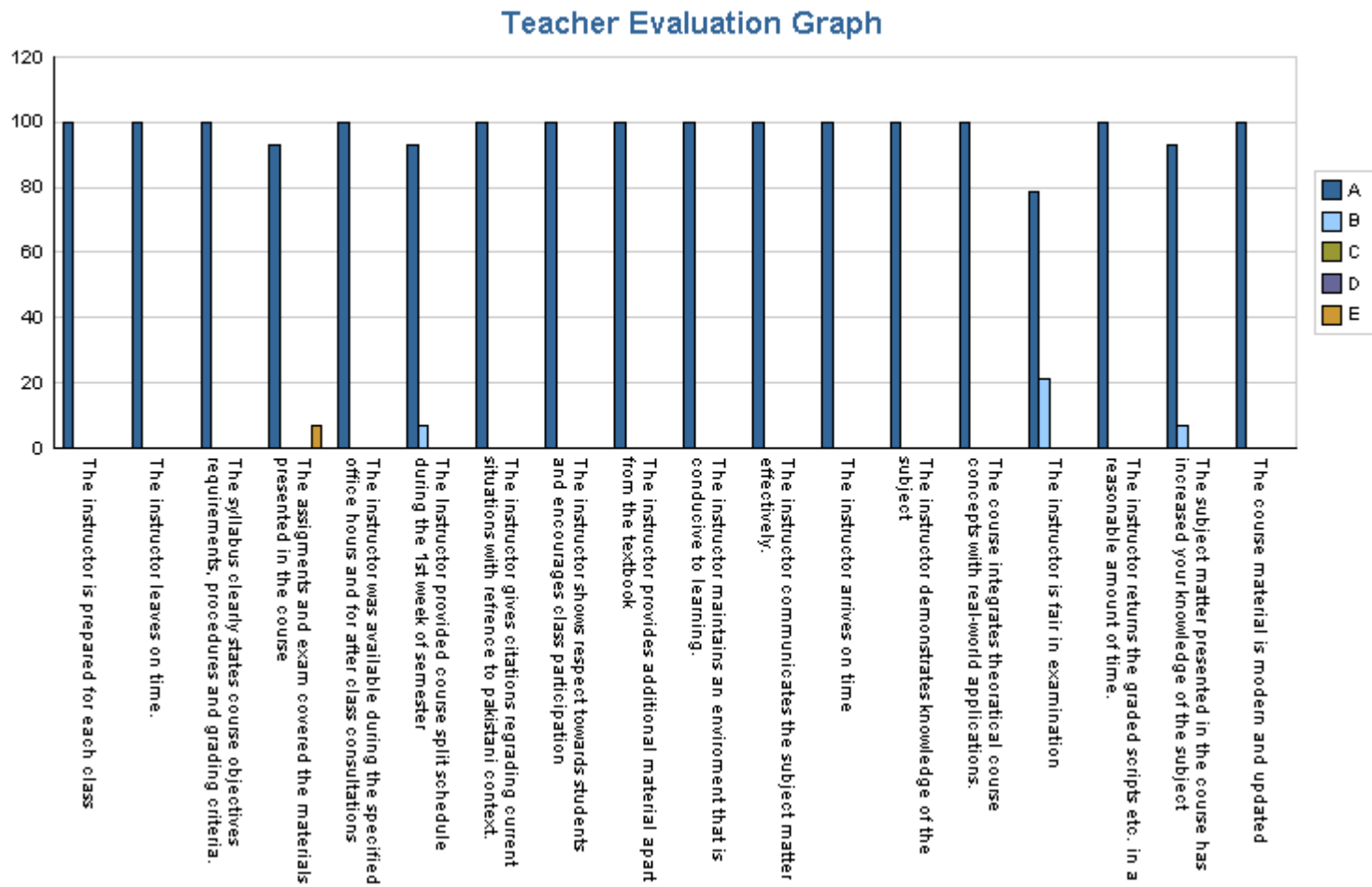
The strongest point which students like about teacher 6 is that the course material was modern updated and well communicated. Instructor communicated subject matter effectively and he was available after class consultations also.

Results of Performa 10 of Teacher 7 (BIOT 706 M section A)



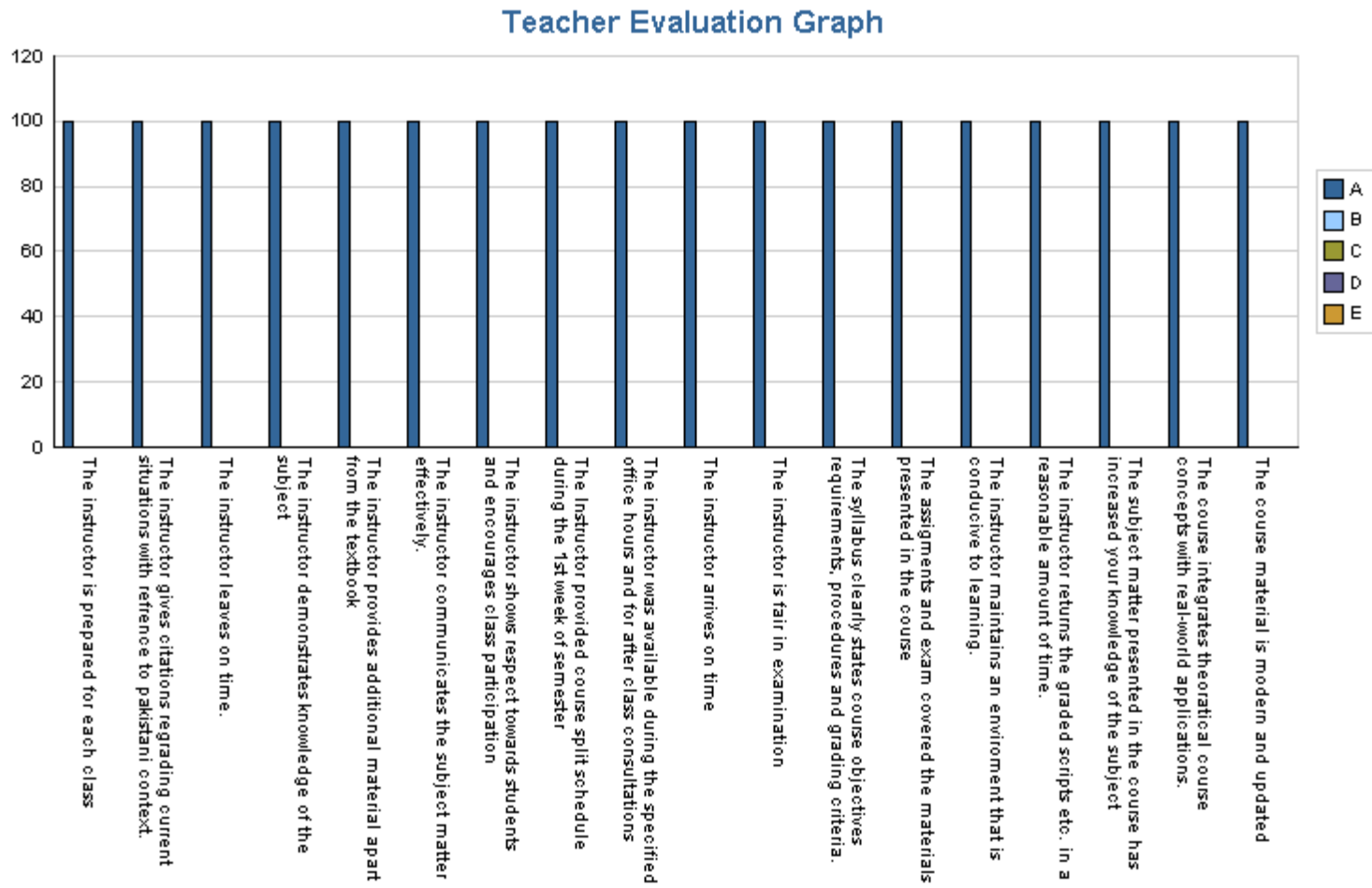
The strongest point was that the course material was updated and modern and instructor leaves on time.

Results of Performa 10 of Teacher 7 (BIOT-707 M section A)



The strongest point was instructor was punctual and delivered the lectures effectively.

Results of Performa 10 of Teacher 7 (BIOT-719 M section C)

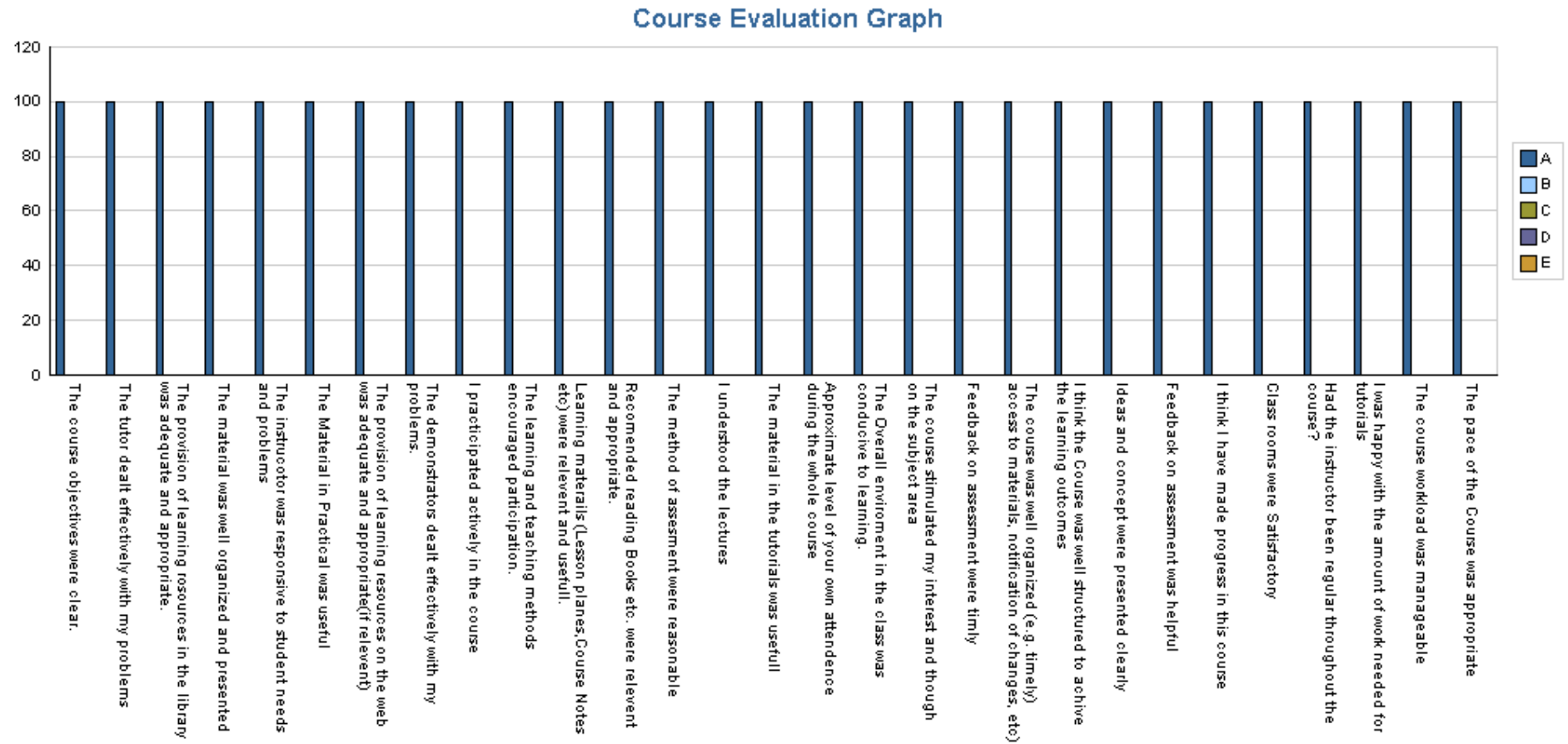


The results of performa 10 shows instructor 7 was well prepared for each class and encouraged students participation in class room.

Student Course Evaluation Spring Semester 2015:**Overall Results of Proforma No. 1 Teacher 1 to 7**

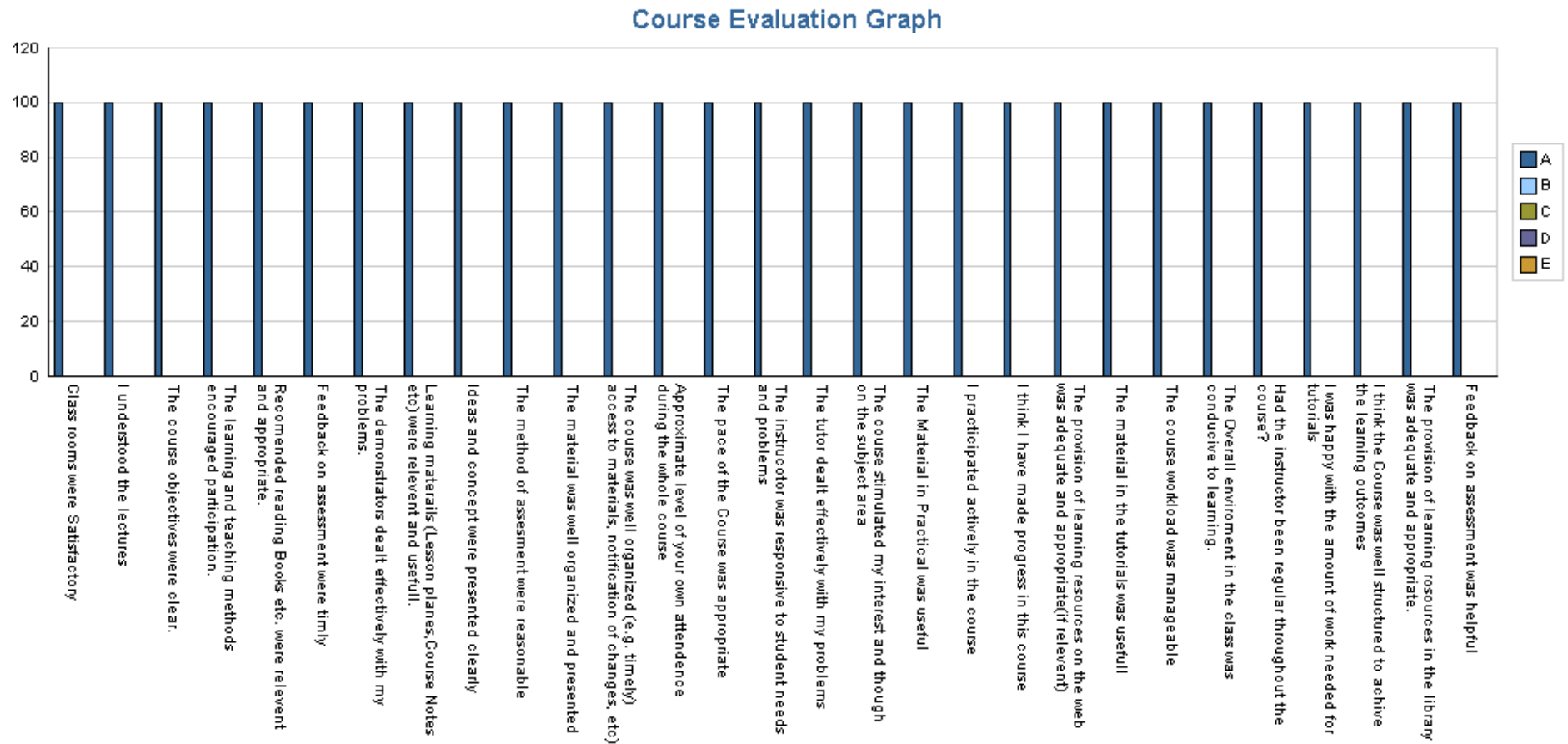
Proforma No. 1, deals with study of course observation regarding design of course contents (both theoretical and practical), its relevance with subject and teaching material. It also emphasizes on instructor's role in, not only completing course within given time frame, but how' instructor developed 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-719 E section F)



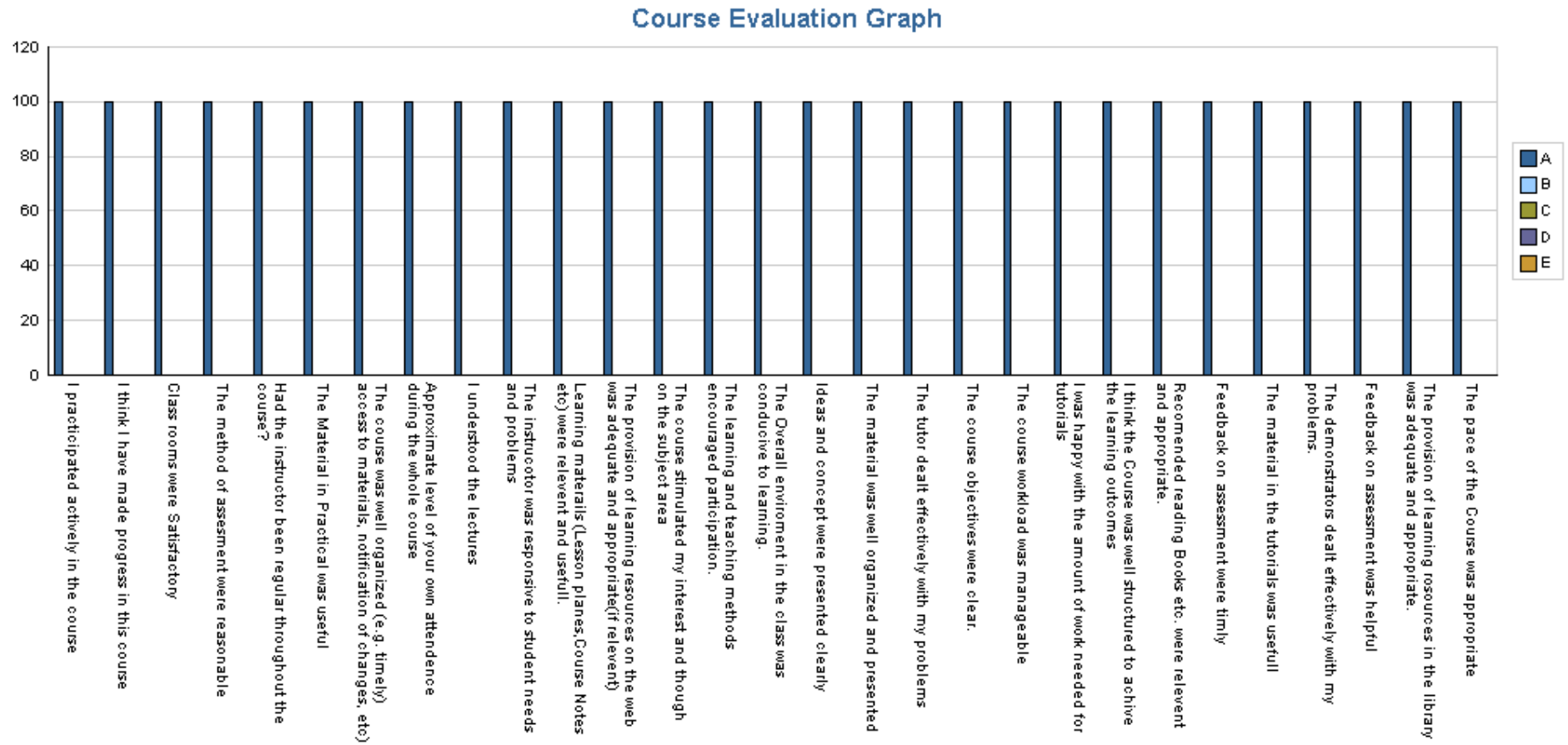
The strongest point which students like about teacher 1 is that the course objectives were very clear, material provided for course was well balanced and presented very well.

Results of Performa 1 of Teacher 1 (BCH-719 M section F)



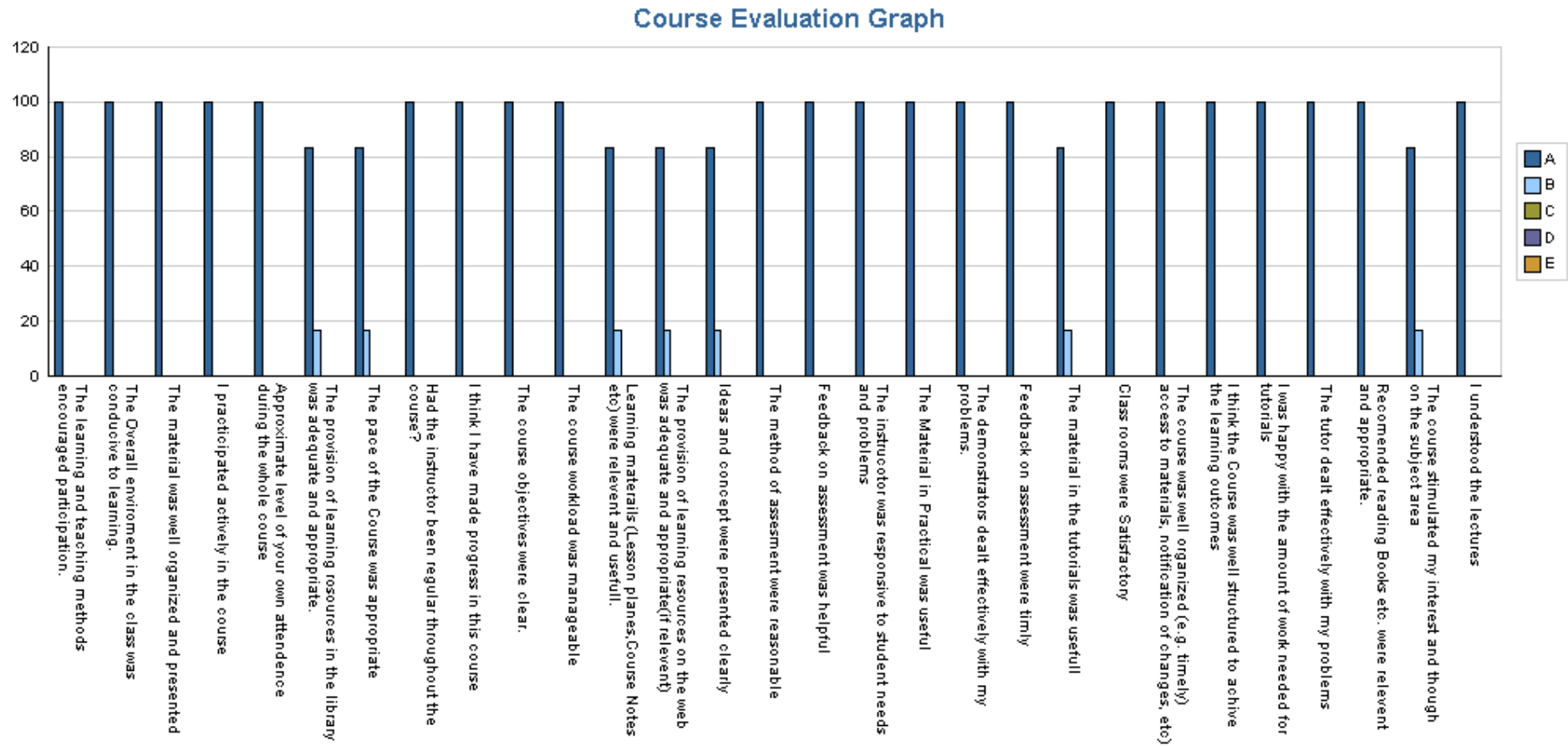
The strongest point which students like about teacher 1 is that the course pace was appropriate and the course content also kept the interest of the students.

Results of Performa 1 of Teacher 1 (BIOT-719 M section B)



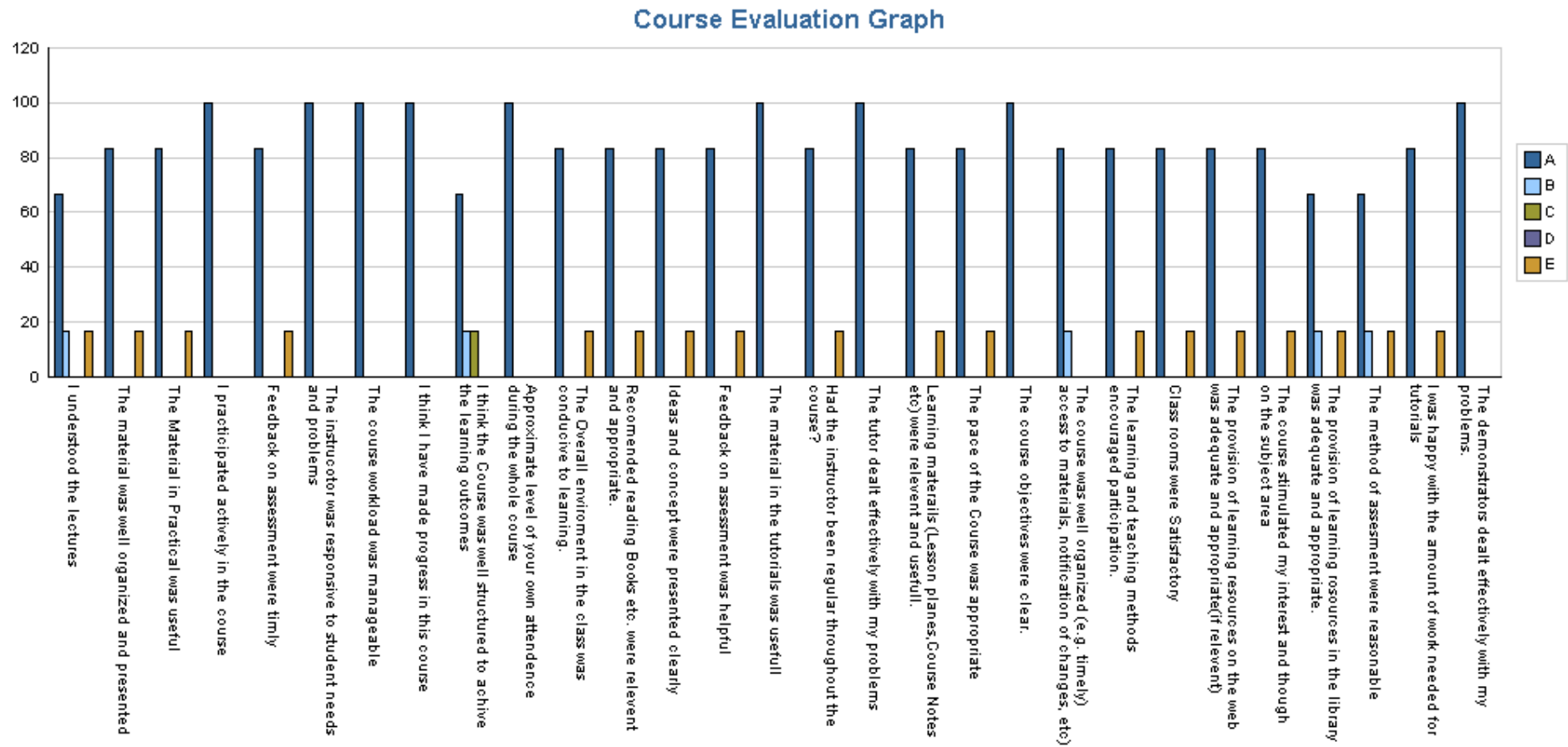
The strongest point which students like about teacher 1 is that the course objectives were very clear, material provided for course was well balanced and presented very well.

Results of Performa 1 of Teacher 2 (BCH-719 E section A)



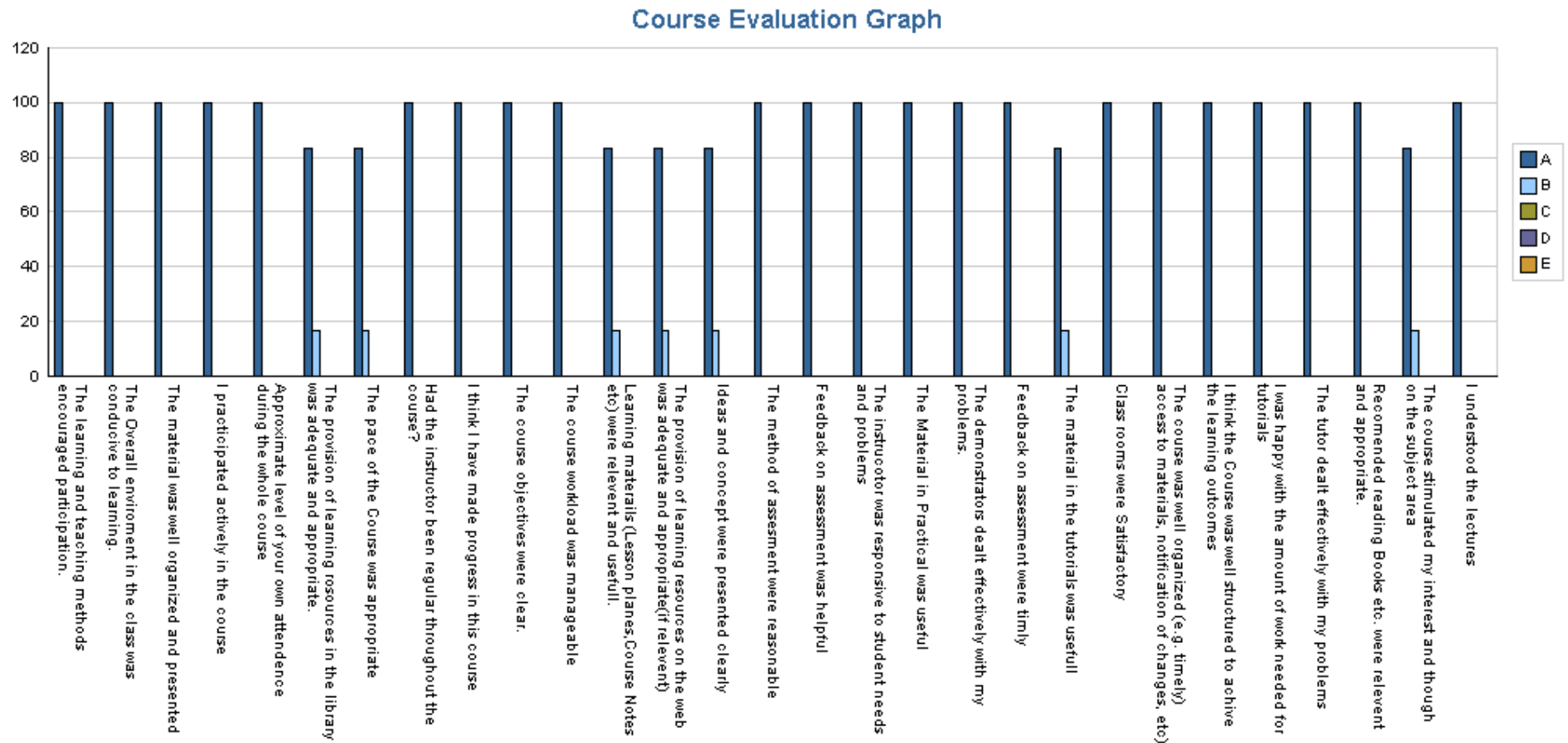
The strongest point which students like about teacher 2 is that the course objectives were clear. Teacher was punctual and maintained a good learning environment.

Results of Performa 1 of Teacher 2 (BCH-719 M section A)



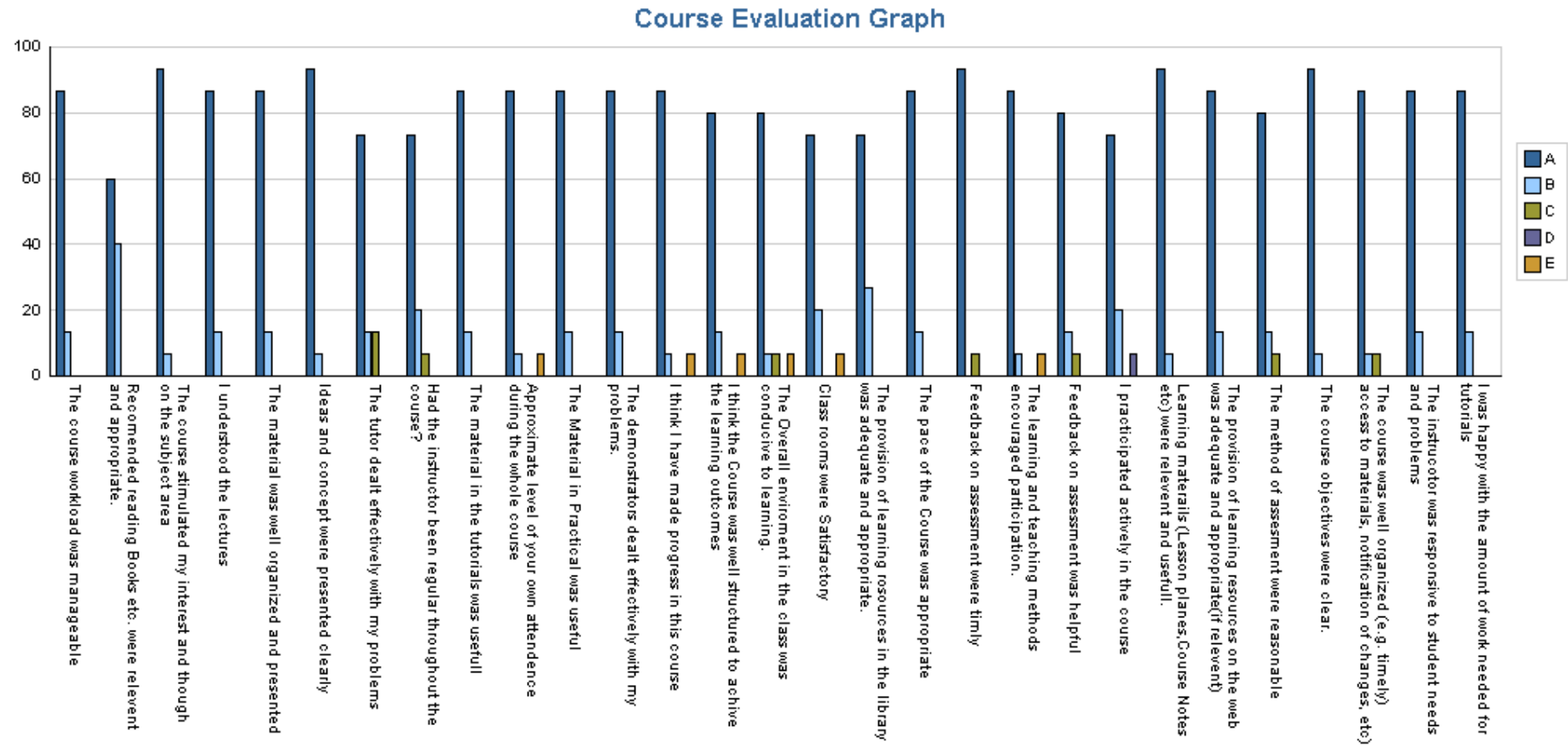
The strongest point which students like about teacher 2 is that the course objectives were clear and the teaching methodology was good.

Results of Performa 1 of Teacher 2 (BCH-720-II E section A)



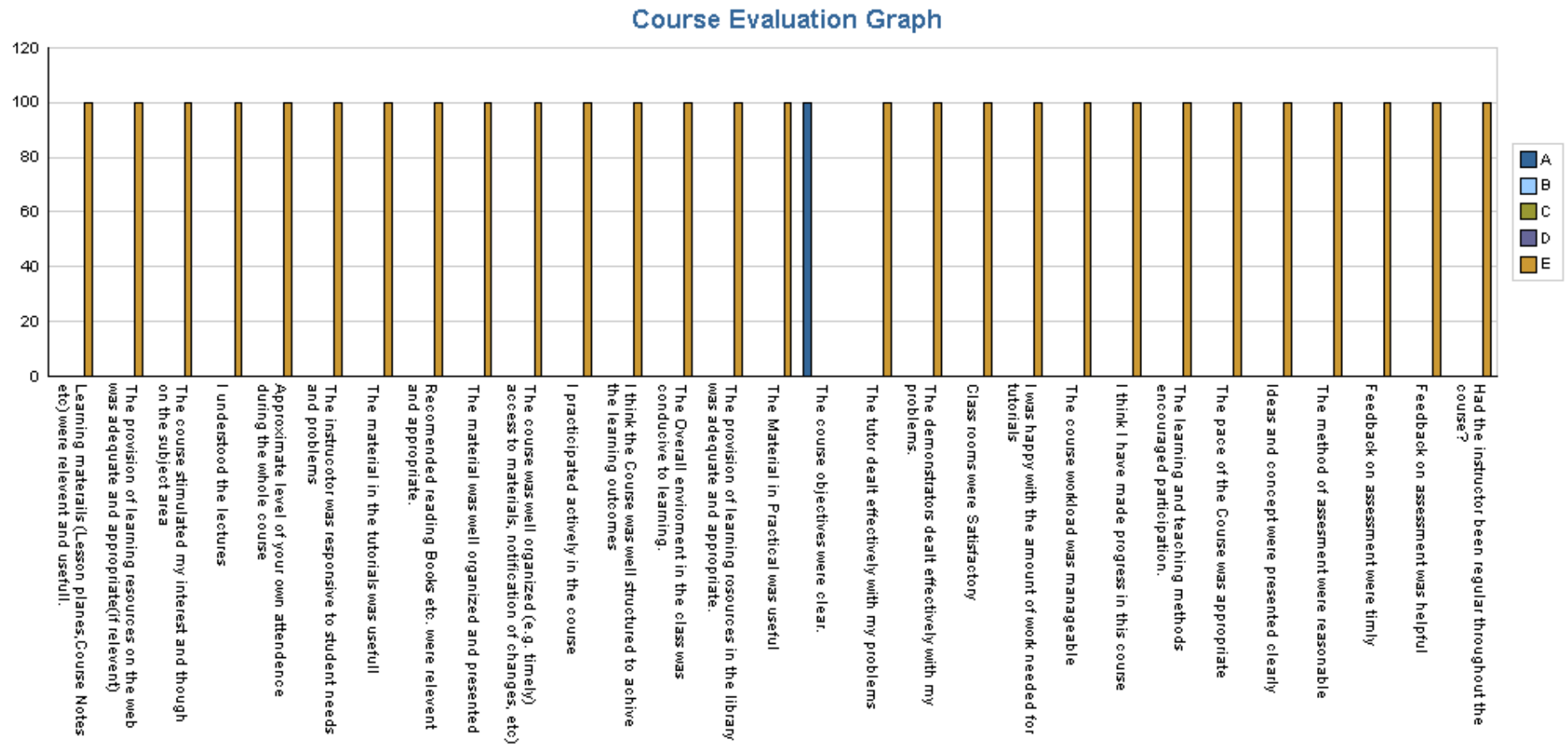
The strongest point which students like about teacher 2 is that the course objectives were clear and the material provided was appropriate.

Results of Performa 1 of Teacher 2 (BCH-720- II M section A)



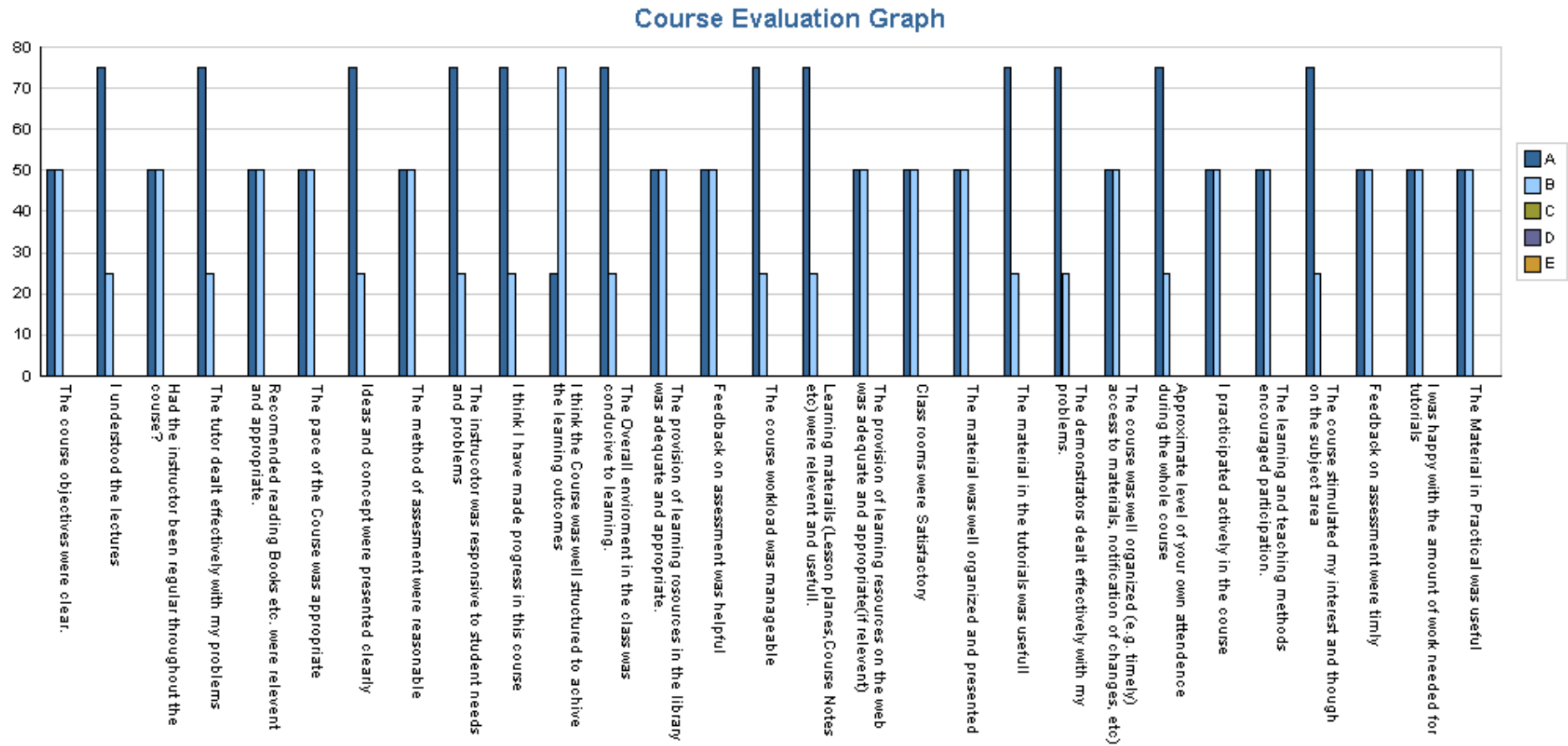
The strongest point which students like about teacher 2 is that the feedback on assessment was timely and learning material provided was useful.

Results of Performa 1 of Teacher 3 (BCH-719 E section C)



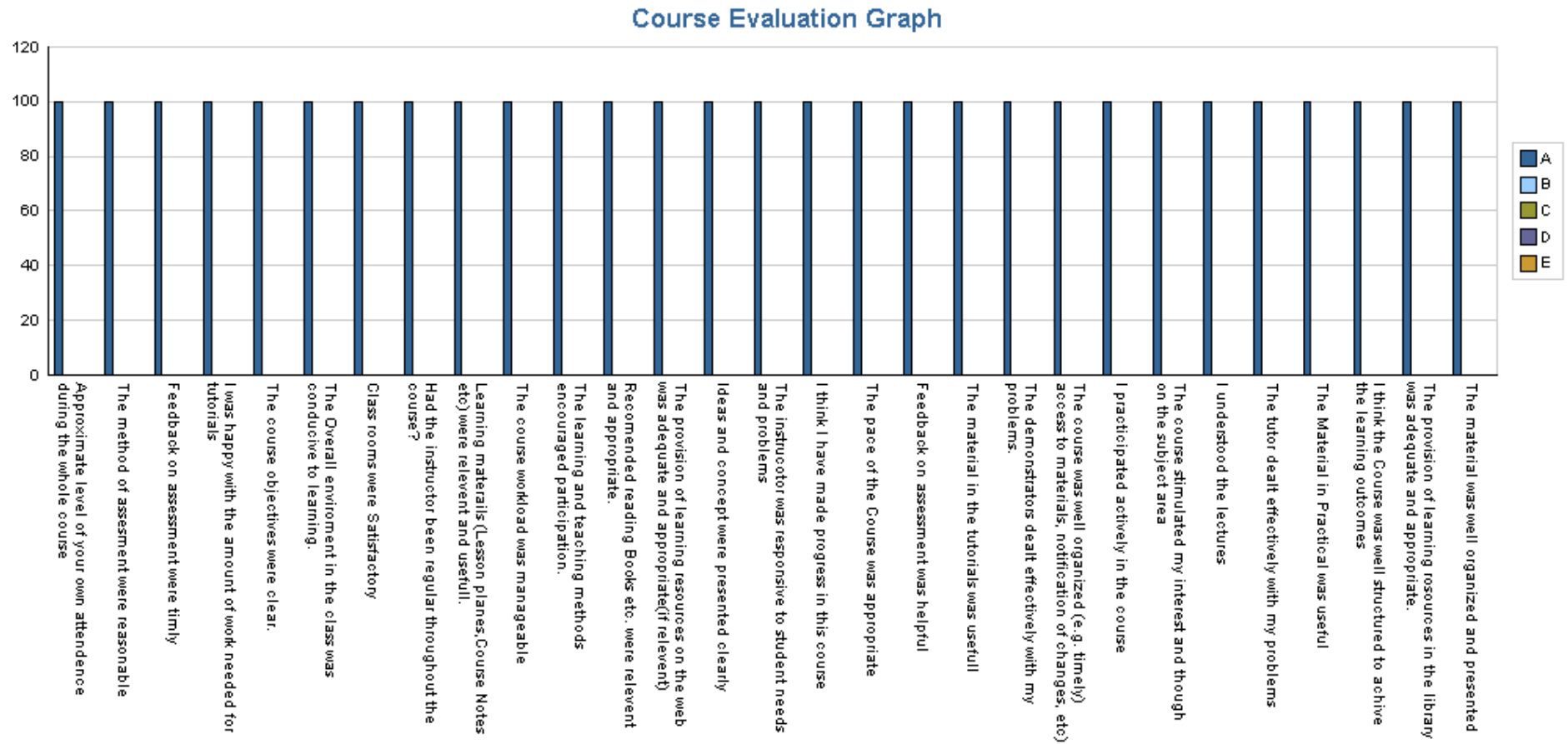
The strongest point which students like about teacher 3 is that the course concepts were presented very clearly. The material provided was appropriate and a good learning environment was created in class.

Results of Performa 1 of Teacher 3 (BCH-719 M section C)



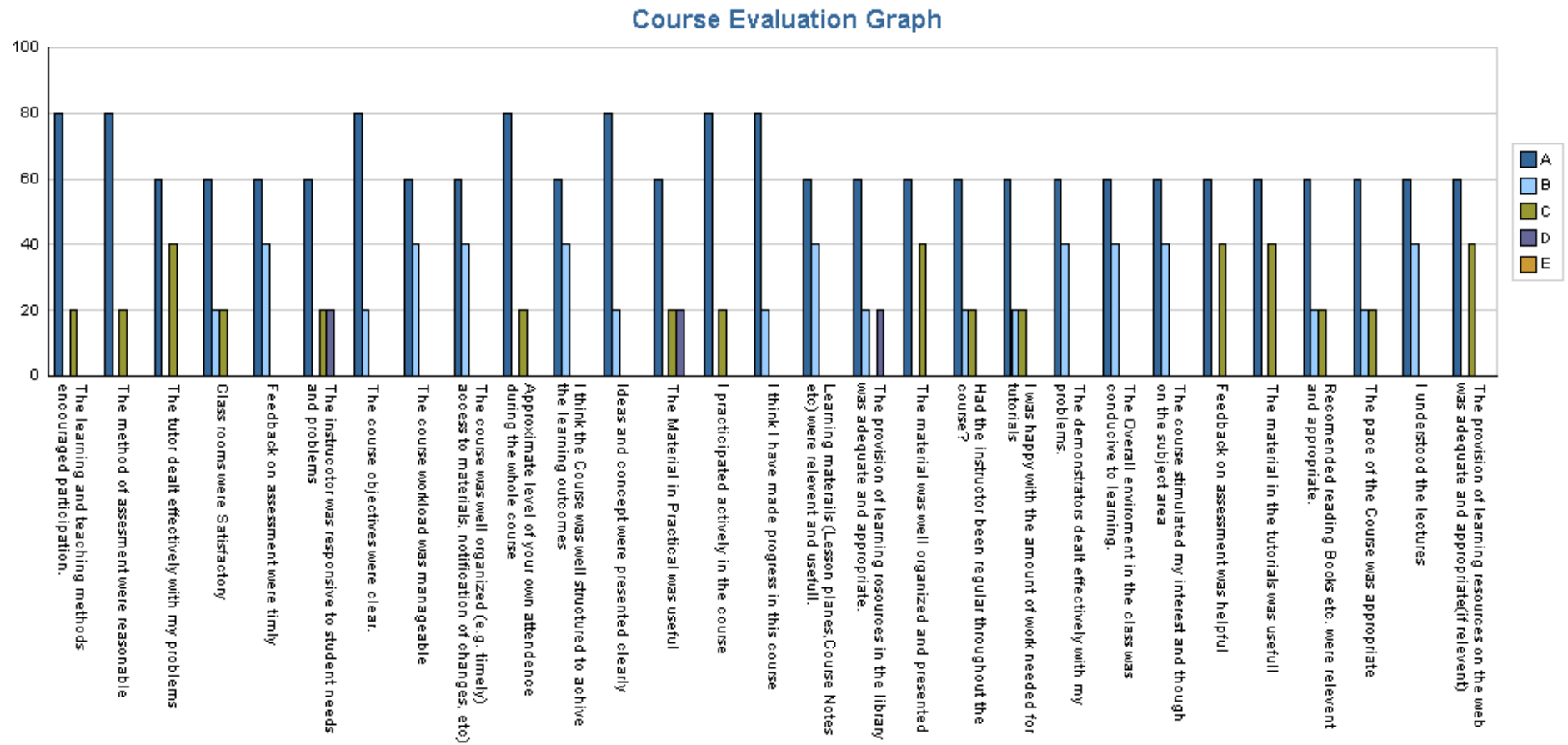
The strongest point which students like about teacher 3 is that the course workload was manageable and material in tutorials was useful.

