FORM A
General Use
Revised 7/23/07

PROPOSAL SUMMARY AND ROUTING FORM

Proposal Title: Applied Math Computer Science Concentration Update

Initiating Unit or Individual: Mathematics Department Computer Science Division
Contact Person's Name: Dr. J.F. Nystrom **e-mail:** nystroj@ferris.edu **phone:** x5864
Date or Term of Proposal Implementation: 201001 (Spring 2010)

- ☐ Group I - A – New degree/major or major, redirection of a current offering, or elimination of a degree, major or minor
- ☐ Group I - B – New minors or concentrations
- ☒ Group II - A – Minor curriculum clean-up and course changes
- ☐ Group II - B – New Course
- ☐ Group III - Certificates
- ☐ Group IV – Off-Campus Programs

Group/Individual	Signature	Date	Vote/Action *
Program Faculty		3/3/09	3 Support 0 Support with Concerns 0 Not Support
Department Faculty	Robert McCullough	3/17/09	20 Support 0 Support with Concerns 0 Not Support
Department Head		3/18/09	X Support ___ Support with Concerns ___ Not Support
College Curriculum Committee		4/5/09	5 Support ___ Support with Concerns 0 Not Support
Dean		4/6/09	X Support ___ Support with Concerns ___ Not Support
University Curriculum Committee	Leonard Johnson ppa	5/6/09	✓ Support ___ Support with Concerns ___ Not Support
Senate	Richard Griffin ppa	5/6/09	✓ Support ___ Support with Concerns ___ Not Support
Academic Affairs		5/7/09	✓ Support ___ Hold ___ Not Support

* Support with Concerns or Not Support must include a list of specific concerns. Votes must be shown for faculty groups. Administrators check appropriate action taken.

To be completed by Academic Affairs

President (Date Approved)	Board of Trustees (Date Approved)	President's Council (Date Approved)

REC'D MAY 6 2009

1. Proposal Summary

(Summary is generally less than one page. Briefly: state what is proposed with a summary of rationale and highlights. Additional rationale may be attached.)

This proposal is a curriculum clean-up of the Applied Mathematics Computer Science Concentration. The rationale behind the proposal is twofold: First, we are updating the introductory course sequence so that we will have only one introductory course in the program (i.e., the new CPSC 130). Currently, before this update, we now offer three introductory courses in the program (i.e., CPSC 150, CPSC 244, and CPSC 200). The update of the introductory course, CPSC 130, will provide an easier introduction to programming and problem solving for beginning students, partially through use of a more general introductory programming language. We set this updated introductory course at 4 credits, which will allow for a dedicated lab hour each week to go along with the three lecture hours. By having a single entry point into the programming language sequence, one of the previous introductory courses, CPSC 200, can now be taught at a more appropriate intermediate level. (The CPSC 200 course will remain the main service course required for Applied Mathematics students in concentrations other than Computer Science.) The second component of the update is to set a more complete applied computer science education experience for students, by requiring a computer hardware component, and requiring a parallel programming component; both important topical areas in modern computer science. A major theme of this year's 40th ACM Technical Symposium on Computer Science Education was about integrating parallel programming into undergraduate curriculum, which is something our proposal plan includes.

We have updated some of the elective choices available to students both within the major and for students wishing to pursue the updated Computer Science Minor. We are collaborating with the EET & CNS Department as we move to update our offerings, and have included (at this time) one course from that department (i.e., ECNS 323) among the elective choices for both majors and minors in our program. At the end of Section 2, we include a schedule chart showing our proposed course offerings from Fall Odd to Spring Odd for the Computer Science Concentration Requirements. With our updated scheduling of courses, students can enter the program in their second year and complete all requirements during their fourth year. With this concentration clean-up, and our efforts in recruitment, these classes should run with good numbers within a reasonably short time period.

We are including a FORM F for five other courses to reflect the changes proposed. We propose to add three courses to the curriculum requirements for the Applied Mathematics Computer Science Concentration to add more breadth to the concentration, while at the same time deleting two current required courses (CPSC 244 and MATH 420). (Note: The addition of MATH328 and deletion of CPSC328 is cosmetic only.) The "program" in parts d. and e. of Section 2 refers to the Applied Mathematics Computer Science Concentration. New curriculum sheets (FORM D) are included for both the Computer Science Concentration Major and the Computer Science Minor.

2. Summary of All Course Action Required*

a. **Newly Created Courses to FSU:**

Prefix	Number	Title
CPSC	130	Programming and Problem Solving
CPSC	330	Parallel Programming

b. **Courses to be Deleted From FSU Catalog:**

Prefix	Number	Title
CPSC	150	Programming in Basic
CPSC	244	Scientific Programming in Fortran

c. **Existing Course(s) to be Modified:**

Prefix	Number	Title
CPSC	200	Object Oriented Programming
CPSC	340	Computer Organization (was Hardware & Software Organization)
CPSC	442	Programming Language Concepts
MATH	340	Numerical Analysis

d. **Addition of existing FSU courses to program**

Prefix	Number	Title
CPSC	130	Programming and Problem Solving
CPSC	330	Parallel Programming
CPSC	340	Computer Organization
MATH	328	Discrete Structures

e. **Removal of existing FSU courses from program**

Prefix	Number	Title
CPSC	244	Scientific Programming with Fortran
CPSC	328	Discrete Structures
MATH	420	Introduction to Abstract Algebra

*Contact Senate Secretary or UCC Chair if spaces for additional courses are needed.

Proposed Schedule of CPSC and Required Math Concentration Offerings

Semester	Fall Odd	Spring Even	Fall Even	Spring Odd
	130	130	130	130
CPSC		200		200
			300	
	320			
	330			
		340		
			326	
				442
Math			328	
		340		

CPSC 130	Programming and Problem Solving	Fall, Spring
CPSC 200	Object Oriented Programming	Spring
CPSC 300	Data Structures and Algorithms	Fall Even
CPSC 320	Computer Simulation	Fall Odd
CPSC 326	Computer Graphics	Fall Even
CPSC 330	Parallel Programming	Fall Odd
CPSC 340	Computer Organization	Spring Even
CPSC 442	Programming Language Theory	Spring Odd
MATH328	Discrete Structures	Fall Even
MATH340	Numerical Analysis	Spring Even

FORM B
Rev.7/23/07

CURRICULUM CONSULTATION FORM

To be completed by each department affected by the proposed change, new degree, new program, new minor, or new course. Potential duplication of coursework is reason for consultation.

1. This completed form must be forwarded with the proposal to the chair/head of the department to be consulted.
2. The department must respond within 20 calendar days of receipt of this form to insure inclusion in the final proposal. The completed form is returned to the initiator and inserted into the proposal.

   Failure to respond is interpreted as support for the proposal.
3. The Proposing Department must address any concerns raised by the department. This response will be in writing and be included in the proposal following the consultation form.

RE: Proposal Title Applied Math Computer Science Concentration Update

Initiator(s): Mathematics Department Computer Science Division

Proposal Contact: Dr. J.F. Nystrom **Date Sent:** October 24, 2008

Department: **Mathematics** **Campus Address:** **ASC 2056**
(Please print)

Responding Department: **School of Education Department**

Chair/Head/Coordinator: Dr. Liza Ing Date Returned: 11/18/08

Based upon department faculty review on 11/18/08 date), we

- ☐ Support the above proposal.
- ☒ Support the above proposal with the modifications and concerns listed below.
- ☐ Do not support the proposal for the reasons listed below.

