

Fiscal Unit/Academic Org	Computer Science & Engr - D1435
Administering College/Academic Group	Arts And Sciences
Co-administering College/Academic Group	Engineering
Semester Conversion Designation	Re-envisioned with significant changes to program goals and/or curricular requirements (e.g., degree/major name changes, changes in program goals, changes in core requirements, structural changes to tracks/options/courses)
Current Program/Plan Name	Computer & Information Science
Proposed Program/Plan Name	Computer & Information Science - CPTRINF-BA
Program/Plan Code Abbreviation	CPTRINF-BA
Current Degree Title	Bachelor of Arts

Credit Hour Explanation

Program credit hour requirements		A) Number of credit hours in current program (Quarter credit hours)	B) Calculated result for 2/3rds of current (Semester credit hours)	C) Number of credit hours required for proposed program (Semester credit hours)	D) Change in credit hours
Total minimum credit hours required for completion of program		91	60.7	72	11.3
Required credit hours offered by the unit	Minimum	45	30.0	33	3.0
	Maximum	53	35.3	41	5.7
Required credit hours offered outside of the unit	Minimum	38	25.3	31	5.7
	Maximum	46	30.7	39	8.3
Required prerequisite credit hours not included above	Minimum	4	2.7	2	0.7
	Maximum	4	2.7	3	0.3

Explain any change in credit hours if the difference is more than 4 semester credit hours between the values listed in columns B and C for any row in the above table

The Gen Ed requirement is reduced from the current GEC in accordance with the ULAC recommendations; it is currently 100 qtr-cr-hrs, equivalent to 66.7 sem-cr-hrs, and this becomes 63 se-cr-hrs. There are minor cr-hr differences resulting from "breakage" as other courses outside CSE are changed to semesters. The net effect of these reductions in out-of-unit cr-hrs is an increase of 3.0 to 5.7 cr-hrs offered by the unit.

Program Learning Goals

Note: these are required for all undergraduate degree programs and majors now, and will be required for all graduate and professional degree programs in 2012. Nonetheless, all programs are encouraged to complete these now.

Program Learning Goals

- Terminology: In order to be consistent with our BS-CSE program (in the College of Engineering), we use the term "program outcome" in place of "program learning goals". The program outcomes are: by the time of their graduation, students will attain:
 - a. an ability to design, implement, and evaluate software systems or components to solve problems in computing and in related domains;
 - b. an ability to apply knowledge of computing and mathematics;
 - c. an ability to design and conduct experiments, as well as to analyze and interpret data;
 - d. an ability to function on multi-disciplinary teams;
 - e. an understanding of professional, ethical, legal, security and social issues and responsibilities;
 - f. an ability to communicate effectively with a range of audiences;
 - g. an ability to analyze the local and global impact of computing on individuals, organizations, and society;
 - h. a recognition of the need for, and an ability to engage in life-long learning and continuing professional development;
 - i. a knowledge of contemporary issues.

Assessment

Assessment plan includes student learning goals, how those goals are evaluated, and how the information collected is used to improve student learning. An assessment plan is required for undergraduate majors and degrees. Graduate and professional degree programs are encouraged to complete this now, but will not be required to do so until 2012.

Is this a degree program (undergraduate, graduate, or professional) or major proposal? Yes

Does the degree program or major have an assessment plan on file with the university Office of Academic Affairs? Yes

Summarize how the program's current quarter-based assessment practices will be modified, if necessary, to fit the semester calendar.

The assessment processes will be based directly on the existing practices for our BS-CSE program. These consist of: (a) an exit-test that allows us to assess the technical outcomes of our programs; (b) a set of rubrics used in certain key courses to help assess the professional and societal outcomes; (c) an exit-survey that gets student opinions on the extent to which the various outcomes are achieved; and (d) an alumni-survey to help assess the extent to which program objectives are achieved.

Program Specializations/Sub-Plans

If you do not specify a program specialization/sub-plan it will be assumed you are submitting this program for all program specializations/sub-plans.

Pre-Major

Does this Program have a Pre-Major? Yes

The associated pre-major is pre-CIS. Admission to the BA CIS major will require the following:

1. Completion of ASC/NMS Survey, Eng. Calculus 1, Gen Ed Writing Level 1, and CSE 2221 (with at least C-)
2. At least 15 sem-cr-hrs (or equivalent) earned at Ohio State
3. A CPHR of at least 2.0 (may be higher when enrollment management is in effect).
4. An MPHR (major point hour ratio) over CSE courses that can be included in the major program, of at least 2.0.
5. Completion of all admission conditions that may have been imposed when the student was admitted to OSU.

Attachments

- baCisProposalJan2011.pdf: Contains *everything*

(Program Proposal. Owner: Soundarajan,Neelam)

Comments

- Pass-through approval from COE *(by Tomasko,David Lane on 12/22/2010 02:19 PM)*
- The attached file contains all of the required documentation. *(by Soundarajan,Neelam on 12/22/2010 01:38 PM)*

Workflow Information

Status	User(s)	Date/Time	Step
Submitted	Soundarajan,Neelam	12/22/2010 01:38 PM	Submitted for Approval
Approved	Tomasko,David Lane	12/22/2010 02:19 PM	Unit Approval
Revision Requested	Andereck,Claude David	01/05/2011 04:43 PM	Ad-Hoc Approval
Submitted	Soundarajan,Neelam	02/01/2011 10:15 AM	Submitted for Approval
Pending Approval	McCaul Jr,Edward Baldwin Tomasko,David Lane	02/01/2011 10:15 AM	Unit Approval
Pending Approval	Andereck,Claude David	03/28/2011 01:01 PM	Ad-Hoc Approval

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March 30, 2011

Larry Krissek
Chair, Arts and Sciences CCI

Dear Larry:

It is a pleasure to forward to you the proposal for the BA major in Computer and Information Science under semesters. This is a program offered by the Department of Computer Science and Engineering through the College of Arts and Sciences. The major has been modified from its present quarter primarily by allowing more flexibility for the student to shape a program that emphasizes applications in their electives.

