curriculum revisions approved at GC meeting

USF TAMPA
New Accelerated Program Development Form
Bachelor's to Master's

Accelerated Programs allow academically qualified students to complete an undergraduate Bachelor's degree and a graduate master's degree on an accelerated timeline, graduating sooner than in traditional programs.

Development Process:

1) Review the Accelerated Program Guidelines
2) Contact the Undergraduate Studies office or Graduate School for consultation
3) Complete this form and create the Catalog Copy
4) Submit through internal college processes for approval
5) Submit to Undergraduate Council for review and approval
6) Submit to Graduate School for Graduate Council approval

For questions, contact either Undergraduate Studies **cynthiab@usf.edu** or the Graduate School at **cdh@usf.edu**

APPROVALS	Approval of the Accelerated Degree Program: ~~BS~~ / ~~MS~~ in the program (Major) of COMP ENGINEERING / Masters in COMP ENG B.S.C.P. in Computer Engineering and M.S.C.P. in Computer Engineering *(e.g. BS/MS in Biology)*			
	Name (Printed)	**Signature**	**Action**	**Date**
Faculty Name and Email	Miguel Labrador		Email: mlabrador@usf.edu	3/7/17
Dept. Chair	Sudeep Sarkar		☑ Approve ☐ Disapprove	3/7/17
School Committee Chair or other required approval (if applicable)			☐ Approve ☐ Disapprove	
College Committee Chair			☐ Approve ☐ Disapprove	
College Dean/designee	Sanjukta Bhanja	Sanjukta Bhanja	☑ Approve ☐ Disapprove	3/10/17
Undergraduate Council (UGC) Chair/designee			☐ Approve ☐ Disapprove	
Undergraduate Studies Dean/designee			☐ Approve ☐ Disapprove	
Graduate Council (GC) Chair/designee			☐ Approve ☐ Disapprove	
Graduate School Dean/designee			☐ Approve ☐ Disapprove	

ACCELERATED PROGRAM INFORMATION	UNDERGRADUATE	GRADUATE
Degrees *(e.g. B.A., B.S., M.A., M.S., M.U.R.P., etc.)*	BS CP	MS CP
Program Names *(a.k.a. "Major") (e.g. Biology, Math, etc.)*	Computer Engineering	Computer Engineering
College(s)	Engineering	Engineering
Department(s) (if applicable)		
Proposed Effective Date for first admissions	Fall 2017	
Program Description (provide a brief description of the program. Do not include requirements, just what the program is about, highlights, etc.)	BSCP MSCP Students pursuing a ~~B.S.~~ in Computer Engineering will earn an ~~M.S.~~ in Computer Engineering (M.S.C.P.) in an accelerated manner by sharing 2 graduate courses (6 credit hours) taken as upper-level departmental (Technical) electives as part of B.S.CP program. The B.S.C.P. requires a total of 128 hours and the M.S.C.P. requires 30 hours. By sharing 6 credit hours, the total credit hours earned will be 152 hours.	
Is this a single pathway option (e.g. thesis only) or a multi-path option (e.g. thesis and non-thesis, etc.)?		Multi-path as the M.S. degree can be thesis or non-thesis

Curriculum Requirements	
GPA Requirements Programs must establish a minimum undergraduate GPA requirement of at least 3.33 overall and a minimum GPA requirement of 3.50 in the major, having taken a minimum of 15 hours in the undergraduate major, for students to be admitted to an accelerated program. **Note what your Program requirements will be (may be more restrictive, but not less than what's noted above)** Students must have a minimum of a "B" (3.00) in each graduate course. Consequences for not obtaining at least a "B" in each graduate course must be noted in the Departmental Accelerated Program requirements. **Note what the Program's policy will be for students who earn less than a "B" in a graduate course (University Policy allows for courses with "C" or higher count toward graduate degree requirements, with an overall and program GPA requirement of 3.00)**	**GPA Requirements** **3.33 overall and 3.5 in the major** **Policy for where a student earns less than a "B" in a graduate Course:** Students must have a B or better in all shared courses. ***Students must maintain an overall and program requirement of 3.0 in the two graduate electives taken as part of accelerated program. In the case a grade lower than a "B" is obtained, the student must take another approved graduate elective and obtain a grade of "B" or higher.***
List courses to be shared Typically, up to twelve (12) hours of graduate credit may be shared between the graduate and undergraduate degree. Although, with Graduate Council and Graduate School approval, programs may offer accelerated programs with more shared credits. List the undergraduate courses that will be replaced by graduate courses Ex: BIO 2100, satisfied by BIO 6245 BIO 2200, satisfied by BIO 6600	**B.S. in Computer Engineering (CIP 14.0901) requires 128 hours** **(a) total includes 12 credit hours of upper-level departmental (technical) electives, including up to 6 six credits of independent study, supervised research, and industry internship.** **(b) student enters B.S. in major after completing the state mandated common core prerequisites – typically the first semester of the second year.** **M.S. in Computer Engineering degree requires 30 hours. The total credit hours after sharing 2 courses (6 credit hours) is 152.** see curriculum below **Students can take 2 approved courses at the 6000-level that**

	meet the upper-level Technical elective requirement. **No required major or state mandated common core prerequisite undergraduate course are being replaced by any graduate courses.**
Program of Study Programs must complete a Program of Study, develop a plan for academic advising, and tracking of students, including notation of potential financial aid impact.	Attach a representative example. Be certain it matches the degree requirements listed below.

