

COMPUTER ENGINEERING (180 UNITS) ROADMAPS

MILESTONES:

1. CMPS 221, 224, and 223 SHOULD be completed by the end of the FIRST year.
2. MATH 204 (fourth quarter Calculus) MUST be completed by the end of the second year. In the roadmaps below it is assumed that the student will start Calculus in Fall of the first year. If the student has to start in MATH 192 or MATH 190/191 then it will still be possible to finish MATH 204 by the end of the second year BUT there is very little margin for error.
3. The Physics sequence, PHYS 221, 222, 223 and the circuit class PHYS/ENGR 207 should be completed by the end of the second year. The sequence starts in Fall and Winter. Note that PHYS/ENGR 207 requires PHYS 222 and MATH 202.
4. Goal A3 is waived for Computer Engineering majors (only) at the time they take CMPS 295.
5. MATH 204 is offered in Fall and Spring only.
6. CMPS 295, 320, and 360 are offered every OTHER quarter.
7. CENG 320 MUST be completed by the end of the second year; other second year courses such as CMPS 321 and CMPS 360 (\*) could be postponed until the third year (and GenEd taken in their places).
8. CENG 304 and CENG 307 MUST be completed by the end of the third year.

FRESHMAN ENTERING in ODD YEAR (e.g. 2011/12)

Odd			
Year 1	Fall (18)	Winter (15)	Spring (15)
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	A2 - ENGL 110	A1 - COMM 108	
	B4 - MATH 201	MATH 202	MATH 203
	CMPS 221	CMPS 224	CMPS 223
	CMPS 150 (1)		A3 - CMPS 295
	CSUB 101 (2) Intro. Eng.		
Even			
Year 2	Fall (16)	Winter (16)	Spring (16)
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	B1,B3 - PHYS 221 (6)	PHYS 222 (6)	PHYS 223 (6)
	MATH 204	*CMPS 321 Comp. Arch.	PHYS/ENGR 207
	B2 - BIOL 100/201	CENG 320 Digital C.	*CMPS 360 Oper. Sys.
Odd			
Year 3	Fall (15)	Winter (15)	Spring (15)
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	CENG 304 Linear Sys.	CENG 307 Analog C.	C2
	D3 - PLSI 101	CENG 420 Emd. Sys.	CENG 322 VHDL
	US History Req't.	C1	C3
Even			
Year 4	Fall (15)	Winter (15)	Spring (10)
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	Theme II - Phil 316	Theme III	GRE
	CE Elective	CE Elective	CE 490
	D2 - ECON 202	D1	

\* could be postponed until third year and place filled with GenEd.

FRESHMAN ENTERING in EVEN YEAR (e.g. 2012/13)

Even

Year 1	Fall (18)	Winter (15)	Spring (15)
	A2 - ENGL 110		A1 - COMM 108
	B4 - MATH 201	MATH 202	MATH 203
	CMPS 221	CMPS 224	CMPS 223
	CMPS 150 (1)	A3 - CMPS 295	
	CSUB 101 (2) Intro. Eng.		

Odd

Year 2	Fall (16)	Winter (16)	Spring (16)
	B1,B3 - PHYS 221 (6)	PHYS 222 (6)	PHYS 223 (6)
	MATH 204	*CMPS 321 Comp. Arch.	B2 - BIOL 100/201
	CENG 320 Digital C.	*CMPS 360 Oper. Sys.	PHYS/ENGR 207

Even

Year 3	Fall (15)	Winter (15)	Spring (15)
	CENG 304 Linear Sys.	CENG 307 Analog C.	C2
	CENG 420 Emd. Sys.	D3 - PLSI 101	CENG 322 VHDL
	US History Req't.	C1	C3

Odd

Year 4	Fall (15)	Winter (15)	Spring (10)
	Theme II - Phil 316	Theme III	GRE
	CE Elective	CE Elective	CE 490
	D2 - ECON 202	D1	

\* could be postponed until third year and place filled with GenEd.

