

Engineering Degree of Ecole Centrale de Marseille



Target level
BAC +5



Language(s)
English, French

Presentation

Central Marseille educates generalist engineers with a high level of scientific expertise, imbued with values, capable of managing complexity, integrating and synthesizing, fostering creativity and innovation, possessing an international culture, and adept at entrepreneurship, sharing, communication, and leadership.

With each new intake of approximately 300 students, the training program has a dual objective: firstly, to aim for the acquisition, at the highest level, of the five characteristic competencies of the central engineer for everyone; secondly, to support each individual in their multiple choices, closely aligning with their personal aspirations and talents.

To meet this dual requirement, Centrale Marseille has designed a unique curriculum that allows students to become the architects of their own academic journey.

International education : Obligatoire

Organisation

Trainings

Internship : Obligatoire

Abroad internship : Possible

Admission

Access conditions

Admission primarily occurs through the Centrale-Supélec entrance exam after 2 years of preparatory classes.

In its commitment to inclusivity, the school also offers the opportunity for students with scientific and technical bachelor's degrees and DUT after ATS to join the school.

Every year, 320 students are admitted to the École Centrale de Marseille.

Admissions through entrance exams

Other admissions

Target

Test public cible.

Élèves post-bac ayant choisi des options scientifiques.

Fees

4500€ par année

Useful info

Place

 Marseille

Program

Semestre 5

	Nature	CM	TD	TP	Crédits
Mechanics	Module	26h	28h		4 credits
Physics	Module	34h	20h		4 credits
Informatique	Module	14h	20h	20h	4 credits
Economics and Management	Module	24h	24h	6h	4 credits
International Languages & Cultures 5	Module		40h		2 credits
Sports and Artistic Physical Activities 5	Module		15h		1 credits
Train'ing or Skills through Work-Study scheme 72	Module		24h	56h	6 credits
Projet innovation 72	Module				5 credits

Semestre 6

	Nature	CM	TD	TP	Crédits
Chemistry - Process Engineering	Module	36h	32h	4h	5 credits
Mathematics	Module	36h	36h		5 credits
Waves and Signal	Module	34h	24h	12h	5 credits
International Languages and Cultures 6	Module	40h			2 credits
Sports and Artistic Physical Activities 6	Module		15h		1 credits
Train'ing or Alternate Skills 96	Module				4 credits
Innovation project 96	Module				4 credits
Internship 1A or Business Skills	Module				3 credits

Semestre 7

	Nature	CM	TD	TP	Crédits
In-depth studies	Module				
Mathematics - Computer Science - Economics	EC	54h			4 credits
Chemistry - Process Engineering	EC	24h	22h	8h	4 credits
Mechanics - Physics	EC	36h	18h	2h	4 credits
Electronic Energy Electrical Automatic	UE	32h	22h		4 credits
Human and Social Sciences	UE	14h	10h	6h	3 credits
International Languages & Cultures 7	UE		40h		2 credits

