KENT STATE UNIVERSITY
CERTIFICATION OF CURRICULUM PROPOSAL

Preparation Date | Curriculum Bulletin _____
Effective Date **Fall 2020** | Approved by EPC _____

Department	**Computer Science**
College	**AS - Arts and Sciences**
Degree	**BA - Bachelor of Arts**
Program Name	**Computer Science** Program Banner Code **AS-BA-CS**
Concentration(s)	Concentration(s) Banner Code(s)
Proposal	**Offer program at another campus or off site**

Description of proposal:

We are proposing to offer the Bachelor of Arts in Computer Science at the Stark campus. Thank you for reviewing this proposal.

Currently the Stark campus offers only the minor in Computer Science (CS). Over the years, due to the students' request, the number of CS courses offered at the Stark campus that are part of the BA in Computer Science program has grown tremendously, up to the point that the Stark campus is ready to offer the Bachelor of Arts in Computer Science.

Does proposed revision change program's total credit hours? ☐ Yes ☒ No
Current total credit hours: **120** Proposed total credit hours **120**

Describe impact on other programs, policies or procedures (e.g., duplication issues; enrollment and staffing considerations; need; audience; prerequisites; teacher education licensure):

The BA in CS is particularly tailored for those students who want to complete a double major or expand their knowledge in a related area. With the presence of multiple degrees at the Stark campus and due to the daily interaction of faculty and students from different departments on campus, the BA is an attractive degree. A range of 10.39%-23.19% with an average of 17.27% of the Stark students interested in completing a degree in CS at KSU have chosen the BA as their preferred degree in CS at the Stark campus in the past 5 years.

According to the Bureau of Labor and Statistics the Computer Science industry is projected to grow much faster that other industries over the next decade, with some occupations growing faster than others. "Employment of Software Developers is expected to grow 24% in the year 2016-2026 [https://www.bls.gov/ooh/computer-and-information-technology/software-developers.htm]], much faster than the average for all occupations". This program offering is a response to the increasing demand in the field.

The institution of the BA in Computer Science at the Stark campus will not only benefit the Stark campus and help serve the local community, but at the same time will help the Kent campus feed both the CS grad program with our best students, as well as the CS undergrad program with students who, along their educational path want to change or add another concentration to their degree or take courses from the large selection of electives that are offered at the Kent campus.

An environmental study has been performed to see the effect of the program on the local community area. The environmental study has been attached to this application for your perusal (see page 6 of BA-CS-Stark-Attachment File.pdf).

The number of students in Computer Science at the Stark campus has grown by 59.4% since Fall 2011 with 41 students in Fall 2011 versus 102 students in Fall 2018. Between Fall 2017 and Fall 2018 the number of Computer Science students remained steady, even with the decrease of

overall enrollment at the campus, with 103 students in Fall 2017 versus 102 students in Fall 2018 (see graph on page 1 of the attachment file (BA-CS-Stark-Attachment File.pdf) for more details).

The course rotation currently in place is able to satisfy that requirements of the Bachelor of Arts in Computer Science. The course rotation is on page 2 of the attachment file (BA-CS-Stark-Attachment File.pdf). All the remaining non-CS courses required for the completion of the degree are currently already offered at Stark. This course rotation will permit the students entering the degree either in Fall or in Spring to complete the BA degree in 4 years. A semester-by-semester plan of study to ensure a timely graduation for KSU-Stark students entering the BS in CS in Fall or Spring that reflects the roadmap of the BA in CS from the catalog (from http://catalog.kent.edu/colleges/as/cs/computer-science-bs/#roadmapstext) is available on page 3 of the attachment file (BA-CS-Stark-Attachment File.pdf).

The entire current course rotation has been performed with 2 CS tenure track Stark faculty, one full time adjunct instructor and 3-4 rotating GA Ph.D. students from the Department of Computer Science at the Kent campus. No additional staffing is required at this time.

I will be glad to provide any additional file or information regarding the implementation of the CS Bachelor of Arts in Computer Science at Stark on request.

Units consulted (other departments, programs or campuses affected by this proposal):

The curriculum committee and the entire faculty of the Department of Computer Science has been consulted. Both committees have approved the proposal. The Dean of the Stark campus and the faculty of the Department of Mathematics at the Stark campus, through the person of Dr. Kasturiarachi, has been consulted and they strongly supported the proposal.