Results of Performa 1 of Teacher 3 (BCH-720 M section A)



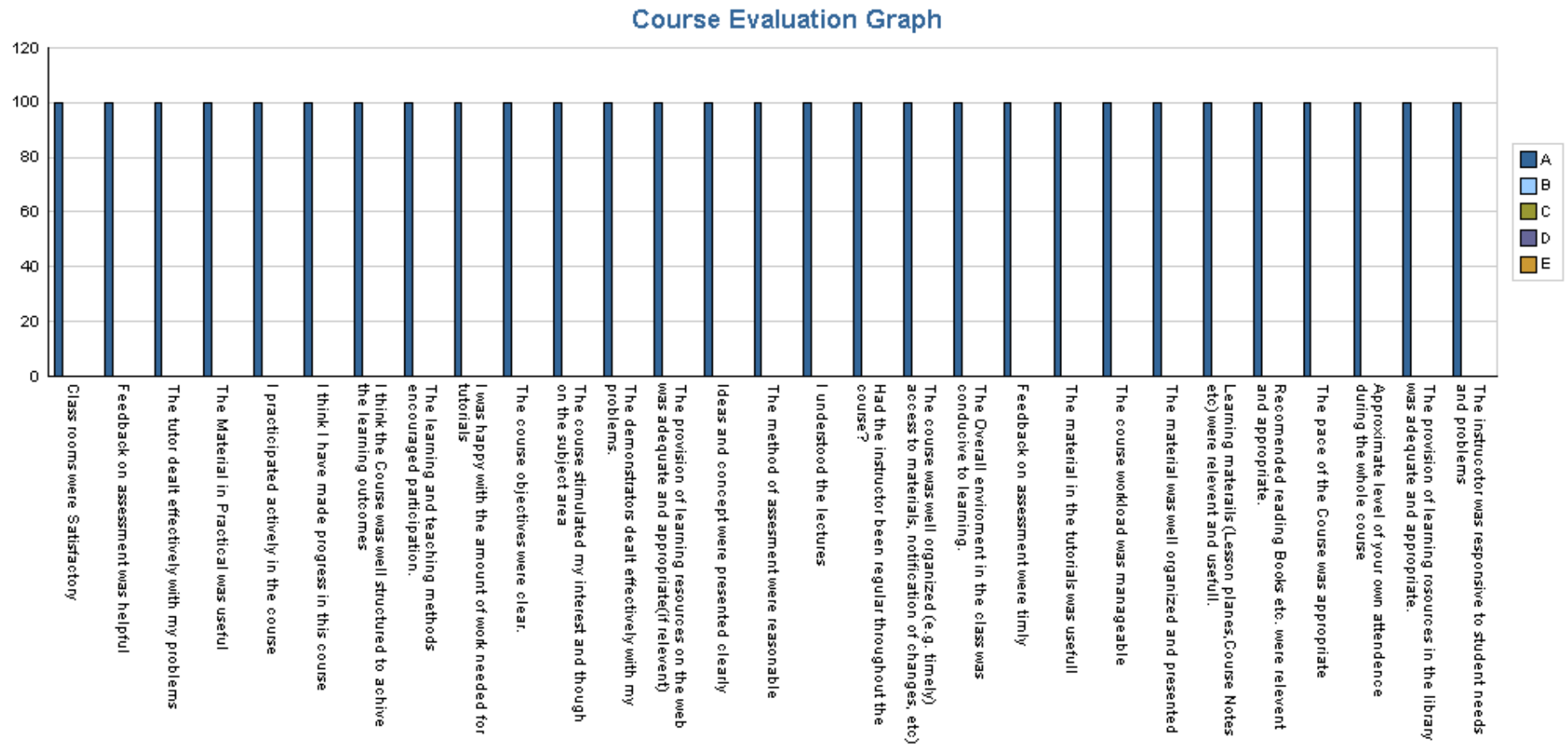
The strongest point which students like about teacher 3 is that the subject material was well presented and the communication with the students was very good.

Results of Performa 1 of Teacher 3 (BCH-720-II M section A)



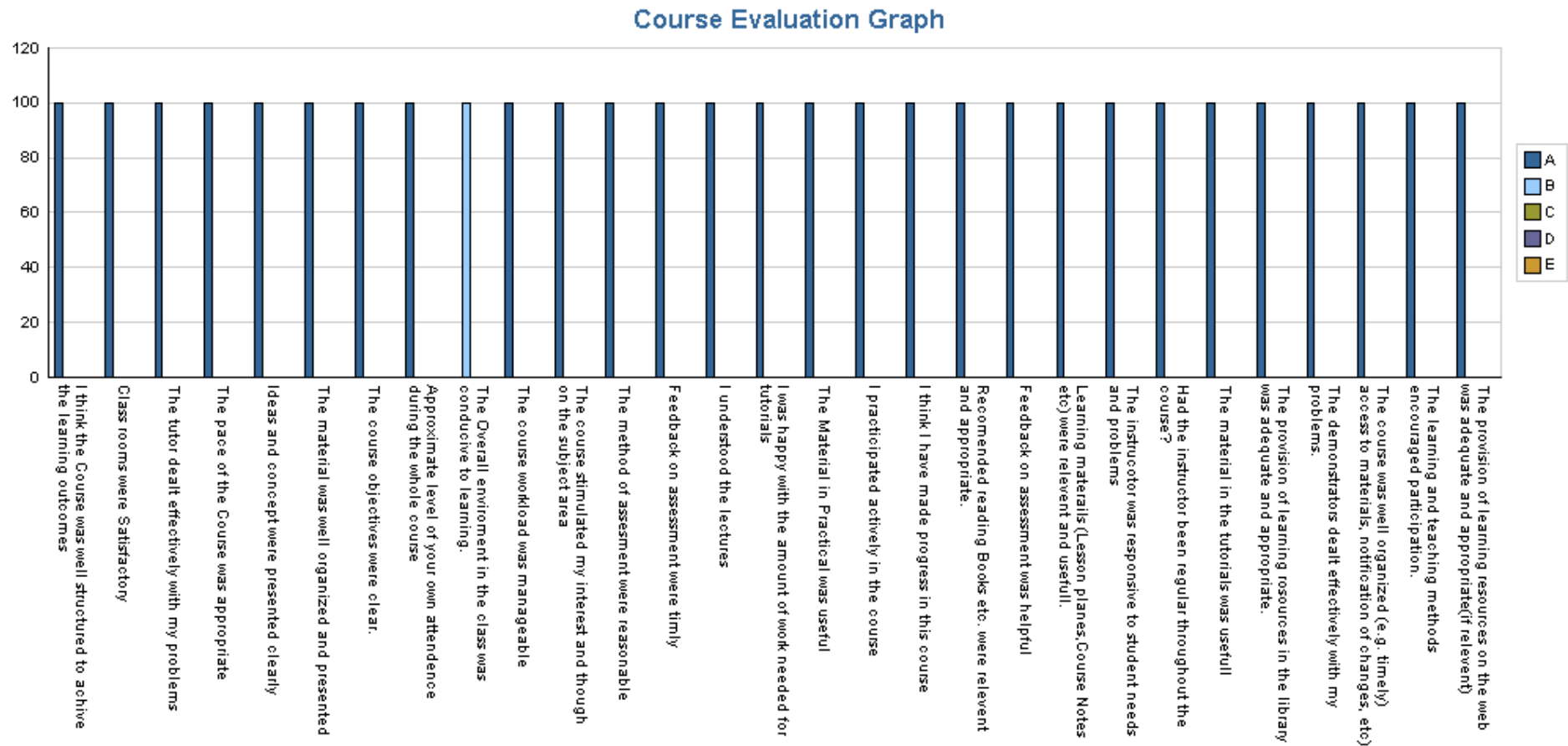
The strongest point which students like about teacher 3 is that the course objectives were clear and students participated actively in classroom.

Results of Performa 1 of Teacher 3 (BIOT-719 M section D)



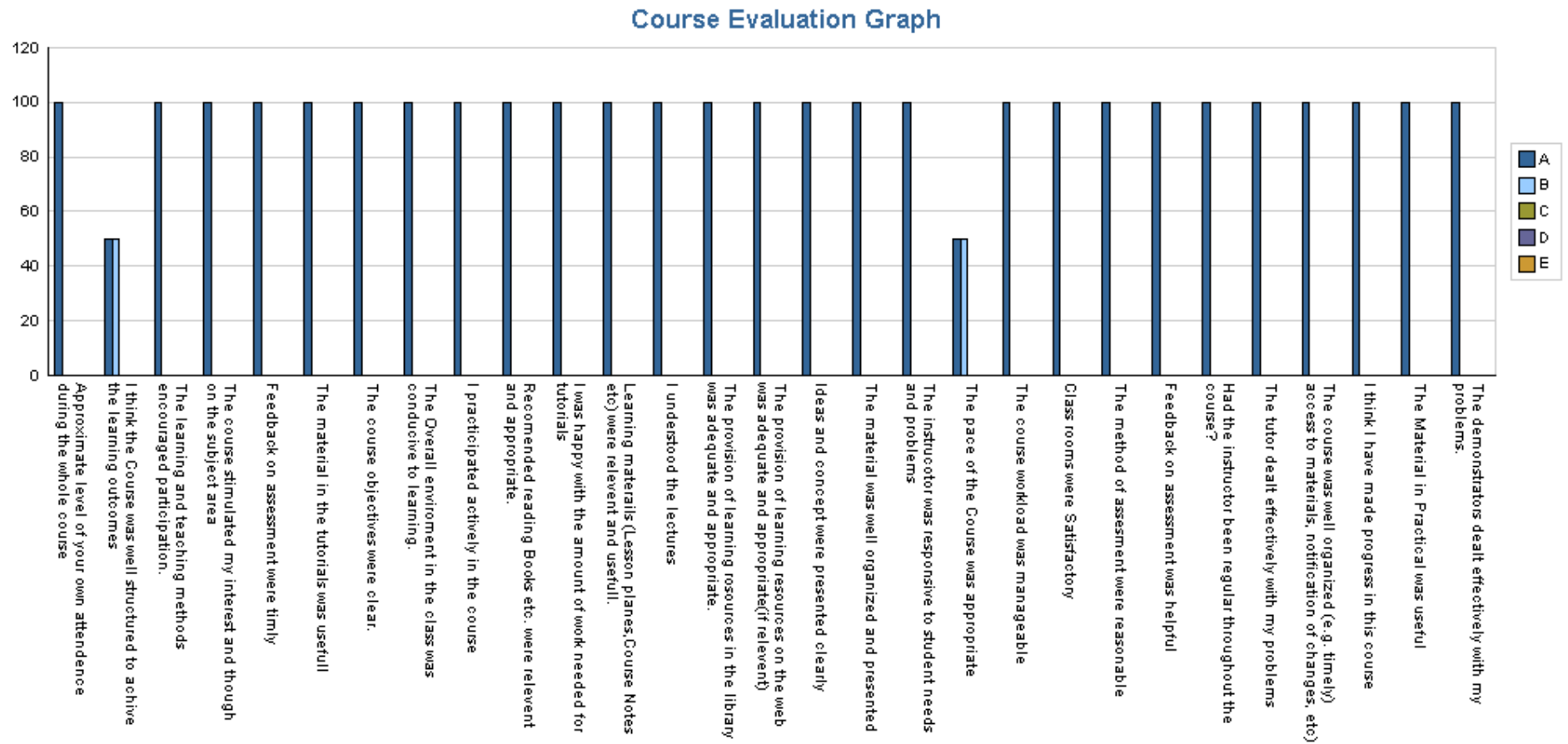
The strongest point which students like about teacher 3 is that the course objectives were very clear, material provided for course was well balanced and presented very well.

Results of Performa 1 of Teacher 3 (BIOT-720 M section A)



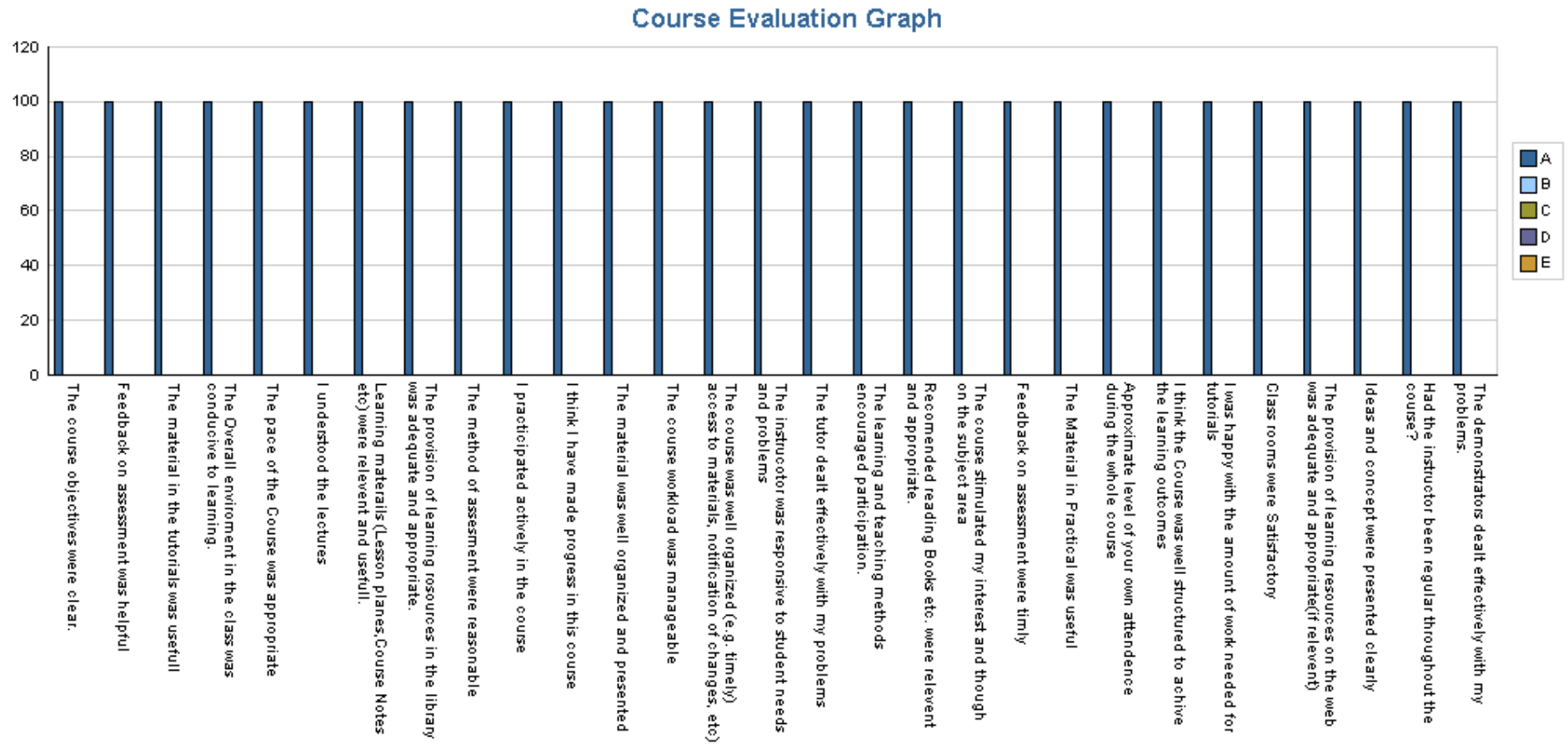
The strongest point which students like about teacher 3 is that the course objectives were very clear, material provided for course was well balanced and presented very well.

Results of Performa 1 of Teacher 4 (BCH-719 E section E)



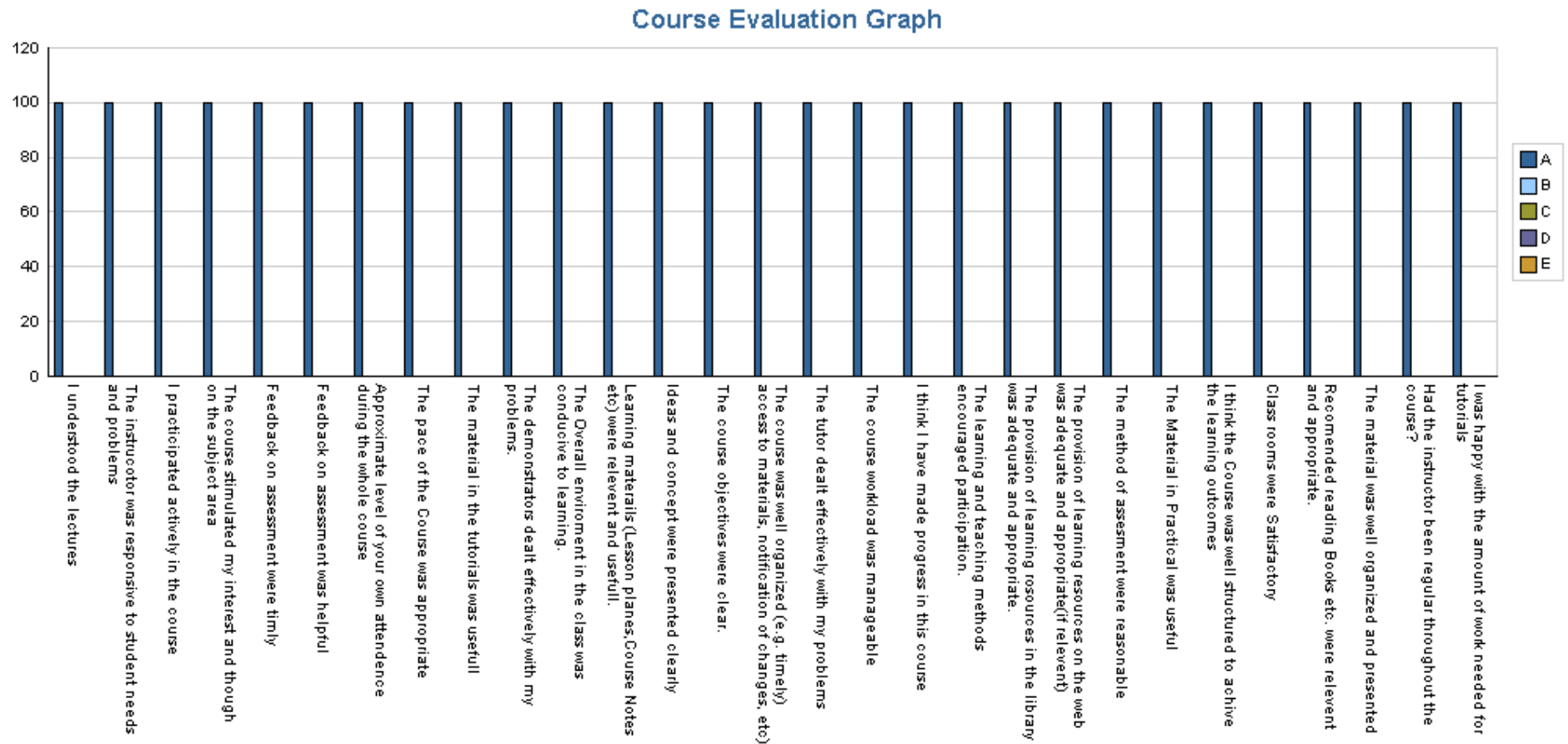
The strongest point which students like about teacher 4 is that the course objectives were clear and classrooms were satisfactory.

Results of Performa 1 of Teacher 4 (BCH-719 M section E)



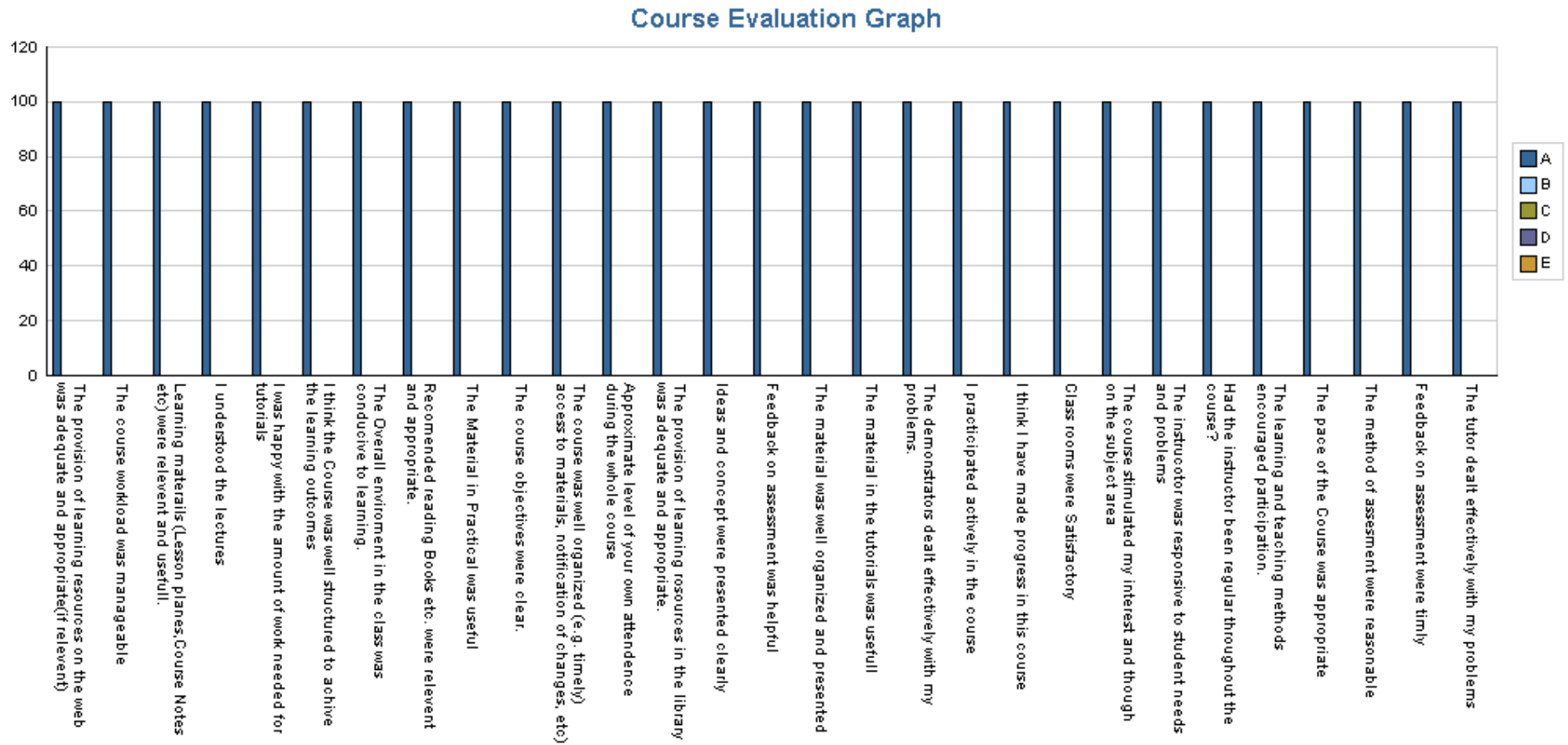
The strongest point which students like about teacher 4 is that the lectures were well presented. The course objectives were clear and the material provided was appropriate and communicated well.

Results of Performa 1 of Teacher 4 (BIOT-719 M section A)



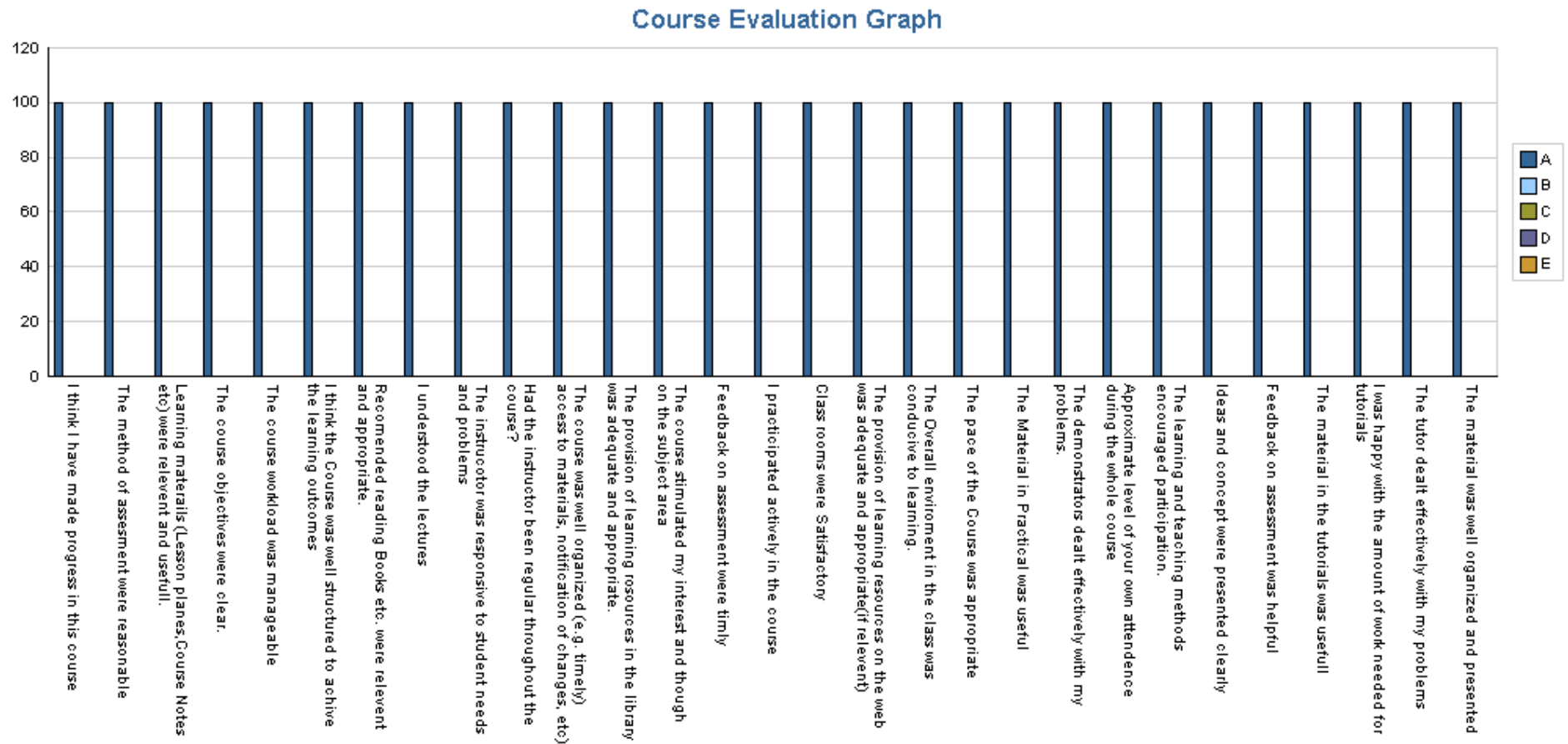
The strongest point which students like about teacher 4 is that instructor did his job very well, the course objectives were clear which encouraged students' interest and classrooms were satisfactory.

Results of Performa 1 of Teacher 4 (BCH-733 M section A)



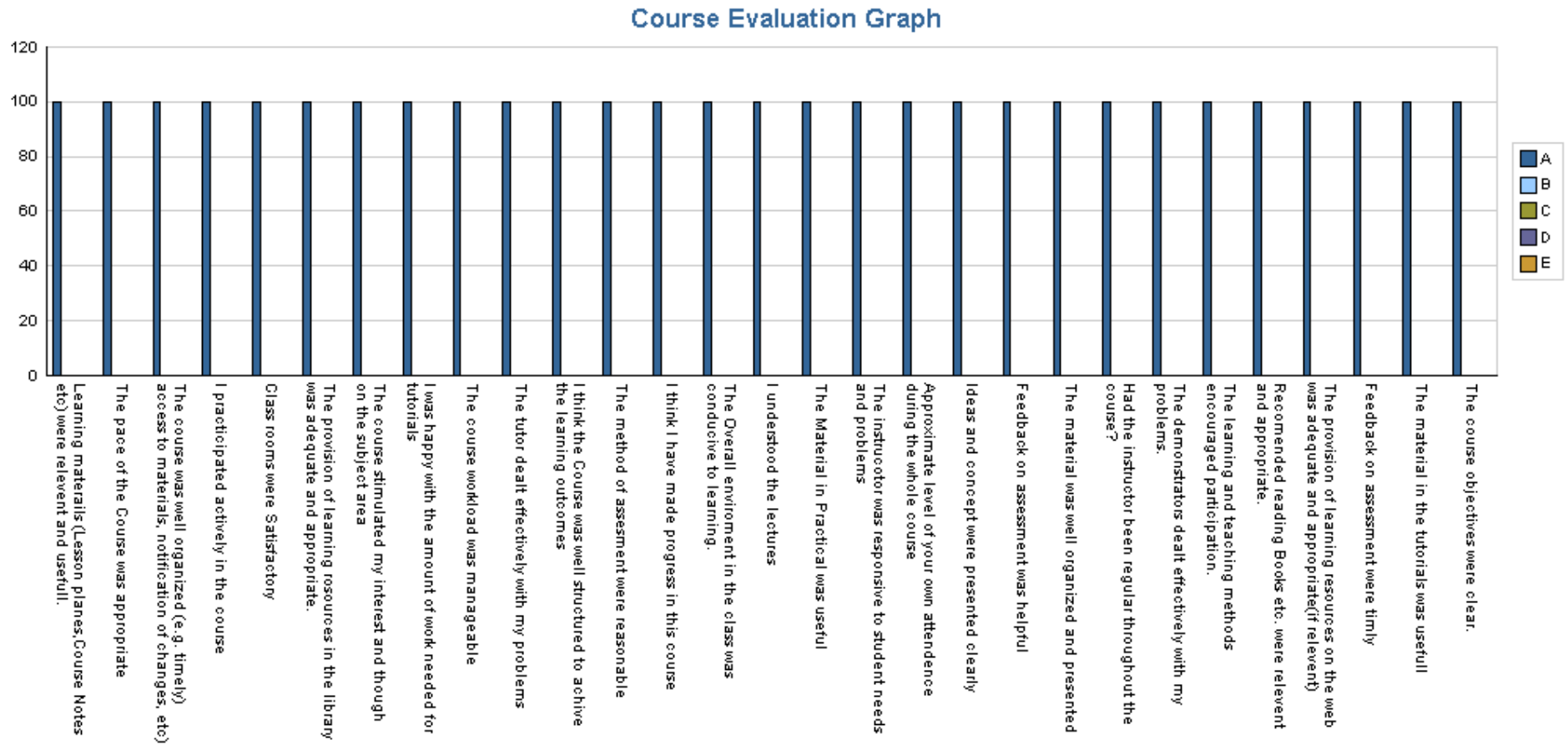
The strongest point which students like about teacher 4 is that the course objectives were very clear and the instructor was regular throughout the course.

Results of Performa 1 of Teacher 4 (BCH-733 M section B)



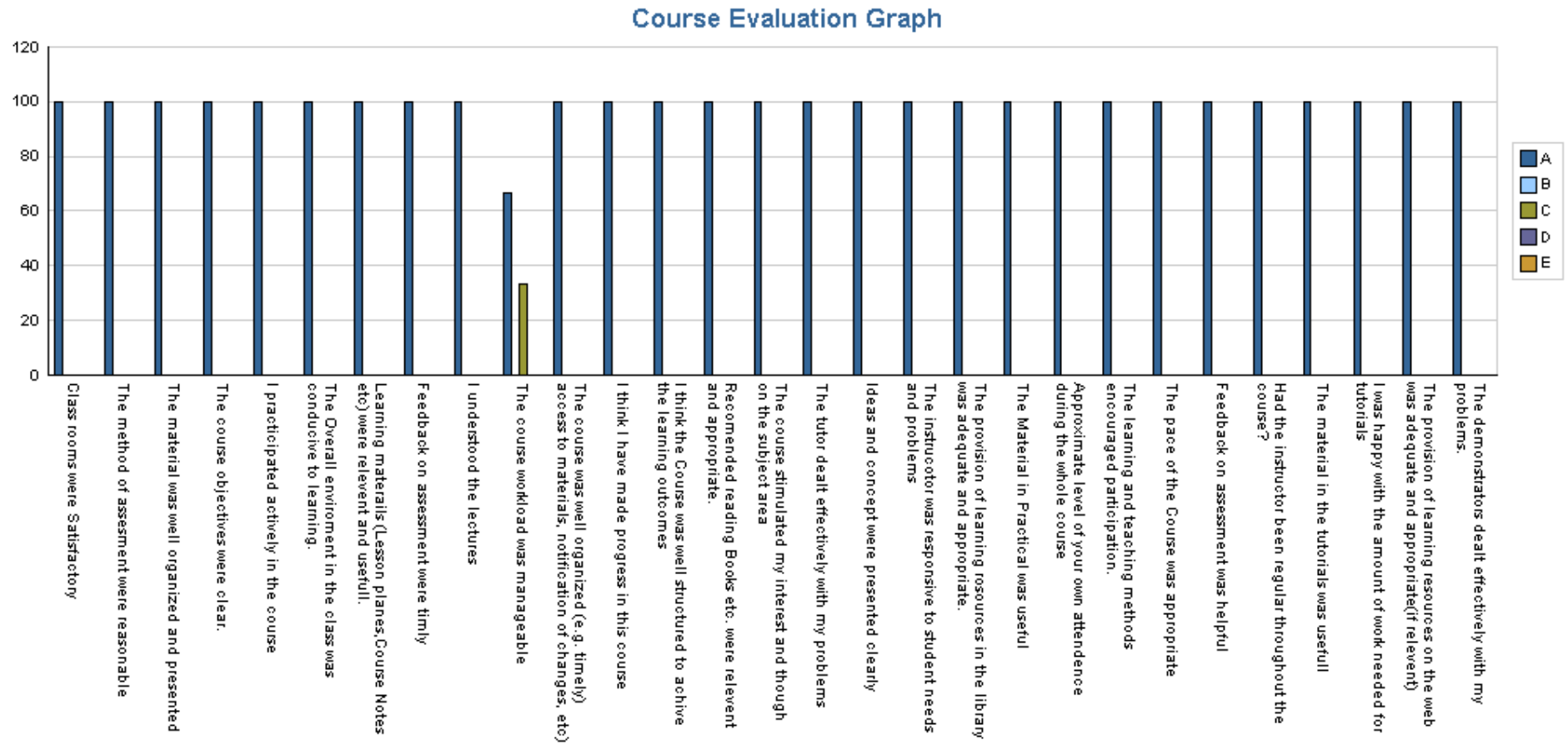
The strongest point which students like about teacher 4 is that the course material was relevant and useful and overall, there was a good learning environment.

Results of Performa 1 of Teacher 5 (BCH-719 E section G)



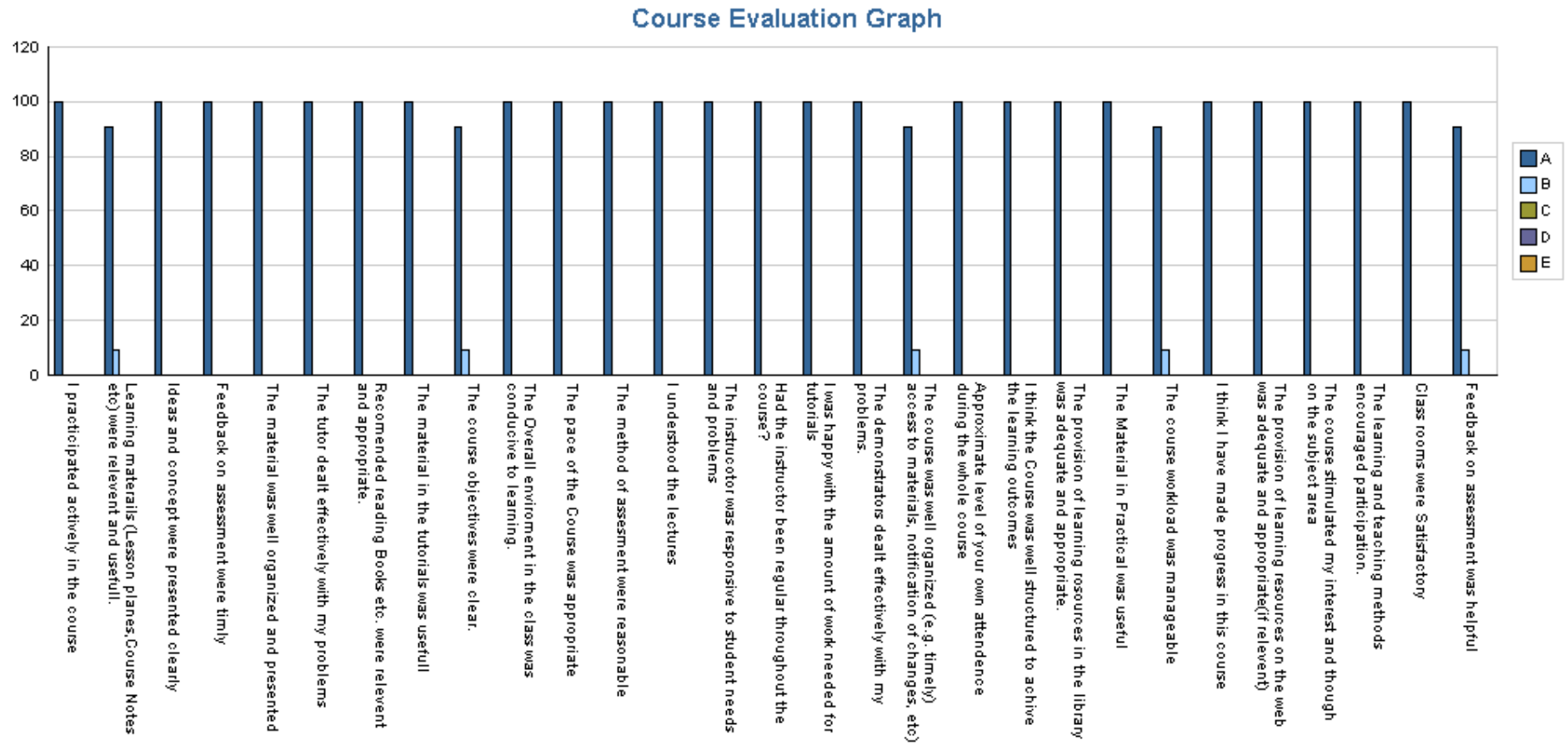
The strongest point which students like about teacher 5 is that the course concepts were presented very clearly and the course stimulated the student's interest.

Results of Performa 1 of Teacher 6 (BCH-719 M section B)



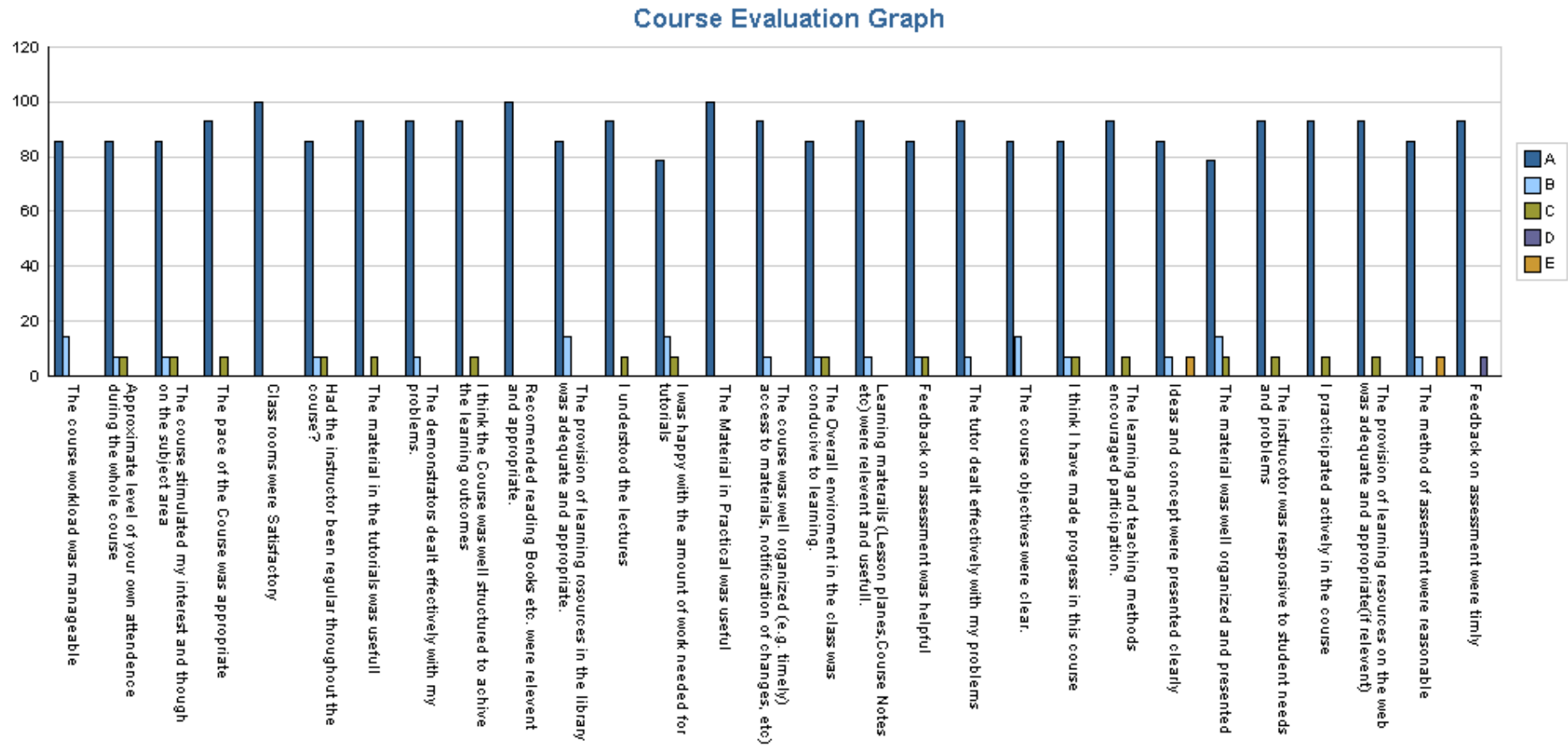
The strongest point which students like about teacher 6 is that the course objectives were very clear and the course stimulated the interest of students on the subject area.

Results of Performa 1 of Teacher 7 (BIOT-706 M section A)



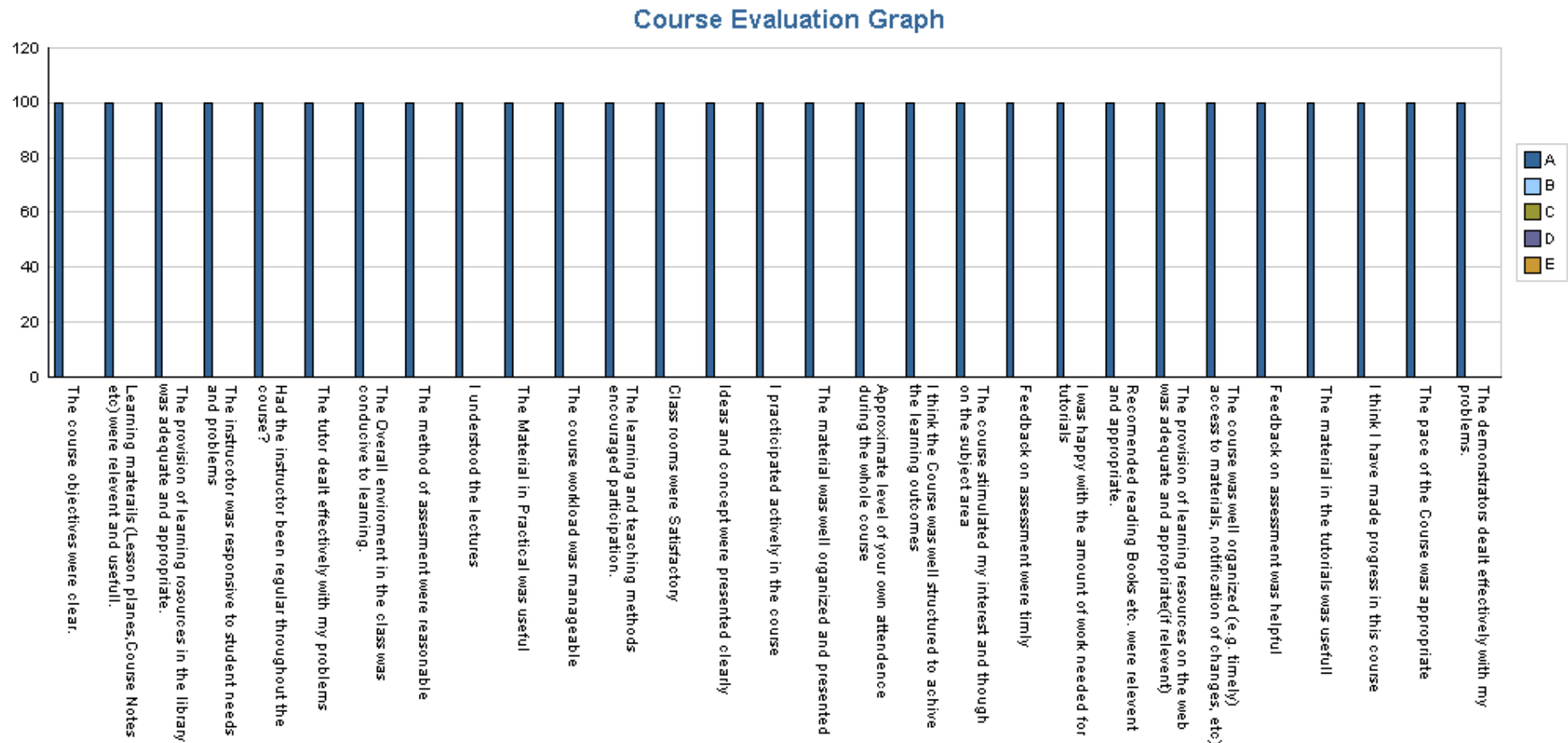
Depending on results of performa 1, teacher 7 well presented the course material and kept the pace of course appropriate.

Results of Performa 1 of Teacher 7 (BIOT-707 M section A)



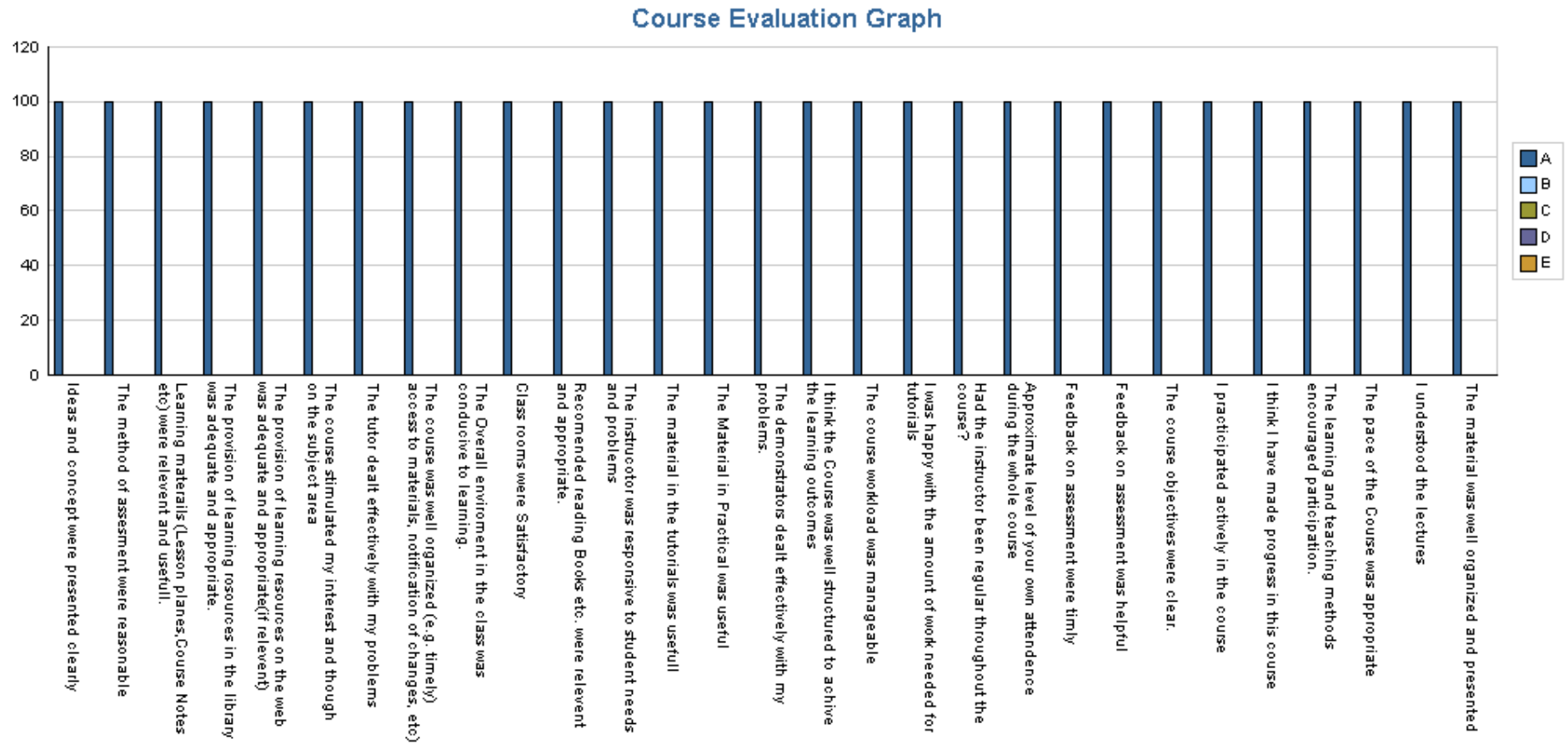
The strongest point was the class rooms were satisfactory and material in practicals was useful.

Results of Performa 1 of Teacher 7 (BIOT-719 M section C)



The strongest point which students like about teacher 4 is that the course material was relevant and useful and overall, there was a good learning environment.

