

# **Self-Assessment Report**

**on**

## **Bachelor of Pharmacy Program**

**January, 2018**



**Department of Pharmacy**

**University of Asia Pacific**

## **TABLE OF CONTENTS**

### **CHAPTER 1**

<b>SI</b>	<b>Topics</b>	<b>Page No.</b>
-----------	---------------	---------------------

#### **INTRODUCTION**

1.1	Self-Assessment Program	12
1.2	Significance of Program Self-Assessment	12
1.3	Objectives of Self-Assessment Program	14
1.4	Process of Assessment	14
1.5	Overview of the University	19
1.6	Vision and Mission of the University	21
1.7	Overview of the Program Offering Entity	21
1.8	Intended Learning Outcomes (ILOs) of the Program	24
1.9	Graduate Profile	25
1.10	Brief Description of the Programs under Review	25

### **CHAPTER 2**

#### **GOVERNANCE**

2.1	Program Management	27
2.2	Academic Documentation	32
2.3	Internal Quality Assurance Process	34
2.4	Peer Observation and Feedback Process	35
2.5	Key Performance Indicators (KPIs)	36
2.6	Stakeholders Feedback	37

**CHAPTER 3**  
**CURRICULUM DESIGN AND REVIEW**

3.1	Need Assessment	47
3.2	Curriculum Design	47
3.3	Curriculum Review Process	51
3.4	Curriculum Alignment/Skill Mapping	54
3.5	PO vs. PEO Mapping	57
3.6	Mission vs. PEO Mapping	58
3.7	Gaps in Curriculum: Adequacy to Meet the Needs	58
3.8	Stakeholders' Feedback	62

**CHAPTER 4**  
**STUDENT ADMISSION, PROGRESS AND ACHIEVEMENTS**

4.1	Entry Qualification	70
4.2	Admission Procedure	71
4.3	Progress and Achievements	73
4.4	Stakeholders' Feedback	75

**CHAPTER 5**  
**PHYSICAL FACILITIES**

5.1	Classroom Facilities	82
5.2	Library Facilities	83
5.3	Laboratory Facilities	83
5.4	Medical Facilities	98
5.5	Other Facilities	99
5.5.1	Physical Facilities for Faculties	99
5.5.2	Cafeteria	99

5.5.3	Sports Center	99
5.6	Stakeholders' Feedback	100

## **CHAPTER 6**

### **TEACHING, LEARNING AND ASSESSMENT**

6.1	Quality Staff	107
6.2	Procedure of Promotion for UAP Faculty Members	107
6.3	Teaching learning Methods	108
6.4	Technology Integration	110
6.5	Use of Lesson Plan	110
6.6	Focus	111
6.7	Assessment of Student Performance	112
6.8	Stakeholders' Feedback	115

## **CHAPTER 7**

### **STUDENT SUPPORT SERVICE**

7.1	Academic Guidance and Counseling	125
7.1.1	Class Attendances	127
7.1.2	Eligibility for Semester Final Examination	127
7.1.3	Policy for Repeat Exam	127
7.1.4	Policies for Improvement Grades	128
7.2	Co-curricular and Extra-curricular Activities	129
7.2.1	Departmental Club Activities	129
7.2.2	Sports Facilities	133
7.2.3	Photography Facilities	134
7.2.4	Cultural Activities	135
7.2.5	Study Tour	137

7.2.6	Central Club Activities under DSW	138
7.3	Career and Placement	142
7.3.1	Internship of Fresh Graduates	144
7.4	Alumni Services	145
7.5	Community Services	145
7.6	Stakeholders' Feedback	148

## **CHAPTER 8**

### **STAFF AND FACILITIES**

8.1	Recruitment	155
8.1.1	Faculty Recruitment	161
8.1.2	Salary	162
8.1.3	Bonus	162
8.1.4	Provident Fund (PF)	162
8.1.5	UAP Leave Rules	163
8.2	Staff Development	165
8.3	Stakeholders' Feedback	166

## **CHAPTR 9**

### **RESEACH AND EXTENSION**

9.1	Research Policy and Program	172
9.1.1	Faculty Research	176
9.1.2	Student Research	176
9.2	Fund and Facilities	177
9.2.1	Central Research Fund	177
9.2.2	Departmental Research Fund	178

9.3	Fund Hunting/Collection	178
9.4	Dissemination of Research Findings	179
9.5	Stakeholders' Feedback	179

## **CHAPTER 10**

### **PROCESS MANAGEMENT AND CCONTINUOUS IMPROVEMENT**

10.1	Self Assessment	184
10.1.1	Question Moderation Policy	185
10.1.2	Examination Policy	186
10.1.3	Evaluation Policy	186
10.2	Improvement Plan	187
10.3	Stakeholders' Feedback	188

## **CHAPTER 11**

### **SWOT ANALYSIS**

11	Introduction	201
11.1	Strengths	202
11.2	Weaknesses	207
11.3	Opportunities	209
11.4	Threats	212

## **CHAPTER12**

### **CONCLUSION, RECOMMENDATION AND IMPLEMENTATION PLAN**

12.1	Conclusion	214
12.2	Recommendations	219
12.3	Improvement Plan	220

## LIST OF TABLES

SI	Topics	Page No.
1.1	Frequency distribution of respondents' category	17
4.1	Tuition fee waiver based on GPA	74
5.1	Seating arrangement in 6 classrooms	82
5.2	Lists of laboratories with lab assistants and lab advisors	84
6.1	Learning objectives and assessment procedures	114
8.1	General principles applicable to all departments	155
8.2	Teaching load policy for full time faculty members of UAP	159
8.3	Qualifications for different posts in Administration	159
8.4	Qualifications for the posts in library	161
8.5	Provident fund rules: University of Asia Pacific	162
8.6	Leave rules of UAP	163
10.1	Frequency distribution of employers expectations of dimension of quality of graduates	193
10.2	Frequency distribution of employers evaluation about dimension of quality of graduates	198
10.3	Mean difference between expected and evaluated dimension of quality of graduates by employers (N=30)	201
12.1	Mean scores of different criteria evaluated by the respondents	214
12.2	Overall mean scores (with t-test) of different criteria of self-assessment by the respondents	216

## LIST OF FIGURES

SI	Topics	Page No.
1.1	Self-assessment flow diagram (Source: Self-Assessment Manual)	16
2.1	Overall and item wise average score of students evaluation about governance	39
2.2	Overall and item wise average score of alumni's evaluation about governance	41
2.3	Overall and item wise average score of faculties evaluation about governance	44
2.4	Overall and item wise average score of non-academic staffs' evaluation about governance	46
3.1	Overall and item wise mean score of students evaluation about curriculum	64
3.2	Overall and item wise average score of students evaluation about curriculum	66
3.3	Overall and item wise average score of faculties evaluation about curriculum	68
4.1	Overall and item wise mean scores of students evaluation about student entry qualification, admission procedure and achievement	76
4.2	Overall and item wise average score of alumni's evaluation about student entry qualification, admission procedure and achievement	78
4.3	Overall and item wise mean scores of student Entry qualifications, Admission procedure, Progress and Achievements by Faculties	80
5.1	Overall and item wise mean scores of students evaluation about physical facilities	101



5.2	Overall and item wise average score of alumni's evaluation about physical facilities	103
5.3	Overall and item wise average score of faculties evaluation about physical facilities	105
6.1.a	Overall and item wise mean scores of students evaluation about teaching-learning	116
6.1.b	Overall and item wise mean scores of students evaluation about Learning Assessment	117
6.2.a	Overall and item wise average score of alumni's evaluation about teaching-learning	118
6.2.b	Overall and item wise average score of alumni's evaluation about learning assessment	129
6.3.a	Overall and item wise average score of faculties evaluation about teaching-learning	121
6.3.b	Overall and item wise average score of faculties evaluation about learning assessment	122
7.1	Overall and item wise average score of student support services by students	149
7.2	Overall and item wise average score of alumni's evaluation about Student Support Services	150
7.3	Overall and item wise average score of faculties evaluation about Student Support Services	152
8.1	Overall and item wise average score of faculties evaluation about Staff and Facilities	168
8.2	Overall and item wise average score of non-academic evaluation about Staff and Facilities	170

9.1	Machine and Equipments of Pharmaceutical Reaserch Lab	175
9.2	Machine and Equipments of Pharmacology and Biotechnology, Microbiology and Phytochemistry Research Lab	176
9.3	Overall and item wise mean scores of research and extension evaluated by students	180
9.4	Overall and item wise average score of alumni's evaluation about research and extension	181
9.5	Overall and item wise average score of faculties evaluation about research and extension	182
10.1	Overall and item wise average score of faculties evaluation about Process Management and Continuous Improvement	190
10.2	Mean rating scores of different dimensions of qualities of graduates expected from employers	195
10.3	Mean evaluation scores of different dimensions of qualities of graduates given by employers	200
12.1	Mean scores of different criteria evaluated by the respondents	215
12.2	Overall mean scores of different criteria of self-assessment by the respondents	217

## **List of Acronyms**

HEQEP: Higher Education Quality Enhancement Project

ILO: Intended Learning Outcome

IQAC: Institutional Quality Assurance Cell

OBE: Outcome Based Education

PEO: Program Educational Objective

PO: Program Outcome

PSAC: Program Self-Assessment Committee

QA: Quality Assurance

SAR: Self-Assessment Report

SWOT: Strengths, Weaknesses, Opportunities, and Threats

UAP: University of Asia Pacific

UGC: University Grants Commission

## **Appendix**

Appendix I: Courses and Curriculum

Appendix II: Program: MS Pharm Tech

Appendix III: Sample of Course Outline

Appendix IV: Examination Guidelines and Templates

Appendix V: Survey Analysis

Appendix VI: Academic Calendar

Appendix VII: Survey Questionnaires

Appendix VIII: Research and Publications

## CHAPTER 1

### INTRODUCTION

#### 1.1 Self-Assessment Program

**Self-Assessment (SA)** is the process of critically reviewing the performance of program and/or Institution to improve student learning. Self-assessment is also a systemic process of evaluating the various aspects of institutions or academic programs whether quality standards are being met in respect of national qualifications framework and criteria. It is an effective approach to gain a clear understanding of current situation by informative strengths, weaknesses, opportunities, and threats (SWOT) analysis. The self-assessment helps to judge the overall effectiveness of academic program and educational processes. It provides an opportunity to attain a deeper understanding of the areas that may need improvement. Thus, self-assessment becomes one the core activities of the quality assurance process.

#### 1.2 Significance of Program Self-Assessment

Quality assurance in tertiary level of education is in practice worldwide. The changes in higher education landscape and emerging needs of the stakeholders requires the educational institutes to be more responsive and look into the effectiveness of the academic programs they offer. As the higher education needs to be closely aligned to the demands of the community and requirements of graduates to explore their potentiality in terms of employability and lifelong learning, universities should focus on preparing graduates with positive mindset, skills and competence, which would help them to find a good fit into the social system. In order to meet the above mentioned requirements, the program entities should frequently undertake self-assessment of the program they offer.

- To understand the current state of quality of education the institution

- To identify the areas and issues that need to be addressed and improved to enhance and maintain quality in education
- To integrate the concerns of major stakeholders into the educational system to provide better experience
- To identify of the strength, weakness/limitation of the program including the creation of base-line
- To prepare comprehensive guidelines for future plan

### 1.3 Objectives of Self-Assessment Program

The general objective of the Self-Assessment is to improve the quality of education addressing the needs of the major stakeholders and national relevance. The specific objectives of self-assessment exercise are to:

- **Identify learning needs:** Employability of the graduates and ability to contribute to organizations and national development are very critical to ensure quality in education. Education is all about gaining a set of skills to match with the requirements for employment, career development, lifelong learning and socioeconomic development as well
- **Assess the teaching learning capacity of the institution:** Teaching learning is the core of all academic institutions
- **Review the existing procedures:** To provide quality education in respect of changing needs of the society, it is important to measure the effectiveness of existing procedures and provisions in practice in the university
- **Identify the areas need to be improved:** Self-assessment is to identify the areas of the process or individual practitioners, which need reinforcement and further improvement to enhance the capacity of the institutions or individuals to make the total system effective to provide and maintain quality in education.
- **Create a basis for external assessment and validation**

- **Provide guidelines or direction to the program offering entity or to the University for strategic planning**

#### **1.4 Process of Assessment**

Self-assessment is a permanent and cyclical process of quality culture. The SA is based on few criteria and standards set by University Grants Commission which is included in the Self-Assessment manual. At the initial stage, a questionnaire was developed incorporating nine dimensions namely governance, curriculum, admission progress and improvement, physical facilities, teaching learning and assessment, student support services, staff and facilities, research and extension, process management and improvement to gather feedback from five major stakeholders. The feedback of the survey gave a starting point to assess the current status and information also led to measure the effectiveness of the program. In addition, the completion of Self-Assessment Report (SAR) would allow the department to go through the steps of External Assessment. Furthermore, based on the assessment of Peer Review Panel, the program will be able to go through the process of improvement plan. The report will act as a baseline and guiding source for continuous quality improvement process. In a nut shell the self-assessment exercise carried out at Department of Pharmacy, the standard steps of self-assessment process are followed which are shown in Figure 1.1

**Schedule for self-assessment:** The institutional Quality Assurance Cell (IQAC), UAP, prepared a schedule for self-assessment of different program offering entities of the university. According to the schedule, the Director of IQAC sent a written directive to the Director of the institute of Program Self-Assessment Committee (PSAC).

**Formation of SAC:** Upon receiving the directive, the Head of the Department of Pharmacy formed PSAC. The PSAC of Department of Pharmacy is as follows:

Irin Dewan, Associate Professor	Head
Md. Abu Sufian, Assistant Professor	Member
Md. Hamiduzzaman, Lecturer	Member

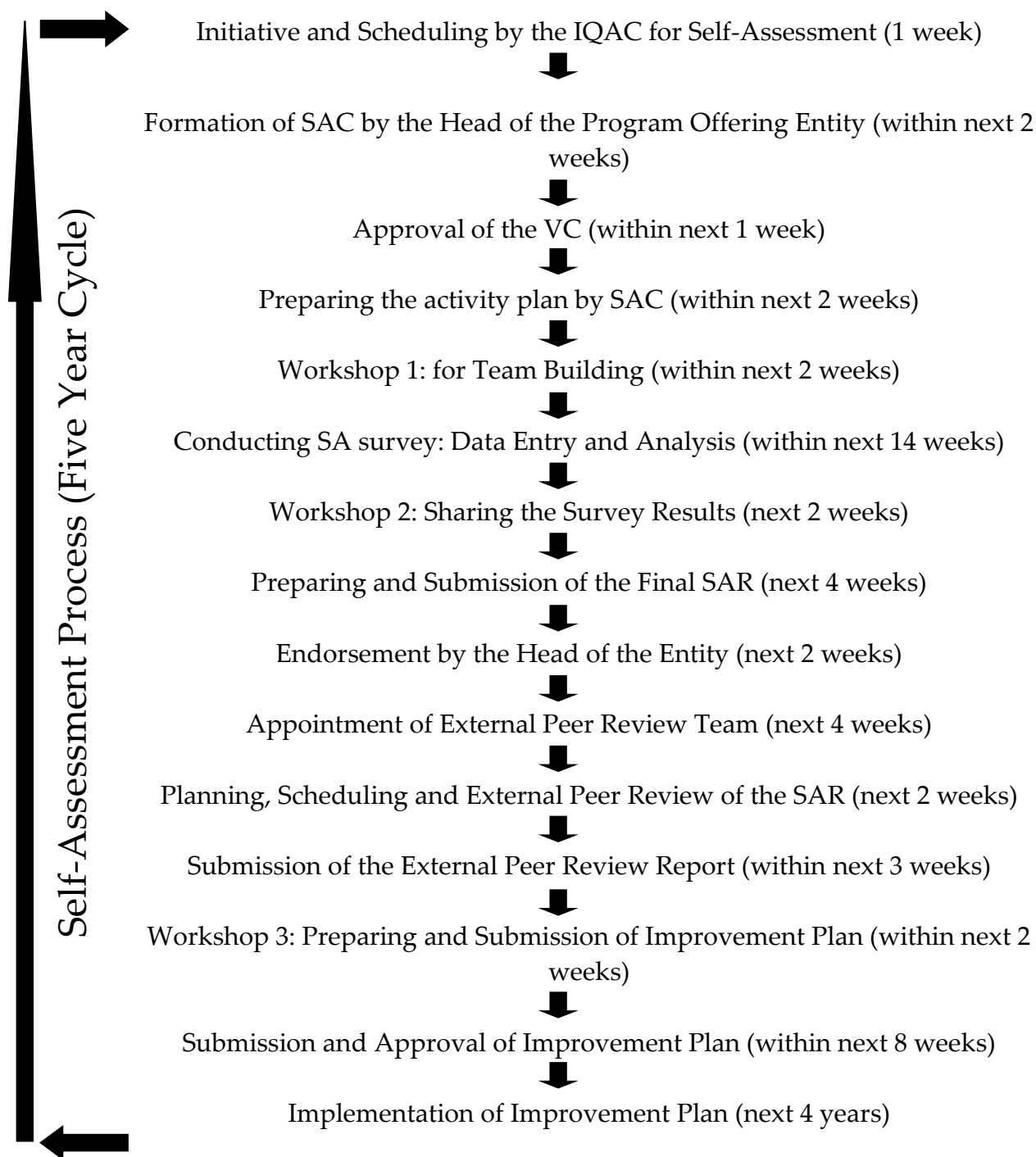
**Approval of PSAC:** The Honorable Vice Chancellor approved the PSAC and the director of IQAC informed the Head of the department about the approval.

**Planning:** With approval, the PSAC designed an activity schedule to complete the self-assessment exercise smoothly in an organized and planned manner.

**Team building:** The head of the PSAC at Department of Pharmacy, in consultation with the Head, Department of Pharmacy held a several workshops with all the faculty members for awareness building and clear understanding about the self-assessment process.

**Preparation for survey:** The PSAC prepared the survey tools (questionnaire) for major stakeholders i.e. students, alumni, employers, academic staffs, non-academic staffs following the self-assessment criteria and standard. In addition to these five categories of stakeholders, questionnaire survey was conducted among the students.

**Assessment criteria:** To bridge the gap certain criterion has been chosen so that an objective scenario can be visualized. The criterion has been accepted as the standards of assessment are Governance, Curriculum design and review, Physical Facilities, Student Admission Progress and Achievements, Teaching and Learning, Assessment of Student Performance, Student Support Services, Staff and Facilities, Research and Extension and Process Management for Continual Improvement.



**Figure 1.1: Self-assessment flow diagram (Source: Self-Assessment Manual)**



**Sample design and sample size:** Purposive sampling procedure has been applied to choose sample. Since, students are the vital parts the program; so sample size of students was comparatively large than that of other respondents category i.e., faculties, alumnae, non-academic staffs and employers. To perform statistical test, sample size was taken at least 12 for all respondent categories. Sample size of each category is shown in table 1.1.

**Table 1.1: Frequency distribution of respondents' category**

<b>Respondent category</b>	<b>No. of respondents</b>	<b>Percentage</b>
Student	395	55.40
Alumni	240	33.66
Faculty	36	5.04
Non-academic staff	12	1.68
Employer	30	4.20
<b>Total</b>	<b>713</b>	<b>100.00</b>

**Conducting survey and review:** With cooperation from the faculty members, the PSAC conducted the opinion survey to collect data and feedback from major stakeholders using separate questionnaires.

**Share the survey results:** A workshop was arranged by PSAC to share the program self-assessment results with all the faculty members. With a brief background of the SA activities at Department of Pharmacy. All categories of survey results were discussed with cross comparison of results among different stakeholders. Survey results are presented in Appendix V.

**Prepare the final SAR:** After all these activities, the PSAC prepared the SA report incorporating the valid suggestions and observations of the workshop and discussion.

**Submission of SAR for endorsement:** PSAC submitted the SAR to the Director of the Institute for endorsement. The Director, IQAC will now take necessary initiative to complete the external peer review and submission of peer review report.

**Selection of the external peer review panel:** PSAC will propose the panel for external peer review to the IQAC. IQAC Director will make the necessary arrangements for selection and hiring of the peer reviewer and signing of contract with him/her. Concerned Head of the PSAC will invite the external peer reviewers for the purpose of review and validation of the self-assessment report.

**Facilitating external peer review:** PSAC will prepare the external peer review schedule in consultation with the IQAC and the Head of the Department. Concerned PSAC will make all the arrangements including meeting with the major stakeholders separately, ensuring necessary supports for external peer review so that the reviewers can conduct the review process smoothly within the stipulated time. At least two weeks prior to the visit, the Head of the PSAC should provide the reviewers with an advance copy of the Self-Assessment Report, review schedule, peer review checklist and university handbook containing university mission, objectives and program details. On arrival, the head of the PSAC should provide necessary documents and facilities for effective external peer review as stated in the section 3.2.4.7 of the SA manual.

**Prepare the draft improvement plan:** After completion of external peer review, the PSAC will prepare a draft improvement plan with benchmarking in respect of the SA report findings and the recommendations of the external peer review panel. PSAC will

organize workshop to share the draft improvement plan with the faculty members to set priority and time line.

**Submission:** Finally, the PSAC will submit the improvement plan to the Head of the Department of Pharmacy for further necessary actions. The PSAC shall prepare and submit the improvement plan within 3 weeks after the completion of external peer review report.

### **1.5 Overview of the University**

University of Asia Pacific (UAP) is one of the first generation private universities in Bangladesh which came into being in 1996. The curriculum of UAP has been approved by the University Grant Commission (UGC) of the Government of the Peoples' Republic of Bangladesh. The university started its journey offering four-year's programs in Computer Science and Engineering and Business Administration. UAP has been sponsored by University of Asia Pacific foundation, a non-profit and noncommercial organization based in Dhaka, Bangladesh. The aim of the foundation is to impart high quality educational programs where next generation will be successful to be innovative, skilled and professionals to cope with the demands of the world. As a result, the graduates will be able to make a positive contribution to the society. Eminent educationists, industrialists, businessmen, social workers and administrators established the foundation for higher cause of building the nation by qualified, knowledgeable and skilled graduates. Late Hedayet Ahmed, Former secretary to the government of Bangladesh, Ambassador to Saudi Arabia, and former director of UNESCO for Asia Pacific Region in Bangkok was the founder Vice Chancellor of the university. After his demise, Mr. A. S. M. Shahjahan, Ex-IGP and former Advisor of the Caretaker Government played the role of Vice Chancellor till March, 2003. Prof. Dr. M. R. Kabir was acting Vice Chancellor till September 2004. The appointment of Prof. Dr.

Abdul Matin Patwari as the Vice Chancellor on 7 September, 2004 was a great breakthrough for UAP. A renowned educationist, former Vice Chancellor of BUET and DG IIT (IUT) who served as Vice Chancellor and Chief executive with distinction for more than twenty three years to achieve the record of longest serving Vice chancellor and Chief Executive among all Commonwealth countries. In 2012, invaluable responsibility of Vice Chancellor was handed over to the icon in Engineering and Technology to none other but to Prof. Dr. Jamilur Reza Choudhury. He is well known as an eminent educationist, engineer and former Advisor to the care taker Government. At present, UAP is privileged and honored to have him as the Vice Chancellor who in 2017 had also received “Akhusha Padak” recognized as the highest honor and reward nationally.

**Programs offered by the entity:** The following programs are currently offered by the University of Asia Pacific:

<b>Undergraduate programs</b>	of Architecture
	of Business Administration
	of Sciences in Civil Engineering
	of Sciences in Computer Science and Engineering
	of Sciences in Electrical and Electronic Engineering
	of Arts in English
	of Laws (Regular and External)
	of Sciences in Mathematics
	of Pharmacy
<b>Graduate programs</b>	Masters of Business Administration (Regular and Executive)
	Masters of Science in Civil Engineering

Masters of Science in Computer Science and Engineering  
Master of Arts in English  
Master of Laws (Regular and External)  
Masters of Science in Pharmaceutical Technology

## **1.6 Vision and Mission of the University**

**Vision:** UAP holds steadfastly its passion to do better and better in fulfilling our young generation's needs and aspirations for a caring and quality education in casting their future career and become a desirable destination for an identity.

**Mission:** UAP mission is to offer best possible education to our young generation. Towards the mission, UAP continues to develop a sustained culture of ascending to a top-tier of vibrant academic environment; maintain and foster well qualified faculty, provide adequate research support for cutting-edge research in-house and in collaboration national and international peers; update curricula to keep up with advancing trend in science and technology, use state-of-the-art best practices in teaching-learning and modern facilities in laboratories and libraries; and provide other supports in aid to students becoming competent graduates with their potential fully realized and personality well-developed for joining the global forces in making the future of society in a changing world."

## **1.7 Overview of the Program Offering Entity**

Since 1996, UAP is the pioneer in launching 4 years of Pharmacy (B. Pharm Hons.) program. The Pharmacy Department is one of the most progressive and established departments of the university as well as in the country. Following a bi-semester system, the of Pharmacy requires minimum 8 semesters to prepare students as pharmacists and the MS Pharm Tech requires minimum 2 semesters to instruct and train the graduate

pharmacists for working as integrated members of health-care system. The Department admits 110 students in the undergraduate and 110 students in the graduate program in a semester. From its inception in 1996 with only 6 students enrolled in B. Pharm program and it has expanded to 110 in 2017. Similarly, only 30 students took admission in MS. Pharm Tech program in 2003 when the masters' program was first introduced but reached a remarkable number of 224 in 2017. Candidates who have an overall GPA of 8.00 in H.S.C and S.S.C are only selected to apply for admission for B. Pharm program. All of the applicants then have to excel both in a competitive written test and an interview before being selected for admission. In spring 2016, for the B. Pharm program 389 students applied for admission and among them only 110 were admitted finally after rigorous screening. Applicants who have a B. Pharm degree from an accredited institution are only selected for MS. Pharm Tech admission. Consequently, in spring 2017 among the 180 applicants from different universities such as East West University, University of Development Alternatives and Manarat University and pharmacists working in reputed companies like Beximco, Square, Incepta, General, Eskayef Bangladesh Ltd, The ACME Laboratories and ACI Limited, only 114 were eventually selected for admission in the MS Pharm Tech program.

**Vision:** The vision of the Department of Pharmacy is to be the preeminent institution in pharmacy education, research and practice where graduates are prepared to lead in pharmaceutical industry, academia and allied sectors at home and abroad.

**Mission:** The mission of the Department of Pharmacy is

- To develop competent professionals, scientists and academicians by providing the highest quality educational experience

- To foster a learning-centered, research-oriented and professionally motivated educational environment that encourages individuals to make positive contributions to the health sector
- To cultivate relationships with the key stakeholders to meet the changing needs and shape the evolving health care system
- To achieve its mission by striving for excellence in education, service and research, all directed towards enhancing health and quality of life of people

**Program educational objectives:** Program educational objectives (PEO) are broader statements that describe what students are expected to do in the long run. Initiatives were also taken to develop the PEO of the programs offered at Department of Pharmacy. The workshop organized by IQAC and the materials presented therein were instrumental in developing the PEO. The PEO were first shared with the faculties in a meeting. These were also shared with the stakeholders through emails. Important feedbacks were received through meetings and emails which were incorporated in the formulated program outcomes. The final program outcomes are as follows:

- **PEO 1:** To produce pharmacy graduates with strong fundamental concepts and high technical competence in pharmaceutical sciences and technology, who shall be able to use these tools in pharmaceutical industry and/or institutes where ever necessary for success.
- **PEO 2:** To introduce skilled manpower to manage the affairs of hospital pharmacies, pharmaceutical industries, community pharmacy services, drug administration and other organizations in drug research, marketing, sales and multidisciplinary approach with highly professional and ethical attitude.

- **PEO 3:** To uplift the research on different fields of pharmacy through generating potential knowledge pools so as to develop newer techniques of formulation, quality control and standardization of drugs.
- **PEO 4:** To encourage the students to participate in life-long learning process for a highly productive career and to relate the concepts of Pharmaceutical Sciences towards serving the cause of the society.

### **1.8 Intended Learning Outcomes (ILOs) of the Program**

Initiatives were also taken to develop the outcomes of the programs offered at Department of Pharmacy. The workshop organized by IQAC and the materials presented therein were instrumental in developing the program outcomes. Programs outcomes are narrower statements that describe what students are expected to know and be able to do by the time of graduation. These relate to the skill, knowledge and behavior that students acquire in their matriculation through the program (IQAC, 2016). The program outcomes were first shared with the faculties in a meeting. These were also shared with the stakeholders through emails. Important feedbacks were received through meetings and emails which were incorporated in the formulated program outcomes. The final program outcomes are as follows:

1. Fundamental and Applied Knowledge
2. Technical Expertise
3. Problem Identification and Solving Skills
4. Communication Skills
5. Professionalism and Ethics
6. Leadership and Interpersonal Skills
7. Patient Care and Medication Management



8. Research and Scientific Knowhow
9. Entrepreneurship
10. Life Long Learning Skills

### **1.9 Graduate Profile**

Department of Pharmacy aims that its graduates will be able to mark their places in the pharmaceutical industry, academia, and allied health sectors through their skills and knowledge necessary to succeed in the 21<sup>st</sup> century. Department of Pharmacy expects that its graduates will demonstrate character, originality in everything they do, and will be equipped with essential tools with which they will be able to cope with the demanding jobs in the pharmaceutical industries. The Department also expects that the graduates will be able to work multidisciplinary teams in an industrial setting.

### **1.10 Brief Description of the Programs under Review**

At present three degrees are offered at Department of Pharmacy: Bachelor of Pharmacy (Honors), Master of Science in Pharmaceutical Technology (Thesis) and Master of Science in Pharmaceutical Technology (Non-Thesis).

**Bachelor of Pharmacy (Honors) Program:** Bachelor of Pharmacy (Honors) is a four-year degree course, which includes theoretical courses, laboratory works, project works and intensive industrial training. This program aims at providing students with modern and broad-based education in pharmaceutical sciences and preparing them as well-trained pharmacy professionals/pharmacists to meet the needs of the Pharmacy profession as practiced all over the world. The courses of the B. Pharm (Hons.) program are offered in 4 Academic sessions consisting of 8 six-monthly Semesters. Each academic session consists of 2 Semesters and each Semester consists of 14 weeks of lectures and lab. Work, 1 weeks of preparation period and 3 weeks of Mid-Term and Semester final examination.

## CHAPTER 2

### GOVERNANCE

Governance at university encompasses the organizational structures, legislative framework, and processes through which, policies and programs are developed, managed and delivered. Governance facilitates the achievement of the stated mission and objectives of the university. The central administration and statutory bodies like the Vice Chancellor, Board of Trustees, Syndicate, and Academic Council are the powerful actors in university's governance system. The players involved in ensuring the governance at the university include all the administrative layers from top management to the program level management. The entity ensures its commitment to its stakeholders and to the society at large through duly communicating the following standards as prescribed in the SA manual:

**Standard 1-1:** It has clearly defined its mission and objective in respect of national relevance in compliance with the legal requirements, QA requirements and external reference standards.

**Standard 1-2:** It has outlined the intended learning outcomes specifying skills, results and behavior in the students that are observable, measurable in a given condition.

**Standard 1-3:** There is a well-defined graduate profile which clearly and succinctly describes the competencies in the graduate that the academic program aims to produce.

**Standard 1-4:** Intended learning outcomes of the entity satisfies the mission and objectives of the program and institution.

**Question on the mission and objectives of the entity:** *“The intended learning outcomes (ILOs) satisfy the stated mission and objectives of the entity”*

### Survey results:

Stakeholders/ respondent category	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	Total
Students	4	12	57	188	134	395
Faculties	0	0	7	23	6	36
Alumni	1	0	23	101	115	240
Non-academic staffs	0	0	2	2	8	12

The survey result shows that out of 395 students, 134 strongly agree that *“The intended learning outcomes (ILOs) satisfy the stated mission and objectives of the entity”*; while 188 students agree on it, 57 are undecided, 12 disagreed with this issue and only 4 students strongly disagree with this statement. Similarly, the responses are found to be strongly agreed by 6 faculties, 115 alumni and 8 non-academic staffs. 23 faculties, 101 alumni and 2 non-academic staffs are agreed on this issue. Neutral comment is reported by 7 faculties, 23 alumni and 2 non-academic staffs. Only an ex-student is strongly disagreed with this matter.

### 2.1 Program Management

Good governance and quality assurance depends on the integrated approach of management by the statutory bodies and individual units of the university. It needs commitment, sense of responsibility, team work, collaboration and coordination among the top management, academic, administrative and support units of the university.

**Infrastructure:** For the purpose of providing facilities for higher education and research in emerging disciplines (e.g. engineering, medicine, science and technology, business administration) and to create manpower with high skill in the country, the University of Asia Pacific Foundation (UAPF) has established the University of Asia Pacific (UAP). In compliance with the UGC requirement UAP has set up a 2, 80,000 square feet state-of-the-art permanent campus at Green Road, Dhaka. UAPF, with an aspiration to integrate higher education with the process of national development, put paramount importance in maintaining a high scholastic standard and accredit UAP's academic programs by relevant accreditation bodies.

**Organogram:** The organogram, an intrinsic component of UAP, illustrates the structure and the relationships among different personnel, departments, and jobs at different levels. The President of the Republic of Bangladesh is the Chancellor of the University. The Vice-chancellor, appointed by the Chancellor, is the chief executive of the University who is responsible to the Syndicate, the Board of Governors and the Chancellor. Officers of the University are: Chancellor, Vice-chancellor, Pro Vice-chancellor, Treasurer, Registrar, Deans of Schools, Heads of the Departments, Controller of Examinations, Proctor, Librarian, Directors, Such other officers as may be declared by the University and/or required by the regulations to be officers of the University. The Pro Vice-chancellor is appointed by the Chancellor on the recommendation of the Board of Governors. He discharges responsibilities and duties as determined by the University Statutes and regulations or any other duties assigned to him by the Vice-chancellor. The UAP Treasurer is appointed by the Chancellor on the recommendation of the Board of Governors. The Treasurer exercises general supervision over the funds of the University and renders advice in regard to its financial policy. The Registrar is the secretary of the Syndicate and the Academic Council and acts as the custodian of the records. Registrar maintains liaison with the

deans/ heads of the departments regarding various academic and administrative issues and as per the delegation of the Vice-chancellor.

**Authority:** Authorities of the University are: Board of Governors, Syndicate, Academic Council, Schools of Studies, Committees of Courses and Studies, Finance Committee, Selection Boards, such other authorities as may be formed in accordance with the Private University Act. No. 34 of 1992 [vide clause 14 (2)].

**Board of governors:** The Board of Governors of UAP is the highest authority of the university which formulates policies, gives decisions and monitors implementation of the policies and decisions given.

**Syndicate:** The Syndicate, which is the executive body of the university, is constituted by the Board of Governors in accordance with the provisions of the Private University Act, 1992, and is authorized to make, amend and repeal regulations subject to the university ordinance. It consists of 11 Members of the Foundation and 4 representatives of the University. The Chairman of the Board of Governors is the Chairman of the UAP Syndicate. Vice-Chancellor is an ex-officio member and Co-Chairman of the Syndicate.

**Academic council:** UAP Academic Council is the supreme academic body of the university. It consists of the Vice-Chancellor, the Pro Vice-chancellor, the Professors, the Deans of Schools, the Heads of the Departments, three professors of other universities and two persons from research bodies to be nominated by the Syndicate, two associate professors and one assistant professor of the University other than the Heads of the Departments to be nominated by the Vice-chancellor.

**Schools of studies:** Currently UAP has seven schools comprising related disciplines and fields of study namely School of Humanities and Social Sciences, School of

Business, School of Sciences, School of Environmental Sciences and Design, School of Engineering, School of Medicine and School of Law. In each school of study there is a committee of courses which is responsible for preparation of courses and syllabi and such other work as may be assigned to it by the school, the Academic Council or the university statutes.

**Finance committee:** The Finance Committee consists of Members of the Foundation to be nominated by the Board of Governors, the Treasurer of the university and representatives of the Vice-chancellor. The committee is responsible for formulating financial and accounting guidelines and supervises and monitors all matters relating to finance.

**Selection boards:** UAP has two selection boards. The Selection Board for Faculty positions is constituted by Vice-chancellor/ Pro-Vice-chancellor (Chairman), Treasurer, three members of the Foundation, two relevant experts, Dean of the school concerned and/or, departmental head (or equivalent). While the Selection Board for positions of Officers/ Staff is constituted by Vice-chancellor/ Pro Vice-chancellor (Chairman), Treasurer, Registrar, one member of the Foundation (nominated by the Syndicate). Appointment to Senior Management Positions and periodical determination of their pay and other personnel matters are, however, dealt with by the Board of Governors.

- **Standard 1-5: The University must have an organizational structure and organizational units with defined responsibilities in compliance with the legal framework under which the university is established.**

**Review of the policies and procedures:** UAP takes meticulous care in updating its statutes in compliance with national relevance to carry out administrative, academic and other necessary functions in order to fulfill the objectives of the university as a teaching,

examining and research body. The course plans provided by each course instructor unequivocally highlights learning outcomes which are set up not only in congruence with the approved course outline but also with the resolute to align with the aspiration of the program.

- **Standard 1-6: The institution/program offering entity must review and ratify the policies and procedures periodically with an objective of further improvement.**

**Code of conduct:** UAP has a clearly defined code of conducts for students and staff members. Students negligence to studies, misconduct to any of the faculty members or officers of the university is punishable offences and is taken care of by the proctorial committee. Powers of proctorial committee of the university and disciplinary committees in each department well defined and well communicated. In addition, disciplinary rules during the examinations and penalties are also clearly mentioned and communicated with the students.

- **Standard 1-7: Code of conduct for the students and code of conduct for staff members and disciplinary rules and regulations are well defined and well communicated.**

In a similar manner, the statutes regarding Department of Pharmacy give the details of its administration. The statutes of Department of Pharmacy are approved by the Vice-Chancellor. The Head is the principal administrator in the Department. The Head is appointed by the Syndicate on a two year term from among the professor of the Department. If there is no Professor, the Head is appointed from among the highest available rank of teachers. The Head of the Department is responsible for the

administration and all other activities of the Department and he presents the items of agenda to the Board of Governors.

## **2.2 Academic Documentation**

An Information Booklet is provided (by the Registrar Office on Orientation Day) to all the UAP students (undergraduate and post-graduate programs of UAP) that contains information related to Board of Trustees, UAP Administration, Undergraduate programs, Graduate programs, Registration Procedure, Campus Resources (Library, e-journal, Lab, Canteen, Medical Center, Co-curricular activities, Admission related information, Collaboration/academic affiliation with foreign universities, Professional Affiliation, Discipline during examination, Rules for repeat examination, Waiver policy, Post admission withdrawal and locations of different departments/sections.

- **Standard 1-9: A student handbook containing mission, objectives, graduate profile academic calendar, rules, regulations and program related information in details.**

The minutes of meetings, decisions of different committees, are duly preserved. The minutes of the meetings of the Board of Governors (BOG), Syndicate, Finance Committee, Purchase and Procurement Committee, and other committees consisted of BOG members are maintained by Board Secretary and approved by the convener/s. The minutes of the meetings of Academic Council, AMCC, and Selection Committee are prepared by Registrar Office and endorsed by the Vice-chancellor. Following the decisions of the meetings, Office Orders are issued by the Registrar Office. The registration of the students and publication of results at UAP are carried out by automation software. The Office of Registrar and Controller of Exams, with the assistance of IT section generate and preserve the information related to registration and publication of results. The departments maintain the assessment records of the



students, faculties and staff independently and provide or forward to the concerned authority as per requirements. The minutes of departmental meetings are prepared by a faculty and approved by the Head of the Department. The course instructors are to submit course plans (elaborating course contents, evaluation system, course objectives, learning outcomes), grade-sheets, graphical analysis of the grades, best (and moderate) performance scripts and other relevant documents of the respective courses to the Self Assessment Committee at the end of the semester for archiving course files.

- **Standard 1-10: Documentation at all levels of university administration from central to individual faculty members.**

The President of the Republic of Bangladesh is the Chancellor of the University of Asia Pacific who presides over the convocations of the University for awarding of academic and honorary degrees. The Vice-chancellor is the whole time chief executive of the university who ensures the manifestation of the UAP statutes and regulations. The general control over the teachers and academic discipline in the university are in the discretion of the Vice-chancellor. The Board of Governors is the highest authority of the university which formulates policies, gives decisions and monitors implementation of the policies and decisions given. The Syndicate is the executive body of the university that exercises the authority of general management and oversees the dissemination of the provisions of the university statutes and the regulations in force.

The Academic Council, the supreme academic body of the university, looks after the standards of instruction, education and examination. The council also employs regulations prescribing the courses of studies and curricula, proper standards of instruction, research and examination. The committee of courses and studies at each department recommends the curricula and syllabi of courses prepared by each program

and advances to the Academic Council for its approval to forward to UGC for permission to engage in offering the course/s.

- **Standard 1-11: In order to be responsive to the emerging changes and needs universities and the academic units of the university must have effective institutional leadership and sufficient autonomy.**

### **2.3 Internal Quality Assurance Process**

The Vice-chancellor of UAP has the authority to exercise general control over the teachers and maintain academic discipline in the university in accordance with the university statutes. Following preparation of courses and syllabi, the committee of courses and studies, in each school, proposes to the Academic Council for its perusal and requisite measures for approval to offer the course/s. The Registrar is the secretary of the Academic Council who keeps liaison with the deans/ heads of the departments regarding time-table of the academic staff including lectures, demonstrations, tutorials, laboratory work, research, personal study. The Syndicate of UAP has complete jurisdiction over all academic matters which are placed before the Board of Governors as per necessity. UAP is one of the contract signatories of HEQEP (Higher Education Quality Enhancement Project), an initiative of the University Grants Commission (UGC) in a quest of excellence in the tertiary education of Bangladesh in conjunction with World Bank. With a view to further institutionalizing quality culture, UAP has started its institutional quality assurance cell (IQAC) with the support from UGC and the World Bank. IQAC, in its bid to establish quality culture and to come up with an improved academic plan to ensure systematic and intended goals based curriculum delivery, has been putting in unremitting effort by conducting and arranging series of workshops and seminars through Self Assessment Committee (SAC) of each department of UAP. Student centered learning focused on empirical measurement or

outcomes and fostering the spirit of Continuous Quality Improvements (CQI) falls under the agenda of the committee. A strong Quality Assurance Committee (QAC), headed by the Vice-chancellor as Chairperson and comprised of distinguished and dedicated members of UAP, is actively engaged in enhancing and ensuring academic quality at UAP. In addition to statements of rules and regulations of UAP, effective teaching method, learning style, quest for quality in education, and envisaged discipline and essence of code of conduct are illustrated extensively at the Orientation Program workshop for newly recruited faculty members. With an aspiration to elucidate the role of the teacher in creating effective learning environments, employing active learning strategies and technique, ensuring an effective learning environment, developing the tools that allow students to practice learning in the class environment, UAP has initiated Improving Learning and Teaching Skills (ILTS), a ten-week long faculty development program, led by the UAP Pro Vice-chancellor as a resource person and chief coordinator.

- **Standard 1-12: The academic leaders and the faculty members must be judicious and guided by the values of quality assurance.**

## **2.4 Peer Observation and Feedback Process**

In UAP, courses and curricula are designed in a manner that enables and equips a student to enter into the national and global job market or pursue higher academic and professional goals with a solid academic foundation. The institution also aims at fostering among the students the spirit to become productive and proactive members of the community and continue the practice of continuous learning to become future leaders and useful members of the society.

Responding to the perennially changing needs of the stakeholders is UAP's utmost priority. Students, the most important stakeholders, evaluate the respective course

teachers at the end of the semester where they explicitly provide views not only regarding their perception of instructors' knowledge and preparation but also on their organization and manifestation of the course materials.

Taking into account the scope of students experiential learning beyond the theoretical aspects of classroom teaching, UAP constantly endeavors to forge a strong linkage between the industry and the university. In addition to arranging internship placement of students at reputed national and multinational organizations, regular arrangements are made by DSW (Directorate of Students Welfare) with the help of CDCs (Career Development Club) of different departments to organize Campus Activation Program, Campus Recruitment Program, Lecture Series by Luminary Professionals, Career Fests, Mock Tests, Signing of MOUs, where employers grace the events and illustrate the essence and experience of the rigors of working in a corporate environment and students get an opportunity to display their employability skills before the experienced managers and the executives of the renowned company. The teaching (evaluation by students, standard of questions, evaluation by the departmental head) and non-teaching performances (Coordinating Student activities, Seminar/Workshop, Co-curricular activities) are annually assessed by the UAP administration to monitor the depiction of a faculty's academic wisdom and contribution to the respective department.

- **Standard 1-13: Management of Stakeholders' feedback to get useful insights for the purpose of improvement in all aspects of teaching, learning and research.**

## **2.5 Key Performance Indicators (KPIs)**

As Pharmacy is an applied subject, its key performance indicator is considered to be the number students absorbed in industry, hospitals or academia as industrial, hospital or clinical pharmacists. Besides, number of publication is one of the most important key

indicators. Publication by the Researchers and their RAs in peer reviewed journals has become a norm. Such publications are regularly reported in the CandD minutes and BOG is informed afterwards.

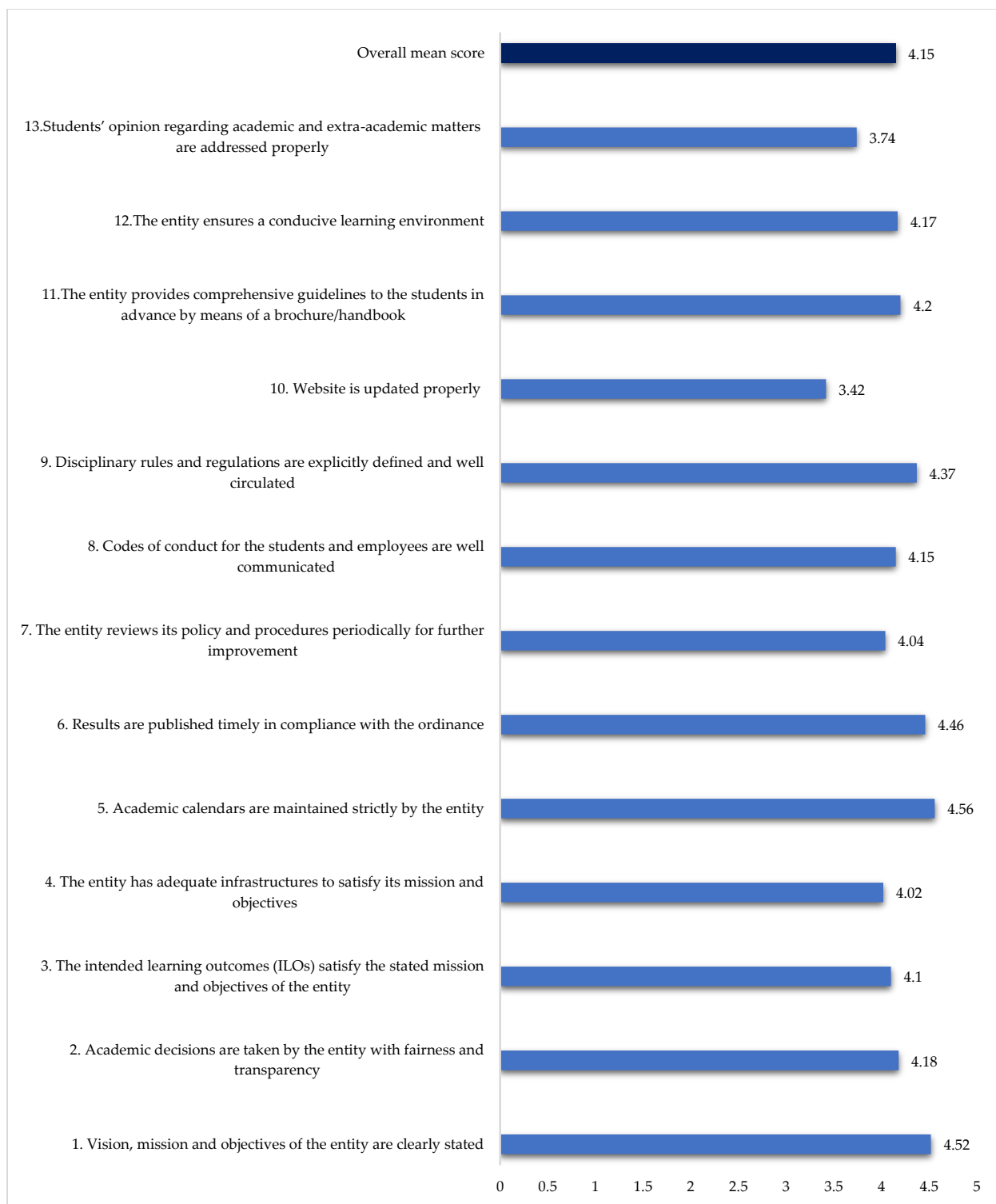
## **2.6 Stakeholders' Feedback**

### **A. Students**

Students were asked to evaluate the governance of the academic program. For this purpose, 395 students were interviewed. It is observed that 94% students were agreed that vision, mission and objectives of the entity are clearly stated; while only 2% agreed about this issue and 4% were undecided. Out 395 students, 87% students agreed that academic decisions were taken by the entity with fairness and transparency, 6% disagreed with it and 7% students gave no decision. In 82% cases, students said that the intended learning outcomes (ILOs) satisfied the stated mission and objectives of the entity, while 4% said opposite and other 14% neither agreed nor disagreed. 80% students thought that the entity had adequate infrastructures to satisfy its mission and objectives; on the other hand, only 9% did not agree with this aspect and 12% remain undecided. It is seen that 93% students agreed that academic calendars were maintained strictly by the entity, while 4% students disagreed about this statement and other 4% remain undecided. 90% agreed that results were published timely in compliance with the ordinance, 4% argued this matter and 7% students said nothing. Among 395 students, 78% thought that the entity reviews its policy and procedures periodically for further improvement, while 5% stated opposite opinion and 16% gave no clear decision. Students were asked whether codes of conduct for the students and employees are well communicated or not-83% agreed with it, 8% did not and the rest 9% were undecided. In the question of whether disciplinary rules and regulations are explicitly defined and well circulated or not, 87% students gave positive answer and only 3% gave negative answer; other 10% were undecided. "Website is updated

properly”-56% students agreed with it and 27% disagreed; while 16% were in neutral position. 83% students believed that the entity provides comprehensive guidelines to the students in advance by means of a brochure/handbook, while 4% did not agree about this issue and 13% were undecided. 84% students agreed that the entity ensures a conducive learning environment, but 4% students thought that the entity failed to ensure a conducive learning environment and 12% remain undecided. Finally, 64% students thought that their opinions regarding academic and extra-academic matters are addressed properly, on the contrary 14% students did not think so and 22% neither agreed nor disagreed.

The Appendix V and supplementary table 1 also show the mean scores of different aspects of evolution. The mean scores are also presented in Figure 2.1 along with overall mean score of governance. The mean scores are ranged from 3.42 to 4.56. One sample t-test at test value “3” with 5% level of significance for the mean scores was performed and p-value is shown in Appendix V and supplementary table 1. All mean scores are significantly above from 3 (p-value<0.05).



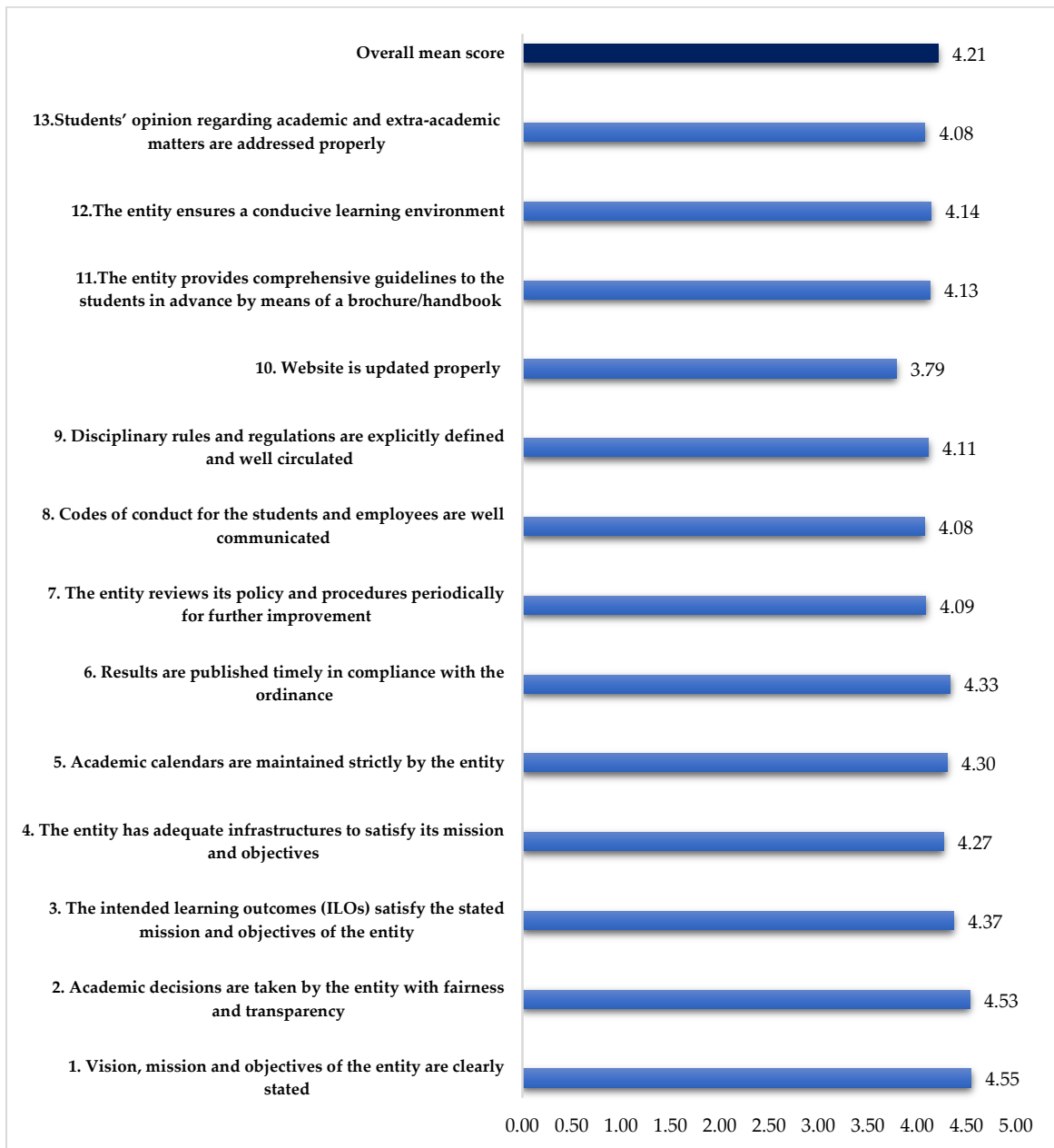
**Figure 2.1: Overall and item wise average score of students evaluation about governance**

## **B. Alumni**

To evaluate the governance of the academic program 240 alumni were interviewed on different aspects. Overall results of evaluation are presented in (Appendix V and supplementary table 2). It is seen that 92% alumni are agreed that vision, mission and objectives of the entity are clearly stated and 8% were undecided. About 95% respondents are agreed that academic decisions are taken by the entity with fairness and transparency; only 1% disagreed with that and 4% were undecided about this matter. 90% alumni agreed that the intended learning outcomes (ILOs) satisfy the stated mission and objectives of the entity and 10% are undecided about this matter. 90% respondents agreed that the entity has adequate infrastructures to satisfy its mission and objectives and 1% disagreed with this issue; rest 9% did not give exact decision. Out of 240 alumni, 92% agreed that Academic calendars are maintained strictly by the entity, only 1% disagreed on it and 7% were undecided. 93% alumni stated that results are published timely in compliance with the ordinance; while only 1% said opposite and other 6% were undecided about it. 84% respondents answered that the entity reviews its policy and procedures periodically for further improvement, only 2% disagreed at this and 14% were undecided. 86% respondents agreed that codes of conduct for the students and employees are well communicated, only 2% disagreed and 12% undecided about this issue. 85% respondents said that Disciplinary rules and regulations are explicitly defined and well circulated, only 2% did not said so and 12% were neutral about this matter. 70% respondents agreed that Website is updated properly; while 9% argued with it and 22% respondents gave no opinion. 85% respondents claimed that the entity provides comprehensive guidelines to the students in advance by means of a brochure/handbook, only 2% answered negative and 12% were in neutral position. 89% respondents agreed that the entity ensures a conducive learning environment, 2% disagreed on it and 9% said nothing about this issue.



At last, 85% alumni said that Students opinion regarding academic and extra-academic matters are addressed properly, 2% argued with that and 13% neither agreed nor disagreed. The mean scores of different aspects of governance were ranged from 3.79 to 4.55. All mean scores are significantly different from 3 (p-value < 0.05). The mean scores have shown in figure 2.2 with overall mean score.



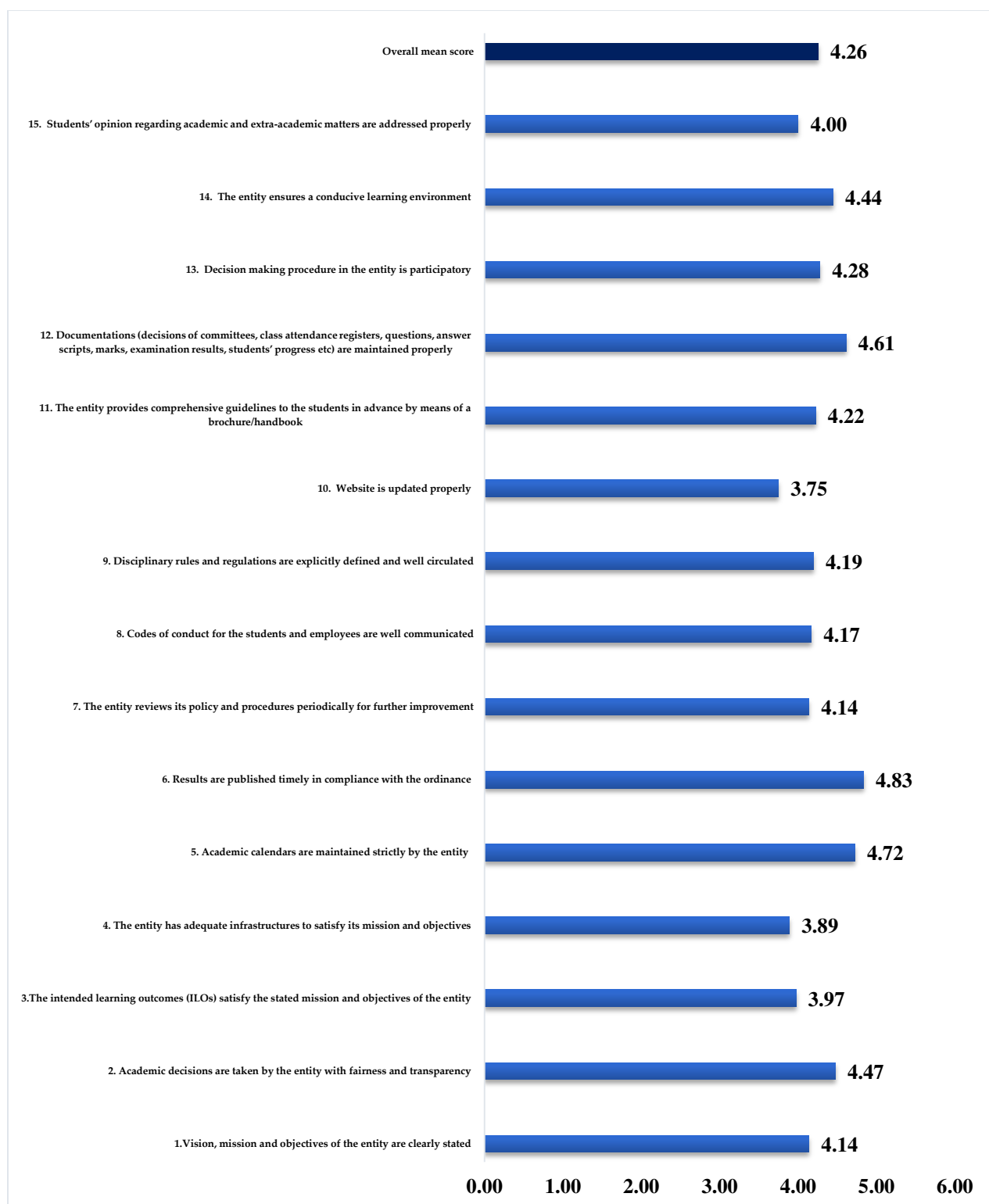
**Figure 2.2: Overall and item wise average score of alumni's evaluation about governance**

### **C. Faculty**

To evaluate the governance of the academic program 36 faculties were requested to express their opinion on different aspects of evaluation. The (Appendix V and supplementary table 3) that 86% faculties agreed that the Vision, mission and objectives of the entity are clearly stated and 14% were undecided. 89% faculties said that Academic decisions are taken by the entity with fairness and transparency; and 11% gave no concrete decision about this matter. 81% faculties agreed that the intended learning outcomes (ILOs) satisfy the stated mission and objectives of the entity and another 11% faculties were stacked about it. 78% respondents answered that the entity has adequate infrastructures to satisfy its mission and objectives; only 11% gave opposite opinion and other 11% gave no decision. 97% respondents agreed that Academic calendars are maintained strictly by the entity; and only 3% were undecided about this issue. 97% faculties believed that results are published timely in compliance with the ordinance and only 3% were in neutral position. 83% interviewees thought that the entity reviews its policy and procedures periodically for further improvement; while only 3% did not think so and 14% were undecided. Similarly, 83% faculties agreed that Codes of conduct for the students and employees are well communicated; while 3% disagreed with this matter and 14% gave no comment on this matter. 86% respondents answered that Disciplinary rules and regulations are explicitly defined and well circulated; but 9% did not agree with it and another 6% neither agreed nor disagreed. 61% respondents said that Website is updated properly; while 8% said that website is not updated properly and 31% gave no decision about this issue. 92% faculties thought that the entity provides comprehensive guidelines to the students in advance by means of a brochure/handbook and 8% were undecided. 98% respondents believe that Documentations (decisions of committees, class attendance registers, questions, answer scripts, marks, examination results, students progress etc.) are maintained properly; only 2% disagreed with this statement. 94% respondents agreed

that Decision making procedure in the entity is participatory; while 3% disagreed with it and 3% were undecided. 92% respondents said that the entity ensures a conducive learning environment, and 8% neither agreed nor disagreed. Finally, 78% respondents agreed that Students opinion regarding academic and extra-academic matters are addressed properly; while 3% disagreed about this issue and another 19% neither agreed nor disagreed.

The mean scores evaluated by faculties are varying from 3.75 to 4.83. All mean scores are differing significantly from 3 ( $p\text{-value} < 0.05$ ). The mean scores along with overall mean score are presented in figure 2.3.

