



TÉCNICO

Master in Data Science and Engineering

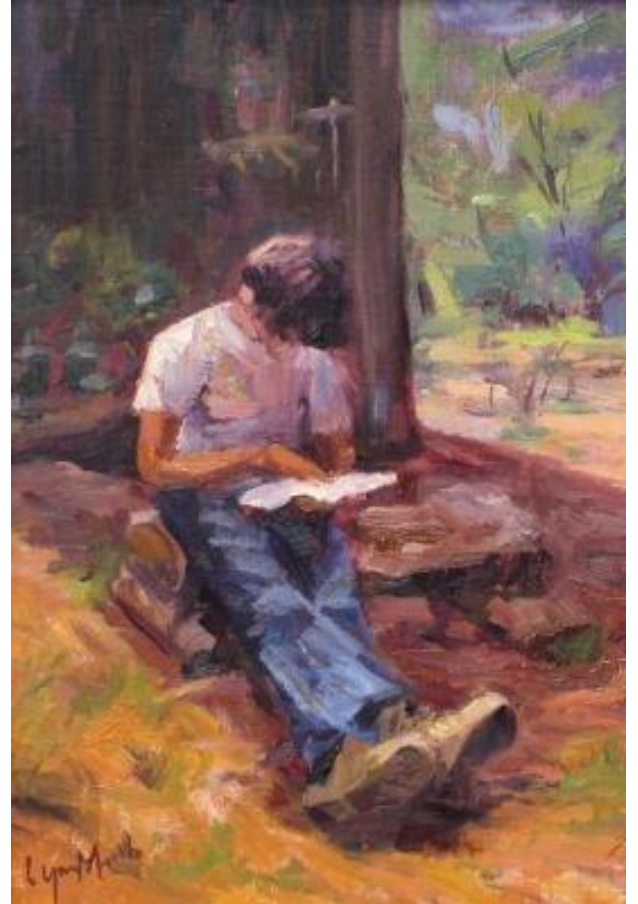
Welcome session

MECD Coordination, coordmecd@tecnico.ulisboa.pt

Instituto Superior Técnico, Universidade de Lisboa

Presentations

1. **Welcome by the coordination team (40 mins)**
 - Introduction to the MECD
 - MECD curriculum
2. **Student's representative and tutors (5 mins)**
3. **Pedro Bizarro, Feedzai (15 mins)**
4. **Beatriz Canaverde, MECD alumni (15 mins)**
5. **Closing words and snacks together**





Data avalanche ahead!

<https://fenix.tecnico.ulisboa.pt/cursos/meecd>

Take a breath and enjoy: slides available **online**
and we are available at **coordmeecd@tecnico.ulisboa**

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Welcome

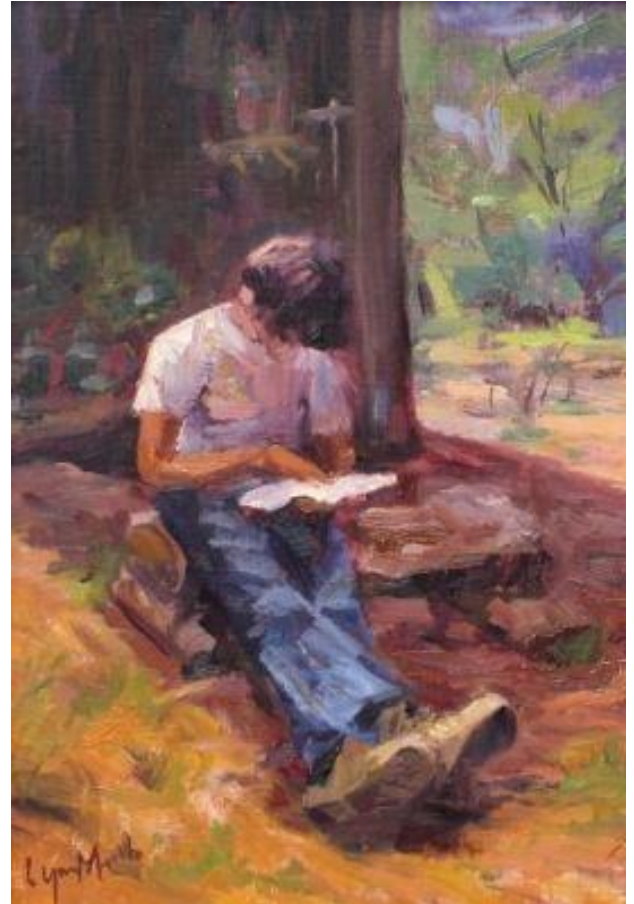
- data science and engineering
- coordination and scientific commission

MECD curriculum

- structure, free options, minors, paths
- AEs, mobility, PhD fast track
- AECD, dissertation, capstones

Stay informed

- students' representative
- Técnico's values
- tutors





Welcome

Welcome



Congratulations on your admission!

demanding call this year

- **Living at Técnico**

- get to know Lisbon
- wide range of cultural, ludic and sport activities
- set of services that are essential for academic life
 - transports, health services, social services
 - halls of residence (limited availability 😊)
- Take time to know each other!

scan me later



NAPE: Student Support Unit

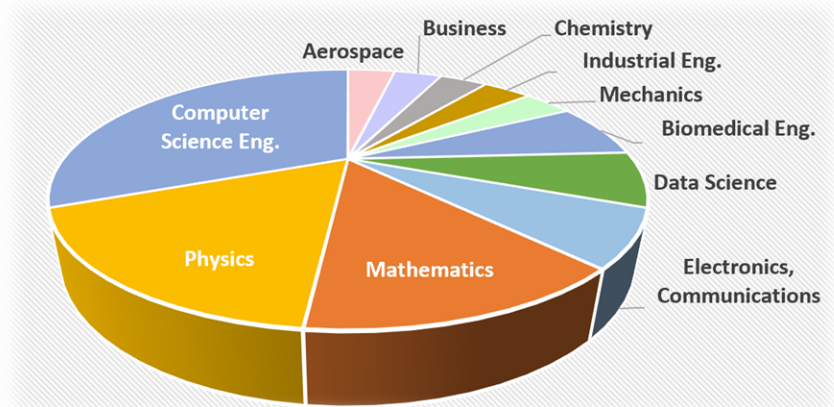
The Student Support Unit (NAPE) promotes the IST students integration, supporting all kind of activities that contribute for a better involvement of the academic community, and it also disseminates the IST studies near the student community, with higher incidence at the secondary education level.

