Frequently Asked Questions about the Transfer Examinations

What topics are covered on the Transfer Examinations?

**Physics:**

Newtonian mechanics (motion, vectors, trajectories, Newton's laws, forces), work and energy, energy conservation, momentum, rigid rotations, angular momentum, harmonic motion, resonance, gravity, Kepler orbits, ellipses, electric fields and potentials, Gauss's Law, current resistance, capacitance, inductance, magnetic fields, Faraday's law, AC and DC circuits, and special relativity.

**Math:**

Basic calculus, Taylor polynomials, series, linear algebra (systems of equations, vectors and matrices, determinants, vector spaces, transformations, eigenvalues), vector calculus (multiple integrals, line and path integrals, theorems of Green and Stokes), and differential equations.

*Not all of these topics will be on your transfer exams. Please use them as a reference to study.*

**Sample Math & Physics Textbooks:**

Ma 001A. Calculus of One and Several Variables and Linear Algebra.
Required textbooks:
- Apostol, Tom; Calculus, Vol. 1. ISBN: 0471000051

Ma 001B (Analytical). Calculus of One and Several Variables and Linear Algebra.
Required textbooks:
- Apostol, Tom; Calculus, Vol. 2. ISBN: 0471000078

Ma 001b (Practical). Calculus of One and Several Variables and Linear Algebra.

Ma 001C (Analytical). Calculus of One and Several Variables and Linear Algebra.
Required textbooks:
- Apostol, Tom; Calculus, Vol. 2. ISBN: 0471000078

Ma 001C (Practical). Calculus of One and Several Variables and Linear Algebra.
Required textbooks:
- Marsden, Jerrold, Tromba, Anthony; Vector Calculus (Sixth), W. H. Freeman, 2012. ISBN: 1429215089

Required textbooks:
- Robinson, James; An Introduction to Ordinary Differential Equations. ISBN: 0521533910

Required textbooks:

Ma 002B. Differential Equations, Probability and Statistics.
Required textbooks:
• Pitman, Jim; Probability. ISBN: 0387979743

Ph 001A. Classical Mechanics and Electromagnetism.
Required textbooks:

Required textbooks:
• T.M. Helliwell; Special Relativity (1st), University Science Books, 2009. ISBN: 978-1-891389-61-0

Required textbooks:

Ph 001C (Analytic). Classical Mechanics and Electromagnetism.
Required textbooks:

Ph 001C (Practical). Classical Mechanics and Electromagnetism.
Required textbooks:

Ph 002A. Waves, Quantum Mechanics, and Statistical Physics.
Required textbooks:

Ph 002B. Waves, Quantum Mechanics, and Statistical Physics.
Required textbooks:
• Charles Kittel; Thermal Physics (2nd), W. H. Freeman, 1980. ISBN: 0716710889

Ph 012A. Waves, Quantum Physics, and Statistical Mechanics.
Recommended textbooks:
• http://www.people.fas.harvard.edu/~hgeorgi/new.htm

Ph 012B. Waves, Quantum Physics, and Statistical Mechanics.
Required textbooks:

Ph 012C. Waves, Quantum Physics, and Statistical Mechanics.
Required textbooks:
• Charles Kittel; Thermal Physics (2nd), W. H. Freeman, 1980. ISBN: 0716710889