

Rubric

Senior Project

Assessment of Student Outcomes of the BS in Computer Science of the School of Computing and Information Sciences Florida International University

The School of Computing and Information Sciences evaluates the Senior Projects of its graduating seniors for the purpose of assessing the level of attainment of the Student Outcomes of the BS in Computer Science program.

Your responses to this survey will be used solely for the purpose of assessing the Student Outcomes of the BS in Computer Science program of the School of Computing and Information Sciences at FIU. This survey is expressly NOT for assessment of student performance in the SCIS Senior Project course for assignment of letter grade, nor for assessment of the instructor(s).

Rating Instructions

For each program outcome, you are provided with a check-list of 7 or more criteria that evidence attainment of that outcome. Please check all criteria that are presented in this project. You may include additional criteria that are not explicitly listed; if so, please record the additional criteria in the spaces provided. Unless noted otherwise, the number of checked criteria, up to a maximum of 5, should be recorded as your rating of attainment of that outcome evidenced in the project.

Project Title __Quota System_____

Semester & Year _Fall 2010_____

Moderator (Faculty / Industry Sponsor): _Dr. Peter Clarke_____

Evaluators: _Dr. Masoud Sadjadi_____

Student Outcome (a): Demonstrate proficiency in the foundation areas of Computer Science including mathematics, discrete structures, logic and the theory of algorithms

Project incorporates elements of mathematical reasoning or proof

Project utilizes elements of set theory, Boolean algebras

Project utilizes statistical procedures to summarize test data

Project utilizes statistical measures of system behavior or performance

Project design utilizes finite state machines or automata to model system behavior

Project utilizes some graph theoretic knowledge

Project utilizes some techniques of numerical analysis

OTHER: _____

OTHER: _____

Student Outcome (b): Demonstrate proficiency in various areas of Computer Science including data structures and algorithms, concepts of programming languages and computer systems.

Data Structures & Algorithms

- Project utilizes an advanced data structure, e.g. balanced search tree, hash table
- Project utilizes some graph algorithm, e.g. shortest path, minimum spanning tree
- Project documents runtime analysis of selected algorithms

Concepts of Programming Languages

- Project utilizes some functional programming language (e.g., ML, Lisp)
- Project utilizes aspects of context-free grammars
- Project demonstrates familiarity with design issues such as scoping rules or dynamic type checking

Computer Systems (Database)

- Project utilizes an appropriately selected database system
- Project design utilizes conceptual and/or relational schema
- Project demonstrates understanding of physical database design

Computer Systems (OS)

- Project implementation utilizes knowledge of memory management
- Project implementation utilizes knowledge of process synchronization
- Project documents analysis of tradeoffs in selection of system characteristics

OTHER: _____

OTHER: _____

Student Outcome (c): Demonstrate proficiency in problem solving and application of software engineering techniques.

Project demonstrates knowledge of the Software Development Life Cycle

Project deliverables include Project Specification

Project deliverables include Feasibility Study and/or Project Plan

Project deliverables include Requirements Documentation

Project deliverables include Design Documentation

Project documents testing and/or evaluation of the implementation

Project incorporates system walkthroughs

OTHER: _____

OTHER: _____

Student Outcome (d): Demonstrate mastery of at least one modern programming language and proficiency in at least one other.

- Project is implemented using an appropriate high level language
- Project implementation is reasonably efficient rather than “brute force”
- Project implementation is modular and/or re-usable
- Project implementation uses a modern API or Tool-Kit
- Project implementation utilizes recursion
- Project implementation utilizes some advanced features, e.g. polymorphism
- A project sub-system or module utilizes an appropriate programming language other than the primary implementation language, e.g. SQL, ML, assembly language

OTHER: _____

OTHER: _____

Student Outcome (e): Demonstrate understanding of the social and ethical concerns of the practicing computer scientist

Project documents sources and references

Project identifies and addresses any relevant social issues

Project identifies and addresses any relevant ethical issues

Project identifies and addresses relevant legal issues

Project identifies and addresses any relevant privacy issues

Project documents anticipated impact on users/clients

Project documents and addresses any anticipated technology impact issues

OTHER: _____

OTHER: _____

Student Outcome (f): Demonstrate the ability to work cooperatively in teams

Project completion evidences equitable participation by team members

Project presentation(s) included all team members

Project team activity is documented

Project team set out and followed a schedule for timely completion

Project team negotiated consensus when needed

Team members roles were clearly defined and executed

Team members shared responsibility for success and failure

OTHER: _____

OTHER: _____

Program Outcome (g): Demonstrate effective communication skills

- Presentations described the essential features of the project
- Presentations utilized good quality slides and presentation aids
- Presenters utilized their time effectively
- Presenters spoke directly to the audience
- Technical features were communicated clearly
- Project artifacts clearly document all project features
- Project reports are well organized and written

_____ OTHER: _____

_____ OTHER: _____

Program Outcome (j): Have experience with contemporary environments and tools necessary for the practice of computing

Project utilized contemporary design tools

Project implementation utilized a modern IDE(s)

Project utilized appropriate validation/testing tools

Project was demonstrated using appropriate presentation tools

Project utilized appropriate project management tools (e.g., MS Project)

Project utilizes appropriate version control/document sharing tools

Project documents consideration of trade-offs in selection of tools

____ OTHER: _____

____ OTHER: _____

ABET Student Outcome

The program must enable students to attain, by the time of graduation:

(j) An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices. [CS]

Please comment on how this project “demonstrates comprehension of the tradeoffs involved in design choices”:

Students in this project identified and further studied three possible solutions to the problem of quota management in a virtual lab setting. They compared the three solutions and evaluated the tradeoffs. Once the solution was selected, they studied different design choices and documented the rationale behind their design decisions.