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# B.S. In Computer Engineering Student Guide



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San José State University  
Computer Engineering Department

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# General Information

## Office Location

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## Office Hours

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Website Address: <http://www.cmpe.sjsu.edu>

Department Chair: Dr. Sigurd Meldal

## Faculty

Dr. William Barrett  
*Compiler Technology and Biometrics*

Dr. Ahmet Bindal  
*Computer Architecture and Design*

Dr. Lee Chang  
MSSE Graduate Advisor  
*Software systems*

Dr. Rod Fatoohi  
*Computer Networking*

Dr. M.E. Fayad  
*Object-Oriented Software Engineering,  
Design Patterns*

Dr. Jerry Gao  
*Software Engineering  
Internet & Info. Technologies*

Dr. Ahmed Hambaba  
*Software and Information Engineering*

Dr. Donald Hung  
MS CMPE Graduate Advisor  
*Digital Systems*

Dr. Harry Li  
*Multimedia Systems*

Dr. Haluk Özemek  
*Embedded Hardware Design,  
Biomedical Engineering*

Dr. Gilda Pour  
*Software Eng., Compt. & Agent-  
Oriented Enterprise Software  
Engineering*

Dr. Michael Robinson  
*File Processing, Memory Systems*

Dr. Simon Shim  
BSSE Undergraduate Advisor  
*Internet Applications; Multimedia  
Software Systems and Databases*

Dr. Xiao Su  
*Computer Networks, Multimedia,  
Network Security*

Dr. Leonard Wesley  
*A. I., Robotics Agent-Based  
Technologies Network Mgt.*

Dr. Weider Yu  
*Software Engineering,  
Software QA & Testing Methods*

# Program Description

The Computer Engineering Department offers degree programs in Computer Engineering (BS and MS) and Software Engineering (BS and MS).

The mission of the Computer Engineering department is to be the leading provider of high quality, practice-oriented computer and software engineering graduates to California and the nation, and to enhance engineering knowledge through research and scholarship. The computer and software engineering curricula provide a solid background in science and engineering. The majors cover topics ranging from the design of computer hardware and the core software that makes computers run, the design of computing components of other systems (such as in cell-phones, aircraft, digital cameras, etc.), the design and construction of computer networks and of software for truly large-scale enterprise systems. Computer and software engineering students are expected to choose a set of elective courses to focus on a particular area of specialization. Graduates will be able to apply these skills to specific engineering applications.

Every student is assigned to a faculty advisor. The department expects every student to consult regularly with their advisors and to obtain the advisor's approval and signature on all required registration forms. Undergraduate transfer students have a special responsibility to obtain approval of transfer credits with the assistance of their advisor during their first semester at San Jose State University.

The program prepares students to enter the profession immediately or to go on to graduate school. The undergraduate computer engineering curriculum is accredited by the Accreditation Board for Engineering and Technology (ABET).

The objective of the BS Computer Engineering program is to graduate students who have a solid grasp of the fundamentals, and who demonstrate a practical, participatory and professional attitude towards their chosen profession. Three to five years after their graduation we expect the students of the program to have:

- Demonstrated an understanding of the fundamentals of the computer engineering, including its scientific principles, rigorous analysis and creative design.
- Demonstrated the ability to practice hands-on engineering, applying engineering concepts to real world problems.
- Demonstrated effective communication, interpersonal skills, initiative, teamwork, leadership, and professional attitudes and ethics.
- Demonstrated continued intellectual flexibility and growth and a capability for career advancement.

Note: Students should periodically review the B.S. Computer Engineering Student Guide on the Computer Engineering department's web site or obtain the B.S. Computer Engineering Student Guide booklet for the latest information regarding the B.S. in Computer Engineering Program.

# Rules and Policies

## **Major Advisor**

A major advisor is a representative of the program who can assist you in selecting courses and develop a plan for fulfilling the SJSU and major requirements. You must consult your major advisor at least once each semester to remove your hold so that you may sign up for next semester's courses (before the end of the semester).

## **Writing Skills Test (WST) and Engr 100W**

You must pass the WST and have upper division standing in order to register for any advanced general education course (including Engr 100W). Engr100W is a prerequisite for all Computer Engineering senior and technical elective courses. You are urged to take the WST as early as possible.

