



Course Name	Transportation and Environment (Optional)
Level	MSc and PhD in Transportation
Instructor	Dr. Augusto César de Mendonça Brasil
Semester	2024/1 (March 18 th to July 15 th , 2024)
Course prerequisites	None
Lectures days and times	Sundays: 10:00 – 11:50
Location	SG-12 Classroom AT 10/18
Course objectives	The objective of the course is to give the students the ability to assess the energy and environmental impacts of mobility. Theories and methodologies are presented for the assessment of environmental impacts, for the understanding of available energy resources, energy transformation and emissions of pollutants as a consequence of daily mobility. The life cycles related to mobility, with their impacts on energy consumption and pollutant emissions, are also presented.
Course methodology	Traditional classroom lectures, study groups, paper development, writing and presentation (review, methodology and results). As an option, synchronous and asynchronous presentations can be scheduled. A conference paper format is required for final evaluation.
Course topics	<ol style="list-style-type: none">1. Introduction2. Relationships between Transportation, Energy and Environment.3. Propulsion of transportation vehicles.4. Internal combustion engines emissions of air pollutants.5. Influence of speed and traffic flow on energy consumption and emissions.6. Methodologies for the assessment of energy consumption and emissions.7. Top-Down and Bottom-Up methodologies.8. Vehicle emissions and Atmospheric dispersion and of pollutants.9. Life Cycle Analysis.
Text readings and Books	<ol style="list-style-type: none">1. Vasconcelos, Eduardo Alcântara de. Transporte e meio ambiente: conceitos e informações para análise de impactos. Ed. Do Autor, 2006. ISBN 978-85-7419-893-4.2. Susan Hanson and Genevieve Giuliano. The geography of urban transportation. 3rd ed. 2004. The Guilford Press. Black, William R. Sustainable transportation: problems and solutions. 2010. The Guilford Press.
Evaluation criteria	The final grade is based on the presented paper, with the following composition: <u>Individual score:</u> Df = Oral presentation and answers

Group score:

Te = Presentation (Slides and text quality).

At = Final manuscript (conference paper format).

$$\text{Score} = (\text{Df} + \text{Te} + \text{At})/3$$

** Scores are from 0 to 10.

The final grade is based on the UnB system:

SS (Superior) 9,0 – 10,0

MS (Average Superior) 7,0 – 8,9

MM (Average) 5,0 – 6,9

MI (Average Inferior) 3,0 – 4,9

II (Inferior) 0,1 – 2,9

SR (Null) 0,0

Minimum grade for credits is MM.

Brasília, January 30, 2024.