William Paterson University
College of Science and Health - Department of Computer Science
Fall 2018– Spring 2019 Assessment Cycle

Assessment Plan

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The following activities are performed every semester:

A. The instructor of each course in the CS department completes the Course Coverage Assessment Report (CCAR) form designed for that course and returns it to the course coordinator of the course.

The purpose of the CCARs is to collect comments and suggestions about a course's prerequisite/co-requisites, objectives, topics, and learning outcomes that are based on each instructor's experience while teaching the course. It is also used to report the result of the evaluation of each course student outcome assessment data. The template of the CCAR form is provided in Appendix H.

B. The instructor of each of the eight courses, CS 2600, CS 2800, CS 3410, CS 3420, CS 3450, CS 3500, CS 3820, and CS 4800 does the following:

- Assess each program student outcome that is supposed to be assessed in that course according to the information provided in the table in Appendix A.
- Evaluate the assessment data of each of these student outcomes and then reports the results of this evaluation using a form that consists of the following sections:
  (a) The first section is used to specify the type of data collected during the assessment
  (b) The second section is used to specify the assessment method (as specified in the table in Appendix A)
  (c) The third section consists of a table with rows that correspond to the different levels to which a student outcome can be attained as follows:

Performance Levels	**Frequency**	**Percentage**
No Ability (level of performance of F)		
Some Ability (level of performance of D)		
Adequate Ability (level of performance C)		
More than Adequate Ability (level of performance of B)		
High Ability (level of performance of A)		

(d) The fourth and last section is used for observation about the evaluation of the assessment data. Basically, it is used for the qualitative evaluation of the assessment data.

- Report the evaluations of all the student outcomes assessed in a course by using the Faculty Course Assessment Report (FCAR) for that course which is returned to the chair of the department Assessment Committee. The template of the FCAR is provided in Appendix B.

C. Graduating seniors complete the Senior Exit Surveys and return them to the chair of the department Assessment Committee. The Senior Exit Survey questionnaire is provided in Appendix I.

The purpose of the Senior Exit Survey is to get the opinions of our graduating students about their performance levels on the program student outcomes, the quality of our program and the services offered to students in our department.

The following activities are performed every two years (at the end of the 2-year assessment cycle):

A. The members of the CS program Advisory Board and the members of the CS department faculty review each CS program educational objectives and provide their comments and/or suggestions using a form that is returned to the chair of the CS department Curriculum Committee. The form that we use to report the review of the CS program educational objectives is provided in Appendix C. These comments and or suggestions are used at the end of our 2-year assessment cycle for the review and possible revision of the CS program educational objectives.

B. At the end of our 2-year program assessment cycle, the course coordination committee members of each course analyze the CCAR data collected for that course in order to identify problems and other issues about each of the following topics and make suggestions for improvements.
   - Course prerequisites/co-requisites.
   - Course objectives.
   - Course learning outcomes.
   - Course content.
   - If a program student outcome is assessed in a course, that student outcome is reviewed to find out whether or not it is consistent with that course coverage and practices. The program student outcomes are reviewed in the analyses of the CCAR data of the courses as specified in the table in Appendix D.

   The reports of the analyses of the CCAR data are returned to the chair of the CS department Curriculum Committee. The template of the report of the analysis of the CCAR data is provided in Appendix E.

C. At the end of the 2-year program assessment cycle, the members of the CS department Curriculum Committee analyze the reports of the reviews of the CS program educational objectives collected in the 2-year assessment cycle in order to make recommendations about its revision.

D. At the end of the 2-year program assessment cycle, the members of the CS department Curriculum Committee perform the following tasks:

   - Analyze the reports of consistency of each program student outcome with the courses in which that student outcome is assessed (from the reports of the analyses of the CCAR data) in order to make recommendations about dropping or revising the student outcome.

- They also review the set of the program student outcomes to determine whether it is consistent with the current program educational objectives and then make recommendations to add, drop, or revise some program student outcomes based on this review.

The process for reviewing/revising the program student outcomes is provided in Appendix D.

E. At the end of the 2-year program assessment cycle, the members of the CS department Assessment Committee and the members of the Curriculum Committee subgroups analyze the results of the evaluations of the assessment data of each program student outcome (from the FCARs) in order to make sure that the program prepares graduates to attain the program educational objectives and also enables them to attain the student outcomes. The process for assessing and evaluating the extent to which the student outcomes are being attained is provided in Appendix F and the reports of the analyses are written using the form in Appendix G.

