TOKYO TECH
Pursuing Excellence

21 November 2012

Department of Civil Engineering
2012 Autumn Semester
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Water Quality Dynamics

Outline #5: Model Application

1. Report of the last exercise (Ex4-1 to Ex4-3)
   - Presentation (Terao)
   - Discussion

2. General Procedure on Water Quality Model
   - Model formulation
   - Analytical and numerical solution
   - Model calibration and validation

3. Difference Method
   - Finite difference / Finite element
   - Taylor expansion
   - Difference scheme

4. Streeter-Phelps Equation
   - Mass balance of BOD and DO in plug-flow system
   - First-order reaction
   - Deoxygenation rate constant
   - Reaeration rate constant
   - Effect of temperature on rate constants

5. Exercise (Ex5)