PROGRAM OF STUDY

Note the requirements for both undergraduate and graduate programs, as published in the respective Catalog.

Proposed Accelerated Program of Study

(1): A CP Major will pursue the normal semester plan sequence listed from the current USF Undergraduate Catalog, replacing six credit hours of upper-level departmental (Technical) electives with six credit hours of graduate coursework.

(2): Academic Advising: Once declaring an interest in the Accelerated BSCP/MSCP Program, the student will meet with an undergraduate CP Advisor and graduate CP Advisor. The student will complete "Application Form" as provided by the Graduate School.

Plan of Study: At the time the application is completed, a plan of study template with shared courses will be completed and signed by both undergraduate and graduate advisors. With the help of the advisors, the student will identify two approved graduate courses to be shared that also meet the departmental (Technical) upper-level elective requirement in the attached sample semester plan for the B.S.C.P. degree. Typically, these two electives will be taken in semesters 5 and 6.

(3) Possible Impact on Financial Aid: The regular undergraduate financial aid is generally not affected. When the student is planning to graduate with the B.S., the financial aid can be affected after that. When completing the Application Form for the Accelerated Program, the applicant will be required to take their entire course/semester plan to the USF Financial Aid office and discuss the financial aid implications with them in detail.

(4) Tracking of Students: During the B.S.C.P. program, Accelerated Student applicant will meet with both the undergraduate and graduate advisors each semester to ensure successful completion of the Program requirements. When applying for their B.S.C.P. graduation, students will complete the USF Accelerated Program Progression Form, and enter the CS Master's Program and be advised by the graduate advisor for the remaining degree requirements (see attached).

(5) Benefits: The accelerated program will be a motivating bridge for high performing students. First, the sharing of 2 courses or 6 credit hours will mean that a student can potentially finish the MSCS degree in one academic year, decreasing the time to degree. Further, for students who want to pursue the MSCS with a Master's thesis, the program will allow these students to devote more time to research, and increase the research productivity in terms on number of publications, patents, inventions, etc., allowing them to start their research work while being undergraduates well in line with the Research Experiences for Undergraduates programs. Second, the program will reduce tuition dollars for the student. Third, the program will increase the number of local and US students into the MSCS program, including minorities and students from under-represented groups in Computer Science and Engineering, a critical aspect to maintain the lead of the nation in productivity and innovation. Finally, the quality of the graduate program will be enhanced by attracting high performing students only.

Undergraduate Degree Requirements:

List the current degree requirements for the Undergraduate Degree. Include Total minimum hours.

Listed in the above proposal

Graduate Degree Requirements:

List the current degree requirements for the Graduate Degree as listed in the Graduate Catalog, highlighting which Graduate Courses will be applied to the undergraduate degree (recommend to copy/paste as presented). Copy should include:

- ☐ **Total Program Minimum Hours Required**
- ☐ **Specific course requirements, noting which graduate courses will replace which undergraduate courses.**
- ☐ **Concentration Requirements (if applicable)**
- ☐ **Elective Requirements**
- ☐ **Comprehensive Exam Requirements (if the thesis is used in lieu of the exam, note this accordingly)**
- ☐ **Is a thesis, special-project, or internship required?**
- ☐ **Total number of thesis hours required (if applicable)**
- ☐ **Other requirements**
- ☐ **What the policy is for situations where a student earns less than a "B" in a graduate class.**

Attach the Department program here

B.S. Computer Engineering / M.S. Computer Engineering
Students pursuing a B.S. in Computer Engineering will earn an M.S. in Computer Engineering in an accelerated manner by sharing 2 graduate courses (6 credit hours) taken as upper-level Departmental Technical electives as part of the B.S. program. The B.S. requires a total of 128 hours and the M.S. requires 30 hours. By sharing 6 credit hours, the total credit hours earned will be 152 hours.

Target Students and Expected Outcomes
Academically high achieving undergraduate students in the B.S.C.P. program with high overall and major GPA will be targeted for the accelerated program. Expected outcomes are the increase in M.S.C.P. degrees granted, increase in graduate SCH, decrease time to graduation, decrease in tuition dollars for the student, increase in the research productivity, increase in the number of US students receiving M.S.C.P. degrees, including minorities and students from under-represented groups in Computer Science and Engineering, close the national gap of computer scientists needed to satisfy the market demand, and enhance of the quality of the graduate program by addition of academically accomplished students. In addition, some of these M.S.C.P. students will continue on to the Ph.D. program and enhance the doctoral program as well.