- student peers that can help you with initials “*how to?*”
 - campus tours, Fenix navigation
 - you can find NAPE team at the central/main building reception or via nape.acim@tecnico.ulisboa.pt
- *recall*: student groups and associations, such as AEIST (<https://aeist.pt/>), can further boost your life at Técnico (e.g., sport activities, festivities, study groups, job fairs ...)

Your profiles

- **Background of our 2025 class**

- engineering, science, mathematics, management backgrounds
- 5 national schools: IST, FCUL, Universidade de Aveiro, NOVA, ISEL
- 5 international schools
- $> \frac{1}{3}$ students from outside IST
- $\frac{1}{4}$ female students





Data Science and Engineering

Data Science

- Data is everywhere!
- Monitor **systems' behavior** via sensorization
 - *astrophysical* systems
 - *societal* systems
 - *biological* systems
 - *ecosystems*
 - *mechanical* systems
 - *digital* systems
 - *quantum* systems
- Learn patterns for *decision support* and *knowledge acquisition*



Data Science

- **(Machine) Learning** as the fundamental quality of **(Artificial) Intelligence**
 - tapping into experience – **data** records
- **Data Science** is the *principled application* of machine learning to solve data-rich problems
- Data is at the core of many breakthroughs
 - **chatbots, smart assistants**
 - personalized **recommenders** (content, products, services)
 - **robot intelligence**
 - **self-driving vehicles**
 - **intelligent care**
 - **cybersecurity**



Data Scientist

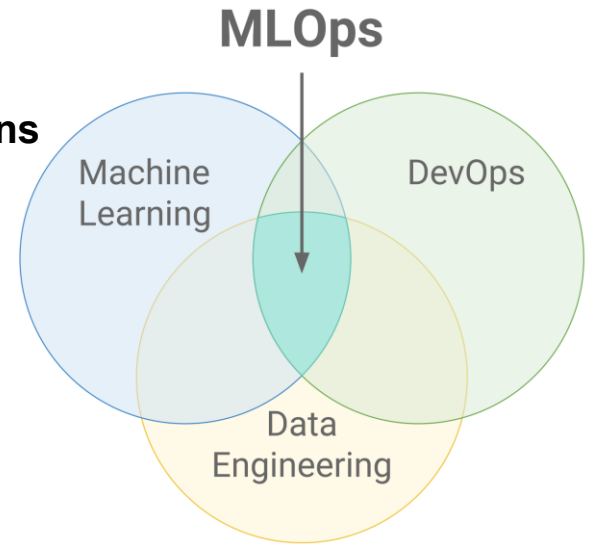
- evolution of the data/business analyst role
 - solid foundation on **computer science**, **statistics** and **machine learning**
 - 4 profiles in one: *scientist*, *statistician*, *systems engineer*, *politician*
- strong business/academic acumen
 - pick the **right problems** (most valuable)
 - **listen to the data** to draw sound solutions (*do not use a sledgehammer to crack a nut*)
 - assess and **communicate findings**

<https://www.kdnuggets.com/2021/01/four-jobs-data-scientist.html>



Data Scientist Flavors

- **Industry specialists**: **apply** data science in specific **verticals** such as biomedicine, finance, retail, security, media
- **Machine Learning specialists**: develop **theoretical foundations** and **new algorithms** rather than solving everyday problems
- **Big Data engineers**: design and manage foundational Big Data platforms, handling aspects of **distribution** and **virtualization**
- **Analytics developers**: **software development** specialists who handle (federa data interaction pipelines)
- **Generalists**



Data science careers explained

Machine Learning Engineer: optimization of ML algorithms and pipelines up to (near) production, either generalists or:

- *Natural Language Processing* (NLP) experts with a focus on text/speech (e.g., LLMs, chatbots, information retrieval)
- *Computer Vision* experts to process signal, image data
- *Robotics* experts with a focus on reinforcement learning

Data Engineer/Architect: consolidation of data stores; management of Big Data infrastructures, including grid and cloud computing (high-performance platforms)

Data Scientist: concerned primarily with the value hidden behind data, knowledge acquisition, and stories it can tell

Career path	Median salary*
AI Engineer	<u>\$204,000</u>
Big Data Engineer/Architect	<u>\$205,000</u>
Data Scientist	<u>\$163,000</u>
Machine Learning Engineer	<u>\$157,969</u>
Research Scientist	<u>\$150,000</u>
AI Ethicist	<u>\$137,000</u>
Business Intelligence Developer	<u>\$99,780</u>
Software Engineer	<u>\$94,912</u>
NLP Engineer	<u>\$119,000</u>
Computer Vision Engineer	<u>\$127,000</u>
Robotics Engineer	<u>\$64,728</u>
Data-centric Algorithm Developer	<u>\$158,499</u>
User Experience (UX) Developer	<u>\$120,000</u>

* ZipRecruiter, Indeed, Glassdoor, LinkedIn, Zippia as of Aug. 2024

<https://www.kdnuggets.com/2021/05/data-scientist-data-engineer-data-careers-explained.html>

