

PROPOSED NEW MAJOR IN INDUSTRIAL MATHEMATICS

Shepherd University proposes a new major in Industrial Mathematics which would lead to the Bachelor of Science in Mathematics Degree. Presently, Industrial Mathematics is offered as a concentration in the Mathematics major. A new major in an existing degree program does not require further approval beyond the Board of Governors.

The new major will strengthen Shepherd's mission by offering a new major field of study, thereby providing increased opportunities for students to earn a degree in the rapidly growing field of industrial / applied mathematics. The major will also help in recruiting students into mathematics as a career. Advancing this program from a concentration in mathematics into a major primarily requires the addition of courses in engineering and the addition of several courses in mathematics. The remainder of the curriculum utilizes mathematics and other courses in the current concentration. Also, several courses were removed from the concentration curriculum.

The new curriculum is described on the following pages with the added courses in bold print. The program will utilize existing faculty and facilities thereby requiring no additional funding or staffing. The program will be lead by Dr. Rajeev Rajaram, who has a doctorate in applied mathematics and is well qualified to lead the program. As the program grows, new faculty or other resources might be added as necessary and as justified by the growth of the program.

The following resolution is recommended for adoption by the Board:

RESOLVED, That the Shepherd University Board of Governors approves the Major in Industrial Mathematics leading to the Bachelor of Science Degree in Mathematics, effective for the Fall 2006 academic semester.

R E V I S E D
Curriculum for a comprehensive major in Mathematics

Industrial Math

Total hours required..... 127

Required General studies:17

ECON 205	Principles Macroeconomics.....	3
ENGL 104	Science and Technical Writing.....	3
MATH 154	Finite Mathematics.....	3
PHYS 221,221 L	General physics I.....	4
PHYS 222, 222 L	General Physics II.....	4

Mathematics requirements.....41

MATH 100 Freshman Seminar..... 1

MATH 207 Calculus I.....4

A minimum grade of C in MATH 207 is required

MATH 208 Calculus II..... 4

MATH 254 Discrete Math..... 3

MATH 307 Linear Algebra..... 3

MATH 309 Calculus III.....4

MATH 310 Differential Equations..... 4

MATH 318 Numerical Analysis..... 3

MATH 321 Probability and Statistics.....3

MATH 329 Mathematical Modeling.....3

MATH 354 Operations Research.....3

MATH 392 Internship in Mathematics.....3

MATH 433⁺ Applied Mathematics..... 3

+ New course

⁺MATH 433 – A brief introduction to methods of solving PDE using Green’s functions, Fourier Series, etc, advanced topics from Calculus III. Pre-requisite Math 309 & Math 310.

Engineering requirements.....25

ENGR 101 Engineering I.....3

ENGR 102 Engineering II..... 3

ENGR 241 Engineering Statics.....3

ENGR 242 Engineering Dynamics..... 3

ENGR 221, 222 Engineering Circuits & Lab..... 4

ENGR 243 Mechanics of Materials..... 3

ENGR 326 Linear Systems.....3

ENGR 354 Fluid Mechanics.....3

Additional Requirements
Total Requirements:.....7-8

CHEM 207, 207L General Chemistry.....4
CIS 234 Introduction to Networking.....3
CIS 287 System Analysis and Design.....3
ENGR 305 Digital Logic Design.....4

Required Courses from other departments
Total requirements:..... 6
BADM 150 Introduction to Business.....3
BADM 310 Principles of Management3
ECON 206 Principles of Microeconomics.....3