



Department of Computer Science

College of Science and Mathematics
Montclair State University, Richardson Hall



MONTCLAIR STATE
UNIVERSITY

Computer Science Major Program

Gen Ed Effective Fall 2008

Major Effective Fall 2003

Undergraduate Requirements for the **Concentration in Professional Computing**

I. GENERAL EDUCATION REQUIREMENTS	38 SEMESTER HOURS
A. New Student Seminar	1
B. Contemporary Issues Courses	
Removed	
C. Communications	
1. Writing (ENWR 105-106)	6
2. Communications	3
D. Fine and Performing Arts	3
F Humanities	
1. World Literature/General Humanities	3
2. Philosophy/Religion	3
G. Computer Science (included in major)	0
H. Mathematics (included in major)	0
I. Natural/Physical Sciences with Laboratory	0
J. Physical Education	1
K. Social Science	
1. American or European History	3
2. Non-Western Cultural Perspectives	3
3. Social Science Course	3
L. General Education Elective	3
II. WORLD LANGUAGE AND CULTURES	3-6 SEMESTER HOURS
Multicultural Awareness	0-3 ¹ SEMESTER HOURS
III. COLLATERAL REQUIREMENTS	12 SEMESTER HOURS ²
IV. MAJOR REQUIREMENTS	60 SEMESTER HOURS
V. FREE ELECTIVE CREDITS	1-7 SEMESTER HOURS
MINIMUM NEEDED FOR GRADUATION:	120 SEMESTER HOURS

¹ Students must also include a course that meets the Multicultural Awareness requirement among their General Education or Free Elective courses.

² Students who select collateral sequence number three (Acct I, Acct II and Mgmt 231 see p.3; II A.) will still be required to complete separate general education requirements in Natural / Physical Science and category L electives.

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1) General Education Req.	38	3) Major and Collateral Courses	72
a) New Student Seminar _____	1	a) Collateral Courses - one of the following sequences.	12
c) Communication		1) PHYS 191, 192	___
Writing/Lit.	6	2) CHEM 120, 121	___
_____		3) BIOL 112, 113, 213	___
_____		Students who take elective 1. or 2. must take at	
Comm _____	3	least 4 additional credits of courses for	
d) Fine & Perf Arts _____	3	for Science Majors from courses on page 3.	
f) Humanities		(The Biology sequence satisfies the requirement	
World Lit / Gen Hum _____	3	of 12 hours in Science.)	
Philosophy / Religion _____	3	b) Required Mathematics Courses	18
g) Comp Sci (Satisfied by taking Found		MATH 122 Calculus I (4)	___
Comp Sci I)		MATH 221 Calculus II (4)	___
h) Mathematics (Satisfied by taking		MATH 335 Elements of Linear Algebra (4)	___
Calculus I)		STAT 330 Modern Statistics I (3)	___
i) Natural / Physical Sciences		CMPT 285 Discrete Mathematics (3)	___
(Satisfied by courses if taken in 3.a)		c) Required Computer Science Courses - Core	24
j) Physical Education _____	1	CMPT 183 Found Comp Sci I (3)	___
k) Social Science		CMPT 184 Found Comp Sci II (3)	___
Amer / Eur Hist _____	3	CMPT 280 Asm Lang and Comp Arch (3)	___
Non-Western Cult _____	3	CMPT 281 Theory of Digital Machines (3)	___
Social _____	3	CMPT 287 Data Str, File Str, and Alg (4)	___
l) General Education Elective	3	CMPT 371 Soft. Eng. Analysis and Des.(4)	___
_____		CMPT 372 Soft. Eng. Impl. and Testing (4)	___
2)		d) Required Computer Science Advanced	12
World Languages	3 - 6	CMPT 330 Network Technology (3)	___
_____		CMPT 385 Comp Sys Org (3)	___
_____		CMPT 481 Operating Systems (3)	___
_____		CMPT 484 Fund of Prog Lang (3)	___
Multicultural Awareness _____	0- 3	e) Computer Science Electives	6
		2 Courses selected from the Electives on page 4 (See the	
		E preceding the course).	

