UTM Manual Rubric Grading System Overview

Over the last few years, there are ample of issues when dealing with manual grading assessments methods either at primary education level or higher tertiary education level. Some of the mandatory downsides and challenges of such methods are extreme time consuming for large classes, and human-prone error may impede grading consistency and quality (Carmosino and Minnes, 2020). Meantime, instructors should provide individual feedbacks to their students and guide them towards correct learning path. In such situation, instructors are struggled to use their time wisely while grading their students' assessments manually.

Universiti Teknologi Malaysia (UTM) has been working with the implementation of rubric in grading students' assessments in the form of assignments or projects in the recent years. Despites the action has been taken to improve the grading process to be more structure and transparent, the weakness of the rubric implementation is that the rubric developing process is considered to be totally manual, every rubric is draft from ground up, this causes instructors who lack of experience and skill in developing rubric to have problem to design it correctly and accurately most of the time. In order to solve these problems faced by instructors, it is suggested that a bank of rubric templates consisting of different subjects and types to be provided in a medium (Myers *et al.*, 2018). This would help instructors to customize a proper grading rubric more efficiently and effectively by referring to various rubric templates according to their need. Besides, this will also increase their productivity by minimizing the time of recreating similar grading rubric and automate the manual grading processes.

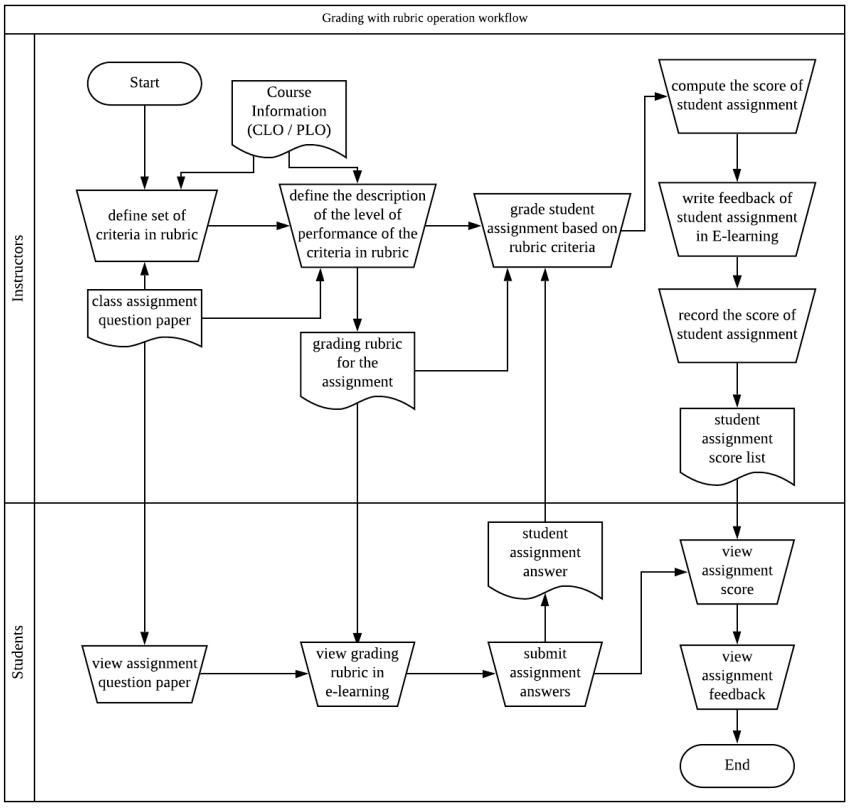

Figure 1. Swimlane diagram of as-is process

Figure 1 shows the Swimlane diagram that covers the roles and responsibilities of stakeholders and the detailed business process of grading assignment procedures. It is discovered that all the grading procedures involved are done manually and there is a lack of centralized data storage to store all the relevant data. Stakeholders who are instructors execute the procedures and operations in a manual way. At first, the instructor stakeholders prepare the grading rubric to be used in grading students' assignment based on two document resources including Course Information and Assignment Questions using the software Microsoft Excel/Word. Each grading rubric consists of two critical categories to be defined which are criteria that describe the predefined learning outcome of the assignment and indicators for each performance level and criterion as in Figure 2. Instructors are needed to draft a grading rubric logically from scratch with the help of Course Information and Assignment Questions to define the criteria and suitable indicators for each performance level and criteria. [Refer to: Manual Rubric Sample for SCSJ2253 P1 document]

