

COMPUTER ENGINEERING ROADMAPS

MILESTONES:

1. CMPS 221, 224, and 223 SHOULD be completed by the end of the FIRST year.
2. MATH 204 (fourth quarter Calculus) and MATH 330 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 and MATH 330 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 and 330 are 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)
	A2 - ENGL 110 B4 - MATH 201 CMPS 221 CMPS 150 (1) CSUB 101 (2) Intro. Eng.	A1 - COMM 108 MATH 202 CMPS 224	MATH 203 CMPS 223 A3 - CMPS 295

Even

Year 2	Fall (16)	Winter (16)	Spring (16)
	B1,B3 - PHYS 221 (6) MATH 204 MATH 330	PHYS 222 (6) *CMPS 321 Comp. Arch. CENG 320 Digital C.	PHYS 223 (6) PHYS/ENGR 207 *CMPS 360 Oper. Sys.

Odd

Year 3	Fall (20)	Winter (20)	Spring (20)
	CENG 304 Linear Sys. D3 - PLSI 101 B2 - BIOL 100/201 US History Req't.	CENG 307 Analog C. CENG 420 Emd. Sys. C1 D2 - ECON 202	D1 CENG 322 VHDL C3 C2

Even

Year 4	Fall (15)	Winter (15)	Spring (15)
	Theme II - Phil 316 CS Elective CE Elective	Theme III CS Elective CE Elective	GRE CE 490 CE Elective

* 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.	MATH 330
	CENG 320 Digital C.	*CMPS 360 Oper. Sys.	PHYS/ENGR 207
Even			
Year 3	Fall (20)	Winter (20)	Spring (20)
	CENG 304 Linear Sys.	CENG 307 Analog C.	D1
	CENG 420 Emd. Sys.	D3 - PLSI 101	CENG 322 VHDL
	B2 - BIOL 100/201	C1	C3
	US History Reqt.	D2 - ECON 202	C2
Odd			
Year 4	Fall (15)	Winter (15)	Spring (15)
	Theme II - Phil 316	Theme III	GRE
	CS Elective	CS Elective	CE 490
	CE Elective	CE Elective	CE Elective

* 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
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 3 courses - one from each area) (15)

- _____ 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

Upper Division electives CMPS (select 2 courses from the following) (10)

- _____ CMPS 335 Software Engineering,
- _____ CMPS 435 Advanced Software Eng.
- _____ CMPS 342 Database Systems, CMPS 442 Advanced Database Systems
- _____ CMPS 356 Artificial Intelligence, CMPS 456 Advanced Artificial Int.
- _____ CMPS 371 Computer Graphics, CMPS 471 Advanced Computer Graphics
- _____ CMPS 376 Computer Networks, CMPS 476 Advanced Computer Networks

Cognate Requirements (48)

- _____ MATH 201 Calculus I (satisfies B4)
- _____ MATH 202 Calculus II
- _____ MATH 203 Calculus III
- _____ MATH 204 Calculus IV - Vector Calculus
- _____ MATH 330 Linear Algebra
- _____ 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 (15)

- _____ Theme I - waived for CMPS and CENG majors
- _____ Theme II - PHIL 316 (Ethics)
- _____ Theme III
- _____ Gender, Race, or Ethnicity (GRE)