

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



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

B.S Biochemistry Degree Program

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

Program Self Assessment Team

Dr. Ghazala Kaukab Raja
Dr. Muhammad Sheeraz Ahmad
Dr. Pakeeza Arzoo Shaiq

(Coordinator)
(Member)
(Member)

CONTENTS

Introduction	02
Criterion-1: Program Mission, Objectives and Outcomes	03
Criterion 2: Curriculum Design and Organization	136
Criterion 3: Laboratories and Computing Facilities	139
Criterion 4: Students Support and Advising	140
Criterion 5: Process Control	140
Criterion 6: Faculty	142
Criterion 7: Institutional Facilities	143
Criterion 8: Institutional Support	144
Summary	145
Conclusion	146

TABLES

Table-1: Programmes Objectives Assessment	04
Table-2: Objective vs Outcomes	04
Table-3: Quantitative Assessment of the UIBB (2014-16)	135
Table-3.1: Faculty Distribution in UIBB	135
Table-4: Present Performance Measures for Research Activities	136
Table-5: Enrolment from 2014-2016	145

ANNEXURE

Annex I: Result of Faculty Course Review	147
Annex II: Results of Faculty Survey	148
Annex-III: Results of Graduating Students Survey	153
Annex-IV: Faculty Resume	154

Introduction

The field of Biochemistry focuses on biological sciences at chemical and molecular levels. A Biochemistry Bachelor's program focuses on a curriculum which is an excellent blend of courses designed to study the biochemistry 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 BS Biochemistry degree program of PMAS-AAUR was initiated in 2011 under the Department of Biochemistry currently being run under University Institute of Biochemistry and Biotechnology (UIBB) since 2013. 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 in view the academic/research strengths and diversity of UIBB, the BS Biochemistry has gained good reputation being a highly competitive and demanding degree program of PMAS-AAUR. The curriculum of program adheres to HEC approved curriculum and international standards. The scheme of studies includes Compulsory, Foundation, Core, and Specialized courses. A few important subject areas/courses include English, Mathematics, Islamic Studies, Pak Studies, Social Sciences, Computer Science, Chemistry, Biochemistry, Cell biology, Microbiology, Molecular biology, Nucleic acids, Carbohydrates, Lipids, Amino-acids, Protein Chemistry, Genetics, Enzymology, Metabolism, Cellular Signaling, Bioinformatics, Genetic engineering, Biotechnology, etc. All these courses involve taught modules, laboratory based practicals, and relevant assignments. In addition to taught courses the BS Biochemistry curriculum also includes courses like, Seminars, Special Problem and Research Planning & Report Writing which aim at strengthening the presentation, scientific research and writing skills of students. The BS Biochemistry major prepares students with an interdisciplinary knowledge at both theoretical and practical levels preparing them for careers in teaching, research and entrepreneurship in diverse fields including health, medicine, biotechnology, etc.

CRITERION 1:

Components of Self Assessment Process:

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

Criterion-1: Program Mission, Objectives and Outcomes

Mission Statement for BS Biochemistry:

BS Biochemistry program aims is to impart theoretical and practical knowledge of Biochemistry, Molecular Biology and Biotechnology through quality teaching and experimental exposure.

Standard 1-1: Documented Measurable Objectives

1. To offer in-depth knowledge of the theoretical and practical aspects of Biochemistry
2. To build intellectual foundation for a complex, dynamic, and technological practical life
3. To train for careers in teaching, medical, industry, research, and higher education

Expected Outcomes

1. Gain of knowledge and understanding of basic and applied aspects of Biochemistry
2. Understanding of selected aspects of Biochemistry that aid in the research expertise and professional careers
3. Manpower trained to lead in a particular research or professional field

Main Elements of Strategic Plan to Achieve Mission and Objectives

1. Induction of well trained and competitive faculty for Biochemistry program
2. Setting up of well-equipped specialized general laboratories for hands-on training of students
3. Quality teaching through development of a sound teaching system for the award of degrees based on the experience and vision gathered from internationally recommended books, world reviews, literature, innovations, proceedings, and symposia etc
4. Regular updating of curricula involving core subjects, elective subjects and specialized areas and study tours
5. To provide opportunities for research and scholarly activities for both faculty and students

TABLE-1: PROGRAM OBJECTIVES ASSESSMENT

S. #	Objective	How Measured	When Measured	Improvement Identified	Improvement made
1	To offer in-depth knowledge of the theoretical and practical aspects of Biochemistry	Students evaluation	A continuous process as per requirement	Course Contents	Course contents upgradation, more facilities for hands-on laboratory practicals, and research activities.
2	To build intellectual foundation for a complex, dynamic, and technological practical life	Pre-requisite information and knowledge status measured through class activities and student feed back	Throughout the study via routine student-teacher/mentor discussions	Preparation of reports/ presentations, regular interactions with faculty, post-grad students, participation in seminars, synopsis and thesis defense	Presentations, seminars, communication skill development, regular interactions with faculty.
3	To train for careers in teaching, medical, industry, research, and higher education	Student evaluation and alumni survey	Continuous process measured during research planning course	Research oriented aptitude of students during routine courses discussions, research planning course	Regular discussions during class or on individual basis.

TABLE-2 STANDARD 1-2: OBJECTIVES VS OUTCOMES

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

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

The program outcomes are fully supportive to program objectives mentioned above. Outcomes are based on actual details obtained from department documents.

PROGRAM ASSESSMENT RESULTS

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

The 1st SAR for B.S Biochemistry programme assessment is divided into four sections;

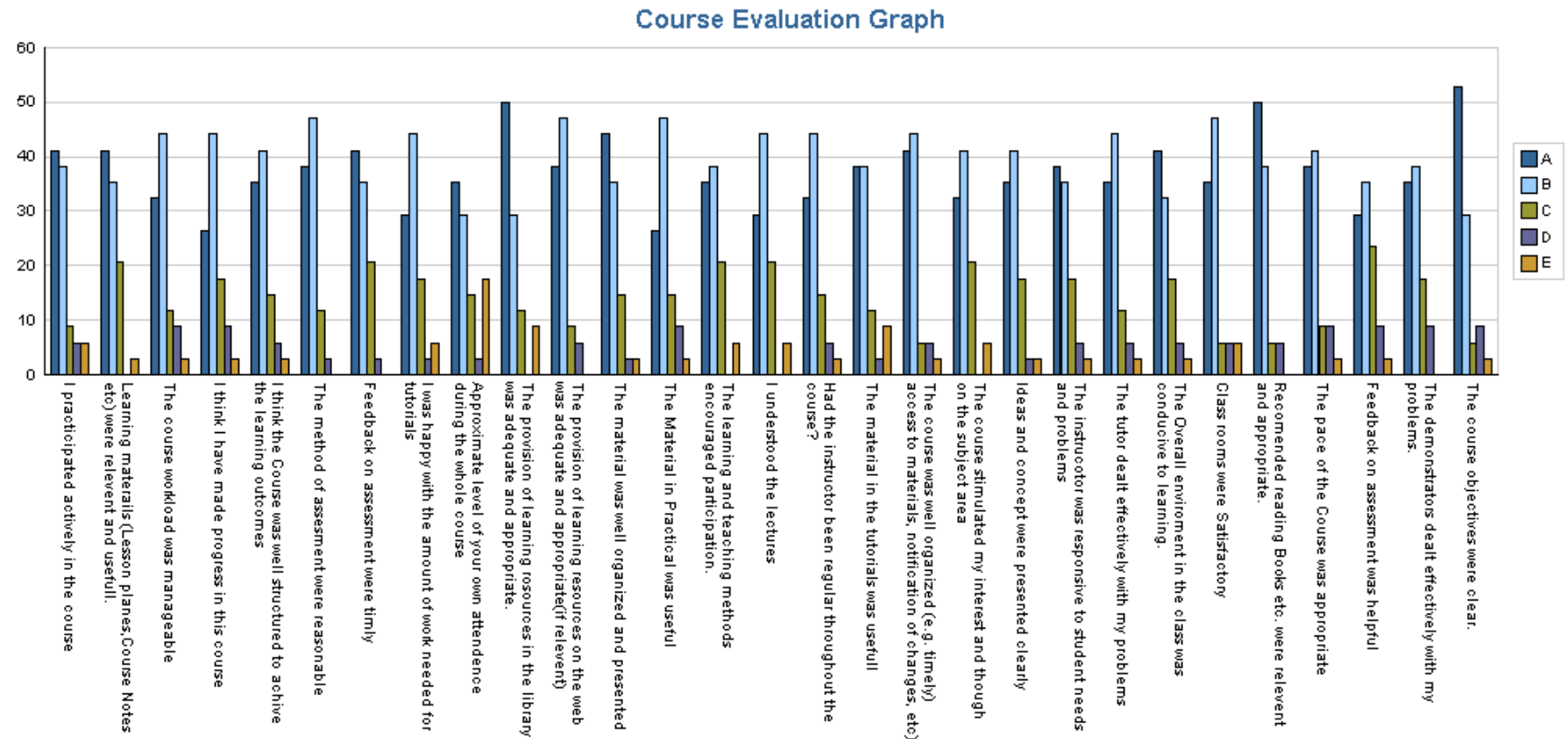
1. Assessment results Fall 2014
2. Assessment results Spring 2015
3. Assessment results Fall 2015
4. Assessment results Spring 2016

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

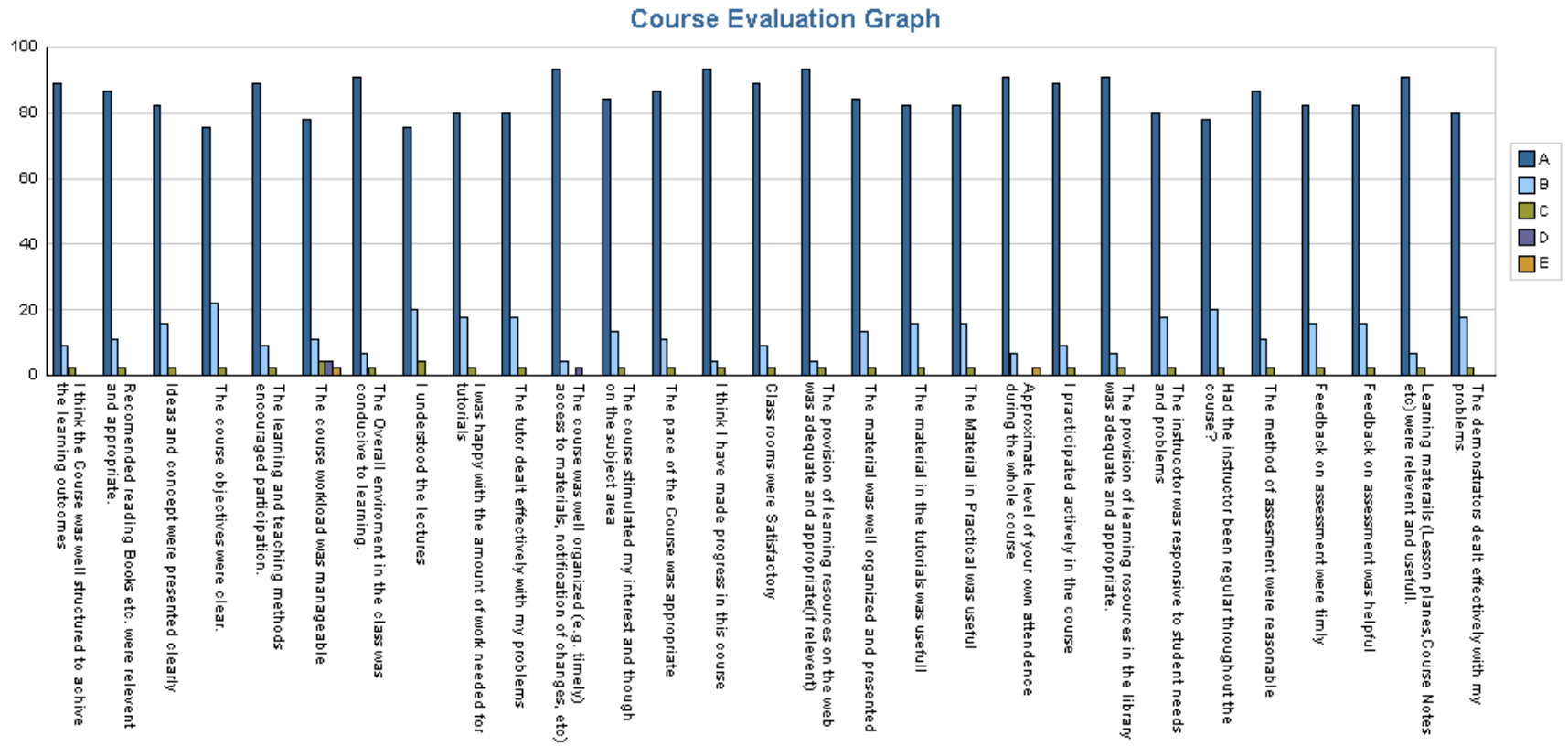
Teachers Evaluation Fall Semester 2014

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

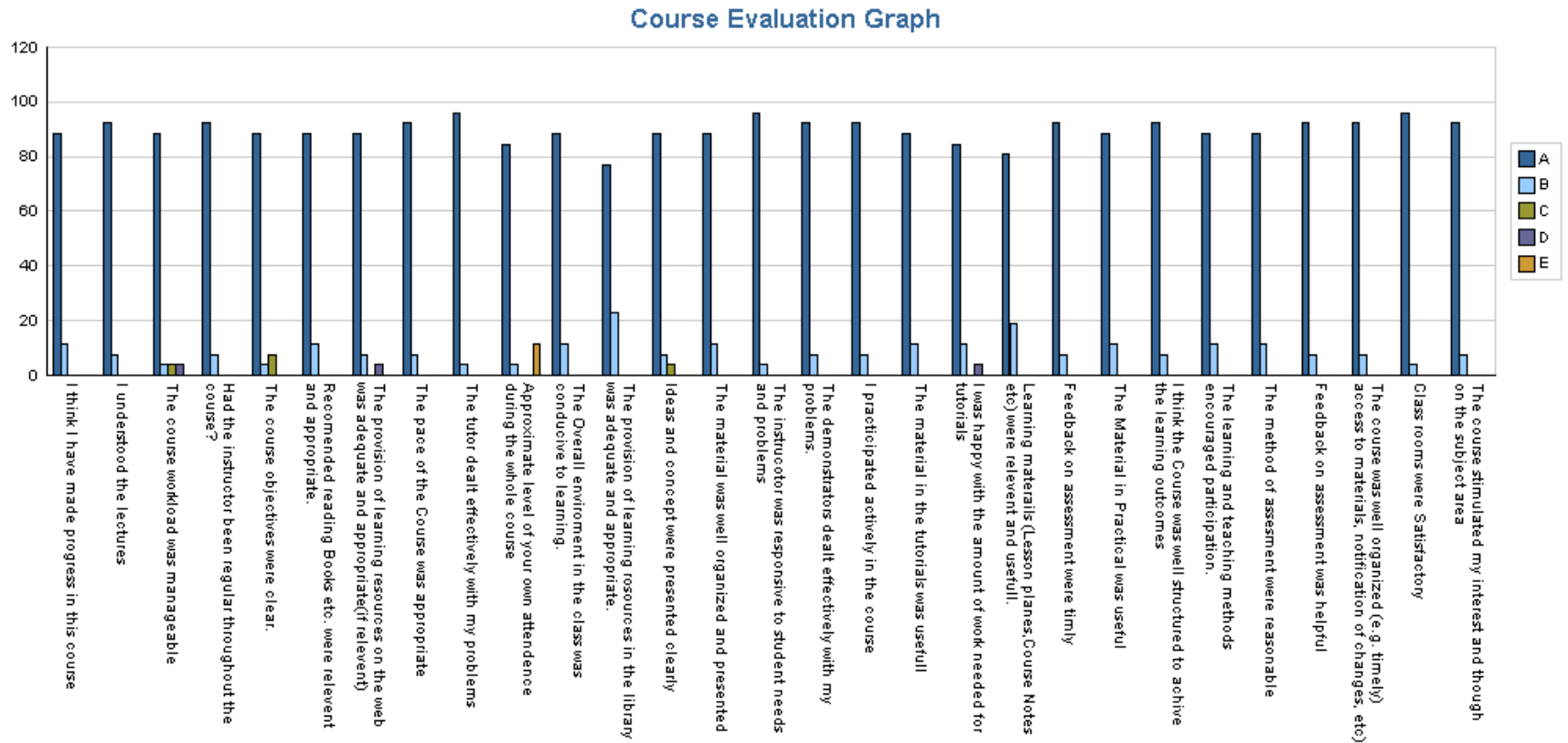
Results of Performa 1 (Fall 2014)



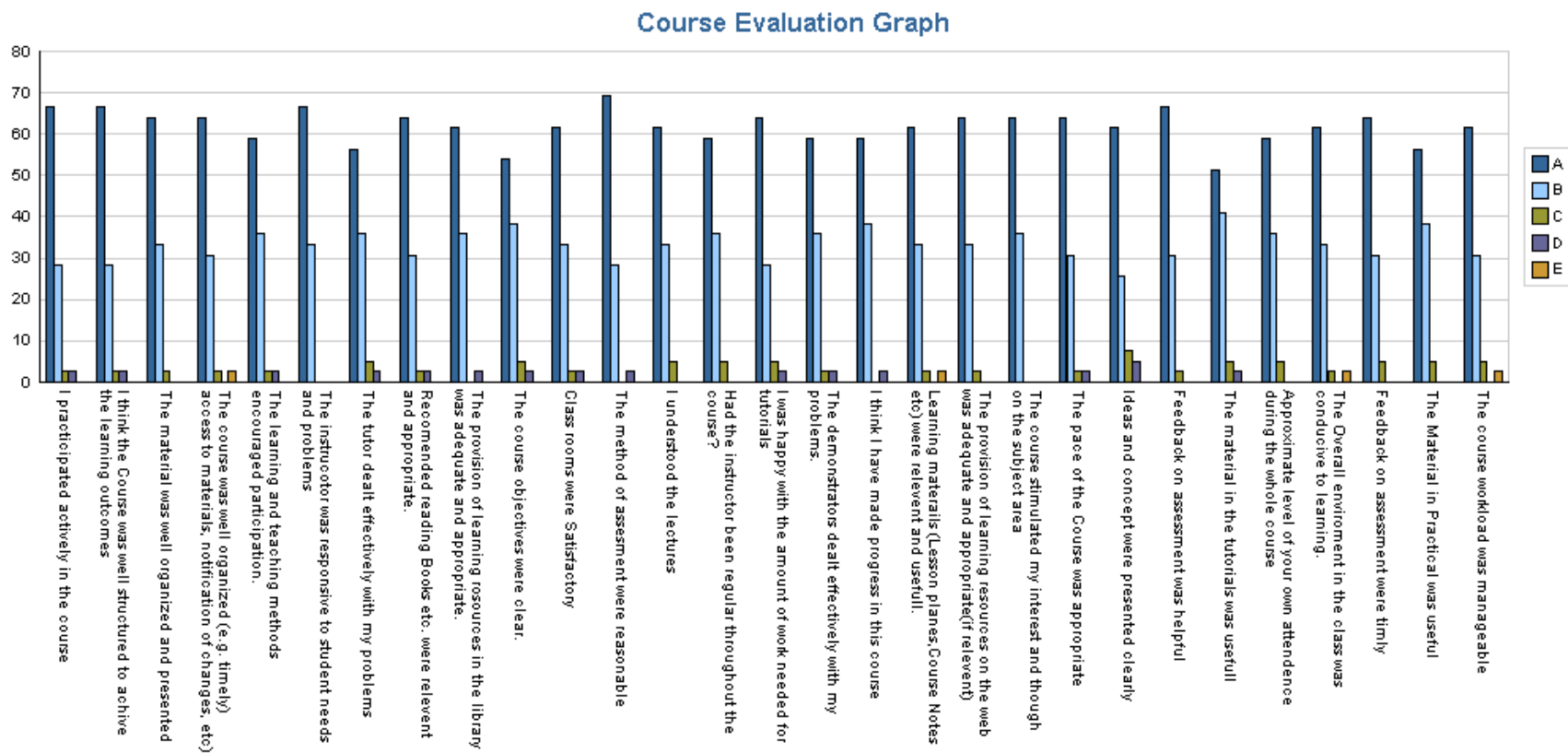
BCH-302. Teacher 1 (E): According to students, the course objectives were clear and recommended reading books were relevant and appropriate.



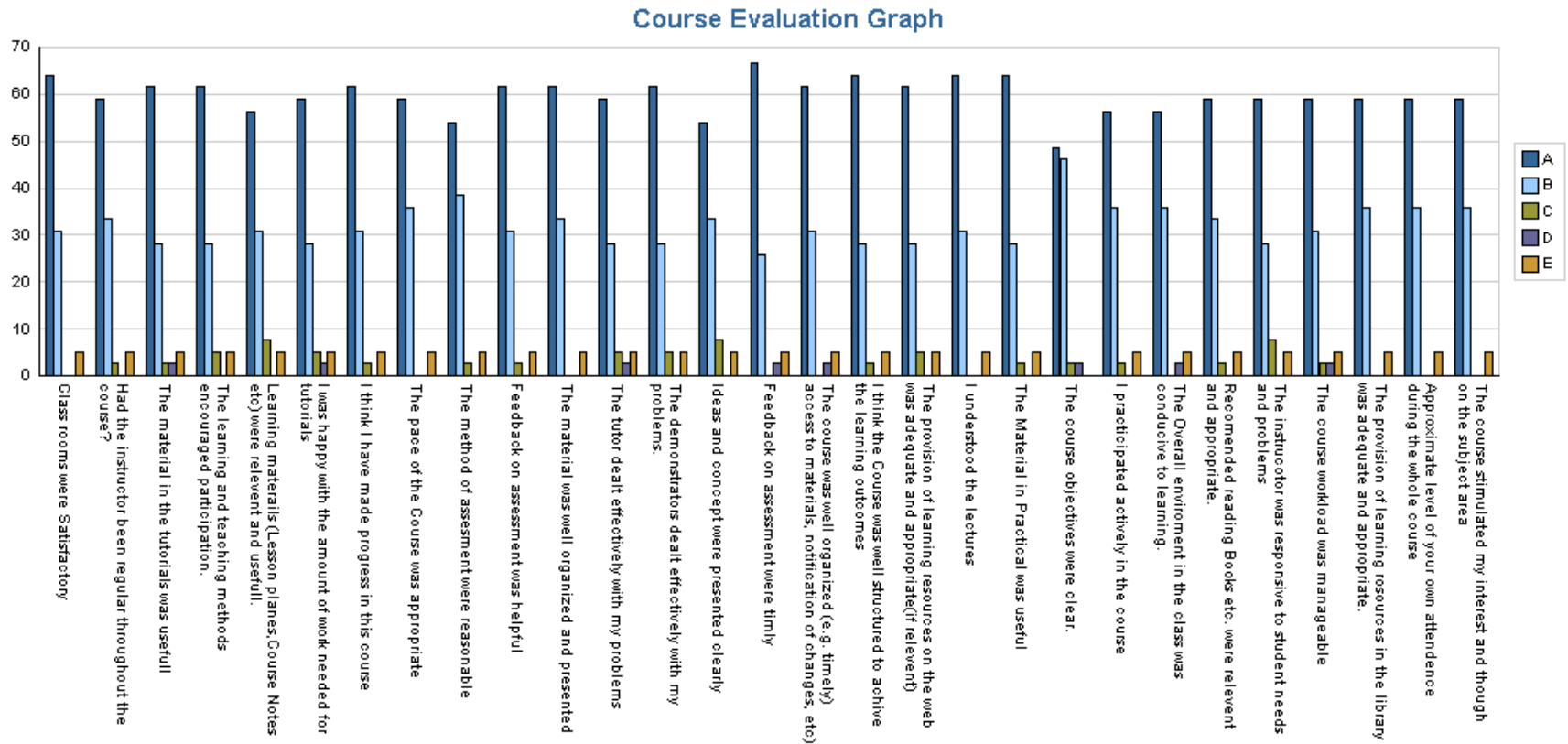
BCH-302. Teacher 1 (M): According to students, the provision of learning material was adequate and appropriate and the overall environment in the class was conducive to learning.



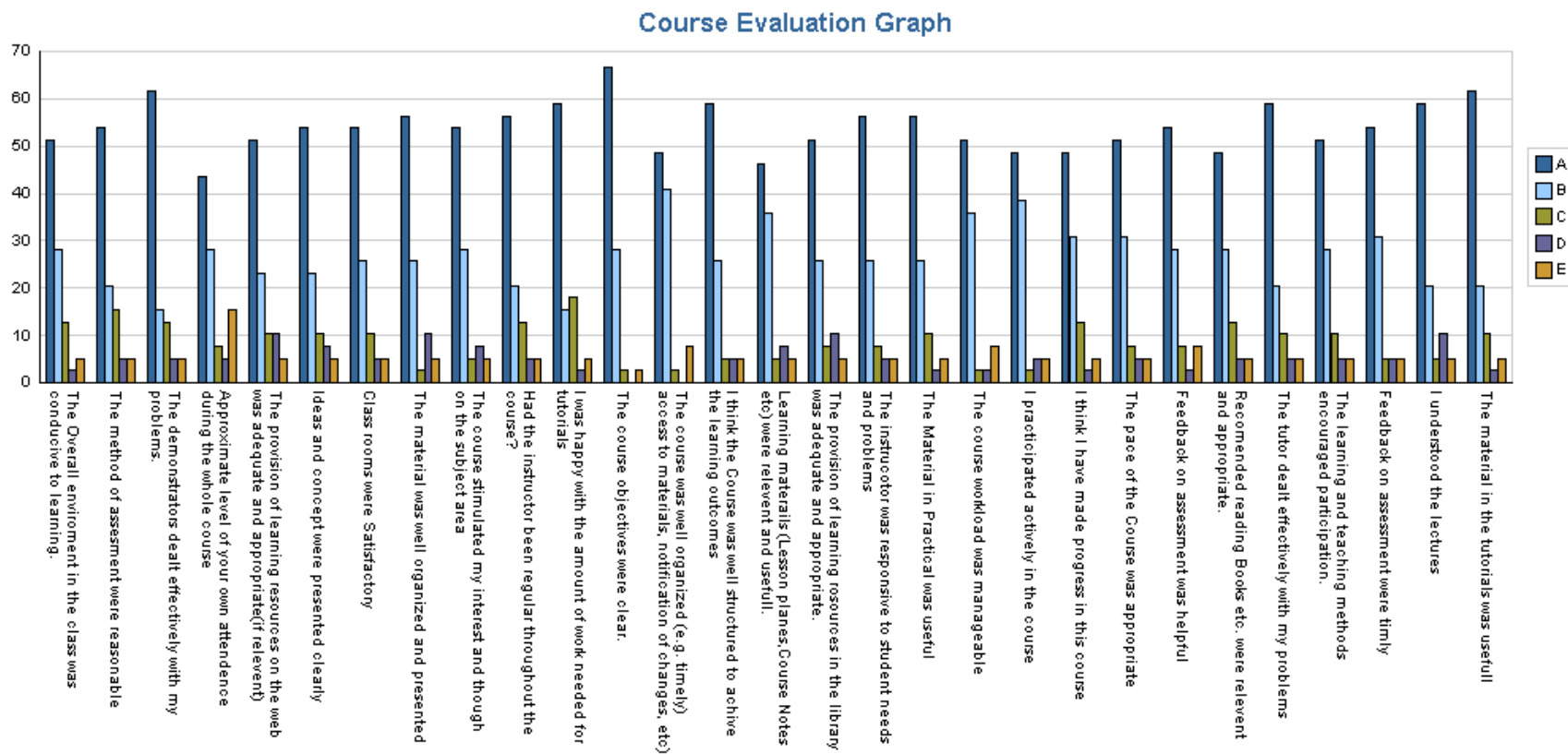
BCH-402. Teacher 2 (E): The instructor was very responsive to student needs and problems and very effectively noticed the problems.



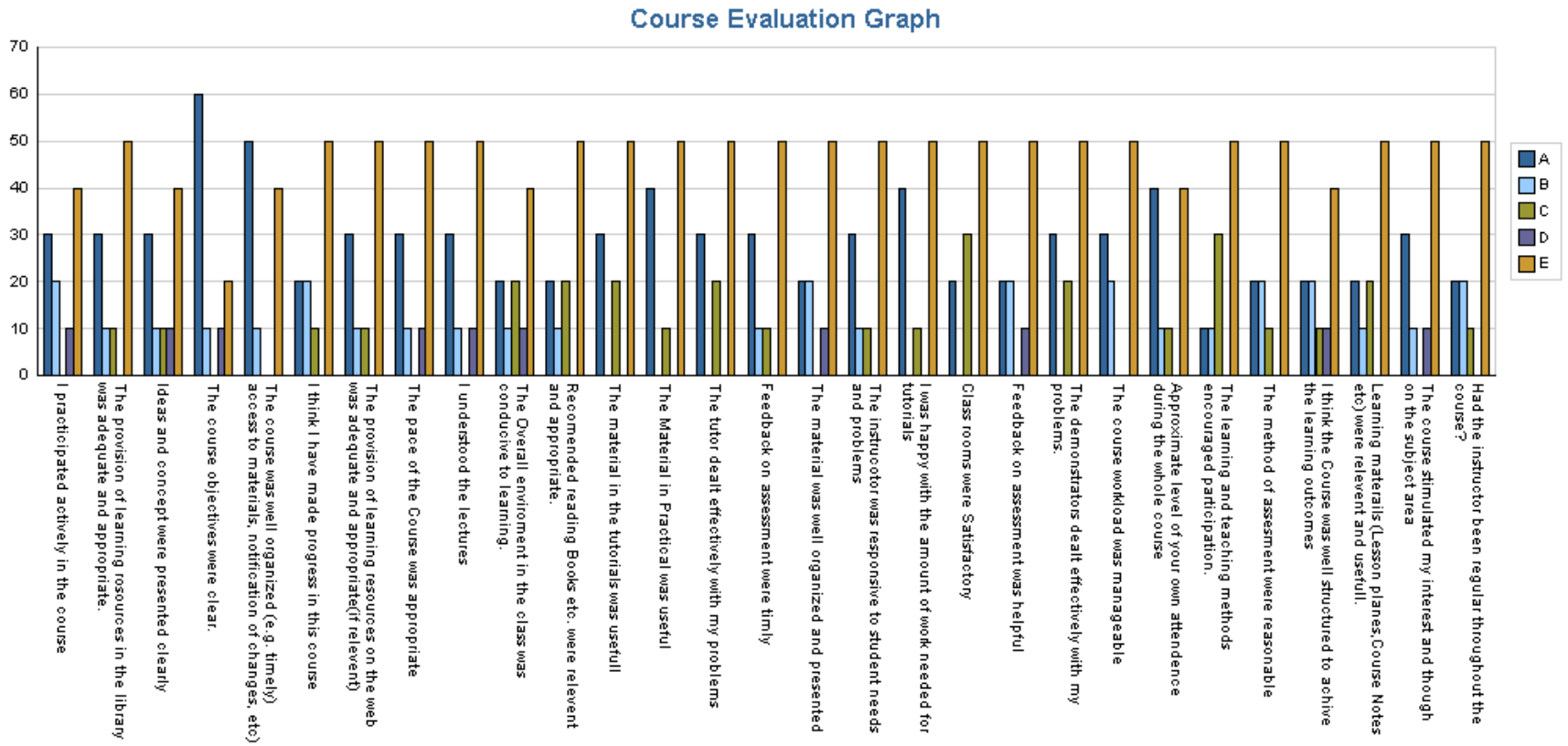
BCH-402. Teacher 2 (M): The instructor was very responsive to student needs and problems and deal very effectively with the problems.



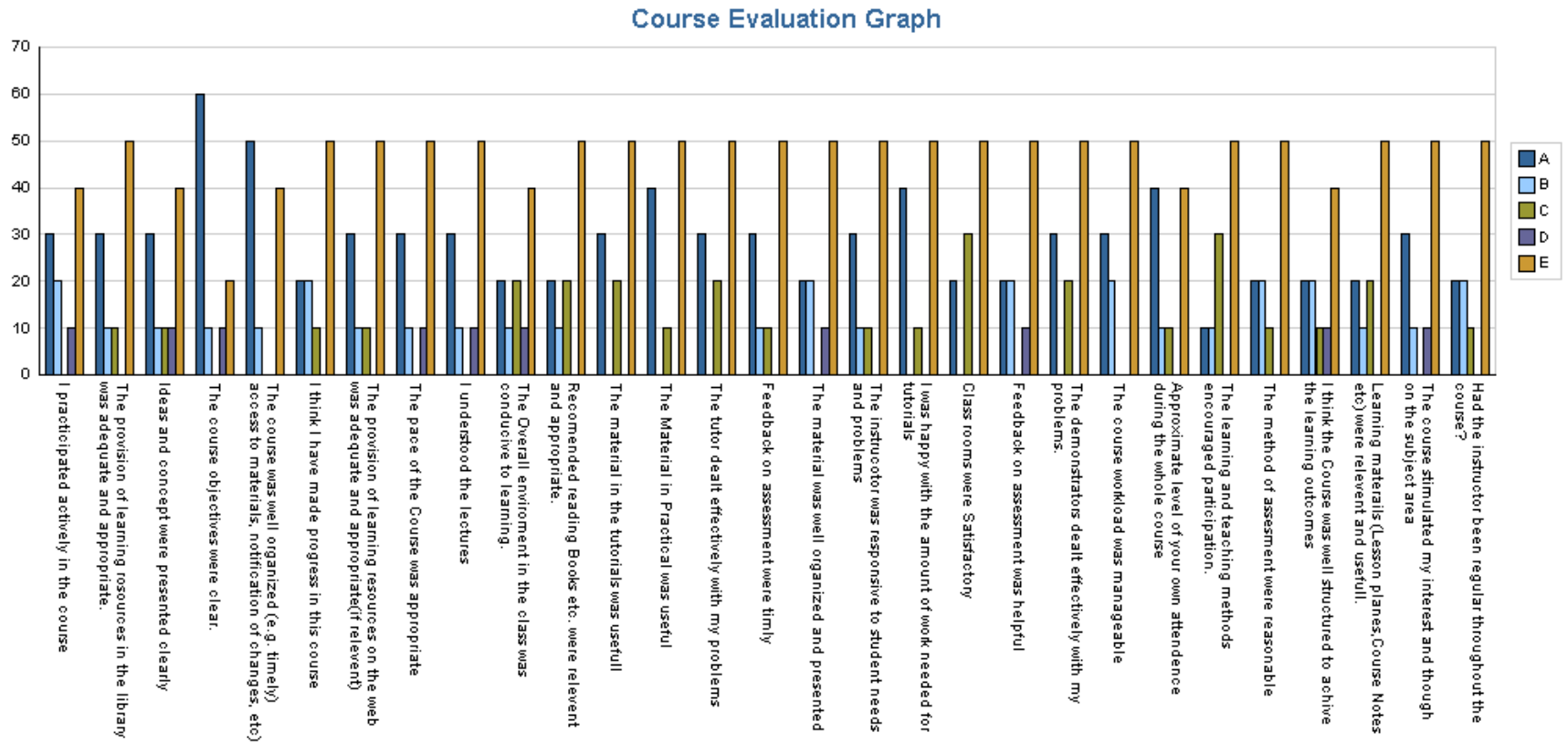
BCH-405. Teacher 3 (M): According to the students they understood the lectures very well and students have made very good progress in the course.



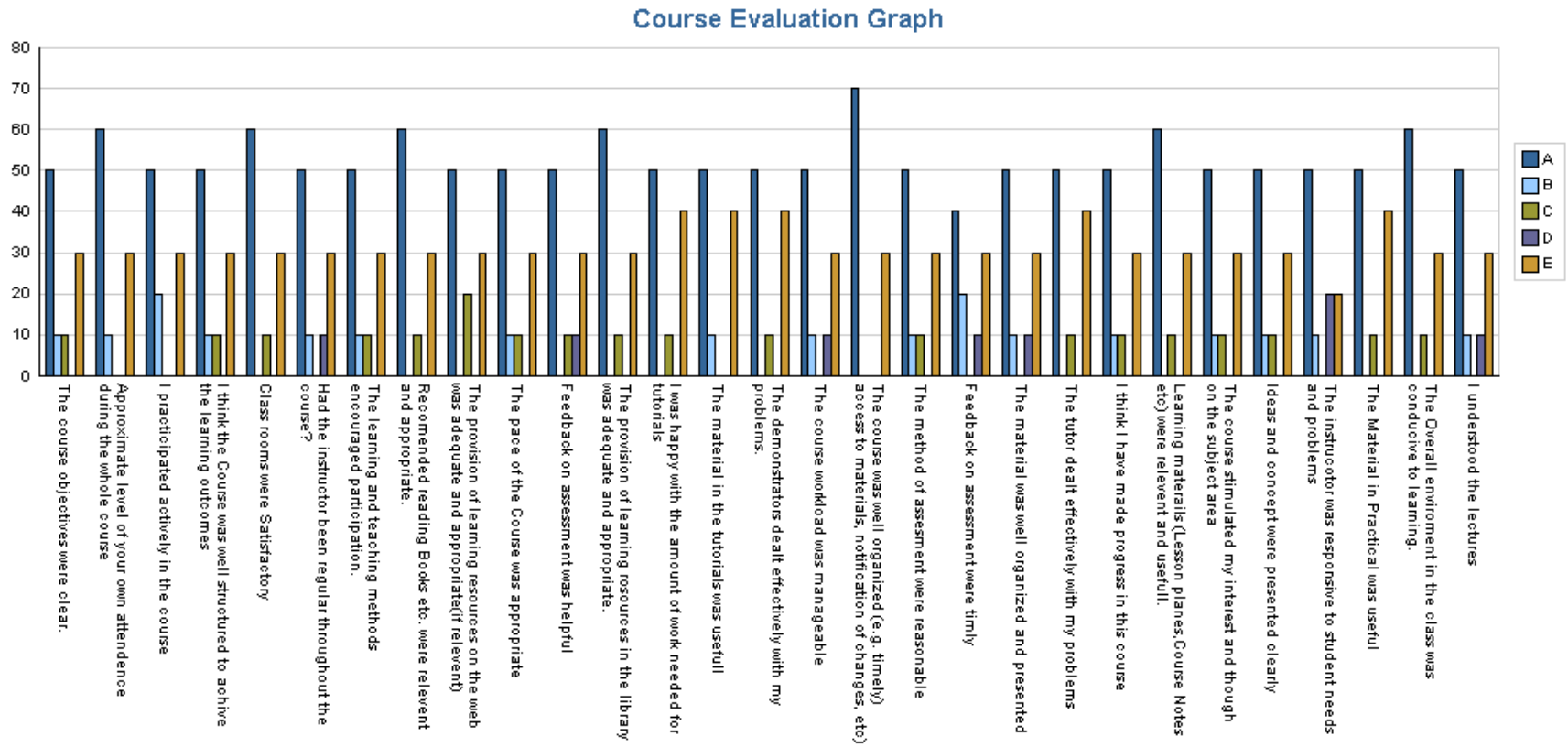
BCH-505. Teacher 3 (M): According to the students the course objectives were very clear and studying material was very useful and effective.



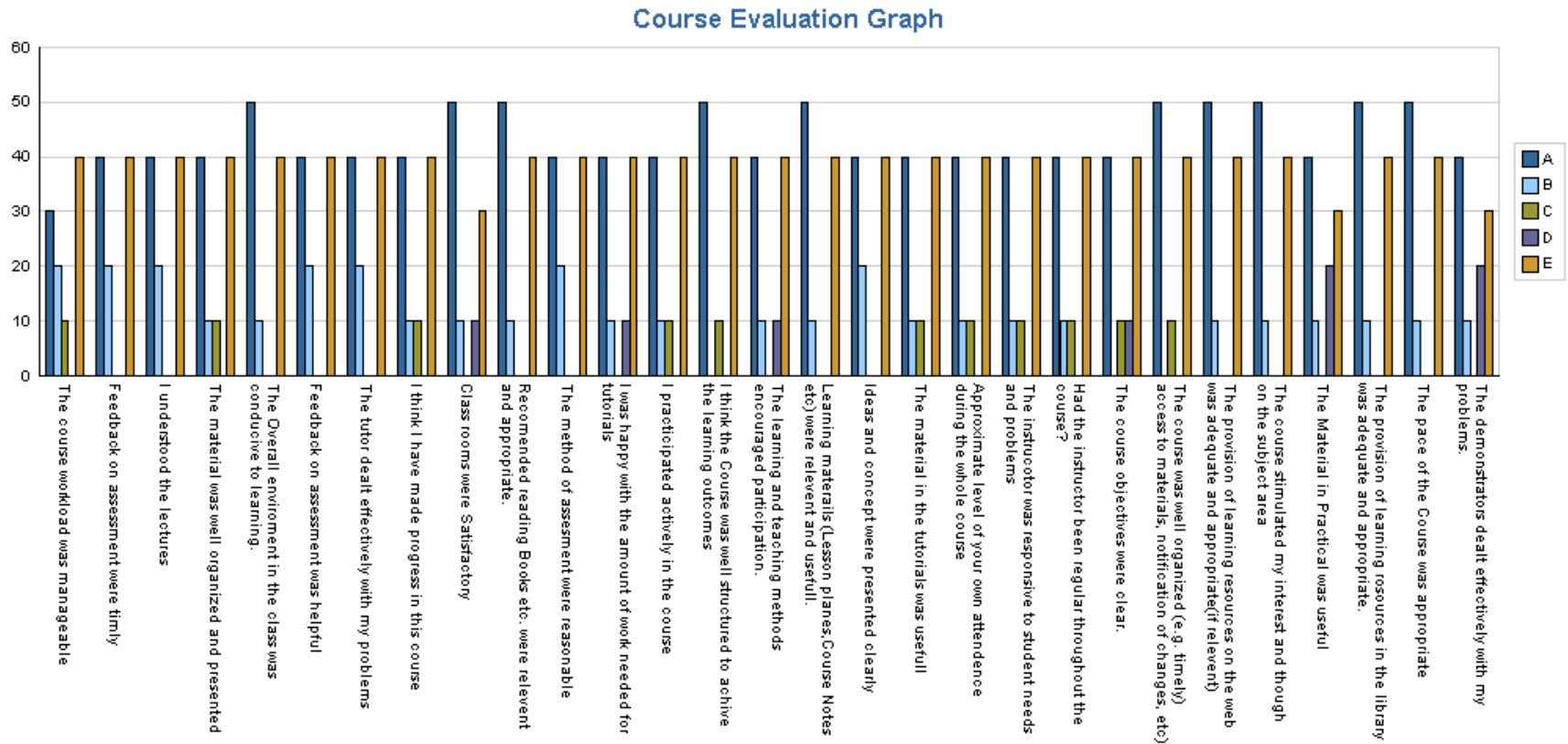
BCH-601. Teacher 4 (E): According to the students the course objectives were so clear.



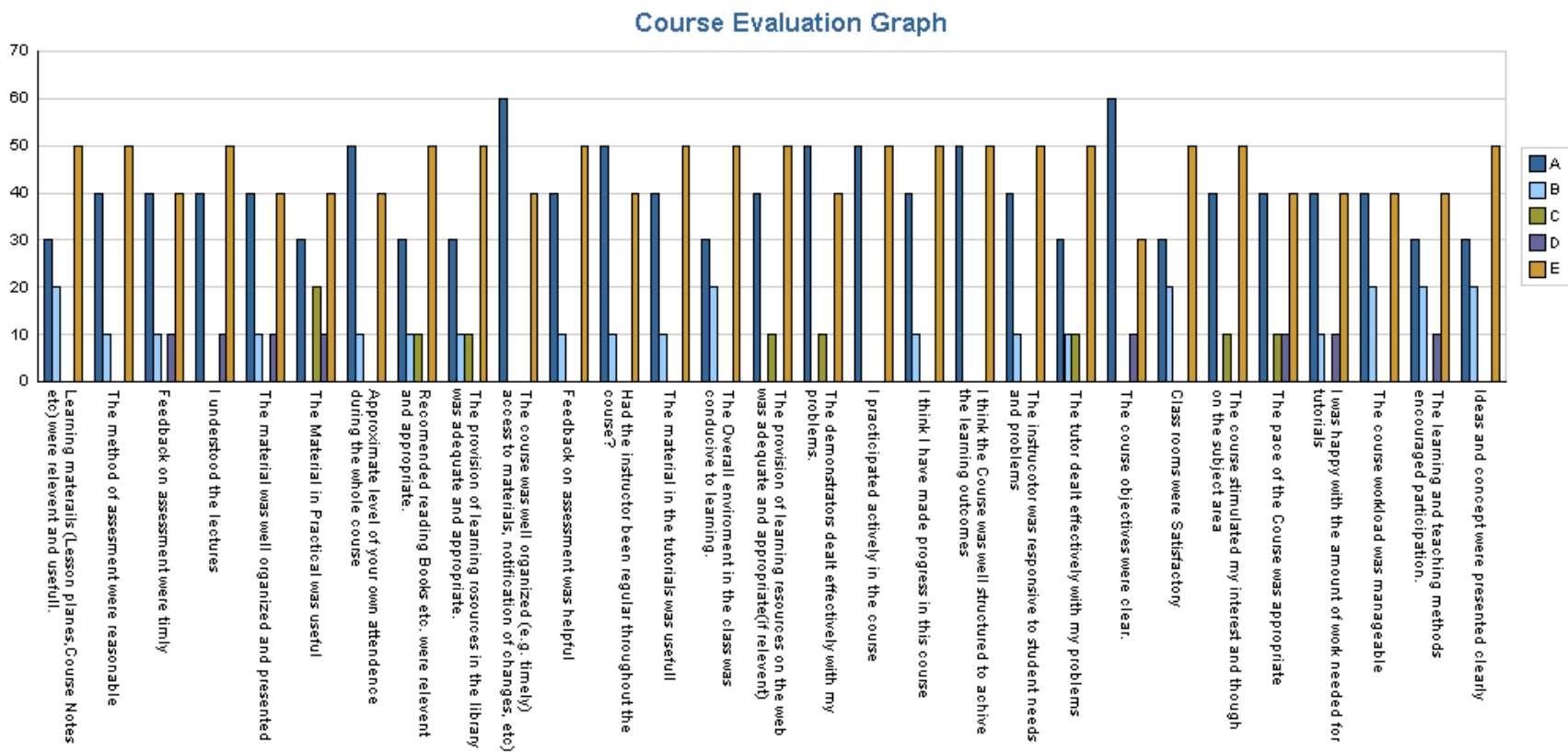
BCH-601. Teacher 4 (M): The course objectives were very clear and the course was well organized.



BCH-602. Teacher 5 (M): The course objectives were well organized and timely.



BCH-603. Teacher 6 (M): According to the students the course was very well structured to achieve the learning outcomes.

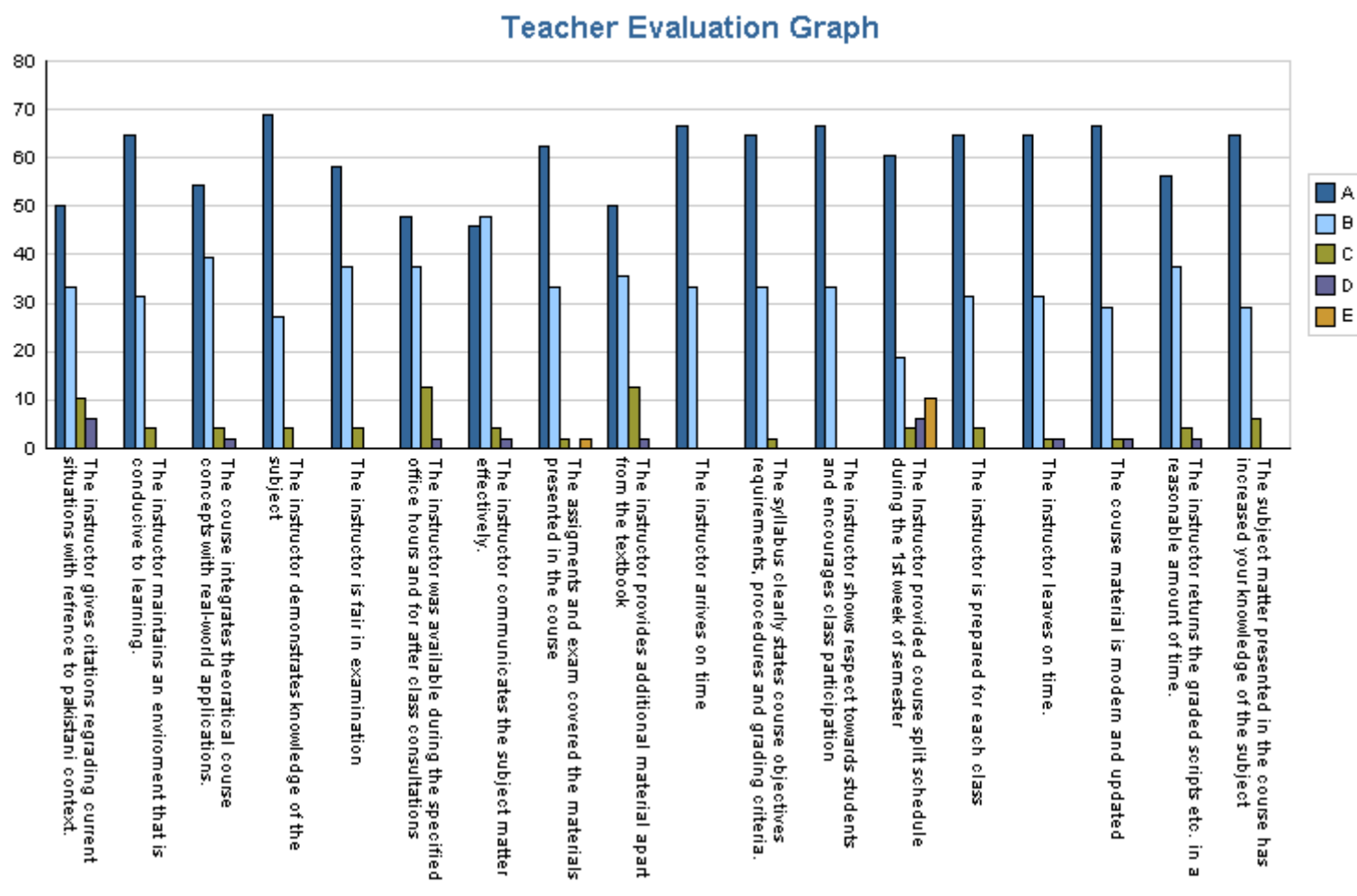


BCH-604. Teacher 2 (M): According to the students the course was very well organized and course objectives were very clear.

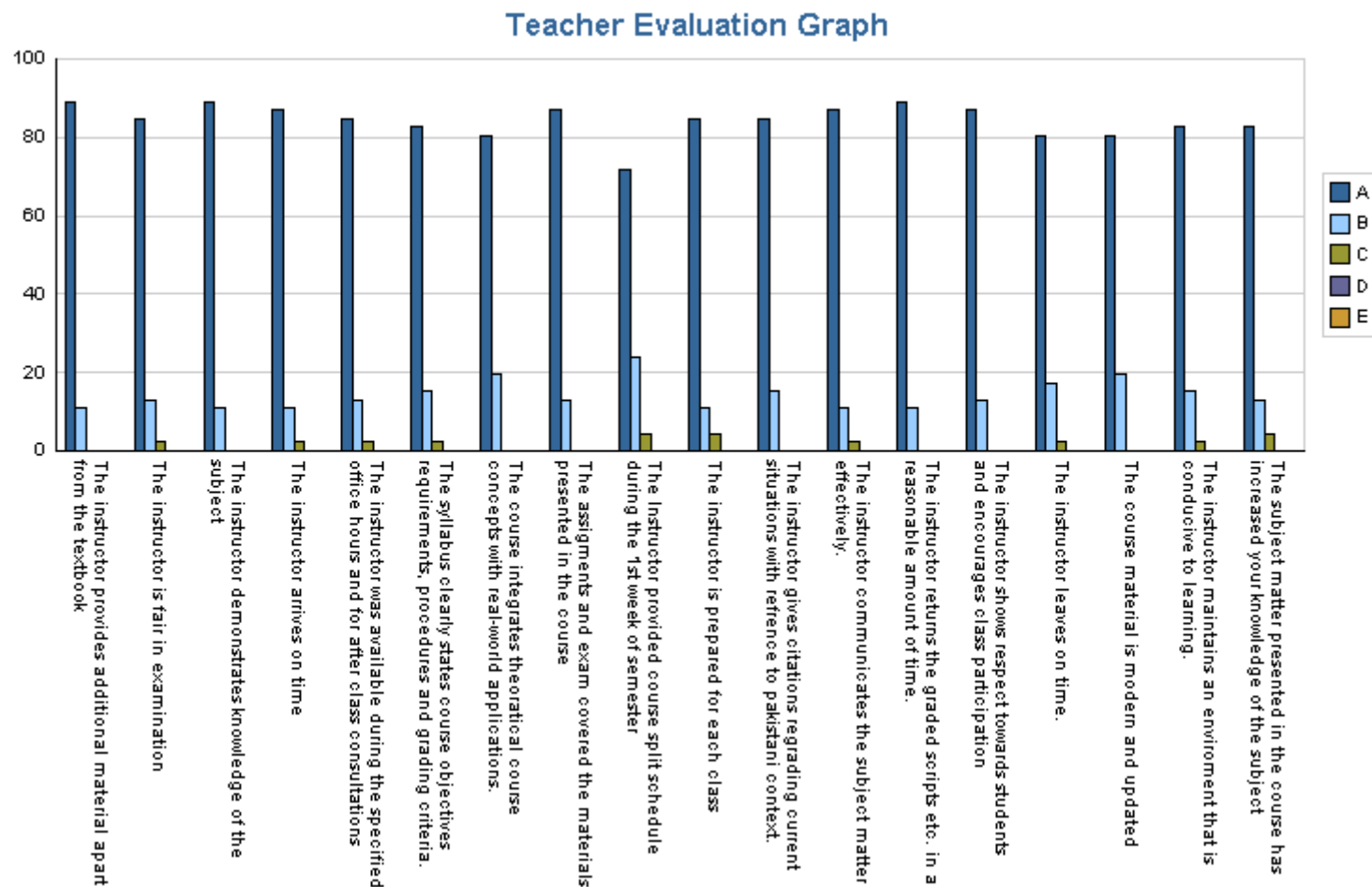
Program Assessment Results:**Overall Results of Performa 1 of Teacher 1, 2, 3, 4, 5 and 6**

According to the overall results majority of the students pointed out the courses were very well organized to achieve the learning outcomes. The environment of the classes was very conducive for studying.

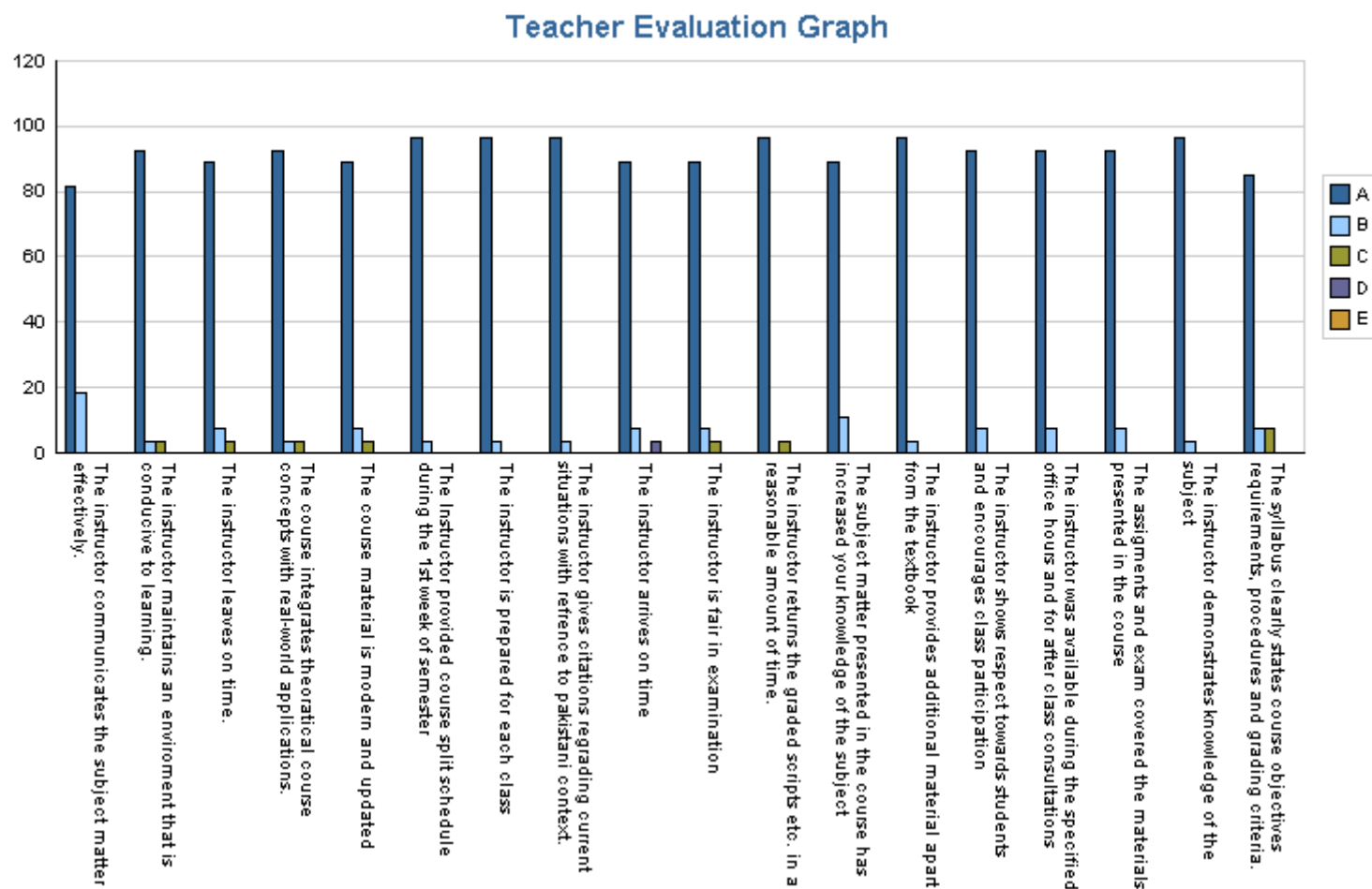
Results of Performa 10 (Fall 2014)



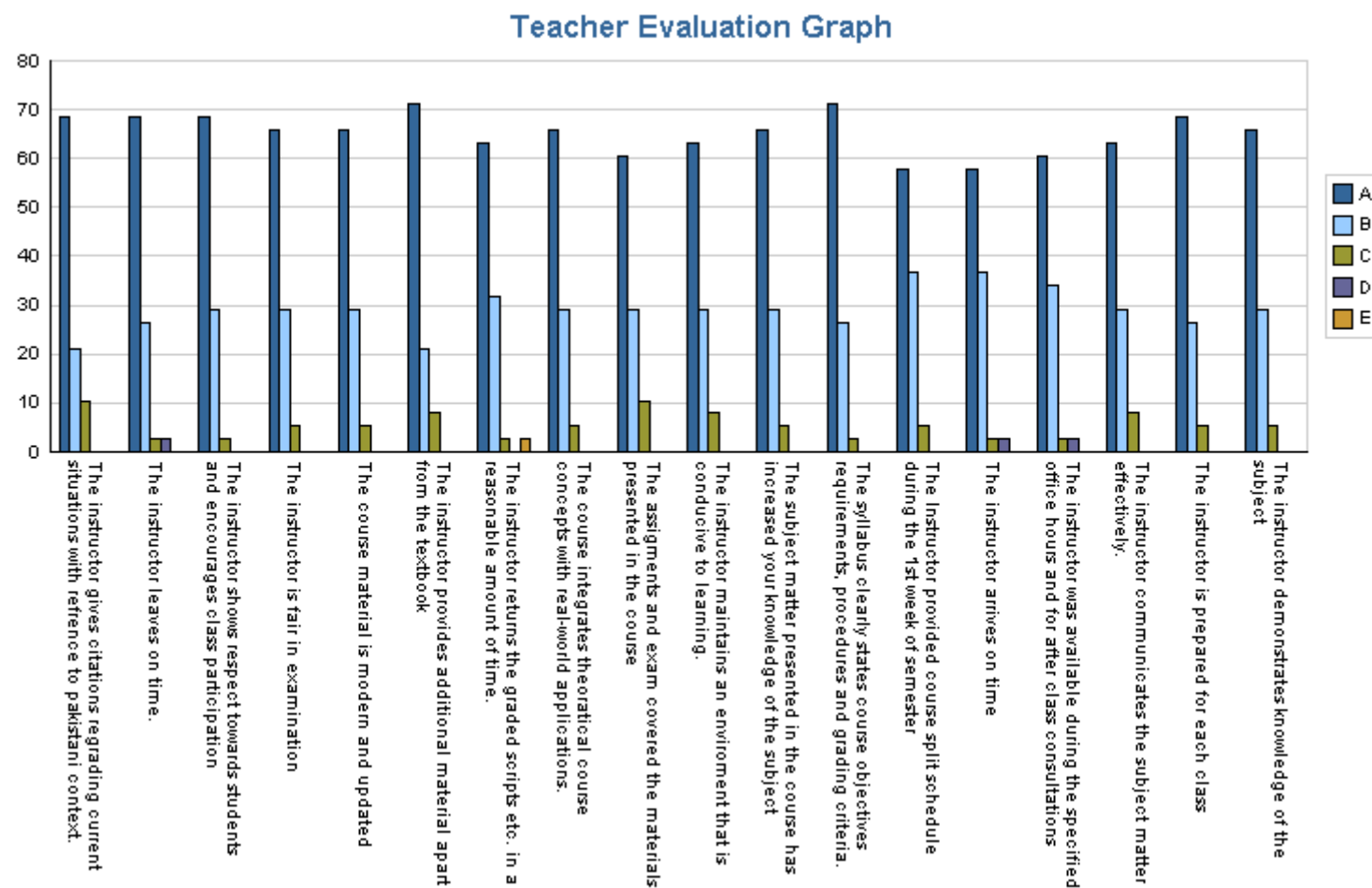
BCH-302. Teacher 1 (E): According to the students, the instructor demonstrates the knowledge of the subject very well and the instructor shows respect towards student and encourages class participation.



