PHYS1022 – Material Covered and Associated Resources

Week 1: Introduction to charge and charge density – *pages 763-9 in University Physics book*

Coulomb's law and Electric Fields – *pages 769-85 in University Physics book*

Integration and summation– *supported by notes and videos on the course web site*

Workshop: week 1 problem sheet (not part of assessment)

Mastering Physics: Introduction to Mastering Physics (not part of assessment)

Week 2: Area integrals – *supported by notes and videos on the course web site*

Electric Field examples 9,10,11 - *pages 781-3 in University Physics book*

Workshop: week 2 problem sheet (not part of assessment)

Tutorials: week 1 problem sheet (not part of assessment)

Mastering Physics: Coulomb's Law – contributes 2% of the course mark

Week 3: Volume integrals – *supported by notes and videos on the course web site*

Electric Flux and Gauss' Law – *pages 805-818 in University Physics book*

Workshop: week 3 problem sheet (not part of assessment)

Tutorials: week 2 problem sheet (not part of assessment)

Mastering Physics: Electric Fields – contributes 2% of the course mark

Week 4: Electric Potential – *pages 838-860 in University Physics book*

Capacitors – *pages 874-894 in University Physics book*

Workshop: week 4 problem sheet (not part of assessment)

Tutorials: week 3 problem sheet (not part of assessment)

Mastering Physics: Charge Distributions and Gauss' Law– contributes 2% of course mark

Week 5: Electric Current and Circuits – *pages 908-966 in University Physics book*

Workshop: no workshops this week to allow revision for mid-term test

Tutorials: week 4 problem sheet (not part of assessment)

Mastering Physics: none

Week 6: **Mid-semester test** – contributes 10% of course mark.

Magnetism and Magnetic Force – *pages 979-981 in University Physics book*

Electric Diploes – *pages 785-8 in University Physics book*

Workshop: week 5 problems (not part of assessment)

Tutorials: week 5 problem sheet (not part of assessment)

Mastering Physics: Potential – contributes 2% of the course mark

Week 7: Motion of Charges in Magnetic Fields – *pages 981-1006 in University Physics book*

Workshop: week 6 problem sheet (not part of assessment)

Tutorials: revisit mid-semester test

Mastering Physics: Capacitance - contributes 2% of the course mark

Week 8: Biot Savart & Ampere's Laws – *pages 1023-1046 in University Physics book*

Workshop: week 7 problem sheet (not part of assessment)

Tutorials: week 6 problem sheet (not part of assessment)

Mastering Physics: Magnetic Force and Field - contributes 2% of the course mark

Week 9: Faraday's Law and Maxwell's Equations – *pages 1059-1082 in University Physics book*

Workshop: week 8 problem sheet (not part of assessment)

Tutorials: week 7 problem sheet (not part of assessment)

Mastering Physics: Magnetic Fields 2 - contributes 2% of the course mark

Week 10: Inductance and AC circuits– *pages 1095-1150 in University Physics book*

Workshop: week 9 problem sheet (not part of assessment)

Tutorials: week 8 problem sheet (not part of assessment)

Mastering Physics: Ampere's law - contributes 2% of the course mark

Week 11: Finishing up

Workshop: week 10 problem sheet (not part of assessment)

Tutorials: week 9 problem sheet (not part of assessment)

Mastering Physics: Induction - contributes 2% of the course mark

Christmas Vacation

Week 12: Revision session + past paper

Workshop: no workshop

Tutorials: week 10 problem sheet (not part of assessment)

Mastering Physics: none

Course examination – two hour paper worth 70% of course mark in the period 11th-23rd January

(weeks 13 and 14 of the semester)