

Course Syllabus

1. **Course number and name:** 020CEMNI4 Complementary Electromagnetism
2. **Credits and contact hours:** 2 credits, 1x1:15 course hours
3. **Instructor's or course coordinator's name:** Alfred MORCOS HAYEK
4. **Text book:** *Physique tout-en-un MP, Salamito, J'intègre-Dunod, 2014*
5. **Specific course information**
 - a. **catalog description:** TEM Waves: Description in terms of the electric and magnetic fields – lines: Analysis in the ARQS approximation, coaxial cables, Two-wire line, telegraphists equation, characteristic impedance, impedance adaptation – TE and TM waves in a rectangular wave guide – dominant modes – experimental aspect of propagation in a guide.
 - b. **prerequisites or co-requisites:** Electromagnetism (020EMENI3)
 - c. **Required/Elective/Selected Elective:** Required
6. **Specific goals for the course**
 - a. **Specific outcomes of instruction:**
 - Master the notions of scalar and vector fields
 - Conduct invariance and symmetry analyses and evaluate fields using properties of their flux and their circulation
 - State the laws of electrodynamics in local and integral form
 - Conduct energy balance between EM field and matter
 - Describe the propagation of EM waves in vacuum and dispersive media
 - Relate the EM fields to their sources in the case of oscillating dipoles
 - b. **KPIs addressed by the course:**

KPI	a1	a2	b1	b2	b3
Covered	x		x		
Assessed	x				
Give Feedback	x				

7. **Brief list of topics to be covered and approximate number of lectures:**
 1. TEM Waves (4 lectures)
 2. Lines (3 lectures)
 3. Rectangular wave guide (4 lectures)
 4. Dominant modes (2 lectures)
 5. Experimental aspects (1 lectures)