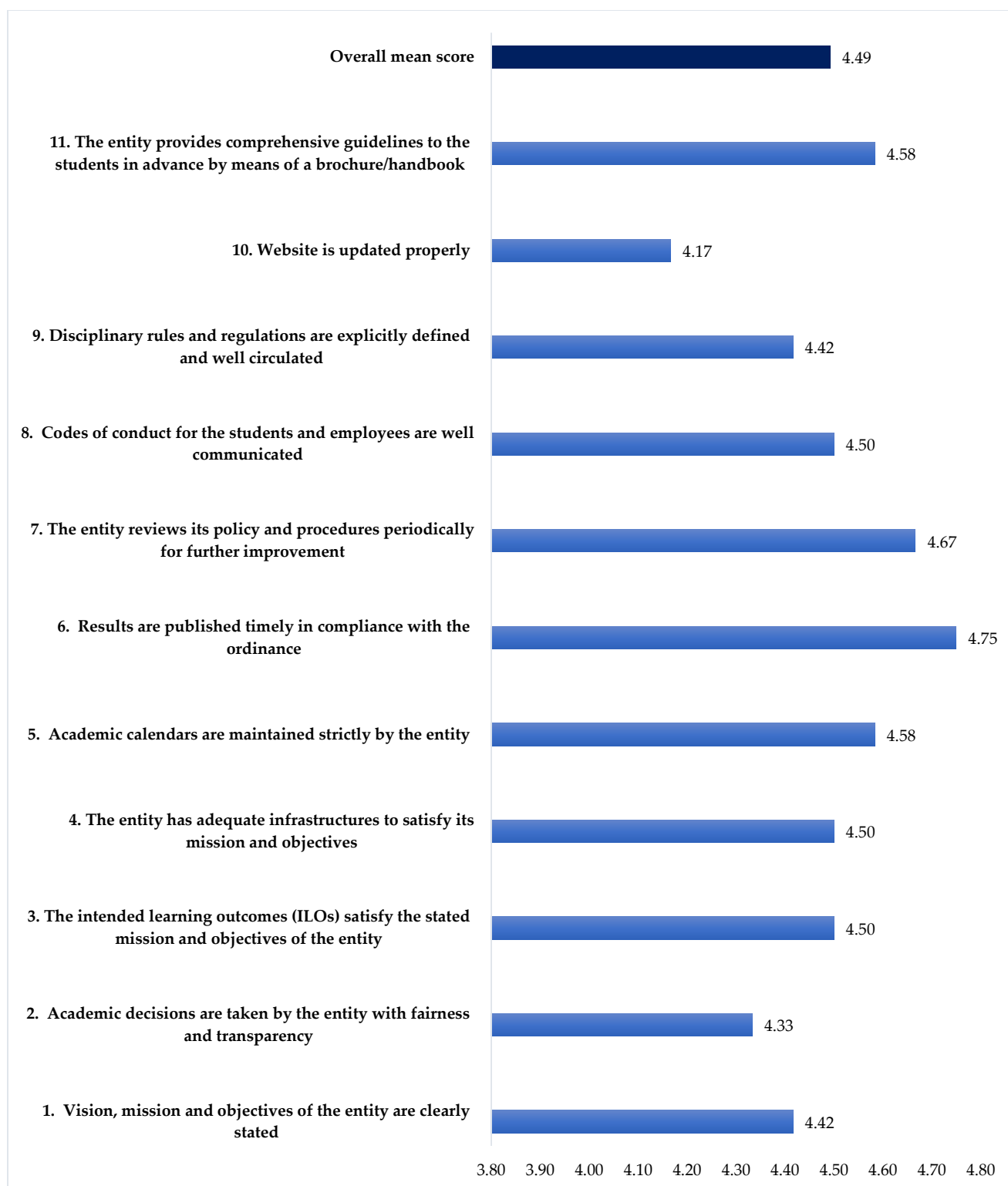


**Figure 2.3: Overall and item wise average score of faculties evaluation about governance**

### **C. Non-academic staff**

To evaluate the governance of the academic program only 12 non-academic staffs were asked to deliver their thought on different criteria. Appendix V and supplementary Table 4 shows that 83% non-academic staffs agreed that the vision, mission and objectives of the entity are clearly stated; while 17% disagreed with this statement. 91% non-academic staffs said that academic decisions are taken by the entity with fairness and transparency; only 8% argued that statement. 84% respondents agreed that the intended learning outcomes (ILOs) satisfy the stated mission and objectives of the entity, and 17% respondents were undecided about it. 84% respondents answered that the entity has adequate infrastructures to satisfy its mission and objectives; while 17% gave no decision. 91% respondents agreed that academic calendars are maintained strictly by the entity; while 8% disagreed with this statement. All (100%) non-academic staffs said that results are published timely in compliance with the ordinance. 92% interviewees thought that the entity reviews its policy and 8% were undecided. Similarly, 84% respondents agreed that codes of conduct for the students and employees are well communicated; and 17% gave no comment on this matter. 83% respondents answered that Disciplinary rules and regulations are explicitly defined and well circulated; but 17% did not agree with it. 83% respondents said that Website is updated properly; while 8% said that website is not updated properly and 8% gave no comment about this issue. At last, 83% non-academic staffs thought that the entity provides comprehensive guidelines to the students in advance by means of a brochure/handbook; and 17% were undecided.

All mean scores of different aspects are above 4 and ranges from 4.17 to 4.75. Since all staffs were taken, so no statistical test is not applied. The mean scores with overall mean score are shown in figure 2.4.



**Figure 2.4: Overall and item wise average score of non-academic staffs' evaluation about governance**

## **CHAPTER 3**

### **CURRICULUM DESIGN AND REVIEW**

Curriculum refers to a well-defined and prescribed course of studies, lessons and activities, which students must complete to fulfill the requirements for acquiring the degree. Self-Assessment will facilitate the integration of the procedure in redesigning, modernizing and updating the curricula to accommodate the job market requirements. The curriculum plays a crucial role in achieving the mission and objectives of the university including the intended learning outcomes and overall effectiveness of the programs. Curriculum design and review process include:

#### **3.1 Need Assessment**

Since Pharmacy is a multi-disciplinary process, a multi-disciplinary course curriculum is required in the program to generate holistic understanding of this discipline with a good blend of chemistry, biology, marketing and management. Over the years the needs in the pharmaceutical industries have changed dramatically. To address these emerging issues the Department considers the review of existing curriculum on a regular basis.

#### **3.2 Curriculum Design**

Curriculum of the Department of Pharmacy has been prepared by the faculty members under the Curriculum Committee through suggestions and feedback of faculty members, professionals and experts in relevant fields. Primarily 100-400 Level courses are offered for the students and 500 Level courses are offered to the MS Pharm Tech Course. First digit of the course code indicates the year in which the course is offered and the other two digits are for course number. The courses are as follows:

**Courses of B. Pharm program:**

<b>FIRST YEAR, FIRST SEMESTER</b>			
<b>Course Code</b>	<b>Course title</b>	<b>Course Type</b>	<b>Credits</b>
HSS 101	English I - Oral and written communication Skills	G	3
MST 101	Basic Mathematics and Statistics	G	3
Pharm 105	Introduction to Pharmacy	F	3
HSS 111	Bangladesh Studies: A. Society and Culture	G	2
	B. Bangladesh History	G	2
Pharm 111	Inorganic pharmacy-I	F	3
Pharm 112	Inorganic pharmacy Lab	F	1
Pharm 131	Pharmacognosy-I	C	3
Pharm 132	Pharmacognosy-I Lab	C	1
ORE 101	Oral Examination (Semester-1)		1
<b>Total Credit</b>			<b>22</b>
<b>FIRST YEAR, SECOND SEMESTER</b>			
HSS 103	English II - Language Composition Skills	G	3
Pharm 113	Organic Pharmacy	F	3
Pharm 114	Organic Pharmacy Lab	F	1
Pharm 115	Physical Pharmacy-I	F	3
Pharm 116	Physical Pharmacy-I Lab	F	1
Pharm 117	Inorganic Pharmacy-II	F	3
Pharm 121	Physiology-I	F	3
Pharm 123	Basic Anatomy	F	3
ORE 102	Oral Examination (Semester-2)		1
<b>Total Credit</b>			<b>21</b>
<b>SECOND YEAR, FIRST SEMESTER</b>			
Pharm 215	Physical Pharmacy-II	F	3
Pharm 216	Physical Pharmacy-II Lab	F	1
Pharm 217	Biochemistry and cellular biology	F	3



Pharm 219	Pharmaceutical Microbiology-I	F	3
Pharm 220	Pharmaceutical Microbiology-I Lab	F	1
Pharm 221	Physiology-II	F	3
Pharm 222	Physiology Lab	F	1
Pharm 231	Pharmacognosy-II	C	3
Pharm 232	Pharmacognosy-II Lab	C	1
ORE 201	Oral Examination (Semester-3)		1
<b>Total Credit</b>			<b>20</b>

### SECOND YEAR, SECOND SEMESTER

Pharm 229	Pharmaceutical Microbiology-II	F	3
Pharm 230	Pharmaceutical Microbiology-II Lab	F	1
Pharm 241	Pharmaceutical Technology - I	C	3
Pharm 242	Pharmaceutical Technology - I Lab	C	1
Pharm 243	Pharmaceutical Analysis - I	C	3
Pharm 244	Pharmaceutical Analysis - I Lab	C	1
Pharm 251	Basic Pharmaceutics	C	3
Pharm 261	Pharmacology - I	C	3
Pharm 262	Pharmacology - I Lab	C	1
ORE 202	Oral Examination (Semester-4)		1
<b>Total Credit</b>			<b>20</b>

### THIRD YEAR, FIRST SEMESTER

Pharm 305	Pharmaceutical Marketing	C	3
Pharm 333	Medicinal Chemistry-I	C	3
Pharm 334	Medicinal Chemistry-I Lab	C	1
Pharm 341	Pharmaceutical Technology - II	C	3
Pharm 342	Pharmaceutical Technology - II Lab	C	1
Pharm 353	Biopharmaceutics and Pharmacokinetics - I	C	3
Pharm 354	Biopharmaceutics and Pharmacokinetics - I Lab	C	1
Pharm 361	Pharmacology - II	C	3
Pharm 371	Pathology	C	3
ORE 301	Oral Examination (Semester-5)		1

<b>Total Credit</b>	<b>22</b>
---------------------	-----------

### THIRD YEAR, SECOND SEMESTER

Pharm 307	Pharmaceutical Management	G	3
Pharm 335	Medicinal Chemistry - II	C	3
Pharm 336	Medicinal Chemistry - II Lab	C	1
Pharm 343	Pharmaceutical Analysis-II and Quality Assurance	C	3
Pharm 344	Pharmaceutical Analysis-II Lab	C	1
Pharm 349	Pharmaceutical Engineering-I	C	3
Pharm 355	Biopharmaceutics and Pharmacokinetics - II	C	3
Pharm 356	Biopharmaceutics and Pharmacokinetics - II Lab	C	1
ORE 302	Oral Examination (Semester-6)		1
<b>Total Credit</b>			<b>19</b>

### FOURTH YEAR, FIRST SEMESTER

Pharm 435	Medicinal Chemistry -III	C	3
Pharm 437	Pharmaceutical Regulatory Affairs	C	3
Pharm 441	Pharmaceutical Technology - III	C	3
Pharm 442	Pharmaceutical Technology - III Lab	C	1
Pharm 447	Advanced Pharmaceutical Analysis	C	3
Pharm 449	Pharmaceutical Engineering-II	C	3
Pharm 461	Pharmacology - III	C	3
ORE 401	Oral Examination (Semester-7)		1
<b>Total Credit</b>			<b>20</b>

### FOURTH YEAR, SECOND SEMESTER

Pharm 445	Cosmetology	G	3
Pharm 446	Cosmetology-Lab	G	1
Pharm 453	Pharmaceutical Biotechnology	C	3
Pharm 455	Hospital and Community Pharmacy	C	3
Pharm 457	Pharmaceutical Packaging Technology	C	3
Pharm 458	Pharmaceutical Packaging Technology- Lab	C	1

Pharm 409	Thesis or Project	C	3
Pharm 407	Practical Training	C	0
ORE 402	Oral Examination (Semester -8)		1
<b>Total Credit</b>			<b>18</b>
<b>Total of Pharmacy Credits</b>			<b>162</b>

Here, C: Core Course, F: Foundation Course, and G: General Course

#### Courses of Master of Science in Pharmaceutical Technology (Non-Thesis and Thesis):

<b>FIRST SEMESTER</b>				
<b>Course Code</b>	<b>Course Title</b>	<b>Course Type</b>	<b>Credits</b>	
			<b>Non-Thesis</b>	<b>Thesis</b>
Pharm 541	Advance Pharmaceutical Technology	C	4	4
Pharm 543	Modern Drug Delivery Systems	C	4	4
Pharm 553	Biopharmaceutics and Pharmacokinetics	C	4	4
<b>SECOND SEMESTER</b>				
Pharm 545	Pharmaceutical Manufacturing Management	C	2	
Pharm 547	Advance Pharmaceutical Engineering	C	2	
Pharm 506	Project	C	6	
Pharm 508	Thesis Paper	C		12
Pharm 500	Thesis Presentation	C		4
Pharm 600	Viva	C	2	2
<b>Total Credits</b>			<b>24</b>	<b>30</b>

Here, C: Core Course, F: Foundation Course, and G: General Course

### 3.3 Curriculum Review Process

**UAP course and curriculum committee:** UAP has a very well-defined procedure in place that facilitates periodic review of various academic programs. It has eight degree awarding departments, and in each of the department, there is a course and curriculum committee. The course and curriculum committee comprises the departmental Head and full-time teachers and two subject-matter external experts from other universities,

as nominated by the Dean of the school or Head of the department. It is to be mentioned that the nominated members of the committee hold office for a term of two years. Once the departmental committee reviews and proposes any changes to the curriculum, it presents to the Academic Monitoring and Coordination Committee (AMCC). The AMCC meets every month and discusses any issues pertaining to academic, in general. Once the proposed curriculum is agreed upon by the AMCC, it is forwarded to the Academic Council (AC) for further perusal. After it is approved by AC, it is placed before the University Syndicate. Upon approval of the Syndicate, the proposed revised curriculum is sent to UGC for its further review and final ratification.

**Pharmacy curriculum sub-committee:** There is a Course and Curriculum Sub-Committee at Department of Pharmacy that comprises the Head of the Department and senior full-time faculty members having expertise in different major areas of business discipline. The Head acts as the convener of the committee that meets twice a year, generally during semester-break, for the purpose of program review. Besides, the committee is also entrusted with the responsibility of assigning the distribution of the course load among the faculty members. Since the semester of Spring 2017, the committee, in conjunction with the Departmental Self-Assessment Committee, has been reviewing the development of course outlines that would explicitly state the program outcomes (PO) and learning outcomes (LO) and meet the other requirements of outcome-based education (OBE).

**Curriculum review process:** The curriculum review process at the Department of Pharmacy considers the stakeholder needs and their in-depth assessment. The process is usually carried out as follows:

1. First, the sub-committee convenes a meeting with all the faculty members to discuss the rationale of making changes in the existing curriculum.

2. Following the decisions taken on the meeting, the committee calls for possible modifications in particular courses and also inclusion or exclusion of any course from the faculty members and sets a deadline.
3. The sub-committee along with other faculty members meets to discuss the proposed modifications. Once a consensus is reached amongst all the faculties regarding the modification of the existing curricula, the sub-committee prepares the draft on the curriculum revision and presents before the course and curriculum committee of Department of Pharmacy.
4. The committee holds a threadbare discussion on the draft of proposed revised curriculum; during the meeting, the two external experts offer their opinions and debate the pros and cons with regard to the suggested modifications as put forward in the draft. The discussion proceeds considering the stakeholder's opinions and feedback, the emerging needs of the society.
5. The revised curriculum as proposed and approved by the curriculum committee, is then presented to AMCC; following the university rules, next, it is placed to Academic Council, and finally, to the university Syndicate. Subject to the Syndicate approval, it is sent to UGC for its final decision.

It may be mentioned that there is a general decision of UGC that stipulates that until a particular university shifts to its permanent campus, no review of the courses and curriculum of any of its program offering entities would be carried out. Thus, a substantial revision of the existing curriculum of Department of Pharmacy program had been stalled until 2016. However, as the university had moved to its current permanent campus last year, the committee following all the steps in the review process and prescribed UGC guidelines had prepared the proposed revised curriculum and is planning to send to UGC for its approval. This has been done after having taken the viewpoints of various stakeholders into consideration through extensive focus group

discussions (FGD) with the alumni as well as meeting the potential employers. While the department recognizes that a major revision of the existing curriculum has long been overdue but could not act upon it due to the restrictions beyond its purview, it, however, makes continuous efforts to ensure that courses in the program have maintained relevance to the constantly evolving industry demands. In this regard, acquiring employability skills on the part of the students is being given utmost priority.

### 3.4 Curriculum Alignment/Skill Mapping

Semester	Course code	Course title	Generic skills/Program outcomes									
			PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
FIRST YEAR FIRST SEMESTER	HSS 101	English I- Oral and Written Communication skills	√	√	√							√
	MST 101	Basic Mathematics and Statistics	√	√	√					√		√
	HSS 111	Bangladesh Studies	√	√	√					√		√
	Pharm 105	Introduction to Pharmacy	√	√	√		√		√			√
	Pharm 111	Inorganic Pharmacy-I	√	√	√	√						√
	Pharm 131	Pharmacognosy I	√	√	√	√						√
	Pharm 112	Inorganic Pharmacy Lab	√	√		√						√
	Pharm 132	Pharmacognosy I Lab	√	√	√	√						√
	HSS 103	English II- Language Composition Skills	√	√	√							√
FIRST YEAR SECOND SEMESTER	Pharm 113	Organic Pharmacy	√	√	√	√						√
	Pharm 115	Physical Pharmacy-I	√	√	√					√		√
	Pharm 117	Inorganic Pharmacy-II										√

SECOND YEAR FIRST SEMESTER	Pharm 121	Physiology-I	√		√	√		√	√	√
	Pharm 123	Basic Anatomy	√	√	√			√	√	√
	Pharm 114	Organic Pharmacy Lab	√	√	√	√	√		√	√
	Pharm 116	Physical Pharmacy-I Lab	√	√	√		√			√
	Pharm 215	Physical Pharmacy-II	√	√	√	√			√	√
	Pharm 217	Biochemistry & Cellular Biology	√	√	√				√	√
	Pharm 219	Pharmaceutical Microbiology-I	√	√	√					√
	Pharm 221	Physiology-II	√			√	√	√		√
	Pharm 231	Pharmacognosy-II	√	√	√				√	√
	Pharm 216	Physical Pharmacy-II Lab	√	√	√				√	√
	Pharm 220	Pharmaceutical Microbiology-I Lab	√	√	√			√	√	√
	Pharm 222	Physiology-II Lab	√	√	√	√		√		√
	Pharm 232	Pharmacognosy II Lab	√	√	√	√			√	√
	Pharm 229	Pharmaceutical Microbiology-II	√	√	√			√		√
	Pharm 241	Pharmaceutical Technology-I	√	√	√	√			√	√
	Pharm 243	Pharmaceutical Analysis I	√	√	√		√		√	√
	Pharm 251	Basic Pharmaceutics	√	√	√	√		√	√	√
	Pharm 261	Pharmacology-I	√	√	√					√
	Pharm 230	Pharmaceutical Microbiology – II Lab	√	√	√				√	√
SECOND YEAR SECOND SEMESTER	Pharm 242	Pharmaceutical Technology lab I	√	√	√	√		√	√	√
	Pharm 244	Pharmaceutical Analysis-I Lab	√	√	√	√	√	√	√	√
	Pharm 262	Pharmacology-I Lab	√	√		√	√	√		√

THIRD YEAR FIRST SEMESTER	Pharm 305	Pharmaceutical Marketing	√	√	√	√	√				√
	Pharm 333	Medicinal Chemistry-I	√	√	√				√		√
	Pharm 341	Pharmaceutical Technology-II A	√	√	√				√		√
	Pharm 341	Pharmaceutical Technology-II B	√	√	√	√	√				√
	Pharm 353	Biopharmaceutics &Pharmacokinetics-I	√	√	√	√			√		√
	Pharm 361	Pharmacology II	√	√	√		√		√	√	√
	Pharm 371	Pathology	√		√	√			√	√	√
	Pharm 334	Medicinal Chemistry-I Lab	√	√	√				√	√	√
	Pharm 342	Pharmaceutical Technology lab II	√	√	√				√		√
	Pharm 354	Biopharmaceutics &Pharmacokinetics I Lab	√			√	√	√	√		√
	Pharm 307	Pharmaceutical Management	√	√	√		√	√	√		√
	Pharm 335	Medicinal Chemistry-II	√	√	√				√		√
	Pharm 343	Pharmaceutical Analysis II & Quality Assurance	√	√	√	√	√		√		√
	Pharm 349	Pharmaceutical Engineering-I	√		√	√		√	√		√
THIRD YEAR SECOND SEMESTER	Pharm 355	Biopharmaceutics &Pharmacokinetics-II	√		√				√	√	√
	Pharm 336	Medicinal Chemistry Lab-II	√	√	√	√	√				√
	Pharm 344	Pharmaceutical Analysis-II lab	√	√	√						√
	Pharm 356	Biopharmaceutics & Pharmacokinetics II Lab	√	√	√						√



FOURTH YEAR FIRST SEMESTER	Pharm 435	Medicinal Chemistry-III	√	√	√			√	√
	Pharm 437	Pharmaceutical Regulatory Affairs	√	√		√	√	√	√
	Pharm 441	Pharmaceutical Technology-III	√	√	√	√	√	√	√
	Pharm 447	Advanced Pharmaceutical Analysis	√	√	√	√		√	√
	Pharm 449	Pharmaceutical Engineering-II	√	√	√				√
	Pharm 461	Pharmacology III	√	√	√	√	√	√	√
	Pharm 442	Pharmaceutical Technology Lab III	√	√	√	√		√	√
	Pharm 445	Cosmetology	√	√	√	√	√	√	√
	Pharm 453	Pharmaceutical Biotechnology	√	√	√	√		√	√
FOURTH YEAR SECOND SEMESTER	Pharm 455	Hospital & Community Pharmacy	√			√	√	√	√
	Pharm 457	Pharmaceutical Packaging Technology	√	√		√		√	√
	Pharm 409	Project		√	√			√	√
	Pharm 458	Pharmaceutical Packaging Technology Lab	√	√	√			√	√

Here, PO 1: Fundamental and Applied Knowledge, PO 2: Technical Expertise, PO 3: Problem Identification and Solving Skills, PO 4: Communication Skills, PO 5: Professionalism and Ethics, PO 6: Leadership and Interpersonal Skills, PO 7: Patient Care and Medication Management, PO 8: Research and Scientific Knowhow, PO 9: Entrepreneurship, PO 10: Life-long Learning Skills

### 3.5 PO vs. PEO Mapping

	PEO 1	PEO 2	PEO 3	PEO 4
Fundamental and Applied Knowledge		√	√	√
Technical Expertise	√	√		
Problem Identification and Solving Skills		√		√
Communication Skills	√	√		
Professionalism and Ethics	√		√	
Leadership and Interpersonal Skills	√	√	√	
Patient Care and Medication Management	√	√		
Research and Scientific Knowhow			√	√
Entrepreneurship	√	√		
Life Long Learning Skills		√		√

### 3.6 Mission vs. PEO Mapping

	PEO 1	PEO 2	PEO 3	PEO 4
Mission 1	√	√		
Mission 2	√	√	√	√
Mission 3	√		√	
Mission 4		√		√

### 3.7 Gaps in Curriculum: Adequacy to Meet the Needs

During the questionnaire surveys conducted among present students, graduating students, alumni, faculty and employers, the respondents were asked how the Bachelor of Pharmacy program at Department of Pharmacy could be further improved. Then, a meeting of the B. Pharm Hons Curriculum Review Committee of Department of

Pharmacy was held at 3.00 PM on October 19, 2017 and chaired by the Head of the Department of Pharmacy, Prof. Dr. Mohiuddin Ahmed Bhuiyan. The meeting discussed the changing needs of the various stakeholders and considered their responses to redesign the curriculum. The proposed curriculum has been attached in Appendix I.

The following decisions were made:

**Decision 1: Split of Basic Mathematics & Statistics into two separate three credit courses:** For the proposed curriculum, the Curriculum Committee decided to split the three- credit course MST 101 (Basic Mathematics & Statistics) of first year, first semester of current B.Pharm syllabus into two separate three- credit courses, MST 101 (Basic Mathematics) and MST 102 (Pharmaceutical Statistics).

**Decision 2: Introduction of three new theory courses:** It was decided that the following three new courses will be introduced in the proposed syllabus of B.Pharm program in different semesters.

Semester	Proposed course code	Proposed course title	Credit
Third year, first semester	Pharm 371	Forensic Pharmacy and Toxicology	3
Third year, second semester	Pharm 342	Nutrition and Nutraceuticals	2
Fourth year, second semester	Pharm 456	Clinical Pharmacy and Therapeutics	2

The meeting decided that a three-credit theory course, Pharm 371 (Forensic Pharmacy and Toxicology) needs to be introduced in the syllabus of B. Pharm. program in the third year, first semester. Toxicology is a growing area of study that offers students with

a wide range of career opportunities including hospital and clinical pharmacy laboratories and pharmaceutical companies. Also students can choose to pursue their higher studies in this subject and introduction of this course in the B. Pharm program will help the students in this regard.

It was also decided that a two-credit theory course, Pharm 342 (Nutrition and Neutraceuticals) will be introduced in the syllabus of B.Pharm program in the third year, first semester. The market for neutraceuticals is expanding worldwide and the introduction of this course would new avenues for pharmacy graduates in the neutraceutical market.

It was decided that a two-credit theory course, Pharm 456 (Clinical Pharmacy and Therapeutics) will be introduced in the syllabus of B.Pharm program in the fourth year, second semester. The course provides an opportunity to students to advance their knowledge and skills on optimal drug regimens and deliver medicine optimization in practice. Currently some of the hospitals in Bangladesh have introduced hospital pharmacy and in the near future the hospitals will move towards clinical pharmacy as well. So introduction of this course in the syllabus will make graduates well-prepared for job opportunities in the health sector both at home and abroad.

**Decision 3: Merge of lab courses from six to three:** There are some practical courses that cover similar course materials and course teachers think that these similar practical courses can easily be merged and made into single practical course. This will reduce the course load of students and also will allow the introduction of the new courses. The courses that have been merged are:

- a) Pharmacognosy-I Lab (Pharm 132) of first year, first semester and Pharmacognosy-II Lab (Pharm 232) from second year, first semester will be

merged into one single lab course, Pharmacognosy Lab (Pharm 232) in second year, first semester of the proposed syllabus.

- b) Pharmaceutical Microbiology-I Lab (Pharm 220) of second year, first semester and Pharmaceutical Microbiology-II Lab (Pharm 230) from second year, second semester will be merged into one single lab course, Pharmaceutical Microbiology (Pharm 230) in second year, second semester of the proposed syllabus.
- c) Biopharmaceutics and Pharmacokinetics-I Lab (Pharm 354) of third year, first semester and Biopharmaceutics and Pharmacokinetics-II Lab (Pharm 356) from third year, second semester will be merged into one single lab course, Biopharmaceutics and Pharmacokinetics Lab (Pharm 356) in third year, first semester of the proposed syllabus.

**Decision 4: Merge of Oral courses from eight to four:** All the members of the review committee in the meeting think that oral examination in every semester is not required and both oral examinations of each semester can be merged into a single annual oral examination. Therefore, the following changes have been made in the proposed syllabus:

- a) Oral Examination (Semester -1) (ORE 101) of first year, first semester and Oral Examination (Semester -2) (ORE 102) from first year, second semester will be merged into a single Oral Examination (ORE 102) in first year, second semester of the proposed syllabus.
- b) Oral Examination (Semester -3) (ORE 201) of second year, first semester and Oral Examination (Semester -4) (ORE 202) from second year, second semester will be merged into a single Oral Examination (ORE 202) in second year, second semester of the proposed syllabus.

- c) Oral Examination (Semester -5) (ORE 301) of third year, first semester and Oral Examination (Semester -6) (ORE 302) from third year, second semester will be merged into a single Oral Examination (ORE 302) in third year, second semester of the proposed syllabus.
- d) Oral Examination (Semester -7) (ORE 401) of fourth year, first semester and Oral Examination (Semester -8) (ORE 402) from fourth year, second semester will be merged into a single Oral Examination (ORE 402) in fourth year, second semester of the proposed syllabus.

**Decision 5: Exclusion of Lab Course:** The teachers in the meeting think that the lab course, Pharmaceutical Packaging Technology Lab (Pharm 458) will be excluded from the current B. Pharm syllabus as it is not necessary. The course materials of the theory course, Pharmaceutical Packaging Technology (Pharm 457) are sufficient to cover the practical aspects of packaging technology.

**Decision 6: Switching of courses in between semesters**

The theory course, Pathology (Pharm 371) will be switched from third year, first semester to second year, first semester as it a fundamental course and provides a basic concept that is important for understanding higher level courses including pharmacology, biotechnology and microbiology

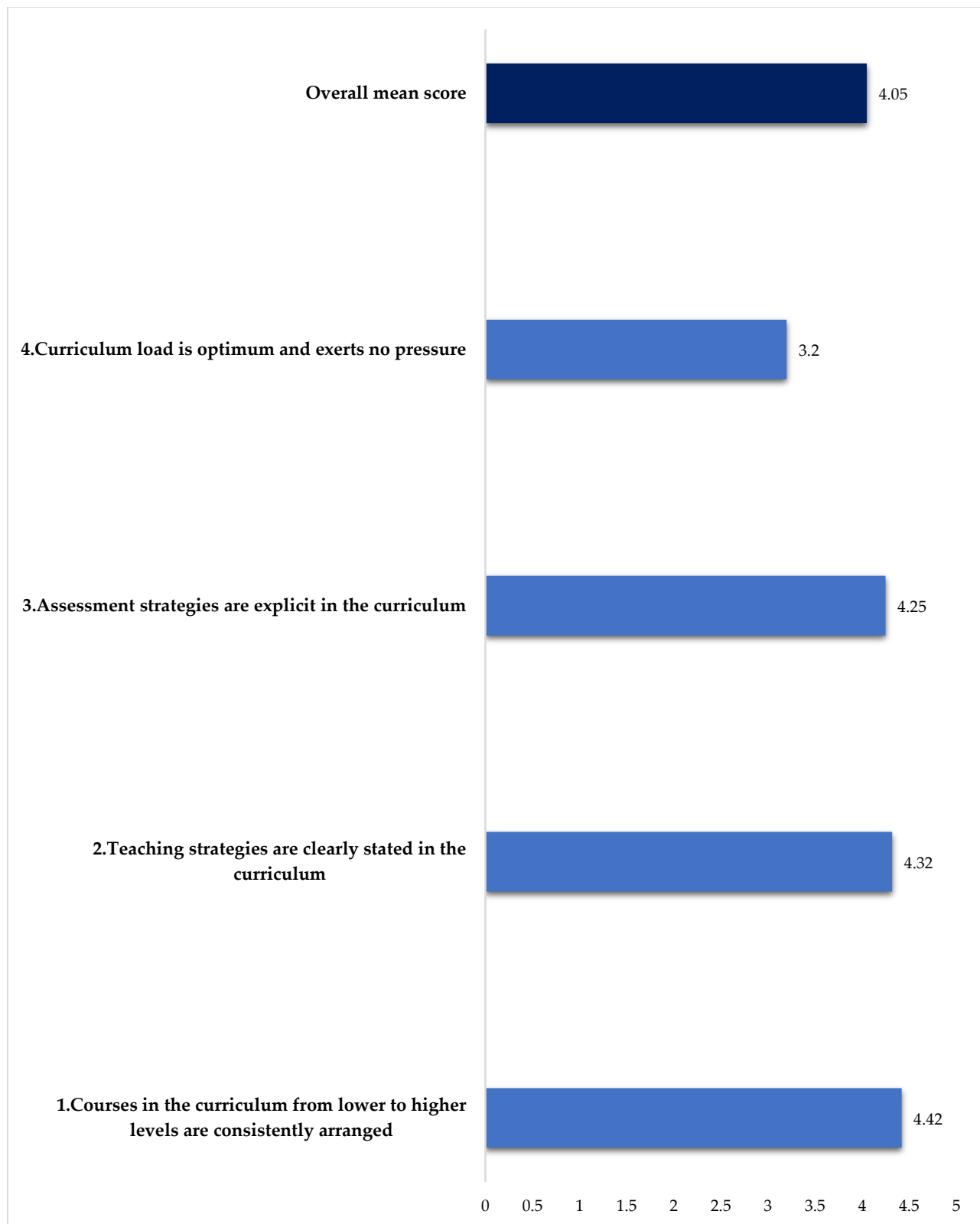
### **3.8 Stakeholders' Feedback**

#### **A. Students**

To ensure quality education, curriculum design and review is very important part. Students were asked to evaluate it in different aspects. Among 395 of them, 92% students said that courses in the curriculum from lower to higher levels are consistently arranged; only 3% said that it is not arranged consistently and 6% were undecided. 88% students agreed that teaching strategies are clearly stated in the curriculum; but only 4%

students disagreed about this matter and 8% students remain undecided. At an issue of explicit assessment strategies in the curriculum; 86% students agreed, 4% students disagreed and 11% were undecided. At the end, 48% students believed that curriculum load is optimum and exerts no pressure; in contrary 34% students did not think so and 18% neither agreed nor disagreed.

Mean scores of different aspects of evaluation of curriculum design and review are shown in appendix V and supplementary table 5. The mean scores are ranged from 3.20 to 4.42. All the mean scores are above from 3 and they significantly differ from 3 ( $p$ -value $<0.05$ ). Overall and item wise mean scores are shown in figure 3.1.



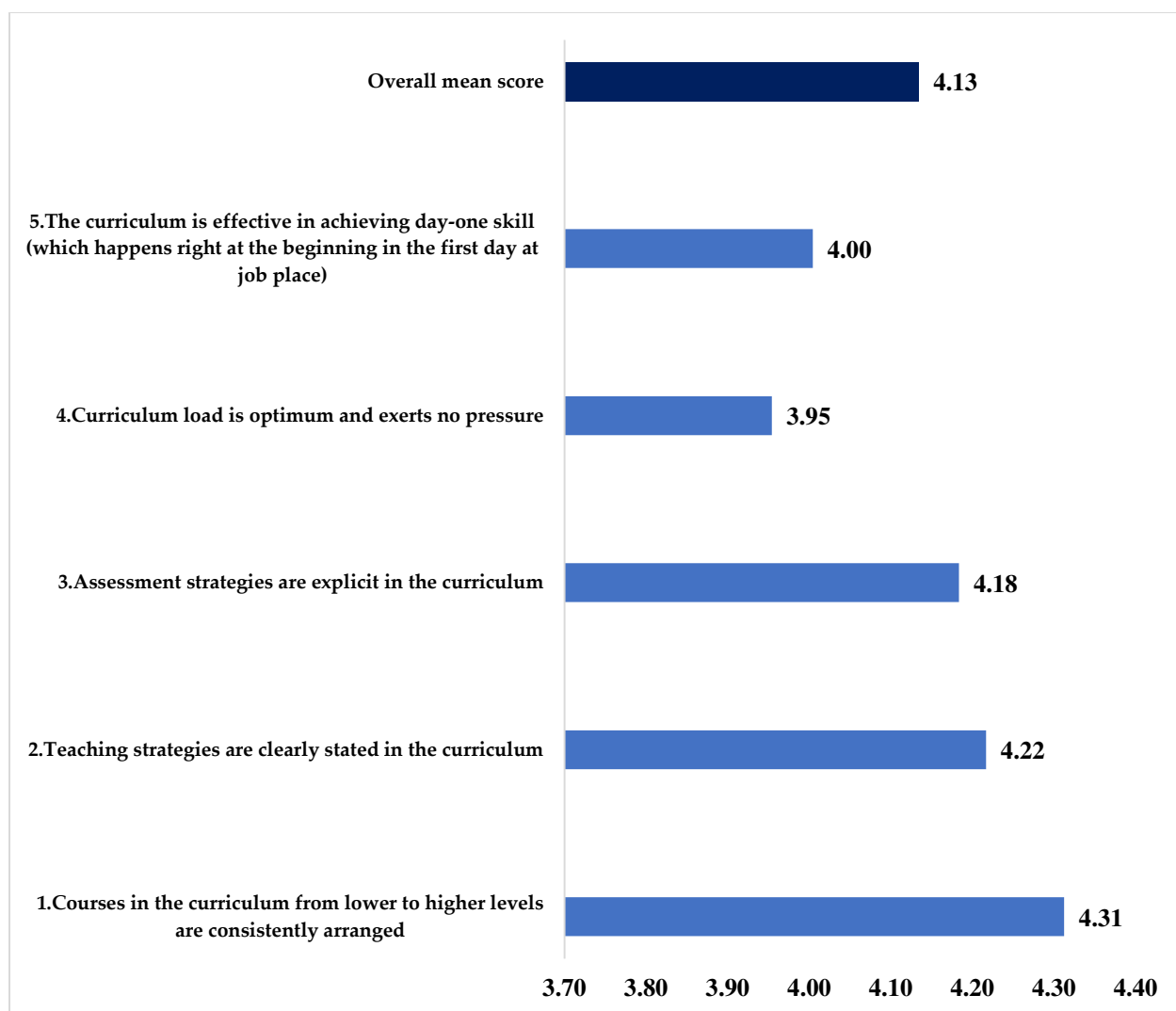
**Figure 3.1: Overall and item wise mean score of students evaluation about curriculum**



## **B. Alumni**

To evaluate curriculum design and review of the program 240 alumni were interviewed. The results are shown in Appendix V and supplementary Table 6 shows that 92% alumni agreed that courses in the curriculum from lower to higher levels are consistently arranged, only 1% disagreed with this issue and 7% gave no decision. 91% said that teaching strategies are clearly stated in the curriculum and 9% neither agreed nor disagreed. 89% respondents agreed that assessment strategies are explicit in the curriculum, only 2% disagreed with this and other 9% were undecided. 80% alumni thought that Curriculum load is optimum and exerts no pressure, 5% said opposite and 14% were neutral. 83% respondents answered that the curriculum is effective in achieving day-one skill (which happens right at the beginning in the first day at job place); while 4% argued with this statement and rest 14% were undecided.

The lowest mean score is 3.95 and the highest mean score is 4.31. All mean scores are above 3 and significant (( $p$ -value $<0.05$ ). The overall and item wise mean scores are shown in figure 3.2.

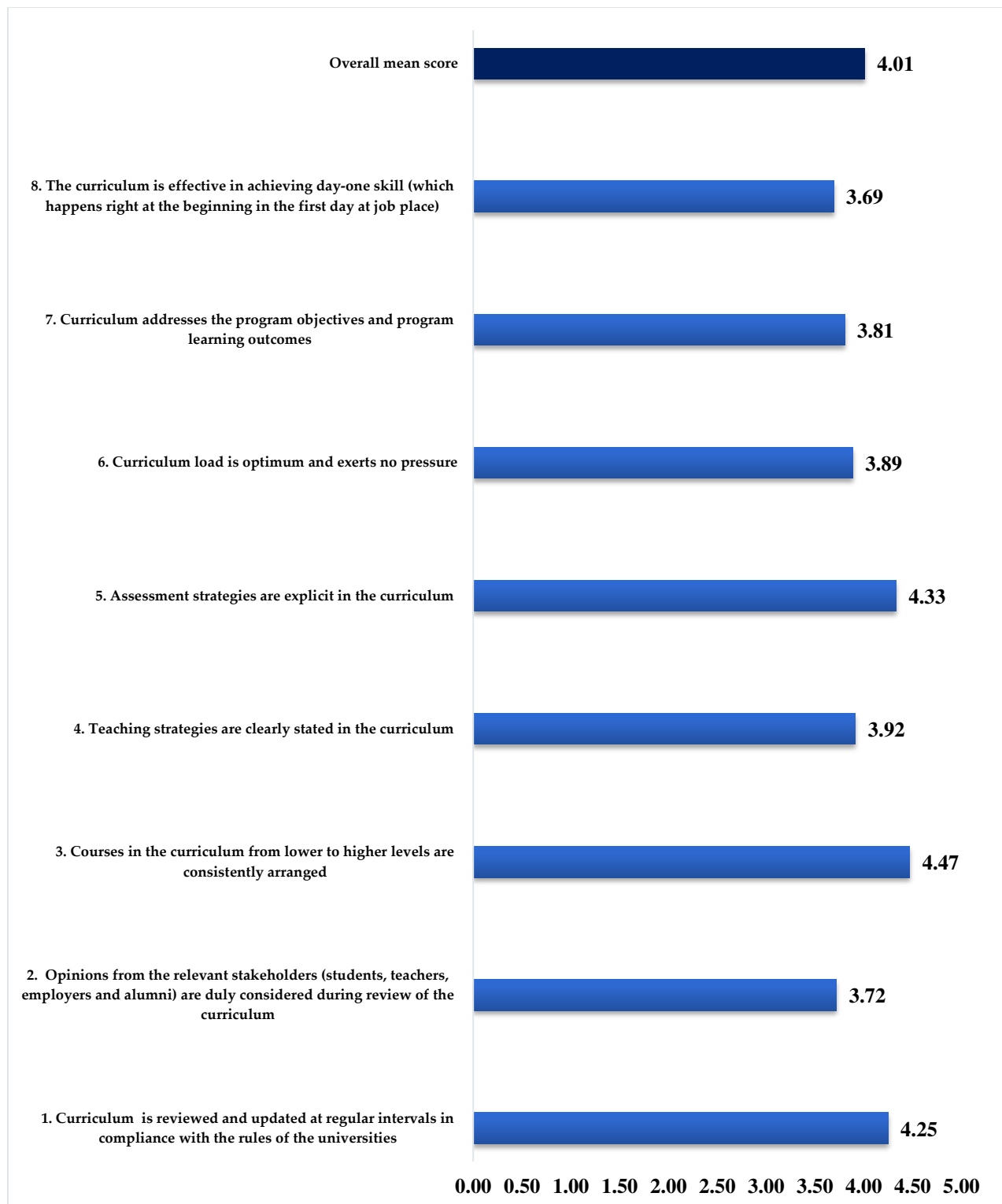


**Figure 3.2: Overall and item wise average score of students evaluation about curriculum**

### **C. Faculty**

To evaluate curriculum design and review of the program 36 faculties were interviewed. From Appendix and supplementary Table 7 it is revealed that 86% faculties agreed that Curriculum is reviewed and updated at regular intervals in compliance with the rules of the universities and 14% remain undecided. 63% respondents said that Opinions from the relevant stakeholders (students, teachers, employers and alumni) are duly considered during review of the curriculum, 9% did not say so and 28% gave no concrete decision about this matter. 95% respondents

thought that Courses in the curriculum from lower to higher levels are consistently arranged, 2.5 % did not think so and rest 2.5% were undecided. 78% faculties replied that Teaching strategies are clearly stated in the curriculum; while 8% replied opposite answer and 14% were in neutral position. 95% respondents agreed that Assessment strategies are explicit in the curriculum and 5% said nothing. 75% interviewees agreed that Curriculum load is optimum and exerts no pressure, 14% disagreed and 11% were undecided. Similarly, 75% respondents said that Curriculum addresses the program objectives and program learning outcomes, 14% did not say so and 11% gave no decision. At last, 66% faculties agreed that the curriculum is effective in achieving day-one skill (which happens right at the beginning in the first day at job place), 12% disagreed with this and 22% were neither agreed nor disagreed. It is seen from the figure 3.3 is that the mean scores vary from 3.69 to 4.47. All mean scores are significantly differing from 3.



**Figure 3.3: Overall and item wise average score of faculties evaluation about curriculum**

**Question on curriculum:** *“Courses in the curriculum from lower to higher levels are consistently arranged”*

**Survey results:**

Stakeholders/ Respondent category	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	Total
<b>Students</b>	4	6	22	151	212	395
<b>Faculties</b>	0	1	1	14	20	36
<b>Alumni</b>	0	2	17	125	96	240

Among three stakeholders, 212 students strongly agreed that the courses in the curriculum from lower to higher levels are consistently arranged; while this frequency is 20 for faculties and 96 for alumni. Similarly, 151 students, 14 faculties and 96 alumni agree on this issue. “Undecided” comment is reported by 22 students, 1 faculty and 17 alumni while, 6 students, 1 faculty and 2 alumni disagree about this matter. Finally, only 4 students strongly argue this statement.

## **CHAPTER 4**

### **STUDENT ADMISSION, PROGRESS AND ACHIEVEMENTS**

To achieve tertiary education in Bangladesh, public and private universities follow entrance test for recruiting qualified students each year. Admission procedure as well as admission test vary institution to institution even in different departments in same institution also. To ensure the quality entry into university and maintain their standard, universities should give maximum effort and concentration in admission procedures which will ensure the quality of students based on standard parameters. In another note, quality of student and their progress should be constantly monitored and keep record by the concerned entity to achieve the true picture of quality of students admitted.

#### **4.1 Entry Qualification**

Entry qualification explains the eligibility of the student for the program. It also indicates the level of academic ability necessary for the completion of the program successfully. In order to ensure entry qualification strictly, entry requirements must be clearly written well communicated to prospective students who are going to be enrolled in that program. Department of pharmacy has both of Pharmacy program (Hons.) comprised with total two semesters each year for four years and Master in Pharmaceutical Technology having two semesters (Thesis/non-thesis).

Department of Pharmacy has set certain criteria for recruiting prospective students each semester for both B. Pharm and MS. Pharm Tech programs.

##### **A. Admission criteria for B. Pharm (Hons.)**

- Candidate must pass HSC/ "A" level or recognized equivalent examination in current year or one previous year.

- Students must have Mathematics, Biology and Chemistry in HSC or equivalent exam.
- Total GPA in SSC and HSC = 8.00

**B. Admission criteria for Master of Science in Pharmaceutical Technology (MS Pharm Tech)**

- Students must completed B. Pharm degree from UGC approved universities/institutions.
- Candidate with minimum CGPA 2.75 (scale 4.0) in B. Pharm is required to sit for written admission test.
- **Standard 3-1: Entry Requirements must be well defined, measurable and communicable to the potential candidates for admission.**
- **Standard 3-2: Entry requirements must reflect the level of qualifications required to afford the academic load of a particular program and match with the nature of the discipline.**

#### **4.2 Admission Procedure**

Department of Pharmacy enrolls students based on admission criteria for each semester. Department of Pharmacy has two distinct exam committee for Bachelor of Pharmacy and Master of Science in Pharmaceutical Technology admission test who entirely conduct the admission test i.e. preparation of admission questions, answer script scrutinization and test result publication. They also conduct the viva voice of the selected candidates who has qualified written test.

Registrar office of UAP is responsible to disseminate notice for both undergraduate and graduate admission test which is available on the website of UAP (<http://www.uap-bd.edu>). Qualified candidates can get the access of application form for admission into various undergraduate and graduate programs. Registrar office also follows another

circulation through ad in the leading Bengali and English newspapers to inform prospective candidates. After that, the admission office deals the whole admission process up to admission test i.e. preparation of candidate list, providing their admission admit card to attend the entrance exam. The office of admission at the University of Asia Pacific (UAP) always assists prospective students and communicate and give necessary information to their parents/guardians on need basis. UAP is very strict in maintaining its transparency and fairness in admission process conducted by different department by various program. In compliance with UAP rules, Department of Pharmacy conducts admission tests for Spring and Fall Semesters each year. Test dates and time are notified on university website before the admission test.

- a. In B. Pharm program, admission test is carried out by the Admission Test Committee infollowing two phases:
  - Written Test
  - Viva Voce
- b. Admission question type: Multiple Choice Questions (MCQ)
- c. Candidate with minimum GPA (GPA in SSC and HSC) is required to sit for written admission test.

Subject	Weight (%)
Chemistry	40
Biology	40
English	20

- d. Selection of qualified students is done both for graduate and undergraduate as per following system:

Total GPA (in SSC and HSC)  $\times$  10 + Written test marks.



It is mentionable that merit list of candidates are prepared based on marks obtained from total two hundred marks (100 marks written test & 100 marks from SSC and HSC GPA).

- e. A list of selected applicants is published in UAP website and notice board.
  - f. Selected applicants are required to appear before a viva board.
  - g. Final selection of the candidate is done based on their viva performance
- **Standard 3-3: The admission process ensures fair treatment to all applicants with transparent and good practices and do not discriminate applicants in any way.**

#### **4.3 Progress and Achievements**

Periodic progress and final achievements of the learning outcomes by the students are consistent with the quality of students. Sincerity and commitment of the students and teachers exist to ensure desired progress and achievement. The learning outcome reflected or proved when they got the job in different pharmaceutical companies in different post. Job opportunities for pharmacist are growing about as fast as the average for all occupations, mainly due to the increased pharmaceutical needed for larger population. The department of pharmacy disseminates the progress and achievements of the alumni to the existing students.

Department of Pharmacy assigns advisor for each batch to monitor the progress of the students whether progress of the students are satisfactory or not. Besides progress, their achievement in case of academic ground is also monitored comprehensively. Advisors always help students during course registration in each semester and recommending financial assistance for needy students with/having excellent academic background to the higher authority. UAP has a waiver policy which is given on the basis of Semester

GPA. Tuition feewaiver (only for merit-based) is awarded based on GPA as per the following table.

**Table 4.1: Tuition fee waiver based on GPA**

<b>GPA</b>	<b>Percentage of tuition fee wavier</b>
3.50 - 3.74	25
3.75 – 3.89	50
3.90 – 3.99	75
4.00	100

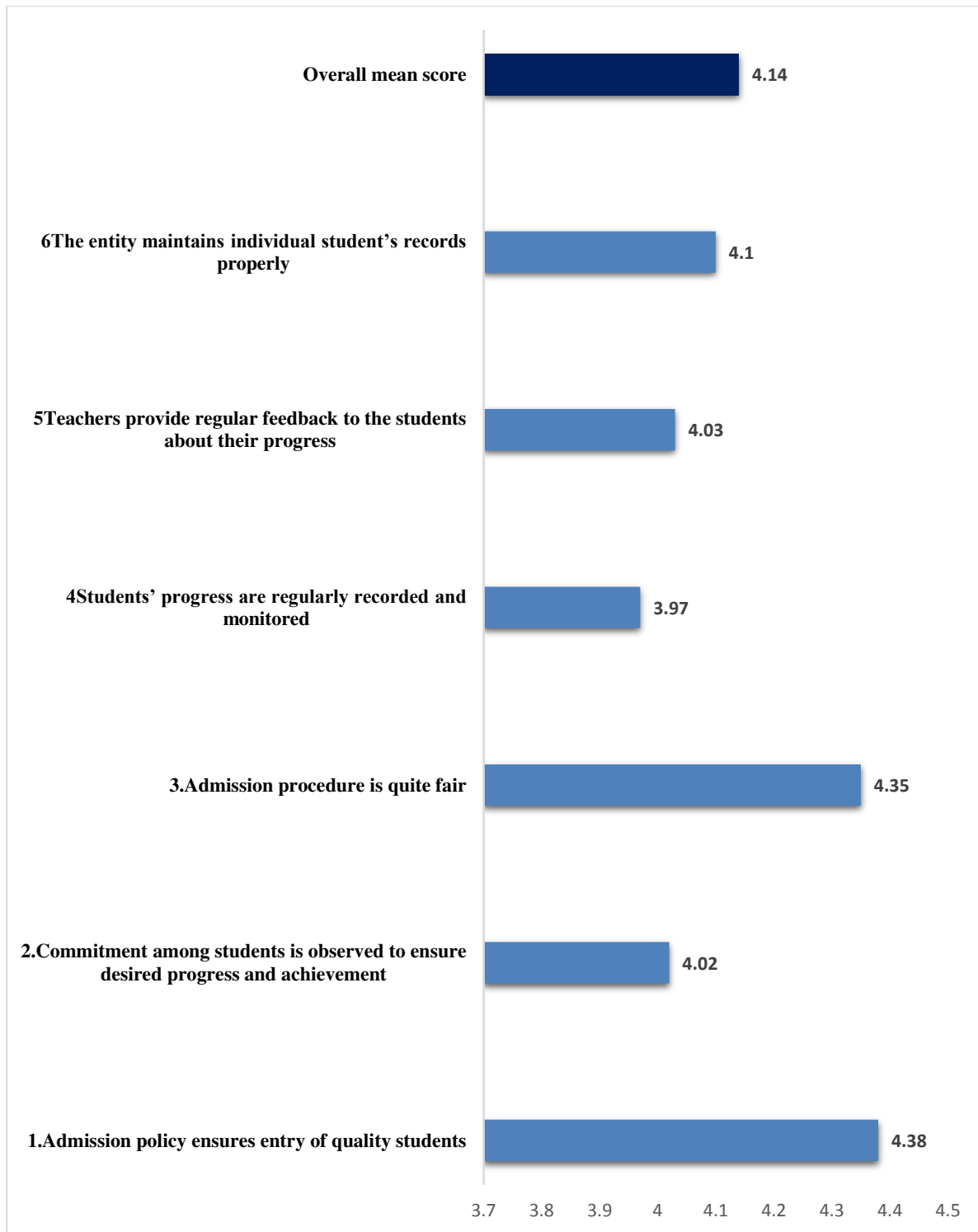
In addition to the above waiver policy, top 3% students study in Pharmacy program is offered 100%tuition waiver based on semester results. 10% - 100% Vice Chancellor's special tuition feewaiver is offered to poor meritorious students.A student is allowed to appear at the repeat examination in case he/she fails in three theory courses or less. The maximum grade the student can obtain in B.Pharm program has a provision for grade improvement that applies to those only who obtained a grade C or lower in any course. Such candidates are allowed to improve theirgrades by surrendering the earlier grade obtained by him/her. Student can apply for re-examination of any answer script of final examination tothe Controller of Examinations through their advisor and the head of the department.

- **Standard 3-4: Everyone has confidence in the integrity of the admissions process.**
- **Standard 3-5: The admission process is competent enough to differentiate between apparently equally qualified and non-qualified candidates for courses with competitive entry.**

## **4.4 Stakeholders' Feedback**

### **A. Students**

The perception of students evaluation to assess the Student Entry qualifications, Admission procedure, Progress and Achievements are shown in (Appendix-V, supplementary table 8) and it indicates that 88% students agreed that admission policy ensures entry of quality students, only 4% of the 395 did not agree and 8% were undecided. Out of 395 students 81% agreed that Commitment among students is observed to ensure desired progress and achievement, only 5% were not agree with it and 14% remain undecided. 86% students agreed about fairness of admission procedure; only 4% did not believe so and 10% were undecided. 74% students thought that students progress are regularly recorded and monitored; while 11% did not think so and 16% neither agreed nor disagreed. 75% students agreed that teachers provide regular feedback to the students about their progress; 10% did not agree with it and the rest 15% were undecided. Students were asked whether the entity maintains individual student's records properly 77% students answered positive, 9% did not agree and 14% remain undecided (Figure 4.1).

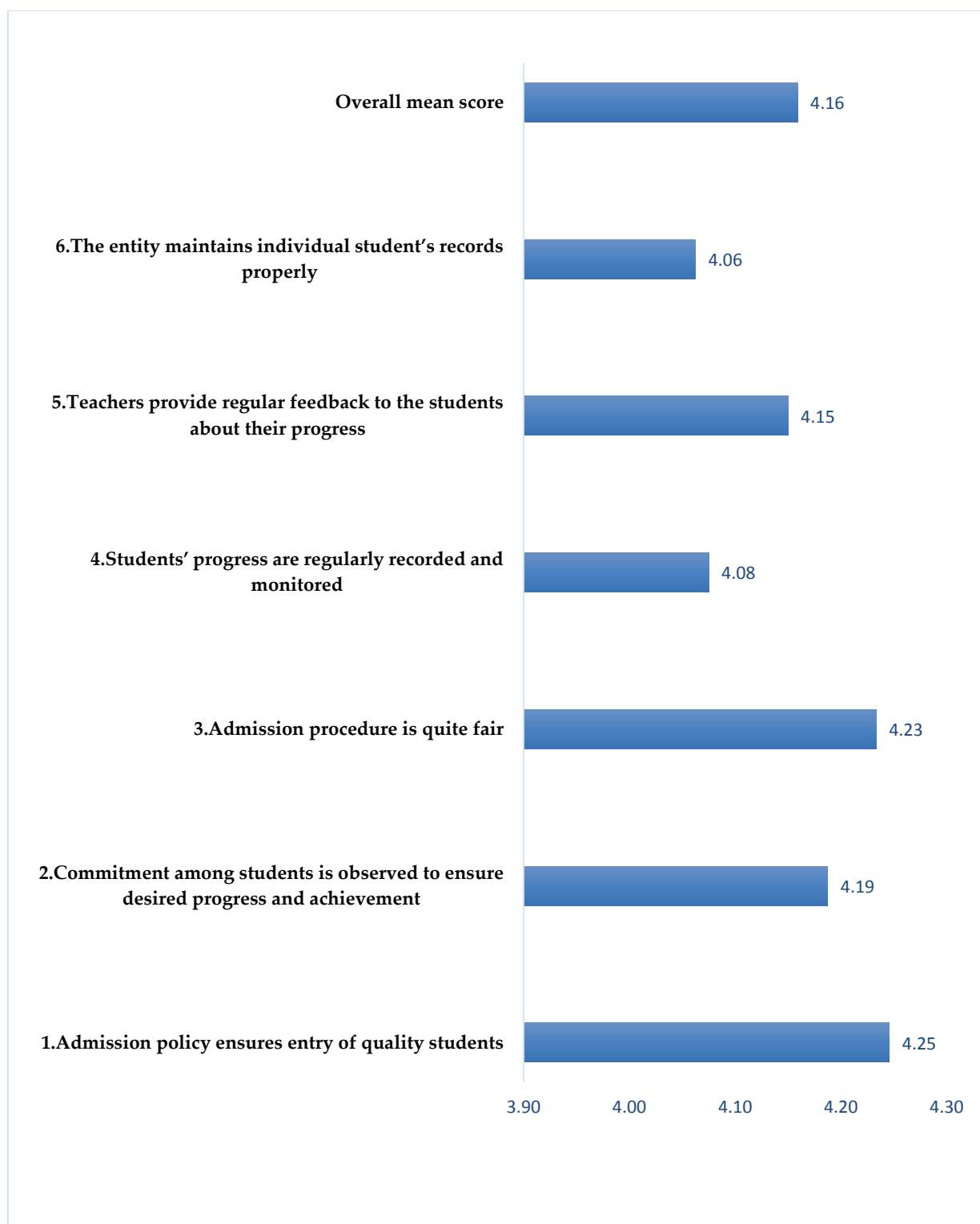


**Figure 4.1: Overall and item wise mean scores of students evaluation about student entry qualification, admission procedure and achievement**

The mean scores of different aspects of evaluation of student ranges were from 3.97 to 4.38. However, these scores are significantly higher than 3.

### **B. Alumni**

The results of 240 alumni's evaluation to assess the Student Entry qualifications, Admission procedure, Progress and Achievements are shown in (Appendix-V and supplementary table 9). And it implies that 87% alumni agreed that admission policy ensures entry of quality students, only 3% disagreed about it and 10% said nothing. 86% respondents said that commitment among students is observed to ensure desired progress and achievement and 14% were undecided. 91% respondents agreed that admission procedure is quite fair, only 1% disagreed with this issue and 8% were undecided. 87% replied that Students progresses are regularly recorded and monitored; only 2% did not think so and another 11% remain undecided. 88% alumni reported that teachers provide regular feedback to the students about their progress; only 2% argued at this issue and 10% gave no decision. Finally, 83% alumni answered that the entity maintains individual student's records properly, only 1% disagreed about this issue and 16% were undecided (Figure 4.2).



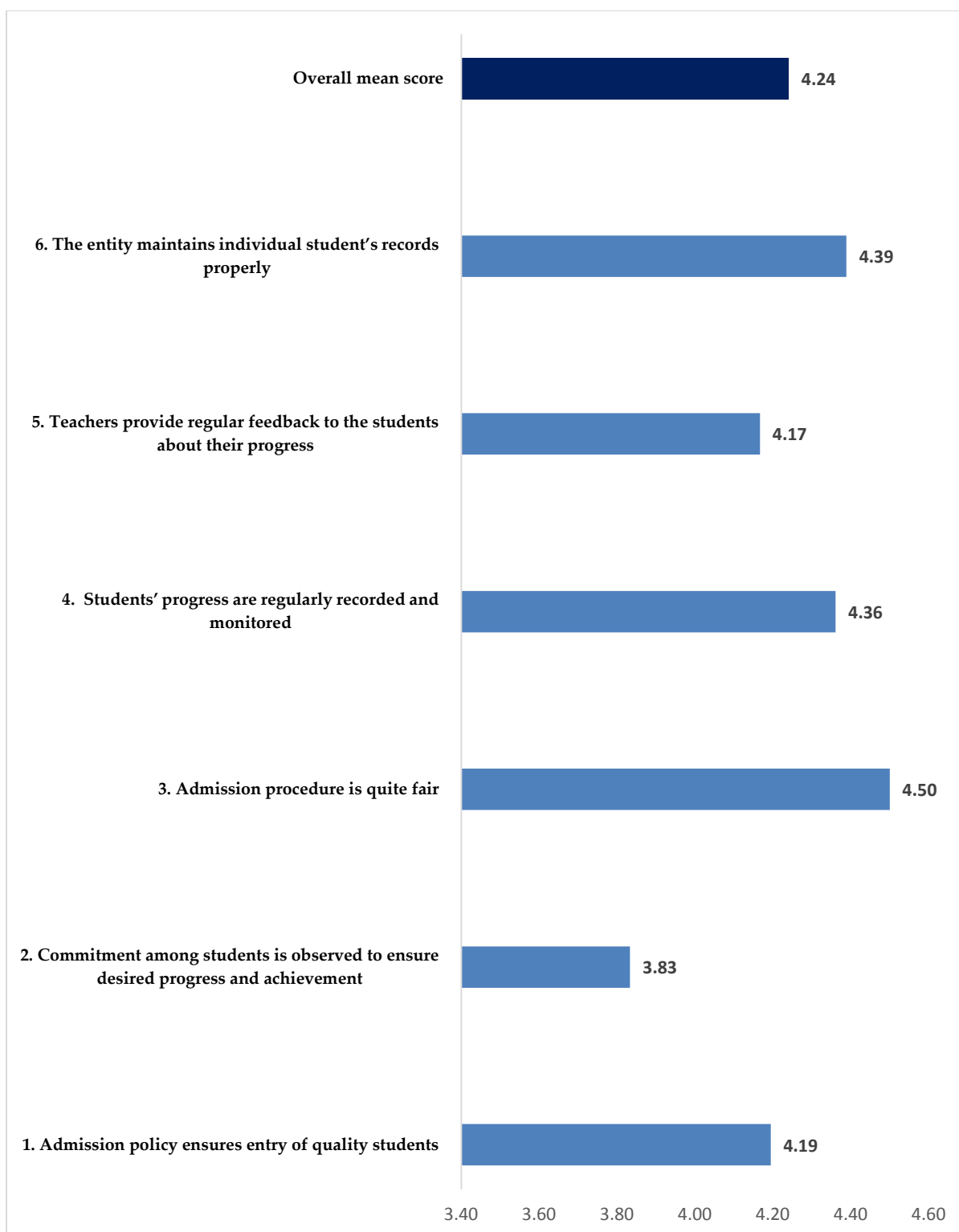
**Figure 4.2: Overall and item wise average score of alumni's evaluation about student entry qualification, admission procedure and achievement**

All mean scores of alumni's evaluation about student entry qualification, admission procedure differ from 3 ( $p\text{-value}<0.05$ ) very much significantly.

### **C. Faculty**

To evaluate Student Entry qualifications, admission procedure, Progress and Achievements, total 36 faculties were interviewed. The results from (Appendix-V and supplementary table 10) shows that 89% faculties agreed that Admission policy ensures entry of quality students, only 5.5% disagreed in this issue and only 5.5% did not give any clear opinion. 75% respondents said that commitment among students is observed to ensure desired progress and achievement; but 6% said different and 19% were undecided. 89% respondents agreed that Admission procedure is quite fair, only 3% disagreed with this issue and 8% were undecided. 98% replied that Students progress is regularly recorded and monitored; while other 2% did not think so. 89% faculties reported that teachers provide regular feedback to the students about their progress; but 5.5% argued at this issue and 5.5% gave no decision. Finally, 89% faculties answered that the entity maintains individual student's records properly, 5.5% disagreed about this issue and 5.5% were undecided (Figure 4.3).

From the figure 4.3 it is also revealed that the items' mean scores are ranging from 3.83 to 4.50. P-value less than 0.05 also indicate that the mean scores are differing significantly from 3.



**Figure 4.3: Overall and item wise mean scores of student Entry qualifications, Admission procedure, Progress and Achievements by Faculties**



**Question on student admission, progress and achievements: “Admission procedure is quite fair”**

Among three stakeholders, 211 students, 23 faculties and 79 alumni strongly agree on it; while 132 students, 9 faculties and 140 alumni agree with it, 38 students, 3 faculty and 19 alumni are undecided, 8 students, 1 faculty and 2 alumni are disagreed and only 6 students strongly disagree with this issue.

**Survey results:**

<b>Stakeholders/ Respondent category</b>	<b>Strongly disagree</b>	<b>Disagree</b>	<b>Undecided</b>	<b>Agree</b>	<b>Strongly agree</b>	<b>Total</b>
<b>Students</b>	6	8	38	132	211	395
<b>Faculties</b>	0	1	3	9	23	36
<b>Alumni</b>	0	2	19	140	79	240

## CHAPTER 5

### PHYSICAL FACILITIES

Quality physical facilities of any educational institution are integral part of the quality learning and can influence both students and faculties greatly. Physical facilities create favorable learning condition and facilitate the attainment of learning objectives broadly. Physical facilities mean total infrastructure of a university including building, classrooms, library, cafeteria, leisure room, common room, prayer room and laboratory as well.

#### Physical Facilities for Students

University of Asia Pacific has dedicated total 39000 square feet area for pharmacy department.

#### 5.1 Classroom Facilities

Department of Pharmacy has 6 spacious classrooms equipped with computers, air conditioners and multimedia projectors. Additionally sound systems are connected in most of the class rooms and a portable sound system is available for need basis. On an average 60 students can be accommodated in each room.

**Table 5.1: Seating arrangement in 6 classrooms**

Room No.	Area	Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Total students
315	862	9	10	10	10	10	12	12	73
316	818	9	10	10	10	10	12	12	73
402	741	10	10	10	10	10			50
405	727	7	8	8	8	8	10	10	55
414	862	9	10	10	10	10	12	12	73
415	818	9	10	10	10	10	12	12	73

## **5.2 Library Facilities**

UAP has a central library at the city campus for students of all departments. The library's mission is to enable and enrich the teaching, learning and research endeavors of the university by delivering flexible access to relevant information resources and providing quality services and facilities. The air conditioned library has capacity to accommodate around 152 readers at a time. The library contains around 19640 books and about 3500 reference and text books for pharmacy which are being regularly updated. For the convenience of the students, the library gives an access to around 32 online journals. The Daily newspapers i.e. Daily Star, Independent, Prothom-Alo, Ittefaq and Daily Observer are available in the library for the students. The library is supervised by seven (7) staff including chief librarian and students as well faculties get open of the library seven days a week for their necessary books and information.