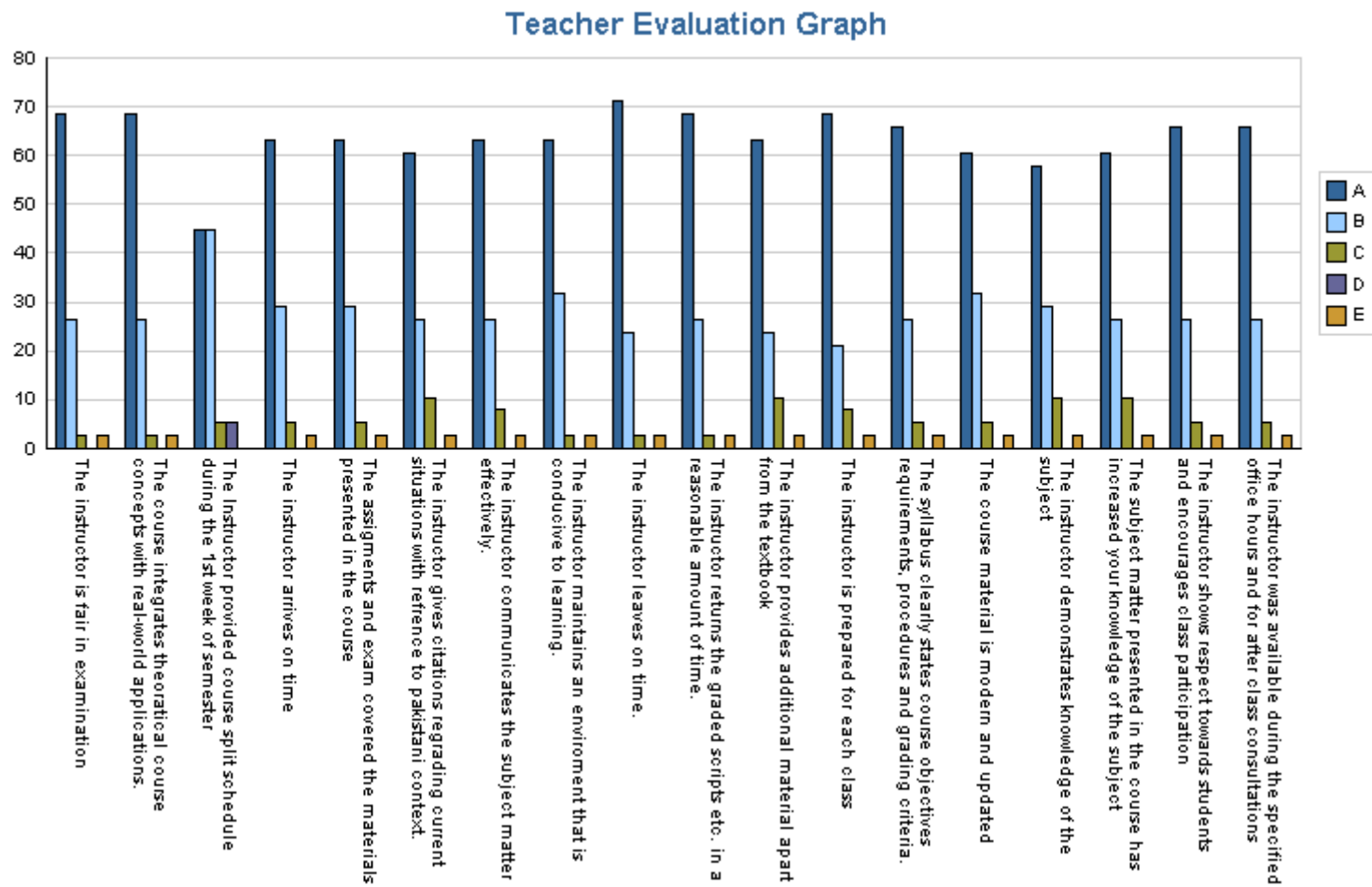
BCH-302. Teacher 1 (M): According to the students, the instructor demonstrates the knowledge of the subject very well and instructor communicates the subject matter very effectively.



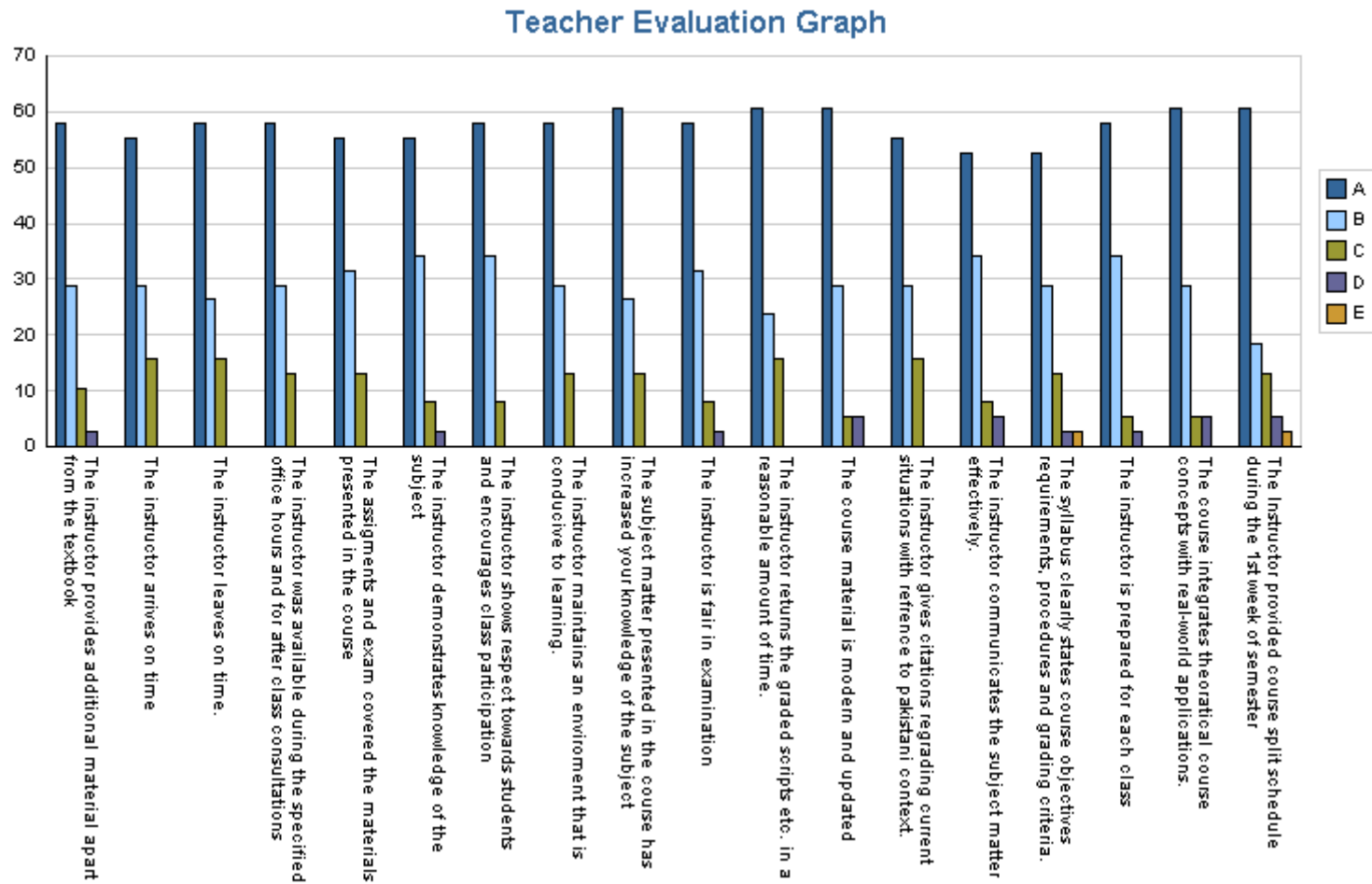
BCH-402. Teacher 2 (E): According to the students, the instructor provided course split schedule during the 1st week of semester and instructor demonstrate the knowledge of the subject very well.



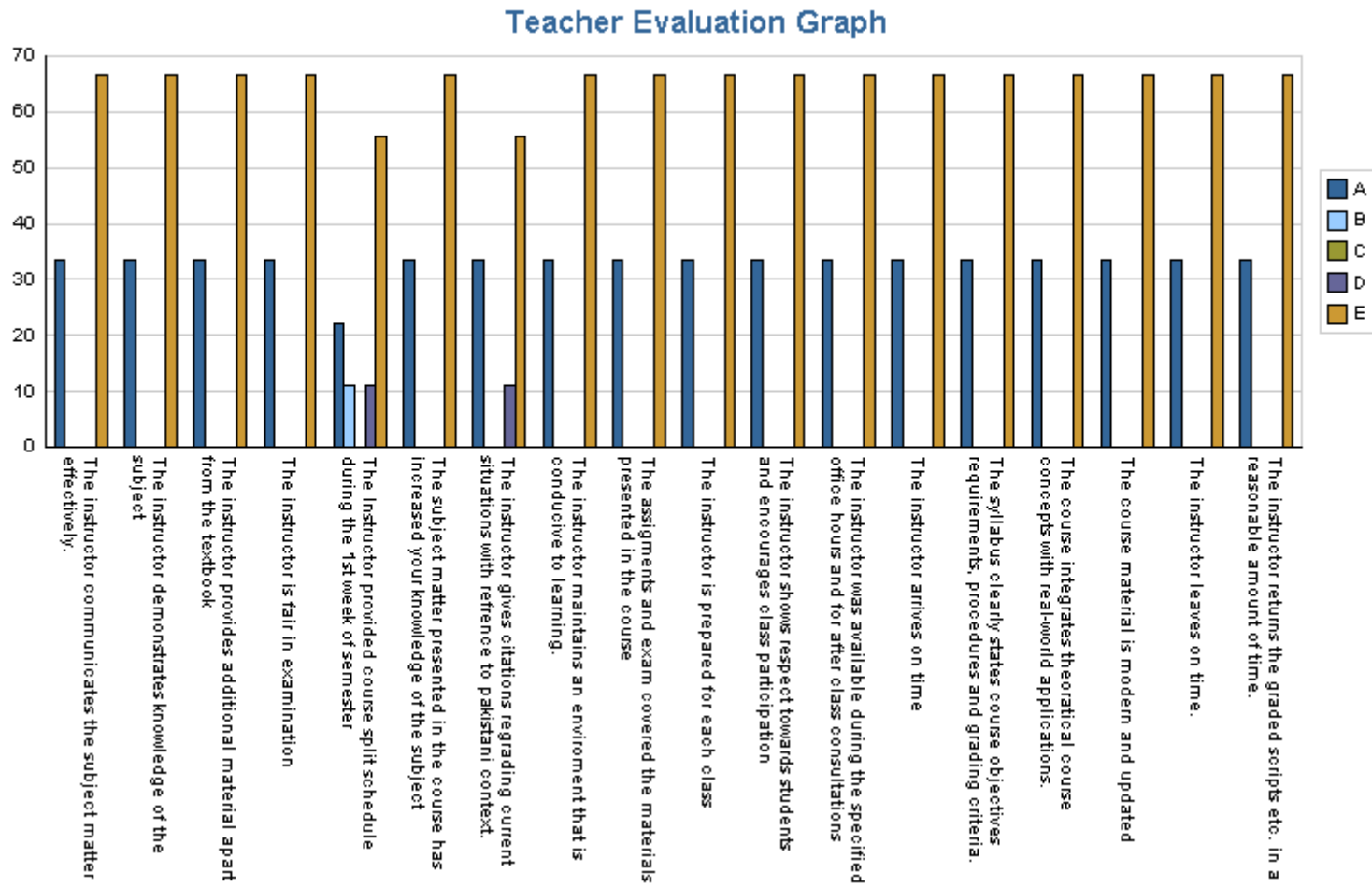
BCH-402. Teacher 2 (M): According to the students, the instructor provided additional material apart to the textbooks and the syllabus clearly states course objectives requirement, procedures and grading criteria.



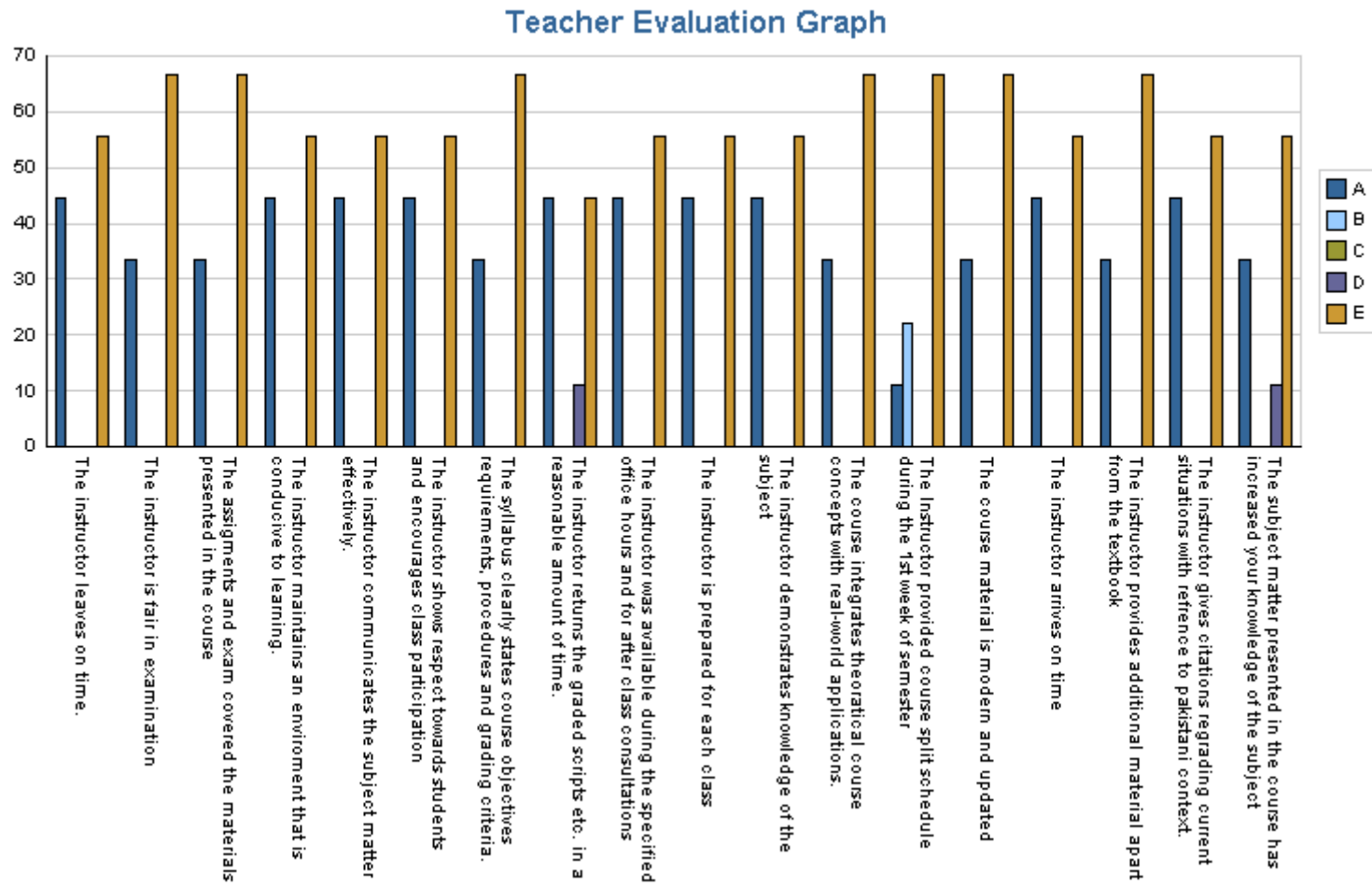
BCH-405. Teacher 3 (M): According to the students, the instructor was well prepared for each class and leaves on time.



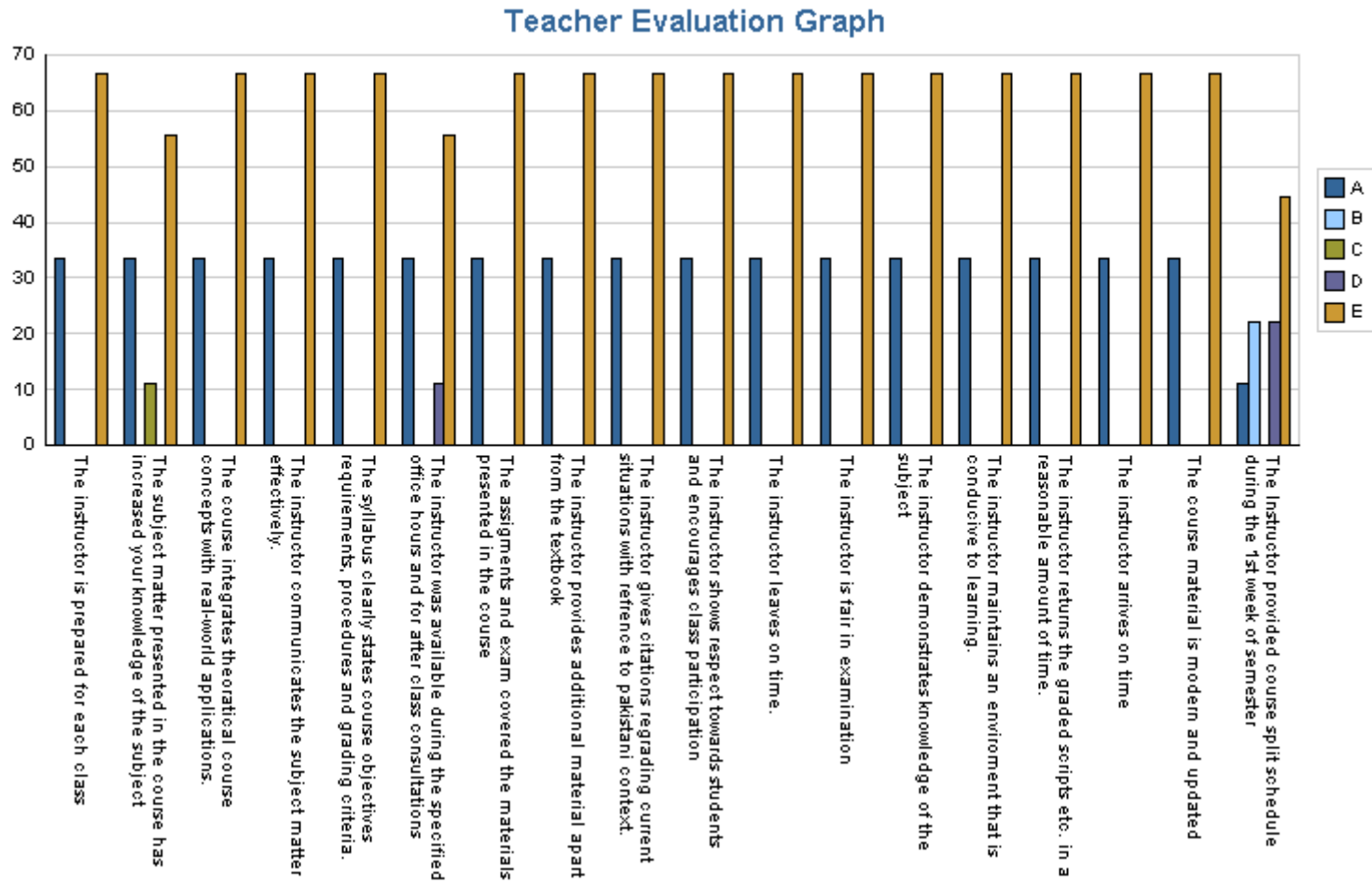
BCH-505. Teacher 3 (M): According to the students, the instructor provided the course split schedule during the 1st week of semester and the subject matter increased has increased the knowledge of students.



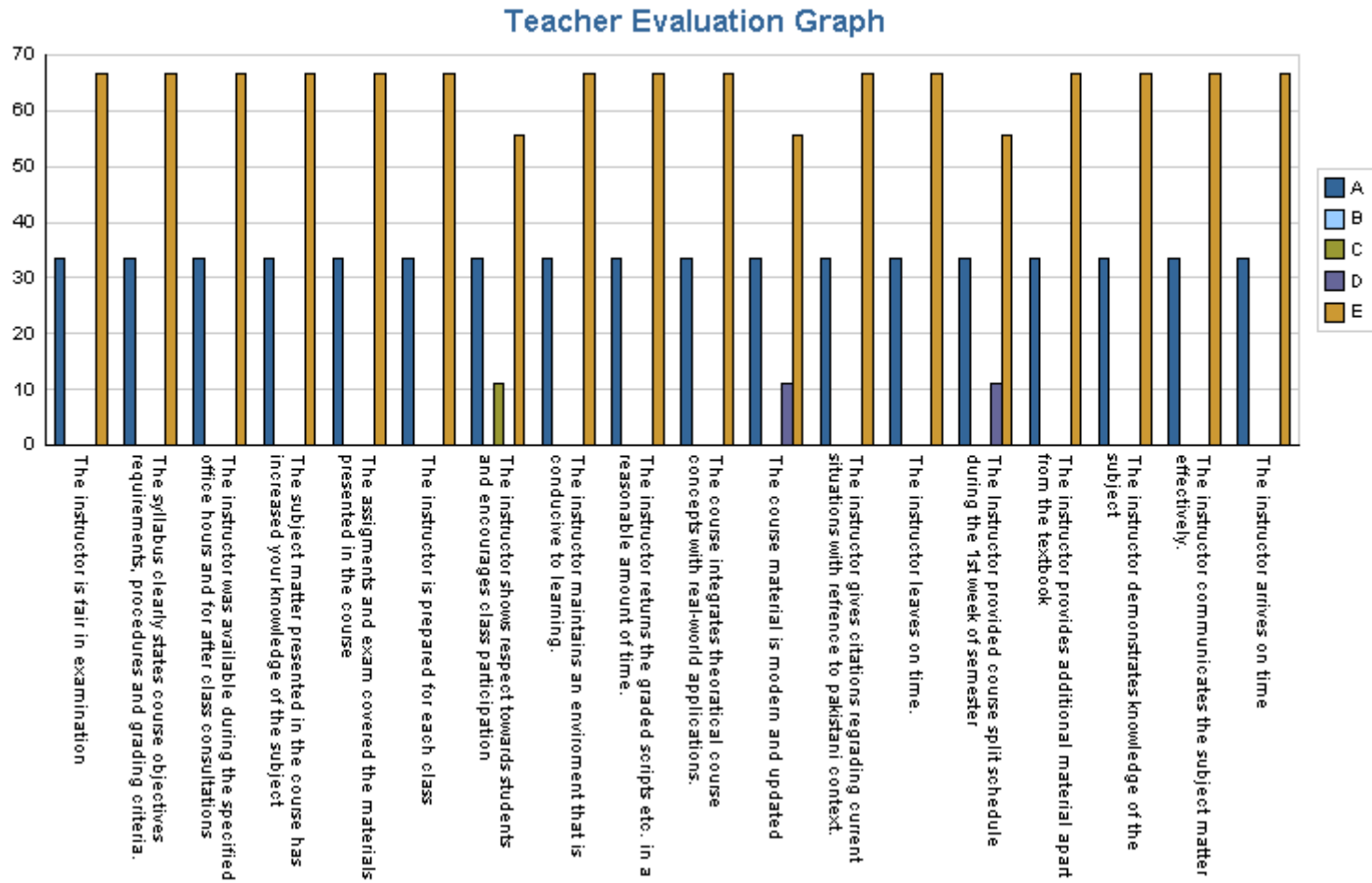
BCH-601. Teacher 4 (M): According to the students, the instructor communicates the subject matter effectively.



BCH-602. Teacher 5 (M): According to the students, the instructor demonstrates the knowledge of the subject.



BCH-602. Teacher 6 (M): According to the students, the instructor was well prepared in the class.

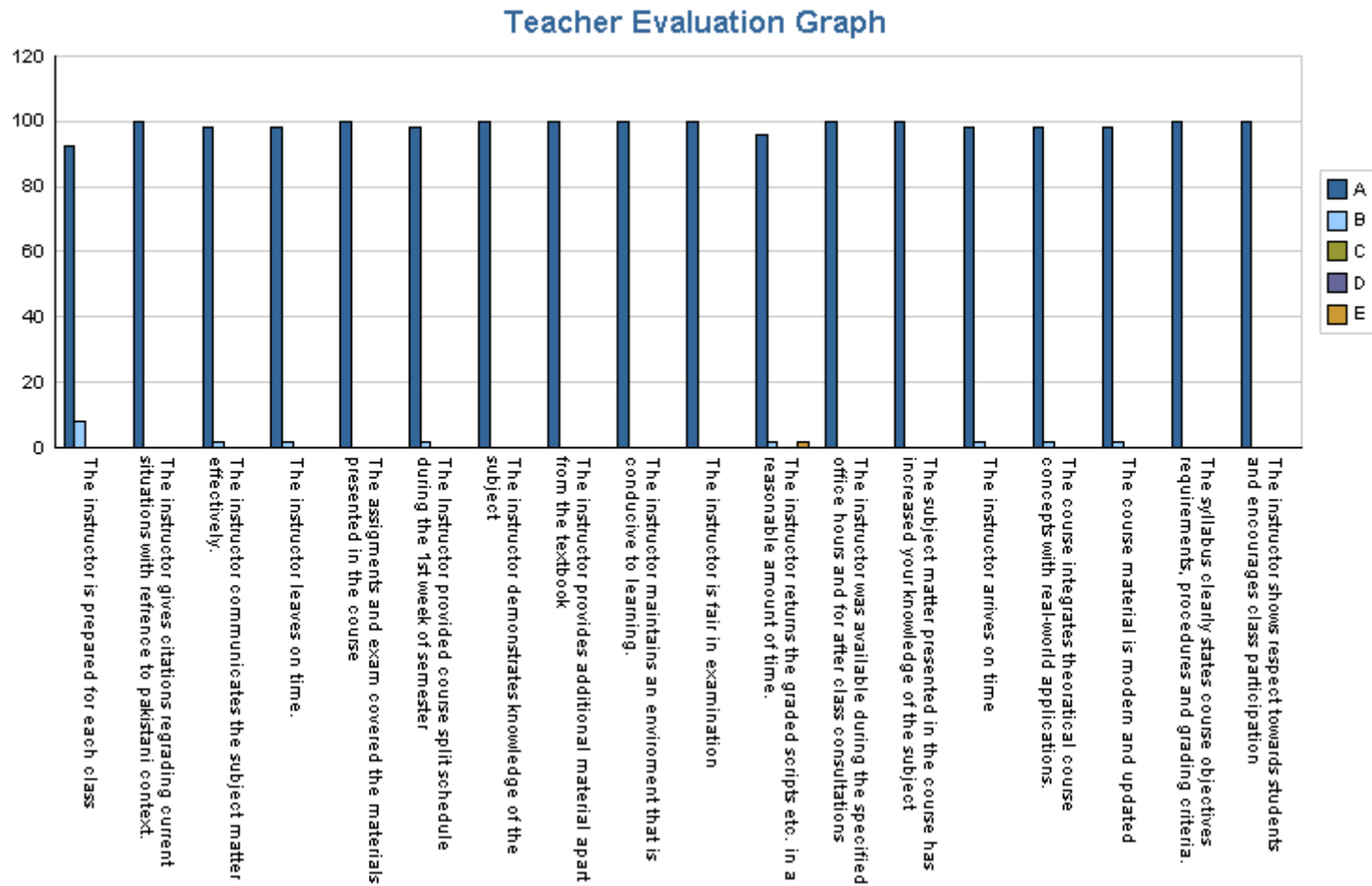


BCH-604. Teacher 2 (M): According to the students, the instructor was well prepared in the class.

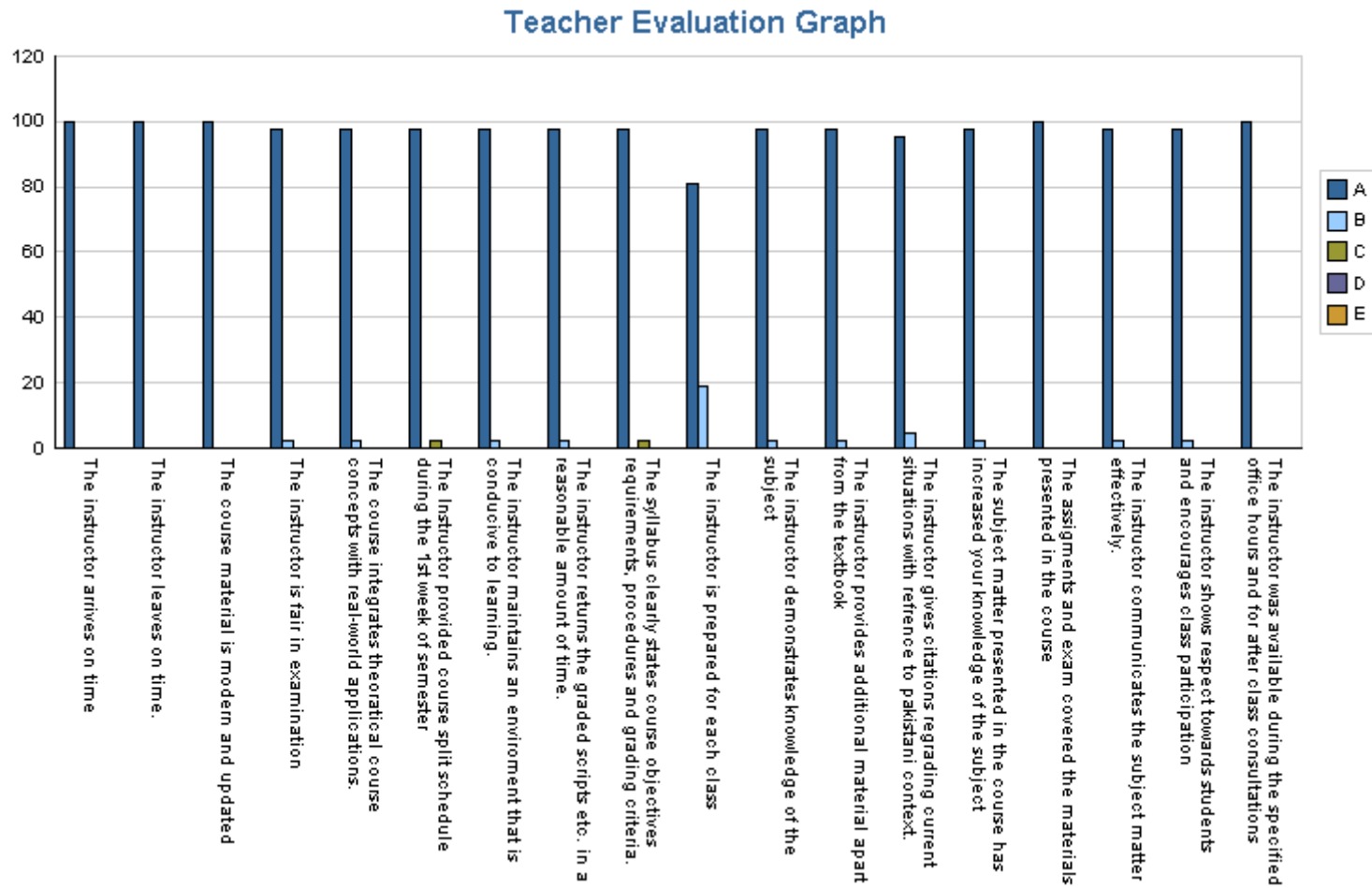
Overall Results of Performa 10 of Teacher 1, 2, 3, 4, 5 and 6

According to the overall results majority of the students pointed out the courses were very well organized to achieve the learning outcomes. The environment of the classes was very conducive for studying. Course objectives were very clear and all the instructors were well prepared in their classes.

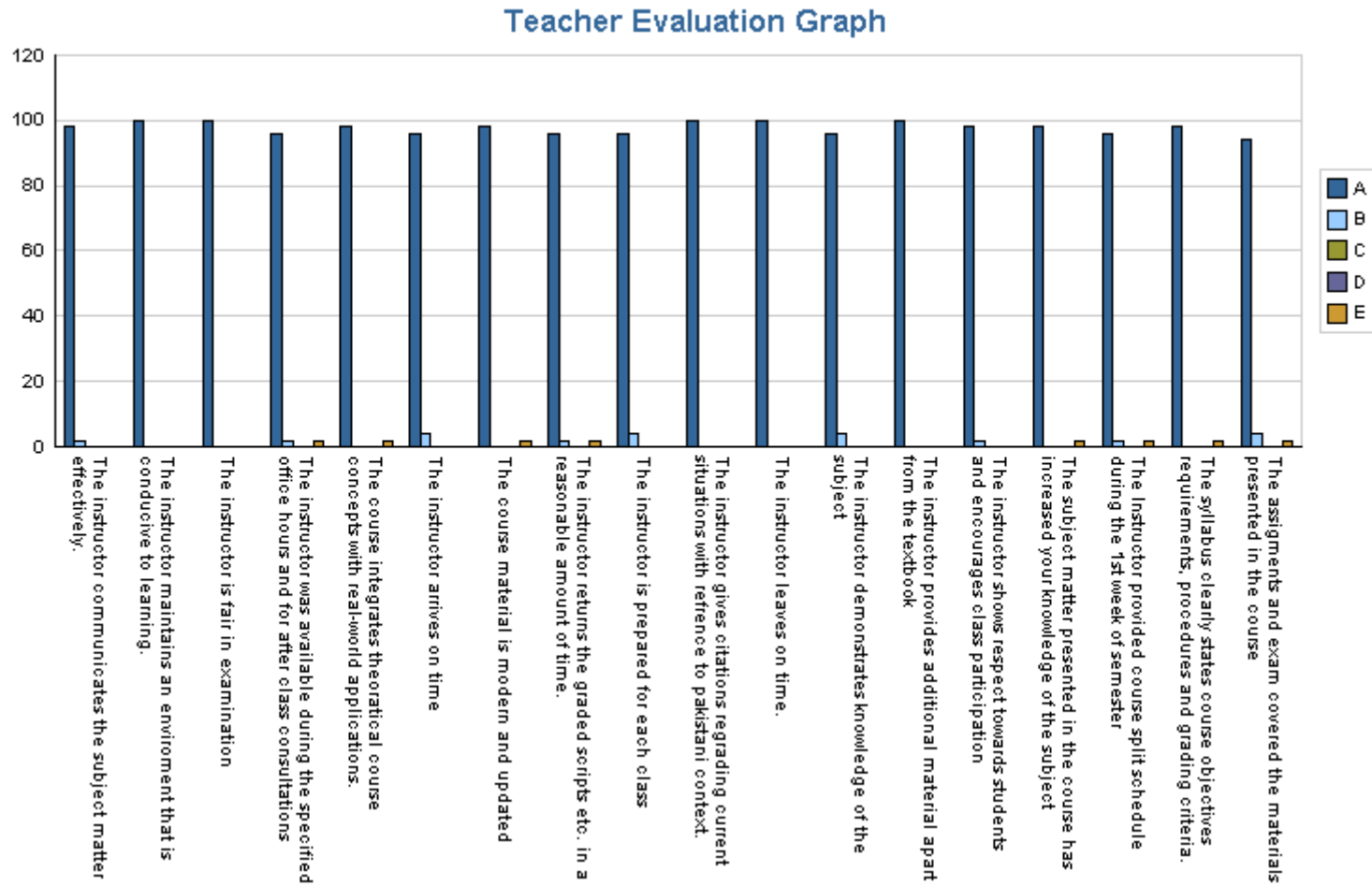
Results of Performa 10 (Fall 2015)



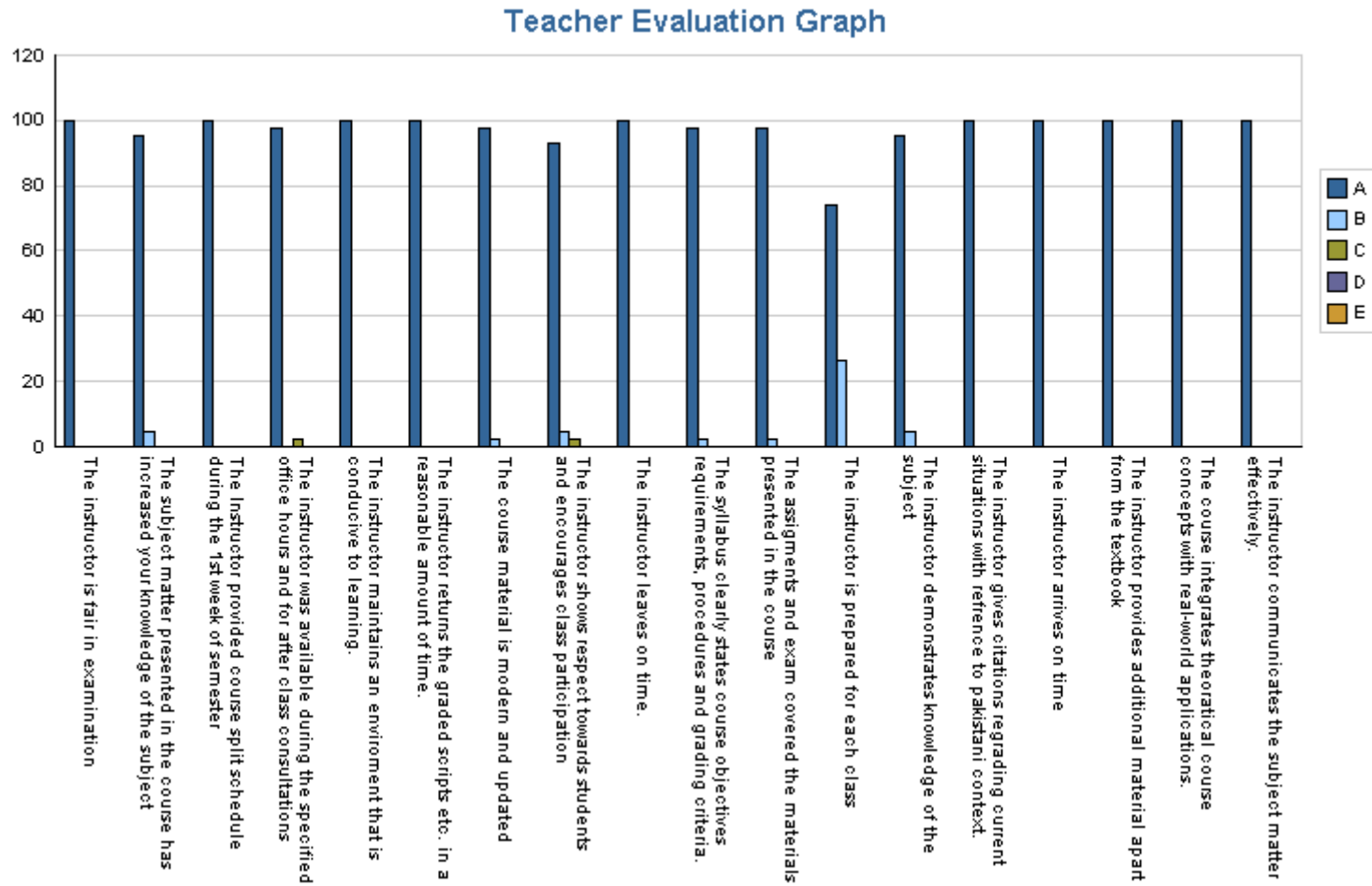
BCH-301. Teacher 1 (E): All students agreed that the instructor demonstrate the knowledge of the subject very well and instructor maintains an environment that was conducive for learning.



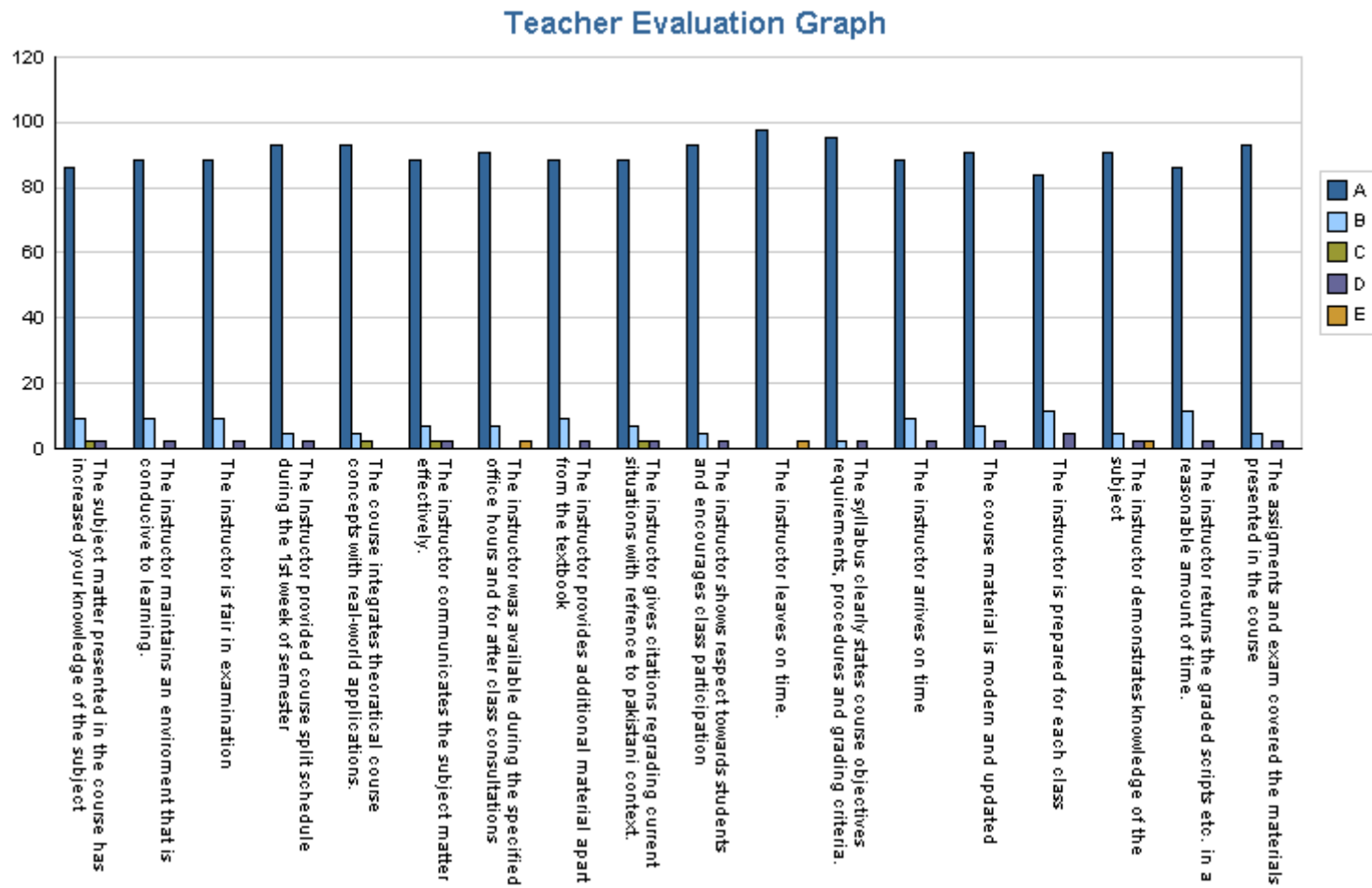
BCH-301. Teacher 1 (M): According to the students the course material was modern, interesting and updated.



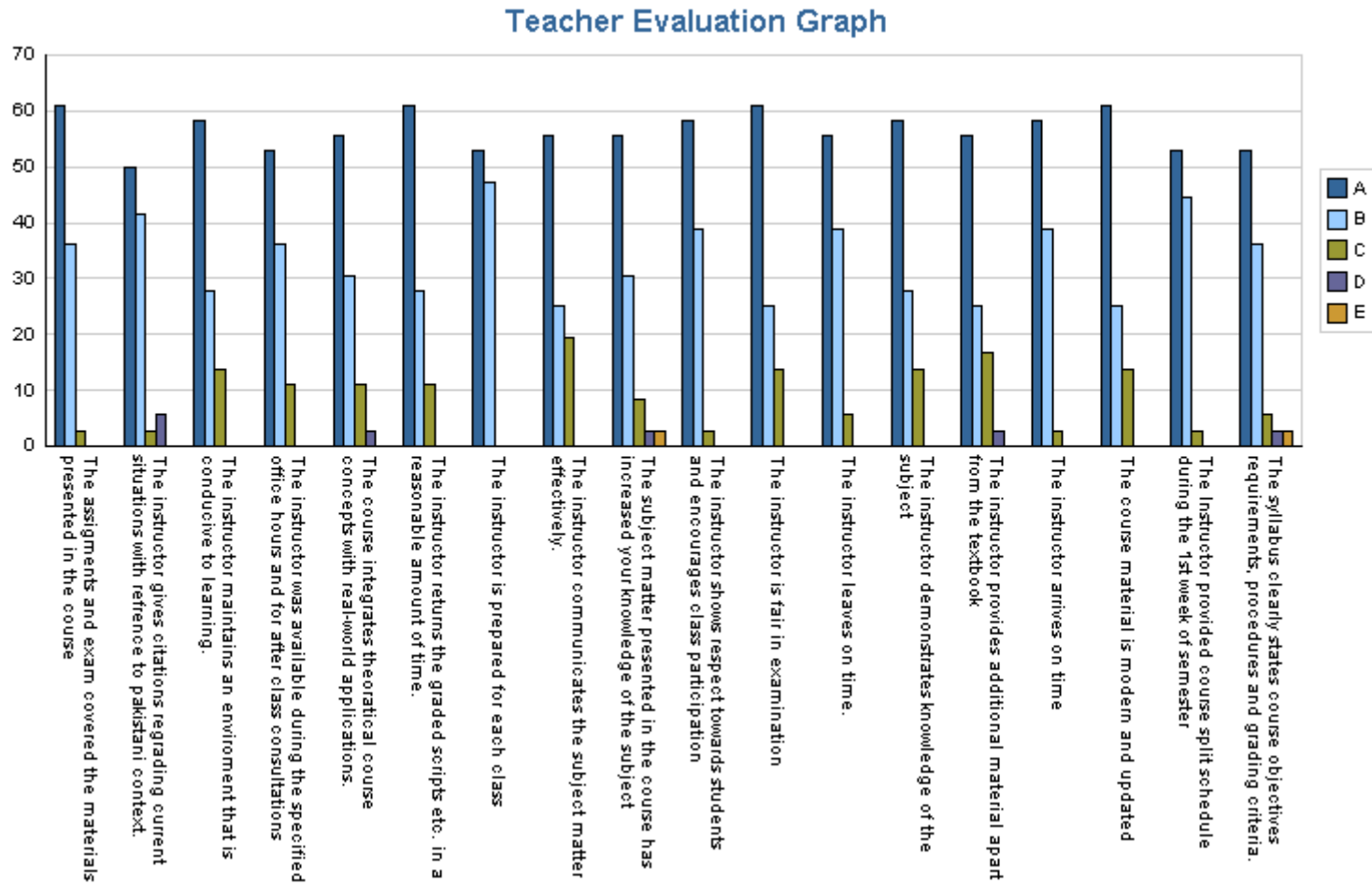
BCH-301. Teacher 3 (E): According to the students the instructor provided the additional material apart from the textbooks.



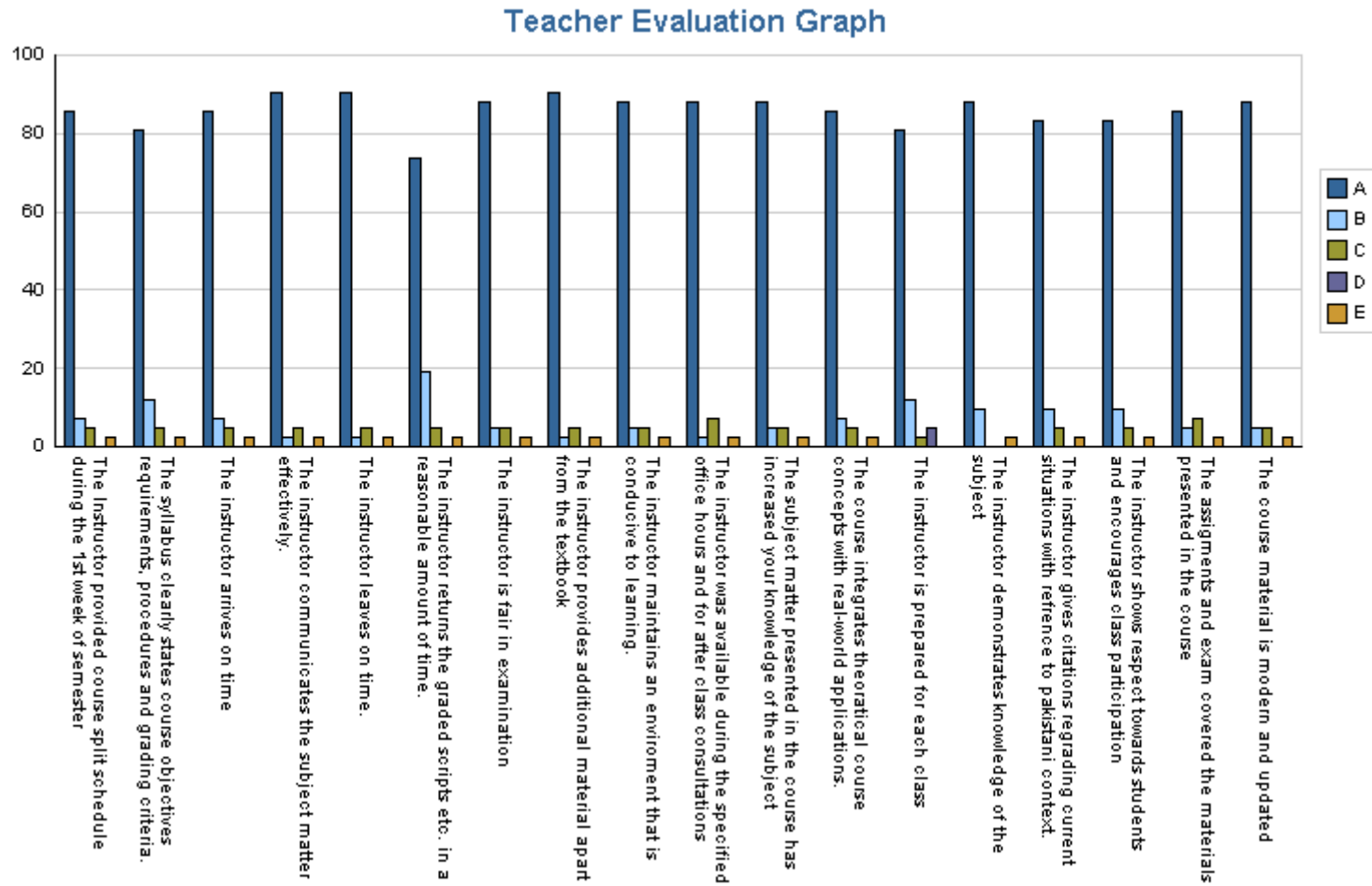
BCH-301. Teacher 3 (M): According to the students the instructor provided the additional material apart from the textbooks and communicated the subject matter effectively.



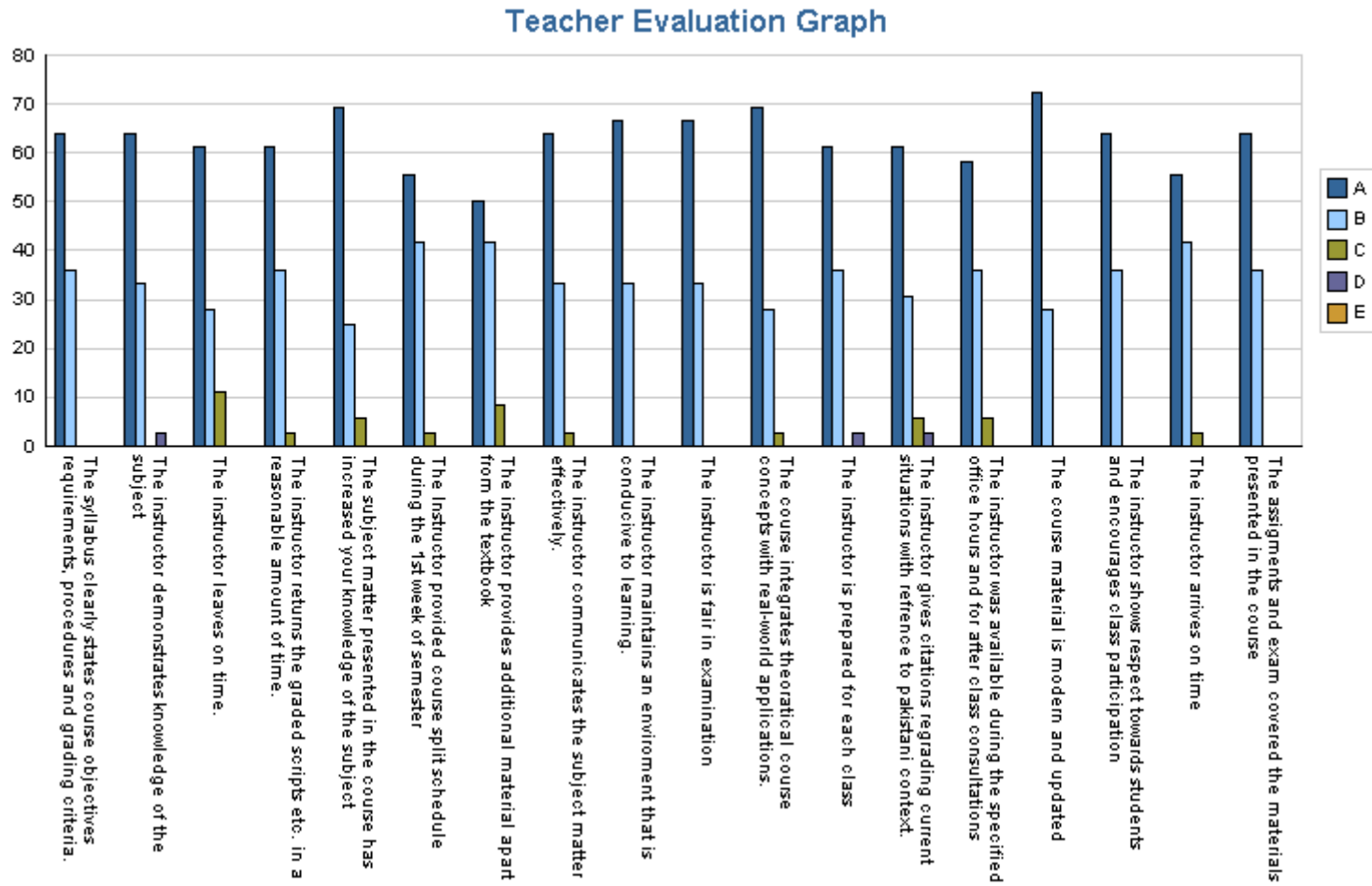
BCH-401. Teacher 7 (M): According to the students the instructor leaves the class on time and syllabus clearly states course objectives, requirement and grading criteria.



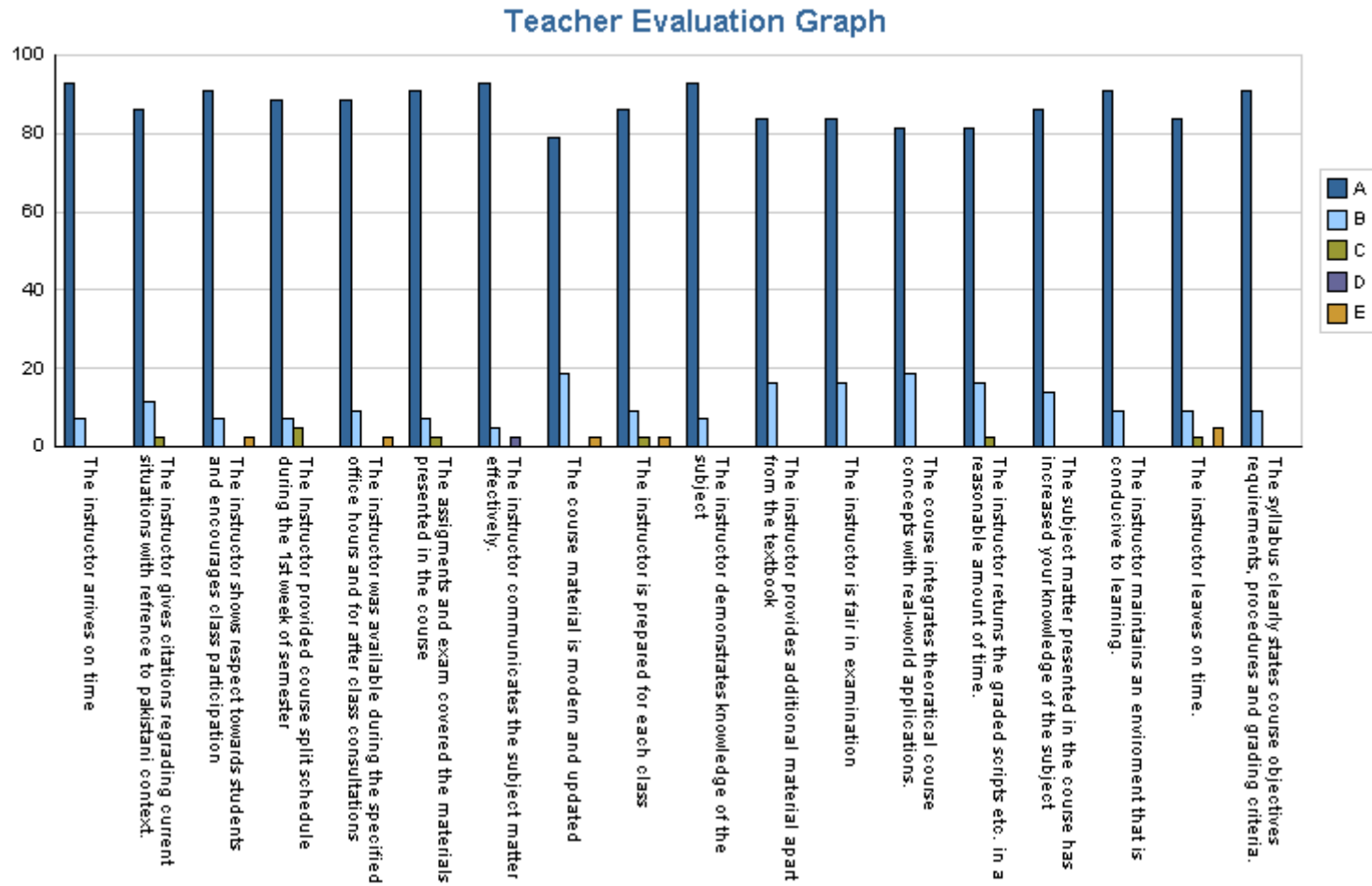
BCH-402. Teacher 2 (E): According to the students the course materials was modern and updated.



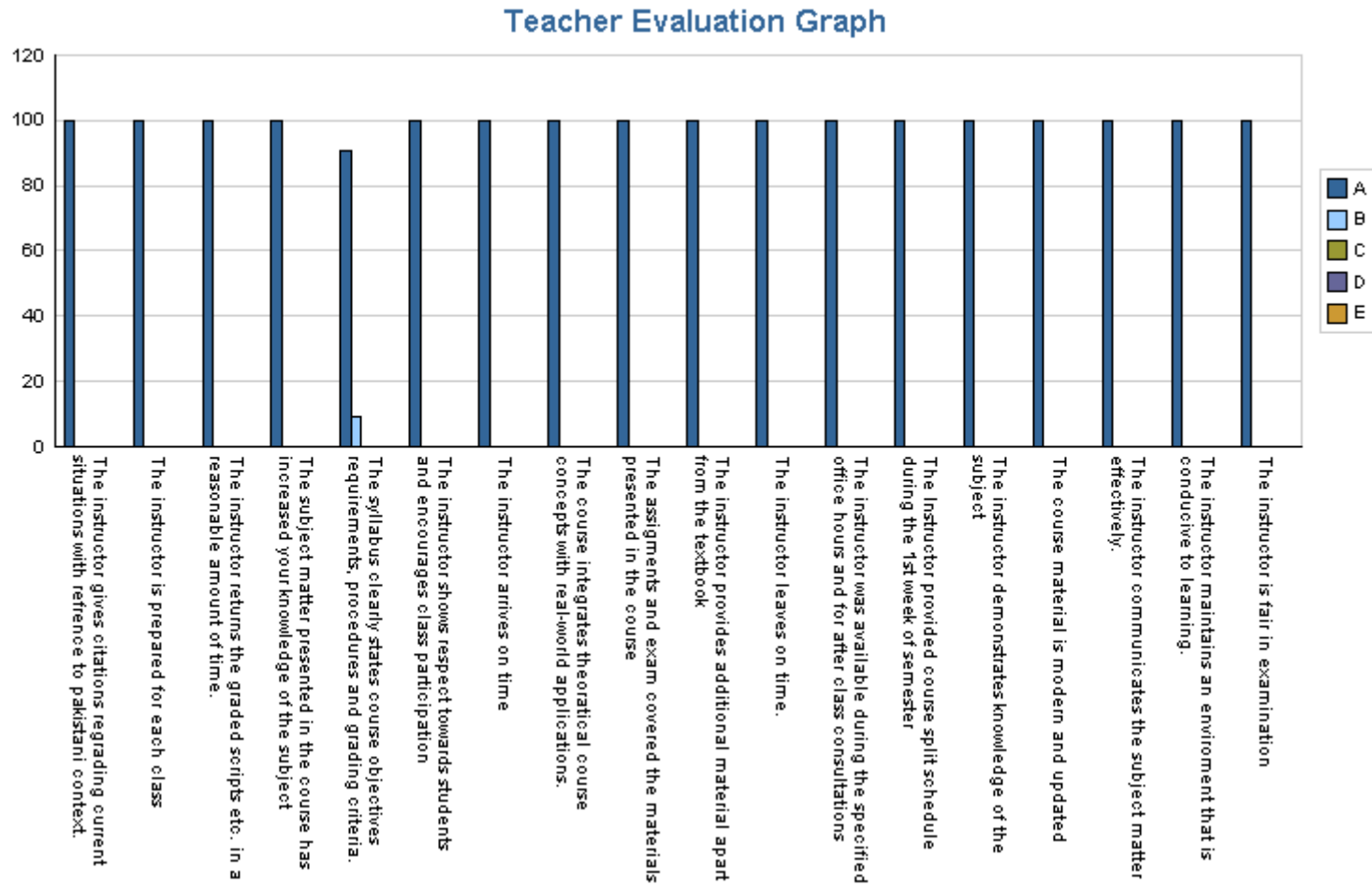
BCH-402. Teacher 2 (M): According to the students the instructor effectively communicated on the subject matters and always leaves on time.



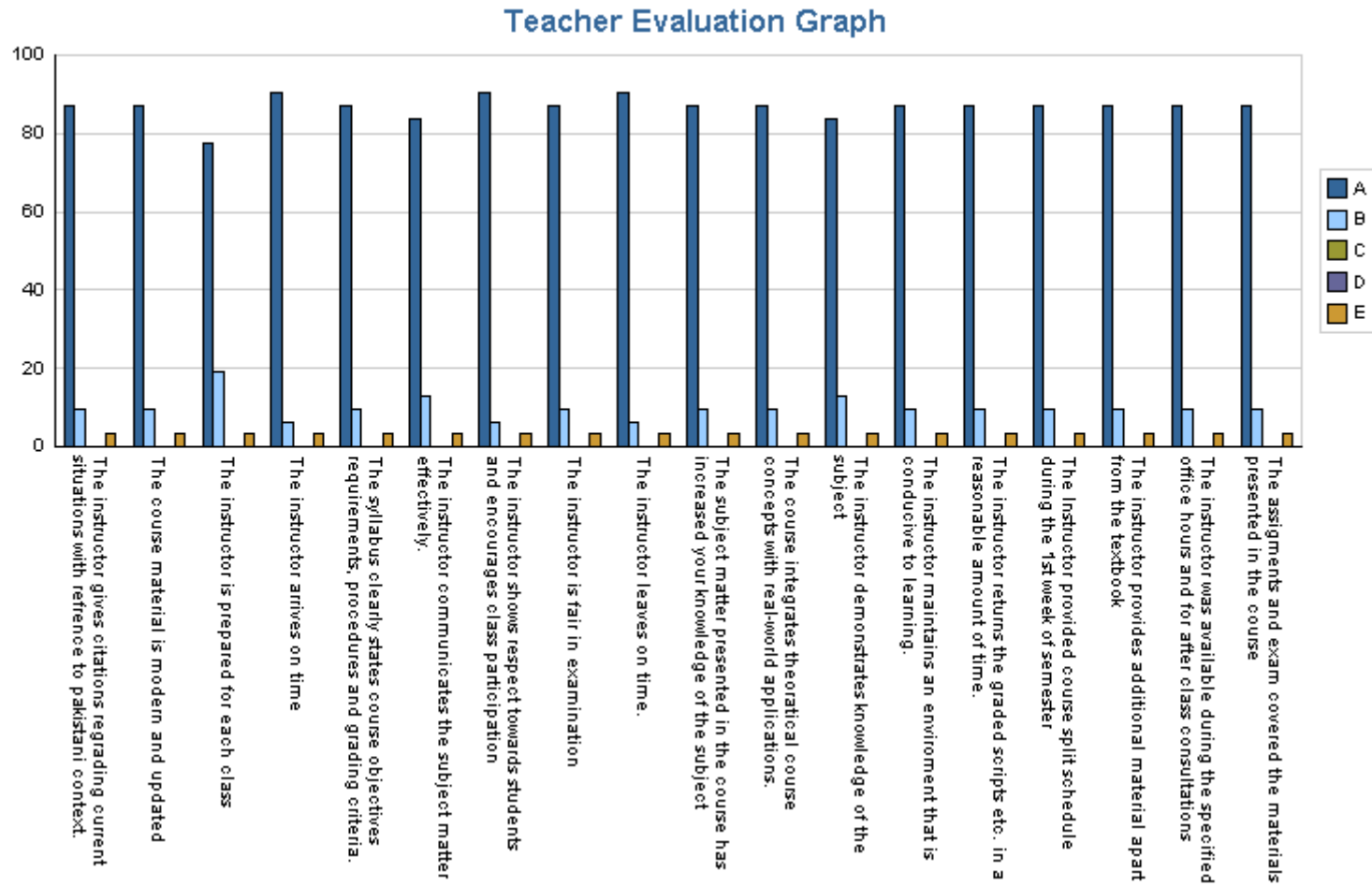
BCH-405. Teacher 3 (E): According to the students the course was modern and updated.



