EXCHANGE PROGRAM 2023-24:
SPRING SEMESTER "S8"

I)   CENTRALESUPELEC'S ENGINEERING CURRICULUM

CentraleSupélec is a French *Grande Ecole*. Our Engineering Curriculum spans over 3 years (6 semesters).
Each semester comprises 2 terms:
- **an "Engineering Challenge" Term (in French** *Séquence Thématique* or **"ST");**
- **an Academic Term (in French** *Séquence Générale* or *"SG").*

French university system/ European Higher Ed system		French "Grande Ecole" System			
BSc.	1st year	Scientific and technological training (preparatory classes or university)	1st year	Semester 1	
				Semester 2	
	2nd year	Scientific and technological training (preparatory classes or university)	2nd year	Semester 3	
				Semester 4	
		Highly selective nationwide entrance examination			
	3rd year	**CentraleSupélec**	1st year	Semester 5	SG1
					ST2
				Semester 6	SG3
					ST4
MSc.	4th year	**CentraleSupélec**	2nd year	Semester 7	ST5
					SG6
				Semester 8	ST7
					SG8
	5th year	**CentraleSupélec**	3rd year	Semester 9	SD9
					SM10
				Semester 10	SM11
					Internship

Most of the exchange students are welcomed in the second year of the Engineering program, either during the Fall Semester "S7" (September to January) or the Spring Semester "S8" (February to June), or both.

Below you will find more information on the organization of the Spring semester and the list of courses available during this period.

Detailed syllabuses can be found in the 2023-2024 catalog.
Please refer to the course list below to know the language of instruction for each course.
Please note that minor changes can still occur before your arrival.

II) SPRING SEMESTER ORGANIZATION

You are free to select any course from this program, taking into consideration several rules explained below.

The usual course load of the engineering program is 30 ECTS per semester.

At CentraleSupélec, we require exchange students to select **a minimum of ECTS**:
- Students applying for full-year exchange (S7+S8): **minimum 20 ECTS per semester.**
- Students applying for 1 semester (S7 or S8): **minimum 15 ECTS per semester.**

Please make sure to select enough courses to meet the requirements of your home university, <u>but not below the minimum required by CS</u>.

The school has 3 campuses: Saclay, Rennes and Metz. **Be sure to choose a full set of courses in one campus only.**

This document is for information purposes only. Course choices will be collected online via a link sent to nominated candidates.

Overview of the semester:
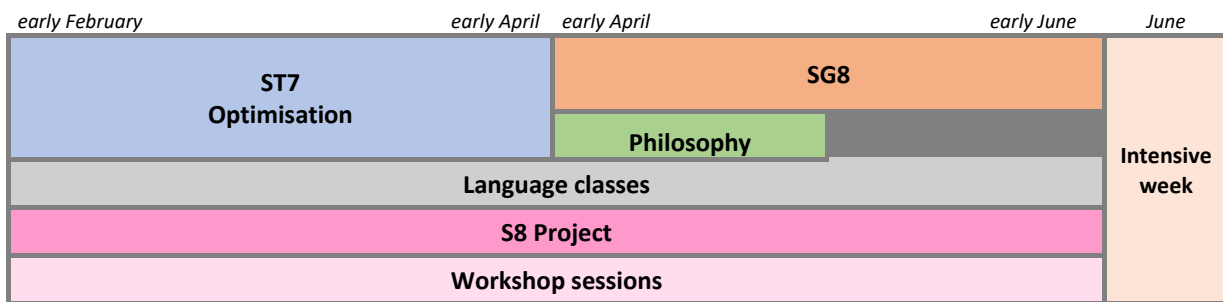
"ENGINEERING CHALLENGE" TERM / *SÉQUENCE THÉMATIQUE* RELATED TO OPTIMIZATION: ST 7

This term runs from late January to late March, and comprises:
- **A course series including**:
  - An introductory module ("*Module contexte et enjeu*")
  - A specific course
  - A short project, (*Projet de Séquence*) **(choice of short project will be made made upon arrival)**
- A common course: **Optimization**

Students interested in the Engineering Challenge Term are invited to choose 1 of the 12 "ST" topics, as well as a back-up in case their top choice cannot be accommodated.

