

**DESIGN AND IMPLEMENTATION OF A RULE BASED ACADEMIC COURSE  
ADVISING SYSTEM**

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## ABSTRACT

Academic advising plays a very important role in a student's academic life. With this service, the student is guided on what field is necessary to take and how shall it be achieved. However, this task is very repetitive and stressful for the personnel and time-consuming for all involved. This study aimed to address this problem.

The design of an Academic Course Advising System should respond to the needs of students for their academic guidance. The integration of different forms of delivery to Academic Advising would bring enormous benefits to both management and its Clientele (emotionally, physically, and psychologically). It can increase productivity of employee, convenience to clients doing transactions and promote quality time to both. It can make the entire academic advising system more interactive and dynamic.

*Keywords:*

Academic Advising, Course Academic Advising, Student Advising

# CHAPTER 1

## INTRODUCTION

Academic advising is very important in student's academic life. This provides proper guidance or direction on what particular course to take up based on his intelligence or capacity. It also guides the student on how it will be able to achieve it. It has been observed that doing old-fashioned way of advising sometimes contributes to negative results and might even also bring some psychological crisis. Automation of Academic Advising process is the challenge to improve its effectiveness and efficiency.

The importance of automation is that it accelerates the academic advising process; it brings substantial benefits to both faculty and student in terms of time management, monetary and psychological aspects.

There were several universities that already conducted this kind of study. These studies varied on their approaches or design strategies however, there were a lot of disadvantages on these same studies, such as the inappropriate use of database management system; most of these studies used only a plain text file processing system which had lots of issues particularly in reliability, integrity of data retrieval and security. It was noted also that the advising system was not integrated to the other existing databases. Another disadvantage was that inference rules were part of the source code; others had lots of files for their academic rules which were not easy to administer. In addition, academic advising systems were only made available on particular location

where the program was installed and worst of all, it could only accommodate one student at a time.

In this present study, the proponent presented a solution to the disadvantages of the previous studies, specifically to the integration of the academic advising database to other existing databases. The academic rules were stored in a single file for easier maintenance. It also took the advantage of using Relational Database Management System. Delivery System was added to usual components of advising system, which means that advising system could be accessible anywhere and anytime.

## **1.2 Statement of the Problem**

Automation of Academic Advising would be a practical solution to the existing problem of old-fashioned academic advising because it eliminated those negative impacts brought to that manual, face-to-face operation of academic advising.

The present study wanted to answer the general problem: Can an academic advising, which requires an in-depth understanding of the intricacies of an academic curriculum, be automated? Specifically, it sought to address the following issues:

1. The knowledge and understanding that is required to advise students on a particular curriculum mostly requires stock knowledge in the part of the adviser and cannot be easily transferred to a colleague who do not have undergone similar training and experiences;

2. The old-fashioned way of advising proceeds through a lookup process of supporting documents or details, such as looking for prospectus, prerequisites, current offerings and grades of courses previously taken, before it can start advising;
3. Old fashioned way of advising depends on the availability of the advisor and also is usually bound within office hours;
4. Traditional advising sometimes provides inconsistencies or misjudgment on subject advising due to boredom, confusion, or any psychological downsides.

### **1.3 Objectives of the Study**

The general objective of this study was to design and implement Rule-based Academic Advising software that could aid, if not substitute, human course adviser.

Put more specifically, the objectives were:

1. To design and implement academic advising database to capture and simulate the knowledge of a human academic advisor;
2. To create production rules for different categories of academic advising (student subject evaluation for shiftee, regular/irregular students) ;
3. To design and implement a curriculum-building interface to populate curriculum database;

4. To design and build different delivery systems for varied interface needs of academic advising system;
5. To implement, test and evaluate a fully automated Academic Advising System.

#### **1.4 Significance of the Study**

This study was designed to automate academic advising process to make academic advisors' tasks less repetitive and stressful. For the students, this would make the service available anytime at their fingertips. Students would be able to get academic advice online on their preferred schedule. Academic advising could be extended outside campus boundaries generating a usable academic advice. This should be applicable to both government and private academic institutions.

#### **1.5 Scope and Limitations of the Study**

The study focused only on subject evaluation which covered determination of the next subjects that a student (shiftee, regular, irregular) may possibly enroll. The system was tested in CSU College of Engineering & Information Technology (CEIT) specifically on the BSIT curriculum of its IT department.

## 1.6 Definition of Terms

For purposes of clarity of the study, the following terms were defined:

1.6.1. **Enrolment Draft** – a formatted piece of paper where the students write their profile and the intended subjects to be enrolled.

1.6.2 **Advisor** – a personnel who evaluates the enrolment draft and give the advised subjected based on the academic advising rules.

1.6.3 **Rule based expert system** - one whose knowledge base contains the domain knowledge coded in the form of rules.

1.6.4 **Rules** - the popular paradigm for representing knowledge.

1.6.5 **Inference engine** - makes inferences by determining which rules are satisfied.

1.6.6 **PROLOG** - a general purpose logic programming language associated with artificial intelligence and computational linguistics.

1.6.7 **Shiftee** – a student who switch from one to another curriculum but within the same institution.

1.6.8 **Declarative Programming** - a programming paradigm that expresses the logic of a computation without describing its control flow.

1.6.9 **Passed Subjects** – refers to the subjects that do not have grades such as 5.0, 4.0, INC, DRP, NG.

1.7.10 **Failed Subjects** – subjects that have grades such as 5.0, 4.0, INC, DRP, NG.

1.6.11 **Succeeding Subjects** – subject to be taken in the semester that follows the current semester.