Comment regarding the impact this proposal has on scheduling, room assignments, faculty load, and prerequisites for your department. Use additional pages, if necessary.

This would increase the Math Ed major by at least one credit. Need to justify the increase in credithours for these courses.

Transferability from Community Colleges?

FORM B
Rev.7/23/07

CURRICULUM CONSULTATION FORM

To be completed by each department affected by the proposed change, new degree, new program, new minor, or new course. Potential duplication of coursework is reason for consultation.

1. This completed form must be forwarded with the proposal to the chair/head of the department to be consulted.
2. The department must respond within 20 calendar days of receipt of this form to insure inclusion in the final proposal. The completed form is returned to the initiator and inserted into the proposal.

   Failure to respond is interpreted as support for the proposal.
3. The Proposing Department must address any concerns raised by the department. This response will be in writing and be included in the proposal following the consultation form.

RE: Proposal Title Applied Math Computer Science Concentration Update

Initiator(s): Mathematics Department Computer Science Division

Proposal Contact: Dr. J.F. Nystrom **Date Sent:** December 4, 2008

Department: **Mathematics** **Campus Address:** **ASC 2056**
(Please print)

Responding Department: **EET & CNS Department (College of Engineering Technology)**

Chair/Head/Coordinator: Clare Cook Date Returned: 2/5/09

Based upon department faculty review on 2/5/09 (date), we

- [x] Support the above proposal.
- [ ] Support the above proposal with the modifications and concerns listed below.
- [ ] Do not support the proposal for the reasons listed below.

Comment regarding the impact this proposal has on scheduling, room assignments, faculty load, and prerequisites for your department. Use additional pages, if necessary.

We support this as the update aligns well with our CNS Program.

FORM B
Rev.7/23/07

CURRICULUM CONSULTATION FORM

To be completed by each department affected by the proposed change, new degree, new program, new minor, or new course. Potential duplication of coursework is reason for consultation.

1. This completed form must be forwarded with the proposal to the chair/head of the department to be consulted.
2. The department must respond within 20 calendar days of receipt of this form to insure inclusion in the final proposal. The completed form is returned to the initiator and inserted into the proposal.

   Failure to respond is interpreted as support for the proposal.
3. The Proposing Department must address any concerns raised by the department. This response will be in writing and be included in the proposal following the consultation form.

RE: Proposal Title Applied Math Computer Science Concentration Update

Initiator(s): Mathematics Department Computer Science Division

Proposal Contact: Dr. J.F. Nystrom **Date Sent:** October 24, 2008

Department: **Mathematics** **Campus Address:** **ASC 2056**
(Please print)

Responding Department: **Accountancy Finance & Info Systems (College of Business)**

Chair/Head/Coordinator: Dr. Jim Woolen Date Returned: _____

Based upon department faculty review on _____(date), we

- ☐ Support the above proposal.
- ☐ Support the above proposal with the modifications and concerns listed below.
- ☐ Do not support the proposal for the reasons listed below.

Comment regarding the impact this proposal has on scheduling, room assignments, faculty load, and prerequisites for your department. Use additional pages, if necessary.

As of 29 January 2009 the consultation form has not been returned. Per rule 2, this represents support for the proposal.

FORM C
Rev. 07/27/07

FLITE SERVICES CONSULTATION FORM

To be completed by the liaison librarian and approved by the Dean of FLITE. All returned forms should be included in the proposal. **FLITE must respond within 20 calendar days of receipt of this form to insure that the form is included in the final proposal.**

FAILURE TO RESPOND IS CONSIDERED AS SUPPORT OF THE CHANGE.

RE: Proposal Title: Applied Math Computer Science Concentration Update

Projected number of students per year affected by proposed change: 15

Initiator(s): Mathematics Department Computer Science Division

Proposal Contact: Dr. J.F. Nystrom Date Sent: _____

Department: **Mathematics** **Campus Address:** **ASC 2056**
(Please print)

Liaison Librarian Signature: _____ **Date:** _____

Dean of FLITE Signature: _____ **Date Returned:** _____

Based upon our review on _____ (date), FLITE concludes that:

☐ Library resources to support the proposed curriculum change are currently available.

☐ Additional Library resources are needed but can be obtained from current funds.

☐ Support, but significant additional Library funds/resources are required in the amount of $_____.

☐ Does not support the proposal for reasons listed below.

Comment regarding the impact this proposal will have on library resources, collection development, programs, etc. Use additional pages if necessary.

FORM D CURRENT
FORM D PROPOSED

PROGRAM, MAJOR, OR MINOR CHECK SHEET(S)

Insert both the current curriculum check sheet (if applicable) followed by proposed curriculum check sheet" and/or "academic program requirements" list.

- **LABEL CHECK SHEETS AS "FORM D CURRENT" and "FORM D PROPOSED."**
- **Checksheets should indicate total credits, General Education requirements per catalog guidelines (include course levels), and the minimum number of 300 and 400 level courses.**
- **Indicate all course prerequisites.**
- **Indicate any special admissions, continuation, or graduation requirements.**

FORM D CURRENT

COMPUTER SCIENCE

BACHELOR OF SCIENCE IN APPLIED MATHEMATICS

FERRIS STATE UNIVERSITY

PROGRAM COORDINATOR: Mr. Robert McCullough
Phone: (231) 591-5876 Campus Address: ASC 2042 E-Mail: mccullour@ferris.edu
CONCENTRATION ADVISOR: Mr. Shaw Walker
Phone: (231) 591-2570 Campus Address: ASC 2060 E-mail: walkers@ferris.edu

Admission requirements: First year student admission is open to high school graduates (or equivalent) who demonstrate appropriate academic preparedness, maturity and seriousness of purpose. High school courses and grade point average, ACT composite score, and ACT Mathematics and Reading sub scores will be considered in the admission and course placement process. Transfer students must have at least 12 credits at the time of application with a minimum 2.0 overall GPA including an English and mathematics course or they will be considered as first year students.

Graduation Requirements:
1. 2.0 CUMULATIVE grade average in all courses.
2. 2.5 grade average for all MATH and CPSC course work.
3. 120 minimum semester credits including general education requirements.
4. Residency requirement: 30 minimum FSU semester credits.
5. Minimum of 40 credits numbered 300 or higher.

Program requirements: for students entering Computer Science Fall Semester 2008

REQUIRED		COURSE TITLE – FOR PREREQUISITES NOT INDICATED, SEE FSU CATALOG COURSE DESCRIPTIONS		FSU S.H.	GRADE
APPLIED MATHEMATICS CORE: minimum 19 credits					
MATH	251	Statistics for the Life Sciences	(MATH 130)	3	
MATH	220	Analytical Geometry & Calculus 1	(MATH 130 or by placement)	5	
MATH	230	Analytical Geometry & Calculus 2	(MATH 220)	5	
MATH	320	Analytical Geometry & Calculus 3	(MATH 230)	3	
MATH	322	Linear Algebra	(MATH 220)	3	
COMPUTER SCIENCE CONCENTRATION REQUIREMENTS: minimum 23 credits					
CPSC	200	Object Oriented Programming	(MATH 126 or MATH 130)	4	
CPSC	244	Scientific Programming with Fortran	(MATH 216 or MATH 220)	3	
CPSC	300	Data Structures and Algorithms	(CPSC 200)	4	
CPSC	328	Discrete Structures	(MATH 216 or MATH 220)	3	
MATH	340	Numerical Analysis	(MATH 230 corequisite)	3	
MATH	420	Introduction to Abstract Algebra	(see catalog description)	3	
CPSC		ELECTIVE (300+)		3	
ELECTIVES: to the minimum 120 credits required for this program.					