Beyond my own review of the documents, the proposal has been discussed by colleagues from other NMS units at a meeting on January 5, 2011. Feedback from these discussions has now been incorporated in the proposal.

If you have any questions, I would be happy to address them.

Sincerely,



David Andereck
Professor of Physics
Associate Dean of Natural and Mathematical Sciences, College of Arts and Sciences

To: David Andereck, Associate Dean, College of Arts and Sciences

From: Xiaodong Zhang, CSE Department Chair

Date: 21 January 2011

Re: Semester Proposals for *BS-CIS, BA-CIS, and CIS Minor Programs*

The faculty of Computer Science and Engineering have worked diligently since early Au09 to prepare the semester proposals for the BS-CIS, BA-CIS, and CIS Minor programs. The CSE Semester Task Force comprising about fifteen CSE faculty members, academic advising staff, and undergraduate and graduate students, began meeting weekly at the start of Au09 to plan the semester conversion. Data collected during these deliberations included historical feedback from BS-CSE graduates (compiled as part of accreditation-based assessment processes of that program over the past 10+ years), input from the CSE Department Industrial Advisory Committee, a survey of all CSE faculty on various issues related to the transition, the Undergraduate Forum (an annual open meeting with undergraduate students), and comparisons with about a dozen computer science and engineering, computer science, and similarly named programs at major peer institutions. I should note that the data based on the BS-CSE program also provides information about the BS-CIS, BA-CIS, and the Minor programs because of the many CSE courses that are common to these programs.

One primary concern in designing the BS-CIS program was to keep it similar, in terms of the computing technical content, to the BS-CSE degree. This gives students a clear choice: BS-CSE if you want the non-computing focus to lie within engineering *vs.* BS-CIS if you want the non-computing focus of the program to lie in the liberal arts. In designing the BA-CIS program, the main goal was to enable the student to get a solid grounding in computing fundamentals and specific elective areas while also pursuing a related field. This gives students a clear choice between our two degree programs in ASC: BS-CIS if you want a stronger computing technical focus *vs.* BA-CIS if you want a stronger focus on how to apply computing in a sophisticated way to a specific related field. The CIS Minor is intended for a student whose primary interest is not in computing but one who still wants to acquire a reasonable grasp of technical computing fundamentals. These considerations have been important during nearly the entire history of our department and have been suitably addressed in our semester proposals.

The faculty have voted to approve the attached proposals as our semester plans for the *BS-CIS, BA-CIS, and CIS-Minor programs*, and I also recommend approval. The vote of all CSE faculty members on the proposals was 39 in favor, 0 opposed, 0 abstentions.

Xiaodong Zhang

Robert M. Critchfield Professor, and CSE Department Chair



College of Engineering

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Phone (614) 247-6548
E-mail Tomasko.1@osu.edu

Date: 30 November 2010

To: Randy Smith
Vice Provost, Office of Academic Affairs

From: David Tomasko
Associate Dean, Undergraduate Education and Student Services

Subject: Semester Conversion Proposals for the BS-CIS, BA-CIS, and CIS Minor
programs in the College of Arts & Science

The College of Engineering fully supports the continued offering of a Bachelor of Science degree in Computer and Information Science, a Bachelor of Arts degree in Computer and Information Science, and a Minor program in Computer and Information Science, by our Department of Computer Science and Engineering through the College of Arts & Science under semesters.

BA in Computer and Information Science

Primary Contacts: Bruce W. Weide (weide.1, 292-1517) and Neelam Soundarajan (neelam@cse.ohio-state.edu, 2-1444)

1. Fiscal Unit / Academic Organization

Department of Computer Science and Engineering (CSE) (1435)

2. Administering College / Academic Group

College of Arts and Science (ASC)

3. Co-administering College / Academic Group

College of Engineering (administrative home college for CSE)

4. Semester Conversion Designation

a. Re-envisioned with some changes to curricular requirements (core requirements, tracks/options/courses), but no changes to program goals

5. Program / Plan Name

Bachelor of Arts in Computer and Information Science

6. Type of Program

a. Undergraduate bachelors degree program

7. Program Plan Code Abbreviation

CPTRINF-BA

8. Degree Title

BA in Computer and Information Science

9. Specializations / Sub-plans

Not applicable

10. Program Learning Goals (Program Outcomes)

The *program learning goals* for the BA CIS program are designed to parallel the learning goals of our BS CIS and BS CSE programs since there are many similarities, especially with respect to the computing portions, of the programs. The learning goals for the BS CSE program are dictated, in part, by the requirements of its accreditation agency, ABET, Inc. Although the BA CIS program is not currently accredited by ABET, our intent is to keep the program accreditable. Hence the learning goals, listed below, for the BA-CIS program have been designed to satisfy ABET's requirements, *including* the specific language used.

Program learning goals, or *program outcomes* in ABET-compliant terminology, for the BA CIS program are as follows. By the time of their graduation, students will attain:

- a. an ability to design, implement, and evaluate software systems or components to solve problems in computing and in related domains;
- b. an ability to apply knowledge of computing and mathematics;
- c. an ability to design and conduct experiments, as well as to analyze and interpret data;
- d. an ability to function on multi-disciplinary teams;
- e. an understanding of professional, ethical, legal, security and social issues and responsibilities;
- f. an ability to communicate effectively with a range of audiences;
- g. an ability to analyze the local and global impact of computing on individuals, organizations, and society;
- h. a recognition of the need for, and an ability to engage in life-long learning and continuing professional development;
- i. a knowledge of contemporary issues.

11. List of Semester Courses

See Attachment #1: BA CIS Proposed Program Requirements. Attachment #0 provides a list of all course numbers, credit hours, titles, prerequisites, and closest quarter equivalents.

General Education requirements follow the ULAC recommendations of 3/19/10 with foreign language proficiency of 12 cr-hrs.

