

WSU Computer Science and Engineering
Undergraduate Course and Program Assessment Retreat 2008
May 2, 2008 Room: 292 Joshi

10:00 A.M. **Presentation by the Chair** – Sudkamp

10:30 A.M. **Undergraduate Studies Committee items** - Mateti
Overview of Today's Retreat Schedule
New Courses Approved recently (2007-2008)
Minors in CS and CE
Highlights of some course/program modifications:
 BACS Overview
 BSCS Changes
 BSCE Changes

10:45 A.M. **Objectives and Outcomes for BACS, BSCE, and BSCS;**
Assessment plans

11:15 A.M. **Course Assessment Presentations**
10 minute presentation + 5 minute discussion per course
CS 405 Introduction to Data Base Management Systems: Chung, Dong
CS 466 Introduction to Formal Languages: Prasad, Sudkamp
CS 480 Comparative Languages: Prasad, Raymer
CEG 434 Concurrent Software Design: Pei, Wang

12:15 P.M. **Break** – Collect lunches

12:30 P.M. **Course Assessment Presentations**
10 minute presentation + 5 minute discussion per course
CEG 233 Linux and Windows: Mateti
CS 415 Social Implications of Computing: Finkelstein
CEG 460 Introduction to Software Engineering: Hartrum, Matson
EGR 335 Technical Communications for Engineers and Computer Scientists: Finkelstein

1:30 P.M. **Faculty Discussion**
Scheduling of courses
 Old and New
 Mon/Wed/Fri schedules
 Ordering of prerequisite chain offerings
 Size of course sections and lab sections
 Grader and GTA assignments

2:15 P.M. **Wireless options in BSCE** Jean, Pie, Wang

2:45 P.M. **Break**

3:00 P.M. **Faculty Discussion**
Action items from past retreats
ABET 3f-k concerns
CS 400 revisions
New courses on "Current Technology and Best Practices"
Coops

4:00 P.M. **Adjourn**

WSU
Bachelor of Arts in Computer Science
Objectives and Outcomes
April 18, 2008

1. List the **OBJECTIVES** of the program.

The educational objectives of the BACS program are to produce graduates:

1. Employable by industrial, government, and academic entities as having a current, and practical computer science education that is grounded in discrete mathematics, logic, and theory of computing, and rich in modern programming principles, software experiences, and problem solving,
2. Equipped to pursue lifelong learning, continuing education, and graduate studies, as motivated by their personal development goals,
3. Skilled in communication, and aware of social responsibilities, codes of conduct and ethical values appropriate to the discipline.

3. List the **LEARNING OUTCOMES** of the program.

Each BACS graduate will attain:

1. An ability to apply knowledge of discrete mathematics, logic, and the theory of computation.
2. – Intentionally Left Blank --
3. An ability to design software to meet desired needs.
4. An ability to identify, formulate, and solve computer oriented problems.
5. An understanding of professional and social responsibilities, and ethical values.
6. An ability to communicate effectively in written (prose as well as mathematical, and scientific notations in technical reports), graphical (diagrams, charts, visualizations, animations), and oral (discussions with colleagues, group meetings, and formal presentations) forms.
7. The broad education necessary to understand the impact of science and technology in a global and societal context relevant to being a productive citizen.
8. An ability to engage in life-long learning of computer science and related topics after graduation.
9. A knowledge of contemporary social, ethical, and technical issues in local, regional, national and international contexts
10. An ability to use the techniques, skills, and tools necessary for professional practice such as modern software development environments, and programming languages.

Bachelor of Science in Computer Engineering

Objectives and Outcomes

April 2008

1. List the **OBJECTIVES** of the program.

1. Technical Knowledge

Graduates will be able to apply the fundamentals of computer engineering as demonstrated by success as productive engineers in industry or government or in graduate school. Graduates will have a balanced and integrated hardware and software experience that is rich in modern laboratory, project, and design experiences

2. Preparation for Further Study

Graduates will have the knowledge and skills to remain engaged in the state of their discipline's art through lifelong learning.

3. Professionalism

Graduates will have the skills and understanding needed to fulfill their professional responsibilities as computer engineers, including written and oral communication, ethics, societal considerations and teamwork.

2. Explain how the department or program will know the extent to which **OBJECTIVES** are achieved (alumni or other surveys, employment data, etc.).

Objectives will be measured using a combination of class content surveys, graduating student surveys, and alumni surveys, and via direct contact between local businesses and industrial representatives and the department faculty.

3. List the **LEARNING OUTCOMES** of the program.

Graduates will:

1. Demonstrate the ability to solve engineering problems, utilizing fundamental engineering principles as well as the latest technologies and engineering tools, in the process of computer engineering analysis and design.
2. Solve engineering problems both as individuals and as members of multi-disciplinary teams.
3. Show a capacity for investigation and experimentation into physical (engineering) phenomena along with the ability to analyze and interpret engineering data in at least one of the following areas of computer engineering: (list concentration areas).
4. Demonstrate the capability to communicate verbally, in writing, and through the use of engineering communication media.
5. Have shown the capacity to present the outcomes of their problem solving and design projects to groups of engineers and lay persons.
6. Exhibit an understanding of the role computer engineering plays in our modern global society, that much is to be learned from the past and applied to the present, and that a responsible engineer is ethical and will continue to increase his/her knowledge throughout his/her lifetime.

