

MSc Artificial Intelligence & Engineering Systems

Departmental Introduction Day



Part 3: The AI&ES program!

August 28, 2024

WELCOME - And be part of the TU/e community

Welcome MASTER students

Welcome at TU/e

Welcome EVERYONE!



DIFFERENCES AND EXPECTATIONS

Studying and living in the Netherlands & TU/e!

Take care of yourself, your program, but also work together and look after each other!

DIFFERENCES AND EXPECTATIONS

A Chinese proverb:

“Teachers open the door, but you must enter by yourself”

You can't find it? Not a problem, ask for help!

- **Teachers:** Course materials, explanation
- **Student-mentor:** Finding way at TU/e, in Eindhoven
- **Fellow students:** Help with courses, studying, socializing
- **Education office:** Administrative matters
- **Academic advisor:** Study related question, personal circumstances, regulations, if you don't know whom to go to

TODAY

- **Communication and Information**
- AI&ES Track Selection
- MSc Curriculum
- Broadening
- Coaching and support
- GS Regulations
- Fraud
- Practicalities



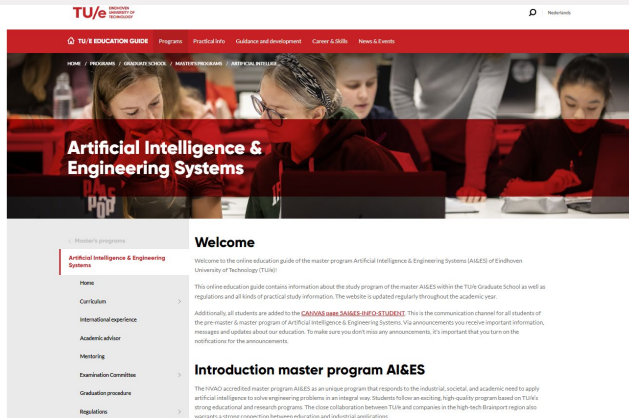
EDUCATION GUIDE AI&ES

<https://educationguide.tue.nl>

Information for students on program, regulations and procedures.

Go to:

- Programs
- Graduate School
- Master's programs
- Artificial Intelligence & Engineering Systems



The screenshot shows the TU/e Education Guide website for the Artificial Intelligence & Engineering Systems (AI&ES) program. The page features a red header with the TU/e logo and navigation links. Below the header is a large banner image of students working on laptops, with the text "Artificial Intelligence & Engineering Systems" overlaid. The main content area includes a "Welcome" section with a brief introduction to the program and a "Introduction master program AI&ES" section. A sidebar on the left contains a list of navigation links.

TU/e Education Guide

TU/e EDUCATION GUIDE Programs Practical info Guidance and development Career & Skills News & Events

HOME / PROGRAMS / GRADUATE SCHOOL / MASTER PROGRAMS / **ARTIFICIAL INTELLIGENCE & ENGINEERING SYSTEMS**

Artificial Intelligence & Engineering Systems

Welcome

Welcome to the online education guide of the master program Artificial Intelligence & Engineering Systems (AI&ES) of Eindhoven University of Technology (TU/e).

This online education guide contains information about the study program of the master AI&ES within the TU/e Graduate School as well as regulations and all kinds of practical study information. The website is updated regularly throughout the academic year.

Additionally, all students are added to the **CANVAS site SAAMES INFO-STUDENT!** This is the communication channel for all students of the pre-master & master program of Artificial Intelligence & Engineering Systems. Via announcements you receive important information, messages and updates about our education. To make sure you don't miss any announcements, it's important that you turn on the notifications for the announcements.

Introduction master program AI&ES

The RWMO accredited master program AI&ES is a private program that responds to the industrial, societal, and academic need to apply artificial intelligence to solve engineering problems in an integral way. Students follow an exciting high-quality program based on TU/e's strong educational and research programs. The close collaboration between TU/e and companies in the high-tech Brainport region also warrants a strong connection between education and industrial applications.

Home

Curriculum

International experience

Academic advisor

Mentoring

Examination Committee

Graduation procedure

Regulations

COMMUNICATION / INFORMATION DEPARTMENT

Education guide AI&ES	BASIC program and curriculum information Regulations and procedures
Canvas SINFO 24/25	Additional announcements and invitations to student meetings Important changes and developments
Email	Messages from for example ESA central Conversations with teachers and staff Always use your IDNR
Student Meetings	Choose Your Track Event International Experience Graduation Project

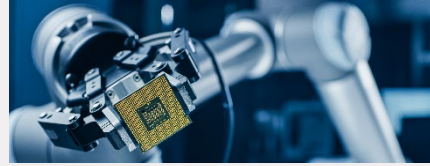
TODAY

- Communication and Information
- **AI&ES Track Selection**
- AI&ES Curriculum
- Broadening
- Coaching and support
- GS Regulations
- Fraud
- Practicalities



AI&ES SPECIALIZATION TRACKS

Solid basis & in-depth specialization



High-Tech Systems & Robotics



Smart Cities



Mobility



Science & Discovery



Healthcare



Manufacturing Systems

AI&ES TRACKS – track selection (1)