## **5.3 Laboratory Facilities**

The department of Pharmacy is really well equipped and proud of their aristocratic teaching and research laboratories. The laboratories are purpose-built and offer the students to carry out practical works, project as well as research works. Pharmacy Department has total 12 laboratories including one computer laboratory, six undergraduate teaching labs, two research labs, two R & D analysis and formulation labs (under developing) and one B. Pharm Project lab for students practical and thesis purpose. There is a store room for chemical and equipments storage and distribution as required by different labs throughout the semester. All of the labs are well equipped with modern and sophisticated scientific instruments and maintained proper documentation both for chemicals and log book for instruments. All of the instruments are calibrated and SOPs are maintained and followed by students, faculties and lab assistants regularly and properly.

### Important laboratory machines

- Tablet compression machine
- Capsule filling machine
- PCR
- HPLC
- FTIR
- UV spectrophotometer
- Dissolution machine
- Disintegration machine
- Overhead stirrer
- Rotary evaporator

**Table 5.2: Lists of laboratories with lab assistants and lab advisors**

Room No	Name of the Lab	Labsupervisor	Lab attendant/assistant
309	Biotechnology Research Laboratory	Dr. Zabun Nahar and Samia Shabnaz	Mr. Murad
310	Organic, Inorganic and Medicinal Chemistry Laboratory	A. H. M. Nazmul Hasan	Md. Abdul Halim
311	Pharmacognosy and Phytochemistry Laboratory	Tasnova Tasnim	Mr. Murad
312	Physical Pharmacy and Pharmaceutical Analysis Laboratory.	Kanij Nahar Deepa	Md. Rezaul Karim
313	Physiology, Pharmacology and Microbiology Laboratory	Nadia Kabir	Md. ShahadatHossain
314	Computer Laboratory	Md. Assaduzzaman	Mr. Md. Mizanur Rahman
408	MS Thesis Laboratory	Irin Dewan and James Regan Karmokar	Md. Monir Hossain
409	Rsearch & Development (Analysis) Laboratory	Dr. Mohammad Sofiqur Rahman	Md. Monir Hossain

410	Biopharmaceutics and Pharmacokinetics Laboratory	Sadia Noor	Mr. Habib
411	Rsearch & Development (Formulation) Laboratory	Ishrat Jahan	Md. Monir Hossain
412	B Pharm Project Laboratory	Dr. Md. Rabiul Islam	MD Selim Reza
413	Pharmaceutical Technology and Cosmetology Laboratory	Mahjabeen Gazi	Mr. Md. Haydar Ali

Department of Pharmacy has a separate computer lab for students betterment to prepare assignment, presentation and other documentations are necessary to prepare. Presently there are 18 computers in lab for student's service. But it has a capacity of 32 computers in four columns all-around. In another note all of the chemicals, glasswares and raw materials are kept in a separate store room (R-307) and disseminate in respective labs according to need. There is a store keeper who is responsible for keeping all records of stocks in store and a faculty member who supervise his works periodically.

- **Biotechnology Research Laboratory**

Biotechnology Research Lab is housed in 3<sup>rd</sup> floor of UAP city campus (R-309) providing facilities for performing basic and common biotechnology laboratory techniques. It provides hands on experience in the areas of laboratory safety, aseptic techniques, measurements, calculations, preparation of solutions, use of pH meters, spectrophotometers, centrifuges, etc., as well as training in specific biotechnology techniques, including DNA extraction and amplification, Agarose gel electrophoresis and restriction digestion of DNA. It has a Laminar air Flow Cabinet (ESCO) for preparation of biological samples, solutions and reaction mixtures to prevent contamination. For safety and preservation of temperature sensitive reagents and human bloods, Ultra Low Refrigerator (-80°C) (Witeg), Refrigerator (-32°C) (Simens) and Normal Refrigerator (Sharp) are used. Vortex Mixture (Digisysytem), Mini Shaker (IKA), Metabolic Shaker (ZHICHENE) and Micro centrifuge (Hermles) are available in

the laboratory for separation and mixing of biological samples and reaction mixtures. For the purpose of DNA amplification, a PCR machine from ESCO Healthcare is provided by which 24 samples can be run at once. The laboratory grants two Electrophoresis Gel Systems (Biometra) for performing Agarose Gel Electrophoresis. For gel imaging and analysis, we have a sophisticated Gel Documentation System supplied from Syngene. In addition, incubation of PCR products for restriction digestion can be done by using temperature and duration controlled -Heating Block. We also have a Nano spectrophotometer (Genova Nano) for measuring the concentration and the purity of DNA samples with great precision and accuracy. Besides, the laboratory is equipped with an Electronic Balance, an Autoclave and a Binocular microscope. The laboratory follows all the regulations governing biological laboratories that dictate the safety procedures and protocols for disposal of hazardous chemicals and biological.



- **Pharmaceutical Analysis and Physical Pharmacy Laboratory**

Pharmaceutical Analysis and Physical Pharmacy Lab is used for conducting four separate labs which housed in a single room at 3<sup>rd</sup> floor of UAP City Campus which is equipped with UV-Spectrophotometer, p<sup>H</sup> meter, digital water bath, Viscometer etc. Adequate number of glassware, chemical reagents and equipment are there for the smooth conduction of the pharmaceutical analysis-I and II and physical Pharmacy –I & II lab courses. Each laboratory experiment is designed to provide students the knowledge of basic quantitative analysis such as titrimetric analysis, rate constant and viscosity determination and also provide students hands-on experience in executing elementary analytical skills and quality control tests for various dosage forms.



- **Physiology, Pharmacology and Pharmaceutical Microbiology Laboratory**

Physiology, Pharmacology and Pharmaceutical Microbiology Lab is housed in 3<sup>rd</sup> floor of UAP city campus (R-313), having well equipped machines imperative to perform experiments that include in Physiology, Pharmacology and Pharmaceutical Microbiology courses. The primary equipment involves compound microscope,

autoclave, laminar air flow, hemocytometer, incubator, hot air oven, and vacuum pump along with all essential laboratory glass wares. This Lab enables students to experience with the scientific investigation of human physiological processes, identification and diagnosis of infectious diseases with further suggested treatment methods



- **Biopharmaceutics and Pharmacokinetics Laboratory**

Biopharmaceutics and Pharmacokinetics Lab is located at 4<sup>th</sup> floor of the UAP City Campus (R-410). The laboratory is fully equipped with necessary equipment to perform biopharmaceutics and pharmacokinetics of drugs via employing *in vitro* approaches. It includes one disintegration tester (Veego), three dissolution tester (Electrolab), one electronic analytical balance (Ohaus), two friability tester (Veego), one electronics leak test apparatus, one pH Meter (ADWA), one ultrasonicator (Hwashin Tech.), three UV spectrophotometer (Shimadzu) and one water bath (Lab Tech). All the instruments are well maintained with updated SOP and log book. The lab room is fully organized with all necessary glass wares including volumetric flask, conical flask, measuring cylinder, pipette, beaker, funnel, test tubes, pycnometer etc. to conduct regular lab classes. This laboratory facility is utilized for three lab courses of B. Pharm. program



including Biopharmaceutics & Pharmacokinetics-I Lab, Biopharmaceutics & Pharmacokinetics-II Lab and Pharmaceutical Packaging Technology- Lab. Different physical and chemical studies of various types of drugs and packaging materials are performed in this lab such as weight variation test, friability test, pH measurement, wt./ml determination, disintegration test and dissolution test of available marketed pharmaceutical preparations as well as identification, content determination, different measurements and leak test of various types of commercially available aluminum foil, PVC and PVDC. These tests will provide students an in-depth understanding on the quality evaluation and also emphasize on the factors that influence the quality of pharmaceutical preparations and their packaging materials based on biopharmaceutics and pharmacokinetics properties. These lab courses make the students able to achieve fundamental and applied knowledge, communication skills, professionalism and ethics, leadership and interpersonal skills.



- **Organic, Inorganic and Medicinal Chemistry Laboratory**

Organic, Inorganic and Medicinal Chemistry laboratory is located at 3<sup>rd</sup> floor (R-310) of the UAP City Campus (R-410). Inorganic and Organic lab deal with the qualitative analysis of inorganic and organic compound respectively. Medicinal lab focuses on both qualitative and quantitative analysis of various compounds and drugs such as synthesis, purification etc. The laboratory is enriched with high-tech and advanced quality machineries and equipment with high efficiency such as UV-spectrophotometer, melting point detector, advanced water bath etc. Inorganic and organic lab courses enable them to find elemental composition of inorganic and organic compounds, detect ions in an aqueous solution, properties of inorganic molecules, determine the functional groups in organic samples and indentify the dosage forms by their color changes. Medicinal lab courses enrich the students with the knowledge of synthesis, purification, identification, release pattern, potency of different drugs such as Banzocaine, Aspirin, Paracetamol, Ibuprofen, Diclofenac, Glipizide, Glibenclamide etc.



- **Pharmaceutical Technology Laboratory**

Pharmaceutical Technology Lab is located at 4<sup>th</sup> floor of the UAP City Campus (R-413). The laboratory is equipped with necessary equipment to produce various dosage forms of drugs and cosmetic products. It includes two electronic analytical balance (RADWAG), two tapped density tester (VEEGO-2), one overhead stirrer (BD), one pH meter (Hanna). All the instruments are well maintained with updated SOP and log book. The lab room is fully organized with all necessary glass wares including volumetric flask, conical flask, measuring cylinder, pipette, beaker, funnels, test tubes, desiccator, mortar and pestle, petri dish, Viscometer, thermometer, water bath etc. to conduct regular lab classes. This laboratory facility is utilized for four lab courses of B. Pharm. Program, including Pharmaceutical Technology Lab-I, Pharmaceutical Technology Lab-II, Pharmaceutical Technology Lab-III and Cosmetology Lab. Different dosage forms of drugs and cosmetic products are prepared in this lab such as syrup, suspension, suppository, cream, ointment, dry powder for suspension, dry powder for solution, effervescent tablet, floating tablet, film coated tablet, ophthalmic solution, ophthalmic ointment, bilayer tablet, liquid filled capsules, beads, transdermal patch, solid dispersion and cosmetic preparations like shampoo, toothpaste, mouthwash, cold creams, vanishing creams, after shave lotions etc. The physical properties of ingredients also determined in this lab, such as measurement of angle of repose of different powders, measurement of bulk density, tapped density of different powders, measurement of percent compressibility of different powders, solubility profile of poorly water soluble drugs by evaporation technique etc. These tests will provide students an in-depth understanding on the manufacturing process, formulations with justifications, evaluation parameters and problems associated with these formulations. The objectives of this course are to focus on the rational use of different chemical compounds, solvents, polymers and the manufacturing procedure for the formulation of dosage forms of drugs and cosmetic products.



- **Pharmacognosy and Phytochemistry Laboratory**

Pharmacognosy and Phytochemistry Lab is a research lab located at the 3<sup>rd</sup> floor (R-311) of UAP City Campus which is equipped with UV-Spectrophotometer, centrifuge machine, incubator, colony counter, pH meter, digital water bath, ultrasonicator, refrigerator, rotary evaporator, heating mantle, etc. Adequate number of glassware, chemical reagents and equipments are there for the smooth conduction of Pharmacognosy I and II lab courses and Phytochemistry research activities. Pharmacognosy I lab is designed to conduct visual identification of different medicinal plants. Pharmacognosy II lab deals with qualitative analysis of carbohydrates e.g. glucose, fructose, lactose, sucrose, distinguishing between reducing and non-reducing sugar, aldose and ketose sugar and monosaccharides and disaccharides, examinations of starch, extraction and isolation of caffeine from tea, coffee; identification of alkaloids. This course utilizes electronic balance (Shimadzu), Spectroline Fluorescence Analysis Cabinet, UV lamp, water bath, bunsen burner and TLC tank. Among the research works

conducted in the lab compound isolation, identification and biological and phytochemical activity evaluation are noteworthy.



- **Research & Development Formulation Laboratory**

Research & Development Formulation Lab is used for conducting four separate Labs which housed in a single room at 4<sup>th</sup> floor of UAP City Campus (411). This lab is well equipped with mixture machine, double cone blender, drum mixture, coating pan, compressor, bottle dryer, tablet compress machine (single punch and 8 punch). Each laboratory experiment is designed to provide students the knowledge of basic tablet compression, tablet blending, mixing and drying.





- **Research and Development Analysis Laboratory**

Research and Development Analysis Lab is located at 4<sup>th</sup> floor (R-409) of the UAP City Campus (R-410). It is designed by epoxy floor, sandwich panel wall, double door entrance-exit and has dehumidifier with HVAC system. Pharmaceutical analysis principally deals with analysis of pharmaceutical products. Our laboratory is devoted to the developmental analysis of different drugs, stability testing, determination of impurities, etc. The complex tasks of pharmaceutical development may also include development of new pharmacopoeial methods, stress testing to validate stability-indicating methods, impurity analysis and identification, herbal material analysis, cleaning validations, degradation tests and stability studies. We are specifically interested in: method development and validation, analysis of marketed pharmaceutical products as well as analysis of prepared dosage forms in the pharmaceutical technology lab. The techniques used are High performance Liquid Chromatography (HPLC), Automatic Titrator and Fourier-transform infrared spectroscopy (FTIR).



- **Pharmaceutical Technology Research Laboratory**

Pharmaceutical Technology Research Lab, dedicated to thesis students of Master's program focused on pharmaceutical technology, is accommodated in 4<sup>th</sup> floor (R-408) of UAP city campus. This exclusive lab is furnished with varied equipments like air compressor machine, coating pan, die punch, dissolution tester, electronic analytical balance, fume cupboard, hot plate, magnetic stirrer, digital over head stirrer, sieve shaker, oven, pH meter, ultrasonicator, vortex mixer, water bath and UV-Spectrophotometer. Adequate numbers of glassware and chemical reagents are made available for untroubled conduction of researches on conventional as well as advanced drug delivery system such as micro and nano particles, solid dispersion, SEEDS, Liposomes etc. This Lab enables students to experience with the formulation development and characterization of the developed formulations using various techniques during their thesis in Master's program.



- **B Pharm Project Laboratory**

B Pharm Project laboratory is located at 4<sup>th</sup> floor of the UAP City Campus(R-410). This laboratory is equipped with sufficient machineries and PCs to conduct different types of project works of 4<sup>th</sup> year students. Adequate numbers of equipment e.g. tablet dissolution and disintegration tester, friability tester, HPLC water purification systems, moisture analyzer and UV spectrophotometer have been used by the undergraduate students for their B. Pharm. project works which mainly comprised of different tablet evaluation tests. In this laboratory, six students can run six different projects at a time.





- **Computer Laboratory**

The Department of Pharmacy has its own computer laboratory located at 3<sup>rd</sup> floor of the UAP City Campus (R- 314) which is equipped with 25 modern and updated PCs. The laboratory has internet and printing facility. All of the PCs have Intel Core i3 or Core 2 Duo processors and CRT/ LCD monitors (17"/ 19"). Students could browse from any PC free of charge for unlimited time period. Students use this lab for the purposes of internet based study like searching research articles, reading e-books and doing group assignments etc. This lab is also equipped with a scanner.



#### 5.4 Medical and Insurance Facilities

Medical facilities must be adequate, well equipped, accessible and useful to provide emergency healthcare services ensuring health and hygiene within the campus. As per agreement, all UAP members are entitled for 25% discount at Medinova Diagnostic Center. All students of university are covered by the insurance policy with the Green Delta Insurance Ltd.

- **Medical center**

UAP has an allocated medical service center where two certified medical doctors provide primary treatment in case of emergency of students and staffs. Student can avail medical advices free of cost in the following times. Department of pharmacy also maintains first aid box facilities.

Days	Time
Sunday-Thursday	9.00 am-5.00 pm

## **5.5 Other Facilities**

### **5.5.1 Physical Facilities for Faculties**

Professors, associate professors and assistant professors sit in separate allocated room in Pharmacy Department. Lecturers also have separate cubicles in the faculty space. All of the faculty members use latest configurations of computers connected with printers. There are separate hygienic wash rooms allotted for both male and female teachers with adequate toiletries. Department of Pharmacy has a separate conference room in faculty space with a capacity of 30 persons (Under developing) for arranging various meetings.

### **5.5.2 Cafeteria**

University of Asia Pacific always tries to provide healthy and good food and beverage to the students and faculties. In order to support students and staff UAP has a well decorated and spacious cafeteria at City Campus which can accommodate 180 students and faculties at a time. Adequate staff always makes sure of their presence to serve the students.

### **5.5.3 Sports Center**

For the recreation of students, UAP has arranged an indoor sports center in the City Campus where all can arrange table tennis, chess, carrom etc. UAP does not has its own permanent sports ground for intra-department and inter-department outdoor sports like cricket, football etc. We need to hire sports ground for out door sports usually. However, UAP has procured 3 acres of land in Rajuk Purbachal of Dhaka city where campus can provide its own sports facilities and a gymnasium with modern facilities.

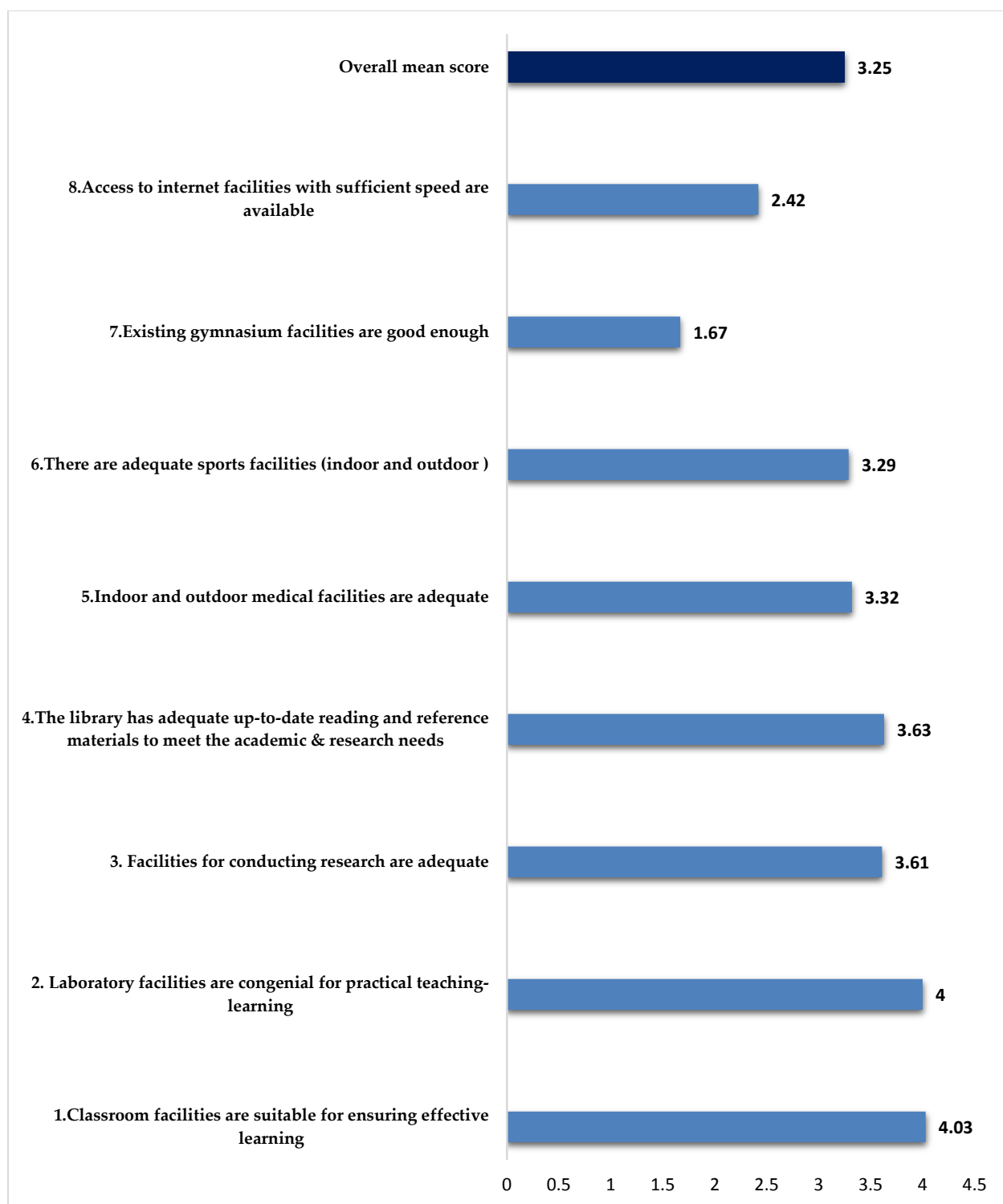
- **Standard 4-1: For the purpose of quality assurance in higher education it is to be ensured that the physical facilities as required for a particular academic program are appropriate, adequate, comfortable, safe, aesthetically pleasing and well managed.**

- **Standard 4-2: The higher education institution provides and ensures access to the necessary information technology resources, computers, internet and other communication equipment for the teachers and students.**

## **5.6 Stakeholders' Feedback**

### **A. Students**

Total 395 students were interviewed to evaluate physical facilities of their department. The table(Appendix-V and supplementary table 11) indicates that 76% students agreed that Classroom facilities are suitable for ensuring effective learning; while 14% did not agree about it and 10% were undecided. 76% students answered that Laboratory facilities are congenial for practical teaching-learning; 12% students opined different about this issue and other 11% were undecided. 59% students agreed that Facilities for conducting research are adequate; while 14% disagreed with it and 27% were undecided. 63% students thought that the library has adequate up-to-date reading and reference materials to meet the academic and research needs; but 20% did not think so and 17% were undecided. 51% students said that Indoor and outdoor medical facilities are adequate; but 28% disagreed with this statement and 21% were undecided. 55% students believed that there are adequate sports facilities (indoor and outdoor), while 32% did not believe so and other 13% remain undecided. Only 10% students agreed that Existing gymnasium facilities are good enough; but 83% disagreed about this matter and 8% were undecided. Finally, 27% students agreed that Access to internet facilities with sufficient speed is available; while 60% students did not agree on it and 12% neither agreed nor disagreed (Figure 5.1).

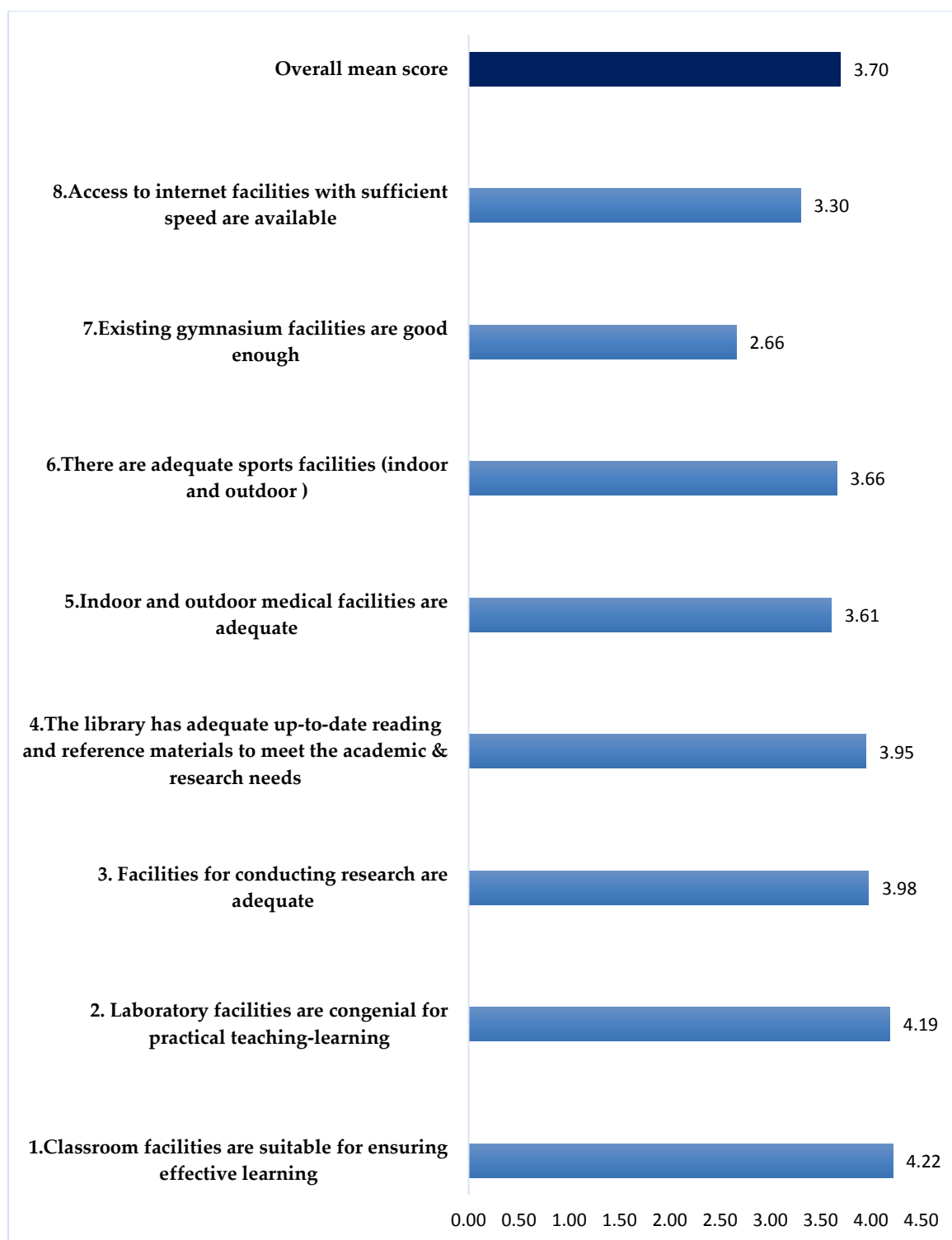


**Figure 5.1: Overall and item wise mean scores of students evaluation about physical facilities**

Figure shows that the mean score of “Existing gymnasium facilities are good enough” is only 1.67 and significantly lower than 3. Mean score of “Access to internet facilities with sufficient speed is available” (M=2.42) is also significantly lower than 3. Other mean scores are significantly higher than 3.

### **B. Alumni**

In this study, 240 alumni were requested to evaluate physical facilities of their department. The table (Appendix-V and supplementary table 12) implies that 86% alumni agreed that classroom facilities are suitable for ensuring effective learning, 1% did not agree about it and 12% gave no decision. 90% alumni answered that Laboratory facilities are congenial for practical teaching-learning; 1% alumni opined different about this issue and 9% were undecided. Total 80% alumni agreed that Facilities for conducting research are adequate, 5% disagreed with it and 14% neither agreed nor disagreed. 80% alumni thought that the library has adequate up-to-date reading and reference materials to meet the academic and research needs, 4% did not think so and rest 16% were undecided. 54% alumni said that Indoor and outdoor medical facilities are adequate but 9% disagreed with this statement and 37% gave no clear opinion. 57% alumni believed that there are adequate sports facilities (indoor and outdoor), 10% did not believe so and 32% gave no decision. 31% alumni agreed that existing gymnasium facilities are good enough but 44% disagreed about this matter and 24% were undecided. At last, 47% alumni agreed that Access to internet facilities with sufficient speed are available, 26% alumni did not agree on it and 28% neither agreed and nor disagreed (Figure 5.2).



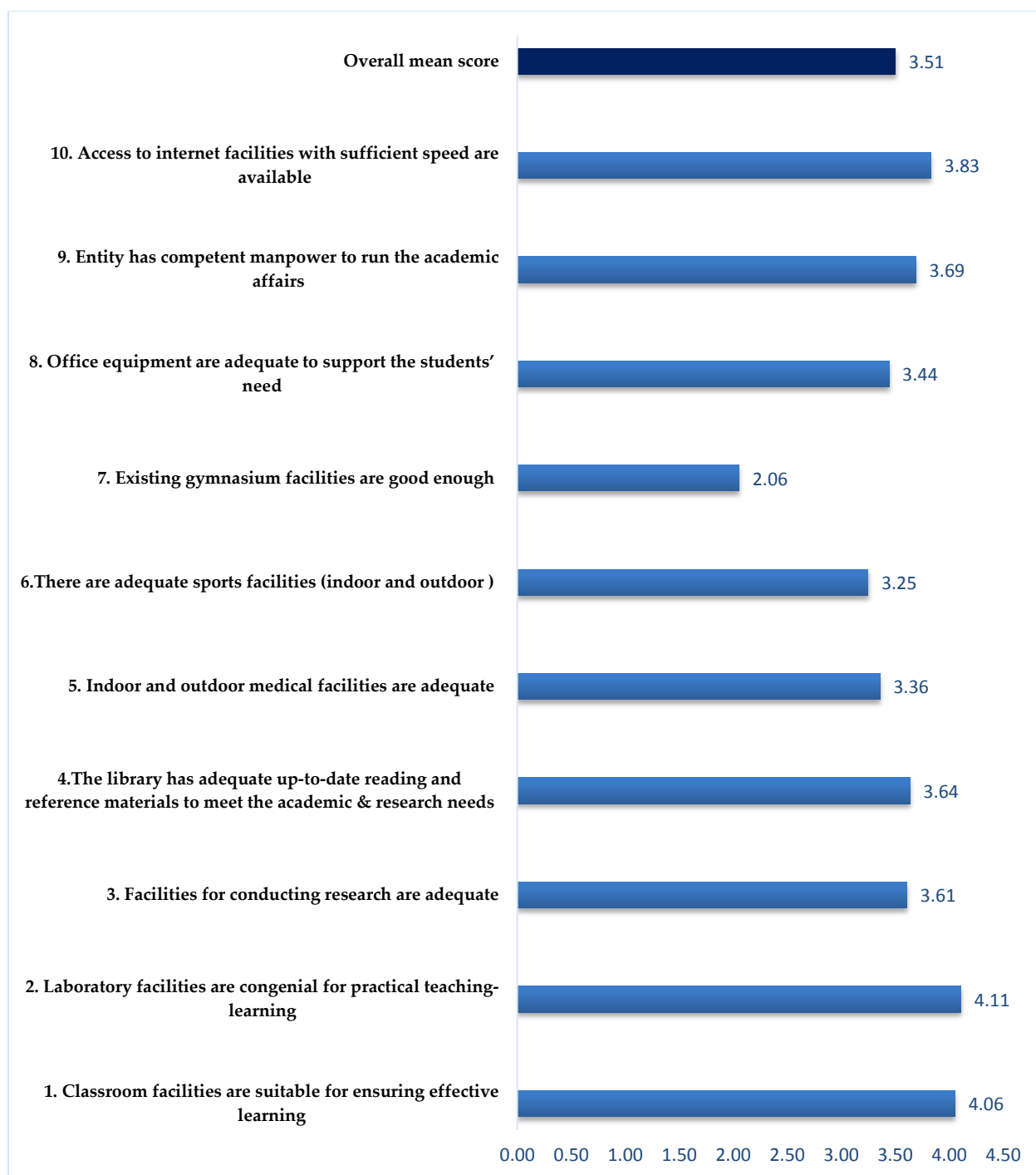
**Figure 5.2: Overall and item wise average score of alumni's evaluation about physical facilities**

The mean scores of figure shows the average condition of different forms of physical facilities. The mean score of “Existing gymnasium facilities are good enough” is 2.66 and significantly lower than 3 while other mean scores are significantly higher than 3.

### **C. Faculty**

For evaluating physical facilities of the department, 36 faculties are asked to give their opinion on different aspects. Appendix-V and supplementary table 13 tells that 83% faculties agreed that Classroom facilities are suitable for ensuring effective learning, 14% did not agree about it and 3% gave no decision. 83% faculties answered that Laboratory facilities are congenial for practical teaching-learning; but 6% faculties opined different about this issue and 11% were undecided. 67% faculties agreed that Facilities for conducting research are adequate, 16.5% disagreed with it and 16.5% neither agreed nor disagreed. 58% faculties thought that the library has adequate up-to-date reading and reference materials to meet the academic & research needs, 6% did not think so and rest 36% were undecided. 48% faculties said that Indoor and outdoor medical facilities are adequate but 14% disagreed with this statement and 39% gave no clear opinion. 53% faculties believed that there are adequate sports facilities (indoor and outdoor), 28% did not believe so and 19% gave no decision. Only 6% faculties agreed that Existing gymnasium facilities are good enough but 61% disagreed about this matter and 33% were undecided. 56% faculties said that Office equipment are adequate to support the students need; while 20% argued with them and 25% gave no decision. 75% faculties agreed that Entity has competent manpower to run the academic affairs, 17% disagreed on this issue and only 8% were undecided. 72% respondents replied that Access to internet facilities with sufficient speed are available; while 11% did not think so and rest 17% gave no clear opinion (Figure 5.3).





**Figure 5.3: Overall and item wise average score of faculties evaluation about physical facilities**

Like students and alumni, the faculties evaluated mean score of “Existing gymnasium facilities are good enough” is 2.06 and significantly lower than 3 while other mean scores are significantly higher than 3.

**Question on physical facilities“*Facilities for conducting research are adequate*”**

On this standard, total 82 students, 5 faculties and 56 alumni strongly agree on it; while 152 students, 19 faculties and 138 alumni agree with it, 106 students, 6 faculties and 34 alumni are undecided, 33 students, 5 faculties and 9 alumni are disagreed and 22 students, 1 faculty, 3 alumni strongly disagree with this issue.

**Survey results:**

Stakeholders/ Respondent category	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	Total
<b>Students</b>	22	33	106	152	82	395
<b>Faculties</b>	1	5	6	19	5	36
<b>Alumni</b>	3	9	34	138	56	240

## **CHAPTER 6**

### **TEACHING, LEARNING AND ASSESSMENT**

Teaching-learning constitute the core of education. It is the responsibility of the educational institutions to ensure effective teaching-learning to ensure quality in education.

#### **6.1 Quality Staff**

It is to be ensured that the staffs of all categories including academic, support, technical and administrative are adequate and skilled to meet the requirements of academic standards and strategies of teaching learning. At first Department of Pharmacy starts their recruitment by sorting the candidates CV's, followed by written test, demo class and finally viva voce in front of a selection committee comprised of the VC, Pro-VC, Treasurer, Registrar, and the department head.

#### **6.2 Procedure of promotion for UAP faculty members**

Exercise of promotion is to provide opportunities to staff for career advancement that has proved their excellence in the relevant field and are suitable for the post at UAP. Promotion of faculty members depends on individual performance.

##### **A. Promotion to Assistant Professor**

- (1) Confirmed in service;
- (2) Achieved remarkable academic and research excellence and other conditions which may reasonably be determined by the authority of the University;
- (3) Ratified by the head of department / dean
- (4) B. Pharm with Honors and Masters/M. Phil/PhD (Sabbatical leave for M. Phil/PhD to be considered as service provided that candidate completes his/her program) in relevant field, at least three (03) years teaching experience
- (5) Interview will be conducted based on the evaluation results obtained

## **B. Promotion to Associate Professor**

- (1) Confirmed in service
- (2) Achieved remarkable academic and research excellence and other conditions which may reasonably be determined by the authority of the University
- (3) Ratified by the head of department / dean
- (4) B. Pharm with Honors and Masters/M. Phil/PhD (Sabbatical leave for M. Phil/PhD to be considered as service provided that candidate completes his/her program) in relevant field at least 8 (eight) years teaching experience must obtain at least 75 (seventy five) points
- (5) Interview will be conducted based on the evaluation results obtained.

## **C. Promotion to Professor**

- (1) Confirmed in service
- (2) Achieved remarkable academic and research excellence and other conditions which may reasonably be determined by the authority of the University
- (3) Ratified by the head of department / dean
- (4) B. Pharm with Honors and Masters/M. Phil with PhD in relevant field, at least 11 eleven years teaching experience
- (5) Interview will be conducted based on the evaluation results obtained.

## **6.3 Teaching Learning Methods**

Teaching learning method, in fact, sets the stage for everything in terms of learning outcomes. Efforts in this area pay great dividends in terms of attainment of learning goals and quality of education as well. Attainment of learning goals depends on the role and involvement of students and teachers in the process. Teachers need to be diligent in transferring new knowledge to the students effectively so that the goal of teaching learning succeeds. The teachers should use innovative teaching techniques to make the

students keen, focused and interested to learn the subjects taught, and are able to maintain a scholarly approach for engaging students in academic activities.

Teaching methods vary depending on the requirement of a particular course. Pharmacy Department practices direct lecture method, interactive teaching method and laboratory based practical teaching methods for ensuring proper teaching and learnings of students successfully. In the direct lecture method the teachers deliver regular lectures usually 3 hours for 3.0 credits per week. The end goal of this method is to examine and evaluate how successfully the students have received the instructions and information delivered by their teachers on the subject matter, while in the interactive method, the teacher plays the role of a facilitator in an inquiry based and cooperative learning environment where learning feedbacks of students are monitored. In laboratory based practical teaching methods, students are engaged practical works in respective labs for 3 hours weekly for 1.0 credit lab courses which are directly related to the theoretical courses. Here students get fundamental basic as well as practical knowledge for specific subject who are very essential for drug manufacturing and evaluation in pharmaceutical industries. At the end of eight semesters, students take part in in-plant training for acquiring integrated knowledge about pharmaceutical operation before entering practice life in pharmaceutical sectors. This is a mandatory part for students to get their B. Pharm. degree from Department of Pharmacy.

- **Standard 5.1: Teaching Learning Practice is interactive, motivating, promoting a sense of responsibility and commitment.**
- **Standard 5.2: Teaching Learning Practice involves practical evidence, initiates critical thinking and inspires students to apply acquired knowledge in the real life situations focusing on higher order of learning.**

## 6.4 Technology Integration

At this age of information technology work has become increasingly IT centric. As such, IT integration in teaching is very critical for quality in education. IT integration in teaching learning will make it a lot easier, attractive and more effective to communicate ideas and complex subjects meaningfully in class rooms. In addition, use of IT in teaching will encourage students to use e-contents to improve learning, access e-resources for studying and research, use information technology for academic preparation and problem solving

As all class rooms are multimedia supported at pharmacy department, teachers and students can get the benefit of computers, multimedia, software applications etc. in daily classrooms practices. Students can present ideas through class-room presentation and faculties can use multimedia to share animated and videos of relevant course materials for better understanding. There is a well-equipped computer lab in pharmacy department to help students to integrate knowledge about presentation and assignment preparation, data analysis from lab works and other assigned works regularly.

- **Standard 5-3: Teaching learning practice integrates the use of technology and also should provide students with opportunities to use these skills in academic preparation both within and outside of the classroom.**
- **Standard 5-4: Teaching learning practices provide enough scope to integrate co-curricular and extra-curricular activities for intended skill development.**

## 6.5 Use of Lesson Plan

Use of lesson plan is a growing practice in teaching learning internationally. It specifies the subject matter to be taught, learning objectives and assessment of that learning for each and every class. It is a document that explains the number of classes to be taken and the subject matters to be discussed in each class throughout the semester. It also

gives information about all marks distribution for each assessment, such as class attendance, assignment, quizzes, presentation, midterm and final examination. As a result, at the beginning of a session students become very clear regarding what will be taught, how will it be taught, how will the attainment of learning be assessed and subjects they are supposed to learn. Documentation of lesson plans will enable one to determine the level of students learning in any particular course and help the students to plan for learning of a course at the next level of academic life. Lesson plan is used to specify the subject matter to be taught, learning objectives and assessment of the learning. The course teacher designs the lesson plan at the very beginning of the semester and disseminates it to the students.

The lesson plan must cover bloom's cognitive domain philosophy that comprises the following six hierarchical (lower to higher) levels:

C1: Remembering

C2: Understanding

C3: Applying

C4: Analyzing

C5: Evaluation

C6: Creation

- **Standard 5.6: Use of lesson plan should be formalized in teaching learning practice with proper documentation and access.**
- **Standard 5-8: In line with teaching learning student performance assessment approach must be focused on higher order learning.**

## **6.6 Focus**

Teaching learning in higher education must address the higher order of learning in educational domain, i.e., application to creation. At the tertiary level of education

heightened cognitive skills are very important. Efforts should be made to develop the skills of original thinking and creative faculty. The faculty member focuses their knowledge to the students by doing research or project work.

### **6.7 Assessment of Students Performance**

The purpose of higher education is to make the students capable of using knowledge and understanding to identify, clarify and provide best possible solutions to issues and emerging problems relating to individual, workplace, society and the country. Students are required to gain the multiple skills to make them capable of serving the purposes of higher education. Students gain these multiple skills through the achievement of intended learning outcomes of study programs. Assessment of student performance is a systematic process of collecting, analyzing and interpreting information to determine the extent to which intended learning outcomes have been achieved. Assessment creates a basis for judgment on the performance of student. Effective and appropriate performance assessment procedure is very important to judge the level of attainment of learning outcomes and skill development. Student performance assessment represents a set of strategies for the acquisition and application of knowledge, skills, and work habits through the performance of tasks that are meaningful and engaging to students. The ultimate objective of the program is preparing the students to function as outstanding workers and contributors in a fast-paced workplace where the emphasis is on using information rather than just knowing facts. In so doing, the entity ensures that the students ascend through the hierarchy of learning, and also puts special emphasis on how students achievements of learning outcomes are rendered.

At department of pharmacy, the student performance is evaluated on the scale of 100 marks for each theoretical and lab course. The process of evaluation is based on the following activities:



<b>Evaluation type</b>	<b>Marks (%)</b>	<b>Examination type</b>
Continuous Assessment	20	Class tests, assignments/presentation and class participation.
Mid-term Examination	30	Held in the middle of the semester
Final Examination	50	Held at the end of the semester
<b>TOTAL</b>	<b>100</b>	

#### **For Lab courses**

<b>Evaluation type</b>	<b>Marks (%)</b>	<b>Examination type</b>
Quiz test	30	Quiz test, assignment
Viva	20	Based on basic theoretical knowledge and lab experiments
Lab final exam	50	Based on lab experiments
<b>TOTAL</b>	<b>100</b>	

- **Standard 5-9: Assessment procedure should be comprised of a set of multiple activities to measure the attainment of learning outcomes and skills.**

To make students competent in their future profession and to deal with the complexities in real life situations, the institution aims at meeting the higher learning domains- Analyze, Evaluate and Create, as guided by Bloom's Taxonomy. When preparing the course outline, the faculties carefully formulate goals, objectives, outcomes and assessment methods, and check if all the levels of required order of learning are addressed. The faculties devise the assessment methods in such a manner that enable the students make critical interpretations and demonstrate high levels of insight and sophistication in their thought process. The following table presents examples of the kinds of parameters and levels are used for assessment of multiple

types of learning objectives for quality education. The categorization of learning objectives is taken from Bloom's Taxonomy.

**Table 6.1: Learning objectives and assessment procedures**

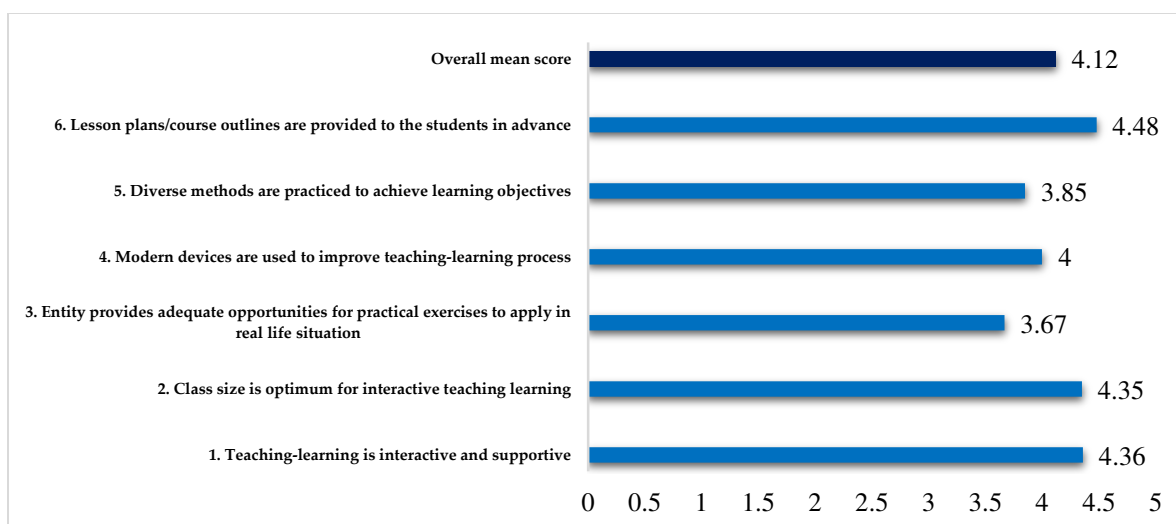
Learning objectives	Examples of assessments
<b>Remember</b> Students will be able to: <ul style="list-style-type: none"> <li>• Recall</li> <li>• Recognize</li> </ul>	<ul style="list-style-type: none"> <li>• Definitions</li> <li>• Fill in the blanks</li> <li>• Multiple Choice Questions</li> </ul>
<b>Understand</b> Students will be able to: <ul style="list-style-type: none"> <li>• Interpret</li> <li>• Exemplify</li> <li>• Classify</li> <li>• Summarize</li> <li>• Infer</li> <li>• Compare</li> </ul>	Papers, oral/written exam questions, problems, class discussions, assignments that require: <ul style="list-style-type: none"> <li>• Summarizing</li> <li>• Comparing and/or contrasting two or more theories, events, processes, etc.</li> <li>• Classifying or categorizing elements, events, etc., using established criteria</li> <li>• Paraphrasing documents or speeches</li> </ul>
<b>Apply</b> Students will be able to: <ul style="list-style-type: none"> <li>• Execute</li> <li>• Implement</li> </ul>	Activities include: <ul style="list-style-type: none"> <li>• Problem sets, Computer lab activities, Simulations.</li> </ul>
<b>Analyze</b> Students will be able to: <ul style="list-style-type: none"> <li>• Differentiate</li> <li>• Organize</li> <li>• Attribute</li> </ul>	Activities that require students to discriminate or select relevant from irrelevant parts, determine how elements function together, or determine bias, values or underlying intent in presented materials. These might include: Case studies, Critiques, Debates, Concept based

	questions etc.
<b>Create</b>	Research projects
Students will be able to:	
<ul style="list-style-type: none"> <li>• generate</li> <li>• plan</li> <li>• produce</li> </ul>	

## 6.8 Stakeholders' Feedback

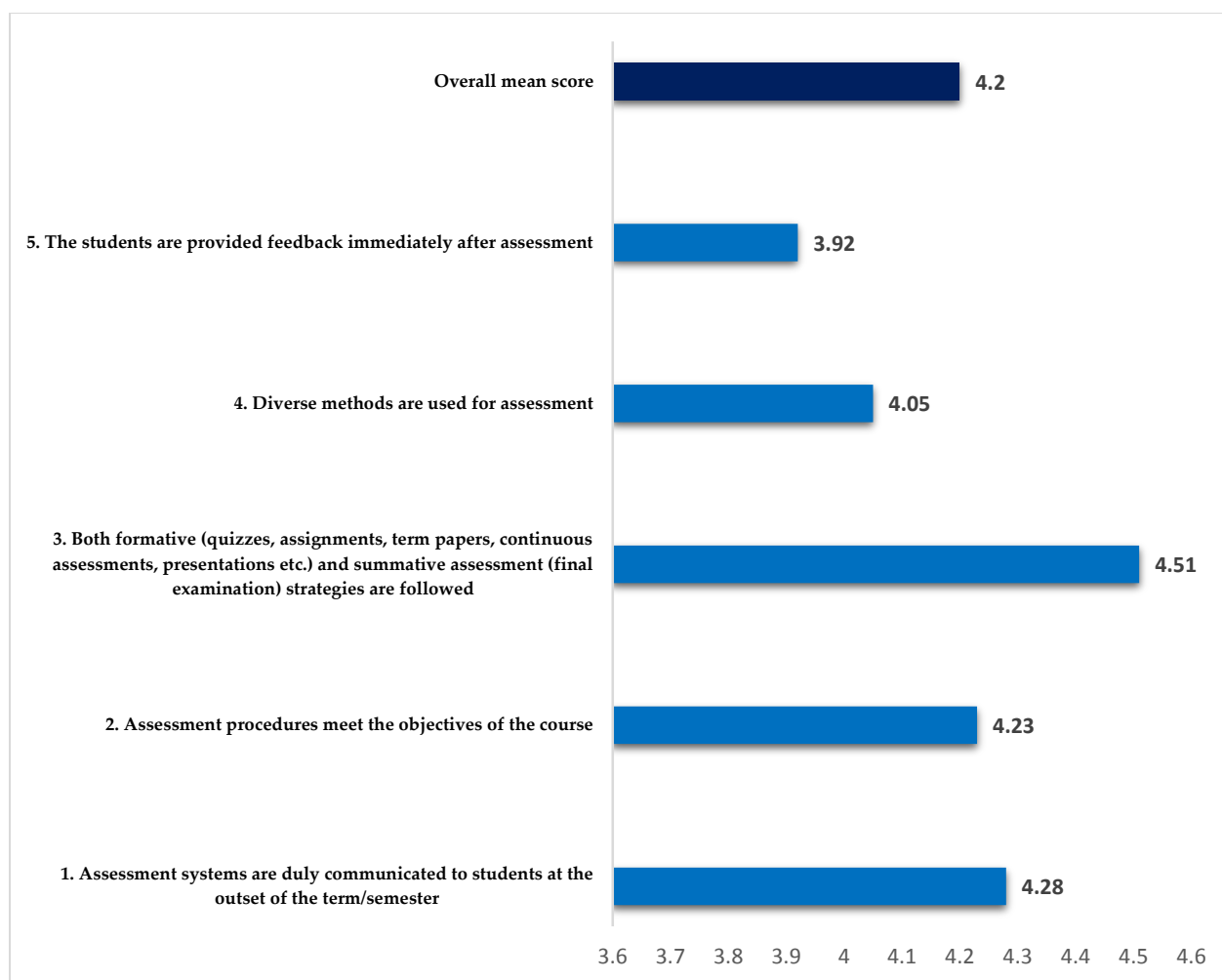
### A. Students

Total 395 students were assessed and it was observed that 91% students agreed that Teaching-learning is interactive and supportive, only 3% disagreed about it and 6% were undecided. 92% students thought that Class size is optimum for interactive teaching learning; 5% of total students disagreed in this matter and only 4% were undecided. 63% students agreed that Entity provides adequate opportunities for practical exercises to apply in real life situation; but 16% students did not mention so and 21% gave no concrete decision. 79% students mentioned that Modern devices are used to improve teaching-learning process; but only 10% students did not agree with it and other 11% were undecided. 68% students said that diverse methods are practiced to achieve learning objectives, 10% students disagreed and 22% were undecided. 90% students agreed that Lesson plans/course outlines were provided to the students in advance, 4% students did not agree about it and 6% neither agreed nor disagreed (Appendix-V and supplementary table 14.a and figure 6.1.a)



**Figure 6.1.a: Overall and item wise mean scores of students evaluation about teaching-learning**

The evaluation average scores toward teaching-learning range from 3.67 to 4.48. All mean scores are significantly above from 3. From (Appendix-V and supplementary table 14.b and figure 6.1.b) it can be observed that 86% students agreed that Assessment systems are duly communicated to students at the outset of the term/semester, 4% did not agree on it and 9% were undecided. Similarly, 88% students said that Assessment procedures meet the objectives of the course; while 4% did not say so and 9% were undecided. 92% students thought that both formative (quizzes, assignments, term papers, continuous assessments, presentations etc.) and summative assessment (final examination) strategies are followed; but 2% disagreed about it and 6% neither agreed nor disagreed. 79% students stated that diverse methods are used for assessment; 8% disagreed to it and other 13% gave no clear decision. 76% students agreed that the students are provided feedback immediately after assessment; while 13% disagreed about it and 12% gave neutral opinion.



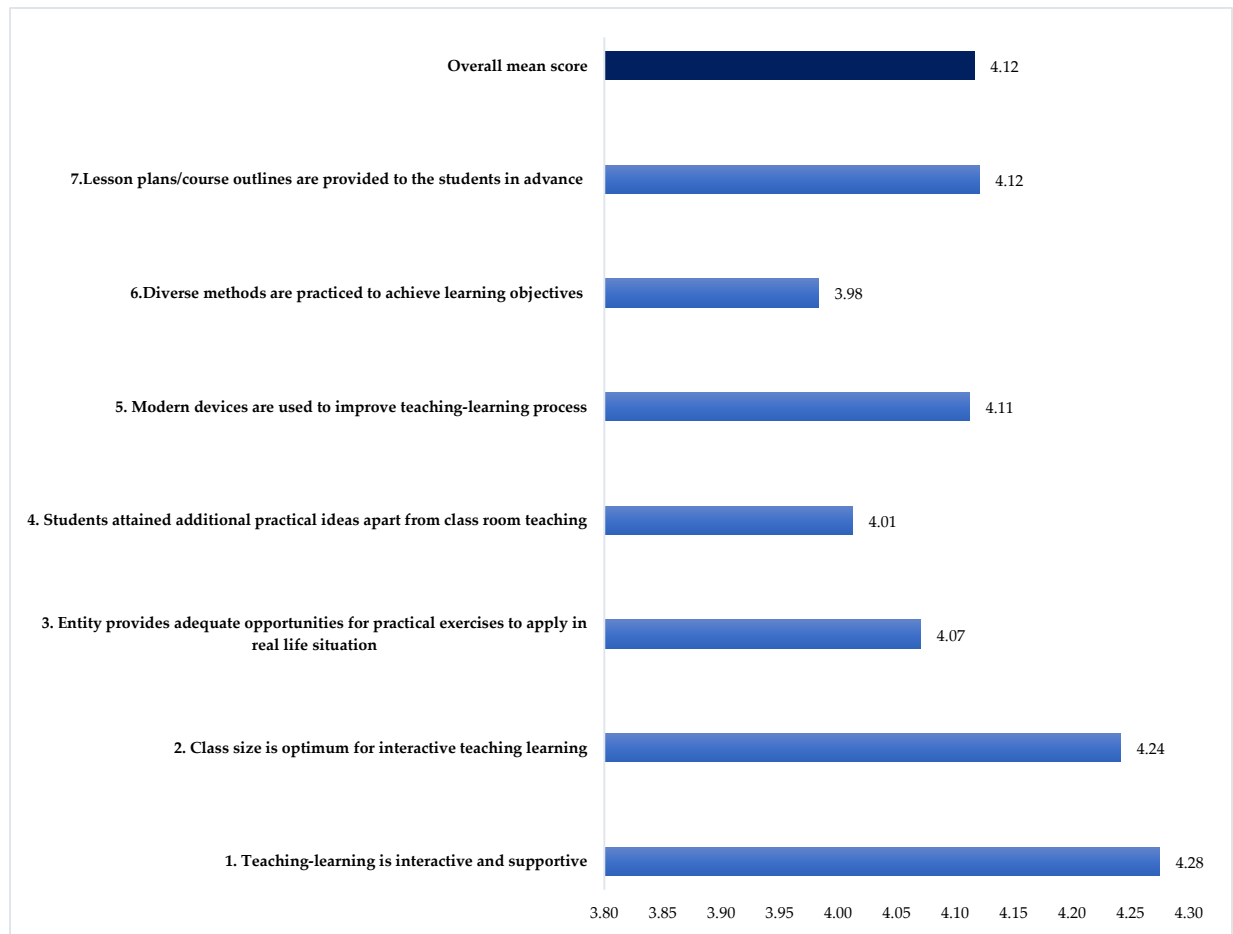
**Figure 6.1.b: Overall and item wise mean scores of students evaluation about learning assessment**

The evaluation average scores toward learning assessment range from 3.92 to 4.51. All mean scores are significantly above from 3.

## **B. Alumni**

Total 240 alumni were interviewed and survey result indicates that 92% respondents replied that Teaching-learning is interactive and supportive, and 8% were undecided. 92% respondents said that Class size is optimum for interactive teaching learning and other 8% gave no comment. 85% respondents agreed that Entity provides adequate opportunities for practical exercises to apply in real life situation; only 2% disagreed

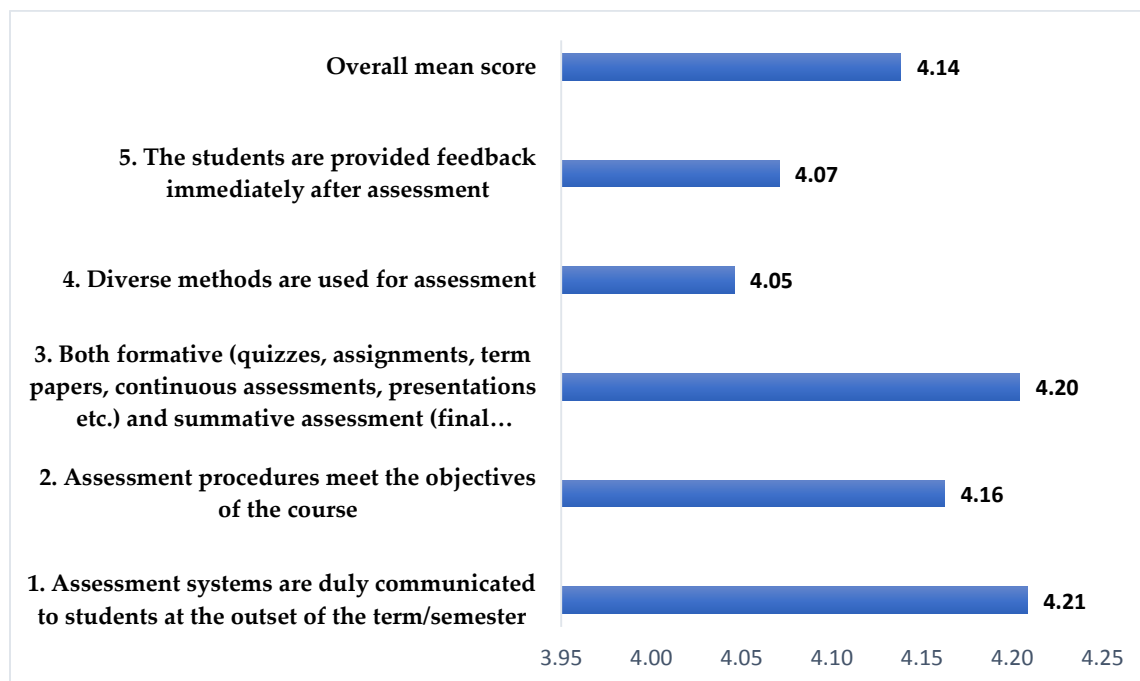
with this issue and 13% were undecided. 83% alumni answered that Students attained additional practical ideas apart from class room teaching; only 3% did not agree on it and 15% said nothing. 83% respondents agreed that Modern devices are used to improve teaching-learning process, only 2% disagreed with this issue and 14% neither agreed nor disagreed. 79% alumni thought that diverse methods are practiced to achieve learning objectives, 3% did not think so and 18% remain undecided. 85% alumni agreed that Lesson plans/course outlines are provided to the students in advance, 2% disagreed with that and 13% were undecided (Appendix-V and supplementary table 15.a and figure 6.2.a).



**Figure 6.2.a: Overall and item wise average score of alumni's evaluation about teaching-learning**

The mean scores are range from 3.98 to 4.28. And all mean scores differ from 3 significantly.

Additionally (Appendix-V and supplementary table 15.b) reveals that 91% alumni said that Assessment systems were duly communicated to students at the outset of the term/semester; while 2% did not say so and 7% remain undecided. 89% respondents agreed that Assessment procedures meet the objectives of the course, only 1% disagreed about it and 11% were undecided. 90% agreed that both formative (quizzes, assignments, term papers, continuous assessments, presentations etc.) and summative assessment (final examination) strategies are followed, 1% argued with them and 8% said noting. 84% respondents agreed that diverse methods are used for assessment; 2% disagreed with that and 14% were undecided. 86% alumni agreed that the students are provided feedback immediately after assessment; while only 2% disagreed about this issue and 11% neither agreed nor disagreed (Figure 6.2.b).



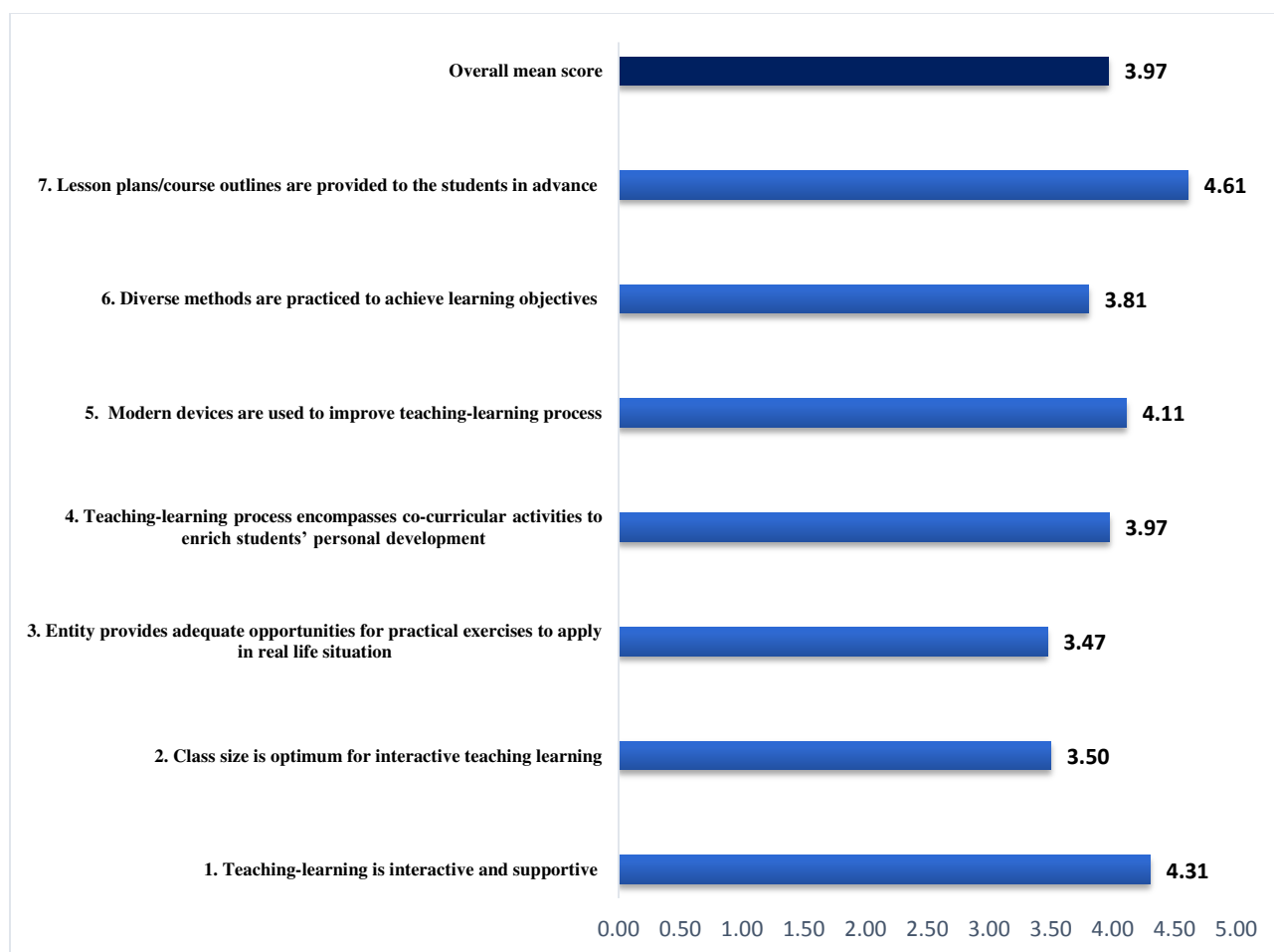
**Figure 6.2.b: Overall and item wise average score of alumni's evaluation about learning assessment**

Alumni's evaluated mean scores about different aspects of learning assessment are varying from 4.05 to 4.21. Since all mean scores are above 4, so they are significantly differing from 3.

### **C. Faculty**

Total 36 faculty members were surveyed and it was observed that all (100%) faculties agreed that Teaching-learning is interactive and supportive. 53% respondents said that Class size is optimum for interactive teaching learning; while 22% did not say so and other 25% gave no concrete decision. 53% faculties agreed that Entity provides adequate opportunities for practical exercises to apply in real life situation; while 19% disagreed about it and 28% were undecided. 81% respondents thought that Teaching-learning process encompasses co-curricular activities to enrich students personal development; 8% did not think so and other 11% were undecided. 86% faculties agreed that Modern devices are used to improve teaching-learning process; while only 3% argued with them and 11% gave no decision. 67% believed that Diverse methods are practiced to achieve learning objectives and 33% remain undecided about this issue. 97% respondents agreed that Lesson plans/course outlines are provided to the students in advance and 3% neither agreed nor disagreed (Appendix-V and supplementary table 16.a and Figure 6.3.a).