Appendix A

Assessment of the Program Student Outcomes

The following table **s**pecifies the course(s) where each program student outcome is assessed with the assessment method(s) used in each of these courses.

Note that for ABET,

> *Examples of data collection processes may include, but are not limited to, specific exam questions, student portfolios, internally developed assessment exams, senior project presentations, nationally-normed exams, oral exams, focus groups, industrial advisory committee meetings, or other processes that are relevant and appropriate to the program.*

Program Students Outcomes	Courses	Assessment Methods
S1 Communicate effectively in a variety of professional contexts.	CS 3410	Each student is required to make an oral presentation and to produce a report of a digital circuit design project. He then receives a numerical grade on his/her presentation (from every student in the class and the instructor) and a numerical grade on his report from the instructor of the course.
	CS 3450	Each student is required to produce a report on one of the following OS topics: Virtualization and the Cloud, Multiple Processor Systems, Security, UNIX, LINUX, and Android, Windows 8, and Operating System Design. He/she then receives a numerical grade on his/her report from the instructor of the course. The grade is based on the organization and presentation of the material as well as its substance.
	CS 3500	Each team of 2 or 3 (all team members must participate) does a 15 minute presentation (10 minutes presentation plus 5 minutes for questions and answers) on a software analysis and design project. They are then graded based on the following four categories: Organization of Materials, Contents of Presentation, Presenter's Knowledge, and Overall Rating of the Presentation. Each team also hands in the presentation slides which consist of the Use Case Model, Use Case Descriptions / Narratives, Class Diagrams and relationships, and the Communication Diagrams which are graded by the instructor.
	CS 4800	Students work in groups of 2 or 3 to produce reports and make a 15 minute presentation on a topic on computer ethics, information/computer security and privacy, and a research topic of their choice. They receive a numerical grade on their presentation from every student in the class and the instructor, and a grade on their reports by the instructor.

Program Students Outcomes	Courses	Assessment Methods
S2 Demonstrate abilities to apply knowledge of mathematics to the discipline of computer science.	CS 2600	Questions on quizzes, tests, and a comprehensive final exam are used to assess students understanding of discrete mathematics concepts.
	CS 2800	Questions on one test are used to assess student's understanding of binary and hexadecimal decimal number systems, and two's complement arithmetic.
	CS34100	Questions on one test are used to assess student's understanding of the applications of Boolean algebra to digital circuit designs.
	CS 3420	Questions on tests and the final exam are used to assess students' abilities to apply the discrete mathematic concepts of arithmetic and geometric summations, Logarithms and exponents, polynomial functions, recurrence relations, and asymptotic notations to the analysis of algorithms.
S3 Apply computer science theory and software development fundamentals to produce computing-based solutions.	CS 3420	Programming projects and questions on tests and the final exam are used to assess students' ability to apply programming related concepts and practices of procedural abstraction, structured programming paradigm and object-oriented programming to the design and implementation of programs.
	CS 3820	Questions on a test and the final exam about the application of structured programming paradigm. Questions on a test and the final exam on using regular expressions to specify the tokens of a programming language, and using context free grammars to specify the syntactic structures of a programming language. Implementation of the scanner of a simple programming language given the specifications of its tokens using regular expressions. Implementation of the recursive descent parser of a simple LL(1) programming language given the production rules of its syntactic structures. Lab assignments that require students to apply the structured programming paradigm.
S4 Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.	CS 3410	Students complete a digital circuit project that includes its design, implementation and simulation in a team of two students. Students are assessed based on how well they interact with other team members.
	CS 3500	Software design and analysis group project report and presentation. Questions on a test and the final exam about team organization and management.
	CS 4800	Students work in groups of 2 or 3 to produce reports and make a 15 minute presentation on a topic on computer ethics, information/computer security and privacy, and a research topic of their choice and they are assessed based on how well they interact with the other members of the team.

