Strengthening Curriculum Sructure of Software Engineering Programme

Yanti Rosmunie Bujang, Wang Hui Hui, Nurfauza Jali, Tan Ping Ping, Edwin Mit, Azman Bujang Masli, Cheah Wai Shiang, Abdul Rahman Mat, , Norazian binti Mohamad Hamdan, Mohamad Johan bin Ahmad Khiri, Wee Bui Lin, Eaqerzilla Phang and Mohamad Asyraf bin Khairuddin

Faculty of Computer Science and Information Technology, Universiti Malaysia Sarawak, Malaysia, {byanti@unimas.my, hhwang@unimas.my, jnurfauza@unimas.my, pptan@unimas.my, edwin@unimas.my, bmazman@unimas.my, wscheah@unimas.my, marahman@unimas.my, mhnorazian@unimas.my, akmjohan@unimas.my, blwee@unimas.my, eqzla@unimas.my and kmasyraf@unimas.my}

ABSTRACT

The rapid development of technology has changed the world with various computer-based inventions and innovations. Education from primary to tertiary level is no exception in facing this change. With the curriculum changes that have begun to introduce courses related to programming at the primary and secondary level, the tertiary level curriculum should also change for quality education. This paper presents a new curriculum structure for the Software Engineering Undergraduate Program at University Malaysia Sarawak (UNIMAS). The current structure of Software Engineering programme does not follow the Malaysian Qualifications Agency (MQA) Programme Standards. The objective of this paper is to develop a new curriculum structure of Bachelor of Software Engineering based on MQA. The processes involved data collection, document analysis, and meeting with industries to restructure the curriculum. As a result, four new courses have been added to the new curriculum structure the Bachelor of Software Engineering programme for improvements. It is hoped that the graduates from this programme will fulfil the job skills and knowledge as required by the current industries.

Keywords: Software Engineering, curriculum, industry, students, quality education.

I INTRODUCTION

Bachelor of Computer Science with Honours (Software Engineering) is one of the five programmes offered by Faculty of Computer Science and Information Technology, UNIMAS. In the first year, students will take the same fundamental courses for all programmes. The majoring for each program starts during the second year. The total number of credits for Software Engineering graduates is 132 credits, and the duration of study is four years. However, the programme has to change the degree name as advised by MQA.

II BACKGROUND OF STUDY

A. Requirement to Change

In the current MQA Programme Standards, Computing (2014) the computing field has four major disciplines, namely Computer Science, Software Engineering, Information Technology and Information Systems. The current name of Degree is Bachelor of Computer Science (Software Engineering) is not compliance with these as it seems has two major disciplines; computer science and software engineering. As a software engineer, graduates from this discipline should be able to perform and manage activities at every stage of the life cycle of large-scale Software systems; they become specialist in designing and implementing software in the large (MQA, 2014)

The current name of the degree is not allowed according to Programme Standards. Thus the programme needs to be changed as required. Once the name agreed at the Programme level, programme member needs to revamp the currents structure. For this purpose, the programme members held a few meetings and discussions on these.

B. The Proposed Changes

The proposed new program of Bachelor of Software Engineering (BSE) from the existing program of Bachelor of Computer Science (Software Engineering) is following the standard programme of MQA and SWEBOK (Software Engineering Body of Knowledge).

The percentage of newly revised curriculum review for Bachelor of Software Engineering is 21.43%. There are 25 core courses, and programme core has been offered in this programme. One core course (Mathematic for computing) and One programme core (Advanced Topic in Software Engineering) has been removed since both courses are not in the SWEBOK. The courses such as Intelligent System, Expert Systems, Data Mining and Computer Security has been replaced with Automata Theory and Formal Language, Software Economics,