



**ENHANCED ONLINE QUESTION BANK
MANAGEMENT SYSTEM FOR EFFICIENT
DEVELOPMENT OF EXAM PAPER**

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DECLARATION

I declare that this thesis entitled “Thesis Title” is the result of my own research except as cited in the references. The thesis has not been accepted for any degree and is not concurrently submitted in candidature of any other degree.

Signature :

Name :

Date :

DEDICATION

To my Mom and Dad and also my lovely daughter Razan Nur Eiman and Razan Irdina Syafian. You have encouraged my academic interests from day one, even when my curiosity led to incidents that were kind of hard to explain. Thank you.

and

Special to

Nur Aqielah Anuar

ABSTRACT

Online exam question bank system bank will be used to facilitate the implementation and monitoring of development activities in polytechnics final exam item. Some activities and information systems are as follows, the formulation item final exam, review item final exam, fitting item final exam, purification item final examination, revision of the final draft (proof read) item final exam, usage data item final exam, information final examination items specification table (Feist). For developing and using online exam question bank system bank could facilitate the drafting process, facilitate the review process of the draft items and simplify the process of monitoring items for centralized final exams. In addition, operating costs, costing the drafting of the final exam questions can be reduced by almost RM1,000,000. Overall, the benefits are longer term projects, analysis of findings of data quality questions can be implemented, standardizing the format of the question paper and the front cover final exam questions, reduce work processes and document monitoring at the polytechnic. , Simplifies the process of analyzing the final examination questions by the Polytechnic Examinations Officer. As such a study should be conducted to identify methods of development, the parameters to be taken into account, consumption and use of appropriate technology in the construction of this system

ABSTRAK

Sistem bank soalan online exam bank akan digunakan bagi memudahkan pelaksanaan dan pemantauan aktiviti-aktiviti pembangunan item peperiksaan akhir di politeknik. Beberapa aktiviti dan maklumat sistem adalah seperti berikut ,penggubalan item peperiksaan akhir, semakan item peperiksaan akhir, pemasangan item peperiksaan akhir, pemurnian item peperiksaan akhir, semakan draf akhir (proof read) item peperiksaan akhir, data penggunaan item peperiksaan akhir, maklumat *final examination item specification table* (FEIST). Pembangunan dan penggunaan Sistem bank soalan online exam bank ini dapat memudahkan proses penggubalan, memudahkan proses semakan draf item serta memudahkan proses pemantauan item soalan peperiksaan akhir secara berpusat. Selain itu, kos operasi yang melibatkan perbelanjaan penggubalan item soalan peperiksaan akhir sebanyak hampir RM1,000,000 dapat dikurangkan. Secara keseluruhannya, faedah jangka masa panjang projek adalah , Analisa dapatan data soalan berkualiti dapat dilaksanakan, Menyeragamkan format kertas soalan dan muka hadapan buku soalan peperiksaan akhir, Mengurangkan proses kerja dan dokumen pemantauan di peringkat politeknik. , Memudahkan proses analisa buku soalan peperiksaan akhir oleh Pegawai Peperiksaan Politeknik. Sehubungan dengan itu satu kajian perlu di jalankan bagi mengenalpasti kaedah pembangunan, parameter yang perlu di ambil kira, penggunaan dan penggunaan teknologi yang sesuai dalam pembinaan sistem ini

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TABLES OF CONTENTS

	PAGE
DECLARATION	
DEDICATION	
APPROVAL	
ABSTRACT	i
ABSTRAK	ii
ACKNOWLEDGMENTS	ii
TABLES OF CONTENTS	iii
LIST OF FIGURE	vi
LIST OF TABLES	viii
LIST OF EQUATION	ix
NOTATIONS	x
CHAPTER	
1 INTRODUCTION	1
1.1 Background of Study	2
1.2 Problem Statement	4
1.3 Research Question	5
1.4 Research Objective	6
1.5 Research Scope and Limitation	6
1.6 Significant And Contribution	7
2 LITERATURE REVIEWS	8
2.1 Introduction	8
2.2 IT Dependent	10
2.3 Question Bank Development And Management System	10