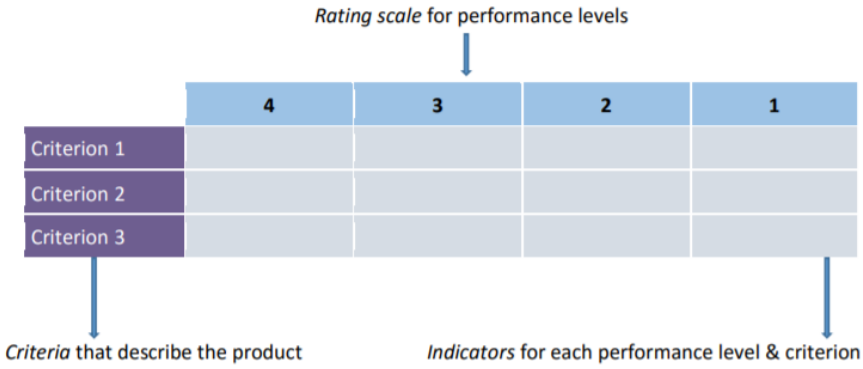

Figure 2. General Rubric Template

After the grading rubric is defined completely, the instructor will upload the assignment question paper and its grading rubric to the UTM E-learning system. UTM E-learning is known as a web-based system in which course syllabi, lecture notes, quizzes, assignments, and discussion forums can be accessed online by each registered student is provided with access the course materials at anytime from anywhere and hybrid approach is implemented where online materials to support traditional teaching methods. The students access the assignments material (question paper and grading rubric) in E-learning. Furthermore, the submission of assignment is done on the same platform which is the E-learning. After the submission of students' assignment is completed, then the instructor will grade the assignment by referring to the predefined grading rubric and finally manually calculate the score accordingly. Eventually, the score of graded assignment will be uploaded to the E-learning for students to view their own result.