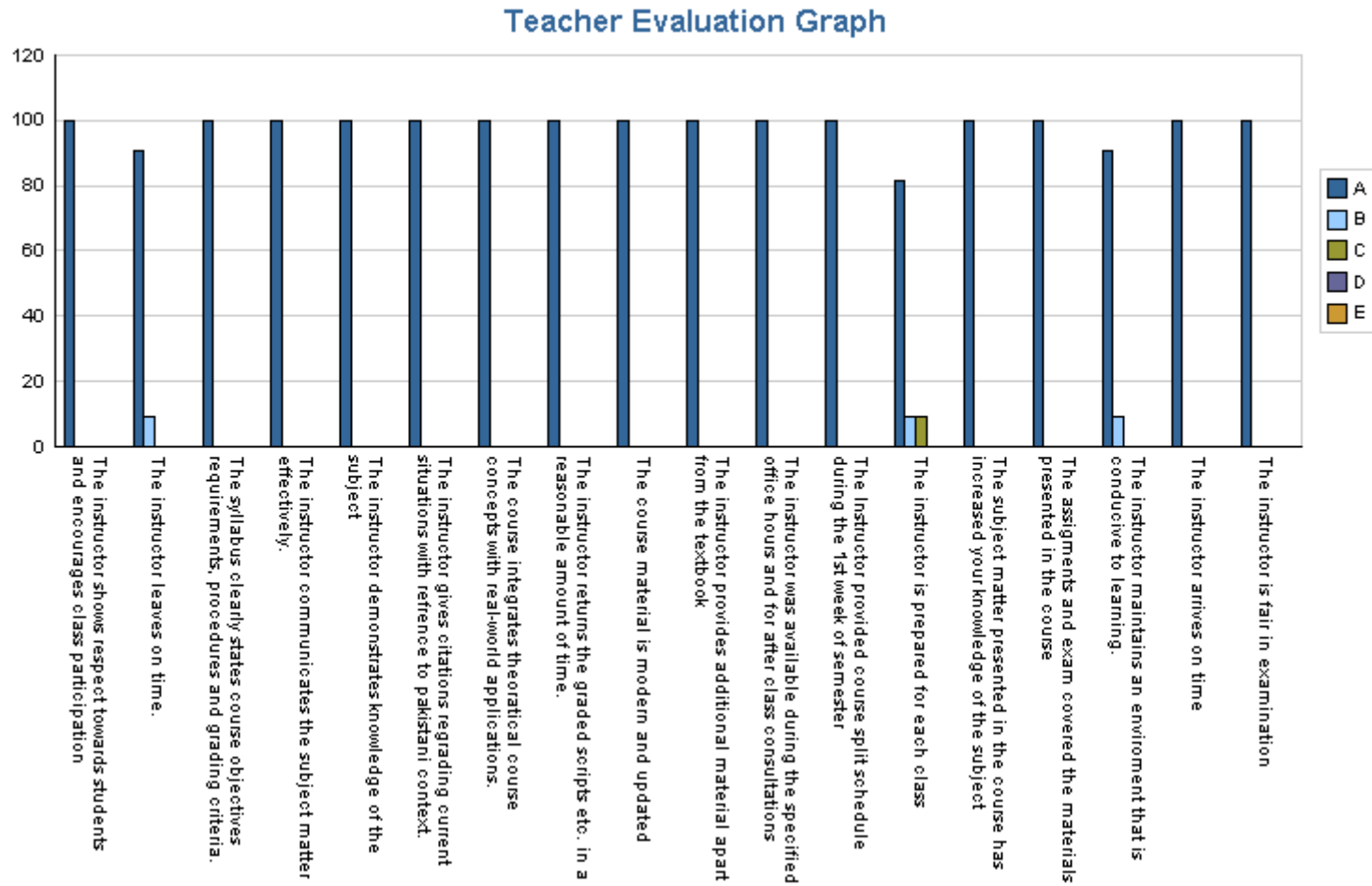
BCH-405. Teacher 3 (M): According to the students the instructor maintained the class environment very conducive for learning.



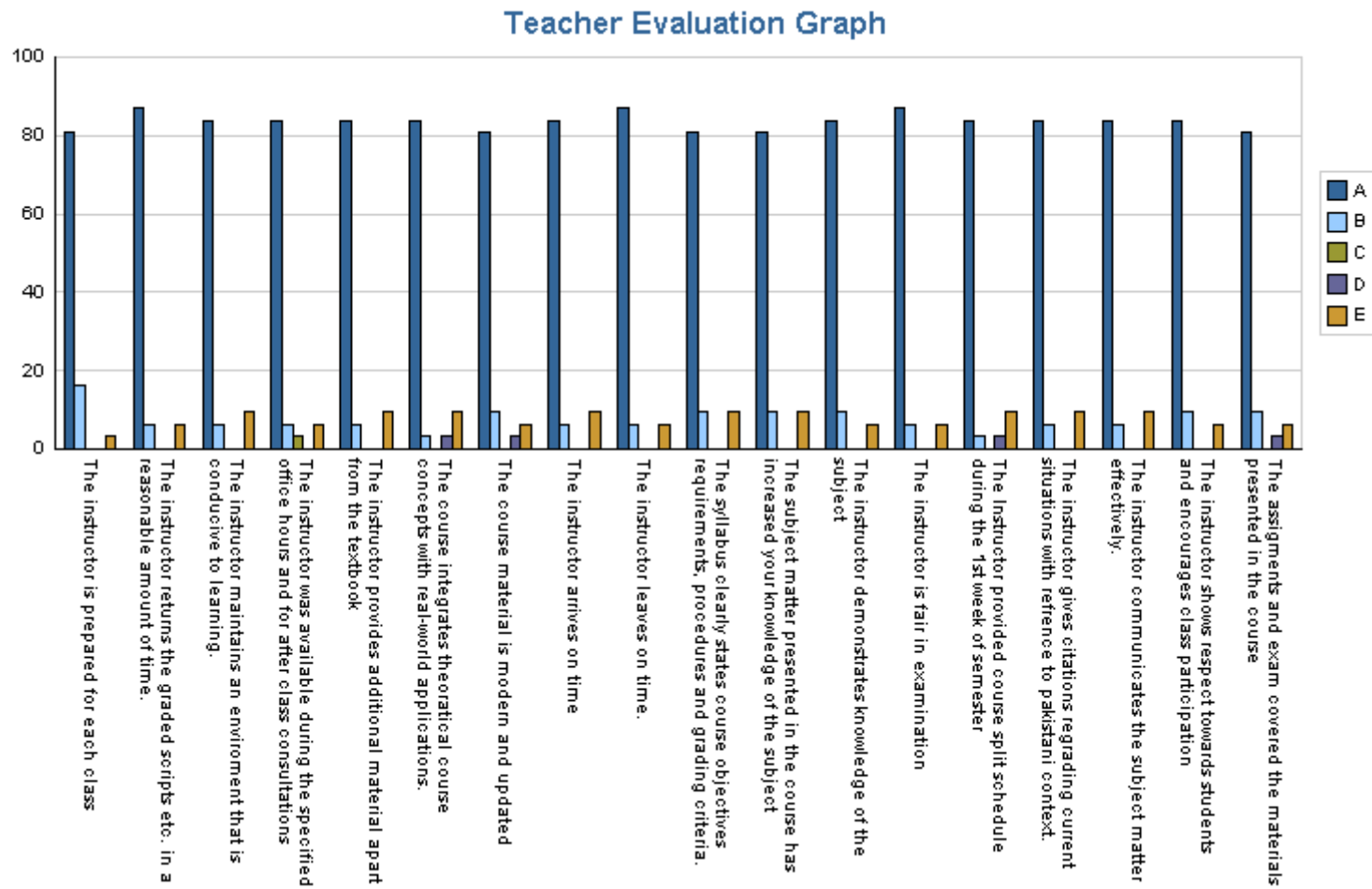
BCH-501. Teacher 8 (E): According to the students the instructor provided the course split schedule during the 1st week of semester and communicated very effectively on the subject matter.



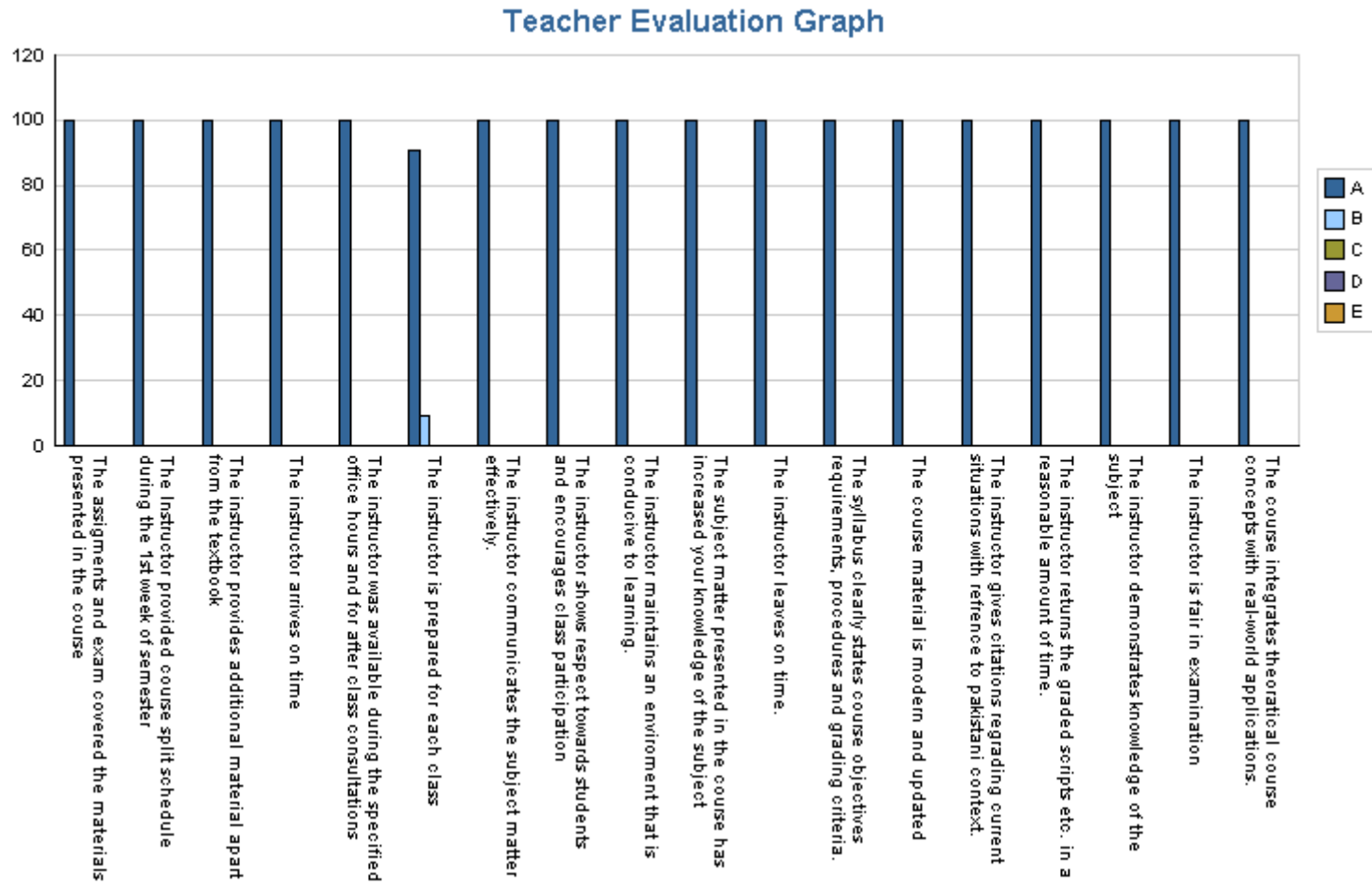
BCH-501. Teacher 8 (M): According to the students the instructor showed respect towards students and encourage class participation.



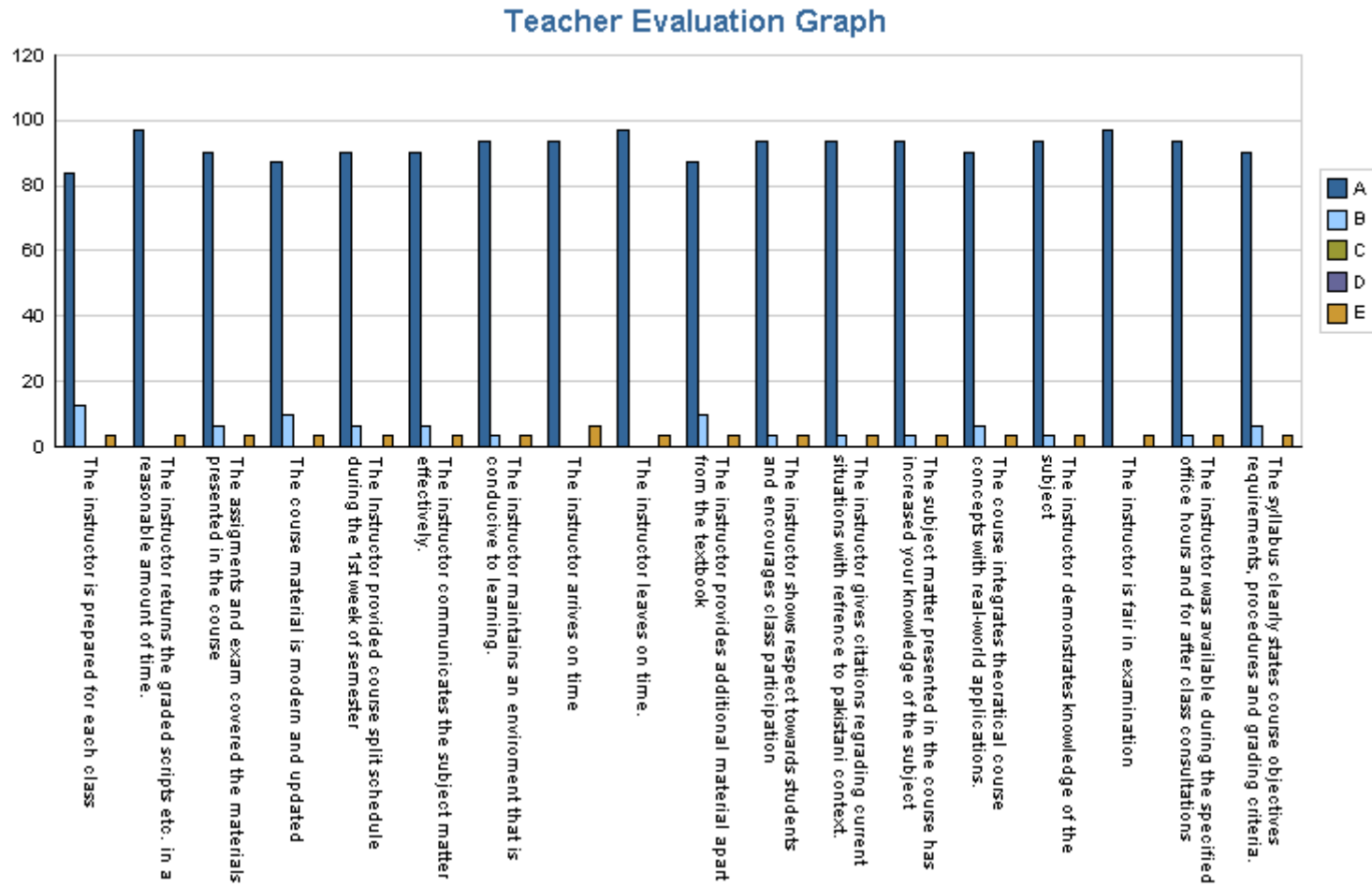
BCH-502. Teacher 5 (E): According to the students the syllabus clearly states course objectives, requirement, procedures and grading criteria.



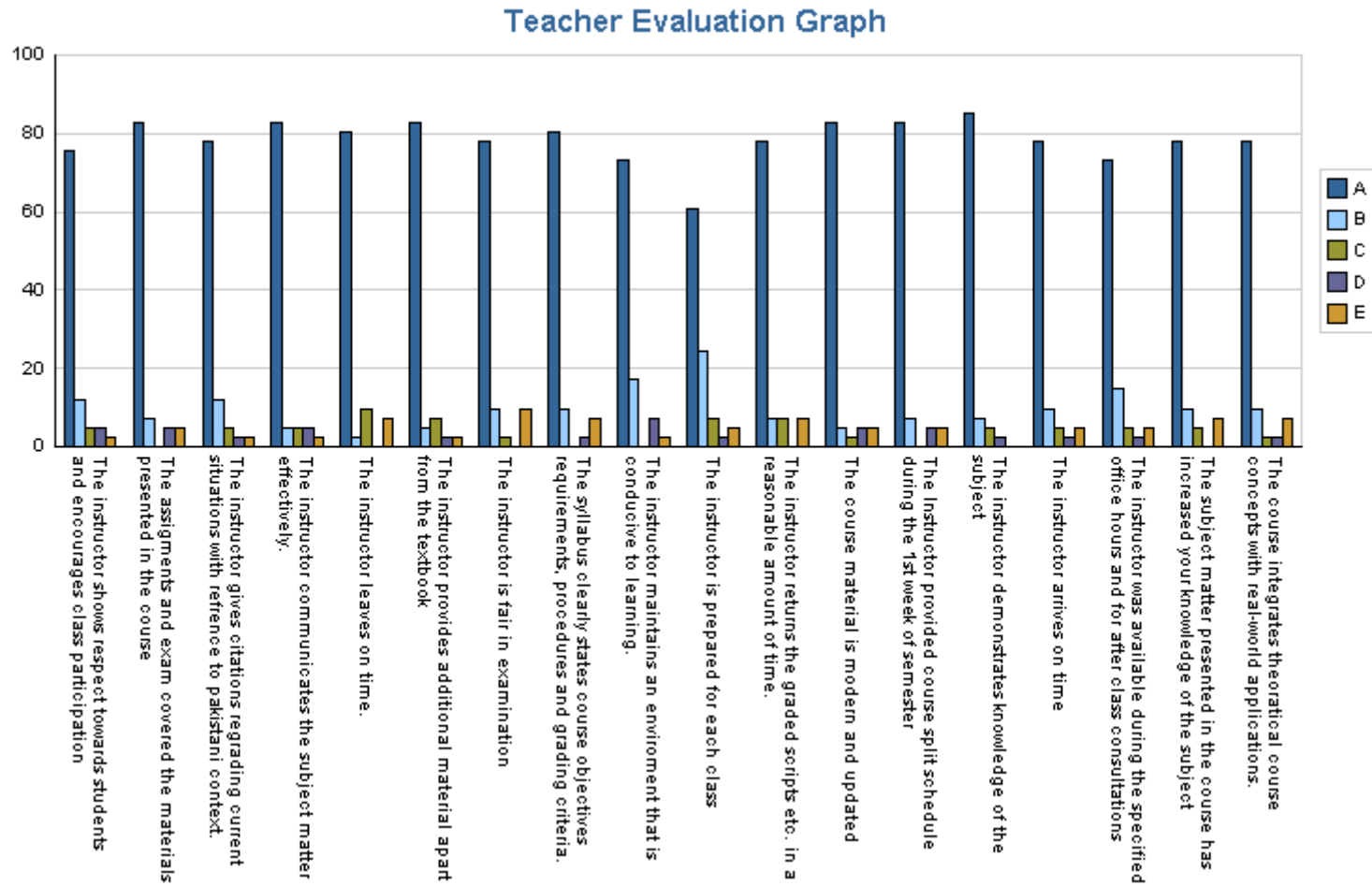
BCH-502. Teacher 5 (M): According to the students the instructor leaves on time.



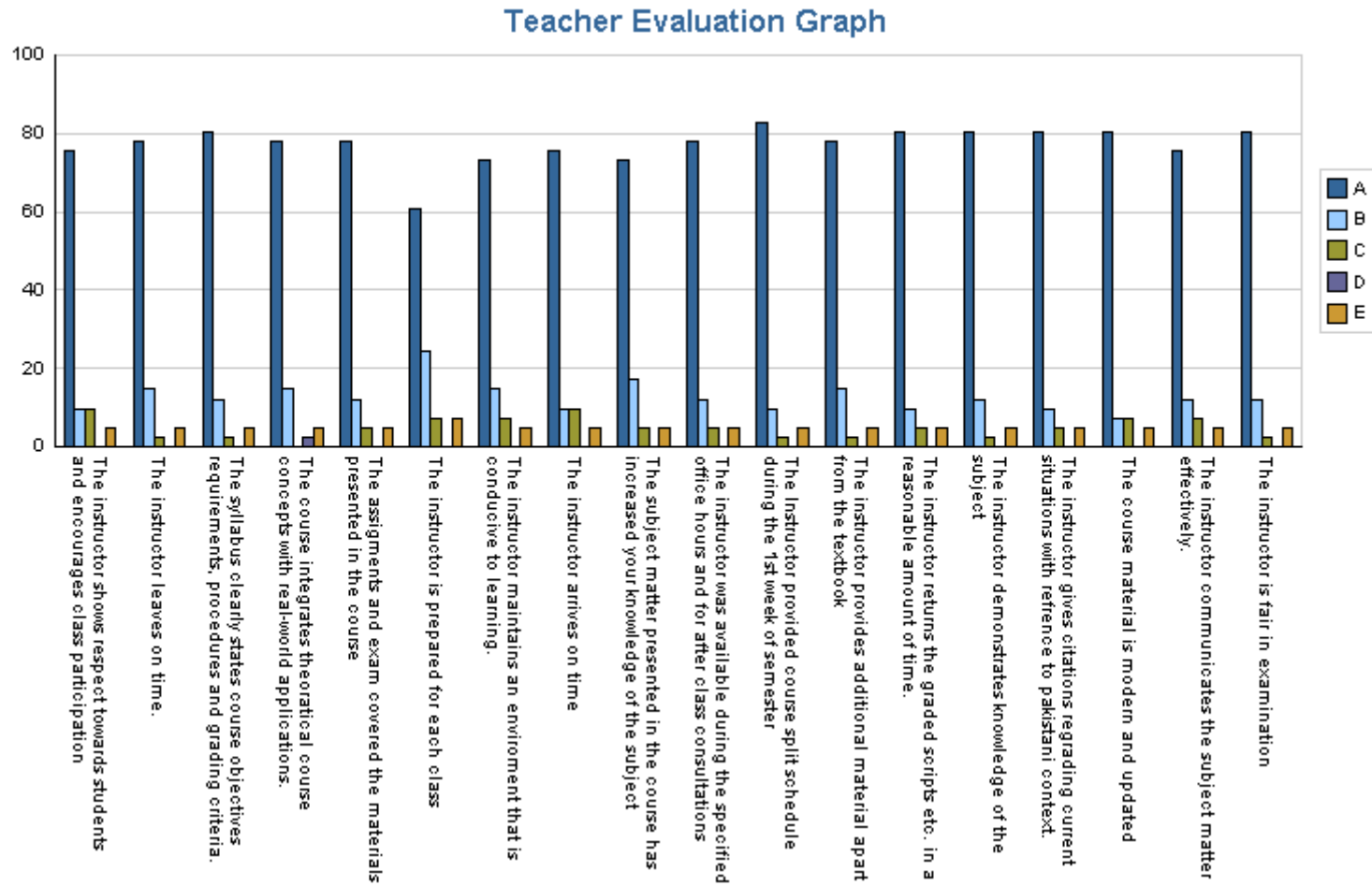
BCH-505. Teacher 3 (E): According to the students the instructor effectively communicated on the subject matters.



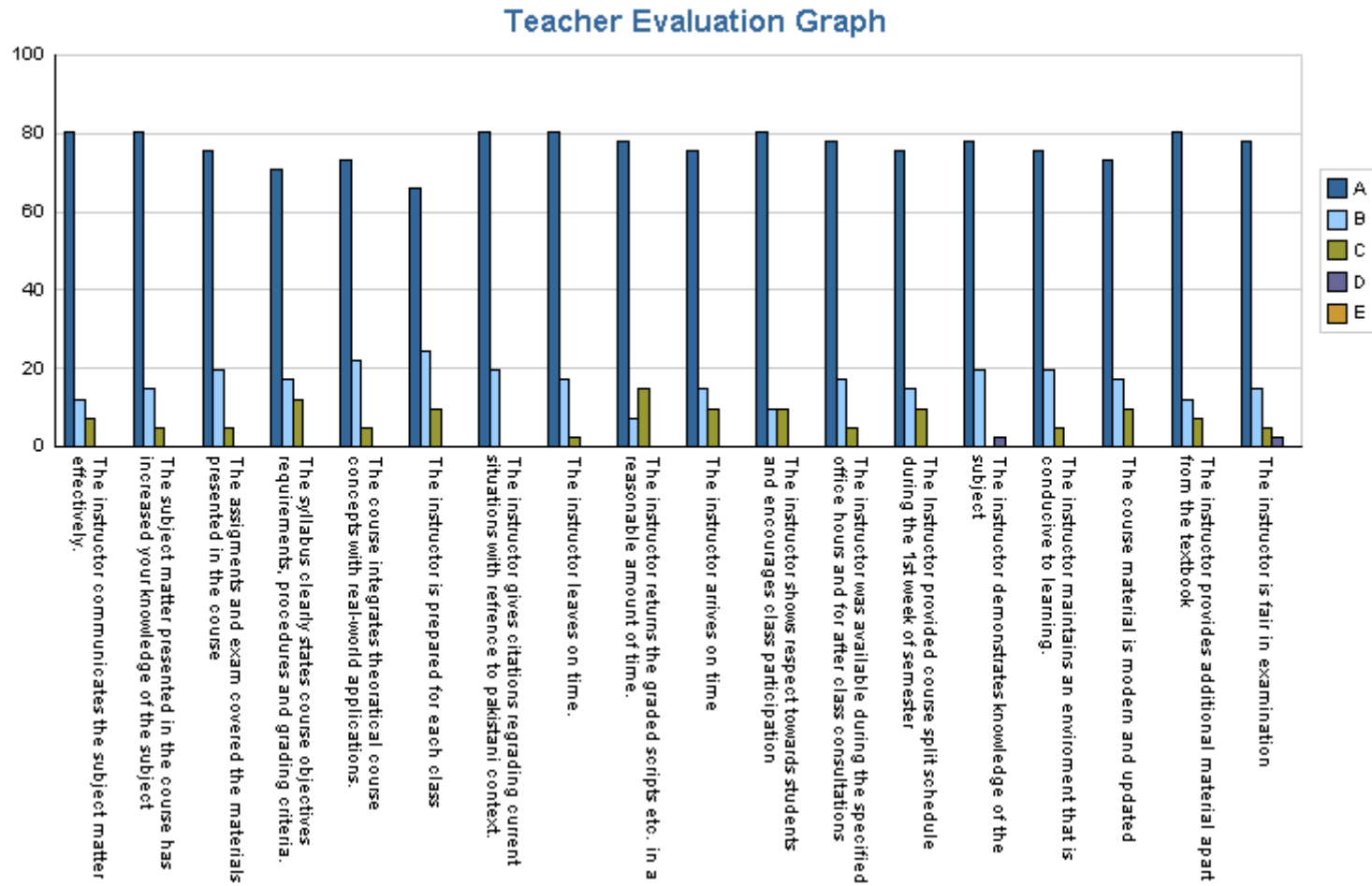
BCH-505. Teacher 3 (M): According to the students the instructor was fair in the examination.



BCH-601. Teacher 2 (M): According to the students the instructor fully demonstrated on the knowledge of the subject.



BCH-604. Teacher 2 (M): According to the students the instructor provided the course split schedule during the 1st week of semester.

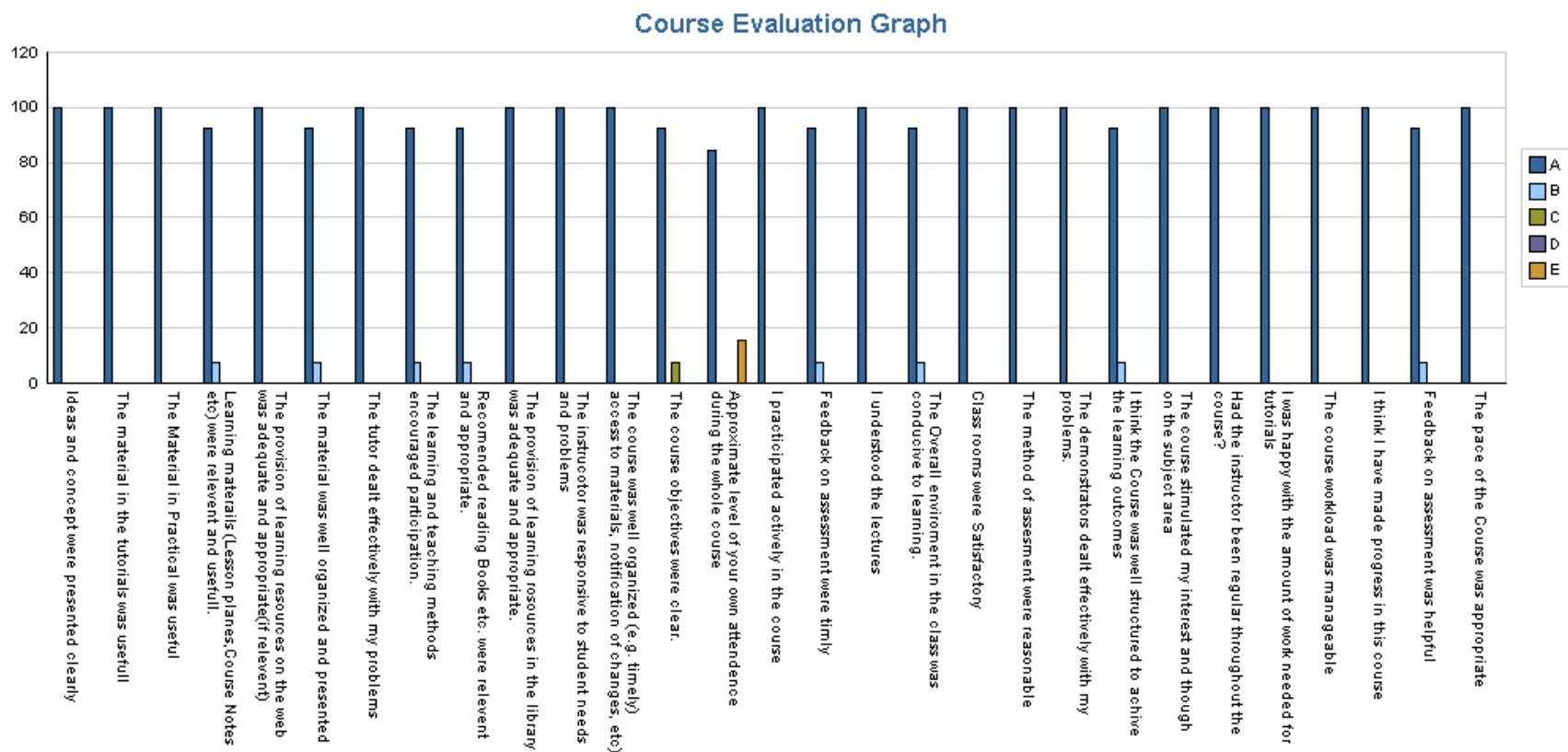


BCH-609. Teacher 7 (M): According to the students the instructor encourages the class participation and provided additional materials apart from the textbooks.

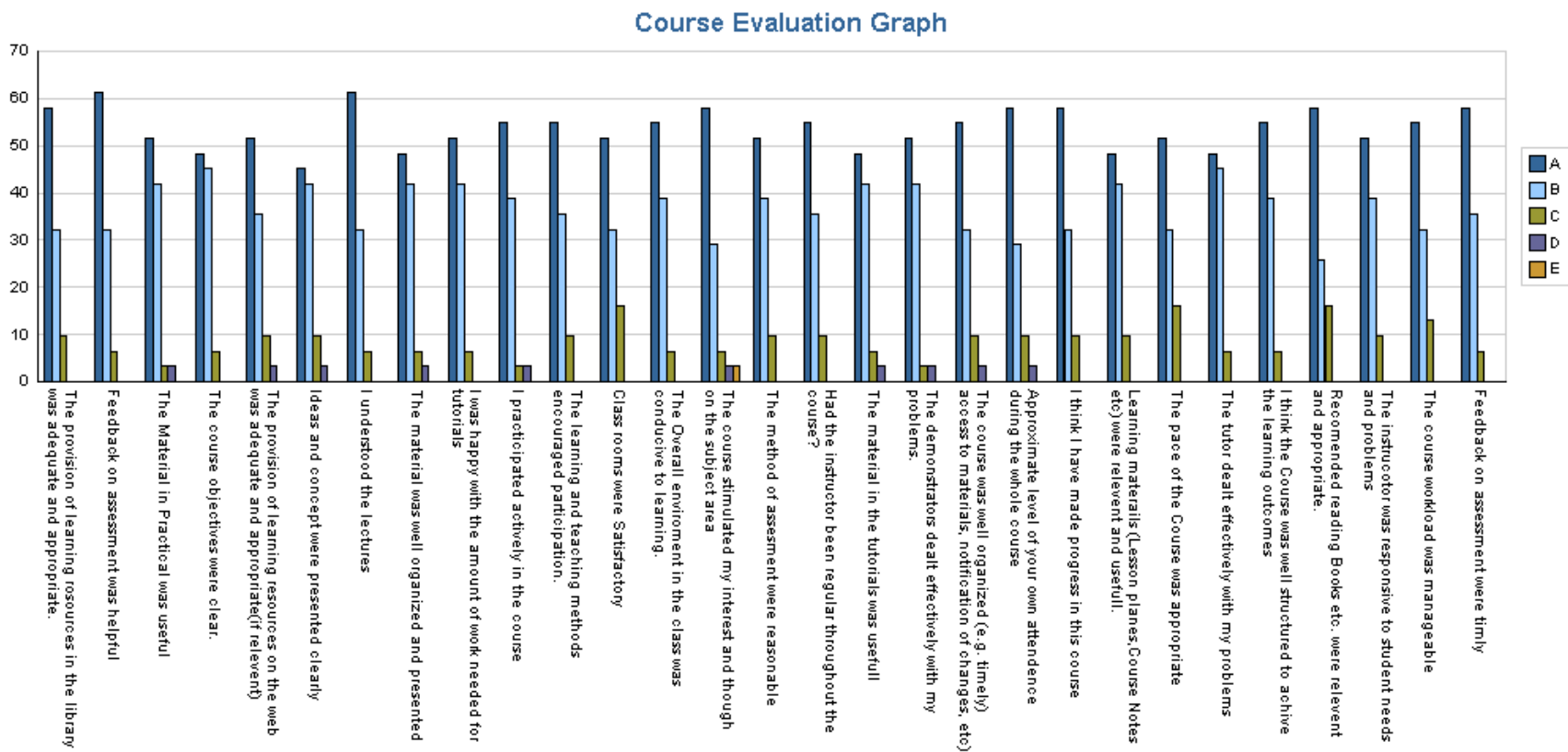
Overall Results of Performa 10 (Fall 2015)

Most of the students agreed that instructors provided course split schedule during the 1st week of semester and maintained the class environment very conducive for learning. All the instructors also demonstrated the knowledge of the subjects very well.

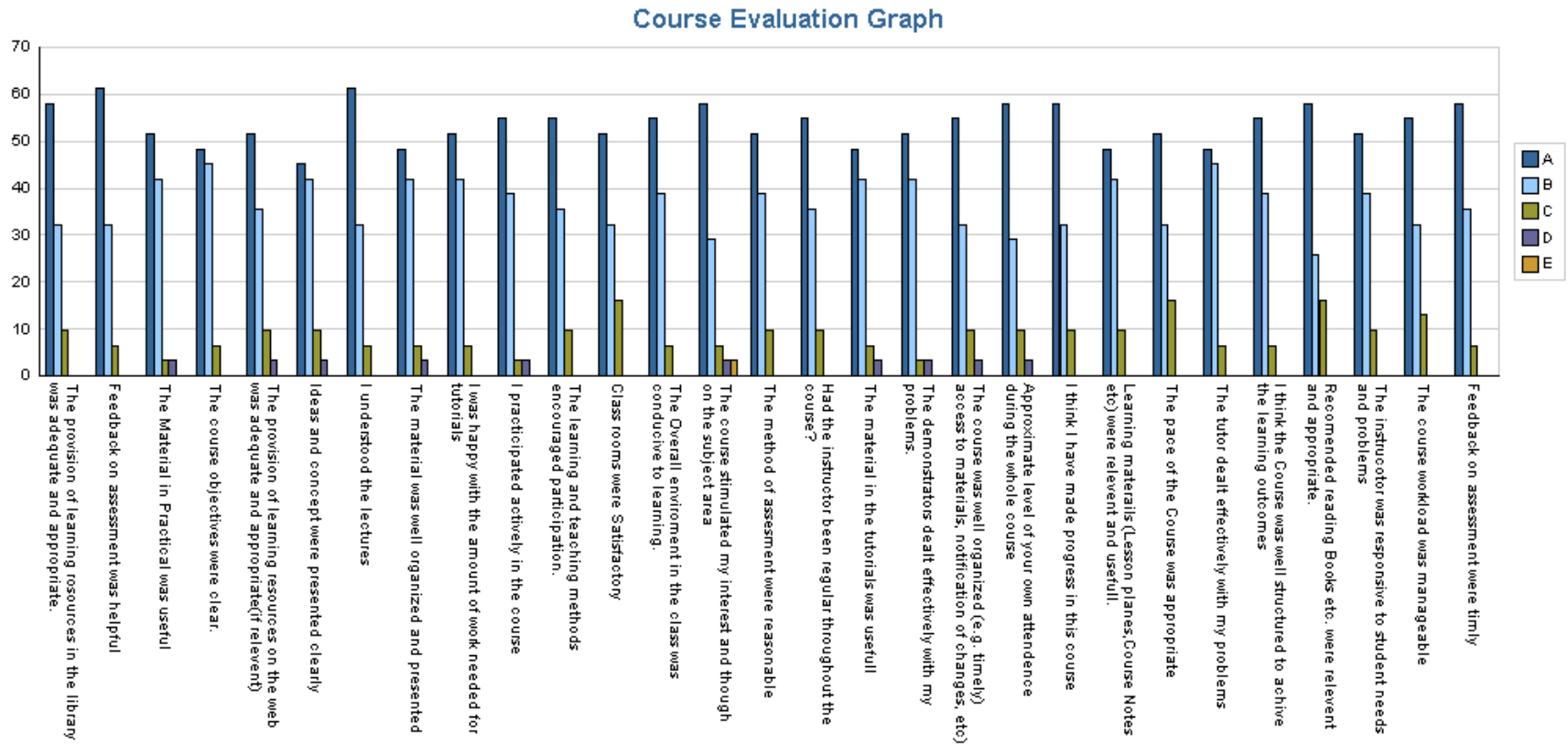
Results of Performa 1 (Spring 2015)



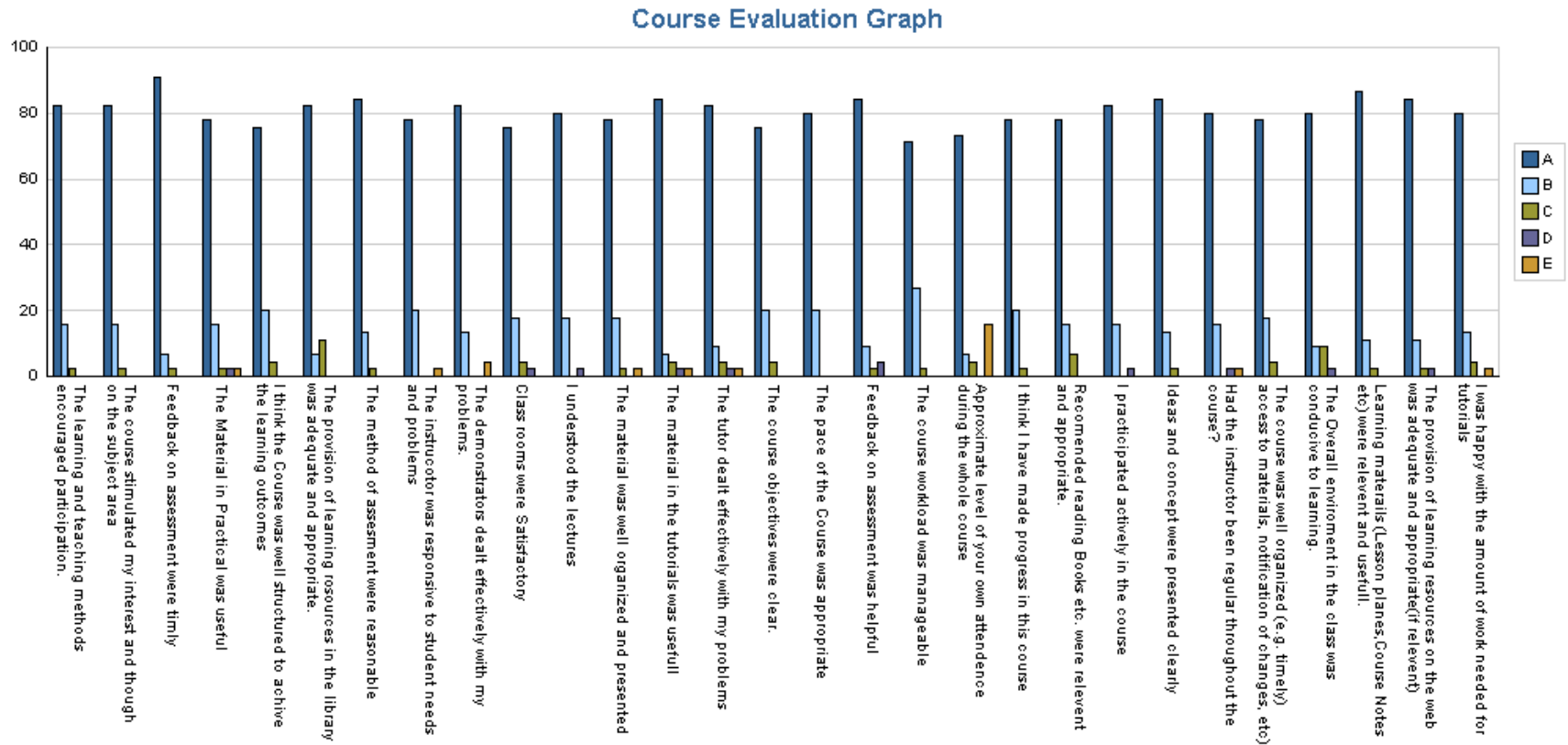
BCH-102. Teacher 7 (M): According to the students the instructor dealt effectively with the problems of the students.



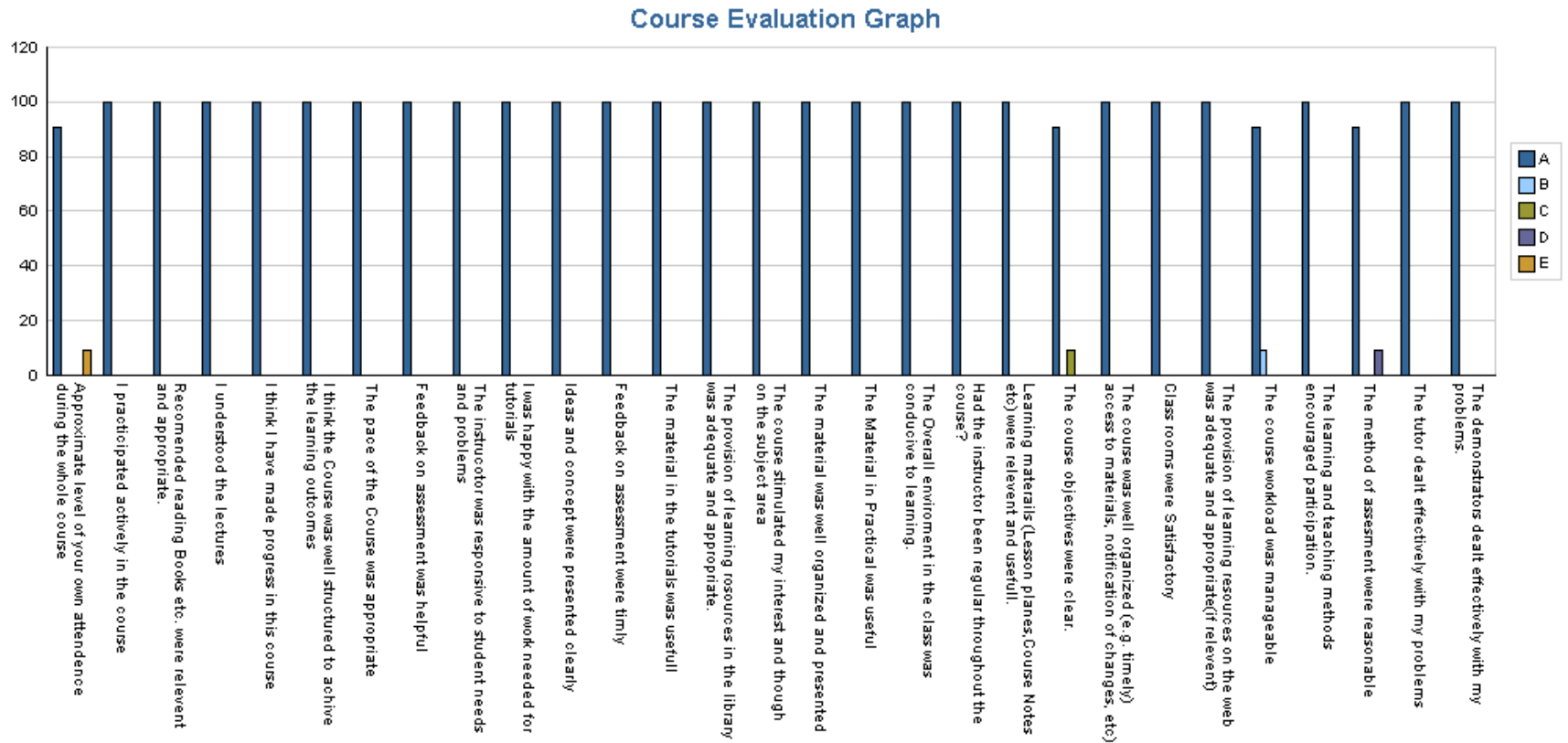
BCH-102. Teacher 7 (E): According to the students the course objectives were very clear.



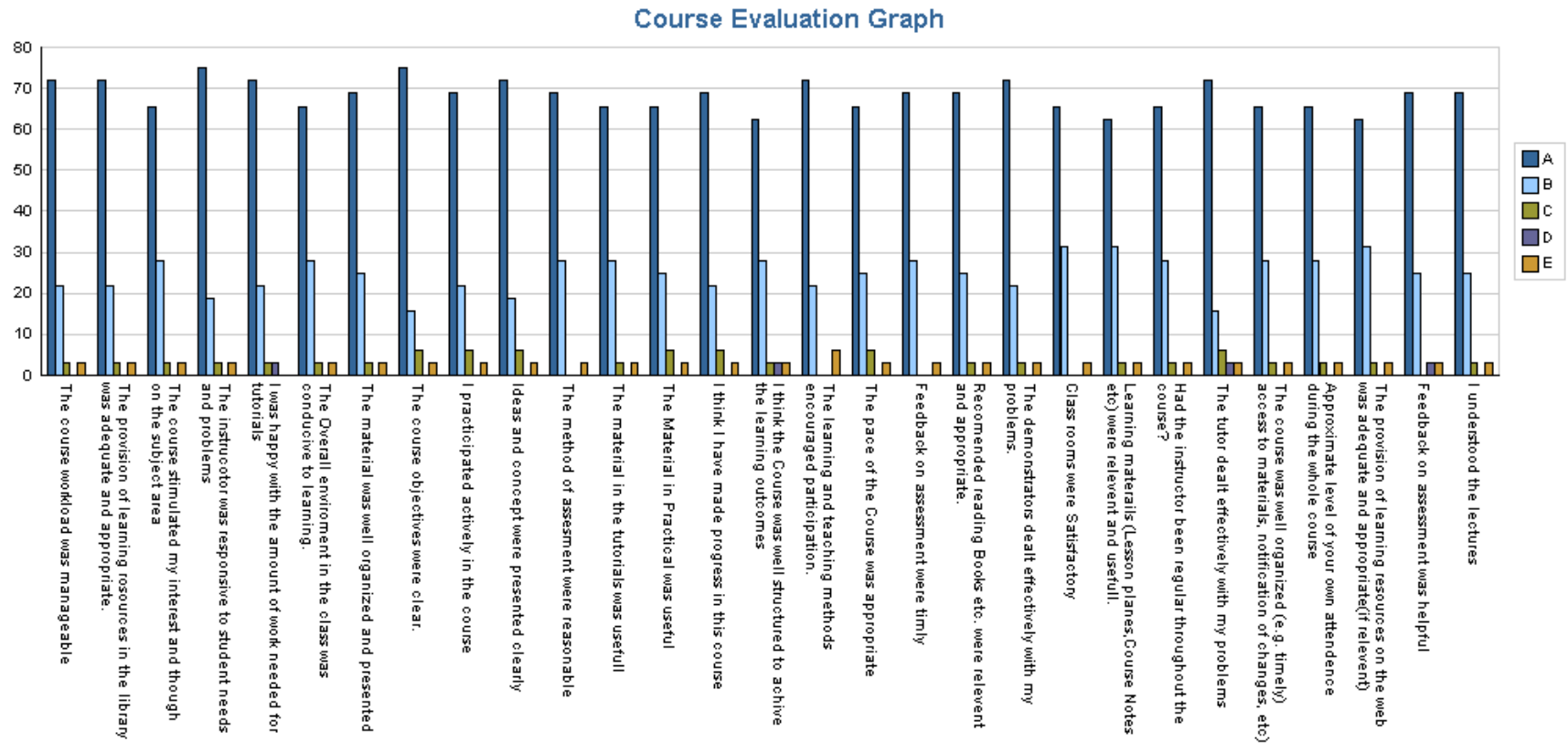
BCH-304. Teacher 2 (E): According to the students the feedback on assessment was very helpful in the course.



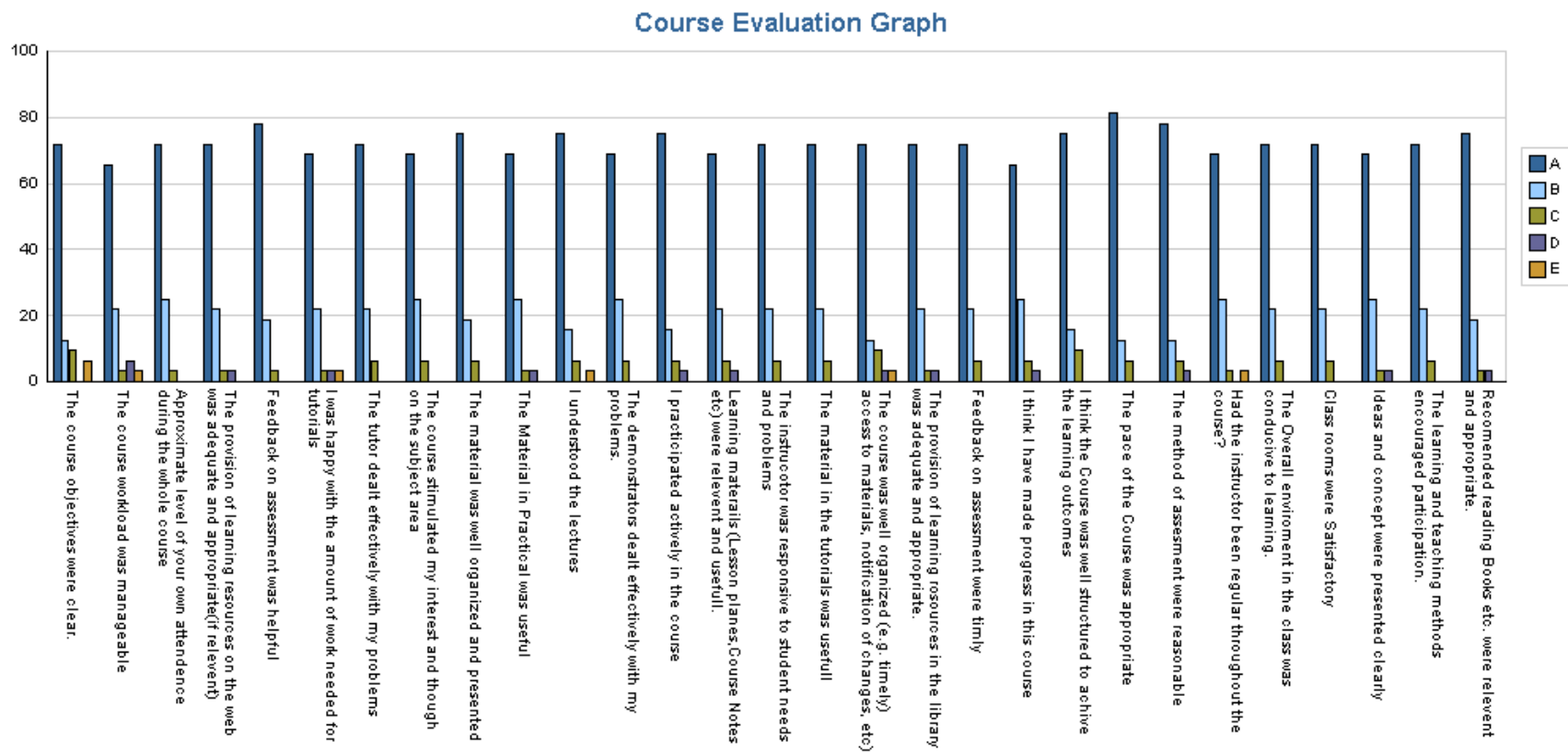
BCH-304. Teacher 2 (M): According to the students the feedback on assessment was very helpful in the course.



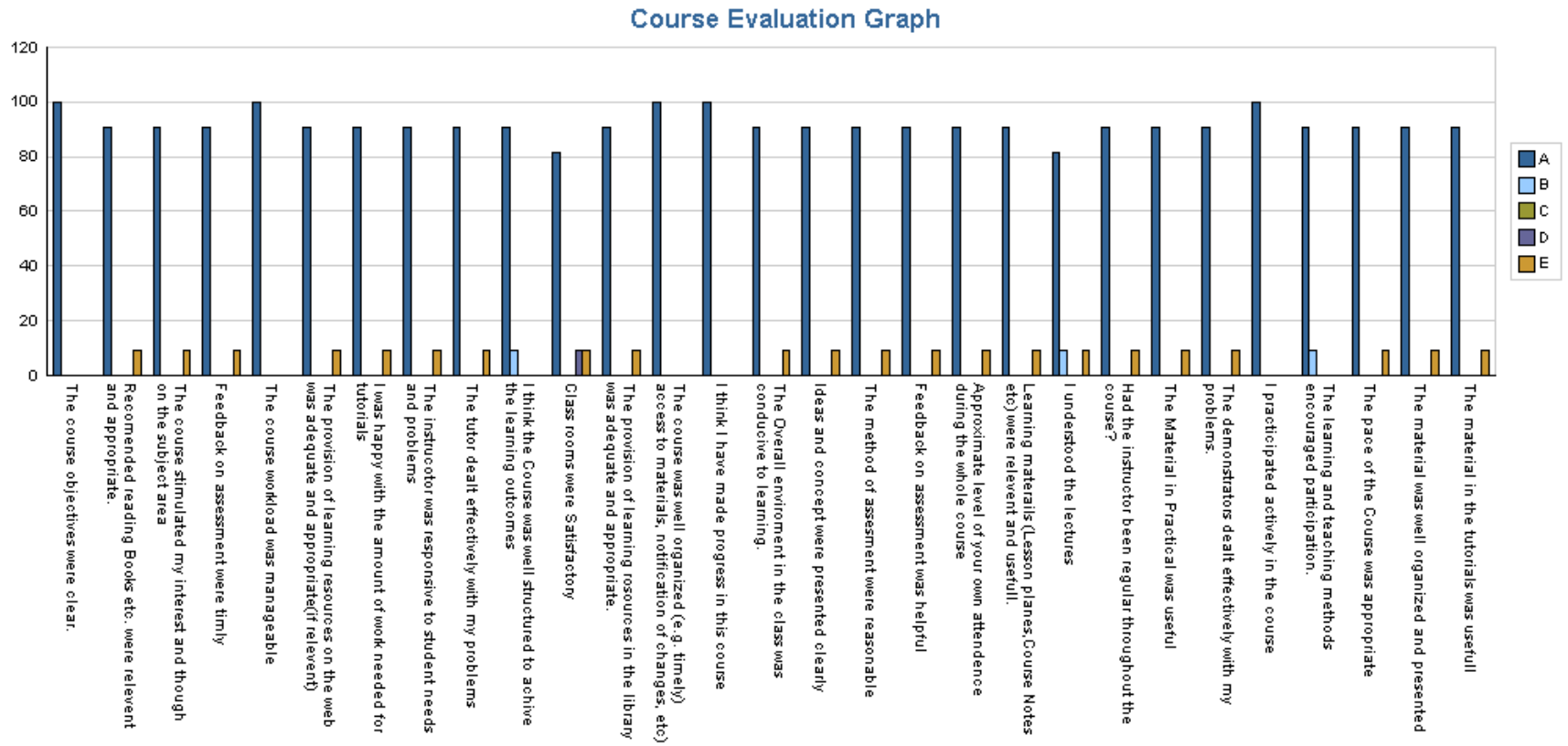
BCH-408. Teacher 9 (E): According to the students the course was well structured to achieve the learning outcomes.



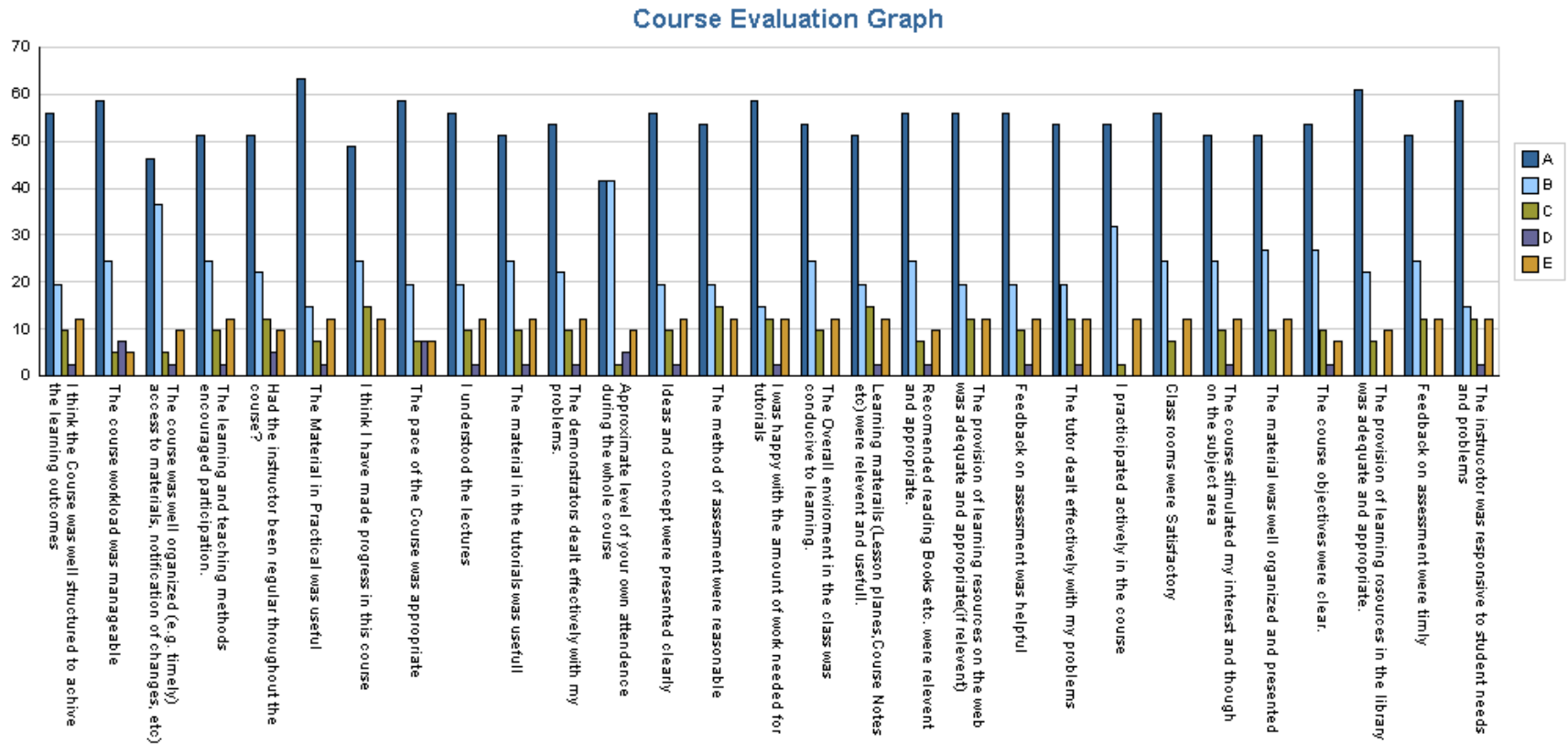
BCH-408. Teacher 9 (M): According to the students the instructor was responsive to student needs and problems.



