Minor in Computer Science

Requirements for the Minor

Mathematics Prerequisites:

*Mathematics Competence* may be established by completing one of the following course sequences:
- MATH 121-2 (Calculus I-II)
- MATH 101-2 (Introduction to Analysis I-II)
- TDEC 110-2 (Mathematical Foundations of Engineering I-II)

Required Courses:

Students must complete at least 25 credits from the following list, subject to the following restrictions:
- The requirements of each category must be fulfilled (Computer Programming, Theoretical Foundations, Computer Systems, and Advanced Electives).
- Not more than 9 credit hours may overlap with those required for the student’s academic major.
- All courses listed as required must be completed.
- Programming courses bypassed through advance placement do not count towards the 25 credit requirement.
- Remaining credits are to be earned from the list of elective courses.

**Computer Programming** (9-12 credits):

Complete *one* of the following introductory course *sequences*:
- CS 171/172 (Computer Programming I/II)
- CS 131/132/172 (Computer Programming A/B & II)
- SE 101/102/103 (Fundamentals of Software Engineering I/II/III)
- ECE 203 (Programming for Engineers) & ECEC 301 (Adv Programming for Engineers)

Complete the following advanced course:
- CS 265 (Advanced Programming Tools and Techniques)

**Theoretical Foundations** (6 credits):
- CS 260 (Data Structures)
- CS 270 (Mathematical Foundations of Computer Science)

**Computer Systems** (4 credits):
- CS 281 (Systems Architecture I)
Advanced Electives – Two or more courses chosen from the following* (6-7 credits): Courses are grouped according to subject area, to assist students in making selections.

**Computing Systems and Security:**
- CS 282 (Systems Architecture II)
- CS 361 (Concurrent Programming)
- CS 365 (System Administration)
- CS 370 (Operating Systems)
- CS 461 (Database Systems)
- CS 472 (Computer Networks)
- CS 475 (Computer & Network Security)

**Programming Languages and Compilers:**
- CS 360 (Programming Language Concepts)
- CS 440 (Theory of Computation)
- CS 441 (Compiler Workshop I)
- CS 442 (Compiler Workshop II)

**Human-Computer Interaction:**
- CS 338 (Graphical User Interfaces)
- CS 430 (Computer Graphics)

**Artificial Intelligence:**
- CS 380 (Artificial Intelligence)
- CS 481 (Advanced Artificial Intelligence)
- CS 485 (Special Topics in Artificial Intelligence)

**Numerical and Symbolic Computation:**
- CS 300 (Applied Symbolic Computation)
- MATH 300 (Numerical Analysis)
- CS 303 (Alg Number Theory & Cryptography)

**Algorithms/Theory:**
- CS 440 (Theory of Computation)
- CS 457 (Data Structures and Algorithms I)
- CS 458 (Data Structures and Algorithms II)

**Software Methodology (not available to Software Engineering students):**
- CS 350 (Software Design)
- CS 451 (Software Engineering)

* Other courses may be approved by the Department for this purpose; contact the Computer Science Undergraduate Advisor (amn27@drexel.edu).
### Minor in Computer Science - Specific Requirements for Students in Majors with Overlapping Course Requirements

<table>
<thead>
<tr>
<th>Major</th>
<th>Course Requirements</th>
<th>Total Credits Required/ Total Beyond Major</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics</td>
<td>CS 131*, CS 132*, CS 172, CS 265, CS 260, CS 270, CS 281, MATH 300*, 1 advanced elective</td>
<td>29 / 19</td>
</tr>
<tr>
<td>Digital Media</td>
<td><strong>Option 1</strong> CS 131*, CS 132, CS 172, CS 265, CS 260, CS 270, CS 281, 2 advanced electives</td>
<td>28 / 25</td>
</tr>
<tr>
<td></td>
<td><strong>Option 2</strong> CS 171*, CS 172*, CS 265, CS 260, CS 270, CS 281, 2 advanced electives</td>
<td>25 / 19</td>
</tr>
<tr>
<td>Computer Engineering</td>
<td>ECE 203*, ECEC 301*, CS 265*, CS 260*, CS 270, CS 281, 3 advanced electives</td>
<td>28 / 16</td>
</tr>
</tbody>
</table>

* Course required for major

Notes:
1) Digital Media majors will be required to take additional Mathematics courses outside of their major requirements in order to satisfy the Mathematics competency requirement.

2) Students who take CS 131 & CS 132 must take CS 172 as well. This will change the total number of credits listed for the minor.

3) If a major overlaps more than the 9 credits for the minor, additional electives will be required.