No other programs or campuses are expected to be affected by this proposal.

REQUIRED ENDORSEMENTS

Department Chair / School Director	12/01/19
Campus Dean (for Regional Campuses proposals)	11/12/19
College Dean (or designee)	12/20/19
Dean of Graduate Studies (for graduate proposals)	___/___/___
Executive Vice President for Academic Affairs and Provost (or designee)	___/___/___

Ohio | Board of Regents

University System of Ohio

Change Request:
Offering Existing Program at Regional Campus

Date of submission: 11/01/2019

Name of institution: Kent State University

Name of campus: Stark Campus

Program to be delivered at the site: Computer Science within the Bachelor of Arts degree

Proposed start date: Fall 2020

Primary institutional contact for this request:

Name:	Therese E. Tillett
Title:	Director of Curriculum Services, Office of Provost
Phone number:	330-672-8558
E-mail:	ttillet1@kent.edu

Date that the request received final approval from the appropriate institutional committee:
Final approval by the Educational Policies Council, a sub-committee of the Faculty Senate, on *date pending*

Educator Preparation Programs:

Program leads to licensure:	No
Program leads to endorsement:	No

Briefly describe the rationale for offering the program at this site. In your response, indicate whether the program to be offered at the site will be time limited or ongoing.

Computer Science is the fastest growing major on the Stark campus and has garnered steady student interest throughout. Between fall 2013-fall 2018 the enrollment on campus has increased – specifically, 79, 76, 82, 83, 103, and 101 respectively. The environmental scan points to a strong workforce demand through the year 2026. The scan also highlights the affordability of our program compared to other universities in Stark County. Additionally, Computer Science, is one of the STEMM disciplines covered by the Choose Ohio First (COF) grant for student merit scholarships, with guaranteed funding from the Ohio Department of Higher Education (ODHE) through AYs 2016-2021, and the possibility of future renewal.

With two dedicated faculty members, Dr. Angela Guercio (Coordinator) and Dr. Younghun Chae, all coursework for the Bachelor of Arts in Computer Science can be delivered at Kent State University at Stark. A faculty member in applied mathematics teaches the sections of Discrete Structures and there are other fulltime members in applied mathematics who could teach other select courses. Currently there is a request for a new TT hire in Computer Science for AY 2020-2021.

The proposed Computer Science major at the Stark Campus has some unique features:

1. The program will be primarily anchored at the Stark Campus for students who consider the campus as their entry point to Kent State University. These students will complete the degree at the Stark Campus.
2. By having the full Bachelor of Arts degree in Computer Science, the STEMM fields will be strengthened. As a true interdisciplinary subject, the BA in Computer Science will offer the students a signature experience on campus with all non-CS coursework is very well supported by other degree programs available on campus.

SECTION 1: CHANGES NEEDED TO ACCOMMODATE THE NEW PROGRAM(S)

Academic and Administrative Leadership and Services

1.1 Describe the changes (if any) that will be needed in academic and administrative leadership at the site to accommodate the new program.

There are no anticipated changes needed. As this is an established regional campus of Kent State University, there is a dean/chief administrator officer, who reports to the university provost and senior vice president for academic affairs, and a full range of support personnel who are supervised by an assistant dean for academic affairs and a director of student affairs and enrollment management.

These positions supervise staff in offices that include, but are not exclusive to, the library, computer technology, learning center, disability services, admissions, registration, financial aid, advisement, registrar, bursar and tutoring.

The chair of the Computer Science Department, Dr. Javed Khan, oversees all curricular and academic aspects of the Bachelor of Arts in Computer Science.

1.2 Describe the changes (if any) that will be needed in the site's existing administrative services (e.g., admissions, financial aid, registrar, etc.) to accommodate the new program. If such services are not available at the site, describe how students in the new program(s) will access such services.

There are no additional resources required to implement this degree program. As this is an established regional campus of Kent State University, there is a full range of administrative and support services available, including admissions, financial aid, advising, registrar, tutoring, learning resources center, disability services and library.

1.3 Describe the changes (if any) that will be needed in the site's existing academic student services (e.g., advising, tutoring, psycho-social counseling, placement services, etc.) to accommodate the new program. If such services are not available at the site, describe how students in the new program(s) will access such services.

