KEAN UNIVERSITY – COLLEGE OF SCIENCE, MATHEMATICS AND TECHONOLGY

(28702) B.S. in Information Technology (5-year M.S. Computer Information Systems option): 126 S.H.

Minimum GPA Required for Declaration: 3.0

Minimum GPA Required for Major: 3.0

Overall Minimum GPA Required for Graduation: 3.0

EFFECTIVE DATE: Fall 2021

GENERAL EDUCATION	33 S.H.
Foundation Requirements [1]	13 S.H.
GE 1000 Transition to Kean [2] *or* GE 3000 Transfer Transitions [2]	1
ENG 1030 College Composition [3]	3
MATH 1000 Algebra for College Students [4]	3
COMM 1402 Speech Communication as Critical Citizenship	3
GE 2024 Research & Technology	3
Disciplinary & Interdisciplinary Distribution Requirements [1]	
Humanities	6 S.H.
ENG 2403 World Literature *	3
take one "GE Approved" course from one area below	
Fine Arts/Art History	3
Philosophy or Religion	3
Foreign Languages *(must take I and II for credit)*	3
Music or Theatre	3
Interdisciplinary	3
Social Sciences	6 S.H.
HIST 1062 Worlds of History *	3
take one "GE Approved" course from one area below	
Psychology	3
Economics or ES 1010 World Geography	3
Political Science	3
Sociology or Anthropology	3
Interdisciplinary	3
Science and Mathematics	8 S.H.
CPS 1231 Fundamentals of Computer Science **, [5]	4
Lab Science (ASTR 1100, BIO 1000, CHEM 1083, GEOL 1200, METR 1300, *or* PHYS 2091)	4

ADDITIONAL REQUIRED COURSES **	31 S.H.
COMM 3590 Business and Professional Communication	3
ENG 3091 Technical Writing	3
MGS 2030 Principles of Management	3
CPS 2231 Computer Programming [5]	4
CPS 2240 IT Data Structures	3
CPS 3440 Analysis of Algorithms	3
CPS 3601 Human Computer Interaction	3
MATH 1054 Precalculus [4]	3
MATH 2110 Discrete Structures	3
MATH 2526 Applied Statistics I	3

ACADEMIC MAJOR	49 S.H.
Major Core **	13 S.H.
TECH 1010 IT Foundations	3
TECH 1505 Digital Circuits and Systems	4
TECH 2520 Network Technology	3
TECH 2920 Computer Systems	3
Major Concentration **	15 S.H.
TECH 3498 IT Computer Security	3
TECH 3500 Web Client-Side Programming	3
TECH 3525 Introduction to Unix/Linux	3
TECH 3740 IT Database Management Systems	3
TECH 3910 IT Project Management [WE]	3
Major Electives **, [6]	18 S.H.
TECH 3xxx or 4xxx	3
TECH 3xxx or 4xxx	3
TECH 3xxx or 4xxx	3
TECH *or* CPS 3xxx or 4xxx	3
CPS 5100 Computer Information Systems [7]	3
CPS 5440 Advanced Analysis of Algorithms [7]	3
Major Capstone **	3 S.H.
TECH 4513 Senior Project *or* TECH 4961 Senior Research [10]	3

FREE ELECTIVES	13 S.H.
at least 50% must be 3000/4000 level	
(recommended: ID 1400 Computing in Modern Society)	3
(recommended: TECH 1996 Research Initiative for Freshmen) [8]	1
(recommended: CPS 2010 Career Education) [8]	1
(recommended: TECH 3291/92/93 Career Internship in IT) [9]	1-6

Special Notes:

[1] See pre-requisites and equivalencies (on page 2)

[2] University requirement for graduation for all undergraduate students that must be satisfied in one of two ways: Complete GE 1000 (all freshmen and transfers entering with 0-29 credits) OR complete GE 3000 (transfers entering with 30 credits or more)

[3] ENG 1030 requires grade of C or higher

[4, 5, 6, 7, 8, 9] See notes (on page 2)

[10] Prior research experience and petition required for TECH 4961

*GE Distribution course required of all students

**All Major courses, All Additional and supporting courses, including Capstone requires grade of B- or higher

[WE] Writing Emphasis course

GENERAL EDUCATION AND UNIVERSITY REQUIREMENTS

GENERAL EDUCATION INFORMATION AND REQUIREMENTS

Testing and Placement

Incoming freshmen and transfer students may be placed in specific GE Foundations, Developmental or ESL courses as a result of testing and/or multiple measures placement prior to registration. Students may be exempt from testing due to SAT/ACT scores or prior college work.