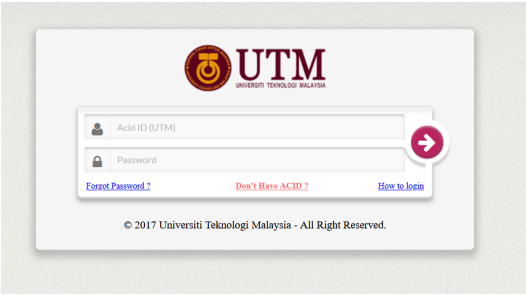

Figure 3. Login Page of E-learning System

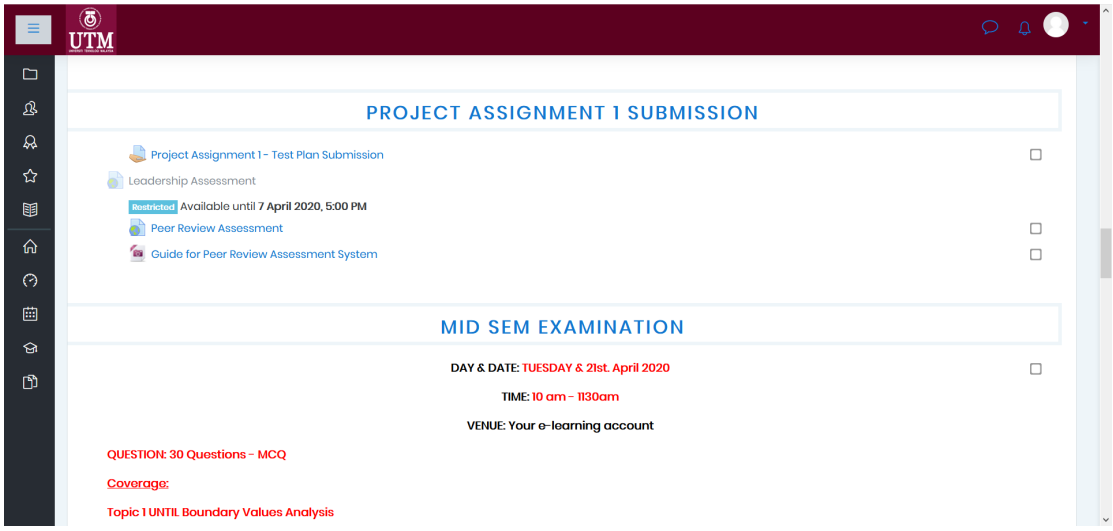

Figure 4. Course View of E-learning System

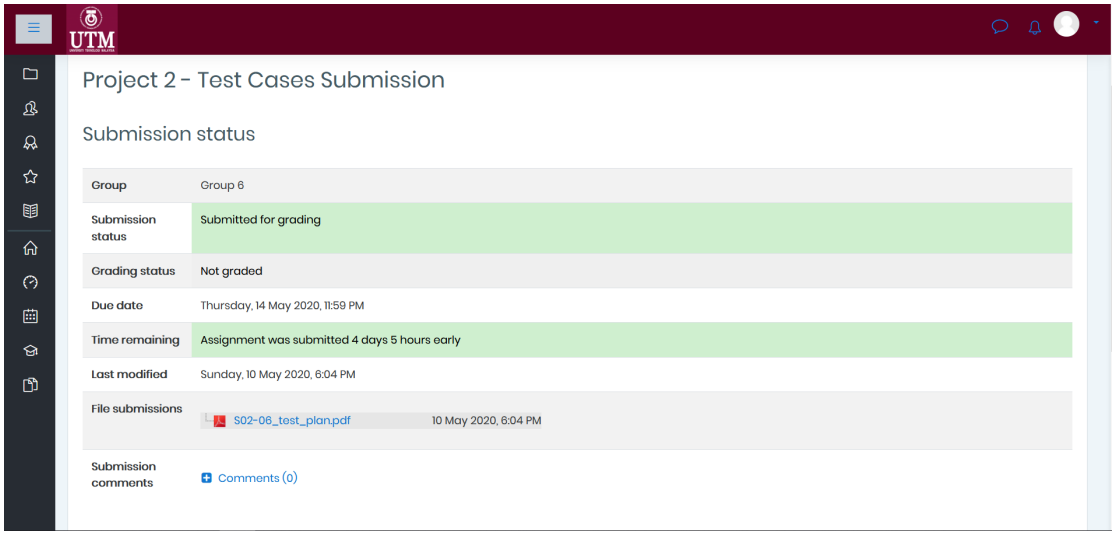

Figure 5. Assignment View of E-learning System when student submits an assignment

