CoE491(A) Smart Mobility for Sustainable Society

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Grading	Letter Grading (and S/U conditionally) Grading will be based on the Project, discussion and class participation,
Type	Hybrid (face-to-face and via Zoom)
Overview	This course is an introductory and fusion course for the new emerging smart mobility from the perspectives of human-society system. It deals with the trips generating from social-activity system, the mobility system, modeling AI-based methods and social issues, and future mobility technologies for sustainability. This course will be operated based on the discussion-based lectures and projects.

Class Schedule

Period (week)	Lectern Session	Group/Project Session
1	[Mobility] Introduction to Mobility: Human, Vehicles, and Socio-Economic System	Class Term Project Session 1>> Introduction Topic: Concept Design of Future Mobility System with AI
2	[Mobility] Travel Patterns and Mobility Data Management	Class Term Project Session 2>>
3	[Mobility] Autonomous Mobility and Intelligent Systems/Mobility as a Service(MaaS)	Group Session 1>>Ethics Guideline for AV
4	Class Term Project Session 3>> proposal presentation	
5	[Modeling] Introduction to Mobility modeling, a general model of demand-responsive mobility services	MATSim Tutorial 1 >>
6	[Modeling] Individual shared mobility: Vehicle sharing, Personal Mobility (PM), Autonomous Mobility on Demand (AMoD)	MATSim Tutorial 2 >>
7	Interim Presentation	
8	Mid-term week: Interim Report	
9	[Modeling] Collective shared mobility: Ride sharing (ride-matching and carpooling) and Demand Responsive Transit (DRT)	Group Work Session 2-1>> Demand-responsive mobility system simulation (MATSim)
10	[Modeling] Multi-purpose mobility services: Food delivery, logistics, omni-	Group Work Session 2-2>> Demand-responsive mobility system simulation (MATSim)

	purpose autonomous vehicle (module system)	
11	Class Term Project Session 4>> Progress presentation and discussion	
12	[Sustainability] Sustainability issues - climate change and air pollution	Group Discussion Session 1: Mobility-interlinked SDGs
13	[Sustainability] Energy and infrastructure/Advanced vehicles and fuels	Group Discussion Session 2: Future energy for mobility and mobility for future energy system
14	[Sustainability] Mobility for special population, social equity	Group Discussion Session 3: Affordability and accessibility
15	Class Term Project Session 5>> Final presentation	
16	Final Week: Final Report	