Description and Requirements
For admission to the program a student must:
1. Have completed 15 hours in the undergraduate major
2. Have a minimum 3.33 GPA overall; and
3. Have a minimum undergraduate 3.50 GPA in the major.

Undergraduate Degree Requirements for the B.S. Engineering (128 Credit Hours)
All Computer Engineering major students will complete the following:
- All State Mandated Common Course Prerequisites (as noted in the Computer Engineering major catalog information)
- All Entrance Requirements for the Computer Engineering Program (as noted in the Computer Engineering major catalog information)
- Departmental Policies (as noted in the Computer Engineering major catalog information)
- GPA Requirements (as noted in the Computer Engineering major catalog information)
- Residency Requirement (as noted in the Computer Engineering major catalog information)
- Foreign Language Entrance Requirement (FLENT)
- Summer Enrollment Requirement
- Foundations of Knowledge and Learning (FKL) Core Curriculum (General Education) Coursework 36 credit hours of FKL coursework, to include meeting the State's General Education Core Requirement
- FKL Capstone Learning Experience
- ENC 3246 Communication for Engineers (Writing Intensive Course - 3 credit hours)

Math and Science Coursework (27 credit hours)
MAC 2281 Engineering Calculus I or MAC 2311 Calculus I
MAC 2282 Engineering Calculus II or MAC 2312 Calculus II
MAC 2283 Engineering Calculus III or MAC 2313 Calculus III
MAP 2302 Differential Equations or EGN 3433 Modeling and Analysis of Engineering Systems
CHM 2045 General Chemistry I or CHS 2440 Chemistry for Engineers
CHM 2045L General Chemistry I Laboratory or CHS 2440L Chemistry for Engineers Lab
PHY 2048 General Physics I
PHY 2048L General Physics I Laboratory
PHY 2049 General Physics II
PHY 2049L General Physics II Laboratory

Basic Engineering Coursework (15 credit hours)
EGN 3000 Foundations of Engineering
EGN 3000L Foundations of Engineering Lab
EGN 3443 Probability and Statistics for Engineers
EGN 3615 Engineering Economics with Social and Global Implications
EGN 3373 Introduction to Electrical Systems I
EGN 4450 Introduction to Linear Systems
EEE 3394 Electronic Materials

Specialization Coursework (44 credit hours)
COP 2510 Programming Concepts
COP 3514 Program Design
COP 3331 Object-Oriented Software Design
COP 4530 Data Structures
COP 4600 Operating Systems
CDA 3103 Computer Organization
CDA 3201 Computer Logic and Design

CDA 3201L Computer Logic and Design Lab
CDA 4203 Computer System Design
CDA 4203L Computer System Design Lab
CDA 4205 Computer Architecture
CDA 4213 CMOS-VLSI Design
CDA 4213L CMOS-VLSI Design Lab
COT 3100 Introduction to Discrete Structures
COT 4400 Analysis of Algorithms
CIS 4250 Ethical Issues and Professional Conduct (CPST)
CIS 4910 Computer Science Project

Composition and Technical Writing (9 credit hours)
ENC 1101 Composition I
ENC 1102 Composition II
ENC 3246 Communication for Engineers (WRIN)

Departmental Upper-Level Technical Electives (12 credit hours)
Departmental upper-level technical electives are classified as "software", "hardware", and "theory". Computer Engineering students must choose 6 hours of hardware electives and an additional, non-overlapping 6 hours of electives in the Department. A maximum of six (6) hours combined of CIS 4900 and/or any other supervised individual study (that is, CIS 4915 and CIS 4940) are allowed as Departmental upper-level technical electives.

Software electives:
- CAP 4034 Computer Animation Fundamentals
- CAP 4063 Web Application Design
- CAP 4401 Image Processing Fundamentals
- CAP 4410 Computer Vision
- CAP 4662 Introduction to Robotics
- CAP 4800 Systems Simulation
- CEN 4020 Software Engineering
- CEN 4072 Software Testing
- CEN 4721 User Interface Design
- CIS 4364 Cryptology and Information Security
- CNT 4004 Computer Networks I
- CNT 4411 Computing and Network Security
- CNT 4504 Computer Networks II
- COP 3257 JAVA Experienced Programmers
- COP 4020 Programming Languages
- COP 4365 Software Systems Development
- COP 4620 Compilers
- COP 4656 Software Development for Mobile Devices
- COP 4710 Database Design

Hardware electives:
- CDA 4253 FPGA Design and Analysis
- CDA 4621 Control of Mobile Robots

Theory electives:
- COT 4115 Advanced Discrete Structures with Cryptology
- COT 4210 Automata Theory and Formal Languages
- COT 4521 Computational Geometry

Other courses:
- CIS 4900 Independent Study
- CIS 4915 Supervised Research
- CIS 4940 Industry Internship

The Department website undergraduate section contains the most up to date list of Departmental upper-level technical electives. The pre-requisite for most (but not all) Departmental upper-level technical electives is CDA 3201 Computer Logic and Design and COP 4530 Data Structures. Consult with the Department Undergraduate Advisor to learn more about available electives and which courses will – and will not – count towards the degree. Additional electives may be available with a special topics course number (typically, CIS 4930).