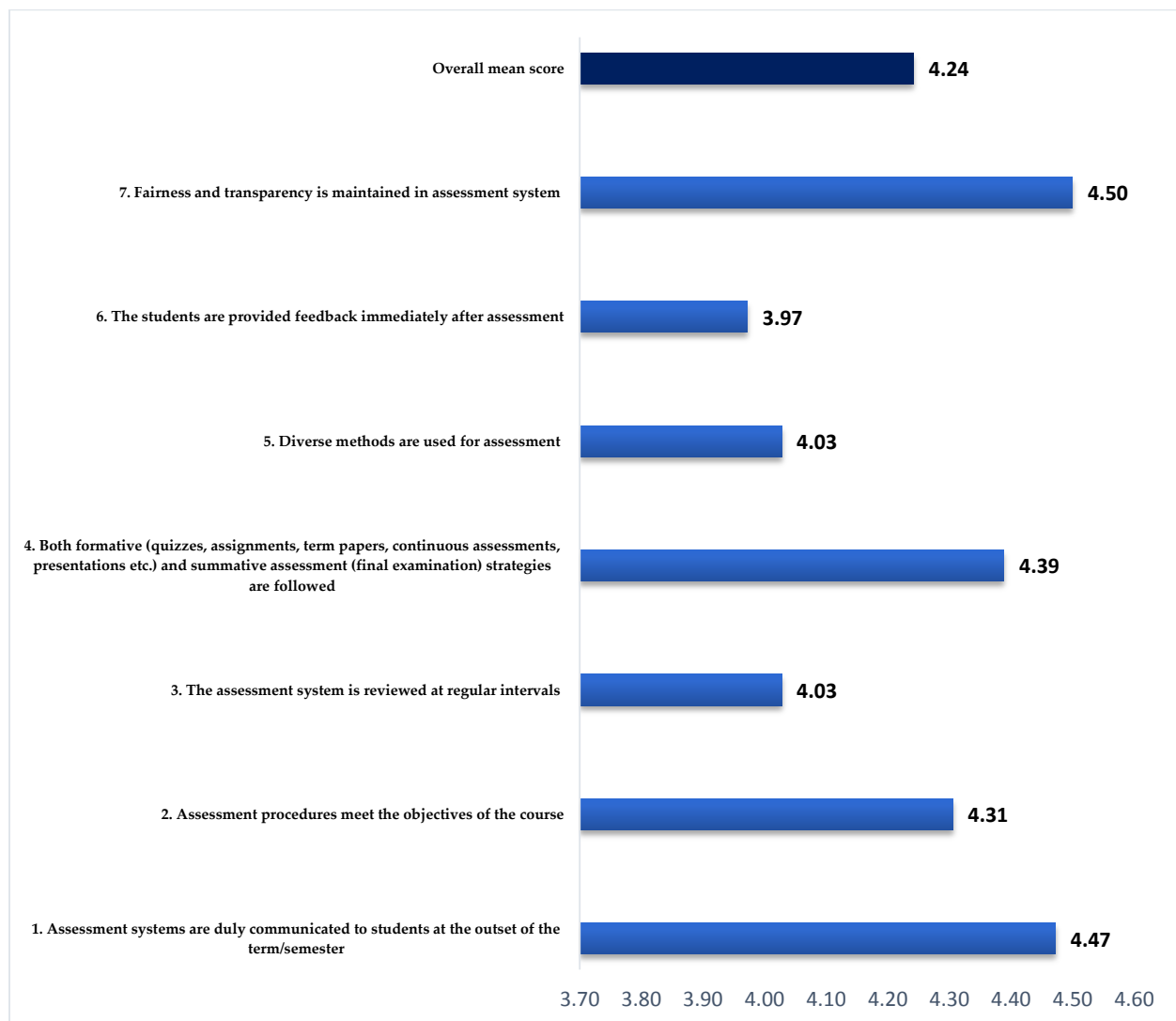




**Figure 6.3.a: Overall and item wise average score of faculties evaluation about teaching-learning**

Faculties evaluated mean scores for different aspects of teaching –learning also significantly higher than 3. Furthermore it was seen that 95% faculties agreed that Assessment systems are duly communicated to students at the outset of the term/semester and 5% were undecided. 97% respondents said that Assessment procedures meet the objectives of the course and 3% gave no decision. 73% faculties replied that the assessment system is reviewed at regular intervals and other 27% were undecided. 94% faculties thought that both formative (quizzes, assignments, term papers, continuous assessments, presentations etc.) and summative assessment (final examination) strategies are followed and 6% were undecided. 86% respondents agreed

that diverse methods are used for assessment; but 6% disagreed about this issue and 11% neither agreed nor disagreed. 83% respondents agreed that the students are provided feedback immediately after assessment; while 6% disagreed on it and 11% were in neutral position. Finally, all (100%) respondents believed that Fairness and transparency is maintained in assessment system (Appendix-V and supplementary table 16.b and Figure 6.3.b).



**Figure 6.3.b: Overall and item wise average score of faculties evaluation about learning assessment**

As teaching-learning assessment, faculties evaluated mean scores about several items of learning assessment also significantly higher than 3.

**Question on teaching-learning and assessment** *“Teaching-learning is interactive and supportive”*

Total 395 students, 240 alumni and 36 faculties were surveyed and among them 192 students, 11 faculties and 89 alumni strongly agree on it; while 167 students, 25 faculties and 131 alumni agree with it; 25 students and 18 alumni are undecided, 8 students, 1 alumni are disagreed and 3 students, 1 alumni strongly disagree with this issue.

**Survey results:**

Stakeholders/ Respondent category	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	Total
<b>Students</b>	3	8	25	167	192	395
<b>Faculties</b>	0	0	0	25	11	36
<b>Alumni</b>	1	1	18	131	89	240

**Question on teaching-learning and assessment:** *“Both formative (quizzes, assignments, term papers, continuous assessments, presentations etc.) and summative assessment (final examination) strategies are followed”*

Total 395 students, 240 alumni and 36 faculties were surveyed and among them 246 students, 16 faculties and 75 alumni strongly agree on it; while 117 students, 18 faculties and 142 alumni agree with it, 25 students, 2 faculties and 20 alumni are undecided, 3 students and 3 alumni are disagreed and 4 students, strongly disagree with this issue.

**Survey results:**

<b>Stakeholders/ Respondent category</b>	<b>Strongly disagree</b>	<b>Disagree</b>	<b>Undecided</b>	<b>Agree</b>	<b>Strongly agree</b>	<b>Total</b>
<b>Students</b>	4	3	25	117	246	395
<b>Faculties</b>	0	0	2	18	16	36
<b>Alumni</b>	0	3	20	142	75	240

## **CHAPTER 7**

### **STUDENT SUPPORT SERVICE**

Student support services are to meet the personal and academic needs of the students. It contributes to the social and academic development of the students; enhance quality learning experience and educational achievement of the students by meeting their diverse needs. Student support services facilitate to build a student-level community that creates a sense of belongingness, friendly and congenial academic environment through socialization, collaborative efforts and student involvement. In addition to academic activities, University of Asia Pacific always emphasizes on co-curricular activities, counseling, academic advising, personal and professional development and financial support for underprivileged students. Directorate of Students Welfare (DSW), a central body to guide and support students in this regard.

#### **7.1 Academic Guidance and Counseling**

Academic environment at the tertiary education is significantly different from that of secondary level. It is very critical to guide the students so that they can cope with the challenges and opportunities of university life. Sufficient and proper academic guidance and counseling beyond regular class-room lecture time is very effective in making the students serious regarding studies and motivate them to explore the ever expanding frontier of knowledge.

At the very beginning of the students entrance in UAP, firstly they get full assistance from Admission Office at our main city campus. Students also get proper direction for payment and fees related quires through Departmental Administrative Officers (DAOs) and the Central Finance and Accounts Section of UAP. Each faculty member is assigned to a separate batch in a semester for advising students for their registration, course selection, academic progress, providing guidance and counseling in all academic

related matters. Each faculty member has specific counseling hours to facilitate students learning and overcoming their weaknesses in academic matters.

The faculty advisors play a central role for students academic counseling helping with the following issues:

- Dates and deadlines
- University policies and procedures
- Transfer of credits
- Academic withdrawals
- Letters of permission
- Exam policies
- Understanding grades and academic records
- Registration procedures
- Withdrawal procedures
- Program requirements
- Emotional and personal support
- Deal with specific problems

Social Counseling Center (SSS) is playing very important role for personal counseling, psychotherapy, and psychological and consultation of students and staff also. The Centre is working constantly to promote the psychological, educational, and social well-being of the student of UAP and to help prepare them to be productive members of society.

**Standard 6-1: Academic guidance and counseling should be formalized with proper documentation.**

### **7.1.1 Class Attendances**

Students are required to attend all lectures, tutorials, and lab works of the courses that they have registered. Required percentage of attendance is mandatory for a student to be eligible to sit in the semester final examination.

### **7.1.2 Eligibility for Semester Final Examination**

- No student shall be eligible to take part in any semester final examination unless:
- S/he is officially registered for particular course(s);
- S/he has fulfilled the required percentage (70% and above) of class attendance and other requirements
- S/he has fulfilled the required payments of fees and charges etc.

### **7.1.3 Policy for Repeat Exam**

A student would be allowed to appear at the Repeat Examinations in case s/he fails in three theory courses or less but not exceeding 10 credit hours. The results of Repeat Examinations would be published within three weeks from the date of publication of the results of the semester Final Examination concerned. The respective departments would arrange such Repeat Examinations.

Candidates willing to appear at such Repeat Examinations must apply to the respective heads of departments through the advisors stating their willingness to appear at the said examination with the receipt of payment @ TK 3000/ per course within five working days after the semester final results are published

Repeat Examinations on theory course would be held on 50 percent of marks for each course and the marks for Class Assessment and Mid Semester Examination would be carried. There shall be no repeat examinations for seasonal course. The maximum grade to be obtained by a student in a repeat examination would be 'B'(equivalent to 60%). The following grading system would be followed in the repeat examinations.

New System		Old System	
60% and above	B	60% and above	B-
55% to less than 60%	B-	55% to less than 60%	C+
50% to less than 55%	C+	50% to less than 55%	C
45% to less than 50%	C	45% to less than 50%	C-
40% to less than 45%	D	40% to less than 45%	D
Less than 40%	F	Less than 40%	F

#### 7.1.4 Policies for Improvement of Grades

The provision for improvement of grades applies to those only who obtained a grade C or lower in any course. Such candidates may be allowed to improve their grades by surrendering the earlier grade obtained by him or her. This provision for improvement of grades in any semester final examination can be divided into two categories.

##### Category A:

1. For grade improvement purpose, the student will be allowed to repeat a maximum of four courses for four-year programs and a maximum of five courses for five-year programs.
2. For availing such provision of grade improvement a candidate will apply to the Controller of the examinations through the Head of the respective department with a fee of Tk. 3,000/= (Three Thousand Taka only) per credit hour. A student may apply for such provision any time during his or her study in the University of Asia Pacific but not beyond two weeks after the publication of his/ her Final semester results.

##### Category B:

1. A cumulative grade point average (CGPA) of minimum 2.25 is required for graduation. A candidate whose CGPA is below 2.25 shall have to increase his or her CGPA to the minimum requirement within two consecutive semesters failing which s/he shall be placed under academic provision



2. Candidates requiring to increase their CGPA under this category shall apply to the Controller of Examinations through the Head of the Department concerned with the payment of Tk. 3000/= (Three Thousand Taka only) per credit hour.

## **7.2 Co-curricular and Extra-curricular Activities**

Co-curricular and extra-curricular activities are the integral part of the skill development mechanism. The Pharmacy department is a regular in organizing and participating in a variety of extra-curricular and co-curricular activities, workshops and seminars beyond the inflexible of the classroom. The various events, sports and recreational programs along with study tours are arranged through different clubs regularly.

**Standard 6-2: Organization and Participation in co-curricular and extra-curricular activities should be recognized as an integral part of skill development mechanism and quality education.**

### **7.2.1 Departmental Club Activities**

A number of fully functional clubs are active within the department. These include Pharma Science Society, Pharmacy Debating and Quiz Club, Social Awareness Club, Cultural Club, Sports Club and Photography Club. Programs like blood donations, winter cloth distributions, oral saline supply to flood victims, debating and quiz competitions, cultural programs, cricket and football tournaments, indoor games competitions, photography exhibitions and annual picnic are all executed by these clubs. Aside from the clubs, regular poster presentations, wall magazine display and study tours are organized every year by the department.



**Seminar on 'Higher Studies Abroad' organized by Pharma Science Club**



**'Pharma Fiesta 2017' organized by Pharma Science Club**



**'Brain Fest 2' organized by Tarkik (Debating Club)**



**'Poster Exhibition' organized by Pharma Science Club**





**Seminar on 'Pharmaceutical Operations' organized by Seminar Organizing Committee**



**Seminar on 'Pharma Market and Marketing' organized by Seminar Organizing Committee**



**Seminar on 'Career Development' organized by Seminar Organizing Committee**

### **7.2.2 Sports Facilities**

A lot of indoor and outdoor games and sports tournaments are being organized throughout the year by Sports club of Department of Pharmacy of University of Asia Pacific which is one of most active club of the department involved in arrangement of indoor and outdoor sports in the department on regular basis. Activity of this club brings joy and festivity among the students and staffs, bringing students together for participating in different games which ultimately improves the brotherhood among the students of different semesters and also promote their leadership, management and competency skills. Sports club usually arranges Intra Department Football Tournament in Spring semester and Intra Department Cricket Tournament and Indoor Games Event in the Fall semester. Additionally UAP has an indoor sports center situated in the 1st floor of UAP city campus. This center has indoor games facilities such as table tennis and carom. In addition the central facility UAP annually arranges intra and inter-

departmental sports tournaments, giving the students opportunity to develop team spirit, sporting and competitive attitude among themselves.

Department of Pharmacy regularly organizes co-curricular and extra-curricular activities, in complement with our academic program, are designed to motivate students and enhance the total skill development with leadership of our students. The schedule for these activities is planned at the very beginning of the semester so that academic activities are not hampered. Banners are displayed with event information are placed at a visible and suitable location before the commencement of the programs.

**Standard 6-3: Co-curricular and Extra-curricular activities should be encouraged with reasonable time to participate.**

### **7.2.3 Photography Facilities**

A home for all Photography enthusiasts club that was formed by the Department of Pharmacy, University of Asia Pacific has been working its way to find the likeminded young people from 2012 under the name of Photophilic. From the beginning the club members tried their outmost to search for young talents in photography. And for this purpose, three grand photography exhibitions along with two mobile photography contests took place in the last 5 years.



**Exhibition of Photography and Art Work' organized by Photophilic  
(Photography Club)**

#### **7.2.4 Cultural Activities**

With the purpose of encouraging students with an interest in performance either as on stage or off stage contributor, UAP has formed the Pharmacy Cultural Club. The club is designed to provide a venue for exploration of various aspects in the cultural feat for the exchange of ideas amongst students who share a common interest. Students who enjoy all aspects of the performing arts (singing, dancing, recitation and acting) are encouraged to join the club as they learn the skills and rehearse for each spectacular show.

The chief objective of the club is to broaden the extra-curricular horizons, by promoting creative activities amongst the students and to uphold the name and fame of UAP by reaching out to the other institutes at home and abroad through excellence in various cultural programs. The students of Pharmacy department develop their own



cultural club and thus have the opportunity to demonstrate their talent and creativity in cultural activities. The club provides a learning experience for the members in building up their leadership and decision making skills as students are responsible for the organizing, funding, public relations, regulating, and scheduling activities for the clubs under the direction of the faculty coordinator.

The activities of the Pharmacy Cultural Club includes arranging the orientation and farewell program on behalf of the department every semester, arranging cultural programs to celebrate special occasions like beginning of Bengali New Year and marking the birthanniversary of Nobel Laureate Bengali poet Rabindranath Tagore. On a national event to be organized by UAP Cultural Club, the Pharmacy Cultural Club will represent the department and the club will select participants from the department for the program or competition to be held.



**‘Boishakh and Rabindra Jayanti’organized by Cultural Club**





**‘Pitha Utshob’ organized by Cultural Club**

### **7.2.5 Study Tour**

Study tours within and outside the country are organized every semester for the students to allow the deserved break from the intensive Pharmacy curriculum. Students and teachers from different batches participate in these tours visiting various places with academic and historical significance, spanning the country and abroad.

Students of 32nd and 33rd batch, Department of Pharmacy successfully completed a study tour in India. They started their journey on 1st March, 2016 with 57 students and 6 faculty members from Dhaka. The group visited Jadavpur University in Jadavpur, Kolkata and explored the Bioequivalence laboratories of the Department of Pharmacy. Among their travel plan was famous places like UNESCO World Heritage Site QutubMinar, one of the wonders of the world Tajmahal and architectural beauty Agra Fort. They also enjoyed the natural beauty of Jammu and Kashmir. After the duration of 18 days they safely reached Dhaka on 19th March, 2016.



**Study Tour of 33<sup>rd</sup> and 34<sup>th</sup> Batch**

#### **7.2.6 CentralClub Activities under DSW**

DSW is the central hub for all types of cultural programs for students and staff in UAP. It is responsible for arranging co-curricular and extracurricular activities regularly for the university, such as:

- Cultural programs, such as drama, celebration of national and international events such as Pohela Boishakh, International Mother Language Day, Independence Day, and Victory Day etc.
- Competitions in Debate, Public Speaking, Art, Music, Photography etc
- Outdoor and indoor games and sports, such as Cricket, Football and Table Tennis etc
- Community volunteer works, such as Voluntary Blood Donation Campaigns, Cleaning public places, environmental awareness programs etc.

- Seminars and workshops such as, grooming session, training session, symposia on formal writing and etiquette, workshops on interview techniques and corporate networking
- Club Fairs, Study Tours, Picnics etc.

These activities are generally held under the supervision of a central club listed below:

<b>SI</b>	<b>Club Name</b>	<b>Name of the Advisor</b>	<b>Department</b>
<b>1</b>	<b>Cultural club</b>	Ms. Layeqa Bashir	Basic Science and Humanities
<b>2</b>	<b>Drama Club</b>	Dr. Mahmudul Alam	EEE
<b>3</b>	<b>Literary Club</b>	Md. Shazed-Ul-Hoq Khan Abir	English
<b>4</b>	<b>English Language Club</b>	NellufarYeasmin	English
<b>5</b>	<b>Football Club</b>	Md. Saleh Akram	Law
<b>6</b>	<b>Cricket Club</b>	A.H.M. Zadidul Karim	EEE
<b>7</b>	<b>Basket Ball Club</b>	Md. Masrur Mamun Hossain	Architecture
<b>8</b>	<b>Indoor Games Club</b>	Molla Rashied Hussein	CSE
<b>9</b>	<b>Public Speaking and Debating Club</b>	Md. Lokman Hussain	Law
<b>10</b>	<b>Social Awareness (Welfare) Club</b>	Ms. Mahjabeen Gazi	Pharmacy
<b>11</b>	<b>Film and Photography Club</b>	Muhtadin Iqbal	Architecture
<b>12</b>	<b>Entrepreneur Club</b>	Ms. SadiaTangem	DBA





Club Fair at UAP



Workshop on Parliamentary Debate



**Drama Club organized a workshop on “Fundamentals of Drama”**



**UAP organizes a seminar on “Mental Health and Academic Performance”**

### **7.3 Career and Placement**

Quality of graduates is mostly measured by the employability and their capacity for their contribution they make to the organizations, community and national development. In Department of Pharmacy, student advisors play a vital role to guide and mentoring students about their career planning and placement. Department has a strong student alumni association which helps students greatly to move into the pharmaceutical sectors for fresh graduates. Career counseling and placement arrangement can play a very critical role to get the right job opportunities and select suitable career. Career counseling and activities relating to placement of graduates need to be done on a regular basis under the management of a permanent administrative setup.

University of Asia Pacific has center Career Counseling Centre (CCC), established under DSW, provides career advisory services to the students that continues throughout the studentship at the University, and beyond as a member of the UAP Alumni. The CCC evaluates the market need and arranges lectures, seminars, workshops, discussions, mock interviews etc to hone the inherent management skill of the students so that they are better positioned for the best job opportunities.

CCC is responsible for the following functions:

- Internship Placement
- Job Placement
- Arranging workshops and seminars
- Training Program
- Job Fair and Career Fair
- Graduate Database/Profile
- Employer Database
- Company Visit



- Relationship Development
- Career Planning
- **Standard 6-4: Career counseling and activities relating to placement of graduates need to be done on regular basis under the management of a permanent administrative set up.**



**Workshop on 'Career Planning'**

### 7.3.1 Internship of Fresh Graduates

Pharmaceutical In-Plant training, which is a mandatory part of the B. Pharm. Curriculum, exposes the students to practical applications of education so as to bridge the gap between Industry and University curriculum and upgrade their technical skills. In the Curriculum it is mentioned as a zero credit course with course code as 'Pharm 407' and course title as 'Practical Training'. After completion of the Final exam the outgoing students join different leading Pharmaceutical companies of the country to complete their training. The companies usually offers our students to get this opportunity includes - Square Pharmaceuticals Ltd., BeximcoPharma, Incepta Pharmaceuticals Ltd., Eskayef Bangladesh Ltd., ACME Laboratories Ltd., Aristopharma Ltd., OpsoninPharma, Orion Pharma, Beacon Pharmaceuticals Ltd., Ziska Pharmaceuticals Ltd., General Pharmaceuticals Ltd., IbneSina Pharmaceuticals Ltd., Jayson Pharmaceuticals Ltd., Renata Pharmaceuticals Ltd., Apex Pharma Ltd., Desh Pharmaceuticals Ltd., Navana Pharmaceuticals Ltd., ACI Pharmaceuticals Ltd., Rangs Pharmaceuticals Ltd., Healthcare Pharmaceuticals Ltd., etc. Among multinational companies Sanofi Bangladesh Ltd., Glaxo SmithKline Bangladesh Ltd., Sandoz Ltd., regularly offer our students the opportunity to complete in-plant training in their world class factories. Every semester, on an average, 80-90 students complete their In-plant training in the above mentioned Pharmaceutical Industries. Most of the companies offer this training program for the duration of 2 to 4 weeks. In this period, the students gather practical knowledge and experience regarding the manufacturing process of different dosage forms, In process control procedure, Quality control procedure, Validation process, Packaging technology, Regulatory guidelines and so on. After completion of the training, they get a certificate from the Pharmaceutical Company which bears importance in their Professional life. This is also important to get the certificate of registered pharmacist which is given by Bangladesh Pharmacy Council.



#### 7.4 Alumni Services

Well organized alumni association is very effective to get in touch with the industry and working life. It would also help the university to develop institutional network and university industry collaboration for promoting research and placement of the graduates. Department of Pharmacy has a fully functional alumni association named Ex. Pharmacy Students Association (EPSA). Through an alumni association former students stay connected to the university and support it with their work, wisdom and wealth. Alumni engage on and off campus activities that expand and strengthen the connections between them, students and teachers. This engagement will come through educational programs (working with students and faculty), cultural and promotional programs and other activities. The alumni will be connected with and informed of the University's programs and activities and create an effective alumni network. The Alumni Association will engage with current students to share the heritage and traditions of University and the significant role that they as alumni can play after graduation.

- **Standard 6-5: The university and program offering entities should have well organized and meaningful alumni association to support the quality education efforts.**
- **Standard 6-6: The university and program offering entities should have a formal system to collect alumni feedback on the effectiveness of academic programs, emerging changes in the industry and working life.**
- **Standard 6-7: The university and program offering entities should organize programs relating to career guidance and university industry collaboration (UIC) with the active participation of alumni association.**

#### 7.5 Community Services

The quality assurance system needs to ensure that the university makes a significant contribution to the community, society and country. Community involvement is an

effective way of understanding the social issues and working with people. Community involvement will provide students with opportunity to synthesize academic learning with real life situation and contribute to the community development.

University of Asia Pacific is working for social development from very beginning of its formation from various aspects. It has preserved six percent of total seats for children of Freedom Fighters and for poor meritorious students from remote underdeveloped regions of Bangladesh and offered up to full tuition fee waiver. Additionally 10%-100% VC's special tuition fee waiver is there for the poor and meritorious students in each semester. Department of Pharmacy has an active and fully functional pharmacy social awareness club where interested students are active members and involved different types of social works like arranging seminars connected with social issues, blood donation campaign, winter cloth distribution, oral saline preparation and distribution among flood affected people etc.

- **Standard 6-8: Students have the opportunity to involve themselves in community services under the management of the program offering entity in an organized manner on a regular basis.**

For example if take a glance on 2016 and 2017, we can see various events were performed by pharmacy social awareness club in UAP.

- Social Awareness Club, UAP conducted a Blood Donation Program in cooperation with the Quantum Foundation. In this camp, volunteers of different departments of the university participated cheerfully. Students were the major donors and faculties were the motivators. During the camp total 120 volunteers participated in the registration process and after preliminary on-site medical screening for health history, body weight and blood pressure

nearly 94 individuals were selected for the donation. These 94 donors were screened for Hepatitis B, Hepatitis C, Syphilis, AIDS, Malaria at free of cost. The donors were also given a donor card from Quantum Foundation.

- Pharmacy Social Awareness Club, UAP jointly organized a seminar with Blue Sky Charitable Foundation (BSCF) titled “Early Detection and Challenges of Breast Cancer in Bangladesh”
- Pharmacy Social Awareness Club of UAP held its 'Winter Cloth Distribution Program' on January 8, 2016. The students and faculties of the department enthusiastically took steps towards contributing to the program. About 300 pieces of blankets were bought and 8 sacks of winter clothes were collected in order to distribute these among the needy and less privileged cold affected people of Jhargaon area of Thakurgaon district.



**Social Awareness Club organized a Blood Donation Program**



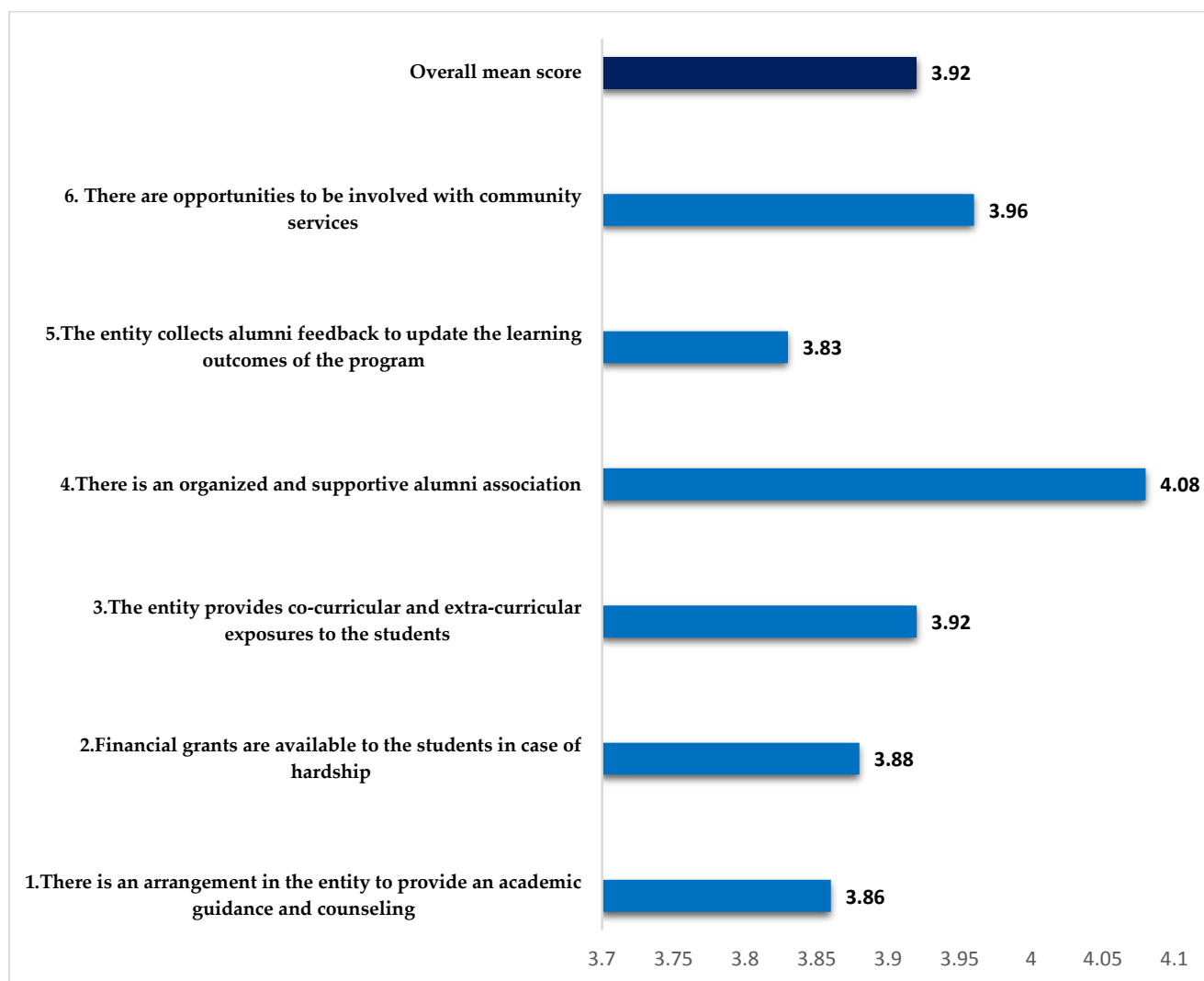
**UAP Pharmacy Department Distributes Winter Clothes**

## **7.6 Stakeholders' Feedback**

### **A. Students**

Among 295 students 73% students commented that there is an arrangement in the entity to provide an academic guidance and counseling; while 13% students did not agree with this statement and 15% were undecided. Similarly, 73% students thought that financial grants are available to the students in case of hardship; 12% students did not agree with this statement and 15% were undecided. 73% students agreed that the entity provides co-curricular and extra-curricular exposures to the students; 9% disagreed about it and 17% were undecided. 76% students agreed that there is an organized and supportive alumni association; while 9% gave opposite opinion and 15% were undecided. 66% students agreed that the entity collects alumni feedback to update the learning outcomes of the program; 9% did not agree with it and 25% were undecided. 71% students agreed that there are opportunities to be involved with

community services, 10% disagreed about it and other 18% neither agreed nor disagreed (Appendix-V and supplementary table 17 and Figure 7.1).



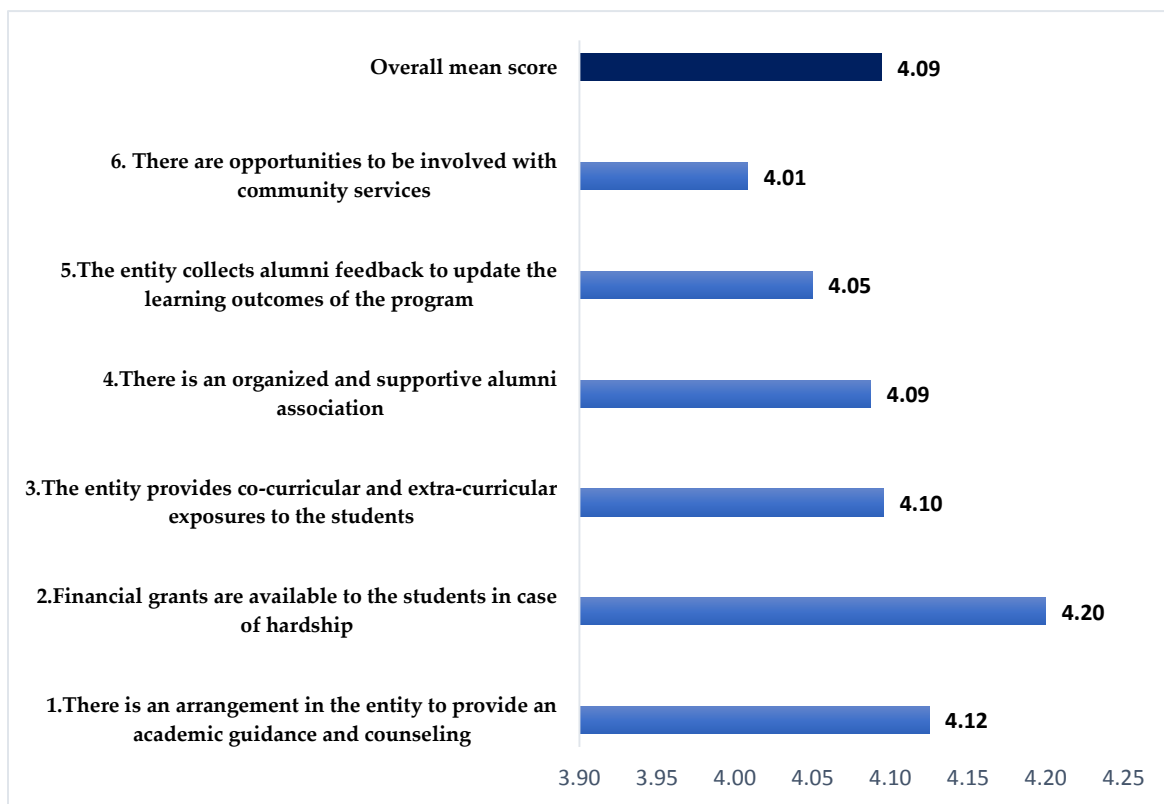
**Figure 7.1: Overall and item wise average score of student support services by students**

The mean scores are ranging from 3.83 to 4.08. These mean scores are significantly higher than 3.

## **B. Alumni**

Among 240 alumni 86% alumni agreed that there is an arrangement in the entity to provide an academic guidance and counseling; while only 5% alumni disagree with this

demand and 10% were undecided. 91% respondents said that financial grants are available to the students in case of hardship and 9% remain undecided. 89% interviewees replied that the entity provides co-curricular and extra-curricular exposures to the students; only 1% replied opposite and other 9% neither agreed nor disagreed. 87% respondents answered that there is an organized and supportive alumni association, only 2% argued with them and 12% were undecided. 85% alumni thought that the entity collects alumni feedback to update the learning outcomes of the program; while 2% did not think so and 13% gave no decision. Finally, 83% respondents agreed that there are opportunities to be involved with community services, only 3% did not agree with them and other 13% neither agree nor disagree (Appendix-V and supplementary table 18 and Figure 7.2).

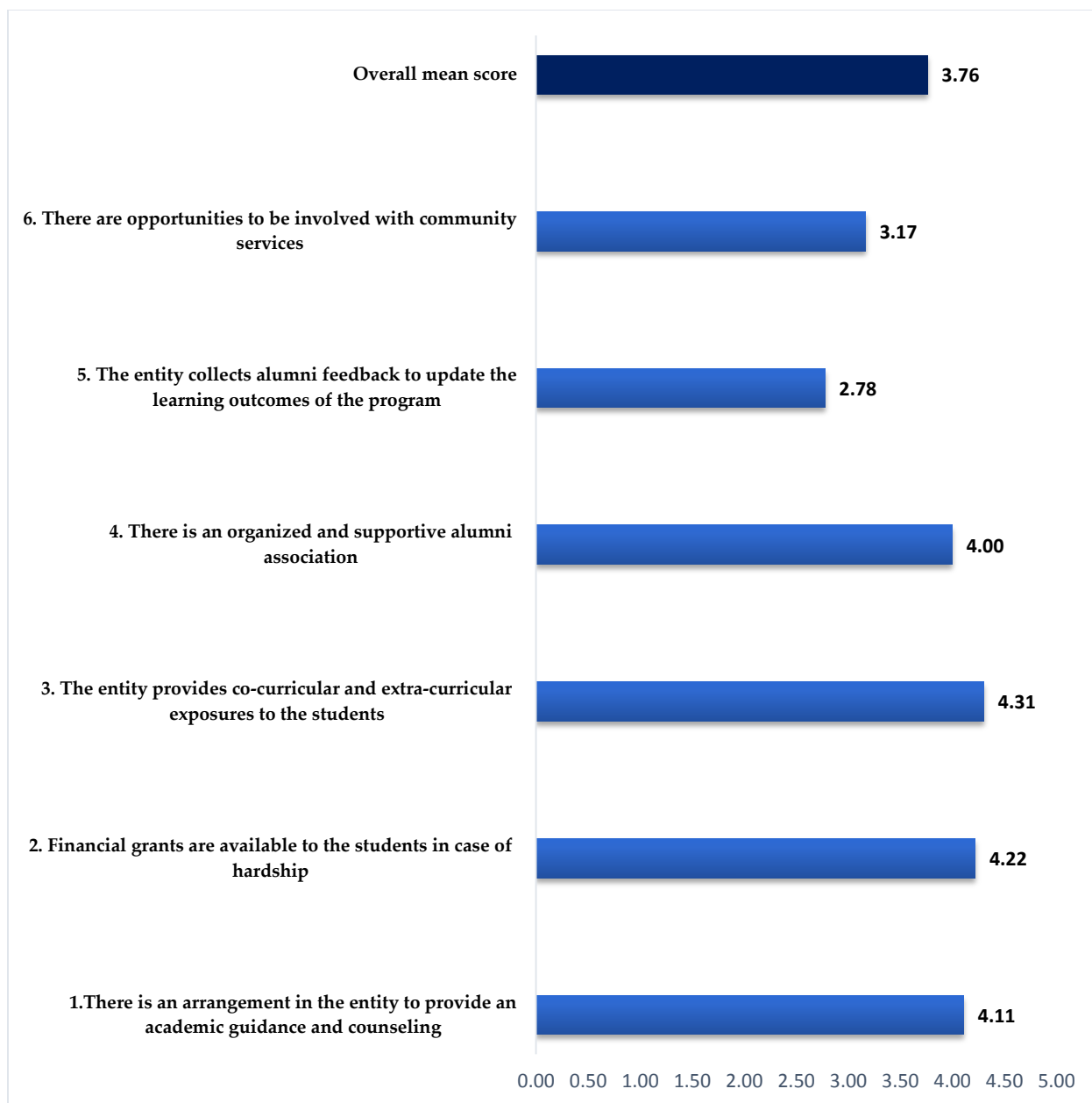


**Figure 7.2: Overall and item wise average score of alumni's evaluation about Student Support Services**

All mean scores are above 4 and ranging from 4.01 to 4.20. Consequently, all mean scores are significantly higher than 3.

### **C. Faculty**

Among 36 faculties 86% faculties agreed that there is an arrangement in the entity to provide an academic guidance and counseling; while 3% faculties disagree with this demand and 11% were undecided. 86% respondents said that Financial grants are available to the students in case of hardship, 6% did not say so and 8% remain undecided. 94% interviewee replied that the entity provides co-curricular and extra-curricular exposures to the students and other 6% neither agreed nor disagreed. 78% respondents answered that there is an organized and supportive alumni association, 8% argued with them and 14% were undecided. 25% faculties thought that the entity collects alumni feedback to update the learning outcomes of the program; while 36% did not think so and 39% gave no decision. Finally, 47% respondents agreed that there are opportunities to be involved with community services, 22% did not agree with them and other 31% neither agree nor disagree (Appendix-V and supplementary table 19 and Figure 7.3).



**Figure 7.3: Overall and item wise average score of faculties evaluation about Student Support Services**

The lowest mean score is 2.78 for “The entity collects alumni feedback to update the learning outcomes of the program” and has scope to improve. 6<sup>th</sup> item’s mean score is 3.17; but does not differ significantly from 3 (p-value>0.05). Other item mean scores are significantly higher than 3.



**Question on students support service**“*The entity provides co-curricular and extra-curricular exposures to the students*”

Among 395 students, 240 alumni and 36 faculties, 119 students, 13 faculties and 54 alumni strongly agree on it; while 171 students, 21 faculties and 160 alumni agree with it; 69 students, 2 faculties and 22 alumni are undecided, 27 students and 3 alumni are disagreed; and 9 students, 1 alumni strongly disagree with this issue.

**Survey results:**

<b>Stakeholders/ Respondent category</b>	<b>Strongly disagree</b>	<b>Disagree</b>	<b>Undecided</b>	<b>Agree</b>	<b>Strongly agree</b>	<b>Total</b>
Students	9	27	69	171	119	395
Faculties	0	0	2	21	13	36
Alumni	1	3	22	160	54	240

## **CHAPTER 8**

### **STAFF AND FACILITIES**

Academic and non-academic staffs are the major players in teaching learning and research along with the students in a university. Efficiency and commitment of these staffs are the key success factors to all academic activities and quality assurance system. Department of Pharmacy is very proud of its passionate, enthusiastic, and highly qualified teaching staff which includes twenty seven full-time, four inter-departmental and sixteen part-time faculty members. The full-time faculties are expert academicians and researchers from renowned universities at home and abroad such as Dhaka University, Rajshahi University, Jahangirnagar University and University of Leicester, UK ; Kanazawa University, Japan; China Pharmaceutical University, China; University of Nottingham, UK and Nigata University, Japan They all have extensive knowledge and experience in their professional field harmonized by highly competent part-time faculty members from University of Dhaka and different pharmaceutical industries such as Square Pharmaceuticals Limited, Sanofi Bangladesh, Incepta Pharmaceuticals, Aristopharma Limited, Radiant Pharmaceuticals. The department offers teaching and research activities in modern well-equipped classrooms using specialist teaching and learning materials and laboratories purpose-designed to a high standard for providing a motivating learning environment that meet the needs of the profession. It has also 12 technicians, two Departmental Administrative Officers (DAO) and one teaching assistant. To develop the team, the university follows recruitment rules applicable to all department as well as specific rules for each department.

## 8.1 Recruitment

- **Standard 7-1: In order to select the right person for the right job university must have a transparent, fair, appropriate and properly documented recruitment policy, specifying the entry qualifications and outlining the key stages for both academic and non-academic staffs.**

### 8.1.1 Faculty Recruitment

Department of Pharmacy always tries to recruit highly qualified faculty members. Over the years it has not compromised its fair and transparent recruitment process of qualified personnel through a grand bard viva comprised with vice-chancellor, pro vice chancellor, register, treasurer, board of trustee member, Departmental head and external expertise on subject matter.

**Table 8.1: General principles applicable to all departments**

<b>1. Nature of appointment</b>	All appointments in teaching positions are treated as independent appointments.
<b>2. Basic requirements</b>	A candidate must not possess a Third Class/Division in any public examination.
<b>3. Publications</b>	<p>a. Publications in recognized and referred journals/proceedings are counted.</p> <p>b. Publications in other proceedings of major national and international conferences and seminars may also be counted.</p> <p>c. Books written in the relevant field for Undergraduate/Postgraduate levels are considered as publications.</p> <p>d. Research monographs, Patents and contributions in</p>

---

standard published books may also be considered as publications.

e. Outstanding design works (judged by external experts) carried out officially are considered as publications

---

#### 4. Calculation of Experience

---

**a. Teaching experience**

Teaching experience in a position of lecturer or equivalent and above in the relevant discipline at any reputable University/Institution of higher learning including the UAP in graduate/undergraduate level is recognized as 'Teaching Experience'. In calculating the length of Teaching Experience the time spent on deputation to a non-teaching post, study leave and leave without pay (extra-ordinary leave), during which the person was not pursuing full time teaching at University level is not counted.

---

**b. Professional experience**

Time spent on full time regular or ad-hoc professional job other than teaching, in the relevant discipline, are counted as Professional Experience. Professional experience of two years is counted as equivalent to one year of teaching experience while calculating the length of service experience (but is not counted as Teaching Experience).

---

**c. Service experience**

Length of service experience includes 100% of teaching and 50% of professional experience. Half of the time spent on study leave (for study purposes to attain higher degrees), EL, ML and DL are added in calculating the length of service experience

---

---

(not as Teaching Experience). Time spent for study purposes (SL) refer to the actual duration of the higher degree program, subject to a maximum of 2 (two) years for Master Degree program and 3 (three) years for Ph.D Program.

Note: Period of part time teaching or part time experience is not

counted in calculating the length of service experience

---

5. These rules came into force with effect from 01.07.2003. However, members of the faculty, who joined the UAP prior to that date, may not fulfill these pre-requisites are deemed to have possessed the minimum requisite qualifications and experience on the day of their joining. This shortcoming will not also stand on their way to further advancements in the future.

---

6. The last date of submission of applications is the limit for calculation of the period of experience. Any application, in which the applicant does not fulfill the requisite qualifications on the last date of submission of application, is not processed.

---

### **Faculty recruitment guidelines for Department of Pharmacy**

#### **a. Appointment as Lecturer**

The candidate must possess CGPA-3.00 or first class B. Pharm with M.Pharm degree obtained from a recognized university/institution.

#### **b. Appointment as Assistant Professor**

The candidate must possess CGPA-3.00 or first class B. Pharm with M. Pharm degree obtained from a recognized university/institution plus 3 years of teaching experience or 4 years of service experiences of which 2 years must be teaching.

Or

The candidate must possess CGPA-3.00 or first class B. Pharm with M. Pharm degree and an M. Phil. Degree obtained from a recognized university/institution plus 2 years of teaching experience or 3 years of service experiences of which 1 year must be teaching.

Or

The candidate must possess CGPA-3.00 or first class B. Pharm with M. Pharm degree and PhD degree in relevant discipline obtained from a recognized university/institution. In this category selection board may recommend for additional increments considering number of publications and research of the candidate.

All candidates must have at least 1 publication.

### **c. Appointment as Associate Professor**

The candidate must possess CGPA-3.00 or first class B. Pharm with M. Pharm degree obtained from a recognized university/institution plus 9 years of teaching experience or 13 years of service experiences of which in both cases at least 5 years in active teaching in the post of Assistant professor.

Or

The candidate must possess CGPA-3.00 or first class B. Pharm with M. Pharm degree and M. Phil. degree obtained from a recognized university/institution plus 8 years of teaching experience or 11 years of service experiences of which in both cases at least 5 years in active teaching in the post of Assistant professor

Or

The candidate must possess CGPA-3.00 or first class B. Pharm with M. Pharm degree and PhD degree in relevant discipline obtained from a recognized university/institution plus 7 years of teaching experience or 9 years of service experiences of which in both cases at least 5 years in active teaching in the post of Assistant professor

All candidates must have at least 5 publications.

#### **d. Appointment as Professor**

The candidate must possess CGPA-3.00 or first class B. Pharm with M. Pharm degree and Ph.D degree in relevant discipline obtained from a recognized university/institution plus 11 years of teaching experience or 14 years of service experiences of which in both cases at least 8 years in active teaching in the post of Assistant professor and/or above of which at least 3 years must be in the post of Associate Professor. All candidates must have at least 10 publications. There is no documented rule for recruitment of non-academic staffs. Qualifications for different posts are available from vacancy announcements at different times.

**Table8.2: Teaching load policy for full time faculty members of UAP**

Faculty position	Course load	Course distribution requirements
Lecturer	18 contact hours	Minimum 3 credit hours theory courses
Assistant professor	15 contact hours	Minimum 6 credit hours theory courses
Associate professor	12 contact hours	Minimum 6 credit hours theory courses
Professor	9 contact hours	Minimum 6 credit hours theory courses and
Head of Department	9 contact hours	supervisions of at least one projet group.

**Table 8.3: Qualifications for different posts in Administration**

Position	Department/Section	Qualifications
<b>Registrar</b>	Administration	Master degree with good academic background. Dynamic, energetic, capable of working under pressure, ability to provide administrative support to the Vice Chancellor and to the Board of Trustees. Relevant administrative experience of 15 years

		in similar position is essential.
<b>Deputy Registrar/ Assistant Registrar</b>	Administration	Candidates must have Master Degree with good academic background. Ability to run offices, maintain records and files, and produce quality staff work will be prime consideration for the posts. Previous experiences in private/public universities in similar positions will be an added advantage. Computer literacy and a good command of English are essential.
<b>*Administrative Officer</b>	Administration	Master degree with good academic background. Ability to run offices, maintain records and files and produce quality staff work. Computer literacy and good command over English are essential.
<b>*Assistant Administrative Officer</b>	Administration	Must have Master degree with at least two years relevant experience and having good command over English language and computer proficiency in Word processing (English and Bangla) and Database management.
<b>*Office Assistant</b>	Administration	Graduation in any discipline. Computer literacy is essential.
*Qualifications for the post vary depending on which department/section the person will be assigned for the job.		



**Table 8.4: Qualifications for the posts in library**

<b>Position</b>		<b>Qualifications</b>
<b>Deputy Librarian</b>	Central Library	Must have Master's degree in Library and Information Science with at least two years relevant experience as Deputy Librarian and Four years as Assistant Librarian in University and having good command over English language and computer proficiency in Word processing. Familiarity with automated Library Management System and Cataloguing Software is essential.
<b>Assistant Librarian</b>	Central Library	Must have Master's degree in Library and Information Science with at least two years relevant experience in University and having good command over English language and computer proficiency in Word processing. Familiarity with automated Library Management System and Cataloguing Software is essential.

### **8.1.2 Salary**

The University revises salary of academic and nonacademic staffs to maintain it at an attractive level.

- **Standard 7-2: Salary and incentives should be reasonable to attractive and retain the talented and experienced staff members.**

### 8.1.3 Bonus

Academic and non-academic staffs receive two festival bonuses in a year.

### 8.1.4 Provident Fund (Pf)

All permanent employees of the University of Asia Pacific (UAP) get the benefit of Provident Fund subject to the provision of PF rules.

**Table 8.5: Provident fund rules: University of Asia Pacific**

<b>Provident Fund</b>	<p>All employees of the University other than:</p> <ul style="list-style-type: none"><li>i. Persons who are in receipt of the pension from the Government and other bodies;</li><li>ii. Persons who are over the age of 60 when appointed;</li><li>iii. Part-time employees;</li><li>iv. (iv) Persons who are on deputation and holding pensionable posts under Government and other bodies; and</li><li>v. Persons appointed on a temporary basis for a period not exceeding one year and persons appointed in leave vacancies. Shall subscribe every month to the University Provident Fund except when on leave without pay:</li></ul> <p>Provided that an employee who has not served and contributed to the Provident Fund continuously for a minimum period of three years shall not receive anything beyond his deposits in the fund with interest accrued thereon:</p> <p>Provided further that notwithstanding the previous provisions, the University authority may at the time of making a particular appointment decide that the individual appointed to that particular post shall or shall not be a subscriber to the Provident Fund.</p>
-----------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

<b>Rate of subscription and contribution</b>	<p>A sum equal to 10% percent of the basic pay of all employees below the rank of administrative officer or equivalent, and 5% for all other employees, are deducted from the salary of each subscriber every month and paid into the Provident Fund and the University contributes an equal amount in respect of each subscriber in each month:</p> <p>Provided that the subscriber has already made contribution for twentyfour consecutive months In calculating the monthly pay on which deductions are to be made and contributions are to be paid any fraction of a taka of such monthly salary shall be omitted.</p>
<b>Mode of investment</b>	<p>A University Provident Fund account is opened in Bank in Dhaka to be decided by the University authority to which the total deductions from the pay of the University staff as well as the corresponding contributions from the University under paragraph (2) above are credited at the beginning of each month. All investments and securities are held jointly by the Vice Chancellor or the Treasurer. In the absence of the Vice Chancellor or the Treasurer, The Pro-Vice Chancellor or the Registrar respectively executes authority.</p>

#### **8.1.5 UAP Leave Rules**

**(Effective from 1st July 2003) Faculty as well as management staff**

**Table 8.6: Leave rules of UAP**

<b>SL No.</b>	<b>Name of Leave</b>	<b>Description</b>
1	<b>Casual Leave</b>	10 days in a calendar year. Not exceeding 3 days at a time. This leave will not accumulate.
2	<b>*Earned Leave</b>	14 days per 1 full year of service. Accumulation: 45 days

	(EL)	(max.)
3	<b>Sick Leave</b>	Included in Earned leave.
4	<b>Duty Leave</b>	The duration of leave are determined by the sanctioning authority on the basis of the mode of job
5	<b>**Study Leave</b>	Maximum 5 years (2 years for M. Sc./MS/M. Phil. & 3 years for Ph.D. 25% of the last drawn basic pay is paid for total duration of leave which are subject to joining at the UAP and submission of bond regarding further continuation of active teaching of not less than 2 years of the total active teaching of 5 years at UAP. Total amount of 25% is paid as per the following procedure. I. 25% of the amount is paid in the first month of joining. II. Rest 75% is paid in equal monthly installments during the next 2 years.
6	<b>***Maternity Leave</b>	60 days with full pay and 30 days without pay

\* Those, which have availed no leave up-to 30-06-2003, are deemed to have accumulated leave up to that date to the extent of 28 days @ 14 days each completed year of service.

\*\*Study leave are entitled to a full-time faculty serving the UAP for not less than 1 year. Study leave implies no break in study during leave period.

\*\*\*A female employee serving the UAP for not less than 1 year is entitled to Maternity leave.

This leave can be granted to an employee for a maximum of 2 occasions at two years interval during the entire service life in the UAP.

**A.** Weekly and public holidays can be prefixed and suffixed or both with Casual Leave/Earned Leave/ Maternity Leave.

**B.** Period of study leave is counted as service in the UAP for the purpose of annual increment, provident fund and gratuity. Period of extra-ordinary leave (leave without pay) are not counted as service in the UAP for any purpose. Service in the UAP means service in any post in the UAP.

**C.** Every full time faculty will retire from the UAP from his/her 65th birth-day. After retirement the UAP may employ him/her on contract for a further period of 2 years (maximum) on negotiated fixed remuneration with approval of the Board of Governors, depending on his/her health conditions and the needs of the UAP.

- **Standard 7-3:Academic Staff are working as a team with high level of sincerity**
- **Standard 7-4: Faculty-members are very serious and keen to enhance professional knowledge and skills through research and higher study leading to PhD degree.**

## **8.2 Staff Development**

University must have a well-organized and functioning staff development center. Department of Pharmacy holds training programs and sends faculties to other universities for training purposes to modernize teaching methods and improve professional skills.

The institution facilitates substantial training and orientation for the academic staff to ensure effective guidance and counseling. In addition to communicating the statements of rules & regulations of UAP, effective teaching pedagogy, learning style, significance of quality education, discipline & essence of code of conduct are elaborated during the Orientation Program workshop for newly recruited faculty members. With a view to explicating the role of the teacher in creating effective learning environments, sharing active teaching and learning strategies and developing outcome based curricula, UAP

has initiated Improving Learning and Teaching Skills (ILTS). The ten-week long faculty development program is conducted by the UAP Pro Vice-chancellor as the primary resource person and chief coordinator, veteran faculty members of UAP and also external resource persons.

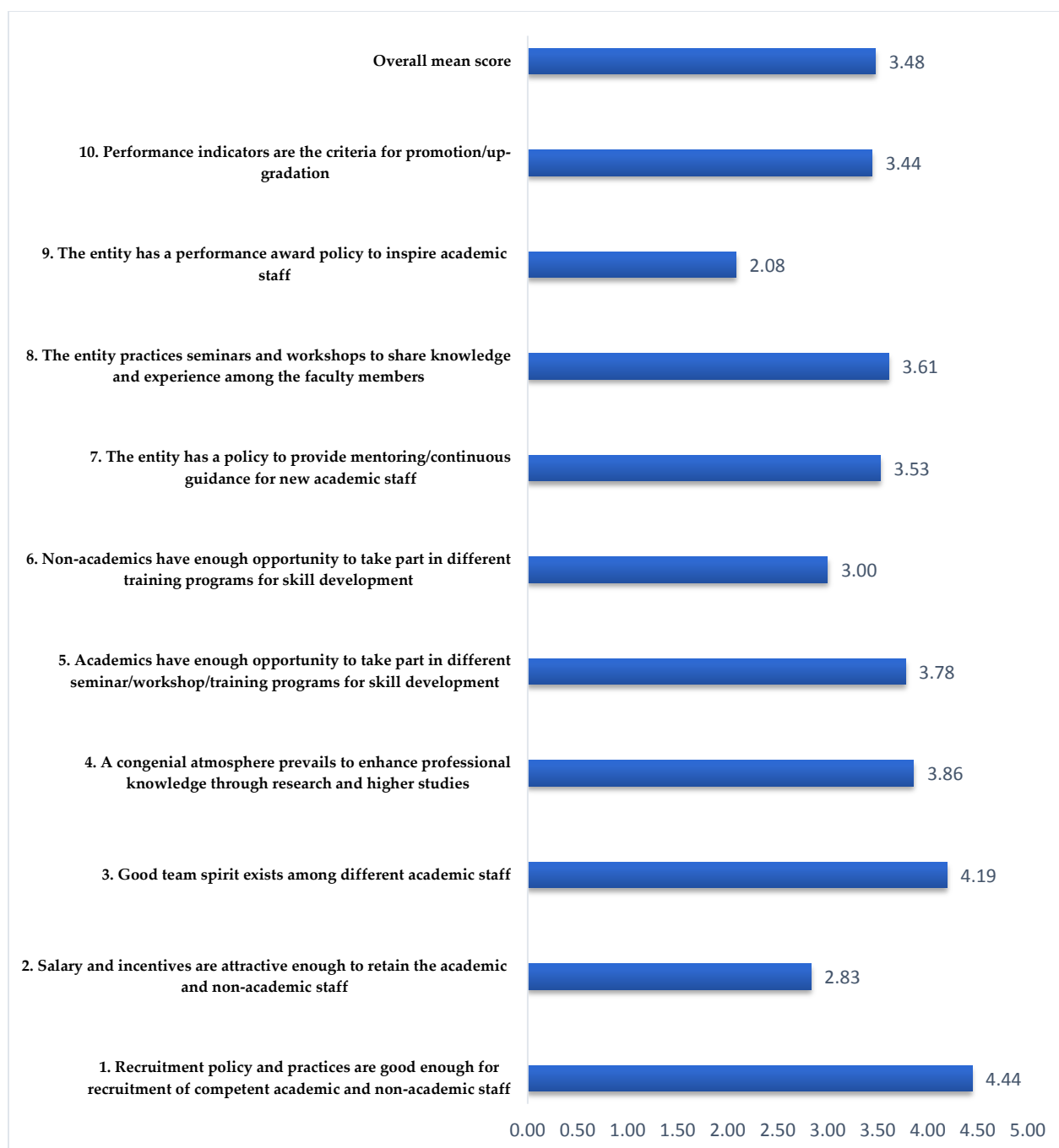
- **Standard 7-5: All academic staff must have training or orientation for effective academic guidance and counseling.**

### **8.3 Stakeholders' Feedback**

#### **A. Faculty**

Total 36 faculty members were interviewed and 94% respondents agreed that Recruitment policy and practices are good enough for recruitment of competent academic and non-academic staff, and only 6% were undecided. 42% respondents said that Salary and incentives are attractive enough to retain the academic and non-academic staff; but 41% argued with them and 17% mentioned no clear opinion. 95% respondents agreed that Good team spirit exists among different non-academic staff, 2.5% disagreed with this statement and 2.5% were undecided. 75% faculties thought that a congenial atmosphere prevails to enhance professional knowledge through research and higher studies; while 11% did not think so and 14% said nothing. 75% respondents believed that Academics have enough opportunity to take part in different seminar/workshop/training programs for skill development, 9% did not agree with this belief and other 17% gave no decision. 34% respondents said that Non-academics have enough opportunity to take part in different training programs for skill development; but 27% did not think so and 39% remain undecided. 64% respondents mentioned that the entity has a policy to provide mentoring/continuous guidance for new academic staff; but 17% did not mention so and only 19% were undecided. 59% respondents agreed that the entity practices seminars and workshops to share knowledge and

experience among the faculty members, 14% disagreed on it and 28% were undecided. 14% faculties agreed that the entity has a performance award policy to inspire academic staff; but 61% did not agree with this issue and other 25% neither agreed nor disagreed. Finally, 55% respondents agreed that Performance indicators are the criteria for promotion/up-gradation, 17% argued this statement and 28% remain undecided (Appendix-V and supplementary table 20 and figure 8.1).



**Figure 8.1: Overall and item wise average score of faculties evaluation about Staff and Facilities**

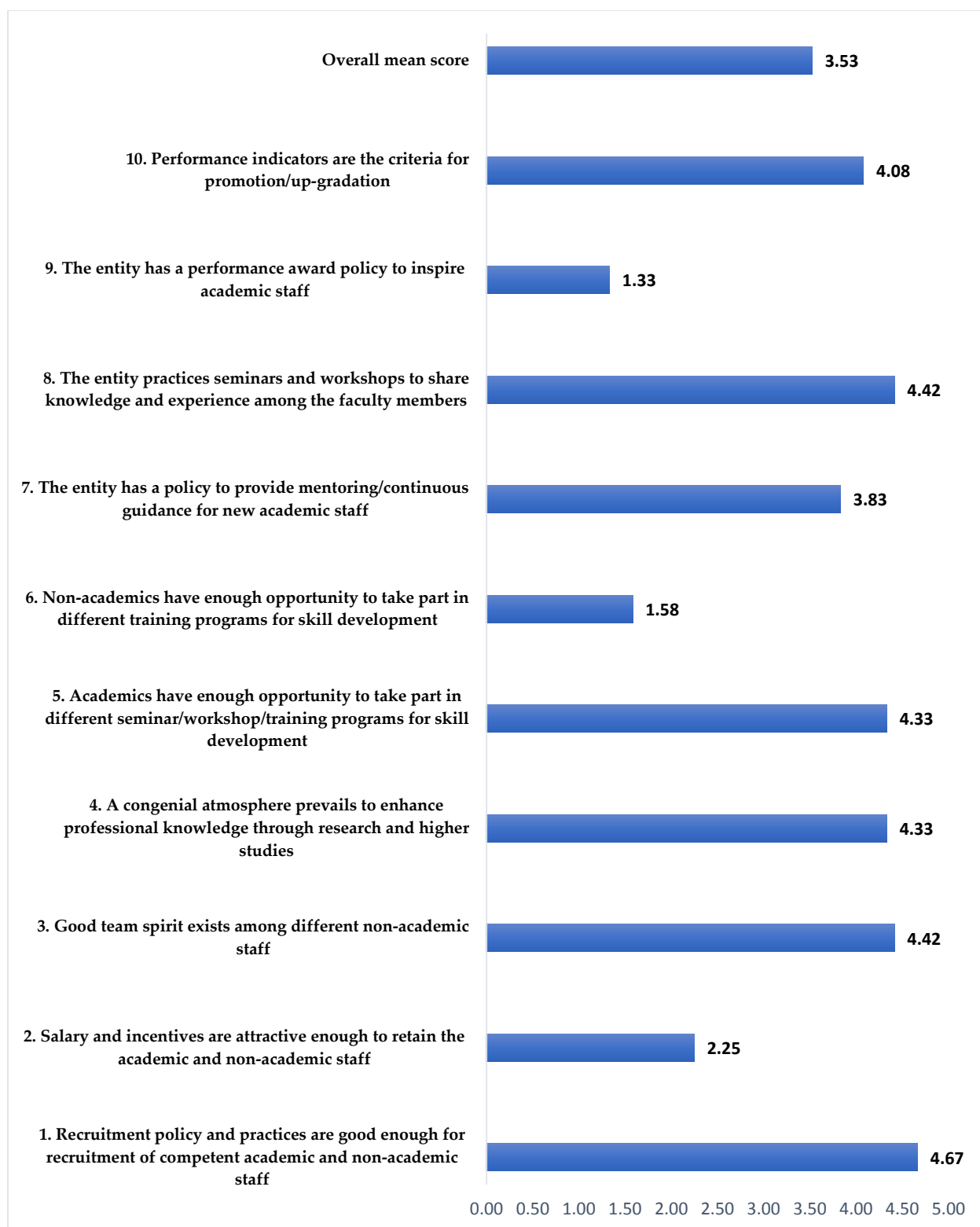
The lowest mean score is 2.08 of “The entity has a performance award policy to inspire academic staff” and significantly lower than 3. Mean score (2.83) of “Salary and incentives are attractive enough to retain the academic and non-academic staff” is also



lower than 3; but does not differ significantly. However, mean score of “Non-academics have enough opportunity to take part in different training programs for skill development” is exact 3. Other criteria’s mean scores are significantly above from 3.

#### **B. Non-academic staff**

Total 12 non-academic staffs were surveyed and 91% respondents agreed that Recruitment policy and practices are good enough for recruitment of competent academic and non-academic staff, 8% disagreed about this issue. 25% respondents said that Salary and incentives are attractive enough to retain the academic and non-academic staff; but 58% argued with them and 17% mentioned no clear opinion. 75% respondents agreed that Good team spirit exists among different non-academic staff and 8% disagreed with this statement and the rest 17% neither agreed nor disagreed. 84% staffs thought that a congenial atmosphere prevails to enhance professional knowledge through research and higher studies; while 17% did not think. 75% respondents believed that Academics have enough opportunity to take part in different seminar/workshop/training programs for skill development, 8% did not agree with this belief and other 17% gave no decision. Only 8% respondents said that Non-academics have enough opportunity to take part in different training programs for skill development; but 92% did not think so. 75% respondents mentioned that the entity has a policy to provide mentoring/continuous guidance for new academic staff; but 25% did not mention so. 83% respondents agreed that the entity practices seminars and workshops to share knowledge and experience among the faculty members and 17% were undecided. Only 8% staffs agreed that the entity has a performance award policy to inspire academic staff; but 92% did not agree with this issue. Finally, 75% respondents agreed that Performance indicators are the criteria for promotion/up-gradation, 17% argued this statement and 8% remain undecided (Appendix-V and supplementary table 21 and Figure 8.2).



**Figure 8.2: Overall and item wise average score of non-academic evaluation about Staff and Facilities**

Figure 8.2 provides that mean scores of the different aspects range from 1.33 to 4.67. Sample size (12) is not adequate to perform t-test. By the way it is seen that the mean score of 6<sup>th</sup> and 9<sup>th</sup> item is very low than 3. Mean score of 2<sup>nd</sup> item is also lower than 3. Other items mean scores are above 3.

**Question on Staff and Facilities:** *“The entity practices seminars and workshops to share knowledge and experience among the faculty members”*

The result indicates that out of 36 faculties 6 faculties strongly agree that the entity practices seminars and workshops to share knowledge and experience among the faculty members; 15 agree on it, 10 are undecided and 5 disagree with this statement. On the other hand, out of 12 non-academic staffs, 7 strongly agree with that statement, 3 agree on it and 2 are undecided.