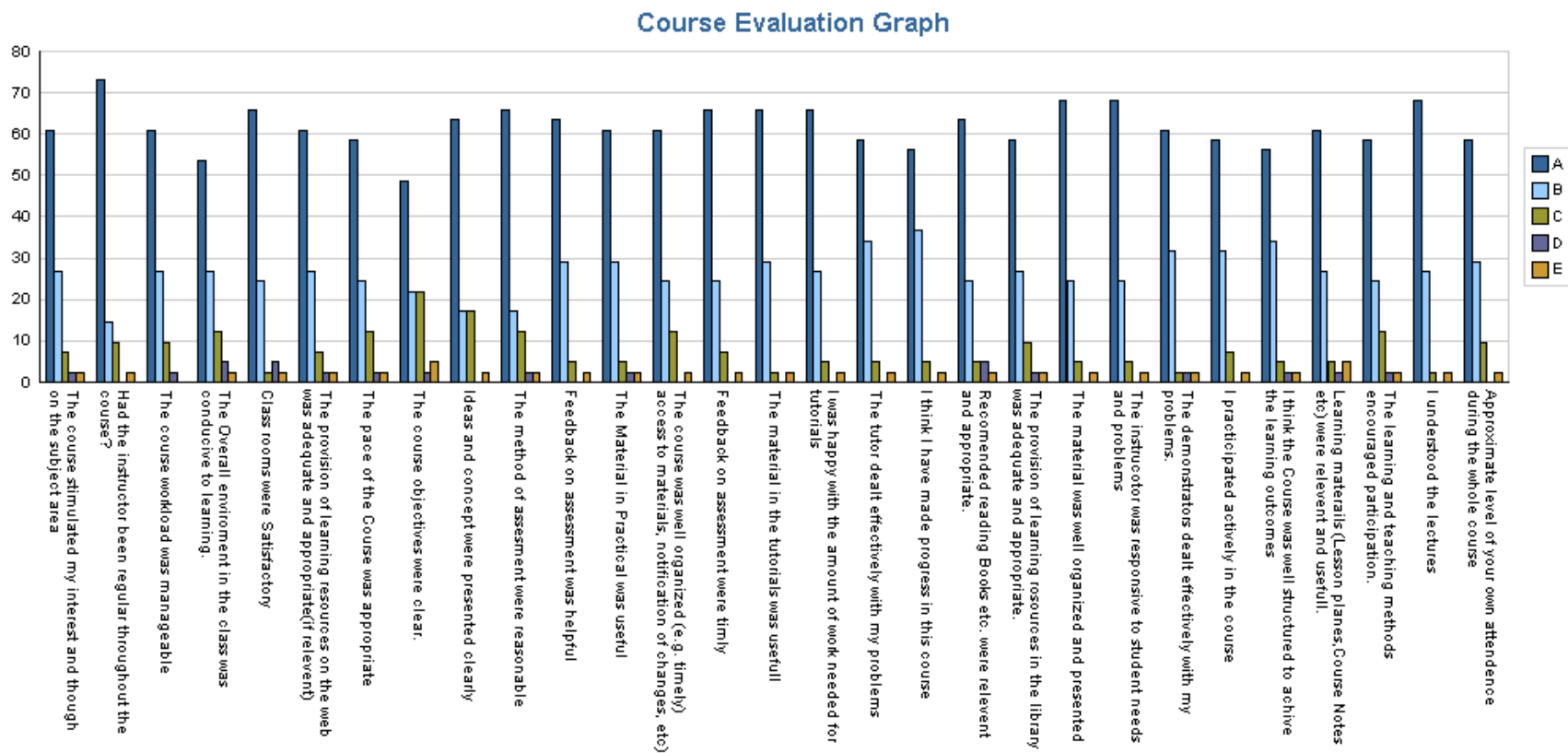
BCH-409. Teacher 1 (M): According to the students the pace of the course was appropriate.



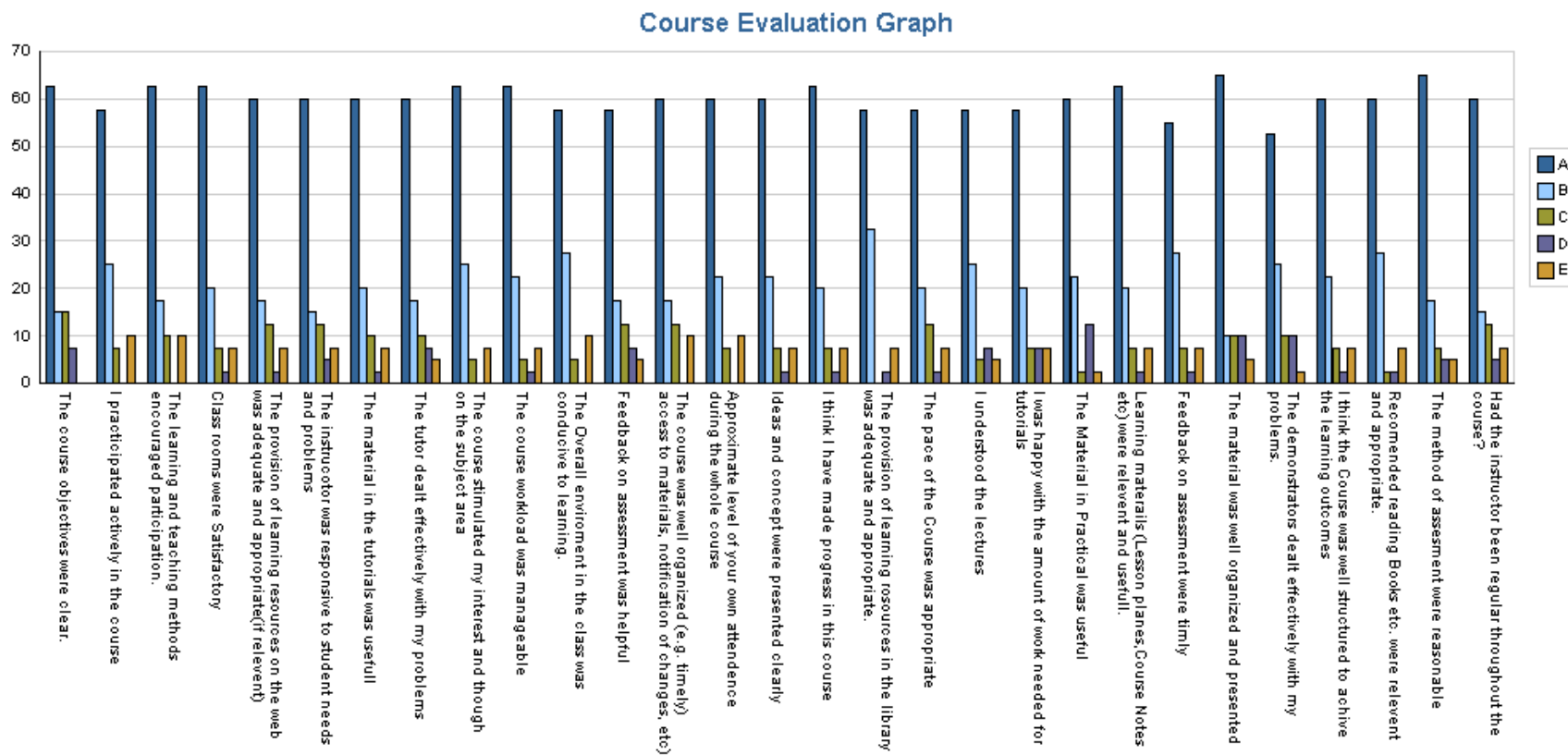
BCH-409. Teacher 1 (E): According to the students the course was very well organized.



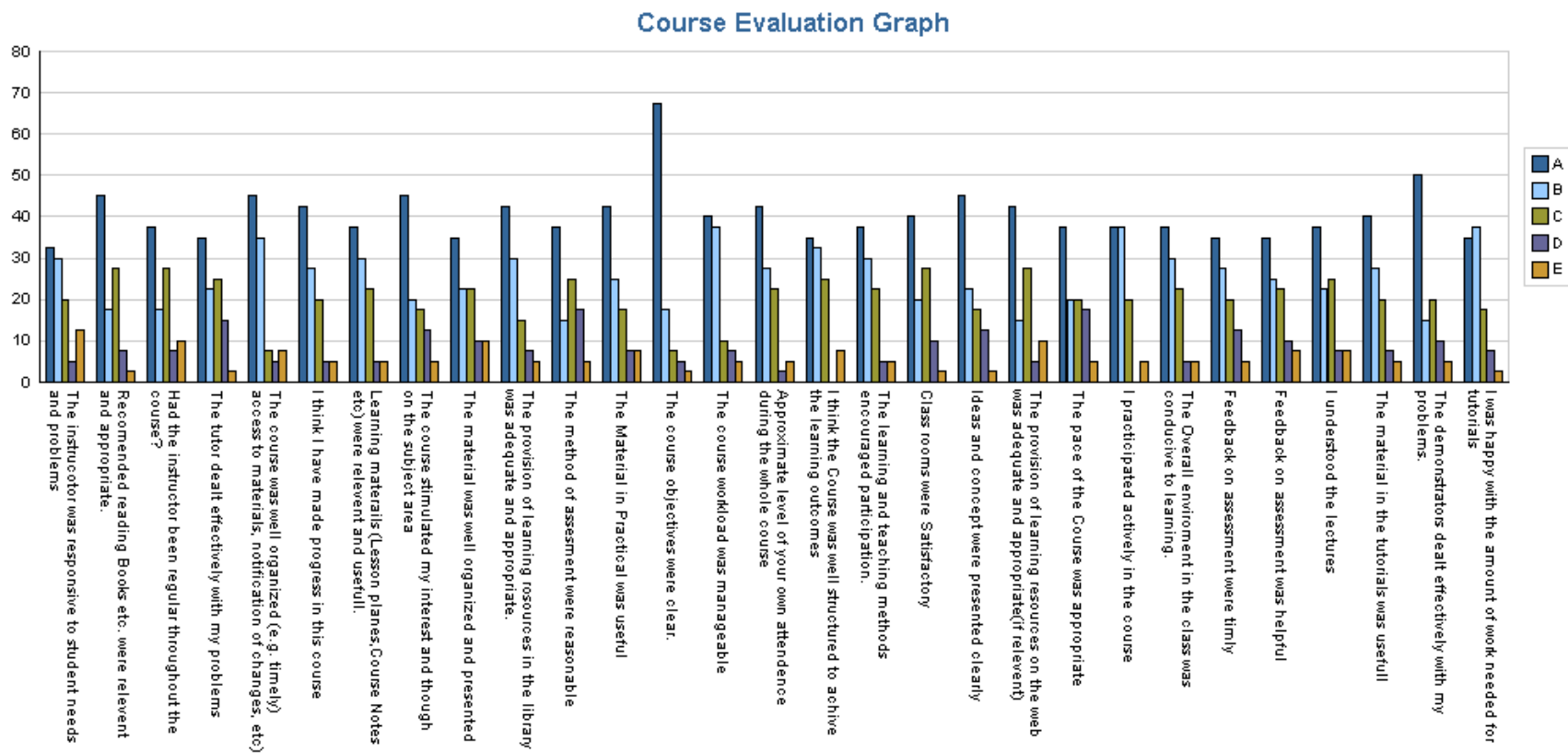
BCH-507. Teacher 2 (M): According to the students the instructor was regular throughout the course duration.



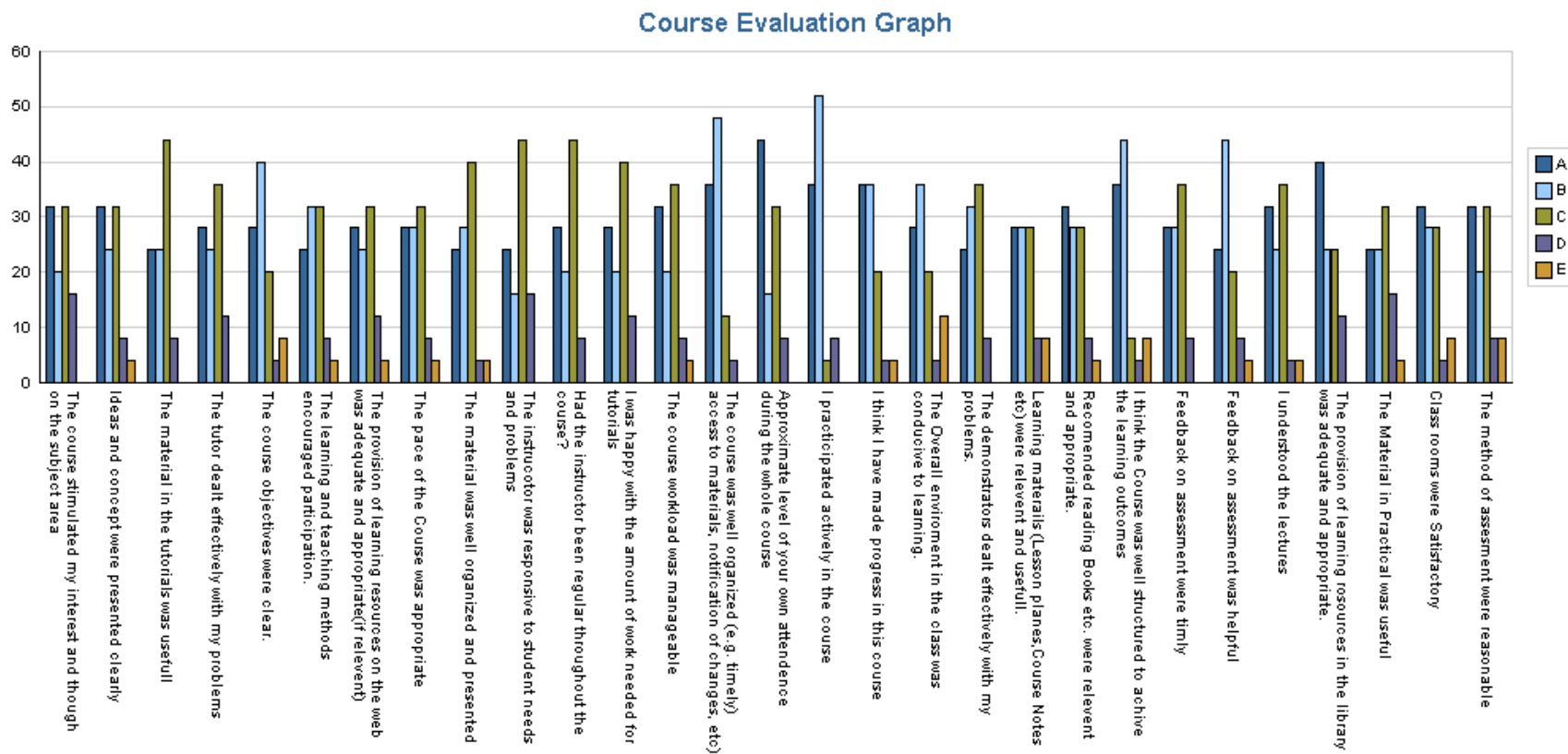
BCH-508. Teacher 1 (M): According to the students the instructor was so regular and organized the materials well for better understanding.



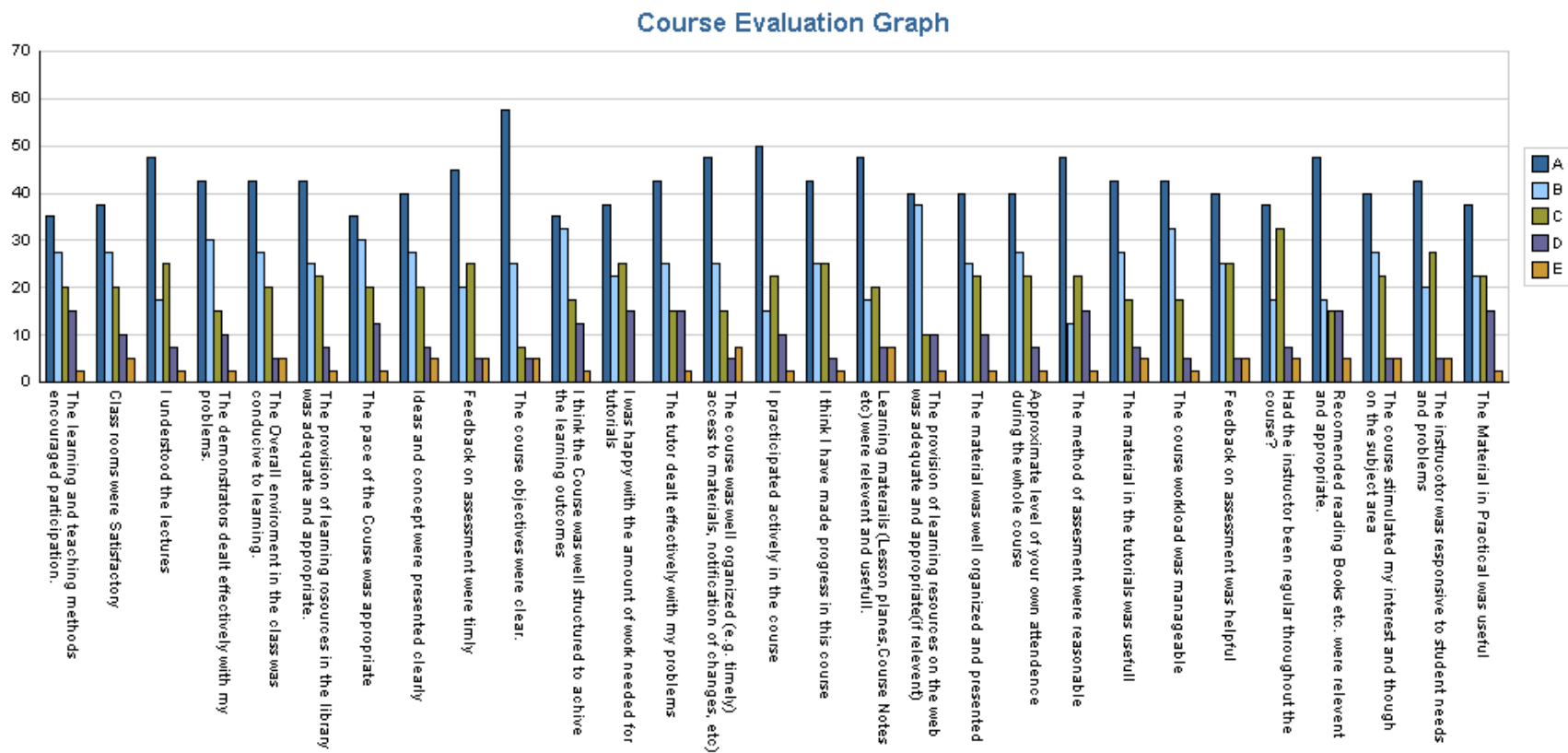
BCH-520. Teacher 5 (M): According to the students the course material was organized and presented well.



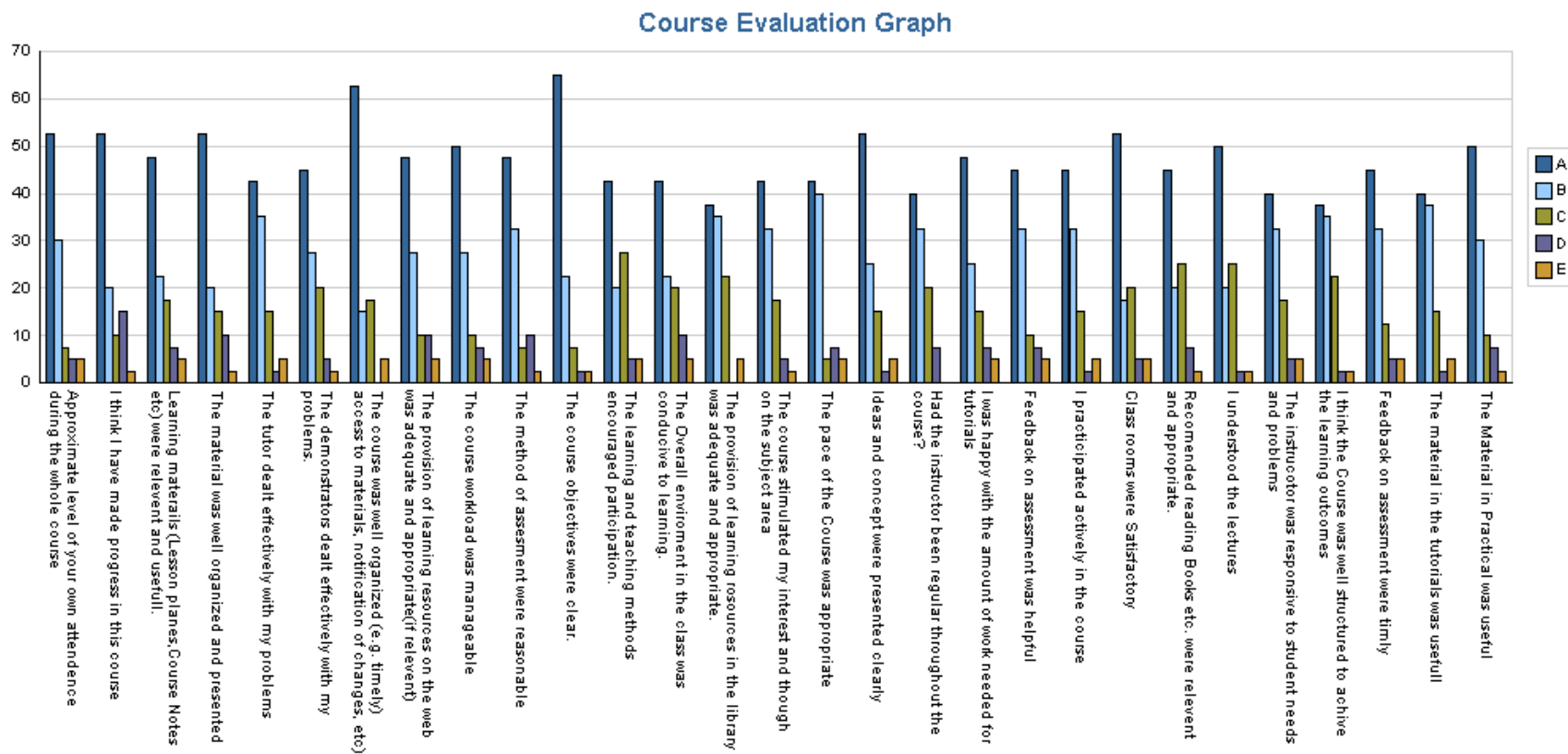
BCH-605. Teacher 3 (M): According to the students the course objectives were very clear.



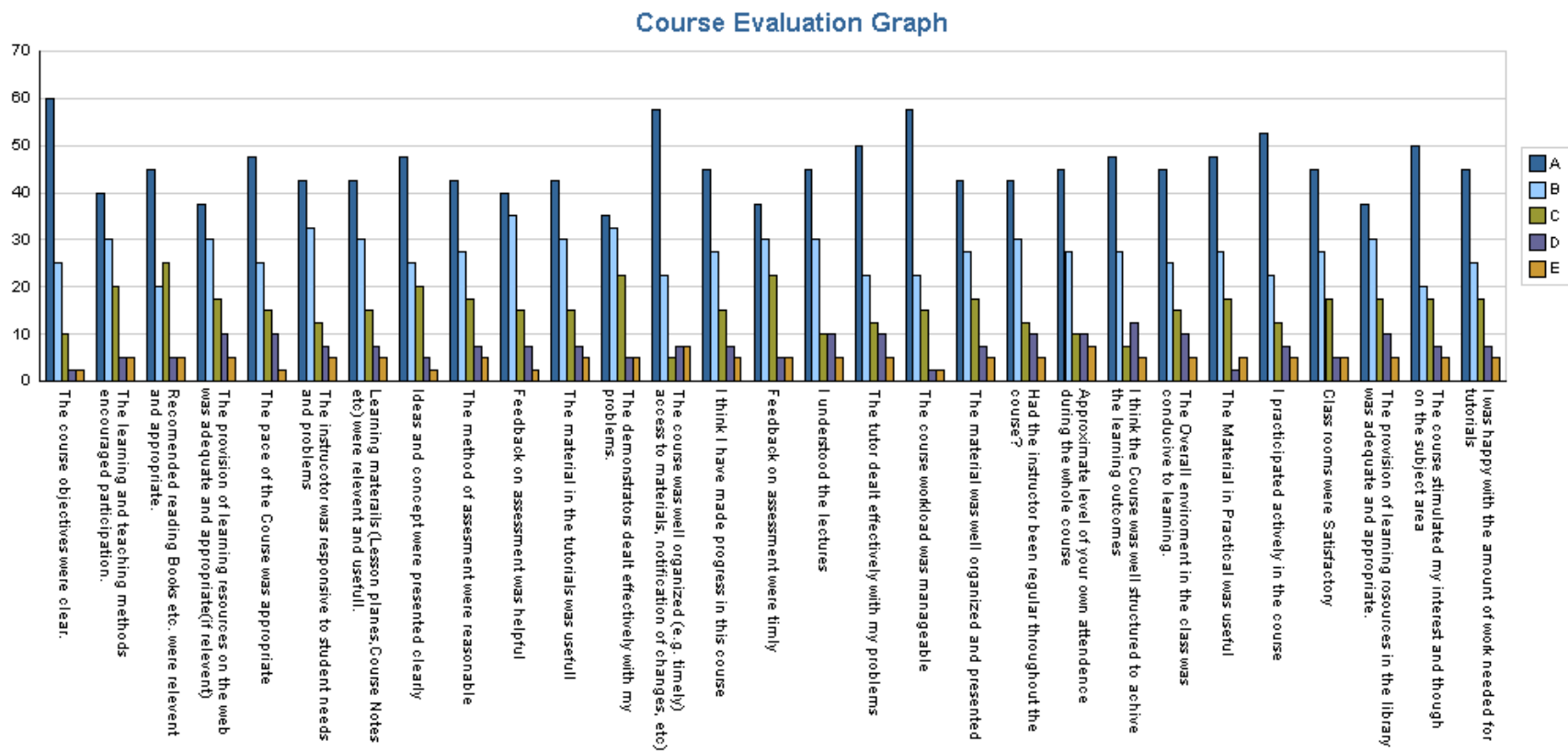
BCH-606. Teacher 7 (M): According to the students all the class participated very well in the course.



BCH-610. Teacher 5 (M): According to the students the course objectives were very clear.



BCH-619. Teacher 1 (M): According to the students the course objectives were very clear and the course was very well organized.

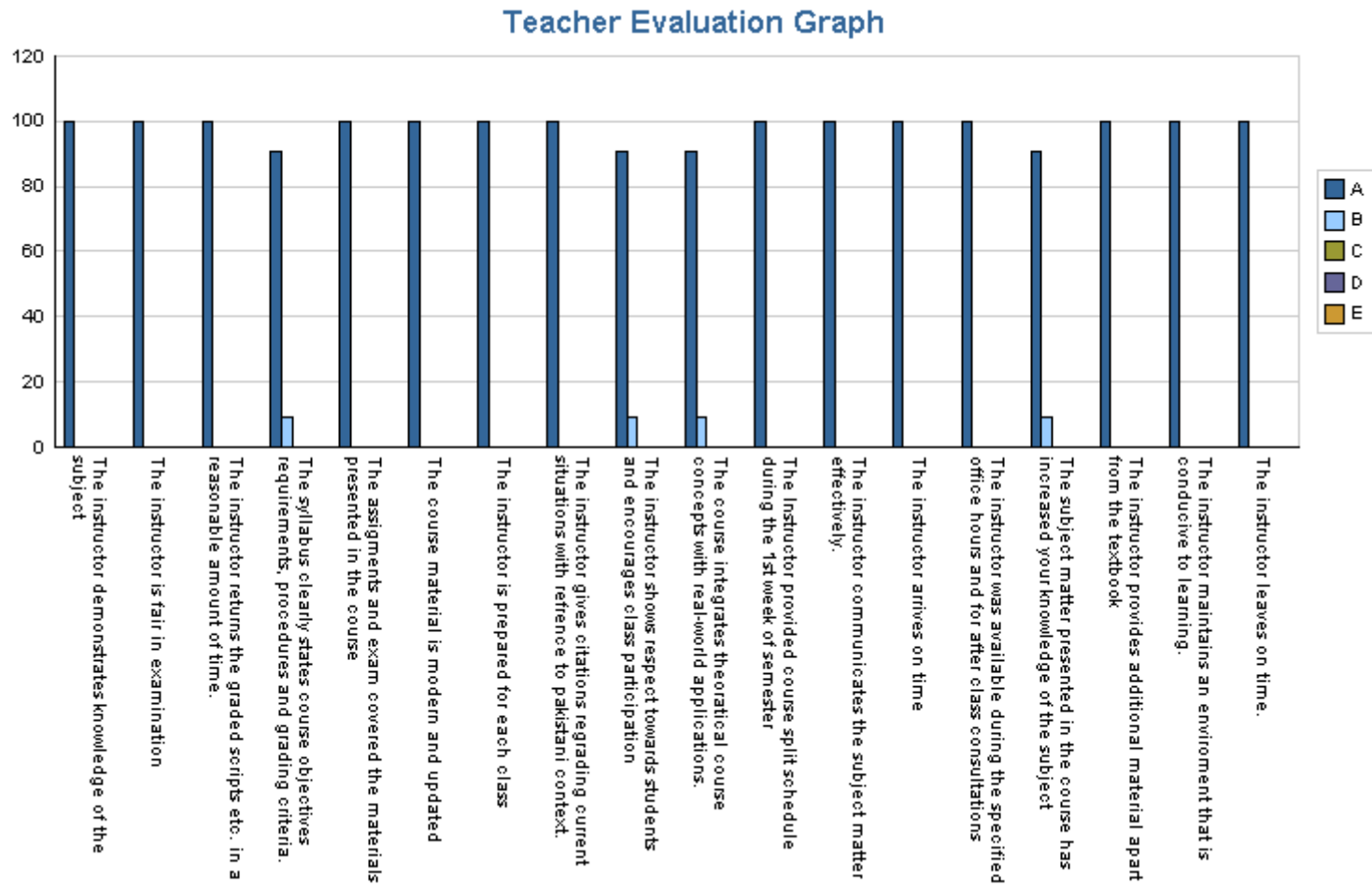


BCH-620. Teacher 1 (M): According to the students the course objectives were very clear.

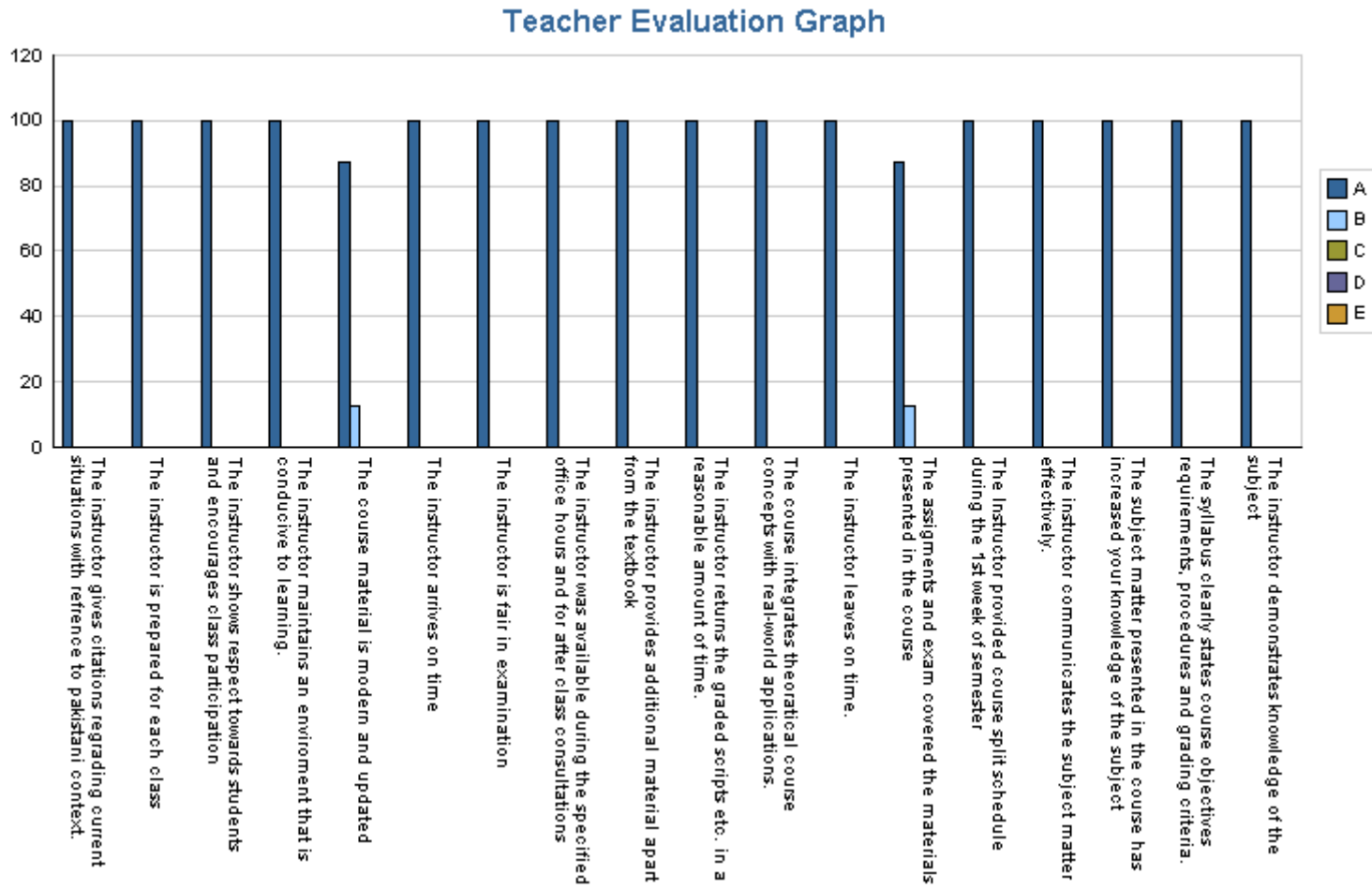
Results of Performa 1 (Spring 2015)

It is concluded from the results of performa 1 at the end of Spring, 2015 that all the objectives of the courses were clear and courses were well organized and presented.

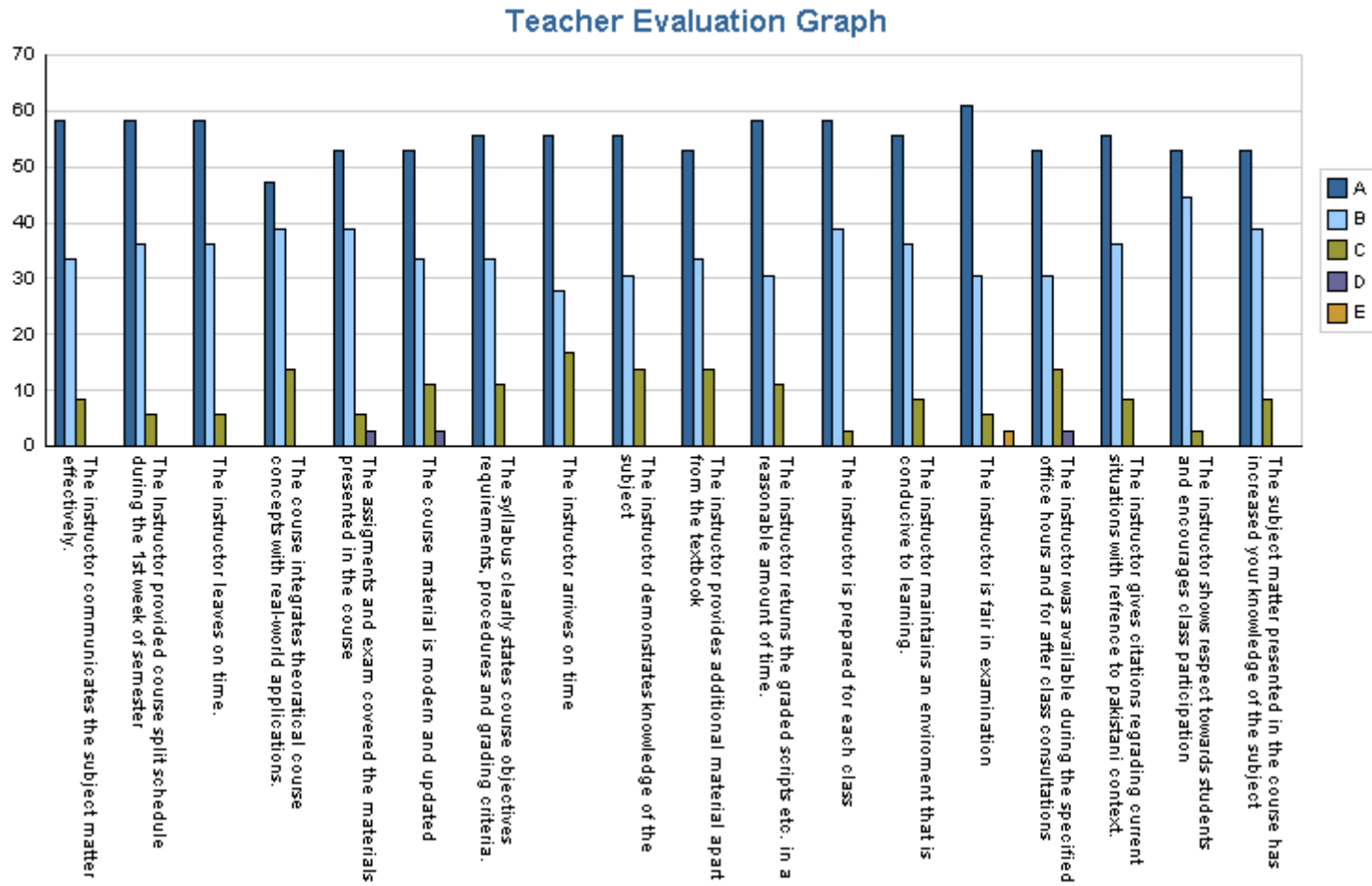
Results of Performa 10 (Spring 2015)



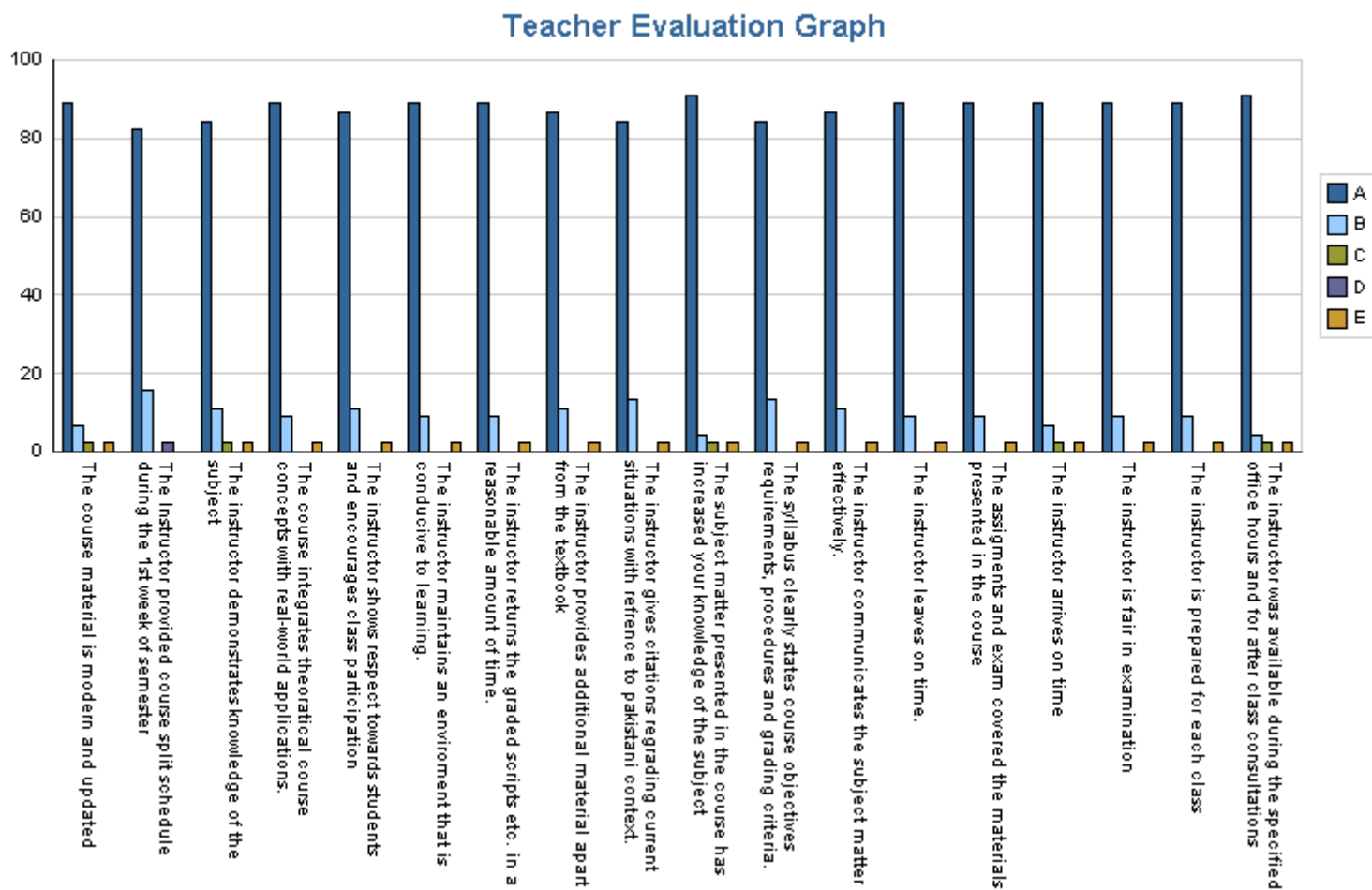
BCH-102. Teacher 7 (M): According to the students the instructor maintained the environment conducive for learning and provides additional materials apart from textbooks.



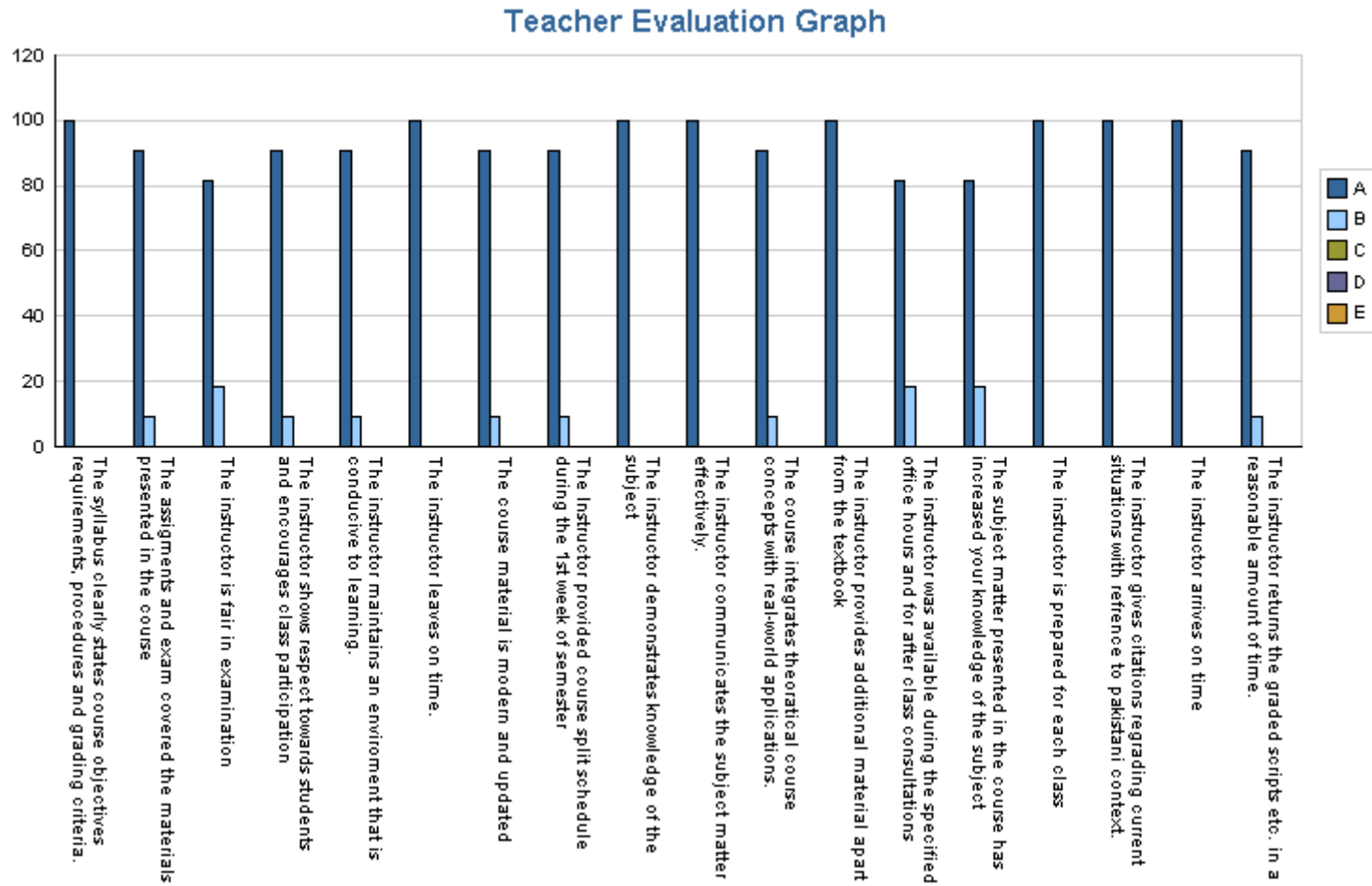
BCH-102. Teacher 7 (M): According to the students the instructor maintained the environment conducive for learning and provides additional materials apart from textbooks.



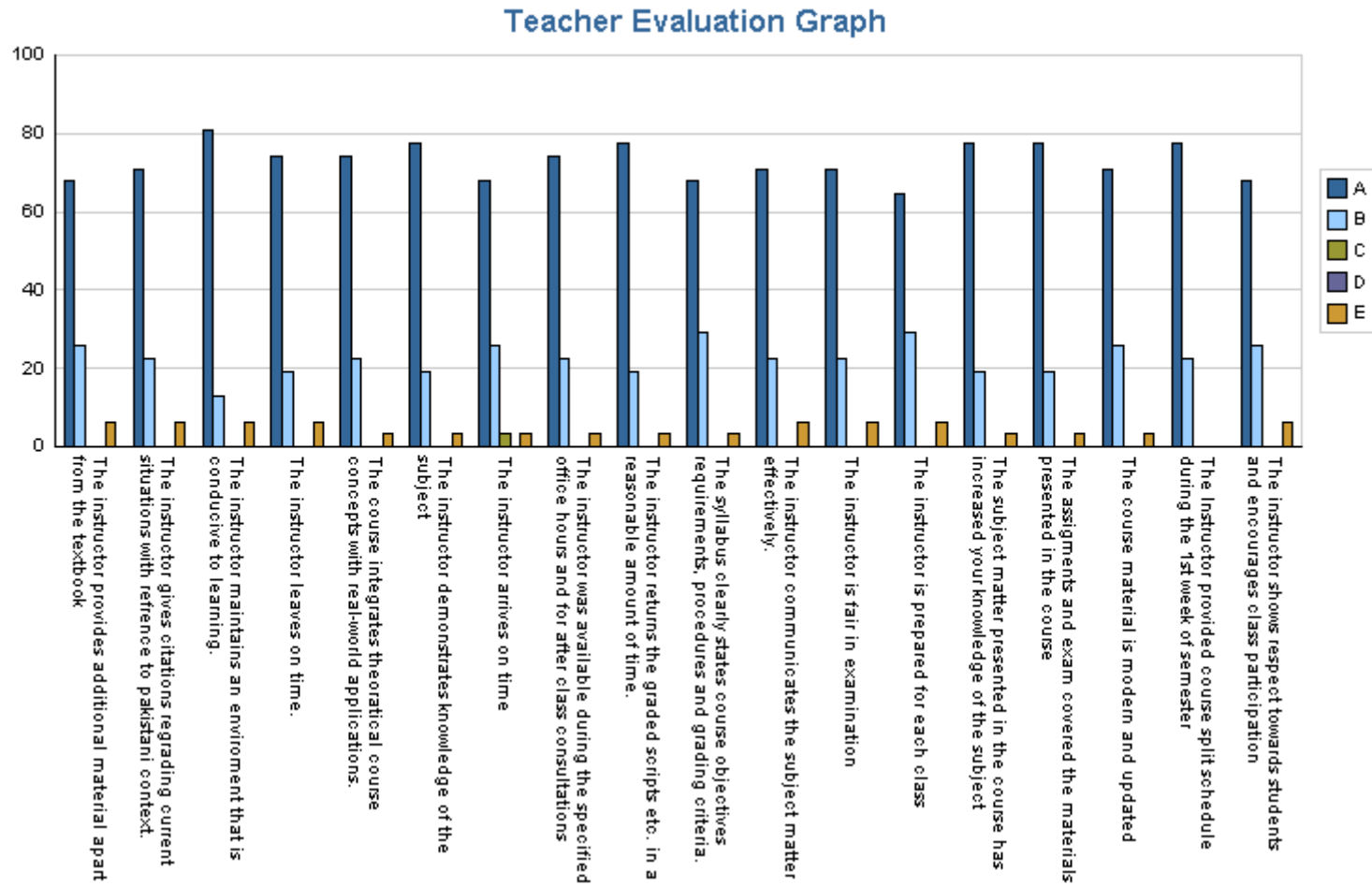
BCH-304. Teacher 2 (E): According to the students the instructor was fair in the examination and communicated very effectively on the subject matters.



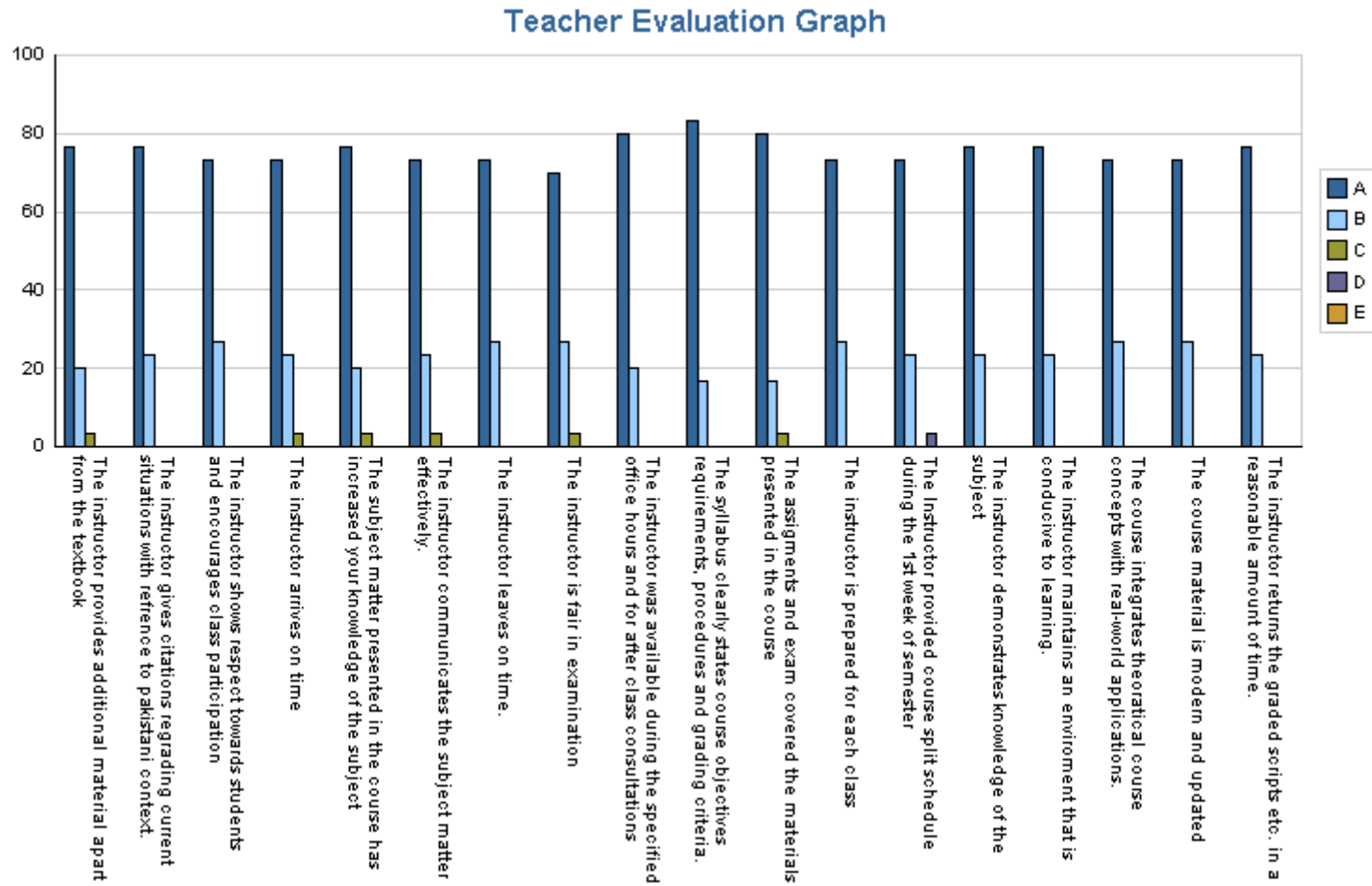
BCH-304. Teacher 2 (M): According to the students the subject matter presented in the course has increased the knowledge of the subject.



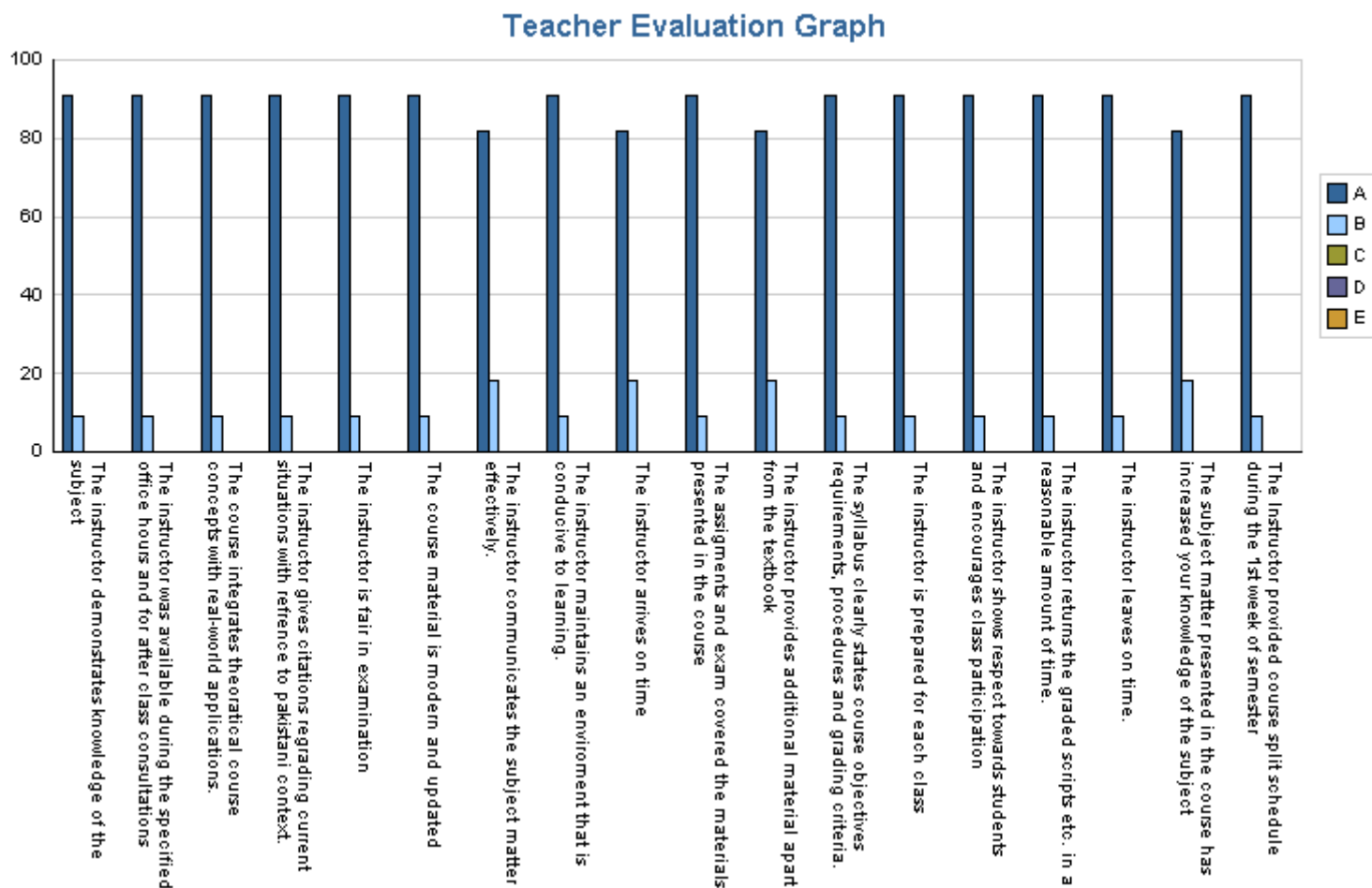
BCH-408. Teacher 9 (E): According to the students the instructor demonstrated the knowledge of the subject very effectively.



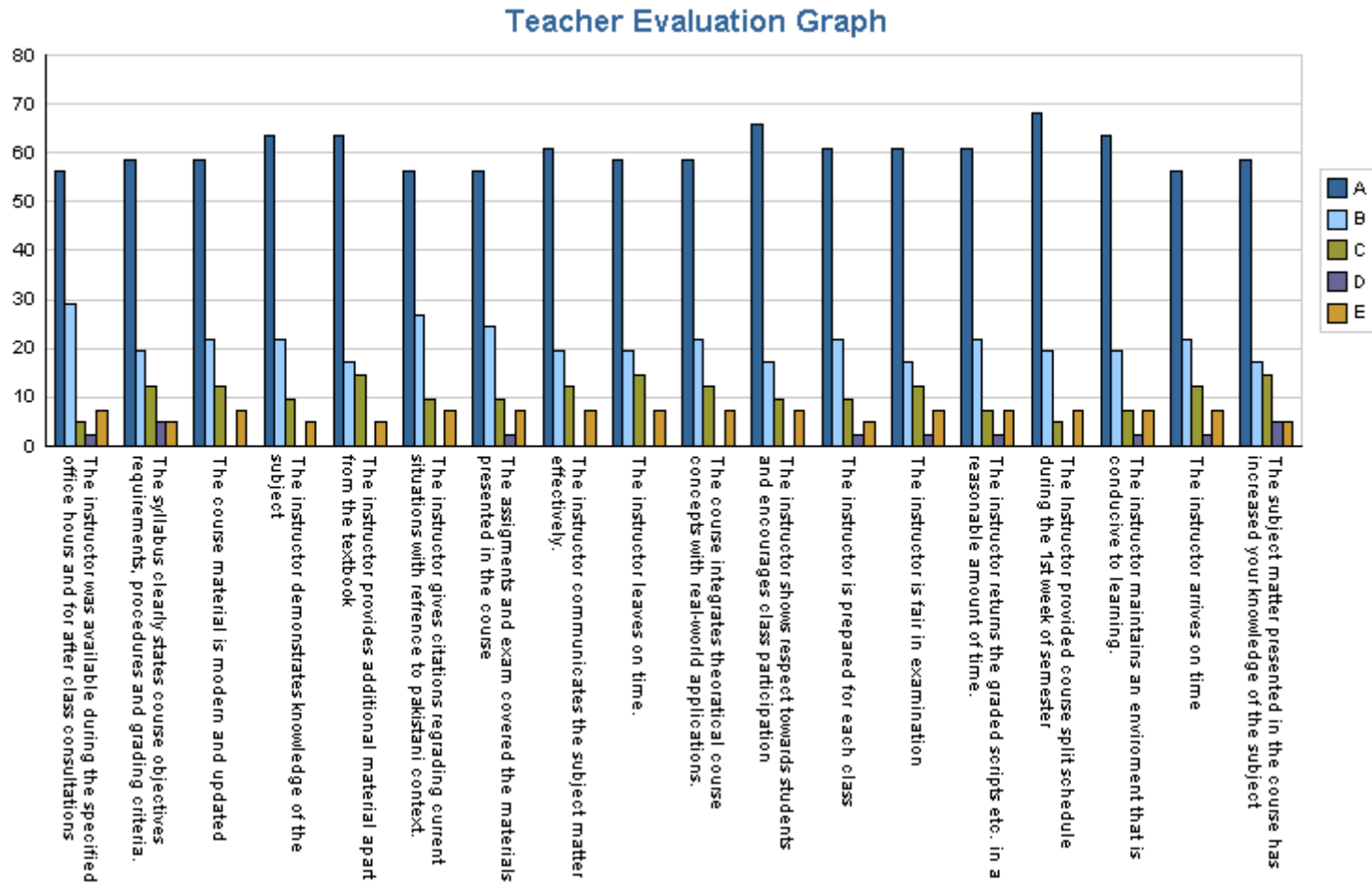
BCH-408. Teacher 9 (M): According to the students the instructor maintained an environment in the class very conducive for learning.



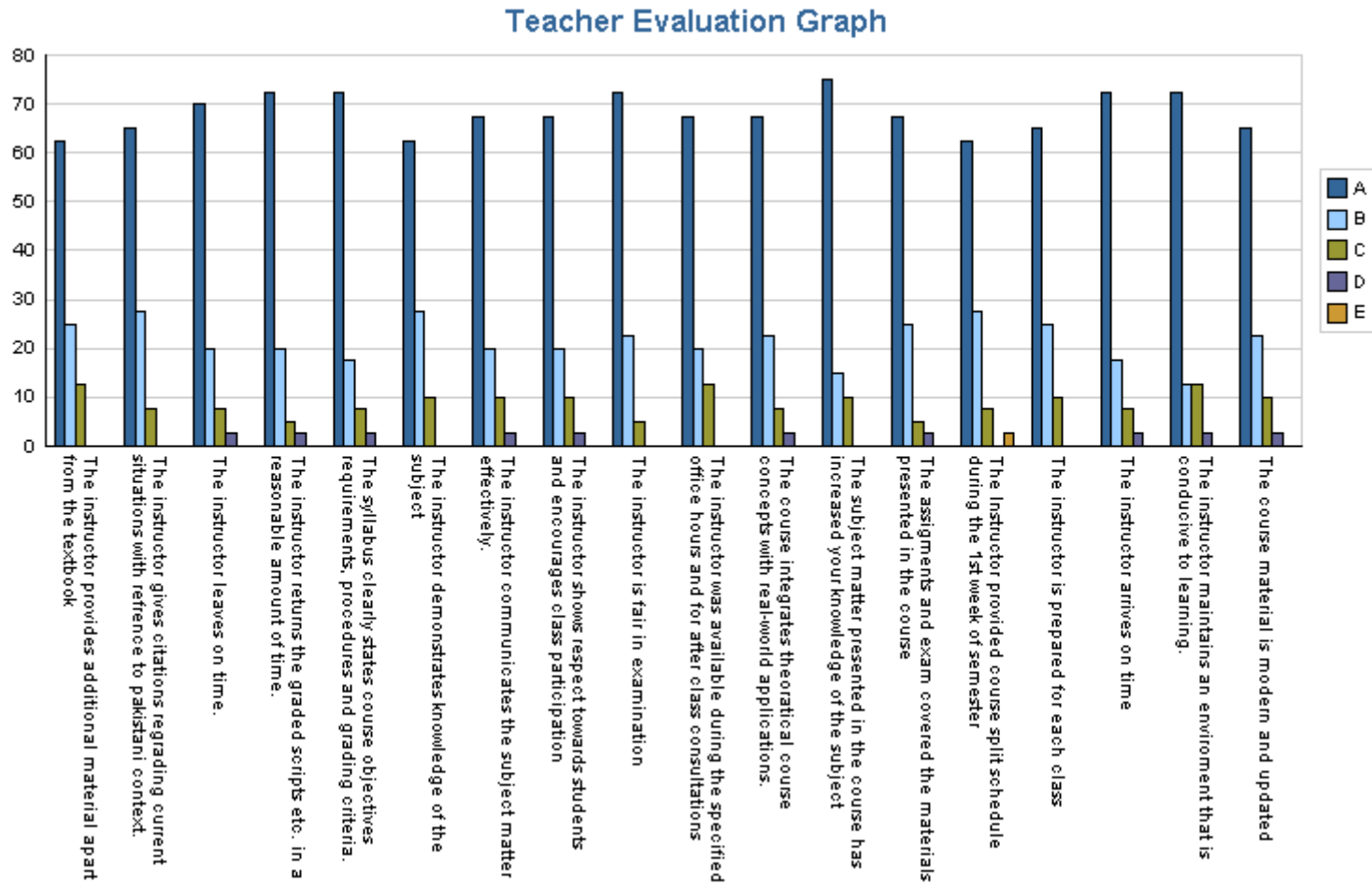
BCH-409. Teacher 1 (M): According to the students the syllabus clearly stated the course objectives, requirement, procedures and grading criteria.