## **Placement Examinations**

All undergraduate students must take the Entry Level Mathematics (ELM) Exam or be exempted from it prior to placement in the appropriate university mathematics coursework. All students who wish to enroll in the following courses are required to take the corresponding placement examinations.

CmpE 126 requires CmpE 101

CmpE 124 requires EE 101.

Engl 1A requires English Placement Test<sup>1</sup>

Math 30 or Math 20 requires Calculus Placement Examination<sup>2</sup>

Phys 70 requires Physics Placement Test, Physics 50 may be taken without the qualifying exam

## **Drop Procedure**

A student may petition to drop a course after the third week of instruction only for serious and compelling reasons. Poor performance in a class is not considered a serious and compelling reason for late-drop. Verification and meeting with the University Academic Services office is necessary. Please see more detailed policy in SJSU University catalog.

## **Prerequisites and Corequisites**

You can take a CmpE course only if you have completed all prerequisites of the course before taking it. A co-requisite class is one that can be taken at the same time as another class. A student who takes a course without satisfying both of the above conditions will either be dropped by the instructor, asked to retake one or more courses in the proper order, or receive a failing grade.

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<sup>1</sup> A grade of 550 or better on the SAT and a grade of 24 or greater on the English part of the ACT will exempt student from this exam.

<sup>2</sup> A grade of 550 or better on the SAT and a grade of 23 or greater on the Math part of the ACT will exempt student from this exam.

## **Course Load**

You should adjust your course load based on your scholastic record, working hours, and other factors. You should discuss your individual situation with your major advisor. Students will not be allowed to register less for than 12 units and more than 18 units per semester without approval from the department chair/major advisor with the *Petition for Excess Units form*.

## **Technical Electives**

9 semester units of upper-division technical electives are required. You can select the technical electives from the approved list or petition to take a course not on the list. The choice of technical electives must be made in order to complete the major form. You need your major advisor's approval (on the major form) to take any elective course that is not on the approved list. To secure this approval will require your submitting a syllabus defining the selected course. Lower division courses cannot be used as technical electives.

## **General Education**

Questions on GE requirements should be directed to the GE Advisors in Student Services.

## **Major Form**

An approved major form on file is required for taking any senior level CmpE courses. A sample major form is included in this booklet. The following is the process of completing your Major Form:

1. Download the Major Form from the CmpE website.
2. See "Major Form Guidelines" for detailed information.
3. Pick up a graduation application from the Student Services Center and submit it with your major form.
4. Bring the major form to your major advisor for approval.
5. Bring the approved major form and supporting documents to the CmpE office for grade verification and department chair approval.
6. The approved major form packet will be delivered to the Student Services Center upon final approval.

## **Transfer Evaluation**

Before enrolling in CmpE 124 and CmpE126, you must see your Major Advisor to review credit for mathematics, physics, chemistry, and engineering coursework taken elsewhere. Students who fail to do so will either be dropped by the instructor or receive a failure grade.

Online course equivalent information from junior colleges is available on the internet at: <http://artic.sjsu.edu>. This web site offers information on which courses can be transferred from 131 colleges that have articulation agreements with San Jose State University.

The following steps are required for a transfer credit evaluation:

1. Obtain a set of unofficial transcripts showing all the mathematics, physics, chemistry, and engineering courses taken elsewhere that you consider equivalent to the corresponding SJSU courses.

2. If applicable, obtain copies of catalog descriptions of pertinent courses that were taken at schools other than California community colleges. The King Library normally has copies of catalogs for most U.S. Colleges.
3. If applicable, fill out, attach catalog descriptions, and submit to the appropriate SJSU departments the proper equivalency evaluation forms for those courses taken at schools other than California community colleges. The U.S. college forms can be obtained from the CmpE Department, while the foreign college forms are processed through the Student Services Center. Following review, these forms should be returned to the CmpE Department.
4. Complete the worksheet included in the transfer evaluation packet in ink. A list of course equivalencies between California community colleges and SJSU is included. Courses not found in the list require completion of equivalency evaluation forms by the pertinent department to complete the evaluation.
5. If all your transfer coursework was done at California community colleges, attach the set of transcripts to the completed worksheet and submit to your Major Advisor. Within a week or so, unless there are problems, your official transfer evaluation should be complete and placed in your file with the CmpE department.
6. If part (or all) of your pertinent transfer coursework was taken at schools other than California community colleges, attach the set of transcripts and copies of the signed equivalency evaluation forms to the completed worksheet and submit in person to your major advisor. Once processed, your official transfer evaluation will be signed by your major advisor and placed in your file with the CmpE Department.