GENERAL EDUCATION REQUIREMENTS

Courses which qualify in the Scientific Understanding (Z), Cultural Enrichment (C) and Social Awareness (S) categories are delineated in the General Education section of the FSU electronic catalog:
http://www.ferris.edu/htmls/academics/gened/courses.html

I. GENERAL EDUCATION REQUIREMENTS

A. COMMUNICATION COMPETENCE 12 Sem Credits

Course	Grade	Credit
ENGL 150		3
ENGL 250		3
ENGL 311 or 321 or 323 or 325		3
COMM 105 or 121		3
	TOTAL	

B. SCIENTIFIC UNDERSTANDING 7 Sem Credits

Only approved "Z" courses may count toward this category (one must be a lab course).

Course	Grade	Credit
Lab		
	TOTAL	

C. QUANTITATIVE SKILLS

This requirement is satisfied through the program requirements area.

D. CULTURAL ENRICHMENT 9 Sem Credits

Only approved "C" courses may count toward this category. Requirements: 1) one course must be 200+ level, 2) maximum 5 credit hours of music and/or theater activities may apply

Course	Grade	Credit
200+ level		
	TOTAL	

E. SOCIAL AWARENESS 9 Sem Credits

Only approved "S" courses may count toward this category. Requirements: 1) two different subject areas including at least one "foundation" course, 2) one 200+ level course

Course	Grade	Credit
Foundation		
200+ level		
	TOTAL	

F. GLOBAL CONSCIOUSNESS

Each student must complete one course from the list of qualifying courses presented in the FSU catalog. This course may also count toward fulfilling the Cultural Enrichment or Social Awareness requirement.

Course:

G. RACE/ETHNICITY/GENDER

Each student must complete one course from the list of qualifying courses presented in the FSU catalog. This course may also count toward fulfilling the Cultural Enrichment or Social Awareness requirement.

Course:

SAMPLE COURSE SEQUENCE: The following chart depicts one method to begin the course work requirements. In order to complete this program in four years, students must average 16 – 17 credit hours per semester. Students MUST consult their faculty advisor to develop a course sequence plan appropriate to their academic development and educational plans.

FIRST YEAR Fall Semester	
MATH by placement	3-4
ENGL 150 English 1	3
Cultural Enrichment elective	3-4
Social Awareness elective	3
CPSC 200 or CPSC 244 (or ISYS 105 or 202)	3
	15-17

FIRST YEAR Spring Semester	
Choose one: COMM 105 or COMM 121	3
MATH by placement	3-4
Scientific Understanding elective	3-5
CPSC 200	4
Choose one: Cultural Enrich. or Social Awareness	3
	16-18

NOTICE REGARDING WITHDRAWAL, RE-ADMISSION AND INTERRUPTION OF STUDIES

Students who return to the university after an interrupted enrollment (not including summer semester) must normally meet the requirements of the curriculum which are in effect at the time of their return, not the requirements which were in effect when they were originally admitted.

FORM D PROPOSED

COMPUTER SCIENCE

BACHELOR OF SCIENCE IN APPLIED MATHEMATICS

FERRIS STATE UNIVERSITY

PROGRAM COORDINATOR: Mr. Robert McCullough
Phone: (231) 591-5876 Campus Address: ASC 2042 E-Mail: mccullour@ferris.edu
CONCENTRATION ADVISOR: Dr. J.F. Nystrom
Phone: (231) 591-5864 Campus Address: ASC 2056 E-mail: nystroj@ferris.edu

Admission requirements: First year student admission is open to high school graduates (or equivalent) who demonstrate appropriate academic preparedness, maturity and seriousness of purpose. High school courses and grade point average, ACT composite score, and ACT Mathematics and Reading sub scores will be considered in the admission and course placement process. Transfer students must have at least 12 credits at the time of application with a minimum 2.0 overall GPA including an English and mathematics course or they will be considered as first year students.

Graduation Requirements:

1. 2.0 CUMULATIVE grade average in all courses.
2. 2.5 grade average for all MATH and CPSC course work.
3. 120 minimum semester credits including general education requirements.
4. Residency requirement: 30 minimum FSU semester credits.
5. Minimum of 40 credits numbered 300 or higher.

Program requirements: for students entering Computer Science Spring Semester 2010

REQUIRED		COURSE TITLE – FOR PREREQUISITES NOT INDICATED, SEE FSU CATALOG COURSE DESCRIPTIONS	FSU S.H.	GRADE
APPLIED MATHEMATICS CORE: minimum 19 credits				
MATH	251	Statistics for the Life Sciences (MATH 130)	3	
MATH	220	Analytical Geometry & Calculus 1 (MATH 130 or by placement)	5	
MATH	230	Analytical Geometry & Calculus 2 (MATH 220)	5	
MATH	320	Analytical Geometry & Calculus 3 (MATH 230)	3	
MATH	322	Linear Algebra (MATH 220)	3	
COMPUTER SCIENCE CONCENTRATION REQUIREMENTS: minimum 29 credits				
CPSC	130	Programming and Problem Solving (MATH 116 or MATH 120 or 24 ACT or 560 SAT)	4	
CPSC	200	Object Oriented Programming (MATH 126 or MATH 130;& CPSC130 or permission)	4	
CPSC	300	Data Structures and Algorithms (CPSC 200)	4	
CPSC	330	Parallel Programming (MATH 216 or MATH 220;& CPSC 200 or ECNS 311)	4	
CPSC	340	Computer Organization (CPSC 130 or CPSC 200 or ECNS 311)	4	
MATH	328	Discrete Structures (MATH 216 or MATH 220)	3	
MATH	340	Numerical Analysis (MATH 230;& CPSC 130 or CPSC 200)	3	
CPSC or ECNS		ELECTIVE (300+) Pick from: CPSC 320, CPSC 326, CPSC 390, CPSC 442, or ECNS 323	3-4	
ELECTIVES: to the minimum 120 credits required for this program.				

GENERAL EDUCATION REQUIREMENTS

Courses which qualify in the Scientific Understanding (Z), Cultural Enrichment (C) and Social Awareness (S) categories are delineated in the General Education section of the FSU electronic catalog:
http://www.ferris.edu/htmls/academics/gened/courses.html

I. GENERAL EDUCATION REQUIREMENTS

A. COMMUNICATION COMPETENCE 12 Sem Credits

Course	Grade	Credit
ENGL 150		3
ENGL 250		3
ENGL 311 or 321 or 323 or 325		3
COMM 105 or 121		3
	TOTAL	

B. SCIENTIFIC UNDERSTANDING 7 Sem Credits

Only approved "Z" courses may count toward this category (one must be a lab course).

Course	Grade	Credit
Lab		
	TOTAL	

C. QUANTITATIVE SKILLS

This requirement is satisfied through the program requirements area.

D. CULTURAL ENRICHMENT 9 Sem Credits

Only approved "C" courses may count toward this category. Requirements: 1) one course must be 200+ level, 2) maximum 5 credit hours of music and/or theater activities may apply

Course	Grade	Credit
200+ level		
	TOTAL	

E. SOCIAL AWARENESS 9 Sem Credits

Only approved "S" courses may count toward this category. Requirements: 1) two different subject areas including at least one "foundation" course, 2) one 200+ level course

Course	Grade	Credit
Foundation		
200+ level		
	TOTAL	

F. GLOBAL CONSCIOUSNESS

Each student must complete one course from the list of qualifying courses presented in the FSU catalog. This course may also count toward fulfilling the Cultural Enrichment or Social Awareness requirement.