There are no changes needed to accommodate this program.

Resources and Facilities

1.4. Describe the changes in resources and facilities (e.g., classrooms, computer labs, laboratories, study areas, social areas, technology, and other learning environments) that will be needed to accommodate the new program and provide a timeline for implementing the changes.

There are no changes in resources and facilities. This is an established regional campus which already provides the resources and the facilities to host the courses required for the establishment of the program. We have two large computer labs, open computer pods in each building, and two designated technology enhanced classroom where computer science courses are scheduled. All campus computers have the dedicated software for student access. A specialized lab for computer science research is currently under development.

1.5 Describe any additional library resources (e.g., personnel, space, technology, etc.) that will be needed to accommodate the new program at the site and provide a timeline for implementing the changes.

There are no additional library resources required to implement this degree program. The Stark campus houses a full academic library with access to computers, information literacy instruction, interlibrary loan, KentLINK and OhioLINK. The library has 3-D printers, a high-end poster printer, and iPads and professional cameras for student use.

1.6. If a full-service library is not available onsite, please indicate how students, faculty, staff in the program will access the resources and services of the main campus library.

Not applicable.

SECTION 2: PROGRAM INFORMATION

2.1 Using the chart below, please list the degree program/general education program that is being added for delivery at the site.

Degree/Major (Concentration)	Available on Campus		Comments for Chancellor's Staff
	Full	Partial	
BA degree in Computer Science	✓		All required courses required for the degree together with a set of elective courses will be offered on-ground at the Stark Campus. The number of electives will be sufficient to complete the degree. The BA would be an attractive option for students who desire to double major in STEMM disciplines.

2.2 Indicate whether accelerated, hybrid/blended and/or online delivery options are available for the program at the proposed campus and indicate whether this is different from the delivery option used for the approved program at other campuses:

All courses offered at the Stark Campus for the degree programs in consideration are face-to-face.

SECTION 3: FACULTY

3.1 Complete a faculty matrix for the proposed program at this offsite location. A faculty member must be identified for each course to be taught at the site during the first two years of program delivery. If a faculty member has not yet been identified for a course, indicate that as an "open position" and describe the necessary qualifications in the matrix.

Please note that the courses listed below in the matrix are the major courses in the degree program. All other courses to satisfy graduate requirements comprise general education requirements (Kent Core), first-year orientation (US 10097 Destination Kent State: First Year Experience) and general electives, which are offered on all Kent State University campuses.

The 2019-2020 University Catalog for the program requirements are provided in the link below:

BA in CS program requirements:
http://catalog.kent.edu/colleges/as/cs/computer-science-ba/#programrequirementstext

A copy of each full-time faculty member's CV must be included as Appendix A.

*Number of courses instructor will teach per year at all campus locations.

Instructor name and rank	Full/ part time	Degree title, institution, year	Years teaching/ experience	Course(s) instructor will teach in proposed program	Courses taught*
Angela Guercio, Associate Professor	FT	Ph.D. Computer Science, Kent State University 2004	33	CS 13001 CS I CS 33101 Struct. of Progr. Languages CS 35201 Comp Comm. Networks CS 33901 Software Engineering CS 44105 Web Programming I CS 44106 Web Programming II CS 49901 Capstone Project CS 46901 Design and Analysis of Algorithms CS 33192 Human Interface Computing CS 49998 Research (No load) CS 33192 Internship in CS (No load)	8
Younghun Chae, Assistant Professor	FT	Ph.D. Computer Science, University of Rhode Island, 2016	4	CS 23001 CS II CS 33211 Operating Systems CS 35101 Computer Architecture CS 33007 Intro to Database Design CS 47205 Information Security CS 45203 Computer Network Security CS 47221 Intro to Cryptology CS 47207 Digital Forensic CS 43203 System Programming CS 49998 Research (No load) CS 33192 Internship in CS (No load)	8

Instructor name and rank	Full/ part time	Degree title, institution, year	Years teaching/ experience	Course(s) instructor will teach in proposed program	Courses taught*
Aloysius Bathi Kasturiarachi, Associate Professor	FT	Ph.D. Mathematics, University of North Carolina at Chapel Hill, 1993	32	CS 23022 Discrete Structures for CS	1
Open Position	PT/ FT	Part-Time Instructor Currently there is a request for a new TT CS hire for AY 2020-2021.		CS 33007 Intro to Database CS 44001 CS III	1

3.2 Describe future faculty staffing plans for the program at this location. In your response, include a description of the institution's plans, if any, for adding courses and faculty after the initial two years of operation and a description of the plans to add faculty in response to increases in student enrollment.