Sports and Artistic Physical Activities 7	UE				1 credits
Thematic project	UE				4 credits
Train'ing or Alternate Skills 7	Module	24h	56h		7 credits
Elective Courses	Bloc				
Menu 1	UE				
Mathematical Analysis	UE				
Biochemistry	UE				
Web development	Module	30h			
Law and sociology of organizations	UE	18h	10h		
Macroeconomics and economic policy	UE	16h	8h		1 credits
Materials	UE				
Applied Mechanics - Structures, Aerodynamics and Flight Mechanics	UE	14h	8h	8h	
Experimental and/or numerical projects in the field of photonics	UE			30h	
Quest for quantum coherence and second quantum revolution	UE				5 credits
Telecommunications	UE	24h	6h		
Thermal transfer	UE				
Menu 2	UE				
Analysis and processing of biomedical signals	UE	24h	6h		
Digital control system	UE	12h	6h	12h	
General Culture	UE	20h	10h		
Energy and Environment	UE				
Electrical Energy for Sustainable Development	UE	22h	4h	4h	
Challenges of modern chemistry	UE	6h	12h	12h	
Theoretical Computer Science	Module	20h	4h		
Material-Radiation Interaction	UE	22h	4h	4h	
Introduction to stochastic process	UE	14h	10h	6h	
Biomedical Optics	UE				
Thermomechanics of continuous mediums	UE	16h	12h	2h	
Menu 3	UE				
Sensors, principles and use	UE	10h	4h	16h	
Continuous media dynamics	UE	12h	8h	10h	
Finance: introduction to economic and mathematical modelling	UE				
Artificial Intelligence and Games	Module	14h	16h		
Semi-Conductive Materials, Properties and Applications	UE	24h	6h		
Microcontrollers and their environment	UE	14h	8h	8h	
Economic philosophy and the anthropocene	UE	6h	10h	1h	
Object programming	Module	4h	8h	18h	
RIS (Rechercher, Identifier, Séparer)	UE	2h		28h	
Remote Sensing & Applications	UE	14h		16h	
Solid chain operations	UE				

Semestre 8

Nature	CM	TD	TP	Crédits
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International Languages and Cultures 8	Module			40h	3 credits
Train'ing Week S8	Module				1 credits
Internship 2A	Module				5 credits
Parcours	Module				
Bio-engineering (BIO)	Module				
The bricks of life	Module	70h		4h	6 credits
Imaging and Wave Therapies	Module	53h		17h	5 credits
Biotechnologies and Chemical Therapies	Module	58h		10h	5 credits
BIO Planet	Module	28h			5 credits
Dynamique - Mutations - Crises (DMC)	Module				
Mathematical and statistical modeling of complex systems	Module	25h	18h	21h	5 credits
Crisis management: physical and chemical applications	Module	23h	18h	3h	4 credits
Optimization and application to control	Module	14h	10h	14h	3 credits
Dynamic instabilities and chaotic transport	Module	10h	6h	22h	3 credits
Economic modeling: growth and sustainable development	Module	36h	4h		3 credits
Beyond the model	Module	15h	5h	10h	3 credits
Environnement : management et technologies (ENV)	Module				
Environmental management	Module	32h	6h		3 credits
Circular economy	Module	25h	12h	12h	4 credits
Sustainable chemistry	Module	28h	6h	8h	4 credits
Effluents and pollution	Module	26h	14h	4h	4 credits
Environmental Quality Monitoring	Module	36h	8h	16h	4 credits
Project	Module				2 credits
Energie durable (ENE)	Module				
Introduction to energy issues and transversal and societal aspects	Module	34h			3 credits
Solar energy	Module	64h	8h		3 credits
Marine, wind and hydraulic energy	Module	50h			4 credits
Nuclear energy	Module	30h	10h	20h	4 credits
Other energies for tomorrow? The examples of biomass and hydrogen	Module	18h	12h		2 credits
Cross-cutting energy concepts: transport, conversion, storage and electrical energy	Module	20h			2 credits
Projects	Module				3 credits
Sciences de l'information et société numérique (SIS)	Module				
Digital Society: Issues and Regulation	Module	10h	9h	23h	3 credits
Strategic Digital Issues	Module	40h	2h		4 credits
Telecommunications, Learning and Information Technology	Module	40h	4h	6h	4 credits
Statistical Analysis of Information	Module	36h	8h	16h	4 credits
Coding and Retrieval of Information	Module	24h		16h	4 credits
Project	Module				2 credits
Alternant - Alternance Entreprise	Module				
Intercultural management, CAD, leadership, project management, entrepreneurship	Module		40h		6 credits
CEA 4 Work-study skills	Module				19 credits