The Optimization course is not mandatory, but the concepts it covers can be important to follow the ST7:
- **ST 71, 72, 73, 74, 81:** Optimization is not necessary
- **ST 77:** Optimization is necessary
- **ST 75, 76, 78, 79, 80, 82:** Optimization is highly recommended. If you don't want to take it, please make sure you have taken a similar course at your home university and send the syllabus to Julie Castel by email.

"ACADEMIC" TERM / *SÉQUENCE GÉNÉRALE*: SG8

This term runs from April to early June, and comprises:
- **Up to 3 elective courses**

The courses are distributed in 3 series: 2.4, 2.5 and 2.6. All courses from a given series **are scheduled in the same time slot**. If you are interested in 1 or several elective courses, **please select 1 "top" choice + 1 "back-up" per series**.

THE SEMESTER ALSO INCLUDES:

- A project: **S8 Project.** It is different from the short project mentioned above and runs over the whole semester. Students will be offered a list of topics to choose from before the beginning of the semester.
- **Workshops**: Engineering Skills Workshops ("*API*") and Professional Practice Skills Workshops ("*APP*"). **These workshops are mandatory for all students involved in the S8 Project.**
- An **intensive 1-week seminar** scheduled in June. If you are interested in this seminar, you may select:
  - One course related to a Humanities and Social Sciences topic (labelled *2IN2310, 2IN2320, 2IN2330, 2IN2340*). In this case, you will be requested to choose a specific module within the topic at a later stage.
    OR
  - An additional elective course from the list below.
    OR
  - An experimental course from the list below.
  Please also select a back-up choice, as your top choice may not be accommodated.
- A **Philosophy** course.
- **Language courses:** Students can choose at least 1 and up to 2 foreign language(s) from the list. **Priority is given to French and English**. If you are already fluent in French and English, you may skip the language courses, or choose another language (highlighted in gray). <mark>This option is available only if you have already had at least two semesters of study of the chosen language just prior to your arrival at CentraleSupélec, as beginner-level groups are not available during the Spring period</mark>. **You cannot choose a language of which you are a native speaker.**
- **Sports:** CentraleSupélec offers a range of sports courses which international students are encouraged to join, but for which they do not receive ECTS. If you are interested, please visit the Sports Office when you arrive on campus.

Please not that, due to limited seats in some modules (ST7, elective courses), <u>your first choices may not be accommodated.</u>

III) <u>SPRING SEMESTER COURSE LIST</u>

You can use these tables to build your study plan before answering the online survey.

F: French   E: English

SEQUENCE THEMATIQUE "ST 7" / ENGINEERING CHALLENGE TERM							
Choice 1	Choice 2	FR Course Title	Eng Course title	Course code	ECTS	Campus	Language of instruction
☐	☐	**Finance stochastique et modélisation des risques :**	**Stochastic Finance and Risk Modelling:**	**ST71**	**7**	**Paris-Saclay**	**E**
		Intro : module contexte et enjeu	Intro: Context & Issues module	2SC7100			
		Modélisation des risques financiers	Stochastic Finance and Risk Modelling	2SC7110	2,5		
		Gestion des risques financiers	Risk Management on Financial Markets	2SC7190	4,5		
☐	☐	**Optimisation de l'infrastructure des réseaux pour les villes intelligentes :**	**Optimization of Network Infrastructure for Smart Cities:**	**ST72**	**7**	**Paris-Saclay**	**E**
		Intro : module contexte et enjeu	Intro: Context & Issues module	2SC7200			
		Théorie des jeux pour les villes intelligentes	Game Theory for Smart Cities	2SC7210	2,5		
		Smart cities : les cités connectées	Smart Cities : Connected Cities	2SC7290	4,5		