Results of Performa 1 of Teacher 7 (BIOT-720 M section A)



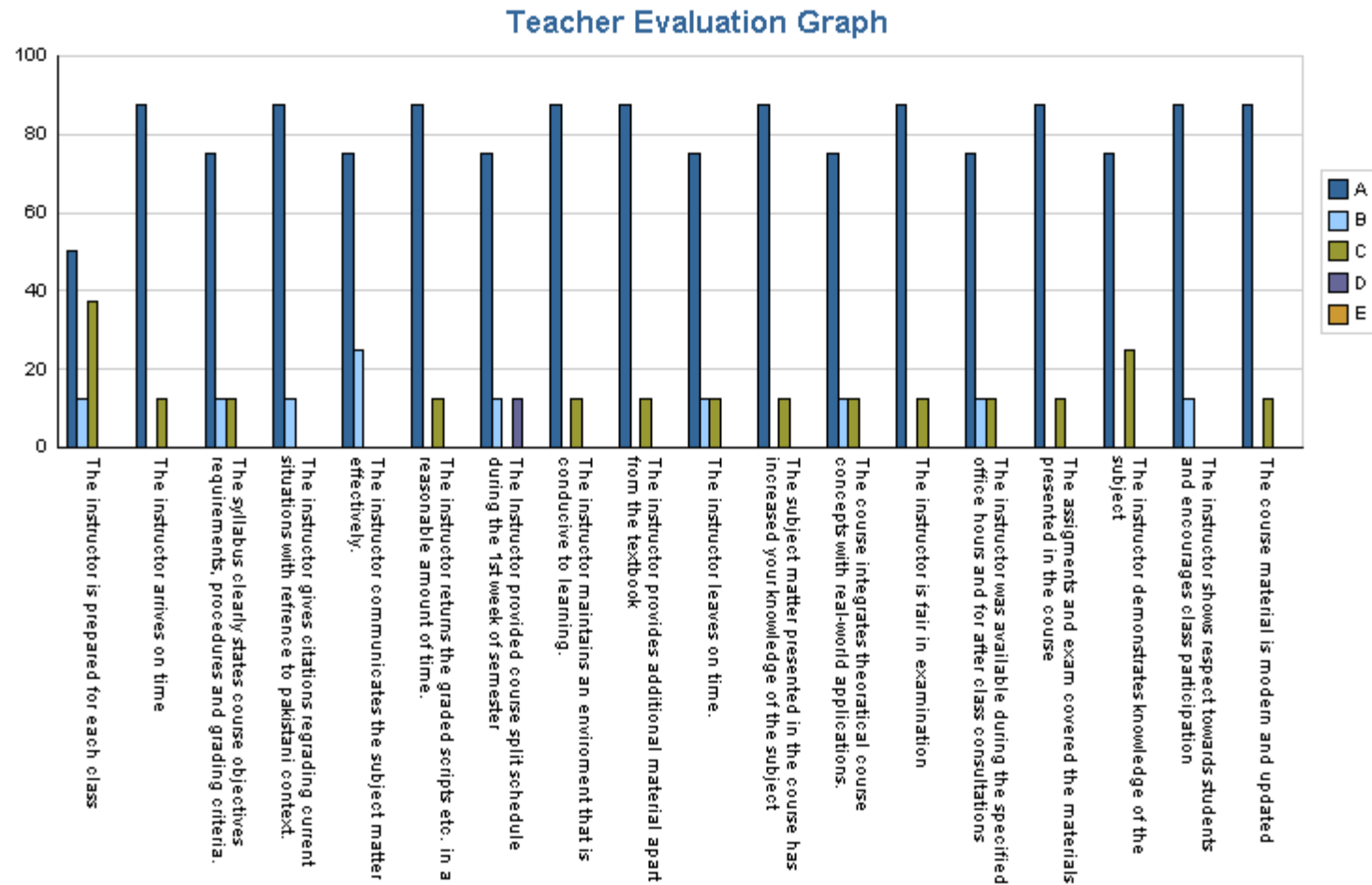
The strongest point which students like about teacher 7 is that the course objectives were very clear, material provided for course was well balanced and presented very well.

Teachers Evaluation Fall Semester 2015

Overall Results of Performa 10 of Teacher 1-4

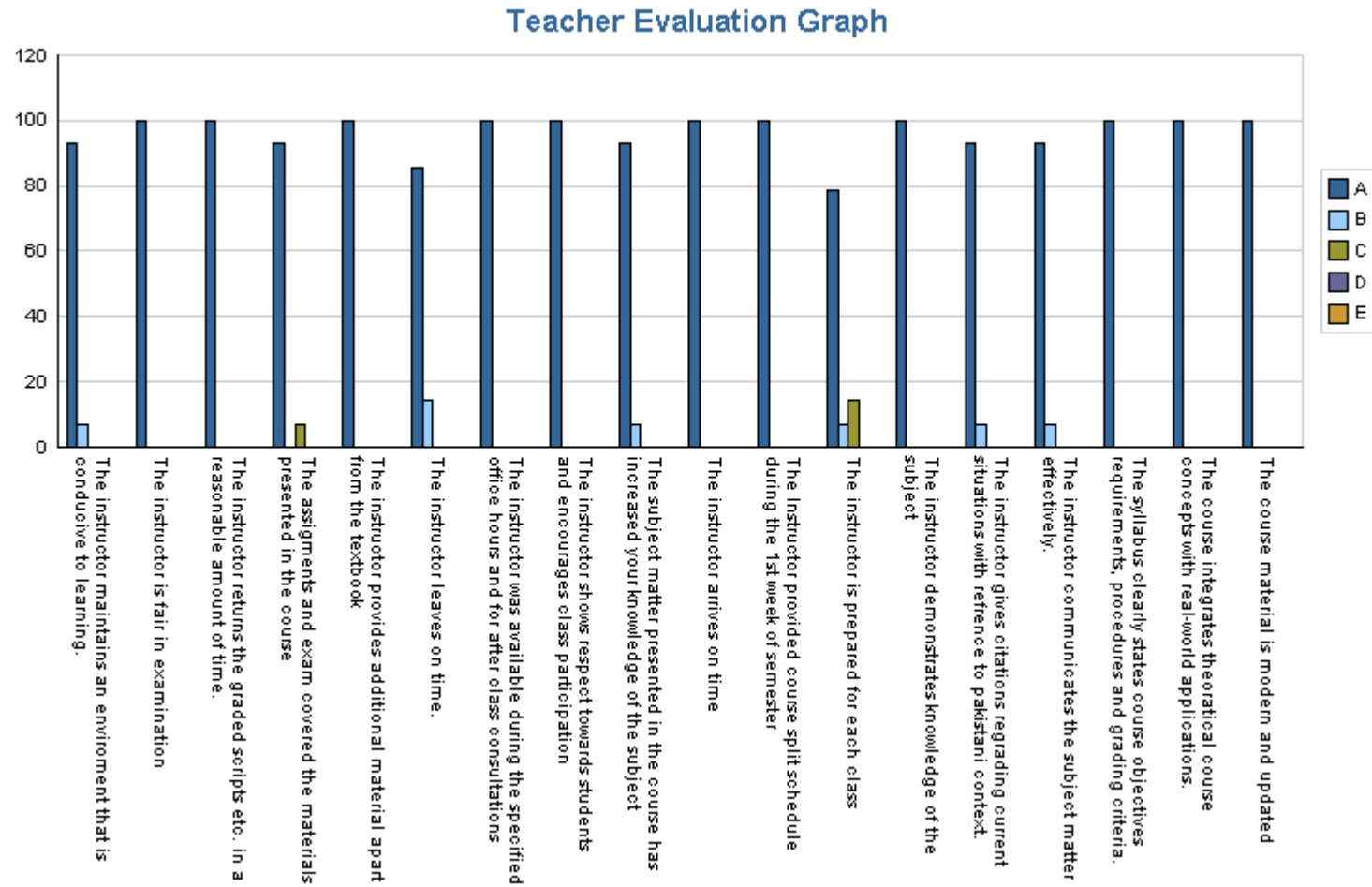
The teachers were evaluated by the students at the end of the semester in accordance with Proforma-10. In the graph teachers are represented as 1, 2, 3 instead of mentioning their names. Results and performance of individual teachers will follow.

Results of Performa 10 of Teacher 1(BCH-718 M section A)



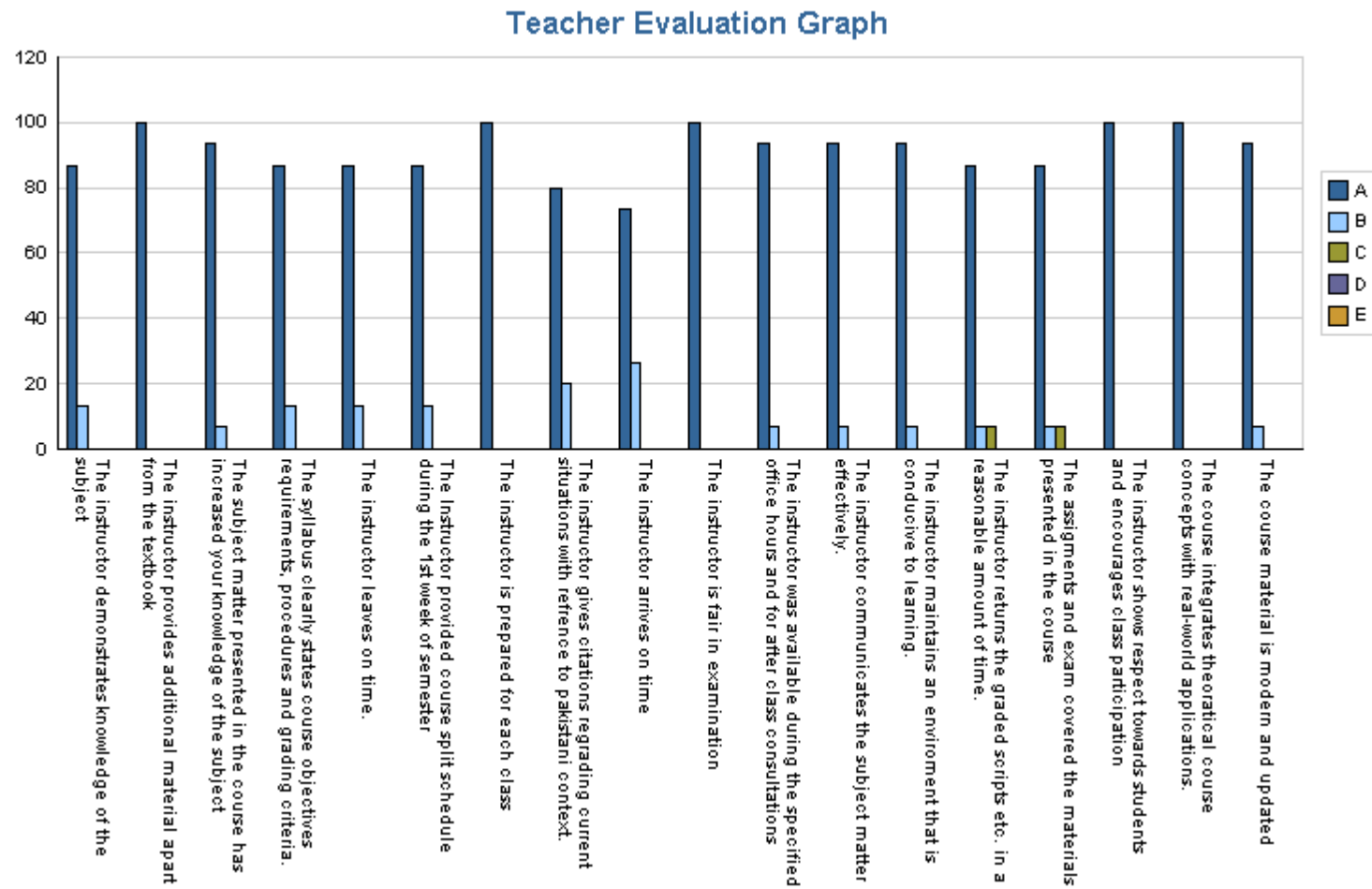
The strongest point which students like about teacher 1 is that the instructor communicates subject material very effectively and maintains a quality learning environment and gave practical life examples.

Results of Performa 10 of Teacher 2 (BCH-720 M section A)



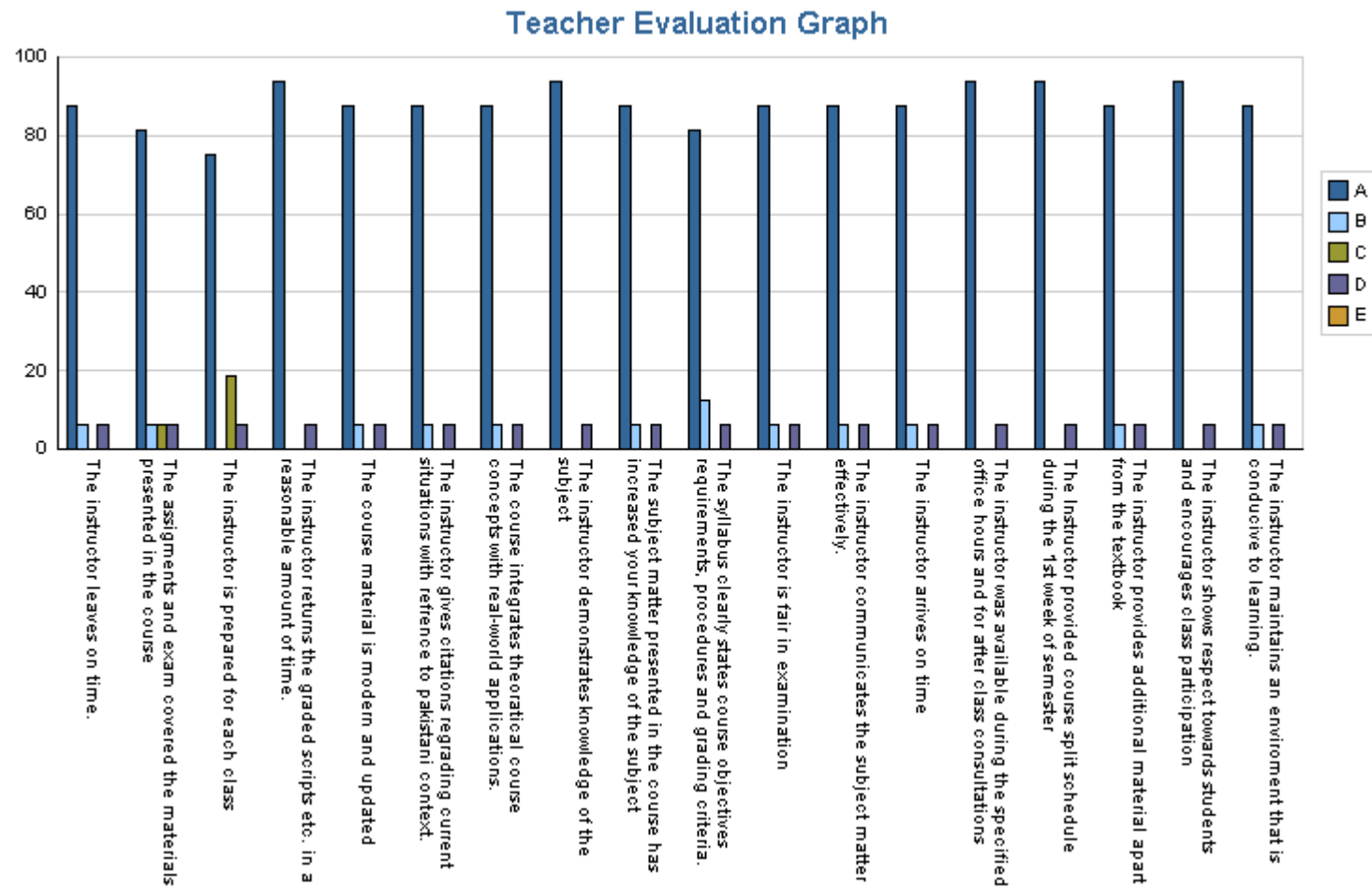
The strongest point which students like about teacher 2 is that the instructor develops a good concept of the subject and was fair in examinations

Results of Performa 10 of Teacher 3 (BCH-732 M section A)



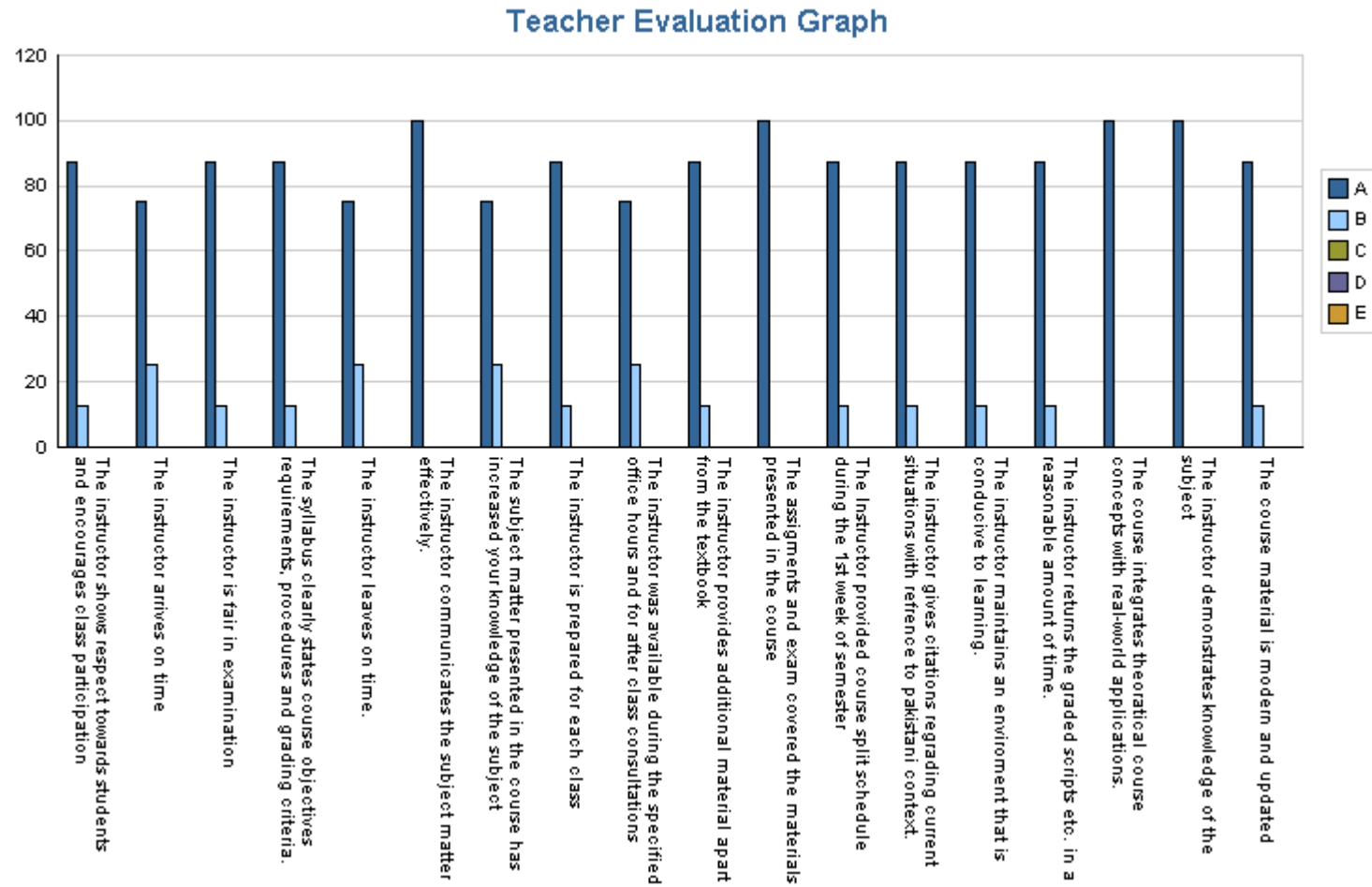
The strongest point which students like about teacher 3 is that the instructor was well prepared and fair in examinations.

Results of Performa 10 of Teacher 3 (BCH-735 M section A)



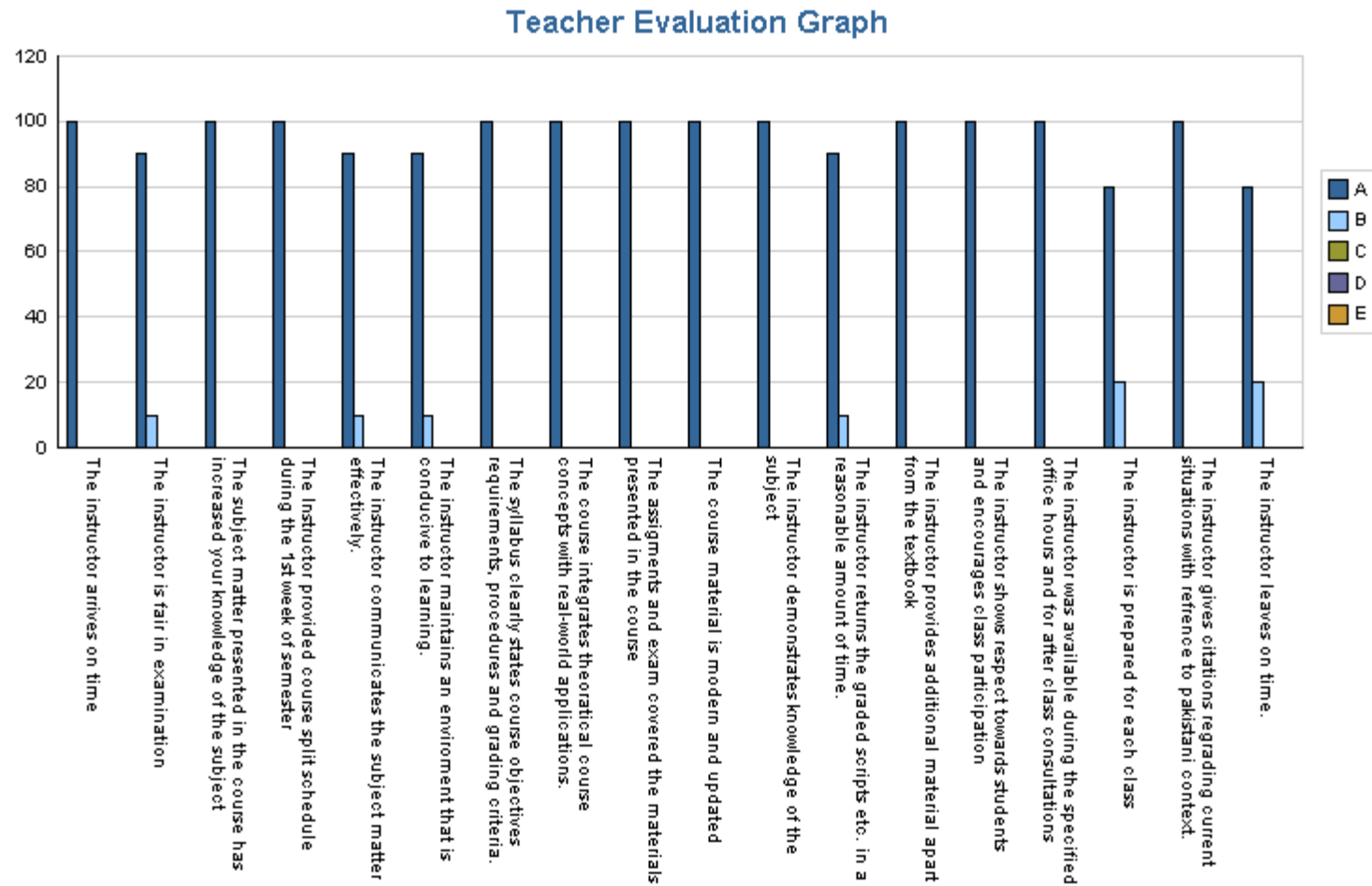
The strongest point which students like about teacher 3 is that the instructor shows respect towards students and encourage class participation.

Results of Performa 10 of Teacher 4 (BIOT-716 M section A)



The strongest point which students like about teacher 4 is that the instructor communicates the subject effectively.

Results of Performa 10 of Teacher 4 (BIOT-720 M section A)

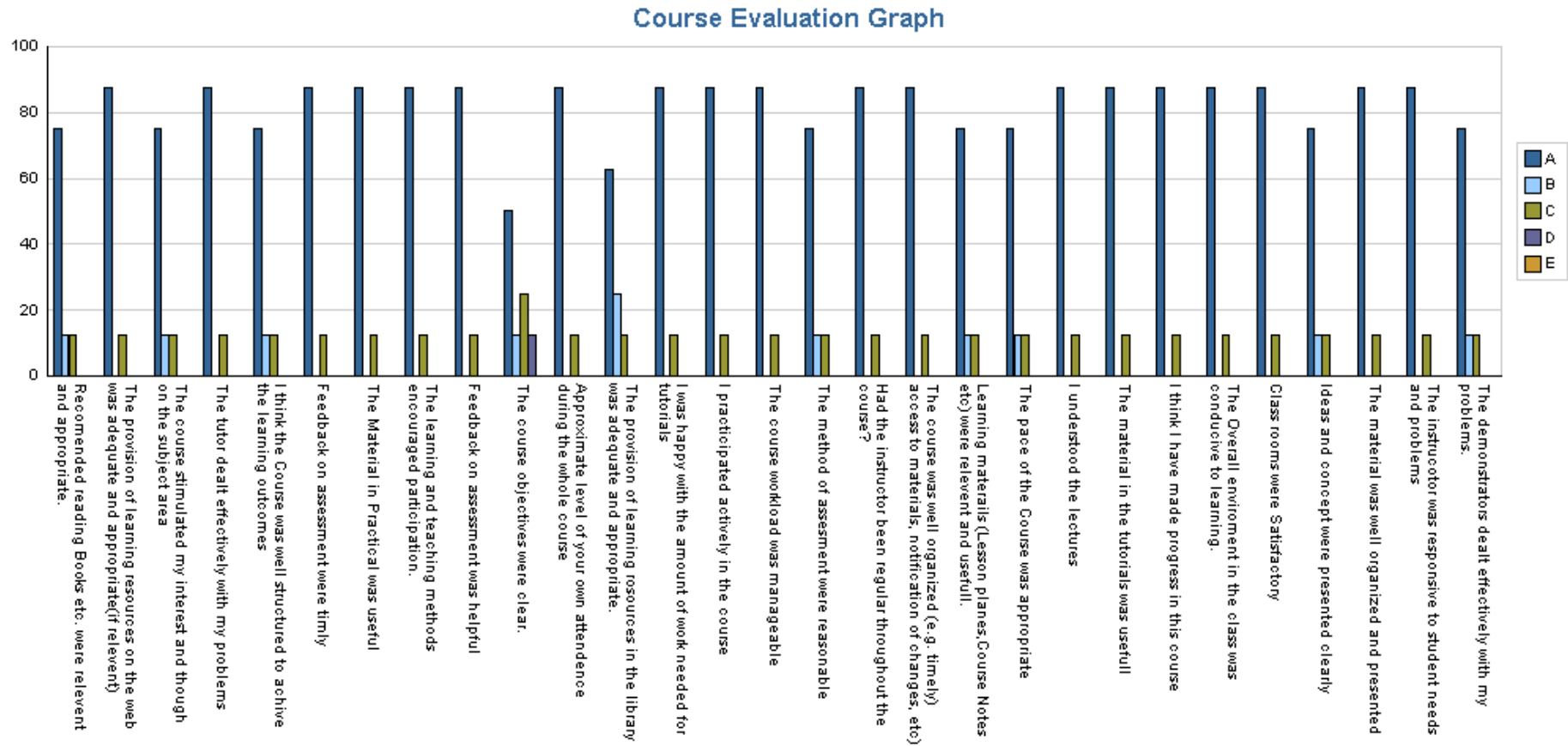


The performa 1 shows that the overall result of the course is good in terms of students' punctuality and all the objectives were achieved.

Student Course Evaluation Fall Semester 2015:**Overall Results of Proforma No. 1 Teacher 1-4**

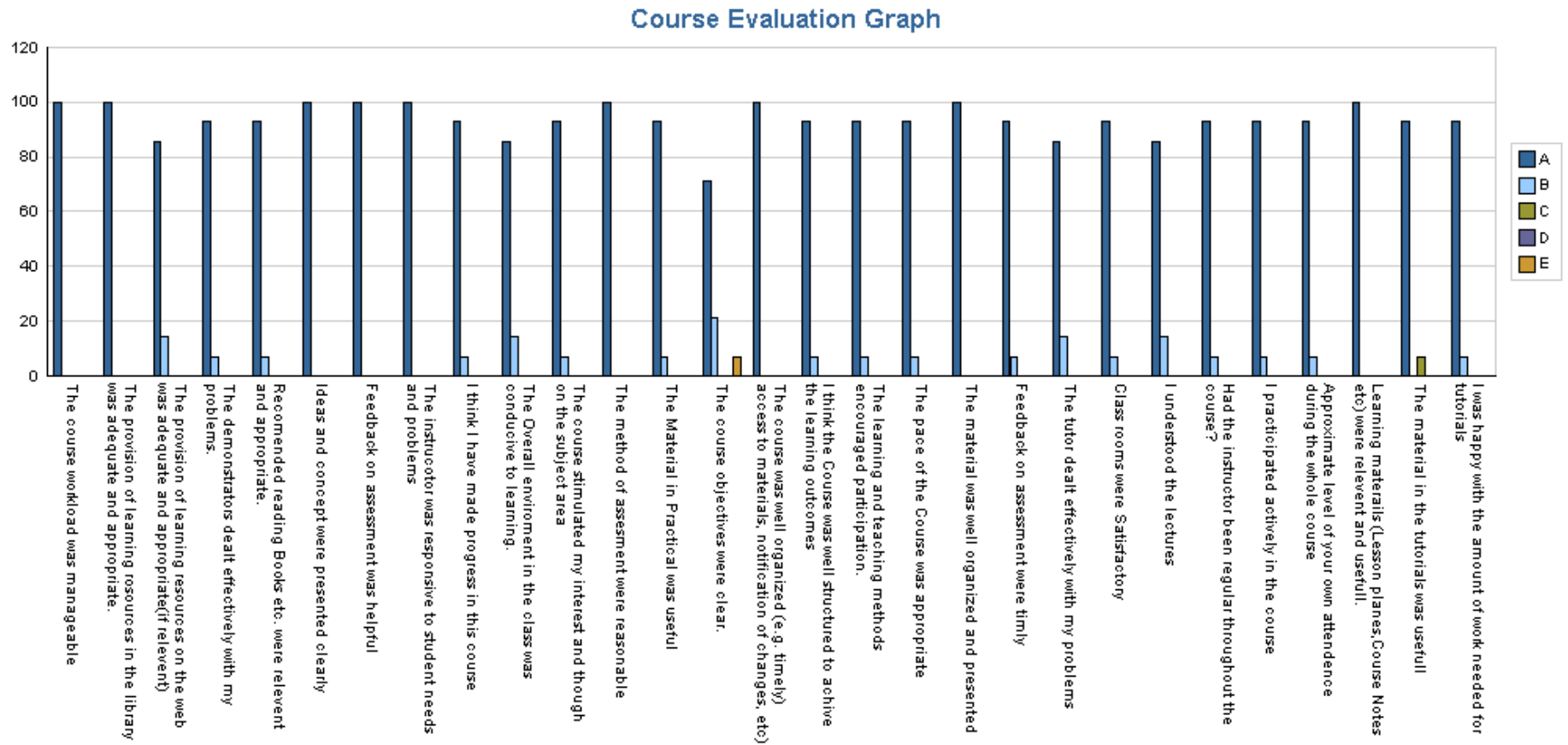
Proforma No. 1, deals with study of course observation regarding design of course contents (both theoretical and practical), its relevance with subject and teaching material. It also emphasizes on instructor's role in, not only completing course within given time frame, but how' instructor developed 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-718 M section A)



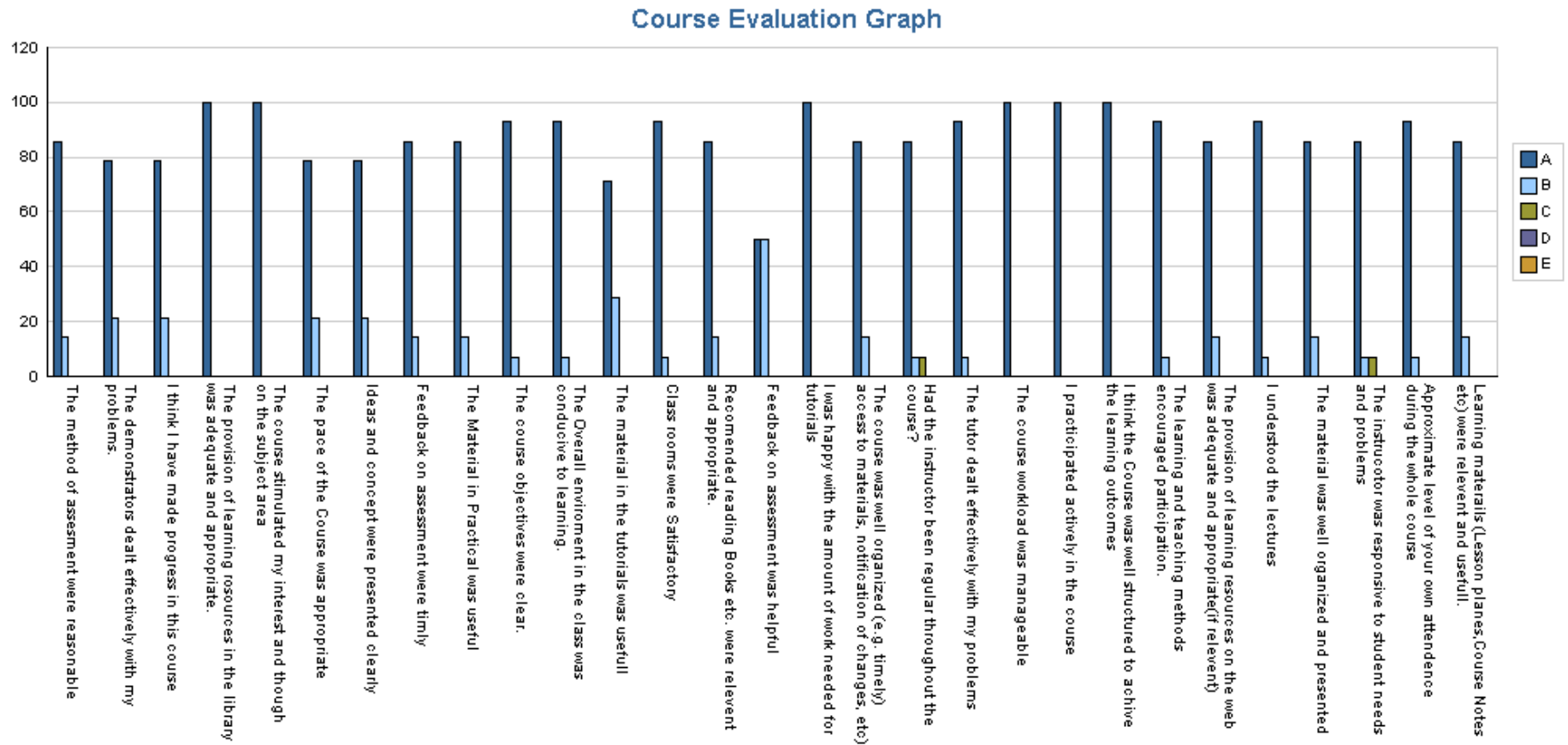
The strongest point which students like about teacher 1 is that, overall, the instructor has done a good job in handling the course and students related matters.

Results of Performa 1 of Teacher 2 (BCH-720 M section A)



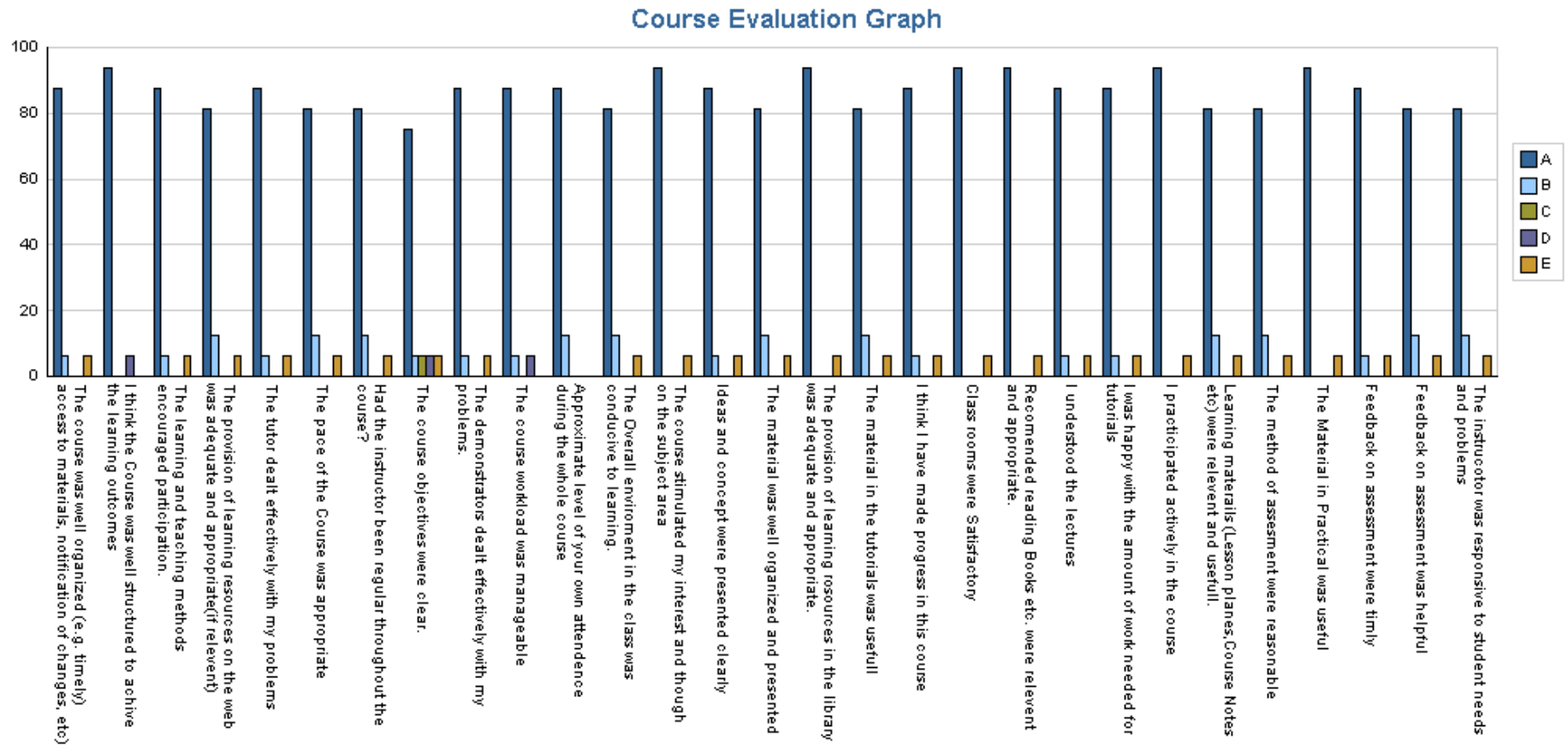
The strongest point which students like about teacher 2 is that learning material was useful.

Results of Performa 1 of Teacher 3 (BCH-732 M section A)



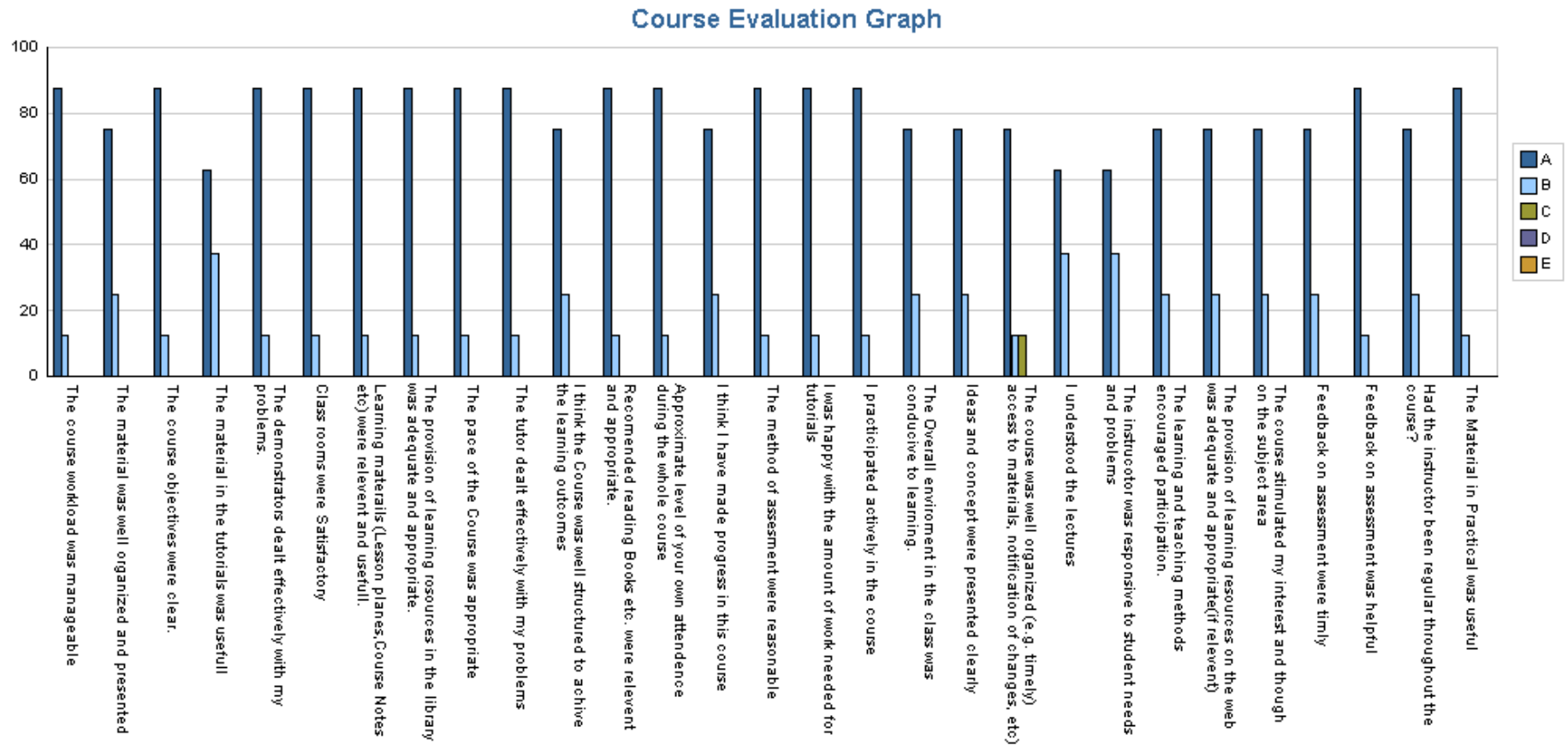
The strongest point which students like about teacher 2 is that, overall, the instructor handled the entire course and students related matters.

Results of Performa 1 of Teacher 3 (BCH-735 M section A)



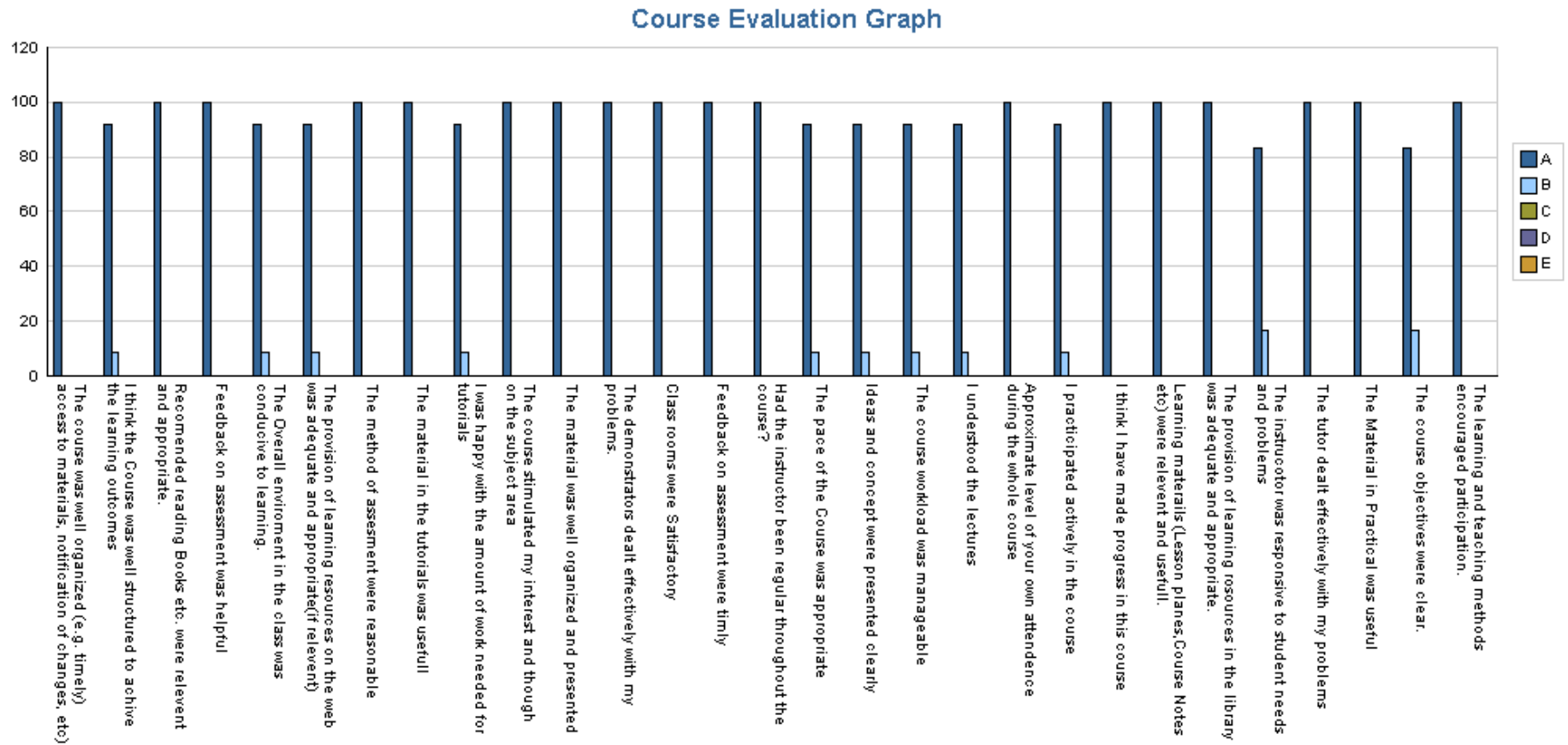
The strongest point which students like about teacher 3 is that practical material was useful and classrooms were satisfactory.

Results of Performa 1 of Teacher 4 (BIOT-716 M section A)



The strongest point was the material in practical was useful and assessment method was reasonable.

Results of Performa 1 of Teacher 4 (BIOT-720 M section A)



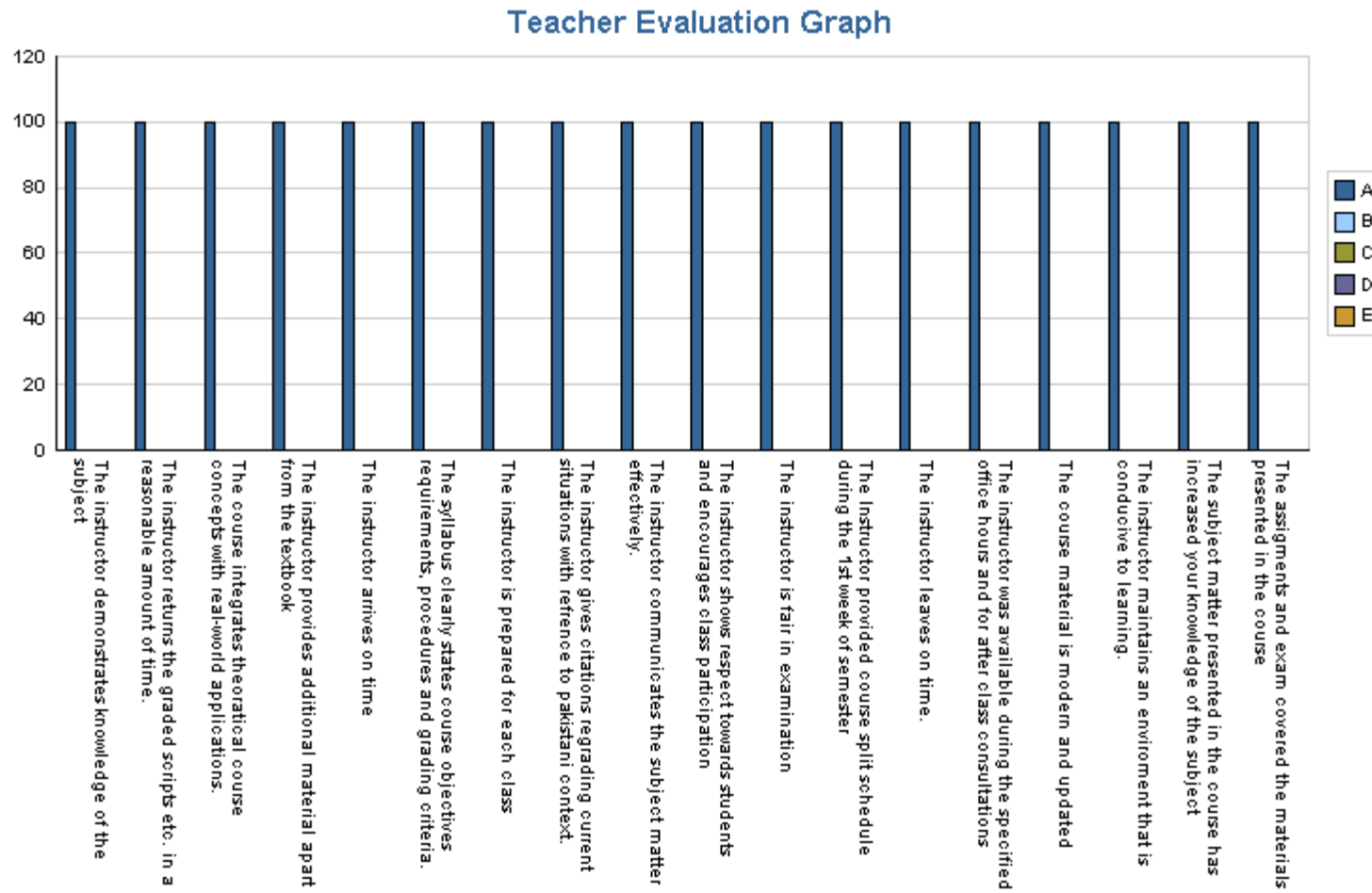
The strongest point which students like about teacher 4 is that the instructor created conducive environment for learning and he was well prepared for the class.