Most In-demand Tech Careers for 2025: LSE



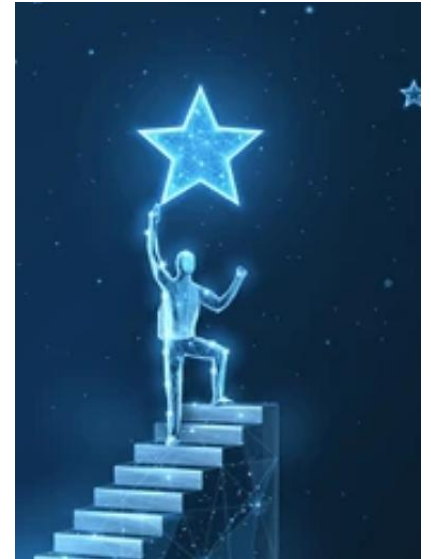
1. **AI and ML engineers:** £45,000 (starting) up to [£120,000](#) (experienced), median salary [£87,500](#)
2. **Data analysts and scientists:** £45,000 up to [£85,000](#)
3. **Cybersecurity analyst:** £35,000 up to £62,500
4. **Cloud engineers:** £38,000 up to [£144,552](#), average salary of [£54,286](#)
5. **DevOps engineers:** £50,000 up to [£85,000](#)



<https://www.lse.ac.uk/study-at-lse/online-learning/insights/the-top-10-most-in-demand-tech-careers-for-2025>

Prospects full of opportunities...

- From **academic-scientific** towards **entrepreneurial career paths!**
- **Domains:**
 - technology (e.g., *Google, NVIDIA, OpenAI, Meta, Apple*)
 - retail (e.g., *Amazon, large-scale brands*), media, gaming
 - healthcare (e.g., *GUIMM, Champalimaud, Luz Saúde, Sword*)
 - customer services (e.g., *Unbabel, Zendesk, Talkdesk*)
 - government, military, security (e.g., *public sector, Tekever*)
 - financial services (e.g., *Feedzai, banks*)
 - IoT-enabled systems, agriculture, astrophysics, many others...





Your Faculty Hosts

Coordination Team

Faculty

- Conceição Amado (DM)
- Bruno Martins (DEEC)
- Rui Henriques (DEI)



Staff

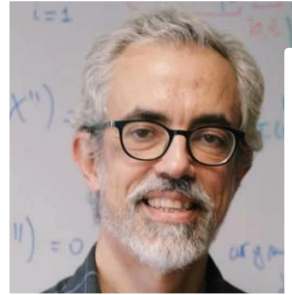
- Lucília Abreu (DEI)

MECD Scientific Commission

Role: scientific advice and oversight of MECD

Members

- Mário Figueiredo (DEEC)
- Mário Gaspar (DEI)
- Rosário Oliveira (DM)
- MECD coordinators



Contacts



as the primary contact channel – traceable, official, timely

- queries on mobility (exchange programs)

mobilidade-mecd@tecnico.ulisboa.pt

- general queries on MECD (curricular matters)

coordmecd@tecnico.ulisboa.pt

- queries on daily academic affairs (e.g., registrations, declarations) to Graduate Area

ag@tecnico.ulisboa.pt or [AG desk](#) @ Alameda

- queries on technical support and Fenix to IT Services

si@tecnico.ulisboa.pt or [SI desk](#) @ Alameda

- any other business:

dei@tecnico.ulisboa.pt

Newsletters with key information (e.g., events, internships) shared periodically – check your box!

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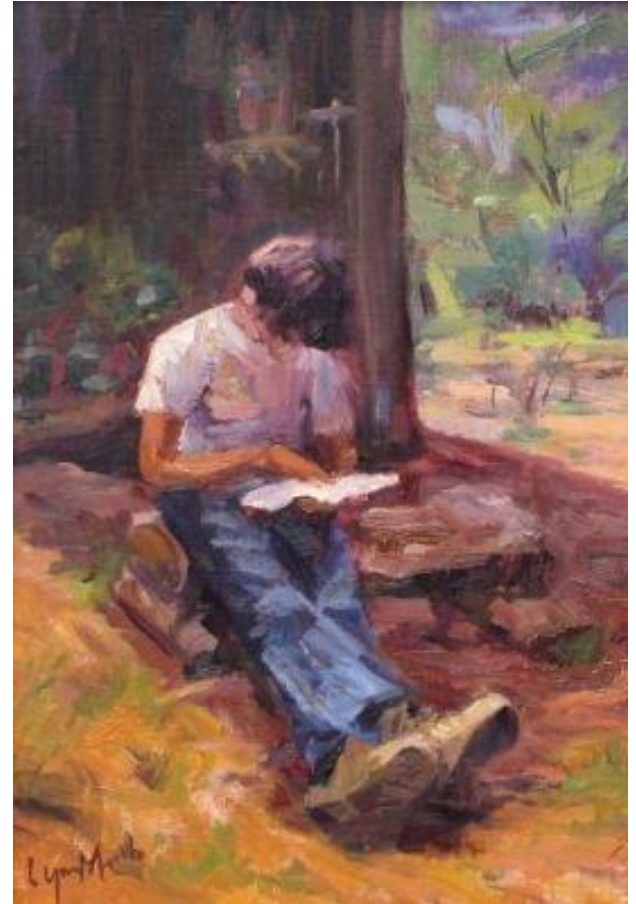
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MECD curriculum ⇐

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MECD Curriculum

MECD program



Total credits: 120 ECTS

- **Topical courses** (18 ECTS)
- **Main area**: UCs from the listed *Options* (minimum 45 ECTS)
- **Optatives**: free options, including other UL schools (maximum 18 ECTS)
- **MSc thesis path**: AECD (9 ECTS) + Dissertation (30 ECTS)

<https://tecnico.ulisboa.pt/en/education/courses/masters-programmes/data-science-and-engineering/>

Subjects from topical groups (18 ECTs)

- Goal: master essential concepts on informatics, machine learning and statistics
- Selection of $3 \times 6 = 18$ ECTs
 - 1 subject from *Electrical and computer engineering* group (6 ECTs)
 - **Machine Learning**
 - **Optimization and Algorithms**
 - 1 subject from *Informatics* group (6 ECTs)
 - **Information Visualization**
 - **Information Systems and Databases**
 - 1 subject from the *Mathematics* group (6 ECTs)
 - **Multivariate Analysis**
 - **Computational Statistics**

Subjects from topical groups (18 ECTs)

- you can also do **ANDs**: one course will be selected as a course in the *Main Area*



