

# **Abstract**

**Dina Yahia Abou Zaid**

## **A Scalable and Portable Rule-Based Expert System for Student Advising**

Using online registration system with automated student advising offers many advantages over the traditional student advising. An online registration system with automated student advising supporting different functions performed by the administrators, instructors, and students is developed. The online registration system automates the process of academic advising using a rule-based expert system that assists students in ing their courses by recommending the best feasible courses for each semester towards their academic degree. The system also offers explanation for the recommended courses. The rule-based expert system enables the separation of registration and advising rules from the implementation code, so that changes in the knowledge (rules) is separated from the application code and can be easily implemented by end user through friendly interface that doesn't require any programming knowledge. Moreover, the rules are represented in an XML-based format that enables portability, thus supporting different rule engines. A set of 80 undergraduate students in MIS Major in the College of Management and Technology in AAST (Arab Academy for Science and Technology) is obtained and used to test the accuracy of the system. The system is evaluated by comparing the recommended courses of each student case produced by the system with that of the human advisor. The results of comparison show that 95% of the cases matched the system's recommendations. This number shows that the system is successful and going in the correct direction.