The BA CIS is designed for a student who seeks to combine depth in computing with comparable depth in a related field—as distinct from the BS CIS, which provides more depth in computing and concomitantly less depth in a related field (if any).

“Related Field Core” courses will be chosen in consultation with an academic advisor, from one of a set of related fields and related minors to be designated by the CSE Undergraduate Studies Committee once other departments’ semester course and minor offerings are known. Up to 6 cr-hrs in the related field may be introductory-level courses.

“CIS Core” courses include one “Project” course, which may be any version of CSE 390X that will be chosen in consultation with an academic advisor, depending on the student’s interests and background.

“Program Elective” courses will be chosen in consultation with an academic advisor, from CSE 2331, CSE 2431, Math 3366, and CSE upper division undergraduate courses (3000 or above), from a set of non-CSE technical courses to be designated by the CSE Undergraduate Studies Committee once other departments’ semester course offerings are known (which will include at least some Math courses), and from advanced elective courses in the related field. At least 13 cr-hrs must be from the above-mentioned list of CSE courses and Math 3366, at most 4 cr-hrs may be from the above-mentioned list of non-CSE technical courses, and at least 6 cr-hrs must be non-introductory courses from the related field.

12. Program Rationale

The major decisions from the CSE Semester Task Force investigation were:

- Most CSE semester courses should be 3 sem-cr-hrs, with some 4-sem-cr-hr courses where there are significant out-of-class assignments (primarily programming “lab” assignments). We decided not to take the approach of directly converting existing 3-qtr-cr-hr courses into equivalent 2-sem-cr-hr semester courses. The reason for this decision was that students should not be expected to take 7-8 separate courses in a single term in order to average the 16 cr-hrs per semester required to graduate in four years.
- Much of the breadth of the existing BA CIS major should be retained, with some concession because students are taking only about 2/3 as many different courses as under quarters. The rationale was that CIS is a broad, fast-changing discipline, and premature specialization by undergraduate students could be detrimental to their career development as it could limit their adaptability in the face of future shifts in the field. We felt that achieving a better understanding of fundamental principles that have withstood the test of time, across a rather wide swath through the field, would best serve BA CIS majors.
- Students should have considerable flexibility in making their own trade-offs between depth and additional breadth when choosing technical electives. The reason for this conclusion (in light of the previous comments) was that some students might know that they would like to specialize in an area of the field that is reasonably stable and well-developed, and that it would be folly not to permit this.

The primary substantive changes in the proposed program are as follows:

- The CIS Core in the proposed program mirrors the content areas in the current program. Any change to program quality from this part of the proposed new BA CIS program will arise from the additional depth of content in the required core course content areas, which were determined by the CSE faculty to be those most important to *all* BA CIS graduates.
- The Program Electives portion of the proposed program is slightly larger than its counterpart is under quarters. As now, the CSE faculty will prepare a few suggested sets of electives to guide students with particular interests, e.g., artificial intelligence, computer graphics, computer systems, networking, security, software engineering, etc. Any change to program quality from this part of the proposed new BA CIS program will arise from the additional depth of content in CSE elective course and related field course content areas as such courses change from quarters to semesters.

The last change to the BA CIS program was in late 2007. The GEC requirements were revised to be consistent with the new university requirements; students are now required to take CSE 601, a course on professionalism and ethics in computing; and the number of elective hours was reduced by one credit hour (to make up for the addition of CSE 601). The net result was that the minimum number of credit hours for the degree was reduced from 191 cr-hrs to 181 cr-hrs under the revised program.

13. *Quarters Curriculum Advising Sheet*

See Attachment #2: Current Advising Sheet.

14. *Semesters Curriculum Advising Sheet*

See Attachment #3: Proposed Advising Sheet under semesters, and Advising Sheets for students in the transition period.

15. Curricular Map

See Attachment #4.

16. Associated Pre-Major or Area of Interest

The associated pre-major is *pre-CIS*. Admission to the BA CIS major will require the following:

- Completion of ASC/NMS Survey, Engineering Calculus I, Gen Ed Writing Level 1, and CSE 2221 (with at least a C-).
- At least 15 sem-cr-hrs (or equivalent) earned at Ohio State.
- A CPHR (cumulative point hour ratio) of at least 2.0 (may be higher when enrollment management is in effect).
- An MPHR (major point hour ratio), over CSE courses that can be included in the major program, of at least 2.0.
- Completion of all admission conditions that may have been imposed when the student was admitted to OSU.

17. Credit-Hour Changes

	Number of qtr-cr-hrs in current program	Calculated result for 2/3 of current qtr-cr-hrs	Number of sem-cr-hrs required for proposed program	Change in cr-hrs
Total minimum cr-hrs required for completion of program	91	60.3	72	+11.7
Required cr-hrs offered by the unit	45 to 53	30.0 to 35.3	33 to 41	+3.0 to +5.7
Required cr-hrs offered outside of the unit	38 to 46	25.3 to 30.7	31 to 39	5.7 to 8.3
Required prerequisite cr-hrs not included above	4	2.7	2 to 3	-0.7 to +0.3

18. Rationale for Significant Change in Credit Hours

The primary concern in adjusting requirements for the BA CIS was to keep it substantially smaller, in terms of computing technical content, than the BS CIS degree. This gives students a very clear choice between our two degree programs in ASC: BS CIS if you want a stronger computing technical focus *vs.* BA CIS if you want a stronger focus on how to apply computing in a sophisticated way to a specific related field. The reason this is important is that we seek to maintain a reasonable balance between students pursuing these two degree paths, as has been the case during nearly the entire history of our department, yet not to short-change the computing content of either program in the process. This was achieved: the proposed BS CIS program has from 50-57 cr-hrs of CSE courses, while the proposed BA CIS program has 33-41 which is somewhat more than the current program (and is also substantially more than the proposed CIS Minor program). At the same time, the number of credit hours offered outside of the unit have also been significantly increased, enabling the BA CIS student to focus even more on applying computing in a related field. Both of these changes were made possible in part due to the reduction in the GE hours, as recommended by ULAC, for BA programs.