- students must not repeat highly analogous courses from previous degrees (e.g., LEIC students already have concluded UCs on Machine Learning and Databases)
- know-how on all UCs from a topical group?
 - request alternative UCs near the coordination for approval (coordme.cd@tecnico.ulisboa.pt)

Main Area (45 ECTs)

Anything from the list of Options from MECD curriculum: <https://fenix.tecnico.ulisboa.pt/cursos/mecd/curriculo>

Options

Linear Model Analysis Year 1, Sem. 1	Semestral (S)	6.0 Cred.	C - 49.00 - AW - 119.0 - T - 168.0
Data Analysis and Integration Year 1, P 1	Semestral (S)	6.0 Cred.	C - 49.00 - AW - 119.0 - T - 168.0
Multivariate Analysis Year 1, Sem. 1	Semestral (S)	6.0 Cred.	C - 49.00 - AW - 119.0 - T - 168.0
Numerical Functional Analysis and Optimization Year 1, Sem. 1	Semestral (S)	6.0 Cred.	C - 49.00 - AW - 119.0 - T - 168.0
Machine Learning Year 1, P 1	Semestral (S)	6.0 Cred.	C - 49.00 - AW - 119.0 - T - 168.0
Deep Learning Year 1, P 2	Semestral (S)	6.0 Cred.	C - 49.00 - AW - 119.0 - T - 168.0
Extracurricular Activities I Year 1, Sem. 1	Semestral (S)	3.0 Cred.	C - 0.00 - AW - 84.0 - T - 84.0
Extracurricular Activities II Year 1, Sem. 1	Semestral (S)	3.0 Cred.	C - 0.00 - AW - 84.0 - T - 84.0
Computational Biology Year 1, P 1	Semestral (S)	6.0 Cred.	C - 49.00 - AW - 119.0 - T - 168.0
Network Science Year 1, P 1	Semestral (S)	6.0 Cred.	C - 49.00 - AW - 119.0 - T - 168.0
Computability and Complexity Year 1, Sem. 1	Semestral (S)	6.0 Cred.	C - 49.00 - AW - 119.0 - T - 168.0
Parallel and Heterogeneous Computing Systems Year 1, P 1	Semestral (S)	6.0 Cred.	C - 49.00 - AW - 119.0 - T - 168.0

Main Area: Overview

		Sem 1		Sem 2		
		P1	P2	P3	P4	
Thesis Path		Applications of Data Science and Engineering (9 ECTs)		Master Dissertation in Data Science and Engineering (30 ECTs)		
Common Branch	DEEC	Machine Learning				
		Optimization and Algorithms				
	DEI	Information Visualization	Information Systems and Databases			
	DM	Multivariate Analysis				
		Computational Statistics				
Options	DEEC	Information and Communication Theory	Image Processing and Vision	Data Analytics for Smart Grids	Communications Security	
		Parallel Heterogeneous Computing Systems	Big-Data Measuring Systems		Learning-Based Multimedia Processing	
		Applied Computational Intelligence			Spoken Language Processing	
		Multimedia Communication				
		Artificial Intelligence and Decision Systems				
	DEI	Natural Language	Deep Learning	Parallel and Distributed Computing	Cloud Computing and Virtualization	
		Network Science		Planning, Learning & Intelligent Decision Making	Enterprise Integration	
		Data Analysis and Integration		Advanced Algorithms		
		Computational Biology		Information Processing and Retrieval		
				Data and Information Systems Management		
	DM	Introduction to Mathematical Finance		Applied Bayesian Statistics (9 ECTs) - may not open		
		Linear Model Analysis		Biostatistics		
		Mathematical Statistics (9ECTs)		Computational Methods in Finance		
		Numerical Functional Analysis and Optimization		Cryptography and Security Protocols		
		Computability and Complexity		Introduction to Stochastic Processes		
		Statistical Methods in Data Mining		Mathematics for Machine Learning		
				Time Series Analysis (9 ECTs)		
	DEG	Logistics and Operations Management	Decision Support Models			
DER	Remote Sensing					
	Geostatistics					

Enrolments

- Check the academic calendar for all relevant dates: <https://tinyurl.com/ms7d876k>
 - course registration (until the end of today – September 1st)
 - shift selection (opens tomorrow – September 2nd)
- Some courses offered by DEI (green courses in previous slide) have capacity limits
 - secure your seat today: not only for the 1st semester but 2nd semester





Free Options

Optatives (up to 18 ECTs)

- *Options* listed on the MECD curriculum: no frills!
 - courses offered by other MSc degrees at University of Lisbon (requires approval)
- {0..3} master courses offered by University of Lisbon (*Free Options 1, 2 and 3*)



Optatives (up to 18 ECTs)

- Suggestions:
 - courses from the *Master in Data Science* from the Sciences Faculty of UL (FCUL)
 - specialized courses on **AI** (e.g., MEIC or MEEC), **economics** (e.g., ISEG school), **bioengineering** (e.g., MBiom), **cybersecurity** (e.g., MEIC), data- and AI-related formation on **law** (e.g., Faculdade de Direito), **management** and **entrepreneurship** (e.g., MEGI, MEGIE) ...
- Subjected to the approval by the coordinators. How?
 - fill our traceable sheet: <https://tinyurl.com/mr49jker>
 - send an e-mail to coordmecd@tecnico.ulisboa.pt to notify and ensure eligibility



Minors

Minors

You can use the optatives (18 ECTs) to do a **Minor specialization**

- the specialization will be recognized on your CV
- *many cool options*: Ciências e Tecnologias do Espaço, Computação de Elevado Desempenho, Design Thinking, Empreendedorismo e Inovação, Engenharia Humanitária, Nanoengenharia, Robótica, Smart Cities, Spatial Data Science, Tecnologias Biológicas...

