

Course Syllabus

1. Course number and name: 020AN3CI4 Analysis 3.
2. Credits and contact hours : 6 ECTS credits, 5 x1:15 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: Series and summable families, sequences and series of functions, integration and derivation of a series of functions, power aeries, probability and discrete random variables, linear differential equation and systems of the form $X'=A(t)X+B(t)$, method of the constant variation, Lagrange's method.
 - ii. Prerequisites: Analysis 2 (020AN2CI3)
 - iii. Required : Yes
6. Specific goals for the course
 - a. Specific outcomes of instruction
 - Identify, construct, manipulate, compare and classify numerical series, function series and summable families.
 - Study and identify linear differential equations.
 - Study of multi-variables functions and differential forms.
 - Study of probability and random variables over a countable space.
 - b. KPIs addressed by the course.

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

7. Topics and approximate lecture hours :

- Numerical series and summable families: , convergence criteria of convergence of a positive term series, alternating series and summable families. (12 Lectures)
- Sequences and series of functions: simple, uniform and normal convergence. (8 Lectures)
- Power series: radius of convergence, relation to Taylor series. (12 Lectures)
- Differential Equations: equation and systems of the form $X'=A(t)X+B(t)$. (12 Lectures)
- Multi-variable functions: partial derivatives, gradient, closed and exact differential forms. Curve-integral. (12 Lectures)
- Probability and Random variables over a countable space: Independence, discrete random variables, couple of random variables, mean, variance special random variables (Poisson, geometric,...). (12 Lectures)