

東京工芸大学集中講義案(ver2)

January 25, 2011 (13:30-15:00, 15:30-17:00)

- (1) Introduction to turbulence models for engineering applications related to wind environment (I):
Concept of Eddy Viscosity Model and basic equations of k - ϵ model
- (2) Introduction to turbulence models for engineering applications related to wind environment (II):
 - a) Drawbacks of standard k - ϵ model and its revisions for wind engineering,
 - b) DSM, ASM and WET

January 26, 2011 (10:30-12:00, 13:30-15:00, 15:30-17:00)

- (3) Introduction to turbulence models for engineering applications related to wind environment (III):
 - a) LES,
 - b) Modeling of aerodynamic effects of small obstacles whose sizes are smaller than grid size (trees, small buildings, automobiles, pedestrians)
- (4) Analysis of urban climate
 - a) Environmental impacts of urban heat islands and their countermeasures -experiences of Japanese dense cities-
 - b) Heat balance analysis of urban space for climate sensitized urban planning
 - c) Up-scaling engineering CFD models to include mesoscale meteorological influences
- (5) Total analysis of microclimate and pedestrian thermal comfort in cities
 - a) Coupled analysis of convection, radiation and conduction
 - b) Prediction of thermal environment and ventilation efficiency in real street canyons
 - c) Prediction of snow distribution in built-up environment--modeling of snowdrift and snowmelt-