POPULAR MINORS:



Artificial Intelligence



Design Thinking



Informatics



Entrepreneurship and Innovation



Industrial and Systems Management



Robotics and Intelligent Systems

check the full list of Minors
and **entry requirements** here:





Paths

Many possible paths

Recall the previously listed flavors:

- **Industry specialists**: **apply** ML in specific **verticals** such as *biomedicine, finances, retail, security...*
- **ML experts**: develop **theoretical foundations** and **algorithms** rather than solving everyday problems
 - generalists
 - specialists: *Natural Language Processing (NLP), Computer Vision, Optimization...*
- **Data engineers**: design and manage foundational **Big Data** platforms, handling aspects of **distribution, high-performance computing** and **virtualization**
- **Analytics developers**: specialists in **software development** who can handle data processing, interaction pipelines, federation requirements (solid background on software architectures)

According to your flavor, you can freely **customize your MECD path!**

Many possible paths

- Each flavor is accompanied by **natural paths** (sequences of UCs)

Examples of specialized paths (brought by your colleagues)

*“I aspire to establish a career on (AI-powered) **Quantitative Finance!** Any advise?”*

- topical UCs and other essential UCs, including *Deep Learning* (key for every data scientist) among others (e.g., *Natural Language* for text-rich finance domains)
- *Introduction to Mathematical Finance* (Sem 1) + *Computational Methods in Finance* (Sem 2)
- 3 strategic Free Options from ISEG, MEGI (Financial Management specialization), FCUL

*“And for an aspirant to a **Big Data Engineer?**”*

You can include *Parallel and Distributed Computing*, *ADSI*, *Cloud Computing and Virtualization* on your CV (*Platforms for AI Systems* or *Software Performance Engineering* to be offered in 2026/27)

- Concentration of courses in P1! Remember you can select P1 courses on your second year
 - yet keep it flexible as there will be some changes in 2026/2027 – we will share once defined

From Data Science to Artificial Intelligence...

Qualities of intelligence?

- AI with a focus on learning from experience => **deep learning, reinforcement learning** ...
- AI with a focus on rationality => **planning, reasoning, optimization** ...
- AI with a focus on social intelligence => **human-agent interaction, social robots, multi-agent systems**...
- AI with a focus on curiosity => **autonomous agents**, affective computing, ...

Explore offers and Free Options to master your capacities on **AI** engineering, as well other important domains such as *High-Performance Platforms* and *Virtualization*!





Extracurricular Activities

Extracurricular Activities (up to 6 ECTs)

- Are you undertaking **relevant extracurricular roles** during your master degree?
 - you can submit such extracurricular activities for appreciation so we can acknowledge the exercised **soft** and/or **technical skills!**
 - you can submit up to 2 Extracurricular Activities (AEs): 2 × 3 ECTs
 - The precursor step:
 - carefully read the full **regulation** to guarantee that your AE satisfies *all* the listed criteria
- EN: <https://tecnico.ulisboa.pt/files/2022/02/2nd-cycle-extracurricular-activities-cu-regulation-2021.pdf>
- PT: <https://tecnico.ulisboa.pt/files/2021/06/regulamento-das-unidades-curriculares-ae-i-e-ae-ii-.pdf>

Extracurricular Activities (up to 6 ECTs)

The precursor mandatory steps for accreditation are available on webpage of the courses:

1. make sure your AE satisfies *all* the requirements in **regulation**
 - guarantee you can obtain the necessary documentation and your peers are contactable
2. make sure your AE further satisfies *all* the following **additional rules** (strict) for the MECD course:
 - **online courses** are generally ineligible. If you still opt to do one, guarantee that:
 - i. it does not overlap with a MSc course offered either in MECD or by the University of Lisbon
 - ii. it has a sound assessment method (MOOCs without solid evaluation moments are not accepted)
 - a **single activity** can only be submitted to credit one AE (3 ECTs). Only very rare allowances considered (e.g., ample proof to attest a high skill diversity, pivotal leadership roles, student's delegate)
 - **timeline**: your AE should overlap (close proximity) with your MECD attendance (old activities not eligible)

Extracurricular Activities (up to 6 ECTs)

... and the subsequent mandatory steps for accreditation:

3. in case you satisfy the rules in previous slide:

- register in Fenix (late registration near AG)
- e-mail your coordinators (coordmeecd@tecnico.ulisboa.pt) with due antecedence for **pre-approval**
 - attach the documentation
 - we may ask for additional documentation and clarifications if something is not compliant or clear

4. once you have our approval, you can **submit the documentation** in *Connect* or near AG

... and finally your UC will be credited by the end of the semester!



Mobility

Mobility



- Many opportunities! Programs:
 - **short-duration courses:** week of training abroad (e.g., summer and winter schools)
 - ATHENS+ initiatives (<https://tinyurl.com/6pe48t2r>)
 - some opportunities are shared by us periodically via e-mail
 - you can use the credits of short-term mobility programs as AEs!
 - **internships:** [Erasmus+](#), [IAESTE](#), [VULCANUS](#)
 - **studies:** complete one semester abroad (next slides)
- *Recall:* questions to mobilidade-mecd@tecnico.ulisboa.pt

Studies Mobility



Several destinations to do a semester abroad

- ERASMUS, including:
 - DTU @ **Denmark**
 - TU Munich, FU Berlin, Univ. Kaiserslautern, Univ. Kassel, Univ. Munster @ **Germany**
 - TU Eindhoven, University of Twente @ **Netherlands**
 - Universidad de Sevilla, Univ. Barcelona, Univ. Salamanca @ **Spain**
 - University of Campania Luigi Vanvitelli, Univ. Padova, Univ. Udine @ **Italy**
 - Politechnika Wroclawska @ **Poland**
 - FH Technikum Wien @ **Austria**
 - Chalmers, Karlstad University @ **Sweden**
 - among others (Aalto @ **Finland**, Univ. Ljubljana @ **Slovenia**, EFREI @ **France**...)
- Outside Europe: **Brasil** (19 destinations), India, Azerbaijão, South Africa
- SMILE: **México**, Brasil

Studies Mobility



- Essential information: <https://tinyurl.com/4k3mj4j8>
 - *Important*: consult in advance the curriculum in eligible destinations to mitigate risks
- Application **deadlines**
 - **2nd** semester 2025/2026: September 18, 2025
 - **1st** semester 2026/2027: January 16, 2026
 - details of the **applications**: <https://tinyurl.com/2xy5n7um>
- FAQs: <https://tinyurl.com/mtbj6nsu>



PhD Fast Track

PhD Fast Track

- If you were an excelling bachelor student and have a clear **ambition to pursue PhD** studies, take advantage of the *PhD Fast Track* route (MSc+PhD in 5 years)

BE INITIATED

at the MSc level in the development of scientifically supervised research towards the PhD.

