Waves phenomena

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Goals:

The course provides an introduction to theoretical concepts and analysis of wave phenomena in science and engineering. Basic concepts and methodologies of hyperbolic and dispersive waves are presented, with details on specific applications, such as the traffic light problem. The classical wave equation is obtained for acoustic, elasticity and electromagnetism fields. Finally, a brief introduction to the stability analysis is discussed, as the main field of dispersive waves application.

Topics:

Waves and first order equations; specific problems related to waves propagation; Burgers' equation; hyperbolic systems and gas dynamics equations; the wave equation; instability and traveling waves.

Credits: 3 CFU

Hours: 12

Dates: June 29th 2020, 09:00 – 13:00
June 30th 2020, 09:00 – 13:00
July 1st 2020, 09:00 – 13:00 (final test)

Frequency: Annual

Platform: Microsoft Teams

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To attend the course a registration via email is required.