1. **Course number and name**
   EE 491: Performance of Power Systems

2. **Credits and contact hours**
   3 (three lecture hours per week)

3. **Instructor's or course coordinator's name**
   Mani Venkatasubramanian

4. **Text book, title, author, and year**
   J.J. Grainger and W.D. Stevenson Jr. *Power System Analysis*. McGraw Hill Inc. ISBN: 0-07-061293-5.

5. **Specific course information**
   a. *Catalog description:* Static and dynamic behavior of power systems, power flow, and economic considerations.
   b. *Prerequisites or co-requisites:* EE 361 with a C or better; Certified major in Electrical Engineering, Computer Science, or Computer Engineering.

6. **Specific goals for the course**
   At the end of this course, students must be able to:
   - Carry out power-flow analysis of small-scale static power system models (1, 6)
   - Apply concepts of economics for generation cost minimization in simple power system models (1)
   - Apply concepts of small-signal stability analysis and transient stability analysis of small-scale power system models (1).

7. **Brief list of topics to be covered**
   - Review of power system components and analysis
   - Power flow analysis – Newton-Raphson, fast decoupled
   - Economic operation, hydrothermal coordination
   - Generator controls, and inter-area exchange
   - Concepts of small-signal stability and transient stability
   - Introduction to power system security and state estimation