## CmpE Policies Regarding Disqualification, Reinstatement, and Repeating Courses

From the **SJSU Catalog** (2002-2004; page 431)  
Disqualification in the Major

**Disqualified students to see the Chair for reinstatement.**

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Repeating courses for Academic Renewal

**For academic renewal students need to follow the university policy, which can be found at:**

<http://www.sjsu.edu/senate/s00-10.htm>

(At the time of adding the course, students **must obtain** the course instructor's signature on the Academic Renewal form. At the department's discretion, the student may be given a lower priority (S97-1) for adding the course than students attempting to add the class for the first time)

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Reinstatement after Academic Disqualification

**From the SJSU Catalog** (2004-2006; page 444)  
Reinstatement and Readmission of Undergraduate Students after Academic Disqualification  
In all cases, permission of the major department is required for reinstatement to that major.

# Requirements for B.S. Degree

## (Total Minimum 133 Semester Units)

General Education.....	33
Lower Division	
Upper Division	
Physical Education .....	2
Preparation for the Major .....	29
Math 30, 31, 32, 42, 133A	
Phys 70, 71 (or 50, 51, 52)	
Chem 1A	
Engineering Common Core .....	15
CmpE 46, Engr 10, ME 20, EE 97, EE 98, ME 109 (or MatE 153)	
Required Courses in Engineering .....	45
CmpE 101, 102, 110, 124, 125, 126, 127, 130, 131, 140, 142, 152, 195A and 195B	
EE 101, ISE 130, Math 129A (or Math 138 or Math 143C)	
Approved Upper Division Electives .....	9
Total .....	133

# Sample Four-Year Plan

**(Total minimum units required for degree is 133)**

## FRESHMAN YEAR: 33 units

<u>Fall</u>	<u>Units</u>	<u>Spring</u>	<u>Units</u>
Math 30	3	Math 31	4
Chem 1A	5	Phys 70 <sup>3</sup>	4
Engr 10	3	ME 20	2
Engl 1A	3	Engl 1B	3
Oral Communications	<u>3</u>	Human Understanding & Develop.	<u>3</u>
	17		16

## SOPHOMORE: 34 Units

<u>Fall</u>	<u>Units</u>	<u>Spring</u>	<u>Units</u>
Math32	3	Math 133A	3
Phys 71 <sup>3</sup>	4	EE 98	3
Gen. Ed.	3	EE 97	1
Gen. Ed.	3	Gen. Ed.	3
Math 42	3	Gen. Ed.	3
Human Performance	<u>1</u>	CmpE 46	3
	17	Human Performance	<u>1</u>
			17

*Passing Writing Skills Test (WST) is required before taking 100W*

## JUNIOR YEAR: 38 Units

<u>Fall</u>	<u>Units</u>	<u>Spring</u>	<u>Units</u>
Math 129A or 138 or 143C	3	CmpE 102	3
CmpE 110	3	CmpE 125	3
CmpE 124	3	CmpE 127	3
CmpE 126	3	CmpE 130	3
ISE 130	3	CmpE 142	3
Engr 100W	3	CmpE 131	<u>3</u>
CmpE 101 <sup>4</sup>	1		18
EE 101 <sup>5</sup>	<u>1</u>		
	20		

*All CmpE senior courses require the completion of ENGR 100W and Major Form on file*

## SENIOR YEAR: 28 Units

<u>Fall</u>	<u>Units</u>	<u>Spring</u>	<u>Units</u>
CmpE 140	3	ME 109 or MatE 153	3
CmpE 152	3	CmpE195B	3
CmpE 195A	1	Approved Tech. Elec.	3
Approved Tech. Elec.	3	Adv. Gen. Ed.	<u>3</u>
Approved Tech. Elec.	3		12
Adv. Gen. Ed.	<u>3</u>		
	16		

<sup>3</sup> Physics 50, 51, 52 can replace Physics 70, 71.