☐	☐	**Economie circulaire et systèmes industriels :**	**Circular Economy and Industrial Systems:**	**ST73**	**7**	**Paris-Saclay**	**F**
		Intro : module contexte et enjeu	Intro: Context & Issues module	2SC7300			
		Economie circulaire et méthodes de l'écologie industrielle	Circular Economy and Industrial Ecology Methods	2SC7310	2,5		
		Projet industriel d'économie circulaire	Circular Economy Industrial Project	2SC7390	4,5		
☐	☐	**Optimisation de systèmes de transports passagers :**	**Optimization of Passenger Transport Systems:**	**ST74**	**7**	**Paris-Saclay**	**F**
		Intro : module contexte et enjeu	Intro: Context & Issues module	2SC7400			
		Aide à la décision: Modèles, algorithmes et implémentation	Decision Support: Models, Algorithms and Implementation	2SC7410	2,5		
		Optimisation des systèmes de transport de passagers	Passenger Transport System Optimization	2SC7490	4,5		
☐	☐	**Simulation de flux industriels :**	**Simulating Industrial Flows:**	**ST75**	**7**	**Paris-Saclay**	**F**
		Intro : module contexte et enjeu	Intro: Context & Issues module	2SC7500			
		Optimisation et gestion de flux	Managing and Optimizing Industrial Flows	2SC7510	2,5		
		Gestion des flux dans la livraison de gaz industriels	Flow Management in Industrial Gas Delivery	2SC7591	4,5		
☐	☐	**Simulation à haute performance pour la réduction d'empreintes :**	**High Performance Simulation for Footprint Reduction:**	**ST76**	**7**	**Paris-Saclay**	**E**
		Intro : module contexte et enjeu	Intro: Context & Issues module	2SC7600			
		Méthodes et algorithmes de calcul parallèle, et méthodes d'optimisation	Parallel Computing Methods and Algorithms, and Optimization Methods	2SC7610	2,5		
		Optimisation d'une campagne d'exploration sismique pour la protection des ouvrages **OU**	Optimization of a Seismic Exploration Campaign for Infrastructure Protection **OR**	2SC7691	4,5		
		Optimisation de formes et réduction de la traînée en aéronautique **OU**	Shape Optimization and Drag Reduction in Aeronautics **OR**	2SC7692	4,5		
challenge week to be chosen upon arrival		Optimisation de détection d'ondes infrasonores pour la vérification du traité d'interdiction complète d'essais nucléaires **OU**	Optimization of Infrasonic Wave Detection for Verification of the Comprehensive Nuclear-Test-Ban-Treaty **OR**	2SC7693	4,5		
		Optimisation énergétique et accélération d'un graphe de calculs financiers sur cloud **OU**	Energy Optimization and Acceleration of a Cloud Financial Calculation Graph **OR**	2SC7694	4,5		
		Optimisation à faible coût des performances d'un code de propagation d'ondes acoustiques	Low Cost Optimization of Acoustic Wave Propagation Code Performance	2SC7695	4,5		
☐	☐	**Efficacité des systèmes d'énergie embarqués :**	**Efficiency of On-Board Energy Systems:**	**ST77**	**7**	**Paris-Saclay**	**F**
		Intro : module contexte et enjeu	Intro: Context & Issues module	2SC7700			
		Méthodes numériques et résolution des problèmes d'optimisation des systèmes d'énergie embarqués	Numerical Methods and Problem Solving for Optimizing Embedded Energy Systems	2SC7710	2,5		
		Efficacité des systèmes d'énergie embarqués	Efficiency of On-Board Energy Systems	2SC7790	4,5		
☐	☐	**Conception en fabrication additive :**	**Additive Manufacturing Design:**	**ST81**	**7**	**Paris-Saclay**	**E**
		Intro : module contexte et enjeu	Intro: Context & Issues module	2SC8100			
		Couplages multiphysiques pour la fabrication additive	Multiphysical Couplings for Additive Manufacturing	2SC8110	2,5		
		Optimisation de structure en fabrication additive	Structure Optimization in Additive Manufacturing	2SC8190	4,5		
☐	☐	**Transition énergétique en site isolé :**	**Energy Transition in Isolated Sites:**	**ST78**	**7**	**Rennes**	**E**
		Intro : module contexte et enjeu	Intro: Context & Issues module	2SC7800			
		Energies renouvelables et micro grids	Renewable Energies and Micro Grids	2SC7810	2,5		
		Micro grid insulaire décarbonné	Insular Carbon-Free Micro Grid	2SC7890	4,5		
☐	☐	**Le numérique au service du facteur humain:**	**Digital Technology at the Service of the Human Factor:**	**ST79**	**7**	**Rennes**	**E**