19. **Transition Policy**

No BA CIS major who began the degree program under quarters will have progress toward graduation impeded by the transition to semesters. Graduation requirements beginning Su 2012 will be those for BA CIS majors under semesters; but *every* quarter-credit-hour that would have counted toward the BA CIS major under the quarter-based BA CIS program will count (as 2/3 of a semester-credit-hour) toward the requirements for graduation under the semester BA CIS program. Additional advising support will be provided for BA CIS majors to assist in planning course schedules for the last year of quarters (2011-2012) and for at least the first year of semesters. If it is determined that the “normal” conditions covered by the BA CIS major transition worksheet would result in any student facing an unavoidable delay in graduation compared to quarters due to the change to semesters—rather than the student’s failure to meet with an advisor to complete the worksheet or to make satisfactory progress through the mutually agreed program plan—then a revision of specific requirements will be worked out for that student by the advising staff with approval by the CSE Undergraduate Studies Committee. Resources for additional advising staff are expected to be provided by the College of Engineering.

— Xiaodong Zhang, CSE Department Chair

The transition policy is based on the following principles:

- The switch to semesters will impede no student’s progress toward graduation.
- All students who graduate under semesters, even during the first semester, will do so by meeting the requirements of the semester program.
- Each semester program requirement may be met either by taking an appropriate semester course or sequence, or by substituting a substantially equivalent quarter course or sequence for the corresponding semester course or sequence.
- Excess equivalent credit-hours resulting from such substitutions—either positive or negative—will be credited against technical elective requirements.

Attachment #5: BA CIS Proposed Transition Worksheet is a sample (for a particular student, Alice) of a web-based form that will be used to calculate the effect of observing these principles. The cells with a **dark green background**, along the first column and near the bottom, contain information specific to a student, and are intended to be filled in by the student working with an academic advisor. The remaining cells are fixed, and indicate the substitution mapping between courses that are part of the current BA CIS major program and those of the semester program.

In the sample shown, Alice has completed six GEC courses plus all her foreign language requirement, Math 151 and 152, etc. (the rows containing a “1” in column 1); but not the two remaining GEC courses, Stat 245, etc. (the rows that are empty in column 1). Near the bottom of the worksheet, the row containing “Anything else counted now” shows 17 additional qtr-cr-hrs that would have counted toward Alice’s BA CIS major under quarters. The spreadsheet calculates for Alice the values labeled “Total Completed cr-hrs”, “Total Remaining cr-hrs”, and “Remaining Program Elective cr-hrs”.

The results: Alice has 136 qtr-cr-hrs toward the BA CIS major. Her substitutions result in a deficit of 19.37 sem-cr-hrs in Program Electives, i.e., Alice still has 19.37 cr-hrs of Program Electives to take: all net differences in all other categories with satisfied substitutions are combined with remaining requirements under Program Electives. This number is rounded down

to 19 so Alice cannot lose even a fraction of a cr-hr from courses taken under quarters. She must complete all requirements of the semester program not covered by these substitutions.

Alice can see by this method that she has completed all but the requirements shown in **bold** in the sample transition worksheet: “Gen Ed Arts” (3 cr-hrs), “Gen Ed Culture & Ideas or Historical Study” (3 cr-hrs), “Introduction to Statistics” (3 cr-hrs), “Professionalism and Ethics” (1 cr-hr), Related Field Core courses (2 cr-hrs), plus 19 cr-hrs of Program Electives. In other words, Alice still needs to complete these 31 cr-hrs under semesters in order to complete her CIS degree. Once she does this, she will be able to graduate having completed $90.67 + 31 = 121.67$ equivalent sem-cr-hrs rather than the 122 sem-cr-hrs in the new BA CIS major program.

It is possible that a student might have enough cr-hrs as of the end of Sp12 to graduate within two quarters, but might have failed to cover specific requirements rather than flexible technical electives that would take, say, two semesters to complete. We will rely on systematic advising of students during the year 2011-2012 in order to prevent this from happening.

The main issue facing students in transition is that some substitutions call for completion of a sequence of courses (*bold red italics* in the transition worksheet) to complete a semester requirement. We will use two approaches to address such problems—the most severe of which arises from CSE 221/222/321, the current introductory course sequence for BA CIS majors.

First, we will offer “bridge courses” in Su12 (CSE 222) and Au12 (CSE 321) in order to accommodate students who wish to start into the introductory sequence in Wi12 or Sp12. The table below shows the schedules such students will be advised to follow, depending on which quarter they start this sequence. Students who do not plan to take classes during Su12 will be advised to start with Software I in Au12 rather than taking CSE 221 in Sp12. This slight delay should not impact the graduation date for any such student compared to quarters, as there is enough slack in the prerequisite structure of the BA CIS major program to permit a student just starting into the major courses at this point enough time to “catch up”.

Wi12 (qtr)	Sp12 (qtr)	Su12 (sem)	Au12 (sem)
CSE 221	CSE 222		CSE 321 (bridge)
	CSE 221	CSE 222 (bridge)	CSE 321 (bridge)

The CSE 321 (bridge) will consist of the current conceptual material in CSE 321 *and* material to help the students transition from C++ to Java; the CSE 222 (bridge) will be essentially identical to the current CSE 222 but taught in the compressed Su 12 semester.

Second, via systematic advising, we will seek to prevent students from starting into any other sequence in the transition worksheet that they cannot complete under quarters. Students planning to take CSE 360 in Sp12 will be advised to take CSE 459.21 during that quarter as well. Once Mathematics has registered a transition plan to deal with the introductory engineering calculus sequence, we will advise BA CIS students accordingly; similarly for foreign language.