<sup>4</sup> Can earn credit for CmpE 101 by passing CmpE101 Exam with CR (Prerequisite for CmpE 126)

<sup>5</sup> Can earn credit for EE 101 by passing EE101 Exam with CR (Prerequisite for CmpE 124)

# General Education Checklist

## College of Engineering General Education Checklist for Students Entering as *Freshmen Only*

### (A) *American Studies Option*

Course Name	Units	Comments	Suggested Semester
American Studies 1A	6	Lower Div. Core	Fall of Sophomore year
American Studies 1B	6	Lower Div. Core	Spring of Sophomore year
English 1A	3	Lower Div. Core	Fall of Freshmen year
English 1B	3	Lower Div. Core	Spring of Freshmen year
Human Und. & Dev. (E)	3	Lower Div. Core	Spring of Freshmen year
Oral Communications (A1)	3	Lower Div. Core	Fall of Freshmen year
Human Performance	1	Upper Div. Adv.	Fall of Sophomore year
Human Performance	1	Upper Div. Adv.	Spring of Sophomore year
Engr 100W (R)	3	Upper Div. Adv.	Fall of Junior year
Adv. GE: Self & Society (S)	3	Upper Div. Adv.	Fall of Senior year
Adv. GE: Culture & Civilization (V)	3	Upper Div. Adv.	Spring of Senior year

### (B) *Humanities Honors Option (by Invitation)*

Course Name	Units	Comments	Suggested Semester
Humanities 1A	6	Lower Div. Core	Fall of Freshmen year
Humanities 1B	6	Lower Div. Core	Spring of Freshmen year
Humanities 2A	6	Lower Div. Core	Fall of Sophomore year
Humanities 2B	6	Lower Div. Core	Spring of Sophomore year
Human Performance	1	Upper Div. Adv.	Fall of Sophomore year
Human Performance	1	Upper Div. Adv.	Spring of Sophomore year
Engr 100W (R)	3	Upper Div. Adv.	Fall of Junior year
Adv. GE: Self & Society (S)	3	Upper Div. Adv.	Fall of Junior year
Adv. GE: Culture & Civilization (V)	3	Upper Div. Adv.	Spring of Junior year

### Notes:

1. Upper division General Education (GE) courses are not transferable.
2. Students must pass the Writing Skills Test (WST) before taking upper division General Education.
3. Engineering students must satisfy the Mathematics and Science requirements of General Education (GE) through the courses taken for the major. Both plans in (A) and (B) above satisfy the rest of the lower division GE requirements.
4. Both plans in (A) and (B) also satisfy the American Institutions requirements.

**College of Engineering**  
**General Education Checklist for *Transfer* Students**

<b>Course Name</b>	<b>Units</b>	<b>Comments</b>	<b>Suggested Semester</b>
English 1A	3	Lower Div. Core	Fall of Freshmen year
English 1B	3	Lower Div. Core	Spring of Freshmen year
Humanities (Art) (C1)	3	Lower Div. Core	Fall of Sophomore year
Humanities (Letters) (C2)	3	Lower Div. Core	Spring of Sophomore year
Social Science (D1) Human Behavior	3	Lower Div. Core	Spring of Freshmen year
Social Science (D2) Comp. Systems	3	Lower Div. Core	Fall of Sophomore year
Social Science (D3) Social Issues	3	Lower Div. Core	Spring of Sophomore year
Human Und. & Dev. (E)	3	Lower Div. Core	Spring of Freshmen year
Oral Communications (A1)	3	Lower Div. Core	Fall of Freshmen year
Human Performance	1	Upper Div. Adv.	Fall of Sophomore year
Human Performance	1	Upper Div. Adv.	Spring of Sophomore year
Engr 100W (R)	3	Upper Div. Adv.	Fall of Junior year
Adv. GE: Self, Society and Equality (S)	3	Upper Div. Adv.	Fall of Senior year
Adv. GE: Culture & Civilization (V)	3	Upper Div. Adv.	Spring of Senior year

**Notes:**

1. Upper division General Education (GE) courses are not transferable.
2. Students must pass the Writing Skills Test (WST) before taking upper division General Education.
3. For Social Science D2-D3, students should take one of the following sequences in order to satisfy the American Institutions requirement:
  - a. History/Political Science 15A-15B
  - b. Afro-American Studies 2A-2B
  - c. Asian American Studies 33A-33B
4. Students who have taken the Social Science D2-D3 at the community college should make sure that these courses also satisfy the American Institutions requirement.
5. Students who have completed the IGETC or CSU BREADTH programs at community college receive full credit for lower division General Education (GE). Students who have not completed either of these programs must satisfy the 27-unit core lower division requirement given above. Individual courses within this requirement can be satisfied by courses taken at community college.
6. Engineering students satisfy the Mathematics and Science requirements of General Education through courses taken for the major. The courses listed above satisfy the remainder of lower division General Education.