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Collateral Courses in Science

Students must take **one** of the sequences requiring a lab. Those not taking the Biology sequence **must** take another science course for a total of at least **12** credits.

Biology:

Twelve credits of lab work:

BIOL 112 Principles of Biology I **and** BIOL 113 Principles of Biology II **and** BIOL 213 Introduction to Ecology

Chemistry:

Eight credits of lab work:

CHEM 120 General Chemistry I **and** CHEM 121 General Chemistry II

Electives:

CHEM 230, 231 Organic Chemistry I, II

CHEM 232 Experimental Organic Chemistry (Prerequisite CHEM 230)

Physics:

Eight credits of lab work:

PHYS 191, 192 University Physics I, II

Electives:

PHYS 210 Mechanics

PHYS 240 Electricity and Magnetism

PHYS 242 Circuit Theory

PHYS 245 Electronics and Digital Circuits

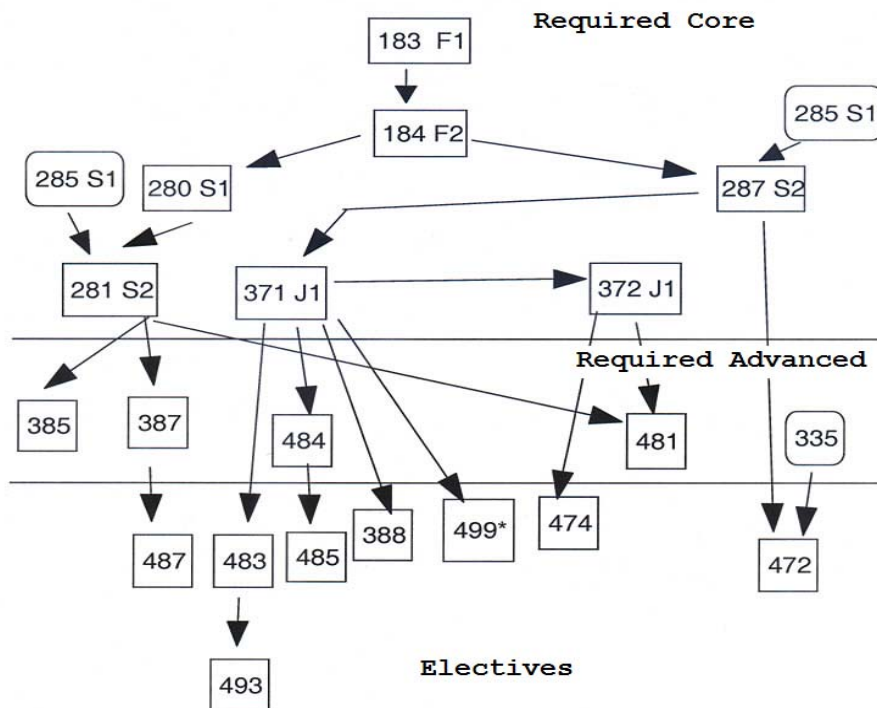
PHYS 247 Microprocessors and Their Applications

PHYS 280 Astronomy

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PREREQUISITE STRUCTURE

C = Required Core R = Required Advanced E = Elective

C 183 Found. of Comp. Sci I

C 184 Found. of Comp. Sci II

C 280 Asm. Lang. and Comp. Arch

C 281 Theory of Digital Machines

C 285 Discrete Math Structures

C 287 Data Structures, File Structures and Algorithms

C 371 Software Analysis and Design – SE I

C 372 Software Implementation and Testing – SE II

R 385 Comp. Sys. Organization

R 387 Principles of Data Comm.