Program Students Outcomes	Courses	Assessment Methods
S5 Demonstrate abilities to locate and make effective use of information.	CS 3450	each student is required to produce a report on one or more of the following topics: virtualization and the cloud, security, multiple processor systems, LINUX, Android, Window 8, and operating system design. Students are encouraged to work in groups of two or three. But some students choose to work by themselves. They receives a grade based on the contents of their report.
	CS 3820	Each student is required to locate information about a programming language that is not taught in the program and to produce a report on it. Reports are written following a template provided by the instructor. Students also have to writes program assignments in this new language. Each student then receives a numerical grade on his/her project report that is based on his knowledge of the implementations of programming language features in that language and a score over 10 on the implementation of each lab assignment.
	CS 4800	Students work in groups of 2 or 3 to produce reports and make a 15 minute presentation on a topic on computer ethics, information/computer security and privacy, and a research topic of their choice. They receive a numerical grade based on the contents of their work from every student in the class and the instructor, and a grade on the contents of their reports by the instructor.
S6 Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.	CS 3410	Students design, implement and simulate a digital circuit project.
	CS 3420	Questions on tests and the final exam are used to assess students' knowledge of the different data structures and their ability to understand and use the algorithms used to manipulate these data structures. Students also write programs that demonstrate their understanding of the data structures and the algorithms that are used to manipulate them.
S7 Demonstrate an understanding of the major programming domains and the knowledge of the most appropriate programming language for each domain.	CS 3820	Questions on a test and the final exam that assess students' understanding of the major programming language domains and the most appropriate programming language to use in each domain..
S8 Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.	CS 3500	Students are required to use software engineering principles to analyze and design large software projects. Questions on tests and the final exam are also used to assess students' knowledge of these software engineering principles.

Program Students Outcomes	Courses	Assessment Methods
S9 Recognize professional responsibilities and make informed judgements in computing practice based on legal and ethical principles.	CS 4800	Students are also required to produce a report and to make a presentation on a topic related to the ethical issues for computing professionals and on the impact of computing technology in society. The reports are graded by the instructor of the course, and the presentations are graded by the instructor and the students in the class.

- How well students have performed for each program student outcome that a course is identified to assess is specified by listing the specific source(s) for the assessment (test questions, project report/presentation, observation, etc.) and the results of the evaluation are presented in the following form:

Student Outcome: *<write the program student outcome being assessed>*

Data Collected:

Assessment Method(s):

Performance Levels	Frequency	Percentage
No Ability (level of performance of F)		
Some Ability (level of performance of D)		
Adequate Ability (level of performance C)		
More than Adequate Ability (level of performance of B)		
High Ability (level of performance of A)		

Observation:

The instructor of the course writes his/her observation about the program student outcome assessment data and also makes his/her recommendations on how students' performance could be improved.

NOTE: Please comment or provide some justifications for students having a performance level of F.

Appendix B

Faculty Course Assessment Report

Assessment of Program Student Outcomes

Course: ___*<Course Number and Name>*_____

Instructor: ___*<Name of the instructor>*_____

Semester: __*<Enter semester here>*_____

Create the following entries for each program student outcome assessed in this course.

Student Outcome: *<write the program student outcome being assessed>*

Data Collected:

Assessment Method(s):

Performance Levels	**Frequency**	**Percentage**
No Ability (level of performance of F)		
Some Ability (level of performance of D)		
Adequate Ability (level of performance C)		
More than Adequate Ability (level of performance of B)		
High Ability (level of performance of A)		

Observation:

The instructor of the course writes his/her observation about the program student outcome assessment data and also makes his/her recommendations on how students' performance could be improved.

NOTE: Please comment or provide some justifications for students having a performance level of F.

Appendix C

William Paterson University of New Jersey
College of Science and Health - Department of Computer Science
Review of the CS Program Educational Objectives

Reviewer Name:_____

Reviewer Occupation and Title:_____

_____

Date:_____

Please review each of the following CS Program's educational objectives and write your comments and/or suggestions in the space provided. Your comments and/or suggestions will be used at the end of our 2-year assessment cycle for the revision of the CS program educational objectives.

Objective 01:

To create an environment conducive to learning through teaching, research and creative activities.

Suggestions/Comments:

Objective 02:

To promote student success, academic excellence, and community outreach with opportunities for lifelong learning.

Suggestions/Comments

Objective 03:

To actively challenge students to high levels of intellectual and professional accomplishment and personal growth in preparation for careers and advanced studies in computing, and productive citizenship.

Suggestions/Comments

Objective 04:

To provide students with a sound foundation in mathematics, science, computer science, and the application of this knowledge, which will equip them either to enter careers or pursue advanced studies in computing

Suggestions/Comments

Objective 05: To develop students' ability to communicate well, both orally and in writing.

Suggestions/Comments

Objective 06:

To develop students' understanding of the ethical and moral issues for computing professionals and the impact of computing technology in society.