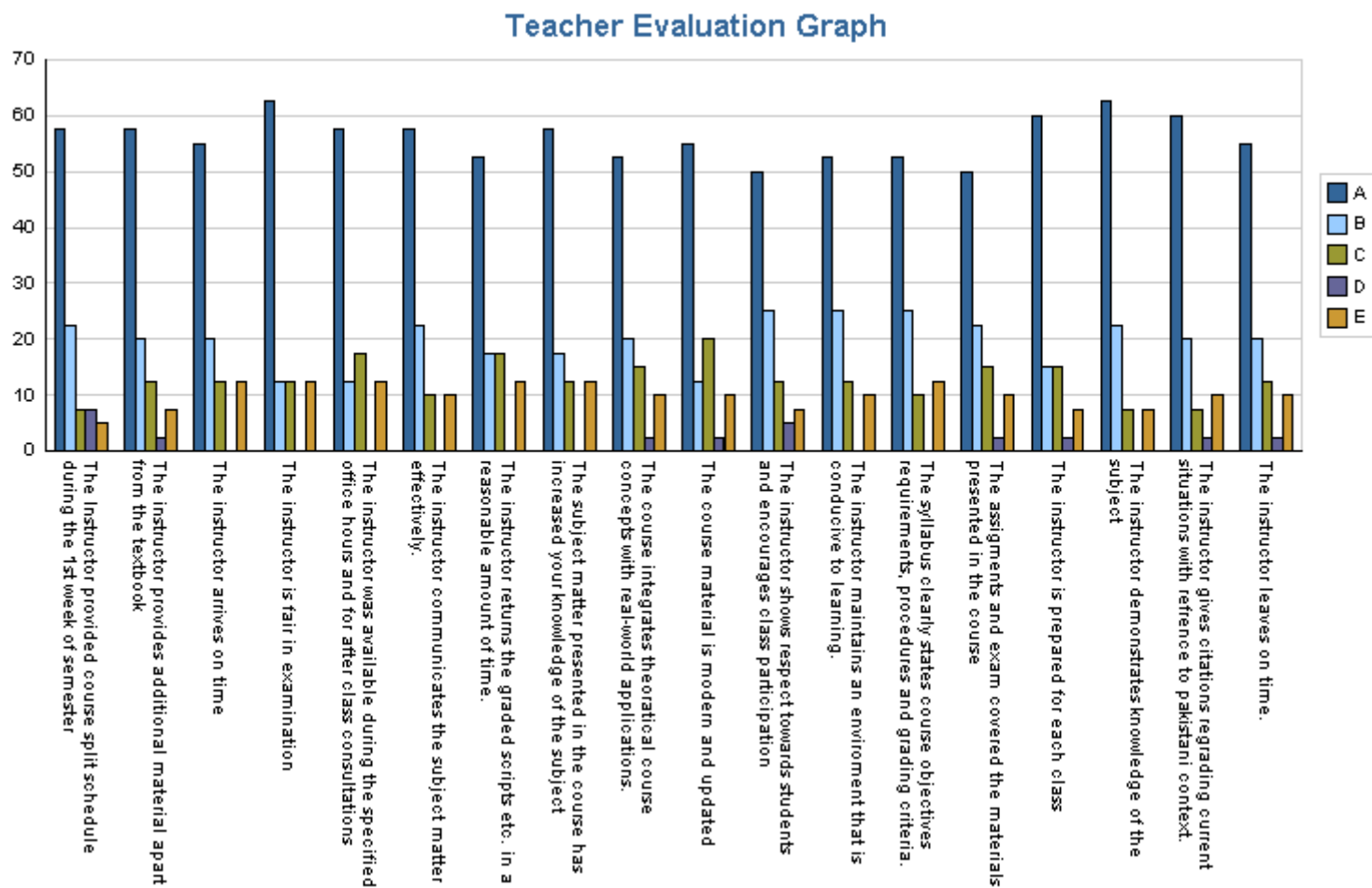
BCH-409. Teacher 1 (E): According to the students the syllabus clearly stated the course objectives, requirement, procedures and grading criteria.



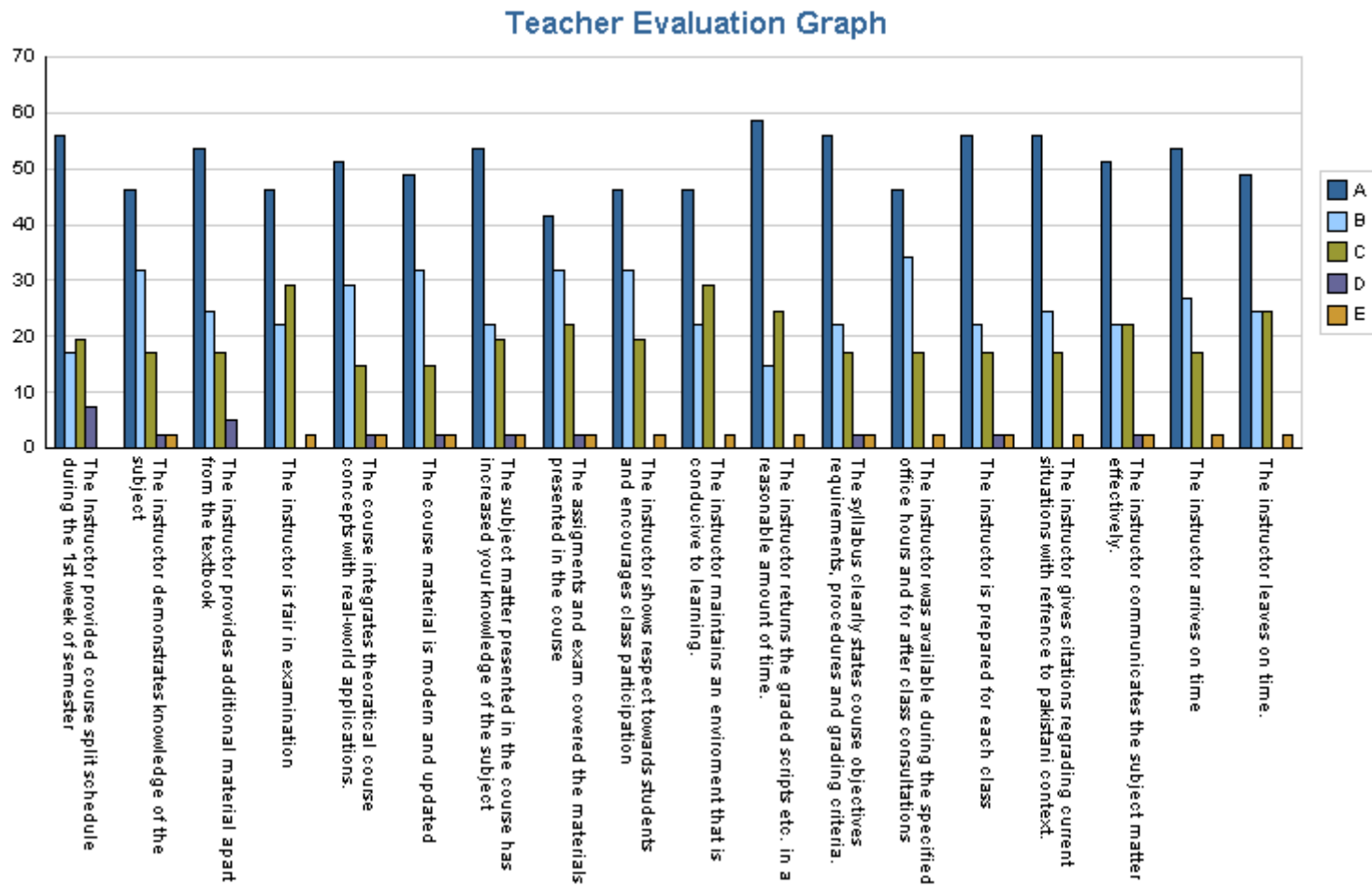
BCH-507. Teacher 2 (M): According to the students the instructor provided the course split schedule during the 1st week of semester.



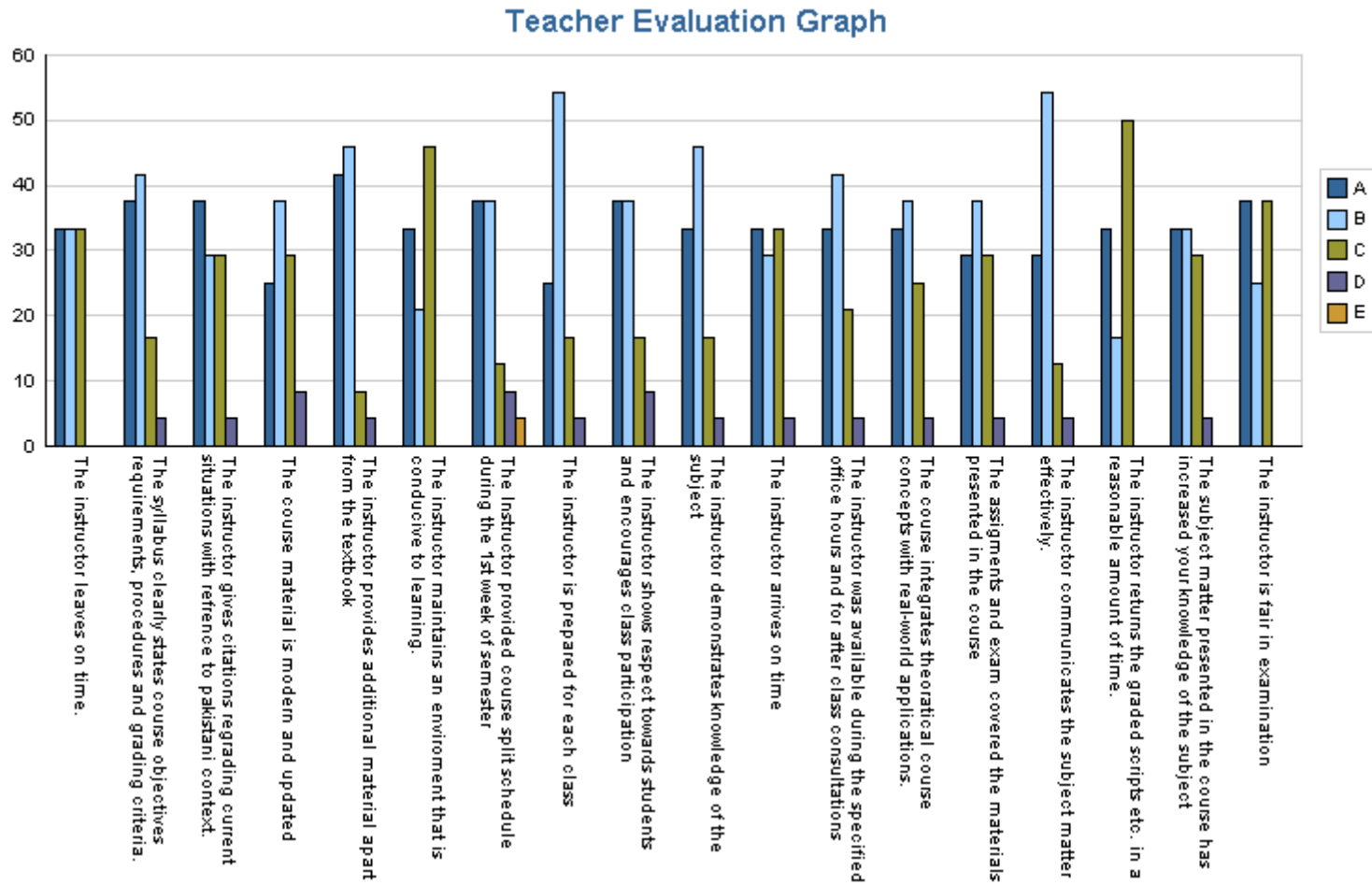
BCH-508. Teacher 1 (M): According to the students the subject matters presented in the course has increased the knowledge of the subject.



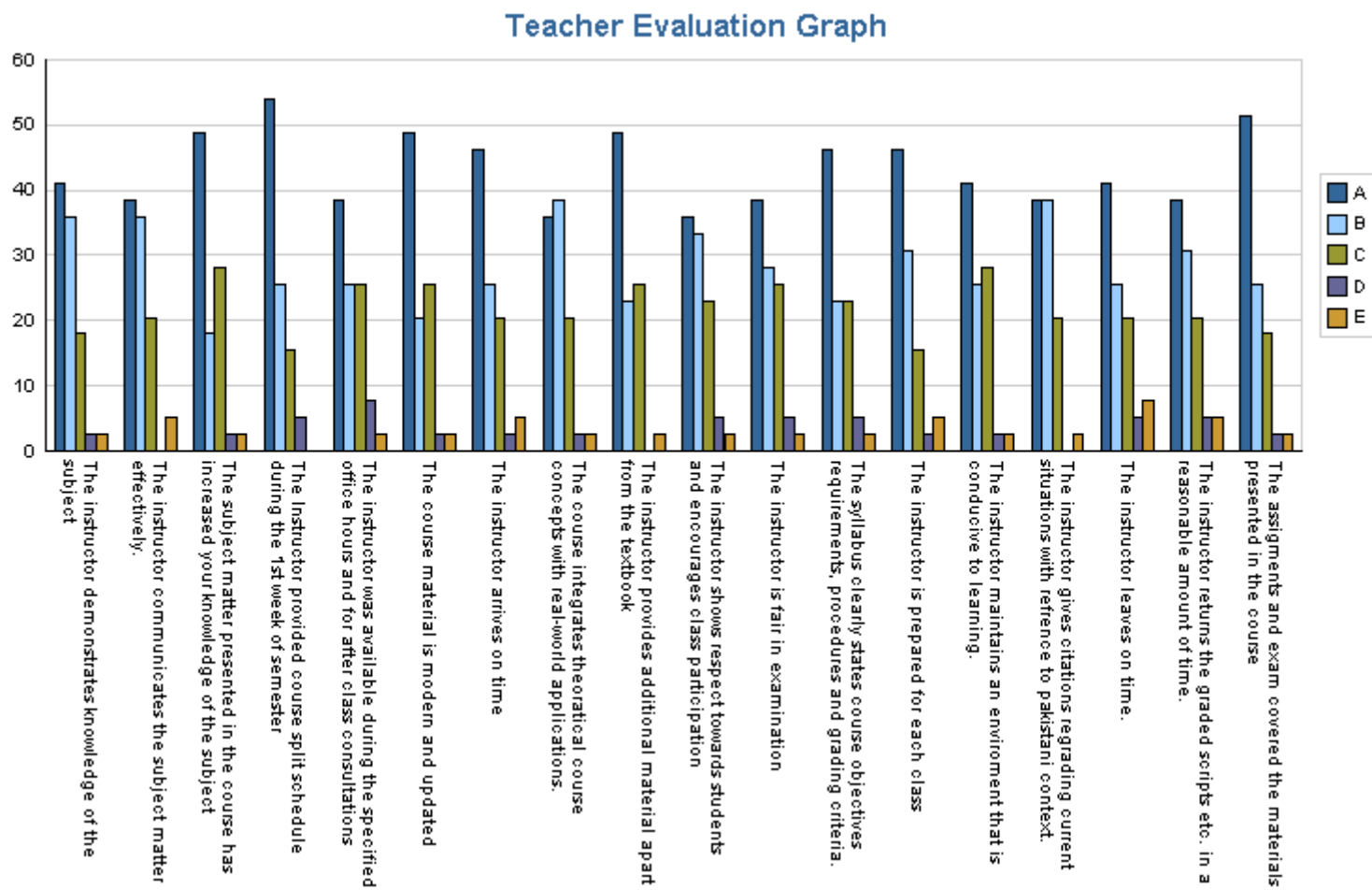
BCH-520. Teacher 5 (M): According to the students the instructor demonstrated the knowledge of the subject very effectively.



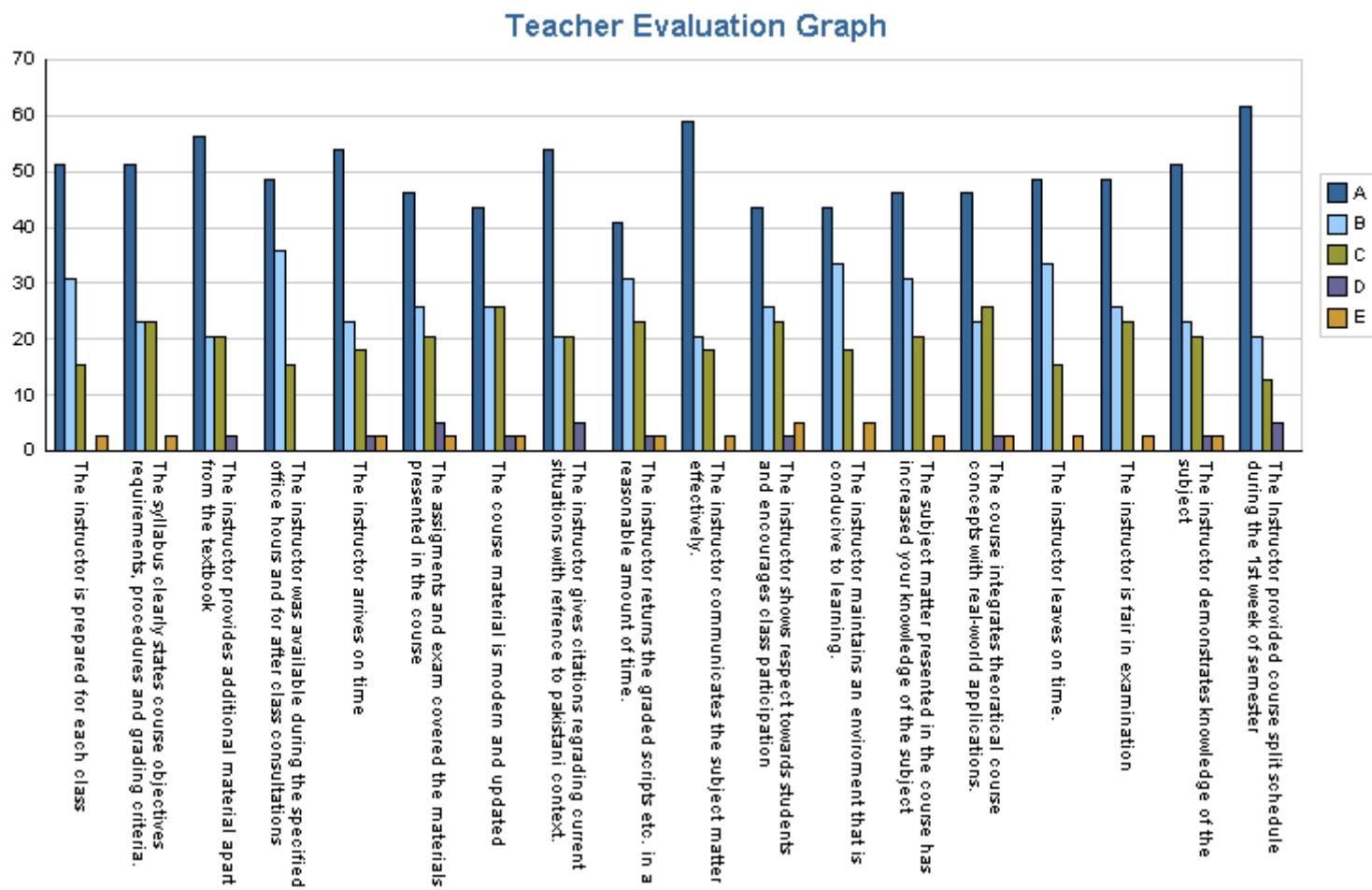
BCH-605. Teacher 3 (M): According to the students the syllabus clearly stated the course objectives, requirements, procedures and grading criteria.



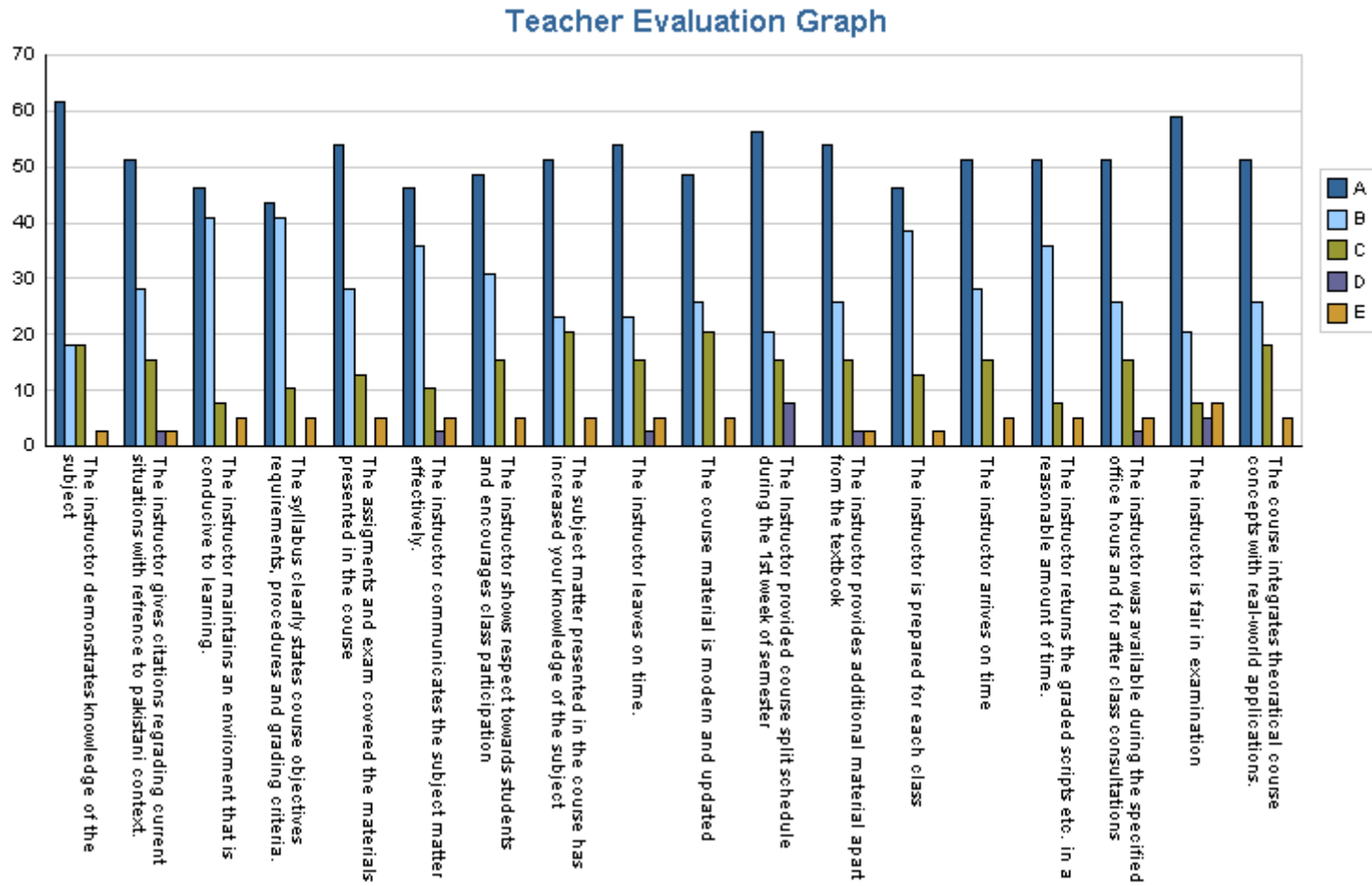
BCH-606. Teacher 7 (M): According to the students the instructor demonstrated the knowledge of the subject very effectively.



BCH-610. Teacher 5 (M): According to the students the instructor provided the course split schedule during the 1st week of semester.



BCH-619. Teacher 1 (M): According to the students the instructor communicated the subject matter effectively.

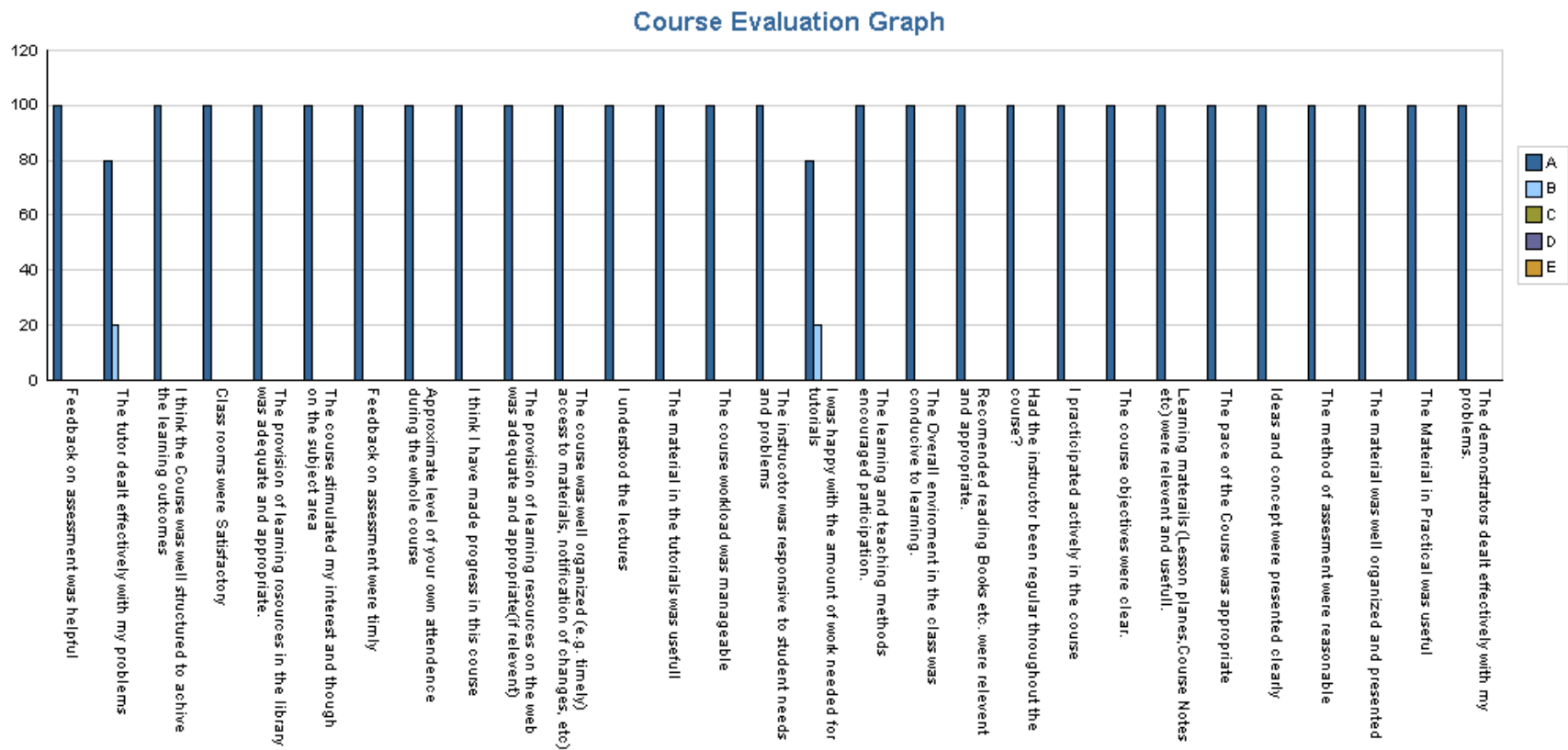


BCH-620. Teacher 2 (M): According to the students the instructor was fair in the examination.

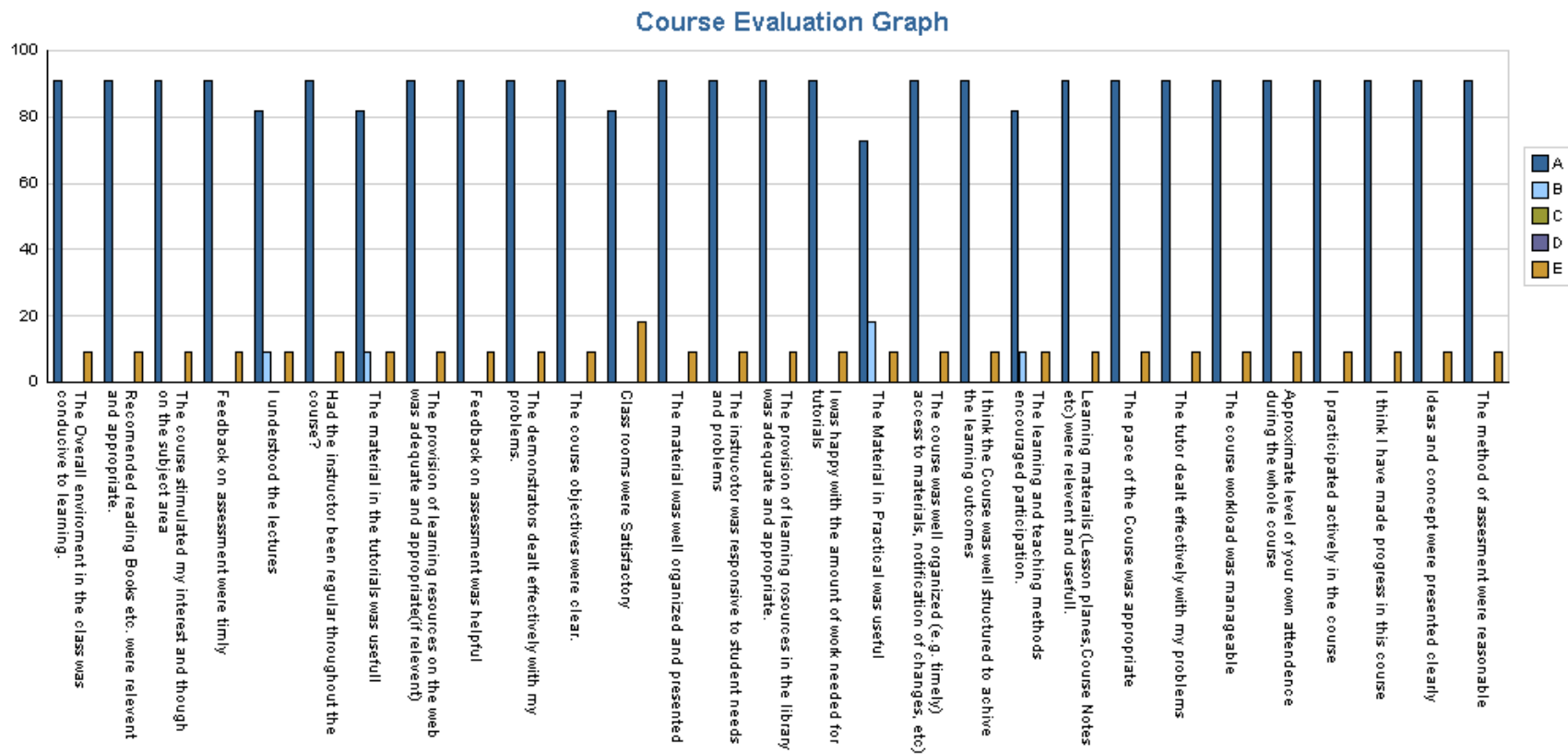
Overall Results of Performa 10 (Spring 2016)

In the overall results obtained after analyzing according to the students the syllabus clearly stated the course objectives, requirement, procedures and grading criteria. Instructors provided the course split schedule during the 1st week of semester and all of the instructors demonstrated the knowledge of the subject very well.

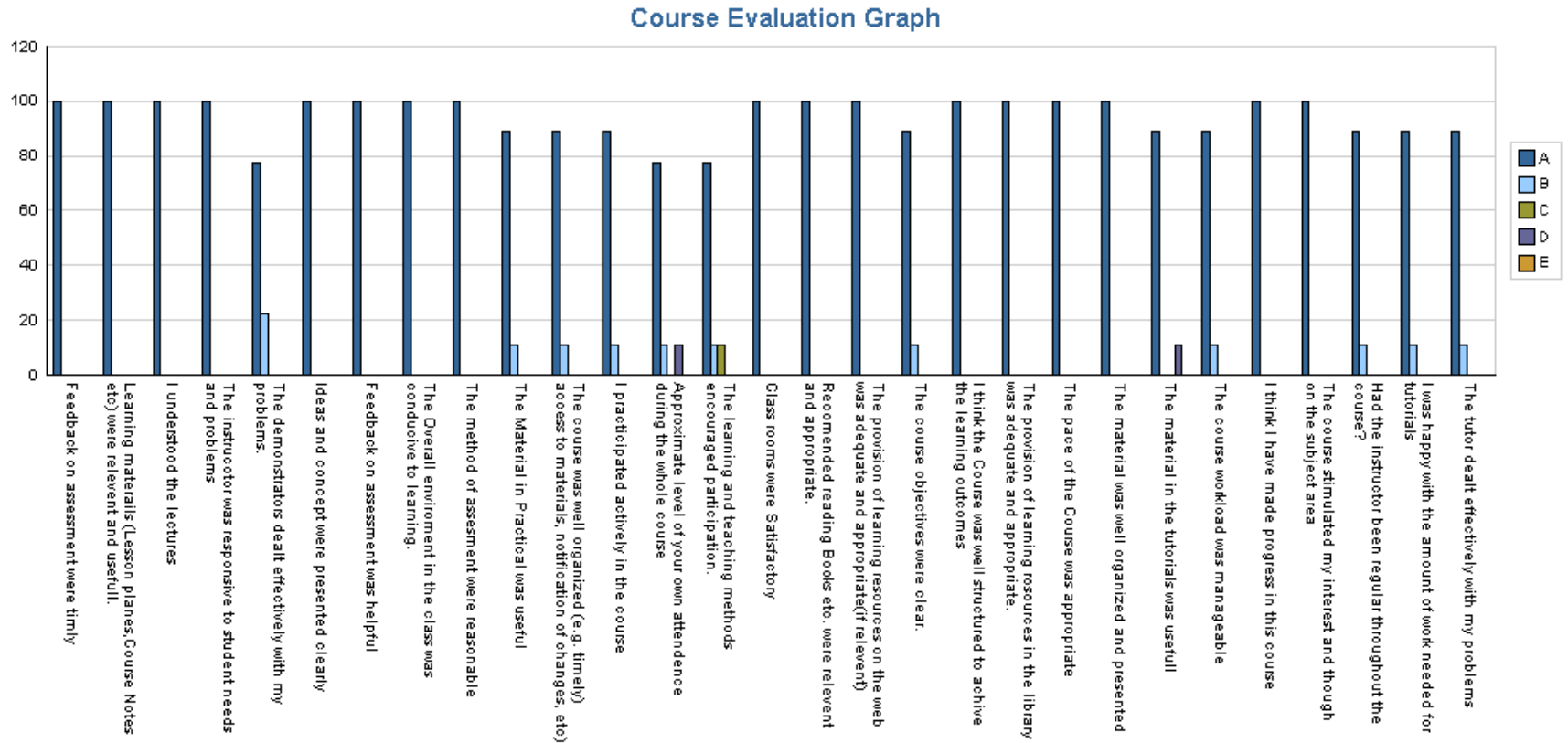
Results of Performa 1 (Spring 2016)



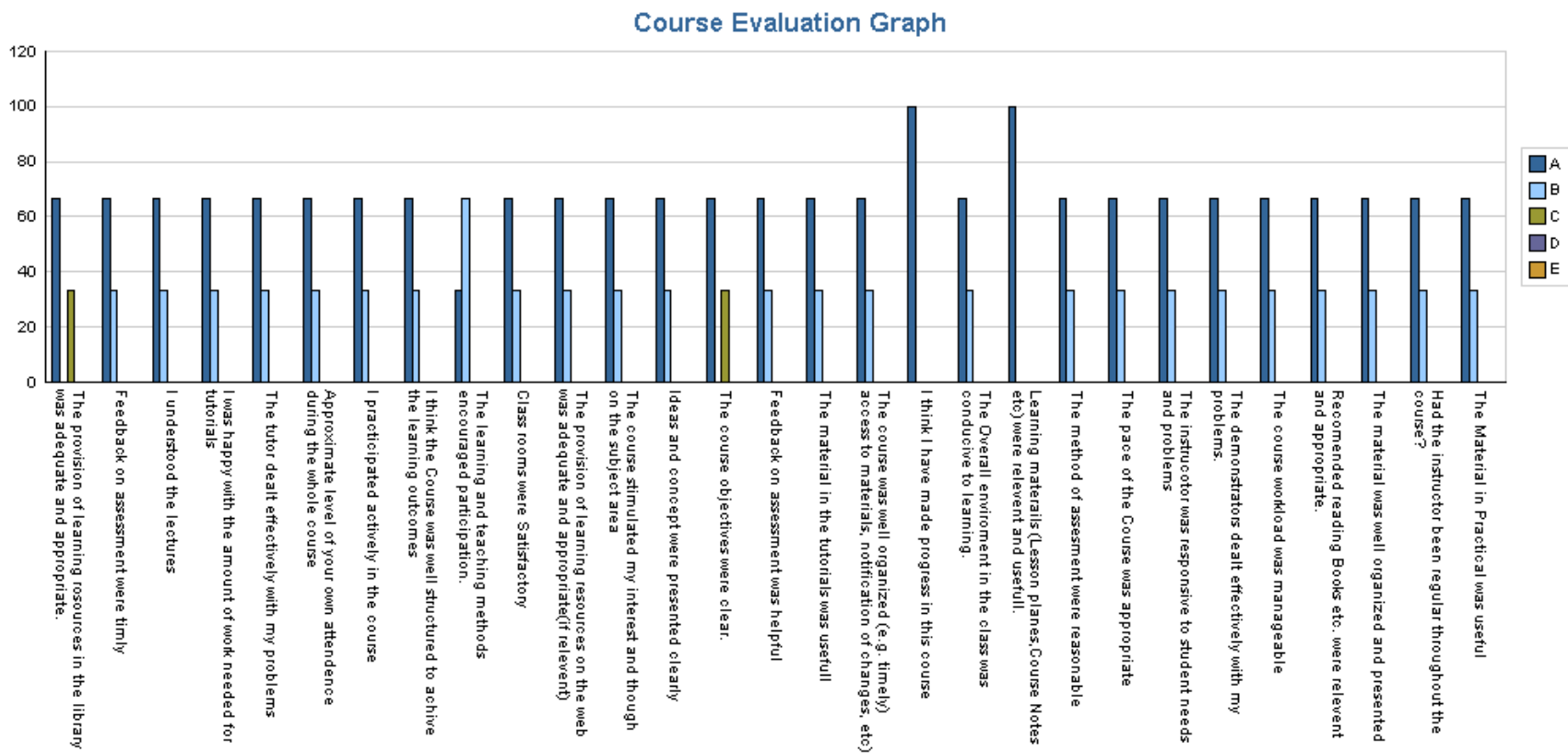
BCH-102 (Supporting course A). Teacher 7 (M): According to the students analysis course workload was manageable and course objectives were clear.



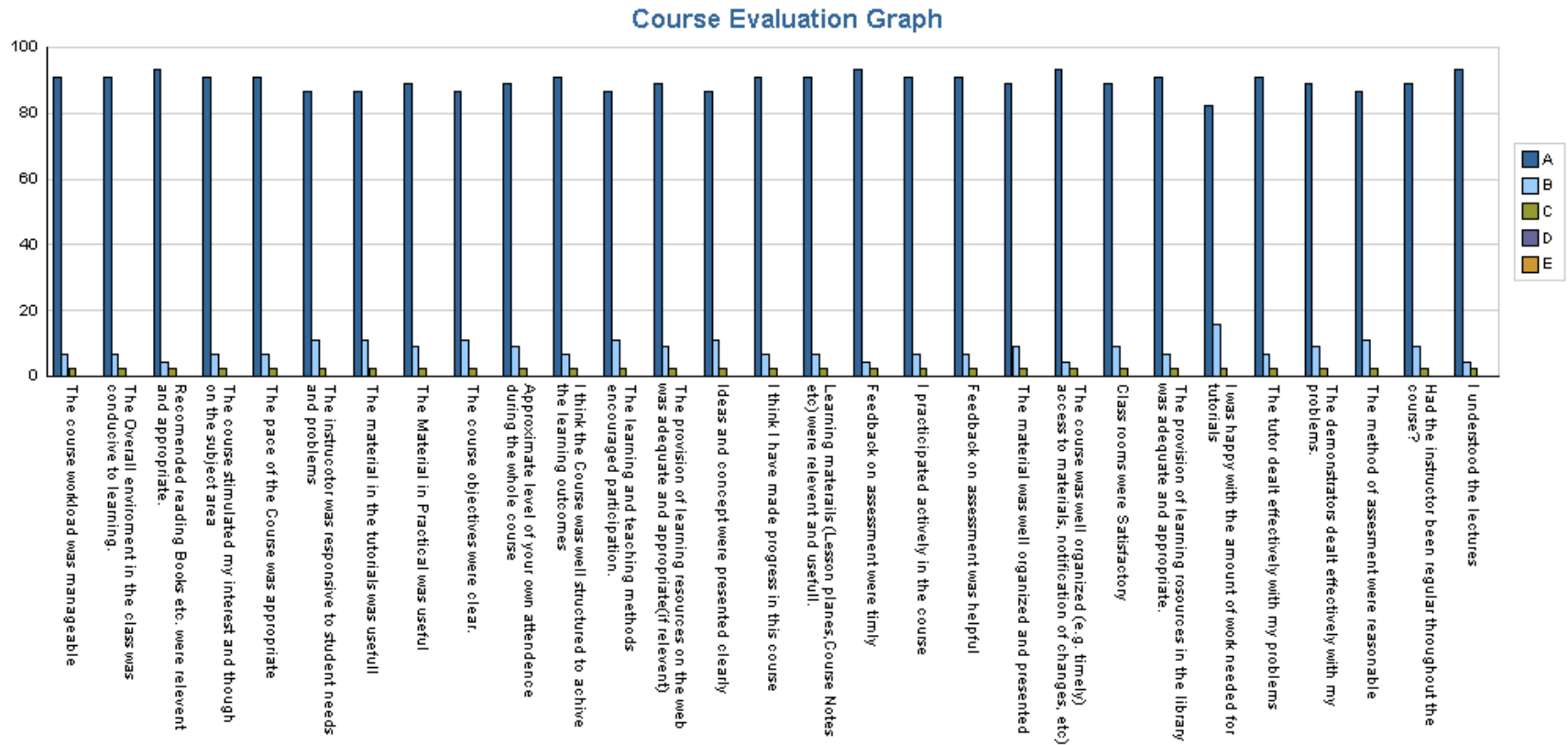
BCH-102 (Supporting course B). Teacher 7 (M): According to the students analysis course workload was manageable and recommended books were relevant and appropriate.



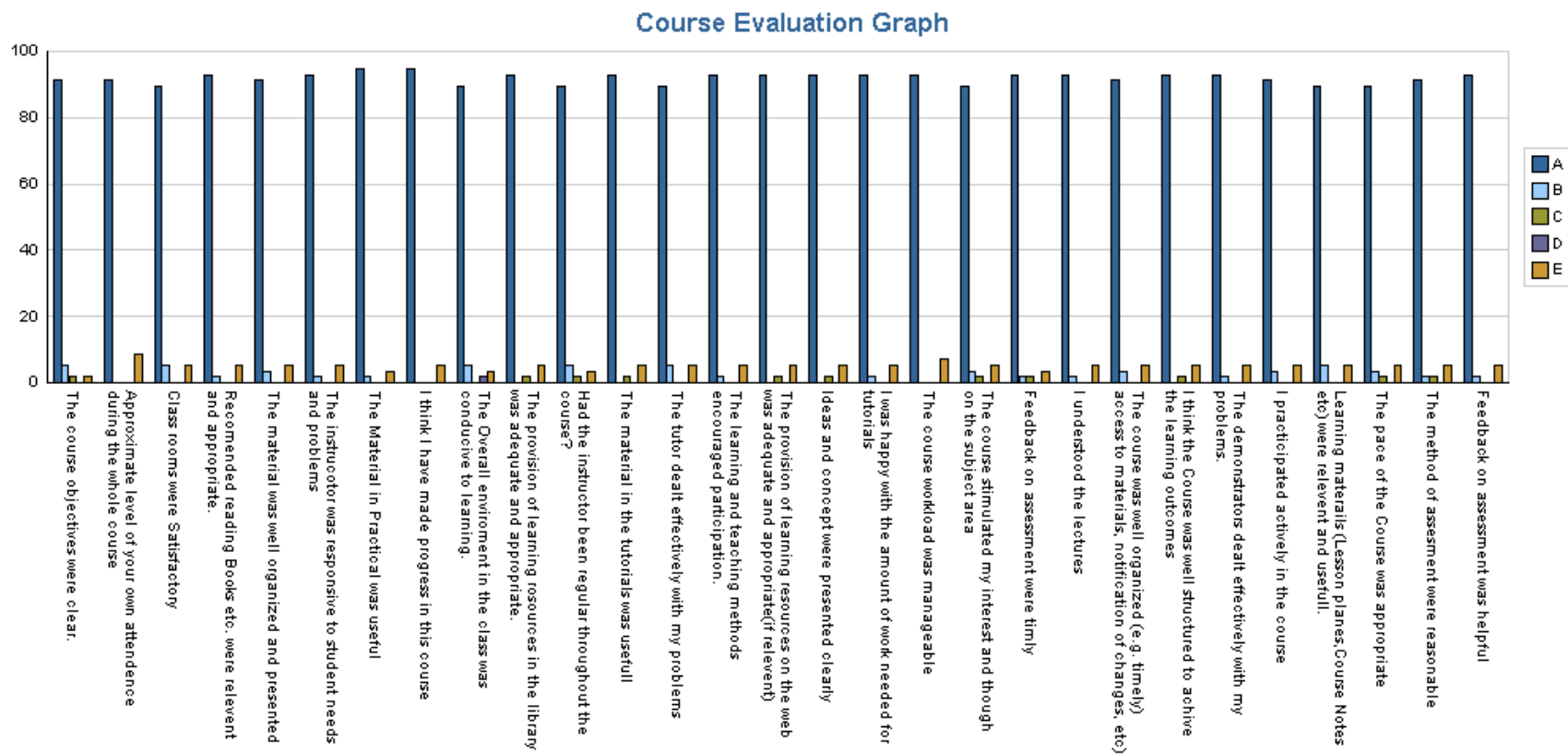
BCH-102 (Supporting course C). Teacher 7 (M): According to the students analysis the course material was well organized and presented.



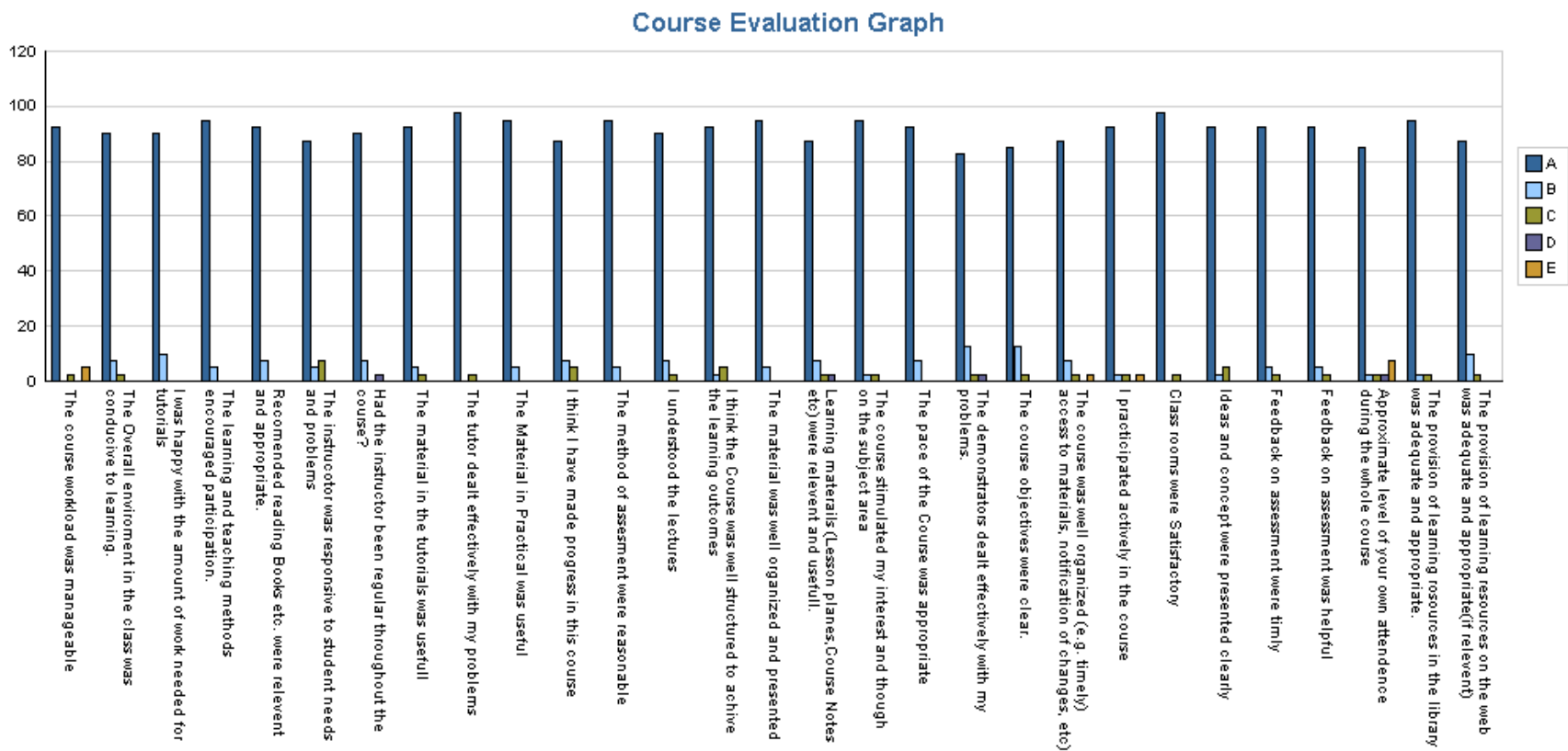
BCH-102 (Supporting course D). Teacher 7 (M): According to students analysis the overall environment of the class was conducive to learning.



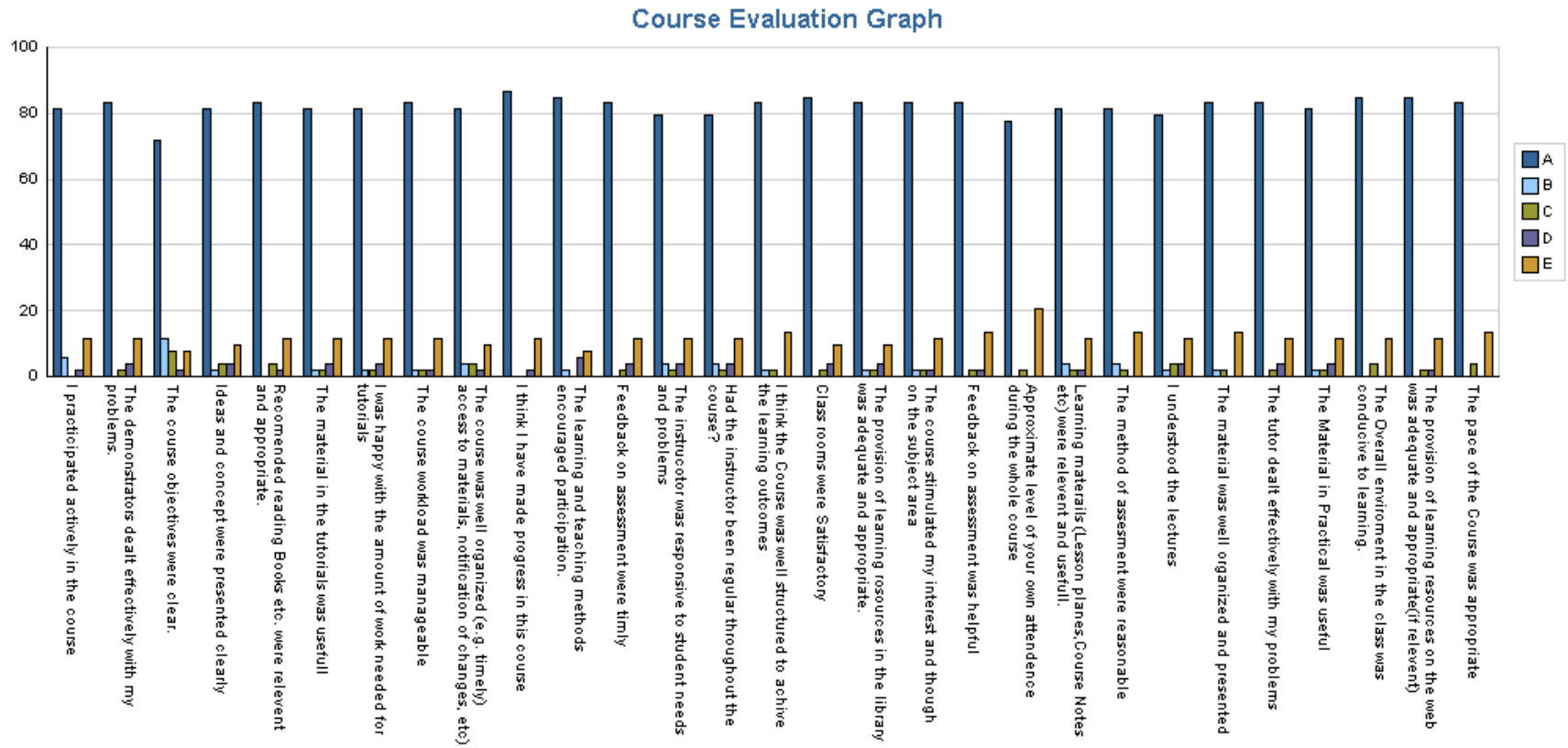
BCH-302. Teacher 5 (E): According to students analysis about the course the recommended reading books were relevant and appropriate.



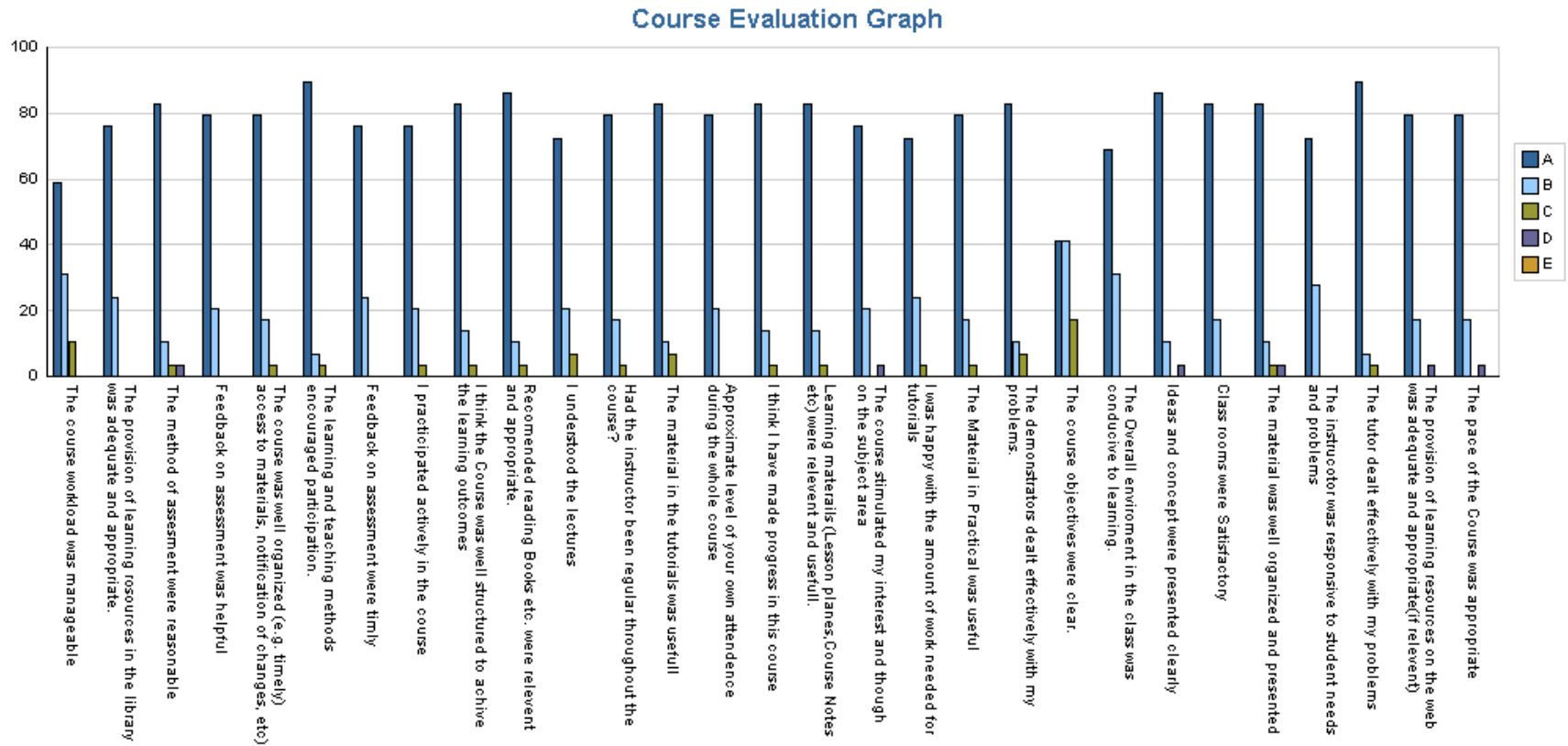
BCH-302. Teacher 5 (M): According to the students analysis about the course was well structured to achieve the learning outcomes.



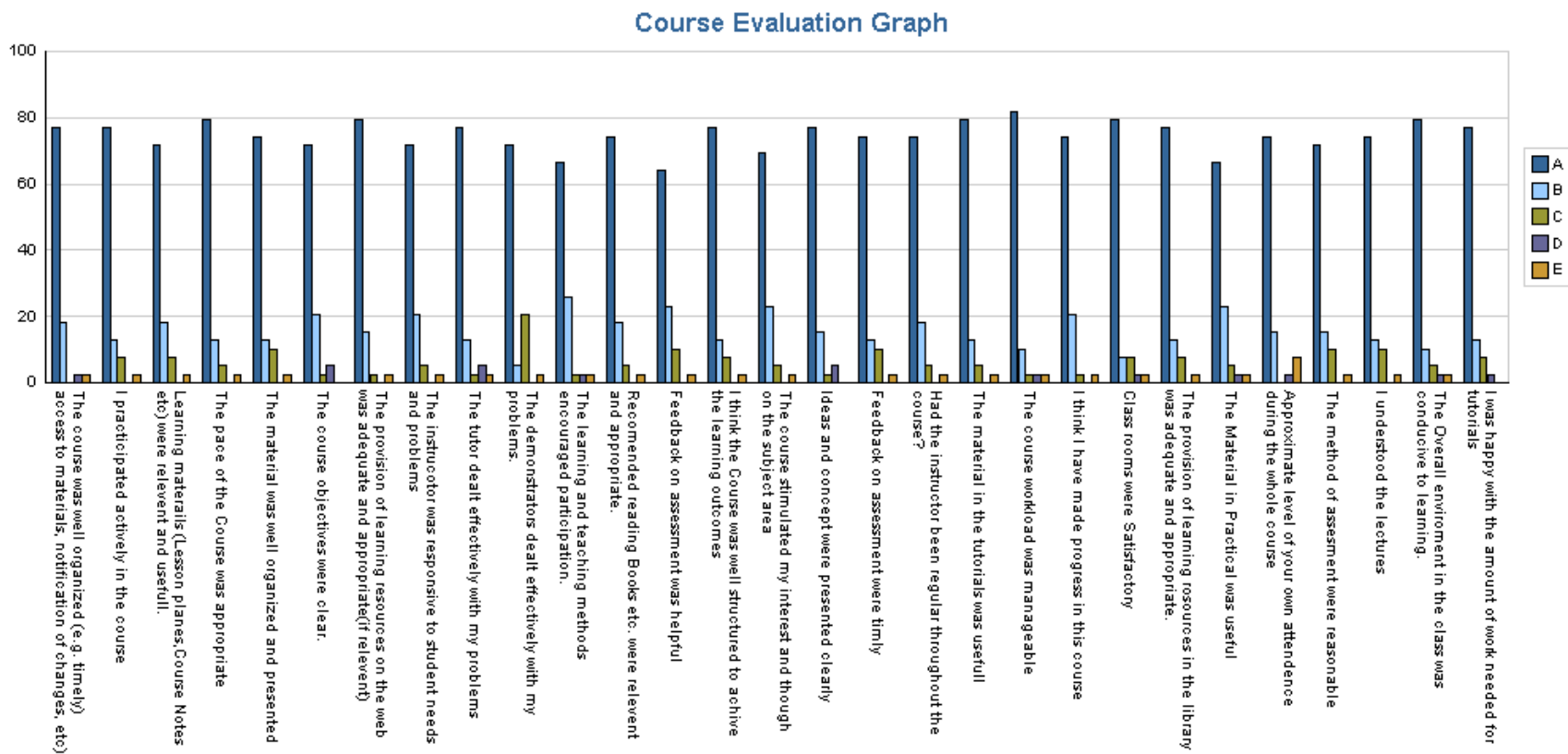
BCH-305. Teacher 7 (M): According to the students analysis the tutor dealt effectively with the problems.



