Peer Observation Report – Nathalie's ELE 614 Teaching Session

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Saturday 22nd February, 2025

1 Introduction

This report provides an overview of Nathalie's teaching session in ELE 614. In this work, she guided students through running power flow analysis using the Gauss-Seidel method in the *PowerWorld* Simulator. The session was structured around Example 6.9 from the *"Power system analysis and design"* course book, where students worked in groups to build a power system model in *PowerWorld*. Throughout the session, Nathalie demonstrated a well-structured and engaging teaching approach, ensuring students actively participated and understood the topic's theoretical and practical aspects.

1.1 Teaching Approach and Student Engagement

Nathalie adopted an engaging and interactive approach to teaching, ensuring students were not just passive listeners but actively involved in the learning process.

- She began with a structured overview of power flow analysis, explaining the known and unknown variables in the given system (Example 6.9).
- She posed thought-provoking questions before starting the practical work, such as: "What are the advantages and limitations of using Gauss-Seidel compared to Newton-Raphson?"This prompted students to think about the numerical characteristics of the method
- Students were divided into small groups to work collaboratively in *PowerWorld* Simulator, reinforcing teamwork and problem-solving skills.
- Throughout the session, she walked around the classroom, observing progress, troubleshooting issues, and engaging students in discussions about their simulation results.

1.2 Demonstration of PowerWorld Simulator

Before students began their simulations, Nathalie provided a clear and structured demonstration using Example 6.9 from the textbook. She also explained common issues students might encounter, such as divergence or incorrect slack bus selection, and demonstrated troubleshooting techniques.

- She explained the installation process for the software, directing students to the official download page.
- She walked through the steps of inputting the system data and setting up buses, generators, and line parameters by using Example 6.9,

1.3 Student Interaction and Support

Throughout the hands-on session, Nathalie actively interacted with students, ensuring they applied their knowledge effectively. Students were divided into small groups to work collaboratively in *PowerWorld* Simulator, reinforcing teamwork and problem-solving skills. Throughout the session, she walked around the classroom, observing progress, troubleshooting issues, and engaging students in discussions about their simulation results. She assisted students in debugging errors without providing direct answers but instead asked guiding questions to encourage problem-solving skills.

1.4 Summary

Nathalie's strong instructional clarity, engaging teaching style, and commitment to student success make her an exceptional TA. Her ability to connect theoretical concepts with hands-on applications, encourage student participation, and provide meaningful feedback significantly enhances the learning experience. Her dedication and effectiveness in teaching power system analysis make her a strong candidate for the Outstanding TA Award at Syracuse University.