Introduction to mathematical analysis 1

Course Syllabus
Spring Term 2014 — SNU

Course Title	Introduction to mathematical analysis 1 (in English)
Course number	3341.201
Instructor	Gerald Trutnau
E–Mail	trutnau@snu.ac.kr
Course homepage	`http://www.math.snu.ac.kr/~trutnau/teachingA12014.html`
Course Objective	The course gives an introduction to infinitesimal calculus.
References	Main textbook: J.E. Marsden & M.J. Hoffman, *Elementary Calssical Analysis*, 2nd edition, Freeman Other references: M.H. Protter & C.B. Murrey, *A First Course in Real Analysis*, Springer, 2nd edition, 1991; T.M. Apostol, *Mathematical Anaysis*, 2nd edition, Addison-Wesley, 1974; W. Rudin, *Principles of Mathematical Analysis*, 3rd edition, McGraw-Hill, 1976
Description	The topology of the real line and the Euclidean space, limits, series, and infinitesimal properties of functions are treated.
Tentative content	sets, cardinality, ordered fields and real numbers; axiom of completeness; limits of sequences; completeness of the real numbers; Euclidean space; open sets, closed sets; boundary of a set; series; convergence tests for series; compactness; connected sets; continuous functions; maximum-minimum theorem; intermediate value theorem; uniform continuity; monotone functions; differentiability in one variable; mean value property; Taylor expansion in one variable; Riemann integral, foundamental theorem of calculus; functions of bounded variation; Riemann-Stieltjes integral.
Teaching Method	Lecture, exercises.
Evaluation	Midterm (8th week, 75 minutes, 30 % of final score); Final exam (15th week, 75 minutes, 30 % of final score); Assignment sheets (30 % of final score); Attendance (10 % of final score). Students must solve exercises regularily, and will be given assignment sheets mostly every week.