

Hands-on Lab 4.1: Experimental evaluation of internal combustion engine efficiency comparing pure gasoline and bio- ethanol as fuels

General information

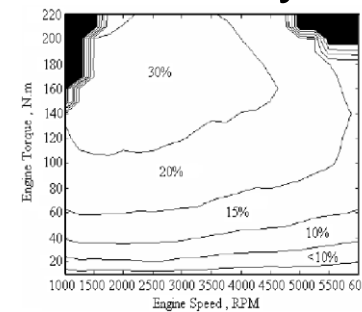
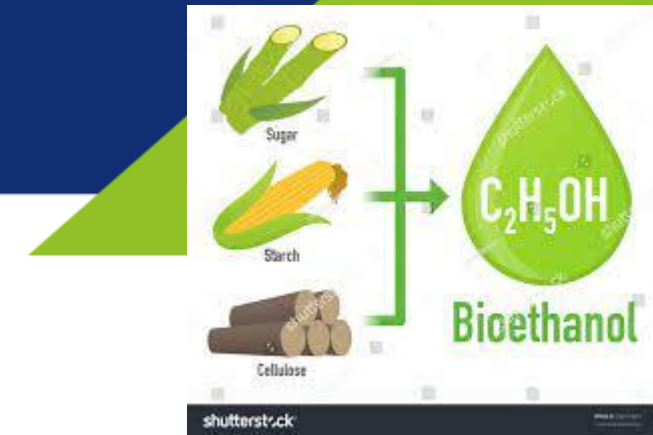
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Content

- Introduction of internal combustion engine fundamentals and basic explanation of benefits of bioethanol as fuel
- Explanation of laboratory equipment and experimental setup
- Engine fuel & spark timing calibration: pure gasoline and hydrated ethanol considering *knock*/detonation
- Calculation of overall engine energy conversion efficiency and net CO₂ emissions



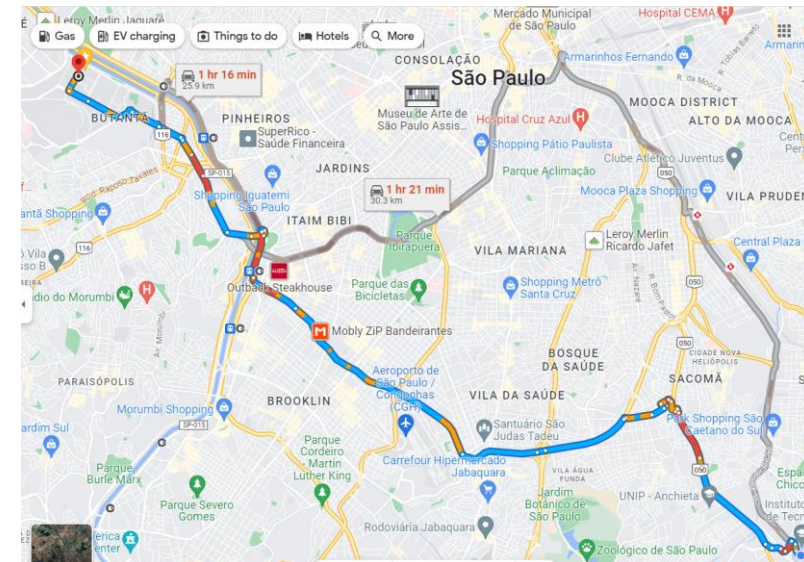
Logistics

- A taxi will be waiting for the lab attendees in front of this building (Eng^o Mario Covas Junior) – Polytechnic School
 - IMT Campus is locate in São Paulo urban area – São Caetano do Sul city (~25km from USP)
- Laboratory agenda for INFIERI 2023



Mon Aug 28 th	Tue Aug 29 th	Wed Aug 30 th	Thu Aug 31 st	Fri Sep 1 st	Sat Sep 2 nd
✗	✓	✓	✓	✓	✓
Mon Sep 4 th	Tue Sep 5 th	Wed Sep 6 th	Thu Sep 7 th	Fri Sep 8 th	Sat Sep 9 th
✓	✓	✓	✓	✓	✗

Time	Local	Activity
13h30 to 14h15(45 min)	USP to IMT	Transportation (IMT to provide a cab for up to 3 students)
14h15 to 14h55 (40min)	IMT room A4	Introductory presentation about the internal combustion engines and lab activities with explanation of expected deliverables
14h55 to 16h05 (70 min)	IMT lab B3	Experiments at engine test cell and data recording
16h05 to 16h15 (10 min)	IMT room A4	Wrap-up
16h15 to 17h15 (60 min)	IMT to USP	Transportation (IMT to provide a cab for up to 3 students)



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