		Intro : module contexte et enjeu	Intro: Context & Issues module	2SC7900			
		Analyse d'image et son 2D-3D	2D – 3D Image and Sound Analysis	2SC7910	2,5		
		Ce que vous dites sans le vouloir: décrytage et analyse automatique des comportements non verbaux	What You Unwittingly Say: Decryption and Automatic Analysis of Nonverbal Behaviors	2SC7990	4,5		
□	□	**Séparation de sources pour une exploitation optimale des signaux :**	**Source Separation for Optimal Signal Processing:**	**ST80**	**7**	**Metz**	**F**
		Intro : module contexte et enjeu	Intro: Context & Issues module	2SC8000			
		Représentations parcimonieuses des signaux	Sparse Representation of Signals	2SC8010	2,5		
challenge week to be chosen upon arrival		Suivi d'un locuteur par un robot **OU**	Tracking a Speaker by a Robot **OR**	2SC8092	4,5		
		Séparation de sources sonores à partir d'enregistrements de plusieurs microphones	Separation of Sound Sources from Recordings of Several Microphones	2SC8093	4,5		
		Extraction non-invasive de l'électrocardiogramme du fœtus	Non-Invasive Extraction of the Fetal Electrocardiogram	2SC8094	4,5		
□	□	**Systèmes physiques neuro-inspirés pour le traitement d'information :**	**Physical Neuro-Inspiratory Systems for Information Processing:**	**ST82**	**7**	**Metz**	**E**
		Intro : module contexte et enjeu	Intro: Context & Issues module	2SC8200			
		Optimisation pour l'apprentissage des systèmes physiques	Optimization for Neuro-Inspired Computing with Physical Architectures	2SC8210	2,5		
		Classification de signaux vidéos et d'images à haute performance et faible coût énergétique par des systèmes photoniques	Classification of Image and Videos Signals with Power-Efficient Photonic Systems	2SC8290	4,5		

COURS DE TRONC COMMON / COMMON CORE COURSES							
Choice		Cours de Tronc Commun	Common core courses	Course code	ECTS	Campus	Language of instruction
□ E	□ F	Optimisation	Optimization	2CC3000	2,5	all	E or F in P-Saclay, F in Metz, E in Rennes

SEQUENCE GENERALE "SG8" / ACADEMIC TERM							
ELECTIVE SERIES 2.4							
Choice 1	Choice 2	FR Course title	Eng Course title	Course Code	ECTS	Campus	Language of instruction
□	□	Energies renouvelables	Renewable Energies	2EL1310	2,5	Paris-Saclay	F
□	□	Conversion d'énergie électrique pour les sources d'énergie renouvelables et l'électromobilité	Electrical Energy Conversion for Renewable Energy Sources and Electromobility	2EL1315	2,5	Paris-Saclay	E
□	□	Mécanique des fluides	Fluid Mechanics	2EL1420	2,5	Paris-Saclay	E
□	□	Intelligence artificielle	Artificial Intelligence	2EL1580	2,5	Paris-Saclay	E
□	□	Calcul scientifique	Scientific Calculation	2EL1760	2,5	Paris-Saclay	F
□	□	Construire la ville - urbanisme, architecture et ingénierie	Building the City – Town Planning, Architecture and Engineering	2EL1860	2,5	Paris-Saclay	F
□	□	Lois fondamentales de l'univers : physique des particules et de la gravitation	Fundamental Laws of the Universe: Particle and Gravitation Physics	2EL1910	2,5	Paris-Saclay	F
□	□	Gestion des opérations et de la chaîne logistique	Operations and Supply Chain Management	2EL2210	2,5	Paris-Saclay	E
□	□	Mobility Issues	Economics of Decarbonised Transport Systems	2EL2240	2,5	Paris-Saclay	E
□	□	Traitement d'images numériques	Digital Image Processing	2EL2420	2,5	Paris-Saclay	F