BAKERSFIELD COLLEGE EQUIVALENT REQUIRED COURSES

BAKERSFIELD COLLEGE

CSU BAKERSFIELD CS CMPS

ENGR B17/L	PHYS/ENGR 207
ENGR B47	CSUB 101 (Intro. Eng. Section)
ENGR B19C/C++	CMPS 221
COMS B35	CMPS 223 (CMPS 222 not required)
COMS B27	CMPS 224
N/A	CMPS 295
PHYS 4A, 4B, 4C	B1, B3 - PHYS 221, 222, 223
MATH 6A	B4 - MATH 201
MATH 6B	MATH 202
MATH 6C	MATH 203 and MATH 204
MATH 6D	(MATH 205 is optional at CSUB)
MATH 6E	MATH 330 (now optional)
COMM B1	A1
ENGL B1a	A2
BIOL B3a or BIOL B11	B2
ECON B1 or ECON B2	D2
HIST B17a and POLS B1	US Hist and D3 State Gov't

COMPUTER ENGINEERING 2011/13 DEGREE REQUIREMENT CHECKLIST

Lower Division (21)

- \_\_\_\_\_ CMPS 150(1)/CMPS 221 Programming Fundamentals
- \_\_\_\_\_ CMPS 223 Data Structures and Algorithms
- \_\_\_\_\_ CMPS 224 Assembly Language Programming
- \_\_\_\_\_ CMPS 295 Discrete Structures

Upper Division required (40)

- \_\_\_\_\_ CENG 304 Linear Systems
- \_\_\_\_\_ CENG 307 Analog Circuits
- \_\_\_\_\_ CENG 320 Digital Circuits
- \_\_\_\_\_ CMPS 321 Computer Architecture
- \_\_\_\_\_ CENG 322 Digital Design with VHDL
- \_\_\_\_\_ CMPS 360 Operating Systems
- \_\_\_\_\_ CENG 420 Embedded Systems
- \_\_\_\_\_ CENG 490 Senior Project in Computer Engineering

Upper Division Electives CENG (select 2 courses from two different areas) (10)

- \_\_\_\_\_ Communications, Signal Processing, Networking:
  - CENG 422 Digital Signal Processing
  - CENG 423 Digital Communications
- \_\_\_\_\_ Embedded Systems, Computer Control, Robotics
  - CENG 457 Robotics
  - CENG 432 Instrumentation, Control and Data Acquisition
- \_\_\_\_\_ Computer Vision and Image Processing
  - CENG 446 Image Processing
  - CENG 447 Computer Vision

Cognate Requirements (43)

- \_\_\_\_\_ MATH 201 Calculus I (satisfies B4)
- \_\_\_\_\_ MATH 202 Calculus II
- \_\_\_\_\_ MATH 203 Calculus III
- \_\_\_\_\_ MATH 204 Calculus IV - Vector Calculus
- \_\_\_\_\_ PHYS 221 Classical Physics I - Mechanics (6 - satisfies B1, B3)
- \_\_\_\_\_ PHYS 222 Classical Physics II - Thermodynamics and E&M (6)
- \_\_\_\_\_ PHYS 223 Optics and Modern Physics (6)
- \_\_\_\_\_ PHYS 207 Electric Circuits

Lower Division General Education (50)

- \_\_\_\_\_ A1 - COMM 108
- \_\_\_\_\_ A2 - ENGL 110
- \_\_\_\_\_ A3 - waived at the time the CENG major takes CMPS 295
- \_\_\_\_\_ B2 - BIOL 100
- \_\_\_\_\_ C1, \_\_\_\_\_ C2, \_\_\_\_\_ C3
- \_\_\_\_\_ US History Requirement
- \_\_\_\_\_ D1
- \_\_\_\_\_ D2 ECON 202 (Macroeconomics)
- \_\_\_\_\_ D3 PLSI 101 (also satisfies State Government Requirement)

Upper Division General Education (16)

- \_\_\_\_\_ Theme I - waived for CMPS and CENG majors
- \_\_\_\_\_ Theme II - PHIL 316 (Ethics)
- \_\_\_\_\_ Theme III
- \_\_\_\_\_ Gender, Race, or Ethnicity (GRE)
- \_\_\_\_\_ University Elective (1)