

# ICTP DIPLOMA PROGRAMME IN MATHEMATICS 2015-16

## Real Analysis

R. Musina (20 lectures : 30 hrs)

Lebesgue measure theory in  $\mathbb{R}^n$  Lebesgue integration theory for functions of one real variable Differentiability of monotone functions;

Functions of bounded variation; primitives of integrable functions.  $L^p$  spaces: definition and main properties, including Hölder inequality, completeness, density results, dual spaces.