MASTER OF SCIENCE IN COMPUTER SCIENCE/MASTER OF CHEMICAL ENGINEERING

Collaborative program with the Department of Chemical and Biological Engineering

This combined program in computer science and chemical engineering addresses the growing need for process engineers with expertise in computational modeling and simulation of chemical processes. Similarly, the program provides a strong engineering background that is required today in many areas of computer science. The program is jointly offered by the Department of Computer Science and the Department of Chemical and Biological Engineering. Students in this program earn both Master of Science in Computer Science and Master of Chemical Engineering degrees.

Students must fulfill the core course requirements of both departments. Students are required to take 18 credit hours in graduate chemical engineering courses (courses numbered 500 or higher) and 26 credit hours in computer science courses (of which 20 credit hours must be 500-level courses).

Curriculum

Code	Title	Credit Hours
Chemical Engineering Courses		**(18)**
CHE 406	Transport Phenomena	3
CHE 503	Thermodynamics	3
CHE 525	Chemical Reaction Engineering	3
CHE 535	Applctn Math Cheml Engrg	3
Select a minimum of two courses from the following:		6
CHE 508	Process Dsgn Optimization	3
CHE 530	Advanced Process Control	3
CHE 536	Computational Techniques Engg	3
CHE 560	Ststcl Qlty Process Control	3
Any other 500-level course must be approved by the academic adviser		
Computer Science Courses		**(26)**
Students are required to take 12 credit hours of core courses and 14 credit hours of elective courses. At least 20 of the 26 credit hours must be 500-level CS courses.[1]		26
Programming Core Courses		
Select a minimum of one course from the following:		3
CS 511	Topics in Computer Graphics	3
CS 512	Computer Vision	3
CS 525	Advanced Database Organization	3
CS 540	Syntactic Anlys of Prgm Lang	3
CS 541	Topics in Complr Constrctn	3
CS 546	Parallel and Distributed Proc	3
CS 551	Operating Syst Design&Implemtn	3
CS 553	Cloud Computing	3
Systems Core Courses		
Select a minimum of one course from the following:		3
CS 542	Computer Netwrks I:Fundamentls	3
CS 544	Computer Ntwrks II: Ntwrk Svc	3
CS 547	Wireless Networking	3
CS 550	Advanced Operating Systems	3
CS 555	Anlytc Mdls Simul Comp Syst	3
CS 570	Adv Computer Architecture	3
CS 586	Software Systems Arch	3
Theory Core Courses		
Select a minimum of two courses from the following:		6
CS 530	Theory of Computation	3
CS 533	Computational Geometry	3
CS 535	Dsgn and Anlys of Algorithms	3
CS 536	Science of Programming	3
CS 538	Combinatorial Optimization	3
CS 539	Game Theory: Algorithms & Apps	3
Computer Science Electives		
Select 14 credit hours		14
Total Credit Hours		44

[1] Courses transferred for credit cannot be used to satisfy core course requirements. All core course requirements must be satisfied by courses taken at Illinois Institute of Technology. Up to six credit hours of accelerated courses may be applied to the program. CSP courses cannot be applied to the program. Consult the computer science department website (science.iit.edu/computer-science) for details.