Prerequisites and Equivalencies for GE Foundations Courses

GE 1000/GE 3000 is a University Graduation Requirement

GE 1000
Required of all freshmen & transfers entering with 0-29 credits
Prereq: None
Equiv: ID 1001

GE 3000
Required of transfers entering with 30 credits or more
Prereq: 30 credits and ENG 1030

ENG 1030
Prereq: Placement testing or exemption from placement testing
ENG 1025 if required by placement testing
Equiv: ENG 1031/1032, ENG 1033/1034, ENG 1430 (ESL version), ENG 1620 (Honors version), ENG 1020, ENG 1400

MATH 1000 or MATH 1044*
Prereq: MATH 0901 if required by placement testing
*MATH 1044 is available as a Foundation option for CBPM students only
Equiv of MATH 1000: MATH 1001/1002, MATH 1003/1004, MATH 1051

MATH 1010 or 1016 or 1030
Prereq: MATH 0901 if required by placement testing
Co-requisite: Math 0902 (only required, with advisement, based on placement test score and intended major)

MATH 1054
Prereq: MATH 0901 if required by placement testing and MATH 1000

COMM 1402
Prereq: CS 0412 if required by placement testing
ENG 1025 if required by placement testing
May be taken concurrently with ENG 1030
Equiv: COMM 1400

GE 2021- 2026 Research and Technology is offered as college-based course
GE 2021 College of BPM
GE 2022 College of EDU
GE 2023 All College of CLA
GE 2024 College of NAHS & NJCSTM & NWGC (Speech Language and Hearing Science majors)
GE 2025 SFPA & Michael Graves College
GE 2026 Undecided Majors and other special populations
Prereqs: CS 0412 if required by placement testing; ENG 1030 or equivalent course
Equiv: GE 2020

GE Distribution Courses

Approved GE Distribution Courses

All courses taken under the General Education Disciplinary/Interdisciplinary Distribution requirements must be selected from the Approved General Education Distribution Course List. These courses are designated as GEHU, GESS, and GESM.

GEHU Humanities
GESS Social Sciences
GESM Science and Mathematics

Required GE Distribution Courses

ENG 2403 is a required Humanities Distribution course with an emphasis on diversity.
Prereq: CS 0412 if required by placement testing; ENG 1030 or equivalent
Equiv: ENG*2203

HIST 1062 is a required Social Sciences Distribution course.
Prereq: None

Foreign Language Credit

The three credits for a foreign language that may satisfy the GE Disciplinary/Interdisciplinary Distribution Requirement are awarded only upon successful completion of the second of two semesters of study at the introductory or intermediate level.
Credit for the first semester may be used as elective credit.

UNIVERSITY REQUIREMENTS

GE 1000/3000 Requirement

All undergraduate students must satisfy this University requirement for graduation by successfully completing one of the following courses at Kean University: GE 1000 Transition to Kean (all freshmen and transfers entering with 0-29 credits) or GE 3000 Transfer Transitions (transfers entering with 30 credits or more).

Writing-Emphasis Requirement

All students are required to complete one "Writing- Emphasis" course. The "W-E" course must be within the major portion of your program. Consult your major program advisor for specific information.

Note: Equivalent courses may be prior General Education or prerequisite course work taken by students that is now discontinued.

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[4] Students eligible to take MATH 1054 based on their placement test may take that course in place of MATH 1000 (In this case, MATH 1054 will fulfill GE Foundation Requirements and the student may take an additional 3 credits in Free Electives to total 120 S.H.).

