ECE 7440 – POWER SYSTEM RELIABILITY
COURSE OUTLINE – WINTER 2016

COURSE DESCRIPTION:
This is a reading course and there will be no lectures, but students will be required to present the progress of work at bi-weekly meetings. The content covered in this course is the application of probabilistic reliability assessment techniques to electric power systems. The probabilistic techniques include both the analytical and the Monte Carlo Simulation for the reliability evaluation of generating capacity requirements, the assessment of interconnected system reliability, the determination of bulk electric system reliability, the appraisal of distribution system reliability and the incorporation of risk cost in power system reliability evaluation.

COURSE OBJECTIVE:
To understand the basic concepts, models and techniques in probabilistic reliability evaluation and choose an appropriate technique to perform reliability assessment for generating systems, bulk electric power systems and distribution systems.

PRE-REQUISITES:
None

CONTACT HOURS:
Two hours bi-weekly

COURSE CONTENT:
Hierarchical I Assessment: Generating unit reliability models, basic model for Hierarchical I Assessment, basic probability approach, frequency and duration technique, Monte Carlo simulation method, single area reliability assessment and interconnected system reliability evaluation.

Hierarchical II Assessment: independent outage, dependant outage, state enumeration technique, conditional probability approach, individual load point reliability assessment and bulk electric system reliability evaluation

Hierarchical III Assessment: This part will focus only on the distribution system reliability assessment including basic and extended techniques applied to redial, parallel and meshed network reliability evaluation.

TEXTBOOK:

EVALUATION:
Your final course grade is determined by your performance in assignments, term test, and a final examination. The weighting of each of these components is as follows:

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<th>COMPONENT</th>
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<tr>
<td>Seminars</td>
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<td>Homework/Assignments</td>
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INSTRUCTOR INFO:
Name: B. Bagen
Office: 820 Taylor Avenue
Tel: 204 360 3958
Email: bbagen@hydro.mb.ca

Office Hours:

VOLUNTARY WITHDRAW:
November 18, 2015

REQUIREMENTS/REGULATIONS

- **Student Responsibilities:** It is the responsibility of each student to contact the instructor if he/she is uncertain about his/her standing in the course and about his or her potential for receiving a failing grade. Students should also familiarize themselves with Sections 4 and 6 of the Regulations dealing with incomplete term work, deferred examinations, and attendance and withdrawal.

- **Lectures:** Attendance at lectures is essential for successful completion of this course. Students must satisfy each evaluation component in the course.

ACADEMIC INTEGRITY:

Students are expected to conduct themselves in accordance with the highest ethical standards of the Profession of Engineering and evince academic integrity in all their pursuits and activities at the university. As such, in accordance with the General Academic Regulations and Requirements of the University of Manitoba, Section 7.1, students are reminded that plagiarism* or any other form of cheating is subject to serious academic penalty (e.g. suspension or expulsion from the faculty or university) regardless of media

- examinations
- assignments
- laboratory reports
- term exams

A student found guilty of contributing to cheating in examinations or term assignments is also subject to serious academic penalty

*Plagiarism: to steal and pass off (the ideas or words of another) as one's own; use (another's production) without crediting the source