# B.S. in Computer Engineering Advanced Registration Form

**Admission Date:** \_\_\_\_\_

**CmpE Student Guide Date:** \_\_\_\_\_

\_\_\_\_\_  
(Last Name) (First Name) (MI)

SID: \_\_\_\_-\_\_\_\_-\_\_\_\_

\_\_\_\_\_  
(Phone Number) (Email address)

I request approval to enroll in the following for \_\_\_\_\_ semester.

I plan to work part time \_\_\_\_ hrs per week or full time \_\_\_\_ hrs, while taking classes.

<u>Department</u>	<u>Number</u>	<u>Units</u>	<u>Prerequisites or Corequisites (CmpE courses only) *</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Total Units: \_\_\_\_\_ (Maximum 18 units)

I certify that, to my best knowledge, I will (1) have completed all prerequisites of the above engineering courses before taking them, and (2) take all corequisites at the same time or have taken all corequisites before taking the above Engineering courses. I understand that I will either be dropped by the instructor or get a failure grade if I take a course without satisfying both of the above conditions. I further certify that I have not taken any of these courses twice in the past.

Student signature \_\_\_\_\_ Date \_\_\_\_\_

Advisor signature \_\_\_\_\_ Date \_\_\_\_\_

**Prerequisite List:**

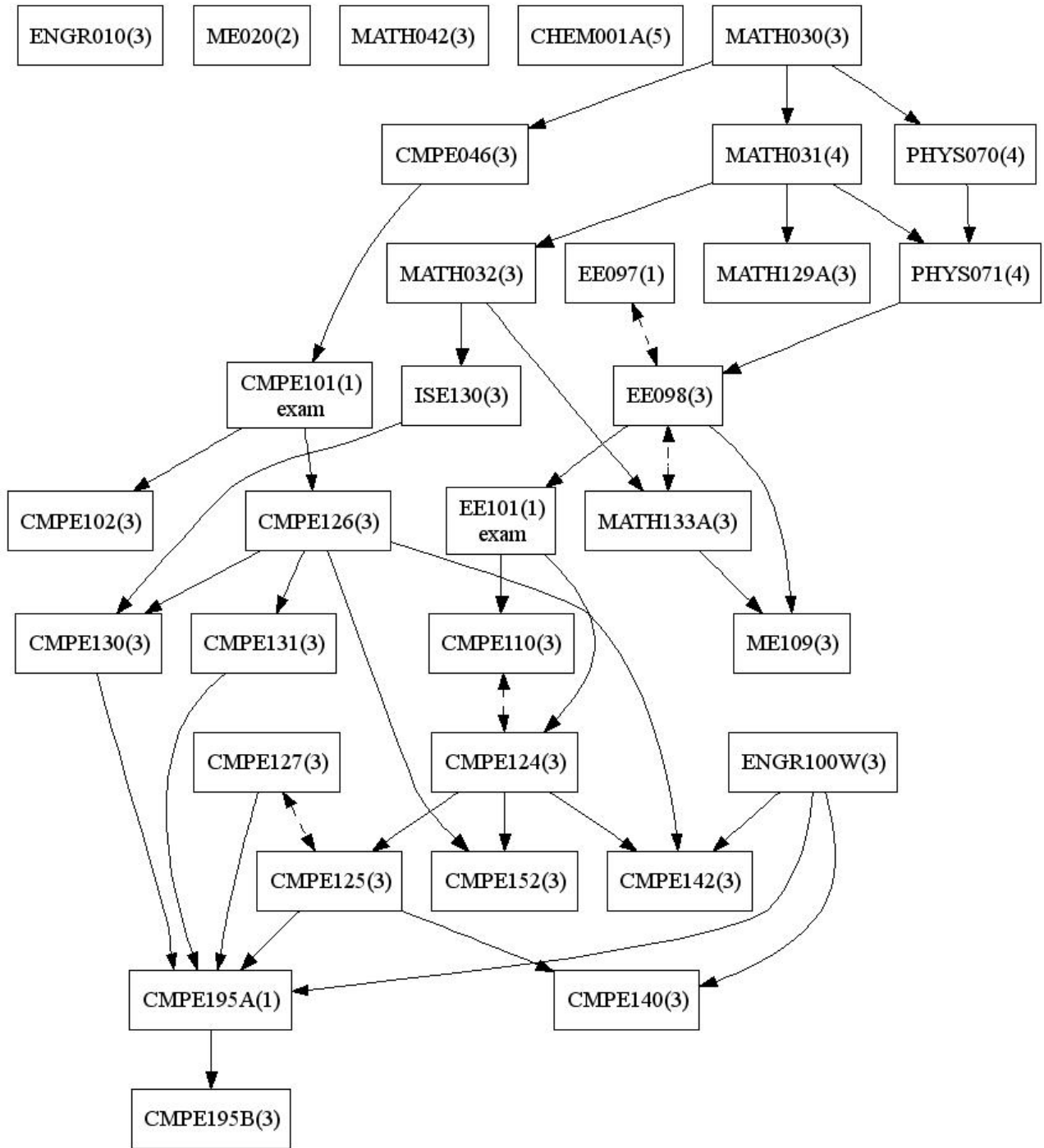
\* The list of prerequisites for CmpE program courses and approved technical electives can be found on the CmpE department web page. Click on Advising Form Information link on the main department web page.

