



International Journal of Innovative Research in Computer and Communication Engineering

(A High Impact Factor, Monthly, Peer Reviewed Journal)

Vol. 6, Issue 2, February 2018

Universal Electronic Student Course Registration Model (U-ESCRM)

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Abstract: Student course registration is an integral facet of university registration processes, which holistically cater for organizational resources: manpower and material. Although several approaches have been proposed in addressing student registration, this research paper provide a comprehensive approach with the aim of addressing comprehensiveness in courses registration through the integration of all department into a single architecture framework. This architecture has the propensity for cutting down operational cost and hardcopy documentation while handling organizational procedures and processes.

Keywords: Model; Registration; Student; Student-registration

I. INTRODUCTION

Student's course registration is the process of registering and accommodating each student based on a predefined number of courses accepted within the institution (university), with the courses registered by each student used as a clustering or registration models in identifying the area of specialization within the institution [1-10]. The student registration process enables student to acquire the necessary authorized credentials within the institution [1]. The registration processes also cater for student academic records, enabling institution to plan, manage, organize and coordinate processes in a manner that minimize the organization resource efficiently [6]. It also determines which students will partake in certain courses within the institution, and for the administration to keep its records up-to-date. These registration processes are handled simultaneously and the information collected is used by members of the teaching or management staff to construct class arrangement while management staffs utilize this information in handling daily planning and organization [10]. Registration process, usually are times based which must be ahead strictly in order for personnel's to benefit from such benefits as grants, student level promotions and fees rebate. Some institutions usually stipulate a week within the school resumption, other two to three weeks, all in the aim of achieving prompt registration [7]. The significant of student registration to institution management cannot be overemphasized.

Most institution previously adopted paper based registration (Manuel) in ascertaining the number of available student, annual venue generated and forecasting for institution essentials such as infrastructure and needed equipment [4]. This paper base registration involves each student filling and response to predefined biography and demography information institutional created based on each department in cognizance to faculty based courses. Each student is required to sign with appropriate date on this form with one copy subsequently given to each student and appropriate copies kept with administration for record purposes [10].

Overtime due to paper bureaucracy, processing student record required much time which invariably lead to student delay in courses registration. Paper registration also hampered prompt dissension of relevant academic and managerial information. The cost of paper production also flows in amalgamating overhead costs within the organization [6,8]. This underlining issues gradually affected and constrained the over benefits associated with manual paper based registration. The advent of electronic devices: computers and its associated peripherals provided an avenue where student registrations were handled electronically. These electronic base registrations have considerably mitigated delay in student registration processes which has been decentralized pin most case [3,5].

This research paper provides a Universal Electronic Student Course Registration Model (U-ESCRM). This model comprehensively addressing faculty base registration in a unified framework.



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II. REVIEW OF STUDENT REGISTRATION

Student registration processes have been addressed with some notable approaches with their associated strength and weakness. These weaknesses provide an avenue in implementing enhancement through novel approach. Table 1 provide a brief review of related literature pertaining to student courses registration.

SN	Author (Year)/Title	Goal/	Strength/ Finding	Limitation/ Weakness	Further Research
1.	Little The University Student Registration System: a Case Study in Building a High-Availability Distributed Application Using General Purpose Components	Registration/ Admission	Distributed system approach	Difficulty in model usage	i. Centralized system not presented
2.	Development of Online Student Registration System	Online Registration System	SMS/Email based registration	Lack of Centralized System	i. Centralized system not presented
3.	Online Registration System	Online Registration System	Web tools was developed	Difficulty in integrating Universal system	i. Centralized system not presented

Table 1: Review of related review.

Table 1 provides a brief description of previous works on student course registration, which clearly exemplifies one fundamental issue; comprehensiveness of student registration processes in addressing varied students from different faculty within the university. The design model will successfully provide an avenue for uniformity in student records. This model will address unambiguity in student registration at the point of registration, thereby saving needed times, effort and resources which perhaps might be deployed in a later time in addressing this issues.

III. UNIVERSAL ELECTRONIC STUDENT COURSE REGISTRATION MODEL (U-ESCRM)

The proposed model: Universal Electronic Student Course Registration Model (U-ESCRM) addresses the lingering issue of comprehensive in course registration. This model also implements an electronic approach, eliminating subjective decision making. The objective approach adopted in this model along with the comprehensiveness: addressing courses registration along faculty line which is a plus compared with previous model which in most case where distributive or decentralizes in nature. This model was design taking cognizance of staff and student usability. It also caters for security issues through authentication based on less privilege and need to know. Figure 1 provides a graphical representation depicting the Universal Electronic Student Course Registration Model (U-ESCRM).

