

Department of Aerospace Engineering Sciences

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**Innovative Engineering Design - A Template to Teach  
Innovative Problem Solving of  
Complex Multidisciplinary Design Problems**

The NASA Engineering and Safety Center (NESC), in conjunction with the National Institute for Aerospace (NIA), Ciber Corp. and faculty from NASA, Georgia Tech, MIT, and Penn State recently developed and taught a short five-day course entitled: "Innovative Engineering Design" in conjunction with the NESC Academy. This course teaches techniques for conceiving innovative concepts to solve complex multidisciplinary problems. The methodology used for this course was one that evolved from experiences working with several NASA and joint NASA and DOD advanced development programs. The processes for rapidly conceiving, evaluating and developing innovative concepts are explained as well as methodologies for accelerating the maturation of said concepts for inclusion into ongoing programs with maximum effectiveness. The formulation of a five-day short course was a collaboration of faculty and organizations mentioned above. The course centered around the solution of a current critical problem facing NASA: the contingency land landing of the Orion capsule. The Orion capsule is a four- to six-person spacecraft launched atop the ARES I rocket as part of the Constellation Program (CxP). In the event of a land landing, the current Orion design would result in injury to the crew.

**Monday, February 9, 2009  
DLC Bechtel Conference Room  
12 noon**

*Refreshments will be served*