Course:

G. RACE/ETHNICITY/GENDER

Each student must complete one course from the list of qualifying courses presented in the FSU catalog. This course may also count toward fulfilling the Cultural Enrichment or Social Awareness requirement.

Course:

SAMPLE COURSE SEQUENCE: The following chart depicts one method to begin the course work requirements. In order to complete this program in four years, students must average 16 – 17 credit hours per semester. Students MUST consult their faculty advisor to develop a course sequence plan appropriate to their academic development and educational plans. Various minors are available at FSU, with minors in Computer Information Systems (minimum 18 credit hours) or Computer Networking (minimum 18 credit hours) especially appropriate for majors in the Computer Science Concentration.

FIRST YEAR Fall Semester	
MATH by placement	3-4
ENGL 150 English 1	3
Cultural Enrichment elective	3-4
Social Awareness elective	3
CPSC 130 or elective	3-4
	15-18

FIRST YEAR Spring Semester	
Choose one: COMM 105 or COMM 121	3
MATH by placement	3-4
Scientific Understanding elective	3-5
CPSC 130 or CPSC 200	4
Choose one: Cultural Enrich. or Social Awareness	3
	16-18

NOTICE REGARDING WITHDRAWAL, RE-ADMISSION AND INTERRUPTION OF STUDIES

Students who return to the university after an interrupted enrollment (not including summer semester) must normally meet the requirements of the curriculum which are in effect at the time of their return, not the requirements which were in effect when they were originally admitted.

FORM D CURRENT

COMPUTER SCIENCE MINOR

FERRIS STATE UNIVERSITY - COLLEGE OF ARTS AND SCIENCES

ADVISOR: Mr. Shaw Walker

PHONE: (231) 591-2570 E-MAIL: walkers@ferris.edu Campus Address: ASC 2060

Why Choose the Computer Science Minor?

A minor in Computer Science will significantly enhance the employability of a graduate from any program at Ferris. Computer skills are among the most important skills an employer is looking for in employees today. It can serve to enhance the expertise of the student in their major field and also serve as an excellent preparation for entry-level positions in the computing field.

Through the course work of the Computer Science minor, students will be provided the opportunity to learn computer science applications such as programming language, computer architecture, microprocessor-controlled equipment and local area networks.

Admission Requirements

This Computer Science minor is open to any student admitted to Ferris State and pursuing a baccalaureate degree except those pursuing the Applied Mathematics Computer Science option. The minor is designed to complement any Ferris major program.

Graduation Requirements

An academic minor may only be awarded upon completion of a baccalaureate degree at Ferris State. This minor requires a minimum of 20 credits and a minimum grade average of 2.5 in these courses. Also, 50% of the credits for a minor must be taught by Ferris State University.

Required Courses:		
CPSC200	Object Oriented Programming	4
CPSC300	Data Structures and Object Orientation Design	4
Choose one:		
CPSC150	Basic Programming	3
CPSC244	Scientific Programming with FORTRAN	3
Electives-Choose 3:		
CPSC320	Computer Simulations	3
CPSC326	Computer Graphics	3
CPSC328	Discrete Structures	3
CPSC 340	Hardware and Software Organization	4
CPSC 442	Programming Language Concepts	3
MATH 340	Numerical Analysis	3

COLLEGE OF ARTS AND SCIENCES - ACADEMIC MINOR CLEARANCE FORM

MINOR IN COMPUTER SCIENCE

NAME_____ STUDENT NUMBER _____

STUDENT'S COLLEGE: _____ B.S./B.A. PROGRAM: _____

Procedures:

1) The student and the advisor for this minor will review and complete the General Requirements and Required Courses sections of this form (Section A).
2) Upon completion of Section A, this form will be sent to the department office for approval. The original form will be filed in the appropriate office (either the advisor or the department) and copied for the student. Students in Bachelor of Arts degree programs must also provide a copy of this form to both the B.A. coordinator and their faculty advisor. All deviations from or substitutions for courses listed in this original plan must be approved by the Department Head on official Course Substitution Forms and must accompany this form.
3) Upon completion of this minor, the student will notify the advisor of the minor. The department and the advisor will verify that the student has completed the minor and will forward the original form to the College of Arts and Sciences Dean's Office for approval and from there it will be forwarded either to the Registrar's Office (Section B) or to the B.A. coordinator as appropriate.

SECTION A

General Requirements:

1) At least 50% of the credits of the minor must be numbered 300 or higher
2) At least 50% of the credits of the minor must be Ferris State University credits
3) This minor requires a minimum of 20 credits
4) This minor requires a minimum GPA of 2.5 in these courses.
5) A minor will not be entered in the academic record until the student has been certified for a bachelor's degree

Required Courses	Credit Hours	Grade	Semester Completed
CPSC 200	4		
CPSC 300	4		
CPSC 150 OR CPSC 244	3		
Directed Elective 1	3		
Directed Elective 2	3		
Directed Elective 3	3		

Signatures		Date
Student		
Advisor		
Department		

SECTION B

Routing (FOLLOWING COMPLETION OF THE REQUIRED COURSES FOR THE MINOR)		Date
Department		
CAS Dean		
Registrar		

DECLARATION SENT TO RECORDS _____ COMPLETION SENT TO RECORDS _____

FORM D PROPOSED

COMPUTER SCIENCE MINOR

FERRIS STATE UNIVERSITY - COLLEGE OF ARTS AND SCIENCES

ADVISOR: Dr. J.F. (Jim) Nystrom

PHONE: (231) 591-5864 E-MAIL: nystroj@ferris.edu Campus Address: ASC 2056

Why Choose the Computer Science Minor?

A minor in Computer Science will significantly enhance the employability of a graduate from any program at Ferris. Computer skills are among the most important skills an employer is looking for in employees today. It can serve to enhance the expertise of the student in their major field and also serve as an excellent preparation for entry-level positions in the computing field.

Through the course work of the Computer Science minor, students will be provided the opportunity to learn computer science topics such as programming language theory, computer organization, parallel computing, scientific computing, numerical analysis, and computer simulation.

Admission Requirements

This Computer Science minor is open to any student admitted to Ferris State and pursuing a baccalaureate degree except those pursuing the Applied Mathematics Computer Science option. The minor is designed to complement any Ferris major program.

Graduation Requirements

An academic minor may only be awarded upon completion of a baccalaureate degree at Ferris State. This minor requires a minimum of 20 credits and a minimum grade average of 2.5 in these courses. Also, 50% of the credits for a minor must be taught by Ferris State University.

Required Courses:		
CPSC 130	Programming and Problem Solving	4
CPSC 200	Object Oriented Programming	4
CPSC 300	Data Structures and Algorithms	4
Electives-Choose 3:		
CPSC 320	Computer Simulation	3
CPSC 326	Computer Graphics	3
CPSC 330	Parallel Programming	4
CPSC 340	Computer Organization	4
CPSC 390	Special Topics in Computer Science	3-4
CPSC 442	Programming Language Concepts	3
MATH 328	Discrete Structures	3
MATH 340	Numerical Analysis	3
ECNS 323	Real Time Operating Systems	4

COLLEGE OF ARTS AND SCIENCES - ACADEMIC MINOR CLEARANCE FORM

MINOR IN COMPUTER SCIENCE

NAME_____ STUDENT NUMBER _____

STUDENT'S COLLEGE: _____ B.S./B.A. PROGRAM: _____

Procedures:

1) The student and the advisor for this minor will review and complete the General Requirements and Required Courses sections of this form (Section A).
2) Upon completion of Section A, this form will be sent to the department office for approval. The original form will be filed in the appropriate office (either the advisor or the department) and copied for the student. Students in Bachelor of Arts degree programs must also provide a copy of this form to both the B.A. coordinator and their faculty advisor. All deviations from or substitutions for courses listed in this original plan must be approved by the Department Head on official Course Substitution Forms and must accompany this form.
3) Upon completion of this minor, the student will notify the advisor of the minor. The department and the advisor will verify that the student has completed the minor and will forward the original form to the College of Arts and Sciences Dean's Office for approval and from there it will be forwarded either to the Registrar's Office (Section B) or to the B.A. coordinator as appropriate.