Teachers Evaluation Spring Semester 2016

Overall Results of Performa 10 of Teacher 1, 2, 3, 4, 5 ,6, 7and 8.

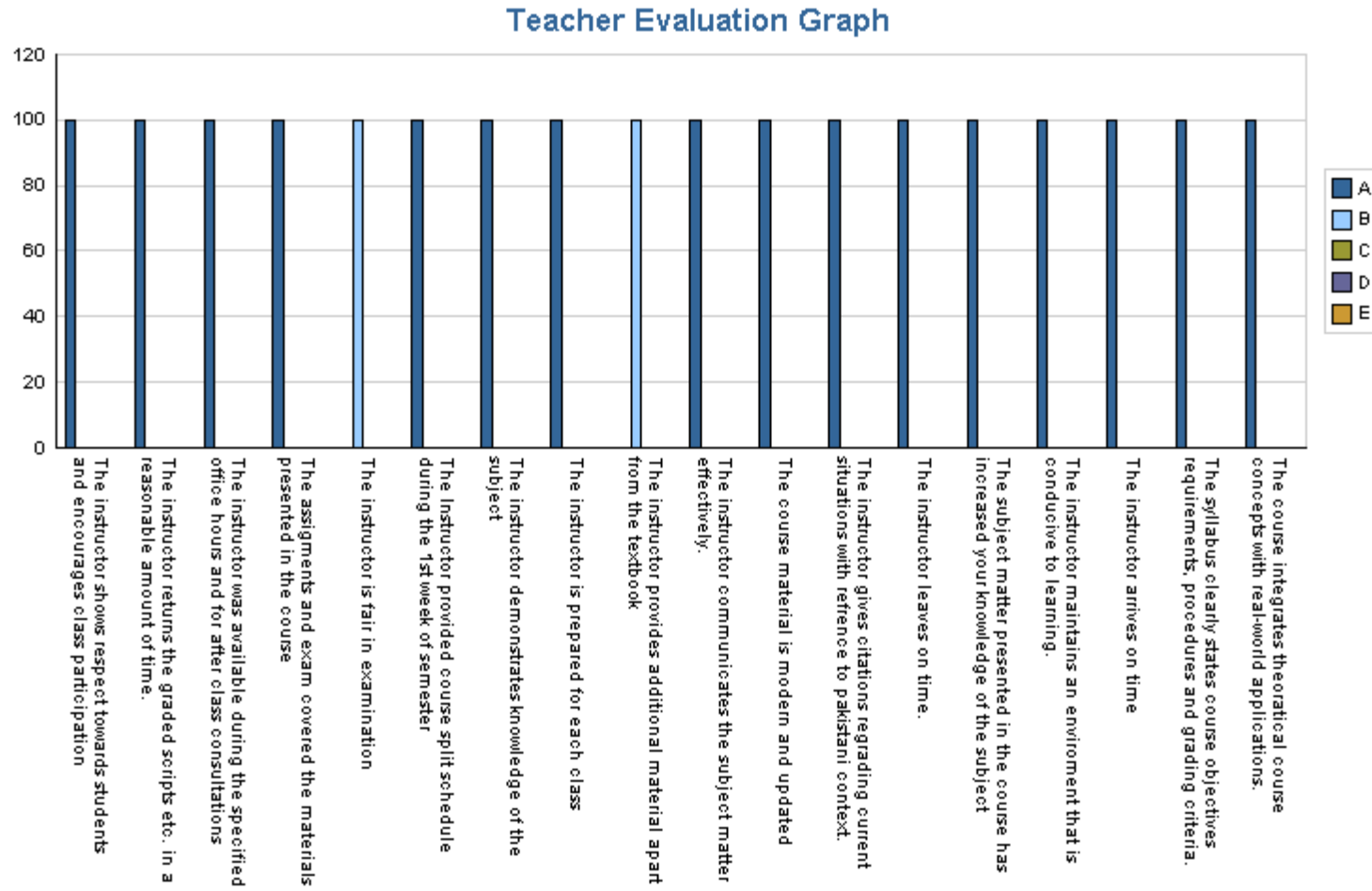
The teachers were evaluated by the students at the end of the semester in accordance with Proforma-10. In the graph teachers are represented as 1, 2, 3..., and 6 instead of mentioning their names.

Results of Performa 10 of teacher 1 (BCH-714 M section A)



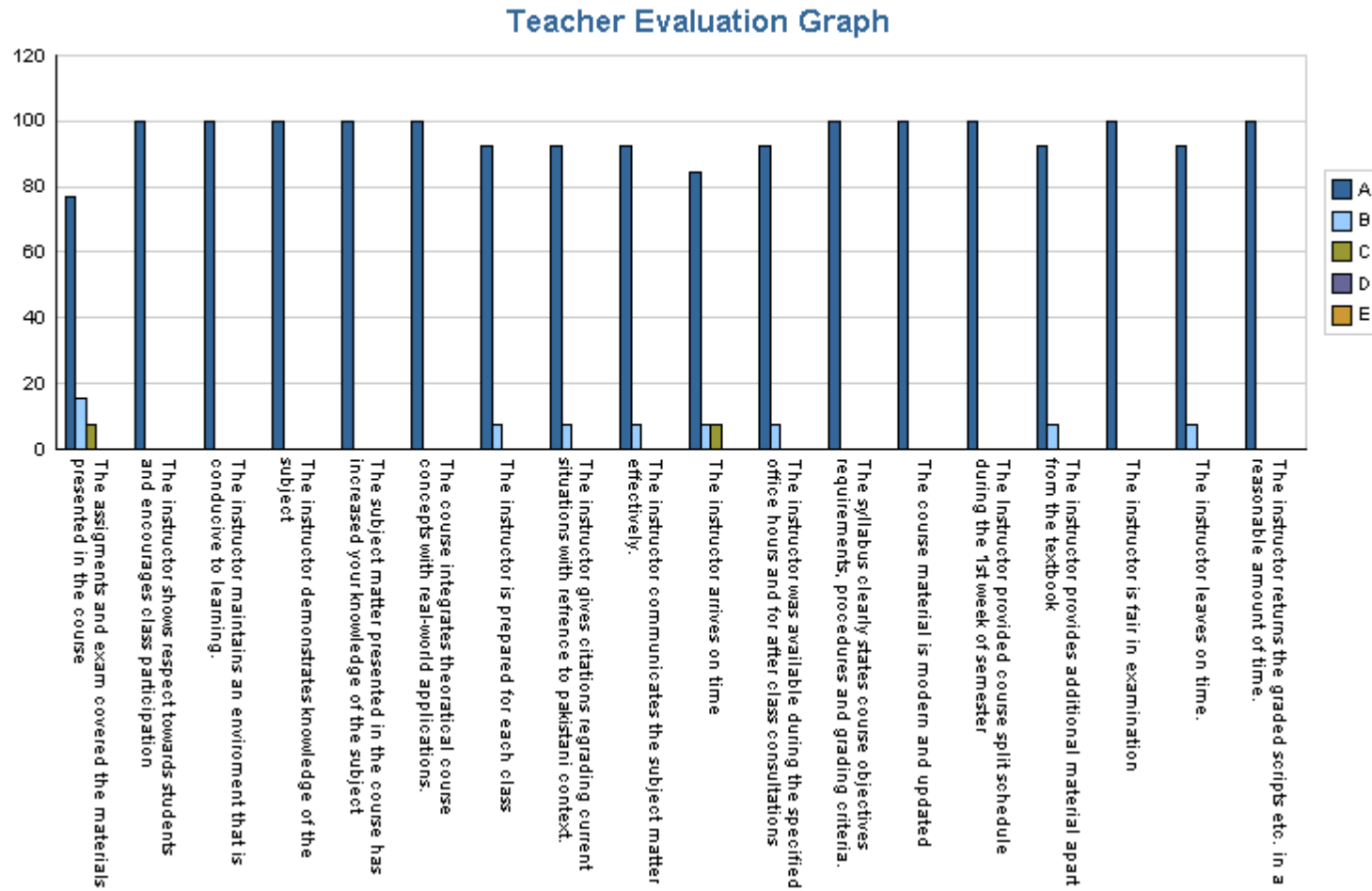
The strongest point which students like about teacher 1 is that the course material is modern and updated and the teacher is very punctual and well prepared for the class.

Results of Performa 10 of teacher 1(BCH-719 Msection C)



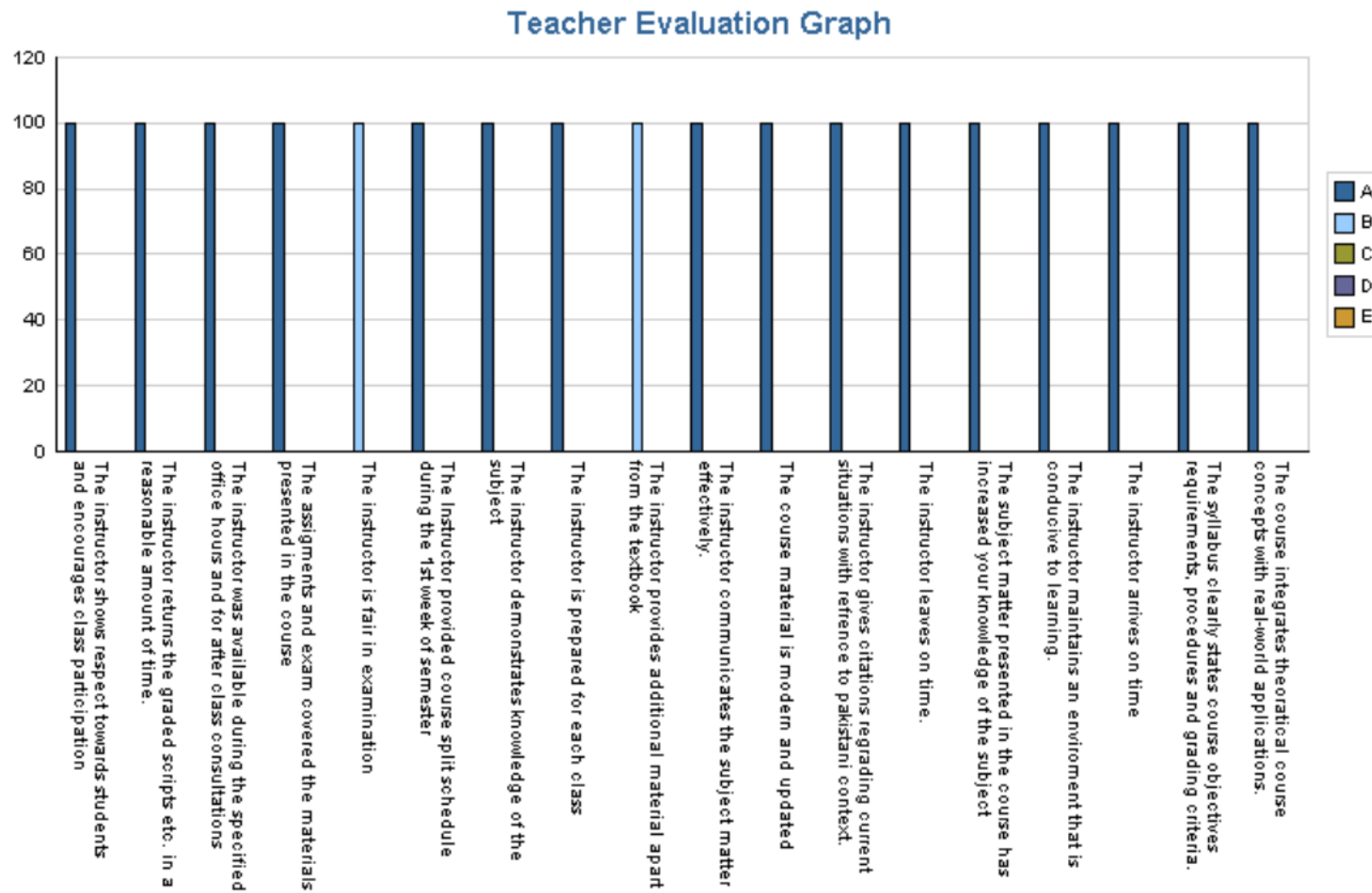
The strongest point of teacher 1 is that he is punctual and well prepared for the class and he provided all the essential materials of the course.

Results of Performa 10 of teacher 1 (BCH-720 M section A)



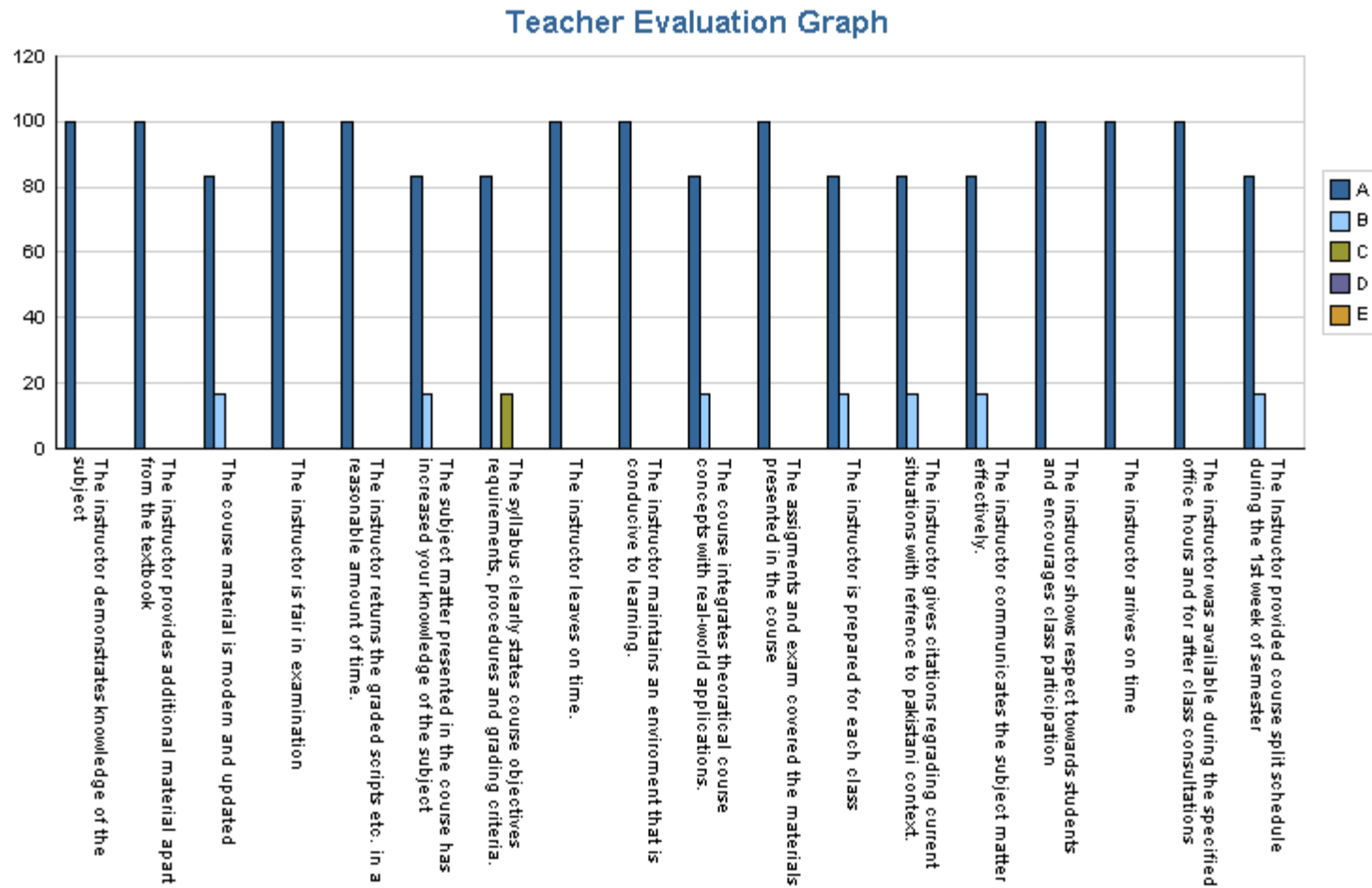
According to student's teacher 1 communicated subject matter effectively and encouraged class participation.

Results of Performa 10 of teacher 2(BIOT-719 M section B)



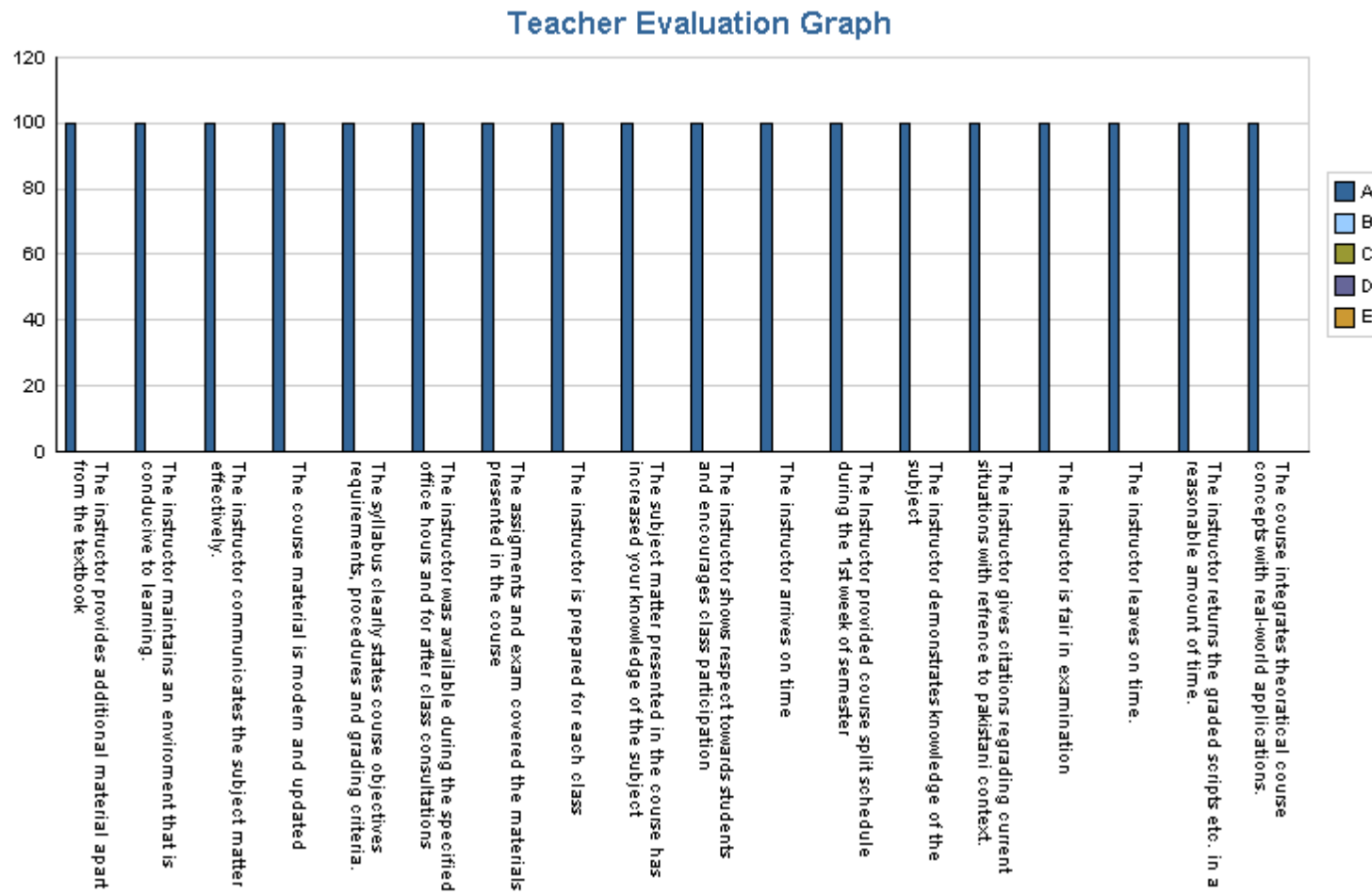
The strongest point which students like about teacher 2 is that, overall instructor did a very good job related to all the aspects of course the course related information was provided in time and the instructor was well prepared for class and was available for after class consultations as well.

Results of Performa 10 of teacher 2(BCH-719 M section B)



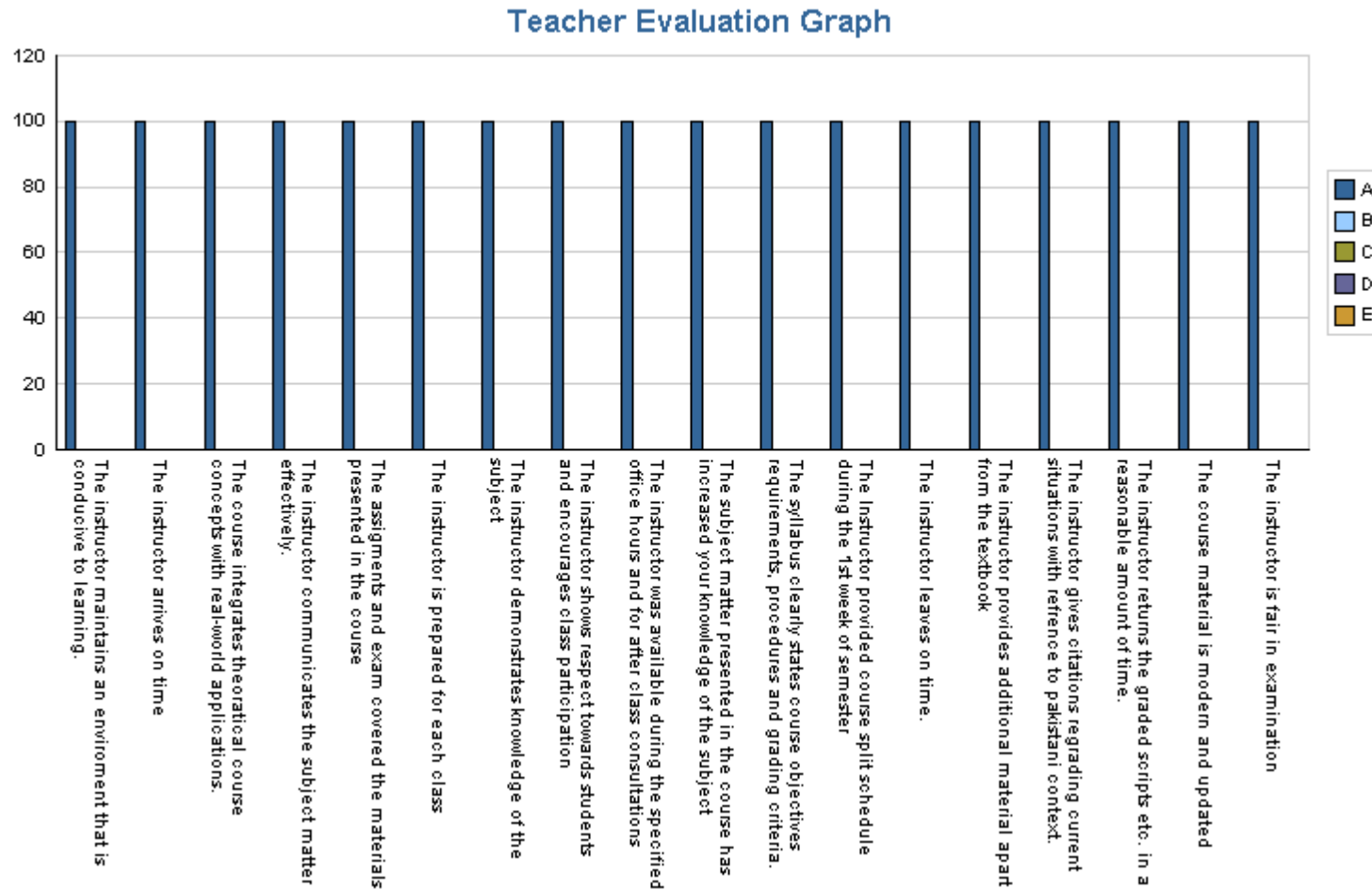
The strongest points of teacher 2 is that the instructor is fair in examinations and increased the knowledge of the students.

Results of Performa 10 of teacher 3 (BCH-719 M section F)



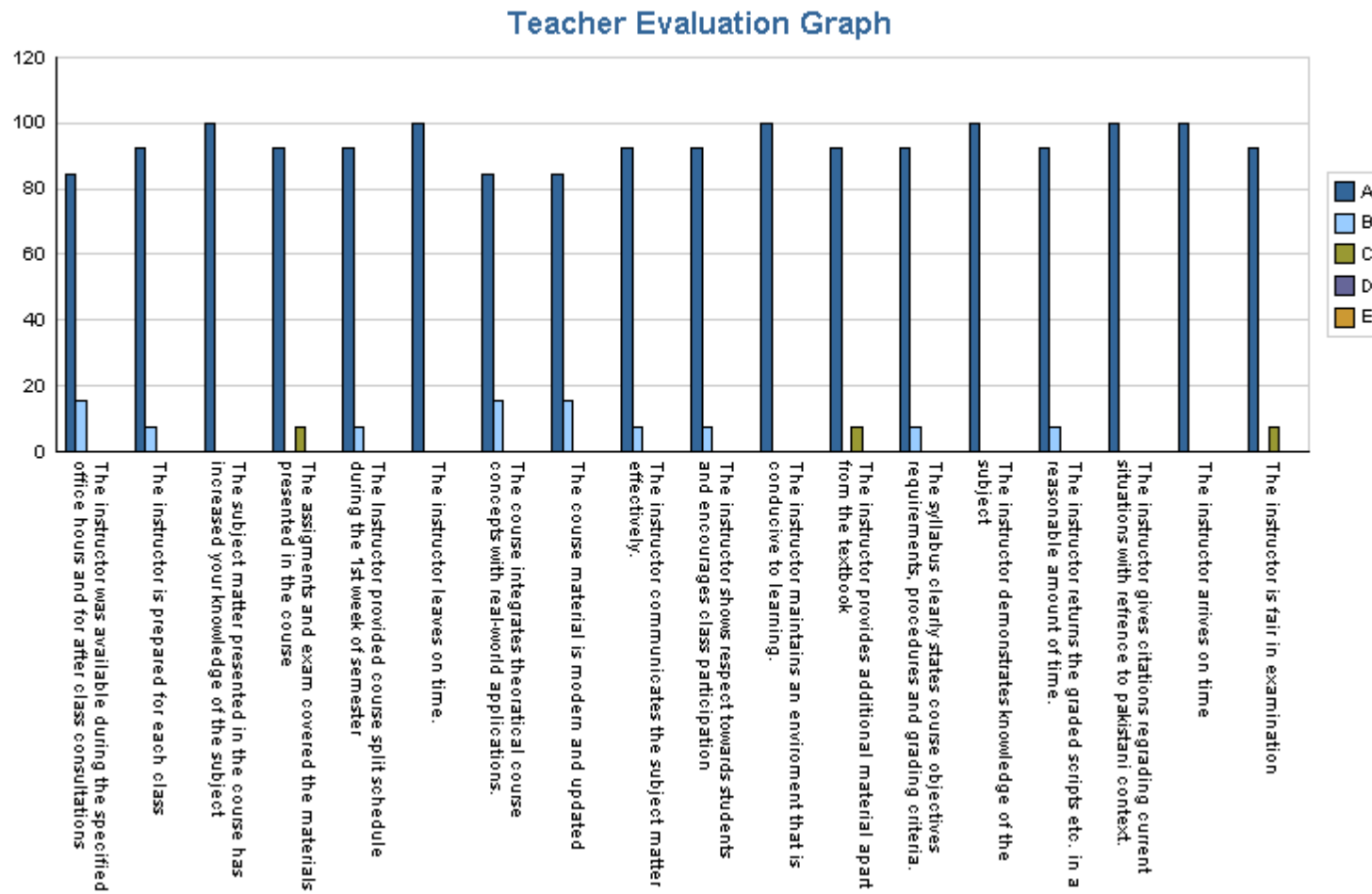
The best point of teacher 3 is that he was punctual, taught the updated and modern concepts of the course, which integrated the theoretical concepts with the real-world application

Results of Performa 10 of teacher 3 (BIOT-736 M section F)



The strongest point which students like about teacher 3 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.

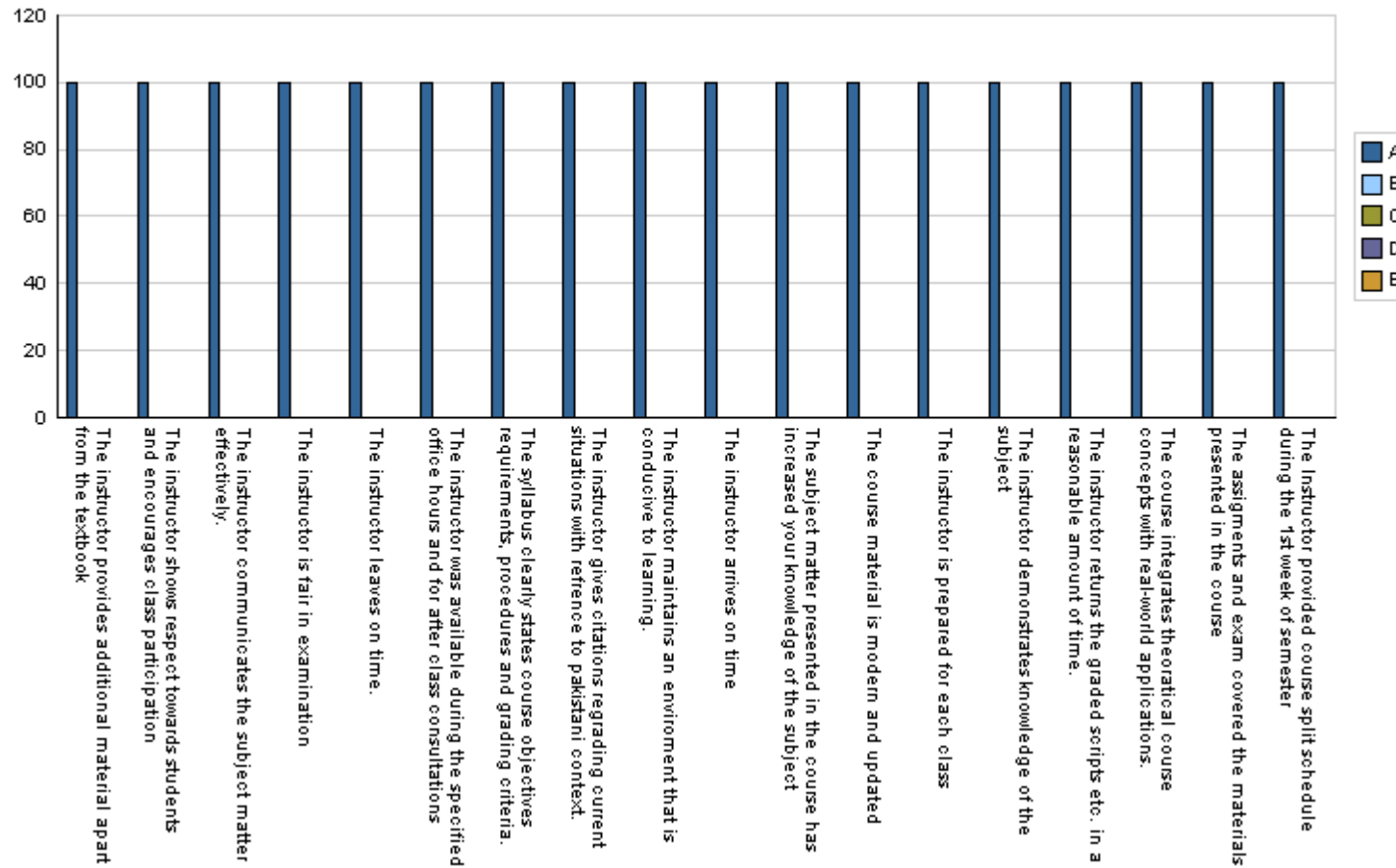
Results of Performa 10 of teacher 3 (BCH-736 M section A)



The strongest point of teacher 3 is that the instructor was fair in exams and maintained environment conducive to learning.

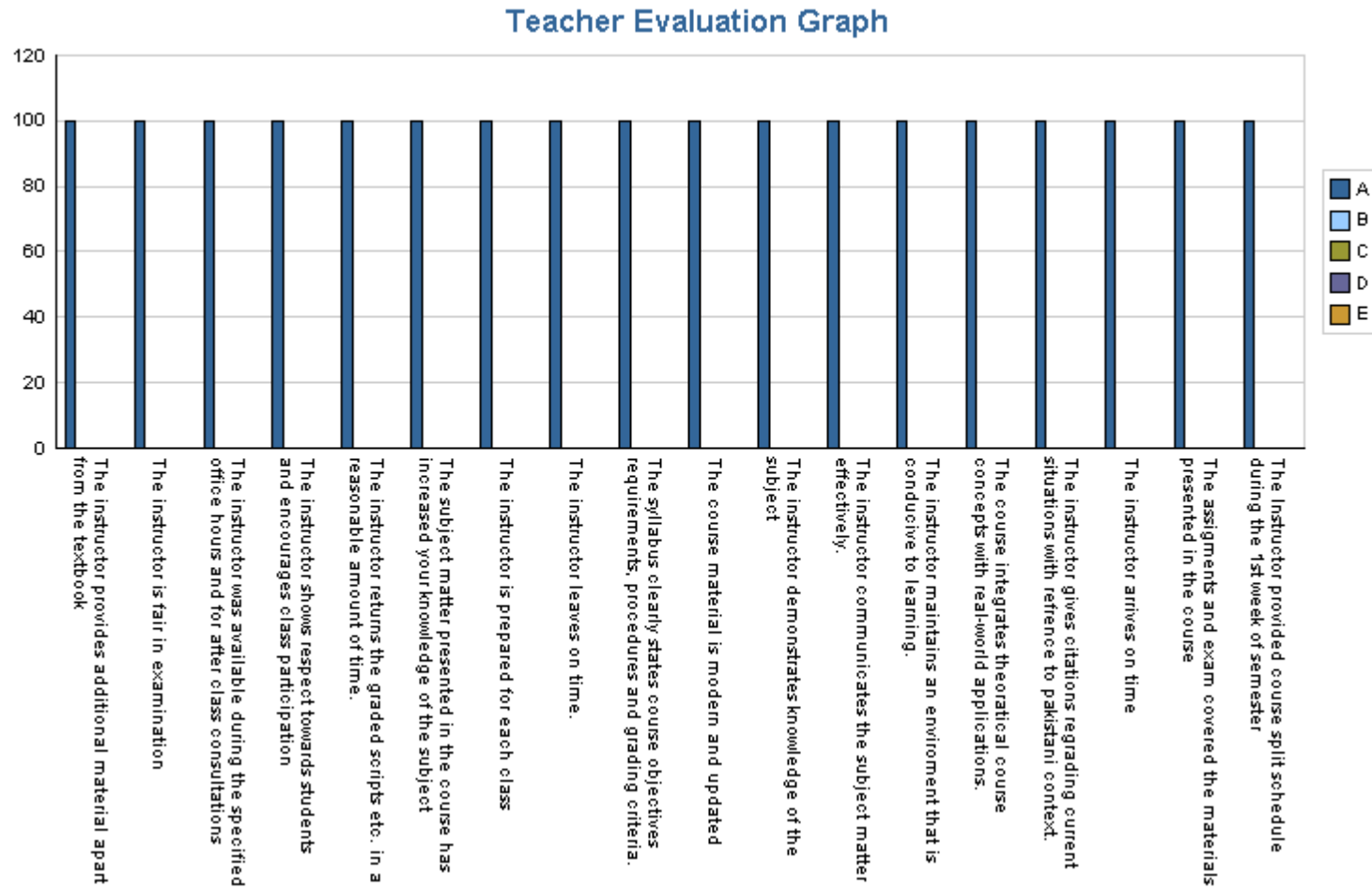
Results of Performa 10 of teacher 4 (BCH-719 M section G)

Teacher Evaluation Graph



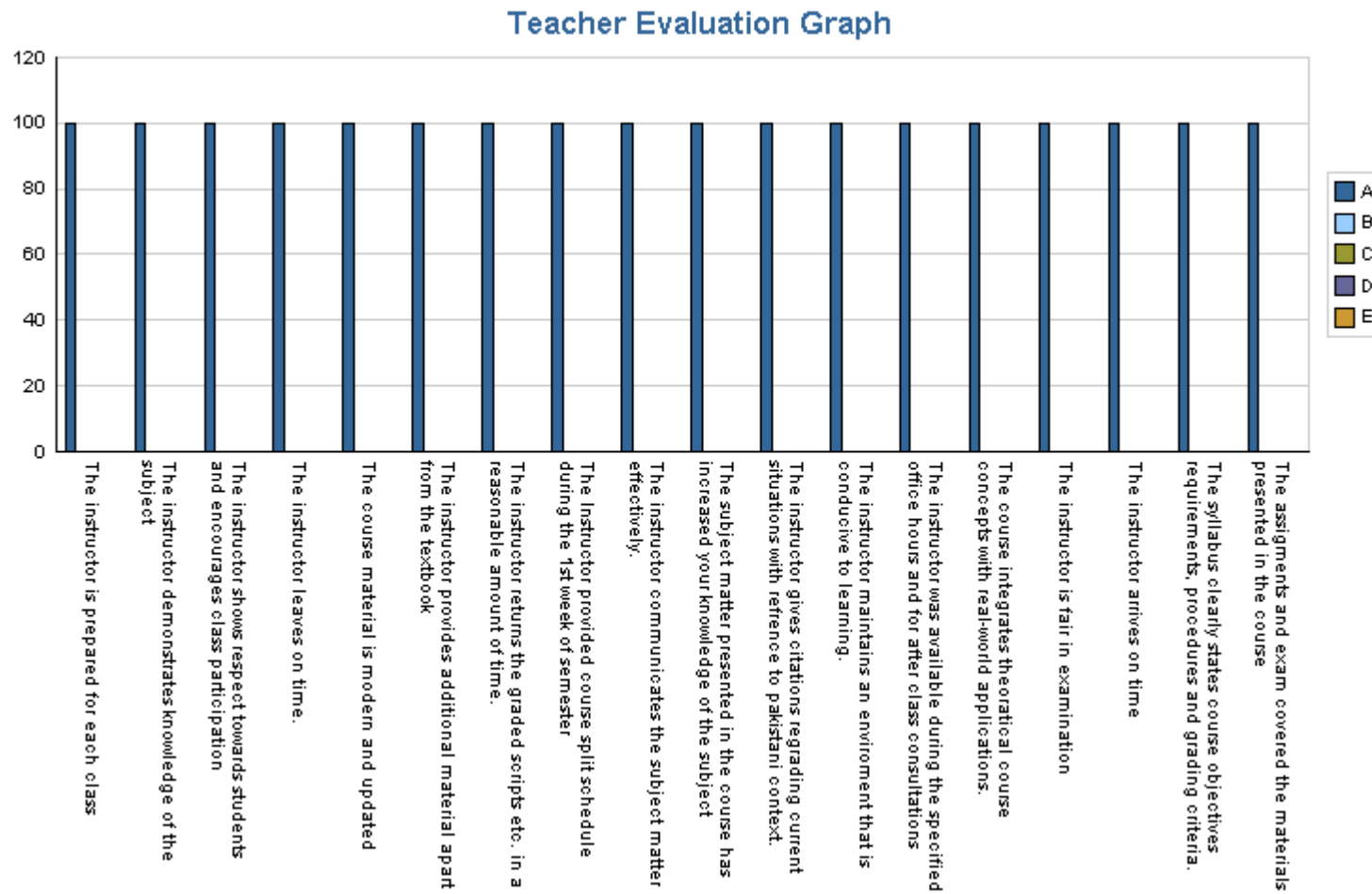
The strongest point which students like about teacher 4 is that the course material is modern and updated and the teacher is very punctual and well prepared for the class

Results of Performa 10 of teacher 4(BIOT-719 M section G)



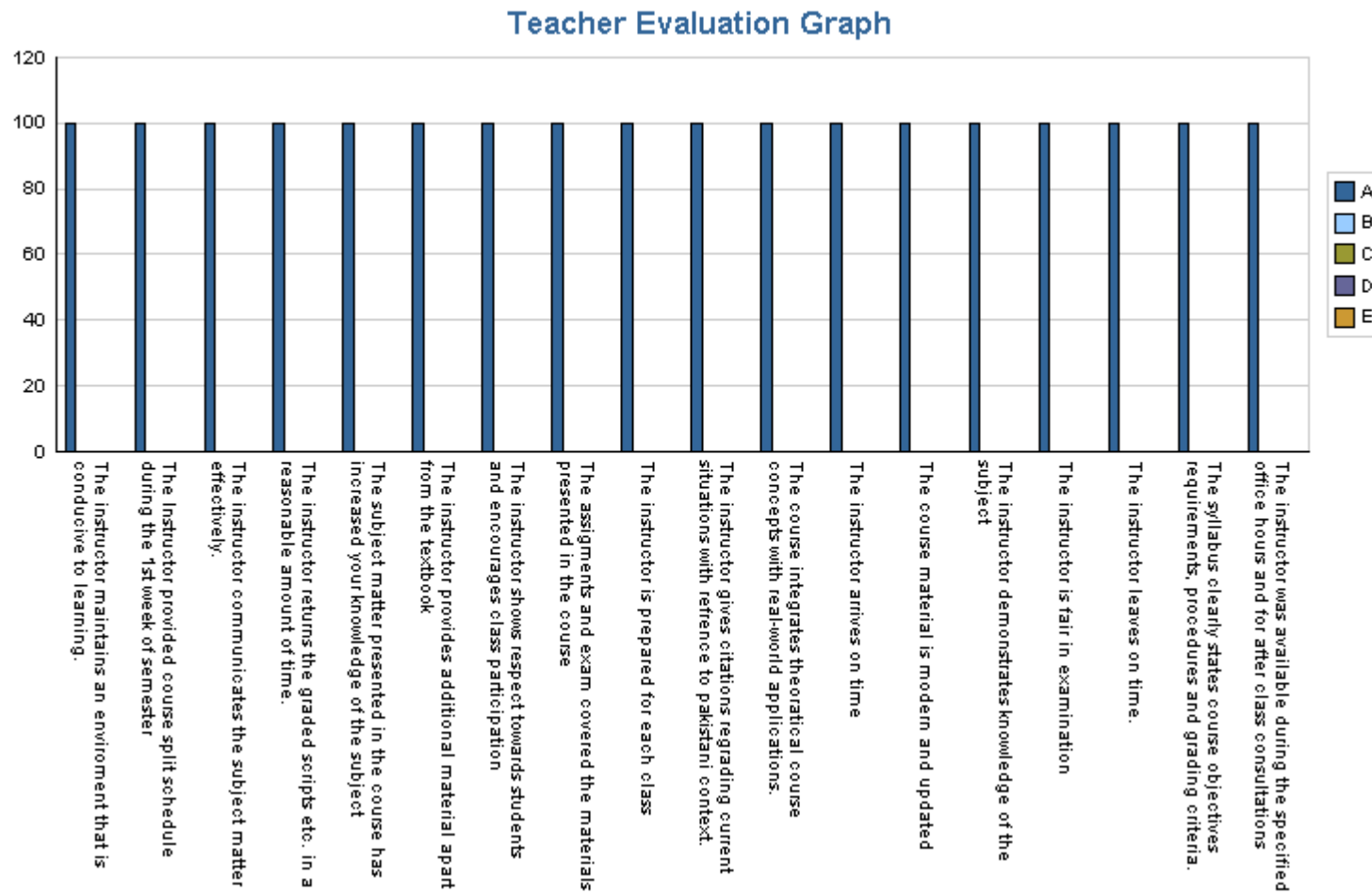
The strongest point which students like about teacher 4 is that the course related information was provided in time and the instructor was well prepared for class and syllabus was well structured.

Results of Performa 10 of teacher 4(BIOT-706 M section A)



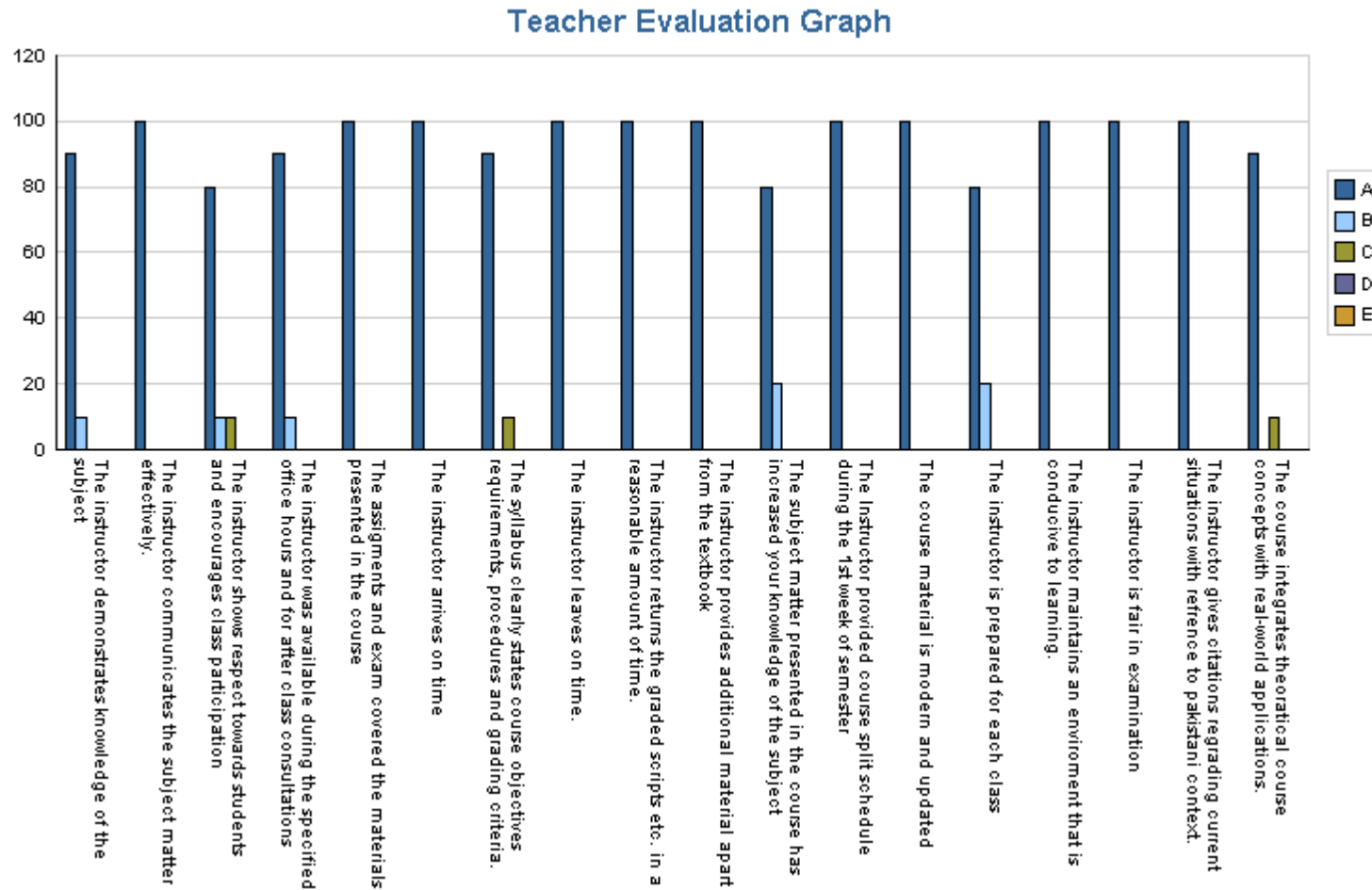
The strongest point which students like about teacher 4 is that the course related information was provided in time and the instructor was well prepared for class and was available for after class consultations as well.

Results of Performa 10 of teacher 4(BCH-720 M section A)



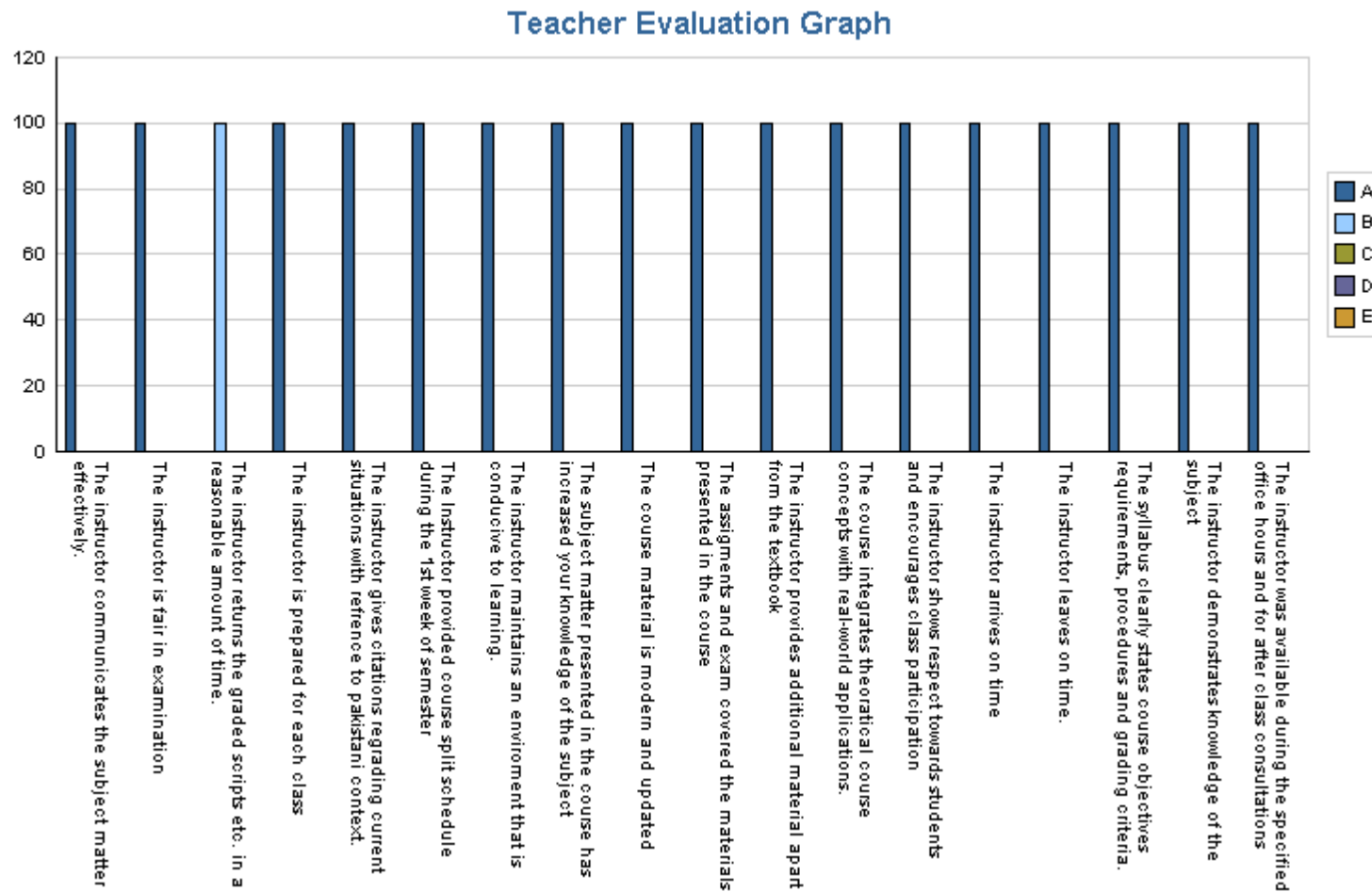
The strongest point which students like about teacher 4 is that overall, he did an excellent job and he maintained an environment that is conducive to learning.

