

Effective: Sept 2008

EAST STROUDSBURG UNIVERSITY

ADVICE TO COMPUTER SECURITY MAJORS

ADMISSION AND GRADUATION REQUIREMENTS

Candidates for graduation from the Bachelor of Science program will have satisfactorily completed the following course requirements in Computer Science, Mathematics co-requisites and general education courses for a minimum of 120 credits.

BACHELOR OF SCIENCE IN COMPUTER SECURITY

REQUIRED COMPUTER SCIENCE COURSES

CPSC 111 - Intro Computer Programming & Problem Solving	Admission to ESU
CPSC 141 - Intro Computer Organization	CPSC 111
CPSC 151 - Linear Data Structures and Algorithm Analysis	CPSC 111
CPSC 232 - Intro Assembly Programming & Architecture	CPSC 141,151
CPSC 240 - Operating Systems Concepts and Design	CPSC 232
CPSC 251 - Non-Linear Data Structures	CPSC 111,151
CPSC 325 - Fundamentals of Computer Security Engineering I	CPSC 240,251,MATH 220
CPSC 326 - Risk Analysis/Certification & Accreditation	CPSC 325
CPSC 445 - Networking and Data Communication	CPSC 111,141,232,240
CPSC 448 - Applied Network Security	CPSC 325,445
CPSC 453 - Data Base Systems	CPSC 232,240,251
CPSC 460 - Applied Computer Cryptography	CPSC 251,325,MATH 220
CPSC 461 - Legal Impacts on Computer Security Solutions	CPSC 325,326
CPSC 487 - Computer Security Internship	CPSC 111,141,151,325, 330,445

Also a minimum of three Computer Science electives numbered over 220:

CPSC 234 - Object Oriented Programming	CPSC 111
CPSC 236 - Programming Using Visual Basic .NET	CPSC 111,151
CPSC 237 - Internet and Web Programming	CPSC 151
CPSC 320 - Topics in Computer Science	CPSC 141,251
CPSC 321 - Issues in the Practice of Computer Science	CPSC 111,141,151, 232,251, Junior Standing
CPSC 327 - Intro to Computer Forensics	CPSC 325
CPSC 328 - Security in Web Programming	CPSC 251,325
CPSC 330 - Programming Languages	CPSC 111,141,151,251
CPSC 335 - Building Graphical User Interfaces (GUIs) with Visual .NET	CPSC 251
CPSC 362 - Cryptographic Application Development	CPSC 151,251
CPSC 421 - Computer Graphics	CPSC 111,251,MATH 320
CPSC 425 - Expert Systems	CPSC 111,251,330
CPSC 428 - Artificial Intelligence and Heuristic Programming	CPSC 111,251
CPSC 429 - Machine Learning	CPSC 111,251, 428 recommended

CPSC 430 - Software Engineering	CPSC 111,251,330 Math 311
CPSC 432 - Natural Language Processing	CPSC 111,141,251,330
CPSC 433 - Compiler Construction	CPSC 111,232,240,251
CPSC 442 - Intro to Computer Game Development	CPSC 240,251
CPSC 444 - Real-time Systems	CPSC 111,141,232,240 MATH 141
CPSC 447 - Distributed Object Programming	CPSC 335,445
CPSC 450 - Algorithmic Graph Theory	CPSC 111,251

MATHEMATICS CO-REQUISITES

MATH 140 - Calculus I Math
MATH 141 - Calculus II
MATH 220 - Discrete Mathematical Structures
MATH 311 - Statistics

PRE-REQUISITE

H.S. College Prep
MATH 140
MATH 140
MATH 141

DISTRIBUTED CO-REQUISITES

CMST 111 GE - Speech Communication
ENGL 204 - Technical Writing

PRE-REQUISITE

None
ENGL 103

and one year of Science with associated laboratories. This may be satisfied by either

- 1) PHYS 161 GE and 162 GE - Physics - I and II
(PHYS 240 may be substituted for PHYS 162)
- OR
- 2) CHEM 121/123 GE AND 124/126 GE - Intro Chemistry - I and II
- OR
- 3) BIOL 114 GE and 115 GE - Intro Biology - I and II

NOTES:

1. A student must attain a grade of 'C' or better in any course, in CPSC or MATH, which is being applied towards the major requirements in Computer Science.
2. Students transferring into Computer Science, whether from off campus or on campus, must meet departmental admissions criteria. The criteria may be obtained from the department chairperson.
3. A student may transfer in at most 15 credits in Computer Science to apply towards the required 55 credits in Computer Security. Of these 15 credits, at most 3 credits may be used for Computer Science courses numbered 300 or higher.
4. A minimum of 30 credits must be taken in upper division courses (300 level or higher); this means a total of 30 out of the 120, not 30 out of 55 in CPSC.
5. The last 32 credits (out of 120) must be taken at ESU (unless a waiver is granted)
6. Home Study - A student can take a maximum of 9 credits with no more than 6 credits from any single department.

Date of Form: Sept. 2008
 East Stroudsburg University
 Computer Science Department

Name: _____
 Date Entered: _____
 Adviser: _____

FIELD OF CONCENTRATION: COMPUTER SECURITY

GENERAL EDUCATION - 50 S. H.

