**Week 3 (Jan 22 – 26, Lectures 5 and 6) Teaching and Learning**

**Topics**

**10.7**: Definition of power series; radius of convergence (theorem 18 and its corollary, computation using the ratio or root tests); additions, multiplications, substitutions, differentiations, and integrations operated on power series.

**10.8**: Definition of Taylor and Maclaurin series of a function; Taylor polynomials; a function may not be represented by its Taylor series in general (Example 4).

**10.9**: Taylor’s theorem (also state the big-O and little-o version of it); a proof of it.

Note:

1. It is OK to shuffle the contents above around in an order you prefer and feel free to add in your own stuff, so long as the non-optional topics are all covered.
2. Feel free to go faster but please aim not to be slower.

**Assignment 3**

10.7, #8,22,28,29,30,36,37,46,48,50,51,53,54,58(a)(b)

10.8, #4,10,14,24,31,37,40

10.9, #4,8,18,23,34,47,49,51,52

The questions above need to be submitted; students are encouraged to attempt other questions in the same chapters if they need more exercises.

Deadline: 11:59 PM, Friday, Feb 2 --- solutions should be submitted online on Blackboard in one single PDF file.