

ENGINEERING MATHEMATICS CONCURRENT DEGREE

Student's name _____

The University of Michigan – Dearborn
College of Engineering and Computer Science

ID # _____

A current College of Engineering and Computer Science (CECS) undergraduate student majoring in *Bioengineering, Computer Engineering, Electrical Engineering, Industrial and Systems Engineering, Manufacturing Engineering, or Mechanical Engineering* may pursue a concurrent Bachelor of Science in Engineering (B.S.E.) degree in *Engineering Mathematics*. Students declare this degree (at 2000 HPEC) in order to earn two degrees concurrently: a B.S.E. degree in their principal engineering major and a **B.S.E degree in Engineering Mathematics**. Both degrees must be earned at the same time.

The B.S.E. degree in *Engineering Mathematics* requires a minimum of **fourteen (14) additional and separate credits in advanced mathematics coursework** beyond the credits needed for the degree program of the student's principal engineering major. Credits from the courses being used for the concurrent *Engineering Mathematics* degree do not count towards a student's principal degree.

(The instructor's or the Mathematics Department's approval is needed before taking any 500-level MATH course.)

For the B.S.E. in Engineering Mathematics concurrent degree, take **14 credits** from the courses below.

MATH 315	Applied Combinatorics (3 credits)	Prerequisites: Math 217 or Math 227, and Math 200
MATH 372	Computing with Mathematica (3)	Prerequisite: Math 217 or Math 227
MATH 390	Topics in Mathematics (1-3)	<u>PRIOR</u> approval by CECS for use in Engr Math degree needed
MATH 395	Elementary Number Theory (3)	Prerequisite: Math 205 or Math 215
MATH 404	Dynamical Systems (3)	Prerequisites: Math 216 and (either Math 217 or 227)
MATH 405	Integral Equations (3)	Prerequisites: Math 216 and (either Math 217 or 227)
MATH 412	First Course in Modern Algebra (3)	Prerequisites: Math 200 and (Math 217 or Math 227)
MATH 413	Linear Algebra (3)	Prerequisites: Math 200, Math 216, and (Math 217 or 227)
	[Note: Credit for only one from Math 413, Math 513, and Math 523]	
MATH 420	Stochastic Processes (3)	Prerequisites: Math 325 and (either Math 217 or Math 227)
	[Note: Credit for only one from Math 420 and IMSE 506]	
MATH 425	Mathematical Statistics II (3)	Prerequisite: Math 325 or equivalent
MATH 451	Advanced Calculus I (3)	Prereqs: Math 200, Math 216, and (Math 217 or Math 227)
MATH 452	Advanced Calculus II (3)	Prerequisite: Math 451
MATH 454	Fourier Series and Boundary Value Problems (3)	Prereqs: Math 216 and (Math 217 or 227)
MATH 455/555	Functions of a Complex Variable with Applications (3)	Prereqs: Math 216 and (Math 217 or 227)
	[Note: Credit for only one from Math 455 and Math 555]	
MATH 458/558	Introduction to Wavelets (3)	Prerequisites: Math 216 and (either Math 217 or Math 227)
	[Credit for only one from Math 458 and 558]	
MATH 462	Mathematical Modeling (3)	Prerequisites: Math 216 and (either Math 217 or Math 227)
MATH 472	Introduction to Numerical Analysis (3)	Prerequisites: Math 216 and (either Math 217 or Math 227)
MATH 473	Matrix Computation (3)	Prerequisites: Math 216 and (either Math 217 or Math 227)
MATH 514	Numerical Solutions of Partial Differential Equations (3)	Prereqs: Math 216 and (Math 217 or 227)
MATH 515	Approximations of Functions (3)	Prerequisites: Math 216 and (either Math 217 or Math 227)
MATH 516	Partial Differential Equations (3)	Prerequisites: Math 216 and (either Math 217 or Math 227)
MATH 523	Linear Algebra with Applications (3)	Prerequisites: Math 216 and (either Math 217 or Math 227)
	[Note: Credit for only one from Math 413, Math 513, and Math 523]	
MATH 582	Computer Algebra Systems (3)	Prerequisites: Math 216 and (either Math 217 or Math 227)
MATH 583	Discrete Systems (3)	Prerequisite: Math 217 or Math 227
MATH 584	Applied and Algorithmic Graph Theory (3)	Prerequisite: Math 217 or Math 227
MATH 590	Topics in Mathematics & Statistics (3)	<u>PRIOR</u> approval by CECS for use in Engr Math degree needed

The following CECS graduate courses may also be used towards the Engineering Mathematics degree: **ECE** 555, 560, 567, 580; **IMSE** 505, 506, 510, 511; **ME** 518, 519, *provided that* a minimum of nine (9) credits of Mathematics (MATH) courses listed above be taken and permission to take a graduate course be granted. [1/11]

List also available online: www.engin.umd.umich.edu/SRA/pdf/curriculum/Dual_Engr_Math_Degree_2001.pdf