

Human Factors (HFCT)

HFCT 500 Systems Concepts, Theory, and Tools 3 Credits (3,0)

Studies systems thinking, principles, and tools, including systems evaluation, decision support, and information management.

Course Offered at: Daytona Beach

HFCT 501 Human Factors in Systems 3 Credits (3,0)

Explores human factors topics such as anthropometrics, workload, workspace design, perception, and stress as applied to systems engineering.

Course Offered at: Daytona Beach

HFCT 510 Research Design and Analysis I 3 Credits (3,0)

Research techniques and methods, focusing on experimental design, variable isolation, and case studies.

Course Offered at: Daytona Beach

HFCT 511 Research Design and Analysis II 3 Credits (3,0)

Advanced experimental design and analysis; includes factorial designs, regression, and covariance.

Prerequisites: HFCT 510

Course Offered at: Daytona Beach

HFCT 515 Ergonomics for Human Factors 3 Credits (3,0)

Concepts of ergonomics applied to human-machine systems; human physiological, biomechanical, and biological limitations in design for efficiency, safety, and comfort; includes control and display systems, seating.

Course Offered at: Daytona Beach

HFCT 520 Team Performance 3 Credits (3,0)

Team behavior dynamics from formation to dissolution; emphasizes team functioning in advanced environments like aviation, aerospace, and defense.

Course Offered at: Daytona Beach

HFCT 521 Modeling Humans in Complex Systems 3 Credits (3,0)

Software approaches to modeling human behavior in complex systems.

Course Offered at: Daytona Beach

HFCT 525 Human and Social/Organizational Factors in Emerging Technologies 3 Credits (3,0)

Human interactions with emerging technologies and their effects on social, cultural, and organizational behaviors; includes future implications of technological immersion.

Course Offered at: Daytona Beach

HFCT 526 Aerospace Physiology 3 Credits (3,0)

Adaptability of physiological systems in aerospace environments; covers nervous, cardiac, pulmonary systems, and impacts of environmental stressors on performance and human limitations.

Course Offered at: Daytona Beach

HFCT 527 Advanced Psychopharmacology 3 Credits (3,0)

Overview of drugs' societal and medical impacts, especially psychoactive compounds; focuses on legal/illegal drugs and their effects, particularly in aerospace contexts.

Course Offered at: Daytona Beach

HFCT 540 Foundations of Public Health 3 Credits (3,0)

Foundational knowledge in public health history, ethical bases, and factors contributing to health outcomes; applied to current and future public health challenges.

Course Offered at: Daytona Beach

HFCT 545 Principles of Health, Systems, Policy and Management 3 Credits (3,0)

Health care history, organization, and policy as it pertains to public health; includes principles of equity, access, costs, and risks to vulnerable populations.

Course Offered at: Daytona Beach

HFCT 548 Epidemiology and Public Health 3 Credits (3,0)

Study of epidemiology in public health; methods for evaluating health patterns in populations; includes ethical and legal principles in public health research.

Course Offered at: Daytona Beach

HFCT 590 Graduate Seminar 3 Credits (3,0)

A study of current topics and advancements in human factors and related areas as determined by the instructor of the course. The course will have a different topic each time it is offered depending on the varied interests of the faculty, students, or availability of visiting professors.

Course Offered at: Daytona Beach

HFCT 599 Special Topics in Human Factors 1-6 Credit (1-6,0)

Individual, independent, or directed studies of selected topics in human factors.

Course Offered at: Daytona Beach

HFCT 605 Systems Engineering II 3 Credits (3,0)

Focus on prototyping and innovation in short-cycle engineering; includes design, build, and test processes. Lab required.

Prerequisites: HFCT 500

Course Offered at: Daytona Beach

HFCT 606 Human Cognition 3 Credits (3,0)

Examination of human cognitive processes, data gathering, memory, and decision-making; emphasis on attention, perception, and creativity in dynamic environments.

Course Offered at: Worldwide, Asia

HFCT 612 Human Performance, Limitation, and Error 3 Credits (3,0)

Examination of human cognitive, physiological, and biomechanical performance capabilities and limitations, as relate to human performance, error, and integration within complex systems.

Prerequisites: HFCT 501

Course Offered at: Worldwide, Asia

HFCT 613 Stress and Adaptation 3 Credits (3,0)

Theories and methods of stress and coping in humans; includes physiological and psychological responses to stress, applied to fields like medicine, public health, and industrial settings.

Course Offered at: Daytona Beach

HFCT 614 Human Factors in Medicine 3 Credits (3,0)

Seminar on human factors in medicine; covers high-reliability teams, error, telemedicine, simulations, and performance assessments in healthcare.

