

Content

Course Code	Course Name	Semester	Theory	Practice	Lab	Credit	ECTS
INF204	Electromagnetic Waves	3	3	0	0	3	3

Prerequisites	
Admission Requirements	

Language of Instruction	French
Course Type	Compulsory
Course Level	Bachelor Degree
Objective	To improve the basic knowledge of students on electromagnetism by introducing concepts of electromagnetism in a material medium and the concepts of electromagnetic waves and radiation.
Content	1. Reminder on electromagnetism 2. Maxwell's equations 3. Wave equation 4. Electromagnetic waves 5. Electromagnetic energy 6. Electromagnetic field and Maxwell equations in a material medium 7. Electromagnetic plane waves in a linear material medium 8. Reflection and refraction 9. Guided propagation 10. Concepts on electromagnetic wave radiation
References	1. Introduction to Electrodynamics, David J. Griffiths 2. Electromagnétisme 2, Jean-Pierre Faroux, Jacques Renault 3. Magnétisme et Ondes, Jean-Marc Poitevin 4. Equations de Maxwell, Ondes Electromagnétiques, Michel Hulin, Nicole Hulin, Denise Perrin 5. Electromagnétisme et Optique, Notes de cours de Jean-Michel Courty

Theory Topics

Week	Weekly Contents
1	Necessary mathematical concepts
2	Necessary mathematical concepts
3	Reminder on electromagnetism
4	Maxwell's equations
5	Wave equation
6	Electromagnetic waves
7	Electromagnetic energy
8	Poynting vector
9	Electromagnetic field and Maxwell equations in a material medium
10	Electromagnetic plane waves in a linear material medium
11	Boundary conditions
12	Reflection and refraction
13	Guided propagation
14	Concepts on electromagnetic wave radiation