BE INVOLVED

from an early stage, in a scientific project and take part of the rich environment of one of Técnico's research units.

IMPROVE THE CHANCE

of being financially supported by national and international scientific agencies.

COMPLETE

both a MSc and a PhD degrees in just 5 years (10 semesters), immediately after the Bachelor's degree.

Stay alert to this opportunity from day one: if eligible, apply asap (first year of your MSc)





Applications in ECD

Applications in ECD (9 ECTs)













- consolidate all acquired knowledge for the principled approach to a data science challenge
 - proposed by a company OR research center from another scientific area (e.g., biomedicine, social sciences, economics, security)
- expected amount of effort to work on your challenge: 1 day/week for a semester













Applications in ECD

- *How can I select my challenge?*
 - we will provide a list with several challenges (until the end of September).
You're also invited to independently source a challenge and redirect it to us for approval
 - allocation process (first half of October): contact the proponents of your preferred challenges; secure one challenge; notify your coordinators to confirm association
- *Expected outcomes?*
 - a report (methodological choices, empirical validation, critical discussion) by mid January
 - workshop presentation by the end of January
 - (*tentative*) peer review of 2 reports until mid of February

Applications in ECD

Entity	Illustrative proposals (2023 and 2024)
Banco de Portugal 	Machine learning for credit default prediction Exploração e visualização de dados sobre a economia
Baseform 	Big data to estimate precision, degradation, costs of water meters
BNP Paribas (Cetelem) 	NLP applied on Credit Scores modelling
Capgemini 	Automatização de processos de recrutamento
CEiiA 	Critical infrastructure monitoring using Earth observation imagery Automated high resolution Earth observation imagery interpretation
DGPJ 	Enhancing judicial efficiency through descriptive statistics
Equall 	Técnicas de extração de informação de documentos legais
FIEB 	Análise de dados de memória de massa para eficiência energética
Feedzai 	Statistical methods for model comparison Rule set interpretability with Large Language Models
Fundação Champalimaud 	Benchmarking interpretable models in the fraud detection domain Data augmentation in Medical Imaging Population GLM for distributed neural encoding of decision making

Applications in ECD

Entity		Illustrative proposals (2023 and 2024)
GAIPS Lab		Explicabilidade no contexto de colaboração Humano-IA
GovWise		Sistema liteligente para recomendação de concursos e contratos
Hospital da Luz		Leveraging synthetic data for enhanced healthcare analytics
GIMM		Modelling multiomics data for Precision Medicine
Instituto Tec. de Aeronáutica		Predict mortality in infectious disease outbreaks
IPMA		Previsão de impactos de eventos extremos de vento
MARETEC		Associação entre ação humana e impactos ambientais em Portugal
Nova SBE		Next-gen LLM apps via multi-agent conversation
Priberam		News story classification and tracking through smart tags
Social Data Lab		Data-driven dashboard creation with Power BI
SPAC Lab		Padrões de prescrição médica em Portugal
Talka		Robust painpoint detection in conversational videos Video-based conversational event detection
Truewind		Train arrival time series analysis
Unbabel		Enhancing Communication for ALS Patients
Vodafone		Social Media Listening Chatbots for customer support



Dissertation

Dissertation (also known as Master thesis)

- Two major options:
 1. wait for the R&D topics to be released in Fenix for your association. *Process:*
 - i. students register their topic preferences
 - ii. students contact the supervisors of the selected topics (express your interest!)
 - iii. the supervisor confirms in Fenix the candidate assigned to each topic
 2. proactively seek custom R&D topics near your faculty hosts and companies well in advance
 - supervisors should still submit the topic in Fenix (with a note of pre-allocation) for association
- Remember: ***follow your passion!***
 - assess R&D preferences (e.g., ML applications *versus* advancing ML)
 - the MSc thesis lasts for 10 months and precedes your professional life

Dissertation: proactively seek topics (2nd option)

- Reach professors and companies throughout the 1st semester of your 2nd year (or even earlier!)
 - all theses must have an IST professor as a (co)advisor
 - you may also want to extend AECD work or bring a topic of personal interest
 - express your motivation and commitment, *be resilient!*
- Questions? All relevant information in the **course's webpage**
 - document *templates, guidelines, form* for scheduling the *defence*...
 - be patient with your certificate (defences 2-4 weeks after delivery + few weeks for homologation)

Dissertation: deadlines



- **Normative semester** provisory **timeline**
 - (*optional*) October 2025: reaching professors for customized themes
 - November 2025: submission of proposals by professors
 - December 2025: candidancies and association
 - January–October 2026: dissertation
- **Alternative semester** provisory **timeline**
 - (*optional*) April 2026: reaching professors for customized themes
 - May 2026: submission of proposals by professors
 - June 2026: candidancies and association
 - September 2026 – April 2027: PIC + dissertation



CAPSTONE Projects

Capstone projects

- Grab the chance to do your master thesis in the new CAPSTONE format
 - multidisciplinary, collaborative, entrepreneurial project
 - dedicated evaluation committee
 - integrated project of 12 ECTs (equivalence to AECD 9 ECTs + Empreendedorismo em ECD 3 ECTs)

MULTIDISCIPLINARY TEAM Groups of 3-5 students of, at least, 2 different degrees	BASED ON REAL CHALLENGES With associated funding!
PIC2 + DISSERTATION 12 ECTS + 30 ECTS	PROPOSED BY THE SOCIETY By companies, NGOs, Student Clubs,...

