DISCIPLINAS OPCIONAIS

PE-Safety 2011

DISCIPLINAS que **serão oferecidas no Instituto Tecnológico de Aeronáutica (ITA)**, em São José dos Campos, SP, pela **Dr. Katherine Andrea Lemos** (katherine@lemoscorp.com). **Todas as aulas na Língua Inglesa**.

- **AS-177 – HUMAN FACTORS IN AVIATION SAFETY (32 horas-aula)**

  2ª a 5ª feira das 8 às 12h e das 13h30 às 16h30 e 6ª feira das 8 às 12h

  De 16 a 20 de maio de 2011

- **AS-143 – AVIATION SAFETY MANAGEMENT SYSTEMS (24 horas-aula)**

  2ª a 5ª feira das 8 às 13h e 6ª feira das 8 às 12h

  De 23 a 27 de maio de 2011

- **AS-179 – HUMAN FACTORS IN AVIATION SYSTEMS ENGINEERING (32 horas-aula)**

  2ª a 5ª feira das 8 às 12h e das 13h30 às 16h30 e 6ª feira das 8 às 12h

  De 8 a 12 de agosto de 2011

Valor do Investimento de cada disciplina: **R$ 960,00** (podendo ser pago em duas parcelas)

Inscrições e demais informações: a serem disponibilizadas no website http://ita.gestaodecursoseeventos.com.br/CAE/DetalharCae.aspx?CAE=4802 da FUNDAÇÃO DE DESENVOLVIMENTO DA PESQUISA (FUNDEP), CNPJ 18.720.938-0001/04, Avenida Antonio Carlos, 6627, Unidade II, Campus UFMG, 31270-901, Belo Horizonte – MG.

Conjunto Programático

(http://www.aer.ita.br/node/513**)**

AS-143 "Aviation Safety Management Systems"
Familiarization with all components of ICAO's Safety Management System (SMS), to include leadership, policy and procedures, safety risk management (hazard identification and mitigation) and assurance (monitoring) processes, as well as the larger envelope of safety culture ensuring a continual improvement of all safety processes. Practical techniques in implementing SMS and improving safety culture. Additional topics include systems frameworks in approaching aviation safety, economic benefits of SMS and the "Just Culture" approach embodied within the concept of safety culture, the relationship between Quality Management Systems (QMS) and SMS, qualitative versus quantitative approaches to safety risk assessments, the role of the "accountable executive" in prioritizing safety for the organization, SMS and the goal of safety in the perspective of the larger envelope of organizational culture, SMS and competing values in the aviation business environment. Examples of success and failure in will focus on the aviation sector, but also include other High Reliability Organizations (HROs) and industries operating in complex and high risk environments. **BIBLIOGRAFIA**: International Civil Aviation Organization (ICAO; 2009). *Safety Management Manual (SMM)*, Doc. 9859, AN/474, Second Edition, available for download at www.icao.int; Hopkins, A. (2005). *Safety, Culture and Risk.* CCH Australia Limited: Sydney; Marx, D., 2009. *Whack a Mole: The price we pay for expecting perfection.* By Your Side Studios: Plano, TX.

AS-177 "Human Factors in Aviation Safety"
Overview of broad-spectrum lifecycle of human factors in the aviation safety domain, from design and certification to continued operational safety, operational aspects, and accident investigation. Review of systems models in conceptualizing human factors and human error in aviation safety. Overview of human factors design considerations; human factors methodologies and taxonomies for accident investigation and prevention. ICAO Annex 13 standards for investigation and probable cause methodologies. Organizational factors, including safety culture and "Just Culture". Crew resource management, pilot monitoring, professionalism and leadership; information processing and stress in decision-making; and high-level overview of safety management system components. **BIBLIOGRAFIA**: DISMUKES, R.K., BERMAN, B.A. & LOUKOPOULOS, L.D. (2007). *Rethinking Pilot Error and the Causes of Airline Accidents.* Ashgate: Burlington, VT.; KANKI, B.G., HELMREICH, R.L. & ANCA, J. (Editors), (2010). *Crew Resource Management, Second Edition*. Academic Press: Boston, MA.; REASON, J. & HOBBS, A. (2003). *Managing Maintenance Error.* Ashgate: Burlington, VT.

