Séminaire conjoint département OSD, le CIRRELT et le Centre de recherche en gestion des services de santé – FSA ULaval (CRGSS)

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Département d'opérations et systèmes de décision

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Decarbonizing Industrial Supply Chains: Applications in the Aluminum and Energy Sectors

Abstract: The transition toward low-carbon industrial systems is increasingly critical due to climate change and tightening carbon regulations. Decision-makers require advanced decision-support tools to evaluate how supply chain decisions, such as sourcing, facility location, technology selection, and logistics affect both economic performance and environmental impact. This talk, delivered by Dr. Amina Chelly Ben Younes, presents two applied research projects illustrating complementary approaches to industrial decarbonization through supply chain engineering and sustainable system design. The first project addresses the design and optimization of closed-loop supply chains in the aluminum industry in collaboration with Emirates Global Aluminium (EGA), UAE. It develops an integrated optimization model of product and process design incorporating circular economy strategies (recycling and reuse) and carbon emission constraints to support cost- and emission-efficient supply chain design. The second project introduces the TEC-H2 Research Consortium in Tunisia, focusing on the technology and economics of green hydrogen for an energy and ecological transition in Tunisia. It investigates hydrogen supply chain design, sustainable aviation fuel production, storage solutions, and energy system management under high renewable penetration. Overall, the talk highlights how circular economy principles and green hydrogen technologies can jointly enable practical and scalable pathways for industrial decarbonization while maintaining economic efficiency.

Short Biography: Dr. Amina Chelly Ben Younes is an Assistant Professor of Industrial Engineering at the High Institute of Transport and Logistics of Sousse (Tunisia),Associate Professor at Laval University (Canada)and a member of the OASIS laboratory at the National Engineering School of Tunis (ENIT). She is also part of the professor team of the international master's program IMPRESA-TEAM (Renewable Energy Systems for Africa: Technology and Management) at ENIT. She holds a double PhD in Industrial Engineering from Grenoble INP (France) and the National Engineering School of Tunis (ENIT, Tunisia). Her research and consulting work focus on low-carbon and green supply chain management, carbon taxation, and green hydrogen value chains. She has collaborated with international institutions, including GIZ, UNIDO, and Impact Hydrogen, and contributed to major projects on sustainable logistics and renewable energy transitions in Tunisia, Algeria, and beyond. Dr. Chelly has published in leading international journals, presented at renowned conferences, and actively mentors students and researchers worldwide. She is also Vice-President of the Tunisian Women Network for Energy Transition (TWNET) and a committed advocate for women's empowerment and sustainable development.

MERCREDI / WEDNESDAY
17 JUIN / JUNE 17TH
10h00

Université Laval
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Salle / Room: 2327

Ouvert à tous / Open to all
Café et viennoiseries

Responsable / Organizer:
Monia Rekik

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