Proposal for Concurrent Degree Program: Bachelor of Science in Software Engineering / Master of Science in Information Systems

Name of the programs/Degrees:

The Department of Information Systems and Business Analytics at the Ivy College of Business seeks approval for a concurrent Master of Science in Information Systems (MSIS) degree for undergraduate students in the Bachelor of Science in Software Engineering at the College of Engineering.

Name of the department(s) which administer(s) the program:

Department of Information Systems and Business Analytics, Ivy College of Business

Department of Electrical and Computer Engineering, College of Engineering

Rationale for the concurrent degree program:

The MSIS program is a popular option for high-achieving undergraduate students seeking further specialization in the field of information systems. While a wide variety of business and non-business majors are enrolled in the MSIS degree, Software Engineering graduates are an especially well-fitting demographic to enroll in the MSIS program.

Ivy recruiters and the graduate staff routinely receive inquiries from undergraduate students wanting to get a head start on the MSIS degree program while completing their undergraduate degree.

The concurrent degree benefits students in multiple ways:

1. There is significant demand for specialized knowledge in the field of information system management. 100% of our Master of Science in Information Systems graduates are employed six months after graduation. Over the last two years, the average salary of software engineering graduate with an MSIS degree is $86,000. By comparison, undergraduate software engineering graduates have an average salary of $ $78,822.
2. Credit sharing with the undergraduate software engineering degree decreases the overall credit burden by six graduate credits making the graduate degree more economical (24 stand-alone credits).
3. The ability to start the degree while completing undergraduate coursework might shorten the overall time to completion. Given the sometimes-significant amount of transfer coursework that undergraduate students bring in from high school, students might be able to attain the additional credential in one or two semesters of additional coursework. In the sample plan attached to our proposal, students are able to finish their graduate degree by taking 12 credits of graduate coursework per semester and one undergraduate elective. Realistically, many students, will only have graduate coursework left in the last two semesters of the sample plan. Given the variety and frequency of courses offered in the MSIS program, students wanting to finish the program in one to two additional semesters will be able to do so. This is in line with our other 30-credit concurrent program, the Master of Accounting, where students graduate in two semesters, on average.

Admission procedures and requirements

The concurrent Master of Science in Information Systems is designed to be completed in two semesters. In the first four years, students' progress through their prescribed course requirements. Their final year is comprised of the remaining major course work and graduate-level MSIS classes.

The appendix illustrates a sample two-semester study plan for the MSIS concurrent program under the 2021-2022 Catalog. While the program can be completed in two semesters, the actual time to completion may be longer depending upon semester course loads, coops/internships, study abroad experiences, and course sequencing. The variety and frequency of courses offered in the MSIS program, allow students to finish the program in two semesters, if they so desire.

Degree requirements for the undergraduate degree in Software Engineering and Master of Science in Information Systems are unchanged in the proposed concurrent degree. The bachelor of science in Software Engineering requires a minimum of 125 credit hours, and 30 credit hours, respectively. The concurrent program requires a minimum of 149 credit hours including six credit hours applied toward both the Software Engineering and the Master of Science in Information Systems degrees.

The Master of Science in Information Systems is a rigorous 2-semester program, and admission is selective. Each candidate is evaluated first based on transcripts, resume, and the student submitted essays. In addition, applicants must also satisfy the Graduate College admissions requirements: English Placement Test and a 3.00 minimum GPA.

Software Engineering undergraduate students interested in the concurrent degree program must apply to the Master of Science in Information Systems degree no later than July 1 the summer prior to their senior year. MSIS admission is considered for fall Semester and Spring entry.

The following application materials are required:

Application for an ISU undergraduate student wishing to pursue a concurrent graduate degree

- Official transcripts
- Letters of recommendation (2)
- Essays (1)
- Resume

Financial Assistance

Depending upon funding availability, scholarships may be available to admitted MSIS students who meet the eligibility requirements. Graduate assistantships are extremely competitive but may be awarded to highly qualified students in the fifth year of concurrent degree program.

Expected enrollment

10 students annually.

Proposal Contact

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Academic Program Approval Voting Record

This document is to be appended as the last page of the proposal for any new or revised academic program to record the successive votes of approval as the proposal moves through its required review and approval steps. Consult Faculty Handbook Section 10.8 or the Faculty Senate Curriculum Committee website for information regarding Committee review and voting requirements for each action.