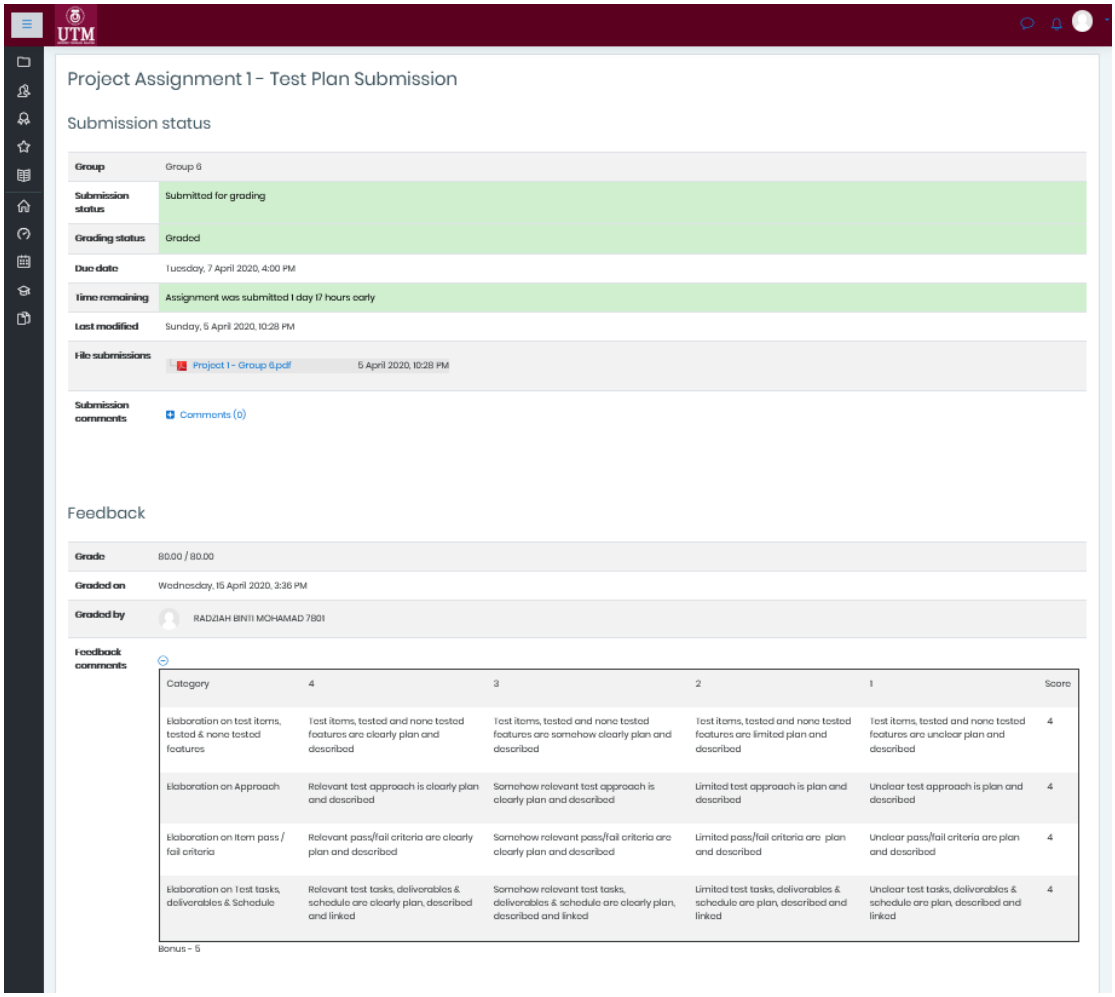

Figure 6. Assignment View of E-learning System when instructors grades an assignment

Although the UTM E-learning system helps in the process of grading assignments with the ability for instructors to upload the assignments material (questions paper and grading rubric), but other processes such as designing rubric and calculating the score of graded assignments are manually using external software such as Microsoft word/excel and calculating programs. Besides, the lack of centralized data storage and integrated process in the overall business flow greatly reduce its efficiency and effectiveness. The crucial improvement from the manual current to the proposed system is the integration of the grading rubric into the grading assignment process so that the instructors are not required to manually calculate the score of student assignments. Besides, the instructors are able to monitor student performance over the system to keep track of student learning progress. Furthermore, the proposed system possesses a centralized database to store all the data required in the system which greatly support the system in online data transaction so that the system can work regardless of the place and time as long as the internet is available.

Reference:

Carmosino, M. and Minnes, M. (2020) 'Adaptive rubrics', in *Annual Conference on Innovation and Technology in Computer Science Education, ITiCSE*.

Myers, D., Peterson, A., Matthews, A., Sanchez, M., Myers, D. ;, Peterson, A. ; and Matthews, A. ; (2018) *One Team's Journey with iRubrics*, *Current Issues in Emerging eLearning*.