

Course Syllabus and Schedule

EE 582.02 - Spring 2016

Grading

| Activity | Percentage grade |
|---------------------|------------------|
| Mid-terms | 30% (each 15%) |
| Homework | 35% (5% each) |
| Coding Assignment | 30% (15% each) |
| Class participation | 5% |

Calendar

| Week | Lecture | Topics Covered | Assignments |
|------|------------|---|-------------|
| 1 | 01/12/2016 | Introduction, definitions, course material | |
| | 01/14/2016 | Classification of PQ phenomenon | |
| 2 | 01/19/2016 | PQ problems due to fault, fault clearing practices, fuse recloser coordination | |
| | 01/21/2016 | Voltage sag analysis – Thevenin equivalent circuit | |
| 3 | 01/26/2016 | Voltage sag analysis – SLG fault, 3LG fault | HW 1 due |
| | 01/28/2016 | Voltage sag analysis – SLG fault, 3LG fault | |
| 4 | 02/02/2016 | Voltage swell phenomenon – grounded and ungrounded system | HW 2 due |
| | 02/04/2016 | Analysis Transformer voltage during fault | |
| 5 | 02/09/2016 | Voltage sag due to IM starting | |
| | 02/11/2016 | Transient overvoltage phenomenon – Application of shunt capacitor banks, steady-state voltage rise, power factor correction | HW 3 due |
| 6 | 02/16/2016 | Isolated capacitor switching, Back-to-back capacitor switching, voltage magnification | |
| | 02/18/2016 | Capacitor restrike transients, methods to manage capacitor switching | HW 4 due |
| 7 | 02/23/2016 | Managing capacitor switching, designing inrush and outrush current limiting reactor | |

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| | 02/25/2016 | Mid-term 1 | Coding Assignment 1 is uploaded |
| 8 | 03/01/2016 | Power system harmonics – cause of harmonic distortion (linear and non-linear loads), Fourier analysis | |
| | 03/03/2016 | PQ quantities under non-sinusoidal condition, Sources of power system harmonics | HW 5 due |
| 9 | 03/08/2016 | Modeling Power system components under non-sinusoidal condition | |
| | 03/10/2016 | Effects of harmonics on Power system, Effect on capacitor and transformer | |
| 10 | 03/15/2016 | Spring break | |
| | 03/17/2016 | | |
| 11 | 03/22/2016 | Harmonic analysis – setting limit, system response characteristics | HW 6 due |
| | 03/24/2016 | Methods to control harmonics | |
| 12 | 03/29/2016 | Filter design – passive filter | |
| | 03/31/2016 | Filter design – active filter | |
| 13 | 04/05/2016 | Harmonic Power Flow | HW 7 due |
| | 04/07/2016 | Mid-term 2 | |
| 14 | 04/12/2016 | Introduce OpenDSS | Coding Assignment 1 due |
| | 04/14/2016 | Matlab interface to OpenDSS | Coding Assignment 2 is uploaded |
| 15 | 04/19/2016 | PQ problem due to DG – introduction, major issues | |
| | 04/21/2016 | Analysis method – analytical | |
| 16 (last class week) | 04/26/2016 | Mitigation strategies | |
| | 04/28/2016 | Discussion on how several distribution system parameters may affect PQ problems due to DG | |
| May 6 | | | Coding assignment 2 due |