Choice 1	Choice 2	FR Course title	Eng Course title	Course Code	ECTS	Campus	Language of instruction
□	□	Introduction au développement d'applications multi-tiers et aux services web	Introduction to Multi-Tier Application Development and Web Services	2EL5020	2,5	Metz	E
	□	Systèmes photoniques intelligents	Smart Photonics Systems	2EL5120	2,5	Metz	E
□	□	Systèmes d'exploitation	Operating Systems	2EL6030	2,5	Rennes	F
□	□	Microréseaux: composants et pilotage	Micro-Grids: Components and Control	2EL6140	2,5	Rennes	E
□	□	Finance d'entreprise avancée	Advanced Corporate Finance	2EL6200	2,5	Rennes	F

		ELECTIVE SERIES 2.5					
Choice 1	Choice 2	FR Course title	Eng Course title	Course Code	ECTS	Campus	Language of instruction
□	□	Systèmes Robotiques Interactifs	Interactive Robotic Systems	2EL1120	2,5	Paris- Saclay	E
□	□	Transferts thermiques	Heat Transfer	2EL1410	2,5	Paris- Saclay	F or E
□	□	Cours d'analyse structurelle	Structural Analysis Course	2EL1450	2,5	Paris-Saclay	E
□	□	Cloud computing et informatique distribuée	Cloud Computing and Distributed Computing	2EL1590	2,5	Paris- Saclay	F
□	□	Statistiques Avancées	Advanced Statistics	2EL1750	2,5	Paris- Saclay	F
□	□	Physique de la matière divisée	Physics of Divided Matter	2EL2020	2,5	Paris- Saclay	F
□	□	Génie des procédés : application à l'environnement et aux biofabrications	Process Engineering: Application to the Environment and Biomanufacturing	2EL2040	2,5	Paris- Saclay	E
□	□	Economie de l'environnement, énergie et développement durable	Environmental Economics, Energy and Sustainable Development	2EL2160	2,5	Paris- Saclay	F
□	□	Maintenance et Industrie 4.0	Maintenance and Industry 4.0	2EL2230	2,5	Paris-Saclay	E
□	□	Electronique pour les applications biomédicales et de communication	Electronics for Biomedical and Communication Applications	2EL2520	2,5	Paris-Saclay	E
□	□	Programmer efficacement en C++	Programming Efficiently in C++	2EL5030	2,5	Metz	E
□	□	Chaos, Fractales et complexité	Chaos, Fractals and Complexity	2EL5130	2,5	Metz	E
□	□	Génie des procédés : application à l'environnement et aux biofabrications	Process Engineering: Application to the Environment and Biomanufacturing	2EL2040	2,5	Metz	E
□	□	*Serious Game*	Serious Game	2EL6060	2,5	Rennes	E
□	□	Systèmes embarqués et Internet des Objets	Embedded Systems and Internet of Things	2EL6130	2,5	Rennes	F
□	□	Management de la production et des flux	Production and Flow Management	2EL6170	2,5	Rennes	F