Suggestions/Comments

Objective 07:

To develop a curriculum with core materials that provide our graduates with the fundamental knowledge of algorithms, data structures, software design, concepts of programming languages, computer organization, and computer networks and security, and advanced course work that provides them with breadth of knowledge, and also builds on the core materials to provide them with some depth of knowledge.

Suggestions/Comments

Objective 08: To emphasize theoretical foundations, problem analysis and solution design throughout the program.

Suggestions/Comments

Additional Suggestions/Comments

Appendix D

The Process for the periodic review and revision of the program student outcomes follows:

1. At the end of our 2-year program assessment cycle, the course coordination committee members of each course that is related to a program's student outcome review that course coverage and practices based on the information provided in the Course Coverage Assessment Reports (CCAR) of that course collected in the 2-year program assessment cycle to find out whether or not the student outcome is effectively assessed in the course. The reports of these reviews are returned to the chair of the Curriculum Committee.
2. At the end of the 2-year program assessment cycle, the members of the department Curriculum Committee do the following:
    a. Review each program student outcome to make sure that it can be attained based on the reports of the analyses of the CCAR data of all the courses related to that student outcome and to make recommendations about dropping or revising that student outcome.
    b. Review the set of the program student outcomes to find out whether or not it is consistent with the current program educational objectives and to make recommendations to add, drop, or revise some student outcomes based on this review.

The program student outcomes are reviewed based on the reports of the analyses of the CCAR data of courses as specified in the following table:

Program Students Outcomes	– Reviewed in the Analysis of the CCAR data of the following Courses:
S1 Communicate effectively in a variety of professional contexts.	CS 3410, CS 3450, CS 3500, CS 4800
S2 Demonstrate abilities to apply knowledge of mathematics to the discipline of computer science.	CS 2600, CS 2800, CS 3410, CS 3420
S3 Apply computer science theory and software development fundamentals to produce computing-based solutions.	CS 3420, CS 3820
S4 Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.	CS 3410, CS 3500, CS 4800
S5 Demonstrate abilities to locate and make effective use of information.	CS 3450, CS 3820, CS 4800
S6 Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.	CS3410, CS 3420
S7 Demonstrate an understanding of the major programming domains and the knowledge of the most appropriate programming language for each domain.	CS 3820
S8 Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.	CS 3500
S9 Recognize professional responsibilities and make informed judgements in computing practice based legal and ethical principles.	CS 4800

Appendix E

Analysis of Course Coverage and Assessment Report Data

Course Number: _____

Course Coordination Committee Members: _____

Date: _____

A. Course Prerequisites/Co-requisites

a) Problems/Issues Identified:

b) Suggestions for Improvement

B. Course Objectives

a) Problems/Issues Identified:

b) Suggestions for Improvement

C. Course Student Learning Outcomes

a) Problems/Issues Identified:

b) Suggestions for Improvement

D. Course Content

a) Problems/Issues Identified:

b) Suggestions for Improvement

E. Assessment of the CS Program Student Outcomes

F. Analysis of the Course Student Outcomes Assessment Data

G. Course Student Outcomes Assessment Data

Appendix F

The process for assessing and evaluating the extent to which the student outcomes are being attained follows:

– Every semester,

- The instructor of each of the eight courses, CS 2600, CS 2800, CS 3410, CS 3420, CS 3450, CS 3500, CS 3820, and CS 4800 assesses each student outcome that is supposed to be assessed in that course according to the information provided in the table in Appendix A.
- He/she then evaluates the assessment data of each of these student outcomes and then reports the results of this evaluation using a form that consists of the following sections:

  (a) The first section is used to specify the type of data collected during the assessment

  (b) The second section is used to specify the assessment method

  (c) The third section consists of a table with rows that correspond to the different levels to which a student outcome can be attained as follows:

Performance Levels	**Frequency**	**Percentage**
No Ability (level of performance of F)		
Some Ability (level of performance of D)		
Adequate Ability (level of performance C)		
More than Adequate Ability (level of performance of B)		
High Ability (level of performance of A)		

  (d) The fourth and last section is used for observation about the evaluation of the assessment data. Basically, it is used for the qualitative evaluation of the assessment data.

- The results of the evaluations of the assessment data of all the student outcomes assessed in a course are reported by using the Faculty Course Assessment Report (FCAR) for that course which is returned to the chair of the department Assessment Committee. The template of the FCAR is provided in Appendix B.

