

# Power System Analysis

## Course Layout

### EE 463 (091)

| INSTRUCTOR              | OFFICE  | PHONE | E-MAIL                |
|-------------------------|---------|-------|-----------------------|
| Dr. Chokri Belhaj Ahmed | 59-1072 | 4238  | bachokri@kfupm.edu.sa |

**Textbook:** Power System Analysis, by **Hadi Saadat**, McGraw Hill WCB, 2nd Edition , 2002

#### References

1. Power System Analysis and Design, by **J. Duncan Glover and Mulukutla S. Sarma**, Brooks/Cole Third Edition, 2002.
2. Power System Analysis, **By Grainger**, McGraw Hill, 1994.
3. Elements of Power System Analysis, by **William Stevenson**, McGraw Hill 4th Edition, 1982.

| Chapter | No. of Lectures | Topics   | Home Work  |
|---------|-----------------|--|--|
| 1-3     | 4               | The basic concepts: representation, equivalent circuit, pu system<br>(notes + 3.13,3.14) | (HW= 1): 2.7, 3.11, 3.12, 3.13, 3.15                     |
| 6       | 7               | Power Flow Analysis (6.1-6.10)   | (HW= 2): 6.4, 6.7, 6.8 (a, b)<br>(HW=3): 6.9, 6.10, 6.12 |
| 8-9     | 6               | Synchronous Machine Transient Analysis<br>(8.1,8.2) & Balanced Fault (9.1-9.6)           | (HW=4): 8.1, 9.1, 9.2, 9.5, 9.8, 9.10,<br>9.11, 9.12     |
| 10      | 6               | Symmetrical Components and Unbalanced Fault (10.1-10.9)                                  | (HW=5): 10.10,10.14,10.16                                |
| 7       | 3               | Optimal Dispatch of Generation (7.1-7.4)   | (HW=6): 7.6, 7.8, 7.9, 7.10                              |
| 11      | 2               | Transient Stability (11.1-11.6)  | (HW=7): 11.5, 11.6, 11.7                                 |
|         | 2               | Project Presentations  |  |

#### Grading

|                   |   |                                     |
|-------------------|---|-------------------------------------|
| Quiz and Homework | : | 15 (From Home work and class work). |
| Major I           | : | 20                                  |
| Major II          | : | 20                                  |
| Term Project      | : | 10                                  |
| Final Exam        | : | 35                                  |

|                      |   |   |      |    |       |    |
|----------------------|---|---|------|----|-------|----|
| <b>Major I Exam</b>  | : | Tuesday, <b>November 17th, 2009</b>               | 6:30 | to | 8:00  | PM |
| <b>Major II Exam</b> | : | Tuesday, <b>January 19<sup>th</sup>, 2010</b> ,   | 6:30 | to | 8:00  | PM |
| <b>Final Exam</b>    | : | Saturday, February <b>06<sup>th</sup>, 2010</b> , | 7:00 | to | 10:00 | PM |

#### Term Project:

The term project is supposed to simulate analysis and planning cases for a practical power system.  
The details of the project are to be elaborated by the instructor at a subsequent stage during the semester.