Should I take PHYS 212 with PHYS 213?

Relevancy:

Phys 212 – University Physics: Electricity and Magnetism – This course covers fundamental physics of Electricity and Magnetism, starting from Coulomb's Law, electric fields, Gauss' Law, electric potential, capacitance, circuits, magnetic forces and fields, Ampere's law, induction, electromagnetic waves, polarization, and ends with geometrical optics.

Phys 213 – University Physics: Thermal Physics - First and second laws of thermodynamics including kinetic theory of gases, heat capacity, heat engines, introduction to entropy and statistical mechanics, and introduction to application of free energy and Boltzmann factor.

There is absolutely no topical overlap in between those two courses, other than the fact that both classes uses a little bit of knowledge learned in Phys 211, which should be a class you have taken or have the credit for by the time you consider taking these courses.

Workload:

Both classes have the same class format: 1. Prelectures and check points, 2. Lectures, 3. Homeworks, 4. Laboratory, and 5. Discussion sections. As you know, both discussion sections requires 1.5 hour of group problem solving which is followed by a 20 minute quiz, and you will be required to spend about same amount of time in lab sections in both classes. The classes are different in the lectures that while Phys 212 only has two lectures a week, Phys 213 has three lectures a week. However, their main difference in the workload comes in when they are to solve homework problems. In homework solving, Phys 212 will require more time. Phys 212 uses the original Smart Physics while Phys 213 uses Smart Physics 2 which is more local one then the original one. Smart Physics problems tend to be extremely challenging, but Smart Physics 2 gives more of homework problems that are similar to example problems given in the lecture. They are sometimes challenging but not as much as you will be troubled in Phys 212. Both homeworks are due on Tuesdays 8AM except for sometimes your Phys 213 professor will make your homework due on Thursday morning. However, the Phys 213 exams tend to be extremely hard, so you will be taking a lot of time studying for the exam, very much more than you will need to study for a Phys 212 exam.

Recommendation:

Although the prerequisite for both Phys 212 and Phys 213 is Phys 211, I highly discourage you from taking both at the same time. Phys 212 has exams on Wednesday nights, which allows them to wrap up what they studied on the previous week by Tuesday with the homework. Phys 213 has its midterm on Monday which the professor makes that week's homework due on Thursdays. The Phys 213 professor makes Midterms extremely hard (usually averaging about 50-60) and psychologically speaking, trying to finish the Phys 212 homework after the exam would be tough with your blown. Also you wouldn't really be able to finish your homework before as you will also be mind blown from taking the practice exams which are also extremely challenging for most people. In addition, both physics classes in general are time consuming outside of just studying with normal lectures, discussions and labs, taking both time consuming and challenging classes is highly discouraged. In the mean time, Phys 212 happens to be the fundamental of all EE classes. What you learned in Phys 212 will come out to most upper level ECE classes so you are encouraged to master Phys 212 material but getting distracted by another challenging Physics class is un-called.

However, there are exceptional students who try this combo and do well in both. If you can manage to master both classes while taking them at the same time, you are, in fact, encouraged to do so. This is because Phys 213 is a second half semester course. While most people take Phys 214 and Phys 213 at the same time as the Phys 214 is offered in the first half of the semester while the Phys 213 is offered in the second of the semester, having taken Phys 213 before would help for the semester you are taking Phys 214 as you may be a bit challenged with the workload for the first half of the semester, but you will be free with physics after the first half of the semester and your rest of the semester will be significantly soothed.