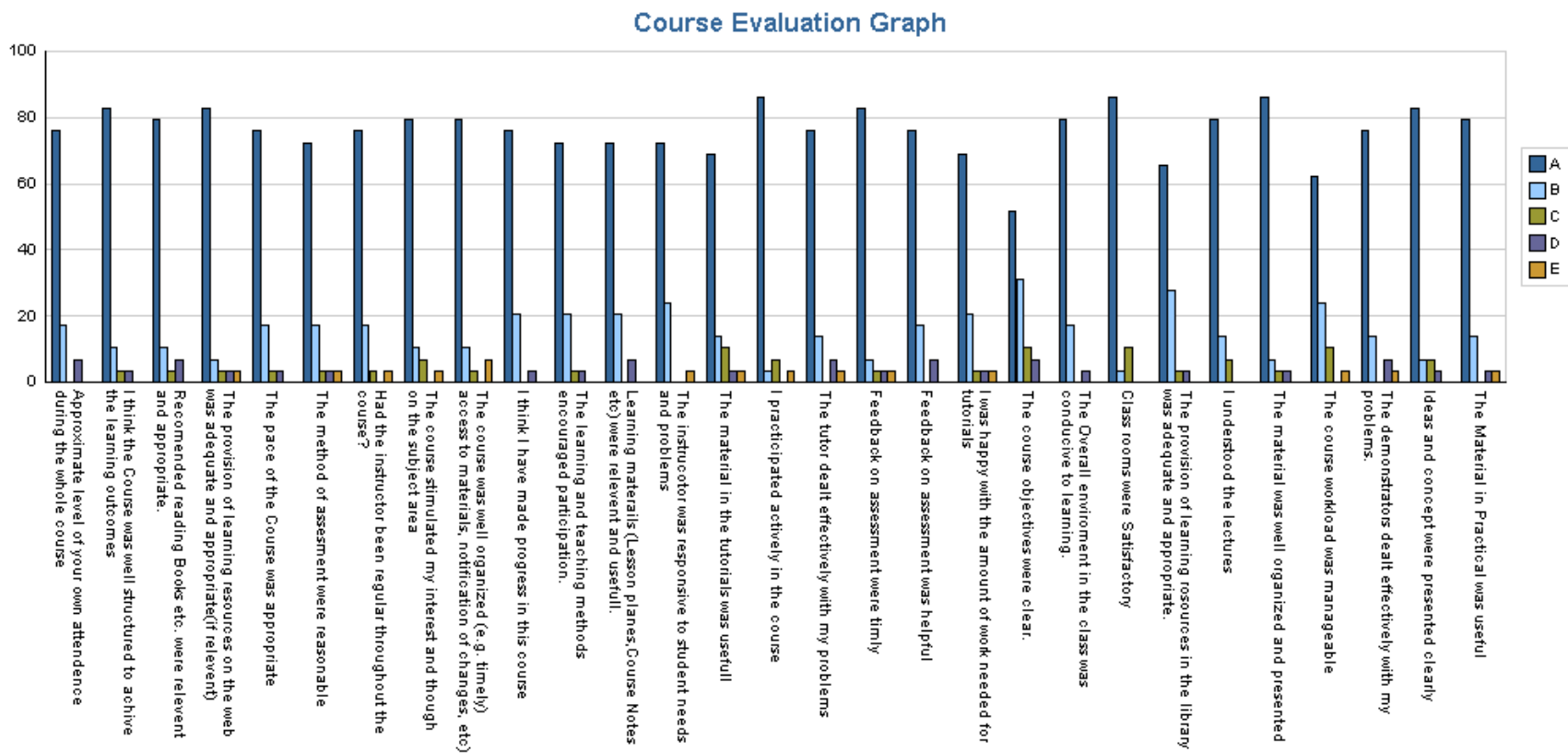
BCH-405. Teacher 5 (M): According to the students analysis the course was well organized and well structured.



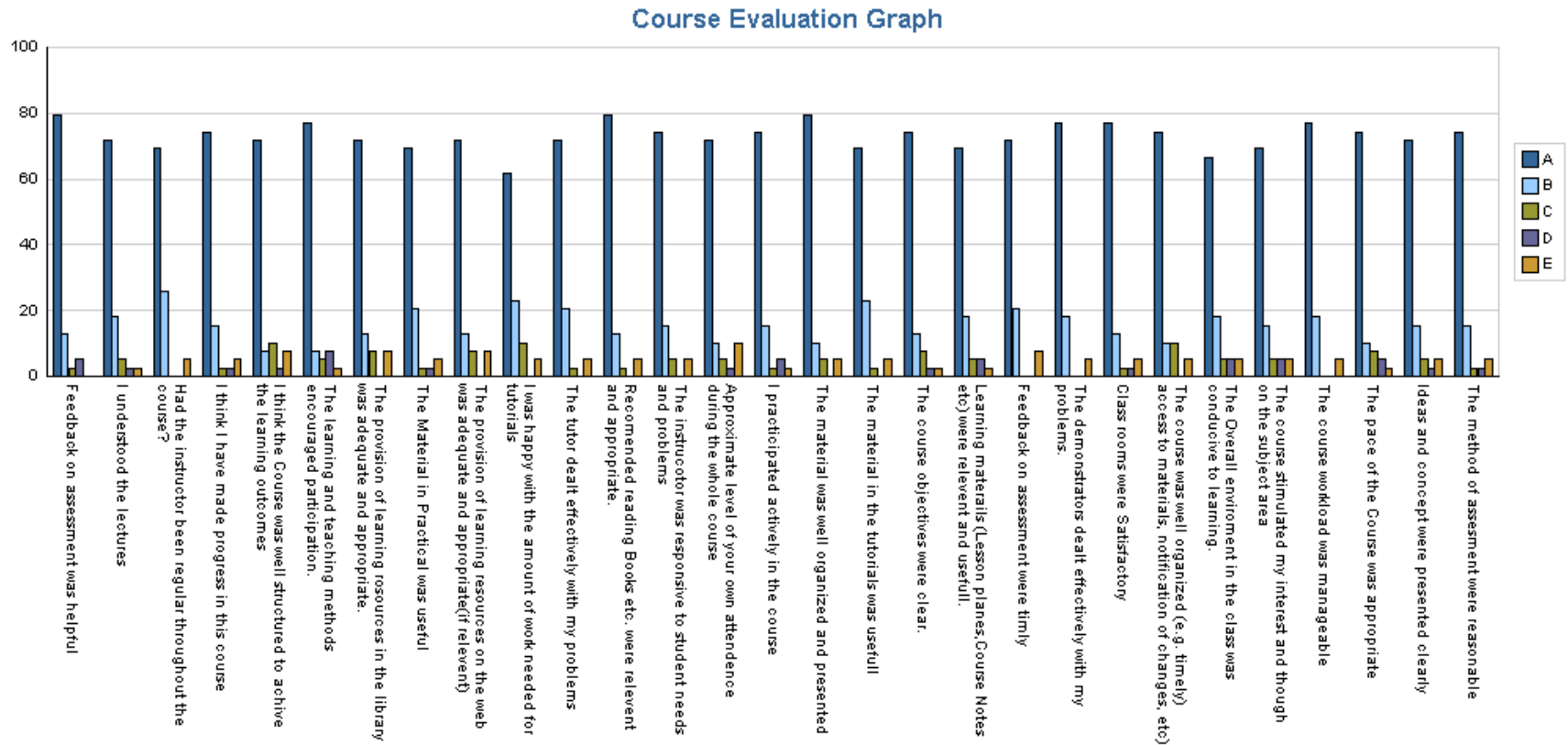
BCH-408. Teacher 9 (E): According to the students analysis the course was well organized and well structured.



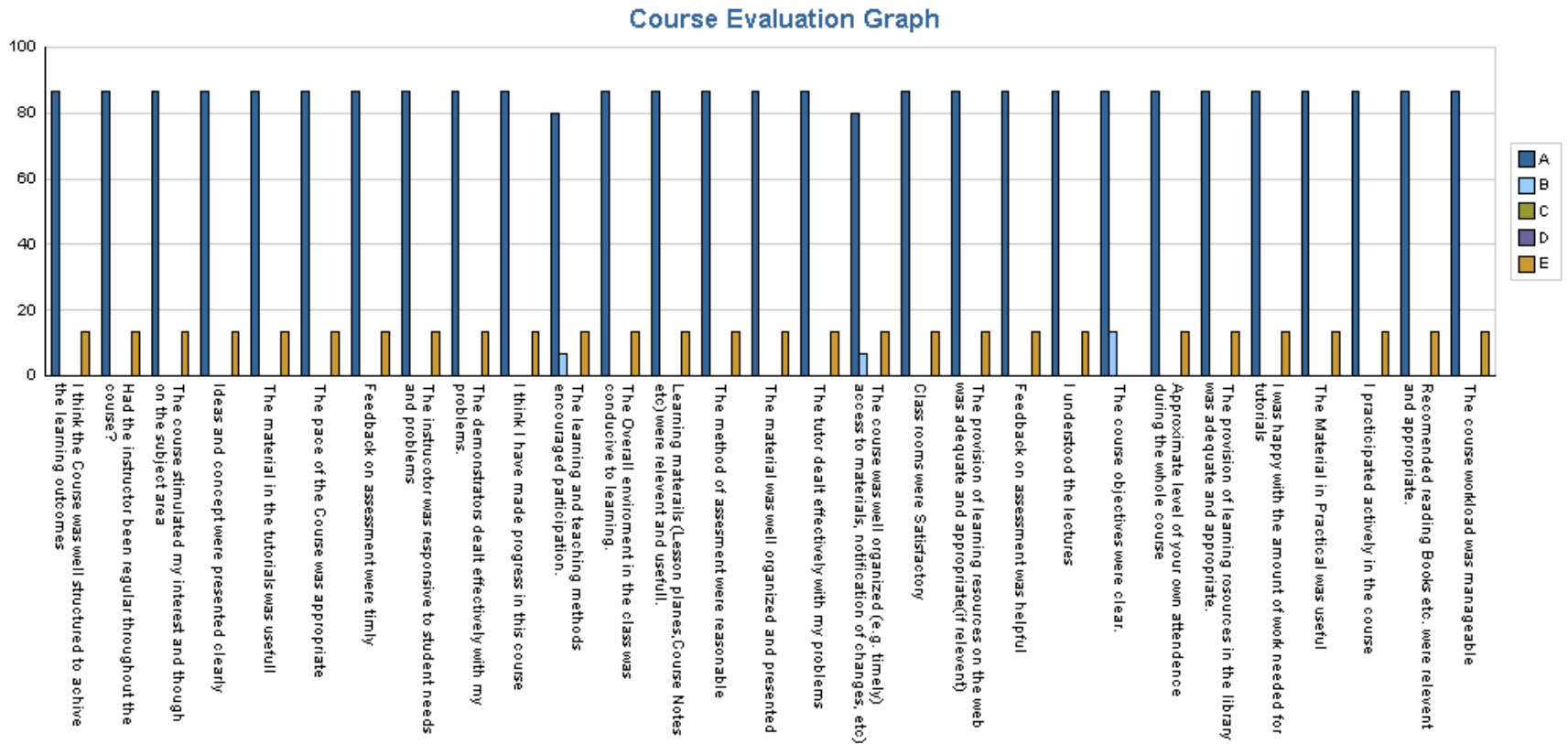
BCH-408. Teacher 9 (M): According to the students analysis the overall environment of the class was conducive for learning.



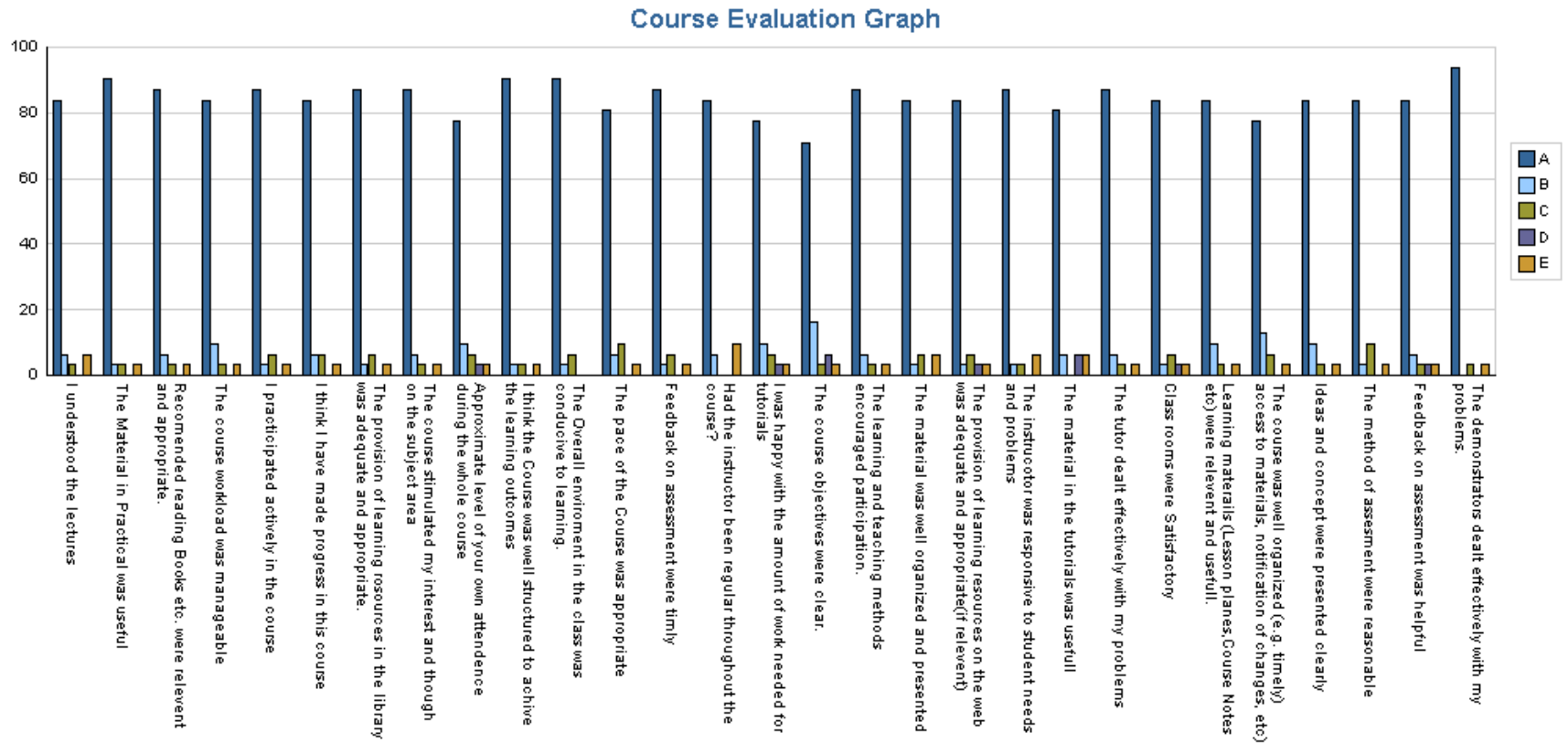
BCH-409. Teacher 1 (E): According to the students analysis the course material was well organized and presented.



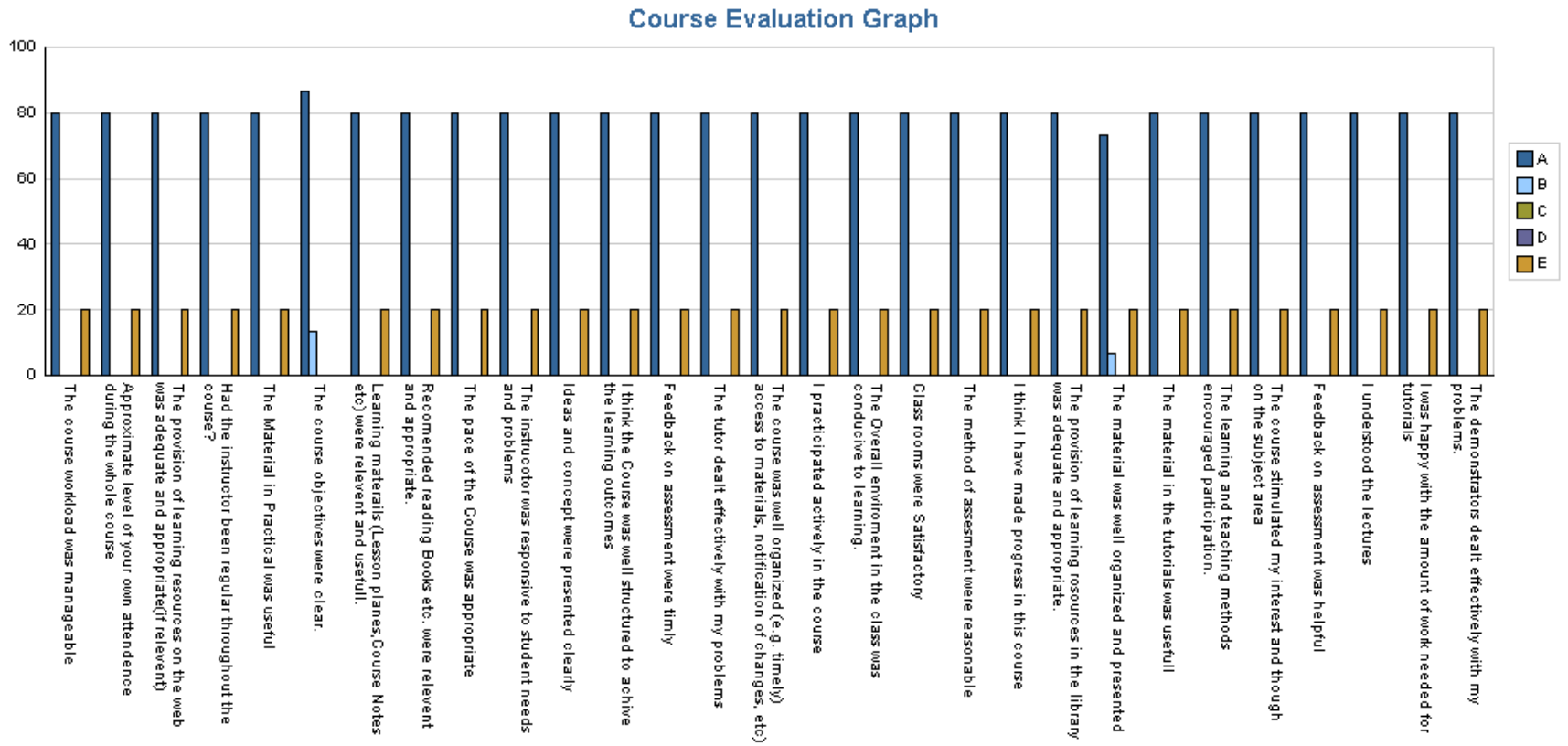
BCH-409. Teacher 1 (M): According to the students analysis the recommended reading books were relevant and appropriate.



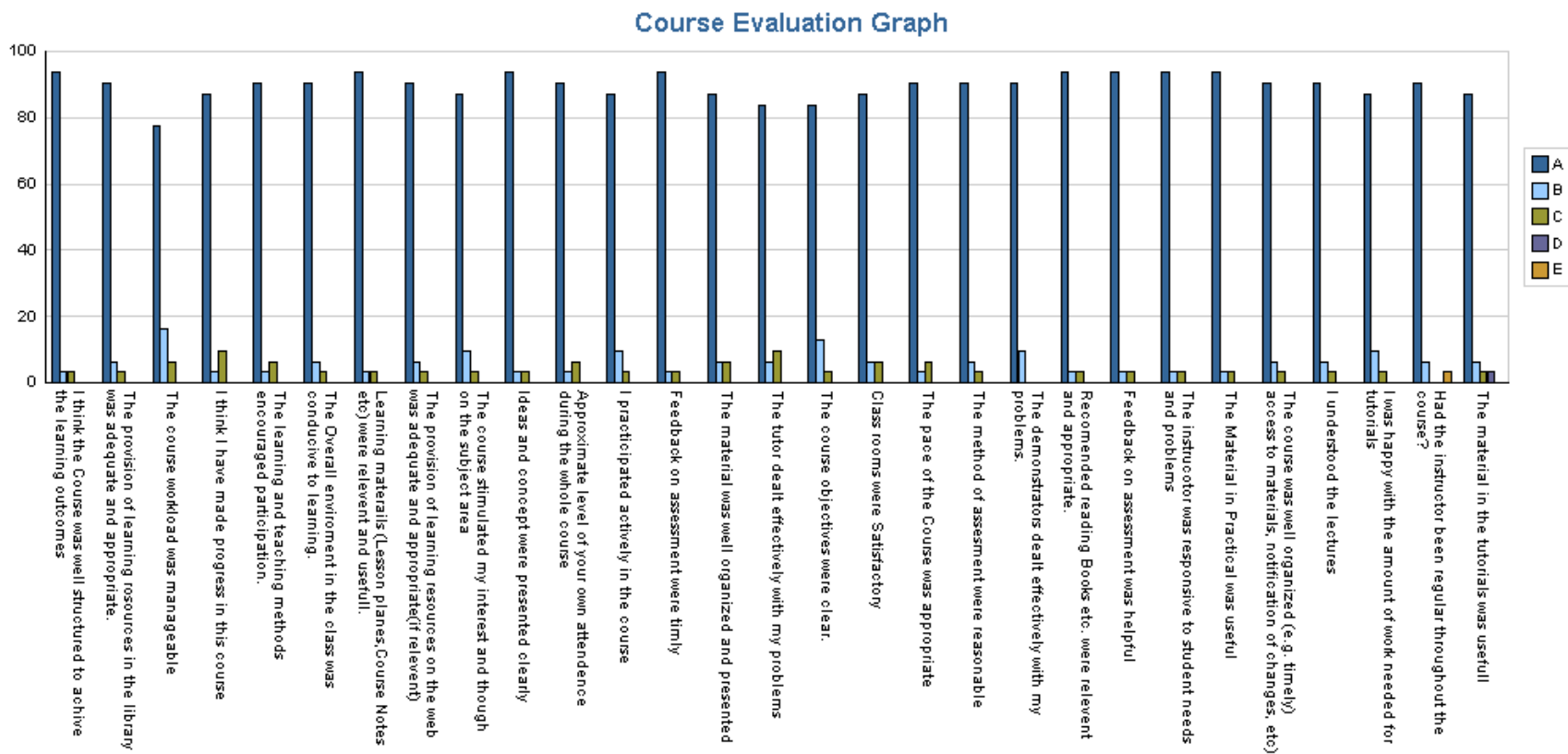
BCH-507. Teacher 2 (E): According to the students analysis the tutor dealt effectively with the problems.



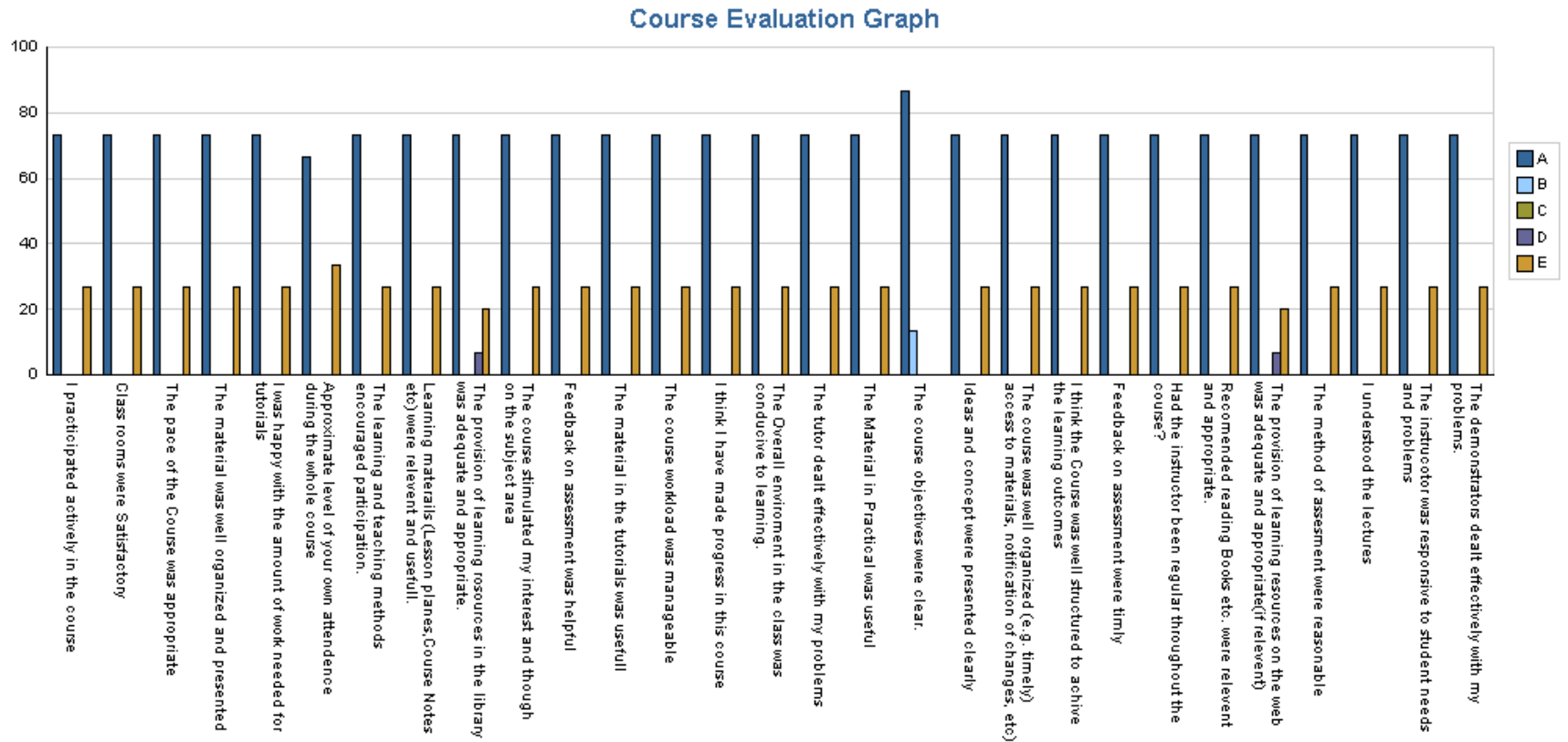
BCH-507. Teacher 2 (M): According to the students analysis the overall environment in the class was conducive for learning.



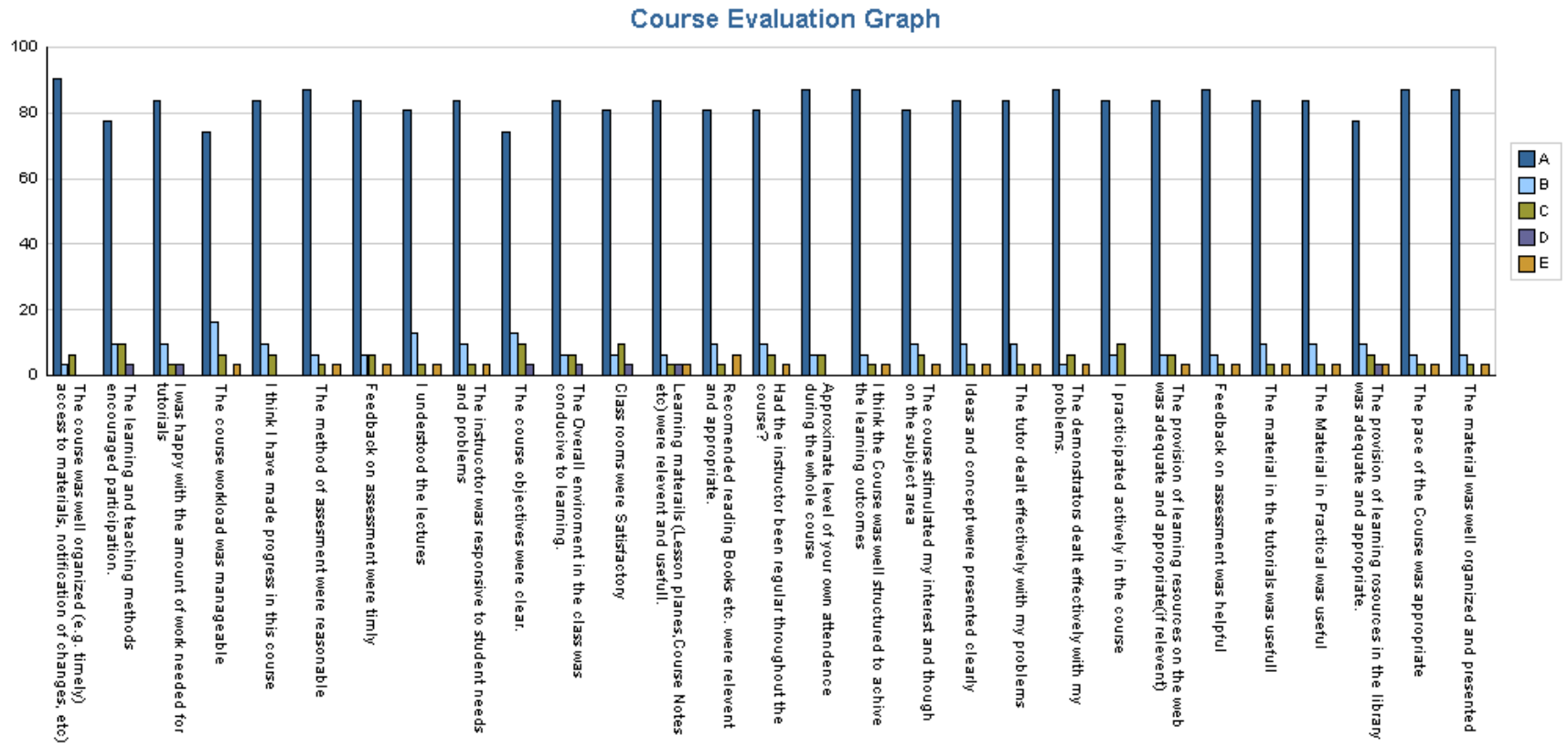
BCH-508. Teacher 1 (E): According to the students analysis the course objectives were very clear.



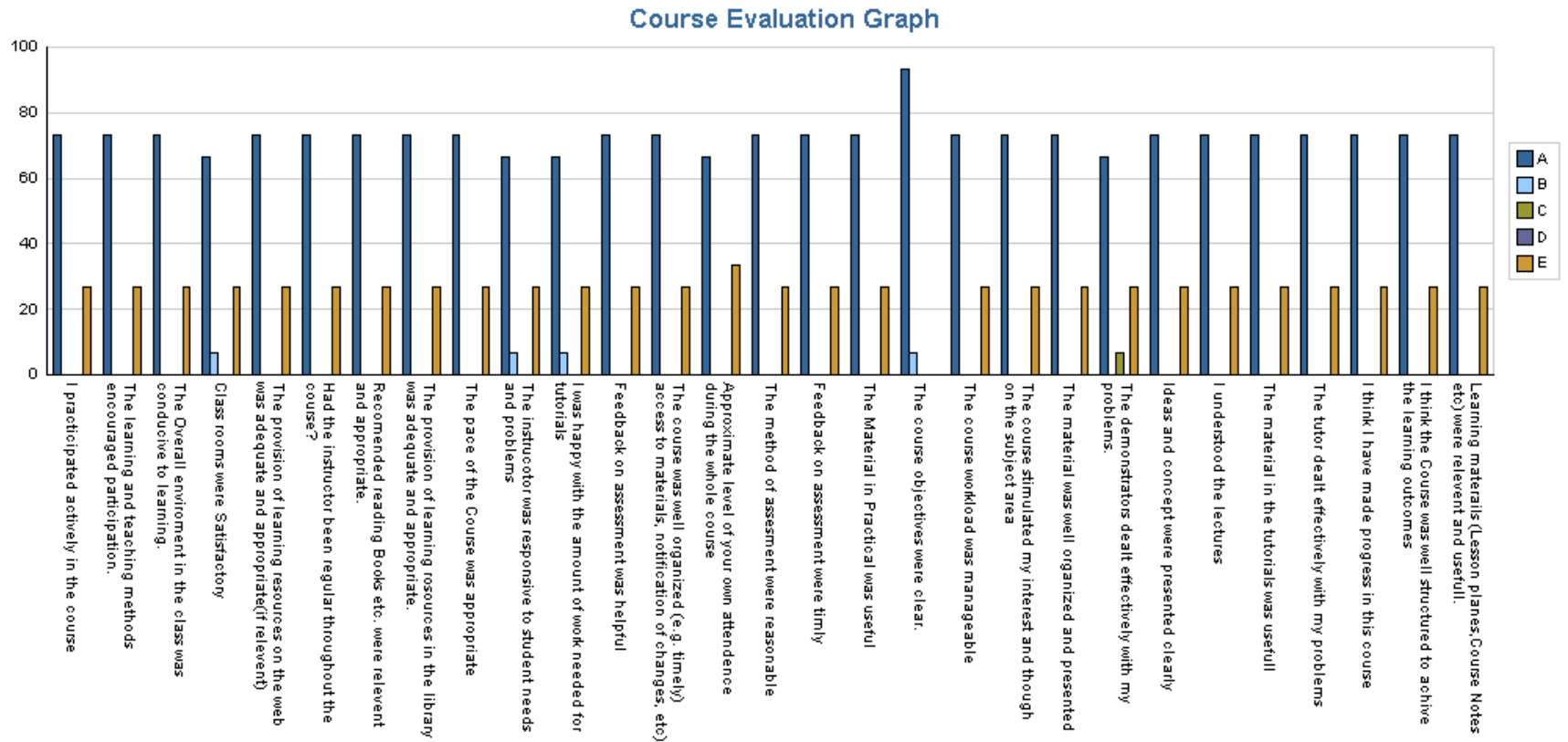
BCH-508. Teacher 1 (M): According to the students analysis learning matter presented in the course were relevant and appropriate.



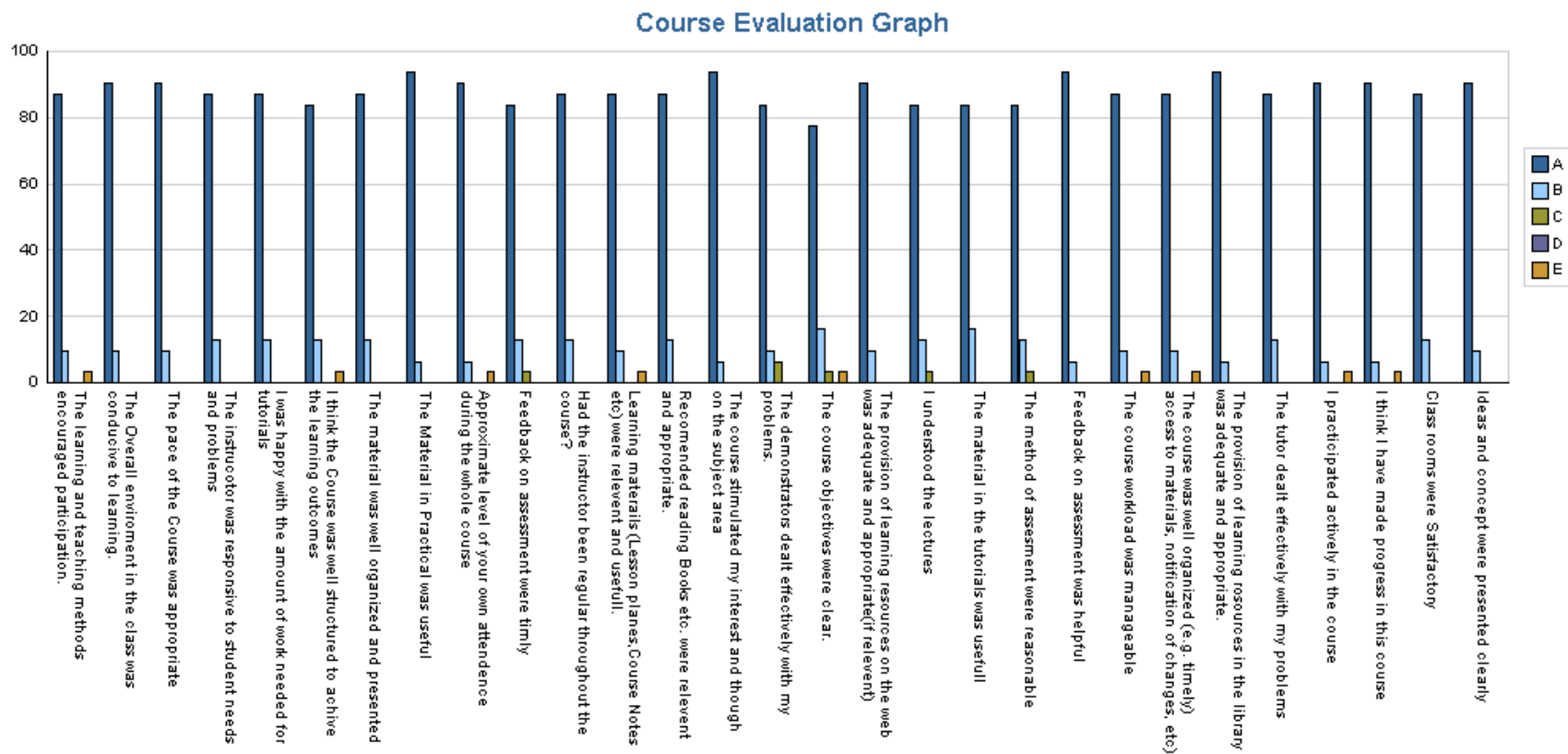
BCH-511. Teacher 7 (E): According to the students analysis the course objectives were very clear.



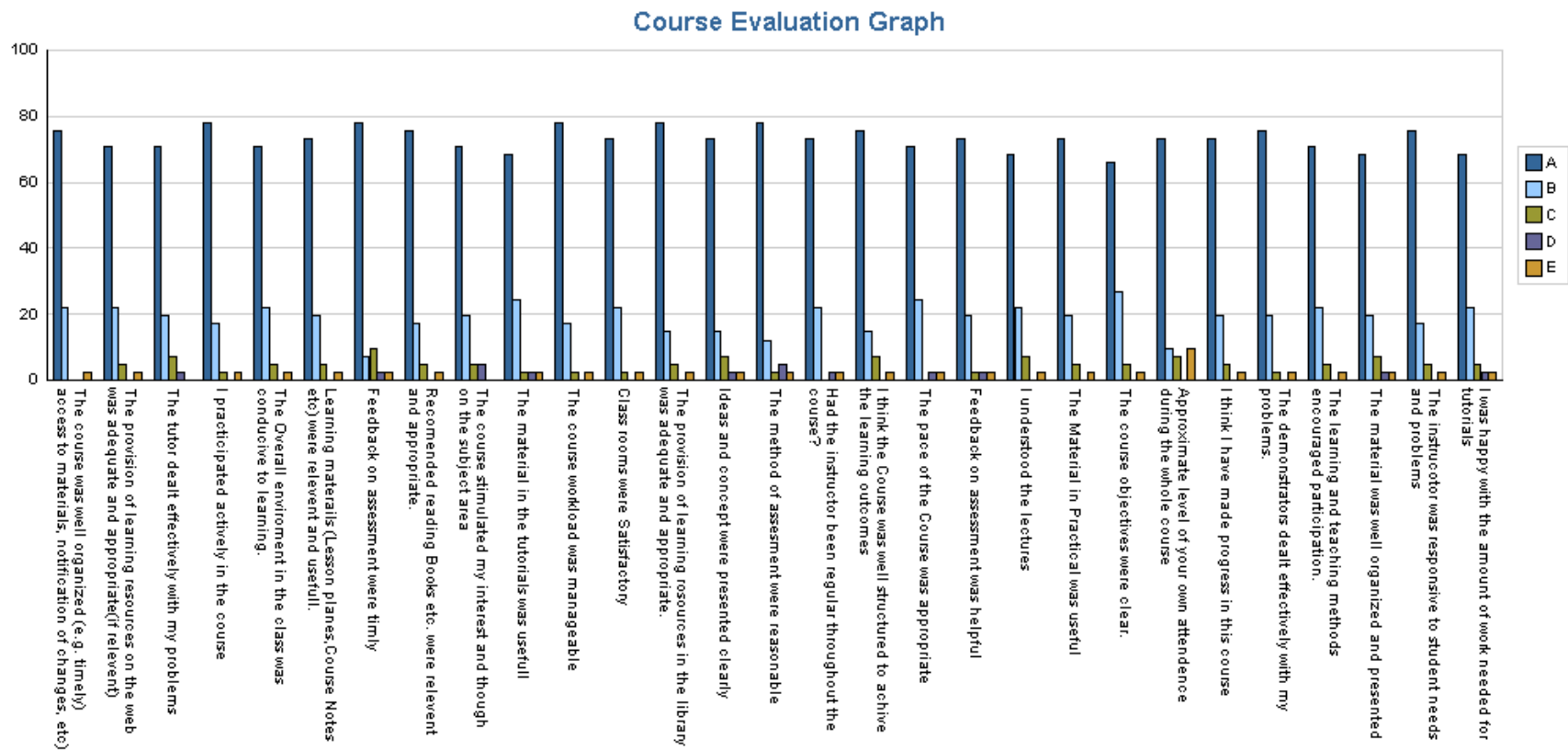
BCH-511. Teacher 7 (M): According to the students analysis the course materials was well organized and well presented.



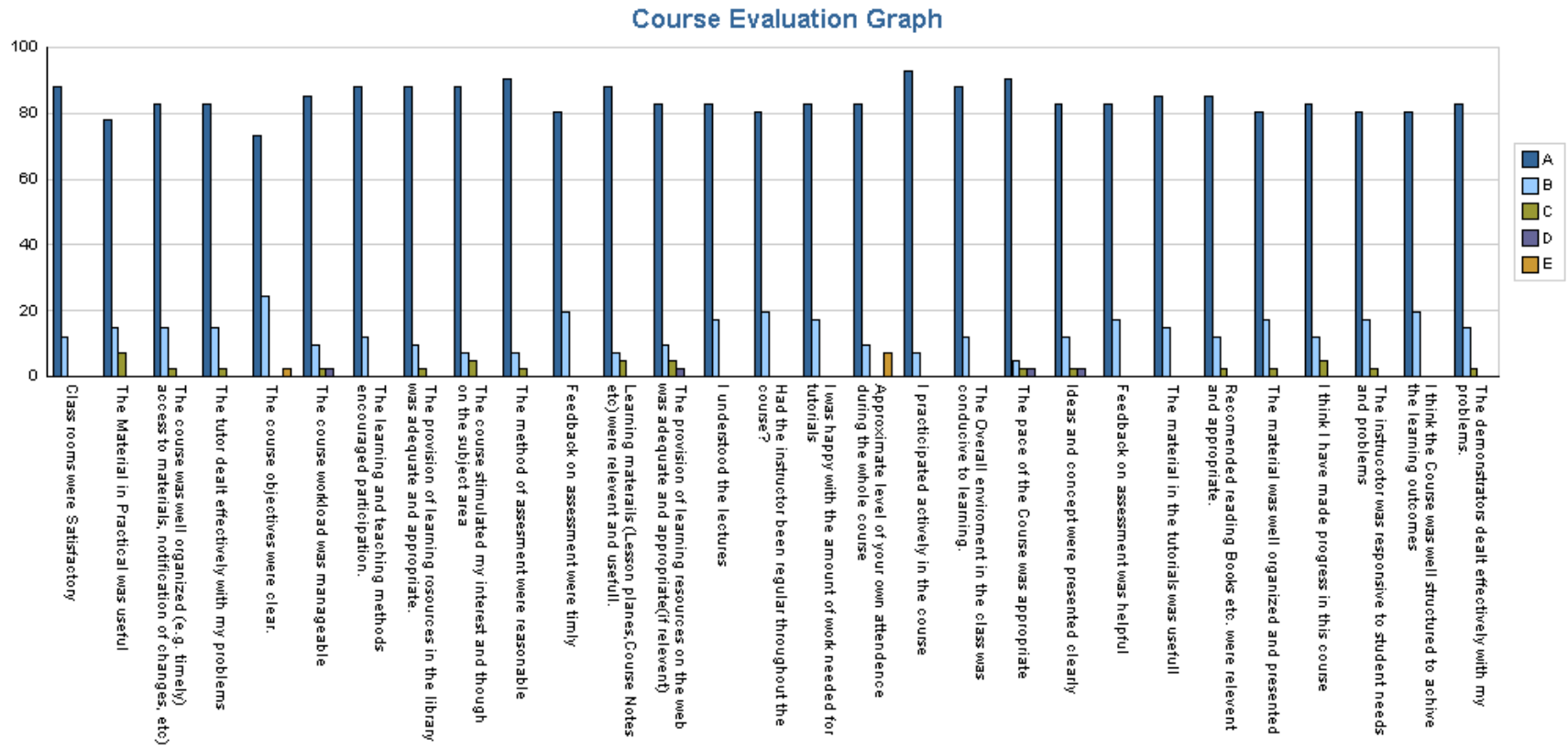
BCH-520. Teacher 5 (E): According to the students analysis the course objective were very clear.



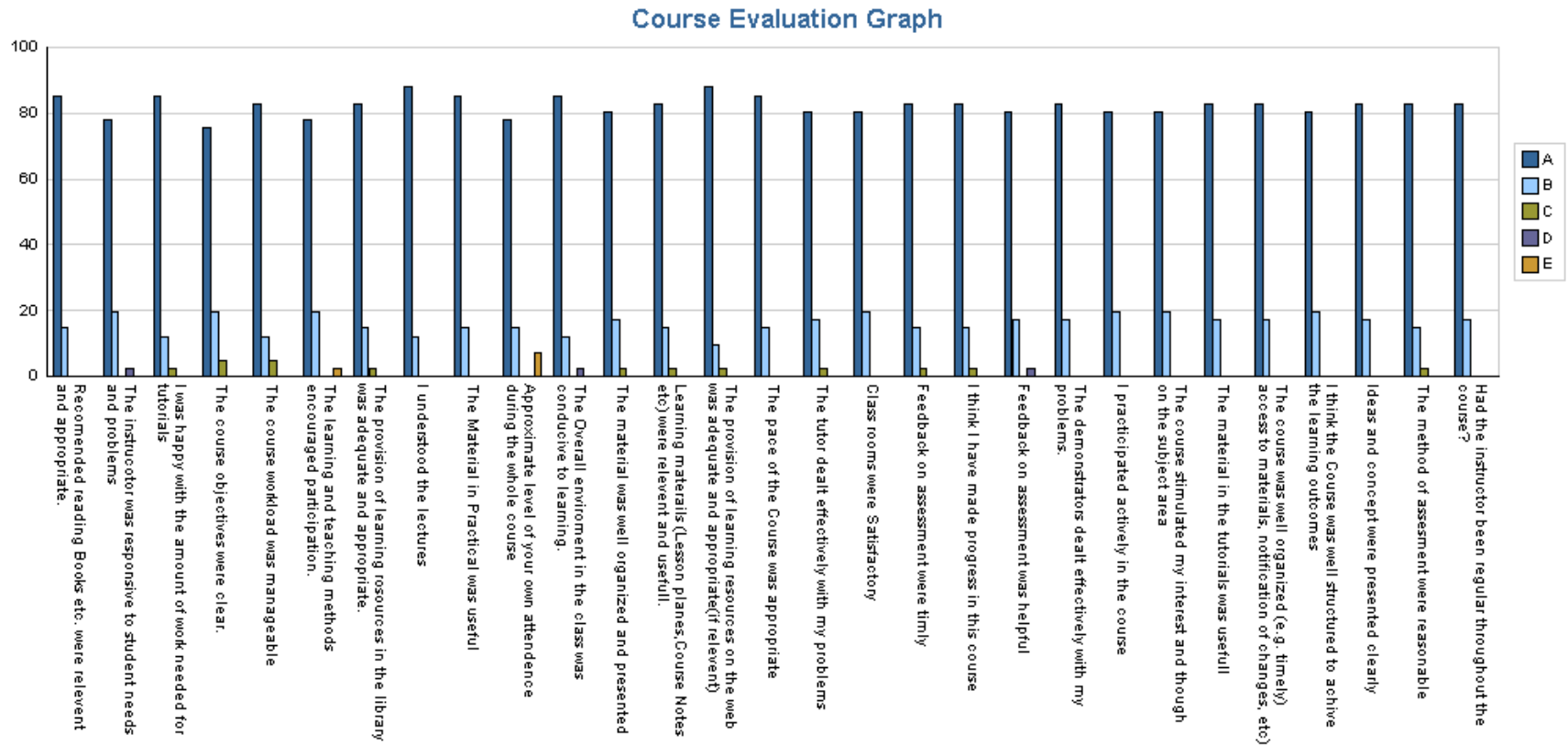
BCH-520. Teacher 5 (M): According to the students analysis the material in the practical was useful.



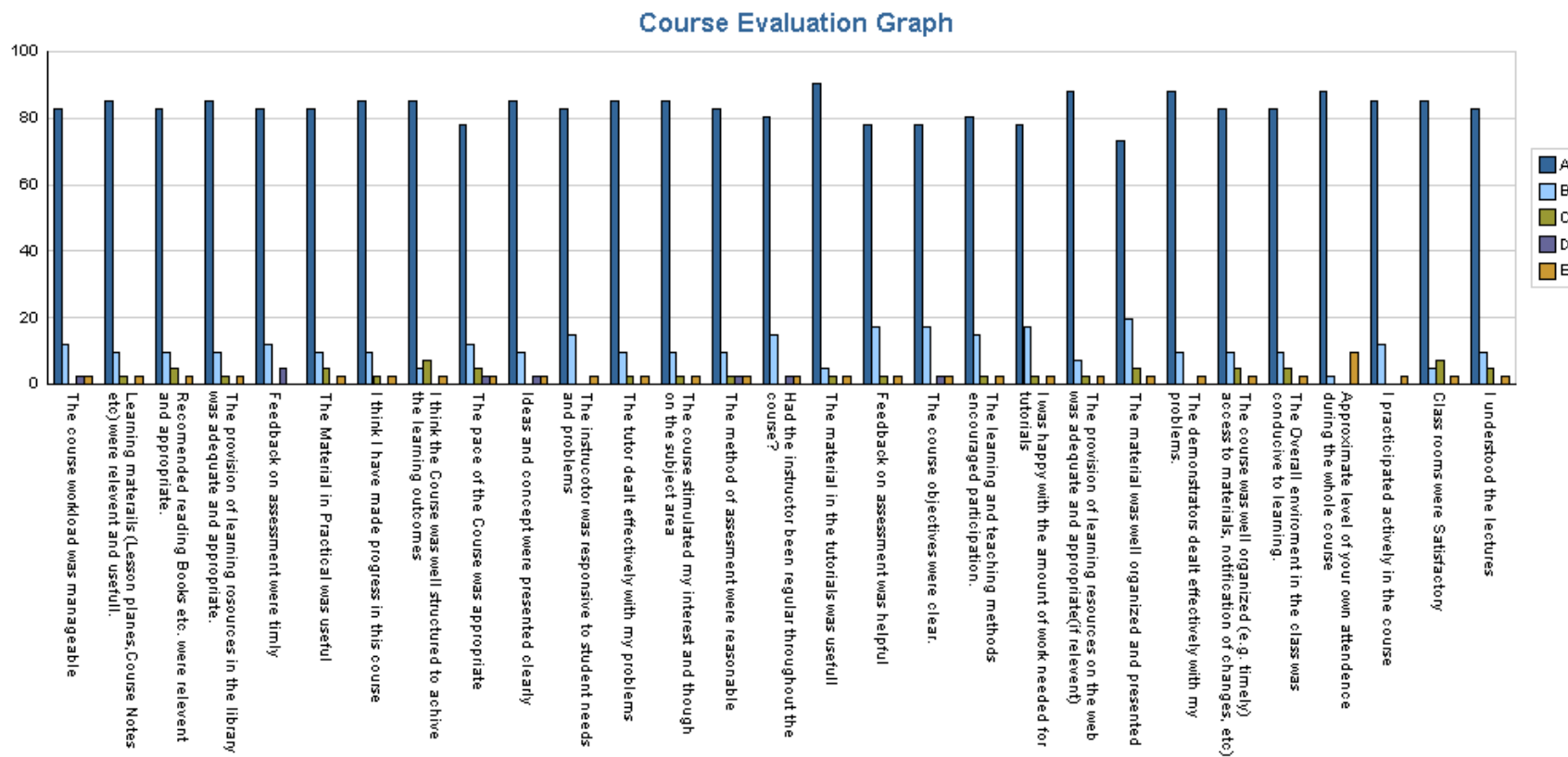
BCH-605. Teacher 3 (M): According to the students analysis the course workload was manageable.



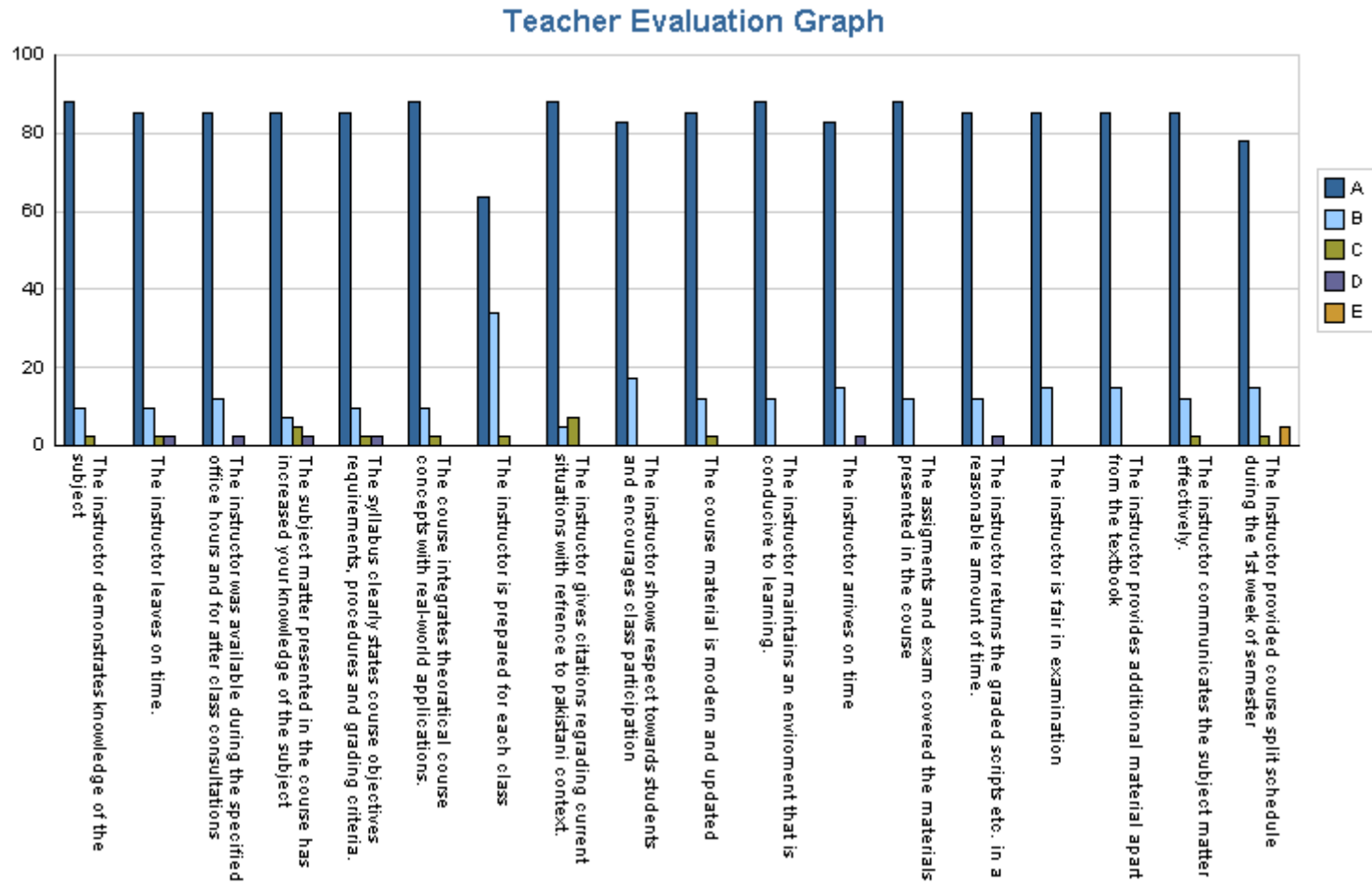
BCH-606. Teacher 6 (M): According to the students analysis they participated actively in the course.



BCH-618. Teacher 9 (M): According to the students analysis all the students understood the lectures very well.

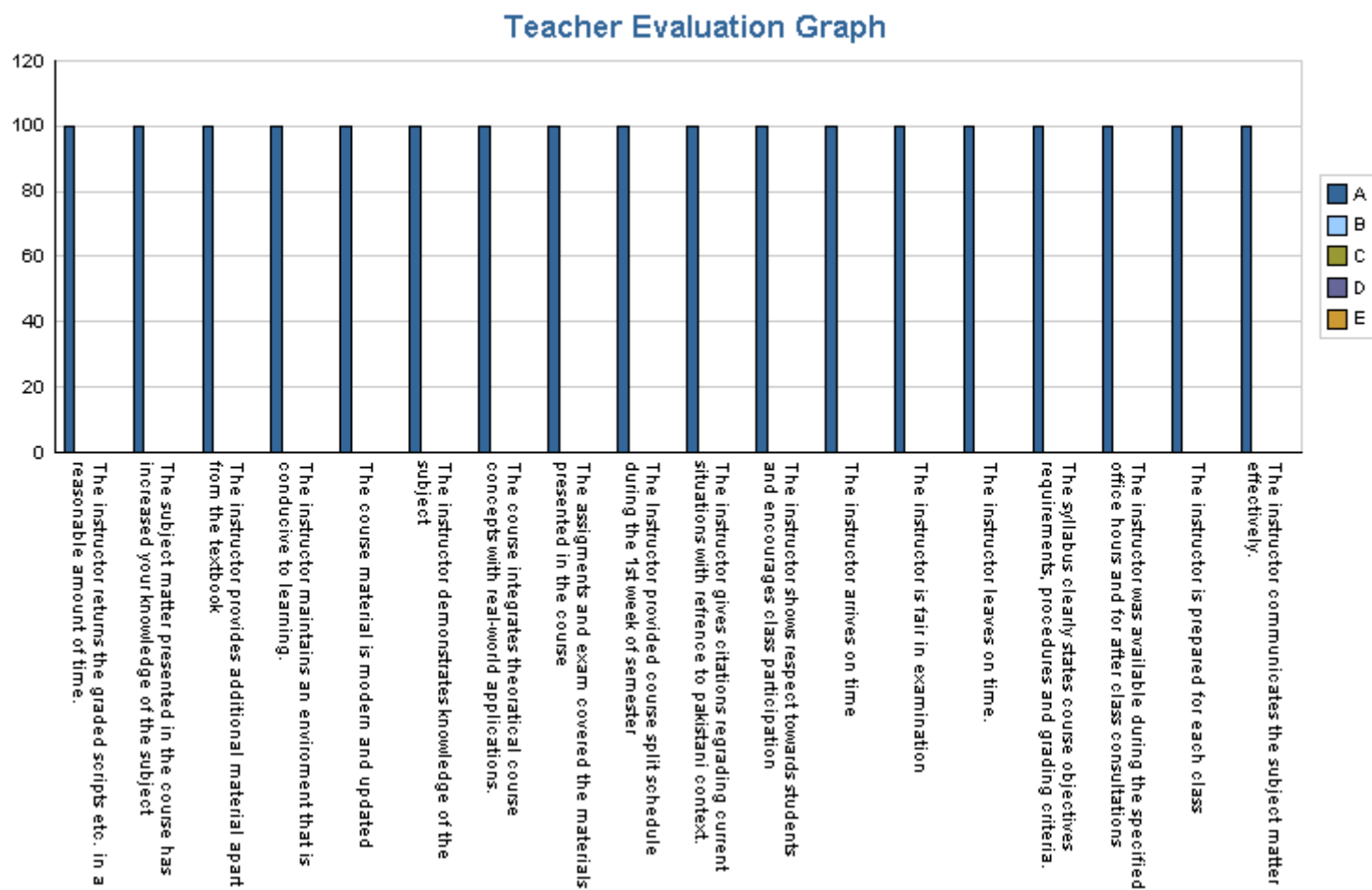


BCH-619. Teacher 1 (M): According to the students analysis the demonstrator dealt very effectively with the problems.

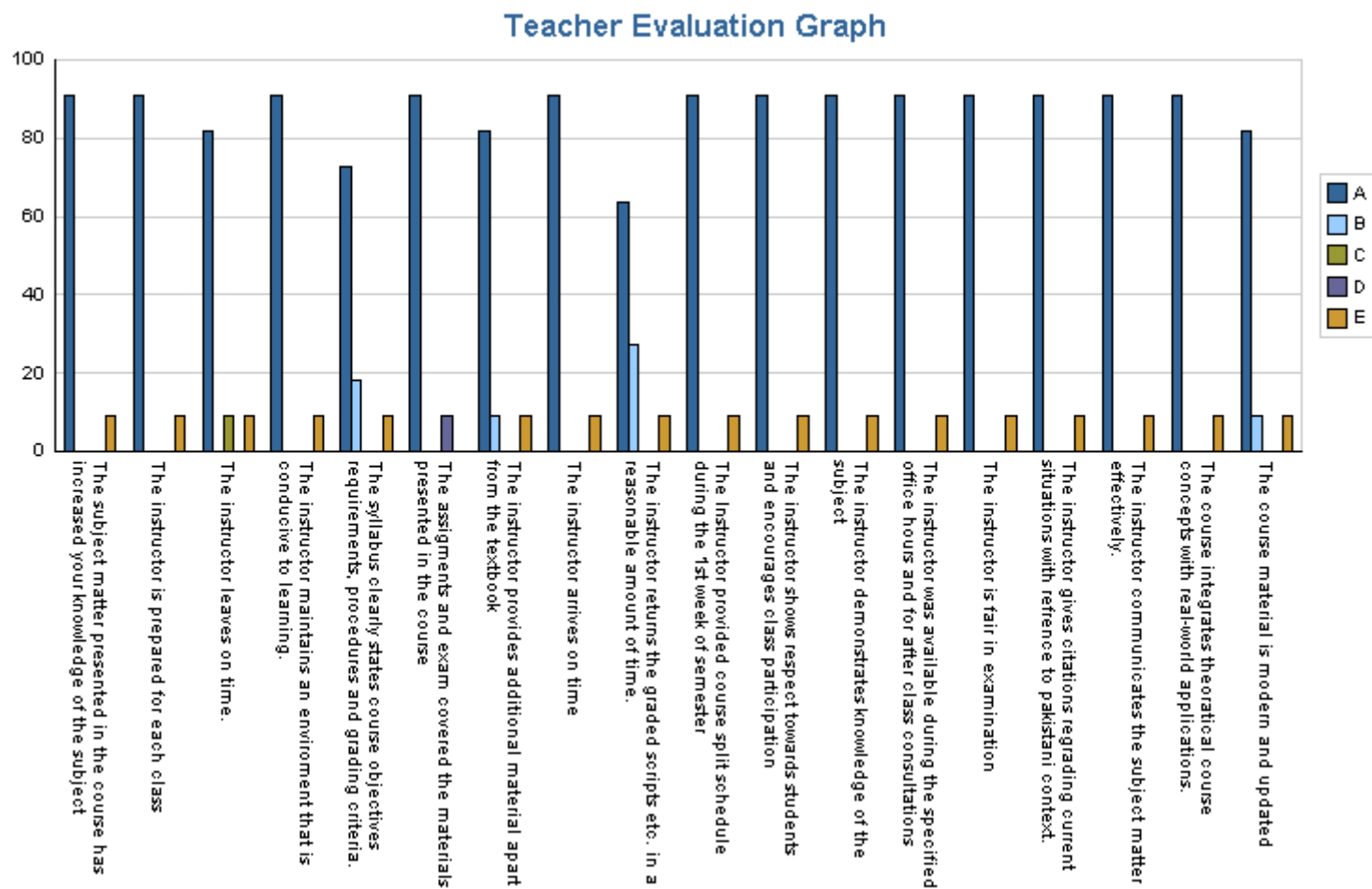


BCH-620. Teacher 7 (M): According to students analysis the instructor maintains environment in the class conducive to learning.