SECTION A

General Requirements:

1) At least 50% of the credits of the minor must be numbered 300 or higher
2) At least 50% of the credits of the minor must be Ferris State University credits
3) This minor requires a minimum of 20 credits
4) This minor requires a minimum GPA of 2.5 in these courses.
5) A minor will not be entered in the academic record until the student has been certified for a bachelor's degree

Required Courses	Credit Hours	Grade	Semester Completed
CPSC 130	4		
CPSC 200	4		
CPSC 300	4		
Directed Elective 1	3-4		
Directed Elective 2	3-4		
Directed Elective 3	3-4		

Signatures		Date
Student		
Advisor		
Department		

SECTION B

Routing (FOLLOWING COMPLETION OF THE REQUIRED COURSES FOR THE MINOR)		Date
Department		
CAS Dean		
Registrar		

DECLARATION SENT TO RECORDS _____ COMPLETION SENT TO RECORDS _____

FORM E

NEW COURSE INFORMATION FORM

Course Identification:

Prefix:	Number	Title
CPSC	130	Programming and Problem Solving

Course Description:
An introduction to programming and problem solving for students with little or no programming background. Topics include problem specification and algorithm design, and fundamental procedural programming concepts (including variables, assignment, conditional and iterative control structures, arrays or lists, and functions).

Course Outcomes and Assessment Plan:
A student succeeding in this course should be able to:
1. Read a description of a problem, and (a) develop an algorithm to solve the problem, (b) utilize functions, decision structures and loops to implement the algorithm in a computer program, and (c) develop a reasonable suite of examples on which to test the program.
2. Read a simple or moderately complex computer program and trace the overall execution path of the program given different sets of program data; thus demonstrating knowledge of how various programming language constructs (e.g., functions, and conditional and iterative control statements) operate.
3. Identify various issues involved in the solution of problems on a computer; including some hardware issues, issues related to data types (for computing with numbers and strings), and issues related to program execution time.

The course grade is based on Midterm Examinations, Programming Assignments and Homework, and a Comprehensive Final Exam.

Course Outline including Time Allocation:

I. Computers and Programs (4 hours)

- Introduction and History of Computing

II. Beginning Programming (21 Hours)

- Writing Simple Programs
- Algorithms and the Problem Solving Process
- Computing with Numbers and Strings
- Testing Programs

III. Intermediate Programming (20 hours)

- Objects and Graphics
- Writing Functions
- Decision Structures
- Loop Structures and Booleans

IV. Advanced Programming (15 hours)

- Simulation and Design
- Lists and Objects
- Algorithm Design and Recursion

FORM E

NEW COURSE INFORMATION FORM

Course Identification:

Prefix:	Number	Title
CPSC	330	Parallel Programming

Course Description:
Introduction to the parallel computing landscape and a parallel programming language. Overview of processes, synchronization, and the use and implementation of semaphores. Introduction to distributed programming techniques (including message passing, RPC and rendezvous), process interaction paradigms and scientific computing (including heartbeat algorithms, pipeline algorithms, broadcast algorithms, grid computations and particle computations).

Course Outcomes and Assessment Plan:
A student succeeding in this course should be able to:
1. Enumerate and describe the concepts involved in the construction of parallel and distributed systems, including how deadlock, livelock, and incorrect results may arise from uncontrolled parallel execution of programs accessing shared resources and/or cooperating to accomplish a scientific computation.
2. Understand how parallel processes can synchronize through use of semaphores, message passing, RPC and rendezvous techniques.
3. Understand and implement various process interaction paradigms, including heartbeat algorithms, pipeline algorithms, broadcast algorithms, grid computations and particle computations.

The course grade is based on Midterm Examinations, Programming Assignments and Homework, and a Comprehensive Final Exam.

Course Outline including Time Allocation:

I. The Parallel Computing Landscape (6 hours)

- Hardware and Software for Parallel Computing
- Parallel Matrix Multiplication
- Producers and Consumers, Clients and Servers

II. Processes and Synchronization (10 Hours)

- States, Actions and Parallelization
- Atomicity and Await
- Safety and Liveness Properties
- Barrier Synchronization

III. Semephores (10 hours)

- Syntax, Semantics and Implementation
- Basic Problems: Barriers, Producers and Consumers, Bounded Buffers
- Readers/Writers and the Technique of Passing the Baton

IV. Message Passing (10 hours)

- Asynchronous Message Passing
- Filters, Clients and Servers, Interacting Peers
- Synchronous Message Passing

V. RPC and Rendezvous (8 hours)

- Remote Procedure Call
- Rendezvous, Applications
- Case Study: SR Language

VI. Process Interaction Paradigms (10 hours)

- Heartbeat Algorithms
- Pipeline Algorithms
- Broadcast Algorithms
- Grid Computations
- Particle Computations

VII. Languages, Compilers, Libraries and Tools (6 hours)

- Pthreads, MPI
- Parallelizing Compilers

CREATE NEW COURSE

FORM F

Course Data Entry Form

Create New Course
Rev. 07/23/07

I. ACTION TO BE TAKEN: CREATE A NEW COURSE

Notes
1. Complete each item in Section I and Section II.
2. If this course is to be used as a prerequisite for other university courses, Form Fs that reflect the prerequisite change must be submitted for those courses as well.

Term Effective (6 digit code only): [201001] **Examples: 200801(Spring), 200805(Summer), 200808(Fall)**
Note: The first four digits indicate year, the next two digits indicate month in which term begins.

II. PROPOSED FOR NEW COURSE: Complete all sections a through r, See manual for clarification.

a. Course Prefix [CPSC] **b.** Number [130] **c.** Enter Contact Hours per week in boxes.
LECture [4] LAB [ ] INDependent Study – Check (x) [ ]
Practicum: [ ] Seminar: [ ]

d. Course Title: [**Programming and Problem Solving**] (Limit to 30 characters/spaces.)

e. College Code: [AS] **f.** Department Code: [MATH]

Credit Hours: Check (x) type and enter maximum and minimum hours in boxes.

g. Type: [ ] Variable [X] Fixed **h.** Minimum Credit Hours [4] **i.** Maximum Credit Hours [4] .

j. May Be Repeated for Added Credit: Check (x) [ ] Yes [X] No

k. Levels: Check (x) [X] Undergraduate [ ] Graduate [ ] Professional

l. Grade Method: Check (x) [X] Normal Grading [ ] Credit/No Credit only (Pass/Fail)

m. Does proposed new course replace an equivalent course? Check (x) [ ] Yes [X] No

n. Equivalent course: Prefix [ ] Number [ ] See instructions on Replacement courses.

o. CATALOG DESCRIPTION – Limit to 75 words – PLEASE BE CONCISE.
[**An introduction to programming and problem solving for students with little or no programming background. Topics include problem specification and algorithm design, and fundamental procedural programming concepts (including variables, assignment, conditional and iterative control structures, arrays or lists, and functions).**]

p. Term(s) Offered: [FALL, SPRING, SUMMER] (See instructions for listing.) **q.** Max. Section Enrollment: [25]

r. Prerequisites/Co-requisites/Restrictions: (If none, leave blank.) Limited to 100 spaces. [**MATH 116 or MATH 120 or 24 ACT or 560 SAT.**].