Stay alert to this opportunity:



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Welcome

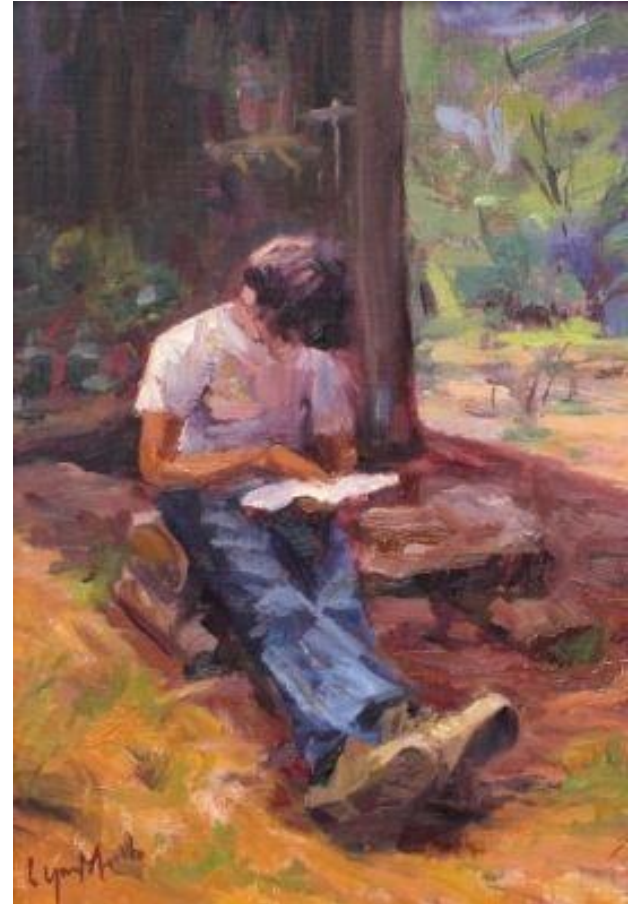
- data science and engineering
- coordination and scientific commission

MECD curriculum

- structure, free options, minors, paths
- AEs, mobility, PhD fast track
- AECD, dissertation, capstones

Stay informed ⇐

- students' representative
- Técnico's values
- tutors





Students Representative

Students Representative



Liane Nóbrega

liane.carolina@tecnico.ulisboa.pt

Our word of **gratitude** to Liane's work!

Would you like to be the next MECD delegate?

- spending a few time with us validating decisions (coordinators)
- bonus crediting of 6 ECTs

WhatsApp Group



- students only
(faculty not allowed!)
- promote a safe, positive,
constructive space



MECD

WhatsApp group



Scan or upload this QR code using the WhatsApp
camera to join this group



Técnico Guiding Values

Fostering an open and welcoming environment

Being Técnico

Being Técnico is more than just belonging to this recognized and respected community within and beyond Portugal. It is about embodying and experiencing the values that unite and empower us to achieve excellence, seek innovative solutions, and make a positive impact on society.

Being Técnico means being part of a community that values diversity, promotes dialogue and teamwork, and provides opportunities for growth and development. It means committing to ethical and respectful behaviors, contributing to an open and welcoming environment where everyone feels valued and empowered to reach their full potential.

Being Técnico is embracing a collective identity that drives us to be agents of change and leaders of the future.



The values that unite us



INTEGRIDADE INTEGRITY

We act with principles, honesty, transparency, and openness, analyzing, challenging, and changing our behaviors whenever necessary



RESPEITO RESPECT

We relate to others fairly, with kindness and respect, valuing diversity and the uniqueness of individual experiences, as well as the different perspectives and contributions of each person.

The values that unite us



INOVAÇÃO INNOVATION

We venture outside our comfort zone, with an open mind and the courage to embrace change, promoting the exchange of ideas and the freedom to take risks and do things differently.



COLABORAÇÃO COLLABORATION

We work together, fostering an inclusive and supportive community that recognizes and values everyone's contributions, assuming the goodwill and good faith of individuals.



EXCELÊNCIA EXCELLENCE

We strive for quality in everything we do, take pride in our work, and commit to balancing high standards with support, safeguarding the well-being of the community.



Tutors

Tutors

- Broad experience on Data Science
- Personalized guidance to boost your choices (curricular, life prospects...)



Margarida Silveira (DEEC)
msilveira@isr.tecnico.ulisboa.pt



Miguel Couceiro (DM/DEI)
miguel.j.couceiro@tecnico.ulisboa.pt

NDA: Academic Development Unit

The mission of the Academic Development Office is to promote the full development of students, professors and researchers, promoting the integration and the academic success of students and contributing for the continuous improvement of the Teaching-Learning process.

- **Special educational needs**
- **Scholarships** (<https://nda.tecnico.ulisboa.pt/nda/historico/bolsas-de-estudo/>)
- **Coaching**: individual sessions to discuss obstacles towards academic success
- **Training programs**: ethics for students, communicate in public, written expression...
- How?
 - nda@tecnico.ulisboa.pt (general) and nda-bolsas@tecnico.ulisboa.pt (scholarships)
 - NDA spaces at Civil building (<https://nda.tecnico.ulisboa.pt/en/contactos/>)