It is, of course, possible that a few students will nonetheless fail to qualify for a substitution after having completed only part of the substituting sequence. For instance, a student might take CSE 360 and CSE 459.21 in Sp12 and fail one of them; or a student might fail CSE 222 in Su12. All such issues will be handled on a case-by-case basis. The student, the CSE Advising Office, and if necessary the CSE Undergraduate Studies Committee will negotiate custom arrangements to fill the gap through a combination of allowing the substitution anyway, offering independent studies to make up deficiencies, and/or very limited requirements waivers. Students who find

their progress toward graduation impeded *by failure to meet with an advisor and complete the transition worksheet, by failure to schedule and complete courses as advised, or by a failing grade in any course*, may find themselves with little recourse. The transition worksheet will, therefore, be accompanied by a transition scheduling plan that shows exactly how the student should expect to complete the program without being impeded by the switch to semesters. The student will be asked to sign their own personalized transition worksheet and transition scheduling plan at the advising appointment where such details are worked out with an academic advisor. These meetings will take place starting as soon as this proposal is officially approved.

The first page of Attachment #3 is the suggested four-year schedule for students to complete the semester program. The remaining two pages of Attachment #3 show the “transition” schedules. Four schedules are presented, respectively for students who entered OSU in Au '08 (these students should finish the program before the switch to semesters), for those who entered in Au '09 (these students will be in the quarter system for three years followed by one year under semesters), for those who entered in Au '10 (two years under quarters + two years under semesters), and for those who enter in Au '11 (one year under quarters + three years under semesters).

20. Assessment Practices

The BA CIS program has nine outcomes (“learning goals” in the OSU terminology). The outcomes characterize the knowledge and skills that graduates of the program are expected to acquire by the time of their graduation. Hence our assessments are designed to measure the extent to which students acquire these outcomes and we use the results to identify possible improvements.

The outcomes are classified into “technical outcomes” and “soft outcomes” (such as communication skills and team skills). The main assessment tool for the former is a carefully designed multiple-choice test somewhat similar to concept inventories. The main tools for the latter is a set of rubrics that we have designed to evaluate activities in high-level courses intended to develop these skills in our students. Full details are at:

<http://www.cse.ohio-state.edu/~neelam/abet/DIRASSMNT/assessmentModel.pdf>

Attachments

Attachment #0 lists, for each required course and most of the courses that BA-CIS students are likely to use as part of their program elective, the course numbers, credit hours, closest quarter equivalent(s), the titles, prerequisites, and the type of course (“core”, “project”, or “elective”).

Attachment #1 lists the proposed program requirements under semesters.

Attachment #2 lists the current program requirements under quarters.

The first page of Attachment #3 lists a possible schedule for a student to complete the program under semesters in four years. The next two pages list possible “transition schedules” for students who are in OSU during the transition period, to complete the program in four years. See item 19 above.

Attachment #4 is the curriculum map and lists how the required and elective courses contribute to the program learning goals/outcomes.

Attachment #5 is a transition worksheet; see item 19 above.

Attachment #0:

Semester Courses and Quarter Equivalents

Course no. (Cr. hrs)	Eqv qtr crse, (Cr. hrs)	Title (semester course)	Pre-reqs	Type [†]
2221 (4)	221 (4), 222 (4)	Software I: Software Components pre-req: 1211/1221/1222/1223/placement test		C
2231 (4)	222(4),321(4)	Software II: Software Development and Design	2221; co: 2321	C
2321 (3)	Math366(3), 670 (3)	Foundations I pre-req: (1232/1233, Math 1151) or (2221, co: 2231)		C
2421 (4)	360(4),459(1)	Systems I	2231, 2321	C
2501 (1)	601 (1)	Social, ethical, & prof. issues in computing	1222/1223/ 2231; 2321; 2421	C
3901 (4)	560 (5)	Project: Design, development and documentation of Web Applications	2231, 2321 2421, Wrtnng 2	P
3902 (4)	560 (5)	Project: Design, development and documentation of Interactive Sys.	2231, 2321 2421, Wrtnng 2	P
Math 3366 (3)	Math366/566	Discrete math	Math 1152	E
2331 (3)	680 (3)	Foundations II	2321, Math 3366	E
2431 (3)	660 (3),	Systems II	2421	E
3231 (3)	757 (3)	Software eng. techniques	3901/3902	E
3241 (3)	670 (3)	Intro to Database sys.	2231, 2321	E
3321 (3)	625 (3)	Automata & Formal lang.	2231,2331,2421	E
3341 (3)	655 (4)	Principles of Prog. lang. pre-req: 2231,2331,2421,3901/3902		E
3461 (3)	677 (3)	Comp. networking & Internet techniques	2331, 2421	E
3521 (3)	630 (3)	Survey of AI: Basic techniques	2331/sr. stndg.	E
3541 (3)	683 (3)	Computer game & animation techniques	3901/3902	E
5911 (4)	758(4),762(4)	Capstone design: Software applications	2501,3901/3902,3231	E
5912 (4)	786 (4)	Capstone design: Game design & dev.	2501,3901/3902,3541	E
5913 (4)	682 (4)	Capstone design: Computer animation	2501,3901/3902,3541	E
5914 (4)	731 (4)	Capstone design: Knowledge-based systems	2501,3901/3902,3521	E
5915 (4)	772 (4)	Capstone design: Information systems	2501,3901/3902,3241	E

†: All BA-CIS students must take the following courses:

- a. All *core* courses (type “C”);
- b. One of the two project courses (type “P”);
- c. “Core” courses from the chosen *related field* to total 12 cr-hrs of which no more than 6 cr-hrs may be introductory (i.e., 1000-level) courses.
- d. Elective courses from those listed above (type “E”) totaling at least 13 cr-hrs.
- e. Additional elective courses from those listed above and at least 6 cr-hrs from the related field (must be 2000-level or above) to add up, when combined with the courses in (d), to at least 27 hours.

The contributions that these courses make to the achievement of the various learning goals/program outcomes appear in Appendix #4.