UCC Chair Signature/Date: Leonard Johnson/gh 5/6/09

Academic Affairs Approval Signature/Date: [signature] 5/12/09

To be completed by Academic Affairs Office: - Standard & Measures Coding and General Education Code
[ ] Basic Skill (BS) [ ] General Education (GE) [ ] Occupational Education (OC) [ ] G.E. Codes

Office of the Registrar use ONLY

Date Rec'd: ____ **Date Completed:** ____ **Entered: SCACRSE** __ **SCADETL** __ **SCARRES** __ **SCAPREQ** __

CREATE NEW COURSE
Course Data Entry Form

FORM F

Create New Course
Rev. 07/23/07

I. ACTION TO BE TAKEN: CREATE A NEW COURSE

Notes
1. Complete each item in Section I and Section II.
2. If this course is to be used as a prerequisite for other university courses, Form Fs that reflect the prerequisite change must be submitted for those courses as well.

Term Effective (6 digit code only): [201001] **Examples: 200801(Spring), 200805(Summer), 200808(Fall)**
Note: The first four digits indicate year, the next two digits indicate month in which term begins.

II. PROPOSED FOR NEW COURSE: Complete all sections a through r, See manual for clarification.

a. Course Prefix [CPSC] **b.** Number [330] **c.** Enter Contact Hours per week in boxes.
LECture [4] LAB [ ] INDependent Study – Check (x) [ ]
Practicum: [ ] Seminar: [ ]

d. Course Title: [Parallel Programming] (Limit to 30 characters/spaces.)

e. College Code: [AS] **f.** Department Code: [MATH]
Credit Hours: Check (x) type and enter maximum and minimum hours in boxes.

g. Type: [ ] Variable [X] Fixed **h.** Minimum Credit Hours [4] **i.** Maximum Credit Hours [4] .

j. May Be Repeated for Added Credit: Check (x) [ ] Yes [X] No

k. Levels: Check (x) [X] Undergraduate [ ] Graduate [ ] Professional

l. Grade Method: Check (x) [X] Normal Grading [ ] Credit/No Credit only (Pass/Fail)

m. Does proposed new course replace an equivalent course? Check (x) [ ] Yes [X] No

n. Equivalent course: Prefix [ ] Number [ ] See instructions on Replacement courses.

o. CATALOG DESCRIPTION – Limit to 75 words – PLEASE BE CONCISE.
Introduction to the parallel computing landscape and a parallel programming language. Overview of processes, synchronization, and the use and implementation of semaphores. Introduction to distributed programming techniques (including message passing, RPC and rendezvous), process interaction paradigms and scientific computing (including heartbeat algorithms, pipeline algorithms, broadcast algorithms, grid computations and particle computations).

p. Term(s) Offered: [FALL, ODD YEARS] (See instructions for listing.) **q.** Max. Section Enrollment: [25]

r. Prerequisites/Co-requisites/Restrictions: (If none, leave blank.) Limited to 100 spaces. [MATH 216 or MATH 220; & CPSC 200 or ECNS 311] .

UCC Chair Signature/Date: Leonard Johnson 5/6/09

Academic Affairs Approval Signature/Date: [signature] 5/7/09

To be completed by Academic Affairs Office: - Standard & Measures Coding and General Education Code
[ ] Basic Skill (BS) [ ] General Education (GE) [ ] Occupational Education (OC) [ ] G.E. Codes

Office of the Registrar use ONLY

Date Rec'd: ____ **Date Completed:** ____ **Entered: SCACRSE** __ **SCADETL** __**SCARRES** __ **SCAPREQ** __

DELETE COURSE
Course Data Entry Form

FORM F

Delete Course
Rev. 7/23/07

I. ACTION TO BE TAKEN: DELETE COURSE FROM CATALOG.

Note: Complete each section.

The course described below will be moved to inactive status.

a. Term Effective: Term [01] Year [2010] See instructions.

II. CURRENT COURSE TO BE DELETED FROM THE ACTIVE STATUS:

Include the information that is in the current course database.

a. Course Prefix [CPSC]

b. Number [150]

c. Enter Contact Hours per week in boxes.
LECture [3] LAB [ ] INDependent Study – Check (x) [ ]
Practicum: [ ] Seminar: [ ]

d. Full Course Title: [Programming in Basic]

UCC Chair Signature/Date: Donald Johnson/ph 5/16/09

Academic Affairs Approval Signature/Date: Harold Hochman 5/19/09

Office of the Registrar use ONLY

Date Rec'd: ____ **Date Completed:** ____ **Entered: SCACRSE** __ **SCADETL** __**SCARRES** __ **SCAPREQ** __

DELETE COURSE
Course Data Entry Form

FORM F

Delete Course
Rev. 7/23/07

I. ACTION TO BE TAKEN: DELETE COURSE FROM CATALOG.

Note: Complete each section.

The course described below will be moved to inactive status.

a. Term Effective: Term [01] Year [2010] See instructions.

II. CURRENT COURSE TO BE DELETED FROM THE ACTIVE STATUS:

Include the information that is in the current course database.

a. Course Prefix [CPSC]

b. Number [244]

c. Enter Contact Hours per week in boxes.
LECture [3] LAB [ ] INDependent Study – Check (x) [ ]
Practicum: [ ] Seminar: [ ]

d. Full Course Title: [**Scientific Programming with Fortran**]

UCC Chair Signature/Date: Leonard Jacobson 5/6/09

Academic Affairs Approval Signature/Date: 5/7/09

Office of the Registrar use ONLY

Date Rec'd: ____ **Date Completed:** ____ **Entered: SCACRSE** __ **SCADETL** __**SCARRES** __ **SCAPREQ** __

MODIFY COURSE
Course Data Entry Form

FORM F

Modify Course
Rev. 07/23/07

I. ACTION TO BE TAKEN: MODIFY AN EXISTING COURSE

Notes:
1. Complete all parts of Sections I and II; complete only those items in Section III that represent changes.
2. If either prefix or number is being changed, use 'Delete Course' and 'Create New Course' forms rather than this form.

a. List the changes to be made (**See Proposed Changes a through p below**): [n p]

b. Term Effective (6 digit code only): [201001] **Examples: 200801(Spring), 200805(Summer), 200808(Fall)**
Note: The first four digits indicate year, the next two digits indicate month in which term begins.