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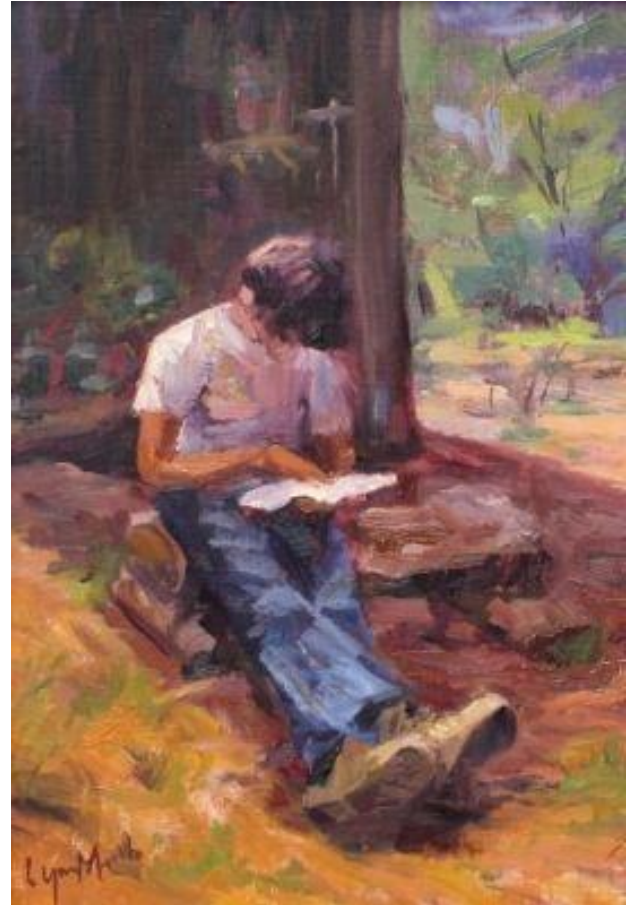
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Thank you!

coordmecd@tecnico.ulisboa.pt



APPENDIX

Guiding values: Integrity



Being Técnico means **HAVING INTEGRITY**

- I listen attentively to others and respond honestly and professionally.
- I challenge myself to change my practices and behaviors based on the feedback I receive.
- I trust in the integrity of community members and assess performances based on concrete results rather than subjective impressions.
- I am proactive in identifying and changing ethically inappropriate situations and behaviors.
- I take responsibility for my actions and perform my duties with transparency.

Being Técnico means **NOT TOLERATING LACK OF INTEGRITY:**

- I take responsibility for my behaviors and do not blame others.
- I am prepared to change my practices and behaviors, and not perpetuating incorrect behaviors
- I intervene or report situations where undesirable, disrespectful, and/or untimely behaviors occur, , not ignoring their occurrence.
- I am transparent in my actions, not withholding relevant information

Guiding values: Respect



Being Técnico means **RESPECTING:**

- I treat people fairly, respectfully, and courteously.
- I report situations of harassment, abuse, mobbing, bullying, or any other form of physical or psychological aggression.
- I embrace differences of opinion and seek to manage potential conflicts in a constructive and empathetic manner.
- I acknowledge/take responsibility for the impact of my behaviors on others.

Being Técnico means **NOT TOLERATING LACK OF RESPECT:**

- I am not arrogant. I do not impose my ideas or thoughts on others. I treat people respectfully, refraining from using my power or position.
- I do not allow discrimination or disrespect and I address these situations at the right time.
- I do not make judgments about others' lives or speak about them in their absence.
- I do not engage in or tolerate acts of physical or psychological violence against members of the community.

Guiding values: Innovation



Being Técnico means **INNOVATING**:

- I approach my work with a positive, constructive, and optimistic attitude.
- I value creativity and critical thinking, actively seeking solutions that have an impact and thinking “outside the box.”
- I embrace the need for change and create conditions and a sense of safety that foster the development of new solutions.
- I am open-minded and resilient, accepting mistakes as an integral part of the learning process.

Being Técnico means **NOT BEING AFRAID TO MAKE MISTAKES**:

- I am not pessimistic or complacent and I believe that change brings new opportunities and successes.
- I make decisions and take risks in new processes without fear of making mistakes.
- I am open to new ideas or solutions and do not create obstacles for those who propose them.
- I do not perceive feedback as personal criticism and I value its constructive potential for development.

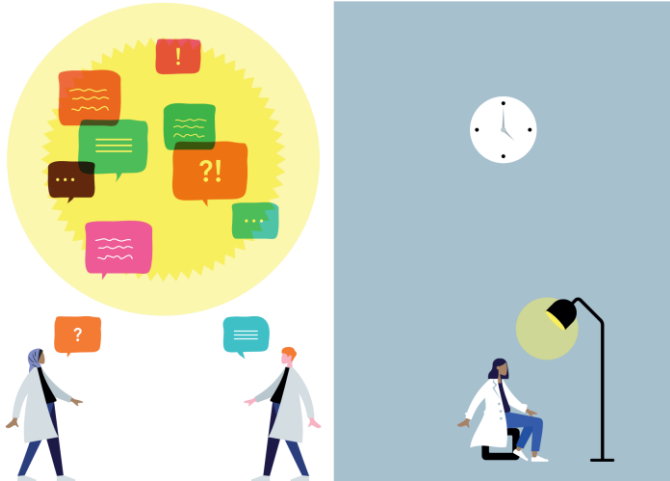
Guiding values: Collaboration

Being Técnico means **COLLABORATING**:

- I cooperate and share information, plans, and progress openly, in a spirit of cohesion and mutual trust.
- I recognize and appreciate the contributions of others, showing solidarity and assuming the goodwill and good faith of all community members.
- I promote teamwork and collaborative, interdisciplinary work, valuing the contributions of each individual.
- I listen to people and promote dialogue, involving them in decisions. I invest time and effort in building virtuous relationships and mutual development.

Being Técnico means **NOT WORKING ALONE**:

- I work in a team by listening to the arguments of others and not imposing my own opinion.
- I value and recognize the efforts and dedication of others, considering their difficulties and needs.
- I do not keep information for myself; I promote transparency in processes and the circulation of relevant information.
- I do not appropriate the work of others and give proper credit to their contributions. I do not work alone and overcome communication challenges.



Guiding values: Excellence



Being Técnico means **PURSUE FOR EXCELLENCE:**

- I take personal responsibility for my goals and the quality of my work, making the best use of my time and that of others, planning and prioritizing tasks.
- I demonstrate a willingness to improve and surpass myself, challenging both myself and my peers to make a positive difference.
- I promote academic freedom, embracing and fostering ambition and debate.
- I strive for excellence and value the dedication and rigor put into this journey.

Being Técnico means **NOT CEASING TO PURSUE EXCELLENCE:**

- Not to stop learning from mistakes.
- Not to cease taking pride in my work.
- Not to limit myself to just doing what is asked of me.
- Not to neglect setting individual goals that align with the organization's objectives.