Assessment Plan
College of Liberal Arts and Sciences
Department of Computer Science
B.S. in Computer Science
Student Learning Outcomes

85% of the graduates with the NIU Bachelor of Science in Computer Science will be able to perform the following at a satisfactory or higher level:

1. Demonstrate the ability to evaluate and analyze a straightforward business problem and decide whether or not it is amenable to a computer solution.

2. Demonstrate the ability to apply a practical computer software system to solve a straightforward business problem.

3. Demonstrate the ability to create individual computer programs that are correct, substantial, easy-to-use, efficient, and easily understood by other programmers.

4. Demonstrate the ability to test a computer program for correct output.
I. Program Goals Relating to University Mission

The mission of the NIU Department of Computer Science is to prepare individuals for rewarding, successful, and interesting careers in industry, government, and nonprofit organizations. The Department is dedicated to providing students with the technical background and the analytical skills required to carry out analysis, design, coding, and testing of computer software.

II. Program Objectives/Learning Outcomes

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1. Demonstrate the ability to evaluate and analyze a straightforward business problem and decide whether or not it is amenable to a computer solution.
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3. Demonstrate the ability to create individual computer programs that are correct, substantial, easy-to-use, efficient, and easily understood by other programmers.
4. Demonstrate the ability to test computer programs for correct output.

III. Methods to Evaluate Effectiveness

(See further description in Part IV)

- A. Internship Assessment Survey (sent to employers by Computer Science).
- B. Internship Assessment Survey (sent to employers by Career Services).
- C. University Alumni Survey.
- D. Graduating Senior Survey.
- E. Capstone project in CSCI 467, capstone course.
## IV. Description of Methods to Collect and Analyze Data

<table>
<thead>
<tr>
<th>Method</th>
<th>Description</th>
<th>Type of Method</th>
<th>Target Performance Level</th>
<th>Timeline</th>
<th>Person Responsible</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Internship Assessment Survey (sent to employers by Computer Science).</td>
<td>Evaluations from on-site supervisors of the Computer Science majors who register for academic credit for Computer Science internships. Some, but not all, of these students are included in Method B, below.</td>
<td>Direct, summative.</td>
<td>85% of the graduates with the B.S in Computer Science will be able to demonstrate outcomes 1, 2, 3, &amp; 4 at a satisfactory or higher level.</td>
<td>Surveys are sent out every semester. Results are compiled in May for the prior Spring, Summer, and Fall semesters.</td>
<td>Near the end of every semester, the Graduate Secretary sends the survey to all internship supervisors. The internship advisor compiles statistical results and comments. Faculty review results and determine if curriculum needs revision.</td>
</tr>
<tr>
<td>2. Internship Assessment Survey (sent to employers by Career Services).</td>
<td>Evaluations from on-site supervisors of Computer Science majors who accept Computer Science internships obtained through the Office of Cooperative Education. Some, but not all, of these students are included in Method A, above.</td>
<td>Direct, summative.</td>
<td>85% of the graduates with the B.S in Computer Science will be able to demonstrate outcomes 1, 2, 3, &amp; 4 at a satisfactory or higher level.</td>
<td>Surveys are sent out every semester. Results are compiled in May for the prior Spring, Summer, and Fall semesters.</td>
<td>Career Services manages the survey and sends the Department the results. The internship advisor compiles statistical results and comments. Faculty review results and determine if curriculum needs revision.</td>
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<td>3. University alumni survey</td>
<td>University graduates are asked about their perceptions of how well the university and department prepared them for their careers.</td>
<td>Indirect, summative.</td>
<td>85% of the graduates with the B.S in Computer Science will be able to demonstrate outcomes 1, 2, 3, &amp; 4 at a satisfactory or higher level.</td>
<td>One and five years after graduation.</td>
<td>Results are compiled by the university and delivered to the Department as available. Faculty review results and determine if curriculum needs revision.</td>
</tr>
<tr>
<td>4. Graduating senior survey</td>
<td>Graduating computer science students are asked about their experiences in the Department of Computer Science and how well they think the program prepared them for their careers.</td>
<td>Indirect, summative.</td>
<td>85% of the graduates with the B.S in Computer Science will be able to demonstrate outcomes 1, 2, 3, &amp; 4 at a satisfactory or higher level.</td>
<td>Near the end of every semester.</td>
<td>Near the end of every semester, the Graduate Secretary sends the survey to all graduating B.S. candidates. The results are compiled by the Assistant to the Chair. Faculty review results and determine if curriculum needs revision.</td>
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<td>5. Capstone project in CSCI 467, capstone course.</td>
<td>A non-trivial team project demonstrates that students have the ability to analyze and design a computer solution for a business problem and implement this solution on an appropriate computing platform.</td>
<td>Direct, summative.</td>
<td>85% of the graduates with the B.S in Computer Science will be able to demonstrate outcomes 1, 2, &amp; 3 at a satisfactory or higher level.</td>
<td>Each semester, in CSCI 467.</td>
<td>The team of professors teaching the course collectively evaluates the project deliverables as high pass, pass, low pass, and fail. Faculty review results and determine if curriculum needs revision.</td>
</tr>
</tbody>
</table>
# Outcomes by Methods