2.4	Development Of Exam Bank Online System	12
2.4.1	Waterfall Model	13
2.4.2	V-Model	16
2.4.3	Agile Model	17
2.4.4	Suggested Model Life Cycle	19
2.5	A Descriptive Study Of Previous System	20
2.5.1	Implementation Process	21
2.5.2	Weakness of Previous System	25
2.6	Summary	26
3	RESEARCH METHADODOLOGY	27
3.1	Methodology	27
3.2	Research Design	29
3.3	System Architecture	32
3.4	Entity Relationship (ER) Model	34
3.5	Research Schedule	35
3.6	Summary	35
4	IMPLEMENTATION	37
4.1	Implementation	37
4.2	Database Integrations	37
4.2.1	Question Expert Designer	37
4.2.2	Question Expert Designer Profile	38
4.2.3	Current Courses on Offer	38
4.3	Database Design (MSSQL 2008)	39
4.3.1	Enterprise-Grade Management Software	40
4.3.2	Excellent Data Recovery Support	40
4.4	Interface Design	41
4.4.1	Proper linking of flows.	42
4.4.2	Supporting documentation.	42

5	RESULT	49
5.1	Introduction	49
5.2	Main Page	49
5.3	User Level	50
5.4	Interface	51
5.4.1	Verify Examination Officer	51
5.4.2	Session Creation	52
5.4.3	Courses Verifying	53
5.4.4	FEIST Coordinator	54
5.4.5	User Head of Examination Unit	55
5.5	Impact	55
5.5.1	Quality	55
5.5.2	Cost	56
6	CONCLUSION AND DISCUSSION	58
6.1	Introduction	58
6.2	Conclusion	58
6.3	Recommendations	59
	REFERENCES	60
	APPENDIX	62

LIST OF FIGURE

FIGURE	TITLE	PAGE
1.1	Final Examination Question Book's workshop Diagram	3
2.1	Bloom's Taxonom	12
2.2	Waterfall Model Life Cycle	14
2.3	V- Model Life Cycle	16
2.4	Agile Model Life Cycle	18
2.5	Main Interface Question Bank Software	22
2.6	Interface Question Bank Soft for RAW Development	22
2.7	Interface Question Bank Soft Questions formulated by the lecturer	23
2.8	Interface Question Bank Soft for Answer scheme provided by lecturers	24
2.9	Interface Question Bank Software for Paste Process Of Preparation Of Question RAW Interfaces	24
3.1	Relationship Between Research Domains And Research Methodologies	28
3.2	Methodology of Design Research (Kuechler 2008)	29
3.3	Model System	32
3.4	System Architecture	33
3.5	ER Diagram	34
4.1	Database Integration Diagram	37
4.2	Database Design	39
4.3	JAVA code for Login Page	41
4.4		

JAVA code for List Course at Department	42
4.5 JAVA code for List of the Department	43
4.6 JAVA code for Course Setting	43
4.7 JAVA code for Session Setting	44
5.1 Interface for Main System	46
5.2 Interface for user Menu	47
5.3 Interface to Verify the Examination Officer	48
5.4 Interface Session Setting	49
5.5 Interface. Courses verifying	49
5.6 Interface FEITS Coordinator	50

LIST OF TABLES

TABLE	TITLE	PAGE
2.1	Advantage And Disadvantage Of The Waterfall Model Life Cycle	15
2.2	Advantage And Disadvantage Of The V- Model Life Cycle	17
2.3	Advantage And Disadvantage Of The Agile Model Life Cycle	19
3.1	Carta Gantt For Research Project	35
5.1	Number of issues in sessions	51
5.2	Costing in Every Sessions	53

LIST OF EQUATION

EQUATION	TITLE	PAGE
----------	-------	------

NOTATIONS

CHAPTER 1

INTRODUCTION

Polytechnic Malaysia was first established in 1969 and the first intake was held at Polytechnic Ungku Omar, Perak. Until today, there are 33 polytechnics in Malaysia offering different level of programmes ranging from certificate to degree levels. The headquarters of Polytechnic Malaysia is under Jabatan Pendidikan Politeknik (JPP), Kementerian Pendidikan Tinggi.

Polytechnics education system is two semester per year basis. Thus, the final examination was held twice a year and almost 1500 courses take in final examination as their final assessment per annum. Examination Unit at each polytechnic is responsible to ensure the final examination process and procedure carried out successfully. Meanwhile, at Examination and Assessment Department

Department of Examination at polytechnic and Examination and Evaluation Division (BPN) at Jabatan Pendidikan Politeknik are responsible in handling the examination processes. The processes includes construct sets of questions and marking scheme, review and endorses the questions by three supervisors, and creates five sets of final examination booklet. In polytechnic, final examination question items must be constructed based on Course Learning Outcome (CLO) stated in Final Examination Item Specification Table (FEIST) to ensure standardised and even understanding among the lecturers.