#### Survey results

Stakeholders/ Respondent category	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	Total
Faculties	0	5	10	15	6	36
Non-academic staffs	0	0	2	3	7	12

## **CHAPTR 9**

### **RESEARCH AND EXTENSION**

The prime objective of higher education is to create knowledge along with disseminate it to contribute for sustainable development and improvement of society as a whole. It is undeniable fact that research forms the basis of creativity and innovation, which are very critical for sustainable socioeconomic growth and development. Research also makes teaching learning effective and practice oriented.

#### **9.1 Research Policy and Program**

Since 1996, UAP is the pioneer in launching four years of Pharmacy (B. PharmHons.) program and one year Master of Science in Pharmaceutical Technology (MS. Pharm Tech) program. The Pharmacy department is one of the most progressive and established departments of the university as well as in the country. Following a bi-semester system, the of Pharmacy requires minimum 8 semesters to prepare students as pharmacists and the MS Pharm Tech requires minimum 2 semesters to instruct and train the graduate pharmacists for working as integrated members of health-care system.

The areas of strength of the Pharmacy department are its twelve highly equipped teaching and research laboratories which are complete with up-to-date analytical instruments and machineries for evaluation of various dosage forms, design and manufacture of dosage forms, understanding of microbial disease pathogenesis and transmission, study of bio-chemical and biological studies of potential drug substance of natural origin.

- **Standard 8-1: University must develop capacity with appropriate facilities and provisions to undertake research with national relevance and give due motivation and recognition to researchers.**

- **Pharmaceutics and Pharmaceutical Technology research**

Pharmaceutics and Pharmaceutical Technology Research Group is conducting the study of different validation methods, different drug delivery systems (like microsphere, pellets, biodegradable implants, self emulsifying drug delivery system-SEDDS, solid dispersion-SD, bilayer drug delivery system, liposomes and noisome drug delivery system), different dosage form like tablet, minitabket, bilayer tablet, compressible capsule etc., drug formulation, basic quality evaluations of raw, intermediate and finished products, drug delivery, drug release kinetics, protein binding of drugs, mixture design of dosage form and observation of polymeric interaction, crystallization and nano-crystallization, Dissolution and solubility enhancement of poorly soluble drugs by solid dispersion and using hydrophilic carrier, Biphasic oral solid drug delivery, Liquisolid technique, Self-emulsifying drug delivery and controlled release dosage form technology.

- **Pharmacology and Biotechnology research**

Biotechnology research lab is one of the most sophisticated labs in the Department of Pharmacy where plasmid DNA isolation, protein synthesis, PCR technology and polymorphism of different genes and other biotechnology related research works are performed.

- **Phytochemistry and Natural Products research**

This group works to explore the potential of medicinal plants of folklore medicinal uses. Isolation of Bioactive molecule, evaluation of analgesic and anti-inflammatory,

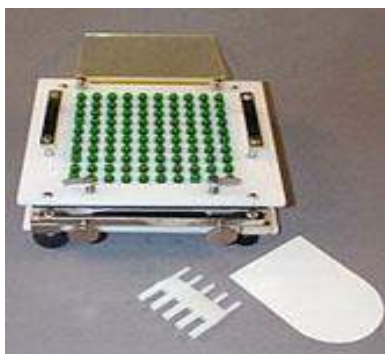
anthelmintic, antibacterial and antifungal, anticancer, antidiabetic, antidiarrhoeal, diuretic, hepatoprotective, and thrombolytic activity among others. Quantitative analysis of antioxidative components like total amount of phenolics, flavonoids and flavonols are estimated using spectrophotometric method.

- **Microbiology research**

In another note in microbiology lab, isolation and purification of causative agents of different diseases and determination of resistance pattern of different microorganisms against antibiotics are performed.



**Tablet Machine**



**Capsule Machine**



**Dissolution Machine**



**FTIR Spectroscopy**



**UV- Spectrophotometer**



**Over head Stirrer**



**Stability Chamber Machine**



**Dryer**



**HPLC**



**Distillation plant**



**Magnetic hot plate with stirrer**

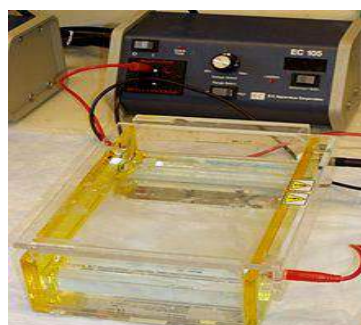


**Sieve shaker machine**

**Figure 9.1 : Machine and Equipments of Pharmaceutical reaserch Labs**



**Laminar Air flow Cabinet**



**Gel Electrophoresis**



**PCR Machine**



**Column Chamber**



**Cantab for Cognitive Tests**



**Rotary Evaporator**



**Moisture Analyzer**



**Soxhlet water bath**



**Solvent Filtration Unit**





**Temperature and humidity controlled refrigerator**



**Ultrasonicate powersonic**



**Micro centrifuge machine**

**Figure 9.2 : Machine and equipments of Pharmacology and Biotechnology, Microbiology and Phytochemistry research Labs**

### **9.1.1 Faculty Research**

Faculty members are motivated and involved in research activities in the field of pharmaceutical technology, biotechnology, phytochemistry and survey based study. All faculty members supervise B. Pharm project works of 4<sup>th</sup> year 2<sup>nd</sup> semester students on various topics including drug formulation and evaluation of the physical parameters of formulated and also marketed finished products. Additionally MS Pharm Tech thesis as well as project students are assigned from professor to assistant professor to conduct their research works.

### **9.1.2 Student Research**

Interested students can be involved with faculty members to conduct different type of research works. Specially final year students has a 3.0 credit B. Pharm. project course, they are to conduct lab based research works from the very beginning of final 4<sup>th</sup> year 2<sup>nd</sup> semester. They are allocated to supervisors at the beginning of the semester for mentoring of their project works. It is mentionable that interested MS Pharm Tech students who have excellent academic record at B. Pharm can undergo research work here.



## **9.2 Fund and Facilities**

Research works require time as well as money also. Research fund is very limited in under developing country like Bangladesh. In Department of Pharmacy; research is mainly funded by the student's contribution as they pay for credit hour assigned for their project and thesis.

### **9.2.1 Central Research Fund**

To promote research, the Institute for Energy, Environment, Research and Development (IEERD) provides funding. IEERD is a central research and academic institute responsible for disbursement of funding to academicians of various departments of UAP. IEERD has provision for funding of the following research expenditures:

- Publication charge for publishing research article in reputed journals.
- Registration fee, transportation and accommodation cost for presenting research outcomes in national and international conference/symposium/workshop/seminar/meeting.
- Expenses for conducting Research works at UAP.

In every fiscal year, each faculty is allotted a maximum budget of taka forty thousand, which can be used for paying the aforementioned expenses. It is the responsibility of IEERD to cater to the fund requirements of UAP for carrying out research works. In the last fiscal year (2016-17), IEERD had a total budget of 50,00,000 taka. For funding research projects, which involves significant cost, a faculty or a group of faculties with a valid research proposal can apply to IEERD. For funding these projects, there is no stated floor or ceiling on how much to allocate for each faculty or each department.

- **Standard 8-2: University should have institutional approach to explore the possibility of corporate funding through university industry research collaboration.**

### **9.2.2 Departmental Research Fund**

Department of Pharmacy has no fund of its own except central support. Student's contribution is the main source for undergraduate and post graduate research support. Centrally all of the raw materials, chemicals and instrumental support are provided to the department. Additionally if any faculty member interested to pursue research works they can get all types of support from university authority.

### **9.3 Fund Hunting/Collection**

Financial assistance is an intrinsic part of a research. IEERD, constituent research and academic institute of UAP, is responsible for providing funds to carry out the research activities. To avail funds from IEERD, a faculty has to apply towards the Director of the institute. Upon receiving the application, a scrutinizing committee reviews the proposal carefully. If the application fulfills the expectation, the scrutinizing committee recommends for approval and forwards the application to the advisory committee. Advisory committee makes a final review of the research proposal. If the head and the members of the committee are satisfied, they grant the financial assistance. To secure financial assistance for training, seminar or workshop from the departmental facility, the researcher has to apply to the head of the department. Upon receiving the application, the head reviews the research proposal and recommends for approval to the Office of the Registrar. Whenever applicable, the Office of the Registrar makes an evaluation of the proposal and grants the application for funding.

Moreover, Department of Pharmacy has institutional approach to explore the possibility of corporate funding through university- industry research collaboration and from different international and national funds.

- **Standard 8-3: University should have a system and policy to disseminate and transfer the research findings to the industry and community through extension services.**

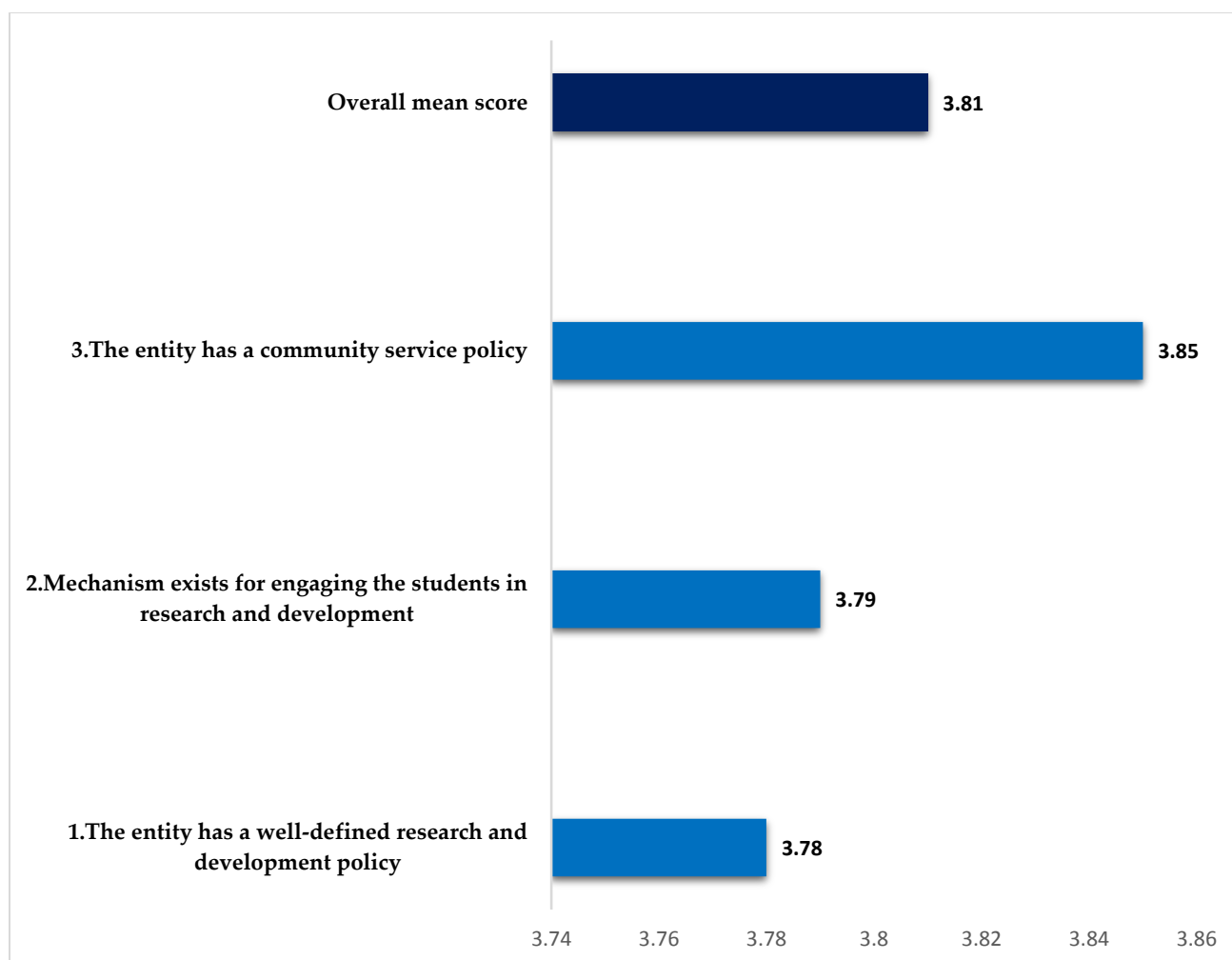
#### **9.4 Dissemination of Research Findings**

Conducting a research will serve no purpose if its outcomes do not reach to the proper audience. Dissemination of research findings is a critical factor for every researcher. Department of Pharmacy has the system and policy to disseminate and transfer the research findings to the industry and community through publication of research in renowned journals and through extension services such as seminar, symposium etc.

#### **9.5 Stakeholders' Feedback**

##### **A. Students**

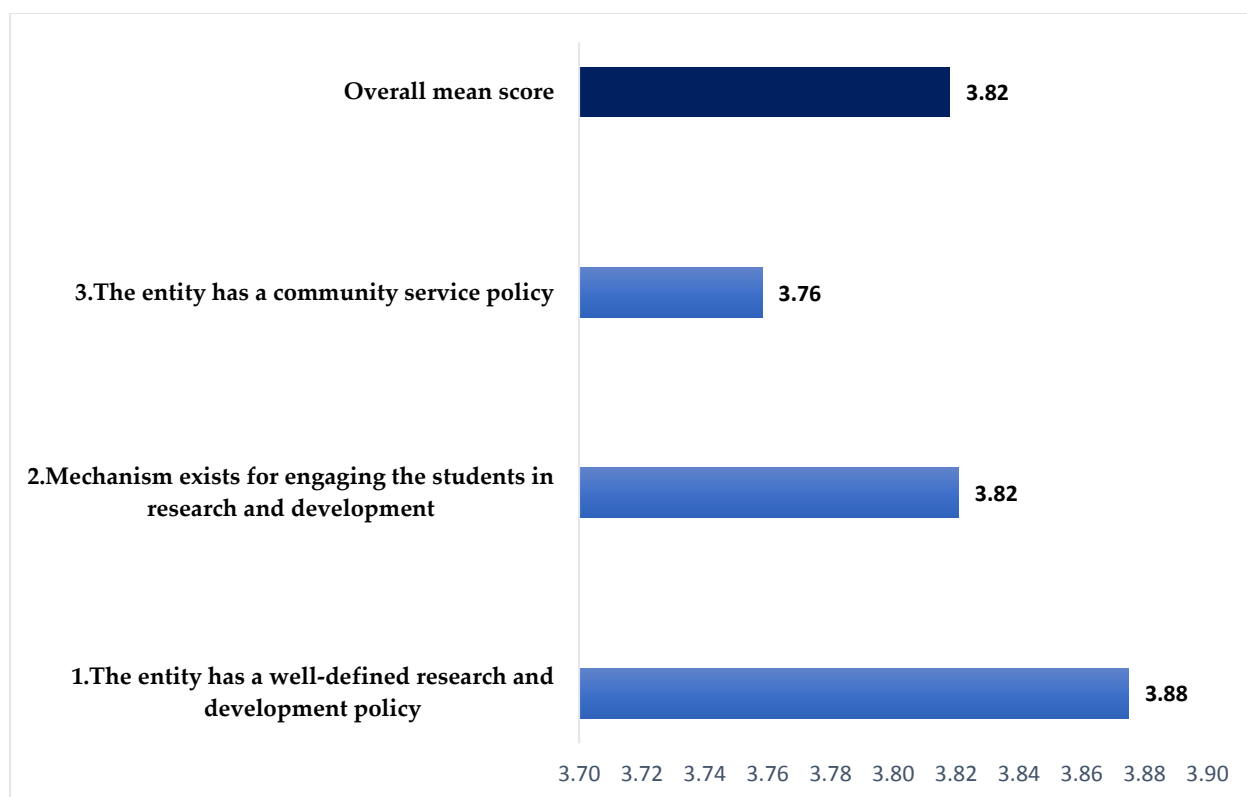
Among 395 students it was seen that 70% agreed that the entity has a well-defined research and development policy, 12% disagreed that and 18% gave no decision. 70% students agreed that Mechanism exists for engaging the students in research and development; while 10% disagreed that and 20% were undecided. 70% students agreed that the entity has a community service policy; but 8% students did not agree and 23% were in neutral position (Appendix-V and supplementary table 22 and Figure 9.1).



**Figure 9.3: Overall and item wise mean scores of research and extension evaluated by students (Mean scores of 3 items are all above 3 and differences are significant)**

### **B. Alumni**

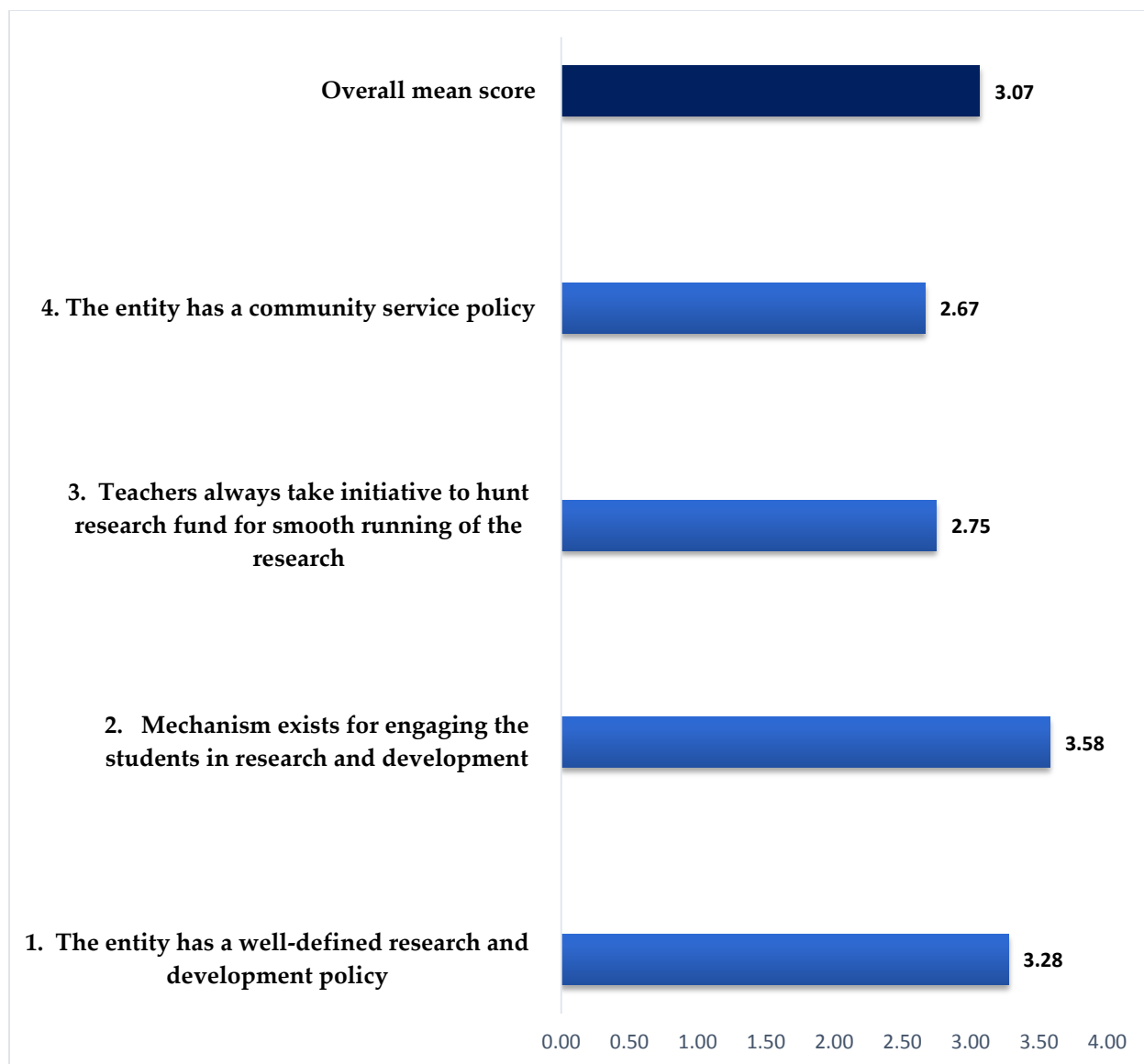
Among 240 alumni, 71% alumni agreed that the entity has a well-defined research and development policy; while 5% did not agree with them and 24% neither agree nor disagree. 73% respondents said that Mechanism exists for engaging the students in research and development, 8% argued with them and 20% were undecided. 68% respondents agreed that the entity has a community service policy; but 10% disagreed on this issue and 23% gave no decision (Appendix-V and supplementary table 23 and Figure 9.2).



**Figure 9.4: Overall and item wise average score of alumni's evaluation about research and extension (The evaluation mean scores by the alumni are all above 3 and differ significantly from 3)**

### C. Faculty

Total 36 faculty members were surveyed and it implies that 53% faculties agreed that the entity has a well-defined research and development policy; but 22% disagreed with this statement and 25% were undecided. 61% respondents said that Mechanism exists for engaging the students in research and development, 11% did not say so and 28% gave no clear decision. 34% faculties agreed that Teachers always take initiative to hunt research fund for smooth running of the research; while 34% disagreed on this issue and 33% neither agree nor disagree. 20% faculties agreed that the entity has a community service policy; but 39% argued about this issue and 42% were undecided (Appendix-V and supplementary table 24 and Figure 9.3).



**Figure 9.5: Overall and item wise average score of faculties evaluation about research and extension**

Mean score of “The entity has a community service policy” is 2.67; which is significantly ( $p\text{-value} > 0.05$ ) lower than 3 and mean score of “Teachers always take initiative to hunt research fund for smooth running of the research” is also lower than 3 (2.75); but close to 3 ( $p\text{-value} > 0.05$ ). First item’s mean score is above 3 but not significant and second item’s mean score is significantly higher than 3 ( $p\text{-value} < 0.05$ ).

**Question on Research and Extension: *“The entity has a well-defined research and development policy”***

Among 395 students, 240 alumni and 36 faculty members, 97 students, 2 faculties and 54 alumni strongly agree on it; while 179 students, 17 faculties and 117 alumni agree with it, 73 students, 9 faculties and 58 alumni are undecided, 27 students, 5 faculties and 7 alumni are disagreed; and 19 students, 3 faculties, 4 alumni strongly disagree on this issue.

**Survey results**

<b>Stakeholders/ Respondent category</b>	<b>Strongly disagree</b>	<b>Disagree</b>	<b>Undecided</b>	<b>Agree</b>	<b>Strongly agree</b>	<b>Total</b>
<b>Students</b>	19	27	73	179	97	395
<b>Faculties</b>	3	5	9	17	2	36
<b>Alumni</b>	4	7	58	117	54	240

## CHAPTER 10

### PROCESS MANAGEMENT AND CONTINUOUS IMPROVEMENT

Quality assurance system operates through a set of administrative and procedural activities with systematic assessment in respect of standard, feedback, remedial measures and monitoring. The total system is focused on process output, which refers to quality in education and achievement of objectives. Several important parameters are needed to assure internal quality and continuous improvement, which includes faculty development, external evaluation, linking program with corporate world, adopting good practices and developing quality culture encompassing all academic management.

- **Standard 9-1: University or the entity must have internal quality assurance system with set policies and procedures for quality assurance.**

#### 10.1 Self-Assessment

Self-Assessment sets the basement of standards and conditions what we already have and practice as well as it gives direction to improve further based on basement. Self-Assessment verifies and documents the state of practices and quality using a well-structured survey framework. It proves a guideline and aspiration to reach our targeted goal what is already determined and established in a program vision through mission. It helps to prepare for external peer review and validation for approval and accreditation locally and internationally. The survey result and outputs described in this report is the first instance of well-defined Self-assessment program in the Department of pharmacy, UAP. It will be very helpful to improve departmental quality, organizational structure of this university, staff quality, and learning environment etc.



### 10.1.1 Question Moderation Policy

Department of Pharmacy has a well-defined and structured exam committee who are responsible for overall exam related conduction. They are responsible for conducting question moderation and they form three distinct moderation committees for screening of question papers. Moderation committee is formed based on discipline i.e. pharmaceutical chemistry, pharmaceutical technology and pharmacology. Moderation committee comprised with internal faculty as well as external subject specialist who collect submitted question papers from exam committee and screen it by following standard guidelines provided by department. The guidelines are based on Bloom's taxonomy is applied in assessing each question paper. The Convener of the moderation committee holds the responsibility to carry out the moderation process and ensure that guidelines and standards are met. All the faculty members are notified through sending hard copy of the question paper with question specification (Appendix-IV). Then respective course teacher collect the moderated questions and done correction if required. After receiving the corrected question papers moderators once again check and return to the course teachers for printing in strong room. The following factors are ensured by the moderators which lead to the consistency of fair assessment of students.

- Linkages between Learning Outcomes (LO) and questions
- Coverage of materials included in the course curriculum
- Appropriateness of question according to the standard of the course level
- Adherence to prescribed question format by the examiner
- Identification of grammatical errors or spelling mistakes
- Appropriateness of marks distribution
- Total marks add up to the percentage required for Mid-term or Final examination.

### **10.1.2 Examination Policy**

Department of Pharmacy always maintains a strict discipline in conduction of all the examinations. The offences and punishments are clearly stated in the front and back of each answer script so that students are aware of the consequences of any offense or misconduct. Department of Pharmacy has taken some additional measures, to further facilitate smooth conduct of examinations (Appendix IV). The Examination Committee arranges seat plan for all the exams in such a way that students from same batch or any particular course do not sit adjacent to each other. Further, the committee circulates roster amongst the faculty members of invigilation well ahead of examination date. The Examinations Committee devised a set of guidelines for invigilation which is practiced regularly and also monitored by the Convener of Examinations.

### **10.1.3 Evaluation Policy**

At the end of every semester and before final examination, students evaluate each course teacher by filling up a structured questionnaire in online. The advisors of each batch instruct the students to participate in the evaluation process. Admit cards for the final examination are not issued unless and until the evaluation forms are completed on-line by the students. Guidelines for checking answer scripts have been developed by the Examination Committee, which is followed by the examiner (Appendix-IV). Scrutiny is done by the faculty members by following the standard of the templates developed by the department accordingly. The results submission is followed and maintained a strict deadline by the central authority.

- **Standard 9-2: The University or the entity conducts self-assessment following a cycle, develops strategic plan, identifies the limitations to implement the plan and adopts corrective measures for attainment of desired quality.**

- **Standard 9-3: The University or the entity continually and systematically reviews the effectiveness of the procedures to meet the objectives.**

## **10.2 Improvement Plan**

The best practices in the department of Pharmacy is its atmosphere of professionalism and advance knowledge of the teaching staff in accordance with its state-of-art research facilities that support highly sophisticated studies on drug action. The dedicated faculty members provide maximum effort for improving the quality of teaching to the students. Through sincere communication they ensure that each student receives the right guideline for their studies such as getting the course outlines, teaching materials and other supporting assistance. They also allocate advising time for the students after classes to sit and meet with them for any kind of queries or difficulties concerning their course. Department of Pharmacy always focus on research extension in department to meet the cutting edge research facilities and encourage students as well as faculties to be involved in research along with teaching. For this sophisticated instruments are included in departmental labs to meet the required demand.

### **Ongoing research projects**

- Development and in vitro evaluation of Pulsatile Drug Delivery System (PI: **Prof. Dr. Mohiuddin Ahmed Bhuiyan**)
- Cognitive effect of human volunteers using CANTAB software (PI: **Prof. Dr. Mohiuddin Ahmed Bhuiyan**)
- In vitro and in vivo biological activity of different medicinal plants (PI: **Mohammad Shahriar**)
- Preparation and characterization of biodegradable polymeric implants (PI: **Prof. Dr. Swarnali Islam Khandaker**)

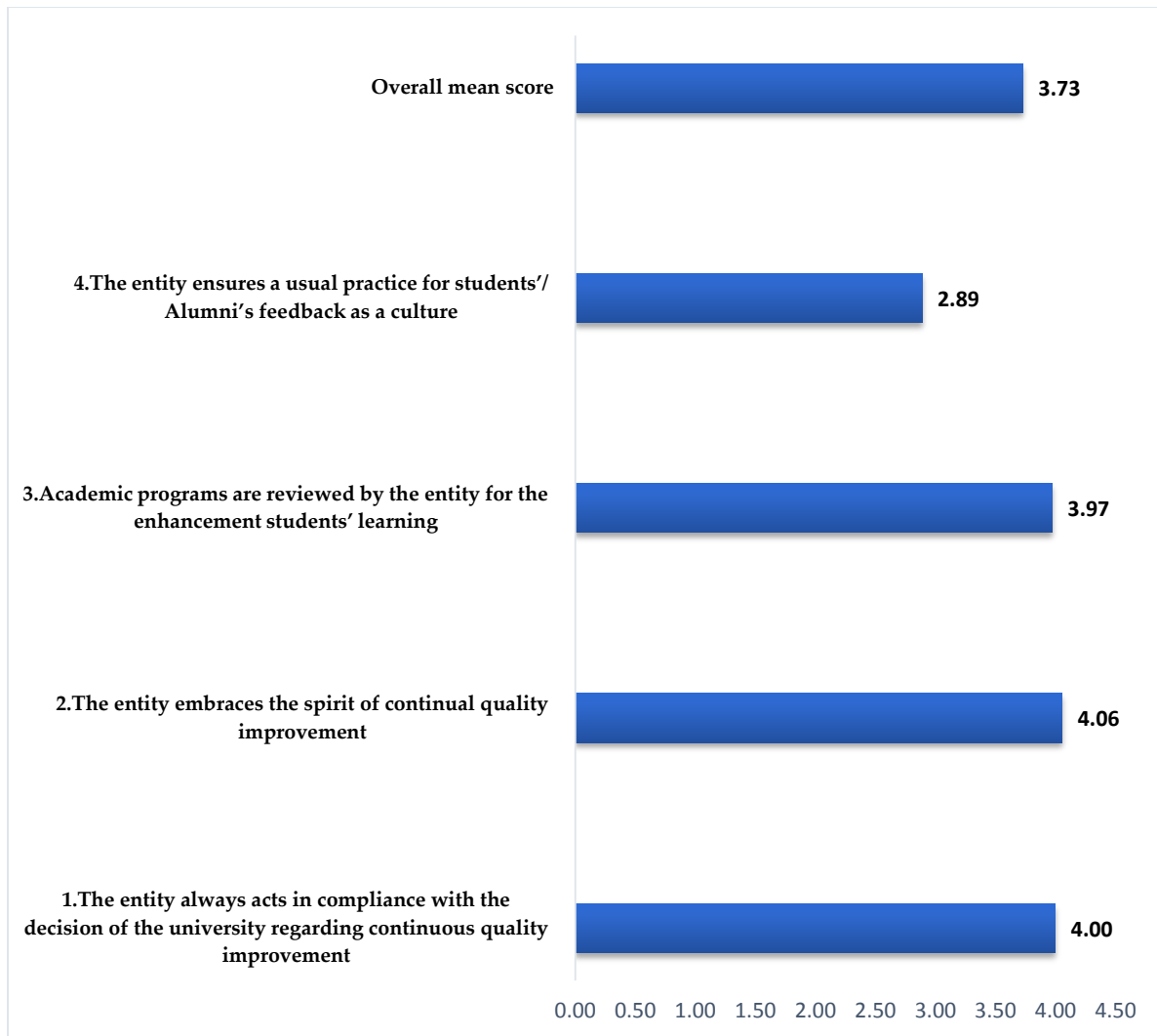
- Improving bioavailability of poorly water soluble drugs (PI: **Dr. S.M. Ashraful Islam**)
- Formulation development of Microspheres Drug Delivery System (PI: **IrinDewan**)
- Pharmacological and toxicological investigation of some herbal drugs as antidiabetic medicines available in Bangladesh (PI: **KanizNaharDeepa**)
- Genetic polymorphisms of ORAI1 associated with chronic kidney disease and determination of Calcium and Phosphorus levels and try to correlate them with the genetic polymorphisms of the disease (PI: **Dr. ZabunNahar**)
- Pharmacotherapeutic pattern and effectiveness of medicines with pharmacovigilance study on the schizophrenic patients in Bangladeshi population (PI: **Dr. ZabunNahar**)

Active role of major stakeholders, particularly employers and students, in higher education process is highly recognized for quality assurance. In terms of designing curriculum, teaching learning methods and assessment procedure stakeholders should have the opportunity to place their opinion on the issues what the student should want to learn, and how they should learn. Systematic feedback process could help to maintain sound academic environment. Stakeholders' opinion survey under self-assessment exercise explores many useful comments and suggestions, which are very critical to quality assurance in education. This is the first time the Department of Pharmacy has undergone systematic approach to collect data. We believe that ideas, evaluations and comments generated in this study will help the university and the Department to make the QA practices more acceptable, affordable and logical.

### **10.3 Stakeholders Feedback**

#### **A. Faculty**

It can be reported that among 36 faculties 83% faculties agreed that the entity always acts in compliance with the decision of the university regarding continuous quality improvement; while only 3% disagreed about it and 14% were undecided. 89% faculties agreed that the entity embraces the spirit of continual quality improvement and 11% neither agreed nor disagreed. 84% respondents said that Academic programs are reviewed by the entity for the enhancement students learning, 3% did not say so and 14% gave no decision. Finally, 34% faculties thought that the entity ensures a usual practice for students/ Alumni's feedback as a culture; while 36% thought different and other 31% remain undecided (Appendix-V and supplementary table 25 and Figure 10.1).



**Figure 10.1: Overall and item wise average score of faculties evaluation about Process Management and Continuous Improvement**

Mean score of "The entity ensures a usual practice for students/ Alumni's feedback as a culture" is 2.89 and difference with 3 is not significant. While, other criteria's mean scores are significantly higher than 3.

**Process Mamgement and Continuous Improvement:***"The entity embraces the spirit of continual quality improvement"*

36 faculties were interviewed to express their opinion towards the spirit of continual quality improvement embraced by the entity. Among them, 6 faculties agree, 26 agree that the entity embraces the spirit of continual quality improvement while 4 were undecided.

#### **Survey result:**

<b>Stakeholders/ Respondent category</b>	<b>Strongly disagree</b>	<b>Disagree</b>	<b>Undecided</b>	<b>Agree</b>	<b>Strongly agree</b>	<b>Total</b>
<b>Faculties</b>	0	0	4	26	6	36

#### **Employer's evaluation on graduates**

##### **A. Employers expectation from graduates**

The ultimate goal of education is to acquire knowledge so that one can solve problem facing in real life. In practical world or in job sectors employers are concerned about the quality of the graduates whom they want to employ in their organizations. The most important quality they expect are knowledge, communication skills, interpersonal skills and work skills. 30 employers were asked to give their rating on these quality on 5-point like scale; 5 = extremely important, 4=very important, 3= important, 2=less important, and 1=not at all important. Table 10.1 represents the frequency distribution of ratings given by employers on different qualities of graduates.

Table 10.1 showed that 20% employer's perception about Job knowledge (knowledge on the subject matter) was important; while 40% rated this issue as very important, 40% thought that it is extremely important. Similarly, IT knowledge is rated as important by 27% employers, 63% employers thought that it is very important and 10% thought that

it is extremely important. Finally, only 33% employers mentioned that innovative knowledge is important, 63% employers mentioned it as very important quality of graduates and only 3% rated it as extremely important.

Table 10.1 further showed that, 10% employers believed that oral communication skills are important, 57% rated it as very important and only 33% believed that it is extremely important. Similarly, 13% employers said that written communication skills are important; but 77% said that these skills are very important and other 10% rated these skills as extremely important. At last, 30% employers said that presentation skills are important; but 60% said that these skills are very important and other 10% rated these skills as extremely important.

Table 10.1 also showed the importance given by employers on interpersonal skills of graduates. 23% employers agreed that ability to work in teams is important, 57% said that it is very important and 20% thought that it is extremely important. Leadership is rated as important by 20% employers, rated as very important by 73% employers and rated as extremely important by 7% employers. Empathy is rated as important by 47% employers, rated as very important by 53% employers. Only 7% employers rated motivation ability as less important, 27% rated this quality as important, 63% rated it as very important and 3% rated it as extremely important. 23% employers thought that reliability is important; while 60% thought that it is very important and other 17% thought that it is extremely important. It is seen from the results that, 27% employers replied that appreciation of ethical values is important, 63% employers replied that it is very important and 10% replied that it is extremely important. Finally, 23% employers thought that adaptability is important, 57% thought that it is very important and 20% thought that it is extremely important quality.

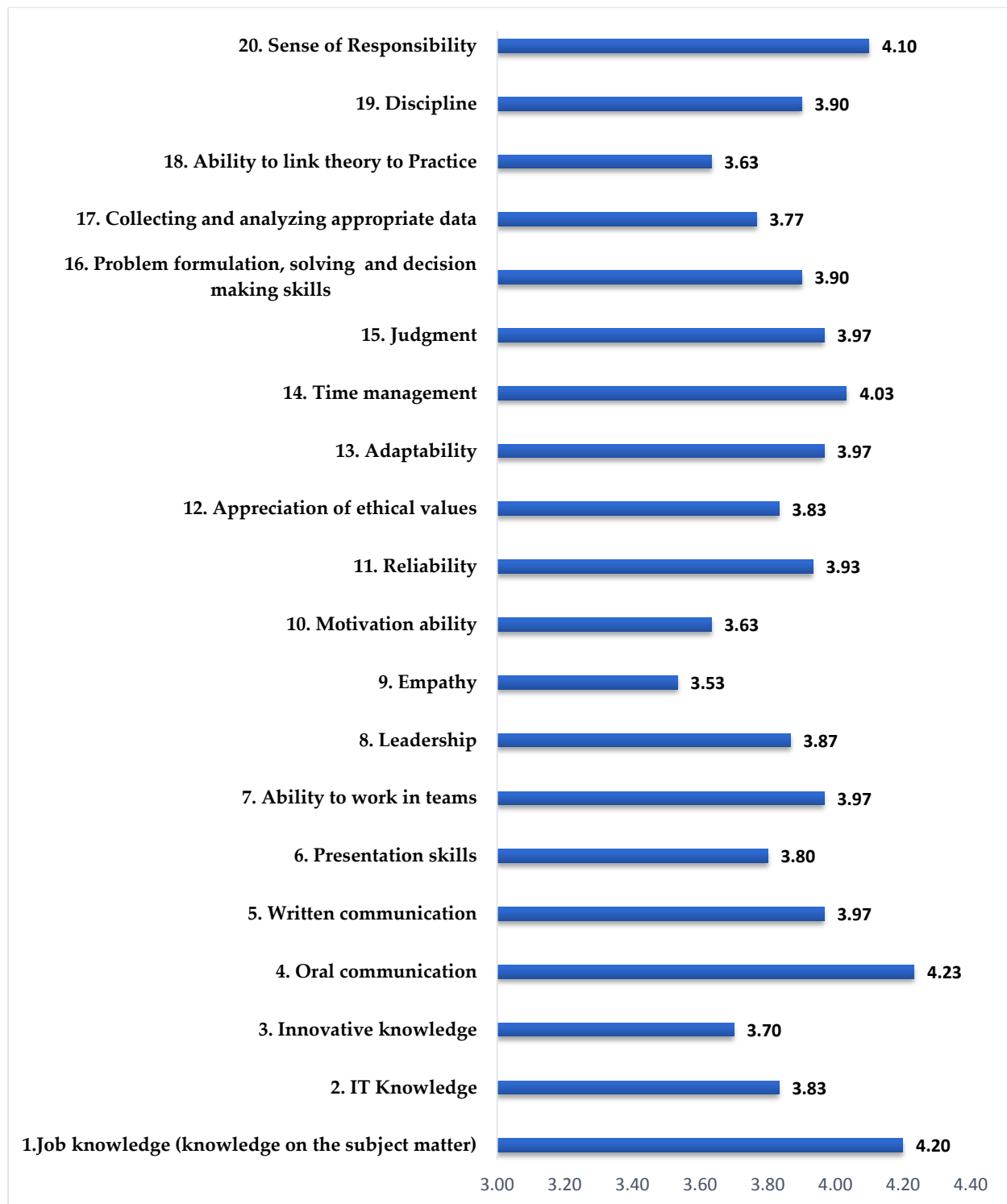


Lastly table 10.1 indicated that, 20% employers said that time management is important, 57% said that it is very important and 23% said that it is extremely important. Only 10% employers answered that judgment is important, 83% answered that it is very important and 7% answered that it is extremely important. Only 27% employers said that Problem formulation, solving and decision making skills are important, 57% said very important and 17% said extremely important. 30% employers thought that Collecting and analyzing appropriate data is important, 63% thought that it is very important and 7% thought that it is extremely important. Ability to link theory to Practice is rated as important by 37% employers, rated as very important by 63%. Discipline is mentioned as important by 27% employers, mentioned as very important by 57% employers and mentioned as extremely important by 17% employers. Finally, only 17% employers thought that sense of responsibility is important; while 57% employers thought that it is very important and 27% employers thought that it is extremely important.

**Table 10.1 Frequency distribution of employers expectations of dimension of quality of graduates**

	<b>Dimension of quality expected by employer</b>	<b>Not at all important</b>	<b>Less important</b>	<b>Important</b>	<b>Very important</b>	<b>Extremely important</b>	<b>Mean score</b>	<b>p-value</b>
<b>Knowledge</b>	1.Job knowledge (knowledge on the subject matter)	0 (0)	0 (0)	6 (20)	12 (40)	12 (40)	4.20	0.000
	2. IT Knowledge	0 (0)	0 (0)	8 (27)	19 (63)	3 (10)	3.83	0.000
	3. Innovative knowledge	0 (0)	0 (0)	10 (33)	19 (63)	1 (3)	3.70	0.000
<b>Communication Skills</b>	4. Oral communication	0 (0)	0 (0)	3 (10)	(17) (57)	10 (33)	4.23	0.000
	5. Written communication	0 (0)	0 (0)	4 (13)	23 (77)	3 (10)	3.97	0.000

Inter-personal Skills	6. Presentation skills	0 (0)	0 (0)	9 (30)	(18 (60)	3 (10)	3.80	0.000
	7. Ability to work in teams	0 (0)	0 (0)	7 (23)	17 (57)	6 (20)	3.97	0.000
	8. Leadership	0 (0)	0 (0)	6 (20)	22 (73)	2 (7)	3.87	0.000
	9. Empathy	0 (0)	0 (0)	14 (47)	16 (53)	0 (0)	3.53	0.000
	10. Motivation ability	0 (0)	2 (7)	8 (27)	19 (63)	1 (3)	3.63	0.000
	11. Reliability	0 (0)	0 (0)	7 (23)	18 (60)	5 (17)	3.93	0.000
	12. Appreciation of ethical values	0 (0)	0 (0)	8 (27)	19 (63)	3 (10)	3.83	0.000
Work -Skills	13. Adaptability	0 (0)	0 (0)	7 (23)	17 (57)	6 (20)	3.97	0.000
	14. Time management	0 (0)	0 (0)	6 (20)	17 (57)	7 (23)	4.03	0.000
	15. Judgment	0 (0)	0 (0)	3 (10)	25 (83)	2 (7)	3.97	0.000
	16. Problem formulation, solving and decision making skills	0 (0)	0 (0)	8 (27)	17 (57)	5 (17)	3.90	0.000
	17. Collecting and analyzing appropriate data	0 (0)	0 (0)	9 (30)	19 (63)	2 (7)	3.77	0.000
	18. Ability to link theory to Practice	0 (0)	0 (0)	11 (37)	19 (63)	0 (0)	3.63	0.000
	19. Discipline	0 (0)	0 (0)	8 (27)	17 (57)	5 (17)	3.90	0.000
	20. Sense of Responsibility	0 (0)	0 (0)	5 (17)	17 (57)	8 (27)	4.10	0.000



**Figure 10.2: Mean rating scores of different dimensions of qualities of graduates expected from employers**

The expected mean scores of different dimension of qualities range from 3.53 to 4.23. All expected mean scores are significantly above from 3 ( $p\text{-value}<0.05$ ).

### **B. Employer's evaluation about graduates' qualities**

In this self-assessment study 30 employers were asked to evaluate dimension of quality of graduates. The quality of graduates like knowledge, communication skills, interpersonal skills and work skills were evaluated by 30 employers on 5-point like scale; 5 = excellent, 4=very good, 3= good, 2=fair, and 1=poor. Table 10.2 shows the frequency distribution of evaluation of employers on different qualities of graduates.

Table 10.2 reflected that 20% employees evaluated job knowledge of graduates as good, 73% evaluated as very good and only 7% evaluated as excellent. Out of 30 employees 10% employees evaluated IT knowledge of graduates as fair, 20% evaluated as good, 70% evaluated as very good. Innovative knowledge of graduates was evaluated as good by 63% employers, as very good by 27% employers and excellent by 10% employers.

From Table 10.2, it is seen that, 17% employers evaluated that Oral communication of graduates is good, 73% employers evaluation was very good and 10% employers evaluation was excellent. 13% employers thought that graduates' written communication is good; while 83% thought that it is very good and only 3% thought that it is excellent. 3% employers said that presentation skills of graduates were fair, 47% said that these were good, 47% said these were very good and 3% said that these were excellent.

Table 10.2 also showed the evaluation score given by employers on interpersonal skills of graduates. 17% employers answered that Ability to work in teams good, 63% answered that it is very good and 20% said that it is excellent. Evaluation score of graduates for leadership were fair, good, very good and excellent with percentage 3, 17, 73 and 7 respectively. Empathy was evaluated as good by 27%, as very good by 70%

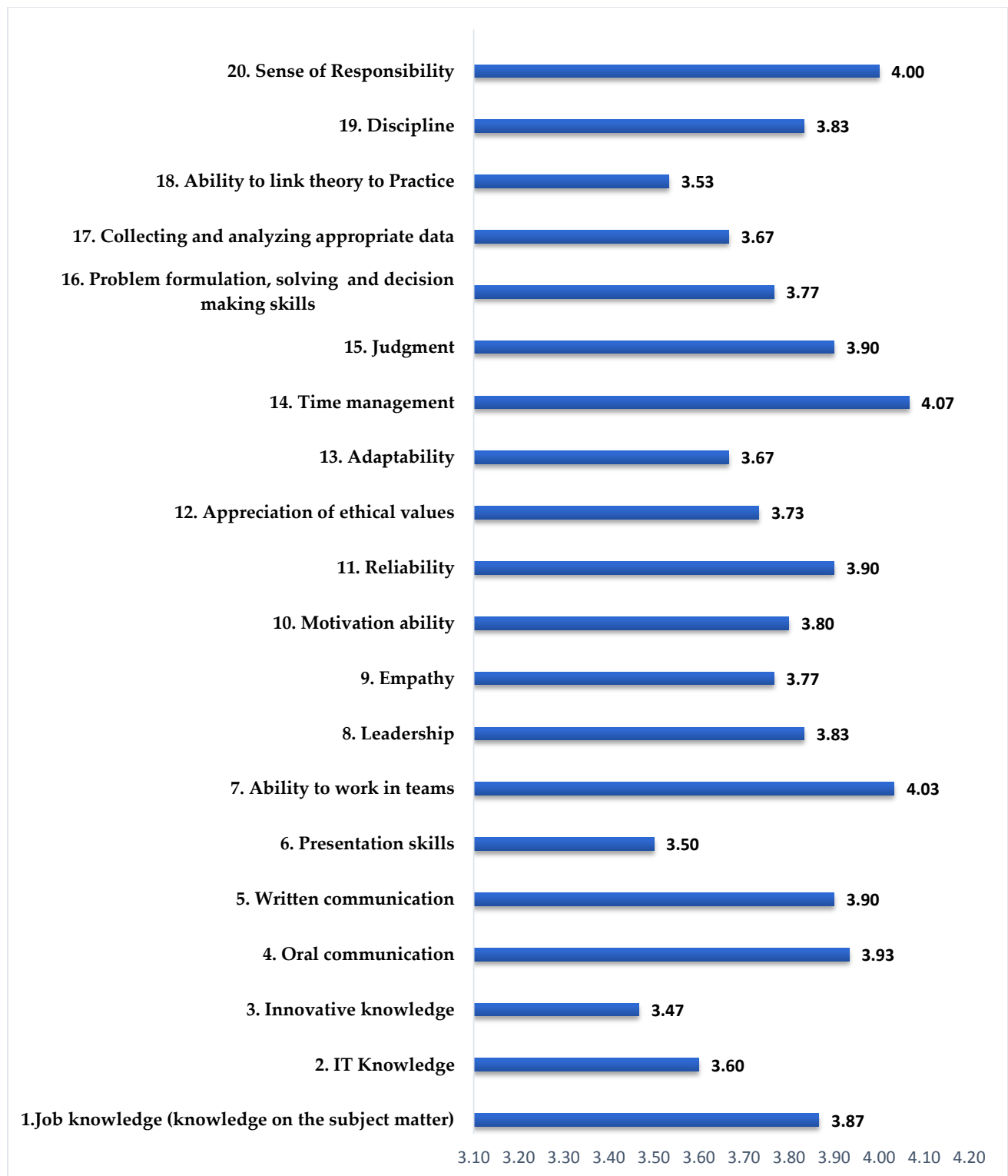
and as excellent by 3% employers. 3% employers said that Motivation ability is fair, 13% said that it is good, 83% said that it is good. Reliability was found as good by 20% employers; while found as very good by 70% employers and found as excellent by 10% employers. Appreciation of ethical values were evaluated as good by 33% employers, as very good by 60% and as excellent by other 7% employers. Finally, 37% employers said that adaptability is good, 60% said that it is very good, 3% said that it is found to be excellent in graduates of the department/program.

At last, table 10.2 indicated that, 13% employers said that time management is good, 67% employers said that it is very good and 20% employers said that it is excellent. Only 23% employers answered that judgment is good, 63% answered that it is very good and 13% answered that it is excellent. 33% employers said that Problem formulation; solving and decision making skills are good, 57% said very good and 10% said excellent. 37% employers thought that Collecting and analyzing appropriate data is good, 60% thought that it is very good and 3% thought that it is excellent. Ability to link theory to Practice is evaluated as fair by 3% employers, evaluated as good by 40%, and evaluated as very good by 57% employers. Discipline is mentioned as fair by 3% employers, good by 17% employers, mentioned as very good by 73% employers and mentioned as excellent by 7% employers. Finally, only 13% employers thought that sense of responsibility is good; while 73% employers thought that it is very good and 13% employers thought that it is excellent.

**Table 10.2: Frequency distribution of employers evaluation about dimension of quality of graduates**

	<b>Dimension of quality evaluated by employer</b>	<b>Not at all important</b>	<b>Less important</b>	<b>Important</b>	<b>Very important</b>	<b>Extremely important</b>	<b>Mean score</b>	<b>P-value</b>
<b>Knowledge</b>	1. Job knowledge (knowledge on the subject matter)	0 (0)	0 (0)	6 (20)	22 (73)	2 (7)	3.87	0.000
	2. IT Knowledge	0 (0)	3 (10)	6 (20)	21 (70)	0 (0)	3.60	0.000
	3. Innovative knowledge	0 (0)	0 (0)	19 (63)	8 (27)	3 (10)	3.47	0.001
<b>Communication Skills</b>	4. Oral communication	0 (0)	0 (0)	5 (17)	22 (73)	3 (10)	3.93	0.000
	5. Written communication	0 (0)	0 (0)	4 (13)	25 (83)	1 (3)	3.90	0.000
	6. Presentation skills	0 (0)	1 (3)	14 (47)	14 (47)	1 (3)	3.50	0.000
<b>Interpersonal Skills</b>	7. Ability to work in teams	0 (0)	0 (0)	5 (17)	19 (63)	6 (20)	4.03	0.000
	8. Leadership	0 (0)	1 (3)	5 (17)	22 (73)	2 (7)	3.83	0.000
	9. Empathy	0 (0)	0 (0)	8 (27)	21 (70)	1 (3)	3.77	0.000
	10. Motivation ability	0 (0)	1 (3)	4 (13)	25 (83)	0 (0)	3.80	0.000
	11. Reliability	0 (0)	0 (0)	6 (20)	21 (70)	3 (10)	3.90	0.000
	12. Appreciation of ethical values	0 (0)	0 (0)	10 (33)	18 (60)	2 (7)	3.73	0.000
	13. Adaptability	0 (0)	0 (0)	11 (37)	18 (60)	1 (3)	3.67	0.000
<b>Work Skills</b>	14. Time management	0 (0)	0 (0)	4 (13)	20 (67)	6 (20)	4.07	0.000
	15. Judgment	0 (0)	0 (0)	7 (23)	19 (63)	4 (13)	3.90	0.000

16. Problem formulation, solving and decision making skills	0 (0)	0 (0)	10 (33)	17 (57)	3 (10)	3.77	0.000
17. Collecting and analyzing appropriate data	0 (0)	0 (0)	11 (37)	18 (60)	1 (3)	3.67	0.000
18. Ability to link theory to Practice	0 (0)	1 (3)	12 (40)	17 (57)	0 (0)	3.53	0.000
19. Discipline	0 (0)	1 (3)	5 (17)	22 (73)	2 (7)	3.83	0.000
20. Sense of Responsibility	0 (0)	0 (0)	4 (13)	22 (73)	4 (13)	4.00	0.000



**Figure 10.3: Mean evaluation scores of different dimensions of qualities of graduates given by employers**



The evaluated mean rating scores of several dimensions of qualities of graduates vary from 3.47 to 4.07. In addition, all evaluated mean rating scores significantly differ from 3 (p-value<0.05).

### C. Comparison between expected and evaluated scores given by employers

To compare the expected and evaluated mean scores paired t-test has been performed on different dimension of quality-knowledge, communication, interpersonal skills and work skills. The result of the paired t-test is shown in table 10.3.

**Table 10.3: Mean difference between expected and evaluated Dimension of quality of graduates by employers (N=30)**

Dimension of quality of graduates		Mean	SD	Mean difference	t-value	d.f	p-value
Pair 1	Knowledge(expected)	3.89	0.385	0.300	3.589	29	0.001
	Knowledge(evaluated)	3.59	0.508				
Pair 2	Communication(expected)	4.00	0.371	0.278	3.169	29	0.004
	Communication(evaluated)	3.72	0.402				
Pair 3	Interpersonal Skills(expected)	3.80	0.308	0.0191	0.236	29	0.815 (n.s)
	Interpersonal Skills(evaluated)	3.78	0.405				
Pair 4	Work skills(expected)	3.87	0.358	0.105	1.744	29	0.092 (n.s)
	Work skills(evaluated)	3.76	0.441				

*\*n.s=not significant*

Table 10.3 reveals that expected mean scores for knowledge (M=3.89), communication (M=4.00), interpersonal Skills(M=3.80) and Work skills(M=3.87) are higher than that of evaluated scores (M=3.59, 3.72, 3.78, 3.76 respectively). But the mean differences between expected and evaluated means scores are insignificant (p-value> 0.05) for Interpersonal Skills and Work skills; significant for knowledge and communication skills (p-value<0.05).

## **CHAPTER 11**

### **SWOT ANALYSIS**

#### **11. Introduction**

SWOT analysis refers to the internal 'Strength and Weakness' and external 'Opportunities and Threats' of an organization. It is an important planning tool that helps an institution identify, in a systematic and organized way, its internal strengths and helps it match those strengths with the best opportunities in the environment. Therefore, SWOT analysis should be conducted to maximize strengths in order to exploit opportunities and counter threats and to correct organizational weakness. In this self-assessment study, strengths of the program are identified by the different stakeholders like students; faculties, non-academic staffs and employers. Based on ten different criteria, SWOT analysis of the Department of Pharmacy, UAP is presented below:

#### **11.1 Strengths**

##### **A. Governance**

- The Department is covered by the clearly stated Vision, Mission, Program Educational Objectives, Program Objectives, and Mappings
- UAP has a well-defined organogram depicting the structure and relationships among different employees, departments and jobs at different levels
- Entity offers attractive tuition waiver fees policy for meritorious and needy students
- Institution offers awards fellowships, scholarships, prizes and medals in accordance with the University regulations, sets up and maintains laboratories, workshops, centers and institutes for the development of teaching and research,

regulates co-curricular activities to develop a healthy and well-groomed students

- The academic calendar of UAP is rigorously followed by all concerned.
- Strict disciplined environment is maintained through the active presence of Proctorial committee disciplinary board and sexual harassment prevention committee. Violation of any UAP rules leads to fine, suspension, expulsion, or rustication
- UAP management adheres to well defined service rules and human resource policies

#### **B. Curriculum Design and Review**

- University has a well-defined procedure that ensures periodic review of various academic programs
- Course contents, assessment strategies, prerequisites (if any) etc. are clearly stated in the curriculum
- Pharmacy has a well-structured course and curriculum committee, which carries out the responsibility of assigning the distribution of the course loads among the faculty members

#### **C. Student Admission Progress and Achievement**

- Department of Pharmacy does not compromise with the intake of quality students which requires that students having minimum total GPA of 8.0 out of 10 and above at SSC and HSC or equivalent exam apply for admission
- Each newly admitted student is assigned to an adviser who monitors his /her progress
- Counseling hours are set by all faculties which are one third of their total credit hours

- Alumni or outgoing graduates speak for the quality of the Department , i.e, they are the brand ambassador of our Department

#### **D. Teaching Learning and Assessment**

- Qualified and dedicated faculty members are the main strength of the Department of Pharmacy. They are not only involved in delivering classes but also actively participate in student counseling
- Friendly behavior of faculty members and well equipped class rooms make the class environment cheerful
- Pharmacy program is practicing outcome-based learning, which is interactive in nature. The Department feels that the students should be able apply their theoretical knowledge in practical life. This is done through various teaching assessment i.e. assignments, presentations, workshops, series of seminars, industrial tour, in plant training etc.
- Faculty members are fair and honest in evaluation of students. This is ensured by sternly following a invigilation guideline, following prescribed formats for moderation and checking and scrutinizing exam scripts
- Strict adherence to 70% attendance and marks allocation policy in this regard contribute towards better performance of students

#### **E. Staff and Facilities**

- Pharmacy has twenty seven (27) dedicated full time faculty members with degrees earned from internationally reputed universities at home and abroad and fifteen (15) part time renowned faculties from different public universities and Pharmaceutical industries. In another note, four (04) qualified interdepartment faculty members are associated with Pharmacy Department for teaching general education courses.

- UAP has a fair, transparent and properly documented policy for recruitment and of faculties and staffs

## **F. Physical Facilities**

- Department of Pharmacy utilizes the full potential one and half floor of the dedicated permanent city based campus at the heart of the capital
- Department of Pharmacy occupies about 39000 square fit space, 6 spacious classrooms, 12 high standard well equipped laboratories, one conference room equipped with modern features
- Department of Pharmacy enjoys the pride of having its dedicated well-equipped laboratories for holding practical classes and aristocratic Research labs. We have HPLC, PCR, FTIR, automatic Tablet machine, capsule machine, dissolution machine, UV- spectrophotometric etc.
- Department also has high speed internet connectivity both for the faculty members and students, a computer laboratory, central library containing sufficient number of pharmacy related books, different renowned journals, project papers, thesis papers etc.
- UAP has a central medical center to meet medical emergencies
- There are separate rooms for professors, associate professors, assistant professors and cubicles for lecturers and there is also a conference room at the Department.
- UAP has well ventilated central cafeteria to provide foods at an affordable price

## **G. Student Support Services**

- For the benefit of students UAP has a separate directorate named “Directorate of Student Welfare (DSW)” to provide necessary student support. DSW is in charge of organizing co-curricular activities, personal and professional development programs and providing financial support for underprivileged students

- To survive with the competitive industry demands, the department takes initiatives which include various workshops, series of seminars, symposium, quiz and debate competitions, photography exhibitions, sports competitions, science fair, cultural program etc.
- Pharmacy has an alumni Association titled Ex. Pharmacy Student Association (EPSA) is working in the department to make a strong network with industry and foreign universities. They are not only involved with seminars and workshop programs also help underprivileged students. In addition, EPSA co-sponsor to Dr. HahbiburRahman Scholarship in the Department

#### **H. Research and Extension**

- Department of Pharmacy is actively involved in research activities in connection to its MS Pharm Tech program
- UAP has a central research institute named The Institute for Energy, Environment, Research and Development (IEERD) to facilitate research and extension. The faculty members receive funds for various purposes which include basic research works, publication of articles in journals, registration fees and conveyance for participation in national and international conferences etc.
- Department arranges workshops on research methodologies in an attempt to improve faculty members' research expertise capabilities. There is a separate budget allocation for participation in workshops home and abroad
- Department of Pharmacy has subscription in various national and international peer reviewed journals.
- Students involvement in research activities is ensured under the supervision of the faculty members as supervisors

## **I. Process management and continuous improvement**

- To ensure internal quality, Department has standard policies for admission, question moderation, examination, grading, internship and evaluation

### **11.2 Weaknesses**

#### **A. Governance**

- UAP lacks adequate number of staff at different administrative levels. Moreover, the existing administrative staff needs to be more efficient and competent in carrying out the responsibilities
- Not well-documented
- UAP sometimes takes more time in decision making in case of emergency
- UAP has no human resource (HR) Department
- Website is not updated regularly

#### **B. Curriculum Design and Review**

- Department needs periodic revision of the existing curriculum
- Department runs its master's program in one discipline only (i.e. Master of Science in Pharmaceutical Technology)

#### **C. Student Admission Progress and Achievement**

- Timing of the admission test for fall semester is not appropriate. It collides with that of public universities

#### **D. Teaching Learning and Assessment**

- Number of full time faculty members is not enough so the department needs to depend on adjunct faculty members from public universities and industries. The adjunct faculty members do not allocate enough time for student counseling and guidance necessary for the subject

- Ratio of teacher and students is 1:25(interns of total number of students) which is not appropriate for in terms of upholding and improving the quality of teaching and learning
- Department does not have students counselor needed for advising the students on academic and non academic needs

#### **E. Staff and Facilities**

- UAP does not have attractive and competitive pay scale. Moreover, the salary is not timely adjusted taking into consideration the price hikes of commodities and inflation
- Poor Increment size
- Leave policy is not standard
- No prayer and launch break time
- Staff benefits are not well defined
- No insurance coverage for faculties and staff
- No earned leave policy

#### **F. Physical Facilities**

- University has no gymnasium
- University has indoor sport center; however it does not have its own outdoor sport field for arranging outdoor games
- Department has no seminar library
- UAP has no transport facilities for students, staffs and faculties
- No accommodation facilities for students
- No WiFi connection for students
- No common room for students both male and female
- No prayer room for female students



### **G. Student Support Services**

- Non-academic Departmental support staff needs to be groomed and be more professional in providing better services
- Department needs more qualified and active non academic staff
- EPSA needs to be more actively participate to improve quality of the graduates and opens the doors for internship and job opportunities for new graduates
- Club activities need more realistically involved with society

### **H. Research and Extension**

- Department needs more expertise and experience senior faculty for guidance of research work
- Department needs to create fund for research activities
- Collaboration with different industries, institutions as well as universities for research work and to cope up with the new technology
- Faculty members are preoccupied with lots of administrative responsibilities

### **I. Process Management and Continuous Improvement**

- Previously Pharmacy followed a self-assessment system which was not structured

## **11.3 Opportunities**

### **A. Governance**

- UAP has scope for improvement of administrative performance by recruiting more efficient and experienced personnel at different levels of administration
- UAP can offer competitive salary to keep the experienced and quality faculties and staffs

## **B. Curriculum Design and Review**

- Department needs to open multi-discipline in master's program like Department of Pharmacology and Clinical Pharmacy, Department of Pharmaceutical Marketing, Department of Pharmaceutical Chemistry to sustain in competitive environment
- Keeping up-to-date with recent industry practices, taking potential employers perspectives and experts opinions into account in designing and upgrading curricula, Department of Pharmacy can gain significant competitive advantages in the industry

## **C. Student Admission Progress and Achievement**

- By ensuring quality education, the program can build a strong brand image which will attract more eligible students
- Adoption of advanced technology can be taken into account

## **D. Teaching Learning and Assessment**

- Department can hire more faculty members at senior level with Ph.D degrees from renowned universities with substantial experience in teaching and research
- Number of permanent faculty members is pursuing Ph.D from reputed universities which would become strength for the department in the long run
- Collaboration with the industries for adapting new technology, carrying out research works and in plant training created wide scope for our new graduates

## **E. Staff and Facilities**

- Department can attract more experienced senior faculty members by revising the pay scale
- Sophisticated well equipped laboratory can motivate the students learning skills

- Entity can improve lifestyle by offering different benefits like insurance coverage, bonus, earn leave money, provident fund etc.

