

Lecture 9.

Lecture objectives.

- To understand that maximum power is transferred to an oscillating system at the velocity resonance.
- To understand the concept and relation of the Q-value of a forced system.
- To revise and to be introduced to the nature of resistors, capacitors and inductors; and to be completely familiar with the equations relating voltage across them to current through them.
- Complex representation of the previous point, such that phase relations between V and I are extracted.

Post-lecture tasks.

1. Re-introduce the nature of electrical components (try *Young* for this); resistor, capacitor and inductor to yourself. Pay particular attention to how each behaves at high and low frequencies.
2. Try to find an appropriate text (*Young* may provide a good place from which to start) that will provide an introduction to the AC driven electrical system. The better you are prepared for the last two lectures, the less difficult the concepts will be.
(Although it's a bit complicated, try the first four pages of chapter 2 in *Pain*.)
3. Draw phasor diagrams (and understand what they represent!) for the current and voltage relationship in L, C and R components.