Attachment #1:

BA CIS Proposed Program Requirements

General Education: Liberal Arts	Course Number(s)	Cr-hrs	Completed
Writing Level 1		3	
Writing Level 2		3	
Literature		3	
Arts		3	
Historical Study		3	
Social Science 1		3	
Social Science 2		3	
Culture & Ideas or Historical Study		3	
Foreign Language		12	
Total Gen Ed Liberal Arts cr-hrs (= 36)		36	

General Education: Math/Science	Course Number	Cr-hrs	Completed
ASC/NMS Survey	ASC 1100	1	
Calculus I (GE Math)	Math 1151	5	
Calculus II (GE Open Option 1)	Math 1152	5	
Statistics (Stat 2450 or higher) (GE Data Analysis)	Stat 2450	3	
GE Physical Science		5	
GE Biological Science		5	
Additional Math or Science (GE Open Option 2)		3	
Total Gen Ed Math/Science cr-hrs (= 27)		27	

Related Field Core	Course Number	Cr-hrs	Completed
Related Field Core			
Related Field Core			
Related Field Core			
Related Field Core			
Total Related Field cr-hrs (≥ 12)			

CIS Core	Course Number	Cr-hrs	Completed
Software I	CSE 2221	4	
Foundations I	CSE 2321	3	
Systems I	CSE 2421	4	
Software II	CSE 2231	4	
Professionalism and Ethics	CSE 2501	1	
Project (one of ...)	CSE 3901, 3902, ...	4	
Total CIS Core cr-hrs (= 20)		20	

Program Electives	Course Number	Cr-hrs	Completed
Program Elective			
Program Elective			
Program Elective			
Program Elective			
Program Elective			
Program Elective			
Program Elective			
Total Program Electives cr-hrs (≥ 27)			

Grand Total (≥ 122)

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Attachment #2: Current Program Rqmts.

B.A. CIS Arts & Sciences (181 hours)

Students entering Summer 07 or later*

Core Courses (25 hrs)

221	4	_____
222	4	_____
321	4	_____
360	4	_____
560	5	_____
601	1	_____
670	3	_____

Electives (20 hrs)

459.xx	1	_____
_____	—	_____
_____	—	_____
_____	—	_____
_____	—	_____
_____	—	_____
_____	—	_____
_____	—	_____
_____	—	_____

To be chosen from CSE courses at the 500 level and above (not 502) with approval from faculty advisor..

General Electives in Major (8hrs)

_____	—	_____
_____	—	_____
_____	—	_____

These additional courses may be CSE courses at the 500 level and above (not including CSE 502), Math, or courses from the Related Field.

Related Field (15 hrs)

_____	—	_____
_____	—	_____
_____	—	_____
_____	—	_____

One of these courses must be technical in nature. At least 10 hours must be above the introductory level.

Mathematics (18 hrs)

151	5	_____
152	5	_____
153	5	_____
366	3	_____

Statistics (5 hrs)

245	5	_____
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*Students should check with their Academic Advisor to determine which curriculum is the appropriate one for their enrollment at OSU.

General Education Curriculum (GEC)

Details at: <http://artsandsciences.osu.edu/students/gec.cfm>
 GEC Questions should be directed to your Arts & Science Counselor in Denney Hall

Writing and Related Skills (10 hrs)

English 110	5	_____
_____ 367.	5	_____

Foreign Language (20 hrs)

_____ 101	5	_____
_____ 102	5	_____
_____ 103	5	_____
_____ 104	5	_____

Natural Science (15 hrs)

_____	5	_____
_____	5	_____
_____	5	_____

Including a 2 course sequence, one course with a lab, and at least one course from both biological science and physical science

Social Science (10 hrs)

_____	5	_____
_____	5	_____

The two courses must be from two of the following three categories: Individuals and groups; Organizations and politics; Human, natural and economic resources. Refer to GEC web site listed above.

Arts & Humanities (10 hrs)

Lit. _____	5	_____
VPA _____	5	_____

Student Selected Breadth Courses (10 hrs)

_____	5	_____
_____	5	_____

Students select two courses from any of the breadth areas, including those from the Cultures and Ideas category. Neither of the additional breadth courses may come from the area of the major.(CIS).

Historical Survey (10 hrs)

_____	5	_____
_____	5	_____

Diversity Experiences (0-15 hrs)

(0 hours if overlapped with other categories)

_____	•	_____
_____	★	_____
_____	◆ or ★	_____

Each category must be represented.

Issues of Contemporary World (5 hrs)

_____	5	_____
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Breadth Areas

Attachment #3:

