Course Syllabus

1. Course number and name: 020AN2CI3 Analysis 2.

2. Credits and contact hours : 6 ECTS credits, 5x1:15 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: Normed vector spaces: continuity, uniform continuity and Lipchitz continuity, compactness, linear maps, path connectedness – Generalized integrals: tests of convergence, dominated convergence - Functions of several variables: directional and partial derivatives, differentiability, gradient, extrema of functions of several variables, differential forms, multiple integrals, line integrals.

   ii. Prerequisites: Analysis 1 (020AN1CI2)

   iii. Required : Yes

6. Specific goals for the course

   a. Specific outcomes of instruction
      - Identify, construct, manipulate, compare and classify norms.
      - Study and identify topologies over a normed vector space.
      - Identify open, closed, bounded, unbounded, convex, and arc-connected subsets.
      - Characterize differentiable and integrable functions.
      - Manipulate lebesgue theorems.

   b. KPIs addressed by the course.

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

7. Topics and approximate lecture hours :

    -   Normed vector spaces: Norms, Geometry of normed vector spaces, topology defined by norms, continuity of applications between 2 normed vector spaces, inner products and norms. (34 Lectures)
    -   Differential and integral calculus: Derivatives, approximation of function with real variable, integration and differentiation. Taylor formula, Lebesgues convergence theorems, Euler gamma and beta functions. (34 Lectures)