Exam Moderation and Review Process

Introduction

This document contains the mechanism that is followed in the exam review and moderation process. It also contains how to evaluate the attainment of Course Learning Outcomes (CLOs) at the course level using sampling of students' performances**.** The following table summarizes the content of this document:

A. Course Coordinator Roles and Responsibilities	• Review Exams • Rechecking the grades
B. Course Specification and Assessment Plan	• Alignment of CLOs to Assessment Methods Schedule Assessment Methods
C. Design Exam Paper (Instructor)	• Standard Format • CLOs-Based Exam • Direct Questions to CLOs • Grade Distribution • Design Key Solution • Marking Scheme • …….
D. Review Exam Paper (Coordinator)	• Check Standard Format • Check CLOs-Based Exam • Check Direct Questions to CLOs • Check Grade Distribution • ……..
E. Approval of Exam Paper	• Signed by the instructor and Coordinator
F. Exam Papers Rechecking	• Coordinator must recheck the grades of students in Mid-Term and Final Exams • Two declaration forms must be signed by both instructors and coordinators
G. Assessment of CLOs	• Using Performance of Students • Using CLO-Based Survey

A. Course Coordinator

At the beginning of every semester, a course coordinator is assigned for every course by the Curriculum Committee (CC) with the involvement of Development and Quality Unit (DQU). The Coordinator of a course has an important role in the quality assurance of course delivery at the college. Though some courses are offered only in one section, course coordinators must be assigned. The coordinators have been assigned based on their experiences in the courses.

A course coordinator is responsible to:

1. Ensure that each course section uses the same approved and official syllabus for the course.
2. Contact the Curriculum Committee (CC) if any changes are needed in the course syllabus (description, learning outcomes, textbook, etc.)
3. Provide regular guidance, to ensure that each course section covers the topics of the approved and official syllabus for the course;
4. ***Review Midterm and final exams and ensure that they can be used for the assessment of CLOs and are consistent with the question paper guidelines. A template (Exam Review Template) should be filled out by the coordinator regarding this issue.***
5. ***Recheck the grades in the midterm and final exams and fill out a template called (Grades Rechecking)***
6. Support instructors to have common midterm and final exams for course offered in more than one sections
7. Evaluate the completeness and quality of the course file.

B. Course Specification and Assessment Plan

At the beginning of every semester, every instructor is required to update his course specification(s) with respect to the latest approved course report(s) and recommendations. The course specification of every course must be approved by the course coordinator, curriculum committee and head of the program in the first week of the semester. Note that there are several sections that can not be updated by the instructor without the approval of higher authority in the program (e.g. course objectives, course learning outcomes, textbooks, etc.). An important section in the course specification is the alignment of CLOs to Teaching Strategies and Assessment Methods. In this section, the instructor must have a plan on how they are going to teach and evaluate the learning outcomes of the students in the course (See the Table 1).

Table 1: Alignment of CLOs to Teaching Strategies and Assessment Methods

NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
Knowledge		
Describe basic ADTs (stack, queue, array, list, node list, priority queue, tree, map and dictionary) and their related data structure implementations(array, single linked structure, double linked structure, heap, hash table, binary search tree, AVL tree).	Lectures, active learning, collaborative and cooperative learning and independent study assignments are used as teaching strategies. • Showing and delivering PPT presentation in the class. • Using white board to explain important points in more detail. • Motivating students to be active during class by asking questions regularly during lecture. • Motivating students to work in home, to search from internet, to read related reference books by giving them assignments related to analysis of algorithm and data structures. • Let students to solve the problems related to complexity of different algorithms in small groups and giving correction on their solution during class. • Motivating students to be active during class by asking questions regularly. • Giving students' tutorials related to importance of data structures, arrays, stack, queues, trees, linked list etc.	Following methods are used to assess student's knowledge acquire in this course. • Class Quizzes. • Assignments. • Midterm exam1 and Midterm exam2 (Each exam consists of multiple choice questions, true/false, fill in the blanks, and theoretical questions.) • Final Exam
Distinguish between Abstract Data Types (ADTs), data structures and algorithms.		
Recognize basic concepts and techniques (recursive, sorting, searching, graph) used in design of basic algorithms.		

Another important requirement in the course specification is the **Schedule of Assessment Tasks for Students During the Semester (See Example in Table 2).** It is very important that every instructor have a clear plan about the date and proportion of each assessment method. The department council with accordance to the university's policies set the weight of the main exams (Mid Term 1, Mid Term 2, Lab Exam, Final Theory Exam, Final Lab Exam).

