

Studies Plan

EDRS - Robotics, Control, and Intelligent Systems 2023-24

Core courses

Courses	Language Code	Section	Teacher	Exam	Credit
Design of experiments (a) - Fall semester (Next time : Fall 2023)					
E	ENG-606(a)	EDRS	Fuerbringer	Project report	4
Dynamic programming and optimal control (Next time : Fall 2023)					
E	ENG-639	EDRS	Summers	Project report	1
Topics in Autonomous Robotics (Next time: Spring 2025)					
E	ENG-615	EDRS	Alahi Bouri Ijspeert Micera Paik Roshan Zamir Sakar Shea	Project report	4

Other doctoral courses (EDOC)

Courses	Language Code	Section	Teacher	Exam	Credit
Engineering of musculoskeletal system and rehabilitation (Next time Fall 2024)					
E	BIO-687	EDBB	Antoniadis Crevoisier Favre Goetti Martin Pioletti Terrier	Multiple	3
Frontiers of Deep Learning for Engineers (Doing a PhD in deep learning is a pre-requisite. Next time Fall 2023, max 15 part. Priority to EDCE and EDRS students. Registration link available below under "Notes".)					
E	CIVIL-611	EDCE	Alahi Fink Tuia	Oral presentation	4
Linear system theory (Next time: Fall 2024)					
E	EE-611	EDEE	Müllhaupt	Multiple	4
Machine Learning for Engineers (Next time: Fall 2023)					
E	EE-613	EDEE	Calinon Canévet Odoñez Villamizar	Multiple	4
Optimization and simulation (Next time: Spring 2024)					
E	MATH-600	EDCE	Bierlaire	Multiple	4
Master courses					
Adaptation and learning					
E	EE-566	EL	Sayed	Written	4
Advanced control systems					
E	ME-524	GM	Karimi	Written	3
Advanced machine learning (Pas donné en 2023-24. Cours donné tous les deux ans.)					
E	MICRO-570	MT		Oral	4

Advanced probability and applications

E	COM-417	SC	Shkel	Written	8
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Advanced satellite positioning*(Pas donné en 2023-24)*

E	ENV-542	SIE		During the semester	4
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Aerial robotics

E	MICRO-502	MT	Floreano	Written	4
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Applied machine learning

E	MICRO-455	MT	Billard	Written	4
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Basics of mobile robotics

E	MICRO-452	MT	Mondada	Written	4
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Computational motor control

E	CS-432	SV	Ijspeert	During the semester	4
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Computer vision

E	CS-442	IN	Fua	Written	6
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Convex optimization

E	MGT-418	MTE	Kuhn	Written	5
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Deep learning

E	EE-559	EL	Cavallaro	During the semester	4
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Deep learning for autonomous vehicles

E	CIVIL-459	GC	Alahi	During the semester	6
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Distributed intelligent systems*(Pas donné en 2023-24)*

E	ENG-466	SIE		Oral	5
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Dynamical system theory for engineers*(Cours biennal, pas donné en 2023-24)*

E	COM-502	SC		Written	6
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Evolutionary robotics

E	MICRO-515	MT	Floreano	Written	3
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Image analysis and pattern recognition

E	EE-451	EL	Bozorgtabar Thiran	During the semester	4
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Image processing I

E	MICRO-511	MT	Unser Van De Ville	Written	3
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Image processing II

E	MICRO-512	MT	Liebling Sage Unser Van De Ville	Written	3
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Industrial automation*(This course can be taken by students of all engineering sections.)*

E	CS-487	SC	Sommer Tournier	Oral	3
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Intelligent agents

E	CS-430	IN	Faltings	During the semester	6
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Interaction design

E	CS-486	IN	Pu Faltings	During the semester	6
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Lifecycle performance of product systems

E	ME-516	GM	Friot	During the semester	3
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Machine learning

E	CS-433	IN	Flammarion Jaggi	Written	8
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Mathematical foundations of signal processing*(cours pas donné en 2023-24)*

E	COM-514	SC		Written	6
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Mechanical product design and development

E	ME-410	GM	Paik	During the semester	5
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Micro/Nano robotics					
E	ME-436	GM	Sakar	During the semester	3
Mobile networks (pas donné en 2023-24)					
E	COM-405	SC		Written	8
Model predictive control					
E	ME-425	GM	Jones	Written	4
Networked control systems					
E	ME-427	GM	Ferrari Trecate	Written	3
Optimal decision making					
E	MGT-483	MTE	Kuhn	Written	4
Robotics practicals					
E	MICRO-453	MT	Billard Boero Bouri Dillenbourg Floreano Kneib Micera Mondada Sakar Skaloud	During the semester	2
Sensor orientation					
E	ENV-548	SIE	Skaloud	During the semester	4
Sensors in medical instrumentation					
E	EE-511	EL	Chételat Ionescu	Written	3
Statistical machine learning					
E	MATH-412	MA	Obozinski	Written	5
Statistical signal and data processing through applications					
E	COM-500	SC	Ridolfi	Written	8
System identification					
E	ME-421	GM	Karimi	Written	3
System programming for Systems-on-chip					
E	CS-473	IN	Kluter	During the semester	6
Virtual reality					
E	CS-444	IN	Boulic	During the semester	6