E 388 Foundations of AI

E 472 Computer Graphics

R 481 Operating Systems

E 483 Database Systems

R 484 Fund. of Prog. Languages

E 485 Compiler Construction

E 487 Local Area Networks

E 493 Advanced Data Base Theory

E 499 COOP in Computer Science

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Course requirements of Curriculum (year by year and term by term)

Year; Semester or Quarter	Course (Department, Number, Title)	Category (credit hours)					
		Comp Sci. Core	Comp. Sci. Adv.	Math.	Sci.	Gen. Ed.	Other
Freshman Semester 1	CMPT 183 Foundations of Comp Sci I	3					
	MATH 122 Calculus I			4			
	New Student Experience					1	
	Writing/Literature					3	
	Collateral Science Course ³				4		
Freshman Semester 2	CMPT 184 Foundations of Comp Sci II	3					
	MATH 221 Calculus II			4			
	Writing / Literature					3	
	Collateral Science Course				4		
	General Education Course					3	
Sophomore Semester 1	CMPT 280 Assembler Lang and Comp Arch	3					
	CMPT 287 Data Str, File Str, and Alg	4					
	CMPT 285 Discrete Math Structures			3			
	Communications Requirement					3	
	Scientific Issues					3	
Sophomore Semester 2	CMPT 281 Theory of Digital Machines	3					
	CMPT 371 Soft. Eng. Analysis and Design	4					
	MATH 335 Linear Algebra			4			
	Elective Science Course				4		
	Interdisciplinary Issues					3	

³ Collateral Science Course must be one of the following sequences: PHYS 191, 192; CHEM 120, 121; BIOL 112, 113, 213.

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Course requirements of Curriculum (Continued)

Year; Semester or Quarter	Course (Department, Number, Title)	Category (credit hours)					
		Comp. Sci. Core	Comp. Sci. Adv.	Math.	Sci.	Gen. Ed.	Other
Junior Semester 1	CMPT 385 Computer System Org		3				
	CMPT 372 Soft. Eng. Impl. and Testing	4					
	STAT 330 Modern Statistics I (3)			3			
	General Education					3	
	General Education					3	
Junior Semester 2	CMPT 481 Operating Systems		3				
	CMPT 484 Fund. of Prog. Lang.		3				
	General Education					7	
	Free Elective						1
Senior Semester 1	CMPT 387 Prin Data Communication		3				
	CMPT Elective		3				
	General Education					9	
Senior Semester 2	CMPT Elective		3				
	General Education					6	
	PROGRAM TOTAL	24	18	18	12	47 ⁴	1

⁴ The Gen Ed requirement is 54 semester hours. 10 hours come from the Mathematics, Natural/Physical Science and Computer Science courses taken.

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Tentative Course Offerings

Required Core, Required Advanced, and Elective Courses

CMPT 183, 184, 250, 285, and 287(Fall-Day/Spring-Eve) will be offered **every** semester.

(2 year cycle)

Fall 2009	Fall 2010
280 Day 371 Eve 372 Day	280 Day 371 Eve 385
[487 Cancelled] 495 Adv Web Dev	472 Eve 483 Day 495
CSIT 470 (*)	CSIT 470 (*)
296 CISCO I, II	296 CISCO I, II
Spring 2010	Spring 2011
281	281
320 330	320 330
372	372
481 Eve 484 Eve	493 Eve
[495]	[495]
296 CISCO III, IV	296 CISCO III, IV

C = Required Core

R = Required Advanced

E = Elective

C 183 Found. of Comp. Sci I

C 184 Found. of Comp. Sci II

250 Web Tools

C 280 Asm. Lang. and Comp. Arch

C 281 Theory of Digital Machines

285 Discrete Mathematics

C 287 Data Structures, File Str and

Algorithms

E 320 Intranet and Internet Security

E 330 Network Technology

C 371 Software Analysis and Design – SE I

C 372 Software Impl. and Testing – SE II

R 385 Comp. Sys. Organization

R 387 Principles of Data Comm.

E 388 Foundations of AI

E 472 Computer Graphics

R 481 Operating Systems

E 483 Database Systems

R 484 Fund. of Prog. Languages

E 485 Compiler Construction

E 486 Design of Computer Interfaces

E 487 Local Area Networks

E 493 Advanced Data Base Theory

495 Topics in Computer Science

E 499 COOP in Computer Science

CMPT 250 and 495 are **not** electives for the Concentration in Professional Computing (CPC).