BA CIS Proposed Advising Sheet

Total Cr-Hrs for BA CIS Degree: 122

Autumn (1st Semester)			Spring (2nd Semester)		
<i>ASC 1100</i>	<i>ASC/NMS Survey</i>	1	<i>CSE 2221</i>	<i>Software I</i>	4
<i>Math 1151</i>	<i>Calculus I</i>	5	<i>Math 1152</i>	<i>Calculus II</i>	5
<i>Gen Ed</i>	<i>Writing Level 1</i>	3	<i>Gen Ed</i>	<i>Writing Level 2</i>	3
<i>Gen Ed</i>	<i>Foreign Language 1</i>	3	<i>Gen Ed</i>	<i>Foreign Language 2</i>	3
<i>Gen Ed</i>	<i>Historical Study</i>	3			
		Total			Total
		15			15
Autumn (3rd Semester)			Spring (4th Semester)		
<i>CSE 2231</i>	<i>Software II</i>	4	<i>CSE 2421</i>	<i>Systems I</i>	4
<i>CSE 2321</i>	<i>Foundations I</i>	3	<i>Related Field</i>	<i>Related Field Core</i>	3
<i>Related Field</i>	<i>Related Field Core</i>	3	<i>Gen Ed</i>	<i>Physical Science</i>	5
<i>Stat 2450+</i>	<i>Introduction to Statistics</i>	3	<i>Gen Ed</i>	<i>Foreign Language 4</i>	3
<i>Gen Ed</i>	<i>Foreign Language 3</i>	3			
		Total			Total
		16			15
Autumn (5th Semester)			Spring (6th Semester)		
<i>CSE 2501</i>	<i>Professionalism and Ethics</i>	1	<i>CSE/Rel Field</i>	<i>Program Elective</i>	3
<i>CSE 390x</i>	<i>Project</i>	4	<i>CSE/Rel Field</i>	<i>Program Elective</i>	3
<i>Related Field</i>	<i>Related Field Core</i>	3	<i>Related Field</i>	<i>Related Field Core</i>	3
<i>Gen Ed</i>	<i>Biological Science</i>	5	<i>Gen Ed</i>	<i>Additional Math or Science</i>	3
<i>Gen Ed</i>	<i>Arts</i>	3	<i>Gen Ed</i>	<i>Culture & Ideas or Historical Study</i>	3
		Total			Total
		16			15
Autumn (7th Semester)			Spring (8th Semester)		
<i>CSE/Rel Field</i>	<i>Program Elective</i>	3	<i>CSE/Rel Field</i>	<i>Program Elective</i>	3
<i>CSE/Rel Field</i>	<i>Program Elective</i>	3	<i>CSE/Rel Field</i>	<i>Program Elective</i>	3
<i>CSE/Rel Field</i>	<i>Program Elective</i>	3	<i>CSE/Rel Field</i>	<i>Program Elective</i>	3
<i>Gen Ed</i>	<i>Social Science 1</i>	3	<i>CSE/Rel Field</i>	<i>Program Elective</i>	3
<i>Gen Ed</i>	<i>Literature</i>	3	<i>Gen Ed</i>	<i>Social Science 2</i>	3
		Total			Total
		15			15

Admission to the BA CIS major requires:

- Completion of courses shown above in *italics* (or honors versions thereof).
- At least 15 cr-hrs earned at Ohio State.
- A CPHR of at least 2.0 (may be higher when enrollment management is in effect).
- An MPHR (major point hour ratio), over CSE courses that can be included in the major program, of at least 2.0.
- Completion of all admission conditions that may have been imposed when the student was admitted to OSU.

Related Field Core includes:

- Intellectually coherent selection of courses with a clear relationship of the related field to computing
- At least 6 cr-hrs at the 2000-level or above
- CSE Advising Office can suggest related fields, including minor programs, based on interest

Program Electives include:

- At least 13 cr-hrs of CSE 2231 or CSE 2331 or CSE courses at the 3000-level or above
- At most 1 cr-hr of CSE 425X
- At most 2 cr-hrs total of CSE 4193, 4193H, 4998, 4998H, 4999, 4999H
- At most 4 cr-hrs of non-CSE technical courses designated by the CSE Undergraduate Studies Committee
- At least 6 cr-hrs of additional courses in Related Field at the 2000-level or above
- CSE Advising Office can suggest tracks based on interest

Attachment #3 (contd.)

BA CIS Current Advising Sheet (4 quarter years) (Entering OSU: Au '08)

- Y1Q
 - Au: Math 151; CSE 201/202/placement test
 - Wi: CSE 221; Math 152;
 - Sp: CSE 222; Math 153;

- Y2Q
 - Au: CSE 321; Math 366
 - Wi: CSE 360;
 - Sp: CSE 560; CSE 459

- Y3Q
 - Au: CSE 601; CSE 670; Stats 245
 - Wi: CSE elec; CSE elec; Rel fld
 - Sp: CSE elec; Rel fld

- Y4Q
 - Au: CSE elec; Rel fld
 - Wi: CSE elec; Rel fld
 - Sp: CSE elec; Rel fld

BA CIS Transition Advising Sheet (3 quarter years + 1 semester year) (Entering OSU: Au '09)

- Y1Q
 - Au: Math 151; CSE 201/202/placement test
 - Wi: CSE 221; Math 152;
 - Sp: CSE 222; Math 153;

- Y2Q
 - Au: CSE 321; Math 366
 - Wi: CSE 360;
 - Sp: CSE 560; CSE 459

- Y3Q
 - Au: CSE 601; CSE 670; Stats 245
 - Wi: CSE elec; CSE elec; Rel fld
 - Sp: CSE elec; CSE elec; Rel fld

- Y4Q
 - Au: CSE elec; Rel fld; Rel fld
 - Sp: CSE elec; Rel fld; Rel fld

Notes: CSE 221+222+321 (or 321B) is equivalent to CSE 2221+2231; CSE 360+459 is equiv. to CSE 2421; Math 366 is roughly equiv. to CSE 2321; CSE 560 is equiv. to CSE 3901; CSE 601 is equiv. to CSE 2501.

Attachment #3 (contd.)

BS CIS Transition Advising Sheet (2 quarter years + 2 semester years) (Entering OSU: Au '10)

- Y1Q
 - Au: Math 151; CSE 201/202/placement test
 - Wi: CSE 221; Math 152;
 - Sp: CSE 222; Math 153;

- Y2Q
 - Au: CSE 321; Math 366
 - Wi: CSE 360;
 - Sp: CSE 560; CSE 459

- Y3S
 - Au: CSE 2501; CSE elec; Stats 2450
 - Sp: CSE elec; CSE elec; Rel fld

- Y4Q
 - Au: CSE elec; CSE elec; Rel fld; Rel fld
 - Sp: CSE elec; Rel fld; Rel fld; Rel fld

BS CIS Transition Advising Sheet (1 quarter year + 3 semester years) (Entering OSU: Au '11)

- Y1Q
 - Au: Math 151; CSE 201/202/placement test
 - Wi: CSE 221; Math 152;
 - Sp: CSE 222; Math 153;

- Y2Q
 - Au: CSE 321B[†]; CSE 2321
 - Sp: CSE 2421; Stats 2450

- Y3S
 - Au: CSE 2501; CSE 3901/3902; Rel fld; Stats 2450
 - Sp: CSE elec; CSE elec; Rel fld

- Y4Q
 - Au: CSE elec; CSE elec; Rel fld; Rel fld
 - Sp: CSE elec; CSE elec; Rel fld; Rel fld

[†]For information on CSE 321B, see page 6.