Currently there is a request for a new TT CS hire for AY 2020-2021. The new hire will cover the courses that have been currently offered by part-time instructors. We will seek a TT hire with research expertise in areas of high interest, such as Big Data, Data Science, and AI, thus increasing the number of electives offered at the campus and continue to offer attract options for students. The Stark Campus has approximately 100 students in the CS major currently and has a steady enrollment projection for future years. Helping this trend is the Choose Ohio First scholarships through ODHE that are available for Stark Campus students.

SECTION 4: MARKET / WORKFORCE NEED

4.1 Indicate whether the institution performed a needs assessment/market analysis to determine a need for the program at the proposed site. If so, briefly describe the results of those findings.

Please refer to the Environmental Scan in Appendix B.

4.2 Indicate the projected enrollments for the program at this site over the next three years.

The numbers below are provided for computer science majors in all concentrations. Currently, approximately 25% of the computer science students at Stark seek a BA degree in CS.

	2020-2021	2021-2022	2022-2023
First-year students	28	30	32
Second-year students		24	26
Third-year students			22

4.3. Indicate whether the institution consulted with advisory groups, business and industry, or other experts when considering moving the program to the proposed site. If so, briefly describe the involvement of these groups in the development of this request.

The decision to propose this program was reached after extensive consultations with appropriate curricular and administrative bodies on Campus and in the College of Arts and Sciences (e.g., campus Academic Planning Committee, campus dean, college dean; the Undergraduate Curriculum Committee and the Department of Computer Sciences).

In addition, several business groups and government agencies have networked with our students. The office of Career Services and Internships at the Stark Campus will oversee the placement of computer science majors in internships throughout local companies, including Timken, DieBold-Nixdorf, Progressive Insurance, and Patriot Software.

4.4. Indicate whether any other institution within a 30-mile radius of your campus currently offers the program(s). If so, list the institutions that offer the program(s) within this radius.

There are three private universities that offer degrees in computer science. There are no public institutions that offer computer science degrees in Stark County.

- Malone University
- University of Mount Union
- Walsh University

APPENDICES

Appendix	Description
A	Faculty curricula vitae
B	Environmental Scan

Commitment to Program Delivery at Site

Kent State University is committed to supporting the Computer Science program at its Stark Campus. If the university decides in the future to either eliminate the degree program or close the campus, Kent State University will provide the necessary resources and means for matriculated students to complete their degree.

Kent State University verifies that the information in the application is truthful and accurate.

[will be signed after EPC]

