

Course Syllabus

1. Course number and name: 020AN1CI2 Analysis 1.
2. Credits and contact hours : 6 ECTS credits, 4x1:15 course hours
3. Instructor's or course coordinator's name: William Habre
4. Text book :
 - a. other supplemental materials: Professor Notes
5. Specific course information
 - i. Catalog description: Asymptotic analysis: Taylor series- Integration on a segment: integration and derivation- Riemann's sum- Real and complex series, series with positive terms, convergence and absolute convergence- Combinatorics: Cartesian product, arrangements, combinations, finite sets cardinality, probability on a finite space, Bayes formula, independence, finite random variables.
 - ii. Prerequisites:
 - iii. Required :
6. Specific goals for the course
 - a. Specific outcomes of instruction
 - Identify, construct, manipulate, compare and classify functions.
 - Study a function locally and near infinity
 - Manipulate Riemann integrals of piecewise continuous functions
 - Characterize and manipulate numerical series
 - Study and manipulate finite probability spaces.
 - b. KPIs addressed by the course.

RAP (KPI)	a1
Covered	x
Assessed	x
Give Feedback	x

7. Topics and approximate lecture hours :

- Asymptotic analysis: Comparison of real functions near a given point, Taylor series and their applications (10 Lectures)
- Riemann Integral of step and piecewise continuous functions: fundamental theorem of calculus, Taylor- Lagrange theorem, approximation of integral the Riemann's sums (12 Lectures)
- Numerical Series: convergence, absolute convergence, comparison of series and operations on series (8 Lectures)
- Combinatorics: finite sets, cardinal of a set, number of bijective maps, of combinations (6 Lectures)
- Probability on finite spaces: general properties, Bayes formula, independent events (10 Lectures)
- Finite random variables: definition, mean, variance, standard deviation, Bernoulli and binomial variables, Bienaymé- Tchebychev inequality (10 Lectures)