Required of all students:

<u>Course</u>		<u>Semester/Year</u>	<u>Grade</u>	<u>S. H.</u>
ENGL 103 - English Composition (C or better)	3 S.H.	_____	_____	_____
<u>Physical Education Activities</u>	2 S.H.	_____	_____	_____

DISTRIBUTIVE ELECTIVES - 45 S.H. - *S.H. in each group are to be distributed over at least 4 areas; courses acceptable for General Education are tagged as GE; Consult the catalog for each department's listing of GE courses.*

GROUP A - 15 S.H. - *English, Fine Arts, Foreign Language, Performing Arts, Philosophy (Cover at least four areas).*

<u>Course</u>		<u>Semester/Year</u>	<u>Grade</u>	<u>S. H.</u>
<u>CMST 111 GE - Speech Communication</u>		_____	_____	_____
_____		_____	_____	_____
_____		_____	_____	_____
_____		_____	_____	_____
_____		_____	_____	_____

GROUP B - 15 S.H. - *Biological Science, Chemistry, Computer Science, Mathematics, Physics, Psychology (Cover at least four areas).*

<u>Course</u>		<u>Semester/Year</u>	<u>Grade</u>	<u>S. H.</u>
<i>[One year of the following Science courses with their Labs]</i>				
{PHYS 161 GE - Physics I	}	_____	_____	_____
{PHYS 162 GE - Physics II	}	_____	_____	_____
{PHYS 240 may be substituted for PHYS 162}	OR	_____	_____	_____
{CHEM 121/123 GE AND 124/126 GE	}	_____	_____	_____
{Intro Chem - I and II	}	_____	_____	_____
{BIOL 114 GE / 115 GE	}	_____	_____	_____
{Intro Biology - I and II	}	_____	_____	_____
_____		_____	_____	_____
_____		_____	_____	_____

GROUP C - 15 S.H. - Economics, Geography, History, Political Science, Sociology/Anthropology (Cover at least four areas).

<u>Course</u>	<u>Semester/Year</u>	<u>Grade</u>	<u>S. H.</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

MATHEMATICS (Required: 14 S.H., 'C' or better)

<u>Course</u>	<u>Semester/Year</u>	<u>Grade</u>	<u>S. H.</u>
MATH 140 GE - Calculus (4)	_____	_____	_____
MATH 141 GE - Calculus (4)	_____	_____	_____
MATH 220 - Discrete Mathematical Structures	_____	_____	_____
MATH 311 - Statistics	_____	_____	_____

COMPUTER SCIENCE - (Required: TOTAL of 55 S.H., 'C' or better)

<u>REQUIRED COURSES (46 S.H.)</u>	<u>Semester/Year</u>	<u>Grade</u>	<u>S. H.</u>
CPSC 111 GE -Intro to Prog & Problem Solving(4)	_____	_____	_____
CPSC 141 -Intro to Computer Organization	_____	_____	_____
CPSC 151 GE -Linear Data Structures (4)	_____	_____	_____
CPSC 232 - Assembly Programming & Architect	_____	_____	_____
CPSC 240 - Operating Systems Concepts & Design(4)	_____	_____	_____
CPSC 251 - Non-Linear Data Structures (4)	_____	_____	_____
CPSC 325 - Funds of Comp Security Engineering I	_____	_____	_____
CPSC 326 - Risk Analysis/Cert & Accreditation	_____	_____	_____
CPSC 445 - Networking & Data Communication	_____	_____	_____
CPSC 448 - Applied Network Security	_____	_____	_____
CPSC 453 - Data Base Systems	_____	_____	_____
CPSC 460 - Applied Computer Cryptography	_____	_____	_____
CPSC 461 - Legal Impacts on Computer Security	_____	_____	_____
CPSC 487 - Computer Security Internship (minimum of 3 credits)	_____	_____	_____

ELECTIVES Minimum 9 S.H.; See below for list of acceptable electives; at most 6 credits from courses numbered below 300; 234, 236, 430 and 453 are usually offered once each year; others are usually offered in alternate years; CPSC 487 may not be used for elective credit.

<u>Course</u>	<u>Semester/Year</u>	<u>Grade</u>	<u>S. H.</u>
CPSC 234 - Object Oriented Programming			
CPSC 236 - Programming Using Visual Basic .NET			
CPSC 237 - Internet and Web Programming			
CPSC 320 - Topics in Computer Science			
CPSC 321 - Issues in the Practice of CPSC			
CPSC 327 - Intro to Computer Forensics			
CPSC 328 - Security in Web Programming			
CPSC 330 - Programming Languages (4)			
CPSC 335 - Building GUIs with Visual .NET			
CPSC 362 - Cryptographic Application Development			
CPSC 421 - Computer Graphics			
CPSC 425 - Expert Systems			
CPSC 428 - Artificial Intelligence and Heuristic Programming			
CPSC 429 - Machine Learning			
CPSC 430 - Software Engineering			
CPSC 432 - Natural Language Processing			
CPSC 442 - Intro to Computer Game Development			
CPSC 433 - Compiler Construction			
CPSC 444 - Real-time Systems			
CPSC 447 - Distributed Object Programming			
CPSC 450 - Algorithmic Graph Theory			

ELECTIVES

<u>Course</u>	<u>Semester/Year</u>	<u>Grade</u>	<u>S. H.</u>
ENGL 204 - Technical Writing			