Shared B.S./M.S. Requirements
The shared courses are listed below:
two of the three core graduate courses replace
~~Two (2) approved courses at the 6000-level to replace~~ six credit hours of the undergraduate upper-level departmental (Technical) electives, including Independent Study, Supervised Research and Industry Internship.

Graduate Degree Requirements for Accelerated M.S. in Computer Engineering (Refer to Major Requirements in Catalog)
PROGRAM REQUIREMENTS
Total Minimum Program Hours: 30 hours post-bachelors
Core Requirements – 9 hours
Course Requirements – 21 hours
This degree requires an undergraduate degree in Computer Science, Computer Engineering, Electrical Engineering or Mathematics

Course Requirements – 9 hour
COP 6611 (3) Operating Systems
EEL 6764 (3) Principles of Computer Architecture
COT 6405 (3) Introduction to the Theory of Algorithms

Additional Course Requirements – 21 hours
Students must select at least 21 hours from the list of available graduate elective courses below in consultation with the Graduate Program Director or individual advisor:

CAP 5400 Digital Image Processing	3
CDA 5416 Introduction to Computer-Aided Verification	3
CAP 5625 Introduction to Artificial Intelligence	3
CAP 5682 Expert and Intelligent Systems	3
CAP 5771 Data Mining	3
EEL 5771 Introduction to Computer Graphics I	3
CNT 6215 Computer Networks	3
CAP 6415 Computer Vision	3
CAP 6455 Advanced Robotic Systems	3
CAP 6615 Neural Networks	3
COP 6621 Programming Languages and Translation	3
EEL 6706 Testing and Fault Tolerance in Digital Systems	3
CAP 6736 Geometric Modeling	3
EEL 6766 Advanced Computer Architecture	3
CIS 6900 Independent Study	1-19
CIS 6930 Special Topics	1-5
CIS 6940 Graduate Instruction Methods	1-4
CIS 6946 Internships/Practicums/Clinical Practice	0-3

At least 16 credit hours must be at the 6000 level. At least 6 hours of electives should be in the following topic areas: CMOS VLSI Design, Digital Circuit Synthesis, Formal Verification, Testing and Fault Tolerance, Low-Power VLSI, Robotics, or Computer Networks, as determined by the Graduate Program Coordinator and documented in the Plan of Work. With prior permission from the Graduate Program Director, students can take a maximum of 3 hours of Independent Study or Internship, a maximum of 3 hours of one-hour seminar courses, and up to one graduate level course (3 credit hours) outside of the department.

Comprehensive Exam
For the thesis option, the requirement for a comprehensive exam is satisfied by the successful completion of the Master's thesis. For the non-thesis option, the requirement for a comprehensive exam is satisfied by the successful completion of the core courses with a grade of "B" or higher.

Thesis Option- 6 hours minimum
CIS 6971 (6) Thesis
At least 2 members of the Thesis committee must be from tenured or tenure track Computer Science and Engineering faculty. All thesis option students are required to present and defend their thesis in a public oral examination. The examination must be scheduled after the Thesis Supervisory Committee has approved the Thesis.

The thesis option requires completion of 24 credit hours of CSE graduate-level courses (9 credit hours core and 15 hours of electives) and 6 credit hours of thesis in computer engineering related problems, as determined by the Major Professor and documented in the Plan of Work. At least 16 credit hours must be at the 6000 level. With prior permission from the Graduate Program Director, students can take a maximum of 3 hours of Independent Study or Internship, a maximum of 3 hours of one- our seminar courses, and up to one graduate level course (3 credit hours) outside of the department.

Graduation Requirements:
For the thesis option, students must defend and pass the thesis and have a GPA of 3.00 or better. Non-Thesis Option students must obtain a letter "B" or better in the core graduate courses, have a GPA of 3.00 or better, and pass the comprehensive exam. NO grade below "C" will be accepted in a graduate program. If a student's average falls below 3.00, the student will be placed on probation. Students wishing to continue on for a Ph.D. must apply to the Office of Graduate Studies.

Timeline and benchmarks:

1. To be considered for acceptance into the Accelerated B.S.C.P./M.S.C.P. program, students must have completed a minimum of 15 credit hours in the Computer Science undergraduate major.
2. Students must have a minimum undergraduate GPA of 3.33 overall, and a minimum GPA of 3.50 in the major.
3. Following completion of a minimum of 15 hours in the undergraduate major, students may be considered for acceptance into the accelerated program through faculty nomination or student self-nomination, via submission of an *Accelerated Program Application Form.* Both B.S.C.P. and M.S.C.P. majors will review the applications and approve the nominations. All applications require the approval of USF's Office of Graduate Studies, the College of Engineering's Graduate Program, and the Department of Computer Science and Engineering Programs.
4. To be promoted to graduate status, students must meet all admission requirements of the M.S.C.P. in Computer Science.
5. Students must earn a minimum of a "B" (3.00) in all shared graduate courses. Failure to earn at least a "B" in a shared graduate course will result in academic review by the graduate program. Failure to maintain good standing as a graduate student will result in academic probation, according to the procedures of the USF Office of Graduate Studies.
6. A comprehensive plan of study to complete the accelerated B.S.C.P./M.S.C.P. program will be developed with the guidance of undergraduate and graduate advisors.