		ELECTIVE SERIES 2.6					
Choice 1	Choice 2	FR Course title	Eng Course title	Course Code	ECTS	Campus	Language of instruction
□	□	Systèmes dynamiques multi-agents. Application au vol en formation de drones	Dynamic Multi-agent Systems. Application to Drones Formation Control	2EL1130	2,5	Paris-Saclay	F
□	□	Ingénierie Nucléaire	Nuclear Engineering	2EL1430	2,5	Paris-Saclay	E
□	□	Génie logiciel orienté objet	Object Oriented Software Engineering	2EL1520	2,5	Paris-Saclay	E
□	□	Informatique théorique	Theoretical Computing	2EL1540	2,5	Paris-Saclay	F
□	□	Algèbre et cryptologie	Algebra and Cryptology	2EL1740	2,5	Paris-Saclay	F
□	□	Simulation des couplages multiphysiques avec la MEF	Simulation of Multiphysics Couplings with FEM	2EL1850	2,5	Paris-Saclay	E
□	□	Innovation sobre et durable	Sober and Sustainable Innovation	2EL2190	2,5	Paris-Saclay	F
□	□	Applications de la physique statistique et quantique aux sciences de l'information	Applications of Statistical and Quantum Physics to Information Science	2EL2630	2,5	Paris-Saclay	E
□	□	Big Data : collecte, stockage et analyse de données sur clusters et sur Cloud	Big Data: Collection, Storage and Analysis of Data on Clusters and Cloud	2EL5040	2,5	Metz	F
□	□	Les outils du management de l'innovation au service d'une innovation responsable	Innovation Management Tools at the Service of Responsible Innovation	2EL5170	2,5	Metz	

□	□	Programmation système sous Linux et Windows	System Programming under Linux and Windows	2EL6040	2,5	Rennes	F
□	□	Accès sans fil intelligent et expérimentation	Intelligent Wireless Access & Experimentation	2EL6120	2,5	Rennes	E
□	□	Commande prédictive	Model Based Predictive Control	2EL6150	2,5	Rennes	E

ENSEIGNEMENTS HORS SEQUENCE / SEMESTER-LONG COURSES						
Multiple choices possible	FR Course title	Eng Course title	Course code	ECTS	Campus	Language of instruction
□	Philosophie	Philosophy	2SL3000	1,5	all	F
□	Projet S8 *	Project S8 *	2SL8100	8,5	all	E or F depending on topic or team
	Ateliers Pratiques Ingénieur "API"	Engineering Skills Workshops	2SL5007	1	all	F
	Ateliers Pratique Professionnelle "APP"	Professional Practice Workshops	2SL7007	0,5	all	F
	Sport	Sports	2SL9000	0	all	F

INTENSIVE SEMINAR COURSES: SHS, Elective or Experimental							
Choice 1	Choice 2	FR Course title	Eng Course title	Course code	ECTS	Campus	Language of instruction
□	□	Cours de type Sciences Humaines et Sociales (SHS) dans l'un de ces 4 domaines : Individus, Travail, Organisations; Enjeux de société; Science, Technologie, Société* ou Innovation, Arts et Créativité	Humanities and Social Sciences (SHS) course, in one of the following domains: Individual, Work and Organisation; Perspective on key social issues; Science, Technology, Society* or Innovation, Arts and Creativity	2IN2310, 2IN2320, 2IN2330, or 2IN2340	1,5	all	F or E depending on course
□	□	Gestion des Achats	Procurement Management	2IN2180	2,5	Paris-Saclay	E
□	□	Développement d'applications web et mobile	Web and Mobile Application Development	2IN1570	2,5	Paris-Saclay	F
□	□	Biomécanique et matériaux du vivant	Biomechanics and Life Materials	2IN1590	2,5	Paris- Saclay	F
□	□	Bridge building challenge	Bridge Building Challenge	2IN5010	2,5	Paris-Saclay	F/ E upon request
□	□	Numérisation 3D sans contact	Contactless 3D Scanning	2IN5015	2,5	Paris-Saclay	F
□	□	Semiconductor Innovation	Innovation des semi-conducteurs	2IN5020	2,5	Paris-Saclay	
□	□	Travail expérimental de physique	Experimental Physics Work	2IN5030	2,5	Paris-Saclay	F
□	□	Découverte de la radio logicielle	Discovery of Software Defined Radio	2IN5050	2,5	Paris-Saclay	F
□	□	Traitement du signal audio	Audio Signal Processing	2IN5060	2,5	Paris-Saclay	F/ E upon request
□	□	Finances publiques	Public Finances	2IN5120	2,5	Metz	F
□	□	Analyse de risques - INFOSEC	Risk Analysis - INFOSEC	2IN1520	2,5	Rennes	F

