KEAN UNIVERSITY – School of Integrative Science and Technology

(36112) B.S. IN SCIENCE & TECHNOLOGY (Computational Science & Engineering Option) 120 S.H.

Minimum GPA Required for Declaration: N/A
Minimum GPA Required for Major: 2.75
Overall Minimum GPA Required for Graduation: 3.0

EFFECTIVE DATE: FALL 2022

GENERAL EDUCATION: 34 Semester Hours (S.H.)			
Foundation Requirements[1,2]: 14 S.H.			
GE 1000	Transition to Kean[3] or GE 3000 Transfer Transtion[3]	1	
ENG 1030	College Composition[1]	3	
STME 2000 STME 2099	Math. & Comp. Methods of Science I[4] & Math. & Comp. Methods of Science I[4] Lab	3 1	
COMM 1402	Speech Communication As Critical Citizen[1]	3	
GE 2024	Research & Technology	3	
Disciplinary & Interdisciplinary Distribution Requirements[2]: 20 S.H.			
***Humanities*: 6 S.H.**			
*ENG 2403	World Literature	3	
*Take **ONE** GE Approved course from one area below*			
	Fine Arts or Art History		
	Philosophy or Religion		
	Foreign Languages (must take I & II for credit)		
	Music or Theater		
	Interdisciplinary		
***Social Sciences*: 6 S.H.**			
*HIST 1062	Worlds of History	3	
*Take **ONE** GE Approved course from one area below*			
	Psychology		
	Economics or ES1010 (World Geography)		
	Political Science		
	Sociology or Anthropology		
	Interdisciplinary		
***Science and Mathematics*: 8 S.H.**			
STME 2100 STME 2199	Math. & Comp. Methods of Science II & Math. & Comp. Methods of Science II Lab	3 1	
STME 1000 STME 1099	Chemical Systems I & Chemical Systems I Lab	3 1	
ADDITIONAL REQUIRED COURSES[1]: 13 S.H.			
STME 1700 STME 1799	Living Systems I & Living Systems I Lab	3 1	
STME 2700 STME 2799	Physical Systems I & Physical Systems I Lab	3 1	
STME 2300 STME 2399	Probabilistic Methods in Science & Probabilistic Methods in Science Lab	3 1	
STME 1903	Research Methods-RFI	1	

ACADEMIC MAJOR[5]: 64-65 S.H.			
Program Core Requirements[5]: 28 S.H.			
STME 1500 STME 1599	Intro. Programming In Sci. & Engineering & Intro. Programming In Sci. & Engineering Lab	3 1	
STME 2200 STME 2299	Math. & Comp. Methods of Science III & Math. & Comp. Methods of Science III Lab	3 1	
CPS 2231	Computer Organization & Programming	4	
CPS 2232	Data Structures & Algorithm Analysis	4	
MATH 2110	Discrete Structures	3	
CPS 3962 CPS 4301	Information Systems Analysis & Design or Software Engineering I (WE)	3	
*Select **ONE** course from below*			
CPS 5965	High Performance Computing	3	
STME 5630	Modeling and Simulation of Dynamic Systems	3	
*Select **ONE** course from below*			
STME 5710	Applied Partial Differential Equations	3	
STME 5631	Data Analysis and Visualization	3	
Program Track Requirements[5]: 33-34 S.H.			
(Select based on track, see additional sheets)			
	Applied Math Track	34	
	Bioinformatics Track	34	
	Physics Track	33	
****Major Capstone Course[5]: 3 S.H.**			
STME 4610	Science & Technology Seminar (WE)	3	
FREE ELECTIVES: 8-9 S.H. *(Select w/advisement, at least 50% must be at 3000-4000 level)*			

Special Notes:

All pre-requisites for major courses must be passed with a grade of C or better.

* GE Distribution course required of all students ** Course required by Major

[1] Foundation Requirements & Additional Required Courses require a grade of C or better, except ENG 1030 and COMM 1402 require B- or better.

[2] See prerequisites & equivalencies (on page 3).

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

[4] Prerequisite of qualifying test score or the equivalent of MATH 1054.