Results of Performa 10 of teacher 4 (BCH-737 M section A)



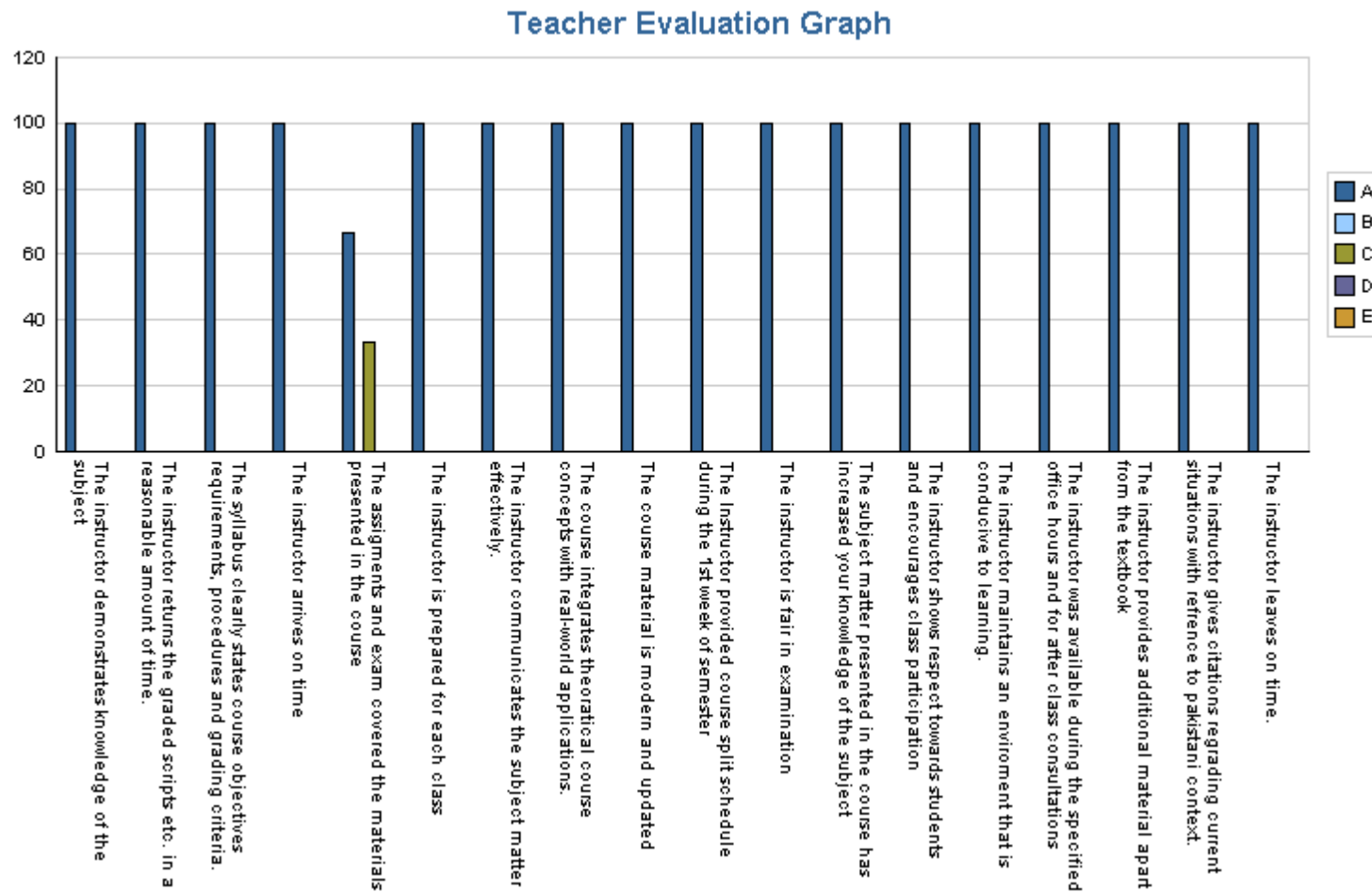
According to student's teacher 4 communicates the subject matter effectively.

Results of Performa 10 of teacher 5 (BCH-719 M section G)



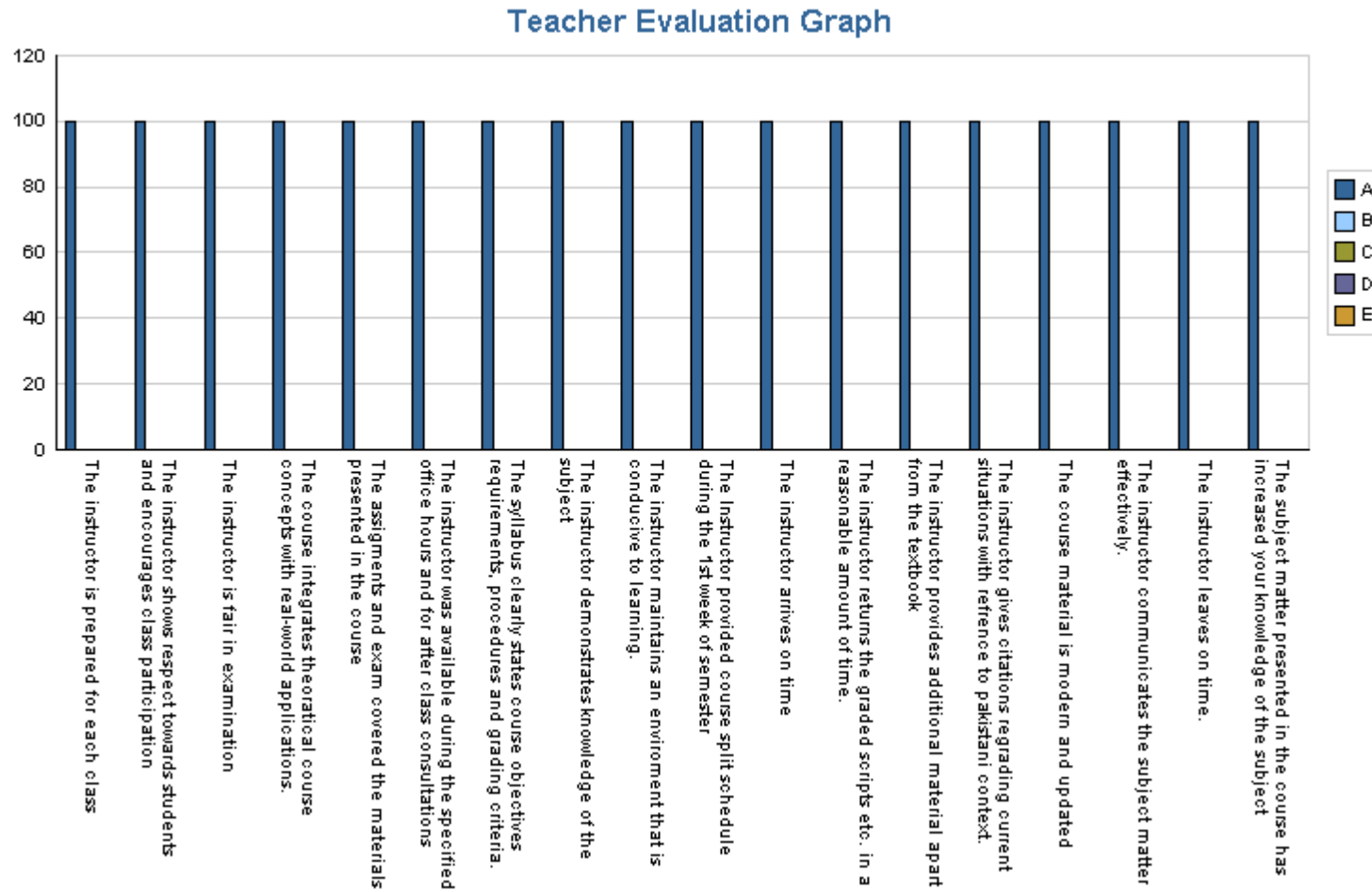
The strongest point which students like about teacher 5 is that he is very fair in examination, encouraged class participation and course material is modern and updated.

Results of Performa 10 of teacher 5 (BIOT-701 M section A)



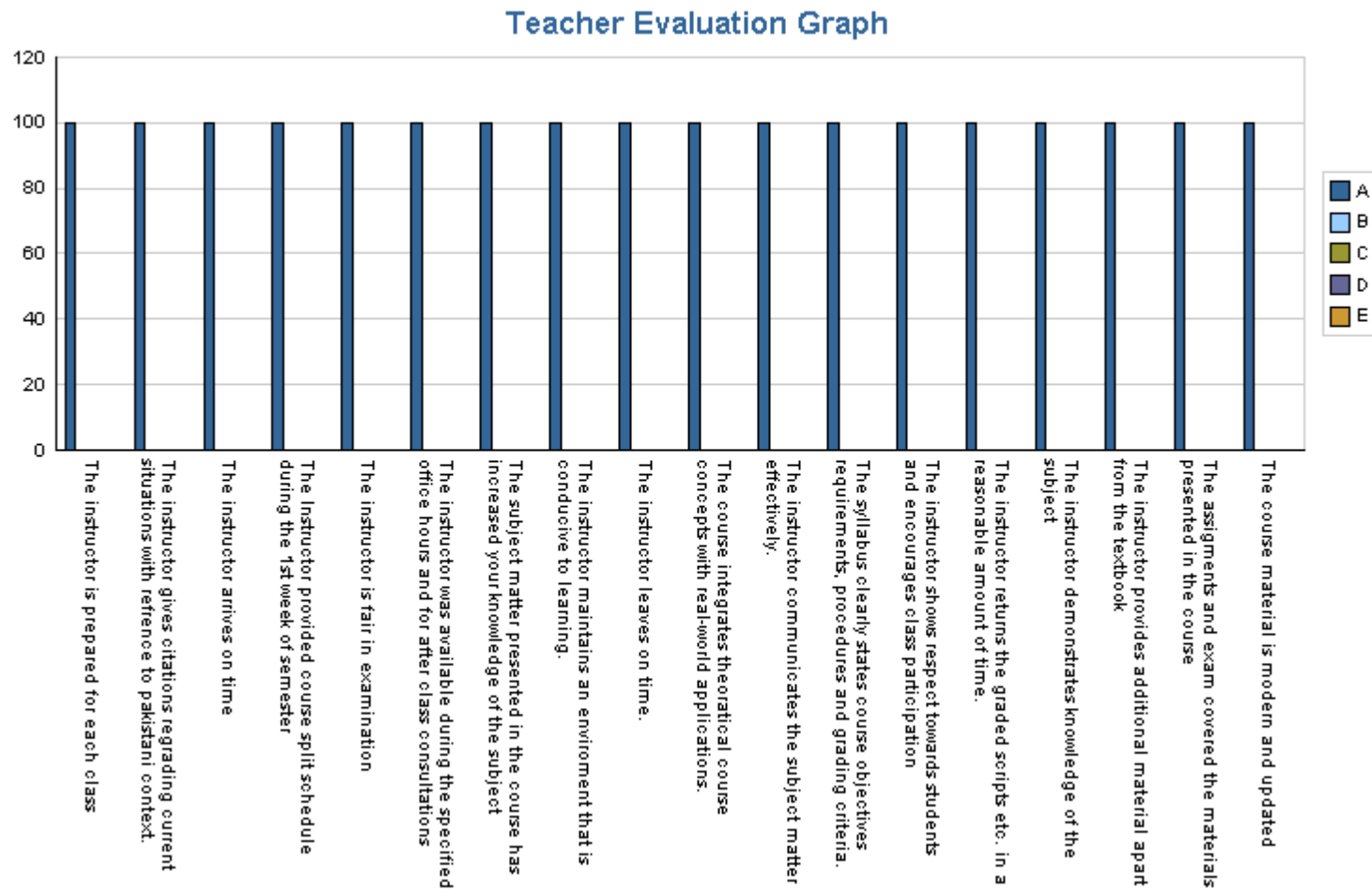
The strongest point which students like about teacher 6 is that the course related information was provided in time and the instructor was well prepared for class.

Results of Performa 10 of teacher 6 (BCH-719 M section E)



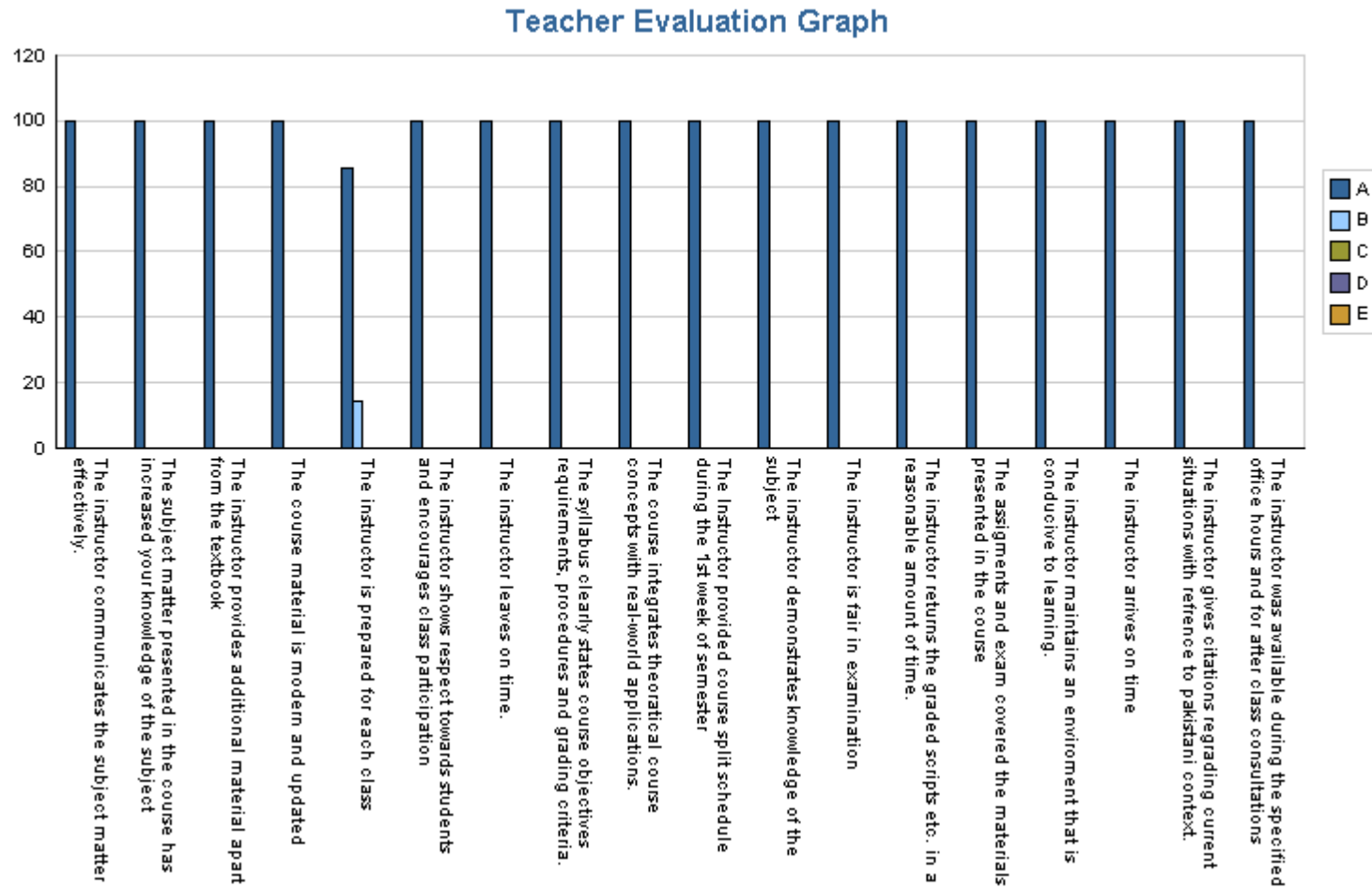
The strongest point which students like about teacher 6 is that the instructor is punctual and well prepared for the class and provided course material on time.

Results of Performa 10 of teacher 7 (BCH-719 M section D)



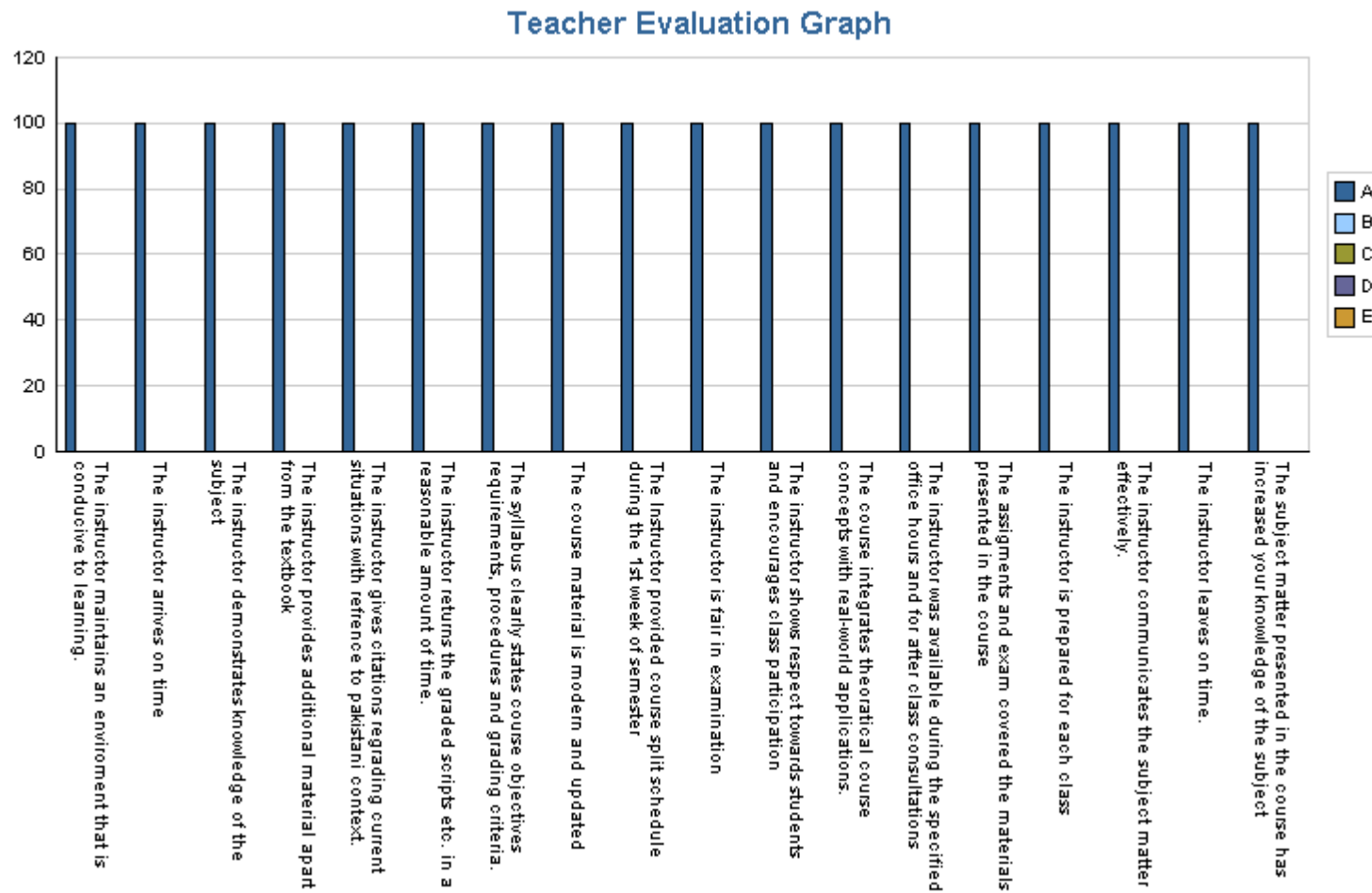
The teacher 7 demonstrated the knowledge of the course well and provided the course split schedule during the first week of the semester

Results of Performa 10 of teacher 7 (BCH-733 M Section A)



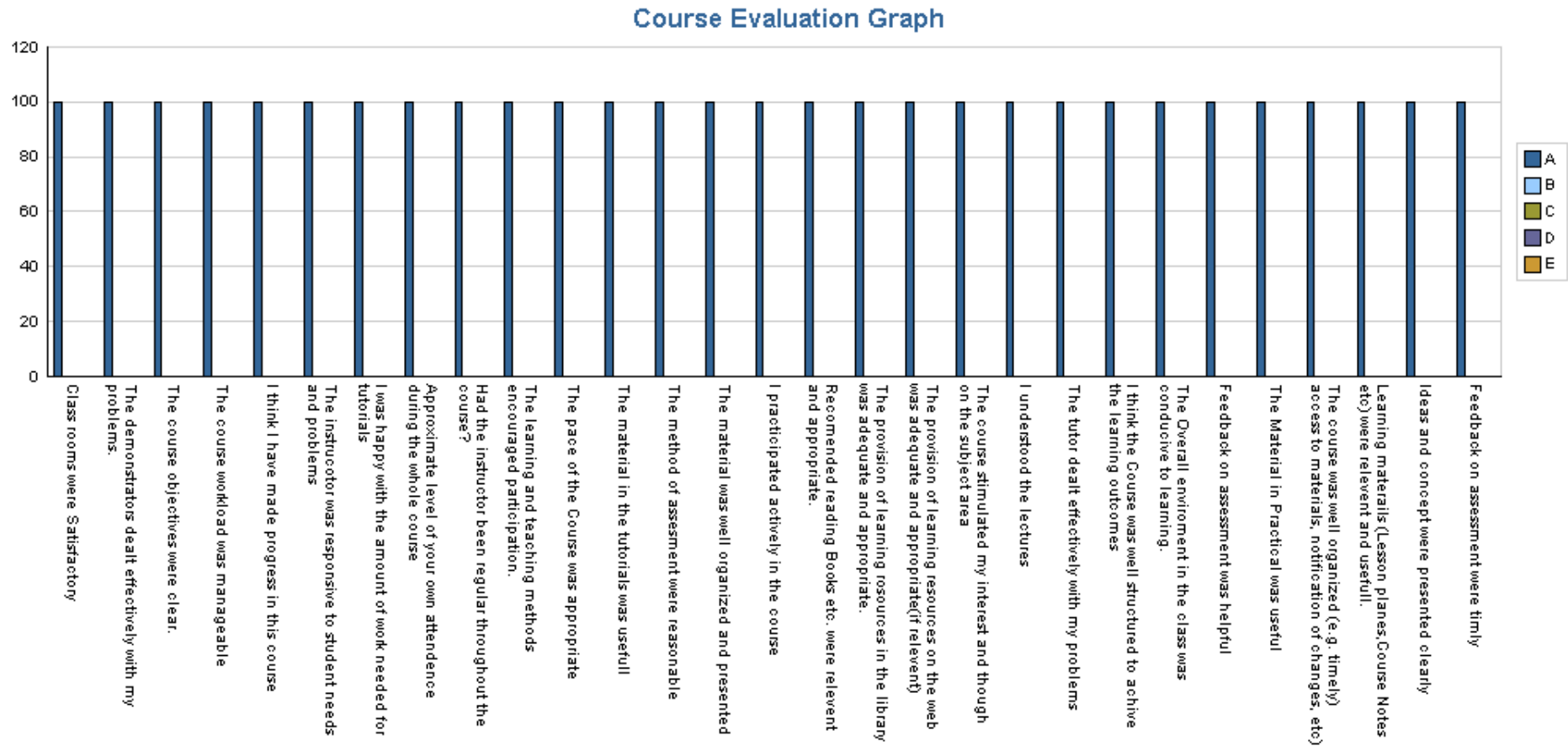
The strongest point which students like about teacher 7 is that the teacher was punctual and available in office during the specified hours.

Results of Performa 10 of teacher 7 (BIOT-720 M Section 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 8 (BIOT-719 M Section A)

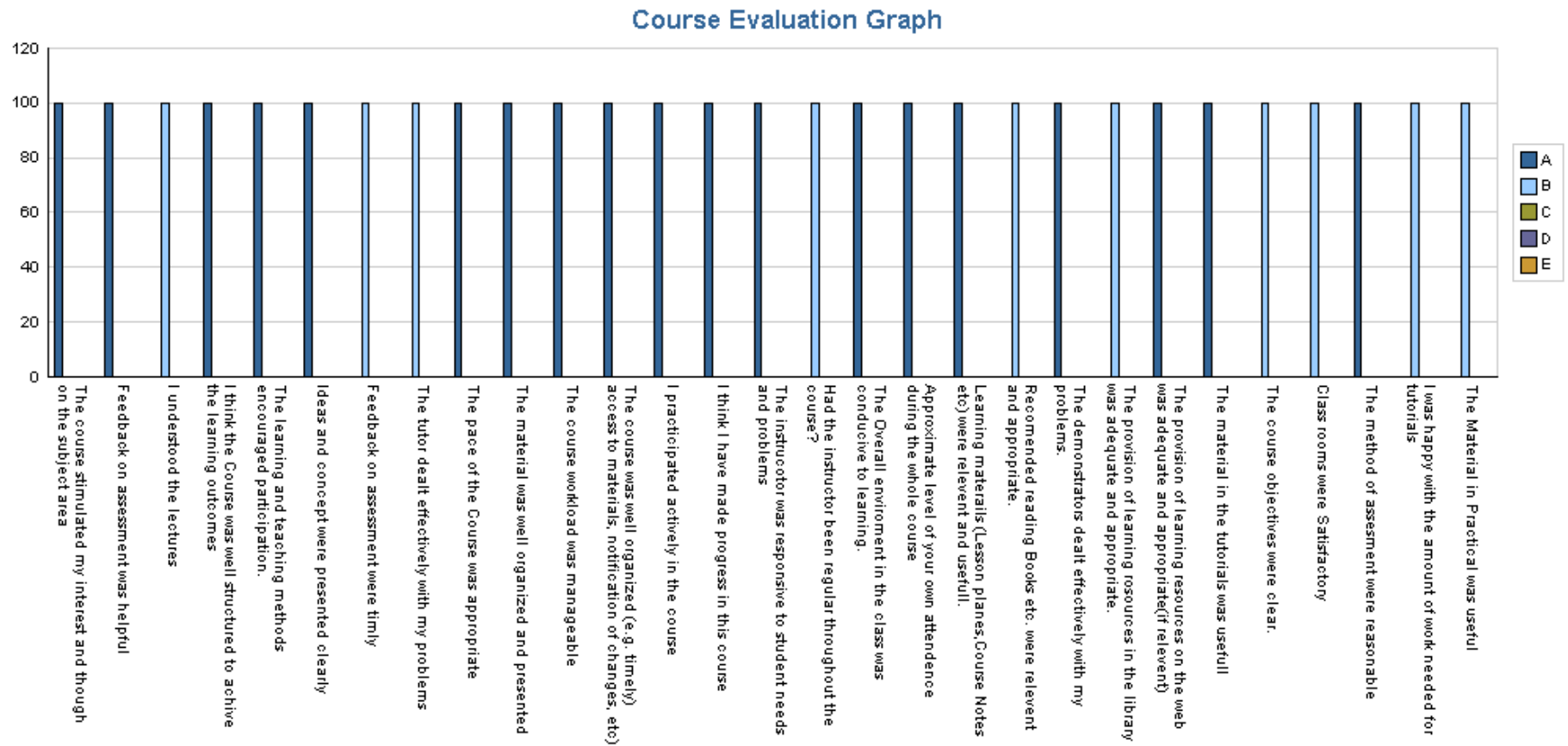


The strongest point which students like about teacher 8 is that the course related information was provided in time and the instructor was well prepared for class and was available for after class consultations as well.

Student Course Evaluation Spring Semester 2016:**Overall Results of Proforma No. 1 Teacher 1, 2, 3, 4, 5,6, 7 and 8.**

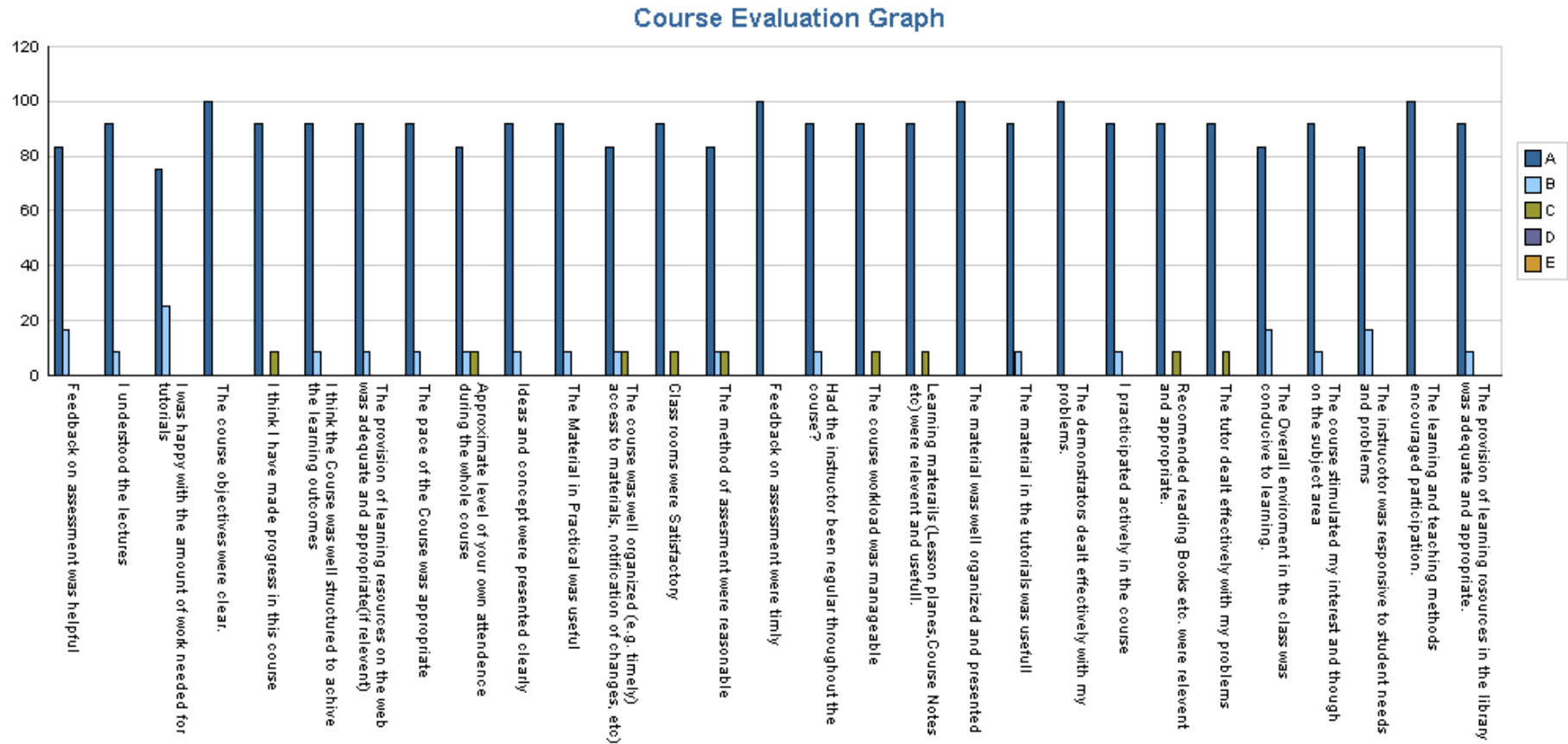
Performa No. 1, deals with study of course observation regarding design of course contents (both theoretical and practical), its relevance with subject and teaching material. It also emphasizes on instructor's role in, not only completing course within given time frame, but how' instructor developed 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-719 M section C)



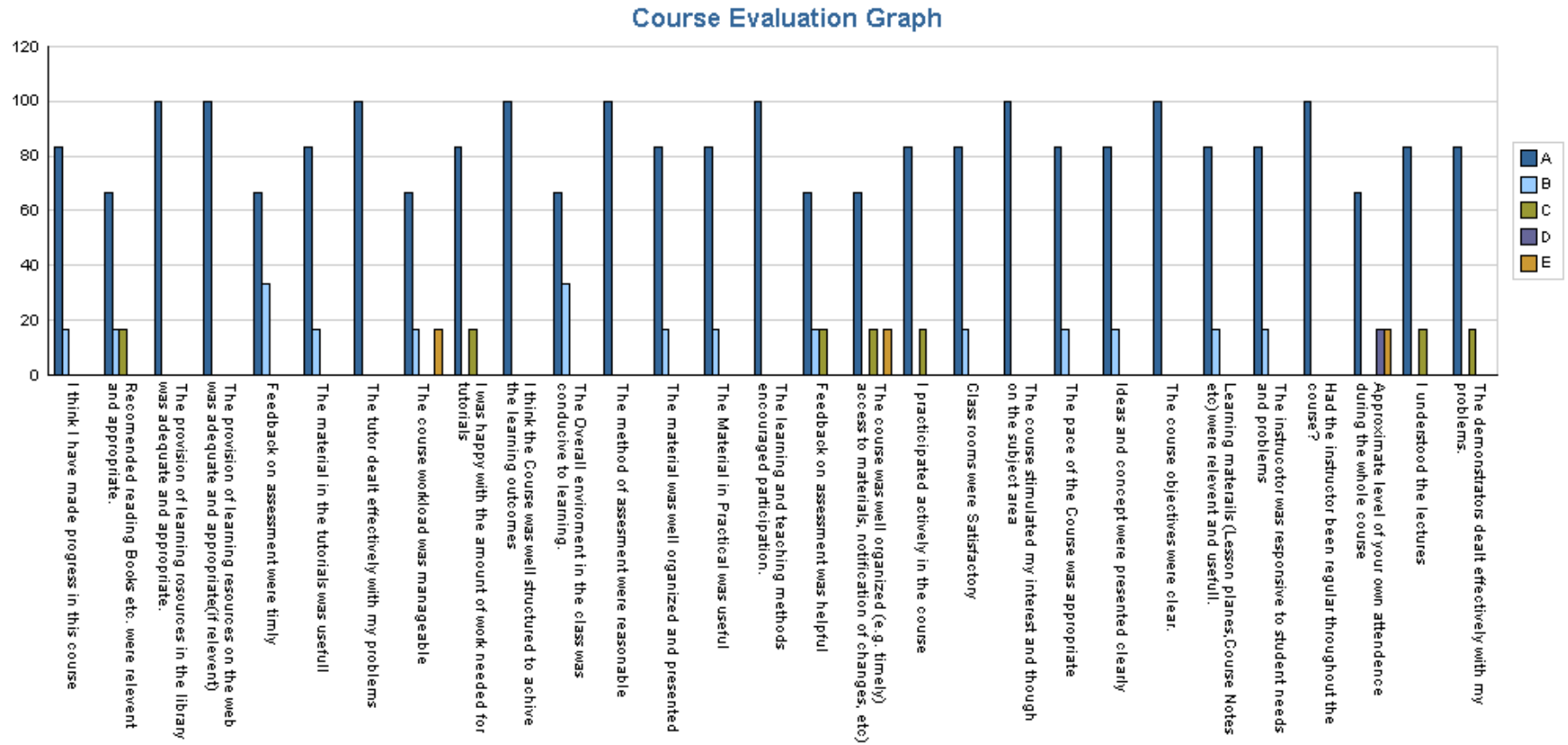
The strongest point which students like about the course is that the course objectives were clear and the demonstrator dealt with students' problem effectively.

Results of Performa 1 of teacher 1(BCH-720 M section A)



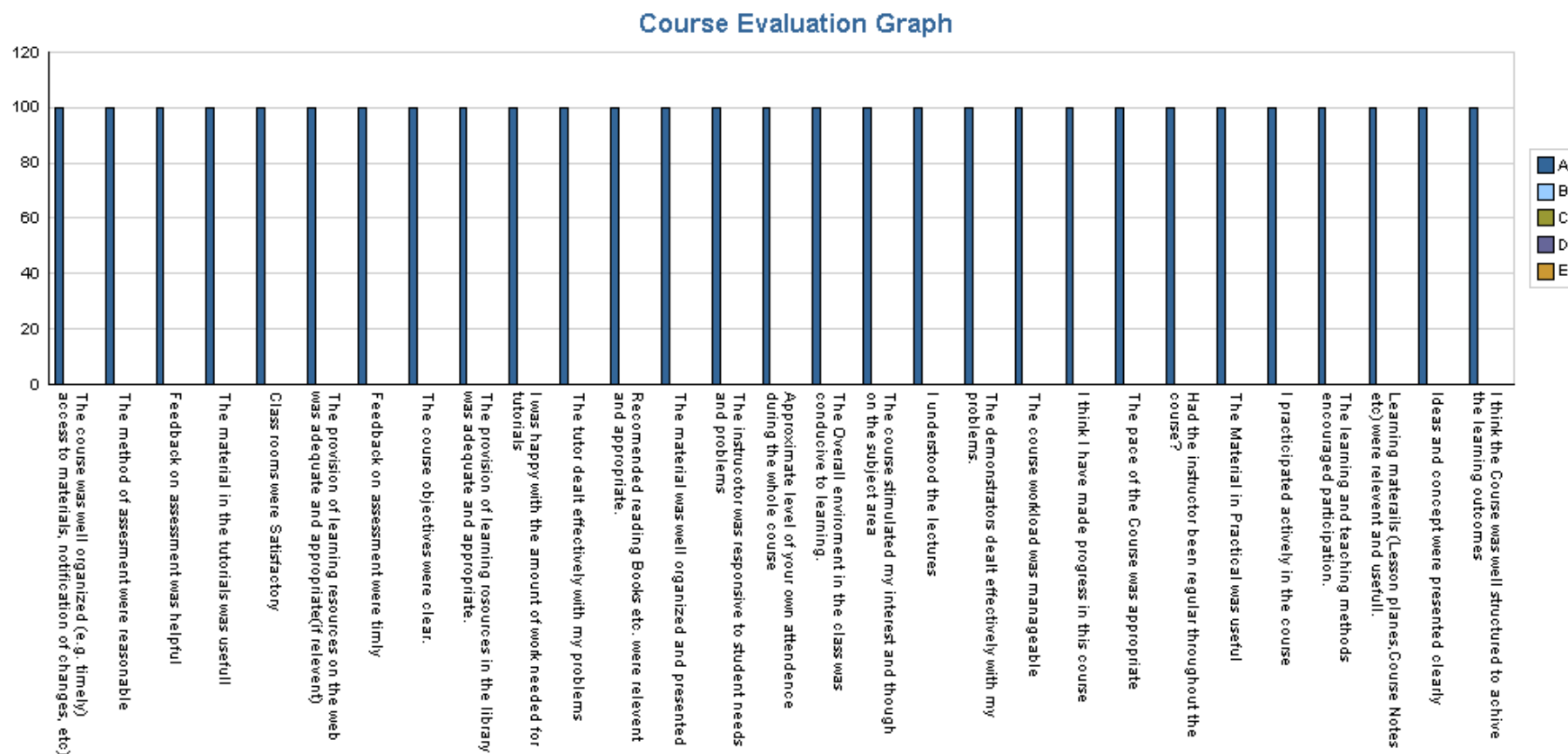
Depending upon the results of performa 1, the course objectives were clear and feedback on assessment were timely.

Results of Performa 1 of teacher 2 (BCH-719 M section B)



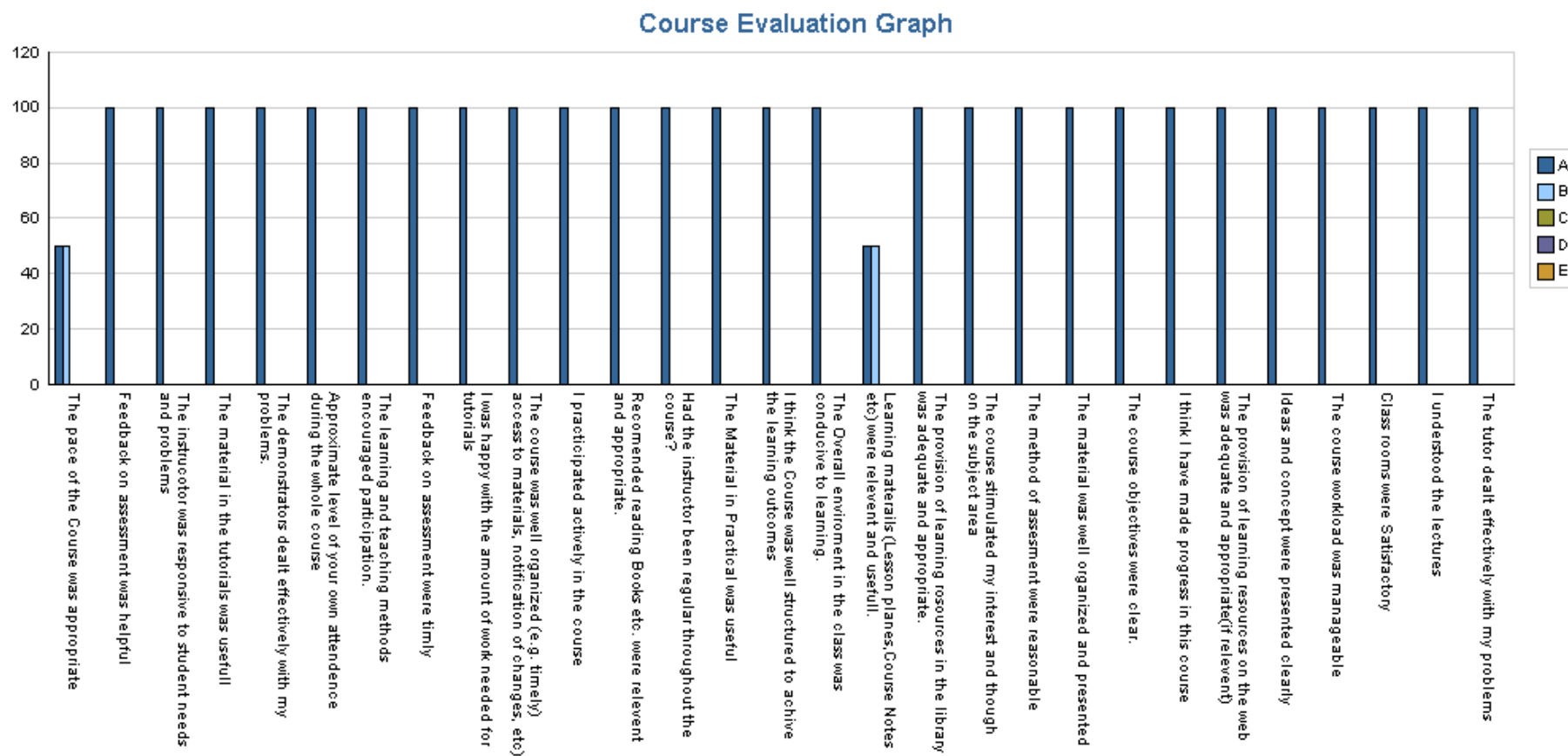
The results of performa 1 shows that the course material was useful and objectives were clear.

Results of Performa 1 of teacher 2 (BIOT-719 M section B)



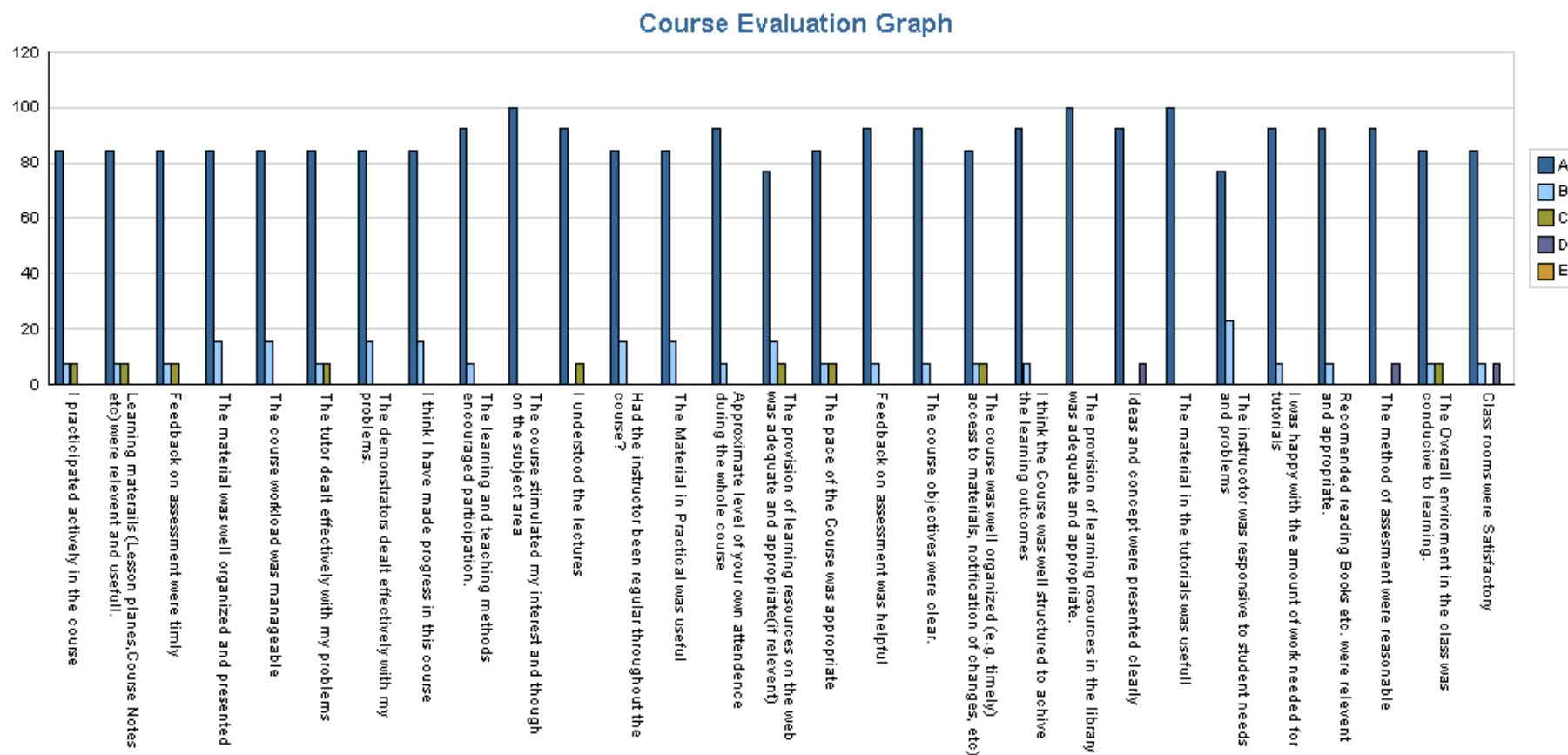
The strongest point which students like about teacher 7 is that, overall instructor did a very good job related to all the aspects of course the course related information was provided in time and the instructor was well prepared for class and was available for after class consultations as well.

Results of Performa 1 of teacher 3 (BCH-719 M section F)



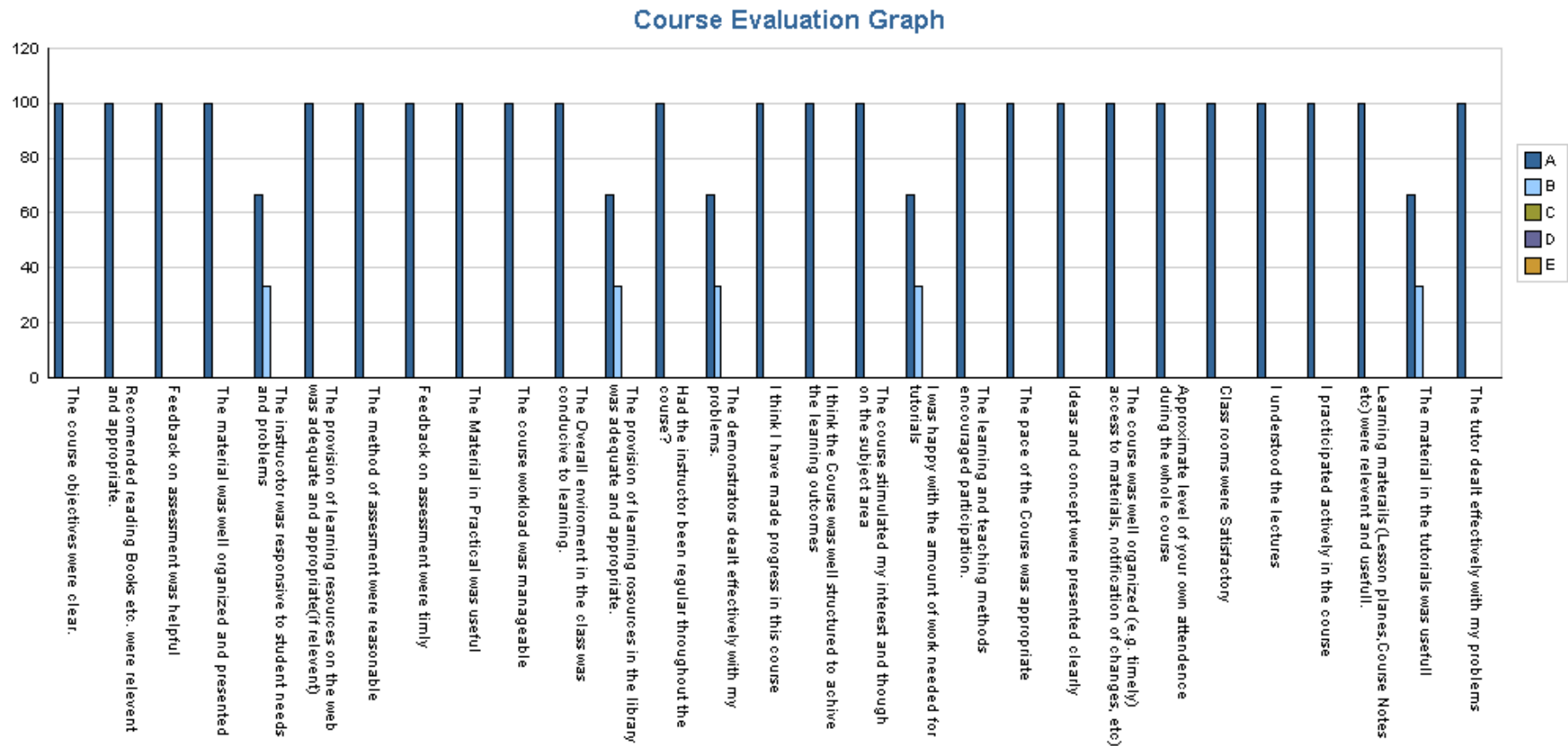
According to performa 1 result the ideas and concepts were presented clearly and students made progress in the course.