– At the end of the 2-year program assessment cycle,

- The members of the CS department Assessment Committee or the members of one of the CS department Curriculum Committee subgroups (refer to the following table) summarize and analyze the results of the evaluation process of each student outcome in order to determine the level at which a student outcome has been attained.
  - The analysis of the results of the evaluation of a student outcome is assumed to be satisfactory if at least 75% of the students have a performance level of at least satisfactory.
- They also make suggestions/recommendations for performance improvements when deficiencies are observed.

Student Outcome	Analysis done by:	Report Based On:	Other Courses
S1	Department Assessment Committee	FCARs of CS3410, CS3450, CS3500, and CS4800.	
S2	Department Assessment Committee	FCARs of CS2600, CS2800, CS3410, and CS3420.	
S3	Data structures and algorithms Curriculum Committee Subgroup	FCAR of CS 3420 and CS 3820.	
S4	Department Assessment Committee	FCARs of CS3410, CS3500, and CS4800.	
S5	Department Assessment Committee	FCARs of CS3450, CS3820, and CS4800.	
S6	Data structures and algorithms Curriculum Committee Subgroup	FCAR of CS 3410 and CS 3420.	CS 2300, CS 2400, and CS 2800
S7	Programming languages Curriculum Committee Subgroup	FCAR of CS3820.	
S8	Software Analysis Curriculum Committee Subgroup	FCAR of CS3500.	CS2400 and CS3420
S9	Department Assessment Committee	FCAR of CS4800.	

Appendix G

Analysis of the Results of the Evaluations of the Assessment Data of the Program Student Outcome

Program Student Outcome: *<state the program student outcome>*

Curriculum Committee Subgroup Name: ____*<or assessment Committee Members*_____
Members: _____
Date: _____
Updated On:_____

A. Analysis of the Results of the Evaluations of the Assessment Data

B. Suggestions for Improvement

C. Improvements Implemented:

D. List all the "performance level/frequency/percentage" tables and their sources.

Appendix H

Course: _____

Instructor: _____

Semester: _____ _____

I. Course Coverage

A. Complete a table with the following headings as follows:

1. List all the topics covered in the course.
2. List the course learning outcomes that are related to a topic.
3. Specify how each topic is covered in the course.
4. Specify how the knowledge about a topic and or the corresponding learning outcomes is assessed.
5. Write comment(s) or suggestion(s) about the topic and or learning outcomes.

Topics[1]	Course Learning Outcome[2]	How is topic Covered?[3]			How is Knowledge assessed?[4]			Comments/Suggestions About Learning Outcome and/or Topics (please use additional sheets if necessary)[5]
		Lecture	Hands-On	HW	Test	Lab	Project	

B. Comments/Suggestions about course Prerequisites and Co-requisites

C. Comments/Suggestions about course objectives

D. Comments/Suggestions about Learning Outcome

E. Comments/Suggestions about course content

F. General Comments/Suggestions about the Course

II. Course Student Outcomes Assessment

A. Complete the following table as follows:

1. List all the course learning outcomes.
2. Specify where or how each learning outcome is assessed.
3. Specify the percentage of students in the class who have received a score of a least 70% on the question(s) used to assess each learning outcome.

Learning Outcomes[1]	Where Measured[2]	Percentage of Satisfactory Results[3]

B. Analyze the course learning outcomes assessment data and make suggestions for addressing deficiencies.

Appendix I

William Paterson University of New Jersey
College of Science and Health - Department of Computer Science

Senior Exit Survey

The department of Computer Science at William Paterson University of New Jersey is committed to continuously assessing and improving its undergraduate curriculum leading to the BS degree in computer science. As a student soon to graduate, your input will be valuable in this process. Would you please help us by answering the following survey? Your answers are confidential and will only be used as summary information. There are no identifying questions on this survey so please express your self freely.

Please use a pen or a pencil and fill in the appropriate circle with your response.