Notes: CSE 221+222+321 (or 321B) is equivalent to CSE 2221+2231; CSE 360+459 is equiv. to CSE 2421; Math 366 is roughly equiv. to CSE 2321; CSE 560 is equiv. to CSE 3901; CSE 601 is equiv. to CSE 2501.

Attachment #4:

**BA in Computer and Information Science Curriculum Map:
Contribution of courses to Learning Goals/Program Outcomes**

Notes:

1. For the list of (a)–(i) program outcomes, see page 2.
2. For the list of courses in the major, including titles and prerequisites, see Attachment #0.
3. In the table below, “*” denotes that the course makes *some* contribution to the particular outcome, i.e., devotes 1–2 hours to topics related to the outcome; “**” denotes that the course makes *substantial* contribution, i.e., devotes 3–4 hours to topics related to the outcome; “***” denotes that the course makes *significant* contribution, i.e., devotes 7+ hours to topics related to the outcome. Further, the *level* of contribution is indicated with “b” (for beginning), “i” (intermediate), and “a” (advanced). Thus “**i” means the course makes substantial contribution at an intermediate level to the outcome; “***a” means significant contribution at an advanced level. For some GE courses, the level depends on the specific course the student takes, hence indicated by “?”. “E” denotes elective courses.
4. The *related field* courses are not included in this table since their contribution varies with the field and with the specific courses.

Course Number	a	b	c	d	e	f	g	h	i
CSE 2221	***b	***b	*b			*b		*b	
CSE 2231	***b	***b	*b	**b		*b		*b	
CSE 2321	**b	***b						*b	
CSE 2421	***i	**i	**i						
CSE 2501					***i	**i	***i	*i	**i
CSE 3901	***a	**a		***a	*a	**a			
CSE 3902	***a	**a		***a	*a	**a			
CSE 2331(E)	**i	***i	*i					**i	
CSE 2431(E)	**i	**i	**i					*i	
CSE 3231(E)	**a	*a		*a	*a	*a	*a	*a	*a
CSE 3241(E)	**i	***i	*i	**i		*i		*i	
CSE 3321(E)	*a	***a						**a	
CSE 3341(E)	***a	***a	**a	*a	*a	*a	*a	**a	*a
CSE 3461(E)	*a	**a	**a	**a	*a		*a	*a	**a
CSE 3521(E)	**i	***i	*i		*i		*i	*i	
CSE 3541(E)	***a	***a	**a		*a	*a	*a	*a	*a
CSE 591X(E)	***a	***a	*a	***a	**a	***a	*a	***a	***a
DiscrMath(E)	**b	**b	*b					*b	
Calc 1,2	*b	**b	*b						
Stats 2450	*b	**b	***b						
PhysSc			**b						
BioSc			**b	*b					
Wrtng 1,2				*bi	*bi	***bi	*bi		**bi
Literature						***i	*i		**i
Arts				*?		**?	*?		*?
History					*?	**?	**?		**?
SocStd 1,2				*?	***?	**?	**?		***?
FornLang				*i	**i	**i	*i		*i

Attachment #5:

BA CIS Proposed Transition Worksheet

Bold red italics: combination required

Done?	Quarter Course Completed	q-cr-hrs	Equiv s-cr-hrs	Substitutes For	s-cr-hrs	Excess s-cr-hrs
1	Engl 110	5	3.33	Writing Level 1	3	0.33
1	GEC Second Writing	5	3.33	Writing Level 2	3	0.33
1	GEC Literature	5	3.33	Literature	3	0.33
1	GEC Visual/Performing Arts	5	3.33	Arts	3	0.33
1	GEC Historical Study 1	5	3.33	Historical Study	3	0.33
1	GEC Social Science 1	5	3.33	Social Science 1	3	0.33
1	GEC Social Science 2	5	3.33	Social Science 2	3	0.33
1	GEC Historical Study 2	5	3.33	Culture & Ideas or Historical Study	3	0.33
1	<i>Foreign Language</i>	20	13.33	Foreign Language	12	1.33
1	ASC 100	1	0.67	ASC/NMS Survey	1	-0.33
1	<i>Math 151 and Math 152</i>	10	6.67	Calculus I (GE Math)	5	1.67
1	Math 153	5	3.33	Calculus II (GE Open Option 1)	5	-1.67
1	Phys 131	5	3.33	GE Physical Science	5	-1.67
1	Biol 113	5	3.33	GE Biological Science	5	-1.67
1	Math 366	3	2.00	Additional Math or Science	3	-1.00
1	Stat 245	5	3.33	Intro to Statistics (GE Data Analysis)	3	0.33
1	Anything counted now: [list here]	15	10.00	Related Field Core	12	-2.00
1	<i>CSE 221 and CSE 222 and CSE 321</i>	12	8.00	Software I and II	8	0.00
1	Math 366	3	2.00	Foundations I	3	-1.00
1	<i>CSE 360 and (CSE 459.21 or CSE 459.22)</i>	5	3.33	Systems I	4	-0.67
1	CSE 601	1	0.67	Professionalism and Ethics	1	-0.33
1	CSE 560	5	3.33	Project	4	-0.67
1	Anything else counted now: [list here]	17	11.33	Program Electives	27	-15.67

* Any equiv s-cr-hr difference counts in Program Electives.

136	90.67	Total Completed cr-hrs
	31.33	Total Remaining cr-hrs
	19.37	Remaining Program Elective cr-hrs

After meeting with my academic advisor, I understand the conversion of my coursework from quarters to semesters. I also understand that:

1) I will not be impeded toward graduation if I follow the plan put forward in this transition worksheet and the attached timetable for completion, and

2) if I fail to make satisfactory progress on my part, fail to schedule promptly and appropriately and complete courses as advised, and/or otherwise fail to follow this plan, graduation in a timely fashion may not be possible.

Student printed name / signature / date: _____ / _____ / _____

Advisor printed name / signature / date: _____ / _____ / _____