Table 2. Schedule of Assessment Tasks for Students During the Semester

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Quizzes (Three Quizzes)	continue	10%
2	Assignments (Two assignments)	8th week (Assignment 1) 11th week (Assignment 2)	6%
3	Mid Term Exam I	**Midterm Exam 1** October 22, 2014	12%
4	Mid Term Exam II	**Midterm Exam 2** November 20, 2014	12%
5	Lab Performance Assessment	Every week	10%
6	Final Lab Exam	13th week	10%
7	Final Exam	**Final Examination** December 29, 2014	40%

It is also a good idea to summarize the assessment plan as shown in Table 3.

Table 3. CLOs Assessment Plan

Assessment Methods	**Course Learning Outcomes (CLOs)**							
	CLO_1	**CLO_2**	**CLO_3**	**CLO_4**	**CLO_5**	**CLO_6**	**CLO_7**	**CLO_8**
Assignment 1 (/5)		X		X				
Assignment 2			X	X	X	X	X	

(/5)								
Quiz 1 (/5)	X	X						
Quiz 2 (/5)			X		X			
Midterm 1 (/10)	X	X	X					
Midterm 2 (/10)	X			X	X	X	X	
Lab Performance Test (/10)					X	X		
Lab Final Exam (/10)					X	X		
Final Exam (/40)	X	X	X	X	X	X	X	X

C. Design Question Paper (Instructor)

The instructor must design exams using CLO-based questions/sections. The following guidelines must be followed by all instructors while designing their exams:

1. Use a standard format (Cover Page, Font, Header, Footer, Page number, etc.) [**Check Attached Exam Template.docx**]
2. CLO-Based Questions/Sections: It is very important to questions consistent to the CLOs.
3. Use Course Learning Outcomes as guidelines to design your exam's questions.
4. All questions must be consistent with CLOs because your exam is to assess if the students have achieved your expectation (CLOs) or not.
5. You don't have to document the relationships between CLOs and all questions explicitly but sampling is enough.
6. Check CLOs in every domains of learning and then then design your questions according to the levels of difficulties in the CLOs. For example, if the action verb in a CLO is **"Define"** so your question should be a memorization question not analysis.
7. Key questions in the final exam: Final Exam should cover all CLOs and at least one direct question must be designed against each one of the CLOs.
8. **Basic Knowledge Questions (~20-30%)**: Maximum 30% marks of whole grades are related to the knowledge domain of learning. Questions should be of following type:
    a. Multiple choices (No more than 4 choices. Do not use the double negative NOR none of the above/all of the above statements).
    b. True /False
    c. Direct question based on memorization (Definitions, Syntax, Formulas, important keywords/commands/functions, example etc)
9. **Intermediate Level Questions {Comprehension, Application and Analysis skills (~60-70%)}:** The weights of questions to test student Comprehension

and Problem-Solving, and Analysis & Application skills should be (60-70%) of whole question paper. Questions should be of following type:

a. Comprehension based questions like containing the word WHY, WHEN, HOW, DIFFERENCES, SIMILARTIES, COMPARE.
b. Questions should not contain any question starting with 'WHAT', 'DEFINE'
c. Questions should also based on applications of concepts and problem solving (Numerical based, error findings, finding output, writing small algorithms/programs, converting a problem into another form etc)

10. **Advanced Level Questions {Synthesis and Critical Thinking and Evaluation (~10-20%)}**: The questions are designed to test critical thinking ability. Marks for these questions constitute 10-20% of the total mark of whole question paper.
    a. The questions might be of applied nature AND/OR of union of many concepts discussed during the courses.
    b. The questions must not be any solved problem in the Book/Lecturer hall/Tutorials/Lecturer notes/Slides.
11. **Design Key Solution:** Key solution must be designed with the question paper. If the instructor is able to solve the exam in half an hour, it means that exam needs two hours to be solved by students.
12. Marking Scheme. It is very important to have a clear distribution of grades with each section and even subsections. For complex and subjective questions, you may need to have rubric for better evaluation.
13. Question paper with the key solution and marking scheme must be submitted (hard or soft copy) to the course coordinator 3 days prior the exam date.
14. Question papers must be different than the last four semesters exams' questions.

D. Review Question Paper (Coordinator)

The coordinator of the course must review the exam paper and propose some improvements, if any, to the instructor. It is important here to mention that the role of the coordinator is not to evaluate instructors but to improve the levels of exams. The course coordinator evaluates the exams using the Question Paper Audit Checklist [Refer to **Question Paper Audit Checklist.docx**] .