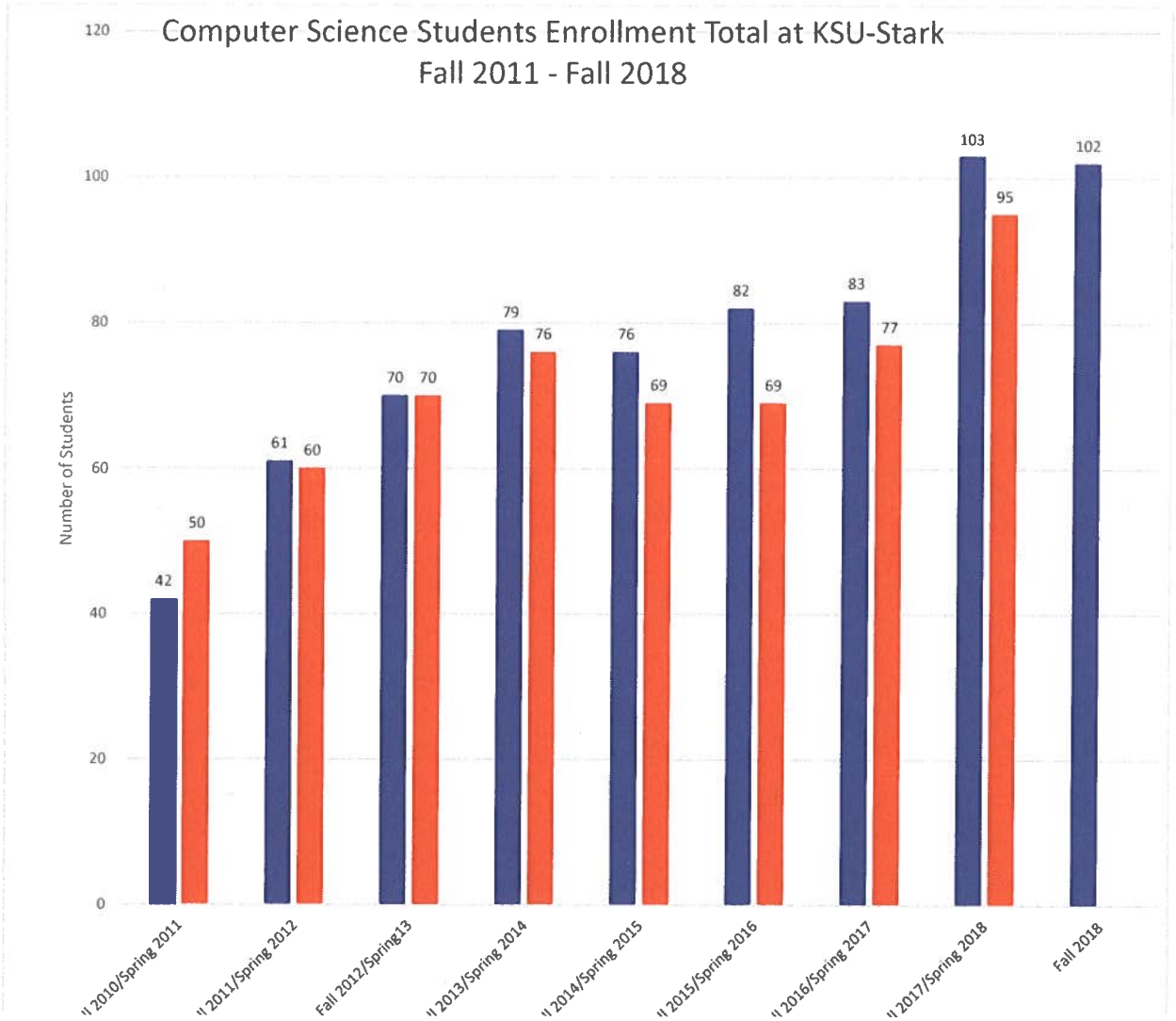
Todd A. Diacon
Provost and Senior Vice President for Academic Affairs

BA in CS at Stark [AS-BA-CS]
Attachment Material

This file contains:

1) The trend of CS students enrollment total at KSU-Stark between Fall 2011 and Fall 2018;
2) The Computer Science (CS) Course Rotation at Stark;
3) The roadmap of BA in Computer Science concentration [AS-BA-CS].

Use the links for easy access to the attachments.


Computer Science Students Enrollment Total at KSU-Stark
Fall 2011 - Fall 2018
Number of Students
120
100
80
60
40
20
0
42
50
61
60
70
70
79
76
76
69
82
69
83
77
103
95
102
II 2010/Spring 2011
II 2011/Spring 2012
Fall 2012/Spring13
II 2013/Spring 2014
II 2014/Spring 2015
II 2015/Spring 2016
II 2016/Spring 2017
II 2017/Spring 2018
Fall 2018

CS Course Rotation at KSU-Stark

Current CS rotation, future CS course rotation, and staffing

LEGEND - Staffing

- Dr. A. GUERCIO, FTT
- Dr. A. KASTURIARACH, FTT
- Dr. Y. CHAE, FTT
- PT INSTRUCTOR

GUERCIO/CHAE FTT (NO LOAD)

