Department of Software Engineering
Building 70 # 1690
Phone: (585) 475-5461

Application Domain Description

UNDERGRADUATE

Name of domain: Scientific and Engineering Computing
This domain develops software for use in scientific and engineering endeavors. The applications are typically oriented to mathematical modeling of complex physical systems. Numerical analysis techniques are important for carrying out the computations.

Courses		
Course number	*Course title*	*Prerequisites*
MATH-241	Linear Algebra	MATH-219 or MATH-221 and MATH-190
ISEE-410	Simulation	ISEE-301
In addition select *ONE* of the following:		
MATH-411	Numerical Analysis	MATH-231 and MATH-241
MATH-412	Numerical Linear Algebra	MATH-221 and MATH-231 and MATH-341

Domain Prerequisites		
Course number	*Course title*	
MATH-182	Project-Based Calculus II - (SE required course)	
MATH-190	Discrete Mathematics for Computing - (SE required course)	
MATH-221	Multivariable & Vector Calculus	MATH-182
MATH-219	Multivariable Calculus	MATH-182
MATH-231	Differential Equations I	MATH-182
MATH-233	Linear Systems & Differential Equations	MATH-182
MATH-341	Advanced Linear Algebra	MATH-241
ISEE-301	Operations Research	MATH-233 and MATH-231 (or instructor permission)

Considerations

Before you start on an application domain you should work through the impacts on your schedule.

There may be a need to coordinate your co-op blocks based on the semesters in which courses are typically offered as well as considering course pre-requisite chains required within the application domain. Before embarking on a minor you should meet with the department sponsoring the minor to review their current minor requirements, register for the minor, and review scheduling strategies.