

# ICTP DIPLOMA PROGRAMME IN CONDENSED MATTER PHYSICS 2015-16

## SYLLABUS

### **Mathematical Techniques** - {10 Lectures = 15 hours} M. Sellitto

1. Basic Algebra and Graph plotting
2. Complex numbers and their properties
3. Functions of a Complex Variable
4. Singularities and Laurent Series
5. Contour Integration in the Complex Plane
6. Real Integrals using Complex Analysis
7. Fourier Series and Fourier Transform
8. Ordinary differential equations
9. Green function method for partial differential equations
10. Matrix algebra and eigenvalue problem