#### **F. Physical Facilities**

- UAP has purchased 3 acres of land in the planned city named “RajukPurbachal” where the campus can provide other facilities including open field and residential facilities
- Gymnasium with modern equipment’s has been proposed for the students as well as faculty members

#### **G. Student Support Services**

- Functional EPSA database can ensure the access to the job market for the fresh graduate
- Oral interview or viva conducted by experts from the industry along with the faculty members can aid the students to prepare for real life interviews
- Having collaboration with corporate bodies is crucial for ensuring placement of the graduates. Therefore, Department of Pharmacy program is trying to sign MOU with the renowned corporate bodies

#### **H. Research and Extension**

- Faculty members can take part in a range of training and workshops arranged by research bodies
- Joint research program could be arranged in collaboration with renowned national and international universities and professional bodies

#### **I. Process Management and Continuous Improvement**

- Department of Pharmacy will be able to meet the upcoming challenges and demands of the Pharma market by continuous quality improvement

## **11.4 Threats**

### **A. Governance**

- UAP has to recruit more efficient and experienced personnel at different levels of administration otherwise the university will endure in future
- Other private universities are taking advantage of the absence of a Human Resource department at this university which is seriously hampering the university branding
- Unattractive salary structure dissuades the senior and experienced staff to apply and stay for long time
- University sometimes makes delay to respond in emergency

### **B. Curriculum Design and Review**

- Department is yet to upgrade its curriculum as per the industry demand and contemporary practices; students might lag behind in the competitive job market

### **C. Student Admission Progress and Achievement**

- Other private universities have much more attractive promotional strategies
- There is an overall decline in the education standard of the country for that departmental admission of quality students is suffering

### **D. Teaching Learning and Assessment**

- Quality improvement at the expected level would become difficult to achieve if the department fails to hire more experienced senior faculty member

### **E. Staff and Facilities**

- Some other private universities have lucrative offers for experienced academic staff that is contributing to the reduction of experienced faculty members in the department

- No medical leave policy for faculty and staff

#### **F. Physical Facilities**

- Public universities and some private universities provide transport services for faculty members and staff which is a secondary consideration for many existing staff to switch
- UAP has no outdoor field for outdoor games

#### **G. Student Support Services**

- EPSA needs more involvement for the benefit of existing students
- Other universities are arranging more international conferences and seminars at regular interval which are making them more advanced compared to Pharmacy of UAP

#### **H. Research and Extension**

- The faculties remain pre-occupied with administrative, co curricular and extra-curricular activities which is reducing the research activities in the department
- Lack of collaboration research works with industries and expertise bodies

#### **I. Process Management and Continuous Improvement**

- Department may face problem if the entity stay behind to implement the improvement plans recommended by the SAR and EPRT

## CHAPTER 12

### CONCLUSION, RECOMMENDATION AND IMPLEMENTATION PLAN

#### 12.1 Conclusion

In this self-assessment study ten criteria of self-assessment have been evaluated by different category of respondents separately. The following table 13.1 shows the mean scores of different criteria according to respondent category.

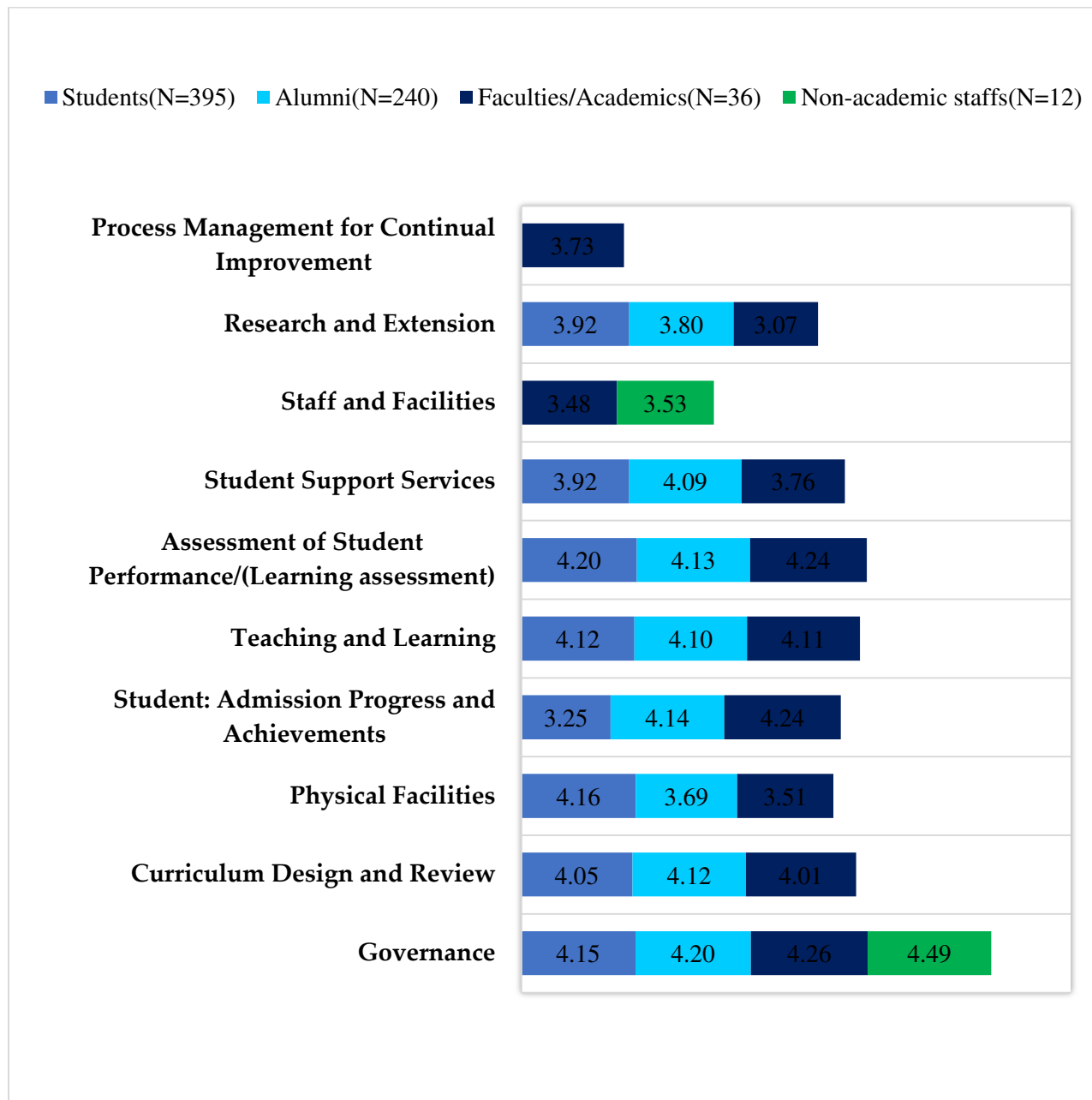
**Table 12.1: Mean scores of different criteria evaluated by the respondents**

<b>Respondent Category</b>	<b>Governance</b>	<b>Curriculum Design and Review</b>	<b>Physical Facilities</b>	<b>Student: Admission Progress and Achievements</b>	<b>Teaching and Learning</b>	<b>Assessment of Student Performance/(Learning assessment)</b>	<b>Student Support Services</b>	<b>Staff and Facilities</b>	<b>Research and Extension</b>	<b>Process Management for Continual Improvement</b>
<b>Students (N=395)</b>	4.15	4.05	4.16	3.25	4.12	4.20	3.92	NA	3.92	NA
<b>Alumni (N=240)</b>	4.20	4.12	3.69	4.14	4.10	4.13	4.09	NA	3.80	NA
<b>Faculties (N=36)</b>	4.26	4.01	3.51	4.24	4.11	4.24	3.76	3.48	3.07	3.73
<b>Non-academic staffs (N=12)</b>	4.49	NA	NA	NA	NA	NA	NA	3.53	NA	NA

\*NA=not applicable

Table 12.1 revealed that mean scores of governance was the highest for non-academic staffs (M=4.49), lowest for students (M=4.15). Mean scores of curriculum design and

review was the highest for alumni (M=4.12) and lowest for faculties. Similarly, all comparative mean scores have shown in figure 12.1.



**Figure 12.1: Mean scores of different criteria evaluated by the respondents**

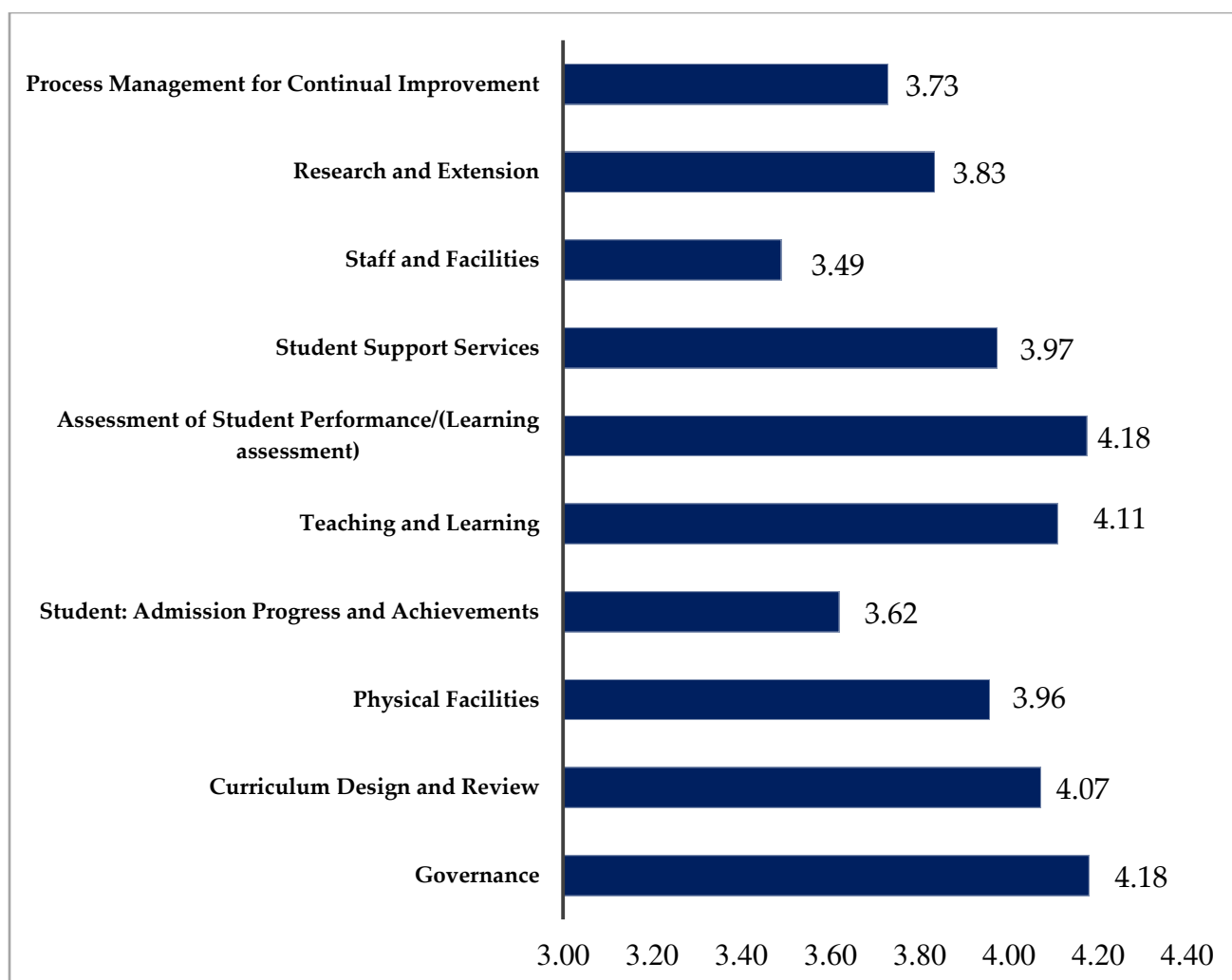
Finally, to have an overall picture of these criteria, combined mean scores of these criteria was shown in table 12.2.

**Table 12.2: Overall mean scores (with t-test) of different criteria of self-assessment by the respondents**

<b>Criteria</b>	<b>No. of respondents</b>	<b>Mean score</b>	<b>SD</b>	<b>t-stat</b>	<b>d.f</b>	<b>p-value</b>
<b>Governance</b>	683	4.18	0.505	61.02	682	0.000
<b>Curriculum Design and Review</b>	671	4.07	0.598	46.45	670	0.000
<b>Physical Facilities</b>	671	3.96	0.611	40.58	670	0.000
<b>Student: Admission Progress and Achievements</b>	671	3.62	0.802	20.02	670	0.000
<b>Teaching and Learning</b>	671	4.11	0.596	48.22	670	0.000
<b>Assessment of Student Performance/(Learning assessment)</b>	671	4.18	0.597	51.06	670	0.000
<b>Student Support Services</b>	671	3.97	0.678	37.24	670	0.000
<b>Staff and Facilities</b>	48	3.49	0.623	5.44	47	0.000
<b>Research and Extension</b>	671	3.83	0.796	27.15	670	0.000
<b>Process Management for Continual Improvement</b>	36	3.73	0.526	8.32	35	0.000

Table 12.2 concluded that the highest mean score was 4.18 for both “Governance” and “Assessment of Student Performance/ (Learning assessment)” and the lowest mean score were 3.49 for “Staff and Facilities”. However, mean scores of all criteria are higher than 3 and also significantly differ from 3 (p-value<0.05).





**Figure 12.2: Overall mean scores of different criteria of self-assessment by the respondents**

**So, from the table 12.1 and 12.2 and from whole study following conclusions can be drawn:**

1. The all criteria of evaluation to assess the present condition of the entity (Department of Pharmacy) were seemed to be good as the mean scores are above 3 significantly i.e., "Some form of process takes place, but policies/procedures/strategies are not clearly stated or documented. Adherence and monitoring takes place but are not consistent". Moreover, some criteria have the mean scores above 4 which indicated that "There are clear and documented

policies, procedures and strategies, which were mostly followed. Conformance to these policies, procedures or strategies is being monitored and action taken for improvement”.

2. From the study it was understood that the qualities of the graduates are important or in some cases very important to the employers.
3. It has been noticed from the study that the qualities of the graduates are evaluated as good/very good (on average) by the employers.
4. But looking deeply it is revealed that expected mean score of knowledge of graduates is significantly higher than evaluated mean scored (table 11.3). Similarly, expected mean score of communication of graduates is significantly higher than evaluated mean score.
5. Although the present condition of the entity seems to be good but, some aspects of physical facilities are not good i.e., students reported that existing gymnasium facilities are not good enough and access to internet facilities with sufficient speed is not available. Alumni also reported about insufficient internet facilities of the entity.
6. No seminar library. But as per Pharmacy Council, Department must have a seminar library along with central library
7. Faculties of the entity reported about inadequate sports facilities
8. As a part of students support services, faculties opined that the entity did not collect alumni feedback to update the learning outcomes of the program. They also loosely said that there are opportunities to be involved with community services.
9. To ensure quality education, staff and facilities should be emphasized. From the study it is found that, salary and incentives are not attractive enough to retain the academic and non-academic staff.

10. Non-academics had not enough opportunity to take part in different training programs for skill development. The entity had very few performance award policies to inspire academic staff.
11. In the question of research, teachers take initiative to hunt research fund for smooth running of the research; but not satisfactorily. In the context of process management and continuous improvement, the entity did not ensure a usual practice for students/ Alumni's feedback as a culture
12. Department have no students counselor to advice for their academic and non academic needs
13. Industry/plant visit is not sufficient
14. There is weak link between theoretical and practical knowledge
15. There is no common room for both male and female students
16. Internet facilities are not wide-spread in whole campus

## **12.2 Recommendations**

The following recommendations are suggested to take under consideration:

1. There are lots of scope to improve in all sectors like, - "Governance", "Curriculum Design and Review", "Student: Admission Progress and Achievements", "Teaching and Learning", "Assessment of Student Performance", "Student Support Services", "Staff and Facilities", "Research and Extension" and "Process Management for Continual Improvement".
2. Staff and academic facilities in every sector should be improved to ensure better education.
3. To operate lab work and other technical activities efficiently, non-academic staff needs to be trained up properly as a part of ensuring quality education.
4. As physical facilities are not adequate, so the highest priority should be given to improve physical facilities like gymnasium, indoor-outdoor sports etc.

5. Classroom facilities with multimedia and sound system, Laboratory facilities, and facilities for conducting research should be updated.
6. Modernization of taking class is need to ensure interactive teaching-learning
7. Industry/plant visit should be increased.
8. Entity should emphasize on practical knowledge along with theoretical knowledge.
9. Department needs a seminar library of its own
10. Knowledge, Communication skills, interpersonal skills and working skills of graduates need to be improved to meet the qualities expected by employers.
11. Department needs to collaborate with different industries as well as universities for the well-being of new graduates
12. Department have no students counselor to advice for their academic and non academic needs
13. Male and female common room is on great demand of students.
14. High speed internet facilities (e.g., Wi-Fi) should be wide spread in the whole campus.
15. Office room is needed for EPSA to continue their activities.

### **12.3 Improvement Plan**

Based on SWOT analysis four improvement plans can be implemented using TOWS Matrix:

**TOWS Matrix – “Turning Opportunities and Weaknesses into Strengths”** - used to develop strategies that take into account the SWOT analysis.

	<b>Strengths</b>	<b>Weaknesses</b>
<b>Opportunities</b>	S-O	W-O
<b>Threats</b>	S-T	W-T

- **S-O strategies** identify potential opportunities that are a good fit to the department/program strengths
- **W-O strategies** identify potential opportunities to overcome weaknesses to pursue opportunities
- **S-T strategies** identify ways that the department/program can use its strengths to reduce its vulnerability to external threats
- **W-T strategies** establish a defensive plan to prevent the department/program's weaknesses from making it highly susceptible to external threats

Since, the Department of Pharmacy, University of Asia Pacific (UAP) has a lot of **STRENGTHS** with promising **OPPORTUNITIES**; so, **S-O strategies** can be implemented.

## APPENDIX I

### COURSES AND CURRICULUM

#### Course structure in Pharmacy Program (B. Pharm)

Course category	No. of course	Credit hour	Total credit
General Education	6	5x3+4x1	19
Foundation	19	12x3+7x1	43
Core	37	25x3+14x1	89
Internship	1	Non credit	0
Project	1	3	3
Oral Examination	8	1	8
<b>Total</b>			<b>162</b>

#### Existing Curriculum, B. Pharm Program

FIRST YEAR, FIRST SEMESTER			FIRST YEAR, SECOND SEMESTER		
CourseCode	Course title	Credits	CourseCode	Course title	Credits
HSS 101	English I - Oral & written communication Skills	3	HSS 103	English II - Language Composition Skills	3
MST 101	Basic Mathematics & Statistics	3	Pharm 113	Organic Pharmacy	3
Pharm 105	Introduction to Pharmacy	3	Pharm 114	Organic Pharmacy Lab	1
HSS 111	Bangladesh Studies: A. Society and Culture	2	Pharm 115	Physical Pharmacy-I	3
	B. Bangladesh History	2	Pharm 116	Physical Pharmacy-I Lab	1
Pharm 111	Inorganic pharmacy-I	3	Pharm 117	Inorganic Pharmacy-II	3
Pharm 112	Inorganic pharmacy Lab	1	Pharm 121	Physiology-I	3
Pharm 131	Pharmacognosy-I	3	Pharm 123	Basic Anatomy	3
Pharm 132	Pharmacognosy-I Lab	1	ORE 102	Oral Examination (Semester-2)	1
ORE 101	Oral Examination (Semester-1)	1			
	<b>Total Credit</b>	<b>22</b>		<b>Total Credit</b>	<b>21</b>

SECOND YEAR, FIRST SEMESTER			SECOND YEAR, SECOND SEMESTER		
CourseCode	Course title	Credits	CourseCode	Course title	Credits
Pharm 215	Physical Pharmacy-II	3	Pharm 229	Pharmaceutical Microbiology-II	3
Pharm 216	Physical Pharmacy-II Lab	1	Pharm 230	Pharmaceutical Microbiology-II Lab	1
Pharm 217	Biochemistry and cellular biology	3	Pharm 241	Pharmaceutical Technology - I	3
Pharm 219	Pharmaceutical Microbiology-I	3	Pharm 242	Pharmaceutical Technology - I Lab	1
Pharm 220	Pharmaceutical Microbiology-I Lab	1	Pharm 243	Pharmaceutical Analysis - I	3
Pharm 221	Physiology-II	3	Pharm 244	Pharmaceutical Analysis - I Lab	1
Pharm 222	Physiology Lab	1	Pharm 251	Basic Pharmaceutics	3
Pharm 231	Pharmacognosy-II	3	Pharm 261	Pharmacology - I	3
Pharm 232	Pharmacognosy-II Lab	1	Pharm 262	Pharmacology - I Lab	1
ORE 201	Oral Examination (Semester-3)	1	ORE 202	Oral Examination (Semester-4)	1
	<b>Total Credit</b>	<b>20</b>		<b>Total Credit</b>	<b>20</b>

THIRD YEAR, FIRST SEMESTER			THIRD YEAR, SECOND SEMESTER		
Cours e Code	Course title	Credits	Course Code	Course title	Credits
Pharm 305	Pharmaceutical Marketing	3	Pharm 307	Pharmaceutical Management	3
Pharm 333	Medicinal Chemistry-I	3	Pharm 335	Medicinal Chemistry - II	3
Pharm 334	Medicinal Chemistry-I Lab	1	Pharm 336	Medicinal Chemistry - II Lab	1
Pharm 341	Pharmaceutical Technology - II	3	Pharm 343	Pharmaceutical Analysis-II & Quality Assurance	3
Pharm 342	Pharmaceutical Technology - II Lab	1	Pharm 344	Pharmaceutical Analysis-II Lab	1
Pharm 353	Biopharmaceutics & Pharmacokinetics - I	3	Pharm 349	Pharmaceutical Engineering-I	3
Pharm	Biopharmaceutics	1	Pharm	Biopharmaceutics&Pharmacokineti	3

354	& Pharmacokinetics - I Lab		355	cs - II	
Pharm 361	Pharmacology - II	3	Pharm 356	Biopharmaceutics&Pharmacokinetics - II Lab	1
Pharm 371	Pathology	3	ORE 302	Oral Examination (Semester-6)	1
ORE 301	Oral Examination (Semester-5)	1			
	<b>Total Credit</b>	<b>22</b>		<b>Total Credit</b>	<b>19</b>

FOURTH YEAR, FIRST SEMESTER			FOURTH YEAR, SECOND SEMESTER		
CourseCode	Course title	Credits	CourseCode	Course title	Credits
Pharm 435	Medicinal Chemistry -III	3	Pharm 445	Cosmetology	3
Pharm 437	Pharmaceutical Regulatory Affairs	3	Pharm 446	Cosmetology-Lab	1
Pharm 441	Pharmaceutical Technology - III	3	Pharm 453	Pharmaceutical Biotechnology	3
Pharm 442	Pharmaceutical Technology - III Lab	1	Pharm 455	Hospital and Community Pharmacy.	3
Pharm 447	Advanced Pharmaceutical Analysis	3	Pharm 457	Pharmaceutical Packaging Technology	3
Pharm 449	Pharmaceutical Engineering-II	3	Pharm 458	Pharmaceutical Packaging Technology- Lab	1
Pharm 461	Pharmacology - III	3	Pharm 409	Thesis or Project	3
ORE 401	Oral Examination (Semester-7)	1	Pharm 407	Practical Training	0
			ORE 402	Oral Examination (Semester -8)	1
	<b>Total Credit</b>	<b>20</b>		<b>Total Credit</b>	<b>18</b>

**\*\*Total credit for Degree is 162.**



**Proposed curriculum, B. Pharm program**

	<b>FIRST YEAR, FIRST SEMESTER</b>	
<b>Course code</b>	<b>Course title</b>	<b>Credits</b>
HSS 101	English I - Oral and written communication Skills	3
<b>MST 101</b>	<b>Basic Mathematics</b>	<b>3</b>
<b>MST 102</b>	<b>Pharmaceutical Statistics</b>	<b>3</b>
Pharm 105	Introduction to Pharmacy	3
HSS 111	Bangladesh Studies: A. Society and Culture	2
	B. Bangladesh History	2
Pharm 111	Inorganic pharmacy-I	3
Pharm 112	Inorganic pharmacy Lab	1
Pharm 131	Pharmacognosy-I	3
	<b>Total Credit</b>	<b>23</b>
	<b>FIRST YEAR, SECOND SEMESTER</b>	
HSS 103	English II - Language Composition Skills	3
Pharm 113	Organic Pharmacy	3
Pharm 114	Organic Pharmacy Lab	1
Pharm 115	Physical Pharmacy-I	3
Pharm 116	Physical Pharmacy-I Lab	1
Pharm 117	Inorganic Pharmacy-II	3
Pharm 121	Physiology-I	3
Pharm 123	Basic Anatomy	3
ORE 102	Oral Examination	1
	<b>Total Credit</b>	<b>21</b>
	<b>SECOND YEAR, FIRST SEMESTER</b>	
Pharm 215	Physical Pharmacy-II	3
Pharm 216	Physical Pharmacy-II Lab	1
Pharm 217	Biochemistry and cellular biology	3
Pharm 219	Pharmaceutical Microbiology-I	3
Pharm 218	Pathology	3

Pharm 221	Physiology-II	3
Pharm 222	Physiology Lab	1
Pharm 231	Pharmacognosy-II	3
Pharm 232	Pharmacognosy Lab	1
	<b>Total Credit</b>	<b>21</b>
	<b>SECOND YEAR, SECOND SEMESTER</b>	
Pharm 229	Pharmaceutical Microbiology-II	3
Pharm 230	Pharmaceutical Microbiology Lab	1
Pharm 241	Pharmaceutical Technology – I	3
Pharm 242	Pharmaceutical Technology - I Lab	1
Pharm 243	Pharmaceutical Analysis - I	3
Pharm 244	Pharmaceutical Analysis - I Lab	1
Pharm 251	Basic Pharmaceutics	3
Pharm 261	Pharmacology – I	3
Pharm 262	Pharmacology - I Lab	1
ORE 202	Oral Examination	1
	<b>Total Credit</b>	<b>20</b>
	<b>THIRD YEAR, FIRST SEMESTER</b>	
Pharm 305	Pharmaceutical Marketing	3
Pharm 333	Medicinal Chemistry-I	3
Pharm 341	Pharmaceutical Technology - II	3
Pharm 342	Pharmaceutical Technology - II Lab	1
<b>Pharm 371</b>	<b>Forensic Pharmacy and Toxicology</b>	<b>3</b>
Pharm 353	Biopharmaceutics and Pharmacokinetics - I	3
Pharm 356	Biopharmaceutics and Pharmacokinetics Lab	1
Pharm 361	Pharmacology - II	3
	<b>Total Credit</b>	<b>20</b>
	<b>THIRD YEAR, SECOND SEMESTER</b>	
Pharm 307	Pharmaceutical Management	3
Pharm 335	Medicinal Chemistry - II	3

Pharm 336	Medicinal Chemistry Lab	1
Pharm 343	Pharmaceutical Analysis-II and Quality Assurance	3
<b>Pharm 342</b>	<b>Nutrition and Nutraceuticals</b>	<b>2</b>
Pharm 344	Pharmaceutical Analysis-II Lab	1
Pharm 349	Pharmaceutical Engineering-I	3
Pharm 355	Biopharmaceutics and Pharmacokinetics - II	3
ORE 302	Oral Examination	1
	<b>Total Credit</b>	<b>20</b>
	<b>FOURTH YEAR, FIRST SEMESTER</b>	
Pharm 435	Medicinal Chemistry -III	3
Pharm 437	Pharmaceutical Regulatory Affairs	3
Pharm 441	Pharmaceutical Technology - III	3
Pharm 442	Pharmaceutical Technology - III Lab	1
Pharm 447	Advanced Pharmaceutical Analysis	3
Pharm 449	Pharmaceutical Engineering-II	3
Pharm 461	Pharmacology - III	3
	<b>Total Credit</b>	<b>19</b>
	<b>FOURTH YEAR, SECOND SEMESTER</b>	
Pharm 445	Cosmetology	3
Pharm 446	Cosmetology-Lab	1
Pharm 453	Pharmaceutical Biotechnology	3
Pharm 455	Hospital and Community Pharmacy	3
<b>Pharm 456</b>	<b>Clinical Pharmacy and Therapeutics</b>	<b>2</b>
Pharm 457	Pharmaceutical Packaging Technology	3
Pharm 409	Project	3
Pharm 407	Practical Training	0
ORE 402	Oral Examination	1
	<b>Total Credit</b>	<b>19</b>
	<b>Total of Pharmacy Credits</b>	<b>163</b>

**Bold indicates proposed course**

**APPENDIX II**  
**PROGRAM: MASTER OF SCIENCE IN PHARMACEUTICAL TECHNOLOGY**

**Existing curriculum**

MS (Pharm. Tech.) degree will be awarded either by completing a minimum of 24credits (Non-Thesis Group) or by completing of minimum of 30 credits (ThesisGroup) comprising of different courses as shown in the following table.

Semester	Course title	Course code	Credits	
			Non-Thesis	Thesis
First Semester	Advance Pharmaceutical Technology	Pharm 541	4	4
	Modern Drug Delivery Systems	Pharm 543	4	4
	Biopharmaceutics& Pharmacokinetics	Pharm 553	4	4
Second Semester	Pharmaceutical Manufacturing Management	Pharm 545	2	
	Advance Pharmaceutical Engineering	Pharm 547	2	
	Project	Pharm 506	6	
	Thesis Paper	Pharm 508		12
	Thesis Presentation	Pharm 500		4
	Viva	Pharm 600	2	2
Total credits			24	30

**APPENDIX III**  
**SAMPLE OF COURSE OUTLINE**

**University of Asia Pacific (UAP)**  
**Department of Pharmacy**

---

**Course Outline**

<b>Program:</b>	Bachelor of Pharmacy (Hons.)
<b>Course Title:</b>	Pharmaceutical Technology-I
<b>Course Code:</b>	Pharm 241
<b>Session:</b>	Fall-2017
<b>Level:</b>	2 <sup>nd</sup> Year 2 <sup>nd</sup> semester
<b>Credit Hour:</b>	3.0
<b>Name &amp; Designation of Teacher:</b>	Irin Dewan, Associate Professor, Dept. of Pharmacy
<b>Office/Room:</b>	Pharm 401
<b>Class Hours:</b>	Monday & Thursday: 03:30 to 05.00 p.m. Tuesday: 12.30 to 2.00 p.m. Wednesday: 2.00 to 3.30 p.m.
<b>Consultation Hours:</b>	Sunday and Tuesday: 3.30 to 5.00 p.m. Monday & Thursday: 2.00-3.30 p.m. Wednesday: 12.30 to 2.00 p.m.
<b>e-mail:</b>	irin_d@uap-bd.edu
<b>Contact No. (Optional):</b>	
<b>Rationale:</b>	This is a core course and a prerequisite to Pharm 341 that will provide a fundamental and comprehensive knowledge about pharmaceutical liquid dosage form.
<b>Pre-requisite (if any):</b>	N/A

**Course Synopsis:** Study and review of pharmaceutical liquid dosage form like solution, suspension, emulsion, suppository, ointment, gel, cream, paste etc.

**Course Objectives (CO):** **The objectives of this course are to:**

1. Review the basic knowledge of liquid dosage form
2. Provide a clear understanding of solution, suspension, emulsion, suppositories, ointment, gel, cream in pharmaceutical standpoint
3. Discuss about release of drugs from individual liquid dosage form along with their mechanism
4. Highlight the manufacturing procedures of individual liquid dosage form and focus on manufacturing problems and their remedies
5. Develop the formulation of the dosage form by using new technology & calculate fundamental mathematical problems

**Learning Outcomes (LO):** **Upon completion of the course, the students will be able to:**

1. Define the basic terms, outline the advantages & disadvantages, classify and compare the different pharmaceutical liquid dosage form
2. Explain the steps involved in the preparation and release of drugs from different liquid dosage form
3. Design the formulation and resolve the different manufacturing problems of liquid dosage form
4. Calculate the different mathematical problems of liquid dosage form

**Teaching-learning and Assessment Strategy:** Lectures, Quizzes, Assignment, Presentation, Exams.

**Linkage of LO with Assessment Methods & their Weights:**

LO	Assessment Methods	Percentage (%)
1-4	Class test/Quiz	10
1&3	Assignments/ Presentation	10
1-2	Midterm Exam	30
1-4	Final Exam	50
	<b>Total</b>	<b>100</b>

**Minimum attendance:** 70% class attendance is mandatory for a student in order to appear at the final examination.

**Mapping of Course LO and Generic Skills:**

Learning Outcome (LO) of the Course	PO or Generic Skills* (Appendix-1)									
	1	2	3	4	5	6	7	8	9	10
Define the basic terms, outline the advantages & disadvantages, classify and compare the different pharmaceutical liquid dosage form	✓		✓	✓						
Explain the steps involved in the preparation and release of drugs from different liquid dosage form	✓	✓	✓	✓						
Design the formulation and resolve the different manufacturing problems of liquid dosage form	✓	✓	✓	✓		✓				
Calculate the different mathematical problems of liquid dosage form	✓	✓	✓	✓						

**Course outline and Course schedule:**

Weeks	Topics	Reading Materials
1	<b>Suppository</b> Anatomy of rectum, Advantages and disadvantages of rectal route, Definition of suppositories, advantages and disadvantages, specification, Drug absorption from rectum, factors affecting rectal absorption	Lachman & Lieberman: Ch 19 Sprowls: Ch 9
2	<b>Suppository</b> Suppository base, classification of suppository base, Preparation of suppository,	Lachman & Lieberman: Ch 19 Sprowls: Ch 9
3	<b>Suppository</b> Problems in formulation, Formulation, Quality control	Lachman & Lieberman: Ch 19 Sprowls: Ch 9
	<b>Assignment 1</b>	
4	<b>Suspension</b> Suspension, classification, advantages and disadvantages, Theory of suspension, Factors that to be considered in suspension	Aulton: Ch 27 Sprowls: Ch 7 Lachman & Lieberman: Ch 16

5	<b>Suspension</b> Method of Floccules Formation	Aulton: Ch 27 Sprowls: Ch 7 Lachman & Lieberman: Ch 16
6	<b>Suspension</b>  Quality Control of Suspensions, formulation of suspension	Aulton: Ch 27 Sprowls: Ch 7 Lachman & Lieberman: Ch 16
	<b>QUIZ 1</b>	
7	Discussion of Midterm Syllabus	
	<b>MIDTERM EXAM</b>	
8	<b>Emulsion</b> Definition, Types of emulsion, advantages and disadvantages, difference between emulsions, Identification of emulsion types, Theory of emulsion	Lachman & Lieberman: Ch 17 Aulton: Ch 27
9	<b>Emulsion</b> Methods of emulsion preparation, stability of emulsion,	Lachman & Lieberman: Ch 17 Aulton: Ch 27 Sprowls: Ch 7
10	<b>Emulsion</b> Evaluation and quality analysis of emulsion, Math practice	Sprowls: Ch 7
	<b>QUIZ 2</b>	
11	<b>Semisolid</b> Definition of semisolid, ideal properties of semisolid dosage form, types of semisolids, ointment base, classification of ointment base, machine used in semisolids, Methods of preparation, formulation of semisolid dosage form.	Sprowls: Ch 8
	<b>QUIZ 3</b>	
12	<b>Solution</b> Definition of Solution, types of solution, advantages and disadvantages, Theory of solution, Different factors affecting solution process, Formulation of solution , Formulation consideration, Pharmaceutical solutions, Formulation additives	Sprowls: Ch 3,4,5
13	<b>Presentation</b>	
14	<b>QUIZ 4 &amp;</b> Discussion of Final Exam Syllabus	
	<b>FINAL EXAM</b>	



### Recommended Books:

#### Basic text(s):

1. Lachmann, L., & Liuberman, H.A. (2009). *The Theory and practice of Industrial Pharmacy*, 2<sup>nd</sup> (Ed.), CBS publishers, New Delhi, India.
2. Aulton, M.E. (2007). *Pharmaceutics: The Science of Dosage Form Design*, 3<sup>rd</sup> (Ed.). Elsevier Ltd., USA.
3. Dittert, L.W., & Sprowis'. (1974). *American Pharmacy*, J.B. Lippincott company, USA.

#### Reference text(s):

1. Alfronso, R., Gennaro, & Remington's'. (1995). *The Science and Practice of Pharmacy*, 19<sup>th</sup> (Ed.). USA.
2. Cooper, & Gunn. (2008). *Dispensing for Pharmaceutical Students*, 12<sup>th</sup> (Ed.). USA.
3. Husa, & Martin. (1971). *Dispensing of Medication*, 7<sup>th</sup> (Ed.). Mack Publishing Co., USA.
4. Bentley. (1977). *Textbook of Pharmaceutics*, 8<sup>th</sup> (Ed.). Bailliere Tindall Publisher, USA.
5. Fishburn. (1965). *An introduction to Pharmaceutical Formulations*.

#### Additional reading material:

Hand notes

#### Grading System:

As per the approved grading scale of University of Asia Pacific (Appendix-2).

#### Student's responsibilities:

Students must come to the class to cover the course materials

They must submit their assignments on time.

They must visit pharmacy shops for acquiring the knowledge of new coming drugs and dosage form

They should to familiar with liquid dosage form

Prepared by	Checked by	Approved by
<b>Irin Dewan</b> Associate Professor Dept. of Pharmacy	<b>Curriculum Committee</b>	<b>Prof. Dr. Mohiuddin Ahmed Bhuiyan</b> Head Dept. of Pharmacy

#### Appendix-1: Generic Skills or Program Outcomes (PO)

Sl. No.	Program Outcome (PO)
1.	Fundamental and Applied Knowledge
2.	Technical Expertise
3.	Problem Identification and Solving Skills
4.	Communication Skills
5.	Professionalism and Ethics
6.	Leadership and Interpersonal Skills
7.	Patient Care and Medication Management
8.	Research and Scientific Knowhow
9.	Entrepreneurship
10.	Life Long Learning Skills

#### Appendix-2: Grading Policy

Numeric Grade	Letter Grade	Grade Point
80% and above	A+	4.00
75% to less than 80%	A	3.75
70% to less than 75%	A-	3.50
65% to less than 70%	B+	3.25
60% to less than 65%	B	3.00
55% to less than 60%	B-	2.75
50% to less than 55%	C+	2.50
45% to less than 50%	C	2.25
40% to less than 45%	D	2.00
Less than 40%	F	0.00

## APPENDIX IV

### EXAMINATION GUIDELINES AND TEMPLATES

#### A. General Guideline for Examiner

The examiner would use a pen with red ink.

- Marks should be clearly visible (it should not be at the very top or at the very bottom).
- Marks should be legible (For ex., the scrutinizer should not be in confusion whether the marks given is 2 or a (✓) tick mark)
- Spellings and Grammatical mistakes should be pointed out (to the extent possible)
- Examiner should keep some evidences that s/he has gone through all the pages of the answer script (by giving at least one tick mark on the page(s); in other words, the scrutinizer should feel that the pages are “seen” by the examiner).

#### B. Exam Rules and Regulations

1. Students should bring their **Admit** and **ID cards** to their exams.
2. The exam room will open at least 10 minutes prior to the start of the exam. Late comers should stay out of the exam room for **10 minutes** and treat it as a punishment.
3. Students should carefully read the instructions on the front page of the examination paper.
4. Students must bring their own pens, pencils, eraser, rulers, and nonprogrammable scientific calculators. And they are not permitted to share or pass these items between each other during the exam period.
5. All electronic devices (**including cell phones**) are strictly prohibited. Cell phones must be turned off and stowed away during the exam.

6. In Mid-Term exams, students are not permitted to exit the room for any reasons before submitting their exam scripts.
7. In Final exams, students might be allowed to exit only for 5 minutes for using washroom. For this purpose, however, they should maintain the log book.
8. No students may be admitted to an examination room after the expiration of **30 minutes** from the commencement of writing.
9. Students are not permitted to roam around the university campus during or after the completion of an examination.
10. University will take stern actions against any kind of unfair activities of the students as per university rules.

### **C. Invigilation Guidelines**

1. Invigilators are expected to be at the exam rooms by **9:45 am** and students will not be allowed before 9:50 am. The exam rooms should be closed at 10:00 o'clock and it will remain closed for 10 minutes for late comers.
2. As per decision of the Discipline Committee meeting, invigilators are instructed to announce the examinations rules and discipline before the start of examination to caution the examinees.
3. Invigilators are expected to round the exam hall and be vigilant.
4. Invigilators are expected to sign the students answer scripts after checking their Admit and ID cards, Registration number, Course Code and other particulars on the front page of answer scripts.
5. Invigilators have to ensure that the students are on their seats as per the seat plan.
6. Invigilators are to ensure that no student possesses mobile/cell phones or any other electronic devices in the exam hall under any circumstances.

7. Students might be allowed to use wash room only for 5 minutes in finalexaminations and invigilators have to monitor the log book in this regard.
8. Invigilators are expected and requested to avoid any activities that may hamperstudents concentration in the exam hall (e.g. reading newspapers, checkinganswer scripts, having tea etc.)
9. Invigilators should ensure that all students record their information accurately in the attendance sheet.
10. Before submission of the answer scripts to the office, invigilators should verifythe number of answer scripts collected matches that of the attendance mentionedon the top sheet.
11. UAP strives to maintain strict discipline in the examinations. The following activities by the examinees shall constitute an offence or misconduct. Students are liable to be punished according to UAP rule if they are found to have committed any such offence as mentioned below:

#### **D. Discipline in examination and disciplinary actions**

<b>Offences</b>	<b>Punishments</b>
1. Any communication between/among students during exam	Warned twice and deduction of 5-15 marks depending on the nature and extent of offence, decided by the concerned invigilators (CI)
2. Appearing at the examination without admit and ID card 3. Possesing objectionable/incriminating paper 4. Leaving the examination hall without submitting the answer script	Cancellation of the particular examination.
5. Refusing to handover objectionable papers or throwing the same out of reach or swallowing them 6. Writing answer on the question paper and copying such answer from the question paper or any illegal material	Cancellation of the concerned semester/decided by UAP exam board with the consent of CI

<p>7. Copying from unauthorized papers, handwritten/printed or photocopied material</p> <p>8. Writing anything on the wall, desk, bench, clothes, blackboard, floor, on the limbs and copying from these writings</p> <p>9. Changing or exchanging roll number/answer scripts between examinees</p> <p>10. Having handwriting of two or more different persons in the same answer scripts</p>	
<p>11. Changing/substituting a cover or inside page of the answer scripts of the university</p> <p>12. Writing something objectionable or irrelevant things in the answer script</p> <p>13. Leaving the examination hall without submitting the answer script</p> <p>14. Trying to avail special advantages illegally on some pretext (fake medical certificates/false incidents etc.)</p>	Cancellation of the concerned semester as a whole

Offences	Punishments
<p>15. Intimidation, abusing, taunting or misbehaving with the invigilators on duty or anybody concerned with the conduction of examinations.</p> <p>16. Impeding/creating obstruction or disturbance in smooth holding/conduction of examinations, or preventing others to take the examination or provoke examinees to leave the examination hall</p>	<p>Expulsion for two semesters immediately including the present one</p>
<p>17. Bringing in answer/additional scripts/question papers or adding such unauthorized answer scripts/sheets with the original answer scripts.</p> <p>18. Taking a seat wrongly in an unauthorized place of his/her earmarked seat/room and refusing to move to his/her authorized place.</p> <p>19. Damaging/ tearing off the answer script/objectionable papers, etc. or refusing or creation any obstruction to handover such papers to the authority.</p>	<p>Expulsion for two consecutive semesters.</p>
<p>20. Assaulting or any such attempt on invigilators or any person concerned with the examinations in and outside the examination hall premises.</p>	<p>Cancellation of the ongoing semester.</p>
<p>21. Appearing at the examination through impersonation.</p> <p>22. Damaging furniture/gadgets/equipments/vehicles, etc. in the examination hall/premises or trying to set fire on such valuables in the examination hall/premises to be part of any act of vandalism.</p>	<p>Appropriate financial realization for the damages made and permanent expulsion from the University.</p>

## TEMPLATE: MODERATOR REPORT OF QUESTION PAPER

University of Asia Pacific

Department:

Program:

Final Examination, Semester:

Course Code:

Course Title:

Credit Hr:

Time:

Total Marks:

Name & Designation of the Moderator(s):

### A. Evaluation of Question Paper:

SL	Items	Accepted as it is	Minor correction	Major Correction
1.	Relevance of the questions according to six levels of Cognitive domain in Bloom's Taxonomy			
2.	Reflection of the learning outcomes in the questions provided			
3.	Breadth of the course material supposed to be covered during			
4.	Clarity of the questions provided			
5.	Distribution of marks allocated for each question			
6.	Correctness of the grammar and spelling			
7.	Format followed as prescribed by the department			

### B. Suggested modifications (if necessary) for the questions

Question No.      Suggestions:

Question No.      Suggestions:

Question No.      Suggestions:

### C. Overall Comments of the Moderator(s)

.....  
.....  
.....

Moderated and Accepted ☐

Signature of the Moderator(s)

Date:



## TEMPLATE: TABLE OF SPECIFICATIONS FOR EXAM QUESTIONS

University of Asia Pacific  
Department:  
Final Examinations, Semester:  
Program:

Course Code:

Course Title:

Credit Hr:

Time:

Total Marks:

Name & Designation of the Examiner:

Learning Outcomes (LO):

LO 1:

LO 2:

LO 3:

LO 4:

*Levels in Bloom's Cognitive Domain:*

*C1: Remember      C2: Understand      C3: Apply      C4: Analyze      C5: Evaluate      C6: Create*

Question No.	Learning Outcomes (LO)	Level in Bloom's Cognitive Domain along with Allocation of Marks					
		C1	C2	C3	C4	C5	C6
Q1 (a)							
Q1 (b)							
Q2 (a)							
Q2 (b)							
Q3							
Q4							
Q5							
<b>Total Allocation of Marks</b>							

Signature of the Examiner

Date:

**TEMPLATE: SCRUTINIZER REPORT ON ANSWER SCRIPTS**

**University of Asia Pacific**  
**Department:**  
**Final Examination, Semester:**  
**Program:**

**Course Code**

**Course Title**

**Credit Hr:**

**Time:**

**Total Marks:**

**Name & Designation of the Scrutinizer(s):**

**Name & Designation of the Examiner:**

**A. Scrutiny of Answer Scripts**

SL	ITEM	Corrections needed	Corrections not needed	Remarks
1.	Examiner's signature was given on answer scripts			
2.	Invigilator's signature was given on answer scripts			
3.	Cover page of the answer script (Q. No./Full Marks/Marks Obtained) was filled by examiner.			
4.	Calculation of total marks in the cover page of answer script is correct			
5.	Marks were given for each part of a question i.e.1(a); 1(b); 1(c)			
6.	No answer was left unmarked/not graded.			
7.	Errors, spelling or grammatical mistakes were highlighted by the examiner			
8.	There is no anomaly between answer script marks and the marks in printed report from automation			

**B. Overall Comments of the Scrutinizer(s) [if any]**

.....  
.....  
.....

**Signature of Scrutinizer:**

**Date (Answer script received):**

**Date (Answer script Delivered):**

## APPENDIX V SURVEY ANALYSIS

**Table 1: Frequency distribution of students evaluation about governance**

<b>Aspects of evaluation</b>	<b>Strongly disagree</b>	<b>Disagree</b>	<b>Undecided</b>	<b>Agree</b>	<b>Strongly agree</b>	<b>Mean score</b>	<b>p-value</b>
1. Vision, mission and objectives of the entity are clearly stated	2 (1)	4 (1)	17 (4)	134 (34)	238 (60)	4.52	0.000
2. Academic decisions are taken by the entity with fairness and transparency	7 (2)	16 (4)	27 (7)	193 (49)	152 (38)	4.18	0.000
3. The intended learning outcomes (ILOs) satisfy the stated mission and objectives of the entity	4 (1)	12 (3)	57 (14)	188 (48)	134 (34)	4.10	0.000
4. The entity has adequate infrastructures to satisfy its mission and objectives	7 (2)	27 (7)	47 (12)	184 (47)	130 (33)	4.02	0.000
5. Academic calendars are maintained strictly by the entity	6 (2)	7 (2)	17 (4)	94 (24)	271 (69)	4.56	0.000
6. Results are published timely in compliance with the ordinance	2 (1)	12 (3)	26 (7)	116 (29)	239 (61)	4.46	0.000
7. The entity reviews its policy and procedures periodically for further improvement	9 (2)	13 (3)	63 (16)	178 (45)	132 (33)	4.04	0.000
8. Codes of conduct for the students and employees are well communicated	8 (2)	23 (6)	37 (9)	159 (40)	168 (43)	4.15	0.000
9. Disciplinary rules and regulations are explicitly defined and well circulated	4 (1)	8 (2)	38 (10)	132 (33)	213 (54)	4.37	0.000
10. Website is updated properly	40 (10)	69 (17)	63 (16)	132 (33)	91 (23)	3.42	0.000

11.The entity provides comprehensive guidelines to the students in advance by means of a brochure/handbook	5 (1)	12 (3)	53 (13)	153 (39)	172 (44)	4.20	0.000
12.The entity ensures a conducive learning environment	5 (1)	12 (3)	46 (12)	181 (46)	151 (38)	4.17	0.000
13.Students opinion regarding academic and extra-academic matters are addressed properly	17 (4)	40 (10)	85 (22)	141 (36)	112 (28)	3.74	0.000

**Table 2: Frequency distribution of alumni's evaluation about governance**

Aspects of evaluation	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	Mean score	p-value
1. Vision, mission and objectives of the entity are clearly stated	0 (0)	0 (0)	20 (8)	69 (29)	151 (63)	4.55	0.000
2. Academic decisions are taken by the entity with fairness and transparency	1 (0)	2 (1)	9 (4)	84 (35)	144 (60)	4.53	0.000
3. The intended learning outcomes (ILOs) satisfy the stated mission and objectives of the entity	1 (0)	0 (0)	23 (10)	101 (42)	115 (48)	4.37	0.000
4. The entity has adequate infrastructures to satisfy its mission and objectives	0 (0)	2 (1)	21 (9)	128 (53)	89 (37)	4.27	0.000
5. Academic calendars are maintained strictly by the entity	2 (1)	0 (0)	17 (7)	125 (52)	96 (40)	4.30	0.000
6. Results are published timely in compliance with the ordinance	0 (0)	2 (1)	14 (6)	126 (52)	98 (41)	4.33	0.000
7. The entity reviews its policy and procedures periodically for further	1 (0)	4 (2)	33 (14)	137 (57)	65 (27)	4.09	0.000

improvement							
8. Codes of conduct for the students and employees are well communicated	0 (0)	4 (2)	29 (12)	152 (63)	55 (23)	4.08	0.000
9. Disciplinary rules and regulations are explicitly defined and well circulated	0 (0)	6 (2)	29 (12)	137 (57)	68 (28)	4.11	0.000
10. Website is updated properly	7 (3)	14 (6)	52 (22)	117 (49)	50 (21)	3.79	0.000
11.The entity provides comprehensive guidelines to the students in advance by means of a brochure/handbook	1 (0)	5 (2)	29 (12)	132 (55)	73 (30)	4.13	0.000
12.The entity ensures a conducive learning environment	0 (0)	4 (2)	21 (9)	152 (63)	63 (26)	4.14	0.000
13.Students opinion regarding academic and extra-academic matters are addressed properly	0 (0)	5 (2)	31 (13)	144 (60)	60 (25)	4.08	0.000

**Table 3: Frequency distribution of faculties evaluation about governance**

Aspects of evaluation	Strongly disagree	Disagree	Undecided	Agree	Strongly Agree	Mean score	p-value
1.Vision, mission and objectives of the entity are clearly stated	0 (0)	0 (0)	5 (14)	21 (58)	10 (28)	4.14	0.000
2. Academic decisions are taken by the entity with fairness and transparency	0 (0)	0 (0)	4 (11)	11 (31)	21 (58)	4.47	0.000

3.The intended learning outcomes (ILOs) satisfy the stated mission and objectives of the entity	0 (0)	0 (0)	7 (19)	23 (64)	6 (17)	3.97	0.000
4. The entity has adequate infrastructures to satisfy its mission and objectives	1 (3)	3 (8)	4 (11)	19 (53)	9 (25)	3.89	0.000
5. Academic calendars are maintained strictly by the entity	0 (0)	0 (0)	1 (3)	8 (22)	27 (75)	4.72	0.000
6. Results are published timely in compliance with the ordinance	0 (0)	0 (0)	1 (3)	4 (11)	31 (86)	4.83	0.000
7. The entity reviews its policy and procedures periodically for further improvement	0 (0)	1 (3)	5 (14)	18 (50)	12 (33)	4.14	0.000
8. Codes of conduct for the students and employees are well communicated	0 (0)	1 (3)	5 (14)	17 (47)	13 (36)	4.17	0.000
9. Disciplinary rules and regulations are explicitly defined and well circulated	1 (3)	2 (6)	2 (6)	15 (42)	16 (44)	4.19	0.000
10. Website is updated properly	0 (0)	3 (8)	11 (31)	14 (39)	8 (22)	3.75	0.000
11. The entity provides comprehensive guidelines to the students in advance by means of a brochure/handbook	0 (0)	1 (3)	3 (8)	19 (53)	13 (36)	4.22	0.000
12. Documentations (decisions of committees, class attendance registers, questions, answer scripts, marks, examination results, students progress etc.,) are maintained properly	0 (0)	1 (3)	0 (0)	11 (31)	24 (67)	4.61	0.000
13. Decision making procedure in the entity is participatory	0 (0)	1 (3)	1 (3)	21 (58)	13 (36)	4.28	0.000

14. The entity ensures a conducive learning environment	0 (0)	0 (0)	3 (8)	14 (39)	19 (53)	4.44	0.000
15. Students opinion regarding academic and extra-academic matters are addressed properly	0 (0)	1 (3)	7 (19)	19 (53)	9 (25)	4.00	0.000

**Table 4: Frequency distribution of non-academic staffs' evaluation about governance**

Aspects of evaluation	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	Mean score
1. Vision, mission and objectives of the entity are clearly stated	0 (0)	2 (17)	0 (0)	1 (8)	9 (75)	4.42
2. Academic decisions are taken by the entity with fairness and transparency	1 (8)	0 (0)	0 (0)	4 (33)	7 (58)	4.33
3. The intended learning outcomes (ILOs) satisfy the stated mission and objectives of the entity	0 (0)	0 (0)	2 (17)	2 (17)	8 (67)	4.50
4. The entity has adequate infrastructures to satisfy its mission and objectives	0 (0)	0 (0)	2 (17)	2 (17)	8 (67)	4.50
5. Academic calendars are maintained strictly by the entity	1 (8)	0 (0)	0 (0)	1 (8)	10 (83)	4.58
6. Results are published timely in compliance with the ordinance	0 (0)	0 (0)	0 (0)	3 (25)	9 (75)	4.75
7. The entity reviews its policy and procedures periodically for further improvement	0 (0)	0 (0)	1 (8)	2 (17)	9 (75)	4.67
8. Codes of conduct for the students and employees are well communicated	0 (0)	0 (0)	2 (17)	2 (17)	8 (67)	4.50
9. Disciplinary rules and regulations are explicitly defined and well circulated	0 (0)	2 (17)	0 (0)	1 (8)	9 (75)	4.42
10. Website is updated properly	1 (8)	0 (0)	1 (8)	4 (33)	6 (50)	4.17

11. The entity provides comprehensive guidelines to the students in advance by means of a brochure/handbook	0 (0)	0 (0)	2 (17)	1 (8)	9 (75)	4.58
-------------------------------------------------------------------------------------------------------------	----------	----------	-----------	----------	-----------	------

**Table 5: Frequency distribution of students evaluation about curriculum**

Aspects of evaluation	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	Mean	P-value
1.Courses in the curriculum from lower to higher levels are consistently arranged	4 (1)	6 (2)	22 (6)	151 (38)	212 (54)	4.42	0.000
2.Teaching strategies are clearly stated in the curriculum	8 (2)	7 (2)	32 (8)	153 (39)	195 (49)	4.32	0.000
3.Assessment strategies are explicit in the curriculum	2 (1)	12 (3)	43 (11)	168 (43)	170 (43)	4.25	0.000
4.Curriculum load is optimum and exerts no pressure	48 (12)	87 (22)	70 (18)	117 (30)	73 (18)	3.20	0.002

**Table 6: Frequency distribution of alumni's evaluation about curriculum**

Aspects of evaluation	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	Mean	P-value
1.Courses in the curriculum from lower to higher levels are consistently arranged	0 (0)	2 (1)	17 (7)	125 (52)	96 (40)	4.31	0.00
2.Teaching strategies are clearly stated in the curriculum	0 (0)	1 (0)	22 (9)	141 (59)	76 (32)	4.22	0.00
3.Assessment strategies are explicit in the curriculum	0 (0)	4 (2)	21 (9)	142 (59)	73 (30)	4.18	0.00
4.Curriculum load is optimum and exerts no pressure	1 (0)	13 (5)	33 (14)	142 (59)	51 (21)	3.95	0.00



5.The curriculum is effective in achieving day-one skill (which happens right at the beginning in the first day at job place)	0 (0)	9 (4)	33 (14)	146 (61)	52 (22)	4.00	0.000
-------------------------------------------------------------------------------------------------------------------------------	----------	----------	------------	-------------	------------	------	-------

**Table 7: Frequency distribution of faculties evaluation about curriculum**

Aspects of evaluation	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	Mean score	p-value
1. Curriculum is reviewed and updated at regular intervals in compliance with the rules of the universities	0 (0)	0 (0)	5 (14)	17 (47)	14 (39)	4.25	0.000
2. Opinions from the relevant stakeholders (students, teachers, employers and alumni) are duly considered during review of the curriculum	1 (3)	2 (6)	10 (28)	16 (44)	7 (19)	3.72	0.000
3. Courses in the curriculum from lower to higher levels are consistently arranged	0 (0)	1 (3)	1 (3)	14 (39)	20 (56)	4.47	0.000
4. Teaching strategies are clearly stated in the curriculum	0 (0)	3 (8)	5 (14)	20 (56)	8 (22)	3.92	0.000
5. Assessment strategies are explicit in the curriculum	0 (0)	0 (0)	2 (6)	20 (56)	14 (39)	4.33	0.000
6. Curriculum load is optimum and exerts no pressure	2 (6)	3 (8)	4 (11)	15 (42)	12 (33)	3.89	0.000
7. Curriculum addresses the program objectives and program learning outcomes	2 (6)	3 (8)	4 (11)	18 (50)	9 (25)	3.81	0.000
8. The curriculum is effective in achieving day-one skill (which happens right at the beginning in the first day at job place)	2 (6)	2 (6)	8 (22)	17 (47)	7 (19)	3.69	0.000

**Table 8: Frequency distribution of students evaluation about student entry qualification, admission procedure etc.**

Aspects of evaluation	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	Mean score	p-value
1. Admission policy ensures entry of quality students	9 (2)	9 (2)	30 (8)	123 (31)	224 (57)	4.38	0.000
2. Commitment among students is observed to ensure desired progress and achievement	4 (1)	16 (4)	57 (14)	208 (53)	110 (28)	4.02	0.000
3. Admission procedure is quite fair	6 (2)	8 (2)	38 (10)	132 (33)	211 (53)	4.35	0.000
4. Students progress are regularly recorded and monitored	15 (4)	27 (7)	63 (16)	141 (36)	149 (38)	3.97	0.000
5. Teachers provide regular feedback to the students about their progress	13 (3)	26 (7)	58 (15)	136 (34)	162 (41)	4.03	0.000
6. The entity maintains individual student's records properly	11 (3)	22 (6)	57 (14)	132 (33)	173 (44)	4.10	0.000

**Table 9: Frequency distribution of alumni's evaluation about student entry qualification, admission procedure achievement**

Aspects of evaluation	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	Mean score	p-value
1. Admission policy ensures entry of quality students	2 (1)	4 (2)	25 (10)	111 (46)	98 (41)	4.25	0.000
2. Commitment among students is observed to ensure desired progress and achievement	1 (0)	0 (0)	32 (13)	127 (53)	80 (33)	4.19	0.000
3. Admission procedure is quite fair	0 (0)	2 (1)	19 (8)	140 (58)	79 (33)	4.23	0.000
4. Students progress are regularly recorded and monitored	2 (1)	2 (1)	27 (11)	154 (64)	55 (23)	4.08	0.000

5. Teachers provide regular feedback to the students about their progress	1 (0)	4 (2)	23 (10)	142 (59)	70 (29)	4.15	0.000
6. The entity maintains individual student's records properly	1 (0)	2 (1)	38 (16)	139 (58)	60 (25)	4.06	0.000

**Table 10: Frequency distribution of faculties evaluation about student entry qualification, admission procedure achievement**

Aspects of evaluation	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	Mean score	p-value
1. Admission policy ensures entry of quality students	1 (3)	1 (3)	2 (6)	18 (50)	14 (39)	4.19	0.000
2. Commitment among students is observed to ensure desired progress and achievement	0 (0)	2 (6)	7 (19)	22 (61)	5 (14)	3.83	0.000
3. Admission procedure is quite fair	0 (0)	1 (3)	3 (8)	9 (25)	23 (64)	4.50	0.000
4. Students progress are regularly recorded and monitored	0 (0)	1 (3)	0 (0)	20 (56)	15 (42)	4.36	0.000
5. Teachers provide regular feedback to the students about their progress	0 (0)	2 (6)	2 (6)	20 (56)	12 (33)	4.17	0.000
6. The entity maintains individual student's records properly	0 (0)	2 (6)	2 (6)	12 (33)	20 (56)	4.39	0.000

**Table 11: Frequency distribution of students evaluation about physical facilities**

Aspects of evaluation	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	Mean score	p-value
1. Classroom facilities are suitable for ensuring effective learning	18 (5)	35 (9)	39 (10)	128 (32)	175 (44)	4.03	0.000
2. Laboratory facilities	14	33	45	151	152	4.00	0.000

are congenial for practical teaching-learning	(4)	(8)	(11)	(38)	(38)		
3. Facilities for conducting research are adequate	22 (6)	33 (8)	106 (27)	152 (38)	82 (21)	3.61	0.000
4.The library has adequate up-to-date reading and reference materials to meet the academic & research needs	27 (7)	50 (13)	67 (17)	148 (37)	103 (26)	3.63	0.000
5.Indoor and outdoor medical facilities are adequate	43 (11)	67 (17)	82 (21)	128 (32)	75 (19)	3.32	0.000
6.There are adequate sports facilities (indoor and outdoor)	55 (14)	71 (18)	50 (13)	143 (36)	76 (19)	3.29	0.000
7.Existing gymnasium facilities are good enough	255 (65)	71 (18)	31 (8)	20 (5)	18 (5)	1.67	0.000
8.Access to internet facilities with sufficient speed is available	149 (38)	88 (22)	49 (12)	61 (15)	48 (12)	2.42	0.000

**Table 12: Frequency distribution of alumni's evaluation about physical facilities**

Aspects of evaluation	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	Mean score	p-value
1.Classroom facilities are suitable for ensuring effective learning	0 (0)	2 (1)	30 (12)	121 (50)	87 (36)	4.22	0.000
2. Laboratory facilities are congenial for practical teaching-learning	0 (0)	3 (1)	22 (9)	141 (59)	74 (31)	4.19	0.000
3. Facilities for conducting research are adequate	3 (1)	9 (4)	34 (14)	138 (57)	56 (23)	3.98	0.000

4.The library has adequate up-to-date reading and reference materials to meet the academic & research needs	3 (1)	8 (3)	38 (16)	139 (58)	52 (22)	3.95	0.000
5.Indoor and outdoor medical facilities are adequate	3 (1)	18 (8)	88 (37)	92 (38)	39 (16)	3.61	0.000
6.There are adequate sports facilities (indoor and outdoor )	6 (2)	18 (8)	78 (32)	87 (36)	51 (21)	3.66	0.000
7.Existing gymnasium facilities are good enough	78 (32)	29 (12)	58 (24)	46 (19)	29 (12)	2.66	0.000
8.Access to internet facilities with sufficient speed are available	17 (7)	45 (19)	66 (28)	72 (30)	40 (17)	3.30	0.000

**Table 13: Frequency distribution of faculties evaluation about physical facilities**

Aspects of evaluation	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	Mean score	p-value
1. Classroom facilities are suitable for ensuring effective learning	0 (0)	5 (14)	1 (3)	17 (47)	13 (36)	4.06	0.000
2. Laboratory facilities are congenial for practical teaching-learning	0 (0)	2 (6)	4 (11)	18 (50)	12 (33)	4.11	0.000
3. Facilities for conducting research are adequate	1 (3)	5 (14)	6 (17)	19 (53)	5 (14)	3.61	0.001
4.The library has adequate up-to-date reading and reference materials to meet the academic & research needs	0 (0)	2 (6)	13 (36)	17 (47)	4 (11)	3.64	0.000
5. Indoor and outdoor medical facilities are adequate	1 (3)	4 (11)	14 (39)	15 (42)	2 (6)	3.36	0.017

6. There are adequate sports facilities (indoor and outdoor )	2 (6)	8 (22)	7 (19)	17 (47)	2 (6)	3.25	0.163
7. Existing gymnasium facilities are good enough	14 (39)	8 (22)	12 (33)	2 (6)	0 (0)	2.06	0.000
8. Office equipment are adequate to support the students need	2 (6)	5 (14)	9 (25)	15 (42)	5 (14)	3.44	0.019
9. Entity has competent manpower to run the academic affairs	2 (6)	4 (11)	3 (8)	21 (58)	6 (17)	3.69	0.000
10. Access to internet facilities with sufficient speed are available	0 (0)	4 (11)	6 (17)	18 (50)	8 (22)	3.83	0.000

