Summer 2020 MIME Technical Electives

Unless you are a graduating senior who needs more than one course to graduate, we ask that you only enroll in one summer technical elective course. More options (including online courses) will be offered in the fall for those graduating in December 2020 and Spring 2021

MIME 4080 OPERATIONS RESEARCH I – Distance Learning Format
This course focuses on the mathematical methods of operations research and their applications in engineering. Topics include the optimal solution of deterministic and stochastic mathematical models, modeling process, linear programming, the simplex method, duality theory and sensitivity analysis. Prerequisite: MIME 4000, and MATH 2860

MIME 4820 Sustainability Analysis and Design – Distance Learning Format
The course is intended to introduce students to sustainability analysis and design in manufacturing and service settings as related to mechanical and industrial engineering. It will cover solid waste minimization for manufacturers, life cycle analysis, and environmentally conscious design.

MIME 4980-901 SP-Lean Six Sigma – Distance Learning Format
The course is intended to introduce students to lean six sigma and design in manufacturing and service settings. It will cover the history of lean six sigma, benefits, cost reduction, quality improvement, metrics, deployment alternatives and case studies.

MIME 4980 902 SP- Electromechanical Systems – Distance Learning Format
Application of solid-state phenomena in engineering structures such as microelectronic, magnetic and optical devices. Review of quantum mechanical descriptions of crystalline solids. Microelectronic, magnetic and optical properties of devices, fabrication and process methods

MIME 4980 903 SP- Additive Manufacturing – Distance Learning Format
The rapidly evolving additive manufacturing technologies is a direct way of converting digital data into final parts. While rapid prototyping (RP) and rapid tooling (RT) are now accessible based on AM the next front is direct product manufacturing. Rapid manufacturing (RM) will make a significant difference in industries related to aerospace and biomedical devices. The forecast indicate that AM could reach $50 billion by 2030 and $100 billion by 2044. While in traditional manufacturing, the true costs are not transparent due to the supply chain, AM has the potential to significantly reduce the cost by modifying the design and production systems. This course is designed to provide an in depth understanding of the advantages as well as the limitations of AM technologies.

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