GRADUATE CERTIFICATE IN SYSTEMS OF HUMAN CAPITAL MANAGEMENT

OFFERED BY:
Department of Engineering Management and Systems Engineering

PARENT DEPARTMENT AND DEGREE:
Department of Engineering Management and Systems Engineering, MS-EM, MS-SE

INTENDED AUDIENCE:  _Main Campus Students _Distance Students _X_Both

PROGRAM DESCRIPTION:
The Department of Engineering Management and Systems Engineering will offer a graduate certificate in Systems of Human Capital Management for practicing engineers and technology professionals seeking to develop key competencies associated with managing and developing the essential human capital that technology-driven enterprises require to achieve and sustain competitive advantage. The courses are scheduled and offered on campus and as an augmented online offering for maximum flexibility.

PURPOSE:
A significant audience for our program includes engineers, scientists, and other technical professionals transitioning to management and those who have already assumed a role managing people in technology focused enterprises. Acquiring both the depth and the breadth of knowledge of the issues involved with managing technical professionals and developing organizational human capital is often a priority for these students. The knowledge gained and the affirmation of relevant competencies indicated by a graduate level credential strongly facilitates career progression. Learners completing this certificate will gain real-world knowledge and competencies needed to analyze, understand, justify, develop, and actively manage policies, procedures, and protocols for processes such as strategic human capital forecasting and planning, recruitment, selection, training and development, performance management, goal-setting, motivation, compensation, leadership, decision making, negotiation, and related topics.

ADMISSION:
The SYSTEMS OF HUMAN CAPITAL MANAGEMENT CERTIFICATE is open to all persons holding a B.S., M.S., or Ph.D. degree in engineering, science, mathematics, or quantitative business degrees or who are currently accepted into a graduate degree program at Missouri S&T. Once admitted to the program, the student must take the four designated courses (provided in the curriculum section). In order to receive a Graduate Certificate, the student must have an average cumulative grade point of 3.0 or better in the certificate courses. Once admitted to the program, a student will be given three years to complete the program.

Students admitted to the SYSTEMS OF HUMAN CAPITAL MANAGEMENT Certificate Program will have non-degree graduate status, however, they will earn graduate credit for the course they
complete. If the student completes the four-course sequence with a grade of B or better in each of the courses taken, they, upon application, will be admitted to the M.S. degree program in Engineering Management or the M.S. degree program in Systems Engineering. The certificate credits taken by the students admitted to the M.S. degree program will count towards their master's degrees. Students who do not have all of the prerequisite courses necessary to begin the courses in the SYSTEMS OF HUMAN CAPITAL MANAGEMENT Certificate Program will be allowed to take "bridge" courses at either the graduate or undergraduate level to prepare for the formal certificate courses.

**CONTRIBUTING FACULTY:**
Suzanna Long  
David Spurlock  
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**CURRICULUM:**
EM 5111, Management for Engineers and Scientists  
EM 5110, Managerial Decision Making  
EM 6113, Advanced Personnel Management  
EM 6413, Advanced Engineering Management Science

**COURSE DESCRIPTIONS:**

*ENG MGT 5111 Management for Engineers and Scientists (LEC 3.0)*  
The transition of the engineer or scientist to manager; study of management roles and theory, organizational systems and behavior, managing and motivating technical personnel, leadership, communication, processes, and customer focus. Prerequisite: Graduate standing.

*ENG MGT 5110 Managerial Decision Making (LEC 3.0)*  
Individual and group decision making processes and principles for engineers and technical managers with emphasis on the limitations of human rationality and the roles of social influence and organizational contexts; principles and skills of negotiation. Prerequisite: Senior or graduate standing.

*ENG MGT 6113 Advanced Personnel Management (LEC 3.0)*  
Current practices of procurement and maintenance of technical personnel in research, development, and design organizations. Adaptation of such personnel to the technological enterprise, current practices in personnel administration, labor management relationships.

*ENG MGT 6413 Advanced Engineering Management Science (LEC 3.0)*  
Solving of managerial problems utilizing management science techniques. Problems are analyzed, modeled and solved using such techniques as linear, goal, dynamic, programming, simulation, statistical analysis or other non-linear methods. Solutions will involve the use of personal or mainframe computers. A study of the current literature in management science will also be conducted. Prerequisite: Eng Mgt 5414 or graduate standing.