[5] A minimum major GPA of 2.75 and minimum grade of C is required in all major courses, except major/GE capstone requires a grade of B- or better.

[6] Non-Research First Initiative (RFI) students only.

[7] Required for RFI students – must complete with RFI sponsor faculty.

[8] At a minimum, 3 total credits is required for students choosing to do a STEM Internship. Students may take any combination of STME 3171, 3172, 3173 (1, 2 or 3 credits) per semester that they choose to do an internship.

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TRACK SPECIFIC REQUIREMENTS: APPLIED MATH: 34 S.H.			
Program Track Requirements[5]: 25-29 S.H.			
STME 2800 STME 2899	Physical Systems II & Physical Systems II Lab	3 1	
MATH 3225	Computational Methods Linear Algebra II	3	
MATH 3415	Calculus III	4	
MATH 3455	Differential Equations	3	
MATH 3940	Numerical Analysis	3	
STME 4805	Pedagogy of Modeling & Simulation	3	
STME 2903 STME 3903 STME 3171-73 STME 3610	Research Experience-RFI[7] Advanced Research Experience-RFI[7] OR STEM Internship[6,8] OR Current Issues[6]	2 3 3 1	
*Select **ONE** course from below (must take lecture & lab)*			
STME 1100 STME 1199	Chemical Systems II & Chemical Systems II Lab	3 1	
STME 1800 STME 1899	Living Systems II & Living Systems II Lab	3 1	
MAJOR ELECTIVES[5]: 5-9 S.H. *(Select major elective courses with advisement)*			

TRACK SPECIFIC REQUIREMENTS: PHYSICS: 33 S.H.			
Program Track Requirements[5]: 29-33 S.H.			
STME 2800 STME 2899	Physical Systems II & Physical Systems II Lab	3 1	
PHYS 2907	Physics III	4	
PHYS 4592	Modern Physics	4	
PHYS 4593	Landmarks in 20th Century Physics OR PHYS 4901 Independent Research in Physics	3	
MATH 3415	Calculus III	4	
MATH 3455	Differential Equations	3	
MATH 3940	Numerical Analysis	3	
STME 4805	Pedagogy of Modeling & Simulation	3	
STME 2903 STME 3903 STME 3171-73 STME 3610	Research Experience-RFI[7] Advanced Research Experience-RFI[7] OR STEM Internship[6,8] OR Current Issues[6]	2 3 3 1	
MAJOR ELECTIVES[5]: 0-4 S.H. *(Select major elective courses with advisement)*			

TRACK SPECIFIC REQUIREMENTS: BIOINFORMATICS: 34 S.H.			
Program Track Requirements[5]: 30-34 S.H.			
STME 1800 STME 1899	Living Systems II & Living Systems II Lab	3 1	
STME 1100 STME 1199	Chemical Systems II & Chemical Systems II Lab	3 1	
STME 2681	Organic Chemistry Honors Lecture I	3	
STME 2683	Organic Chemistry Honors Lab I	2	
BIO 3709	Genetics	4	
STME 3100 STME 3199	Biochemistry Honors I & Biochemistry Honors I Lab	3 1	
BIO 4700	Molecular Genetics	4	
BIO 3315 BIO 3315L	Microbiology Microbiology Lab	3 1	
STME 2903 STME 3903 STME 3171-73 STME 3610	Research Experience-RFI[7] Advanced Research Experience-RFI[7] OR STEM Internship[6,8] OR Current Issues[6]	2 3 3 1	
MAJOR ELECTIVES[5]: 0-4 S.H. *(Select major elective courses with advisement)*			

Special Notes:

All pre-requisites for major courses must be passed with a grade of C or better.

* GE Distribution course required of all students ** Course required by Major

[1] Foundation Requirements & Additional Required Courses require a grade of C or better, except ENG 1030 and COMM 1402 require B- or better.

[2] See prerequisites & equivalencies (on page 3).

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

[4] Prerequisite of qualifying test score or the equivalent of MATH 1054.

[5] A minimum major GPA of 2.75 and minimum grade of C is required in all major courses, except major/GE capstone requires a grade of B- or better.

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