Lunch@ITE – Fall 2017 Schedule

Tuesday, September 26: *K-12 and Broader Impacts*, presented by Jim Lipuma

A significant part of many grants and a key aspect of NJIT's mission is broader impacts and fostering broader participation for under-represented minorities and women especially in STEM. I will discuss the mechanisms of civic engagement tied to collaboration with K-12 schools and how our students can learn content as well as key aspects of cross-cutting skills like leadership, problem-solving and communication in the context of community outreach and practical application of learning. My center has established a large number of partners in the K-12 space that can serve as avenues for student learning and connection with communities across NJ and the northeast.

Tuesday, October 3: *Teaching 101: What I Didn't Learn in Grad School*, presented by Jaskirat Sodhi

I began my teaching career with almost no teaching experience, but I was passionate about teaching and made an effort to become a better instructor by learning from peers, mentors, attending teaching conferences and workshops, and the best teacher of them all, experience. In this session I will discuss a variety of teaching strategies and techniques that I have learned, tailored and implemented in my classes and got good feedback from the students. These strategies helped me in keeping students motivated and actively engaged. I hope to enable a discussion to encourage others to use some of these techniques in their classes and look for feedback to improve them for future use.

Tuesday, October 10: *Multi-media Use for Mechanics Courses*, presented by Gerry Milano

Make it interesting, make it entertaining, hold their interest, and have them come back for more.

Almost sounds like what a movie producer would say. But this is the direction we take in presenting our coursework today. Technological advances in multi-media has provided the means to show animation in Power Point presentations, store files of notes and examples on websites, and even record lectures for later use. Students can use any of their many electronic devices to view notes and lectures. Students taking Statics and students taking Strength of Materials can tune in to a live lecture using WebEx, or view it at their convenience by streaming videos. They can pause, rewind, or fast-forward and learn at their own pace. At times, they can be overwhelmed by the plethora of examples made available to them, not only those provided by their instructor, but resources made available on public domains such as YouTube and many others.

The hybrid course combines face-to-face classes with online lectures. Some synchronized, others asynchronous. The face-to-face portion of the class mixes it up by using computer presentations, then switching to step-by-step methods shown on the Visualizer, and class participation with students at the whiteboard with many color markers drawing figures and calculating results. Feedback is positive with requests for more; more online lectures, more examples, more problem-solving. The production can be exhausting, but the reviews are favorable.

Tuesday, October 17: *Active Learning using IF-AT*, presented by Melodi Guilbault

The presentation will introduce the use of IF-AT. The Immediate Feedback Assessment Technique (IF-AT) is an effective tool to use to facilitate individual thought and group discussion (in addition to being used

for quizzes and tests). IF-AT is an interactive learning opportunity for students and a more informative assessment opportunity for teachers. The technique will be presented through a demonstration.

Tuesday, October 24: *Student Engagement and Success in the Classroom – Lessons Learned from Coordinating the First Year Seminar Course*, presented by Ashish Borgaonkar

All incoming first time full time freshmen take first year seminar (FYS) or an equivalent course as part of their graduation requirement. Coordinating over 40 sections of FYS course presents a lot of challenges and opportunities. Based on feedback from students, faculty, and staff, FYS course was completely revamped for Fall 2016. It was a tiresome and challenging process aimed at improving overall value for the course. Through improved instructor training, online resources and expert presentations, we were able to offer a more consistent experience for all students as well as instructional staff. I hope that some of the methods and techniques we used can help in improving the in-class experience for other multi-section courses at NJIT.

Wednesday, November 1: *Chaos: The Movie*, presented by Denis Blackmore

I shall show how dynamical chaos and strange chaotic attractors can be described in rather straightforward, almost intuitive, terms that can readily be grasped by nonexperts. And this is just going to serve as a prologue to a bunch of spectacular videos showing the development of new strange chaotic attractors that I've discovered recently in collaboration with some former students. In essence, one could say that I'm going to show the director's cut of a trailer for a full length movie on chaotic dynamics, and stick around to answer questions of the audience.

Wednesday, November 8: *All Carrot, No Stick! An Iterative Approach to Active Learning in Freshman Chemistry Courses*, presented by Bhavani Balasubramanian

The freshman chemistry course at NJIT, Chem 125, is taught by a team of instructors. This is one of the required courses for engineering graduates and has a high failure (DFW) rate. In an effort to understand the problem, and to improve student outcomes, we analyzed data from previous years' exams to determine factors that were linked to student success. The results showed us that students who scored 50% or higher in the concept-based standardized ACS Final exam, had a high probability of passing the course. To help students understand and learn concepts better, we have started to engage them more in the classroom by using active learning strategies during recitation period. Every week, the students turn in handwritten in-class worksheets --formative learning assessments. In this talk, I will focus on our strategy of engaging the students in this manner, and present data on the effect of an iterative approach to active learning. I will also present some comparative data, to show that this iterative approach may have some merit. In future, we hope to implement this approach across all sections of Chem 125 taught by different instructors, so as to offer the students a uniformly engaging learning experience with enrichment from instructor variation.

Wednesday, November 15: *Inclusive Teaching and Learning*, presented by Mary Konsolaki

A major focus of current research in undergraduate education is the need to increase the number and overall diversity of students graduating with degrees in STEM fields. Best practices in using evidence-based learning and efficient and targeted mentoring are areas that can promote inclusive STEM education. Expanding opportunities of undergraduate research experiences is also considered a major priority across university campuses of all sizes and different student-body compositions.

Updates on this topic were presented in the Gordon Research Conference ““Improving Diversity, Equity and Learning in Biology Education”, in July 2017 and will be summarized in this lecture, along with a short listing of national initiatives and reports that are guiding the field.

Wednesday, November 29: *Digital Tools for your Technology Toolbox*, presented by Padma Natarajan

Some digital pedagogy tools will be presented that can help enhance teaching, facilitate active learning, and provide personalized student feedback.