[5] Students who have had prior programming experience may enter CPS 2231 directly with approval of the Departmental Advisory Committee (In this case, CPS 2231 will fulfill GE Science and Mathematics Distribution and the student may take another 4 credits in Major Electives to total 120 S.H.).

[6] Select 4 TECH Elective courses with department advisement, at the 3xxx level or higher. (1 CPS Elective course may be selected, with faculty permission).

[7] With approval of the Graduate Program Coordinator, undergraduate students take two CPS 5xxx level graduate courses as Major Electives (NOTE: For any graduate course to be credited towards the 5-year M.S. in CIS program, students must take additional credits in Major or Free Electives to total 126 S.H.).

[8] **Optional Freshman Research Course**

Students can take 1 credit which may fulfill Free Electives requirements with approval of the Departmental Advisory Committee. TECH 1996 Research Initiative for Freshmen is recommended to be taken in the second semester of the freshman year. TECH 1996, CPS 2010 are courses acceptable for use in Free Electives and are managed by the School of Computer Science and Technology.

[9] **Optional Internship Course**

Students can take a maximum of 6 credits for TECH 3291/92/93 Career Internship in IT which are internship courses acceptable for use in Free Electives managed by Career Services. Students interested should contact Career Services.

Additional Required Courses Prerequisites (Pre/corequisites may change, consult KeanWise)

Course	Prerequisite
COMM 3590 Business and Professional Communication	COMM 1402
ENG 3091 Technical Writing	ENG 1030
MGS 2030 Principles of Management	COMM 1402 and GE 202x
MATH 1054 Precalculus	MATH 1000
MATH 2110 Discrete Structures	MATH 1504
MATH 2526 Applied Statistics I	

REQUIREMENTS FOR DECLARATION TO THE MAJOR

The School of Computer Science and Technology has adopted the following standards for declaration to all options of the Information Technology major:

a) Minimum cumulative GPA of 3.0 at the time of declaration to the major.
b) Completion of at least 13 credits of CPS and TECH Major courses at Kean University with grade of B- or higher in each.

Your major department is located in Green Lane Academic Building (GLAB), Room 228, Tel: 908-737-4700.

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CORE COURSES – 15 CREDITS		
CPS 5100	Computer Information Systems	3 credits
CPS 5440	Advanced Analysis of Algorithms	3 credits
CPS 5740	Database Systems	3 credits
CPS 5301	Software Engineering	3 credits
CPS 5981	Software Assurance	3 credits

ELECTIVES – 12 CREDITS		
CPS 5498	Digital Forensics and Investigation	3 credits
CPS 5500	Web Design and Development	3 credits
CPS 5601	Human Computer Interaction	3 credits
CPS 5721	Data Mining	3 credits
CPS 5745	Interactive Information visualization	3 credits
CPS 5801	Artificial Intelligence and Expert Systems	3 credits
CPS 5802	Machine Learning Innovation	3 credits
CPS 5881/2	Independent Graduate Study in Computer Science	3 credits
CPS 5900	Numerical Analysis	3 credits
CPS 5910	Computer Simulations of Models	3 credits
CPS 5930	Operating System Concepts	3 credits
CPS 5931	Network Systems	3 credits
CPS 5960	Operations Research: Models and Algorithms	3 credits
CPS 5965	High Performance Computing	3 credits
CPS 5990	Special Topics	3 credits