II. CURRENT: Include information that is in the current course database.

a. Course Prefix: [**CPSC**]
b. Number: [**200**]
c. Enter Contact Hours per week in boxes.
LECture [ ] LAB [ ] INDependent Study – Check (x) [ ]
Practicum: [ ] Seminar: [ ]

d. Course Title: [**Object Oriented Programming**]

III. PROPOSED CHANGES: Complete only those boxes that represent proposed changes identified in Section I. Leave all other spaces blank.

a. Course Prefix: [ ]
b. Number: [ ]
c. Enter Contact Hours per week in boxes.
LECture [ ] LAB [ ] INDependent Study – Check (x) [ ]
Practicum: [ ] Seminar: [ ]

d. Course Title: [ ] (Limit to 30 characters/spaces.)

e. College Code: [ ] **f.** Department Code: [ ]

Credit Hours: Check (x) type and enter maximum and minimum hours in boxes.
g. Type: [ ] Variable [ ] Fixed **h.** Maximum Credit Hours [ ] **i.** Minimum Credit Hours [ ]

j. May Be Repeated for Added Credit: Check (x) [ ] Yes [ ] No

k. Levels: Check (x) [ ] Undergraduate [ ] Graduate [ ] Professional

l. Grade Method: Check (x) [ ] Normal Grading [ ] Credit/No Credit only (Pass/Fail)

m. CATALOG DESCRIPTION – Limit to 75 words – PLEASE BE CONCISE.
[ ]

n. Term(s) Offered: [SPRING] (See instructions for listing.) **o.** Max. Section Enrollment: [ ]

p. Prerequisites/Co-requisites/Restrictions: Limited to 100 spaces. [**MATH 126 or MATH 130; & CPSC 130 or permission of instructor**]

UCC Chair Signature/Date: Donald Johnson per 5/06/09

Academic Affairs Approval Signature/Date: 5/12/09

To be completed by Academic Affairs Office: - Standard & Measures Coding and General Education Code
[ ] Basic Skill (BS) [ ] General Education (GE) [ ] Occupational Education (OC) [ ] G.E. Codes

Office of the Registrar use ONLY

Date Rec'd: ____ **Date Completed:** ____ **Entered: SCACRSE** __ **SCADETL** __ **SCARRES** __ **SCAPREQ** __

MODIFY COURSE
Course Data Entry Form

FORM F

Modify Course
Rev. 07/23/07

I. ACTION TO BE TAKEN: MODIFY AN EXISTING COURSE

Notes:
1. Complete all parts of Sections I and II; complete only those items in Section III that represent changes.
2. If either prefix or number is being changed, use 'Delete Course' and 'Create New Course' forms rather than this form.

a. List the changes to be made (**See Proposed Changes a through p below**): d m p

b. Term Effective (6 digit code only): 201001 **Examples: 200801(Spring), 200805(Summer), 200808(Fall)**
Note: The first four digits indicate year, the next two digits indicate month in which term begins.

II. CURRENT: Include information that is in the current course database.

a. Course Prefix: **CPSC** **b.** Number: **340** **c.** Enter Contact Hours per week in boxes. LECture ☐ LAB ☐ INDependent Study – Check (x) ☐ Practicum: ☐ Seminar: ☐

d. Course Title: **Hardware & Software Organization**

III. PROPOSED CHANGES: Complete only those boxes that represent proposed changes identified in Section I. Leave all other spaces blank.

a. Course Prefix: ☐ **b.** Number: ☐ **c.** Enter Contact Hours per week in boxes. LECture ☐ LAB ☐ INDependent Study – Check (x) ☐ Practicum: ☐ Seminar: ☐

d. Course Title: Computer Organization (Limit to 30 characters/spaces.)

e. College Code: ☐ **f.** Department Code: ☐

Credit Hours: Check (x) type and enter maximum and minimum hours in boxes.
g. Type: ☐ Variable ☐ Fixed **h.** Maximum Credit Hours ☐ **i.** Minimum Credit Hours ☐

j. May Be Repeated for Added Credit: Check (x) ☐ Yes ☐ No

k. Levels: Check (x) ☐ Undergraduate ☐ Graduate ☐ Professional

l. Grade Method: Check (x) ☐ Normal Grading ☐ Credit/No Credit only (Pass/Fail)

m. CATALOG DESCRIPTION – Limit to 75 words – PLEASE BE CONCISE.
Digital logic and digital systems, machine-level representation of data, assembly-level machine organization and instruction sets, memory system organization, Input/Output and interrupts, multiprocessing and an introduction to systems software.

n. Term(s) Offered: ☐ (See instructions for listing.) **o.** Max. Section Enrollment: ☐

p. Prerequisites/Co-requisites/Restrictions: Limited to 100 spaces. **CPSC 130 or CPSC 200 or ECNS 311**

UCC Chair Signature/Date: Donald Johnson /ph 5/06/09

Academic Affairs Approval Signature/Date: Donald Fukuzawa 5/7/09

To be completed by Academic Affairs Office: - Standard & Measures Coding and General Education Code
☐ Basic Skill (BS) ☐ General Education (GE) ☐ Occupational Education (OC) ☐ G.E. Codes

Office of the Registrar use ONLY

Date Rec'd: ____ **Date Completed:** ____ **Entered: SCACRSE** __ **SCADETL** __ **SCARRES** __ **SCAPREQ** __

MODIFY COURSE
Course Data Entry Form

FORM F

Modify Course
Rev. 07/23/07

I. ACTION TO BE TAKEN: MODIFY AN EXISTING COURSE

Notes:
1. Complete all parts of Sections I and II; complete only those items in Section III that represent changes.
2. If either prefix or number is being changed, use 'Delete Course' and 'Create New Course' forms rather than this form.

a. List the changes to be made (**See Proposed Changes a through p below**): [m p]

b. Term Effective (6 digit code only): [201001] **Examples: 200801(Spring), 200805(Summer), 200808(Fall)**
Note: The first four digits indicate year, the next two digits indicate month in which term begins.

II. CURRENT: Include information that is in the current course database.

a. Course Prefix: [**CPSC**] **b.** Number: [**442**] **c.** Enter Contact Hours per week in boxes. LECture [ ] LAB [ ] INDependent Study – Check (x) [ ] Practicum: [ ] Seminar: [ ]

d. Course Title: [**Programming Language Concepts**]

III. PROPOSED CHANGES: Complete only those boxes that represent proposed changes identified in Section I. Leave all other spaces blank.

a. Course Prefix: [ ] **b.** Number: [ ] **c.** Enter Contact Hours per week in boxes. LECture [ ] LAB [ ] INDependent Study – Check (x) [ ] Practicum: [ ] Seminar: [ ]

d. Course Title: [ ] (Limit to 30 characters/spaces.)
e. College Code: [ ] **f.** Department Code: [ ]

Credit Hours: Check (x) type and enter maximum and minimum hours in boxes.
g. Type: [ ] Variable [ ] Fixed **h.** Maximum Credit Hours [ ] **i.** Minimum Credit Hours [ ]
j. May Be Repeated for Added Credit: Check (x) [ ] Yes [ ] No
k. Levels: Check (x) [ ] Undergraduate [ ] Graduate [ ] Professional
l. Grade Method: Check (x) [ ] Normal Grading [ ] Credit/No Credit only (Pass/Fail)

m. CATALOG DESCRIPTION – Limit to 75 words – PLEASE BE CONCISE.