As polytechnic grows, the managing these processes are getting worse and tedious due to increasing numbers of courses with final examination. In addition, it creates chaos when the

questions are disarranging accordingly with formatting and other human mistakes. As this happen, a systematic ways of doing it must be figure out to lessen the human errors.

1.1 Background of Study

Examinations and Assessment Division, JPP and Polytechnics Examination Unit have been given the responsibility to manage the Item Bank and Scoring Rules at Polytechnic Malaysia. The secretariat of Item Bank and Scoring Rules at the central level and polytechnic is an urgent need to streamline and simplify the development process of the Final Examination Question Paper validity, reliability and sensible to each session / semester. Therefore, a number of committees have been established to ensure this processes are run smoothly. The committees that involved are the Formulation and Item Draft Revision Committee, and Evaluation and Item Refining Committee, and Final Examination Scoring Rules.

There will be at least four (4) Final Examination Question's Book for each session / semester should be developed which are contains questions and answers' script for a selected courses. The development process involved two (2) workshops organized by the Formulation and Item Draft Revision Committee and Final Examination Rules Scoring, and four (4) development workshop which organized by the Evaluation and Item Refining Committee and Final Examination Scoring Rules. All these six (6) development process of the Final Examination Question Book must be implemented to ensure the quality of the question's book. Schedule of the Final Examination Question Book's workshop is shown in Figure 1.

