



**FINAL EVALUATION OF ODD SEMESTER 2018/2019  
MATHEMATICS DEPARTMENT OF FMKSD-ITS  
BACHELOR PROGRAM**



<b>Course</b>	<b>: Mathematical Modeling</b>
<b>Semester</b>	<b>: VII</b>
<b>Day / Date</b>	<b>: Monday, 10<sup>th</sup> December 2018</b>
<b>Venue</b>	<b>: U 101</b>
<b>Time / Character</b>	<b>: 09.00 + 3 Days / Take Home Test</b>
<b>Lecturer</b>	<b>: Prof. Dr. Basuki Widodo, MSc</b>

**PLEASE NOTE !!!**

**All types of violations (cheating, collaboration, etc.) carried out when final evaluation of odd semester will be subject to sanctions for cancellation of all courses of the current semester**

1. Explain what is meant by the following terms: (10%)
  - a. Mechanistic model.
  - b. Empirical Model.
  - c. Validation.
  - d. Verification.
2. Develop mathematical model of electrical potential problem and create computer programs to solve this model using MATLAB and GUI. (40%)
3. Develop mathematical model of the problem of spreading dynamic of a contagious disease in heterogenic population of living beings with multi group model approach. Create computer programs to solve this model using MATLAB and GUI (50%)

**Wish you get success**