<table>
<thead>
<tr>
<th>Methods</th>
<th>Outcomes</th>
<th>1. Internship Assessment Survey (by Computer Science)</th>
<th>2. Internship Assessment Survey (by Career Services)</th>
<th>3. University Alumni Survey</th>
<th>4. Graduating Senior Survey</th>
<th>5. Capstone project in CSCI 467 capstone course</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1. Demonstrate the ability to evaluate and analyze a straightforward business problem and decide whether or not it is amenable to a computer solution.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>2. Demonstrate the ability to apply a practical computer software system to solve a straightforward business problem.</td>
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<td>3. Demonstrate the ability to create individual computer programs that are correct, substantial, easy-to-use, efficient, and easily understood by other programmers.</td>
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<td></td>
<td>4. Demonstrate the ability to test a computer program for correct output.</td>
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</tbody>
</table>
V. Department’s Response to Assessment Results

Faculty and the Undergraduate Studies Committee review the various instruments and make recommendations to the Department as a whole as well as to individual faculty members, when necessary. Additionally, the Assessment Plan and Annual Update are posted on the internal Computer Science faculty website, so they are available to faculty at all times.

In all such deliberations, conflicting information and the costs associated with implementing recommended changes must be thoroughly investigated. For example, a recommendation that the Department should include coursework about an industry specific software package often has cost implications that make implementing such a recommendation impossible. Other recommendations must also be rejected because they address training issues not appropriate to an educational program.

The department also assesses student opinions of factors that are not directly attributable to learning outcomes. Obtaining students’ perceptions about advising matters and the Department’s teaching strengths has helped the Department to be more responsive to student needs and concerns, even though these perceptions are not actually directly related to learning outcomes.

The above feedback is regularly used to revise the relevant process, thus closing the feedback loop. For example, based upon faculty, student, employer, and industry contact feedback, the department has updated its curriculum with new mobile programming courses and developed a Mobile Programming Certificate.
Attachment A
Department of Computer Science
Internship Assessment Survey
We would greatly appreciate it if you would complete the following form assessing the performance of the intern you recently supervised. Try to keep in mind the educational background of the intern when evaluating each characteristic. All information will be kept confidential and will be included only in summary reports for the assessment of our educational program. Please return the completed form in the envelope provided. Thank you for your cooperation.

1. Please choose the single word that you think best describes the intern’s performance:
   ____________________________

2. How do you rate the intern on the following characteristics?
   - Analytical ability: outstanding  good  satisfactory  marginal  poor
   - Technical ability: outstanding  good  satisfactory  marginal  poor
   - Planning ability: outstanding  good  satisfactory  marginal  poor
   - Quality of work: outstanding  good  satisfactory  marginal  poor
   - Quantity of work: outstanding  good  satisfactory  marginal  poor
   - Dependability: outstanding  good  satisfactory  marginal  poor
   - Organizational skills: outstanding  good  satisfactory  marginal  poor
   - Teamwork and communication skills: outstanding  good  satisfactory  marginal  poor
   - Initiative: outstanding  good  satisfactory  marginal  poor
   - Attitude: outstanding  good  satisfactory  marginal  poor
   - Learning ability: outstanding  good  satisfactory  marginal  poor
   - Overall performance: outstanding  good  satisfactory  marginal  poor

3. How would you say that this intern compares to:
   - other NIU computer science interns you have supervised?
     superior  above average  average  below average  inferior  not applicable
   - computer science interns from other universities?
     superior  above average  average  below average  inferior  not applicable

4. Intern was employed this last: _____ summer  _____ fall  _____ winter

5. Today’s date: ___________________________

6. Please feel free to make any other comments on the back of this page.
Attachment B
Career Services
Internship Assessment Survey
# Employer's Evaluation Report

Cooperative Education/Internship Program | Phone: (815) 753-7188  
Northern Illinois University | Fax: (815) 753-7188  
DeKalb, Illinois 60115-2875 | E-mail:  

To the Employer:  

Please return this student’s evaluation immediately. It will be used for verification of the assignment and advisement. Please Review the evaluation with the student. A Supervisor’s signature is required. Copy distribution: employer - goldenrod, student - pink; all remaining copies must be returned to the Cooperative Education/Internship Program. Thank you.