*only these domains are offered in Rennes

LANGUAGE COURSES						
Choices (max. 2)	FR Course title	Eng Course title	Course code	ECTS	Campus	Language of instruction
□	Anglais	English	2LC0100	1,5	all	-
□	Français Langue Etrangère - FLE	French as a foreign language	2LC0200	1,5	all	-
□	Allemand	German	2LC0300	1,5	all	-
□	Espagnol	Spanish	2LC0400	1,5	all	-
□	Italien	Italian	2LC0500	1,5	all	-
□	Portugais	Portuguese	2LC0600	1,5	Paris-Saclay	-

	□	Chinois	Chinese	2LC7000	1,5	all	-
	□	Japonais	Japanese	2LC0800	1,5	all	-
	□	Russe	Russian	2LC0900	1,5	P-S, R	-
	□	Arabe	Arabic	2LC1000	1,5	P-S, R	-
	□	Hébreu	Hebrew	2LC1200	1,5	Paris-Saclay	-

Note on ST7: the modules of the ST7 add up 7 ECTS. However, the specific course and the project will be assessed separately and given their own marks. There will be no assessment for the introduction.

Total ECTS: ……………..

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* List of S8 Project clusters (in French *Pôles Projets*): If interested in this project, you will be asked to rank these topics **after your admission and before your arrival.** (Assignement to a specific cluster will depend on requests and available spots)

N°			Remark	Campus	
P02	City Faber Lab	City Faber Lab		Paris-Saclay	
P03	CubeSats	CubeSats		Paris-Saclay	
P04	Data Science	Data Science		Paris-Saclay	
P05	Formation à la Recherche	Research Training	Training in Mathematics Physics required	Paris-Saclay	Language by default is French. However, it'll be possible to use English in your group unless specified otherwise.
P07	Ingénierie pour l'Environnement	Engineering for the Environment		Paris-Saclay	
P09	Innovations Pédagogiques et Edtech	Educational Innovations and Edtech		Paris-Saclay	
P10	Intelligence Artificielle	Artificial Intelligence		Paris-Saclay	
P11	IoT - Internet of Things	IoT (Internet of Things)		Paris-Saclay	
P12	Makers	Makers		Paris-Saclay	
P13	Maîtrise des Systèmes Énergétiques	Energy Systems Management		Paris-Saclay	
P14	MédiaScience	MediaScience		Metz	
P15	Modélisation Mathématique des Systèmes Complexes	Mathematical Modelling of Complex Systems		Paris-Saclay	
P16	Mutations Économiques Agiles et Responsables	Agile and Responsible Economic Mutations		Paris-Saclay	
P17	Nouveaux Concepts Énergétiques	New Energy Concepts		Paris-Saclay	
P18	Production, Supply Chain et Opérations	Production, Supply Chain and Operations	Only if French-speaking	Paris-Saclay	
P19	Robotique	Robotics		Paris-Saclay	
P20	Biotechnologies et Santé	Biotechnology and Health	Biology training required	Paris-Saclay	
P21	Smart and Secure Life	Smart and Secure Life		Rennes	
P22	Contrôle et Optimisation	Control & Optimization		Paris-Saclay	
P23	Tech for Good and Design Thinking	Tech for Good and Design Thinking		Paris-Saclay	
P24	Transition Écologique et Solidaire	Ecological and Inclusive Transition	Biology training required; Only if French-speaking	Paris-Saclay	
P25	Véhicules Intelligents	Smart Vehicles		Paris-Saclay	