USF TAMPA
New Accelerated Program Development Form
Bachelor's to Master's

Accelerated Programs allow academically qualified students to complete an undergraduate Bachelor's degree and a graduate master's degree on an accelerated timeline, graduating sooner than in traditional programs.

Development Process:

1) Review the Accelerated Program Guidelines
2) Contact the Undergraduate Studies office or Graduate School for consultation
3) Complete this form and create the Catalog Copy
4) Submit through internal college processes for approval
5) Submit to Undergraduate Council for review and approval
6) Submit to Graduate School for Graduate Council approval

For questions, contact either Undergraduate Studies **cynthiab@usf.edu** or the Graduate School at **cdh@usf.edu**

APPROVALS	**Approval of the Accelerated Degree Program:** BS / MS in the program (Major) of COMP ENGINEERING / Masters in Comp Sci *(e.g. BS/MS in Biology)*			
	Name (Printed)	**Signature**	**Action**	**Date**
Faculty Name and Email	Miguel Labrador		Email: mlabrador@usf.edu	3/7/17
Dept. Chair	Sudeep Sarkar		☑ Approve ☐ Disapprove	3/7/17
School Committee Chair or other required approval (if applicable)			☐ Approve ☐ Disapprove	
College Committee Chair			☐ Approve ☐ Disapprove	
College Dean/designee	Sanjukta Bhanja	Sanjukta Bhanja	☑ Approve ☐ Disapprove	3/10/17
Undergraduate Council (UGC) Chair/designee			☐ Approve ☐ Disapprove	
Undergraduate Studies Dean/designee			☐ Approve ☐ Disapprove	
Graduate Council (GC) Chair/designee			☐ Approve ☐ Disapprove	
Graduate School Dean/designee			☐ Approve ☐ Disapprove	

جميع الحقوق

ACCELERATED PROGRAM INFORMATION	UNDERGRADUATE	GRADUATE
Degrees *(e.g. B.A., B.S., M.A., M.S., M.U.R.P., etc.)*	BS	MS
Program Names *(a.k.a. "Major") (e.g. Biology, Math, etc.)*	Computer Engineering	Computer Science
College(s)	Engineering	Engineering
Department(s) (if applicable)		
Proposed Effective Date for first admissions	Fall 2017	
Program Description (provide a brief description of the program. Do not include requirements, just what the program is about, highlights, etc.)	Students pursuing a B.S. in Computer Engineering will earn an M.S. in Computer Science in an accelerated manner by sharing 2 graduate courses (6 credit hours) taken as upper-level departmental (Technical) electives as part of B.S. program. The B.S.C.P. requires a total of 128 hours and the M.S.C.S. requires 30 hours. By sharing 6 credit hours, the total credit hours earned will be 152 hours.	
Is this a single pathway option (e.g. thesis only) or a multi-path option (e.g. thesis and non-thesis, etc.)?		Multi-path as the M.S. degree can be thesis or non-thesis

Curriculum Requirements	
GPA Requirements Programs must establish a minimum undergraduate GPA requirement of at least 3.33 overall and a minimum GPA requirement of 3.50 in the major, having taken a minimum of 15 hours in the undergraduate major, for students to be admitted to an accelerated program. **Note what your Program requirements will be (may be more restrictive, but not less than what's noted above)** Students must have a minimum of a "B" (3.00) in each graduate course. Consequences for not obtaining at least a "B" in each graduate course must be noted in the Departmental Accelerated Program requirements. **Note what the Program's policy will be for students who earn less than a "B" in a graduate course (University Policy allows for courses with "C" or higher count toward graduate degree requirements, with an overall and program GPA requirement of 3.00)**	**GPA Requirements** **3.33 overall and 3.5 in the major** **Policy for where a student earns less than a "B" in a graduate Course:** ***Students must maintain an overall and program requirement of 3.0 in the two graduate electives taken as part of accelerated program. In the case a grade lower than a "B" is obtained, the student must take another approved graduate elective and obtain a grade of "B" or higher.***
List courses to be shared Typically, up to twelve (12) hours of graduate credit may be shared between the graduate and undergraduate degree. Although, with Graduate Council and Graduate School approval, programs may offer accelerated programs with more shared credits. List the undergraduate courses that will be replaced by graduate courses Ex: BIO 2100, satisfied by BIO 6245 BIO 2200, satisfied by BIO 6600	**B.S. in Computer Engineering (CIP 14.0901) requires 128 hours (a) total includes 12 credit hours of upper-level departmental (technical) electives, including up to 6 six credits of independent study, supervised research, and industry internship.** **(b) student enters B.S. in major after completing the state mandated common core prerequisites – typically the first semester of the second year.** **M.S. in Computer Science degree requires 30 hours. The total credit hours after sharing 2 courses (6 credit hours) is 152.** **Students can take 2 approved courses at the 6000-level that meet the upper-level Technical elective requirement.**

	No required major or state mandated common core prerequisite undergraduate course are being replaced by any graduate courses.
Program of Study Programs must complete a Program of Study, develop a plan for academic advising, and tracking of students, including notation of potential financial aid impact.	Attach a representative example. Be certain it matches the degree requirements listed below.