FA17	SP18	FA18	SP19	FA19	SP20	FA20	SP21	FA21	SP22	FA22	SP23	FA23	SP24	FA24	SP25
CSI	CSI	CSI	CSI	CSI	CSI	CSI	CSI	CSI	CSI	CSI	CSI	CSI	CSI	CSI	CSI
CS2	CS2	CS2	CS2	CS2	CS2	CS2	CS2	CS2	CS2	CS2	CS2	CS2	CS2	CS2	CS2
DS4CS	DS4CS	DS4CS	DS4CS	DS4CS	DS4CS	DS4CS	DS4CS	DS4CS	DS4CS	DS4CS	DS4CS	DS4CS	DS4CS	DS4CS	DS4CS
CA	CA	CA	CA	CA	CA	CA	CA	CA	CA	CA	CA	CA	CA	CA	CA
	OS		OS		OS		OS		OS		OS			OS	
	CS3		CS3						CS3				CS3		
PL		PL		PL		PL		PL		PL		PL		PL	
NET		NET		NET		NET		NET		NET		NET		NET	
	ALG		ALG				ALG			ALG		ALG			ALG
	SE		SE		SE		SE		SE		SE		SE		SE
DB		DB		DB		DB		DB		DB		DB		DB	
			CAPS		CAPS		CAPS		CAPS		CAPS		CAPS		CAPS
							HIC					HIC			
WPI	WPII	WPI	WPII	WP1	WPII	WP1	WPII	ALG	HIC	WP1	WPII	ALG	HIC	WPI	WPII
INTSHP	INTSHP	INTSHP	INTSHP	INTSHP	INTSHP	INTSHP	INTSHP	INTSHP	INTSHP	INTSHP	INTSHP	INTSHP	INTSHP	INTSHP	INTSHP
RES	RES	RES	RES	RES	RES	RES	RES	RES	RES	RES	RES	RES	RES	RES	RES
								NETSEC				NETSEC			
ICRYP	INSEC	DFOR	SYSP	ICRYP	INSEC	DFOR	SYSP	ICRYP	INSEC	DFOR	SYSP	ICRYP	INSEC	DFOR	SYSP

LEGEND – Course Abbreviation

lower level
upper level
electives
concentration specific

Abbreviation	Full Course Name (credit)	Frequency
INTRO	CS 10051 - INTRO TO COMPUTER SCIENCE (KMCR) (4)	every semester
CS1	CS 13001 - COMPUTER SCIENCE I - PROGRAMMING AND PROBLEM SOLVING (4)	
CS2	CS 23001 - COMPUTER SCIENCE II - DATA STRUCTURES AND ABSTRACTION (4)	
DS4CS	CS 23022 - DISCRETE STRUCTURES FOR COMPUTER SCIENCE (3)	
CA	CS 35101 - COMPUTER ARCHITECTURE (3)	
HIC	CS 32301 - HUMAN INTERFACE COMPUTING (3)	every other semester
OS	CS 33211 - OPERATING SYSTEMS (3)	
ALG	CS 46101 - DESIGN AND ANALYSIS OF ALGORITHMS (3)	
PL	CS 33101 - STRUCTURE OF PROGRAMMING LANGUAGES (3)	
NET	CS 35201 - COMPUTER COMMUNICATION NETWORKS (3)	
SE	CS 33901 - SOFTWARE ENGINEERING (3)	
DB	CS 33007 - INTRO TO DATABASE SYSTEM (3)	
CS3	CS 44001 - COMPUTER SCIENCE III - PROGRAMMING PATTERNS (4)	
CAPS	CS 49901 - CAPSTONE PROJECT (ELR) (WIC) (3)	
INTSHP	CS 33192 - INTERNSHIP IN COMPUTER SCIENCE (ELR) (1-3)	every semester
RES	CS 49998 - RESEARCH (ELR) (1-15)	
NETSEC	CS 45203 - COMPUTER NETWORK SECURITY (3)	every 4 semesters
DFOR	CS 47207 - DIGITAL FORENSICS (3)	
ICRYP	CS 47221 - INTRODUCTION TO CRYPTOLOGY (3)	
INSEC	CS 47205 - INFORMATION SECURITY (3)	
SYSP	CS 43203 - SYSTEMS PROGRAMMING (3)	
WP1	CS 44105 - WEB PROGRAMMING I (3)	
WP2	CS 44106 - WEB PROGRAMMING II (3)	

ROADMAP OF BA in COMPUTER SCIENCE [AS-BA-CS]

http://catalog.kent.edu/colleges/as/cs/computer-science-ba/#roadmaptext

This roadmap is a recommended semester-by-semester plan of study for this major. However, courses designated as critical (!) must be completed in the semester listed to ensure a timely graduation.