**Table 14.a: Frequency distribution of students evaluation about Teaching-learning**

Aspects of evaluation	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	Mean score	p-value
1. Teaching-learning is interactive and supportive	3 (1)	8 (2)	25 (6)	167 (42)	192 (49)	4.36	0.000
2. Class size is optimum for interactive teaching learning	5 (1)	15 (4)	14 (4)	164 (42)	197 (50)	4.35	0.000
3. Entity provides adequate opportunities for practical exercises to apply in real life situation	20 (5)	44 (11)	83 (21)	149 (38)	99 (25)	3.67	0.000
4. Modern devices are used to improve teaching-learning process	10 (3)	28 (7)	45 (11)	180 (46)	132 (33)	4.00	0.000
5. Diverse methods are practiced to achieve learning objectives	8 (2)	32 (8)	86 (22)	153 (39)	116 (29)	3.85	0.000
6. Lesson plans/course outlines are provided to the students in	7 (2)	9 (2)	25 (6)	102 (26)	252 (64)	4.48	0.000

advance							
---------	--	--	--	--	--	--	--

**Table 14.b: Assessment of Student Performance (Learning Assessment)**

Aspects of evaluation	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	Mean	P-value
1. Assessment systems are duly communicated to students at the outset of the term/semester	5 (1)	13 (3)	36 (9)	152 (38)	189 (48)	4.28	0.000
2. Assessment procedures meet the objectives of the course	7 (2)	6 (2)	35 (9)	189 (48)	158 (40)	4.23	0.000
3. Both formative (quizzes, assignments, term papers, continuous assessments, presentations etc.) and summative assessment (final examination) strategies are followed	4 (1)	3 (1)	25 (6)	117 (30)	246 (62)	4.51	0.000
4. Diverse methods are used for assessment	13 (3)	19 (5)	51 (13)	165 (42)	147 (37)	4.05	0.000
5. The students are provided feedback immediately after assessment	14 (4)	37 (9)	47 (12)	164 (42)	133 (34)	3.92	0.000

**Table 15.a Frequency distribution of teaching learning evaluated by alumni**

Aspects of Evaluation	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	Mean score	p-value
1. Teaching-learning is interactive and supportive	1 (0)	1 (0)	18 (8)	131 (55)	89 (37)	4.28	0.000

2. Class size is optimum for interactive teaching learning	0 (0)	1 (0)	18 (8)	143 (60)	78 (32)	4.24	0.000
3. Entity provides adequate opportunities for practical exercises to apply in real life situation	0 (0)	5 (2)	32 (13)	144 (60)	59 (25)	4.07	0.000
4. Students attained additional practical ideas apart from class room teaching	2 (1)	4 (2)	35 (15)	147 (61)	52 (22)	4.01	0.000
5. Modern devices are used to improve teaching-learning process	0 (0)	6 (2)	34 (14)	127 (53)	73 (30)	4.11	0.000
6. Diverse methods are practiced to achieve learning objectives	1 (0)	8 (3)	42 (18)	132 (55)	57 (24)	3.98	0.000
7. Lesson plans/course outlines are provided to the students in advance	0 (0)	5 (2)	31 (13)	134 (56)	70 (29)	4.12	0.000

**Table 15.b: Frequency distribution of learning assessment evaluated by alumni**

Aspects of evaluation	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	Mean score	p-value
1. Assessment systems are duly communicated to students at the outset of the term/semester	0 (0)	4 (2)	17 (7)	144 (60)	75 (31)	4.21	0.000
2. Assessment procedures meet the objectives of the course	0 (0)	2 (1)	26 (11)	143 (60)	69 (29)	4.16	0.000
3. Both formative (quizzes, assignments, term papers, continuous assessments, presentations etc.) and summative assessment (final examination) strategies are followed	0 (0)	3 (1)	20 (8)	142 (59)	75 (31)	4.20	0.000
4. Diverse methods are used for assessment	1 (0)	4 (2)	33 (14)	147 (61)	55 (23)	4.05	0.000



5. The students are provided feedback immediately after assessment	2 (1)	3 (1)	27 (11)	152 (63)	56 (23)	4.07	0.000
--------------------------------------------------------------------	----------	----------	------------	-------------	------------	------	-------

**Table 16.a Frequency distribution of teaching learning evaluated by faculties**

Aspects of evaluation	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	Mean	p-value
1. Teaching-learning is interactive and supportive	0 (0)	0 (0)	0 (0)	25 (69)	11 (31)	4.31	0.000
2. Class size is optimum for interactive teaching learning	1 (3)	7 (19)	9 (25)	11 (31)	8 (22)	3.50	0.012
3. Entity provides adequate opportunities for practical exercises to apply in real life situation	0 (0)	7 (19)	10 (28)	14 (39)	5 (14)	3.47	0.006
4. Teaching-learning process encompasses co-curricular activities to enrich students personal development	0 (0)	3 (8)	4 (11)	20 (56)	9 (25)	3.97	0.000
5. Modern devices are used to improve teaching-learning process	0 (0)	1 (3)	4 (11)	21 (58)	10 (28)	4.11	0.000
6. Diverse methods are practiced to achieve learning objectives	0 (0)	0 (0)	12 (33)	19 (53)	5 (14)	3.81	0.000
7. Lesson plans/course outlines are provided to the students in advance	(0)	(0)	1 (3)	12 (33)	23 (64)	4.61	0.000

**Table 16.b Learning assessment surveyed by faculties**

Aspects of evaluation	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	Mean	P-value
1. Assessment systems are duly communicated to students at the outset of the term/semester	0 (0)	0 (0)	2 (6)	15 (42)	19 (53)	4.47	0.000
2. Assessment procedures meet the objectives of the course	0 (0)	0 (0)	1 (3)	23 (64)	12 (33)	4.31	0.000
3. The assessment system is reviewed at regular intervals	0 (0)	0 (0)	10 (28)	15 (42)	11 (31)	4.03	0.000
4. Both formative (quizzes, assignments, term papers, continuous assessments, presentations etc.) and summative assessment (final examination) strategies are followed	0 (0)	0 (0)	2 (6)	18 (50)	16 (44)	4.39	0.000
5. Diverse methods are used for assessment	0 (0)	2 (6)	3 (8)	23 (64)	8 (22)	4.03	0.000
6. The students are provided feedback immediately after assessment	0 (0)	2 (6)	4 (11)	23 (64)	7 (19)	3.97	0.000
7. Fairness and transparency is maintained in assessment system	0 (0)	0 (0)	0 (0)	18 (50)	18 (50)	4.50	0.000

**Table 17: Frequency distribution of student support services by students**

Aspects of evaluation	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	Mean score	p-value
1. There is an arrangement in the entity to provide an academic guidance and counseling	18 (5)	32 (8)	58 (15)	165 (42)	122 (31)	3.86	0.000
2. Financial grants are	23	24	60	159	129	3.88	0.000

available to the students in case of hardship	(6)	(6)	(15)	(40)	(33)		
3.The entity provides co-curricular and extra-curricular exposures to the students	9 (2)	27 (7)	69 (17)	171 (43)	119 (30)	3.92	0.000
4.There is an organized and supportive alumni association	24 (6)	11 (3)	59 (15)	118 (30)	183 (46)	4.08	0.000
5.The entity collects alumni feedback to update the learning outcomes of the program	17 (4)	20 (5)	97 (25)	139 (35)	122 (31)	3.83	0.000
6. There are opportunities to be involved with community services	15 (4)	24 (6)	73 (18)	131 (33)	152 (38)	3.96	0.000

**Table18: Frequency distribution of student support services by alumni**

Aspects of evaluation	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	Mean score	p-value
1.There is an arrangement in the entity to provide an academic guidance and counseling	4 (2)	8 (3)	23 (10)	124 (52)	81 (34)	4.13	0.000
2.Financial grants are available to the students in case of hardship	0 (0)	0 (0)	22 (9)	148 (62)	70 (29)	4.20	0.000
3.The entity provides co-curricular and extra-curricular exposures to the students	1 (0)	3 (1)	22 (9)	160 (67)	54 (22)	4.10	0.000
4.There is an organized and supportive alumni association	2 (1)	2 (1)	28 (12)	149 (62)	59 (25)	4.09	0.000
5.The entity collects alumni feedback to update the learning outcomes of the program	3 (1)	3 (1)	32 (13)	143 (60)	59 (25)	4.05	0.000
6. There are opportunities to be involved with community services	2 (1)	6 (2)	31 (13)	150 (62)	51 (21)	4.01	0.000

**Table 19: Frequency distribution of student support services by faculties**

Aspects of evaluation	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	Mean score	p-value
1. There is an arrangement in the entity to provide an academic guidance and counseling	0 (0)	1 (3)	4 (11)	21 (58)	10 (28)	4.11	0.000
2. Financial grants are available to the students in case of hardship	0 (0)	2 (6)	3 (8)	16 (44)	15 (42)	4.22	0.000
3. The entity provides co-curricular and extra-curricular exposures to the students	0 (0)	0 (0)	2 (6)	21 (58)	13 (36)	4.31	0.000
4. There is an organized and supportive alumni association	0 (0)	3 (8)	5 (14)	17 (47)	11 (31)	4.00	0.000
5. The entity collects alumni feedback to update the learning outcomes of the program	6 (17)	7 (19)	14 (39)	7 (19)	2 (6)	2.78	0.244
6. There are opportunities to be involved with community services	7 (19)	1 (3)	11 (31)	13 (36)	4 (11)	3.17	0.439

**Table 20: Frequency distribution of evaluation about Staff and Facilities by faculties**

Aspects of evaluation	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	Mean score	p-value
1. Recruitment policy and practices are good enough for recruitment of competent academic and non-academic staff	0 (0)	0 (0)	2 (6)	16 (44)	18 (50)	4.44	0.000
2. Salary and incentives are attractive enough to retain the academic and non-academic staff	8 (22)	7 (19)	6 (17)	13 (36)	2 (6)	2.83	0.446
3. Good team spirit exists among different academic staff	0 (0)	1 (3)	1 (3)	24 (67)	10 (28)	4.19	0.000

4. A congenial atmosphere prevails to enhance professional knowledge through research and higher studies	0 (0)	4 (11)	5 (14)	19 (53)	8 (22)	3.86	0.000
5. Academics have enough opportunity to take part in different seminar/workshop/training programs for skill development	1 (3)	2 (6)	6 (17)	22 (61)	5 (14)	3.78	0.000
6. Non-academics have enough opportunity to take part in different training programs for skill development	3 (8)	7 (19)	14 (39)	11 (31)	1 (3)	3.00	1.000
7. The entity has a policy to provide mentoring/continuous guidance for new academic staff	0 (0)	6 (17)	7 (19)	21 (58)	2 (6)	3.53	0.001
8. The entity practices seminars and workshops to share knowledge and experience among the faculty members	0 (0)	5 (14)	10 (28)	15 (42)	6 (17)	3.61	0.000
9. The entity has a performance award policy to inspire academic staff	16 (44)	6 (17)	9 (25)	5 (14)	0 (0)	2.08	0.000
10. Performance indicators are the criteria for promotion/up-gradation	2 (6)	4 (11)	10 (28)	16 (44)	4 (11)	3.44	0.014

**Table 21: Frequency distribution of evaluation about Staff and Facilities by non-academic staff**

Aspects of evaluation	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	Mean score
1. Recruitment policy and practices are good enough for recruitment of competent academic and non-academic staff	0 (0)	1 (8)	0 (0)	1 (8)	10 (83)	4.67
2. Salary and incentives are attractive enough to retain the academic and non-academic staff	6 (50)	1 (8)	2 (17)	2 (17)	1 (8)	2.25
3. Good team spirit exists among different non-academic staff	0 (0)	1 (8)	2 (17)	0 (0)	9 (75)	4.42
4. A congenial atmosphere prevails to enhance professional knowledge through research and higher studies	0 (0)	2 (17)	0 (0)	2 (17)	8 (67)	4.33
5. Academics have enough opportunity to take part in different seminar/workshop/training programs for skill development	0 (0)	1 (8)	2 (17)	1 (8)	8 (67)	4.33
6. Non-academics have enough opportunity to take part in different training programs for skill development	8 (67)	3 (25)	0 (0)	0 (0)	1 (8)	1.58
7. The entity has a policy to provide mentoring/continuous guidance for new academic staff	2 (17)	1 (8)	0 (0)	3 (25)	6 (50)	3.83
8. The entity practices seminars and workshops to share knowledge and experience among the faculty members	0 (0)	0 (0)	2 (17)	3 (25)	7 (58)	4.42
9. The entity has a performance award policy to inspire academic staff	11 (92)	0 (0)	0 (0)	0 (0)	1 (8)	1.33
10. Performance indicators are the criteria for promotion/up-gradation	2 (17)	0 (0)	1 (8)	1 (8)	8 (67)	4.08

**Table 22: Frequency distribution of research and extension evaluated by students**

Aspects of evaluation	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	Mean	P-value
1.The entity has a well-defined research and development policy	19 (5)	27 (7)	73 (18)	179 (45)	97 (25)	3.78	0.000
2.Mechanism exists for engaging the students in research and development	16 (4)	25 (6)	78 (20)	182 (46)	94 (24)	3.79	0.000
3.The entity has a community service policy	12 (3)	18 (5)	90 (23)	168 (43)	106 (27)	3.85	0.000

**Table 23: Frequency distribution of alumni's evaluation of research and extension**

Aspects of evaluation	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	Mean score	p-value
1.The entity has a well-defined research and development policy	4 (2)	7 (3)	58 (24)	117 (49)	54 (22)	3.88	0.000
2.Mechanism exists for engaging the students in research and development	4 (2)	14 (6)	48 (20)	129 (54)	45 (19)	3.82	0.000
3.The entity has a community service policy	4 (2)	18 (8)	55 (23)	118 (49)	45 (19)	3.76	0.000

**Table 24: Frequency distribution of faculties evaluation of research and extension**

Aspects of evaluation	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	Mean	P-value
1. The entity has a well-defined research and development policy	3 (8)	5 (14)	9 (25)	17 (47)	2 (6)	3.28	0.124
2. Mechanism exists for engaging the students in research and development	1 (3)	3 (8)	10 (28)	18 (50)	4 (11)	3.58	0.000
3. Teachers always take initiative to hunt research fund for smooth running of the research	10 (28)	2 (6)	12 (33)	11 (31)	1 (3)	2.75	0.238

4. The entity has a community service policy	6 (17)	8 (22)	15 (42)	6 (17)	1 (3)	2.67	0.063
----------------------------------------------	-----------	-----------	------------	-----------	----------	------	-------

**Table 25: Frequency distribution of faculties evaluation of Process Management and Continuous Improvement**

Aspects of evaluation	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	Mean score	p-value
1.The entity always acts in compliance with the decision of the university regarding continuous quality improvement	0 (0)	1 (3)	5 (14)	23 (64)	7 (19)	4.00	0.000
2.The entity embraces the spirit of continual quality improvement	0 (0)	0 (0)	4 (11)	26 (72)	6 (17)	4.06	0.000
3.Academic programs are reviewed by the entity for the enhancement students learning	0 (0)	1 (3)	5 (14)	24 (67)	6 (17)	3.97	0.000
4.The entity ensures a usual practice for students/ Alumni's feedback as a culture	4 (11)	9 (25)	11 (31)	11 (31)	1 (3)	2.89	0.535



## APPENDIX VI

### ACADEMIC CALENDAR



University of Asia Pacific  
Academic Calendar Spring-2017



#### Academic calendar

Registration week: **9 - 15 April 17**  
Orientation for 1<sup>st</sup> Year 1<sup>st</sup> semester: **15 April 17**  
Students meet Advisor (only newly admitted): **15 April 17**  
Classes start for Spring 2017: **16 April 17**  
Students meet Advisor (except newly admitted): **16 Apr 17**  
Last date of Application for VC's Special waiver: **11 May 17**  
Declaration of merit-based waiver list: **11 May 17**  
Mid Semester Exams: **11 - 17 June 17**  
Publishing of Mid semester Results: **9 July 17**  
Students meet Advisor: **9 July 17**  
Students meet Advisor: **9 Aug 17**  
Preparatory leave: **11-17 Aug 17**  
Semester Final Exams: **18 Aug – 29 Aug 17**  
Oral Exam. week (only for Pharmacy): **7 - 13 Sep 17**  
Publishing of results: **19 Sep 17**  
Repeat Exams (RE): **24 – 28 Sep 17**  
Publishing of Results after RE: **2 Oct 17**  
Registration for **Fall- 2017: 8 - 14 Oct 17**

#### Registration and other payment dates (last date)

- A) Registration fee (1<sup>st</sup> Installment) – **9 April 17**
- B) 2<sup>nd</sup> Installment – **1 June 17**
- C) 3<sup>rd</sup> Installment – **3 Aug 17**

#### Holidays

**14 Apr 2017:** Bengali New Year  
**25 April 2017** Shab E Miraj\*  
**1 May 2017** May Day  
**10 May 2017** Budha Purnima\*  
**12 May 2017** Shab-E-Barat\*  
**23 June 2017** Jamatul Wida\*  
**23 June 2017** Shab E Qadr\*  
**18 -29 June 2017** Summer Vacation & Eid-UI –Fitr\*  
**14 Aug 2017** Janmastamy\*  
**15 Aug 2017** National Mourning Day  
**31 Aug - 7 Sep 2017** Eid-UI -Azha.\*  
**30 Sep 2017** Durga Puja\*  
**1 Oct 2017** Muharram (Ashura)\*

Classes for **Fall- 2017** start on: **15 Oct 2017**

\* - Subject to sighting of moon

#### April '17

S	M	T	W	T	F	S
30						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29

1  
2

#### May '17

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

3  
4  
5  
6  
7

#### June '17

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

8  
Mid

#### July '17

S	M	T	W	T	F	S
30	31					1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29

9  
10  
11  
12

#### August '17

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

13  
14  
Prep  
Exam  
Exam

#### September '17

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

Result

#### October '17

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				



### Academic calendar

Students meet Advisor: **15 October 17**  
 Registration week: **8 - 12 October 17**  
 Orientation for 1<sup>st</sup> Year 1<sup>st</sup> Semester: **14 October 17**  
 Classes start for Fall 2017: **15 October 17**  
 Declaration of merit- based waiver list: **23 Oct 17**  
 Last date of Application for VC's Special waiver: **24 Oct 17**  
 Mid Semester Exams: **3 – 9 Dec 17**  
 Publishing of Mid semester Results: **17 December 17**  
 Students meet Advisor: **17 Dec 17 & 17 Jan 18**  
 Preparatory leave: **4 - 10 February 18**  
 Semester Final Exams: **11-24 February 18**  
 Publishing of results: **6 March 18**  
 Repeat Exams (RE): **12 – 15 March 18**  
 Publishing of Results after RE: **18 March 18**  
 Registration for Spring- 2018: **18-22 March 18**

### Registration and other payment dates (last date)

- A) Registration fee (1<sup>st</sup> Installment) – **9 October 17**
- B) 2<sup>nd</sup> Installment – **19 November 17**
- C) 3<sup>rd</sup> Installment – **15 January 18**

### Holidays

**1 Oct 2017:** Muharram (Ashura)\*  
**1 Dec 2017:** Eid-e-Miladunnabi\*  
**10-16 Dec 2017:** Winter Vacation  
**16 Dec 2017:** Victory Day  
**25 Dec 2017:** Christmas Day  
**21 Feb 2018:** International Mother Language Day  
**17 Mar 2018:** Birthday of the Father of the Nation  
 Bangabandhu Sheikh Mujibur Rahman  
**26 Mar 2018:** Independence Day  
**14 Apr 2018:** Bengali New Year  
**25 Apr 2018:** Shab E Miraj\*

Classes for Spring- 2018 start on: **1 April 2018**

\* - Subject to sighting of moon

### October '17

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

1  
2  
3

### November '17

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

4  
5  
6  
7

### December '17

S	M	T	W	T	F	S
31					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

Mid  
WV  
8  
9

### January '18

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

10  
11  
12  
13  
14

### February '18

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28			

Prep  
Exam  
Exam

### March '18

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

Result  
RE

### April '18

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

**APPENDIX VII**  
**SURVEY QUESTIONNAIRES**  
**PROGRAM SELF-ASSESSMENT**

**Survey Questionnaire for Employer**

The purpose of this survey is to obtain employers input on the quality of education of \_\_\_\_\_ program of \_\_\_\_\_ University. The survey is with regard to **the** graduates of \_\_\_\_\_ University employed at your organization. Your sincere cooperation would enable us to improve the quality of our graduates as per your requirements.

**Name of the**

**Institute/Organization:** \_\_\_\_\_

**Corporate Office**

**Address** \_\_\_\_\_

**Email:** \_\_\_\_\_

**Web:** \_\_\_\_\_

Nature: Please put tick (√) in appropriate box

☐ Academic ☐ Research ☐ Business Enterprise ☐ Others \_\_\_\_\_

1. Experience Requirement for Entry Level Employees Please put tick (√) in appropriate box:  
☐ Highly Experienced ☐ Experience for few years ☐ Fresh ☐ Cannot be generalized
2. Please rate the following dimensions of quality of graduates according to importance in recruitment using the following rating scale:  
5 = extremely important, 4=very important, 3= important, 2=less important, and 1=not at all important

No.	Dimensions of Quality	Rating
<b>A. Knowledge</b>		
3.1	Job knowledge (knowledge on the subject matter)	
3.2	IT Knowledge	
3.3	Innovative knowledge	
<b>B. Communication Skills</b>		
3.4	Oral communication	

3.5	Written communication	
3.6	Presentation skills	
<b>C. Interpersonal Skills</b>		
3.7	Ability to work in teams	
3.8	Leadership	
4.9	Empathy	
3.10	Motivation ability	
3.11	Reliability	
3.12	Appreciation of ethical values	
3.13	Adaptability	
<b>D. Work Skills</b>		
3.14	Time management	
3.15	Judgment	
3.16	Problem formulation, solving and decision making skills	
3.17	Collecting and analyzing appropriate data	
3.18	Ability to link theory to Practice	
3.19	Discipline	
3.20	Sense of Responsibility	

3. Please evaluate the following dimensions of competence of graduates ..... program, ... University based on their performance at your organization using the following scale:

5 – Excellent    4 – Very Good    3 – Good    2 – Fair    1 – Poor

No.	Dimensions of Quality	
<b>E. Knowledge</b>		
3.1	Job knowledge (knowledge on the subject matter)	
3.2	IT Knowledge	
3.3	Innovative knowledge	
<b>F. Communication Skills</b>		
3.4	Oral communication	
3.5	Written communication	
3.6	Presentation skills	
<b>G. Interpersonal Skills</b>		
3.7	Ability to work in teams	
3.8	Leadership	
4.9	Empathy	

3.10	Motivation ability	
3.11	Reliability	
3.12	Appreciation of ethical values	
3.13	Adaptability	
<b>H. Work Skills</b>		
3.14	Time management	
3.15	Judgment	
3.16	Problem formulation, solving and decision making skills	
3.17	Collecting and analyzing appropriate data	
3.18	Ability to link theory to Practice	
3.19	Discipline	
3.20	Sense of Responsibility	

4. Major weaknesses you have observed in the Graduates of \_\_\_\_\_  
Program \_\_\_\_\_ University working at your organization
5. Do you provide any training just after recruitment before assigning any  
responsibility: Yes/No  
If yes, please specify: \_\_\_\_\_
6. General Comments (Please make additional comments or suggestions, which you  
think would help to strengthen our academic programs for the improvement the  
quality of graduates).

---



---



---



---



---

### Survey Questionnaire for Alumni (To be filled by the Graduates)

This form includes statements for self-assessment at program level. You as a graduate are requested to give your sincere comment against each of the statements by putting a tick (✓) mark. Your sincere evaluation will be helpful for correct assessment of the program so that next improvement plan may be undertaken.

**Name of the entity**

**(Faculty/Department/Discipline/Institute):** \_\_\_\_\_

**University:** \_\_\_\_\_

**Degree and service information:**

1. Current status:

a) Searching Job, b) Employed in an organization c) Engaged with own business

If the answer is b or c

Name of present organization

\_\_\_\_\_

Designation:

\_\_\_\_\_

Address:

\_\_\_\_\_

2. Year of passing/graduation:

3. Time taken to get the first employment:

Year	Month

4. Recruitment process you faced to get in your present organization

Direct Offer	
Direct Oral Interview	
Written & Oral Interview	
Other (Pls. Specify)	

5. Evaluate the following aspects of the program in terms capacity to provide quality education by marking “√” in the box of corresponding column according to the scale given:

5–Strongly agree; 4–Agree; 3–Undecided; 2–Disagree; 1–Strongly disagree;

(Note: The figures in the parentheses indicate standards under the assessment criteria)

**A. Governance**

Aspects of Evaluation	5	4	3	2	1
1. Vision, mission and objectives of the entity are clearly stated (1.1)					
2. Academic decisions are taken by the entity with fairness and transparency (1.2)					



3. The intended learning outcomes (ILOs) satisfy the stated mission and objectives of the entity (1.4)					
4. The entity has adequate infrastructures to satisfy its mission and objectives (1.5)					
5. Academic calendars are maintained strictly by the entity (1.5)					
6. Results are published timely in compliance with the ordinance (1.5)					
7. The entity reviews its policy and procedures periodically for further improvement (1.6)					
8. Codes of conduct for the students and employees are well communicated (1.7)					
9. Disciplinary rules and regulations are explicitly defined and well circulated (1.7)					
10. Website is updated properly (1.8).					
11. The entity provides comprehensive guidelines to the students in advance by means of a brochure/handbook (1.9)					
12. The entity ensures a conducive learning environment (1.12)					
13. Students opinion regarding academic and extra-academic matters are addressed properly (1.13)					

#### **B. Curriculum: content, design and review**

Aspects of Evaluation	5	4	3	2	1
1. Courses in the curriculum from lower to higher levels are consistently arranged (2.3)					
2. Teaching strategies are clearly stated in the curriculum (2.3)					
3. Assessment strategies are explicit in the curriculum (2.3)					
4. Curriculum load is optimum and exerts no pressure (2.4)					
5. The curriculum is effective in achieving day-one skill (which happens right at the beginning in the first day at job place) (2.5).					

#### **C. Student entry qualifications, admission procedure, progress and achievements**

Aspects of Evaluation	5	4	3	2	1
1. Admission policy ensures entry of quality students (3.1).					
2. Commitment among students is observed to ensure desired progress and achievement (3.2)					
3. Admission procedure is quite fair (3.3)					
4. Students progress are regularly recorded and monitored (3.7)					
5. Teachers provide regular feedback to the students about their progress (3.7)					

6. The entity maintains individual student's records properly (3.8)					
---------------------------------------------------------------------	--	--	--	--	--

#### **D. Structures and facilities**

Aspects of Evaluation	5	4	3	2	1
1. Classroom facilities are suitable for ensuring effective learning (4.1).					
2. Laboratory facilities are congenial for practical teaching-learning (4.1)					
3. Facilities for conducting research are adequate (4.1)					
4. The library has adequate up-to-date reading and reference materials to meet the academic & research needs (4.1)					
5. Indoor and outdoor medical facilities are adequate (4.1)					
6. There are adequate sports facilities (indoor and outdoor ) (4.1)					
7. Existing gymnasium facilities are good enough (4.1)					
8. Access to internet facilities with sufficient speed are available (4.2)					

#### **E. Teaching learning and assessment**

##### **E.1: Teaching-learning**

Aspects of Evaluation	5	4	3	2	1
1. Teaching-learning is interactive and supportive (5.1)					
2. Class size is optimum for interactive teaching learning (5.1)					
3. Entity provides adequate opportunities for practical exercises to apply in real life situation. (5.2)					
4. Students attained additional practical ideas apart from class room teaching (5.3)					
5. Modern devices are used to improve teaching-learning process(5.5)					
6. Diverse methods are practised to achieve learning objectives (5.5)					
7. Lesson plans/course outlines are provided to the students in advance (5.6)					

##### **E.2: Learning assessment**

Aspects of Evaluation	5	4	3	2	1
1. Assessment systems are duly communicated to students at the outset of the term/semester (5.7).					
2. Assessment procedures meet the objectives of the course (5.8)					
3. Both formative (quizzes, assignments, term papers, continuous assessments, presentations etc.) and summative assessment (final					



examination) strategies are followed (5.8).					
4. Diverse methods are used for assessment (5.9).					
5. The students are provided feedback immediately after assessment (5.10).					

#### **F. Student support services**

Aspects of Evaluation	5	4	3	2	1
a. There is an arrangement in the entity to provide an academic guidance and counseling (6.1).					
b. Financial grants are available to the students in case of hardship (6.1)					
c. The entity provides co-curricular and extra-curricular exposures to the students (6.3)					
d. There is an organized and supportive alumni association (6.5).					
e. The entity collects alumni feedback to update the learning outcomes of the program (6.6)					
f. There are opportunities to be involved with community services (6.8).					

#### **G. Research and extension services**

Aspects of Evaluation	5	4	3	2	1
1. The entity has a well defined research and development policy (8.1)					
2. Mechanism exists for engaging the students in research and development (8.1)					
3. The entity has a community service policy (8.3)					

Other aspects:

1. What are the best practices of the program?

---



---



---

2. What practices of the program need to be improved?

---



---



---

3. What courses need to be included to improve the quality of graduates?

- a. 

---
- b. 

---

## Survey Questionnaire for Students

(To be filled by the Existing Students)

This form includes statements for self-assessment at program level. You as a graduating student are requested to give your sincere comment against each of the statements by putting a tick (✓) mark. Your sincere evaluation will be helpful for correct assessment of the program so that next improvement plan may be undertaken.

### Name of the entity

(Faculty/Department/Discipline/Institute): \_\_\_\_\_

University: \_\_\_\_\_

1. Evaluate the following aspects of the program in terms capacity to provide quality education by marking “✓” in the box of corresponding column according to the scale given:

5–Strongly agree; 4–Agree; 3–Undecided; 2–Disagree; 1–Strongly disagree;

(Note: The figures in the parentheses indicate standards under the assessment criteria)

### A. Governance

Aspects of Evaluation	5	4	3	2	1
1. Vision, mission and objectives of the entity are clearly stated (1.1)					
2. Academic decisions are taken by the entity with fairness and transparency (1.2)					
3. The intended learning outcomes (ILOs) satisfy the stated mission and objectives of the entity (1.4)					
4. The entity has adequate infrastructures to satisfy its mission and objectives (1.5)					
5. Academic calendars are maintained strictly by the entity (1.5)					
6. Results are published timely in compliance with the ordinance (1.5)					
7. The entity reviews its policy and procedures periodically for further improvement (1.6)					
8. Codes of conduct for the students and employees are well communicated (1.7)					
9. Disciplinary rules and regulations are explicitly defined and well					

circulated (1.7)					
10. Website is updated properly (1.8).					
11. The entity provides comprehensive guidelines to the students in advance by means of a brochure/handbook (1.9)					
12. The entity ensures a conducive learning environment (1.12)					
13. Students opinion regarding academic and extra-academic matters are addressed properly (1.13)					

#### **B. Curriculum: content, design and review**

Aspects of Evaluation	5	4	3	2	1
1. Courses in the curriculum from lower to higher levels are consistently arranged (2.3)					
2. Teaching strategies are clearly stated in the curriculum (2.3)					
3. Assessment strategies are explicit in the curriculum (2.3)					
4. Curriculum load is optimum and exerts no pressure (2.4)					

#### **C. Student entry qualifications, admission procedure, progress and achievements**

Aspects of Evaluation	5	4	3	2	1
a. Admission policy ensures entry of quality students (3.1).					
b. Commitment among students is observed to ensure desired progress and achievement (3.2)					
c. Admission procedure is quite fair (3.3)					
d. Students progress are regularly recorded and monitored (3.7)					
e. Teachers provide regular feedback to the students about their progress (3.7)					
f. The entity maintains individual student's records properly (3.8)					

#### **D. Structures and facilities**

Aspects of Evaluation	5	4	3	2	1
1. Classroom facilities are suitable for ensuring effective learning (4.1).					
2. Laboratory facilities are congenial for practical teaching-learning (4.1)					
3. Facilities for conducting research are adequate (4.1)					
4. The library has adequate up-to-date reading and reference materials to meet the academic & research needs (4.1)					
5. Indoor and outdoor medical facilities are adequate (4.1)					
6. There are adequate sports facilities (indoor and outdoor ) (4.1)					

7. Existing gymnasium facilities are good enough (4.1)					
8. Access to internet facilities with sufficient speed are available (4.2)					

## **E. Teaching learning and assessment**

### **E.1: Teaching-learning**

Aspects of Evaluation	5	4	3	2	1
1. Teaching-learning is interactive and supportive (5.1)					
2. Class size is optimum for interactive teaching learning (5.1)					
3. Entity provides adequate opportunities for practical exercises to apply in real life situation. (5.2)					
4. Modern devices are used to improve teaching-learning process(5.5)					
5. Diverse methods are practised to achieve learning objectives (5.5)					
6. Lesson plans/course outlines are provided to the students in advance (5.6)					

### **E.2: Learning assessment**

Aspects of Evaluation	5	4	3	2	1
1. Assessment systems are duly communicated to students at the outset of the term/semester (5.7).					
2. Assessment procedures meet the objectives of the course (5.8)					
3. Both formative (quizzes, assignments, term papers, continuous assessments, presentations etc.) and summative assessment (final examination) strategies are followed (5.8).					
4. Diverse methods are used for assessment (5.9).					
5. The students are provided feedback immediately after assessment (5.10).					

## **F. Student Support Services**

Aspects of Evaluation	5	4	3	2	1
1. There is an arrangement in the entity to provide an academic guidance and counseling (6.1).					
2. Financial grants are available to the students in case of hardship (6.1)					
3. The entity provides co-curricular and extra-curricular exposures to the students (6.3)					
4. There is an organized and supportive alumni association (6.5).					
5. The entity collects alumni feedback to update the learning					

outcomes of the program (6.6)					
6. There are opportunities to be involved with community services (6.8).					

### G. Research and extension services

Aspects of Evaluation	5	4	3	2	1
1. The entity has a well defined research and development policy (8.1)					
2. Mechanism exists for engaging the students in research and development (8.1)					
3. The entity has a community service policy (8.3)					

Other aspects:

1. What are the best practices of the program?

---



---



---

2. What practices of the program need to be improved?

---



---



---

3. What courses need to be included to improve the quality of graduates?

- a. \_\_\_\_\_
- b. \_\_\_\_\_

### Survey Questionnaire for Non-Academics

(To be filled by the non-academic staffs)

This form includes statements for self-assessment at program level. As a non-academic staff you are requested to give your sincere comment against each of the statements by putting a tick (√) mark on appropriate grade-column. Your sincere evaluation will be helpful for correct assessment of the program so that next improvement plan may be undertaken.

**Name of the entity**

(Faculty/Department/Discipline/Institute): \_\_\_\_\_

**University:** \_\_\_\_\_

1. Evaluate the following aspects of the program in terms capacity to provide quality education by marking “√” in the box of corresponding column according to the scale given:

5–Strongly agree; 4–Agree; 3–Undecided; 2–Disagree; 1–Strongly disagree;

(Note: The figures in the parentheses indicate standards under the assessment criteria)

#### A. Governance

Aspects of Evaluation	5	4	3	2	1
1. Vision, mission and objectives of the entity are clearly stated (1.1)					
2. Academic decisions are taken by the entity with fairness and transparency (1.2)					
3. The intended learning outcomes (ILOs) satisfy the stated mission and objectives of the entity (1.4)					
4. The entity has adequate infrastructures to satisfy its mission and objectives (1.5)					
5. Academic calendars are maintained strictly by the entity (1.5)					
6. Results are published timely in compliance with the ordinance (1.5)					
7. The entity reviews its policy and procedures periodically for further improvement (1.6)					
8. Codes of conduct for the students and employees are well communicated (1.7)					
9. Disciplinary rules and regulations are explicitly defined and well circulated (1.7)					
10. Website is updated properly (1.8).					
11. The entity provides comprehensive guidelines to the students in advance by means of a brochure/handbook (1.9)					

#### B. Staff and facilities: recruitment and staff development

Aspects of Evaluation	5	4	3	2	1
1. Recruitment policy and practices are good enough for recruitment of competent academic and non-academic staff (7.1)					
2. Salary and incentives are attractive enough to retain the academic and non-academic staff (7.2).					
3. Good team spirit exists among different non-academic staff (7.4).					
4. A congenial atmosphere prevails to enhance professional knowledge through research and higher studies (7.5)					
5. Academics have enough opportunity to take part in different					

seminar/workshop/training programs for skill development (7.7)					
6. Non-academics have enough opportunity to take part in different training programs for skill development (7.7)					
7. The entity has a policy to provide mentoring/continuous guidance for new academic staff.(7.8)					
8. The entity practices seminars and workshops to share knowledge and experience among the faculty members (7.11)					
9. The entity has a performance award policy to inspire academic staff (7.12)					
10. Performance indicators are the criteria for promotion/up-gradation (7.12)					

Other aspects:

1. What are the major weaknesses you have observed in the entity

---



---



---



---



---

2. What are your suggestion(s) to improve the teaching learning environment:

---



---



---



---



---

### Survey Questionnaire for Academics

(To be filled by the faculty members)

This form includes statements for self-assessment at program level. You as a teacher are requested to give your sincere comment against each of the statements by putting a tick (√) mark on appropriate grade-column. Your sincere evaluation will be helpful for meaningful assessment of the program so that next improvement plan may be undertaken.

**Name of the entity**

(Faculty/Department/Discipline/Institute): \_\_\_\_\_

**University:** \_\_\_\_\_

1. Evaluate the following aspects of the program in terms capacity to provide quality education by marking “√” in the box of corresponding column according to the scale given:

5–Strongly agree; 4–Agree; 3–Undecided; 2–Disagree; 1–Strongly disagree;

(Note: The figures in the parentheses indicate standards under the assessment criteria)

#### A. Governance

Aspects of Evaluation	5	4	3	2	1
1. Vision, mission and objectives of the entity are clearly stated (1.1)					
2. Academic decisions are taken by the entity with fairness and transparency (1.2)					
3. The intended learning outcomes (ILOs) satisfy the stated mission and objectives of the entity (1.4)					
4. The entity has adequate infrastructures to satisfy its mission and objectives (1.5)					
5. Academic calendars are maintained strictly by the entity (1.5)					
6. Results are published timely in compliance with the ordinance (1.5)					
7. The entity reviews its policy and procedures periodically for further improvement (1.6)					
8. Codes of conduct for the students and employees are well communicated (1.7)					
9. Disciplinary rules and regulations are explicitly defined and well circulated (1.7)					
10. Website is updated properly (1.8).					
11. The entity provides comprehensive guidelines to the students in advance by means of a brochure/handbook (1.9)					
12. Documentations (decisions of committees, class attendance registers, questions, answer scripts, marks, examination results, students progress etc) are maintained properly (1.10)					
13. Decision making procedure in the entity is participatory (1.11)					
14. The entity ensures a conducive learning environment (1.12)					
15. Students opinion regarding academic and extra-academic matters are addressed properly (1.13)					



**B. Curriculum design and review**

Aspects of Evaluation	5	4	3	2	1
1. Curriculum is reviewed and updated at regular intervals in compliance with the rules of the universities (2.1)					
2. Opinions from the relevant stakeholders (students, teachers, employers and alumni) are duly considered during review of the curriculum (2.2)					
3. Courses in the curriculum from lower to higher levels are consistently arranged (2.3)					
4. Teaching strategies are clearly stated in the curriculum (2.3)					
5. Assessment strategies are explicit in the curriculum (2.3)					
6. Curriculum load is optimum and exerts no pressure (2.4)					
7. Curriculum addresses the program objectives and program learning outcomes (2.4)					
8. The curriculum is effective in achieving day-one skill (which happens right at the beginning in the first day at job place) (2.5).					

**C. Student entry qualifications, admission procedure, progress and achievements**

Aspects of Evaluation	5	4	3	2	1
1. Admission policy ensures entry of quality students (3.1).					
2. Commitment among students is observed to ensure desired progress and achievement (3.2)					
3. Admission procedure is quite fair (3.3)					
4. Students progress are regularly recorded and monitored (3.7)					
5. Teachers provide regular feedback to the students about their progress (3.7)					
6. The entity maintains individual student's records properly (3.8)					

**D. Structure and facilities**

Aspects of Evaluation	5	4	3	2	1
1. Classroom facilities are suitable for ensuring effective learning (4.1).					
2. Laboratory facilities are congenial for practical teaching-learning (4.1)					
3. Facilities for conducting research are adequate (4.1)					
4. The library has adequate up-to-date reading and reference materials to meet the academic & research needs (4.1)					
5. Indoor and outdoor medical facilities are adequate (4.1)					
6. There are adequate sports facilities (indoor and outdoor ) (4.1)					

7. Existing gymnasium facilities are good enough (4.1)					
8. Office equipments are adequate to support the students need (4.1)					
9. Entity has competent manpower to run the academic affairs (4.1)					
10. Access to internet facilities with sufficient speed are available (4.2)					

## **E. Teaching learning and assessment**

### **E.1: Teaching learning**

Aspects of Evaluation	5	4	3	2	1
1. Teaching-learning is interactive and supportive (5.1)					
2. Class size is optimum for interactive teaching learning (5.1)					
3. Entity provides adequate opportunities for practical exercises to apply in real life situation. (5.2)					
4. Teaching-learning process encompasses co-curricular activities to enrich students personal development. (5.4)					
5. Modern devices are used to improve teaching-learning process(5.5)					
6. Diverse methods are practised to achieve learning objectives (5.5)					
7. Lesson plans/course outlines are provided to the students in advance (5.6)					

### **E.2: Learning assessment**

Aspects of Evaluation	5	4	3	2	1
1. Assessment systems are duly communicated to students at the outset of the term/semester (5.7).					
2. Assessment procedures meet the objectives of the course (5.8)					
3. The assessment system is reviewed at regular intervals (5.8)					
4. Both formative (quizzes, assignments, term papers, continuous assessments, presentations etc.) and summative assessment (final examination) strategies are followed (5.8).					
5. Diverse methods are used for assessment (5.9).					
6. The students are provided feedback immediately after assessment (5.10).					
7. Fairness and transparency is maintained in assessment system (5.9)					

**F. Students support services**

Aspects of Evaluation	5	4	3	2	1
1. There is an arrangement in the entity to provide an academic guidance and counseling (6.1).					
2. Financial grants are available to the students in case of hardship (6.1)					
3. The entity provides co-curricular and extra-curricular exposures to the students (6.3)					
4. There is an organized and supportive alumni association (6.5).					
5. The entity collects alumni feedback to update the learning outcomes of the program (6.6)					
6. There are opportunities to be involved with community services (6.8).					

**G. Staff and facilities: recruitment and staff development**

Aspects of Evaluation	5	4	3	2	1
1. Recruitment policy and practices are good enough for recruitment of competent academic and non-academic staff (7.1)					
2. Salary and incentives are attractive enough to retain the academic and non-academic staff (7.2).					
3. Good team spirit exists among different academic staff (7.4).					
4. A congenial atmosphere prevails to enhance professional knowledge through research and higher studies (7.5)					
5. Academics have enough opportunity to take part in different seminar/workshop/training programs for skill development (7.7)					
6. Non-academics have enough opportunity to take part in different training programs for skill development (7.7)					
7. The entity has a policy to provide mentoring/continuous guidance for new academic staff.(7.8)					
8. The entity practices seminars and workshops to share knowledge and experience among the faculty members (7.11)					
9. The entity has a performance award policy to inspire academic staff (7.12)					
10. Performance indicators are the criteria for promotion/up-gradation (7.12)					

#### H. Research & extension services

Aspects of Evaluation	5	4	3	2	1
1. The entity has a well defined research and development policy (8.1)					
2. Mechanism exists for engaging the students in research and development (8.1)					
3. Teachers always take initiative to hunt research fund for smooth running of the research (8.1)					
4. The entity has a community service policy (8.3)					

#### I. Process control internal (quality assurance and continuous quality improvement)

Aspects of Evaluation	5	4	3	2	1
1. The entity always acts in compliance with the decision of the university regarding continuous quality improvement (9.1)					
2. The entity embraces the spirit of continual quality improvement (9.2).					
3. Academic programs are reviewed by the entity for the enhancement students learning (9.3).					
4. The entity ensures a usual practice for students/ Alumni's feedback as a culture (9.3)					

Other Aspects:

1. Major weaknesses you have observed in the quality of graduates

---

---

---

---

---

2. Enlist your suggestion(s) to improve the quality of graduates:

---

---

---

---

---

---

## APPENDIX VIII RESEARCH AND PUBLICATIONS

### YEAR- 2017

- Asad, S., Nesa, L., Deepa, K.N., Sohel, M. D., & Kawsar, M.Y. (2017). Analgesic, Anti-Inflammatory and CNS Depressant Activities of Methanolic Extract of *Sonneratia alba* Leaves in Mice. *Natural Products Chemistry & Research*, 5:5, 1-7.
- Bari, M.A., & Islam, M.R. (2017). Probiotics: A new horizon for treating childhood diarrhea in Bangladesh. *Food and Nutrition Sciences*, 8, 613-623.
- Bristy, N. J., Hasan, A. N., Alam, M. N., Wahed, T. B., Roy, P., & Alam, K. K. (2017). Characterization of antioxidant and cytotoxic potential of methanolic extracts of different parts of *Aegle marmelos* (L.). *International Journal of Pharmaceutical Sciences and Research*, 8(3), 1476-1484.
- Das, P., Das, S., Akhter, R., Huque, S., Akter, R., & Shahriar, M. (2017). Comparative in vitro equivalence evaluation of some spironolactone generic tablets, commercially available in Bangladesh drug market. *Indo American Journal of Pharmaceutical Research*, 7(10), 544-551.
- Das, S., Akhter, R., Huque, S., Anwar, R.M., Das, P., Tanni, A.K. & Shahriar, M. (2017). In vitro anthelmintic activity of leaf extracts of four different types of calamus species. *Pharmacy & Pharmacology International Journal*, 5(2), 00118.
- Das, S., Akhter, R., Khandaker, S., Huque, S., Das, P., Anwar, R.M., Tanni, A.K., Shabnaz, S. & Shahriar, M. (2017). Phytochemical screening, antibacterial and anthelmintic activities of leaf and seed extracts of *Coix lacryma-jobi* L. *Journal of Coastal Life Medicine*, 5(8), 360-364.
- Das, S., Hasan, Q.S.M., Akhter, R., Huque, S., Khandaker, S., Gorapi, H.Z.M. & Shahriar, M. (2017). Socioeconomic conditions and health hazard risks with vulnerability on health of brick field workers: a case study on Mymensingh brick

industrial area of Bangladesh. *Journal of Public Health and Epidemiology*, 9(7), 198-205.

- Dewan, I., Al- Hasan, M. M., Islam, S. M. A., Gazi, M., Islam, M. A., & Kazi M. J. (2017). Formulation and characterization of ethyl cellulose, eudragit rsipo and eudragit rlpo loaded microspheres with metformin and glipizide: in vitro and in vivo release studies. *World Journal of Pharmaceutical Research*, 6(4), 191-212.
- Eshita, N. J., Das, S., Akhter, R., Haque, S., Bhuiyan, M. A., & Shahriar, M. (2017). Exploration of in vitro antioxidant, thrombolytic activity, neuropharmacological and anti-pyretic activity of leaf extracts of *Hoya parasitica* (Wall). *International Journal of Current Advanced Research*, 6(5), 3776-3782.
- Hamiduzzaman, M., Nur, F., & Bhuiyan, M.I. (2017). Evaluation of Anti-Inflammatory Activity through Assaying the Stability of Erythrocytes' Membrane by Different Organic Extracts of *Heliotropium Indicum* (Boraginacea). *Journal of Natural Product and Plant Resources*, 7(2), 74-78.
- Hasan, A.H.M.N., Hasan, S.J. Islam, M.A., Trina, A.A., Deepa, K.N., & Asaduzzaman, M. (2017). Pattern of Pharmacotherapy of Patients Having Ischemic Heart Disease at a Specialized Hospital in Dhaka, Bangladesh: A Survey Based Study on Patients Discharged from Hospital. *British Journal of Medicine & Medical Research*, 122(2), 1-9.
- Huque, S., Brishti, N.R., Noor, M., Das, S., Akhter, R., Gorapi, M.Z.H., Tanni, K.A., & Shahriar, M. (2017). Comparative in vitro Equivalence Evaluation of Some Desloratadine Generic Tablets Marketed in Bangladesh. *International Journal of Applied Research*, 3(2), 288-293.
- Islam, M. A., Hasan, A. N., Trina, A. A, Hasan, S. J., & Asaduzzaman, M. (2017). Use of plants in traditional health care practice: an ethnomedicinal survey at Sujanagar uapzila in Pabna district of Bangladesh. *International Journal of Advanced Research*, 5(1), 1869-1879.

- Islam, M.R., Islam, M.R., Ahmed, I., Moktadir, A.A., Nahar, Z., Islam, M.S., Shahid, S.F.B., Islam, S.N., Islam, M.S., & Hasnat, A. (2017). Elevated serum malondialdehyde and cortisol are associated with major depressive disorder: a case-control study. *Biomarker Research*, 2017.
- Islam, M.R., Islam, M.R., Ahmed, I., Qusar, M.M.A.S., Islam, M.S., Kabir, M.H., Rahman, G.K.M.M., Islam, M.S., & Hasnat, A. (2017). Alterations of serum macro-minerals and trace elements are associated with major depressive disorder: a case-control study. *BMC Psychiatry*, 2017.
- Islam, M.R. (2017). Association between socio-demographic factors and blood sugar levels in patients with type 2 diabetes mellitus in Bangladesh. *Journal of Diabetes Mellitus*, 7, 151-159.
- Islam, M.R., & Adnan, R. (2017). Socio-demographic factors and their correlation with the severity of major depressive disorder: a population-based study. *World Journal of Neurosciences*, 4, 193-202.
- Islam, M.R., & Shafique, A. (2017). Prescribing Practice of Antidepressant Drugs at Outpatient Department of a Tertiary Care Teaching Hospital in Bangladesh. *Open Journal of Depression*, 6, 14-23.
- Jahan, I., Akter, A., Dewan, I., Reza, M. S., & Islam, S. M. A. (2017). Study of competitive binding of amlodipine besylate and benazepril hydrochloride to bovine serum albumin and their displacement interaction at the binding site. *Journal Applied Pharmaceutical Science*, 17 (6), 157-163.
- Jahan, I., Islam, M.R., Islam, M.R., Ali, R., Jafrin, F., Sultan, M.Z., Islam, M.S., Kabir, M.H., Rahman, G.K.M.M., Islam, M.S., & Hasnat, A. (2017). Analysis of Serum Trace Elements, Macro-minerals, Antioxidants, Malondialdehyde and Immunoglobulins in Seborrheic Dermatitis Patients: A Case-control Investigation. *BMC Dermatology*, 2017.

- Kabir, N., Mohammad, S., Stephanie, M. (2017). Association of Myeloid derived growth factor (MYDGF) with Cancer. Research Journal of Pharmaceutical, Biological and Chemical Sciences, 8(3), 841-847.
- Kabir, N., Yong, Y. (2017). Hypoxia-induced autophagy in hepatocellular carcinoma and anticancer therapy. National Journal of Physiology Pharmacy and Pharmacology, 7 (8), 771-780.
- Karim, F.T., Ghafoor, K., Ferdosh, S., Juhaimi, F. A., Ali, E., Yunus K. B., Hamed, M. H., Islam, A., Asif, M., & Sarker, M. Z. I. (2017). Microencapsulation of fish oil using supercritical antisolvent process. Journal of Food and Drug Analysis, 25(3), 654-666.
- Karim, S., Islam, S., Jahan, K., Ali, H.M., Deepa, N.K. & Shahriar, M. (2017).A Comparative Study between Market products and Immediate Release Loratadine Tablets Formulation using different Superdisintegrants. International Journal of Pharmacy, 7(1), 79-83.
- Karmoker, J. R., Priya, R. J., Sarkar, S., & Islam, S. (2017). Comparative in vitro bioequivalence evaluation of some local gliclazide brands of Bangladesh. The Pharma Innovation Journal, 6(3), 152-157.
- Laboni, R.F., Mahmud, S., Karim, S., Das, S. & Shahriar, M. (2017). Biological investigations of different leaf extracts of Litsea liyuyingi (Family-Lauraceae). IOSR Journal of Pharmacy and Biological Sciences, 12(2), 8-17. Ver: 4.
- Laboni, R.F., Sultana, T., Kamal, S., Karim, S., Das, S., Rashid, O.H.M. & Shahriar, M. (2017). Biological investigations of the ethanol extract of the aerial part (leaf) of Coccinia grandis L. Journal of Pharmacognosy and Phytochemistry, 6(2), 134-138.
- Noor, S., Salam, F. B. A., Hima, H. N., Bhuiyan, M. S. I., & Chowdhury, S. (2017). Comparative in-vitro quality evaluation of some brands of metronidazole tablet available in Bangladesh. International Journal of Applied Research, 3(7), 753-758.



- Nushrat, S. A., Nasreen, W., & Deepa, K. N. (2017). In vitro comparative study of quality control parameters of some brand of ketorolac tablets available in Bangladesh. *World Journal of Pharmacy and Pharmaceutical Sciences*, 6(8), 146–155.
- Oishi, M.T., Munna, S., Noor, Z., Das, S., Akhter, R., Huque, S. & Shahriar, M. (2017). Comparative In Vitro Equivalence Evaluation of Some Loratadine Generic Tablets Marketed in Bangladesh. *IOSR Journal of Pharmacy and Biological Sciences*, 12(2), 76-81. Ver: 3.
- Rahman, M. S., Yoshida, N., Tsuboi, H., Keila, T., Sovannarith, T., Kiet, H. B., Dararth, E., Zin, T., Tanimoto, T., & Kimura, K. (2017). Erroneous formulation of delayed-release omeprazole capsules: alert for importing countries. *BMC Pharmacology & Toxicology*, 18(1), 31.
- Rivu, S.F., Apu, M.N.H, Shabnaz, S., Nahid, N.A., Islam, M.R., Al-Mamun, M.M.A., Nahar, Z., Rabbi, S.N.I., Ahmed, M.U., Islam, M.S. & Hasnat, A. (2017). Association of TP53 codon 72 and CDH1 genetic polymorphisms with colorectal cancer risk in Bangladeshi population. *Cancer Epidemiology*, 49, 46-52.
- Roy, A.K., Ahmed, M.M., Nahid, M.M.H., Tanni, K.A., & Shahriar, M. (2017). Comparative Evaluation of Quality Control Parameters of Some Etoricoxib Generic Tablets Available in Bangladesh. *The Pharma Innovation Journal*, 6(5), 29-33.
- Shair, S., Rafa, N. N., Sufian, M. A., Noor, S., Hasan, A. H. M. & Asaduzzaman, M. (2017). Formulation development of mucoadhesive bilayer tablet with Metformin Hydrochloride. *International Journal of Advanced Research*, 5(3), 8-14.
- Sheikh, Z., Jahan, N., & Karim, R. (2017). Mucosal Delivery of Vaccines: A Review. *International Journal of Pharmacy and Technology*, 9(3), 6498-6520.

- Stephanie, M., Xianjing, L., Kabir, N., Muhammad, S., Yong, Y. (2017). Macrophages as a key factor in the process of tumour from the initiation to the therapy of cancer. *World Journal of Pharmaceutical Research*, 6(5), 294-315.
- Tanni, K.A., Tabassum, S., Mahmud, R., Mala, J.I., & Shahriar, M. (2017). Comparative in-vitro Analysis of Physicochemical Properties of Some Aceclofenac Generic Tablets Marketed in Bangladesh. *Journal of Biomedical and Pharmaceutical Research*, 6 (3), 99-105.
- Tasnim, T., & Hasan, M.M. (2017). Comparative quality evaluation of different Olmesartan medoxomil generic tablets marketed in Bangladesh. *International Journal of Advanced Research*, 1403-1410.
- Tasnim, T., Mamun, M.M., Islam, M.S., Hasnat, A. (2017). Genetic variants of SULT1A1 and XRCC1 genes and risk of Lung Cancer in Bangladeshi population. *Tumor Biology*, 1-8.
- Ullah, M. B., Karim, M. R., Alam, M. S., Hassan, M. R., Bhuiyan, M. A., & Rana, M. S. (2017). Formulation and in vitro evaluation of unfolding type expandable gastroretentive film of enalapril maleate. *Bangladesh Pharmaceutical Journal*, 20(2), 148-156.

### **YEAR- 2016**

- Ahmed, K. S., Masum, M. A. A., Sultana, S., Bhuiyan, M. A., & Reza, M. S. (2016). Impact analysis of inclusion complexation on micromeritic properties and dissolution behavior of carvedilol. *Journal of Applied Pharmaceutical Science*, 6(7), 106-114.
- Ahmed, S., Ali, R., Islam, M.R., Hoque, M.A., Hasnat, A. & Nahar, Z. (2016). Clinical significance of serum trace elements, macro minerals and antioxidants in acne vulgaris patients. *Dhaka University Journal of Pharmaceutical Science*, 15(2), 215-220.

- Akhter, S., Salahuddin, M., Uddin, A.K.M.S., Marium, M., Alam, M.B., Barua, S., Chakrabarty, P., & Kadir, M.F. (2016). Formulation and Evaluation of Solid Dispersion of an Antiepileptic Drug Carbamazepine. *IOSR Journal of Pharmacy and Biological Sciences*, 11 (5), 61-68.
- Akter, S., Das, P., & Islam, S. (2016). Effect of Excipients on the Release of Simvastatin from Biodegradable Polymeric Implant. *IOSR Journal of Pharmacy and Biological Sciences*, 11(3), 123-132.
- Ali, M. H., Bhuiyan, M. A., Reza, M. S., Karim, S. (2016). Formulation and in vitro evaluation of oral floating tablets of sulbutamol sulphate: Comparison with effervescent tablets. *Dhaka University Journal of Pharmaceutical Sciences*, 15(2), 203-208.
- Chisty, S. J., Tosha, S. M., Aziz, A., & Bhuiyan, M. A. (2016). Formulation and in vitro evaluation of modified pulsincap of amlodipine besylate: an improved approach for the treatment of hypertension. *Turkish Journal of Pharmaceutical Sciences*, 13(1), 81-90.
- Chowdhury, S.Z., Morshed, M.M., Shahriar, M., Bhuiyan, A.M., Islam, A.S.M. & Sayeed, B.S.M. (2016). The effect of chronic alprazolam intake on memory, attention and psychomotor performance in healthy human male volunteers. *Behavioural Neurology*, 2016, 1-9.
- Das, S., Shahriar, M., Narjish, N.S. & Akhter, R. (2016). In Vitro investigation on antimicrobial sensitivity pattern of enteric fever causing bacteria isolated from different clinical sources in Dhaka City, Bangladesh. *International Journal of Medical and Health Research*, 5(2), 33-37.
- Deepa, K.N., Kabir, S., & Amran, M.S. (2016). Fluorescence spectroscopic analysis of the interaction between omeprazole and bovine serum albumin. *World Journal of Pharmacy and Pharmaceutical Sciences*, 5(9), 16-25.

- Deepa, K.N., Sultan, M.Z., Kabir, S., & Amran, M.S. (2016). In Vitro analysis of the interaction between ketorolac tromethamine and bovine serum albumin using fluorescence spectroscopy. *Journal of Advances in Medical and Pharmaceutical Sciences*, 10(1), 1-8.
- Dhar, K. S., Wahed, T. B., Hasan, A. N., & Wahed, S. B. (2016). In vitro antioxidant activities and cytotoxicity study of the methanolic extract of barks of *Syzygium cymosum*, *International Journal of Pharmaceutical Sciences and Research*, 7(3), 1021-1025.
- Hossain, M. M., Tahia, F., Al-Monsur, M. A. & Rashid, M. A. (2016). 7-Methoxy-8-Prenylated Coumarins from *Murraya koenigii* (Linn.) Spreng. *Dhaka University Journal of Pharmaceutical Sciences*, 15(2), 155-159.
- Islam, M.R., & Moktadir, A.A. (2016). A study on the prescribing pattern of antibiotics in rural area of Bangladesh. *Journal of Innovations in Pharmaceutical and Biological Sciences*, 3, 133-138.
- Karim, S., Hossain, F., Uddin, J., Bhuiyan, M. A., & Harun-Or-Rashid, M. (2016). Formulation and in vitro evaluation of aspirin sustaines release tablets using hydrophilic polymer. *World Journal of Science and Engineering*, 3(3), 39-45.
- Karmoker Z.R., Sarker S., Joydhar P & Chowdhury, S.F. (2016). Comparative in vitro equivalence evaluation of some Aceclofenac generic tablets marketed in Bangladesh. *The Pharma Innovation Journal*, 5(3), 3-7.
- Karmoker, J.R., Joydhar, P., Sarkar, S. & Rahman, M. (2016). Comparative in vitro Evaluation of Various Commercial Brands of Amlodipine Besylate Tablets Marketed in Bangladesh. *Asian Journal of Pharmaceutical and Health Sciences*, 6 (1), 1384-1389.
- Khandaker, S., Das, S., Opo, M.D.A.F., Akhter, R. & Shahriar, M. (2016). In Vivo Pharmacological Investigations of the Crude Extracts of *Calamus viminalis* (L.). *Journal of Pharmacognosy and Phytochemistry*, 5(3), 263-269.

- Mahmud, A.A., Nahid, N.A., Nassif, C., Sayeed, M.S.B., Ahmed, M.U., Parveen, M., Khalil, M.I., Islam, M.M. & Nahar, Z. (2016). Françoise Rypens, Guy A. Rouleau, Fadi F. Hamdan, **Hasnat**, A., Jacques, L. Michaud. Loss of the proprioception and touch sensation channel PIEZO2 in siblings with a progressive form of contractures. *Clinical Genetics*, 8.
- Opo, M.D.A.F., Das, S., Khandokar, S., Akhter, R. & Shahriar, M. (2016). In vivo Pharmacological Investigations of Leaf Extracts of *Calamus tenuis* Roxb. *International Journal of Pharmaceutical Research and Bioscience*, 5(4), 1-12.
- Shabnaz, S., Ahmed, M.U., Islam, M.S., Islam, M.R., Al-Mamun, M.M., Islam, M.S. & Hasnat, A. (2016). Breast cancer risk in relation to TP53 codon 72 and CDH1 gene polymorphisms in the Bangladeshi women. *Tumour Biology*, 37(6), 7229-7237.
- Shafa, F., Shahriar, M., Opo, M.D.F.A., Akhter, R., Hossain, M. & Choudhury, N. (2016). Characterization of Phytoconstituents, Characterization of Phytoconstituents, In vitro Antioxidant Activity and Pharmacological Investigation of the Root Extract of *Typhonium trilobatum*. 2016. *International Journal of Pharmaceutical Sciences and Research*, 7(4), 1694-1704.
- Shahriar, M., Khair N.Z., Sheikh Z., Chowdhury, S.F., Kamruzzaman M., Bakhtiar M.S.I., Chisty S.J., Narjish S.N., Akhter R., & Akhter N. (2016). Phytochemical analysis, cytotoxic and in vitro antioxidant activity of *Erythrina variegata* bark. *European Journal of Medicinal Plants*, 11(3), 1-5
- Shahriar, M., Khair N.Z., Sheikh Z., Chowdhury, S.F., Kamruzzaman M., Bakhtiar M.S.I., & Chisty S.J. (2016). Characterization of phytoconstituents and bioactivity of *Annona reticulata* L. leaf extract. *Journal of Pharmacognosy and Phytochemistry*, 5(1), 42-45.
- Sohani, S. S., Jahan, K. & Islam, S. (2016). Effect of Different Excipients on the Release of Norethisteron Acetate from Chitosan-Sodium Alginate Polymeric

Implants. International Journal of Pharmaceutical Sciences and Research, 7(5), 1928-1937.

- Tania, H.U., Hassan, R.M., Eshita, N.J., Akhter, R. & Shahriar, M. (2016). Evaluation of In vitro Antioxidant and In vivo Pharmacological Activity of Leaf Extracts of *Hoya parasitica* (Wall.). Journal of Applied Pharmaceutical Science, 6(5), 163-170.

### **YEAR- 2015**

- Akter, S., Hassan, M. R., Shahriar, M., Akter, N., Abbas, M. G., & Bhuiyan, M. A. (2015). Cognitive impact after short-term exposure to different proton pump inhibitors: assessment using CANTAB software. Alzheimer's Research and Therapy, 7(79), 1-12.
- Ali, M., Akhter, R., Narjish, N.S., Shahriar, M. & Bhuiyan, A.M. (2015). Studies of Preliminary Phytochemical Screening, Membrane Stabilizing activity, Thrombolytic Activity and In-Vitro Antioxidant Activity of Leaf Extract of *Citrus hystrix*. International Journal of Pharmaceutical Sciences and Research, 6(6), 2367-2374.
- Arif, M. S., Masum, M. A. A., Sharmin, F., Reza, S.M. & Islam. S. M. A. (2015). Formulation of bi-layer matrix tablets of tramadol hydrochloride: comparison of rate retarding ability of the incorporated hydrophilic polymers. Pakistan Journal of Pharmaceutical Sciences, 28(3), 855-861.
- Bakhtiar, I.S.M., Akhter, R., Narjish, N.S., Chisty, J.S., Shahriar, M. & Bhuiyan, A.M. (2015). In vitro and in vivo biological investigations of the whole plant extracts of *Chrozophora prostrata* (dalz.). International Journal of Pharmacy, 5(4), 1188-1195.