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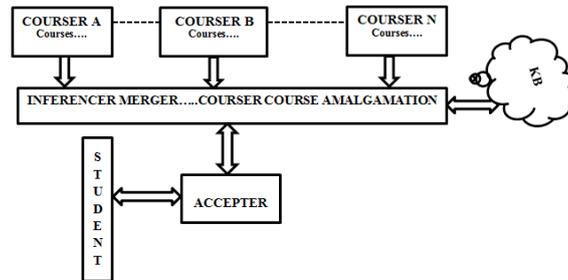


Figure 1: Universal electronic student course registration model (U-ESCRM).

The presented model comprises of certain fundamental components which includes:

a. Courser

The courser is the fundamental component of the U-ESCRM which provides the needed courses based on the course description, course content and institution curriculum. The course courser is department dependent and provides an avenue in collecting and collaborating content of each department covered within the faculty.

b. Inferencer Merger

The inferencer Merger accepts and collates department courses into a universal framework catering for courses within the faculty. The inference merger also provides cumulatively the number of credits domiciled within the university. The information within the Inferencer merger is stored within the system knowledgebase upon which the inferencer merger interact constantly with. The inference merger also interacts with the Acceptor getting relevant credential provided by the respective student users.

c. KB: Knowledgebase

The knowledgebase serves as a central repository for model base information. This information are courses, course credits, student input information. The knowledgebase is the platform on which the courser merger runs on. The language of the knowledgebase is comprehended and understood by the courses merger, making it the sole repository and integrator for the courser information.

d. Acceptor

The acceptor is the intermediary between the course merger and the student providing relevant input information. The acceptor places the received information in the format understood precisely by the courser merger. This courser merger utilizes this information in attaining need results.

e. Student

The student is the main user of the model, providing the needed information upon which the model initiates, activate and transform student base information: student name, courses, course credit and even failed courses. The student input information must align with the department of interest and the faculty of resident, upon which a digital credentials is provided electronically for the student. These credentials are also saved for future purposes.

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IV. MODEL DESIGN

The design of the Universal Electronic Student Course Registration Model (U-ESCRM) was handled using a standard Object Oriented design tool: Unified Modeling Language (UML). Unified modeling language (UML) is a standard modeling language used for modeling software models or systems. It provides a number of graphical tools that can be used to visualize a model from different viewpoints. The multiple views (user, structural, behaviour, implementation and environment) of the system that is represented by using diagrams together depict the model of the model (Philippe, 2000 and Chris, 2000). This research paper focuses mainly on the user view. Figure 2 provide the user view depicting the facet of the Universal Electronic Student Course Registration Model (U-ESCRM). The user view provide for initiating and receiving actors which each actor (student) having the opportunity of initiating a process and receiving an appropriate response.

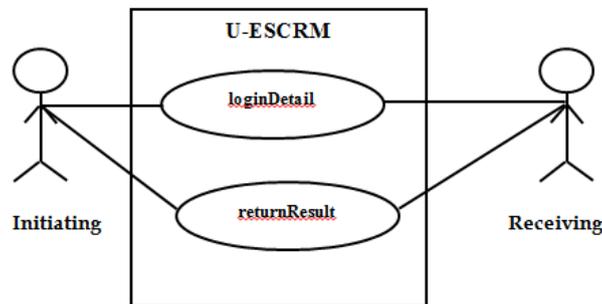


Figure 2: Use case diagram for U-ESCRM.

V. DISCUSSION

The Universal Electronic Student Course Registration Model (U-ESCRM) provides a universal, comprehensive and objective manner in addressing student course registration. The model with full implementation will obtains the needed benefits inclusive of:

- Eliminate inter-departmental dependency.
- Eliminate the slightest delay in course registration.
- Efficient management departmental resources.
- Determines area of needs.
- Forecasting efficiently with available resources.

The aforementioned futuristic benefits indeed will indeed been the focus for implementing this model.

VI. CONCLUSION

Student course registration indeed is an integral facet within the educational institution providing for adequate and efficient resource management aligned with available human resource. Although previous models have addressed some underlining issues such as automation and prompt registration. The aforementioned issue, pertaining to comprehensiveness has been addressed with the: Universal Electronic Student Course Registration Model (U-ESCRM).

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ISSN(Online): 2320-9801
ISSN (Print): 2320-9798

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