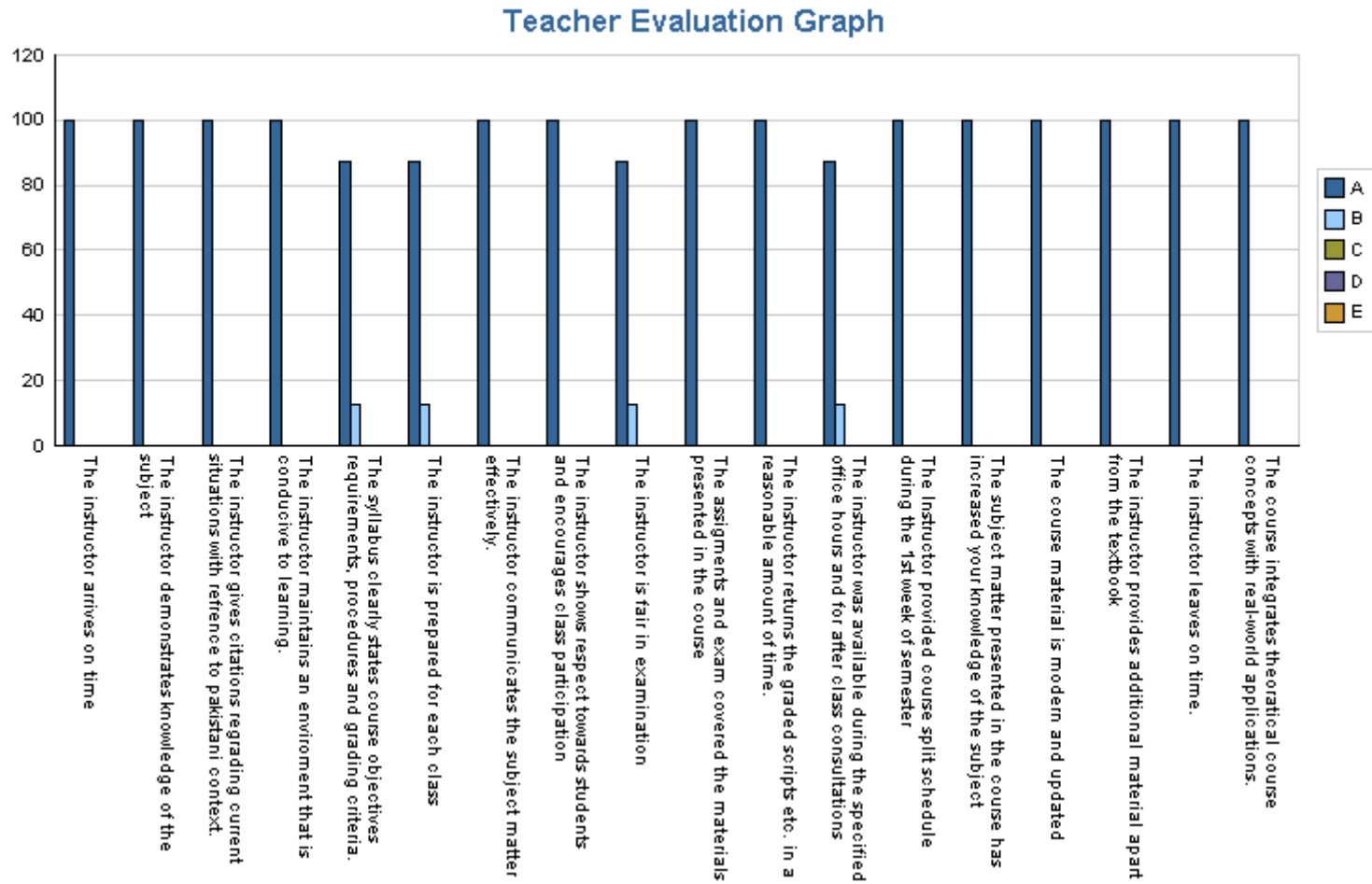
Results of Performa 10 (Spring 2016)



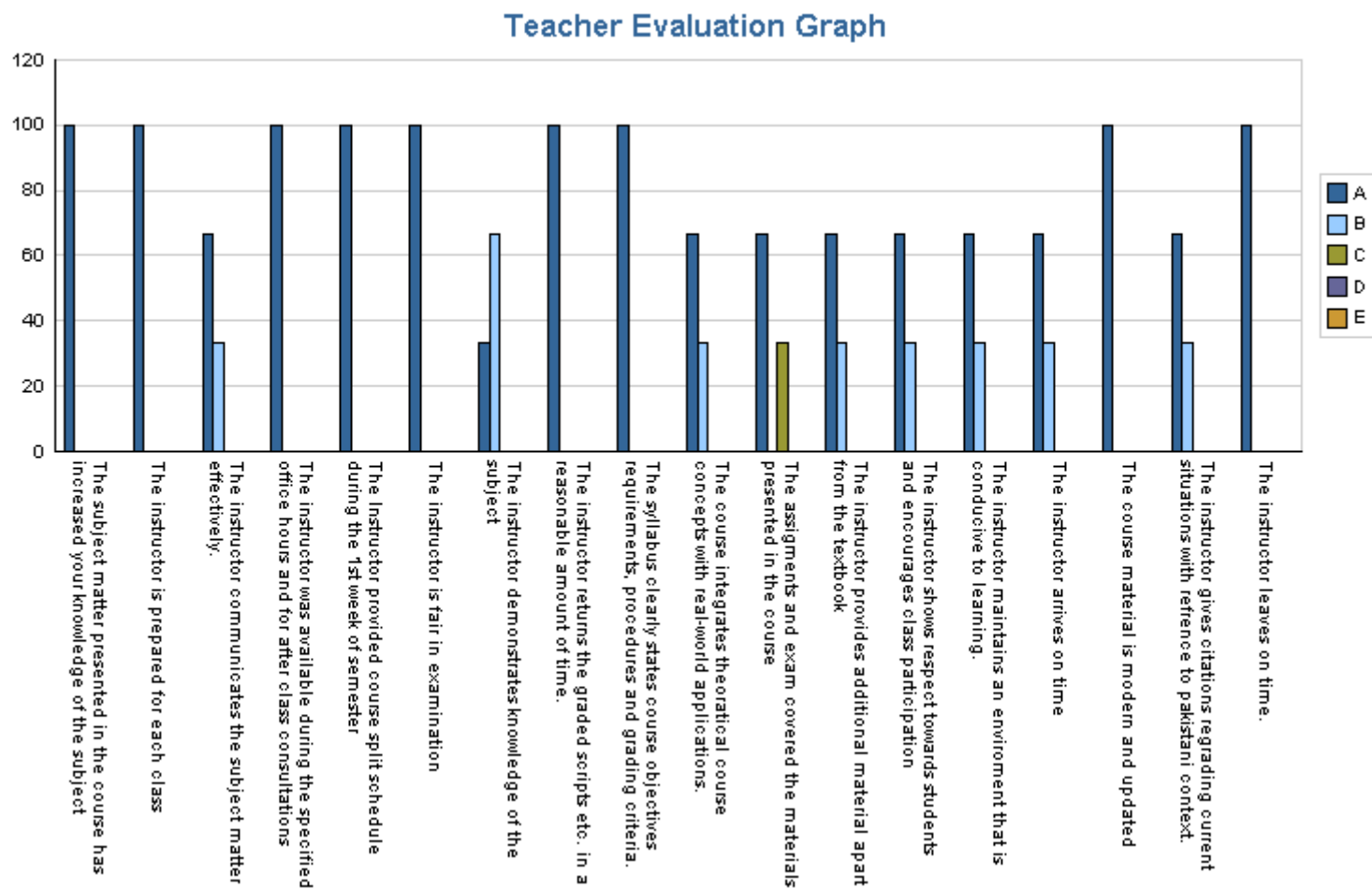
BCH-102 (Supporting course A). Teacher 7 (M): According to the students analysis the course materials was modern and updated.



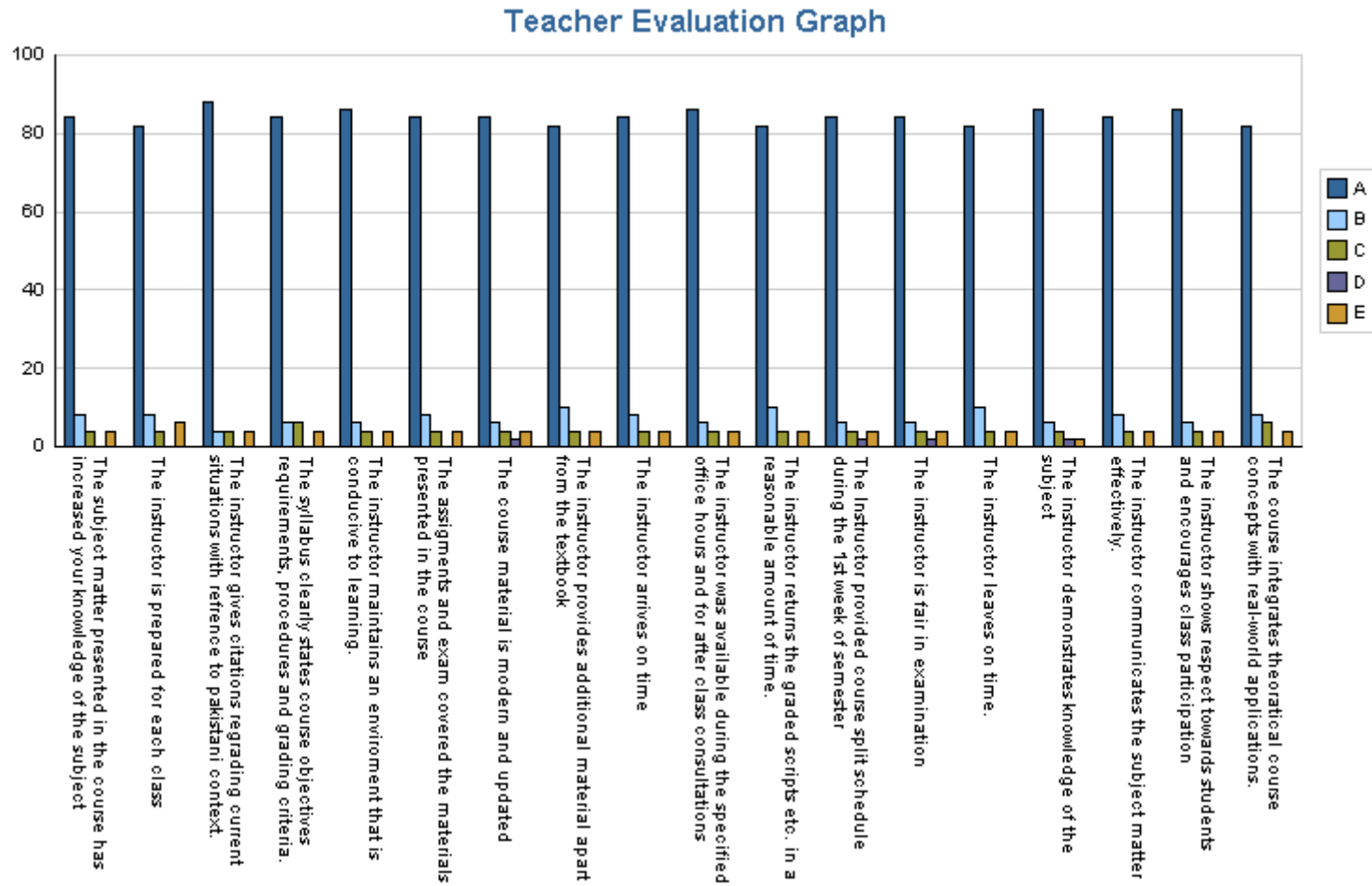
BCH-102 (Supporting course B). Teacher 7 (M): According to the students analysis the instructor provided the course split schedule during the 1st week of semester.



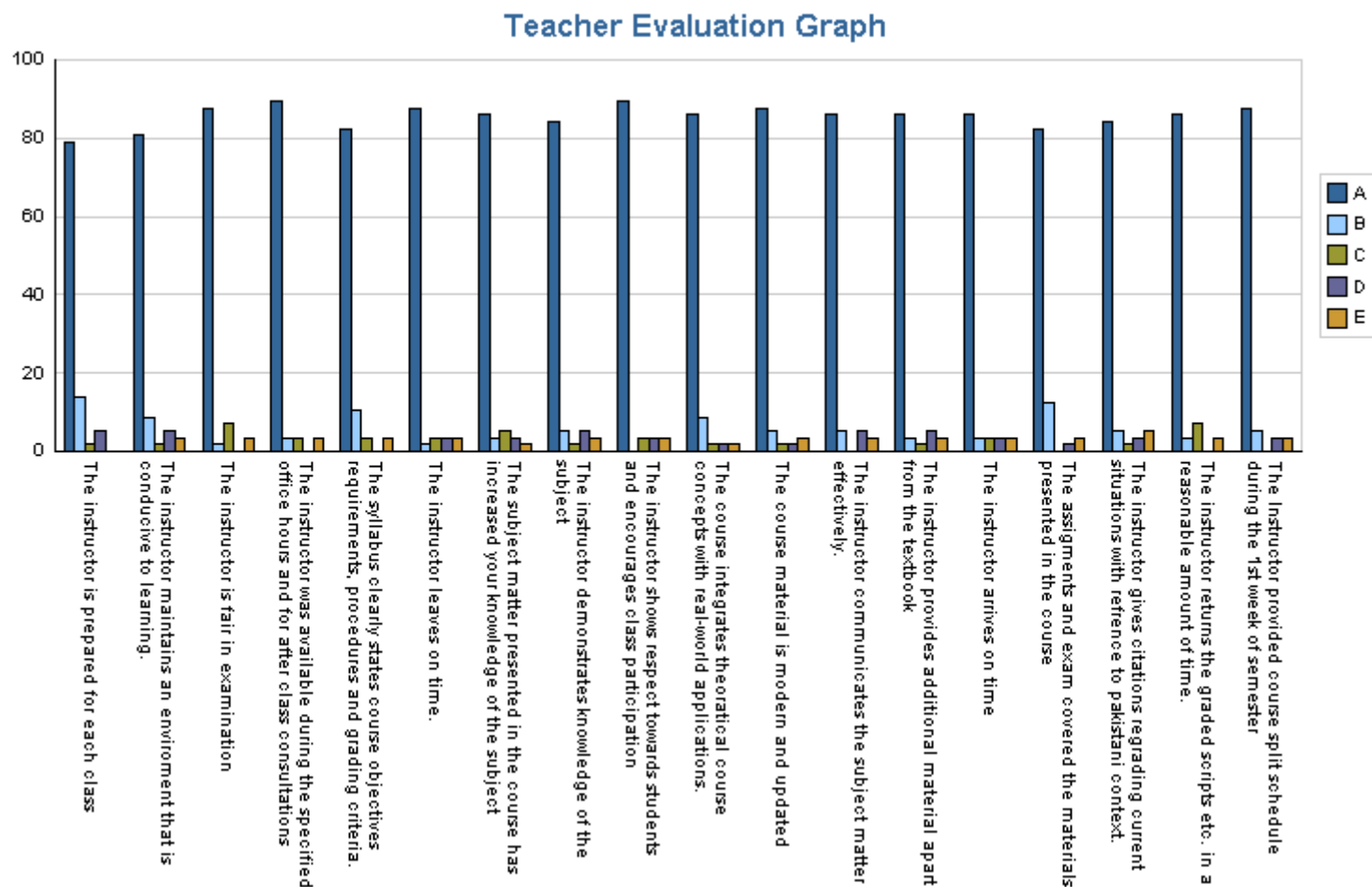
BCH-102 (Supporting course C). Teacher 7 (M): According to the students analysis the instructor communicated very effectively on the subject matters.



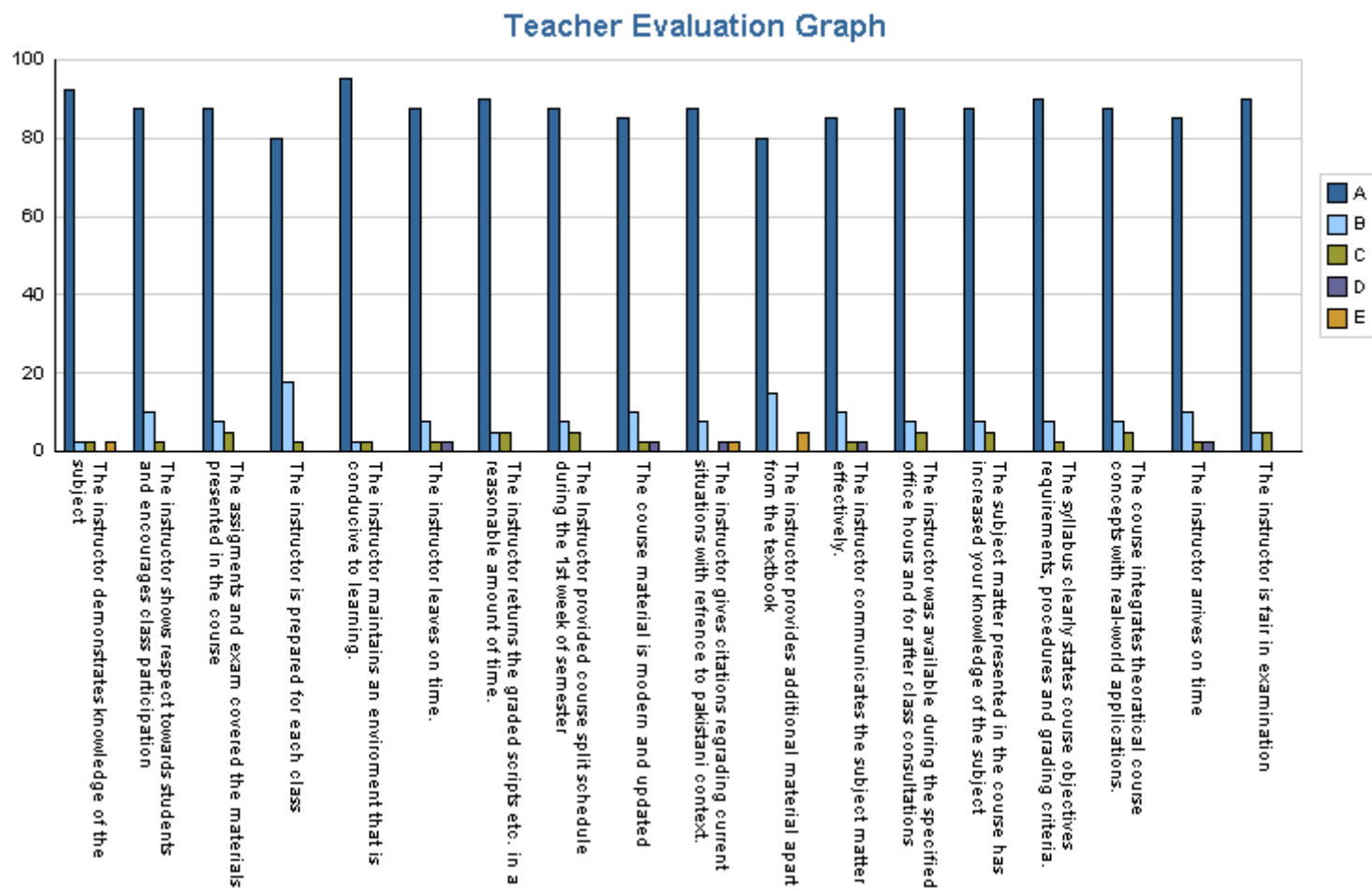
BCH-102 (Supporting course D). Teacher 7 (M): According to the students analysis the instructor communicated very effectively on the subject matters.



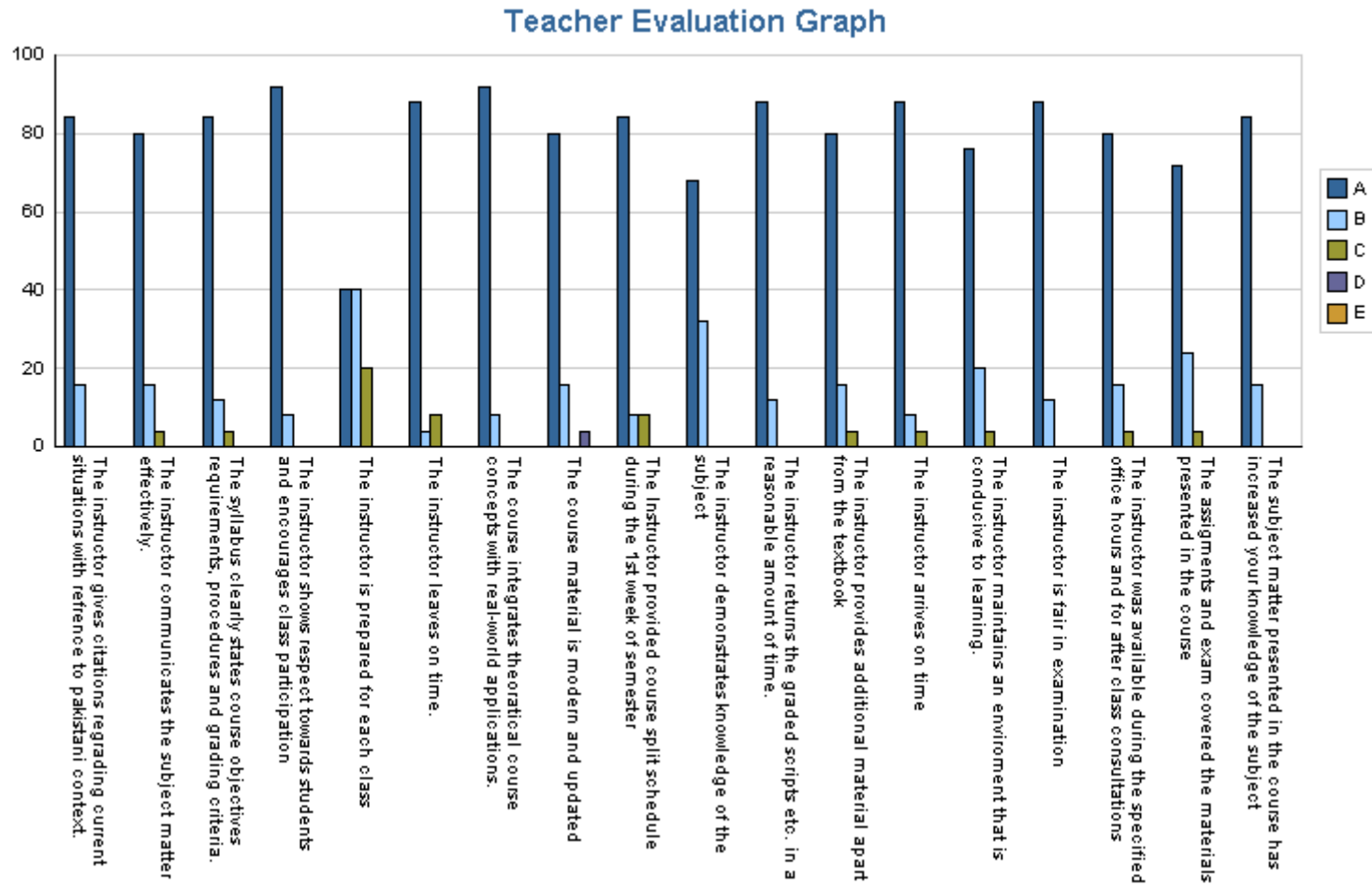
BCH-302. Teacher 5 (E): According to the students analysis the instructor shows respect towards students and encourage class participation.



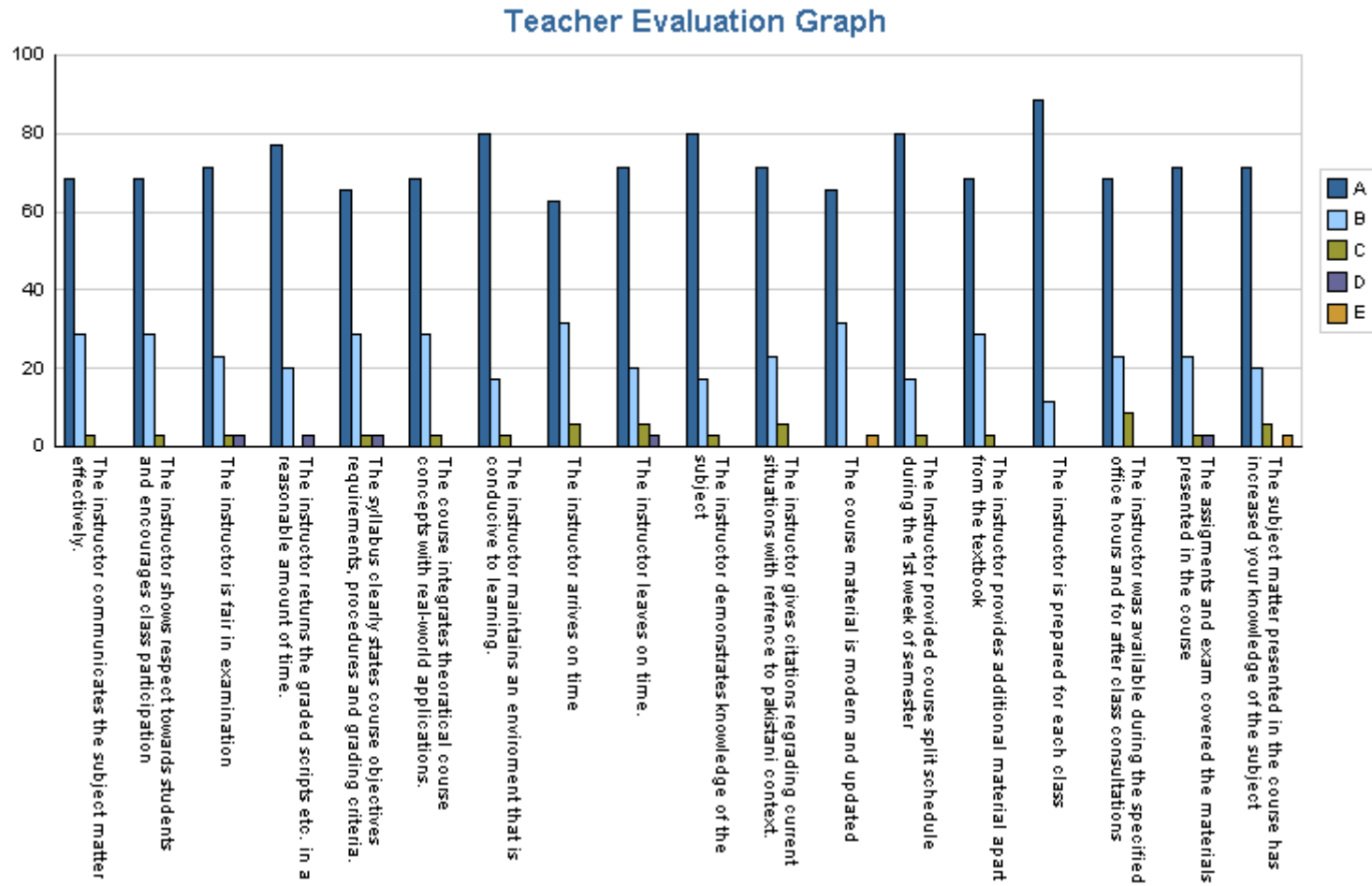
BCH-302. Teacher 5 (M): According to the students analysis the instructor shows respect towards students and encourage class participation.



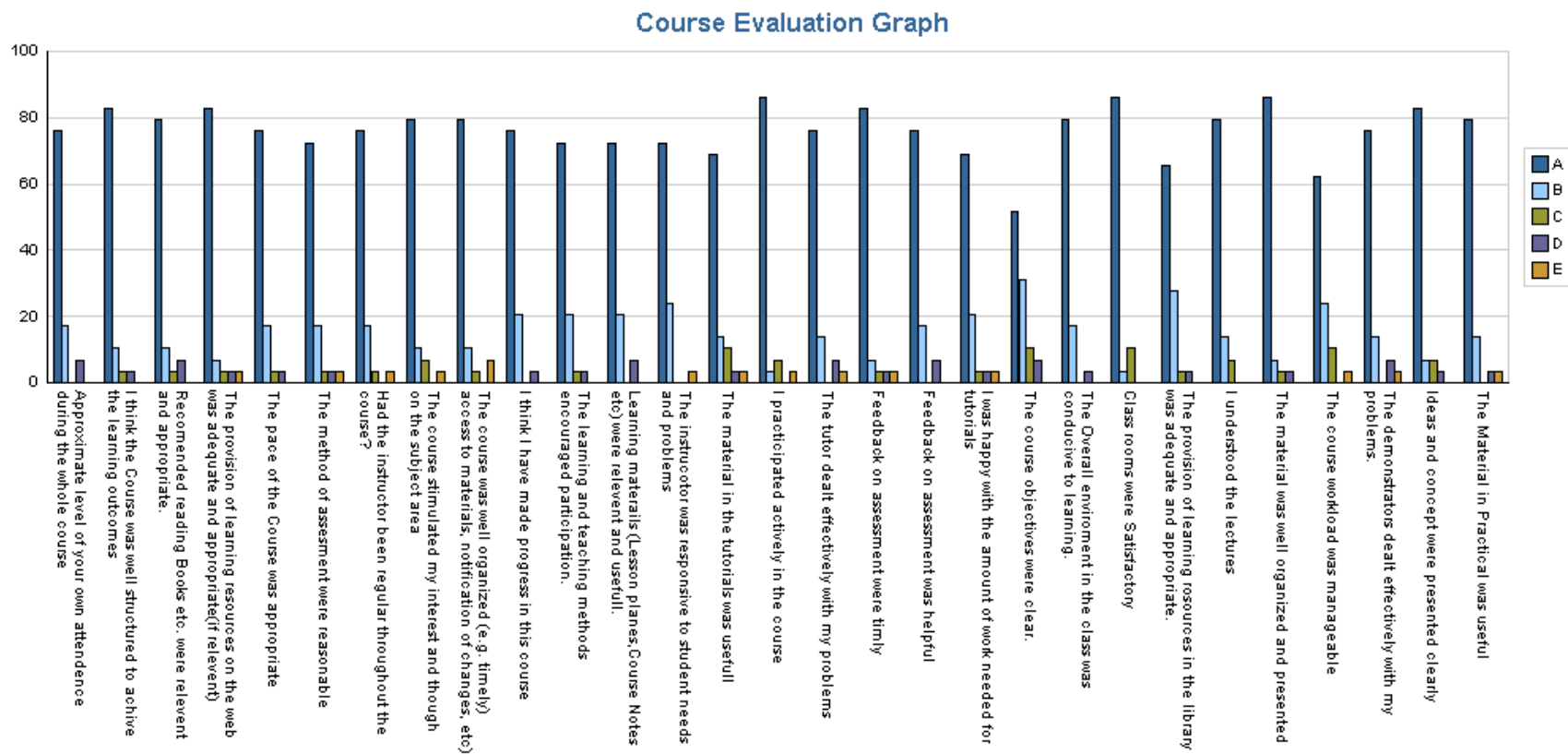
BCH-305. Teacher 7 (M): According to the students analysis the instructor maintained an environment in the class conducive to learning.



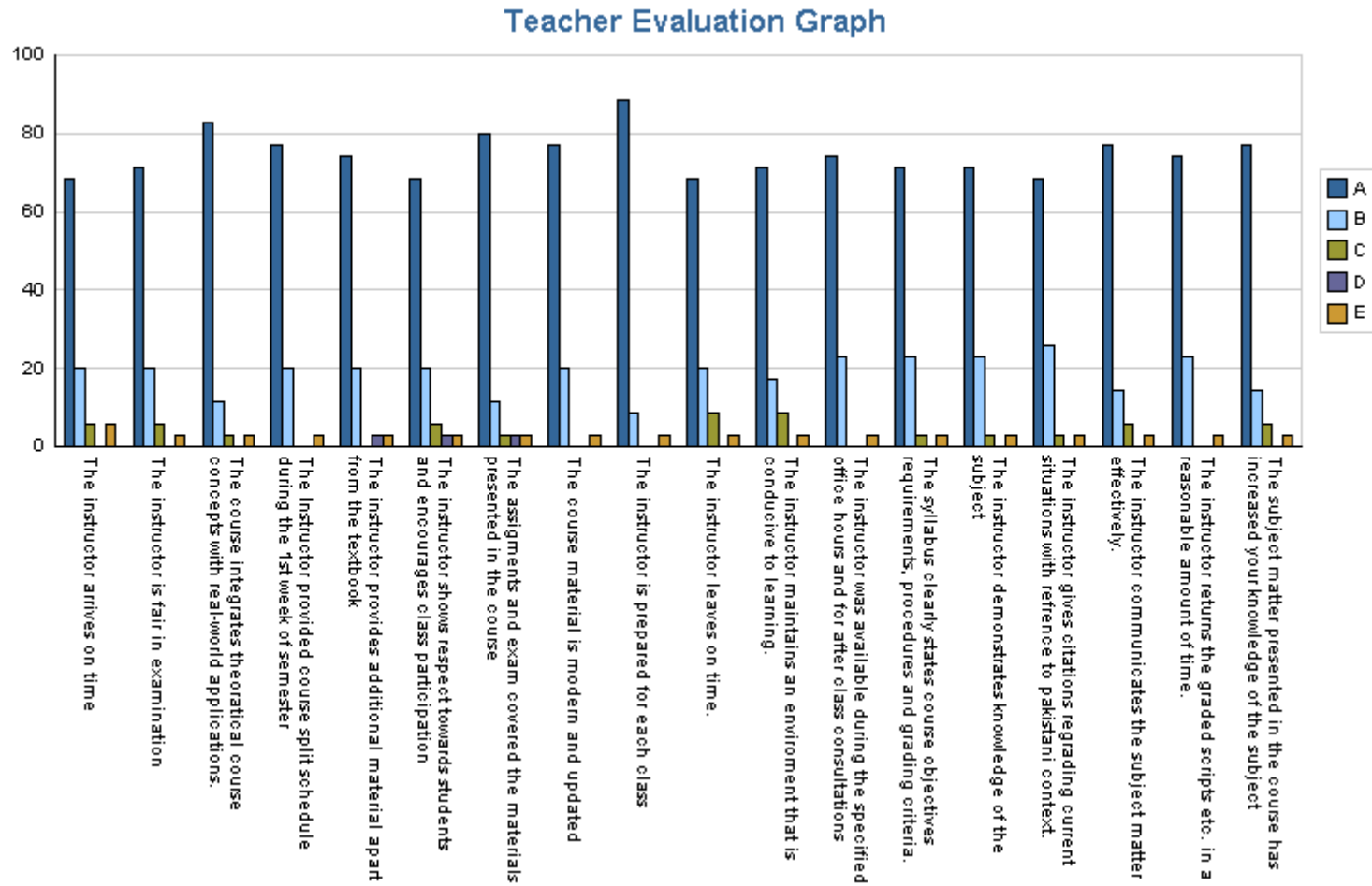
BCH-408. Teacher 9 (E): According to the students analysis the instructor shows respect towards students and encourage class participation.



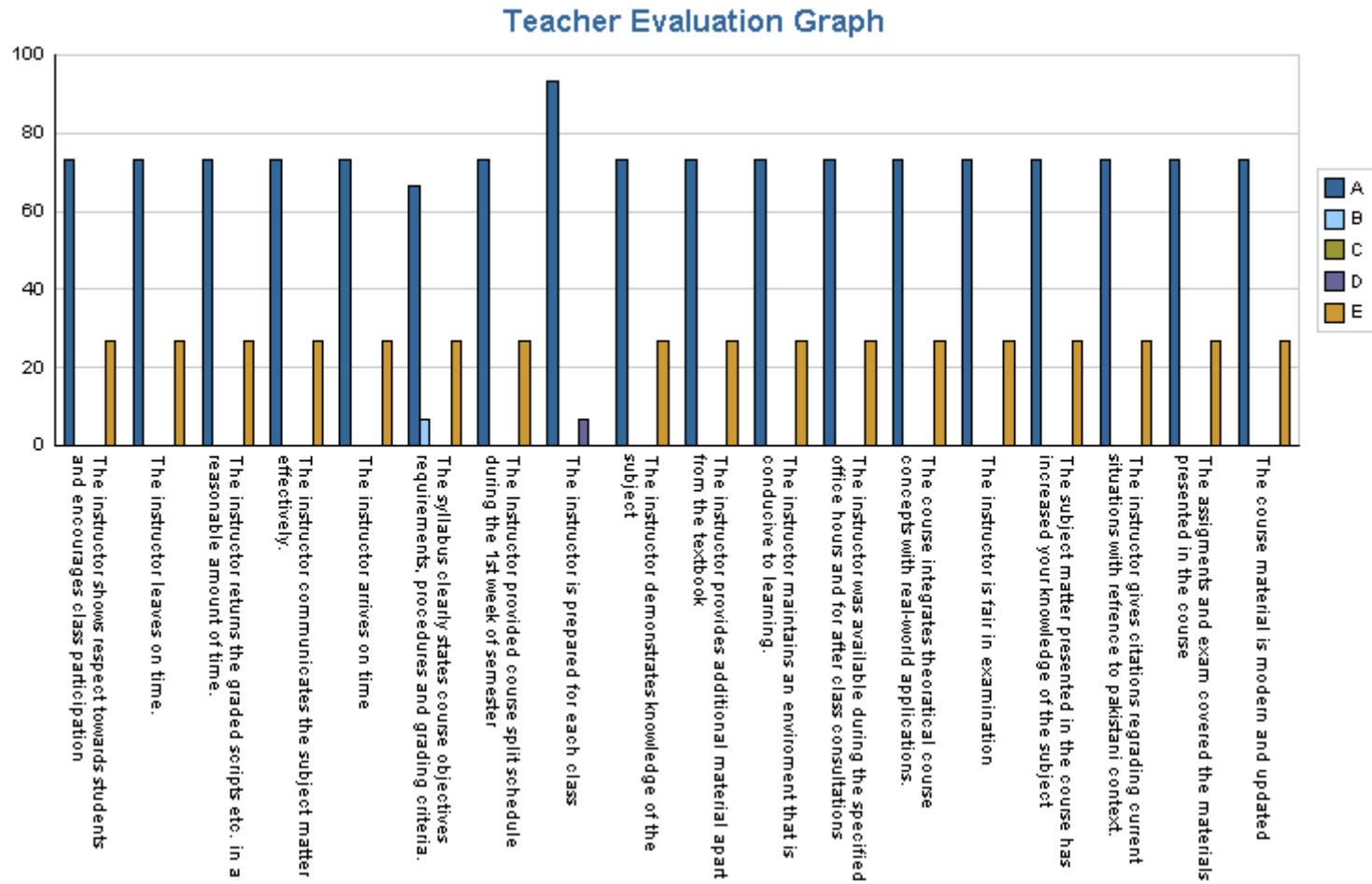
BCH-408. Teacher 9 (M): According to the students analysis the instructor was well prepared for the class.



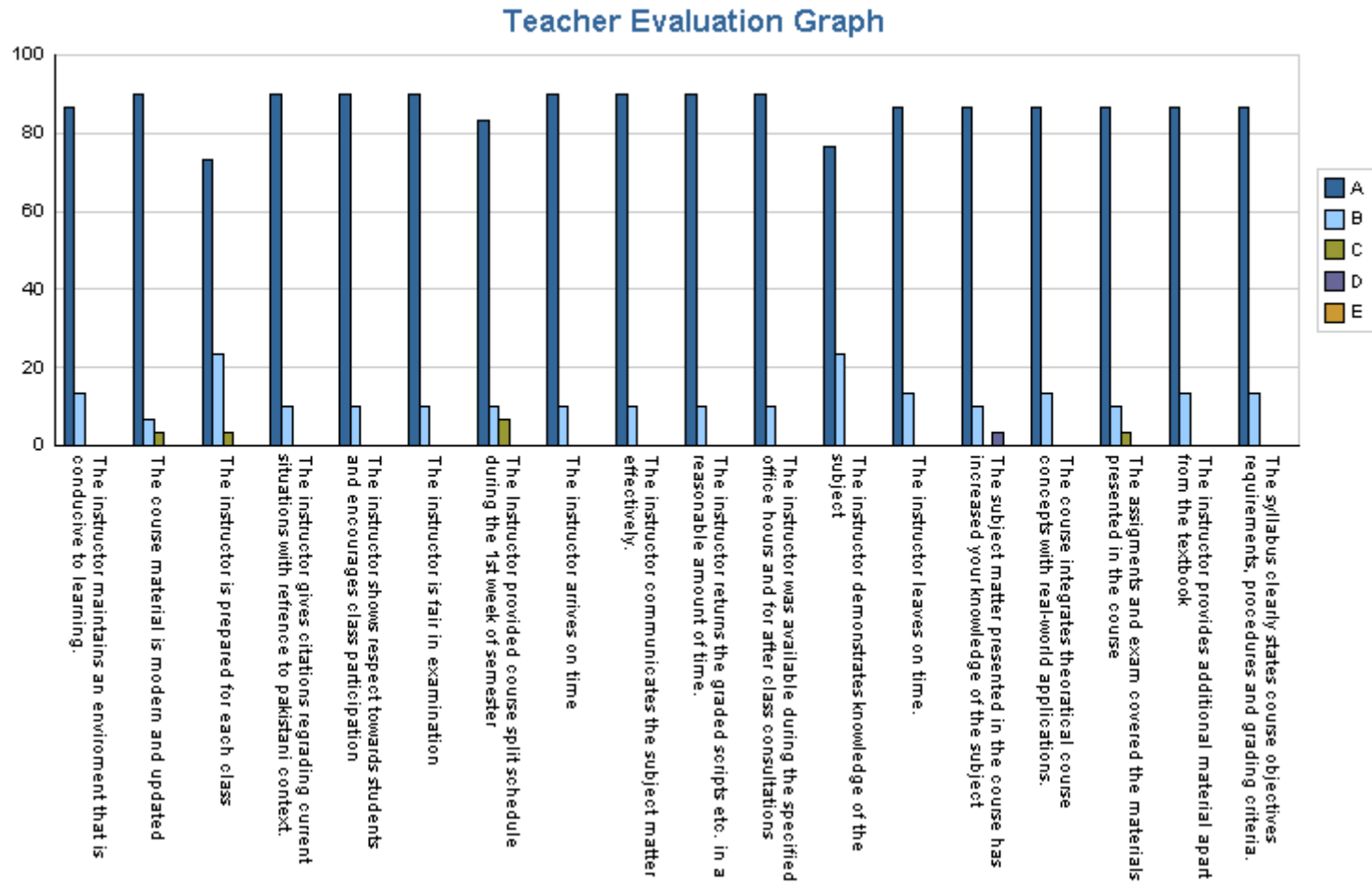
BCH-409. Teacher 1 (E): According to the students analysis the course was well organized and presented.



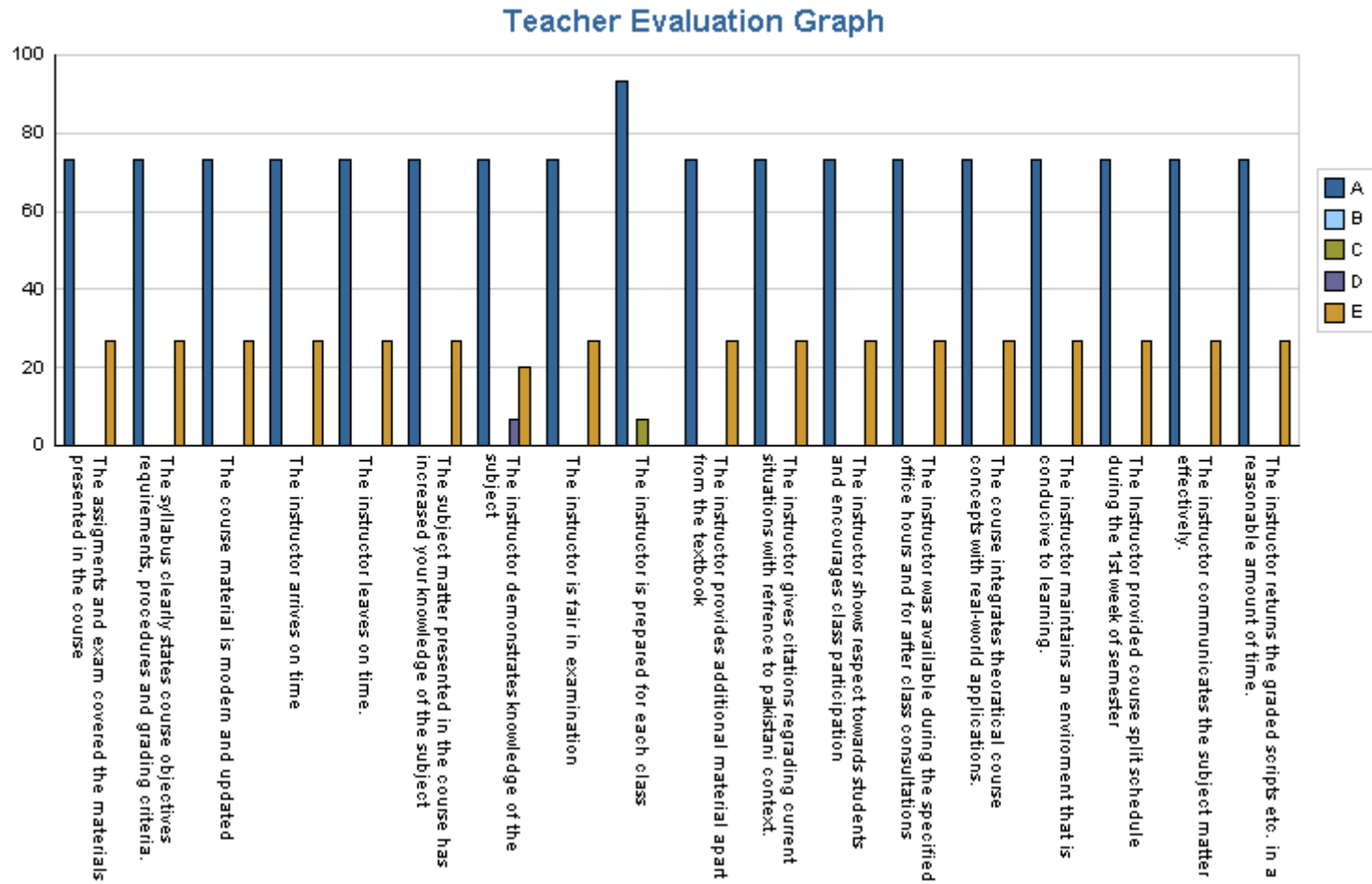
BCH-409. Teacher 1 (M): According to the students analysis the instructor was well prepared for each class.



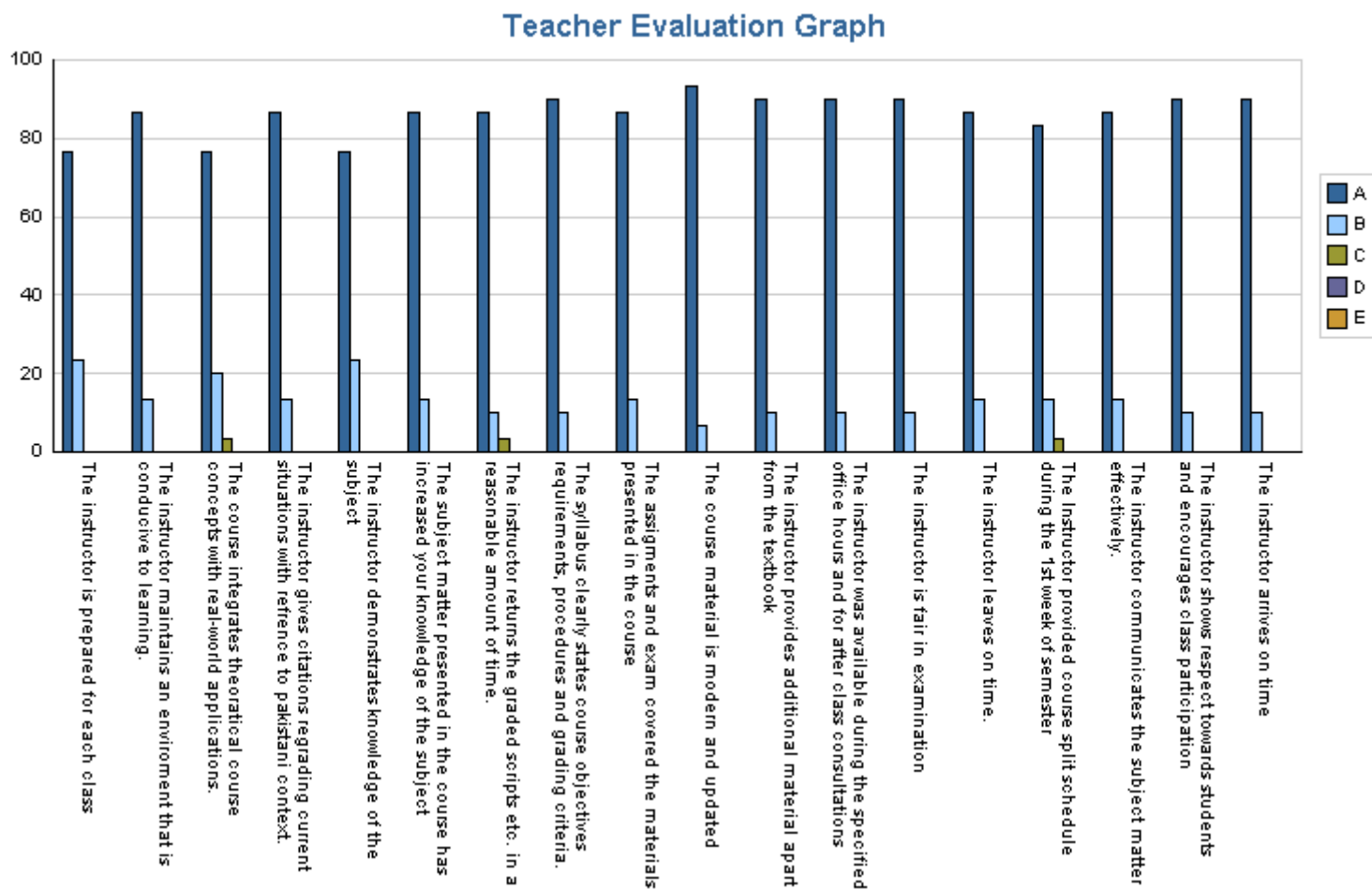
BCH-507. Teacher 2 (E): According to the students analysis the instructor was well prepared for each class.



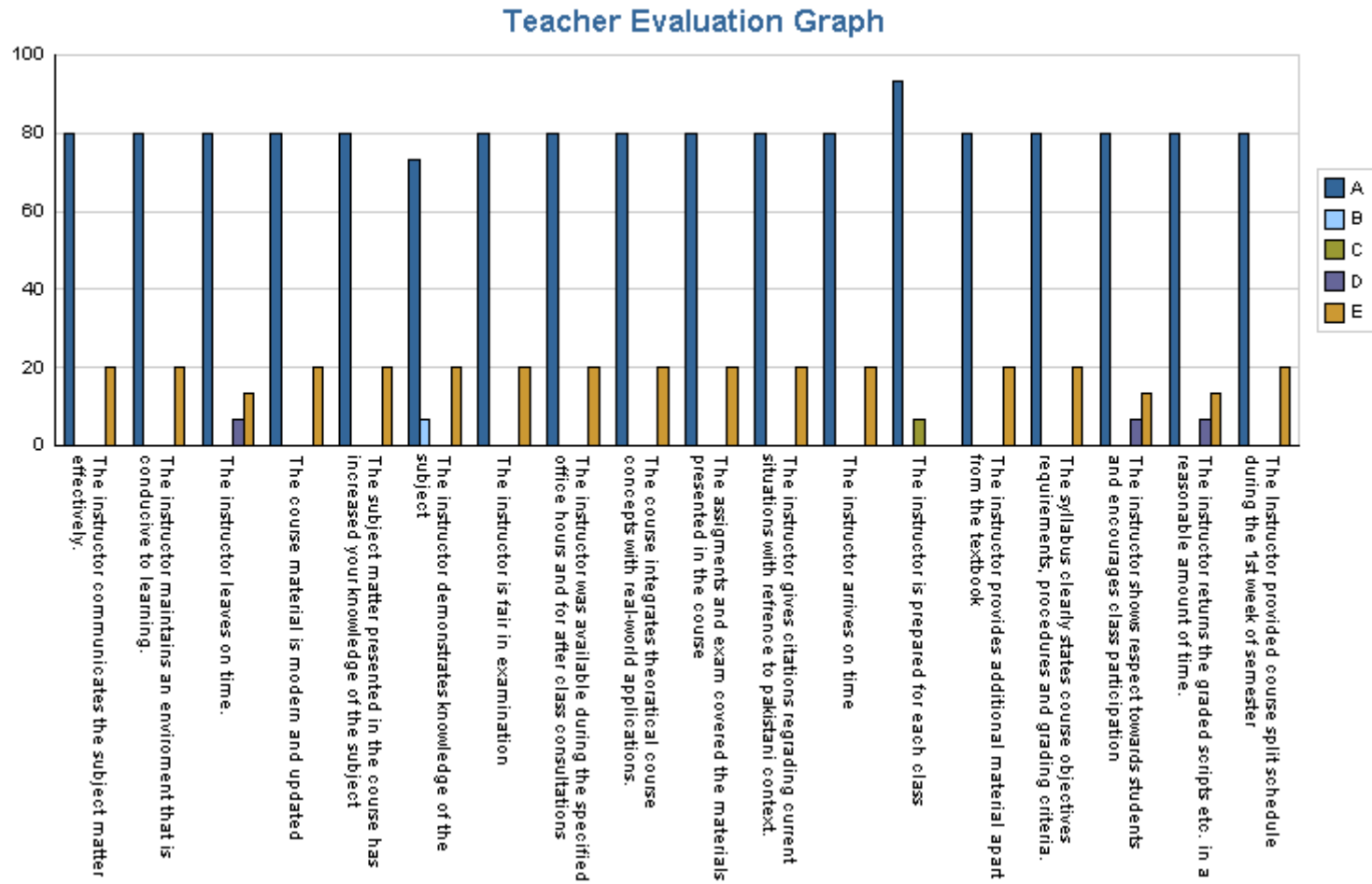
BCH-507. Teacher 2 (M): According to the students analysis the instructor communicated very effectively on the subject matters.



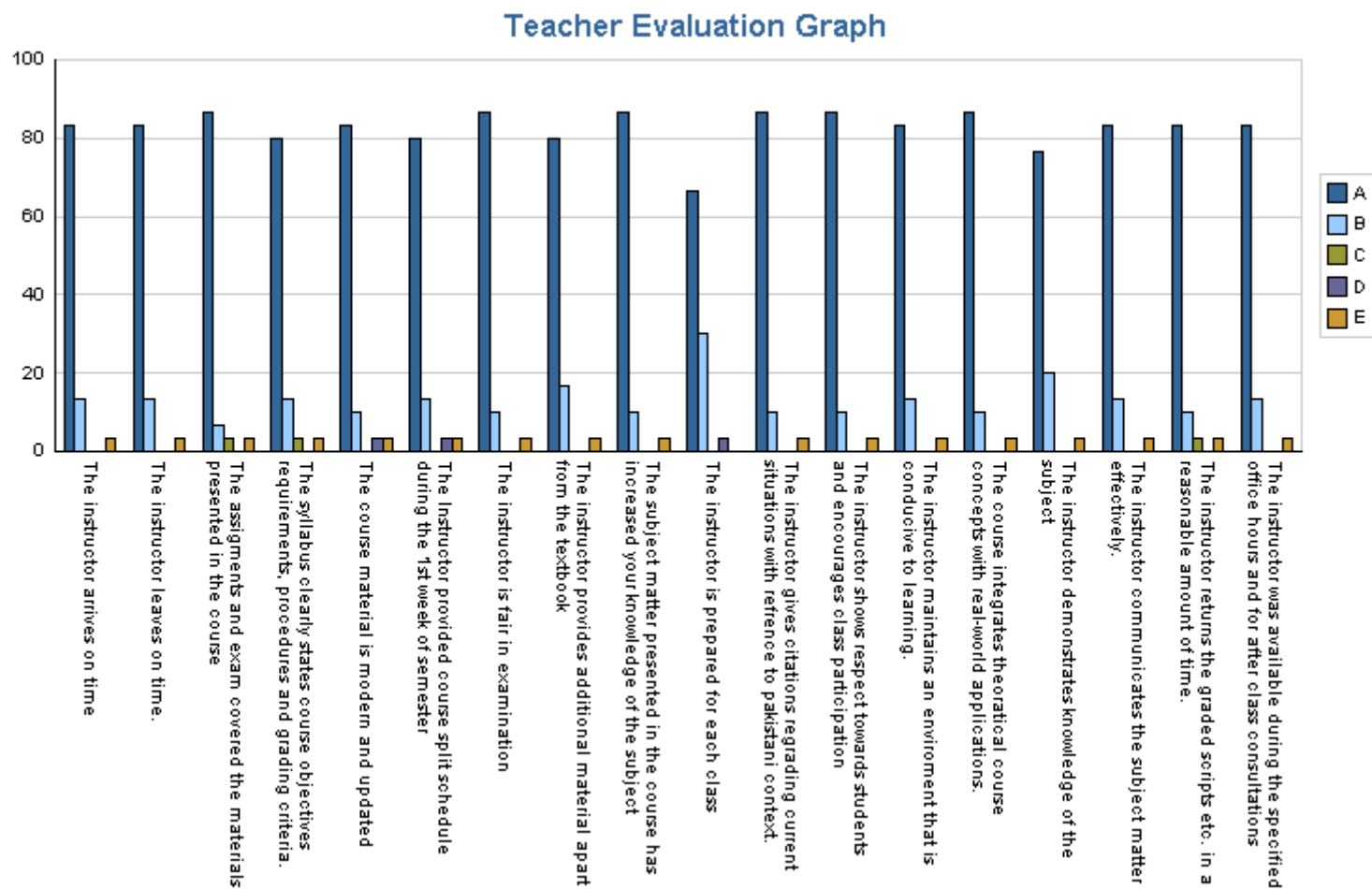
BCH-508. Teacher 1 (E): According to the students analysis the instructor was well prepared for each class.



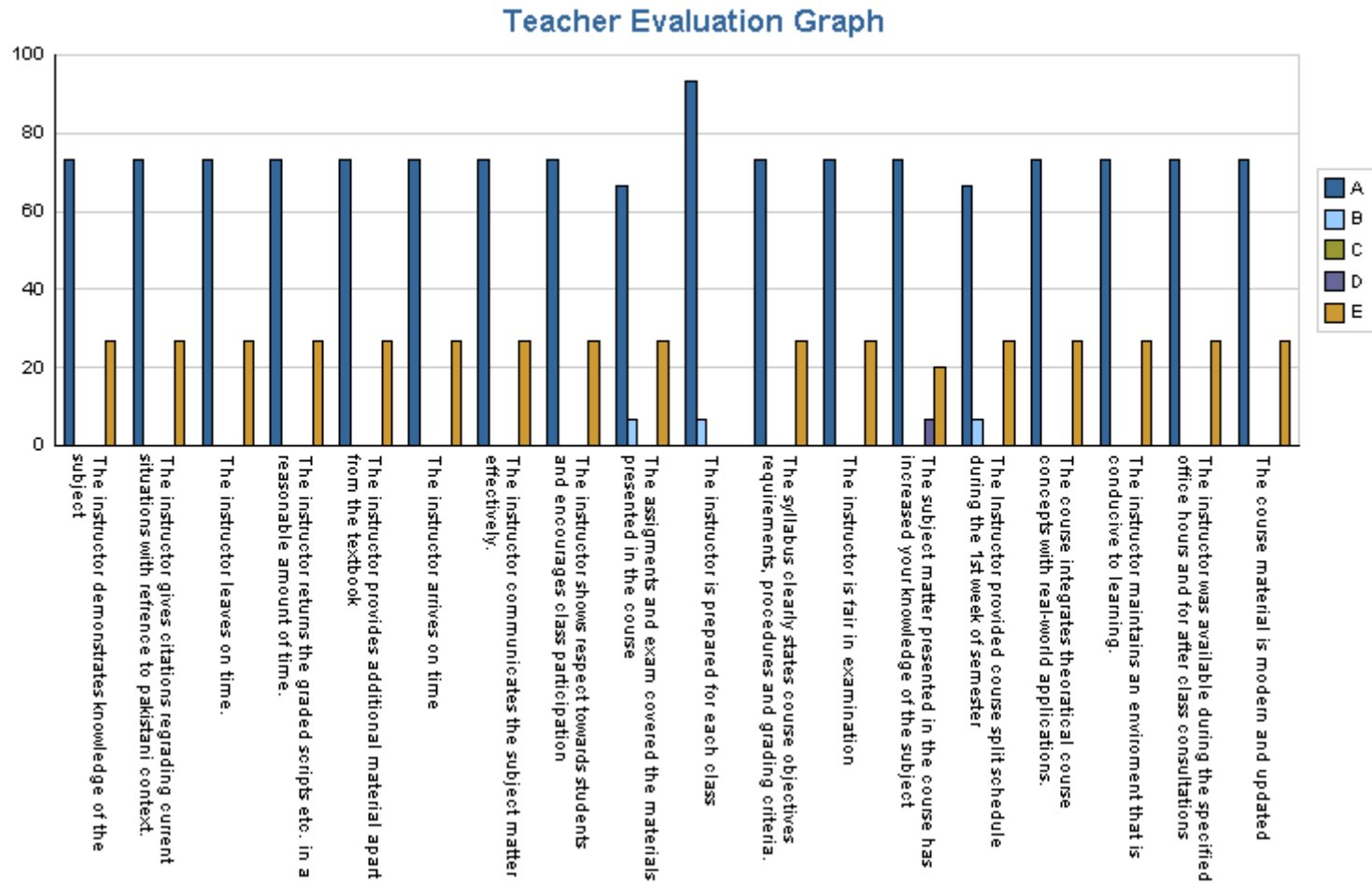
BCH-508. Teacher 1 (M): According to the students analysis the course material was modern and updated.



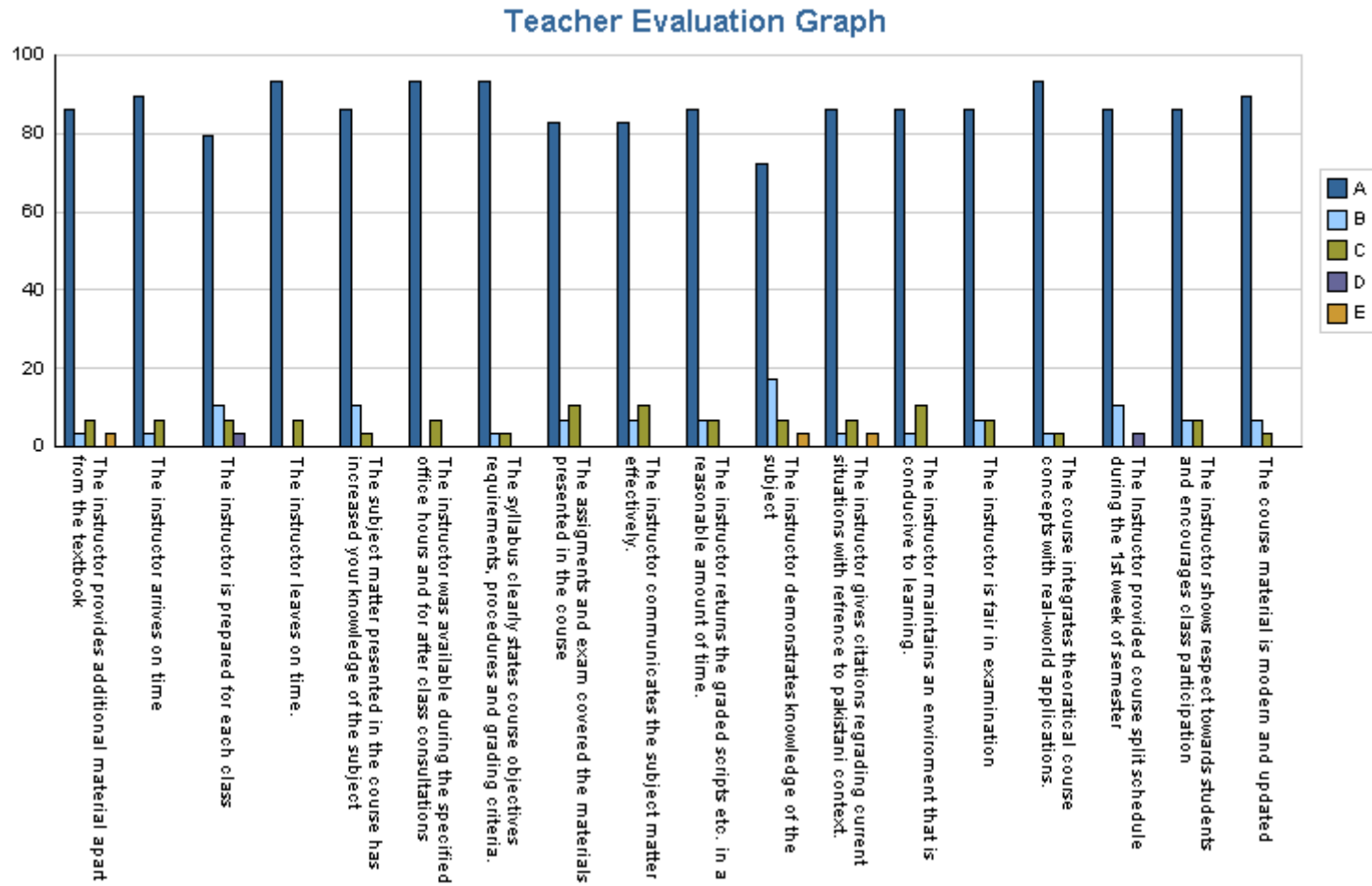
BCH-511. Teacher 7 (E): According to the students analysis the instructor was well prepared for each class.