Bachelor of Science in Computer Science

Objectives and Outcomes

April 2008

1. List the **OBJECTIVES** of the program.

1. To produce graduates with a sound, current, and comprehensive knowledge of computer science by providing a balanced and integrated hardware and software educational experience that is rich in modern laboratory, software and problem solving experiences.
2. To produce graduates with the communications and teamwork skills needed to excel in a professional environment, and aware of societal and ethical considerations appropriate to the discipline.
3. To prepare students equipped to remain engaged in the state of their discipline's art through lifelong learning,

2. Explain how the department or program will know the extent to which **OBJECTIVES** are achieved (alumni or other surveys, employment data, etc.).

Objectives will be measured using a combination of class content surveys, graduating student surveys, and alumni surveys, and via direct contact between local businesses and industrial representatives and the department faculty.

3. List the **LEARNING OUTCOMES** of the program.

Each BSCS graduate will attain:

11. An ability to apply knowledge of discrete mathematics, logic, and the theory of computation.
12. – Intentionally Left Blank --
13. An ability to design and validate software to meet desired needs.
14. An ability to identify, formulate, and solve computational problems .
15. An understanding of professional and social responsibilities, and ethical values.
16. The capability to communicate verbally, in writing, and through the use of modern electronic media.
17. The broad education necessary to understand the impact of science and technology in a global and societal context.
18. An ability to engage in life-long learning of computer science and related topics after graduation.
19. Knowledge of contemporary social, ethical, and technical issues in the practice of computer science.
20. An ability to use the techniques, skills, and tools necessary for professional practice such as modern software development environments, and programming languages,–and computer hardware components.

Minors in Computer Science and Computer Engineering

The following minor programs are open to students in all departments, and include the potential for a Computer Science student to minor in Computer Engineering or visa-versa. Minors will be granted to students who both:

1. Successfully pass all course requirements (with a grade of C or better). Cross-listed courses may be taken under any equivalent Department/Course Number, and
2. Successfully pass a minimum of 16 credit hours of 300, or 400 level CS or CEG courses which are not also used to meet major requirements in the student's major field of study or requirements in another minor program of study. Credit hours counted for this requirement may appear as General Electives on the major program check sheet.

Required courses for a Minor in Computer Science (31 credit hours):

- 15 Introduction to Computer Science
(MTH 257-3, CS 240-4 or CEG220-4, CS 241-4 or CEG221-4, CS 242-4)
- 4 Linux and Windows (CEG233-4)
- 4 Data Structures & Algorithms (CS 400-4)
- 4 Computer Organization (CEG 320-4)
- 4 Elective topics (Any 400-level CS/CEG courses)

Required courses for a Minor in Computer Engineering (35 credit hours):

- 15 Introduction to Computer Science
(MTH 257-3, CS 240-4 or CEG220-4, CS 241-4 or CEG221-4, CS 242-4)
- 4 Linux and Windows (CEG 233-4)
- 4 Data Structures & Algorithms (CS 400-4)
- 4 Computer Organization (CEG 320-4)
- 8 Digital Design (CEG 260, CEG 360)

Examples

1. A Computer Science student wishing to take a minor in Computer Engineering is already required to take MTH 257, CS240, CS241, CS242, CEG233, CS 400, and CEG 320 as part of their major program. To receive a minor in Computer Engineering, the student would need to take CEG 260, CEG 360 and at least two other 4 credit hour 200+ level CEG courses. In order to count for the minor program, these four CEG courses could not ALSO be used to satisfy CS/CEG Electives for graduation in the computer science major. These four courses COULD be counted as General Electives for graduation in Computer Science.
2. An Electrical Engineering student wishing to take a minor in Computer Engineering is required to take CEG/EE 260, EE 301/302, and CEG 220 or CS 240 as part of their major program. To receive a minor in Computer Engineering, the student could take MTH 257, CS 240, CS 241, CS 242, CS 233, CS 400, CEG 320, and CEG 360. At least four (16 Credit hours) of these courses must NOT also be used to satisfy Engineering Electives for graduation in Electrical Engineering. These courses COULD be counted as General Electives for graduation in Electrical Engineering.

Rationale

Computer Science and Engineering are highly interdisciplinary arts. Students in many degree programs (particularly those in math, sciences, and engineering) may find significant value in pursuing minors in computation. These minor programs require specific sequence of courses that provide structure to the minor area of study. Additionally, each minor has a requirement that a specific number of credit hours be taken that do not otherwise count towards the student's major program of study. This requirement guarantees that the minor designation demonstrates a degree of mastery beyond that expected of a graduate in the major area of study.