Course Offered at: Daytona Beach

HFCT 615 Sensation and Perception for Human Factors 3 Credits (3,0)

Advanced issues in human information processing, focusing on sensory systems, with special attention to visual and auditory perception in system design and certification. Lab required.

Course Offered at: Daytona Beach

HFCT 616 Human Factors of Transportation 3 Credits (3,0)

Principles of Human Factors Psychology applied to transportation systems; includes research and methods for optimizing human-machine transportation.

Prerequisites: HFCT 501

Course Offered at: Daytona Beach

HFCT 617 Human Factors Methods 3 Credits (3,0)

Introduction to measurement, design, and evaluation methods in human factors; focuses on workload, error measurement, situation awareness, and task analysis.

Course Offered at: Daytona Beach

HFCT 618 Human Factors in Aging: Behavioral and Biological Foundations 3 Credits (3,0)

Behavioral and biological foundations of aging, focusing on psychological and physical changes; investigates aging's effects on complex behaviors like driving and flying.

Course Offered at: Daytona Beach

HFCT 620 Memory and Cognition 3 Credits (3,0)

Explores memory and cognition research and their applications to human-machine interactions and system design; includes topics like pattern recognition, decision-making, and automation. Lab required.

Course Offered at: Daytona Beach

HFCT 621 Human Factors in Virtual and Simulated Environments 3 Credits (3,0)

Examines the relationship between human factors and technology in virtual, augmented and mixed realities; gaming and gamification; and simulated environments; covers influence to physiology and cognition, such as simulation sickness, fidelity, and training transfer.

Prerequisites: HFCT 606 and HFCT 612

Course Offered at: Worldwide

HFCT 622 Human Factors in Entertainment Systems 3 Credits (3,0)

Application of human factors to entertainment systems design; covers game mechanics, simulation, flow, engagement, and psychological aspects like addiction and social dynamics.

Course Offered at: Daytona Beach

HFCT 624 Ergonomics and Biomechanics 3 Credits (3,0)

Examines principles and applications of ergonomics and biomechanics in various industries; focuses on human anatomy, kinematics, and musculoskeletal analysis in workplace and system design.

Prerequisites: HFCT 606 and HFCT 612

Course Offered at: Worldwide, Asia

HFCT 625 Applied Testing and Selection 3 Credits (3,0)

Issues in selecting and testing personnel in aviation and related industries; covers performance assessment techniques and problems in criterion and assessment measurement.

Prerequisites: HFCT 510 and HFCT 511

Course Offered at: Daytona Beach

HFCT 626 Human Factors Principles of Visual Communication 3 Credits (3,0)

Experiential course in visual communication; covers design for scientific graphs, infographics, and data visualization for diverse audiences.

Course Offered at: Daytona Beach

HFCT 627 User Experience 3 Credits (3,0)

Hands-on experience in User Experience metrics and methods; includes qualitative and quantitative data collection, analysis, and industry-style report writing.

Course Offered at: Daytona Beach

HFCT 630 Applied Cognitive Science 3 Credits (3,0)

Focuses on how humans process information, drawing from disciplines like philosophy, neuroscience, and AI; special emphasis on applying this knowledge to AI, machine learning, and consciousness studies.

Prerequisites: HFCT 501 and HFCT 620

Course Offered at: Daytona Beach

HFCT 635 Human-Computer Interaction 3 Credits (3,0)

User interface design and human-computer interaction principles.

Evaluation of interface quality, user-centered design, and task analysis.

Course Offered at: Daytona Beach

HFCT 637 Managing Human Errors in Complex Systems 3 Credits (3,0)

Foundation for identifying and managing human errors in complex systems; includes historical theories of accident causation and examples from various domains.

Prerequisites: HFCT 501

Course Offered at: Daytona Beach

HFCT 640 Human Physiology and Adaptation 3 Credits (3,0)

Human anatomy and physiological functional systems, limitations, and capabilities. Survey of homeostasis, allostasis, anatomy, and human body adaptation in extreme environments. Correlation between human physiology and human performance.

Prerequisites: HFCT 606 and HFCT 612

Course Offered at: Worldwide

HFCT 641 Systems Psychology 3 Credits (3,0)

The impact of machine and human behavior on complex sociotechnical systems' behavior; includes systems thinking, human/systems integration, system complexity, systems modeling and analysis, behavioral system dynamics, and higher order cognitive functions.

Prerequisites: HFCT 606 and HFCT 612

Course Offered at: Worldwide, Asia

HFCT 642 Aviation/Aerospace Psychology 3 Credits (3,0)

Survey of aviation psychology topics, including alcohol effects on performance, safety, task analysis, and crew resource management; emphasizes research methods and statistical analysis.

