Course Syllabus

1. Course number and name: 020AN1NI2 Analysis 1.

2. Credits and contact hours : 6 ECTS credits, 3x1:15 course hours

3. Instructor's or course coordinator's name: Guilnard SADAKA

4. Text book :
    a. other supplemental materials: Professor Notes

5. Specific course information

    a. 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.

    b. Prerequisites: Lebanese or French Baccalaureate

    c. Required/Elective/Selected Elective: Required

6. Specific goals for the course

    a. Specific outcomes of instruction
        - Manipulate Riemann integrals of piecewise continuous functions and calculate integrals
        - Calculate Taylor series of functions and study a function locally and near infinity
        - 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 :

- Riemann Integral of step and piecewise continuous functions: fundamental theorem of calculus, approximation of integral the Riemann's sums (8 Lectures)
- Asymptotic analysis: Comparison of real functions near a given point, Taylor series and their applications (7 Lectures)
- Numerical Series: convergence, absolute convergence, comparison of series and operations on series (6 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 (8 Lectures)
- Finite random variables: definition, mean, variance, standard deviation, Bernoulli and binomial variables, Bienaymé- Tchebychev inequality (7 Lectures)