CAPSTONE – 3 CREDITS		
CPS 5995	CIS Capstone	3 credits

TOTAL OF 30 CREDITS TO COMPLETE PROGRAM

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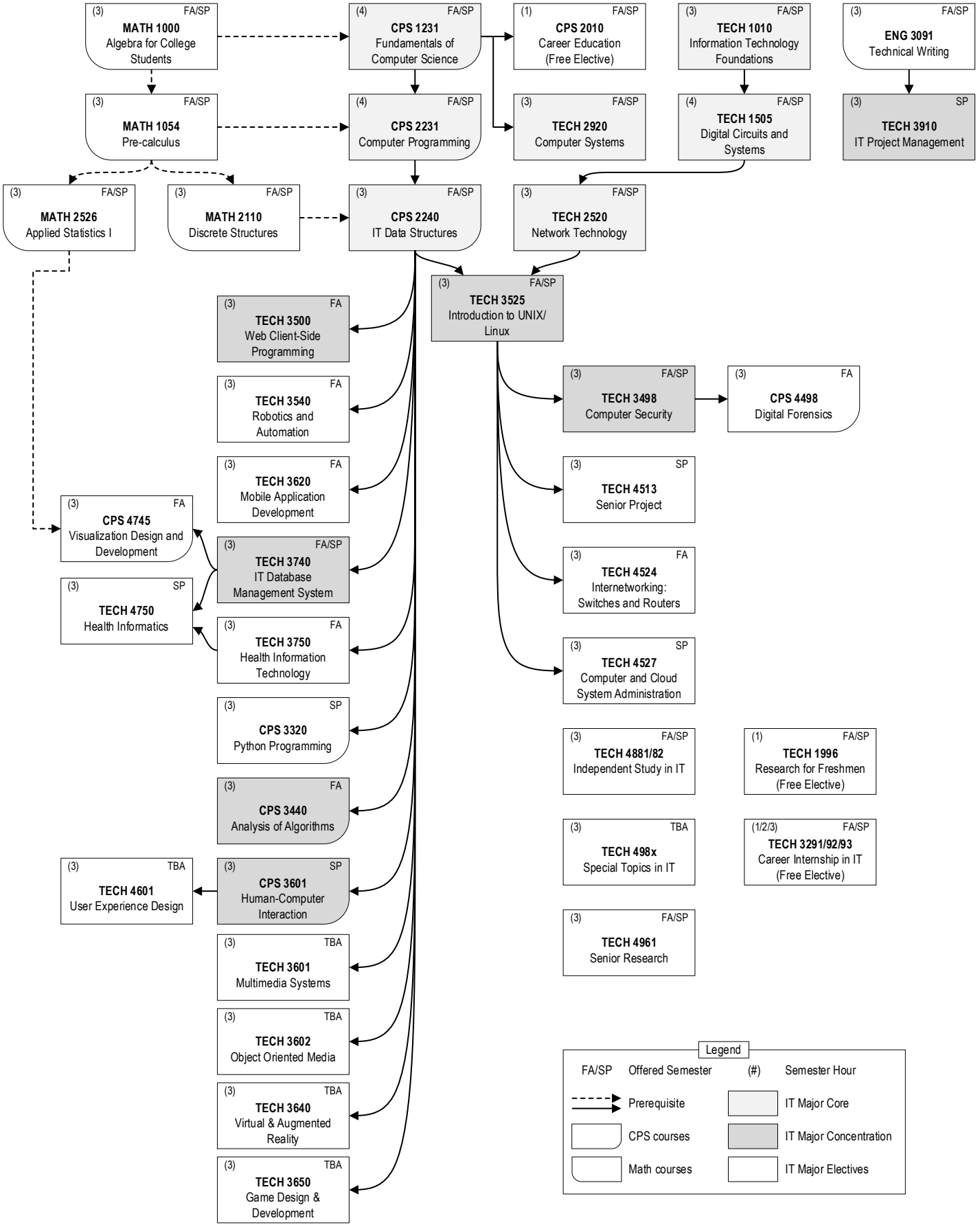

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Information Technology (TECH) Course List