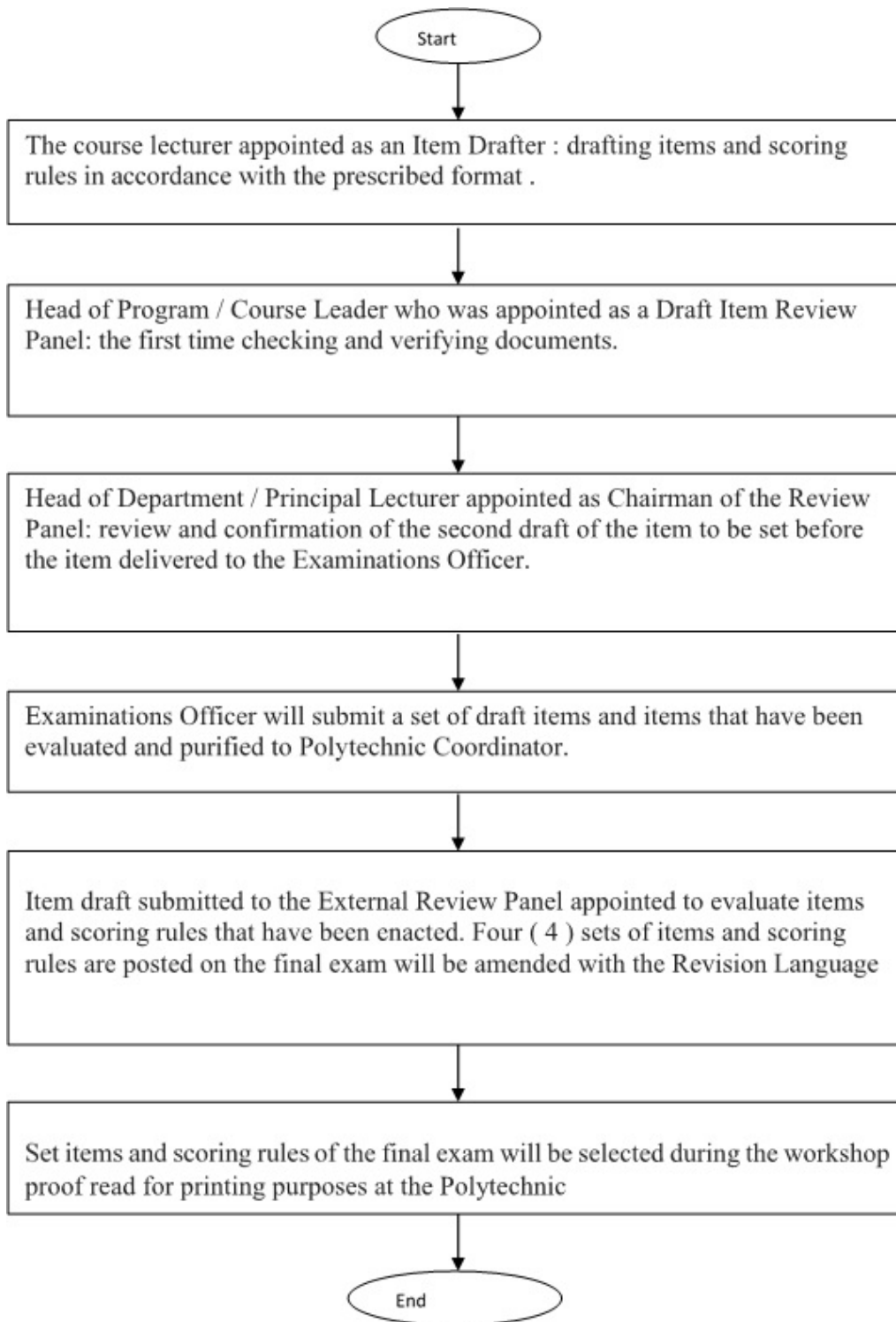


Figure 1.11: Final Examination Question Book's workshop Diagram

1.2 Problem Statement

Polytechnic Malaysia offers sixty six (66) Diploma Programmes with over than nine hundred (900) courses with Final Examination. Every semester more than three thousand (3000) final examination item sets are created and put together to form at least four (4) sets of final examination bank question for each course. This numbers double up for a year process. Based on these experience and statistic, the need to develop a systematic approach and platform is critical. Some of the problems identified are:

- i. 32% Item Set developed by the legislator questions paper does not comply with Final Examination Item Specification Table (FEIST). FEIST is constructed according to the Course Learning Outcome and cognitive level need to be evaluated for a course. Without a systematic approach and platform, duration for feedback from the Coordinator (Polytechnic Coordinator) to the legislator takes time and do affect the quality of final examination bank question especially.
- ii. 26% Item Set developed by the legislator questions paper have problems with the marking scheme. Extra work after examination took place is needed for moderation of marking scheme. This situation also reflects that this final examination question /paper are not a quality bank question.
- iii. 23% Item Set developed by the legislator questions paper does not comply with the prescribed format. Format varies according to the needs and appropriateness of the programme. Item set developed

with incorrect format leads to difficulty and extra effort in the examination question paper set installation workshop and number of complete bank question sets.

- iv. A minima of six (6) workshop needs to be carried out per semester to produce sets of questions and marking scheme for final examination. This burden the Examination Officers and also increases the operational cost for workshop, accommodation and rentals. Through Online Question Bank Management System, number of workshop can be reduced and this will also reduces the operational costs of formulating and installation of final examination question paper.

1.3 Research Question

This study attempts to answer the following questions

- i. What are the user requirement for Online Question Bank Management System?
- ii. What are the things to be considered when developing an Online Question Bank Management System?
- iii. Why we need to enhance a previous systems?
- iv. How the previous system can be upgrade

1.4 Research Objective

The aim of this study are to determine the requirement of the database, system and network design therefore and effective system that can be accessed via the Exam Bank Online Systems; we need to achieve the following objective;

- i. To identify methods in developing Online Question Bank Management System
- ii. To develop an enhanced Online Question Bank Management System
- iii. To evaluate the performance of the system

1.5 Research Scope and Limitation

The Scope and limitation of the study are;

- i. To enhanced current system that can simplify the process of drafting and installation of the questions' format was created to avoid mistakes on the next format and facilitates monitoring process of the formulation and the assembly of question items and can be use by BPN-JPP
- ii. To enable formulators to develop questions and answer scripts for courses online.
- iii. To facilitate the review process of the draft items by reviewers Language, Program Chair, Department Head, Chief Judge, the External Review Panel and BPN.