This course covers the syntax and semantics of programming languages and provides an introduction to compiler construction. Topics that may be covered include: formal specification of syntax, declarations, binding, allocation, data types, control structures, control and data flow, and the implementation and execution of programs. The type of programming methodologies that may be covered include: functional programming, imperative programming, logic programming, and object-oriented programming. Programming projects will provide experience in a number of languages.

n. Term(s) Offered: [ ] (See instructions for listing.) **o.** Max. Section Enrollment: [ ]

p. Prerequisites/Co-requisites/Restrictions: Limited to 100 spaces. [**CPSC 300 and MATH328**]

UCC Chair Signature/Date: Lonnie Johnson jpn 5/06/09

Academic Affairs Approval Signature/Date: Harold Fulcher 5/7/09

To be completed by Academic Affairs Office: - Standard & Measures Coding and General Education Code
[ ] Basic Skill (BS) [ ] General Education (GE) [ ] Occupational Education (OC) [ ] G.E. Codes

Office of the Registrar use ONLY

Date Rec'd: ____ Date Completed: ____ Entered: SCACRSE __ SCADETL __SCARRES __ SCAPREQ __

MODIFY COURSE
Course Data Entry Form

FORM F

Modify Course
Rev. 07/23/07

I. ACTION TO BE TAKEN: MODIFY AN EXISTING COURSE

Notes:
1. Complete all parts of Sections I and II; complete only those items in Section III that represent changes.
2. If either prefix or number is being changed, use 'Delete Course' and 'Create New Course' forms rather than this form.

a. List the changes to be made **(See Proposed Changes a through p below)**: [p]

b. Term Effective (6 digit code only): [201001] **Examples: 200801(Spring), 200805(Summer), 200808(Fall)**
Note: The first four digits indicate year, the next two digits indicate month in which term begins.

II. CURRENT: Include information that is in the current course database.

a. Course Prefix [**MATH**] **b.** Number [**340**] **c.** Enter Contact Hours per week in boxes.
LECture [3] LAB [ ] INDependent Study – Check (x) [ ]
Practicum: [ ] Seminar: [ ]

d. Course Title: [**Numerical Analysis**]

III. PROPOSED CHANGES: Complete only those boxes that represent proposed changes identified in Section I. Leave all other spaces blank.

a. Course Prefix [ ] **b.** Number [ ] **c.** Enter Contact Hours per week in boxes.
LECture [ ] LAB [ ] INDependent Study – Check (x) [ ]
Practicum: [ ] Seminar: [ ]

d. Course Title: [ ] (Limit to 30 characters/spaces.)

e. College Code: [ ] **f.** Department Code: [ ]

Credit Hours: Check (x) type and enter maximum and minimum hours in boxes.

g. Type: ☐ Variable ☐ Fixed **h.** Maximum Credit Hours [ ] **i.** Minimum Credit Hours [ ] .

j. May Be Repeated for Added Credit: Check (x) ☐ Yes ☐ No

k. Levels: Check (x) ☐ Undergraduate ☐ Graduate ☐ Professional

l. Grade Method: Check (x) ☐ Normal Grading ☐ Credit/No Credit only (Pass/Fail)

m. CATALOG DESCRIPTION – Limit to 75 words – PLEASE BE CONCISE.
[ ]

n. Term(s) Offered: [ ] (See instructions for listing.) **o.** Max. Section Enrollment: [ ]

p. Prerequisites/Co-requisites/Restrictions: Limited to 100 spaces. [**MATH230; & CPSC130 or CPSC200**]

UCC Chair Signature/Date: Leonard Johnson/ph 05/06/09

Academic Affairs Approval Signature/Date: 5/7/09

To be completed by Academic Affairs Office: - Standard & Measures Coding and General Education Code
☐ Basic Skill (BS) ☐ General Education (GE) ☐ Occupational Education (OC) [ ] G.E. Codes

Office of the Registrar use ONLY

Date Rec'd: ____ **Date Completed:** ____ **Entered: SCACRSE** __ **SCADETL** __**SCARRES** __ **SCAPREQ** __

Leonard Johnson/FSU
04/29/2009 02:31 PM

To Paula L Hadley-Kennedy/FSU@Ferris
cc
bcc
Subject Fw: Applied Math Computer Science proposal

Looks like we have the votes to move this proposal on once you receive the Form C.

Leonard R. Johnson, Ph.D
Professor of Education and Chair,
University Curriculum Committee
Ferris State University
1349 Cramer Circle
Big Rapids, Michigan 49307
(231) 591-2134
http://www.ferris.edu/education/education

----- Forwarded by Leonard Johnson/FSU on 04/29/2009 02:30 PM -----

Kristen L Motz/FSU
04/28/2009 08:12 AM

To Leonard Johnson/FSU@Ferris
cc
Subject Applied Math Computer Science proposal

I support the proposal with the responses given, pending receipt of Form C.

Kristy

Kristy Motz
Library Instruction Coordinator
140H FLITE
231-591-3625
motzk@ferris.edu
Leonard Johnson/FSU

Leonard Johnson/FSU
04/27/2009 02:38 PM

To Sandra L Alspach/FSU@FERRIS, Leonard Johnson/FSU@Ferris, Andrew L Purvis/FSU@FERRIS, Barbara A Ross/FSU@Ferris, Gregory Wellman/FSU@FERRIS, Joanne Gerst/FSU@FERRIS, Paula L Hadley-Kennedy/FSU@Ferris, Donald Flickinger/FSU@FERRIS, Patricia Russell/FSU@Ferris, Harold G Palmer/FSU@Ferris, Daniel L Burcham/FSU@Ferris, Terrence J Doyle/FSU@FERRIS, Ronald A Mehringer/FSU@FERRIS, Kristen L Motz/FSU@FERRIS
cc
Subject Fw: minutes

fyi

Then, after reading the responses, and pending receipt of the Form C, if you're able to support the Applied Math Computer Science proposal, please send me your evote!!

Leonard

Leonard R. Johnson, Ph.D
Professor of Education and Chair,
University Curriculum Committee
Ferris State University
1349 Cramer Circle
Big Rapids, Michigan 49307
(231) 591-2134
http://www.ferris.edu/education/education

----- Forwarded by Leonard Johnson/FSU on 04/27/2009 02:36 PM -----

James F Nystrom/FSU
04/27/2009 02:10 PM

To Leonard Johnson/FSU@Ferris
cc Kirk Weller/FSU@FERRIS
Subject Re: minutes

See comments below on the four topics mentioned:

(*) I sent an email to Ann in the library about getting the Form C completed. (I delivered that FORM to the library on 4/8/09.)

(*) The CPSC 442 is the same class, but with an updated/more detailed course description. (It is the case that this course has never yet been offered at FSU, but was put in the catalog a while back. It should be offered for the first time in Spring 2011.)

(*) The CPSC 200 prereqs have been changed to reflect the fact that students need to already have a programming class before this one; and thus they are correct as submitted.

(*) The concerns raised by the SOE were addressed in the updated Proposal Summary (but should have been also written on the FORM B). Here is the idea: We justify adding a fourth credit hour because this extra hour will be used for a weekly dedicated lab time. Before, in a 3 credit class, there is always a conflict between how much time to allow for lab time, and what amount of time is spent covering the course content. With only 3 credit hours, we can justify only 1 or 2 lab hours every 3 weeks, and we would still not be able to cover the material.

Please let me know if you need any more information.

jim

--
J.F.(Jim) Nystrom, Ph.D.
Assistant Professor
Computer Science Concentration Advisor
Mathematics Department
Ferris State University
Big Rapids, MI 49307 USA

http://myhomepage.ferris.edu/~nystroj/

Leonard Johnson/FSU

Leonard Johnson/FSU
04/27/2009 12:05 PM

To James F Nystrom/FSU@FERRIS
cc
Subject minutes

notes from the last ucc meeting re: your proposal

> Need a Form C for CPSC 130 and CPSC 330. Request response to concerns raised by SOE faculty. Confirm their intention re: prereqs form CPSC 200. (are they aware they are dropping ACT/SAT scores?) Is CPSC 442 still the same course?

Leonard R. Johnson, Ph.D
Professor of Education and Chair,
University Curriculum Committee
Ferris State University
1349 Cramer Circle
Big Rapids, Michigan 49307
(231) 591-2134
http://www.ferris.edu/education/education