EWC 2 - Work-study report 2A	Module		5 credits
Alternant - Alternance Recherche	Module		
Intercultural, project management	Module	40h	6 credits
Competence in alternation (lab 9 weeks minimum abroad)	Module		19 credits
Stage 2A (en entreprise)	Module		5 credits
Alternant - Alternance Entrepreneuriat	Module		
Intercultural, project management	Module	40h	6 credits
CEA 4 (report + defense for the period mid February - end May)	Module		19 credits
2A internship in a company (other than their own)	Module		5 credits

Semestre 9

	Nature	CM	TD	TP	Crédits
Tronc Commun	Module				
The engineer dealing with the challenges of strategy and innovation	Module	20h			1 credits
The engineer dealing with ethical and human challenges	Module	20h			2 credits
International Languages and Cultures 9	Module				2 credits
Filières Métier	Module				
Analyse des Données et Aide à la Décision (ADAD)	Module				
The data professions	Module	20h			2 credits
Aide à la décision	Module	15h			2 credits
Data-visualisation	Module	15h			2 credits
Data-analysis	Module	15h			1 credits
Data production and exploitation	Module				1 credits
Projet ADAD	Module				1 credits
Audit & Conseil (AUC)	Module				
Conseil	Module	42h			3 credits
Audit	Module	40h			3 credits
Project AUC	Module				3 credits
Conception, Bureau d'Etudes (CBE)	Module				
Dimensionnement	Module	18h	22h		3 credits
Product design	Module	18h	22h		3 credits
Project CBE	Module				3 credits
Entrepreneuriat (ENT)	Module				
Management fundamentals	Module	28h			3 credits
Entrepreneuriat	Module	37h	6h		3 credits
Project ENT	Module				3 credits
Production & Logistique (PRL)	Module				
Operations management	Module	11h	12h	16h	3 credits
Industrial logistics	Module	16h	9h	16h	3 credits
Project PRL	Module	30h			3 credits
Recherche & Développement (R&D)	Module				
Tools and methods for R&D and innovation	Module	23h			3 credits
Organization, contracts and valorization of research	Module	23h			3 credits
R&D Project	Module				3 credits

Management Opérationnel (MO)	Module				
WEICUBE	Module				3 credits
Elective 2	Module				
Elective à confirmer	Module				
Elective à confirmer	Module				
Alternant (ALT)	Module				
Alternant Entreprise	Module				
Alternant Recherche	Module				
Alternant Entrepreneuriat	Module				
Advanced options	Module				
Photonics, Images, Communication, Signal, Sciences of Light (PICSEL)	Module				
Temps 1	Module				
Fundamentals of Photonics	Module	80h		20h	8 credits
Smarts Systems	Module	70h	16h	14h	8 credits
Telecom and IoT	Module	60h	10h	30h	8 credits
Temps 2	Module				
Advanced Imaging for Biomedical Applications	Module	70h	12h	10h	4 credits
Images: Formation, Perception & Representation	Module	66h	6h	22h	4 credits
Data science and statistical learning	Module	44h	12h	18h	4 credits
Matériaux et structures, fluides, mer (MECA)	Module				
Parcours Fluides : énergie, transports, environnement, santé (FETES)	Module				
Temps 1	Module				
Waves in mechanics	Module	8h	8h	8h	2 credits
Turbulence	Module	16h	8h		2 credits
Aerodynamics	Module	12h		12h	2 credits
Électif à choisir dans le Menu 1	Module				
Temps 2	Module				
Turbulent transfers	Module	16h	8h		2 credits
Two-phase flows	Module	16h	8h		2 credits
Geophysical flows	Module	16h		8h	2 credits
Électif à choisir dans le Menu 2	Module				
Parcours Génie Mer (GM)	Module				
Temps 1	Module				
Waves in mechanics	Module	8h	8h	8h	2 credits
Marine Hydrodynamics Part 1	Module				2 credits
Coastal Engineering	Module				2 credits
Abaqus	Module				2 credits
Temps 2	Module				
Marine Hydrodynamics Part Two	Module				2 credits
Sedimentology and Soil Mechanics	Module				2 credits
Coastal Engineering	Module				2 credits
Marine Operations	Module				1 credits
Corrosion	Module				
Parcours Modélisation Mécanique des Matériaux et des Structures (M3S)	Module				
Temps 1	Module				