- Bakhtiar, I.S.M., Shahriar, M., Akhter, R. & Bhuiyan, A.M. (2015). In vitro antioxidant activities of the whole plant extract of *Chrozophora prostrata* (dalz.). *Annals of Biological Research*, 6(4), 19-26.
- Barai, L., Akhter, R., Aziz, U., Ali, M. & Shahriar, M. (2015). In-vivo pharmacological investigations of *Citrus hystrix*. *International Journal of Pharmacy*, 5(4), 1149-1154.
- Chadni, S. H., Hossain, M. T., Tabassum, F. Asadujjaman, M., Salam, F. B. A., Sukul, A., & Fattah, M. A. (2015). Probiotics: A Prolific Advent of Modern Science. *World Journal of Pharmacy and Pharmaceutical Sciences*, 5(9), 308-315.
- Dewan, I., Islam, M.M., Joydebnath, Sultana, S., & Rana, M.S. (2015). Surface Deposition And Coalescence And Coacervation Phase Separation Methods: In Vitro Study And Compatibility Analysis of Eudragit RS30D, Eudragit RL30D, And Carbopol-PLA Loaded Metronidazole Microspheres. *Journal of Pharmaceutics*, 1-10.
- Dewan, I., Islam, S., & Rana, M. S. (2015). Characterization and Compatibility Studies of Different Rate Retardant Polymer Loaded Microspheres by Solvent Evaporation Technique: In Vitro-In Vivo Study of Vildagliptin as a Model Drug. *Journal of Drug Delivery*, 2015, 1-6.
- Dewan, I., Islam, S., & Rana, M. S. (2015). Formulation, Assessment and Compatibility Analysis of Different Polymer Loaded Microspheres by Non Aqueous Solvent Evaporation Technique: In Vitro-In Vivo Study of Glibenclamide as a Model Drug. *International Journal of Pharmaceutical Sciences and Research*, 6(1), 4668-4680.
- Dewan, I., Islam, S., & Rana, M.S. (2015). Characterization and Compatibility Studies of Different Rate Retardant Polymer Loaded Microspheres by Solvent Evaporation Technique: In Vitro-In Vivo Study of Vildagliptin as a Model Drug. *Journal of Drug Delivery*, 1-12.

- Dewan, I., Jahan, S.A., Gazi, M., JoydebNath, Asaduzzaman, M., & Hasan, M.M.A. (2015). Design, Preparation, Evaluation, Compatibility And In- Vitro Studies Of Naproxen And Esomeprazole Multilayer Tablets: Layer By Layer Tablet Technology. *World Journal of Pharmaceutical Research*, 4 (6), 472-492.
- Fancy, A.F., Shahriar, M., Islam, R.M. & Bhuiyan, A.M. (2015). In-vivo anti-pyretic, anti-nociceptive, neuropharmacological activities and acute toxicity investigations of *Blumea lacera*. *International Journal of Pharmacy and Pharmaceutical Sciences*, 7(1), 472-477.
- Faruki, M. Z., Bhuiyan, M. A., Alam, M. F., Rishikesh., Akter, R., & Hossain, A. K. M. F. (2015). Unexpected differences in dissolution behavior of tablets prepared from fenofibrate solid dispersions and strongly enhanced dissolution rate, exclusively better than marketed products. *European Journal of Biomedical and Pharmaceutical Sciences*, 2(6), 8-19.
- Ferdousi, R., Narjish, N.S., Chowdhury, D. & Shahriar, M. (2015). Antimicrobial resistance pattern of bacteria isolated from ICU patients with urinary tract infections. *International Journal of Pharmacy*, 5(4), 1079-1086.
- Giri, A. & Islam, S. M. A. (2015). Protein binding chemistry of amlodipine besylate and olmesartan medoxomil to bovine serum albumin and their mutual effect to displace each other from the binding site: in-vitro study. *Asian Journal of Pharmaceutics*, 9 (4), 266-276.
- Hossain, M. T., Rafiquzzaman, M., Islam M. S., Sufian, M. A. & Kundu, S. (2015). Analgesic and cytotoxic activities of three reputed Bangladeshi medicinal plants. *International Research Journal of Pharmacy*, 6(9), 1-5.
- Jahan, S., Chowdhury, S.F., Mitu S.A., Shahriar, M., & Bhuiyan, M.A. (2015). Genomic DNA Extraction Methods: A Comparative Case Study with Gram-negative Organisms. *Banat's Journal of Biotechnology*, 6(11), 61-68.



- Kadir, M.F., Karmoker, J.R., Alam, M.R., Jahan, S.R., Mahbub, S. & Mia, MMK. (2015). Ethnopharmacological Survey of Medicinal Plants Used by Traditional Healers and Indigenous People in Chittagong Hill Tracts, Bangladesh, for the Treatment of Snakebite. Evidence-Based Complementary and Alternative Medicine, 2015, 1-23.
- Kamal, S., Akhter, R., Tithi, A.N., Wadud, A.M., Narjish, N.S., Shahriar, M. & Bhuiyan, M.A. (2015). Biological Investigations of the Leaf Extract of *Spondias pinnata*. International Journal of Pharmaceutical Sciences and Research, 6(8), 3351-3358.
- Karim, S., Bhuiyan, M. A., & Rana, M. S. (2015). Formulation and in vitro evaluation of glimepiride sustained release tablets: comparison with immediate release tablets. Bangladesh Pharmaceutical Journal, 18(2), 157-162.
- Mannan, M. M., Akhter, R., Shahriar, M., & Bhuiyan, M. A. (2015). Evaluation of in vitro membrane stabilizing activity and thrombolytic activity of *Averrhoa bilimbi* leaf extracts. International Journal of Pharmacy, 5(2), 357-360.
- Mannan, M. M., Bhuiyan, M. A., Shahriar, M., Khan, F. N. A., & Kundu, M. K. (2015). Phytochemical screening, cupric reducing antioxidant activity (CUPRAC), nitric oxide scavenging assay, scavenging of hydrogen peroxide and reducing power capacity assessment of leaf extract of *Averrhoa bilimbi* (Family: Oxalidiaceae). International Journal of Pharmacy, 5(4), 1327-1332.
- Mohima , T., Dewan, I., Islam, S. M. A., Rana, S. & Hossain, A. (2015). Encapsulation of zidovudine in different cellulosic acrylic and methacrylic polymers loaded microspheres: in vitro characterization and compatibility studies. International Journal of Pharmacy and Pharmaceutical Sciences, 7 (1), 487-495.
- Sajjad, M.M.R., Sharif, M.T., Deepa, K.N., Nahar. K., Rahman, M.S., Mian, M.Y., Lubna, N.J., Rahman, A., Sultan, M.Z., Kabir, S., Chowdhury, A.A. & Amran,

- M.S. (2015). Evaluation of cardiovascular activity of an ayurvedic preparation “Khadirarishta” in rat model. *European Journal of Pharmaceutical and Medical Research*, 2(2), 223-234.
- Shahee, S. N., Aziz, A., & Bhuiyan, M. A. (2015). Design, formulation and in vitro evaluation of sustained release pulsatile capsule of metoprolol tartrate. *International Journal of Pharmaceutical Sciences and Research*, 6(7), 2755-2761.
  - Shahriar, M., Ahsan M.T., Hossain S.M., Chowdhury, S.F., Mannan M.M., Akhter R., Mahmud S., Hasan S., & Narjish S.N. (2015). In vitro Membrane Stabilizing Activity of Leaf Extracts of *Paederia foetida* (L.). *World Journal of Pharmaceutical Research*, 4(4), 204-209.
  - Shahriar, M., Islam, R.M., Hassan, R.M. & Uddin, N.M.M. (2015). Biological investigations of the leaf extract of *spondias pinnata*. *World journal of pharmaceutical research*, 4(3), 252-256.
  - Shahriar, M., Khair N.Z., Akhter R., & Chowdhury, S.F. (2015). In vitro Membrane Stabilizing Activity of Leaf Extracts of *Erythrina variegata* bark (L.) *Journal of Chemical and Pharmaceutical Research*, 7(4), 960-962.
  - Shahriar, M., Khair, Z.N., Gazi, M. & Akhter, R. (2015). In Vitro Thrombolytic Activity of *Erythrina variegata* Bark. *World Journal of Pharmaceutical Research*, 4(5), 512-515.
  - Shahriar, M., Tithi, A.N., Akhter, R., Kamal, S., Narjish, N.S. & Bhuiyan, A.M. (2015). Phytochemical and pharmacological investigation of the crude extract of *typhonium trilobatum* (L.) Schott. *World Journal of Pharmaceutical Research*, 4(2), 167-188.
  - Sufian, M. A. & Haque, M. R. (2015). Cytotoxic, thrombolytic, membrane stabilizing and anti-oxidant activities of *Hygrophila schulli*. *Bangladesh Journal of Pharmacology*, 10, 692-696.

- Sufian, M. A., Begum, F., Haque, M. R., Hasan, C. M. & Rashid, M. A. (2015). Sterol and triterpenoids from *Hygrophil schulli* Buch.-Ham. Bangladesh Journal of Botany, 44 (2), 319-321.
- Sufian, M. A., Mehedi, M. S. A., Rashid, M. A. & Haque, M. R. (2015). Biological investigation of *Entada rheedii* Spreng. and isolation of entadamide A from its seed. International Research Journal of Pharmacy, 6 (7), 411-414.
- Tasneem, S., Haque, P. S., Bari, M. S., Hossain, M. M., Islam, S. M. A., Shahriar, M., Bhuiyan, M. A., & Sayeed, M. S. B. (2015). *Allium sativum* L improves visual memory and attention in healthy human volunteers. Evidence-based Complimentary and Alternative Medicine, 2015, 1-8.
- Tosha, S.M., Aziz, A., Chisty, S.J., Asaduzzaman, M., & Bhuiyan, M.A. (2015). Development and in vitro evaluation of pulsatile drug delivery system of enalapril maleate. Bangladesh Pharmaceutical Journal, 18(1), 66-71.
- Wadud M.A., Akhter R., Chowdhury, S.F., Narjish S.N., Mannan M.M., Nasiruddin M.M., Shahriar, M., & Bhuiyan, M.A. (2015). In vivo Pharmacological Investigations of Leaf Extracts of *Paederia foetida* (L.) International Journal of Pharmaceutical Sciences Review and Research, 31(2), 166-172.

#### **YEAR-2014**

- Ahmed, T., Akter, R., Sharif, S., Shahriar, M. & Bhuiyan, A.M. (2014). In vitro antioxidant activities and In vivo anti-nociceptive and neuropharmacological activities of *Mimosa pudica*. International Journal of Pharmacy, 4(2), 70-78.
- Alam, F., Shahriar, M. & Bhuiyan, A.M. (2014). In-vivo pharmacological investigation of bark extracts of *Carissa carandas*. International Journal of Pharmacy and Pharmaceutical Sciences, 6(6), 180-185.

- Aziz, U., Akther, R., Shahriar, M. & Bhuiyan, A.M. (2014). In vivo pharmacological investigation of *Mimosa pudica* L. *International Journal of Pharmacy and Pharmaceutical Sciences*, 6(2), 66-69.
- Basak, A., Uddin, N.M.M., Sarwar, S.M., Mohiuddin, M., Dewan, R.M.S., Shahriar, M. & Islam, S. M. (2014). Exploration of analgesic activity of the ethanolic extract of *Erythrina variegata* bark. *Journal of the Analgesics*, 2(2), 37-42.
- Bin Sayeed, M.S., Shams, T., Hossain, S.F., Rahman, M.R., Mostafa, A.G.M., Kadir, M.F. et al (2014). *Nigella sativa* L. seeds modulate mood, anxiety and cognition in healthy adolescent males. *Journal of Ethnopharmacology* (Elsevier), 152 (1), 156-162. PMID: 24412554.
- Chowdhury, F.S., Jahan, S., Bhuiyan, A.M. & Shahriar, M. (2014). Identification of plasmid DNA responsible in clinical isolates of *E. coli* against specific antibiotics. *International Journal of Pharmacology and Technology*, 6 (1), 61-68.
- Deepa, K.N., Hossain, M.K., Amran, M.S. & Kabir, S. (2014). In Vitro Model for Studying Interactions between Ketorolac and Omeprazole with Bovine Serum Albumin by UV-Spectroscopic Method. *Bangladesh Pharmaceutical Journal*, 17 (1), 92-98.
- Deepa, K.N., Sultana, S., & Zaman, K.A. In vitro comparative Analysis of Ciprofloxacin HCl available in Bangladesh. (2014) Daffodil International University *Journal of Allied Health Science*, 1(2), 121-126.
- Dewan, I., Islam, S., & Rana, M.S. (2014). Formulation, assessment and compatibility analysis of different polymers loaded microspheres by non aqueous solvent evaporation technique: in vitro - in vivo study of glibenclamide as a model drug. *International Journal of Pharmaceutical Sciences and Research*, 6(11), 4668-4680.

- Dewan, I., Miah, S., Islam, S. M. A. & Sohel Rana. (2014). Design characterization and in-vitro evaluation of different cellulosic acrylic and methacrylic polymers loaded aceclofenac microspheres. *Pakistan Journal of Pharmaceutical Sciences*, 27(5), 1241-1248.
- Faruki, M.Z., Razzaque, E., Rishikesh, Akhter, R., & Bhuiyan, M.A. (2014). Design, formulation development and solubility enhancement of fenofibrate, a water insoluble drug by solid dispersion technique. *World Journal of Pharmaceutical Research*, 3(6), 1801-1814.
- Ghosh, R., Haque, M.A., Paul, T.R., Al-Amin, Bhuiyan, M.A., & Dewan, I. (2014). Bilayered Tablet Technology: An Overview. *World Journal of Pharmaceutical Research*, 3(4), 150-163.
- Hamiduzzaman, M. & Sarkar, A.S.M. (2014). Evaluation of biological activities of *Abelmoschus esculentus* (Malvaceae). *International Journal of Current Science*, 10, 43-49.
- Hamiduzzaman, M., Kumar, K., & Mannan, S.J. (2014). Hypoglycemic, cell membrane stability, thrombolytic, total phenolic content and free radical scavenging activities of methanolic extract of *Ziziphus mauritiana* fruits (Rhamnaceae). *International Research Journal of Pharmacy*, 5(3), 151-154.
- Hamiduzzaman, M., Mannan, S.J., Dey, A. & Rahman, A.S.A (2014). Evaluation of analgesic, antipyretic, hypoglycemic and CNS depressant activity of 2-bromopopylamine hydrobromide, 3-bromopopyl ammoniumbromide, ortho-amino aniline and benzimidazole-2-thiol in animal model. *Der Pharmacia Letter*, 6(1), 47-53.
- Hamiduzzaman, M., Sarkar, A.S.M., Hossain, M.J. & Rashid, A. (2014) Neuropharmacological, Analgesic, Antidiarrheal and Antimicrobial Activities of Methanolic Extract of *Ziziphus mauritiana* Leaves (Rhamnaceae). *American Journal of Advanced Drug Delivery*, 2(2), 183-190.

- Haque, S.S., Rashid, M.M.O., Prodhan, M.A., Noor, S., & Das, A. (2014). In vitro evaluation of antimicrobial, cytotoxic and antioxidant activities of crude methanolic extract and other fractions of *Sterculia villosa* barks. *Journal of Applied Pharmaceutical Science*, 4(3), 035-040.
- Hossain, S. M., Islam, S., Saha, M., & Islam, S. (2014). Effect of Formulation Variables on the Release of Letrozole from Natural Biodegradable Polymeric Implants. *British Journal of Pharmaceutical Research*, 4(20), 2417-2435.
- Howlader, N. A., Islam, S., Al-Mamun, M., & Barua, S. (2014). Observation of the Release of Lidocaine Hydrochloride from Biodegradable Polymeric Implants. *World Journal of Pharmacy and Pharmaceutical Sciences*, 3(10), 60-71.
- Islam, M.R., Ahmed, M.U., Islam, M.S., Sayeed, M.S.B., Sadia, F., Chowdhury, Z.S., Nahar, Z. & Hasnat, A. (2014). Comparative Analysis of Serum Malondialdehyde, Antioxidant Vitamins and Immunoglobulin Levels in Patients Suffering from Generalized Anxiety Disorder. *Drug Research*, 64, 406–411.
- Kadir, M.F., Bin Sayeed, M.S., Mia, M.M.K (2014). Ethnopharmacological survey of medicinal plants used by traditional health practitioners in Thanchi Bandarban Hill Tracts, Bangladesh. *Journal of Ethnopharmacology* (Elsevier), 155 (1), 495-508. PMID 24892834
- Kanak, F., Islam, S.M., Shahriar, M., Haque, U.I.M. & Kadir. F.M. (2014). In vitro binding chemistry of erythromycin stearate and omeprazole to bovine serum albumin. *Pharmacologia*, 5(3), 91-97.
- Karim, F. T., Kalam, A., Anwar, R., Miah, M. M., Rahman, M. S. & Islam, S. M. A. (2014). Preparation and evaluation of seeds of simvastatin by in-vivo, in-vitro and ex-vivo technique. *Drug Development and Industrial Pharmacy*, 2015; 41(8):1338-42.
- Khatun, R. & Islam, S. M. A. (2014). Development and validation of analytical method for simultaneous estimation of brinzolamide and timolol by hplc from

ophthalmic preparation. International Journal of Pharmaceutical Sciences and Research, 5(3), 1001-1007.

- Mohima, T., Jahangir, Islam, S.M.A., Rana, S., & Dewan, I. (2014). Encapsulation of zidovudine in different cellulosic acrylic and methacrylic polymers loaded microspheres: in vitro characterization and compatibility studies. International Journal of Pharmacy and Pharmaceutical Sciences, 7(1), 24-30.
- Noor, S., Prodhan, A., Zohora, F.T., Tareq, F.S., Ahsan, M., Hasan, C.M., & Islam, S.N. (2014). Phytochemical, antioxidant, antimicrobial, thrombolytic as well as cytotoxic studies on the stem bark of Manilkara zapota (Sapotaceae). Asian Journal of Chemistry, 26(18), 6138-6142.
- Rahman, S.M., Chaurasiya, K.A., Rahee, A.S., Hasan, I., Shahriar, M., Bhuiyan, A.M. & Reza, S.M. (2014). Preparation, Characterization and In Vitro - In Vivo Evaluation of Gliclazide Loaded Polymeric Microspheres. International Journal of Pharmacy, 4(4), 189-198.
- Saha, M., Debnath, A., Afroze, F. & Islam, S. (2014) Effect of excipients on the release of Tramadol Hydrochloride from biodegradable polymeric implants. International Journal of Pharmaceutical Sciences and Research, 2(11), 2046-2057.
- Saha, M., Hossain, S. M. & Islam, S. (2014). Release Pattern Study of Tramadol Hydrochloride Differing on Formaldehyde Exposure Time from Gelatin-Sodium Alginate Biodegradable Implants. World Journal of Pharmacy and Pharmaceutical Sciences, 3(10), 34-49.
- Sayeed, M.S.B., Shams, T., Hossain, S.F., Rahman, M.R., Mostofa, A.G.M., Kadir, M.F., Mahmood, S., & Asaduzzaman, M. (2014). Nigella sativa L. seeds modulate mood, anxiety and cognition in healthy adolescent males. Journal of Ethnopharmacology, 152: 156-162.
- Shahriar, M., Ahmed, T., Sharif, S., Akter, R., & Bhuiyan, M. A. (2014). Phytochemical screenings, membrane stabilizing activity, thrombolytic activity

and cytotoxic properties of leaf extracts of *Mimosa pudica*. . International Journal of Pharmacy, 4(2), 155-158.

- Shahriar, M., Ahmed, T., Sharif, S., Akter, R., Haque, A.M. & Bhuiyan, A.M. (2014). Phytochemical screenings, membrane stabilizing activity, thrombolytic activity and cytotoxic properties of leaf extracts of *Mimosa pudica*. International Journal of Pharmacy, 4(2), 155-158.
- Shahriar, M., Alam, F. & Uddin, N.M.M. (2014). Membrane stabilizing and thrombolytic activity of *Withania somnifera* root. American Journal of Phytomedicine and Clinical Therapeutics, 2(2), 252-256.
- Shahriar, M., Alam, F. & Uddin, N.M.M. (2014). Analgesic and Neuropharmacological Activity of *Withania somnifera* Root. International Journal of Pharmacy, 4(2), 203-208.
- Sharif, S., Ahmed, T., Haque, A.M., Bhuiyan, A.M. & Shahriar, M. (2014). Phytochemical screenings, thrombolytic activity, membrane stabilizing activity and cytotoxic properties of *Polygonum hydropiper*. Research Journal of Medicinal Plant, 8(2), 92-98.
- Sharif, S., Ahmed, T., Md. Hoque, M. A., Bhuiyan, M. A., & Shahriar, M. (2014). Phytochemical screenings, thrombolytic activity, membrane stabilizing activity and cytotoxic properties of *Polygonum hydropiper*. Research Journal of Medicinal Plant, 2014; 8(2), 92-98.
- Shrestha, P., Bhandari, S. K., Islam, S. M. A. & Adhikari. S. (2014). Dissolution enhancement of glimepiride by solid dispersion technique. Research Journal of Pharmaceutical, Biological and Chemical Sciences, 5(5), 977-990.
- Shrestha, P., Bhandari, S. K., Islam, S. M. A., Reza, M. S. & Adhikari. S. (2014). Design and development of immediate and sustained release tablets of vildagliptin. Research Journal of Pharmaceutical, Biological and Chemical Sciences, 5(4), 811-825.



- Soma, J.L., Shahriar, M., Narjish, N.S. & Bhuiyan, A.M. (2014). Antimicrobial Resistance Pattern of Bacteria Isolated from ICU Patients with Respiratory Tract Infections. *Dhaka University Journal of Pharmaceutical Sciences*, 13(2), 193-197.
- Sultana, S., Zaman, K.A., Deepa, K.N., & Yesmin, N. (2014). Comparative quality evaluation of different brands of Frusemide tablets available in Bangladeshi market. *Daffodil International University Journal of Allied Health Science*, 1(2), 81-88.
- Uddin, N.M.M., Amin, R.M., Basak, A. & Shahriar, M. (2014). Analgesic and Neuropharmacological Investigations on *Sesbania grandiflora*. *International Journal of Pharmacy*, 4(2), 179-182.
- Uddin, N.M.M., Basak, A., Amin, R.M. & Shahriar, M. (2014). Pharmacological Investigations on Flowers of *Ixora coccinea*. *International Journal of Pharmacognosy and Phytochemistry*, 29(1), 1208-1213.
- Zaman, K.A. Sultana, S. Deepa, K.N. & Akther, S. (2014). Performance evaluation of different brands of Chlorpheniramine Maleate (antihistamine) tablets available in Bangladesh. *Daffodil International University Journal of Allied Health Science*, 1(2), 99-108.
- Zaman, K.A., Sultana, S. & Deepa, K.N. (2014). Phytochemical and pharmacological [Leathality & free radical scavenging] screening of the plant *Cleome viscosa*. *Daffodil International University Journal of Allied Health Science*, 1(2), 69-80.

### **YEAR-2013**

- Ahmed, K. S., Masum, A. A., Sultana, S., Reza, M. S., & Bhuiyan, M. A. (2013). Effect of PEG molecular weight on solubility and release criteria of carvedilol from prepared solid dispersions. *European Journal of Scientific Research*, 105(3), 402-413.

- Akther, R., Haque, M. A., Bhuiyan, M. A. & Shahriar, M. (2013). In-vivo pharmacological investigation of leaf extract of *Polygonum hydropiper* (L.). Dhaka University Journal of Pharmaceutical Sciences, 12(2), 165-169.
- Alam, A. A., Masum, M. A. A., Islam, R. B., Sharmin, F. & Islam, S. M. A. (2013). Formulation of solid dispersion and surface solid dispersion of nifedipine: a comparative study. Africal Journal of Pharmacy and Pharmacology, 7(25), 1707-1718.
- Al-Mamun, M., Islam, S., Islam, S., Barua, S. & Howlader, N. A. (2013). Observation of the release of Simvastatin from biodegradable polymeric implant. International Journal of Biology, Pharmacy and Allied Sciences, 2(11), 2046-2057.
- Bhuiyan, M. A., Shahriar, M., & Nagatomo, T. (2013). Binding affinity of candesartan, losartan, telmisartan and valsartan with angiotensin II receptor 1 subtype. Bangladesh Pharmaceutical Journal, 16(1), 11-14.
- Bin Sayeed M.S., Ratan, M., Hossen, F., Hassan, F., Faisal, M., Kadir, M.F. (2013) Arsenosugar Induced Blood and Brain Oxidative Stress, DNA Damage and Neurobehavioral Impairments. *Neurochemical Research* (Springer), 38(2), 405-412.
- Bin Sayeed, M.S., Asaduzzaman, M., Morshed, H., Hossain, M.M., Kadir, M.F., *et al* (2013). The effect of *Nigella sativa* Linn. seed on memory, attention and cognition in healthy human volunteers. *Journal of Ethnopharmacology* (Elsevier), 148 (3), 780-786.
- Dewan I., Amin T., Hossain M.F., Hasan M., Chowdhury, S.F., Gazi M., & Islam SMA. (2013). Development and validation of a new HPLC method for the estimation of Azithromycin in bulk and tablet dosage form. International Journal of Pharmaceutical Science and Research, 4(1), 282-286.
- Dewan, I., Amin, T., Chowdhury, S.F., Gazi, M., & Islam, S.M.A. (2013). Study And Evaluation Of Release Kinetics Of Tramadol Hcl From Lipid Based

Sustained Release Capsules By Melt Matrix. Dhaka University Journal of Pharmaceutical Sciences, 11 (2), 137-145.

- Dewan, I., Amin, T., Chowdhury, S.F., Gazi, M., Hasan, M., Hossain, F., & Islam, S.M.A. (2013). Development and validation of a new HPLC method for the estimation of azithromycin in bulk and tablet dosage form. International Journal of Pharmaceutical Sciences and Research, 4(1), 1-5.
- Dewan, I., Amin, T., Hossain, M. F., Hasan, M., Choudhury, S. F., Gazi, M. & Islam, S. M. A. (2013). Development and validation of a new HPLC method for the estimation of azithromycin in bulk and tablet dosage form. International Journal of Pharmaceutical Sciences and Research, 4(1), 282-286.
- Dey, A., Rahman, S.M., Nasreen Chowdhury, R., Hamiduzzaman, M., & Alvi, R.H. (2013). Invitro Pharmacological Activity of the plant Boerhavia repens (Family: Nyctagineae). International Research Journal of Pharmacy, 4(8),
- Faruki, M. Z., Hossain, A. K. M. M., Jha, M. K., Hasan, A. K. M. B., Rishikesh, Razzaque, E., & Bhuiyan, M. A. (2013). Solubility enhancement of an inadequately water soluble drug (ketorolac tromethamine) by using different vehicles. Innovations in Pharmaceuticals and Pharmacotherapy, 1 (3), 162-171.
- Faruki, M. Z., Rishikesh, Razzaque, E., & Bhuiyan, M. A. (2013). Improvement of solubility of badly water soluble drug (ibuprofen) by using surfactants and carriers. International Journal of Pharmaceutical Sciences and Research, 4(4), 1569-1574.
- Hamiduzzaman, M. (2013). Evaluation of central and peripheral analgesic activity of whole plant Gomphrena globosa (L), Family: Amaranthaceae. International Research Journal of Pharmacy, 4(6), 54-57.
- Hamiduzzaman, M. (2013). Significant hypoglycemic activity from Gomphrena globosa (Amaranthaceae) in mice model. Universal Journal of Pharmacy, 2(5), 68-72.

- Islam, S., Dey, L. R., Shahriar. M., Dewan, I. & Islam, S. M. A. (2013). Enhancement of dissolution rate of gliclazide using solid dispersions I: characterization and dissolution rate comparison. *Bangladesh Pharmaceutical Journal*, 16(1), 45-52.
- Kadir, M.F., Bin Sayeed, M.S., Mia, M. M. K. (2013). Ethnopharmacological survey of medicinal plants used by traditional healers in Bangladesh for gastrointestinal disorders. *Journal of Ethnopharmacology* (Elsevier), 147 (1), 148-156.
- Kamruzzaman, M., Sazidur, R., Islam, M.S., Parvin, S., Nahar, K., Uddin, M.M.N., Ganguly, A. & Shahriar, M. (2013). Phytochemical screenings and antithrombolytic activities of two common medicinal plants of Bangladesh. *International Journal of Drug Discovery and Technology*, 4(1), 1-4.
- Kanak, F., Islam, M.S., Shahriar, M., Amdadul, H.M., Mostafa, A. & Kadir, M.F. (2013). In vitro Binding Chemistry of Erythromycin Stearate and atenolol to Bovine Serum Albumin. *Biosciences International*, 2(4), 41-48.
- Mahmood, A., Islam, M.S., Parvin, S., Uddin, M.N.N. & Shahriar, M. (2013). Phytochemical screenings and anti-thrombolytic activity of Citrus assamenses. *International Journal of Drug Targets*, 4(2), 98-100.
- Mahmud, S., Kadir, M.F. & Shahriar, M. (2013). Preliminary In Vitro Biological and Phytochemical Screenings of Bark Extracts of Carissa carandas. *International Journal of Drug Discovery and Technology*, 4(2), 80-87.
- Masum, M. A. A., Sharmin, F., Islam, R. B., Islam, M. A. & Islam, S. M. A. (2013). Application of solid dispersion technique in improving solubility of ibuprofen by poloxamers. *Journal of Pharmacy Research BioMedRx* , 1(5), 498-505.
- Nahar, Z., Sarwar M.S., Islam, M.S., Rahman, A., Islam, N.S, Islam M.S. & Hasnat A. (2013). Determination of Serum Antioxidant Vitamins, Glutathione and MDA Levels in Panic Disorder Patients. *Drug Research*, 63, 424-428.

- Nasreen, W., Chowdhury, Z. S., & Jhanker, Y. M. (2013). Mouth dissolving tablets- A unique dosage form curtailed for special purpose: a review. *International Journal of Science and Technology*, 6(5), 53–61.
- Nath J, Nasreen,W., Adhikari S, Islam A, Sarker., S, Ahmed,I.N., & Kadir, F.M. (2013). Market research and recommendation on packaging and labeling of various OTC (over the counter) drugs available in Bangladesh, *International Journal of Science and Technology*, 2013, 10 (3).
- Nazmi, M., Islam, S. M. A., Bhuiyan, M. A., & Reza, M. S. (2013). Effect of superdisintegrants and method of preparation on disintegration time and release profile of carbamazepine from immediate release tablet. *Journal of Applied Pharmaceutical Sciences*, 3(5), 80-84.
- Nipun, T. S. & Islam, S. M. A. (2013). Sedds of gliclazide: preparation and characterization by in-vitro, ex-vivo and in-vivo techniques. *Saudi Pharmaceutical Journal*, 22, 343-348.
- Noor, S., Rahman, S.M.A., Ahmed, Z., Das, A., & Hossain, M.M. (2013). Evaluation of anti-inflammatory and antidiabetic activity of ethanolic extracts of *Desmodium pulchellum* Benth. (Fabaceae) barks on albino wistar rats. *Journal of Applied Pharmaceutical Science*, 3(7), 048-051.
- Parvin, D., Uddin, M.M.N., Islam, M.S., Parvin, S. & Shahriar, M. (2013). Phytochemical screenings, thrombolytic activity and antimicrobial properties of the leaf extracts of *Lablab purpureus*. *American Journal of Research Communication*, 1(2), 49-55.
- Rabbee, M. C., Shahriar, M., Bhuyian, M. A., Rishikesh, & Islam, M. A. (2013). Evaluation of bactericidal action of serum collected from paratyphoid patients and normal human against *Salmonella paratyphi*. *Dhaka University Journal of Pharmaceutical Sciences*, 12(1), 71-75.

- Rahman, A., Bhuiyan, M.A. Shahriar, M. (2013). Preliminary In Vitro Biological, Phytochemical Screenings and In Vitro Antioxidant Activities of *Blumea lacera* (Burm.f.) DC. *International Archive of Applied Sciences and Technology*, 4(2), 1-7.
- Rishikesh, Bhuiyan, M. A., Islam, S. M. A., Dewan, I., Islam, M. A. & Miah. M. S. H. (2013). Contemporary approaches for bi-layer technology of drugs through oral route: an overview. *International Journal of Pharmaceutical Sciences and Research*, 4(4), 1326-1334.
- Rishikesh, Banu, M. R., Faruki, M. Z., Ghosh, D. R., Bhuiyan, M. A., & Dewan, I. (2013). Improvement of fast disintegrating tablets using ranitidine HCl. *Journal of Drug Discovery and Therapeutics*, 1(7), 42-45.
- Sadek, Y. B., Shahriar, M., Nasreen, W., Hossain, M., & Bhuiyan, M. A. (2013). Effect of SDS on plasmid isolation and antimicrobial resistance pattern of clinical isolates of *Staphylococcus Aureus*. *European Journal of Scientific Research*, 102(1), 30-35.
- Sadek, Y.B., Choudhury, N. & Shahriar, M. (2013). Biological investigations of the leaf extracts of *Carissa carandas*. *International Journal of Pharmaceutical Research and Technology*, 5(2), 97-105.
- Sayeed, M.S.B., Asaduzzaman, M., Morshed, H., Hossain, M.M., Kadir, M.F., Rahman, M.R. (2013). The effect of *Nigella sativa* Linn. seed on memory, attention and cognition in healthy human volunteers. *Journal of Ethnopharmacology*, 148, 780–786.
- Shahriar, M., Ahsan, C.R., Choudhury, N & Kabir, S. (2013). Antigenic Cross Reaction between the Pneumococcal Polysaccharide Vaccine and the *Streptococcus Pneumonia* 7F, One of the Prevalent Serotypes in Bangladesh. *International Journal of Biomedical Signal Processing*, 4(1), 13-20.

- Shahriar, M., Hossain, M. I., Sharmin, F. A., Akhter, S., Haque, M. A., & Bhuiyan, M. A. (2013). In vitro antioxidant and free radical scavenging activity of *Withania Somnifera* root. *IOSR Journal of Pharmacy*, 3(2), 38-47.
- Shahriar, M., Islam, M. S., Islam, S. M. A., Parvin, S. & Afrin, N. (2013). Thrombolytic activity of *coriandrum sativum*. *Journal of Bangladesh Academy of Sciences*, 37(2), 245-247.
- Shahriar, M., Islam, M.S., Parvin, S. & Hoque, S. (2013). Thrombolytic activity and antimicrobial properties of *Ficus hispida*. *Journal of Scientific Research*, 5(2), 393-397.
- Shahriar, M., Islam, S., Aich, R.K., Haque, M.A., Sayeed, M.S.B. & Kadir, M.F. (2013). Evaluation of the analgesic and neuropharmacological activities of the bark of *Terminala arjuna* in mice. *International Journal of Recent Scientific Research*, 4(3), 285-289.
- Shahriar, M., Nasreen, W., Hossain, M., & Bhuiyan, M. A. (2013). Effect of SDS on Plasmid Isolation and Antimicrobial Resistance Pattern of Clinical Isolates of *Staphylococcus aureus*. *European Journal of Scientific Research*, 102(1), 30–35.
- Sharif, S., Shahriar, M., Haque, M. A., Chowdhury, Z. S., Islam, M. R. & Bhuiyan, M. A. (2013). In-vitro antioxidant activities, anti-nociceptive and neuropharmacological activities of *Polygonum hydropiper*. *Journal of Biology, Agriculture and Healthcare*, 3(19), 61-71.
- Siddique, K.I., Uddin, M.M.N., Islam, M.S., Parvin, S. & Shahriar, M. (2013). Phytochemical screenings, thrombolytic activity and antimicrobial properties of the bark extracts of *Averrhoa bilimbi*. *Journal of Applied Pharmaceutical Science*, 3(3), 94-96.
- Toufique, S. A., Masum, M. A. A., Sharmin, F., Sultana, S., Reza, M. S., & Bhuiyan, M. A. (2013). Development and in vitro evaluation of floating drug

delivery system of verapamil HCl. International Journal of Pharmaceutical Sciences and Research, 4(2), 720-726.

- Uddin, M.M.N., Mahmuduzzaman, M., Islam, M.S., Parvin, S. & Shahriar, M. (2013). Phytochemical screenings and thrombolytic activity of the leaf extracts of *Adhatoda vasica*. The Experiment Journal, 7(4), 438-441.
- Urmi, A. B., Islam, S., Rahman, F., Toma, T. F., Islam, S. (2013) Observation of Metoprolol Tartarate release from biodegradable polymeric implants. International Journal of Pharmacy and Pharmaceutical Sciences, 5(4), 183-188.
- Zafrul A.T.M., Moni, F., Hamiduzzaman, M., Masud, M.M. & Mahmood Hasan, C. (2013). Two Cinnamoyl Triterpenes and Steroids from *Crotalaria incana* (Fabaceae). Research Journal of Phytochemistry, 7(1), 1-9.

#### **YEAR-2012**

- Afrin, S., Haque, T., Talukder, M. M. U. & Islam, S. M. A. (2012). Spectrophotometric method development and validation for simultaneous estimation of atorvastatin and glimepiride in tablet dosage form. International Journal of Pharmaceutical Sciences Review and Research, 12(1), 30-34.
- Ahmed, M.U., Islam, M.S., Sultana, T.A., Mostofa, A.G.M., Sayeed, M.B., Nahar, Z. & Hasnat, A. (2012). Quantitative Determination of Azithromycin in Human Plasma by Liquid Chromatography-Mass Spectrometry and its Application in Pharmacokinetic Study. Dhaka University Journal of Pharmaceutical Science, 11(1), 55-63.
- Aich, K.R., Bhuiyan, A.M. & Shahriar, M. (2012). Investigation of analgesic and neuropharmacological activities of *Asparagus racemosus* root extracts. Indian Journal of Scientific Research, 3(2), 1-7.
- Akhter, S., Hossain, I.M., Haque, A.M., Shahriar, M. & Bhuiyan, A.M. (2012). Phytochemical screening, antibacterial, antioxidant and cytotoxic activity of the



bark extract of *Terminalia arjuna*. *European Journal of Scientific Research*, 86(4), 543-552.

- Alam, M. R., Raton, M., Hassan, M. M., Kadir, M. F., Islam, S. M. A. & Haque, M. A. (2012). Anthelmintic and diuretic activity of bark extracts of *sterculia villosa*. *Journal Applied Pharmaceutical Science*, 2(10), 086-089.
- Alam, M.R., & Kadir, M.F. (2012). Anthelmintic and diuretic activity of bark extracts of *Sterculia villosa*. *Journal of Applied Pharmaceutical Sciences*, 2 (10), 86-89.
- Alam, M.R., Rahman, A.B., Moniruzzaman, M., & Kadir, M.F. (2012). Evaluation of antidiabetic phytochemicals in *Syzygiumcumini*(L.) Skeels. (Family: Myrtaceae) *Journal of Applied Pharmaceutical Sciences*, 2 (10), 94-98.
- Biswas, S., Ahsan, R.C., Shahriar, M. & Khanam, A.J. (2012). Investigation of antioxidant, in-vitro cytotoxic and in-vivo antitumor effects of leaf extracts of *Annona reticulate*. *Bangladesh Journal of Microbiology*, 29(2), 70-74.
- Chowdhury, F. W., Elahi, E., Huq, M., Khan, A. A., Rahman M. M. & Islam, S. M. A. (2012). Effect of different polymers and storage temperature on drug release from salbutamol sulphate loaded ethyl–cellulose microspheres prepared by using w/o emulsion solvent evaporation technique. *International Journal of Pharmaceutical Research and Bio-Science*, 1(3), 391-407.
- Dewan I., Saha A., Islam S.M.A., Gazi M., Amin T., & Chowdhury, S.F. (2012). Study and evaluation of release kinetics of Tramadol HCl from lipid based sustained release capsules by melt matrix. *Dhaka University Journal of Pharmaceutical Sciences*, 11(2), 137-145.
- Dewan, I. Islam, S. M. A., Sasha, A. & Gazi, M. (2012). Study and evaluation of release kinetics of tramadol hcl from lipid based sustained release capsules by melt matrix. *Dhaka University Journal of Pharmaceutical Sciences*, 11(2), 9-12.
- Dewan, I., & Islam, S.M.A. (2012). Formulation and evaluation of in vitro equivalence for tablets containing the poorly water-soluble compound

simvastatin. *International Journal of Pharmaceutical Research and Bio science*, 7(4), 23-27.

- Dewan, I., Gaji, M., Shahriar, M. & Islam, A.S.M. (2012). In vitro study of self emulsifying drug delivery system of poorly water soluble drug spironolactone. *International Journal of Pharmaceutical Sciences and Research*, 3(3), 890-895.
- Dewan, I., Hossain, M. A., & Islam, S.M.A. (2012). Formulation and evaluation of solid Dispersions of carvedilol, a poorly water Soluble drug by using different polymers. *International Journal of Research in Pharmacy and Chemistry*, 2(3), 585-593.
- Dey, A., Mohammad Shakar, A.A., Rahman, SM., Hamiduzzaman, M., & Amin, T. (2012). Evaluation of the Anti-inflammatory and antipyretic activities of the plant *Boerhavia repens*. (Family: Nyctaginaceae). *Journal of Natural Product and Plant Resources*, 2 (4), 471-474.
- Dey, A., Rahman, S.M., Akbar, M.A., Hamiduzzaman, M., & Hossain, M.M. (2012) Evaluation of analgesic and anti-diarrheal activity of whole plant *Boerhavia repens* (Family: Nyctagineae). *International Research Journal of Pharmacy*, 3 (10), 102-105.
- Dey, A., Rahman, S.M., Hossain, M.M., Hamiduzzaman, M., & Alvi, M.R. (2012). Evaluation of the Antioxidant, Cyto-toxic and Antimicrobial Activities of the Plant *Boerhavia repens* (Family: Nyctaginaceae). *Journal of Pharmacy Research*, 5(8), 4063-4065.
- Ghosh, R., Bhuyian, M.A., Dewan, I., Ghosh, D. R., & Islam, S.M.A. (2012). Immediate release drug delivery system (tablets): an overview. *Journal of Applied Pharmaceutical Sciences*, 2(5), 88-94.
- Hamiduzzaman, M. & Zafrul Azam, A.T.M. (2012). Antimicrobial, Antioxidant and Cytotoxic activity of *Gomphrena globosa* (L). *Bangladesh Pharmaceutical Journal*, 15(2), 183-185.

- Hamiduzzaman, M., Hasan, C.M., & Zafrul Azam, A. T. M. (2012). Isochavicin acid and steroids from *Gomphrena globosa* L. *Dhaka University Journal of Pharmaceutical Science*, 11(1), 79-81.
- Haque, M. A., Hasan, M. F., Dewan, I., Islam, S. M. A., & Bhuiyan, M. A. (2012). Studies to improve dissolution properties of poorly soluble carbamazepine by solid dispersion. *Bangladesh Pharmaceutical Journal*, 15(1), 73-77.
- Hossain, I.M., Akter, S., Haque, A.M., Bhuiyan, A.M. & Shahriar, M. (2012). In vitro antioxidant and free radical scavenging activity of *moringa oleifera* leaves. *Stamford Journal of Pharmaceutical Sciences*, 5(1&2), 41-52.
- Hossain, M. I., Sharmin, F. A., Akhter, S., Bhuiyan, M. A., & Shahriar, M. (2012). *Investigation of cytotoxicity and In-vitro antioxidant activity of Asparagus racemosus root extract* .*International Current Pharmaceutical Journal*, 1(9), 250-257.
- Hossain, M., Muntasir, H. M., Ishiguro, M., Bhuiyan, M. A., Rashid, M., Sugihara, T., Nakamura, T., & Nagatomo, T. (2012). Mechanism of inverse agonist action of sarpogrelate at the constitutively active mutant of 5-HT<sub>2A</sub> receptor revealed by molecular modeling. *Biological and Pharmaceutical Bulletin*, 35(9), 1553-1559.
- Hossain, S. F., Islam, M. S., Parvin, S., Shams, T., Kadir, M. F., Islam, S. M. A, Mostofa, A. G. M. & Sayeed, M. S. B. (2012). Antimicrobial screening and brine shrimp lethality bioassay of *calotropis gigantea* (fam: asclepiadaceae). *Journal of Natural Product and Plant Resources*, 2 (1), 49-59.
- Hossain, S.F., Islam, M.S., Parvin, S., Shams, T., & Kadir, M.F.(2012). Antimicrobial Screening and Brine Shrimp Lethality Bioassay of *Calotropisgigantea* (Fam: Asclepiadaceae). *Journal of Natural Product and Plant Resources*, 2 (1), 49-59.
- Islam, A.S.M., Dewan, I., Shahriar, M. & Sayeed, B.S.M. (2012). Validation and Application of a Simple HPLC Method for the Comparative In Vitro Dissolution

Study of Some Multisource Ciprofloxacin Tablets. IJPI's Journal of Analytical Chemistry, 2(8), 1-12.

- Islam, A.S.M., Dey, R.L., Sayeed, B.S.M., Shahriar, M. & Dewan, I. (2012). Comparative quality assessment of acetaminophen immediate and extended release tablets by validated analytical methods. International Journal of Pharmaceutical Research and Bio Science, 1(3), 220-237.
- Islam, S. M. A, Dewan, I., Shahriar. M., Sayeed, M. S. B. (2012). Validation and application of a simple hplc method for the comparative in vitro dissolution study of some multisource ciprofloxacin tablets. IJPI's Journal of Analytical Chemistry, 2(1), 49-59.
- Islam, S. M. A., Dey, L. R., Sayeed, M. S. B. Shahriar, M. & Dewan, I. (2012). Comparative quality assessment of acetaminophen immediate and extended release tablets by validated analytical methods. International Journal of Pharmaceutical Research and Bio-Science, 1(3), 220-237.
- Islam, S. M. A., Shultana, S., Sayeed, M. S. B. & Dewan, I. (2012). Uv-spectrophotometric and RP-HPLC methods for the simultaneous estimation of acetaminophen and caffeine: validation, comparison and application for marketed tablet analysis. International Journal of Pharmacy, 2(1), 39-45.
- Islam, S., Islam, S. & Urmi, A. B. (2012) Observation of the release of aspirin from gelatin-sodium alginate polymeric implant. Journal of Chemical and Pharmaceutical Research, 4(12), 5149-5156.
- Islam, S.M.A., Dewan, I., Shahriar, M.,& Sayeed, M.S.B.(2012). Validation and Application of a Simple HPLC Method for the Comparative In Vitro Dissolution Study of Some Multisource Ciprofloxacin Tablets. Journal of Analytical Chemistry, 2(8), 1-12.
- Islam, S.M.A., Dey, L.R., Sayeed, M.S.B., Shahriar, M.,& Dewan, I. (2012).Comparative quality assessment of acetaminophen immediate and

extended release tablets by validated analytical methods. *International Journal of Pharmaceutical Research and Bio Science*, 1(3), 220-237.

- Jannat, S., Masum, M. A. A., Sharmin, F., Islam, S. M. A. & Reza, S.M. (2012). Formulation and evaluation of sustained release matrix type transdermal film of ibuprofen. *Bangladesh Pharmaceutical Journal*, 15(1), 17-21.
- Jhanker, Y.M., & Kadir. M.F. (2012). Proteomics in Drug Discovery. *Journal of Applied Pharmaceutical Sciences*, 2 (8), 1-12.
- Kadir, M.F. (2012). Study of binary and ternary solid dispersion of spironolactone prepared by co-precipitation method for the enhancement of oral bioavailability. *Journal of Applied Pharmaceutical Sciences*, 2 (10), 117-122.
- Kadir, M.F., Bin Sayeed, M.S., Mia, M. M. K. (2012). Ethnopharmacological survey of medicinal plants used by indigenous and tribal people in Rangamati, Bangladesh. *Journal of Ethnopharmacology* (Elsevier), 144 (3), 627-637.
- Kadir, M.F., Bin Sayeed, M.S., Shams, T., Mia, M. M. K. (2012). Ethnobotanical survey of medicinal plants used by Bangladeshi traditional health practitioners in the management of diabetes mellitus. *Journal of Ethnopharmacology* (Elsevier), 144(3), 605-611.
- Khan, M. S. S., Islam, S. M. A., Hrita, S. P., & Reza, S. (2012). In-vitro study of low viscosity, and high viscosity direct compression and conventional grade hypromellose for modified release gliclazide tablets. *International Journal of Advances in Pharmaceutics*, 1 (1), 9-15.
- Mamun, M.E., Asaduzzaman, M., Islam, M.S., & Jalil, R. (2012). Effect of Hydrophobic Excipients on Release Kinetics of Ciprofloxacin from Kollidon SR Embedded Matrix Tablets. *Asian Journal of Pharmaceutical and Clinical Research*, 5(3).
- Masud, A.A., Rahman, M.M., Hasan, M., Ripon, M.K.H., Khan, A.R., Islam, M.R., & Sarkar, M.R. (2012). Validated Spectrophotometric Method for Estimation of

Olmesartan Medoxomil in Pharmaceutical Formulation. *International Journal of Pharmaceutical and Life Sciences*, 1, 1-7.

- Masum, M. A. A., Sharmin, F., Islam S. M. A. & Reza, S. R. (2012). Enhancement of solubility and dissolution characteristics of ibuprofen by solid dispersion technique. *Dhaka University Journal of Pharmaceutical Sciences*, 11(1), 1-6.
- Nahar, Z., Azad, M.A.K., Khanum, S., Sobhan, M.A., Islam, SK.N., Islam, M.S., Bari, W. & Hasnat, A. (2012). Serum Immunoglobulin Profile in Panic Disorder Patients. *Pakistan Journal of Pharmaceutical Sciences*, 25(1), 149-153.
- Naimuzzaman, M. S., Islam, S. M. A. & Reza, S.M. (2012). Design and evaluation of hydrophilic matrix-based sustained release tablets of alprazolam. *Asian Journal of Pharmaceutical and Health Sciences*, 2 (4), 481-487.
- Parvin, M. N., Chowdhury, S. A., Islam, S. M. A. & Uddin, R. (2012). Pattern and treatment of gout in Banhladesh: a hospital based survey at dhaka city, Banhladesh. *Journal Applied Pharmaceutical Science*, 2(5), 49-51.
- Paul, K.P., Dey, R.L., Shahriar, M., Dewan, I. & Islam, A.S.M. (2012). Comparative In vitro dissolution study of spironolactone from binary and tertiary solid dispersion: model dependent and independent approaches. *Journal of Drug Delivery & Therapeutics*, 2(4), 73-80.
- Paul, P.K., Dey, L.R., Shahriar, M., Dewan, I., &Islam, S.M.A. (2012). Comparative in vitro dissolution study of spironolactone from binary and tertiary solid dispersion: model dependant and independent approaches. *Journal of Drug Delivery and Therapeutics*, 2(4), 1-8.
- Popy, F. A., Dewan, I., Parvin, M. N. & Islam, S. M. A. (2012). Evaluation of in vitro equivalence for tablets containing poorly water soluble compound atorvastatin. *Dissolution Technology*, 19(4), 30-33.
- Rahman, M. M., Sayeed, M. S. B., Haque, M. A., Hassan, M. M. & Islam. S. M. A. (2012). Phytochemical screening, antioxidant, anti-alzheimer and anti-diabetic

activities of centella asiatica. Journal of Natural Product and Plant Resources, 2 (4), 504-511.

- Rahman, M.R., Asaduzzaman, M., & Islam, S.M.A. (2012). Development and Validation of UV Spectrophotometric Method for Determination of Cefuroxime in Pharmaceutical Dosage forms. American journal of PharmTech research, 2(4).
- Rahman, R., Asaduzzaman, M. & Islam, S. M. A. (2012). Development and validation of RP-HPLC method for assay analysis of ivabradine hydrochloride in tablet dosage forms. Research Journal of Pharmaceutical, Biological and Chemical Sciences, 3(3) 1032-1043.
- Rahman, S., Masum, M. A. A., Sharmin, F., Islam, S. M. A. & Reza, S.M. (2012). Formulation and evaluation of the bi-layered sustained release matrix tablets of tramadol hydrochloride. Journal Applied Pharmaceutical Science, 2(6), 129-134.
- Rahman. M. R., Asaduzzaman, M. & Islam, S. M. A. (2012). Development and validation of uv spectrophotometric method for determination of cefuroxime in pharmaceutical dosage form. American Journal of PharmTech Research, 2(4), 351-358.
- Rishikesh, Bhuyian, M. A., Dewan, I., Ghosh, D. R., & Islam, M. A. (2012). Immediate release drug delivery system (tablets): an overview. International Research Journal of Pharmaceutical and Applied Sciences, 2(5), 88-94.
- Shahriar, M. & Shahid, S. (2012). A Survey on Antimicrobial Susceptibility of Streptococcus pneumonia from Different Diagnostic Centers in Dhaka City, Bangladesh. Journal of Dhaka International University, 4(1), 87-92.
- Shahriar, M., Akhter, S., Hossain, I.M., Haque, A.M. & Bhuiyan, A.M. (2012). Evaluation of in-vitro antioxidant activity of bark extracts of Terminalia arjuna. Journal of Medicinal Plants Research, 6(39), 5286-5298.
- Shahriar, M., Bahar, M.N.A., Hossain, I.M., Akhter, S., Haque, A.M. & Bhuiyan, A.M. (2012). Preliminary Phytochemical Screening, In-Vitro Antioxidant and

Cytotoxic Activity of Five Different Extracts of *Withania somnifera* root. International Journal of Pharmacy, 2(3), 450-453.

- Shahriar, M., Hossain, I.M., Bahar, M.N.A., Akhter, S., Haque, A.M. & Bhuiyan, A.M. (2012). Preliminary Phytochemical Screening, In-Vitro Antioxidant and Cytotoxic Activity of Five Different Extracts of *Moringa Oleifera* Leaf. Journal of Applied Pharmaceutical Science, 2(5), 65-68.
- Shahriar, M., Mawla, S., Bhuiyan, A.M. & Hossain, M. (2012). Study of the Effect of Sodium Dodecyl Sulfate and Acridine Orange on the Isolation of Plasmid and Antimicrobial Resistance Pattern of Clinical Isolates of *Klebsiella* sp. DIUJS&T, 7(1), 38-43.
- Shahriar, M., Mawla, S., Islam, A.S.M. & Bhuiyan, A.M. (2012). Effect of Sodium Dodecyl Sulfate and Acridine Orange on Isolation of Plasmid and Antimicrobial Resistance Pattern of Clinical Isolates of *Klebsiella* sp. Journal of Scientific Research, 4(2), 499-505.
- Shahriar, M., Shahid, S., Katha, K. K., Nasreen, W., & Bhuiyan, M. A. (2012). Vancomycin sensitivity of clinical isolates of *Staphylococcus aureus* from patients in Dhaka city, Bangladesh. Bangladesh Pharmaceutical Journal, 15(2), 159-163.
- Shahriar, M., Sharmin, A.F., Islam, A.S.M., Dewan, I. & Kabir, S. (2012). Membrane Stabilizing and Anti-thrombolytic Activities of Four Medicinal Plants of Bangladesh. The Experiment, 4(4), 265-270.
- Shakar, A. A. M., Khanam, S., Sayeed, M. S. B., Haque, M. A., Sumon, M. M. & Islam, S. M. A. (2012). Antidiuretic and antidiarrhoeal activities of polar and non-polar extract of *brassica oleracea*. Journal Applied Pharmaceutical Science, 2 (8); 101-106.



- Sultana, J., Hosain M. S., Sayeed, M. S. B., Islam, S. M. A. & Islam. M. S. (2012). Modification of ciprofloxacin hcl release from povidone k-30 based matrix as a function of avicel PH 101. Indian Journal of Novel Drug delivery, 4 (2), 145-150.

### **YEAR- 2011**

- Afroz, A. Asaduzzaman, M., Rahman. M. R. & Islam, S. M. A. (2011). Development and evaluation of muco-adhesive ciprofloxacin bi-layer tablet for extended drug release. Asian Journal of Pharmaceutical Research, 1(3), 64-68.
- Afroz, A., Haque, T., Talukder, M. M. U. & Islam, S. M. A. (2011). Spectrophotometric estimation of rosuvastatin calcium and glimepiride in tablet dosage form. Asian Journal of Pharmaceutical Analysis, 1(4), 74-78.
- Asaduzzaman, M., Rahman, M.R., Khan, M.S.R., & Islam, S.M.A. (2011). Development of Sustain Release Matrix Tablet of Ranolazine Based on Methocel K4M CR; In Vitro Drug Release and Kinetic Approach. Journal of Applied Pharmaceutical Science, 1(8), 131-136.
- Banu, H., Sahariar, M. R., Sayeed, M. S. B., Dewan, I. & Islam, S. M. A. (2011). Formulation development of extended release bi-layer acetaminophen tablet and it's comparison with marketed products. Journal of Chemical and Pharmaceutical Research, 3(6), 348-360.
- Chowdhury, A. K., & Islam, S. (2011) In vitro–in vivo correlation as a surrogate for bioequivalence testing: the current state of play. Asian Journal of Pharmaceutical Sciences, 6 (3-4), 176-190.
- Das, G. R., Haque, M. A., Shahriar. M. & Islam, S. M. A. (2011). A simple RP-HPLC method for the simultaneous estimation of ranitidine hydrochloride and domperidone in combine dosage form. Pharma Science Monitor, 3(3) S1, 1894-1906.

- Dewan, I. & Islam, S. M. A. (2011). Study of release kinetics of dexamethasone from biodegradable plga in-situ implants. International Journal of Pharmaceutical Sciences and Research, 2(11), 3039-3045.
- Dewan, I., Islam, S. M. A. & Shahriar. M. (2011). Dissolution study of spironolactone by using solid dispersion technology. Stamford Journal of Pharmaceutical Sciences, 4(2), 42-47.
- Dewan, I., Shahriar, M. & Islam, A.S.M. (2011). Study of Differential Scanning Calorimetry (DSC) of Atorvastatin in Solid Solution. Bangladesh Pharmaceutical Journal, 14(2), 141-146.
- Haque, A. M., Islam S. M.A. & Shahriar, M. (2011). Antimicrobial, cytotoxicity and antioxidant activity of tinospora crispa. Journal of Pharmaceutical and Biomedical Sciences, 13 (12), 1-4.
- Haque, A.M., Shahriar, M., Parvin, N.M. & and Islam, A.S.M. (2011).Validated RP-HPLC Method for Estimation of Ranitidine Hydrochloride, Domperidone and Naproxen in Solid Dosage Form. Asian Journal of Pharmaceutcal Analysis, 1(3), 59-63.
- Haque, E.M., Shahriar, M., Haq, A., Gomes, C.B., Hossain, M., Razzak, A.M. & Mazid, A.M. (2011). Prevalence of  $\beta$ -lactamase-producing and nonproducing methicillin resistant Staphylococcus aureus in clinical samples in Bangladesh. Journal of Microbiology and Antimicrobials, 3(5), 112-118.
- Hossain, M. A., Dewan, I., Haque, M. A., & Islam, S. M. A. (2011). Development and validation of RP-HPLC method for the simultaneous estimation of hydrochlorothiazide and losartan potassium in tablet dosage form. Dhaka University Journal of Pharmaceutical Sciences, 10(1), 35-42.
- Hossain, M. A., Sayeed, M. S. B., Haque, M. A., Dewan, I. & Islam, S. M. A. (2011). Validation of RP-HPLC method for simultaneous estimation of

chloramphenicol and dexamethasone phosphate in eye drops. *Journal of Advanced Pharmaceutical Research*, 2(3), 135-141.

- Islam, A.S.M., Islam, S., Shahriar, M. & Dewan, I. (2011). Comparative in vitro Dissolution Study of Aceclofenac Marketed Tablets in Two Different Dissolution Media by Validated Analytical Method. *Journal of Applied Pharmaceutical Science*, 1(9), 87-92.
- Islam, S. (2011) Lipophilic and Hydrophilic Drug Loaded PLA/PLGA In Situ Implants: Studies on Thermal Behavior of Drug & Polymer and Observation of Parameters Influencing Drug Burst Release with Corresponding Effects on Loading Efficiency & Morphology of Implants. *International Journal of Pharmacy and Pharmaceutical Sciences*, 3(3), 181-188.
- Islam, S. M. A., Abuzar, S. M. & Paul. P. K. (2011). Validation of UV-spectrophotometric and RP-HPLC methods for the simultaneous analysis of paracetamol and aceclofenac in marketed tablets. *International Journal of Pharmacy and Life science*, 2(12), 1267-1275.
- Islam, S. M. A., Banu, H. & Sahariar, M. R. (2011). Bilayer tablets of paracetamol and aceclofenac: formulation and evaluation. *International Journal of Pharmacy and Technology*, 3(4), 3668-3681.
- Joti, J. J., Haque, M. A., Islam, S. M. A., Islam. M. S. (2011). Validation and optimization of a simple RP-HPLC method for determination of cilostazol in human serum. *Indian Journal of Novel Drug Delivery*, 3(2), 143-148.
- Kadir, M.F. (2011). Study of binary and ternary solid dispersion of ibuprofen for the enhancement of oral bioavailability. *Journal of Applied Pharmaceutical Sciences*, 1 (9), 103-107.
- Karim, R., Nahar, Z., Islam, M.S., Ahmed, M.U., Muatafa, A.G.M., Shohag, M.H., Maruf, A.A., & Hasnat, A. (2011). Serum MDA and Vitamin C level in Conversion Disorder Patients. *Dhaka University Journal of Pharmaceutical*

Science, 10 (1), 59-64.

- Khan, R.I., & Kadir, M.F. (2011). Study of dissolution enhancement property of poloxamer-407 using BCS class II drugs. *International Journal of Pharmaceutical Research and Development*, 3 (12), 25-32.
- Masud, A.A., Rahman, M.S., Hasan, M., Ripon, M.K.H., Khan, A.R., Islam, M.R., Ahsan, M.M., & Uddin, M.R. (2011). Validated RP-HPLC method for simultaneous estimation of amlodipine besylate and atorvastatin calcium in combined tablet dosage form. *Bangladesh Research Publications Journal*, 6, 52-56.
- Mondal, M. S., Haque, M. A., Islam. M. S. & Islam, S. M. A. (2011). Development and validation of RP-HPLC method for the simultaneous estimation of domperidone and naproxen in tablet dosage form. *Journal Applied Pharmaceutical Science*, 1(7), 145-148.
- Oishi, T. S., Haque, M. A., Dewan, I., & Islam, S. M. A. (2011). Comparative in vitro dissolution study of some ciprofloxacin generic tablets under biowaiver conditions by RP-HPLC. *International Journal of Pharmaceutical Sciences and Research*, 2(12), 3129-3135.
- Oishi, T. S., Nimmi, I. & Islam, S. M. A. (2011). Comparative in vitro bioequivalence analysis of some generic tablets of atorvastatin, a BCS class II compound. *Bangladesh Pharmaceutical Journal*, 14(1), 61-66.
- Rahman, M. A., & Islam, S. (2011) Study of Metoprolol Tartrate Delivery from Biodegradable Polymeric In Situ Implants for Parenteral Administration. *International Journal of Pharmacy and Pharmaceutical Sciences*, 3(4), 147-151.
- Rahman, M.M., Alam, M.M., Daula, S.U.A.F.M., Shahriar, M., Moghal, R.M.M. & Siddiqui, R. (2011). The Antimicrobial activity and Brine Shrimp Lethality Bioassay of Leaf extracts of *Stephania japonica* (Akanadi). *Bangladesh Journal of Microbiology*, 28 (2), 52-56.
- Shahed, G.M., Ullah, M.A., Maruf, A.A., Ahmed, M.U., Islam, M.S. Nahar, Z.,

- &Hasnat, A. (2011). A Simple RP-HPLC Method for the Determination of Cefdinir in Human Serum: Validation and Application in a Pharmacokinetic Study with Healthy Bangladeshi Male Volunteers. *Dhaka University Journal of Pharmaceutical Science*, 10 (2), 109-116.
- Shahriar, M. & Akter, S. (2011). A Survey on Antimicrobial Sensitivity Pattern of Different Antibiotics on Clinical Isolates of *Pseudomonas aeruginosa* Collected from Dhaka City, Bangladesh. *Journal of Scientific Research*, 3(1), 187-189.
  - Shahriar, M. & Kabir, S. (2011). Analgesic Activity of *Adiantum flabellulatum*. *Dhaka University Journal of Biological Sciences*, 20(1), 91-93.
  - Shahriar, M. & Khair, N.Z. (2011). Correlation of Plasmid with Drug Resistance of Clinical Isolates of *Escherichia Coli*. *Journal of Bacteriology Research*, 3(1), 1-5.
  - Shahriar, M., Haque, M. R., Kabir, S., Dewan, I., & Bhuyian, M. A. (2011). Effect of proteinase-k on genomic DNA extraction from gram-positive strains. *Stamford Journal of Pharmaceutical Sciences*, 4(1), 53-57.
  - Shahriar, M., Islam, B.R., Mahmood, S.A., Mamun, A.S.M., Nahar, S.S., Sadiana, T. & Shahid, S. (2011). Causes and trends of common cancers: Hospital based case control study conducted in Dhaka city, Bangladesh. *Stamford Journal of Pharmaceutical Sciences*, 4(2), 35-41.
  - Shams, T., Sayeed, M.S.B., & Kadir, M.F. (2011). Thermal, Infrared Characterization and In vitro Evaluation of Repaglinide Solid Dispersion. *Der Pharmacia Lettre*, 3 (6), 142-150.
  - Sharmin, F., Masum, M. A. A., Islam, S. M. A. & Reza, S.M. (2011). Preparation and evaluation of gastro retentive floating tablets of atorvastatin calcium. *Dhaka University Journal of Pharmaceutical Sciences*, 10(2); 9-12.