Curricular Action: (check appropriate boxes below)

1. □ New Program   □ Name Change   □ Discontinuation   X Concurrent Degree for: SE and MSIS

2. □ Undergraduate Major □ Graduate Major   □ Undergraduate Minor   □ Graduate Minor

□ Undergraduate Certificate   □ Graduate Certificate   □ Other: Dual-Degree

3. Name of Proposed Change: Concurrent MSIS with SE

4. Name of Contact Person: Valentina Salotti   e-mail address: vsalotti@iastate.edu

5. Primary College: Ivy College of Business Secondary College:

6. Involved Department(s): Information System and Business Analytics, Ivy College of Business

        Department of Electrical and Computer Engineering, College of Engineering

Voting record for this curricular action:

Voting Body	Votes			Date of Vote
	For	Against	Abstain	
ISBA (Information Systems & Business Analytics) department	15	0	0	10/3/2022
Software Engineering department	11	0	0	9/12/2022
SE Curriculum Committee	4	0	0	9/12/2022
Ivy College Curriculum Committee	6	0	0	10/10/2022
College of Engineering Committee	7	0	0	11/5/2022
Ivy College Approval Vote	81	3	0	10/21/2022
Engineering College Approval Vote	112	4	9	11/18/2022
Graduate Council				

IOWA STATE UNIVERSITY
Ivy College of Business

Dr. Charles B. Handy Graduate Programs Office
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BE SE + MSIS Sample Program Plan

Semester 1: Fall	Credits		Semester 2: Spring	Credits
MATH 165: Calculus I	4		COM S 227: Object-oriented Programming	4
ENGL 150: Critical Thinking and Communication	3		MATH 166: Calculus II	4
SE 101: Orientation	R		SE 166: Careers in SE	R
LIB 160: Introduction to College Level Research	1		PHYS 231 and PHYS 231L: Classical Physics I	5
CHEM 167 or 177: General Chemistry	4		Economics Elective	3
SE 185: SE Problem Solving	3			
TOTAL	**15**		**TOTAL**	**16**
Semester 3: Fall	**Credits**		**Semester 4: Spring**	**Credits**
CPR E 281: Digital Logic	4		SE 319: User Interfaces	3
ENGL 250: Written, Oral, Visual & Electronic Comp.	3		COM S 327 or CPR E 288: Advanced Prgoramming	3
MATH 267: Differential Equations and Laplace	4		MATH Elective	3
COM S 228: Data Structures	3		General Education Elective	3
SP CM 212: Fundamentals of Public Speaking	3			
TOTAL	**17**		**TOTAL**	**12**
Semester 5: Fall	**Credits**		**Semester 6: Spring**	**Credits**
SE 309: Software Development	3		SE 317: Software Testing	3
COM S 363: Introduction Databases	3		SE 339: Software Architecture	3
CPR E 310 or COM S 230: Discrete Comp. Structures	3		CPR E 308 or COM S 352: Operating Systems	3
CPR E 381 or COM S 321: Computer Architecture	3		COM S 311: Algorithms	3
General Education Elective	3		ENGL 314 or 309: Technical Writing	3
TOTAL	**15**		**TOTAL**	**15**
Semester 7: Fall	**Credits**		**Semester 8: Spring** *(Apply for MSIS)*	**Credits**
STAT 330: Probability and Statistics for COM S	3		Supplemental Elective	3
SE 421: Software Security	3		Supplemental Elective	3
SE Elective	3		General Education Elective	3
Supplemental Elective	3		Open Elective	3
General Education Elective	3			

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TOTAL	15		TOTAL	12
Semester 9: Fall *(Begin concurrent program)*	**Credits**		**Semester 10: Spring**	**Credits**
SE 491: Senior Design I*	3		SE 492: Senior Design II	2
MSIS Core: MIS 501: Information Systems	3		SE Elective*	3
MSIS Choice: MIS 536: Business Analytics Foundation	3		MSIS CORE: MIS 599: Creative Component	3
MSIS Choice: MIS 533: Data Management	3		MSIS Choice: MIS 538: Business Process Systems	3
MSIS Elective	3		MSIS Elective	3
			MSIS Elective	3
TOTAL	15		TOTAL	17
Program Notes				
BS SE/MSIS Concurrent Program Summary	**Credits**			
BS SE	119			
MSIS Core	6			
MSIS Choice	9			
MSIS Electives	9			
BS SE/MSIS shared credit	6			
TOTAL	149			
Optional Thesis includes 6 credits of MIS 699, taking total credits to 149 cr. Students pursuing thesis option must petition to waive MIS 599.				
MSIS is a STEM designated program				
Optional Practical Training (OPT) work permit for up to 36 months after graduation				
*Students may work with the MSIS DOGE to select alternative 400-level SE coursework, if needed.				