Waves in mechanics	Module	8h	8h	8h	2 credits
Thin structures and instabilities	Module	16h	8h		2 credits
Material behavior - Plasticity	Module	14h	8h	2h	2 credits
Software tools for mechanics - Basics	Module	8h	2h	14h	2 credits
Temps 2	Choix				
4 électifs à choisir dans les Menus 2 et 3	Module				
Electifs	Module				
Menu 1	Module				
Aéroacoustique	Module	16h	8h		2 credits
Biomechanics and micro hydrodynamics	Module	16h	4h	4h	2 credits
Menu 2	Choix				
Fluid-structure interactions	Module	12h		12h	2 credits
Two phase media and fluid-solid interactions	Module	12h	4h	8h	2 credits
Civil engineering	Module	12h	12h		2 credits
Menu 3	Choix				
Composites and laminates	Module	16h	4h	4h	2 credits
Fast dynamics and crash	Module	8h	8h	8h	2 credits
Strength of materials and structures	Module	18h	6h		2 credits
Optimization of structures	Module	16h		8h	2 credits
Données et Décisions Economiques et Financières (DDEFI)	Module				
Temps 1 : Tronc commun	Module				
Models and decisions	Module	72h	6h	6h	8 credits
Temps 2 : Un parcours au choix	Module				
Finance track	Module	81h			8 credits
Data and decision track	Module	81h			8 credits
Mathématiques et Modélisation pour le Climat, la Terre et l'Humain (CLIMATS)	Module				
Temps 1	Module				8 credits
Introduction to the course	Module	12h			
Harmonisation en analyse et en statistique	Module				
Data Science	Module				
Transport routier	Module				
Calcul Haute performance	Module				
Temps 2	Module				
Conférences	Module				
Optimisation et contrôle	Module				
Couplage et modèles : Economie, écologie, société	Module				
Calcul scientifique	Module				
Mathematical Problems in Climate Dynamics	Module				
Attestation Bilan Carbone	Module				
EDP en biologie : Croissance, réaction, mouvement	Module				
De la ressource au produit. Chimie et procédés durables (GREEN)	Module				
Temps 1 : Tronc Commun	Module				
De la Ressource au produit : la pratique	Module				
De la Ressource au produit : l'analyse	Module				
De la Ressource au produit : La chimie industrielle	Module				
Temps 2 : 2 Electifs au choix	Module				

Smart Chemistry	Module				
Efficacité énergétique et contrôle des émissions	Module				
Info (INFO)	Module				
Parcours DO-IT : Développement et Organisation en IT	Module				
Temps 1 : Fondamentaux services IT	Module				
Développement : bases	Module				
Organisation : besoin client	Module				
Formation tutorée	Module				
Projet	Module				
Temps 2 : Création de service et/ou application web	Module				
Développement : applications web	Module				
Organisation : création de services	Module				
Formation tutorée	Module				
Projet	Module				
Science des données et apprentissage statistique	Module				
Parcours IAM : Intelligence Artificielle et Apprentissage Machine	Module				
Temps 1 : Fondamentaux du ML et de l'IA moderne	Module				
Data Science	Module				
Deep Learning	Module				
Analyse et manipulation de données	Module				
Optimisation	Module				
Apprentissage sur graphes	Module				
Temps 2 : ML et IA avancés	Module				
Apprentissage par renforcement	Module				
Apprentissage, Signal et Multimédia	Module				
Prédiction structurée pour le Traitement Automatique des Langues	Module				
Théorie de l'apprentissage Statistique	Module				
Data science and statistical learning	Module	44h	12h	18h	4 credits

Semestre 10

	Nature	CM	TD	TP	Crédits
Internship 3A	Module				15 credits