UNIVERSITY OF SOUTHERN MAINE
Department of Engineering

New Course Announcement – Spring 2010

EGN 304 - Engineering Economics

When: January 19th – May 13th, Tuesdays and Thursdays, 5:00–6:15pm
Where: John Mitchell Center, Room 233 (Gorham Campus)
Instructor: Prof. Mehrdaad Ghorashi, 780-5166, ghorashi@usm.maine.edu

This course offers an analytical approach to economics, suitable for both professional and personal interests. It draws on a long tradition of engineering, business and industrial practices of economic analysis for design, planning and implementation. This is a 3-credit course.

Syllabus:

1. Definition and importance of economics in general and engineering economics in particular in decision making under given circumstances and under uncertainty.
2. Investment, cost, average cost, fixed cost, variable cost, sunk cost and opportunity cost.
3. Simple and compound interest.
4. Cash flow and the present value of a cash flow.
5. Minimum attractive rate of return and calculation of the rate of return of a project.
6. Payback time or recovery period.
7. Cost-benefit study and public sector economics.
8. Breakeven analysis and evaluation of alternatives under budget constraint.
9. Sensitivity analysis of economic decisions with respect to changes in economic factors.
10. Expected value and economic decision-making under uncertainty.
11. Utility function, indifference curves and utility maximization with budget constraint.
12. Supply, demand and equilibrium in economics.
13. Pareto Efficiency.
14. Effects of taxes, subsidies, rationing and inflation in economics.
15. Computer-aided Engineering Economics using spreadsheets.

Prerequisites:

Basic college-level mathematics; Quantitative Decision Making requirement (Core Area D) for USM students.

Textbook:

W.G. Sullivan, E.M. Wicks and C.P. Koelling, “Engineering Economy”, 14th Edition, Pearson Education Inc., 2009.

About the Instructor:

Dr. Ghorashi joined USM as an Assistant Professor of Mechanical Engineering in the fall of 2009, after obtaining his second Ph.D. from Carleton University. He also holds a Master of Science Degree in Economic and Social Systems Engineering. His research focus in economics has been on micro-based macroeconomics. His paper on *Optimal Inter-Generational Transfer Payments and the Poverty Trap* has been published in the Computational Economics Journal (Kluwer Academic Publishers) in June of 2000.