Course Offered at: Daytona Beach

HFCT 647 Human Factors in Complex Systems 3 Credits (3,0)

Examines human interfaces within organizations and systems as complex sociotechnical systems; includes management approaches, quality of work life, and human performance implications.

Prerequisites: HFCT 606 and HFCT 612

Course Offered at: Worldwide, Asia

HFCT 650 Human Factors of Aviation/Aerospace Applications 3 Credits (3,0)

Application of human factors principles to design and operation of aviation/aerospace systems. Historical perspective and future operational concepts; human-machine function allocation; human-computer interface; work environment factors like stress and circadian rhythms; person-to-person communications; performance measurement; research and development needs.

Course Offered at: Daytona Beach

HFCT 653 Cognitive Systems Engineering 3 Credits (3,0)

Examines cognitive systems engineering applications to the development and operation of joint cognitive systems; includes complexity in joint cognitive systems, the human/machine relationship, human/machine trust, system error and failure, and modeling and analysis.

Prerequisites: HFCT 606 and HFCT 612

Course Offered at: Worldwide

HFCT 675 Multivariate Statistics: Factor Analysis and Data Reduction 3 Credits (3,0)

Advanced methods in analyzing social science data; covers structural equation models, factor analysis, clustering techniques, and covariance structure analysis.

Prerequisites: HFCT 510 and HFCT 511

Course Offered at: Daytona Beach

HFCT 680 Graduate Seminar: Current Applications in Human Factors 3 Credits (3,0)

Relevant and topical theories, skills, and methods in human factors. In-depth examination of specific current or future topics in human factors. Applications likely to impact students in work or research.

Course Offered at: Daytona Beach

HFCT 690 Human Factors Capstone 3 Credits (3,0)

In-depth investigation of influential bodies of research and theory in human factors and systems. Integration of skills into a capstone project. Demonstration of critical thinking and written/oral skills.

Course Offered at: Daytona Beach

HFCT 691 Culminating Research Experience 3 Credits (3,0)

Completion of a culminating research experience (CRE) such as internships, portfolios, or applied industry research projects. Demonstrates mastery of program outcomes. Requires formulation, development, and completion under faculty supervision. Taken as the final course in the degree program.

Prerequisites: HFCT 621 and HFCT 624 and HFCT 640 and HFCT 641 and HFCT 647 and HFCT 653

Course Offered at: Worldwide

HFCT 699 Special Topics in Human Factors 1-6 Credit (1-6,0)

Individual, independent, or directed studies of selected topics in human factors.

Course Offered at: Daytona Beach, Worldwide

HFCT 700 Graduate Thesis 1-9 Credit (1-9,0)

Performance and a written description of a master-level research project.

Course Offered at: Daytona Beach

HFCT 700A Graduate Thesis I 3 Credits (3,0)

Initial phase of the thesis; proposal development and IRB process completion under the supervision of the thesis committee.

Prerequisites: HFCT 621 and HFCT 624 and HFCT 640 and HFCT 641 and HFCT 647 and HFCT 653

Course Offered at: Worldwide

HFCT 700B Graduate Thesis II 3 Credits (3,0)

Completion of thesis under the supervision of the thesis committee. Thesis demonstrates mastery of topic and should be of publication or industry quality.

Prerequisites: HFCT 700A

Course Offered at: Worldwide

HFCT 705 Small N Designs and Non-Parametric Analysis 3 Credits (3,0)

Behavioral assessment techniques; single subject and small n experimental designs with interventions. Objective, repeated measurement and analysis of performance. Research applications of the experimental analysis of behavior.

Course Offered at: Daytona Beach

HFCT 710 Current Topics in Human Factors 3 Credits (3,0)

Seminar on trends in human factors research. Topics include aviation human factors, human error, medical human factors, and complex systems design. Weekly discussions with faculty on research, methods, and approaches.

Course Offered at: Daytona Beach

HFCT 715 Supervised Teaching Experience 3 Credits (3,0)

Development of teaching and presentation skills. Shadow introductory human factors or psychology courses. Syllabus development, classroom management, grading, and teaching skills. Instructor of record for small class section.

Course Offered at: Daytona Beach

HFCT 799 Special Topics in Human Factors 1-6 Credit (1-6,0)

Individual, independent, or directed studies of selected topics in human factors.

Course Offered at: Daytona Beach, Worldwide

HFCT 800 Dissertation 1-9 Credit (1-9,0)

Oral defense and written description of a Ph.D.-level research project.

Supervised by the student's faculty advisor and Ph.D. committee.

Requires approval and passing of defense for course completion.

Course Offered at: Daytona Beach