Results of Performa 1 of teacher 3(BCH-736 M section A)



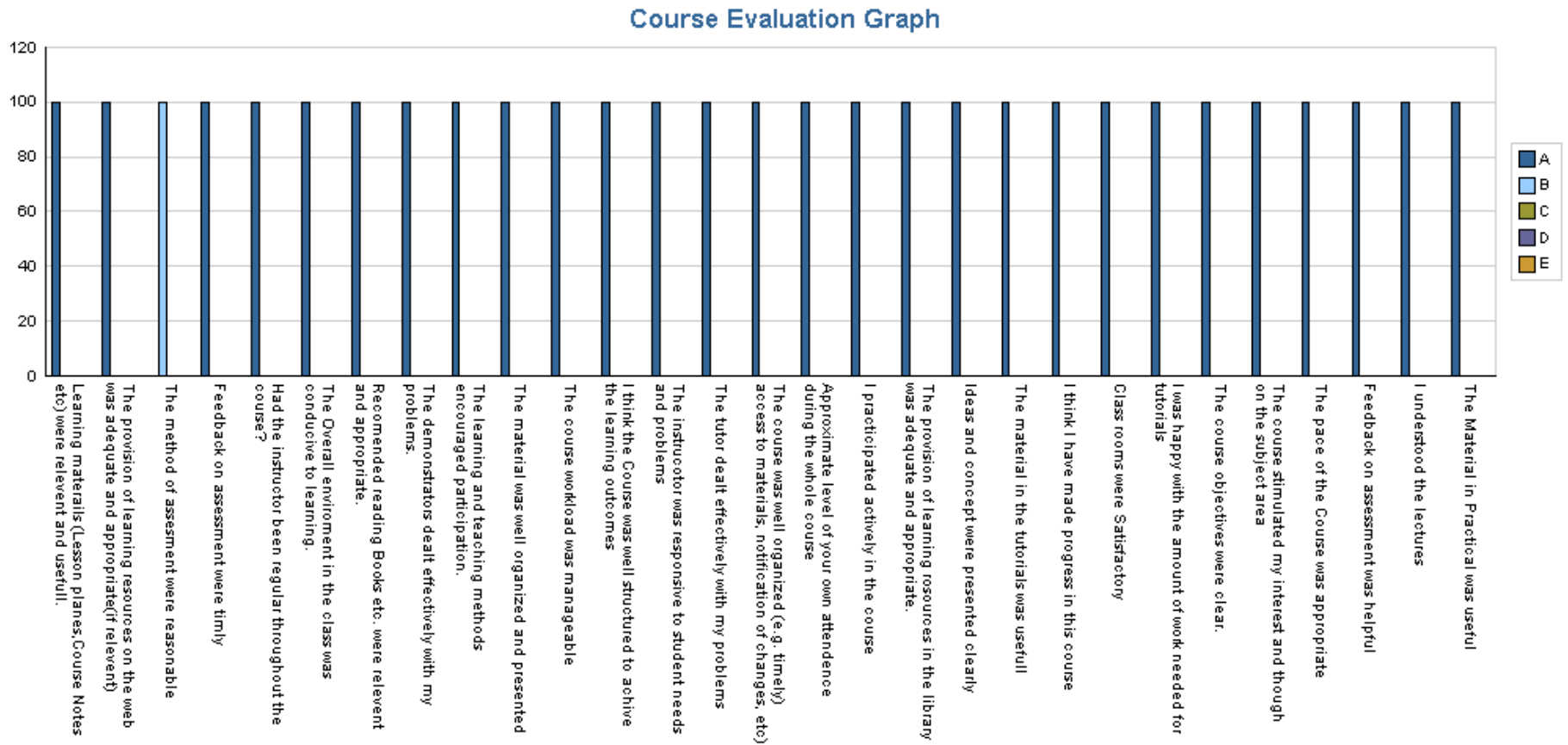
Depending upon the results of performa 1, the learning resources in the library were appropriate and course was well structured to achieve the learning outcomes.

Results of Performa 1 of teacher 3 (BIOT-719 M section F)



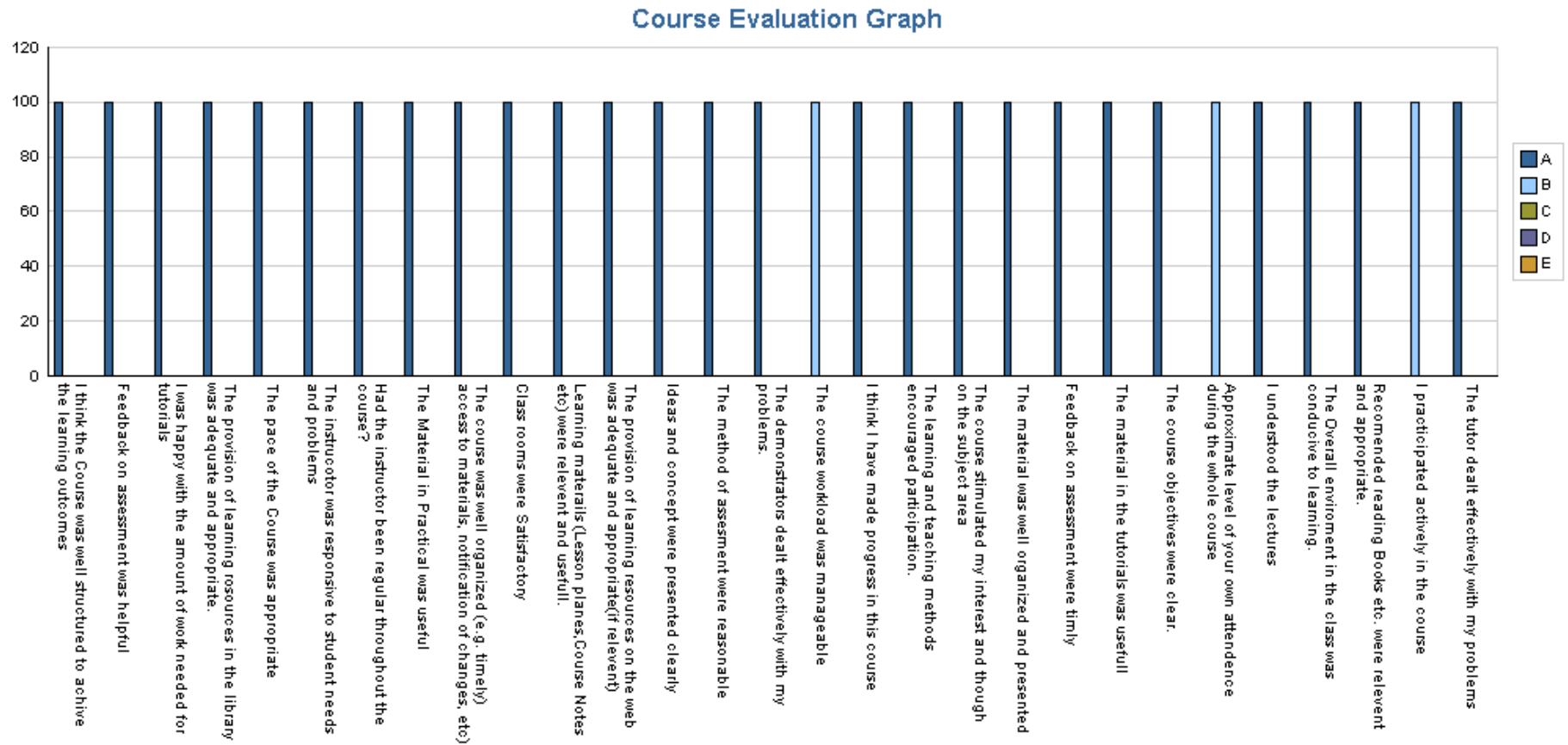
The strongest point which students like about teacher 6 is that the course related information was provided in time and the instructor was well prepared for class.

Results of Performa 1 of teacher 4 (BCH-719 M section G)



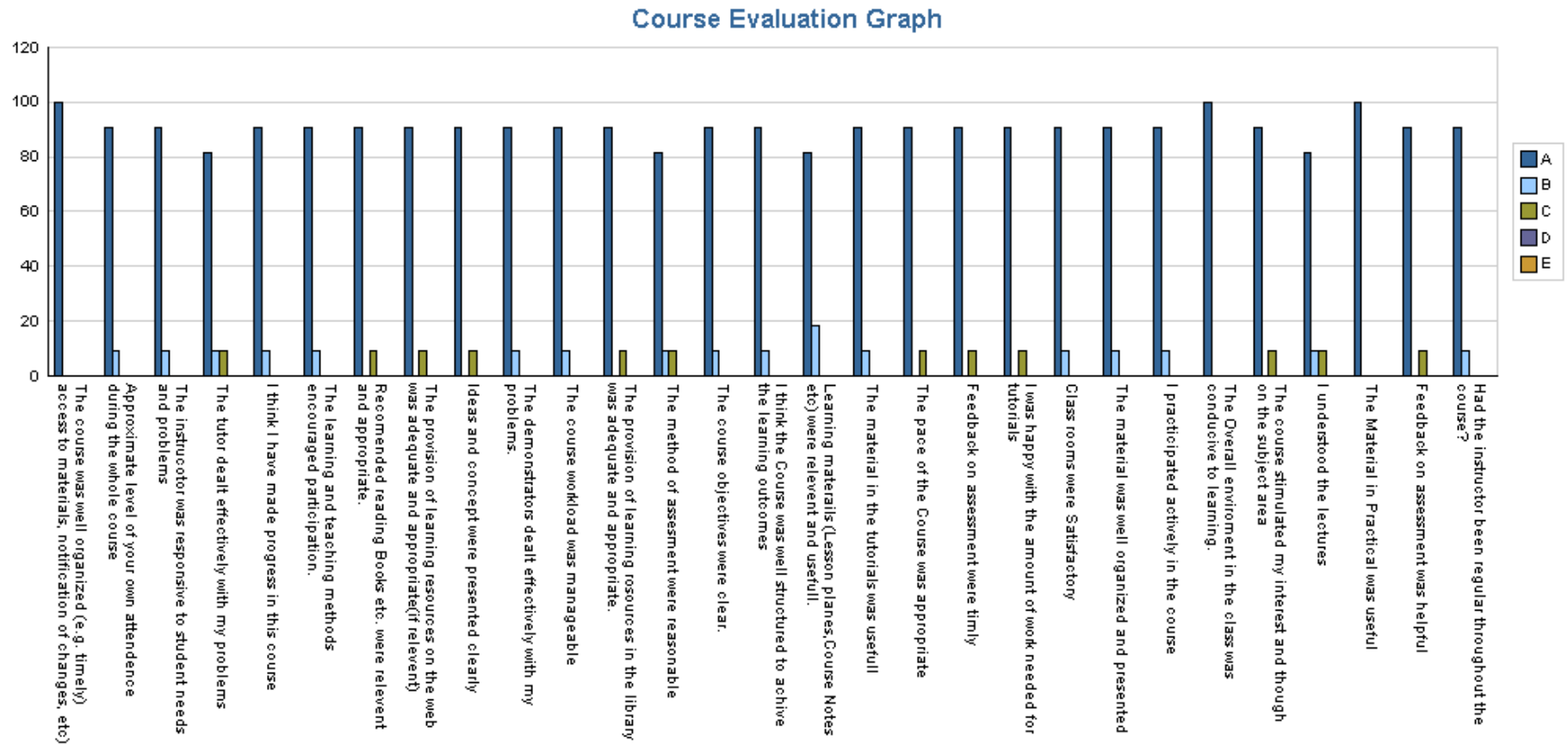
The results of performa 1 clearly indicates that the course workload was manageable and the expected outcomes were well achieved.

Results of Performa 1 of teacher 4 (BCH-720 M section A)



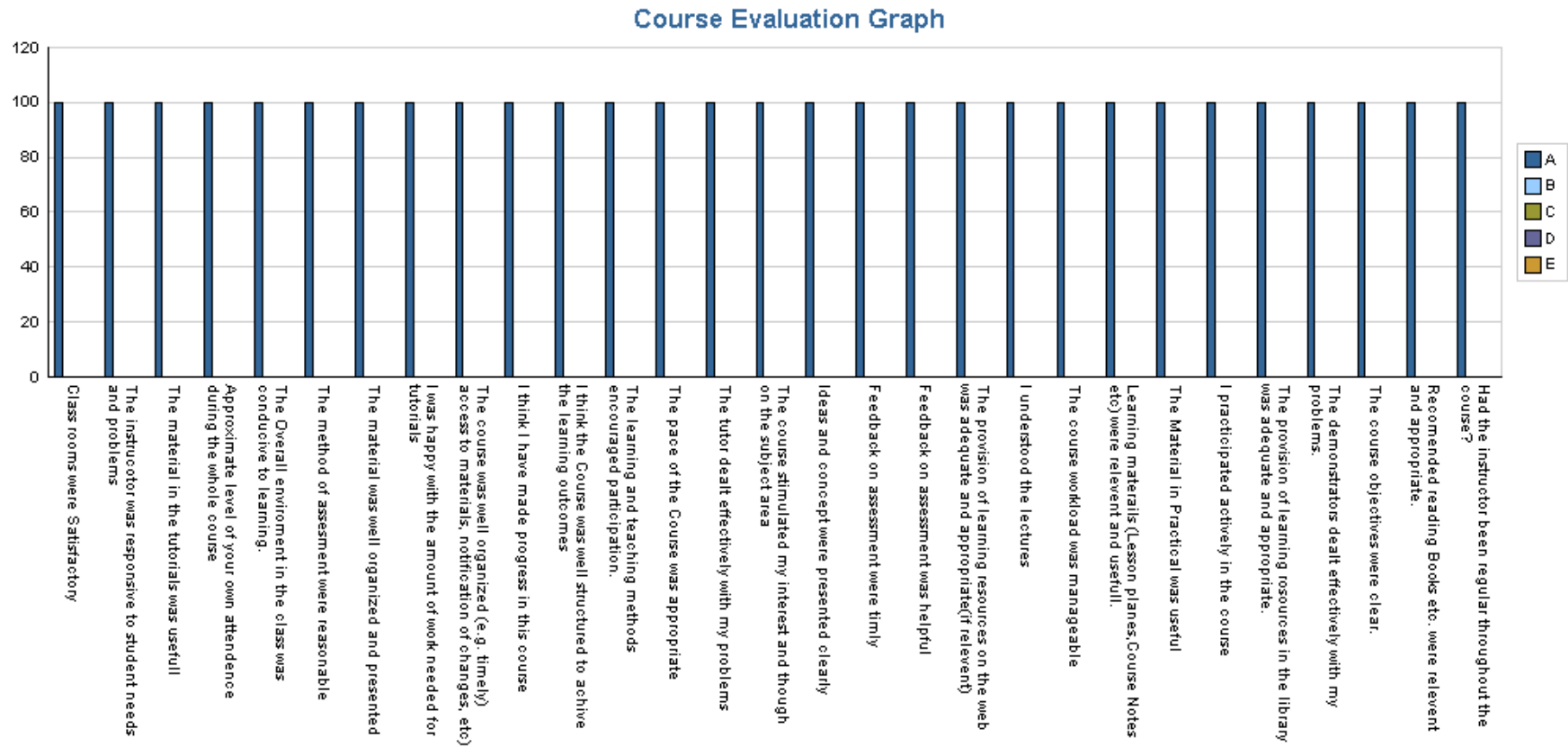
Depending upon the results of performa 1 the materials in the course were useful and students understand it easily.

Results of Performa 1 of teacher 4 (BCH-737 M section A)



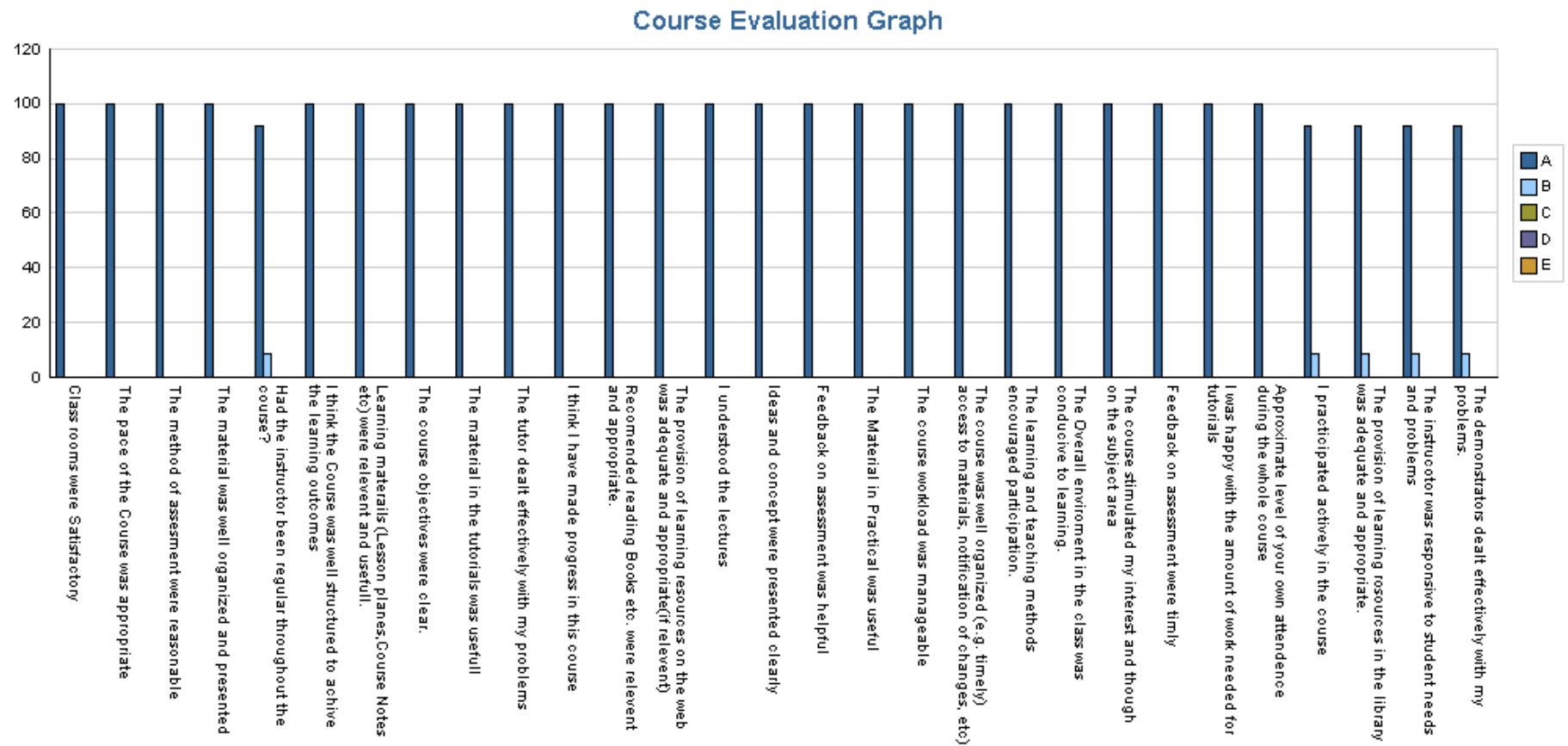
Depending upon the results of performa 1, the class environment was conducive to learning and practical material provided was useful.

Results of Performa 1 of teacher 4 (BIOT-719 M section G)



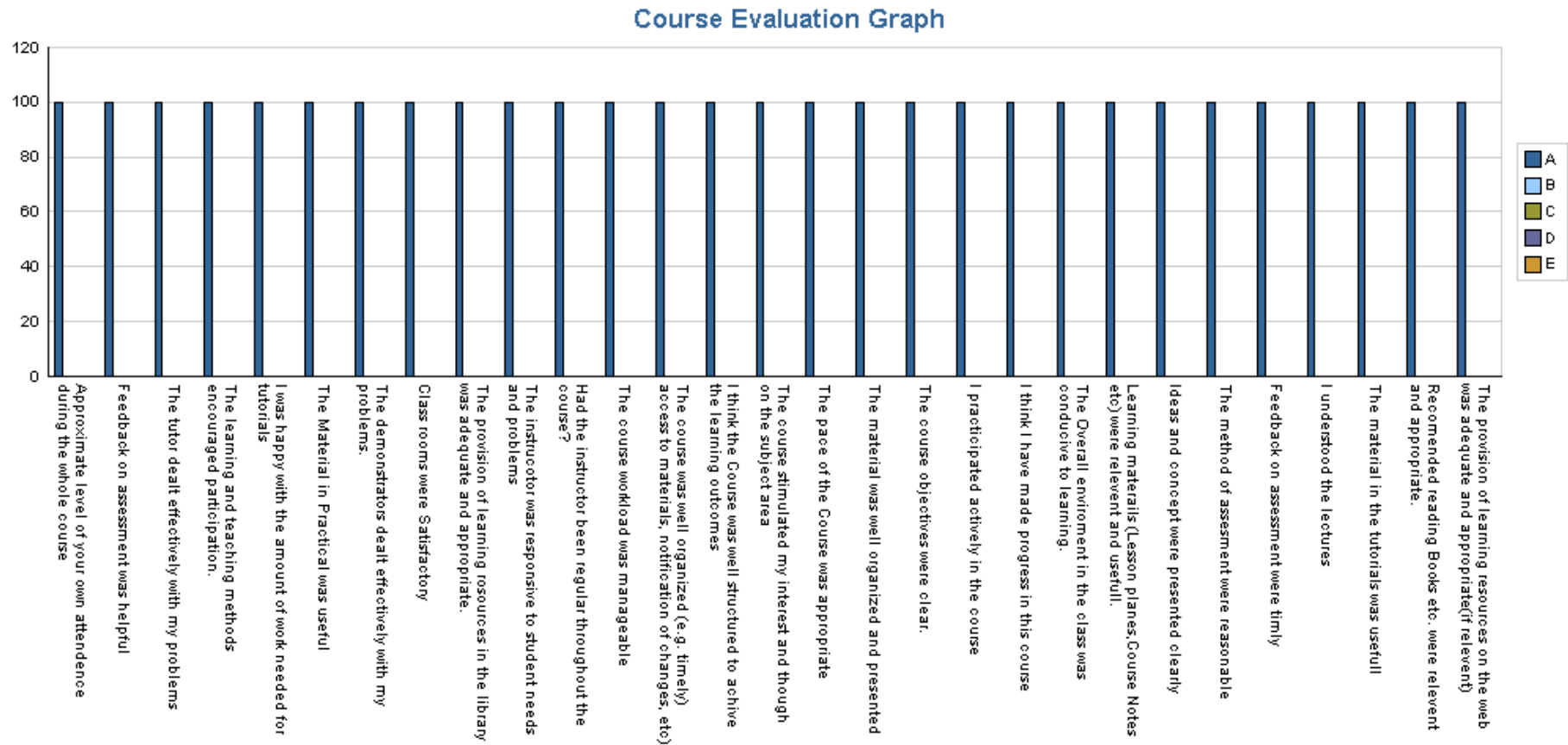
The strongest point which students like about teacher 4 is that, overall instructor did a very good job related to all the aspects of course the course related information was provided in time and the instructor was well prepared for class and was available for after class consultations as well.

Results of Performa 1 of teacher 4 (BIOT-706 M section A)



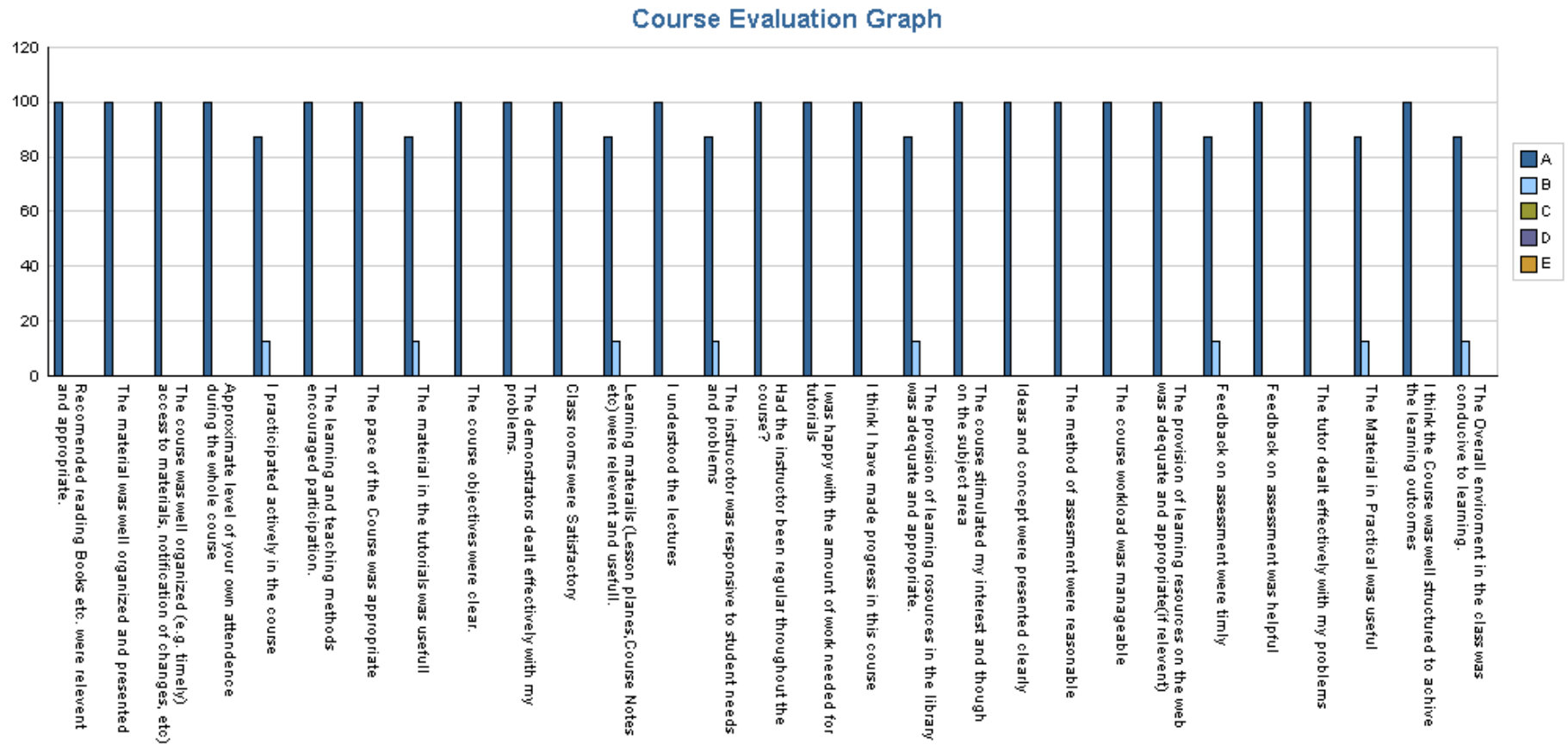
The strongest point which students like about teacher 4 is that the course related information was provided in time and the instructor was well prepared for class.

Results of Performa 1 of teacher 5 (BCH-719 M section H)



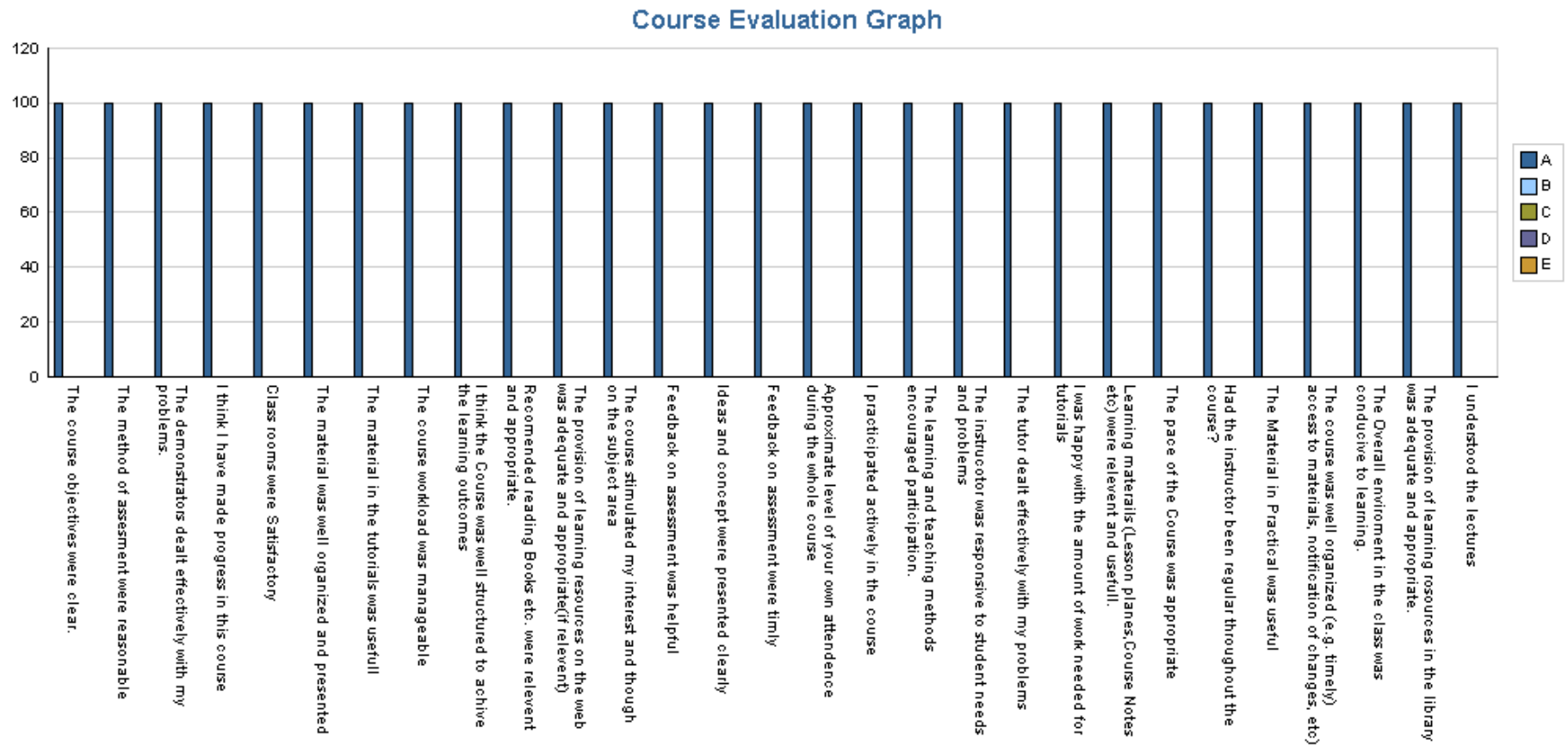
Depending upon the results of performa 1, the course stimulated the students' interest and their participation and the instructor dealt with their problems effectively.

Results of Performa 1 of teacher 5 (BIOT-701 M section A)



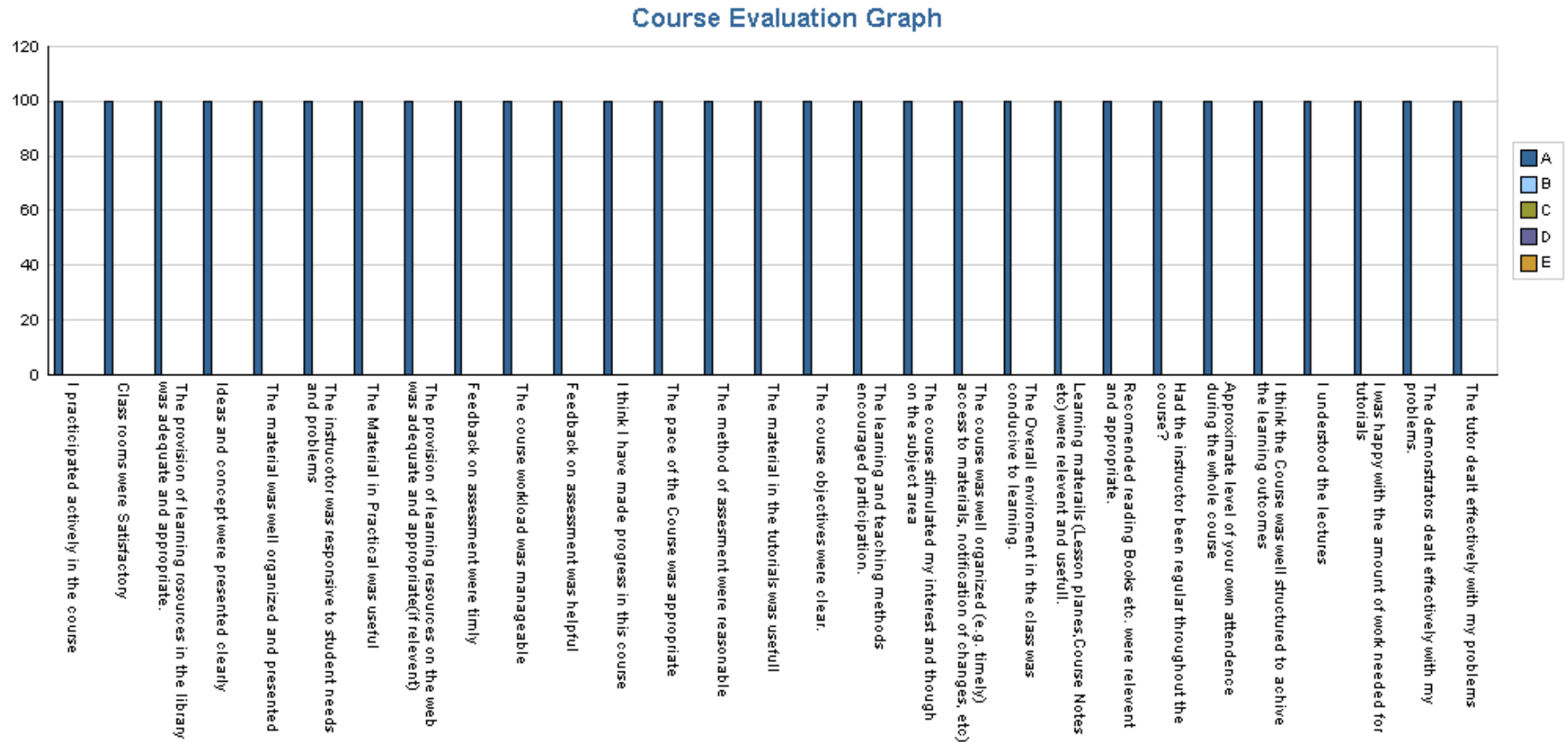
The strongest point which students like about teacher 5 is that the instructor demonstrates the knowledge of the subject very well and course related information was provided in time.

Results of Performa 1 of teacher 6 (BCH-719 M section E)



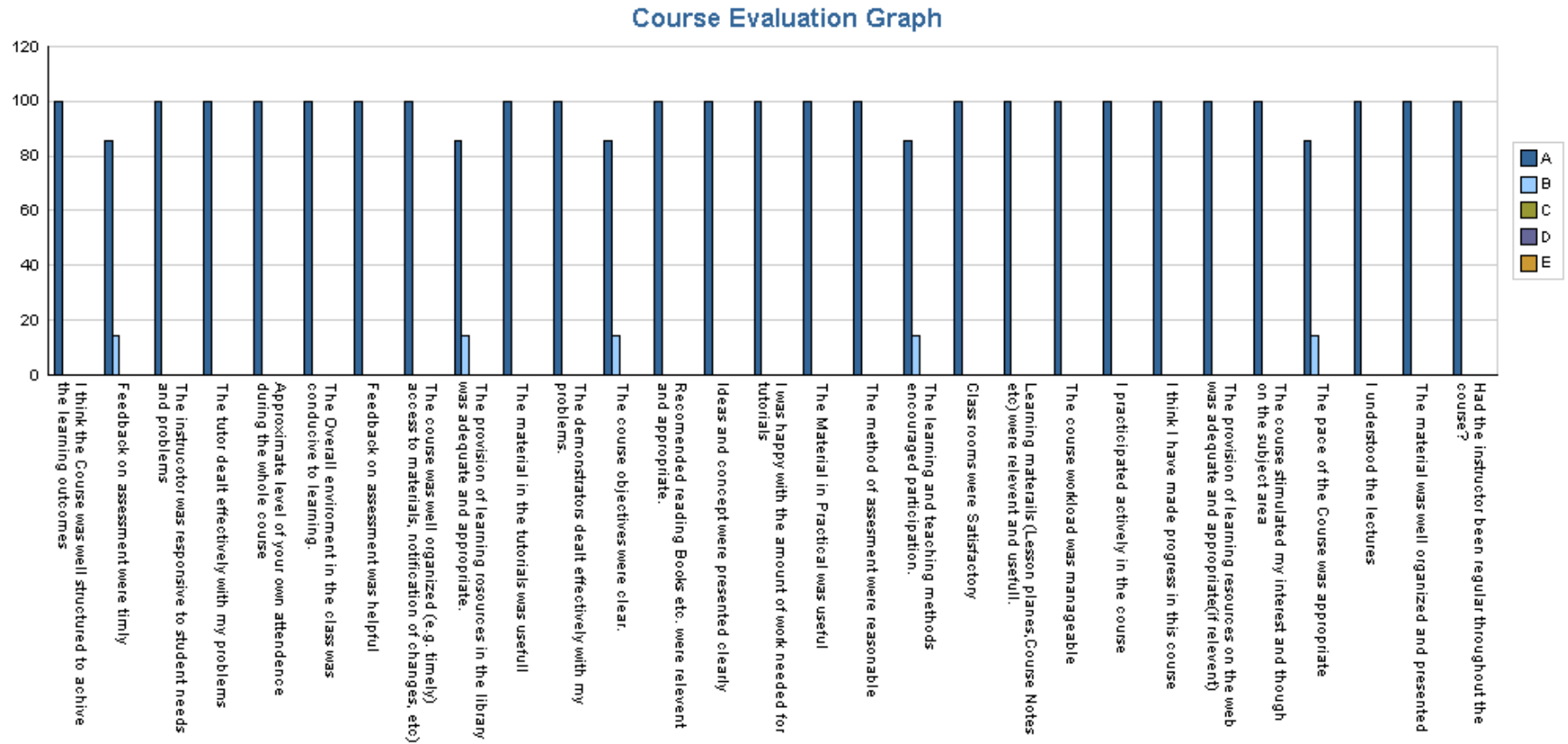
According to results of performa 1, the course objectives were clear and the materials were well organized and presented.

Results of Performa 1 of teacher 7 (BCH-719 M section D)



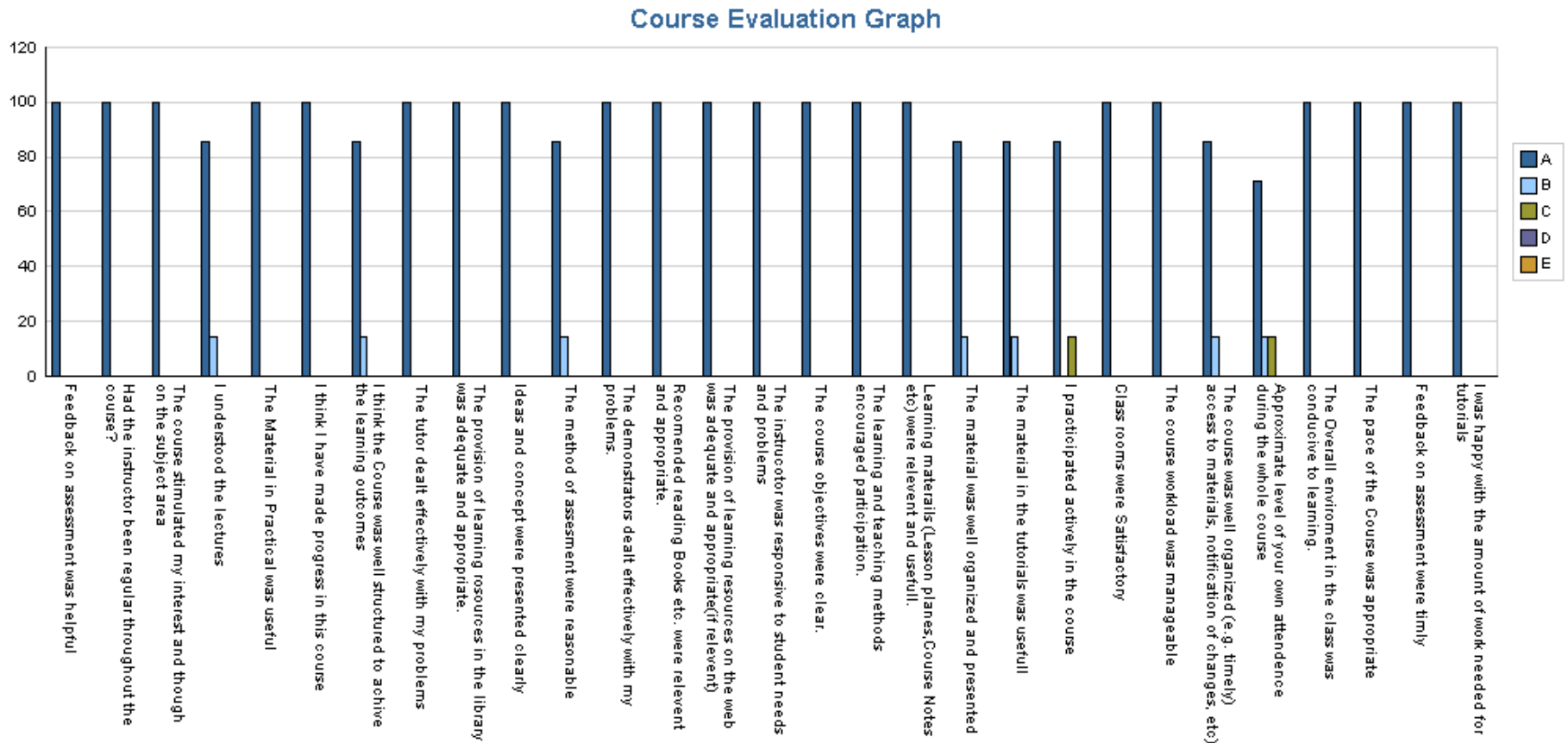
Depending upon the results of performa 1, the instructor was very cooperative and dealt with students need and problems.

Results of Performa 1 of teacher 7 (BCH-733 M Section A)



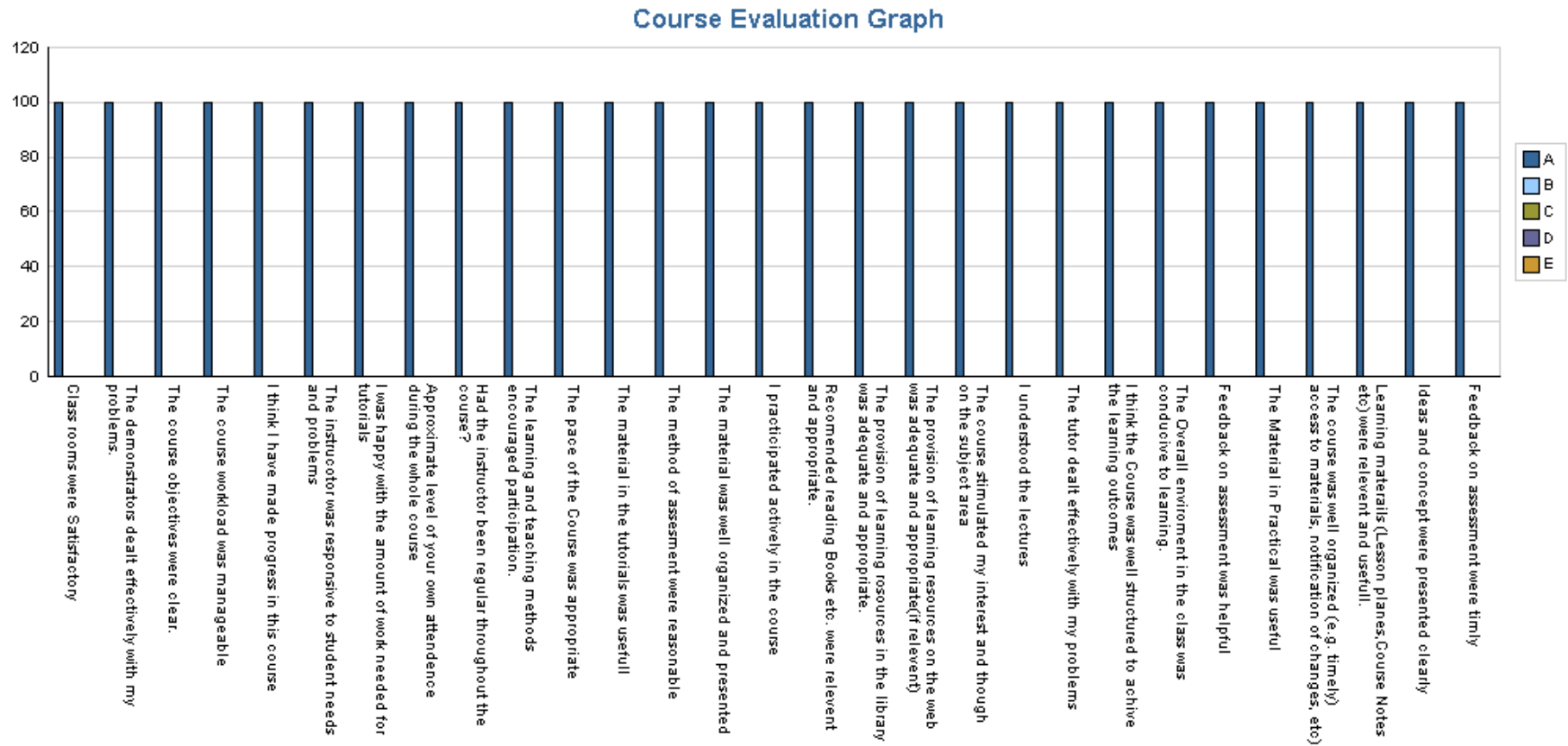
Depending upon the results of performa, the assessment of the course is well in terms of teaching and learning and students participated in the classroom effectively.

Results of Performa 1 of teacher 7 (BIOT- 720 M section A)



The strongest point which students like about teacher 7 is that the objectives of course were clear and the communication with the students was very good.

Results of Performa 1 of teacher 8 (BIOT- 719 M section A)



The strongest point which students like about teacher 8 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.

Skills and Capabilities Reflected in Performance as PhD Biochemistry

Students develop ability to inter-relate the theoretical knowledge with practical aspects of Biochemistry which will help them to work as professional biochemists in various job sectors, 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 Institute/Department

The University Institute of Biochemistry and Biotechnology (UIBB) aims to excel in advanced research in Biochemistry, Molecular Biology and Biotechnology to provide means in controlling various diseases related to plant, animal and human as well as to enhance agriculture and livestock productivity with particular emphasis to high priority areas related to Pakistan's economic growth.

The institute has state of the art, fully equipped laboratories with latest instruments/chemicals including Multiplex, PCR thermocyclers, DNA nanodrops, RT-PCR, Gel-documentation systems, Bioplastics, HPLC, GC, Fluorescence microscope, Fermenters, Plant tissue culture/cell culture chambers, ultra-low freezers, and all basic laboratory equipments like horizontal and vertical gel electrophoresis systems, centrifuges, spectrophotometers, shaker/incubators, safety cabinets, pH meters, laboratory etc. However, the main strength of UIBB is its highly qualified and skilled faculty, with full acquaintance of their respective subjects including Animal Biochemistry/ Biotechnology, Enzymology and Industrial Biotechnology, Epigenetics, Human molecular genetics, Human/Animal nutrition, Infectious disease genetics, Molecular diagnostics, Nano-biotechnology, Phytochemistry, Plant Biochemistry and Biotechnology, etc. which covers all aspects of Biochemistry, Molecular Biology and Biotechnology. All of faculty members of UIBB are highly competitive academic manpower of PMAS-AAUR. They have successfully completed number of National/International research projects and are remarkably active in their academic and research fields.

Weakness Identified in the Program

Although the faculty and laboratories are outstanding for producing quality graduates but they are not sufficient. Although the Department of Biochemistry has been upgraded to University Institute of Biochemistry and Biotechnology (UIBB), promotion of existing faculty members, recruitment of faculty members against already existing posts, approval of new budgetary posts, and upgradation of existing is still awaited. Due to above mentioned scenario existing faculty is over-burdened with heavy teaching workload along with routine assignments specially admissions, setting-up of timetable and date-sheet, and preparation of SARs. 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 institute is under extensive financial constraints due to limited annual budget compared to the seven degree programs being offered with increasing student enrollments and compulsory courses ossified to other facilities/institutes/departments in the university.

Major Future Improvement Plans

- Increase in the allocated budget for UIBB as per demands of degree programs being offered, number of enrolled students, and routine academic and official matters.
- Induction of new faculty members and upgradation/promotions of existing faculty members of Biochemistry.
- Induction of trained laboratory assistants and associated for handling routine work in general laboratories located in UIBB.
- Strengthening of the existing facilities and infra-structure of general laboratories in UIBB for under-graduate and graduate level degree programs.