1. Format of the exam paper.
2. CLOs-Based exam paper.
3. Alignment of CLO to questions are correct.
4. Length and difficulty of exam.
5. Grade distribution: 20-30 % knowledge, 60-70% intermediate, and 10-20% advanced.
6. Key questions must be available at least in the final exam. These questions are directly related to the action verbs and contents of the CLOs.
7. Ensure that the exam is not similar to last four semesters exams.
8. All comments and improvements must be sent and discussed, if needed, with the instructor 24-48 hours prior the exam date.

E. Approval of Question Paper (Instructor & Coordinator)

The instructor receives all proposed comments and improvements from the coordinator. If needed, the instructor has the right to discuss with the coordinator any proposed recommendations in order to come up with final agreement about the changes in the exam. Finally, the final version of the exam must be signed by both the instructor and the coordinator.

F. Exam Papers Rechecking

All exam papers are re-checked by the course coordinators. Specifically, the course coordinator must review the students' grades of the following:

1. Midterm1 Exam
2. Midterm 2 Exam
3. Final Theoretical Exam
4. Final lab Exam

The final grade will not be either approved or entered into the NU Edugate system without submitting the Declaration Answer Booklets form signed by the course instructor and his coordinator [Refer to **Declaration Answer Booklets.docx]**.

F. Assessment of CLOs

For each course, CLOs are assessed directly and indirectly using performance and opinions (survey) of students respectively. A CLO-Based survey is distributed to students by the end of each semester [Refer to **CLO-Survey.docx**]. Using the performance of students, CLOs are measured as follows:

1. Use the key questions to evaluate CLOs.
2. No need to use the grades of students in all questions in order to get the attainment of each CLOs. Sampling is enough.
3. Document the grades of students in the questions that are going to use in the evaluation of CLOs.
4. A CLO is said to be achieved if 65% of the students achieve 65% of its corresponding questions. For example, the achievement level of CLO_1 is 3.25. From Table 5, we can conclude that only 3 students (yellow and bold rows) out of 13 achieve CLO_1 (23.08%).

For example, Table 4 shows that we are going to use only the final exam to assess CLOs of a given course. You may use other exams and assessment methods. Table 5 illustrates the grades of students in the questions that are going to be used in the assessment of CLOs.

Table 4. Questions to assess CLOs

CLOs	Assessment Methods					
	Final Exam					
	Q1	Q2	Q3	Q4	Q5	Q6
CLO_1	5					
CLO_2		6				
CLO_3			4			
CLO_4				12		
CLO_5					7	
CLO_6						6

Table 5. Grades of Students

Student ID	Name	Final Exam /40						
		Q1	Q2	Q3	Q4	Q5	Q6	Total Grade
		5	6	4	12	7	6	40
**********	**********	2	2.5	1	4.5	6.5	4.5	21.00
**********	**********	**4.5**	**4.25**	**1**	**5**	**4.5**	**2**	**21.25**
**********	**********	2	2.5	1	1.5	2.5	2	11.50
**********	**********	Not Allowed to Enter Exam (> 25% Absent)						
**********	**********	Withdrawn						
**********	**********	2	3	1	2	3.5	1	12.5
**********	**********	2.5	3	3	1	3.5	3	16.00
**********	**********	**3.5**	**2.5**	**1.5**	**6**	**4.5**	**3**	**21.00**
**********	**********	3	2.5	0	2	2.5	4	14.00
**********	**********	2	2	0	0	1	0.5	5.50
**********	**********	Absent						
**********	**********	3	2.5	0.5	2	1.5	1.5	11.00
**********	**********	Withdrawn						
**********	**********	Withdrawn						
**********	**********	2	3	1	1	4	3	14.00
**********	**********	Withdrawn						
**********	**********	**3.5**	**2.5**	**2**	**2**	**0.5**	**1.5**	**12.00**
**********	**********	Withdrawn						
**********	**********	3	2.75	0	0	2.5	3	11.25
**********	**********	Withdrawn						
**********	**********	2	3.5	0.5	1	2	3	12.00

Table 6 shows the attainment levels of each one of the CLOs according to the performance of students in the corresponding questions.

Table 6. CLOs achievements

	List course learning outcomes	Percentage of Achievements (a student achieves a CLO if he achieves 65% of it)
1	**CLO_1 :** Describe principles, usage and benefits of Object Oriented Programming (OOP).	**23.08%**
2	**CLO_2 :** Recognize Java syntax and semantics	**7.69%**
3	**CLO_3 :** Use of Java Standard classes	**7.69%**
4	**CLO_4 :** Implement Object Oriented techniques to solve problems	**0%**
5	**CLO_5 :** Evaluate the workflow program including error handling.	**7.69%**
6	**CLO_6:** Assess Object Oriented application	**15.38%**