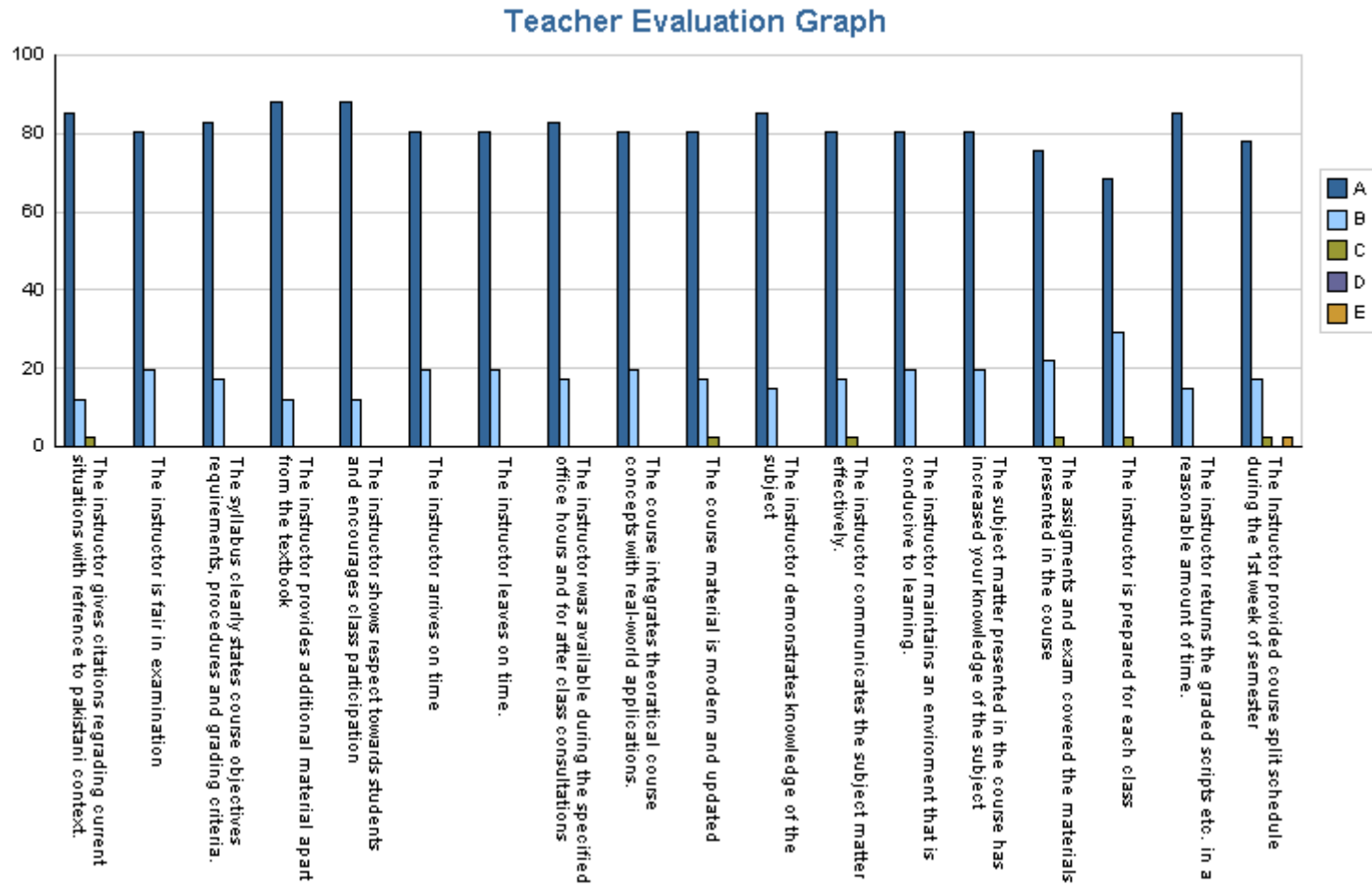
BCH-511. Teacher 7 (M): According to the students analysis the instructor shows respect towards students and encourage class participation.



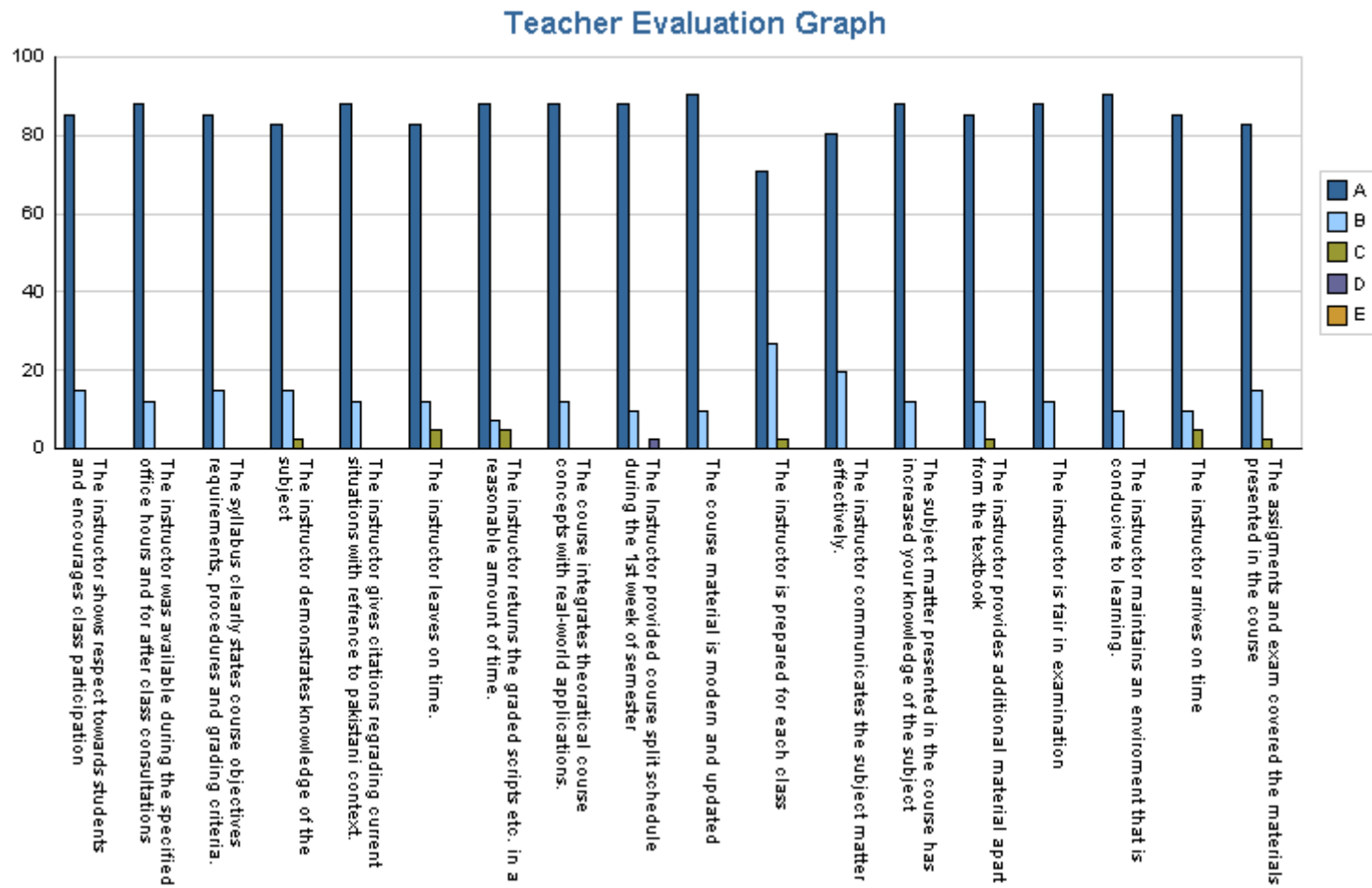
BCH-520. Teacher 5 (E): According to the students analysis the instructor was well prepared for each class.



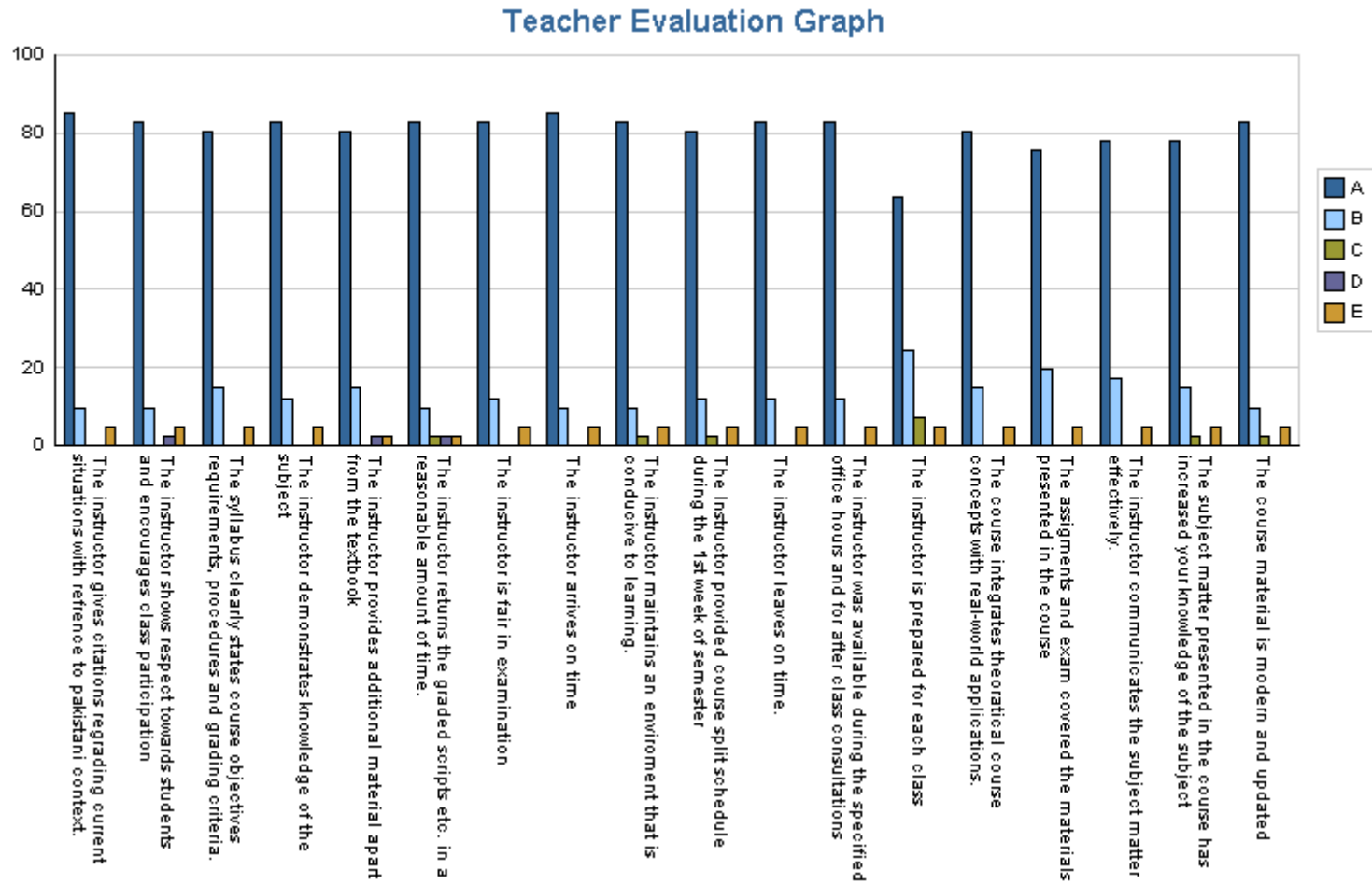
BCH-520. Teacher 5 (M): According to the students analysis the course integrated the theoretical course concept with real world application.



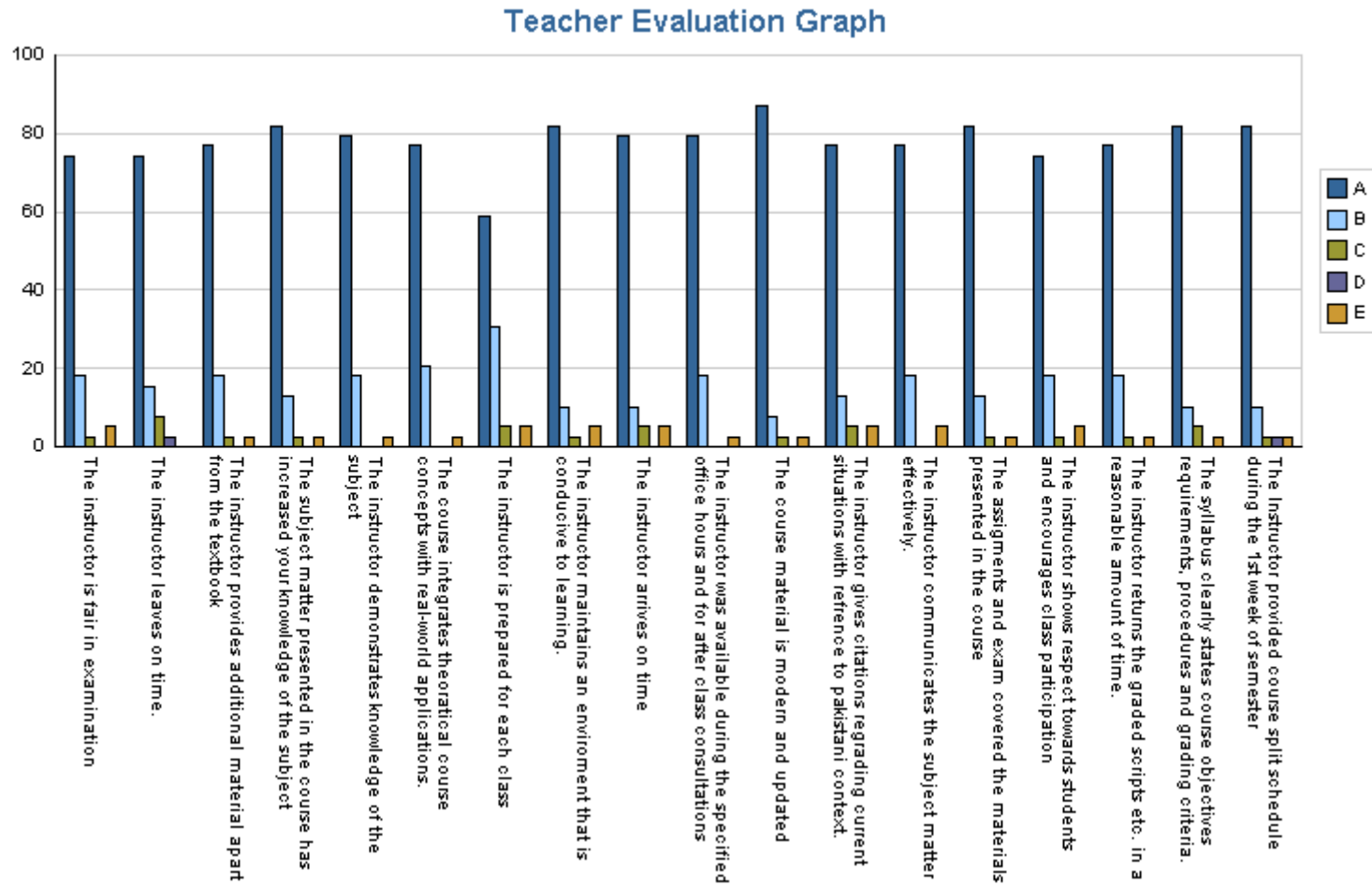
BCH-605. Teacher 3 (M): According to the students analysis the instructor provided additional subject material apart from textbook.



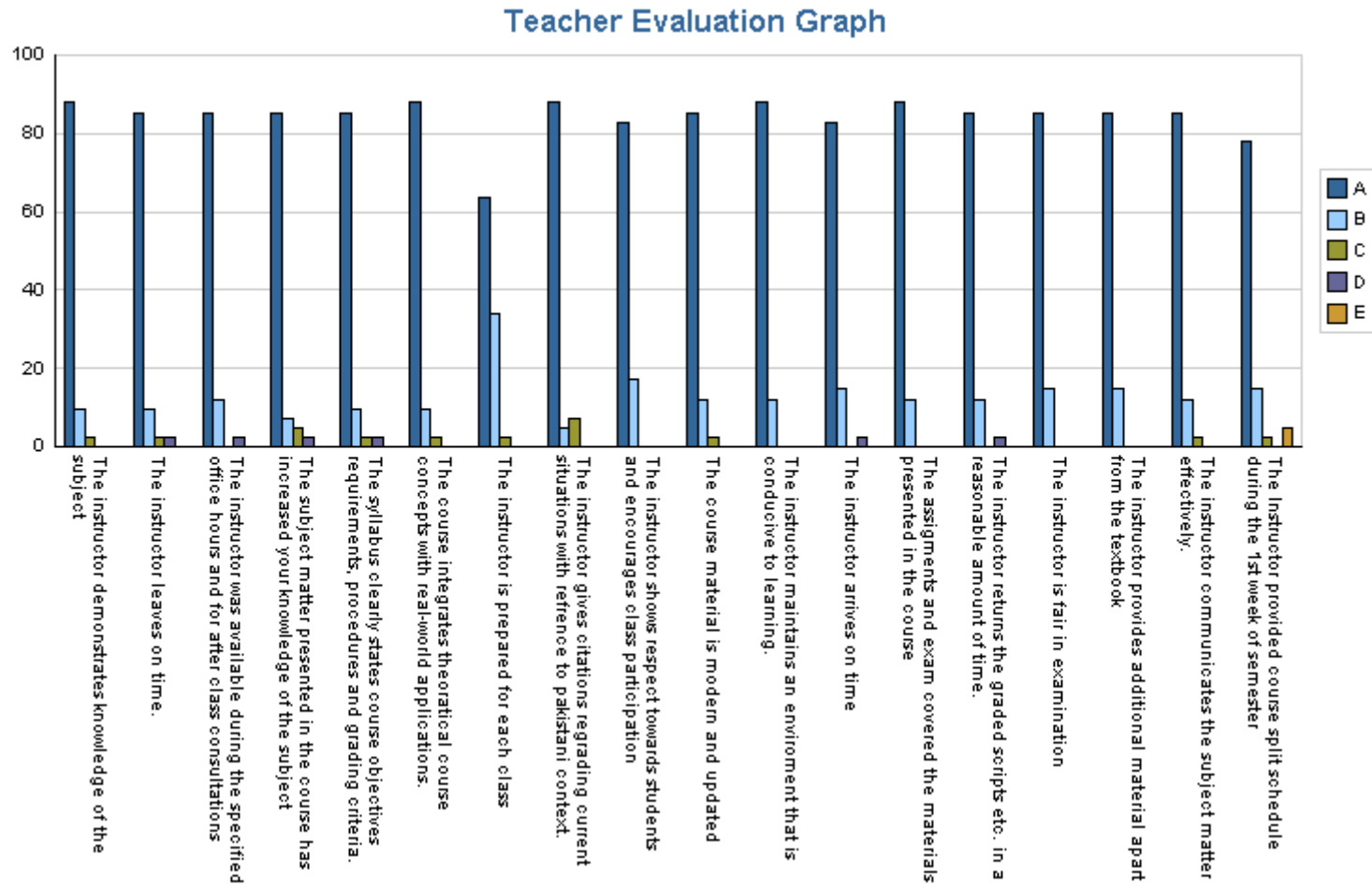
BCH-606. Teacher 6 (M): According to the students analysis the instructor maintained an environment in the class conducive for learning.



BCH-618. Teacher 6 (M): According to the students analysis the course material was modern and updated.



BCH-619. Teacher 1 (M): According to the students analysis the course material was modern and updated.



BCH-620. Teacher 7 (M): According to the students analysis the instructor maintained an environment very conducive for learning.

Overall Results of Performa 1 & 10 (Spring 2016)

According to student analysis it is concluded that all the objectives in different courses were clear and instructors maintained the environment very conducive for learning in the class and every instructor was well prepared for each class. The teaching materials provided in each course was informative and updated.

Skills and Capabilities Reflected in Performance as Biochemistry:

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

Skills and Capabilities Reflected in Performance as BS 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, Biolastics, 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, 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 the production of quality graduate, 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 fulltime qualified technicians/supporting staff. Therefore, scientific research activities (both personal research projects as well as student 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 offered to other faculties/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 up gradation/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 THE 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 and 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.Gulfranz	Professor	Ph. D. Post-Doc	Biochemistry/Natural Product Chemistry
Dr. GhazalaKakub Raja	Associate Professor	Ph. D. Post-Doc	Biochemistry/ Animal Biotechnology
Dr.M.JavaidAsad	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. GhazalaKaukab Raja	11	07	02
Dr.M.JavaidAsad	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 department maintains a ratio of 25:1 and 2:8 for the student: teacher and technical: non-technical staff respectively.
- Administrative meetings (departmental, university, academic council, and syndicate) are attended and when required. Generally two meetings of academic council are held per year. Board of studies of the department meets quarterly.
- Quick office disposal; no complaint pertaining to delay has ever been received from authorities.
- Proper records of individuals, students and their theses are maintained.

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: B.S (Biochemistry)

Intent:

Curriculum design and update is regularly initiated by the faculty members of the UIBB. After approval from Departmental Board of Studies comprised of senior faculty members and subject specialist from other faculties or from other Universities or research Institutions. The approved curriculum is then sent to Board of Faculty, headed by the Dean Faculty of Sciences. This Board 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:

A person holding F.Sc premedical or equivalent degree from any recognized institute with at least second division or overall 45 % marks is eligible to get admission. The admission to the University is on merit which is determined by the percentage of last degree.

Degree Requirements:

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

Semester	CGPA
1 st	0.75
2 nd	1.00
3 rd	1.25
4 th	1.50
5 th	1.75
6 th	2.00
7 th	2.25
8 th	2.50

Examination & Weightage:

a) Theory

In course work, student's evaluation is done by mid-term examination, assignments/quizzes and final examination. A student, who misses the mid-term examination, is not allowed a make-up examination and is awarded zero marks in that examination. In case a student does not appear in the final examination of a course, he shall be deemed to have failed in that course. In theory, weightage to each component of examination is as prescribed here under:

Mid Examination	30%
Assignments	10%
Final Examination	60%

b) Practical

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

Eligibility for Examination:

A student is eligible to sit for the examination provided that he/she has attended not less than 75% of the classes in theory and practical, separately. The minimum pass marks for each course are 40 % for BS.

Standard 2.1: Assessment of the BS Biochemistry Curriculum

Based on the assessment, the curriculum fulfills and satisfies the core requirements for the program, as specified by the HEC.

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

CURRICULUM VS PROGRAMM OUTCOME

Course/Group of Courses	Outcomes		
	1	2	3
BCH-301, BCH-302, BCH-303, BCH-305, BCH-401, BCH-402, BCH-403, BCH-404, BCH-406, BCH-407, BCH-507, BCH-604, BCH-606	XX XX		
BCH-307, BCH-401, BCH-408, ZOOL-402, BCH-409, BCH-603, BCH-406, BOT-501, BCH-503, BCH-506, BCH-508, BCH-601, BCH-602, BCH-606, BCH-607	X XX	X XXX	
BCH-502, BCH-505, BCH-601, BCH-619, BCH-620			XX XX

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

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

Meeting Standard 2-2: Percentage of Elements in Courses

Elements	Courses
Theory only	BCH-502, BCH-504, BCH-508, BCH-509, BCH-602, BCH-607
Theory + Practical	BCH-501, BCH-503, BCH-505, BCH-506, BCH-507, BCH-510, BCH-601, BCH-604, BCH-606

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 programmes 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 programs 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 students

- Two seminars in BS carrying one credit hour, is compulsory.
- Students are assigned to present on recent issues/problems.
- Written assignments and group presentations are given on specific topics (part of a course) to polish writing skills and teamwork capabilities of students.

Criterion 3: Laboratories and Computer Facilities

There are two General laboratories and one Computer laboratory for the BS Biochemistry program;

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

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 all general practicals are prepared and updated regularly. The UIBB library maintains relevant practicals books. Faculty members also keep their personal records.

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

One available Laboratory Assistant maintains chemicals/reagents, equipments, glassware, etc. Two laboratory attendants assist students in practicals, cleaning and washing.

Standard 3-3:

Computing and Infrastructure Facilities

- **Computing facilities support:** Computers are available to most of the faculty members and post-graduate students. Bioinformatics laboratory has computers for the practicals.
- **Shortcoming in computing infrastructure:** No wireless internet facilities in UIBB for faculty members, graduate/postgraduate students, research laboratories, and class rooms.
- **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 entrance gate of institute.

Criterion 4: Student Support and Advising

The University has Directors of Students Affairs, Student Resource Center (SRC), Financial Assistance (FA&UA), and Sports which organizes regular 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 student'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.

Standard 4-2: Structure of the Courses

Effective interactions between students, faculty and teaching assistants are ensured at the time of course formulation (both theoretical and practical aspects). Theoretical problems are explained and assignments are also given to the students whereas practical are carried out in the labs. Study tours to various research organizations are also organized for updates on the latest developments in the area and to stimulate students for discussion through teacher/ student interaction.

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.
- Serious problems are tackled by Director Student Affairs
- Information regarding scholarships and job opportunities is available via Directorate of Student Resource Center.

Criterion 5: Process Control

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

Standard 5.1: Program Admission Criteria

- The process of admission is well established and followed as per rules and criteria set by HEC and the University. For this purpose, an advertisement is published in the National News Papers and university website by the Registrar Office.

- Admission criteria for BS in Biochemistry is F.Sc Pre-medical.
- 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 and practical exams.

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 fresh PhDs via IRSIP, highly qualified foreign faculty Professors, National Professors and deposes them in concerned discipline.

Standard 5.4: Teaching and Delivery of Course Material

- To provide high quality teaching, institute periodically revises 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 is 40% for Masters degree.
- In theory, weightage to each component of examination is as prescribed here under:

Mid Examination	30%
-----------------	-----

Assignments	10%
Final Examination	60%

- Grade points are as follows

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

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

CRITERION 6: FACULTY

Standard 6-1: There must be enough 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	Number of faculty with PhD degree
Animal Biochemistry & Biotechnology	03	03
Enzymology and Industrial Biotechnology	01	01
Plant Biochemistry & Biotechnology	02	02
General Biochemistry	02	02
Bioinformatics	-	
Microbiology	-	

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 not sufficient to meet the requirements of the courses taught to the BS 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 lack air conditioners and sound system but 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 department 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 class rooms are enough and multimedia are available for the lecture halls. Due to big size of class rooms 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 equipments 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 department at present avails all the human resources. The university administration has been struggling hard to strengthen all the departments, up-gradation of departments and establishing new faculties and Institutes.

Support and Financial Resources

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

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

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

TABLE-5: ENROLLMENT IN BS BIOCHEMISTRY PROGRAMS FROM 2014-16

Degree Programs	Year-Wise Enrollments					
	Fall 2014		Fall 2015		Fall 2016	
	Morning	Evening	Morning	Evening	Morning	Evening
BS BCH	180	88	180	132	181	179

Standard 8-3: Financial Resources

Total budget of the department for financial year 2014-16 is only Rs. 55,000/- year which could only fulfill basic departmental needs. However, with the introduction of new degree programs and increase in the number of students, department is under huge pressure to provide chemicals for basic laboratories as well as for research students, regular repair/ maintenance of infrastructure & equipments and books/journals/periodicals for the department library.

Summary

This Self Assessment Report (SAR) is for BS Biochemistry program and 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 targeted goals, which are again measurable through definite standards. Programme outcomes appeared to be highly relevant. The results of proforma no. 10 during the year 2014-16 show the scores of evaluations by students for all teaching faculty of UIBB. While the results of proforma no.1 presents the scores evaluation by the students for all courses offered by UIBB during 2014-16 session. The overall analysis, based on proformas no. 1 & 10, clearly highlights that students were satisfied with the contents of all taught courses, teaching material of courses offered by the department as well as by the teaching abilities of course instructors.

The process of admission for BS degree program 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. There are set rules by the university as well as HEC regarding admission, registration, recruiting policy, courses and delivery of material, academic requirements, performance and grading which are properly followed.

The curriculum of B.S Biochemistry fully satisfies the core requirements for the program as specified by the HEC. The information technology component of the curriculum has been applied by offering non-conventional courses like Introduction to Computing as well as a compulsory applied nature course Bioinformatics. Curriculum design and update is regularly initiated by the faculty members of institute. After approval from Board of Studies comprised of senior faculty members and subject specialist from other Universities or research Institutions. The curriculum is then approved by the Board of Faculty, comprising Dean Faculty of Sciences, chairpersons and 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 Vice Chancellor, Registrar, Deans/Directors, Professors, Associate Professors, Faculty Representatives and very senior subject specialists.

The institutional facilities were measured through Criterion 3; infrastructure and facilities, classrooms, faculty offices, computing faculty support, short comings in computing infrastructure and safety arrangements are highlighted. The infrastructure of UIBB is adequate for running B.S. degree program. The classrooms and laboratories in UIBB building are reasonably equipped with adequate facilities.

CONCLUSIONS

Following points are being considered based on the assessment of B.S Biochemistry program;

1. Computers and internet facilities are available to all regular faculty members to boost the level of research and teaching. However not all undergraduate students could avail the same facility which needs to be addressed.
2. The faculty survey reveals that infrastructure still needs some up gradations like; air-conditioners in under-graduate level classrooms, general labs and some of the research labs
3. One of the major focuses in faculty and students survey was cleanliness of overall building and washrooms; regular repair and maintenance of building/everyday use items.
4. The strength of existing faculty is far less as compared to the number of degree programs being offered and a large number of under-graduate and post-graduate level students.
5. In order to keep faculty member updated with latest research tools/techniques and to initiate/maintain productive scientific collaborations, regular foreign trainings are to be arranged.
6. The annual budget for UIBB needs to be increased for the smooth conduct of academic and research activities.
7. The weakest point noted is the lack of quality time a faculty has for his/her personal research and family activities.
8. The UIBB is an isolated building with classrooms, general laboratories and research laboratories holding sophisticated equipments 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.
9. Professional and behavioral training of the administrative and supporting staff for efficient handling of official activities.

Annex-I**Result of Faculty Course Review**

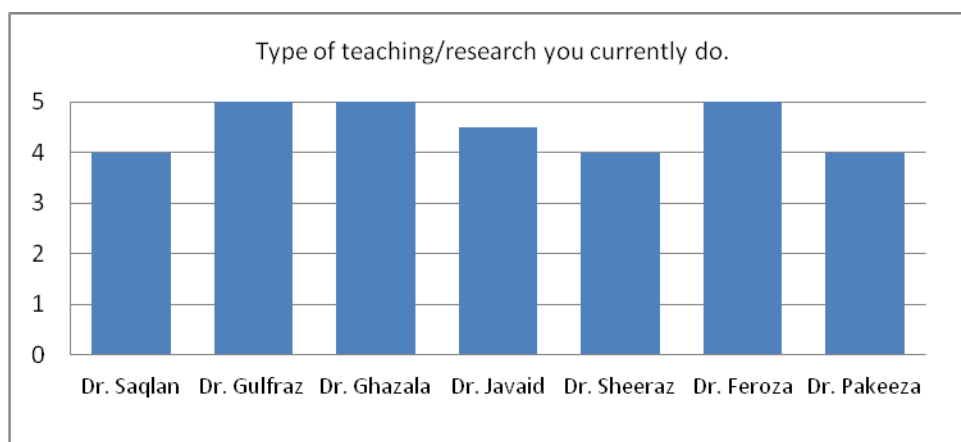
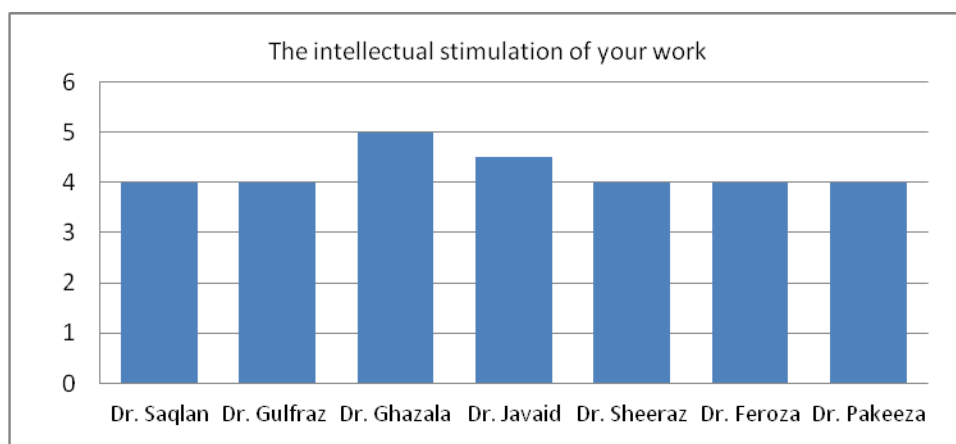
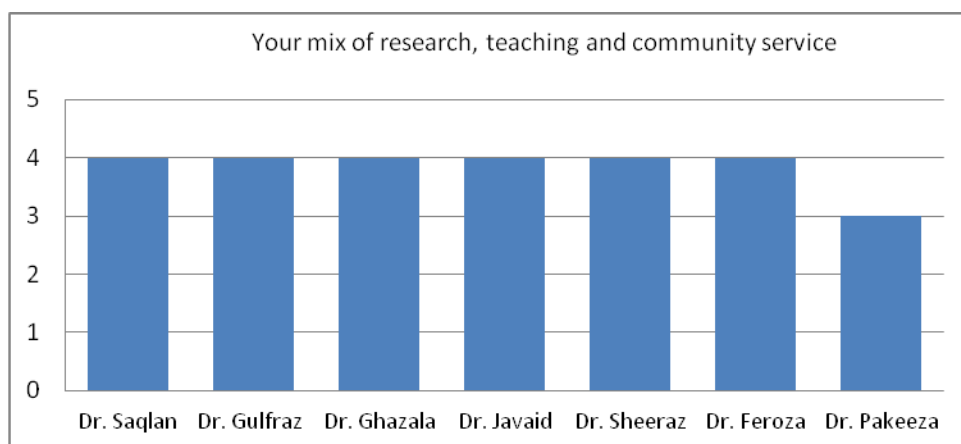
According to the result of the proforma No. 2, most of the faculty members pointed out that the assessment methodology set for theoretical courses is sufficient to evaluate the learning of students for a specified course. The criterion consists of multiple methods including regular discussions during 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.

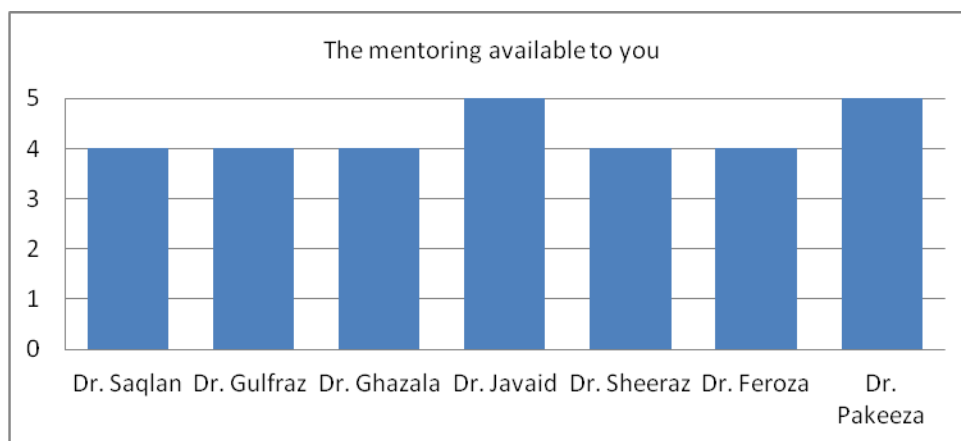
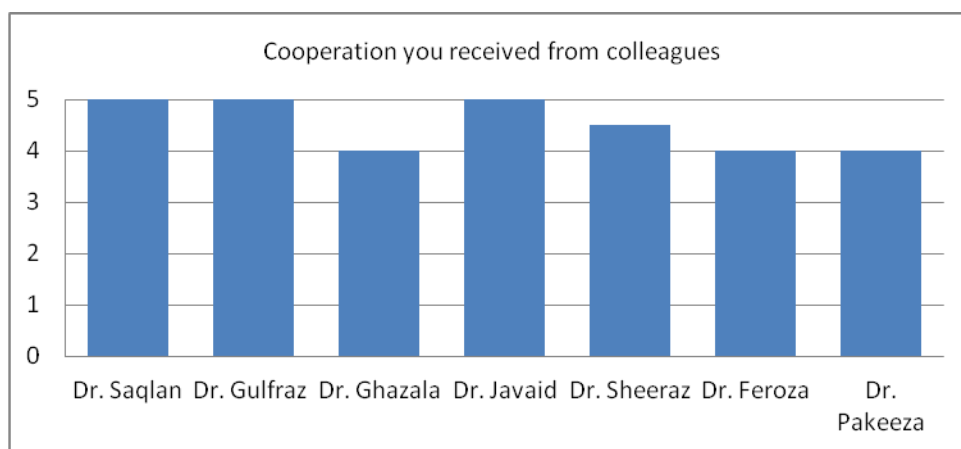
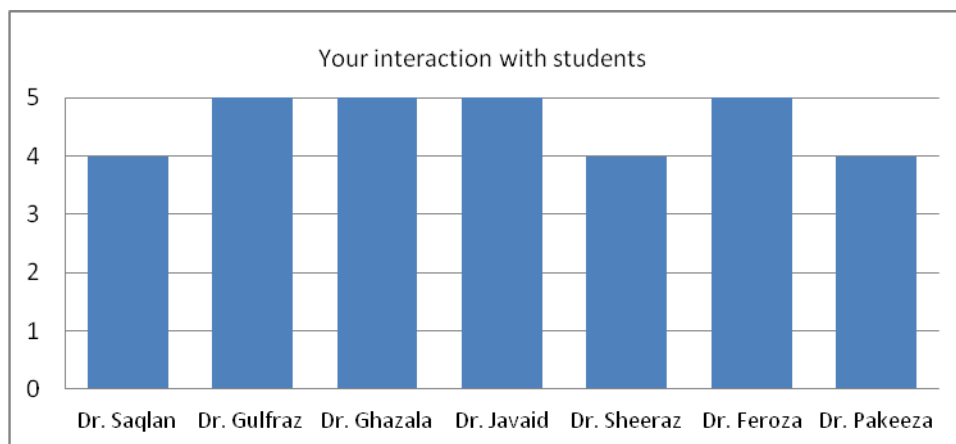
Department	University Institute of Biochemistry and Biotechnology (UIBB)
Faculty	Sciences
Courses	Described earlier in SAR Assessment method as per University rules and regulations
Distribution of Grades/Marks	As per University rules and regulations
Overview/Evaluation (Course Co-coordinator's comments)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

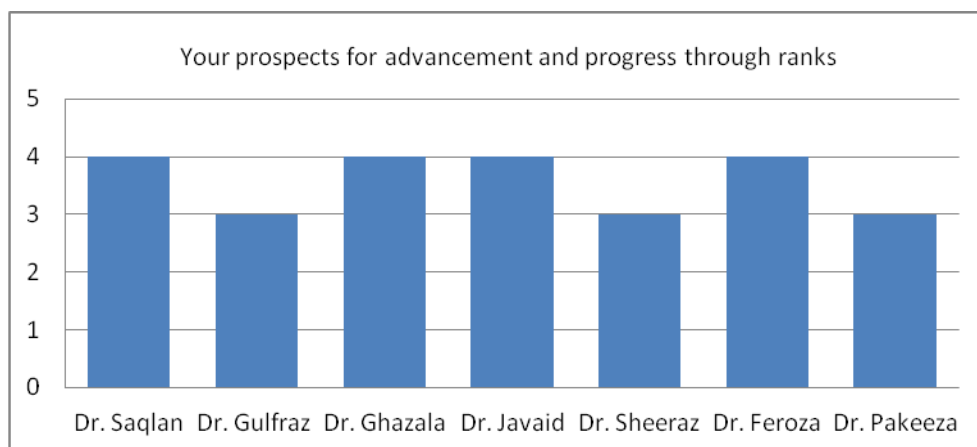
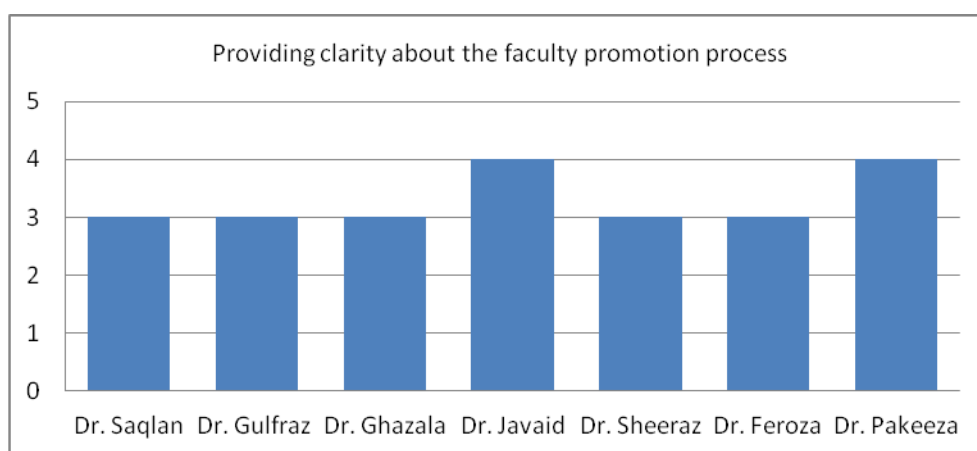
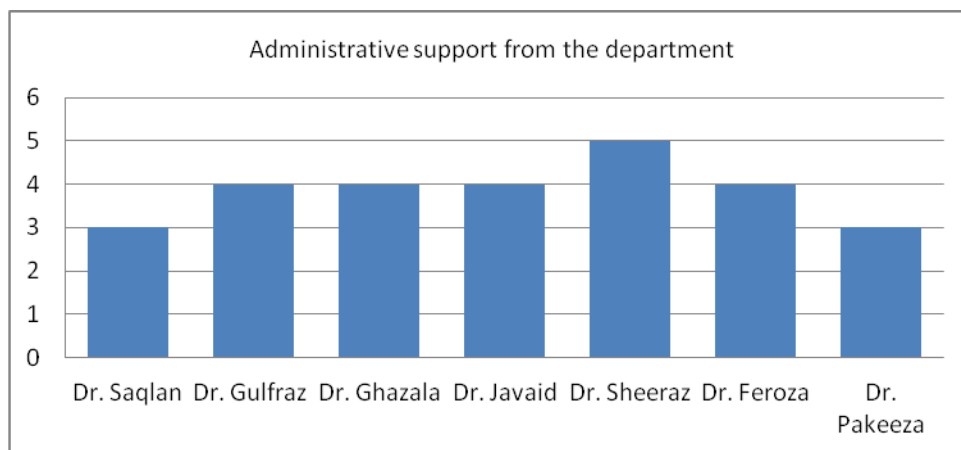
Annex-II

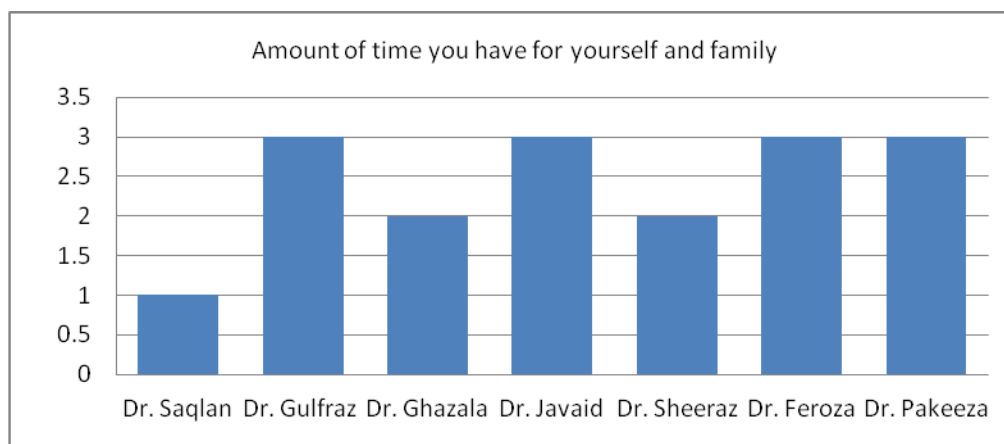
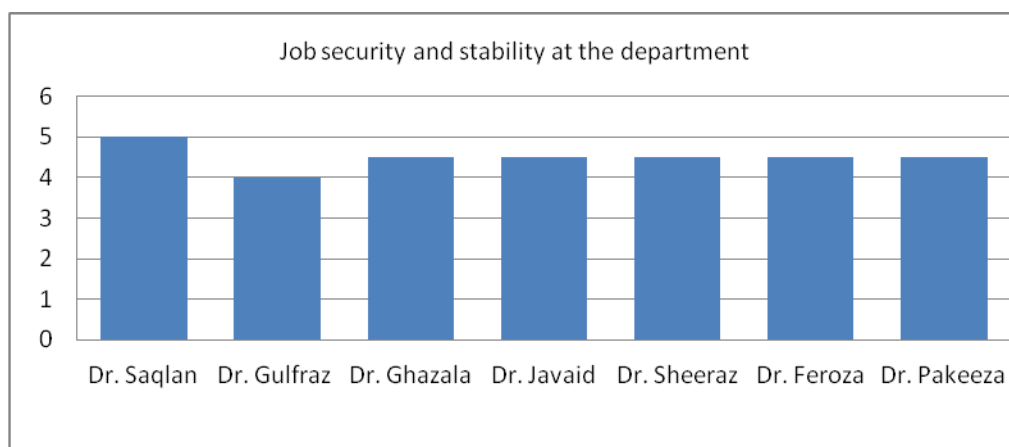
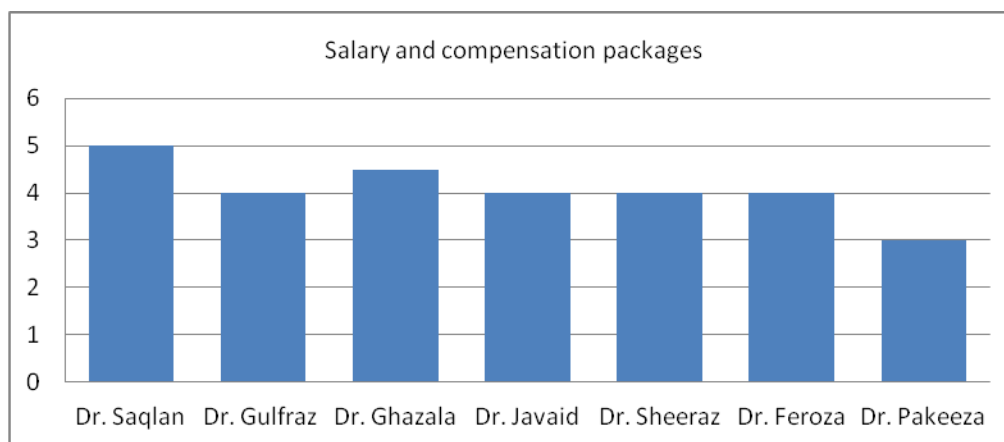
Proforma No. 5: Results of Faculty Survey

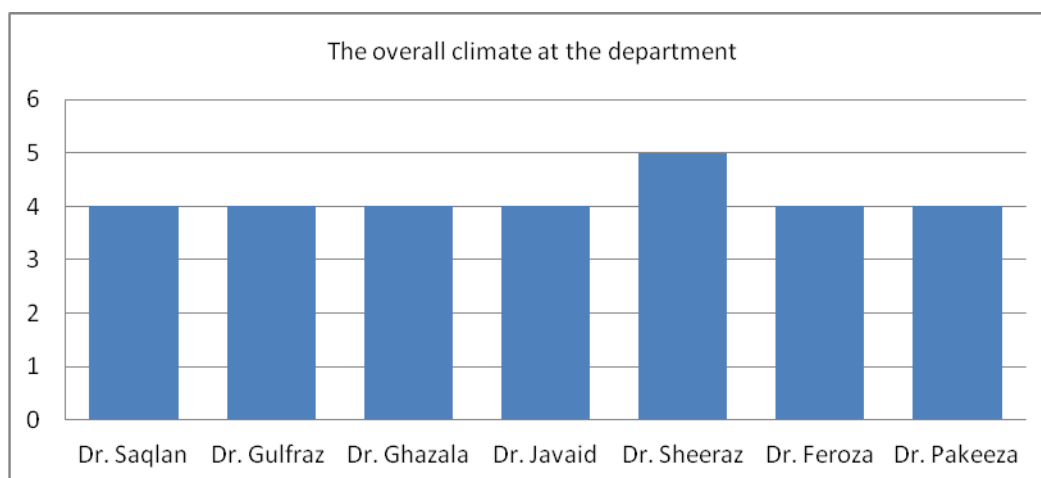
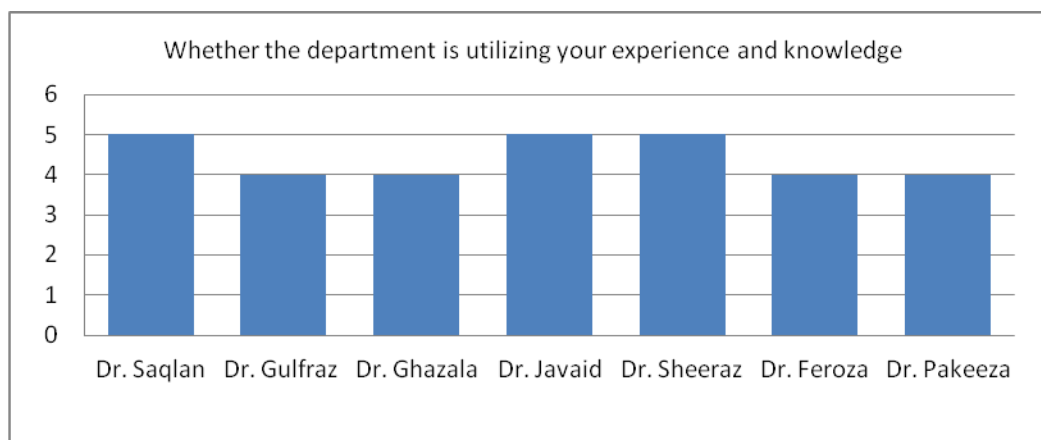
According to proforma 5 of Faculty Survey regarding the satisfaction of the Faculty, the weakest aspect is the amount of time teachers find to interact with their families.











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

BS Biochemistry programme was initiated in 2014 and none of the badge of BS has been graduated yet.

Proforma 7: ALUMNI SURVEY RESULTS:

As no graduates of BS Biochemistry program have been produced yet so alumni survey results are not available.

Annexure-IV

Faculty Resume

Prof. Dr. S.M.Saqalan Naqvi**Dean, Faculty of Sciences****HEC Approved Supervisor****Qualification:** Ph.D**Area of Interest:** Biochemistry/ Molecular Biology**E-Mail:** saqlan@uaar.edu.pk**Tel:** +92 51 9062700**Experience:** 30 years**Total Publications:** 97**Latest Publications:**

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. *In-silico* 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. *Glu-A3* and *Glu-B3* alleles for LMW protein in local wheat identification of *Glu-a3* and *Glu-b3* 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. Deeba, F. Naz, R.J. Rose, S.M.S. Naqvi. Expression of a rice GLP in *Medicago truncatula* exerting pleiotropic effects on resistance against *Fusarium oxysporum* 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)

Prof. Dr. M. Gulfraz
Chairman, Department of Biochemistry
HEC Approved Supervisor

Qualification: Ph.D

Area of Interest: Biochemistry/

E-Mail: ghazala@uaar.edu.pk

Tel: +92 51 9062740

Experience: 27 years

Total Publications: 91

Latest 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 *Neurospora sitophila*. 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 *Saccharomyces cerevisiae*. 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 *Aspergillus sydowii* 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 *Neurospora sitophila*. 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.

Dr. Ghazala Kaukab Raja

Associate Professor

HEC Approved Supervisor**Qualification:** Ph.D**Area of Interest:** Population Genetics, Protein Chemistry**E-Mail:** ghazala@uaar.edu.pk**Tel:** +92 51 9062740**Experience:** 17 years**Total Publications:** 48**Latest Publications:**

1. 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. *Balkan J. Med. Genet.* 19(1): 151-62
2. Nusrat Saba, Osman Yusuf, Sadia Rehman, Saeeda Munir, Muhammad Sheeraz Ahmad, Atika Mansoor, Ghazala Kaukab Raja (2016) An Angiotensin I Converting Enzyme insertion/deletion polymorphism is associated with Pakistani asthmatic cases and controls. *Journal of Biosciences.* 41(3): 439-444
3. Rizwana Abdul Ghani, N A Khattak, Muhammad Saqlain, Muhammad Javaid Asad, S.M. Saqlan Naqvi, Azra Khanum, Ghazala Kaukab Raja (2016) Comparison of the Common Immunogenic Protein Components of *Pasteurella multocida* Serotypes B:2 and B:3,4. *Kafkas Universitesi Veteriner Fakültesi Dergisi Kafkas Univ Vet Fak Derg.* 22(4): 485-491
4. Muhammad Fiaz, Faiza Rani, Muhammad Saqlain, Abid Mahmood, Pakeeza Arzoo Shiaq, SM Saqlan Naqvi, Rizwan Aziz Qazi, Ghazala Kaukab 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. *Pakistan Journal of Zoology.* 48(4): 949-955
5. Nusrat Saba, Osman Yusuf, Sadia Rehman, Saeeda Munir, Naghman Bashir, Atika Mansoor, Ghazala Kaukab Raja (2015) Association of Tumor necrosis factor alpha 308 G/A polymorphism with asthma in Pakistani population. *Iranian Journal of Allergy Asthma and Immunology.* 14(3):287-291
6. Philip E Stuart, Trilokraj Tejasvi, Pakeeza A Shaiq, Preya Kullavanijaya, Raheel Qamar, Ghazala K Raja, Yanming Li, John J Voorhees, Gonçalo R Abecasis, James T Elder and Rajan P Nair (2015) A Single SNP Surrogate for Genotyping HLA-C*06:02 in Diverse Populations. *Journal of Investigative Dermatology.* 135(4):1177-80
7. Abdul Rehman, Muhammad Gulfraz, Ghazala Kaukab Raja, Muhammad Inam Ul Haq, Zahid Anwar. (2015) A Comprehensive Approach to Utilize an Agricultural Pea peel (*Pisum sativum*) Waste as a Potential Source for Bio-ethanol Production. *Romanian Biotechnological Letters.* 20(3): 2015
8. Philip E Stuart, Trilokraj Tejasvi, Pakeeza A Shaiq, Preya Kullavanijaya, Raheel Qamar, Ghazala K Raja, Yanming Li, John J Voorhees, Gonçalo R Abecasis, James T Elder and Rajan P Nair (2015). A Single SNP Surrogate for Genotyping HLA-C*06:02 in Diverse Populations. *J Invest Dermatol.* doi 135(4):1177-80
9. Iffat Tahira, Muhammad Saqlain, Abid Mahmood, Nafeesa Qudsia Hanif, Ghazala Kaukab Raja. (2014) Study of β -Lactoglobulin Milk Protein Variants in Buffalo. *Pak. J. Zool.* 46(2): 549-552
10. Ghazala K. Raja, Mark A. Sarzynski, Peter T. Katzmarzyk, William D. Johnson, Yourka Tchoukalova, Steven R. Smith, Claude Bouchard. (2014) Commonality versus specificity among adiposity traits in normal-weight adults. *Int J Obes (Lond).* 38(5):719-23

Dr. Muhammad Javaid Asad

Associate Professor

HEC Approved Supervisor

Qualification: Ph.D

Area of Interest: Industrial Biotechnology, Fermentation Biotechnology, Enzymology

E-Mail: javaidasad@uaar.edu.pk

Tel: +92 51 9062743

Experience: 15 years

Total Publications: 60

Latest Publications:

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 *Neurosporasitophila*. 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.Comparision of the Common Immunogenic Protein Components of *Pasteurellamultocida* 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.Gulfraz, A.Ahmad,Z.Khan, M.Imran, R.Taj and S.Khan. 2016.Optimization of Various Parameters for Maximum Production of Glucoamylaseby*Neurosporo sitophila*.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 ofchili in Punjab, Pakistan. Mycopathology. 2015. 13(1): 37-41.
9. R. T. Mahmood, **M. J. Asad**, M. Asgher, M. Gulfraz, T. Mukhtar and M. Akram. Study of disperse dyes biodegradation and lignolytic enzymes production potential of indigenous *Coniophoraputeana* 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 *Bacillus subtillus*. Biochem. Anal. Biochem. 4:181. DOI:10.4172/2161-1009.1000181.

Dr. M. Sheeraz Ahmad

Assistant Professor

HEC Approved Supervisor

Qualification: Ph.D

Area of Interest: Plant Biochemistry/Biotechnology, Nanobiotechnology

E-Mail: dr.sheeraz@uaar.edu.pk

Tel: +92 51 9062748

Experience: 09 years

Total Publications: Articles 30, Book Chapter 1

Latest Publications:

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 *Viscum album* 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 *Polygonumamplexicaule* 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 *Taraxacumofficinale* on CCl₄ induced Hepatotoxicity in rats, in vivo study. **Pak J. Pharm Sci**, 2014, 27(4), 825-829.

Dr. Feroza Hamid Wattoo**Assistant Professor****HEC Approved Supervisor****Qualification:** Ph.D**E-Mail:** drfhwattoo@uaar.edu.pk, drfhwattoo@gmail.com**Tel:** +92 51 9062744**Experience:** 18 years**Total Publications:** 45**Latest Publications:**

1. S.Ata, **F.H.Wattoo**M.Ahmed, M.H.S.Wattoo, S.A.Tirmizi, A.Wadood. A method optimization study for atomic absorption spectrophotometric determination of total zinc in insulin using direct aspiration technique, Alexandria J. Medicine, 51, 19-23 (2015) (ISI Indexed Journal, available on sciencedirect.com).
2. Muhammad Abdul Qadir, **Feroza Hamid Wattoo**, MehwishYaseen, Sadia Atta, Muhammad Hamid SarwarWattoo, Sheikh Asrar Ahmad, AsadGulzar. In-vitro binding assay study of 99mTc-flouroquinolones with E. coli, Salmonella and Ps. Aeruginosa” Alexandria J. Medicine,51, 47-52: (2015) (ISI Indexed Journal, available on sciencedirect.com).
3. Sadia Ata, **Feroza Hamid Wattoo**, Muhammad Imran Din, Muhammad Hamid SarwarWattoo, Muhammad Abdul Qadir, Syed Ahmed Tirmizi, Pauzi Abdullah “Critical Study of Multiple Regressions Modelling for Monitoring of Haloacetic Acids in Water Reservoirs” Arabian J. Sci. & Eng. (AJSE) 40(1),101-108, 2015.(ISI Indexed Journal, JCR-2012 Impact factor 0.37)

Dr. Pakeeza Arzoo Shaiq

Assistant Professor

Qualification: Ph.D

Area of Interest: Human Molecular Genetics

E-Mail: pakeezaarzoo@gmail.com

Tel: +92 51 9062745

Experience: 07 years

Total Publications: 11

Latest Publications:

1. J. Klar, A. Khalfallah, **Pakeeza A. Shaiq**, H. T. Gazda and N. Dahl (2014). Recurrent *GATA1* gene mutations in Diamond-Blackfan anaemia. Br. J. Haematol. 166:949-51.
2. Schuster J., T. N. Khan, M. Tariq, **P. A. Shaiq**, K. Mäbert, S. M. Baig and J. Klar(2014). Exome sequencing circumvents missing clinical data and identifies a *BSCL2* mutation in congenital lipodystrophy. BMC med genet.15:71 doi:10.1186/1471-2350-15-71.
3. Philip E. Stuart, TrilokrajTejasvi, **Pakeeza A. Shaiq**, PriyaKullavanijaya, RaheelQamar, 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. [J Invest Dermatol. 135\(4\): 1177–118.](#)
4. Muhammad Fiaz, Faiza Rani, Muhammad Saqlain, AbidMahmood, **PakeezaArzooShaiq**, SM Saqlan Naqvi, Rizwan Aziz Qazi and GhazalaKaukab Raja (2016). Identification of Population Specific Risk Phenotypes Contributing Towards Development of Metabolic Syndrome. Pakistan J. Zool., vol. 48(4), pp. 949-955.

Dr. Sadia Saeed

Assistant Professor

HEC Approved Supervisor

Qualification: Ph.D

Area of Interest: Molecular Biology, Epigenetics, Human Immune System

E-Maildr.sadia@uaar.edu.pk

Experience: 03 years

Total Publications: 11

Latest Publications:

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-1 α -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. .

Dr. Tayyaba Zainab

Assistant Professor

Qualification: Ph.D

Area of Interest: Molecular Genetics

E-Mail: tzawan@gmail.com

Experience: 02 year

Total Publications: 0

Latest Publications:

Ms. Hina Ali

Lecturer Chemistry/Biochemistry

Qualification: M.Phil

Area of Interest: Phytochemistry, Food Microbiology

E-Mail: hinaali.1069@gmail.com

Experience: 3 year

Total publication: 2

Latest Publications:

1. **Hina A**, Narjis.Z, Mateen. A. Quantitative analysis of Quercetin in pulps and peels of vegetables by using HPLC technique. Paper published in Journal of Agricultural Research, 2016 Vol. 54(1):75-83
2. **Hina A**, Narjis Z. Determination of Free radical scavenging activity of pulps and peels of some selected vegetables commonly used diet in Pakistan. Paper accepted to Pakistan Journal of Agriculture Research. F. No.1-51/16-plus