TABLE-3: QUANTITATIVE ASSESSMENT OF UIBB (2014-2016)

Sr. #	Particular	No.	Remarks
I	BS produced	NA	No data as no graduates produced yet
II	M.Sc. produced	157	Graduates working in public/private sectors of research, teaching, diagnostics, pharmaceuticals, chemical and equipment supplies. Many ex-students have joined M.Phil. & Ph.D. studies in PMAS-AAUR, QAU, PU & UAF
III	M.Phil.	102	Working in public/private sectors of research, teaching, diagnostics, pharmaceuticals, chemical and equipment supplies. Many ex-students have pursued PhD nationally/internationally.
IV	Ph.D.	11	In employment
V	– Post-Doc fellowship faculty – Short Term Training	5 3	USA, UK, Sweden, Canada
VI	Students: Faculty ratio	25:1	
VII	Technical: non-technical ratio	2:8	

Faculty

Table-3.1: Faculty Distribution in UIBB

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. GhazalaKakub Raja	Associate Professor	Ph. D. Post-Doc	Biochemistry/ Animal Biotechnology
Dr.M.JavidAsad	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 /Nutrition Biotechnology
Dr. Pakeeza A. Shaiq	Assistant Professor	Ph.D.	Animal Biotechnology/Human Molecular genetics
Dr. Sadia Saeed	Assistant Professor	Ph.D.	Animal Biotechnology/Epigenetics
Dr. TayyabaZainab	Assistant Professor	Ph.D.	Molecular genetics
Ms. Hina Ali	Lecturer	M.Phil	Chemistry and Biochemistry

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

Faculty	Journal Publications (National & International) (Year 2014-2016)	Conference Publications (Proceedings/ Abstract) (Year 2014-2016)	On-going Projects (Year 2014-2016)
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 UIBB is well established and its distinguishing feature is the availability of all expertise (Animal Biotechnology, Plant Biotechnology, Environment Biotechnology and Enzymology).

Community Services:

To enhance the quality and quantity of scientific trainings, the UIBB 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 institutemaintains a ratio of 25:1 and 2:8for the student: teacher and technical: non-technical staff respectively.
- Administrative meetings (institutional, 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 institute 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.

The institute is well established and its distinguishing feature is the availability of all expertise (Biochemistry, Molecular Biology, molecular genetics, Plant Biotechnology, Fermentation technology and Enzymology).

CRITERION-2: CURRICULUM DESIGN AND ORGANIZATION
Degree Title: Ph.D (Biochemistry)

Intent:

Curriculum design and update is regularly initiated by the faculty members of the UIBB. After approval from Institutional 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 consists of 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 Professors, Associate Professors, 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 UIBB:

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

Pre-requisites

Minimum Academic Requirements:

MS/M.Phil with first division in Biochemistry or CGPA of at least 3.00/4.00. Must have passed University GRE Type Subject Test with 70% marks. The Ph.D applications must be accompanied by comprehensive project proposals.

Credit Hours					
Degrees	Min. Course Hrs	Thesis	Duration (in Semesters)		Passing CGPA
			Min	Max	
Ph.D.	18	50	8	10	3.00

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

Degree Requirements

It is a minimum of ten semester's duration program after M.Phil or equivalent degree with at least 60-70 credits including 50 credits of research. Degrees are awarded after completing a minimum of 18 credits of course work, written and oral comprehensive examination, open defense of the research proposal, approval of the open PhD thesis defense, and review of

thesis by two foreign experts from technologically/academically advanced countries. Research paper(s) published in HEC recognized journals are considered to the credit of PhD Scholar.

ACADEMIC STANDING

Grade Point Average: Grade points will be as follow:

- Maximum grade point average is 4.00
- Minimum grade point average for obtaining the degree and to remain on the roll of the University is CGPA of 3.00.

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 50% for PhD separately in theory & practical (if applicable).

Standard 2.1: Assessment of the Ph.D 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

Theoretical backgrounds	Problem Analysis	Solution design
BCH-707, BCH-710, BCH-711, BCH-719, BCH-720	BCH-701, BCH-702, BCH-703, BCH-704, BCH-705, BCH-706, BCH-708, BCH-712, BCH-713, BCH-715, BCH-716	BCH-709, BCH-714
Outcome = xxx	Outcome =xxx	Outcome=xxx

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

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

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 must satisfy the core requirements for the program, as specified by the respective accreditation body

The curriculum satisfied core requirements for the programs as specified by HEC.

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

The curriculum satisfied major requirements for the programmes as specified by HEC.

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

The curriculum satisfied general education requirements of programmes as specified by HEC.

Standard 2-6: Information technology component of the curriculum must be integrated Through-out the program

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

- Two seminars carrying one credit hour each at PhD level are compulsory offering to enhance their presentation skills.
- Students are assigned to present generally the recent status/ status on various global and local issues/problems.
- Students have to prepare and present two main scientific presentations; Synopsis and thesis based on their approved PhD thesis title and experimental findings.
- Students have to prepare and submit two major written documents; Synopsis and thesis based on their approved PhD thesis title and experimental findings.
- Students write and submit full length journal papers, review articles, book chapter, and abstracts for scientific conferences/symposia.

Criterion-3: Laboratories and Computer Facilities

There are research laboratories at the Institute. The facilities and shortcomings of these laboratories are listed as under;

1. Plant Biochemistry and Biotechnology Labs
2. Animal Biochemistry and Biotechnology Labs
3. General Biochemistry Labs
4. Enzymology and Industrial Biotechnology Labs
5. Bioinformatics Labs

- **Location:** UIBB, PMAS-AAUR
- **Objectives:** Laboratories are used for Research work for the graduate and post-graduate students. For implementing the projects funded by the University, HEC, PSF, PARC and other agencies.
- **Shortcoming:** Laboratories are reasonably equipped, spacious and adequate, however ACs are not installed in all labs.
- **Safety Regulations:** Fire extinguishers and first aid kits are available. The University also maintains a Medical Dispensary for such incidents.

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 while Medical Dispensary for minor incidents is maintained in the University.

Standard 3-1: Laboratory Manuals

Laboratory manuals for each subject are available in their respective laboratory and with supervisors. Besides the faculty members also keep their personal books to prepare lessons.

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

One Lab Attendant is available to maintain laboratory chemicals/materials supplied, equipments, glassware, etc. Two laboratory attendants assist students in practicals, cleaning and washing.

Standard 3-3

Computing and Infrastructure Facilities

- **Computing facilities support:** Most of the faculty members and the post graduate students have computer facility available. In addition, computers are also available in the Bioinformatics laboratory.
- **Shortcoming in computing infrastructure:** Wireless internet facilities in UIBB for faculty members, graduate/postgraduate students, research laboratories, and class rooms are not available.
- **Safety Arrangements:** Emergency exits and fire safety system in UIBB building are not available. There is also need for a security guard at the main gate of UIBB.

Criterion-4: Student Support and Advising

The University organizes support programs for students and provides information regarding admissions, scholarship schemes etc. The institute on its own has a faculty member as in charge of student affairs while one faculty member is in charge of each degree program offered in UIBB. The institute also arranges orientation, study and re-creational guided tours of students. Director Students Affairs also arranges various cultural activities and solves the students's 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, variety of courses are offered according to professional demand.

Standard 4-2: Structure of the Courses

Effective interactions between students and faculty and for providing latest scientific knowledge are ensured at the time of course formulation. Theoretical problems are explained/discussed and assignments are also given to the students. Presentations on latest advancements in respective field, participations in national/international level seminars, workshops, and conferences are encouraged.

Standard 4.3: Guidance to the students

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

- Information about program requirements through UIBB head office.
- Personal communications via teachers-student meetings.
- Director Student Affairs takes care of the problems of serious nature.
- Information regarding scholarships and job opportunities is available via Directorate of Student Resource Center.

Criterion-5: Process Control

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

Standard 5.1: Program Admission Criteria

- Process of admission is well established and followed as per rules and criteria set by HEC and University. For this purpose, an advertisement is published in the National News Papers and university website by the Registrar Office.
- Admission criteria for PhD in Biochemistry is M.Phil. (Biochemistry) or equivalent with CGPA not less than 2.5.
- Admission criteria are revised whenever needed.

Standard 5.2: Process of Registration

- The student file, after completion of admission process, is forwarded to the Registrar Office for proper registration in specific program and issuance of registration number.
- Registration is done one time only for each degree. In general, the students are registered on competition bases keeping in view the academic and research standards.
- Academic evaluation and promotion to next semester is done via mid-term and final exams with assignments. The students then have to submit synopsis based on the research topics approved by the institutional Board of Studies (BoS) and approved/notified by the Directorate of Advanced Studies (DAS). They also need to pass the written and oral comprehensive exam conducted by the comprehensive exam committee. This is followed by laboratory-based research, thesis write-up/submission and viva voce exam conducted by an external examiner.

Standard 5.3: Recruiting Process for Faculty

Faculty recruitment policy followed by the University is as per rules recommended by HEC;

- Approved vacant/newly created positions are advertised in national newspapers, applications received by the Registrar office, call letters issued to the candidates short-listed based on experience, qualification, publications and other qualities/activities as determined by the University.
- Candidates are interviewed for selection against a post by the University Selection Board and Vice Chancellor.

- 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.
- 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 deposes them in concerned departments of the University.

Standard 5.4: Teaching and Delivery of Course Material

- To provide high quality teaching, the institute 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, animations, videos etc.
- 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 office announces dates of the commencement of examination and notifies the results of the exams. The evaluation procedure consists of quizzes, mid and final examinations, practicals, assignments/reports, oral and technical presentations. The minimum pass marks for each course are 50% for PhD 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: A for 4, B for 3, C for 2 and F for failure (that is zero). For obtaining the degree
 - a. Maximum grade point average 4.00
 - b. Minimum grade point average 3.00

CRITERION-6: FACULTY

Standard 6-1: There must be enough fulltime faculty members committed to the program to provide adequate coverage of the program areas/courses with continuity and stability. At present there is one Lecturer (on Contract), four Assistant Professors, two Associate Professors and Two Professors in UIBB for seven degree programs. Per statutes of UIBB, there is a need for the creation of new posts per requirements of each degree program being offered, induction of qualified Faculty members on the vacant posts and promotion of existing faculty members to share the burden of teaching and research.

FACULTY DISTRIBUTION BY PROGRAM AREAS IN UIBB

Program Area of Specialization	Number of Existing Faculty	PhD degree holders	MPhil degree Holder
Biochemistry	05	04	01
Biotechnology	04	04	0

Standard 6-2: The research interests and qualifications of all faculty member must be sufficient to teach courses being offered to different degree programs as well as to plan, modify and update courses and curricula.

Currently the interests of existing faculty members are sufficient to meet the requirements of the courses taught to the PhD 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 members (except for lecturer, on contract) in Biochemistry are Ph.D. degree holders in relevant discipline.

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

All regular faculty members are Ph.Ds except for three lecturers (under UIBB contract).

Standard 6-5: Dedicated faculty members, sufficient to research, are to remain in their current discipline

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

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

A mechanism is in place for Faculty development.

Standard 6-7: All faculty members should be motivated and have job satisfaction to excel in their profession.

- All faculty members are motivated by timely back up and appreciation by seniors. 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.**
Relevant textbooks of international editions and relevant staff are available
- **These aspects need to be strengthened in number and space.**
The facilities are regularly strengthened per requirement.
- **Classrooms must be air conditioned and adequately equipped with sound system and visuals.**
Classrooms are equipped with visuals.
- **Offices must be adequate to enable faculty to carry out their routine academic responsibilities.**
Offices are adequate & faculty carries out their routine academic 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 institute has the following shortcomings/problems:

- Internet services are provided by the university. Senior faculty members also 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. Regular 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. A small library with up-to-date editions of relevant books is maintained in UIBB institute.

Standard 7.3: Class-Room and Faculty Offices

Currently the classrooms are enough and multimedia are available for the lecture halls. Due to big size of classrooms and large number of students, there is urgent need for sound system in bigger halls. Lecture rooms also need to be air conditioned as the longer duration of summer season makes them unbearable for teachers and students. Practical lab space is adequate however not enough for increasing number of students. The heavy demands of chemicals/supplies of general laboratories are not covered by the existing budget. Not only are new and updated scientific equipment's in urgent need but the repair and regular maintenance of existing laboratory facilities is in urgent demand. This severely affects the quality of teaching laboratory based practical courses and student learning. Faculty offices for existing members is available and provided to regular faculty members as well as to contract and IPFPs faculty members.

Criterion-8: Institutional Support

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

The institute 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 UIBB is having a very meager financial resource to maintain its present needs. The main support for institutional 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 allocated financial resources to strengthen academic and research activities.

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

Students are admitted in PhD twice 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-5: ENROLLMENT FROM 2014-16

Degree Program	Year-Wise Enrollments		
	2014	2015	2016
Ph.D	3	2	7

Standard 8-3: Financial Resources

Total budget of the institute for financial year 2014-16 is only Rs. 55,000/- year which could only fulfill basic institutional needs. With the introduction of new degree programs and increase in the number of students, institute is under huge pressure to provide chemicals for basic laboratories as well as for research students, regular repair/ maintenance of infrastructure & equipment and books/journals/periodicals for the institute 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 2014-16 show the scores of evaluations 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 University Institute of Biochemistry and Biotechnology (UIBB) offered in 2014-16. 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 PhD 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 Institute. After approval from Institute 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 consists of 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 Professors, Associate Professors, Faculty Representatives and very senior subject specialists.

Infrastructure of the institute is adequate for running PhD Biochemistry degree program. The classrooms and laboratories are reasonably equipped with adequate facilities. Institutional facilities were measured through Criterion 3; infrastructure and facilities, classrooms, faculty offices, computing facility support, shortcomings regarding funding and facilities in research laboratories and safety arrangements are highlighted. Institutional facilities for the upgradation and strengthening of existing laboratories facilities for quality research output are highly desired.

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 PhD Biochemistry program;

- 1 The faculty survey reveals that infrastructure still needs some upgradations like; air-conditioners in classrooms, 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 institute needs to be increased for the smooth conduct of academic and research activities.
- 3 Provision of research funds for all PhD students is a high demand that will help in timely completion of research and enhancement of the quality of thesis.
- 4 The existing faculty number is far less as compared to the number of degree programs being offered and large number of under-graduate and post-graduate level students.
- 5 The UIBB is an isolated building with classrooms and research laboratories holding sophisticated equipment's as well as accommodating 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.
- 6 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.
- 7 Professional and behavioral training of the administrative and supporting staff for efficient handling of official activities.
- 8 Computers and internet facilities are available to all regular faculty members and post graduate students to boost the level of research and teaching.
- 9 The weakest point noted is the lack of quality time a faculty has for his/her personal research and family activities.

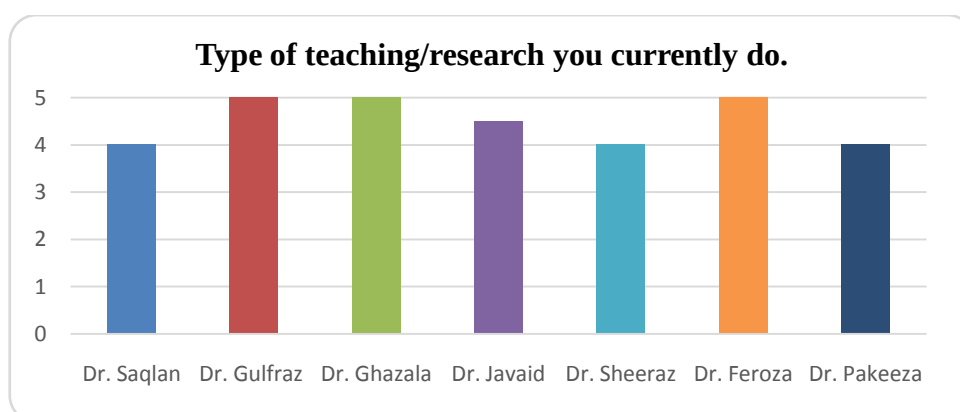
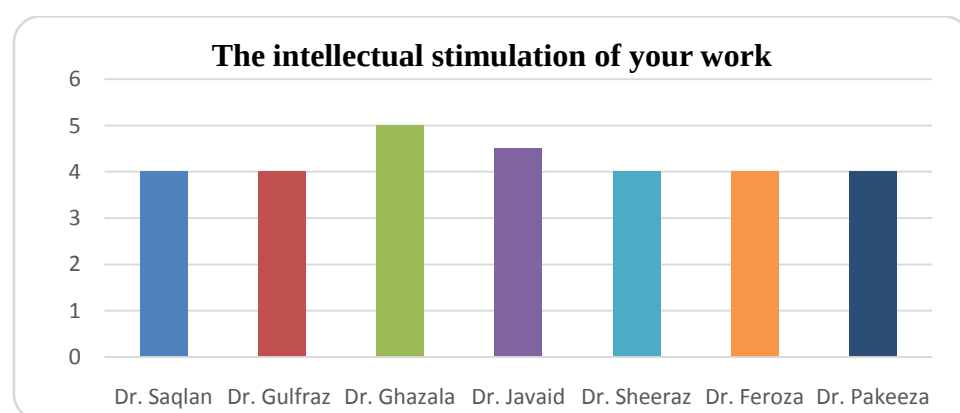
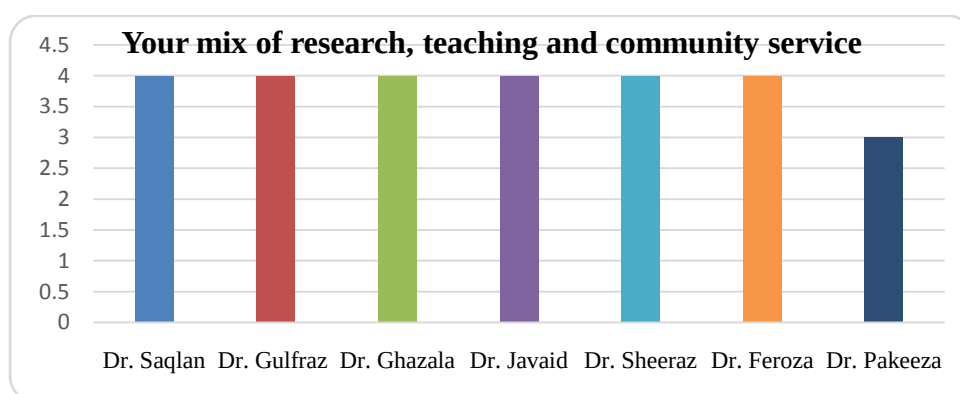
Result of Faculty Course Review

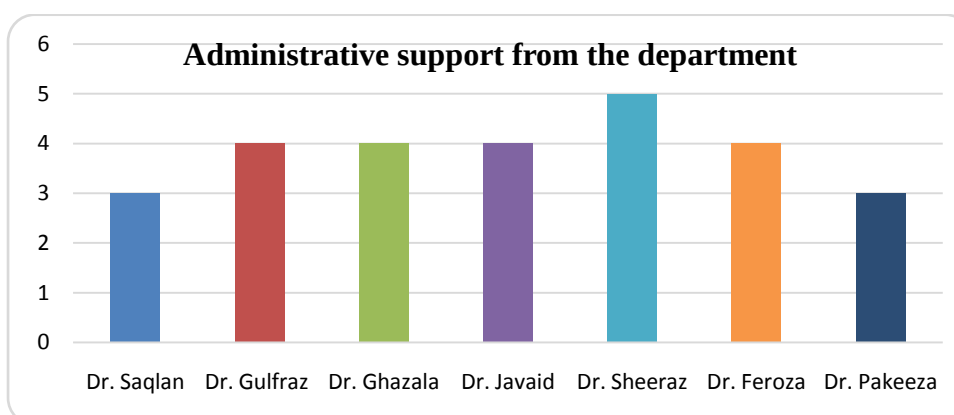
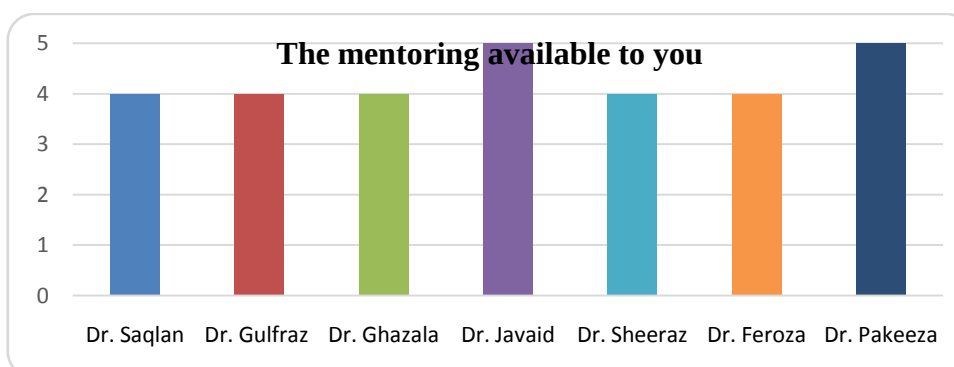
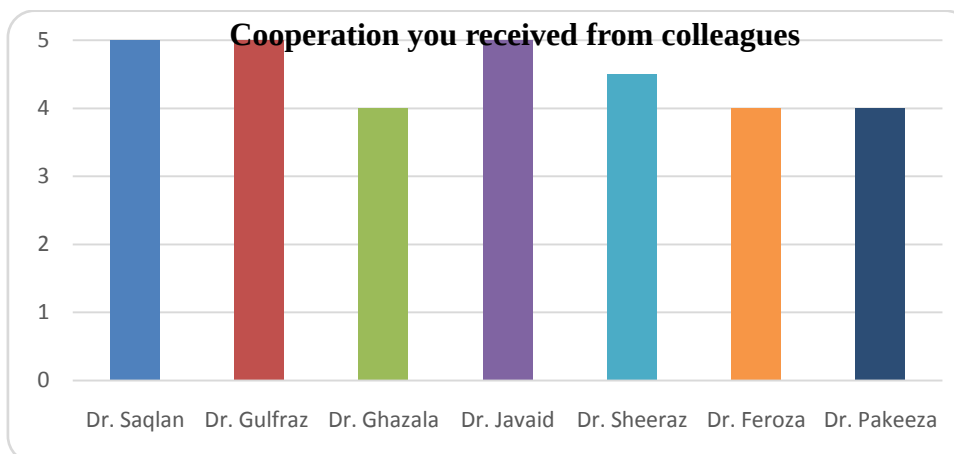
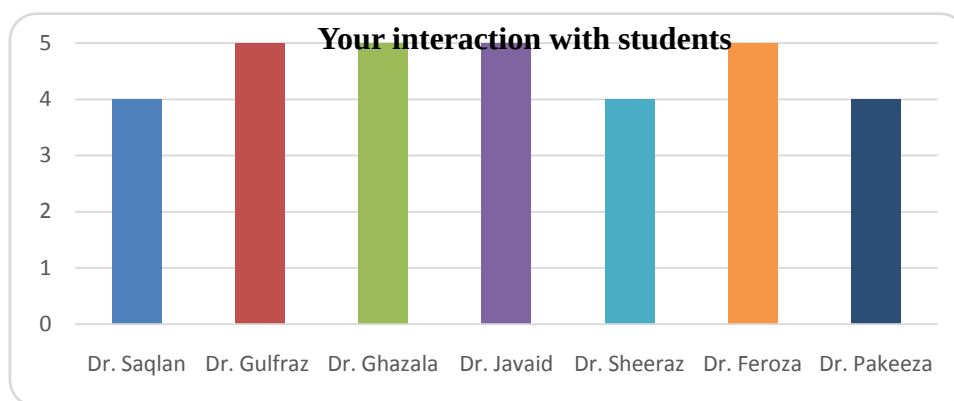
According to the result of the proforma No. 2, most of the faculty members pointed out that the assessment methodology set for theoretical courses is sufficient to evaluate the learning of students for a specified course. The criterion consists of multiple methods including regular discussions during lectures, hands-on practicals during lab sessions, thought provoking questions for assignments & quizzes, objective type paper pattern for mid-term, final and practical exams. Most of the teachers have consensus that the courses are up to date and set per HEC criteria, however course contents are regularly revised/updated when needed and new editions of books included.

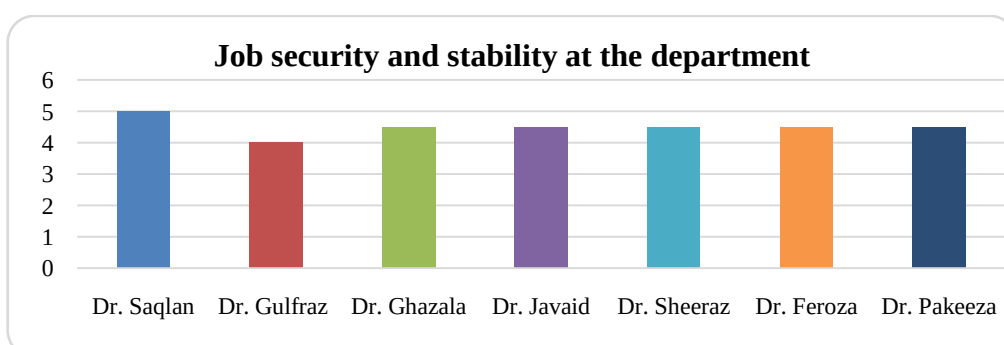
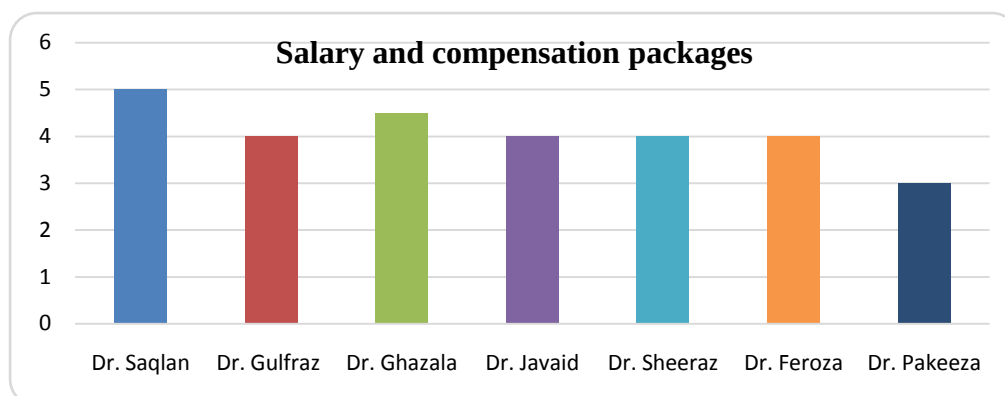
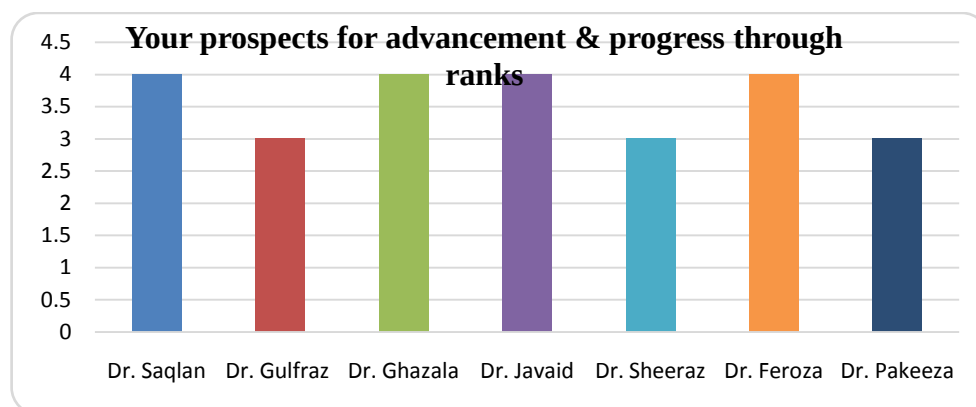
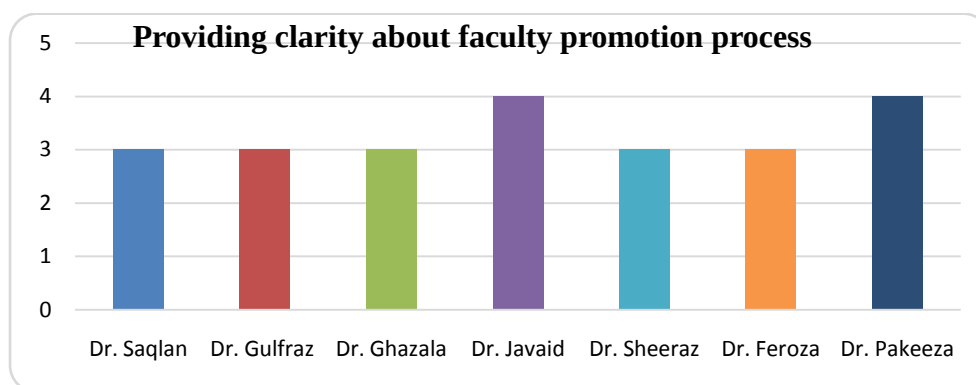
Department	University Institute of Biochemistry and Biotechnology (UIBB)
Faculty	Sciences
Courses	Described earlier in SAR Assessment method as per University rules and regulations
Distribution of Grades/Marks	As per University rules and regulations
Overview/Evaluation (Course Co-coordinator's comments)	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

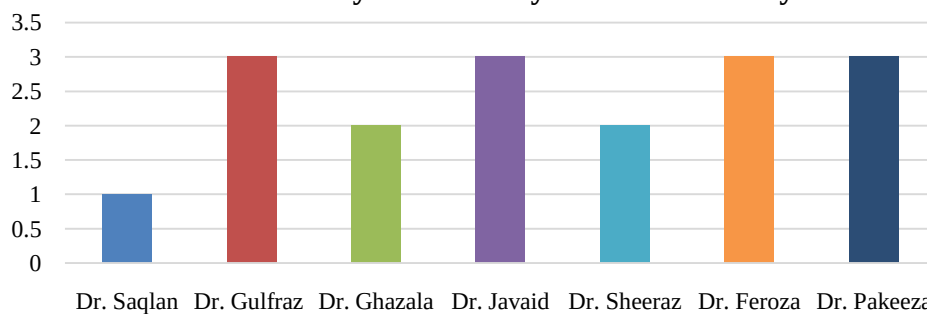
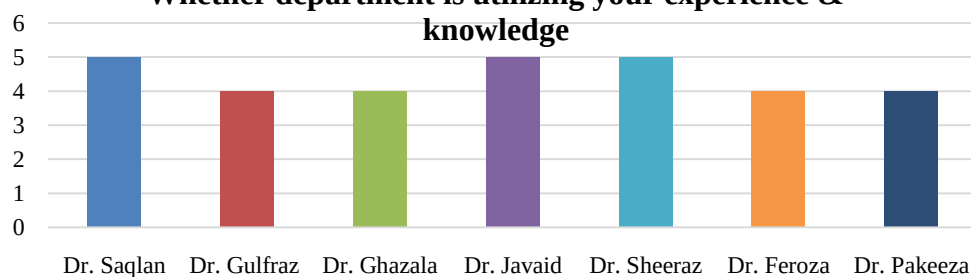
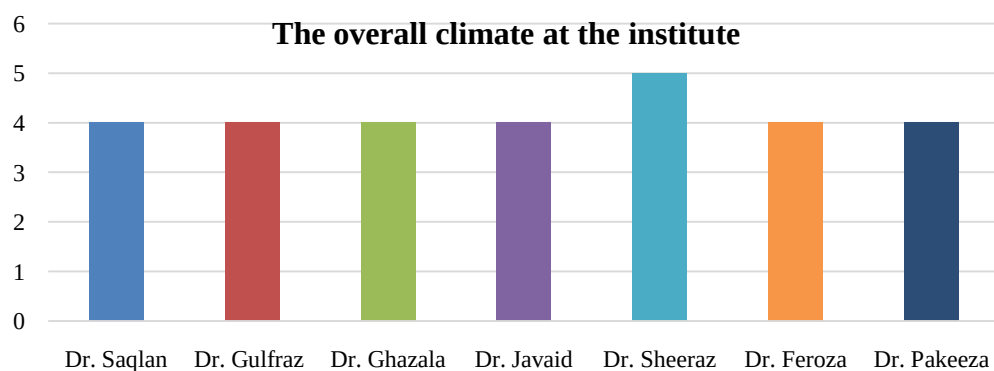
Proforma No. 5: Results of Faculty Survey

According to proforma 5 of Faculty Survey regarding the satisfaction of the faculty. The survey has included multiple aspects such as balance of reseal, teaching and community services, intellectual stimulation of work, the type of teaching and research currently being undertaken, interaction with students and support received from colleagues, mentoring and administrative support available, clarity about faculty promotion process, the promotion aspects, job security, amount of time available for oneself and family and overall environment of the institute. Most of the faculty expressed above average satisfaction in all these aspects, as shown below graphically. The weakest aspect is the amount of time teachers find to interact with their families.







Amount of time you have for yourself and family**Whether department is utilizing your experience & knowledge****The overall climate at the institute**

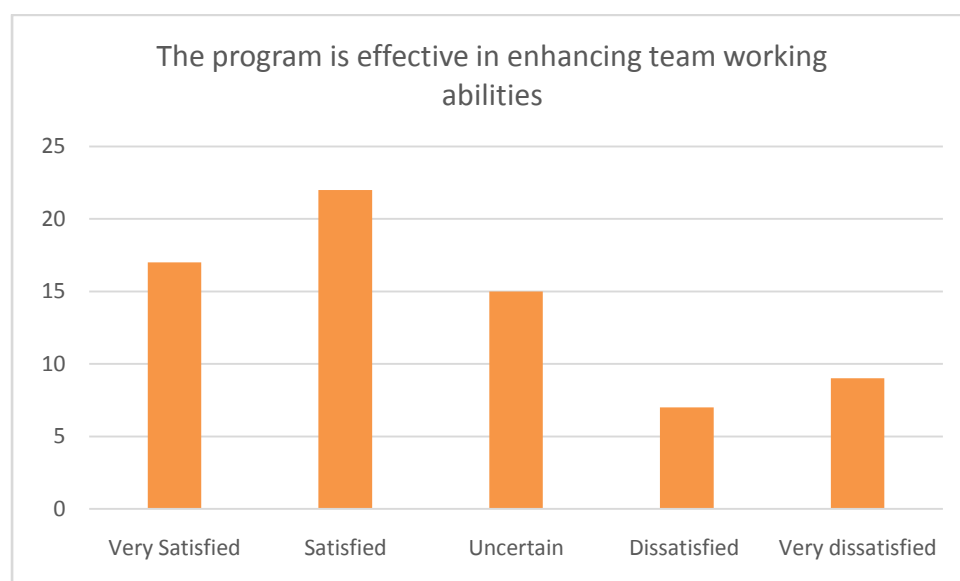
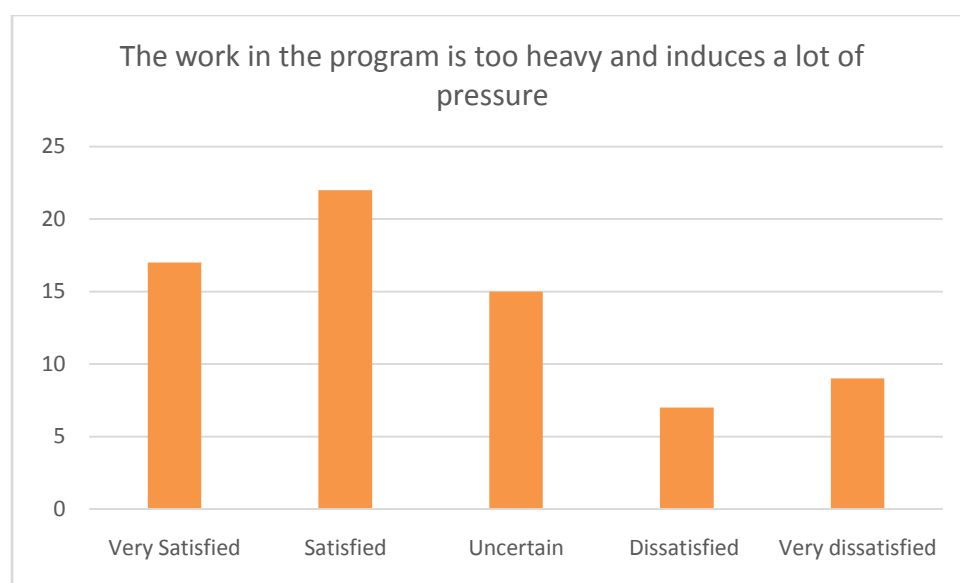
Annex-III**RESULTS OF GRADUATING STUDENTS SURVEY**

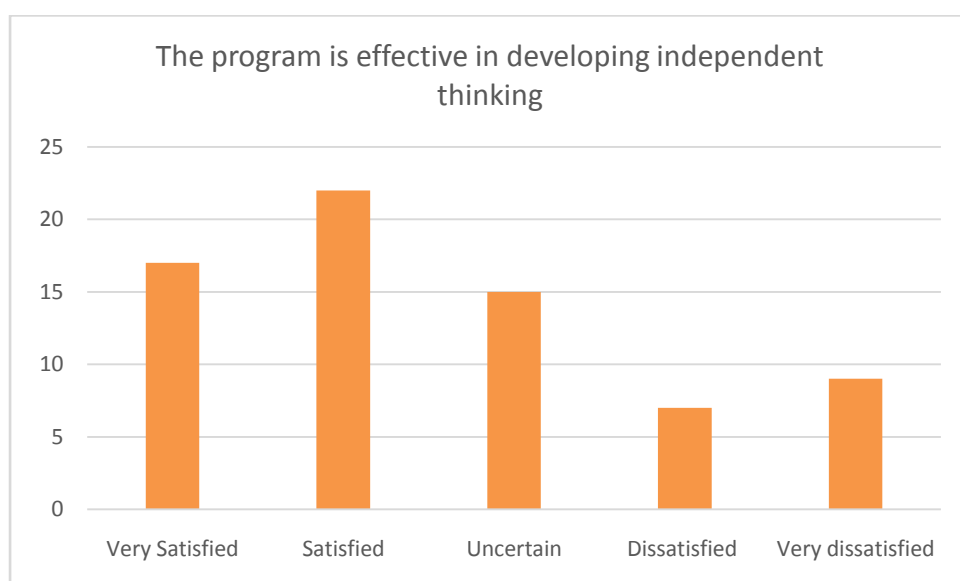
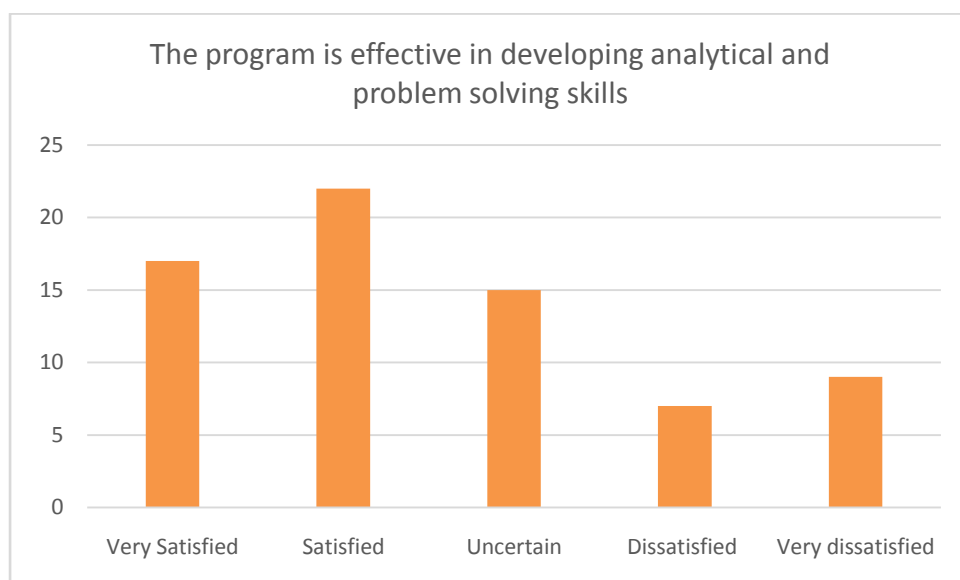
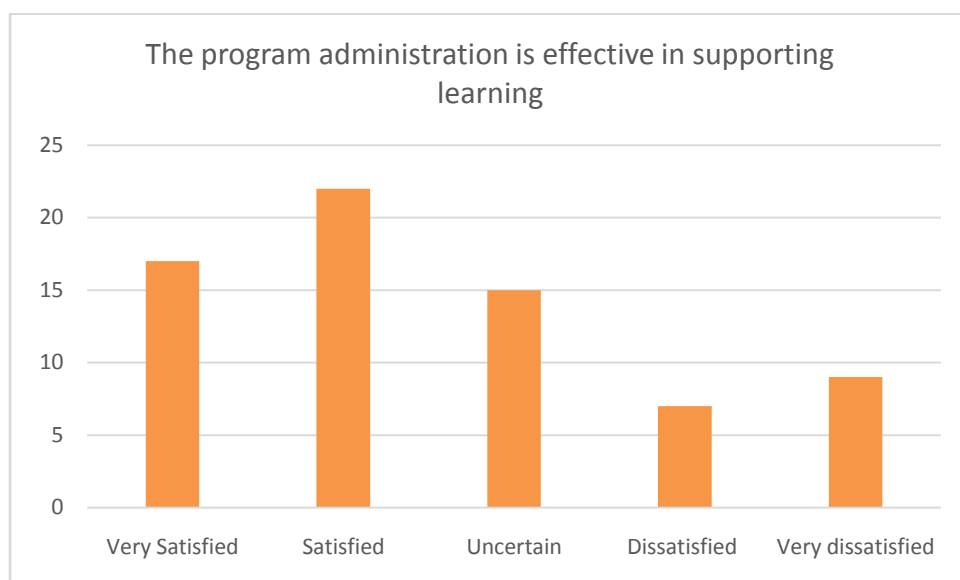
According to the results of Graduating Students Survey more than 70% student were of view that “The program is effective in enhancing team working abilities”, “the Program administration is effective and independent”, “The infrastructure of the Institute was good”.

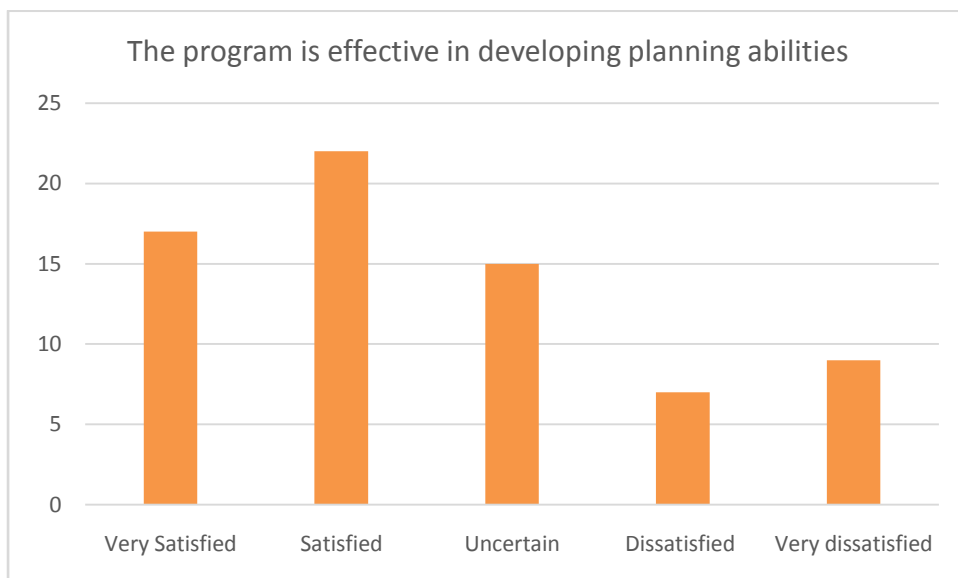
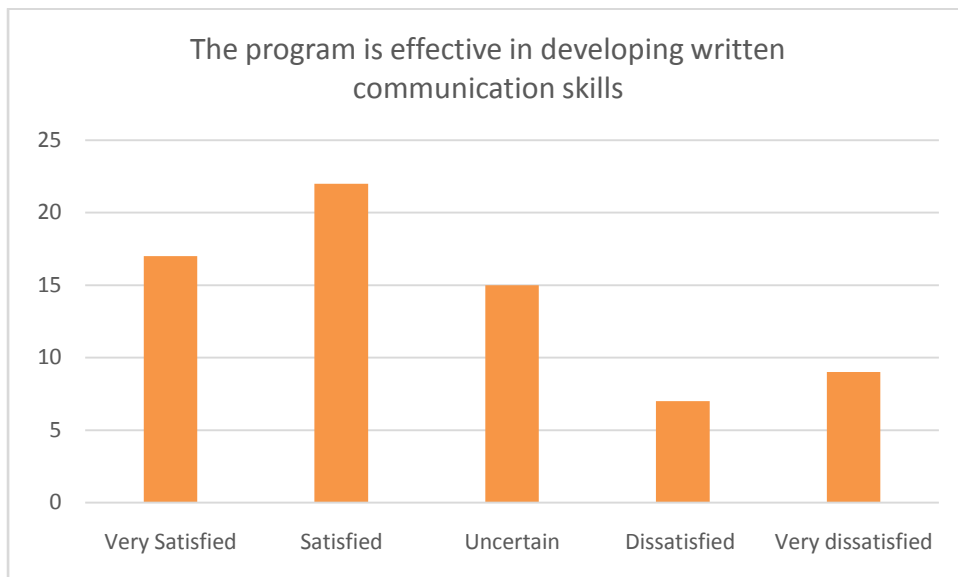
Proforma 7: ALUMNI SURVEY RESULTS

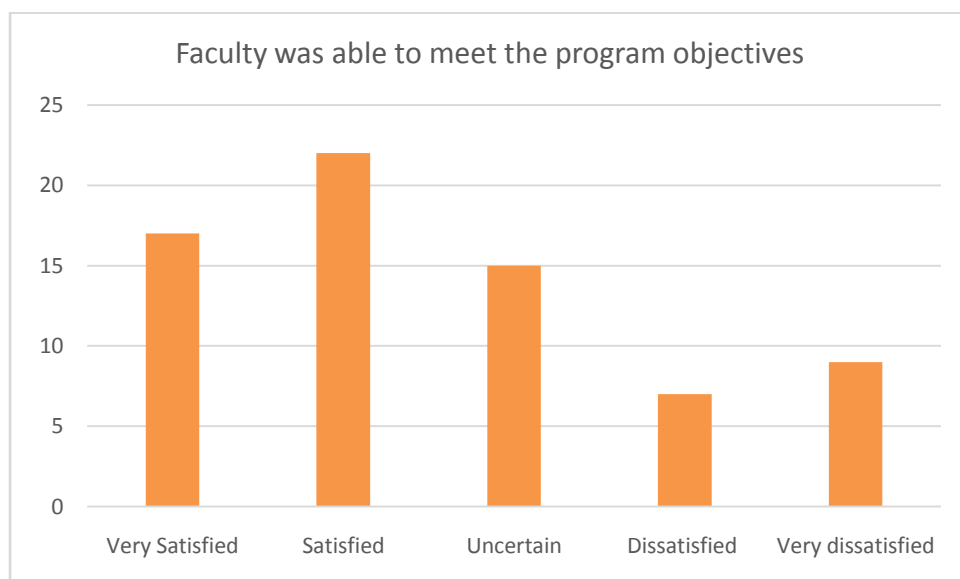
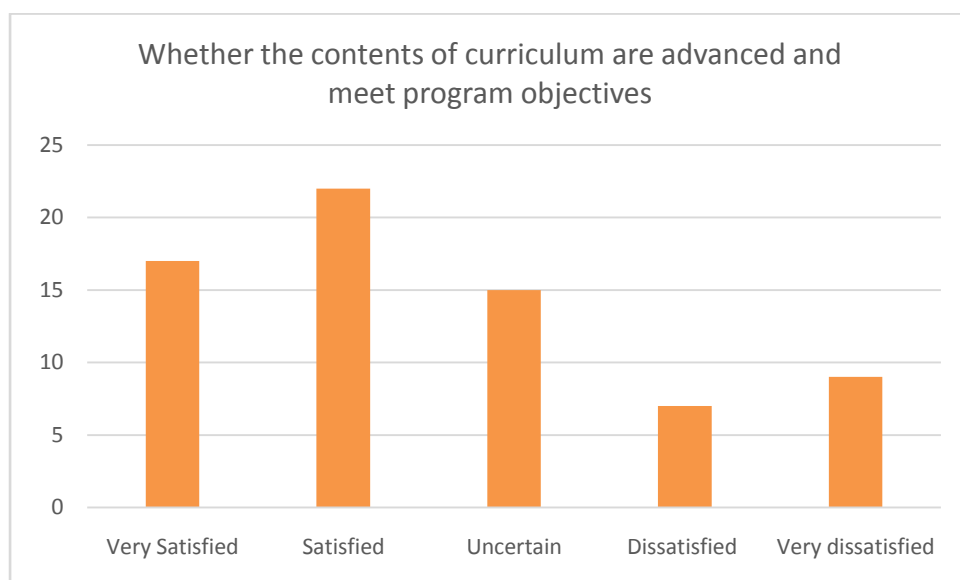
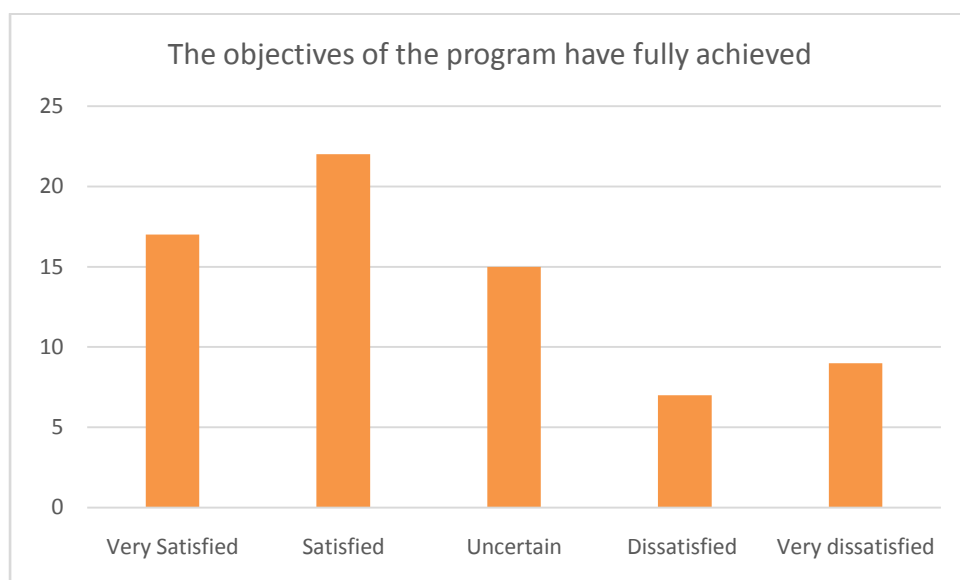
The graduates of Ph.D.Biochemistry are serving at various research institutes, universities, postgraduate colleges, and hospitals and are well accomplished in respective fields.