Course #	S.H.	Course Title	FA	SP	Prerequisites
TECH 1010	3	IT Foundations	*	*	None
TECH 1505	4	Digital Circuits and Systems	*	*	TECH 1010
TECH 2520	3	Network Technology	*	*	TECH 1505
TECH 2920	3	Computer Systems	*	*	CPS 1231
TECH 3498	3	IT Computer Security	*	*	TECH 3525
TECH 3500	3	Web Client-Side Programming	*		CPS 2240
TECH 3525	3	Introduction to UNIX/Linux	*	*	CPS 2240 and TECH 2520
TECH 3540	3	Robotics and Automation	*		CPS 2232 or CPS 2240
TECH 3601	3	Multimedia Systems		TBA	CPS 2240
TECH 3602	3	Object Oriented Media	TBA		CPS 2240
TECH 3620	3	Mobile Application Development	*		CPS 2232 or CPS 2240
TECH 3640	3	Virtual & Augmented Reality	TBA		CPS 2240
TECH 3650	3	Game Design and Development		TBA	CPS 2240
TECH 3740	3	IT Database Management Systems	*	*	CPS 2240
TECH 3750	3	Health Information Technology	*		CPS 2232 or CPS 2240
TECH 3910	3	IT Project Management		*	ENG 3091
TECH 4513	3	Senior Project		*	TECH 3525; To be taken final spring semester
TECH 4524	3	Internetworking: Switches and Routers	*		TECH 3525
TECH 4527	3	Computer and Cloud System Administration		*	TECH 3525
TECH 4601	3	User Experience Design	TBA		CPS 3601
TECH 4750	3	Health Informatics		*	TECH 3750 and TECH 3740
TECH 4881/82	3	Independent Study in IT	*	*	Faculty permission
TECH 4961	3	Senior Research	*	*	Prior research experience required; Faculty permission
TECH 498x	3	Special Topics in IT			Faculty permission; Topics vary
Computer Science Courses					
CPS 1231	4	Fundamentals of Computer Science	*	*	MATH 1000
CPS 2231	4	Computer Programming	*	*	CPS 1231 and MATH 1054
CPS 2240	3	IT Data Structures	*	*	CPS 2231 and MATH 2110; IT majors only
CPS 3320	3	Python Programming		*	CPS 2232 or CPS 2240
CPS 3601	3	Human Computer Interaction		*	CPS 2232 or CPS 2240
CPS 4498	3	Digital Forensics	*		TECH 3498
CPS 4745	3	Visualization Design and Development	*		(CPS 3740 or TECH 3740) and MATH 2526
Cooperative Education Program for IT					
CPS 2010	1	Career Education	*	*	CPS 1231; Fulfills Free Electives
TECH 3010	0	Cooperative Education I	*	*	TECH 2010; For full-time co-op program students only
TECH 3011	0	Cooperative Education II	*	*	TECH 2010; For full-time co-op program students only
TECH 4010	0	Cooperative Education Practicum	*	*	TECH 3010; For full-time co-op program students only
Freshman Research and Internship for IT					
TECH 1996	1	Research Initiative for Freshman	*	*	Faculty permission; Fulfills Free Electives
TECH 3291-93	1-3	Career Internship in IT	*	*	Faculty permission; Fulfills Free Electives

(28702) B.S. in Information Technology (5-year M.S. Computer Information Systems option)

5-year Study Plan, Total 126+24 = 150 credits

This first-year study plan is for new students only. All new students should see their CS/IT faculty advisor (in Oct) to review and update their 4-year study plans before the early registration period (in Nov). Students should pay attention to each course's prerequisites and the offered semester (CourseID CourseName (credits) (semester offered)). Please check the academic guide sheets at http://yoda.kean.edu/studyplans/

Name:	Faculty Advisor:
Kean Id#	Catalog Year:

Notes: (Tip) Modify this template by typing the year, moving courses around, adding rows, etc. and make your personalized study plan.

