

Post-Conference Training

June 6-7, 2012 (Wed-Thur), 9a-5p, **University of Michigan-Dearborn**
(two days, includes light continental breakfast at 8:30am, lunch each day)

Please Note: Final course selection, BASED ON REGISTRATION RESPONSE,
will be announced May 1, 2012.
Registration Confirmations will be sent to registered students after this date.

Course Fee: \$450 (Students with valid ID: \$250)

Smoothed Particle Hydrodynamics and Element-free Galerkin Method in LS-DYNA®

Instructors: Jingxiao Xu, Ph.D. & C. T. Wu, Ph.D. (LSTC)



Objective

This two-day class offers engineers the fundamental background of the meshfree methods, the available formulations, implementations, and the latest developments in LS-DYNA. The class consists of SPH and EFG methods, each for one day.

SPH COURSE CONTENTS

SPH formulation fundamentals

- Spatial Discretisation of Continuum Equations, Characteristic Lengths.
- Kernel Functions, Method Consistency, Concept of Renormalization.
- Lagrangian, Eulerian Forms of SPH, SPH/Lagrangian Coupling.

Practical examples of SPH and SPH/Lagrangian coupling

- Details of an Example: Control Input, Material, Sections, Parts, Outputs.
- Boundary Conditions, Contacts, SPH/Lagrangian Coupling Options.
- LS-PREPOST: Creation of SPH Particles, Visualization of SPH Particles.

EFG COURSE CONTENTS

- Meshfree history, fundamental theory, advantages and disadvantages of meshfree methods and current academic research
- EFG related keywords
 - Meshfree solid and shell formulations, efficient methods, boundary and contact conditions.
 - Conventional adaptive theory, interactive adaptive method, error indicators, treatment of incompressibility in metal materials, implicit /explicit, thermal effect.
 - Continuum and discrete failure approaches in solid, failure surface reconstruction and adaptive method, cohesive law, Extended finite element method (XFEM) in shell.