Part I. Personal Information

1. **When you declared computer science as your major, were you**:

   - O A first-time college student
   - O A major from another department
   - O A transfer student from a two-year institution
   - O A transfer student from a four-year institution

2. **Knowing what you know now, how well prepared were you for basic science and math courses when you declared your major**?
   - O Not at all
   - O Lightly
   - O Moderately
   - O Very well prepared

3. **As an undergraduate, were you enrolled primarily as a:**

   - O Full-time student
   - O Part-time student

4. **As an undergraduate were you primarily:**

   - O Not employed
   - O Employed on campus part-time while taking classes
   - O Employed off campus part-time while taking classes
   - O Employed full time while taking classes

5. **As an undergraduate, how active have you been in a student chapter of a professional society or computing organization?**

   - O Not at all
   - O Somewhat
   - O Moderately
   - O Highly

6. **Are you currently employed or did you get a job offer?**

- O Yes
- O No

7. **If you answered Yes to the previous question, please tell us about your salary range**:

- O Below $30 k
- O $ 30 k - $40 k
- O $40 k - $50 k
- O More than $50 k

8. **Are you planning to attend graduate school?**

- O Yes
- O No

Part II Assessment of the Computer Science Program's Student Outcomes

9. **Thinking about your <u>in-class and out-of-class</u> experiences, please tell us how these courses helped your ability to do the following**:

Student Outcomes	No Ability	Some Ability	Adequate Ability	More than Adequate Ability	High Ability
Communicate effectively in a variety of professional contexts.	O	O	O	O	O
Demonstrate abilities to apply knowledge of mathematics to the discipline of computer science.	O	O	O	O	O
Apply computer science theory and software development fundamentals to produce computing-based solutions.	O	O	O	O	O
Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.	O	O	O	O	O
Demonstrate abilities to locate and make effective use of information.	O	O	O	O	O
Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.	O	O	O	O	O
Demonstrate an understanding of the major programming domains and the knowledge of the most appropriate language for each domain.	O	O	O	O	O
Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.	O	O	O	O	O
Recognize professional responsibilities and make informed judgements in computing practice based legal and ethical principles.	O	O	O	O	O

Please comment on the strengths and weaknesses of our program in providing the opportunity to learn or develop each of the above student outcomes (if you need more spaces, feel free to add extra pages):

Strengths:

Weaknesses:

Part III Assignments, Learning Activities, and Advisement

10. How often did the following occur in the <u>courses you took in this department</u>?

	Almost Never	Occasionally	Often	Almost Always
Assignments and class activities were clearly explained.	O	O	O	O
Instructors made clear what was expected of students in the way of activities and effort.	O	O	O	O
I worked cooperatively with other students on course assignments.	O	O	O	O
I interacted with other students in the course outside of class.	O	O	O	O
We did things that require students to be active participants in the teaching and learning process.	O	O	O	O
Instructors gave me frequent feedback on my work.	O	O	O	O
I interacted with the instructors as part of the course	O	O	O	O
I interacted with the instructors outside of class (including office hours, advising, socializing, etc.)	O	O	O	O

Please comment on your experiences with assignments, learning activities and advisement in your department:

_____

_____

_____

Part IV Computing Resources and Hands-On Experience

11. Please indicate the extent to which you agree or disagree with the following statements:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I had adequate and reasonable access to the systems needed for each course.	O	O	O	O	O
I was exposed to a variety of programming languages and systems	O	O	O	O	O
Documentation for hardware and software was readily accessible to students.	O	O	O	O	O
There were adequate support personnel to install and maintain the computing facilities.	O	O	O	O	O
Sufficient instructional assistance was provided for the laboratories and the computing facilities.	O	O	O	O	O

12. Please let us know the approximate length of the longest program that you have designed and implemented as a computer science major.

200 line or less	O
201 - 500 lines	O
501 – 1000 lines	O
More than 1000 lines	O

13. What is the number of oral presentations, if any, that you have given as part of the requirements of your CS courses.

None	O
One	O
2 – 5	O
6 or more	O

14. Approximately, what number of written reports, publications, or other documents were required as part of your CS course work (excluding programs)?

None	O
One	O
2 – 5	O
6 or more	O

15. What is the number of team projects that you have participated in as part of your CS course work?

None	O
One	O
2 – 5	O
6 or more	O

16. How many, if any, Colloquium/Conference presentations did you attend while you were a CS major?

None	O
One	O
2 – 5	O
6 or more	O

As a computer science major, please comment on your experiences using the computing resources at WPUNJ:

Hands-on experiences are part of the computer science course work here at WPUNJ. Did you find them helpful; if so how? Or if you did not find them helpful what could we do to improve these experiences?

Finally, please feel free to comment on your personal experiences as a computer science major at WPUNJ: (if you need more spaces, feel free to add extra pages):

Thank you very much for your help. Good luck in your future endeavors!