- iv. The system will develop using Microsoft SQL 2008 as database and Java as interface

1.6 Significant And Contribution

Among the significant and contribution of the development of “Bank Online System are:

- i. Monitoring of the drafters of the items can be centralized to reduce cases of formulation of the question of course late or overlooked.
- ii. Standardize the format of the question paper and the front cover final examination questions.
- iii. Facilitate the evaluation process and purification of the final exam item.
- iv. Simplify the process of analyzing the final examination questions by the Polytechnic Examinations Officer.
- v. Increase the quality of question follow the taxonomy bloom

CHAPTER 2

LITERATURE REVIEWS

2.1 Introduction

In the new global era an Information Communication Technology (ICT), implementation information technology (IT) especially information system (IS) on organization has become a central issue for any organization. the complexity of the implementation process represents the degree of difficulty associated with the process by which technology solutions and IT strategic initiatives that depend on that to come to permeate the organization. The process begins when the core IT implementation has been designed and developed, starting the conversion process, including installation, configuration, end-user training, and restructuring. Characteristics of IT and related processes, they act as an independent source of response lag . Information technologies not only differ with respect to their intrinsic characteristics, but also in how they are implemented and become available for utilization by the organization (Orlikowski and Iacono 2001). This can be seen in the case in Dell's strategy is the production of high-velocity model is built to order direct selling. The firm continues to enhance the performance of production systems, in addition to introducing many initiatives that leverage its core (i.e., Dell Online). Another example of what is meant by Harrah's Entertainment, a recognized pioneer in the use of data warehousing and data mining technology (Goodhue et al. 2002), may have put itself on high performance continuous with the customer relationship (increase the costumer buying experience) management initiatives.

All two examples illustrate how IT was used to enhance core competencies in research, development, work flow and process. By using IT technology, the firm keep maintain their

competitive positions in industries where product development is considered a prime driver of firm performance. Although the firm is a success but the two firms are continuously seeking new innovation across the core strategy of marketing disciplines continuous experimentation and knowledge of customers rely on business intelligence infrastructure.

By drawing the architectural concept of Grant, an organizational are capabilities, organizations have been able to demonstrate the ability to improve efficiency and using IT may depend on the ability of the IS function. IT can be used to enhance the core competence requires that firms make choices about how resources are deployed technology, taking into account the strategic thrust of the organization. IS requires planning well because it is an important process that enables organizations to identify business priorities and ensure that the IS goals and initiatives are aligned with business priorities and objectives. IS evidence that advanced planning, greater convergence between IS and business managers IT priorities can be achieved. it enables the convergence of IT and knowledge integration business synergies, which in turn improves the identification and development of strategic IT applications. One of the main concerns to make choices about targeting IT resources, in order to succeed, companies need to develop and implement technology solutions and to ensure effective use to improve their core competence and independence. The ability to develop high-quality applications with a cost-effective and timely manner is a critical capability that is likely to affect the use of technology. Secondly, mature IS support processes and technology can effectively ensure that the system fully utilized by the end user. A firm must not only be able to benefit from IT unless it is effectively used in the operation of their overall organization. The success of the organization can only be determined by the IS support.

In summary, organizations that does not have strong IS functional capabilities in their organization might find it difficult to initiate and sustain innovative projects targeted at

enhancing the firm's core competencies, or in providing reliable IS services that might be critical for smooth business operations and fulfil the business goal.

2.2 IT Dependent

One of the most significant current discussions in IT-dependent strategic initiatives is rooted in a perspective that views strategy not as the making of a few discrete "one time" decisions, but as the configuration of interrelated and interlocking activities (Rivkin 2000; Siggelkow 2001). According to Smith and Ross, IT-dependent strategic initiatives consist of identifiable competitive moves (Smith et al. 1991) that depend on the use of IT to be enacted, and are designed to lead to sustained improvements in a firm's competitive position (Ross et al. 1996). Throughout IT-dependent strategic initiatives do not simply consist of the building of a computer system or application that, allegedly, generates competitive advantage until it is successfully replicated (Carr 2003); in certain degree, it consist of the configuration between activity system, dependent on IT at its core, that fosters the creation and appropriation of economic value (Brandenburger and Stuart 1996). Therefore, future research should concentrate on IT-dependent investigation strategy changed to limit the damage the competitive edge and revitalize these barriers to erosion.

2.3 Question Bank Development And Management System

Today's a competitive scenario has been change, the development of the Smart model questions is indispensable for students' intellectual growth and also design to meet the learning objectives of the course (Blooms Taxonomy). Learning is a complex activity. The goal is for students to master a knowledge and skills for their careers. Most of the time, what a students