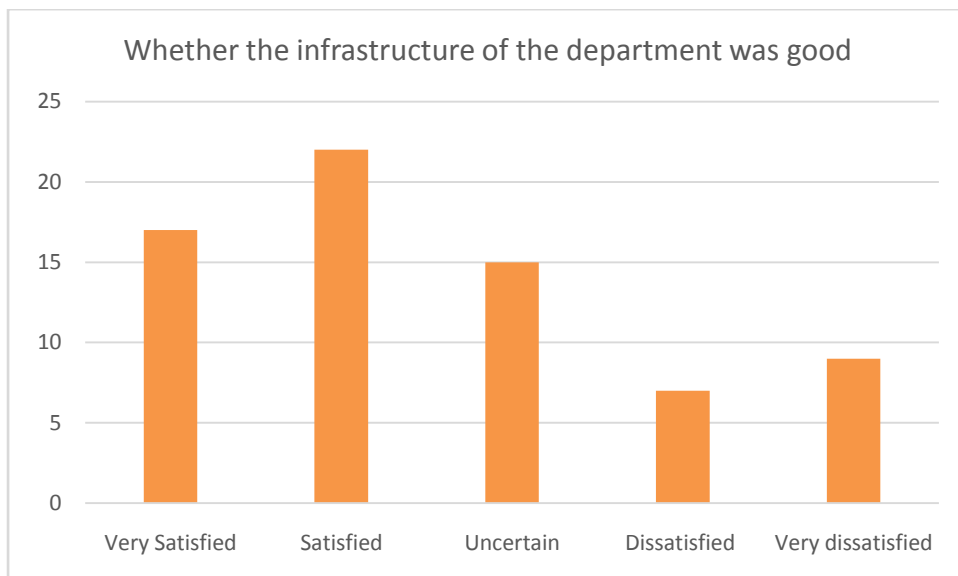
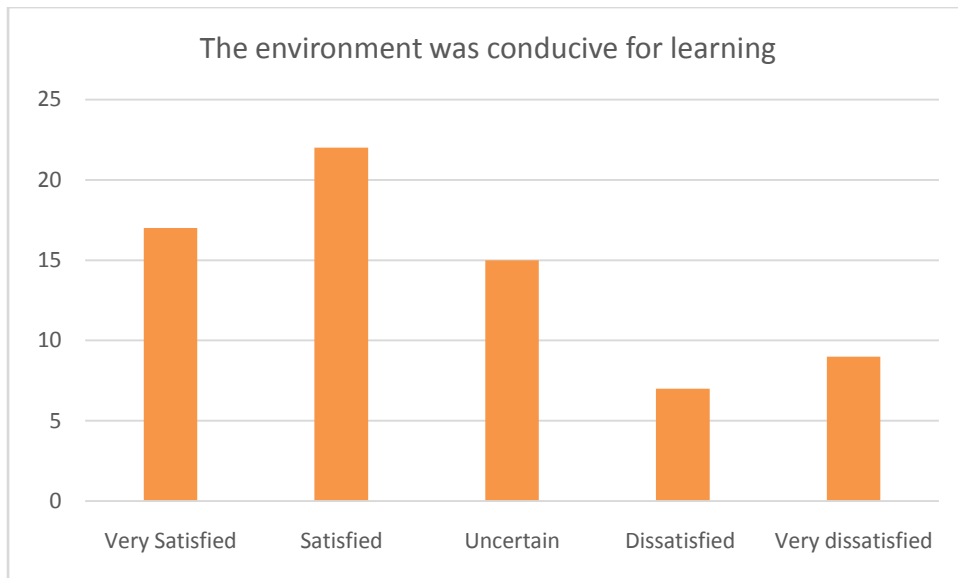
Survey of graduating students clearly indicates satisfaction of the graduates over the degree programs of the department.

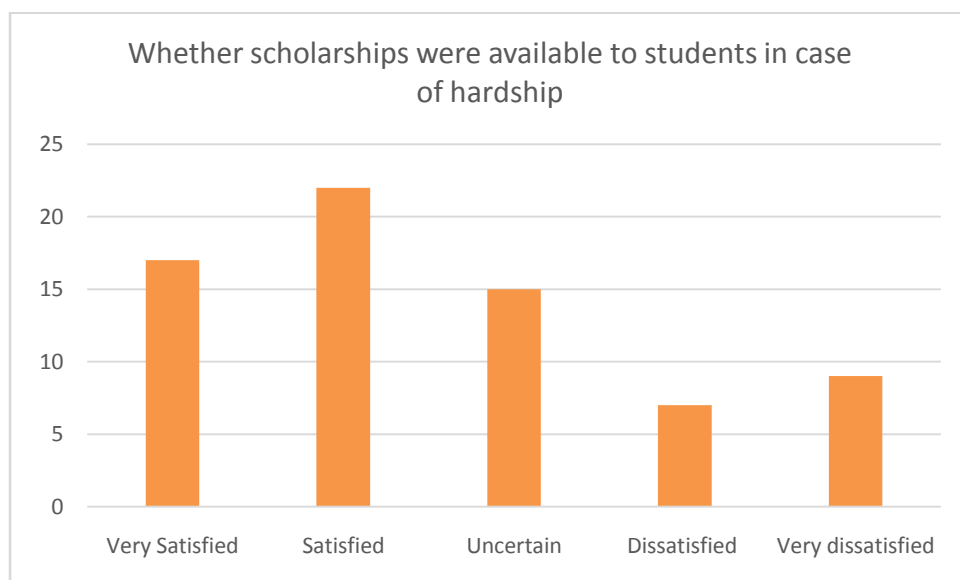
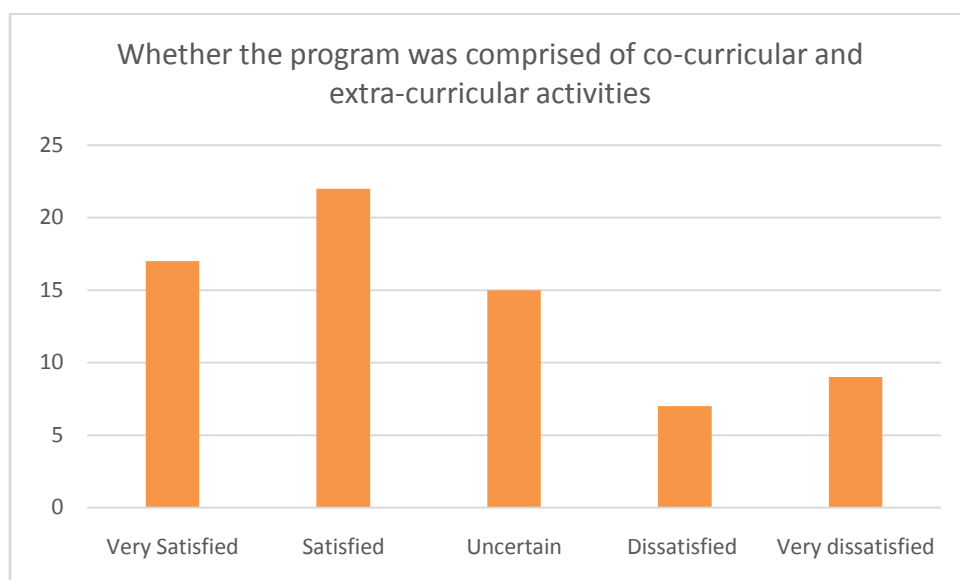












Annex-IV

FACULTY RESUME

Name	PROF. DR. S. M. SAQLAN NAQVI
Designation	Professor/ Dean Sciences Department of Biochemistry, PirMehr Ali Shah Arid Agriculture University Rawalpindi Murree Road, Rawalpindi, Pakistan
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	1. A. Mujtaba, T. Masud, A Ahmad, S.M.S. Naqvi., M.A. Qazalbash, Levin R.E. Effect of solvents on extraction yield, total flavonoids, total phenolic contents, DPPH scavenging activity and antibacterial potential of three apricot cultivars. 2016. Transylvanian Rev. 24(10):.(IF=0.03) 2. S. Sammi, T. Masud, A. Ahmad, S.M.S. Naqvi, A. Ahmad, A. Mujtaba. Potassium permanganate effects on postharvest conversation of Turning Tomato (Var. Rio Grande) fruits. 2016. Transylvanian Rev. 24(8):.(IF=0.03) 3. M. Ilyas, S.M. Saqlan Naqvi, T. Mahmood. <i>In-silico</i> analysis of transcriptional factor binding sites in the promoter of germin-like protein genes in rice. 2016. Arch. Biol. Sci. 68(4):863-876. (IF=0.367) 4. R.A.Ghani, N.A. Khattak, M.Saqlain, M.J. Asad, A. Khanum, S.M.S. Naqvi, G.K. Raja. Comparison of the common immunogenic protein components of Pasteurella multocida serotypes B: 2 and B: 3, 4. 2016. Kafkas Univ. Vet. Fak. Derg. 22(4):485-491. (IF=0.418) 5. A. Mahmood, M. Jamy, M. Saqlain, P. A. Shaiq, S.M.S. Naqvi, G. K. Raja. Association of β-lactoglobulin protein isoforms with milk constituents in goat breeds. 2016. J Anim. Plant Sci. 26(3):862-867. (IF=0.422) 6. M. Fiaz, F. Rani, M. Saqlain, A. Mahmood, P.A. Shaiq, S.M. Saqlan Naqvi, R.A. Qazi, G.K. Raja. Identification of Population Specific Risk Phenotypes Contributing Towards Development of Metabolic Syndrome. 2016. Pak. J. Zool. 48(4):949-955. (IF=0.478) 7. T.N. Khan, Z. Akram, S.U.K. Ajmal, S.M. Saqlan Naqvi, A.M. Kazi. <i>Glu-A3</i> and <i>Glu-B3</i> alleles for LMW protein in local wheat identification of <i>Glu-a3</i> and <i>Glu-b3</i> alleles for LMW protein subunits in some wheat genotypes of Pakistan. 2016. Pak. J. Agri. Sci. 53(3):495-500.(IF=0.597) 8. Z. Abbas, B. Javaid, N. Majeed, S.M.S. Naqvi. Association of molecular markers with polyphenol oxidase activity in selected wheat genotypes. 2016. Pak. J. Bot. 48(2):689-692. (IF=0.658) 9. T. Sultana, F. Deebea, F. Naz, R.J. Rose, S.M.S. Naqvi. Expression of a rice GLP in <i>Medicago truncatula</i> exerting pleiotropic effects on resistance against <i>Fusarium oxysporum</i> through enhancing FeSOD-like activity. 2016. Acta Physiol. Plant. 38(11):255. (IF=1.563) 10. A. Abdullah, M. Qasim, M. Shafiq, M. Ijaz, S. Parveen; S. Murtaza; Q. Javed, S.A. Malik, S.H. Tarar, S. Mahmood, Abdul Sami, S.M. Saqlan Naqvi; M.Z. Hyder. Molecular diagnosis and phylogenetic analysis of Human Papillomavirus type-16 from suspected patients in Pakistan. 2016. Infect. Agents Cancer. 11(1):1-7. (IF=1.718)

Name	PROF. DR. MUHAMMAD GULFRAZ
Designation	Professor/ Chairman Department of Biochemistry, PirMehar Ali Shah Arid Agriculture University Rawalpindi Murree Road, Rawalpindi, Pakistan
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. Asma Ahmed, Muhammad Gulfraz, Muhammad Javaid Asad, Rehmatullah Qureshi, Shabnam Bibi, Syed Imam Shah. Hypoglycemic and hypocholesterolemic activity of leaves of few medicinal plants against streptozotocin induced hyperglycemia. 2016. Pakistan Journal of Pharmaceutical Sciences. 29(6):2065-2070. (IF=0.682) 2. Fatima Syed, Khurshid Ali, Muhammad Javaid Asad, Muhammad Gulfraz, Zahid Khan, Muhammad Imran, Raheela Taj, Aftab Ahmad. Preparation and characterization of a green nano-support for the covalent immobilization of glucoamylase from <i>Neurospora sitophila</i>. 2016. Journal of Photochemistry & Photobiology, B: Biology. 162 (2016) 309–317. (IF=3.035) 3. K. Sobia, M. A. Javaid, M. Sheeraz Ahmad, Q. Rehmatullah, G. Hina, B. Iram, A. Pervaiz, B. Farhana, J. Nyla and M. Gulfraz. Assessments of phytochemicals and hypoglycemic activity of leaves extracts of carica papaya in diabetic mice. 2016. International Journal of Pharmaceutical Sciences and Research. 7(9): 3658-3665. 4. Iram Batool, Muhammad Javaid Asad, M. Sheeraz Ahmad, Raja Tahir Mahmood, Hina gul, Lubna Nisar, Inam ul-Haq, Imran Bodlah and Muhammad Gulfraz. Ethanol production from agricultural residues by simultaneous saccharification and fermentation process (SSF) by using termites and <i>Saccharomyces cerevisiae</i>. 2016. Advances in Environmental Biology. 10(7):107-115. 5. Liaqat, U. S., Asad, M. J., Mahmood, R. T., Gulfraz, M. and Nadeem, S. Production and Purification of α-amylase by <i>Aspergillus sydowii</i> through liquid state and solid state fermentation. 2016. Journal of Biochemistry, Biotechnology and Biomaterials. 1(1):36-42. 6. Fatima Syed, M. Javaid Asad, Khurshid Ali, Muhammad Gulfraz, Aftab Ahmad, Zahid Khan, Muhammad Imran, Raheela Taj and Shafiullah Khan. Optimization of various parameters for maximum production of Glucoamylase by <i>Neurospora sitophila</i>. 2016. Asian Journal of Chemistry. 28(3):669-674. 7. Mahmood, R. T., Asad M. J., Asgher, M., Gulfraz, M., Ahmed, D. and Zaman, N. Isolation of Indigenous Brown Rot Fungi from Rotten Wood from selected areas of Pakistan. 2016. Journal of Advances in Biology and Biotechnology. 10(4): 1-8.

Name	DR GHAZALA KAUKAB RAJA
Personal	Associate Professor Department of Biochemistry, PirMehr Ali Shah Arid Agriculture University Rawalpindi Murree Road, Rawalpindi, Pakistan
Experience	Associate Professor (TTS Scale) 27th May 2010-Present Associate Professor 28th April 2007-27th May 2010 Department of Biochemistry, PMAS Arid Agriculture University Rawalpindi, Pakistan Assistant Professor 27th October 2001- 28th April 2007 Department of Biochemistry, PMAS Arid Agriculture University Rawalpindi, Pakistan Alcoholic fatty liver disease (NAFLD) in Pakistani Population Funding Agency; Pakistan Science Foundation (In Process) Lecturer 26th August 1999- 27th October 2001 Department of Biological Sciences, PMAS Arid Agriculture University Rawalpindi, Pakistan
Honor and Awards	Postdoctoral Research Fellowships May 2012-November 2012 Human Genomics group, Pennington Biomedical Research Centre, Baton Rouge, LA, USA (Funded by UIBB Developmental Grant, Higher Education Commission Pakistan) November 2003-September 2004 Structural Biochemistry group ICMB, University of Edinburgh, Scotland, UK (Funded by the Ministry of Science and Technology, Government of Pakistan) Membership of Public Population Project in Genomics (P³G) corporation, Quebec, Canada Membership of Organization for Women in Science for the Developing World (OWSDW), Trieste, Italy
Memberships	
Qualifications	1998 PhD: Biochemistry, University of Western Australia, Perth, Australia. 1991 MPhil: Endocrinology, Quaid-i-Azam University, Islamabad, Pakistan 1988 MSc: Biological Sciences, Quaid Department of Biological Sciences, PMAS -i-Azam University, Islamabad, Pakistan 1985 BSc: Zoology, Botany and Chemistry, Postgraduate College for Women, Rawalpindi, Pakistan 1982 FSc: Biology, Chemistry and Physics, Postgraduate College for Women, Rawalpindi, Pakistan
Service Activity	

<i>Brief Statement of Research Interest</i>	Protein isolation, extraction, purification and crystallization Molecular Biology techniques (DNA extraction, PCR, Genotyping, Sequencing) Ion Exchange (Akta Prime) and Gel Filtration (FPLC) 2-D Gel electrophoresis, SDS-PAGE and Agarose Gel Electrophoresis Use of animal models (rat) in metabolic studies
<i>Publications</i>	Irfan M, Ismail M, Azhar Beg M, Shabbir A, Rashid Kayani A, Kaukab Raja G. (2016). Association of the MTHFR C677T (rs1801133) Polymorphism with Idiopathic Male Infertility in A Local Pakistani Population. <i>Balkan J. Med. Genet.</i> 19(1): 151-62 Nusrat Saba, Osman Yusuf, SadiaRehman, SaeedaMunir, Muhammad Sheeraz Ahmad, AtikaMansoor, GhazalaKaukab Raja (2016) An Angiotensin I Converting Enzyme insertion/deletion polymorphism is associated with Pakistani asthmatic cases and controls. <i>Journal of Biosciences.</i> 41(3): 439-444 Rizwana Abdul Ghani, N A Khattak, Muhammad Saqlain, Muhammad JavaidAsad, S.M.Saqlan Naqvi, AzraKhanum, GhazalaKaukab Raja (2016) Comparison of the Common Immunogenic Protein Components of Pasteurellamultocida Serotypes B:2 and B:3,4. <i>KafkasUniversitesiVeterinerFakultesiDergisiKafkasUniv Vet FakDerg.</i> 22(4): 485-491 Muhammad Fiaz, Faiza Rani, Muhammad Saqlain, AbidMahmood, PakeezaArzooShiaq, SM Saqlan Naqvi, Rizwan Aziz Qazi, GhazalaKaukab Raja (2016) Identification of Population Specific Risk Phenotypes Contributing Towards Development of Metabolic Syndrome. Identification of Population Specific Risk Phenotypes Contributing Towards Development of Metabolic Syndrome. <i>Pakistan Journal of Zoology.</i> 48(4): 949-955 Nusrat Saba, Osman Yusuf, Sadia Rehman, SaeedaMunir, Naghman Bashir, AtikaMansoor, GhazalaKaukab Raja (2015) Association of Tumor necrosis factor alpha 308 G/A polymorphism with asthma in Pakistani population. <i>Iranian Journal of Allergy Asthma and Immunology.</i> 14(3):287-291 Philip E Stuart, TrilokrajTejasvi, Pakeeza A Shaiq, PreyaKullavanijaya, RaheelQamar, Ghazala K Raja, Yanming Li, John J Voorhees, Gonçalo R Abecasis, James T Elder and Rajan P Nair (2015) A Single SNP Surrogate for Genotyping HLA-C*06:02 in Diverse Populations. <i>Journal of Investigative Dermatology.</i> 135(4):1177-80 Abdul Rehman, Muhammad Gulfraz, Ghazala Kaukab Raja, Muhammad InamUlHaq, Zahid Anwar. (2015) A Comprehensive Approach to Utilize an Agricultural Pea peel (<i>Pisumsativum</i>) Waste as a Potential Source for Bio-ethanol Production. <i>Romanian Biotechnological Letters.</i> 20(3): 2015 Philip E Stuart, TrilokrajTejasvi, Pakeeza A Shaiq, PreyaKullavanijaya, Raheel Qamar, Ghazala K Raja, Yanming Li, John J Voorhees, Gonçalo R Abecasis, James T Elder and Rajan P Nair (2015). A Single SNP Surrogate for Genotyping HLA-C*06:02 in Diverse Populations. <i>J Invest Dermatol.</i> doi135(4):1177-80 IffatTahira, Muhammad Saqlain, Abid Mahmood, NafeesaQudsia Hanif, Ghazala Kaukab Raja. (2014) Study of β-Lactoglobulin Milk Protein Variants in Buffalo. <i>Pak. J. Zool.</i> 46(2): 549-552 Ghazala K. Raja, Mark A. Sarzynski, Peter T. Katzmarzyk, William D. Johnson, YourkaTchoukalova, Steven R. Smith, Claude Bouchard. (2014) Commonality versus specificity among adiposity traits in normal-weight adults. <i>Int J Obes (Lond).</i> 38(5):719-23
<i>Research Grants and Contracts.</i>	<i>Principal Investigator: 2002-2003</i>, Cloning of RG1 from Rat Skeletal Muscle Funding Agency; University of Arid Agriculture Rawalpindi Pakistan (Completed) <i>Principal Investigator: 2010-onwards</i>, Prevalence of Non-alc <i>Principal Investigator: 2014-onwards</i>, Identification of genetic risk factors for metabolic diseases in Pakistani populations Funding Agency; Higher Education Commission Pakistan (In Process) <i>Principal Investigator: Study of genetic variations in milk proteins encoding genes in local goat breeds</i> Funding Agency; Pak-US Natural Sciences Linkage Programme (NSLP), Pakistan Science

	Foundation (Under Review)
Name	DR. MUHAMMAD JAVAID ASAD
Personal	Associate Professor Department of Biochemistry, PirMehr Ali Shah Arid Agriculture University Rawalpindi Murree Road, Rawalpindi, Pakistan
Experience	27-08-11-To date Associate Professor Department of Biochemistry, PirMehr Ali Shah Arid Agriculture University Rawalpindi 14-10-06 -27-08-11 Assistant Professor Department of Biochemistry, PirMehr Ali Shah Arid Agriculture University Rawalpindi 01-07-04 to 14-10-06 Lecturer Department of Chemistry and Biochemistry, University of Agriculture, Faisalabad 11-01-01 to 30-06-04 Assistance Professor Department of Biochemistry Independent Medical College, Faisalabad
Honor and Awards	➤ Chairman, Department of Biochemistry PMAS-AAUR from November 01, 2013 – December 02, 2013. ➤ Member of National Curriculum Revision Committee (NCRC) in the discipline of Biotechnology of HEC, 2013. ➤ Member of Executive Council of Chemical Society of Pakistan from January 2011-to date. ➤ Awarded one year Postdoctoral Fellowship in Biological Sciences by Higher Education Commission of Pakistan, Worked as Postdoctoral Fellow at University of Waterloo, Ontario, Canada (May 9,2009-May 12,2010) ➤ Issued appreciation letter by Vice Chancellor, University of Arid Agriculture Rawalpindi for delivering technical lecture as Resource Person to the participants of International Workshop on Techniques Related to Molecular Biology and Immunology, held at Department of Biochemistry University of Arid Agriculture Rawalpindi (December 18-23, 2006). ➤ Issued appreciation letter by Vice Chancellor, University of Arid Agriculture Rawalpindi as Resource Person to the participants of Training Workshop on Real Time PCR, held at Department of Biochemistry University of Arid Agriculture Rawalpindi (June 8-11, 2010). ➤ Issued appreciation letter by Vice Chancellor, PMAS- Arid Agriculture University Rawalpindi as Resource Person to the participants of Training Workshop on SNP Genotyping: Strategies & Applications in Human Genetics(April 20-22,2011) ➤ Approved Ph.D. Supervisor (Biochemistry), Higher Education Commission of Pakistan
Qualifications	Post Doctorate-2 (Industrial Biotechnology) 2014-1015 University of Rochester, Rochester, USA Post Doctorate-1 (Biotechnology) 2009-2010 University of Waterloo, Waterloo, Canada. Ph.D. (Biochemistry) 2006 University of Agriculture, Faisalabad.

	M. Phil. (Biochemistry) 2001 University of Agriculture, Faisalabad. M.Sc.(Biochemistry) 1998 University of Agriculture, Faisalabad.
<i>Brief Statement of Research Interest</i>	Fermentation process development. Bioconversion of lignocellulosic biomass and production of amylases, cellulases and ligninases, single cell protein, organic acids and other industrial products. Biocatalysis: Enzyme kinetics, purification, characterization, enzyme engineering, immobilization and industrial applications of microbial enzymes; Liquid and solid waste management. Bioremediation of textile dyes and industrial effluents by white rot fungi and Nutrition.
<i>Publications</i>	1. Syed, F., K.Ali, M. J. Asad, M. Gulraz, Z. Khan, M. Imran, R. Taj and A. Ahmad.2016. Preparation and characterization of a green nano-support for the covalent immobilization of glucoamylase from <i>Neurospora sitophila</i>. J. Photochem. Photobiol; B: Biol.162:309-317. 2. Imran,M., Z. Anwar, M. Irshad,M.J.Asad and H.Ashfaq.2016. Cellulase Production from Species of Fungi and Bacteria from agricultural wastes and its utilization in Industry; a Review. Adv. Enz. Res.4:44-55. 3. Ghani,R.A.,N.A.Khattak, M. Saqlain, M.J.Asad,A.Khanum,S.M.S.Naqvi and G. K. Raja. 2016.Comparison of the Common Immunogenic Protein Components of <i>Pasteurella multocida</i> Serotypes B:2 and B:3,4.J.Vet.Med.22(4):485-491.DOI:10.9775/kvfd.2015.14674. 4. Syed,F., M.J.Asad, K.Ali, M.Gulfray, A.Ahmad,Z.Khan, M.Imran, R.Taj and S.Khan. 2016.Optimization of Various Parameters for Maximum Production of Glucoamylaseby <i>Neurospora sitophila</i>.Asian.J.Chem:28.(3);669-674. 5. Ali,Ali., M. Shoaib, M.Usman, S.Aziz, M. Ilyas, M. J. Asad, M.Zafar , M. M. Zafar and S. Nazir.2016. Screening and Frequency of HBV, HCV and HIV in Intravenous and Non-Intravenous Drug Users in Different Areas of Pakistan. W. J. Zool., 11 (1): 06-13. 6. M.Shoaib, M. J. Asad, S. Aziz, M. Usman, A.Rehman, M. M.Zafar and M.Ilyas.2016 Prevalence of Pathogenic Microorganisms in Drinking Water of Rawalpindi and Islamabad. W. J. Fish. Marine Scie., 8 (1): 14-21. 7. Iqbal,H., M. Shoaib, M. U. S. Aziz, M. A. Yousaf, M. J. Asad, N. I. Raja, M. M. Zafar and S. Nazir. In vitro Study: Suppression of LDL Oxidation Using Green Leafy Vegetable Leaves. Ameri-Eura J. Agri. Environ. Sci., 2016. 16 (2): 380-384. 8. M. N. Aslam, T. Mukhtar, M. Ashfaq, M. J. Asad and M. A. Hussain. Incidence and prevalence of bacterial wilt of chili in Punjab, Pakistan. Mycopathology. 2015. 13(1): 37-41. 9. R. T. Mahmood, M. J. Asad, M. Asgher, M. Gulfray, T. Mukhtar and M. Akram. Study of disperse dyes biodegradation and lignolytic enzymes production potential of indigenous <i>Coniophora puteana</i> IBL-01, a brown rot fungi. Adv. Envir. Bio. 2015. 10. Munir, N., M. J. Asad and S. H. Haidri. 2015. Production, Purification and Characterization of Endopolygalacturonase by <i>Bacillus subtilis</i>. Biochem. Anal. Biochem. 4:181. DOI:10.4172/2161-1009.1000181.

Name	DR. M. SHEERAZ AHMAD	
Personal	Assistant Professor (BS-19) Department of Biochemistry, PMAS-Arid Agriculture University Rawalpindi, Pakistan.	
Experience	2010-Present Assistant Professor BPS-19, Department of Biochemistry, PMAS-Arid Agriculture University Rawalpindi, Pakistan. (01-04-2010 to Present) Higher Education Commission (HEC) Approved PhD Supervisor April-Nov 2011 Visiting Scientist, Department of Chemistry, University of Waterloo, ON, Canada 2008-2010 Lecturer BPS-18, Department of Biochemistry, PMAS-Arid Agriculture University Rawalpindi, Pakistan. (10-09-2008 to 01-04-2010)	
Honor and Awards	• Seven month's Post-Doctoral research experience as Visiting Scientist in the Department of Chemistry, University of Waterloo, ON, Canada. • Research experience as PhD research fellow at Molecular Biology laboratory of Quaid-i-Azam University Islamabad Pakistan. • Six months research experience as Research Associate in Molecular Carcinogenic lab of Lancaster University UK.	
Memberships		
Qualifications	Post-Doctoral Research Department of Chemistry, University of Waterloo, ON, (April-Nov, 2011) Doctor of Philosophy (PhD) Canada Department of Biochemistry, Quaid-i-Azam University, Biochemistry/Molecular Biology Islamabad with Partial Research work at Lancaster (2004-2008) University UK Master of Science (M.Sc) Department of Biological Sciences, Quaid-i-Azam 2002 to 2004 University, Islamabad, Pakistan. Bachelors of Science (B.Sc) Govt Gordon College Rawalpindi, University of the Punjab, Lahore, Pakistan 2000 to 2002	

<i>Brief Statement of Research Interest</i>	• Biological evaluation and toxicological studies of natural products and synthetic substances for drug development using variety of techniques including; antimicrobial, anticancer and antioxidant screening, toxicological studies on cell lines using clonogenic assay, alkaline SCGA (Comet) assay, cytokinesis-block micronucleus (CBMN) assay, FTIR microspectroscopic analysis of biological tissue / cells. • Isolation, purification and characterization of bioactive substances (both natural and synthetic) having medicinal importance using TLC, HPLC, NMR, Mass-crystallography, IR etc. • Molecular encapsulation of bioactive substances/ drugs using nanotechnological tools; molecular encapsulation by multisubunit bacterioferritin protein and application of phytosomes for phytomedicines. • Data analysis by softwares like Comet IV software, OPUS software, Pirouette software, Prism Graphpad, ChemDrawetc
<i>Publications</i>	1. R. Attar, S. Tabassum, S. Fayyaz, M. Sheeraz Ahmad, D. R. Nogueira, I. Yaylim, O. Timirci-Kahraman, O. Kucukhuseyin, C. Cacina, A. A. Farooqi, and M. Ismail: Natural Products are the Future of Anticancer Therapy: Preclinical and Clinical advancements of <i>Viscum album</i> Phytometabolites. Cell. Mol. Biol., 2015; 61 (6). 2. Salma Batool, Muhammad Gulfraz, AbidaAkram, S.M. Saqlan Naqvi, Ihsan-ul-Haq, BushraMirza, M. Sheeraz Ahmad: Evaluation of antioxidant potential and HPLC based identification of phenolics in <i>Polygonumamplexicaule</i> extract and its fractions. Pak J. Pharm Sci, 2015, 28(2), 415-419. 3. Muhammad Maqsood, Rahmatullah Qureshi, MasroorIkram, Safdar Ali, Muhammad Rafi, Junaid Ahmed Khan, and M. Sheeraz Ahmed: Preliminary Screening Of Methanolic Plant Extracts Against Human Rhabdomyosarcoma Cell Line, From Salt Range, Pakistan, Pak. J. Bot. 2015, 47(1): 353-357. 4. Gulfraz, Muhammad; Ahamd, Dawood; Ahmad, M Sheeraz Ahmad, Qureshi, Rehmatullah; Mahmood, Raja Tahir; Jabeen, Nyla; Abbasi, KashifSarfraz.Effect of leaf extracts of <i>Taraxacumofficinale</i> on CCl₄ induced Hepatotoxicity in rats, in vivo study. Pak J. Pharm Sci, 2014, 27(4), 825-829.

Name	DR. FEROZA HAMID WATTOO
Personal	Assistant Professor (BS-19) Department of Biochemistry, PMAS-Arid Agriculture University Rawalpindi, Pakistan.
Experience	2011-to date- Assistant Professor, University Institute of Biochemistry and Biotechnology, PMAS-Arid Agriculture University, Rawalpindi, Pakistan. 2009-2011 Assistant professor, Institute of Biochemistry, University of Sindh, Jamshoro. 2004-2009 Lecturer, Institute of Biochemistry, University of Sindh, Jamshoro, Pakistan. 2002-2004 Research Associate, Institute of Biochemistry, University of Sindh, Jamshoro,
Honor and Awards	1. Member, Board of Studies, Institute of Biochemistry, University of Sindh, Jamshoro 2. Member, Board of Faculty, University of Sindh, Jamshoro 3. Elected Associate Secretary, (Punjab-Chapter), (2013- to date), Pakistan Society for Biochemistry and Molecular Biology 4. Elected Executive Council Member, (2009-2011), Pakistan Society for Biochemistry and Molecular Biology 5. Elected Associate Secretary- (2007-2009), Pakistan Society for Biochemistry and Molecular Biology.
Memberships	1. Life Member, Pakistan Society for Biochemistry and Molecular Biology (PSBMB). 2. Life Member, The Chemical Society of Pakistan (CSP). 3. Member, Pakistan Proteomics Society (PPS). 4. Member, Nutritionatists Association of Pakistan (NAP).
Qualifications	Post Doc Agricultural Biochemistry, 2012, Iowa State University, Ames, Iowa 50011, USA Ph.D. Biochemistry, 2007 Institute of Biochemistry, University of Sindh, Jamshoro-Pakistan M.Phil. Biochemistry, 2002, Institute of Biochemistry, University of Sindh, Jamshoro-Pakistan M.Sc. Biochemistry, 1995 Dr. M.A.Kazi Institute of Chemistry, University of Sindh, Jamshoro. B.Sc. Chemistry, Zoology and Botany-1993, Govt. College Thatta, University of Sindh, Pakistan

Brief Statement of Research Interest	Food and Nutritional Chemistry, Bioanalytical and Environmental Chemistry, Biochemical Analysis of Medicinal Plants, Biotechnology and Bionanotechnology, Bioinorganic Chemistry, biochemical analysis in Food and Nutrition Chemistry, Hematology and Micro labs, Chromatographic methods of analysis in Biochemistry, Microplate reader, and Coulter counter techniques.
Publications	1. F. H. Wattoo, S. Farooq, S. Ata, N. Khan and M. H. S. Wattoo. Assessment of antioxidant and antimicrobial activities of ginger. <i>Pak. J. Chem.</i> 6(3-4): 67-70, 2016. 2. 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." <i>Alexandria Journal of Medicine</i> 51, 19–23 (2015). (ISI Indexed Journal). 3. Muhammad Abdul Qadir, Feroza Hamid Wattoo, Mehwish Yaseen, Sadia Atta, Muhammad Hamid Sarwar Wattoo, Sheikh Asrar Ahmad, Asad Gulzar. In-vitro binding assay study of 99mTc-flouroquinolones with E. coli, Salmonella and Ps. Aeruginosa" <i>Alexandria Journal of Medicine</i>, 51, 47-52: (2015) (ISI Indexed Journal, available on sciencedirect.com). 4. Sadia Ata, Feroza Hamid Wattoo, Muhammad Imran Din, Muhammad Hamid Sarwar Wattoo, Muhammad Abdul Qadir, Syed Ahmed Tirmizi, Pauzi Abdullah "Critical Study of Multiple Regressions Modelling for Monitoring of Haloacetic Acids in Water Reservoirs" <i>Arabian Journal for Science and Engineering (AJSE)</i> 40(1),101-108, 2015. (ISI Indexed Journal, JCR-2012 Impact factor 0.37). 5. Muhammad Asif Imran, Feroza Hamid Wattoo, Muhammad Nawaz Chaudhry, Muhammad Hamid Sarwar Wattoo, Khan Rass Masood. "Impact of Inorganic Arsenicals on Vegetative Growth of Two Pakistani Origins Sunflower Cultivars". <i>Journal of Chemistry Article ID 275830, 7 pages</i> http://dx.doi.org/10.1155/2015/275830 (2015) (ISI Indexed Journal, JCR-2012 Impact factor 0. 0.772). 6. 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". <i>J Dairy Sci.</i> 973715–3727, 2014. (ISI Indexed Journal, JCR-2012 Impact factor 2.566). 7. 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"., <i>Turk J Biochem</i> 3(1): 9–13, 2013. (ISI Indexed Journal, JCR-2012 Impact factor 0.211). 8. 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" <i>Ethiopian Journal of Environmental Studies and Management</i> 6(4), 342-347, 2013 (ISI Indexed Journal). 9. K.Mahmood, F.H.Wattoo, M.H.S.Wattoo, M.Imran, M.J.Asad, S.A.Tirmizi, "Spectrophotometric Estimation of Cobalt with Ninhydrin" <i>Saudi J. Biol. Sci.:</i> 19(2):247–250, 2012. (ISI Indexed Journal, Sciencedirect). doi:10.1016/j.sjbs.2012.01.001). 10. 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" <i>J.Saudi Chem Soc.</i> 16: 257-261, 2012. (ISI Indexed Journal; JCR-2012 Impact Factor 1.288). 11. S. Ata, F.H.Wattoo, L.R.Sidra, M.H.S.Wattoo, S.A.Tirmizi Imran Din and I. U. Mohsin, "Biosorptive removal of lead and cadmium ions from aqueous solution: The use of carrot residues as low cost non-conventional adsorbent" : <i>Turk J Biochem.</i> 37(3): 272-279, 2012. (ISI Indexed Journal, JCR-2012 Impact factor 0.211). 12. 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”, <i>Turk J Biochem. 37(4): 386-391, (2012).</i> (ISI Indexed Journal, JCR-2012 Impact factor 0.211). 13. F.Siddique, K.S.Khan, A.Ahmad, A.Ahmed, M.Gulfraz, F.H.Wattoo, “Development and optimization of sweet cream butter from buffaloes at cottage scale”, <i>Afr. J. Biotech. 10(75): 17265-17274, 2011.</i> (ISI Indexed Journal; JCR-2011 Impact Factor 0.57). 14. Iqbal, F.H.Wattoo, M.H.S.Wattoo, R.Malik, S.A.Tirmizi, M.Imran,A.B.Ghangro, “Adsorption of Acid Yellow dye on Flakes of Chitosan Prepared from Fishery Wastes”, <i>Arabian J. Chemistry 4(3): 389-395, 2011.</i> (ISI Indexed Journal; JCR-2012 Impact Factor 2.266). 15. N.Mehboob, M.J.Asad, M.Imran, M.Gulfraz, F.H.Wattoo, S.H.Hadri, M.Asghar, “Production of lignin peroxidase by <i>Ganoderma leucidum</i> using solid state fermentation”, <i>Afr. J. Biotechnol.: 10(48): 9880-9887, 2011.</i> (ISI Indexed Journal; JCR-2011 Impact Factor 0.57). 16. M.H.S.Wattoo, S.A.Trimzi, F.H.Wattoo, A.Quddos, M.B.Khan, A.Wadood, A.B.Ghangro, “Aerosol-Assisted Chemical Vapour Deposition of CdS and ZnS Thin Films from Bis(Dibutyldithiocarbamate)metal Complexes”, <i>Arab J. Sci. Eng.: 36(2A): 565-571, 2011.</i> (ISI Indexed Journal; JCR-2011 Impact Factor 0.243). 17. (43) F.Memon,M.S.Memon, “Comparison of emotional status of health and nutrition of working and non-working females in Sindh, Pakistan”, <i>‘Proceeding of 10th National Chemistry Conference’ 111-114, 1999.</i> (HEC-Recognised Conference Proceeding).
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Name	DR. PAKEEZA ARZOO SHAIQ
<i>Personal</i>	Assistant Professor (BS-19) Department of Biochemistry, PMAS-Arid Agriculture University Rawalpindi, Pakistan.
<i>Experience</i>	1. Currently serving as Assistant Professor (BPS-19), Department of Biochemistry, PMAS-AAUR, Pakistan from June, 2014 2. Served as Lecturer (BPS-18), Department of Biochemistry, PMAS-AAUR from June, 2010-June, 2014.
<i>Honor and Awards</i>	1. Research trainee at Department of Immunology and Genetics, Rudbeck laboratories, Uppsala University, Uppsala, Sweden (2012). 2. Visiting Research Scholar at Psoriasis Genetics Laboratory, Department of Dermatology, University of Michigan, USA (2009-2010). 3. Got IRSIP (International Research Initiative program) fellowship for 6 months from HEC, Pakistan. 4. Got DEBRA scholarship for mutation analyses of EB patients at Salzburg, Austria (2009). 5. Got HEC Indigenous Scholarship for Ph. D. 6. Got Merit Scholarship (Teacher Assistantship) during Ph.D. course work. 7. Got 3rd position in college in B.Sc. examination. 8. Got 3rd position in college in SSC examination.
<i>Qualifications</i>	Ph.D. (BCH) 2010 PMAS.AAUR 4.00/4.00 M.Sc (BCH) 2004 PMAS.AAUR 3.47/4.00 B.Sc 2001 The University of Punjab 1 st Div HSSC 1999 FBISE, Islamabad 1 st Div SSC 1997 FBISE, Islamabad 1 st Div

Brief Statement of Research Interest	Molecular Genetics and expression analysis
Publications	1. Pakeeza A. Shaiq, Alfred Klausegger, Johann W. Bauer, Maleeha Azam, Ghazala K. Raja, Raheel Qamar (2011). Compound heterozygous mutations p.Q1530X and 6103delG in <i>COL7A1</i> causing recessive dystrophic epidermolysis bullosa in a Pakistani family. <i>J. Dermatol.</i>39(5):472-4. 2. 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. 3. Pakeeza A. Shaiq, Alfred Klausegger, Amir Latif, Johann Bauer, Raheel Qamar and Ghazala Kaukab Raja (2012). Missense mutation in <i>LAMA3</i> associated with Herlitz Junctional Epidermolysis Bullosa in a Pakistani family. vol. 44(6), pp. 1697-1702. 4. 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. 5. Pakeeza A. Shaiq, J. Klar, B. Bergendal and N. Dahl (2013). <i>WNT10A</i> mutations account for ¼ of population-based isolated oligodontia and show phenotypic correlations. <i>Am. J. Med. Genet. (A)</i>. 164A(2):353-9. 6. J. Klar, A. Khalfallah, Pakeeza A. Shaiq, H. T. Gazda and N. Dahl (2014). Recurrent <i>GATA1</i> gene mutations in Diamond-Blackfan anaemia. <i>Br. J. Haematol.</i> 166:949-51. 7. 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 <i>BSCL2</i> mutation in congenital lipodystrophy. <i>BMC med genet.</i>15:71 doi:10.1186/1471-2350-15-71. 8. 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 (2015). 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).

Name	DR SADIA SAEED
<i>Personal</i>	Nationality: Pakistani Address: Department of Biochemistry, PMAS Arid Agriculture University Rawalpindi Shamsabad Murree Road, Rawalpindi 46300. Pakistan
<i>Experience</i>	Assistant Professor 4 th August 2014 till date Department of Biochemistry, PMAS Arid Agriculture University Rawalpindi, Pakistan
<i>Qualifications</i>	PhD. (Molecular Biology) Department of Molecular Biology, Nijmegen Centre for Molecular Life Sciences, Radboud University Nijmegen, The Netherlands (2012) M.Sc. (Molecular Biology/Biochemistry) Department of Biological Sciences, Quaid-i-Azam University Islamabad, Pakistan (2006) B.Sc. (Biochemistry) University of the Punjab, Lahore Pakistan (2003)

<i>Brief Statement of Research Interest</i>	Epigenetics, Molecular Biology. Detailed epidemiological as well as functional studies using state-of-the-art high throughput for infectious diseases/Tuberculosis in Pakistan, DNA, RNA, Protein extraction and quantification, RNA Sequencing, epigenetic regulation of diseases, Tuberculosis and hematological malignancies.
<i>Publications</i>	1. Breeze CE, Paul DS, van Dongen J, Butcher LM, Ambrose JC, Barrett JE, Lowe R, Rakyan VK, Iotchkova V, Frontini M, Downes K, Ouwehand WH, Laperle J, Jacques PÉ, Bourque G, Bergmann AK, Siebert R, Vellenga E, Saeed S, Matarese F, Martens JH, Stunnenberg HG, Teschendorff AE, Herrero J, Birney E, Dunham I, Beck S. eFORGE: A Tool for Identifying Cell Type-Specific Signal in Epigenomic Data. Cell Rep. 2016 Nov 15;17(8):2137-2150. doi: 10.1016/j.celrep.2016.10.059. 2. 3. Joshi O, Wang SY, Kuznetsova T, Atlasi Y, Peng T, Fabre PJ, Habibi E, Shaik J, Saeed S, Handoko L, Richmond T, Spivakov M, Burgess D, Stunnenberg HG. Dynamic Reorganization of Extremely Long-Range Promoter-Promoter Interactions between Two States of Pluripotency. Cell Stem Cell. 2015 Dec 3;17(6):748-57. doi: 10.1016/j.stem.2015.11.010 3. 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, TerHuurne 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. 4. 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. 5. 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. .

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<i>Personal</i>	tayyaba.zainab@uaar.edu.pk Assistant Professor (BS-19) Department of Biochemistry, PMAS-Arid Agriculture University Rawalpindi, Pakistan.
<i>Experience</i>	Date of joining Jan 2015 to date, Assistant Professor PirMehr Ali Shah Arid Agriculture University Rawalpindi, Pakistan (PMAS-AAUR), Shamsabad, Murree Road, Rawalpindi
<i>Honor and Awards</i>	Gold Medal in MS Biosciences (CIIT) 2007 PhD Fellowship under Faculty Development Program, EUIBB, 2009-2013 PMAS-AAUR Bestway Foundation UK Scholarship for Pakistani PhD students 2013-2014
<i>Memberships</i>	• Member: Departmental Board of Studies, Department of Biochemistry, PMAS-Arid Agriculture University Rawalpindi, Pakistan (2015-present). • Member: Faculty Board, Faculty of Science, PMAS-Arid Agriculture University Rawalpindi, Pakistan (2015-present). • Curriculum Development: Development of Scheme of Studies of BS Biochemistry, BS Microbiology, M.Phil. and PhD Biotechnology, PMAS-AAUR (2016-present). • Member QEC Team and SAR Assessment Team: Department of Biochemistry, PMAS-Arid Agriculture University Rawalpindi, Pakistan (2016-present). • Focal person for PM laptops Scheme for Microbiology: University Institute of Biochemistry and Biotechnology, PMAS-Arid Agriculture University Rawalpindi, Pakistan (2016-present).
Graduate Students Postdocs Undergraduate Students Honour Students	
	Ph.D. and M.Phil. Thesis under Supervision (Member Supervisory Committee) 06 • Engineering of <i>Aspergillus fumigatus</i> β-glucosidase through site-directed mutagenesis. Sidrah Nazir (PhD Thesis) • Molecular mimicry between <i>Campylobacter jejuni</i> lipopolysaccharide and host gangliosides from patients of GBS in Pakistani population. Rashid Iqbal (PhD Thesis) • Inhibition of TGFBR signaling using natural compounds. AmmaraJabeen (PhD Thesis) • Modulation of trail mediated apoptosis in cancer cell lines through plant materials. Warda Ahmed (PhD Thesis) • Anthropometric, physiological, biochemical and micronutrients analysis in post

	cesarean females. Raeesa Tabassum (MPhil) • Optimization of conditions for cell suspension culture of Bistortaamplexicaulis. Iftraj Nisar Yasin (MPhil)
Brief Statement of Research Interest	Molecular Genetics/Molecular Biology

Name	MS. HINA ALI
Personal	Lecturer (BS-18) Department of Biochemistry PMAS-Arid Agriculture University Rawalpindi, Pakistan. Nationality: Pakistani Email- hinaali@uaar.edu.pk
Experience 5 years	2015-Present Lecturer BPS-18, Department of Biochemistry, PMAS-Arid Agriculture University Rawalpindi, Pakistan. (12-02-2015 to Present) 2015- Present Production Manager, Mehr Mineral Water Plant, PMAS-Arid Agriculture University Rawalpindi, Pakistan. 2015- present Quality Control Research Lab activities, UIBB, PMAS-Arid Agriculture University Rawalpindi. Assigned responsibilities to coordinate and manage practical's in the respective fields along with the Marketing/Outreach/Production Assistance activities of University Research Product Display Centre (URPDC). 2013-2014 Bequivalent sciences centre, University of veterinary and animals sciences Lahore.
Honor and Awards	• Roll of honour (academic) in M. Phil Chemistry Lahore College for Women University (LCWU) • Appreciation Letter for Business Incubation Unit by training NIP Interns in field of biochemistry department • Certification of Appreciation as Judge in Islamabad science fair held by Intel Pakistan Corporation (IPC) • Certificate of IT equipment management skills Indigenous on campus training (IOT) under modern university governance program • Certificate of Project management skills indigenous on campus training (IOT) under modern university governance program • Certificate of Merit. Training course on Good Governance under indigenous on campus training under modern university governance program organized by HEC at PMAS Arid Agriculture University Rawalpindi. • Certificate of participation in quality assurance, indigenous on campus(IOT) program under modern university governance program in collaboration with HEC • Certificate of participation in workshop on atomic absorption spectroscopy held in LCWU. CO-Principal investigator in Research Project • Quality investigation into pilot scale wheat flour mill at PMAS-AAUR • Establishment of small scale poultry, slaughter and— processing unit at PMAS-AAUR

<i>Memberships</i>	
<i>Qualifications</i>	Master of Philosophy (MS/M.Phil) Lahore College for Women University, Lahore (2011-2013) Bachelors of Science BS(Hons) Government College University, Faisalabad (2006-2010) Intermediate (Pre-Medical) Government Degree College, Multan. (2004-2005) Matriculation (Science Subject) Govt. Girls High School Multan. (2003)
<i>Brief Statement of Research Interest</i>	➤ Phytochemistry ➤ Food Microbiology • Estimation, Classification, Separation and quantitative & qualitative analysis of antioxidant and phenolic compounds of edibles things, vegetables using, HPLC, UV/VIS Spectroscopy, LC and HPLC-MS • Determination of Quercetin and Flavonoids contents in all, root, coloured and green leafy vegetables and seasonal fruits. • Physiochemical (salts and minerals) and microbial analysis (mould, yeast, bacterial, <i>E.coli</i>, Total coliform and PCA) of portable drinking water and ground water by using different techniques.
<i>Publications</i>	1. Ali,H., N.Naz and M.Abbas. 2016.Quantitative analysis of Quercetin in pulps and peels of vegetables by using HPLC technique. Journal of Agricultural Research, 54(1):75-83