	Plan of Study Grid		Credits
	CS 13011	COMPUTER SCIENCE IA: PROCEDURAL PROGRAMMING	
!	& CS 13012	and COMPUTER SCIENCE IB: OBJECT ORIENTED PROGRAMMING	4
	or CS 13001	or COMPUTER SCIENCE I: PROGRAMMING AND PROBLEM SOLVING	
	UC 10097	DESTINATION KENT STATE: FIRST YEAR EXPERIENCE	1
	Kent Core Requirement		3
	Kent Core Requirement		3
	Kent Core Requirement		3
		Credit Hours	14
		Semester Two	
!	CS 23022	DISCRETE STRUCTURES FOR COMPUTER SCIENCE	3
	College General Requirement		3
	Kent Core Requirement		3

Suggested semester-by-semester plan of study of CS courses at KSU-Stark to ensure a timely graduation for students entering the BA in CS in Fall or Spring. All the remaining courses are those of the roadmap as printed in the catalog.

Fall	Spring
CS13001 CS I	CS13001 CS I
CS23022 DISCRETE STRUCT FOR CS	CS23022 DISCRETE STRUCT FOR CS

	Kent Core Requirement		3		
	Kent Core Requirement		3		
	Credit Hours		15		
	Semester Three				
!	CS 23001	COMPUTER SCIENCE II: DATA STRUCTURES AND ABSTRACTION	4	CS 23001 CS II	CS 23001 CS II
!	CS 35101	COMPUTER ARCHITECTURE	3	CS35101 COMPUTER ARCHITECTURE	CS35101 COMPUTER ARCHITECTURE
	Foreign Language		4		
	College General Requirement		3		
	Kent Core Requirement		3		
	Credit Hours		17		
	Semester Four				
!	CS 33101	STRUCTURE OF PROGRAMMING LANGUAGES	3	Kent Core Requirement	CS33101 STRUCT OF PROGRAMM LANGUAGES
!	CS 33211	OPERATING SYSTEMS	3	CS33211 OPERATING SYST.	Kent Core Requirement
	Computer Science Upper-Division Elective (CS 30000 or 40000 level)		3	CS Upper-Division Elective (CS 30000 or 40000 level)	CS Upper-Division Elective (CS 30000 or 40000 level)
	Foreign Language		4		
	Kent Core Requirement		3		
	Credit Hours		16		
	Semester Five				
	Computer Science Upper-Division Electives (CS 30000 or 40000 level)		6	2 CS Upper-Division Electives (CS 30000 or 40000 level)	2 CS Upper-Division Electives (CS 30000 or 40000 level)

	Foreign Language	3		
	Kent Core Requirement	3	CS33101 STRUCT OF PROGRAMM LANGUAGES	CS33211 OPERATING SYST.
	Kent Core Requirement	3		
	Credit Hours	15		
	Semester Six			
	Computer Science Upper-Division Electives (CS 30000 or 40000 level)	3	CS Upper-Division Elective (CS 30000 or 40000 level)	CS Upper Division Electives (CS 30000 or 40000 level)
	Foreign Language	3		
	Kent Core Requirement	3		
	Kent Core Requirement	3		
	General Elective	3		
	Credit Hours	15		
	Semester Seven			
	Computer Science Upper-Division Elective (CS 40000 level)	3	CS Upper-Division Elective (CS 40000 level)	CS Upper-Division Elective (CS 40000 level)
	General Electives	12		CS 49901 CAPSTONE PROJECT (ELR) (WIC) + 9 credit General Electives
	Credit Hours	15		
	Semester Eight			
!	CS 44901 SOFTWARE DEVELOPMENT PROJECT (ELR) (WIC)	4	CS 49901 CAPSTONE PROJECT (ELR) (WIC)	3 credit General Elective
	Computer Science Upper-Division Elective (CS 40000 level)	3	CS Upper-Division Elective (CS 40000 level)	CS Upper-Division Elective (CS 40000 level)

General Electives	**6**
Credit Hours	**13**
Minimum Total Credit Hours:	**120**