

EIIN904	Evolving Internet	CM 21h	TD 3h	HNE 26h
---------	-------------------	-----------	----------	------------

Cours proposé dans la mineure / *Course offered in the minor* :

AL	CyberSec	IA-ID	IHM	IoT-CPS	Ubinet	IF	M1 EIT DSC	M2 EIT DSC	M2 Fintech
					x			x	

Responsable / *In charge of* : **Dabbous Walid** (Walid.DABBOUS@inria.fr)

Résumé / *Abstract* :

The Internet has grown from a research curiosity to something we all rely on daily. It has been able to withstand rapid growth fairly well and its core protocols have been robust enough to accommodate numerous applications that were unforeseen by the original Internet designers. Evolving Internet (EI) will concentrate on the evolution of Internet architecture and protocols. We will focus on routing and congestion control (transport issues in general) and explain how they function and how they have evolved over the years since the Internet creation. The course will start by an overview of the Internet architecture, then digs into the details of the routing and transport protocols, especially from the point of view of their evolution and the way they managed to overcome the different changes that the Internet has faced: expansion, mobility, heterogeneity, etc.

Prérequis / *Prerequisite* :

- Basic knowledge of TCP/IP networking protocols and layered architecture.

Objectifs / *Objectives* :

To understand the state-of-the-art in network architecture, protocols, and networked systems and to study in depth the challenges that faced the Internet and the solutions that were proposed to overcome them as part of the Internet evolution, mainly at the network and transport levels.

Contenu / *Contents* :

- Internet addressing, CIDR, routing basics.
- Intra-domain routing (RIP, OSPF)
- Inter-domain routing (BGP)
- Internet mobility
- Routing in mobile wireless networks I
- Transport layer protocols
- Internet congestion control

Références / *References* :

- Computer Networks, a systems approach, by Larry L. Peterson and Bruce S. Davie, (2007), ISBN-10: 0123705487, ISBN-13: 9780123705488.
- Computer Networking: A Top-Down Approach, by James F. Kurose and Keith Ross, Pearson education.

Acquis / *Knowledge* :

- Advanced knowledge about the different protocols and algorithms of the Internet architecture, mainly at the network and transport levels.

Evaluation / *Assessment* :

Three homeworks that count for half of the total mark, and a written examen that count for the second half.