PROGRAM OF STUDY

Note the requirements for both undergraduate and graduate programs, as published in the respective Catalog.

Proposed Accelerated Program of Study

(1): A CP Major will pursue the normal semester plan sequence listed from the current USF Undergraduate Catalog, replacing six credit hours of upper-level departmental (Technical) electives with six credit hours of graduate coursework.

(2): Academic Advising: Once declaring an interest in the Accelerated BSCP/MSCS Program, the student will meet with an undergraduate CP Advisor and graduate CS Advisor. The student will complete "Application Form" as provided by the Graduate School.

Plan of Study: At the time the application is completed, a plan of study template with shared courses will be completed and signed by both undergraduate and graduate advisors. With the help of the advisors, the student will identify two approved graduate courses to be shared that also meet the departmental (Technical) upper-level elective requirement in the attached sample semester plan for the B.S.C.P. degree. Typically, these two electives will be taken in semesters 5 and 6.

(3) Possible Impact on Financial Aid: The regular undergraduate financial aid is generally not affected. When the student is planning to graduate with the B.S., the financial aid can be affected after that. When completing the Application Form for the Accelerated Program, the applicant will be required to take their entire course/semester plan to the USF Financial Aid office and discuss the financial aid implications with them in detail.

(4) Tracking of Students: During the B.S.C.P. program, Accelerated Student applicant will meet with both the undergraduate and graduate advisors each semester to ensure successful completion of the Program requirements. When applying for their B.S.C.P. graduation, students will complete the USF Accelerated Program Progression Form, and enter the CS Master's Program and be advised by the graduate advisor for the remaining degree requirements (see attached).

(5) Benefits: The accelerated program will be a motivating bridge for high performing students. First, the sharing of 2 courses or 6 credit hours will mean that a student can potentially finish the MSCS degree in one academic year, decreasing the time to degree. Further, for students who want to pursue the MSCS with a Master's thesis, the program will allow these students to devote more time to research, and increase the research productivity in terms on number of publications, patents, inventions, etc., allowing them to start their research work while being undergraduates well in line with the Research Experiences for Undergraduates programs. Second, the program will reduce tuition dollars for the student. Third, the program will increase the number of local and US students into the MSCS program, including minorities and students from under-represented groups in Computer Science and Engineering, a critical aspect to maintain the lead of the nation in productivity and innovation. Finally, the quality of the graduate program will be enhanced by attracting high performing students only.

Undergraduate Degree Requirements:

List the current degree requirements for the Undergraduate Degree. Include Total minimum hours.

Listed in the above proposal

Graduate Degree Requirements:

List the current degree requirements for the Graduate Degree as listed in the Graduate Catalog, highlighting which Graduate Courses will be applied to the undergraduate degree (recommend to copy/paste as presented). Copy should include:

- ☐ **Total Program Minimum Hours Required**
- ☐ **Specific course requirements, noting which graduate courses will replace which undergraduate courses.**
- ☐ **Concentration Requirements (if applicable)**
- ☐ **Elective Requirements**
- ☐ **Comprehensive Exam Requirements (if the thesis is used in lieu of the exam, note this accordingly)**
- ☐ **Is a thesis, special-project, or internship required?**
- ☐ **Total number of thesis hours required (if applicable)**
- ☐ **Other requirements**
- ☐ **What the policy is for situations where a student earns less than a "B" in a graduate class.**

Attach the Department program here

B.S. Computer Engineering / M.S. Computer Science
Students pursuing a B.S. in Computer Engineering will earn an M.S. in Computer Science in an accelerated manner by sharing 2 graduate courses (6 credit hours) taken as upper-level Departmental Technical electives as part of the B.S. program. The B.S. requires a total of 128 hours and the M.S. requires 30 hours. By sharing 6 credit hours, the total credit hours earned will be 152 hours.

Target Students and Expected Outcomes
Academically high achieving undergraduate students in the B.S.C.P. program with high overall and major GPA will be targeted for the accelerated program. Expected outcomes are the increase in M.S.C.S. degrees granted, increase in graduate SCH, decrease time to graduation, decrease in tuition dollars for the student, increase in the research productivity, increase in the number of US students receiving M.S.C.S. degrees, including minorities and students from under-represented groups in Computer Science and Engineering, close the national gap of computer scientists needed to satisfy the market demand, and enhance of the quality of the graduate program by addition of academically accomplished students. In addition, some of these M.S.C.S. students will continue on to the Ph.D. program and enhance the doctoral program as well.