1st Year Fall (16)	1st Year Spring (18)
MATH 1000 Algebra (3)	MATH 1054 Precalculus (3)
TECH 1010 IT Foundations (3) (FA/SP)	CPS 1231 Fundamentals of CS (4) (FA/SP)
COMM 1402 Speech Communication (3)	TECH 1505 Digital Circuits and Systems (4) (FA/SP)
ENG 1030 College Composition (3)	HIST 1062 Worlds of History (3)
GE 1000/3000 Transition to Kean (1)	Lab Science (4)
ID 1400 Comp. in Modern Society (3) - Free Elective #1	

Internship, summer course, or summer research

2nd Year Fall (16)	2nd Year Spring (16)
MATH 2110 Discrete Structures (3)	MATH 2526 Applied Statistics (3)
CPS 2231 Computer Programming (4) (FA/SP)	CPS 2240 IT Data Structures (3) (FA/SP)
TECH 2920 Computer Systems (3)	TECH 2520 Network Technology (3) (FA/SP)
ENG 2403 World Literature (3)	COMM 3590 Business and Professional Communication (3)
GE 2024 Research and Technology (3)	MGS 2030 Principles of Management (3)
	CPS 2010 Career Education (1) - Free Elective #2

Internship, summer course, or summer research

3rd Year Fall (15)	3rd Year Spring (15)
TECH 3500 Web Client-Side Programming (3) (FA)	CPS 3601 Human Computer Interaction (3) (SP)
TECH 3740 IT Database Management Systems (3) (FA/SP)	TECH 3498 IT Computer Security (3) (FA/SP)
TECH 3525 Intro. to Unix/Linux (3) (FA/SP)	TECH 3910 IT Project Management (3) (SP)
ENG 3091 Technical Writing (3)	Social Sciences (3)
CPS 3440 Analysis of Algorithms (3) (FA)	Humanities (3)

Internship, summer course, or summer research

4th Year Fall (12+3)	4th Year Spring (12+3)
TECH Major Elective (3) #1	TECH 4513 Senior Project (3) (SP)
TECH Major Elective (3) #2	TECH Major Elective (3) #3
Free Elective 3000/4000 (3) #3	TECH/CPS Major Elective (3) #4
Free Elective 3000/4000 (3) #4	Free Elective 3000/4000 (3) #5
CPS 5440 Advanced Analysis of Algorithms (3) (FA)	CPS 5100 Computer Information Systems (3) (SP)

Internship, summer course, or summer research

5th Year Fall (12)	5th Year Spring (12)
CPS 5740 Database Systems (3) (FA)	CPS 5981 Software Assurance (3) (SP)
CPS 5301 Software Engineering (3) (FA)	CPS 5995 CIS Capstone (3) (SP)
CPS 5xxx Major Elective #1 (3)	CPS 5xxx Major Elective #3 (3)
CPS 5xxx Major Elective #2 (3)	CPS 5xxx Major Elective #4 (3)

Internship, summer course, or summer research

Fall offered TECH Major Electives	Spring offered TECH Major Electives
TECH 3540 Robotics & Automation (3) (FA)	TECH 4527 Computer & Cloud System Admin. (3) (SP)
TECH 3620 Mobile App. Development (3) (FA)	TECH 4750 Health Informatics (3) (SP)
TECH 3750 Health IT (3) (FA)	CPS 3320 Python Programming (3) (SP)

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Note: The course sequence and layout provided is an estimate, based on available information and may change, due to program requirements, student performance, and may be subject to human error. All students should check their study plans and take personal responsibility for accuracy and correctness.

TECH 4524 Internetworking: Switches & Routers (3) (FA)	
CPS 4498 Digital Forensics (3) (FA)	CPS 5500 Web Design and Development (3) (SP)
CPS 4745 Visualization Design & Development (3) (FA)	CPS 5601 Human Computer Interaction (3) (SP)
TECH 4601 User Experience Design (3) (TBA)	CPS 5721 Data Mining (3) (SP)
	CPS 5801 Artificial Intelligence and Expert Systems (3) (SP)
CPS 5498 Digital Forensics and Investigation (3) (FA)	CPS 5931 Network Systems (3) (SP)
CPS 5745 Interactive Information visualization (3) (FA)	
CPS 5802 Machine Learning Innovation (3) (FA)	
CPS 5965 High Performance Computing (3) (FA)	

Note: The course sequence and layout provided is an estimate, based on available information and may change, due to program requirements, student performance, and may be subject to human error. All students should check their study plans and take personal responsibility for accuracy and correctness.