<table>
<thead>
<tr>
<th>Date:</th>
<th>Student's Name:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Co. Name:</td>
<td>Student's Major:</td>
</tr>
<tr>
<td>Job:</td>
<td>Number of Semesters Worked:</td>
</tr>
<tr>
<td>Department:</td>
<td>Salary:</td>
</tr>
<tr>
<td>Supervisor's Name:</td>
<td>Co-op Coordinator:</td>
</tr>
</tbody>
</table>

## Rating

### Relations with Others
- [ ] Exceptionally well accepted  
- [ ] Works well with others  
- [ ] Gets along satisfactorily  
- [ ] Some difficulty working with others  
- [ ] Works very poorly with others

### Ability to Learn
- [ ] Learns very quickly  
- [ ] Learns readily  
- [ ] Average in learning  
- [ ] Rather slow to learn  
- [ ] Very slow to learn

### Dependability
- [ ] Completely dependable  
- [ ] Above average in dependability  
- [ ] Usually dependable  
- [ ] Sometimes neglectful or careless  
- [ ] Unreliable

### Attitude--Application to Work
- [ ] Outstanding in enthusiasm  
- [ ] Very interested and industrious  
- [ ] Average in diligence and interest  
- [ ] Somewhat indifferent  
- [ ] Definitely not interested

### Judgement
- [ ] Exceptionally mature  
- [ ] Above average in making decisions  
- [ ] Usually makes the right decision  
- [ ] Often uses bad judgement  
- [ ] Consistently uses bad judgement

### Attendance
- [ ] Regular  
- [ ] Irregular

### Punctuality
- [ ] Regular  
- [ ] Irregular

### Over-All Performance

#### Compared to other Students
- [ ] Well above standard  
- [ ] Above standard  
- [ ] Meets standard  
- [ ] Marginally standard  
- [ ] Below standard

#### Compared to other Employees
- [ ] Well above standard  
- [ ] Above standard  
- [ ] Meets standard  
- [ ] Marginally standard  
- [ ] Below standard

What present traits may help or hinder the student’s advancement?

Comments on performance or specific incidents to illustrate above appraisal.

---

Signature of work supervisor:  
Date:  
The information in this report has been shared with me:  
Date:  
Student:  
White Copy - Co-op Office; Canopy Copy - Department; Pink Copy - Student; Goldenrod - Employer; 05/09/2000
Attachment C
University Alumni Survey
University Alumni Survey  
Department of Computer Science

Do you feel you are able to:

1. Demonstrate the ability to evaluate and analyze a straightforward business problem and decide whether or not it is amenable to a computer solution.
   
   strongly agree       agree       no opinion       disagree       strongly disagree

2. Demonstrate the ability to apply a practical computer software system to solve a straightforward business problem.

   strongly agree       agree       no opinion       disagree       strongly disagree

3. Demonstrate the ability to create individual computer programs that are correct, substantial, easy-to-use, efficient, and easily understood by other programmers.

   strongly agree       agree       no opinion       disagree       strongly disagree

4. Demonstrate the ability to test computer programs for correct output.

   strongly agree       agree       no opinion       disagree       strongly disagree
Attachment D
Assessment Survey for Graduating
Computer Science Students
Dear graduating senior:

The Department of Computer Science has tried hard and will continue to strive to provide the best possible education for our students. Accordingly, we would like to know your opinion of the education you have received with us. Could you please take a few minutes to answer this questionnaire? The responses will be completely anonymous.

These questions relate to only the Department of Computer Science, not to the university as a whole. For example, the question on advisement would relate to advisement only within our department, not to any advisement you might have received elsewhere on campus. For each question, circle the answer that best reflects your opinion. If you don’t understand a question, just skip it.

We would appreciate it if you would return the questionnaire in the enclosed envelope as soon as possible. Thanks in advance for your cooperation.

Sincerely,

Nicholas T. Karonis, Chair
Department of Computer Science
Do you feel that:

- The advisement from the Department of Computer Science was effective and helpful?
  
<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>No Opinion</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
</table>

- The faculty (not including teaching assistants) were:
  o knowledgeable and experienced in their fields?
  
<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>No Opinion</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
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  o organized and effective as teachers?
  
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<tr>
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<th>Strongly Agree</th>
<th>Agree</th>
<th>No Opinion</th>
<th>Disagree</th>
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  o available for consultation during scheduled office hours?
  
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<th>Disagree</th>
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- The teaching assistants (when provided) were:
  o knowledgeable?
  
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- Demonstrate the ability to apply a practical computer software system to solve a straightforward business problem.
  
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- Demonstrate the ability to create individual computer programs that are correct, substantial, easy-to-use, efficient, and easily understood by other programmers.
  
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- Demonstrate the ability to test computer programs for correct output.
  
  |            | Strongly Agree | Agree | No Opinion | Disagree | Strongly Disagree |
Attachment E
Reporting Form for Capstone Project
in CSCI 467, Capstone Course
Computer Science Student Capstone Experience
Evaluation of Group Projects for CSCI 467

Semester & Year ________________________________________________
Evaluator: ____________________________________________________
Date of Evaluation: ____________________________________________

Please fill in the number of students/groups that fit the appropriate category for each learning outcome below. That is, there will be only one form turned in for each section per semester, with totals.

<table>
<thead>
<tr>
<th>Student Learning Outcome</th>
<th>Outstanding</th>
<th>Good</th>
<th>Satisfactory</th>
<th>Marginal</th>
<th>Poor</th>
<th>Not Applicable</th>
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