Description and Requirements
For admission to the program a student must:
1. Have completed 15 hours in the undergraduate major
2. Have a minimum 3.33 GPA overall; and
3. Have a minimum undergraduate 3.50 GPA in the major.

Undergraduate Degree Requirements for the B.S. Engineering (128 Credit Hours)
All Computer Engineering major students will complete the following:
- All State Mandated Common Course Prerequisites (as noted in the Computer Engineering major catalog information)
- All Entrance Requirements for the Computer Engineering Program (as noted in the Computer Engineering major catalog information)
- Departmental Policies (as noted in the Computer Engineering major catalog information)
- GPA Requirements (as noted in the Computer Engineering major catalog information)
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Math and Science Coursework (27 credit hours)
MAC 2281 Engineering Calculus I or MAC 2311 Calculus I
MAC 2282 Engineering Calculus II or MAC 2312 Calculus II
MAC 2283 Engineering Calculus III or MAC 2313 Calculus III
MAP 2302 Differential Equations or EGN 3433 Modeling and Analysis of Engineering Systems
CHM 2045 General Chemistry I or CHS 2440 Chemistry for Engineers
CHM 2045L General Chemistry I Laboratory or CHS 2440L Chemistry for Engineers Lab
PHY 2048 General Physics I
PHY 2048L General Physics I Laboratory
PHY 2049 General Physics II
PHY 2049L General Physics II Laboratory

Basic Engineering Coursework (15 credit hours)
EGN 3000 Foundations of Engineering
EGN 3000L Foundations of Engineering Lab
EGN 3443 Probability and Statistics for Engineers
EGN 3615 Engineering Economics with Social and Global Implications
EGN 3373 Introduction to Electrical Systems I
EGN 4450 Introduction to Linear Systems
EEE 3394 Electronic Materials

Specialization Coursework (44 credit hours)
COP 2510 Programming Concepts
COP 3514 Program Design
COP 3331 Object-Oriented Software Design
COP 4530 Data Structures
COP 4600 Operating Systems
CDA 3103 Computer Organization
CDA 3201 Computer Logic and Design

CDA 3201L Computer Logic and Design Lab
CDA 4203 Computer System Design
CDA 4203L Computer System Design Lab
CDA 4205 Computer Architecture
CDA 4213 CMOS-VLSI Design
CDA 4213L CMOS-VLSI Design Lab
COT 3100 Introduction to Discrete Structures
COT 4400 Analysis of Algorithms
CIS 4250 Ethical Issues and Professional Conduct (CPST)
CIS 4910 Computer Science Project

Composition and Technical Writing (9 credit hours)
ENC 1101 Composition I
ENC 1102 Composition II
ENC 3246 Communication for Engineers (WRIN)

Departmental Upper-Level Technical Electives (12 credit hours)
Departmental upper-level technical electives are classified as "software", "hardware", and "theory". Computer Engineering students must choose 6 hours of hardware electives and an additional, non-overlapping 6 hours of electives in the Department. A maximum of six (6) hours combined of CIS 4900 and/or any other supervised individual study (that is, CIS 4915 and CIS 4940) are allowed as Departmental upper-level technical electives.

Software electives:
- CAP 4034 Computer Animation Fundamentals
- CAP 4063 Web Application Design
- CAP 4401 Image Processing Fundamentals
- CAP 4410 Computer Vision
- CAP 4662 Introduction to Robotics
- CAP 4800 Systems Simulation
- CEN 4020 Software Engineering
- CEN 4072 Software Testing
- CEN 4721 User Interface Design
- CIS 4364 Cryptology and Information Security
- CNT 4004 Computer Networks I
- CNT 4411 Computing and Network Security
- CNT 4504 Computer Networks II
- COP 3257 JAVA Experienced Programmers
- COP 4020 Programming Languages
- COP 4365 Software Systems Development
- COP 4620 Compilers
- COP 4656 Software Development for Mobile Devices
- COP 4710 Database Design

Hardware electives:
- CDA 4253 FPGA Design and Analysis
- CDA 4621 Control of Mobile Robots

Theory electives:
- COT 4115 Advanced Discrete Structures with Cryptology
- COT 4210 Automata Theory and Formal Languages
- COT 4521 Computational Geometry

Other courses:
- CIS 4900 Independent Study
- CIS 4915 Supervised Research
- CIS 4940 Industry Internship

The Department website undergraduate section contains the most up to date list of Departmental upper-level technical electives. The pre-requisite for most (but not all) Departmental upper-level technical electives is CDA 3201 Computer Logic and Design and COP 4530 Data Structures. Consult with the Department Undergraduate Advisor to learn more about available electives and which courses will – and will not – count towards the degree. Additional electives may be available with a special topics course number (typically, CIS 4930).

Shared B.S./M.S. Requirements
The shared courses are listed below:
Two (2) approved courses at the 6000-level to replace six credit hours of the undergraduate upper-level departmental (Technical) electives, including Independent Study, Supervised Research and Industry Internship.

