基礎設施之永續發展與災害回復力:

新興需求、工程對應工具與跨領域評估密集課程

Short Course on “Sustainable and Resilience Infrastructure: Emerging Needs, Engineering Tools and Interdisciplinary Considerations”

October 26-28, 2015 **Venue:IB302**

講者介紹 Instructor

Paolo Gardoni, Ph.D.

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Director, MAE Center: Creating a Multi-hazard Approach to Engineering
Co-director, Societal Risk Management (SRM) Program
Associate Director, NIST Community Resilience Center of Excellence
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本次密集課程由美國伊利諾大學香檳分校土木與環境工程系Paolo Gardoni教授來台開設，Gardoni教授的研究主要集中在發展和運用機率方法來模擬自然和人為災害對相互依存的結構和基礎設施系統的影響。他持續在幾個跨領域項目進行研究計畫，包括結構工程、大地工程、水利工程、營建管理、材料、公共政策和工程倫理。Gardoni教授擔任超過100個風險和可靠度領域經嚴格評審的期刊作者，並擔任美國中西部地震中心(MAE)主任，由美國國家科學基金會成立於1997年，是三個國家地震工程研究中心之一。自從成為該中心主任之後，Gardoni教授積極擴展中心的使命，藉由跨領域研究，在跨區域及跨國界間進行不同災害的分類以及損害與脆弱性的預估，來建立複合災害潛勢在工程上的應用方法。他也是美國社區抗災中心 (Community Resilience Center of Excellence) 副主任，該中心由美國國家標準與技術研究院(NIST)資助成立。Gardoni教授是國際期刊Sustainable and Resilient Infrastructure的創始人和主編，同時也擔任許多國家級與國際上專注風險與可靠度分析相關組織的委員。

Paolo Gardoni is a Professor in the Department of Civil and Environmental Engineering at the University of Illinois at Urbana-Champaign. Professor Gardoni’s research focuses on the development and use of probabilistic methods to model the impact of natural and human-made hazards on interdependent structural and infrastructural systems. He has been working on several multidisciplinary projects encompassing different areas including structural engineering, geotechnical engineering, hydrology, construction management, materials, public policy, and engineering ethics. Professor Gardoni is the author of over 100 peer-reviewed journal publications related to risk and reliability. He is the director of the Mid-America Earthquake (MAE) Center, established in 1997 by the National Science Foundation as one of three national earthquake engineering research centers. Since becoming director, Professor Gardoni has expanded the mission of the center, which now is to create a Multi-hazard Approach to Engineering by conducting interdisciplinary research to characterize different hazards and estimate damage and vulnerability across regional and national networks. He is also the associate director of the Community Resilience Center of Excellence funded by the National Institute of Standards and Technology (NIST). Professor Gardoni is the founder and editor- in-chief of the international journal Sustainable and Resilient Infrastructure, and is a member of a number of national and international committees and associations that focus on risk and reliability analysis.

課程概述 Course Description

本課程主要介紹基礎設施之永續性與災害回復力的基本概念，並基於現今社會之需求說明其用途。此外，課程中亦將討論其所使用之工程分析方法或工具，包含：機率理論、統計、風險分析與生命週期分析等。最後，本課程將針對現今社會需求，進行跨領域整合之討論與建議，以達到對社會基礎設施所設定之永續性與災害回復力。

The course introduces the concepts of sustainability and resilience as two of the most pressing characteristics of infrastructure based on current societal needs. It discusses some of the engineering tools for the development of sustainable and resilience infrastructure including concepts from probability theory, statistics, risk analysis, and life- cycle analysis. The course also includes a broader discussion of interdisciplinary considerations that should be accounted for to achieve sustainable and resilience infrastructure and address current societal needs.

課程時間 Course Schedule (13:20-17:20 / Break Time:15:10-15:30)

26 Oct. Monday	風險與可靠度之介紹 / 複合災害潛勢分析 / 元件、系統與網狀分析 **Introduction to risk and reliability / Multi-hazards analysis / Component, system and network analysis**
27Oct. Tuesday	災害回復力與生命週期分析之定義 / 社會基礎設施之老化與劣化及復原時間 / 以水之網絡系統為例 **Definition of resilience and life-cycle analysis / Aging and deterioration of infrastructure and recovery time / Examples considering water network**
28 Oct. Wedday	永續性之定義 / 基於社會需求與氣候變遷之跨領域整合 / 相關課題之未來挑戰 **Definition of sustainability / Interdisciplinary considerations including societal well-being and climate change / Future challenges**

報名費 Registration Fee

一般與會者(General)：NT$2,000 / 學生(Student)：NT$500

報名網址：http://goo.gl/forms/SxoW3DEtIi

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