AS-179 "Human Factors in Aviation Systems Engineering"
Systems engineering approach to addressing human factors in the design, certification, and continued operational safety processes of aviation components and systems. Human factors design and integration considerations. Regulations and guidance materials. Accident data and patterns. Systems engineering frameworks. System safety order of precedence. Research methodologies (usability and task analysis, cognitive and decision-making considerations, human-in-the-loop experimentation in complex systems). Risk assessment methodologies to address human performance (quantitative and qualitative system safety analytic techniques, such as state-of-the-art modeling). Human-computer interaction in flight deck avionics, automation (levels of automation, complacency/vigilance, protection envelope and crew aircraft state awareness). Flight deck displays (common design pitfalls and methods of flight test evaluation), and crew interaction with air traffic personnel in the implementation of advanced technologies integral to NextGen (U.S.) and SESAR (Europe) Air Traffic System plans. **BIBLIOGRAFIA**: Foyle, D.C. & Hooey, B.L., 2008. *Human Performance Modeling in Aviation*, CRC Press: Boca Raton, FL.; Parasuraman, R. & Mouloua, 1996. *Automation and Human Performance*: Theory and Applications, Lawrence Erlbaum Associates: Mahwah, NJ.; Wickens, C.D. & Hollands, J.G., 2000. *Engineering Psychology and Human Performance, Third Edition.* Prentice Hall: Upper Saddle River, NJ.

Résumé, Katherine Andréa Lemos

Katherine Lemos is an Aviation Human Factors Psychologist, with experience spanning many aspects addressed throughout the course.

Katherine currently works for the Federal Aviation Administration (FAA) at national headquarters in the Analytical Services Division of the Office of Accident Investigation and Prevention. Her responsibilities span a variety of system safety domains, to include: overseeing data analytic processes for coordinated collection and use of industry-wide data (ASIAS), leading team efforts in developing advanced risk assessment and vulnerability discovery techniques, assisting with metric development for organization and safety culture, leading efforts in approaches for conducting system safety assessments approaches for both pre-implementation and continued operational safety phases of the aviation lifecycle, and coordinating with the Accident Investigation and Safety Recommendation divisions in responding effectively to safety recommendations received by the National Transportation Safety Board.

Upon joining the FAA, she first spent two years in the Aircraft Engineering Division of Aircraft Certification Service, specializing in advanced technologies and avionics for the flight deck. This activity involved a leadership role in joint FAA/Industry committees in developing minimum performance specifications; evaluating, coordinating, monitoring and developing requirements for on-going FAA research for product development and verification; supporting nationwide aircraft certification offices and directorates through development and interpretation of human factors regulation and guidance materials; and training FAA designee flight test pilots and engineers in conducting human factors evaluations.

Prior to joining the FAA she worked at the National Transportation Safety Board as a Senior Human Performance Investigator in the Aviation Safety Division, investigating the contributing role of human performance factors in aviation accidents as a Human Factors Group Chairman for both major accidents nationwide, and in support of the Accredited Representatives for international investigations. Given her success, she was invited to accept a detail as Special Assistant to the Vice Chairman of the board (Robert L. Sumwalt, III), serving as his advisor for matters concerning all transportation modes in the review of all board products, in interacting with the press and with industry through position papers, briefings, and presentations. Special presentation topics included Runway Safety, Safety Management Systems, and Pilot Professionalism.

Katherine has a strong background in research and academia, starting at the University of Iowa Department of Engineering, during which she was awarded a prestigious position at NASA Langley's Research Center as a NASA Faculty Fellow. She continued research within NASA's Aviation Safety and Security Program as a Visiting Assistant Professor at the University of Maryland Department of Aerospace Engineering. During this tenure she served as Principal and Co-Investigator for numerous research projects involving advanced flight deck technologies, and also worked with industry in assessing the effectiveness of Crew Resource Management (CRM) training. One of her projects received a NASA group Achievement Award for two years running.

As a consultant through the National Institute of Aerospace, Katherine has continued her involvement with NASA Langley's Aviation Safety and Aviation Airspace Systems Programs. Current projects include the NextGen Airportal Project Analysis and NASA's contribution to the NextGen Joint Product Development Office (JPDO) Safety Working Group.

Her education includes a B.B.A. in Business Management from Belmont University, a M.S. in Behavioral Psychology from California Lutheran University, and a Ph.D. in Personality and Social Psychology from the University of Iowa. Her dissertation focused on determining the influence of comparative statistical information on risk attitudes and behaviors, and she authored many papers on risk perceptions and risk attitudes, social control and interaction, goal conflict and communication in dyads. Her most recent is a chapter she co-authored regarding CRM in Accident Investigation (see "Additional Resources" below, edited by Kanki, Helmreich and Anca, 2010).

She holds a Commercial Pilot Certificate for Airplane, Single and Multi-Engine Land and Sea, and is a Certificated Flight Instructor – Instrument (CFII) for both Single and Multi-Engine as well. In 2008 she completed the AFF Skydiving Course, and in 2009 she completed the Flight Test Pilot Short Course at the National Test Pilot School in Mojave, CA. She is a Captain and Flight Instructor for the Civil Air Patrol Congressional Squadron at Andrews Air Force Base, MD.

Starting 2010, Dr. Katherine became a Visiting Professor at the Technological Institute of Aeronautics (ITA), in São José dos Campos, São Paulo State, Brazil, joining that institute faculty in the areas of Human Factors and Aviation Safety Management Systems.