Graduate Degree Requirements for Accelerated M.S. in Computer Science
PROGRAM REQUIREMENTS
Total Minimum Program Hours: 30 hours post-bachelors
Core Requirements – 9 hours
Course Requirements – 21 hours
This degree requires an undergraduate degree in Computer Science, Computer Engineering, Electrical Engineering or Mathematics

Course Requirements – 9 hour
COP 6611 (3) Operating Systems
EEL 6764 (3) Principles of Computer Architecture
COT 6405 (3) Introduction to the Theory of Algorithms

Additional Course Requirements – 21 hours
Students must select at least 21 hours from the list of available graduate elective courses below in consultation with the Graduate Program Director or individual advisor:

CAP 5400 Digital Image Processing	3
CDA 5416 Introduction to Computer-Aided Verification	3
CAP 5625 Introduction to Artificial Intelligence	3
CAP 5682 Expert and Intelligent Systems	3
CAP 5771 Data Mining	3
EEL 5771 Introduction to Computer Graphics I	3
CNT 6215 Computer Networks	3
CAP 6415 Computer Vision	3
CAP 6455 Advanced Robotic Systems	3
CAP 6615 Neural Networks	3
COP 6621 Programming Languages and Translation	3
EEL 6706 Testing and Fault Tolerance in Digital Systems	3
CAP 6736 Geometric Modeling	3
EEL 6766 Advanced Computer Architecture	3
CIS 6900 Independent Study	1-19
CIS 6930 Special Topics	1-5
CIS 6940 Graduate Instruction Methods	1-4
CIS 6946 Internships/Practicums/Clinical Practice	0-3

At least 16 credit hours must be at the 6000 level. At least 6 hours of electives should be in the following topic areas: advanced algorithms, compilers, databases, parallel computing and distributed systems, computer security, data mining, machine learning, programming languages, or software engineering, as determined by the Graduate Program Director and documented in the Plan of Work. With prior permission from the Graduate Program Director, students can take a maximum of 3 hours of Independent Study or Internship, a maximum of 3 hours of one-hour seminar courses, and up to one graduate level course (3 credit hours) outside of the department.

Comprehensive Exam
For the thesis option, the requirement for a comprehensive exam is satisfied by the successful completion of the Master's thesis. For the non-thesis option, the requirement for a comprehensive exam is satisfied by the successful completion of the core courses with a grade of "B" or higher.

Thesis Option- 6 hours minimum
CIS 6971 (6) Thesis
At least 2 members of the Thesis committee must be from tenured or tenure track Computer Science and Engineering faculty. All thesis option students are required to present and defend their thesis in a public oral examination. The examination must be scheduled after the Thesis Supervisory Committee has approved the Thesis.

The thesis option requires the completion of 24 credit hours of CSE graduate-level courses (9 credit hours of core courses and 15 hours of electives) and 6 credit hours of thesis in computer science related problems, as determined by the Major Professor and documented in the Plan of Work. At least 16 credit hours must be at the 6000 level. With prior permission from the Graduate Program Director, students can take a maximum of 3 hours of Independent Study or Internship, a maximum of 3 hours of one-hour seminar courses, and up to one graduate level course (3 credit hours) outside of the department.

Graduation Requirements:
For the thesis option, students must defend and pass the thesis and have a GPA of 3.00 or better. Non-Thesis Option students must obtain a letter "B" or better in the core graduate courses, have a GPA of 3.00 or better, and pass the comprehensive exam. NO grade below "C" will be accepted in a graduate program. If a student's average falls below 3.00, the student will be placed on probation. Students wishing to continue on for a Ph.D. must apply to the Office of Graduate Studies.

Timeline and benchmarks:

1. To be considered for acceptance into the Accelerated B.S.C.P./M.S.C.S. program, students must have completed a minimum of 15 credit hours in the Computer Science undergraduate major.
2. Students must have a minimum undergraduate GPA of 3.33 overall, and a minimum GPA of 3.50 in the major.
3. Following completion of a minimum of 15 hours in the undergraduate major, students may be considered for acceptance into the accelerated program through faculty nomination or student self-nomination, via submission of an *Accelerated Program Application Form*. Both B.S.C.P. and M.S.C.S. majors will review the applications and approve the nominations. All applications require the approval of USF's Office of Graduate Studies, the College of Engineering's Graduate Program, and the Department of Computer Science and Engineering Programs.
4. To be promoted to graduate status, students must meet all admission requirements of the M.S.C.S. in Computer Science.
5. Students must earn a minimum of a "B" (3.00) in all shared graduate courses. Failure to earn at least a "B" in a shared graduate course will result in academic review by the graduate program. Failure to maintain good standing as a graduate student will result in academic probation, according to the procedures of the USF Office of Graduate Studies.
6. A comprehensive plan of study to complete the accelerated B.S.C.P./M.S.C.S. program will be developed with the guidance of undergraduate and graduate advisors.