## **PREREQUISITE LIST:**

Math 30: Satisfactory score on calculus placement exam.  
Math 30P: Satisfactory score on calculus placement exam or Math 19 (with a grade of C- or better).  
Math 31: Math 30 or Math 30P (with a grade C- or better).  
Math 32: Math 31 (with a grade C- or better).  
Math 42: Math 19 (with a grade of C- or better) or eligibility for Math 30 or 30P.  
Math 129A: Math 31 (with a grade of C- or better) or instructor's consent.  
Math 138: Math 32 (with a grade of C- or better) or instructor's consent.  
Math 143C: Math 32, one of CS 50, 46A or 49 (with a grade of C- or better) or instructor's consent.  
Math 133A: Math 32 (with a grade of C- or better) or instructor's consent.  
Phys 70: Physics placement exam, Math 30 or Math 30P (with a grade C- or better).  
Phys 71: Phys 70 and Math 31 (both with grades C- or better).  
Phys 50: Math 30 or Math 30P (with a grade C- or better).  
Phys 51: Phys 50 or 70, Math 31 (both with grades C- or better).  
Phys 52: Phys 50 or 70 (with a grade C- or better).  
Chem 1A: Chem 10 (with a grade of C) or instructor's consent, eligibility for Math 19 and Engl 1A..

Engr 10: None.  
Engr 100W: Completion of core GE, satisfaction of Writing Skills Test (WST).  
ME 20: None.  
ME 109: Phys 71, Math 133A, EE 98.  
MatE 153: Phys 71, Chem 1A, EE 98, Math 133A.  
EE 97: EE 98 as co-requisite or prerequisite.  
EE 98: Phys 51 or 71, co-requisite is Math 133A.  
EE 101: EE98 (with a grade C or better).  
ISE 130: Math 32.

CmpE 46: Math 30.  
CmpE 101: CmpE 46 (with a grade C or better).  
CmpE 102: CmpE 101 (with a grade of CR).  
CmpE 110: EE 101 (with a grade of CR), co-requisite is CmpE 124.  
CmpE 124: EE 97, EE 98, EE101.  
CmpE 125: CmpE 124 (with a grade of C or better).  
CmpE 126: CmpE 101 (with a grade of CR).  
CmpE 127: CmpE 125 (with a grade of C or better).  
CmpE 130: CmpE 126, ISE 130 (both with grades C or better).  
CmpE 131: CmpE 126 (with a grade of C or better).  
CmpE 140: CmpE 125 (with a grade of C or better), Engr 100W.  
CmpE 142: CmpE 124, CmpE 126 (both with grades C or better), Engr 100W.  
CmpE 152: CmpE 124, CmpE 126 (both with grades C or better).  
CmpE 195A: CmpE 125, CmpE 127, CmpE 130, CmpE 131, ISE 130, Engr 100W, Major Form.  
CmpE 195B: CmpE 195A (with a grade of C or better).



PREREQUISITE MAP  
 BS Computer Engineering Department  
 Dashed arrows indicate corequisites (courses taken in same semester)