BASIC PRINCIPLES

- Each track has two/three track coordinators
- Each track has two or more track mentors
- In principle, students can choose from any of the six tracks!
- Educational background: Graduation options in a specific track & department.
- Track choice: Specialization Courses, Team Internship & Graduation Project
- Graduation options: 40 Research Groups from 7 Departments

AI&ES TRACKS – track coordinators

Track	Track coordinator(s)
1. High-tech systems and robotics	dr. Maarten Schoukens (EE) dr. Dinesh Krishnamoorthy (ME) Dr. Elena Torta (ME)
2. Mobility	dr. ir. Tom van der Sande (ME) dr. ir. Mauro Salazar (ME)
3. Healthcare	dr. Fons van der Sommen (EE) Dr. Federica Eduati (BME)
4. Smart cities	dr. Ekaterina Petrova (BE) Dr. Nilfur Neyestani (EE)
5. AI foundations and science applications	dr. Alessandro Corbetta (AP) dr. Silvia Gaastra-Nedea (ME)
6. Manufacturing systems	dr. ir. Michel Reniers (ME) dr. Vinh Dang (IE&IS)

AI&ES TRACKS – track selection (2)

INPUT

1. Education guide AI&ES
2. Track Video's on the education guide
3. 'Choose your Track' event → Thursday September 12, 2024!
4. Educational Background and entrance level
5. Interest in an AI&ES research domain or possible graduation project
 - [Overview of departments and research groups per track](#)
 - [Master Market Place](#)

AI&ES TRACK – track selection (3)

TIMELINE	
Before the start	Information in Education Guide Indication of first track preference via Studielink
Q1	Sept 12 → 'Choose Your Track Event': track presentations Sept 19 → Final track selection: registration via Canvas 5INFO Sept 23 – Oct 4 → First mentor meeting: start composing program Oct 13 → Registration deadline courses Q2 and exams Q1
Q2	Second mentor meeting about program choices Submit final Program Register for courses semester B Later on, program changes can be made (after approval mentor and exam committee).

TODAY

- Communication and Information
- AI&ES Track Selection
- **AI&ES Curriculum**
- Broadening
- Coaching and support
- GS Regulations
- Fraud
- Practicalities

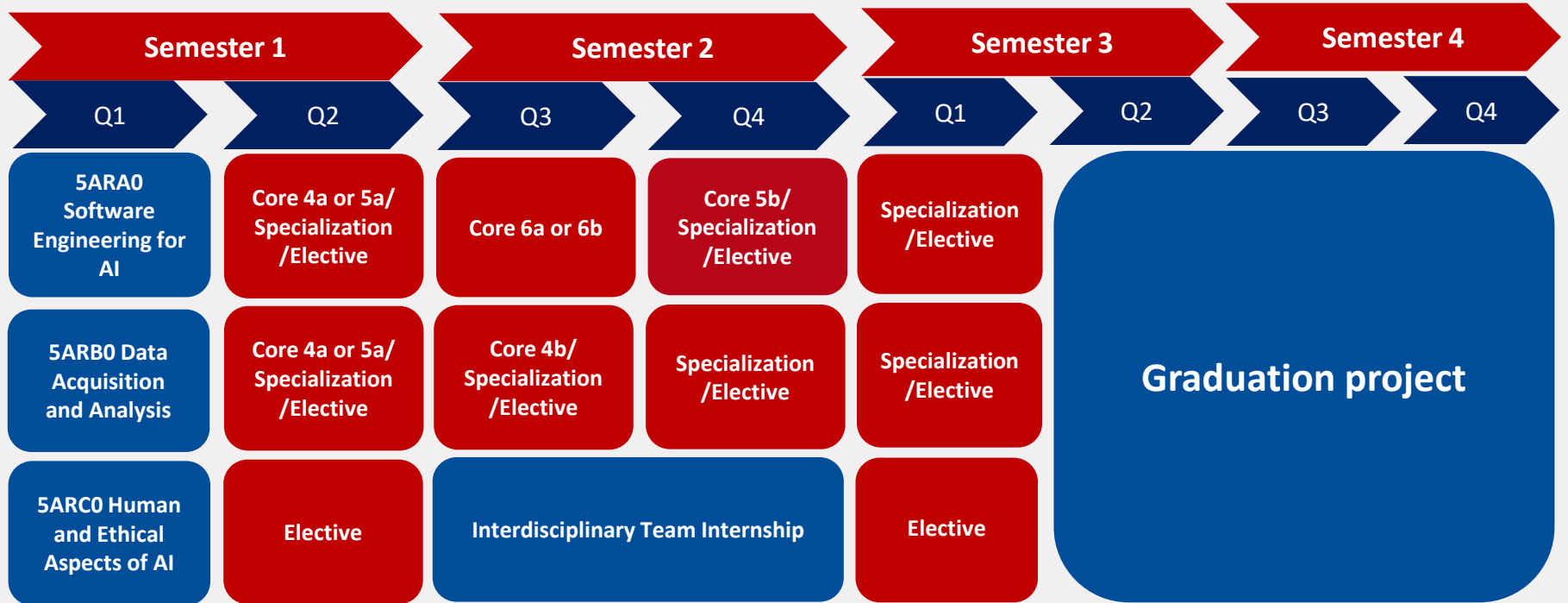


PROGRAM STRUCTURE AI&ES

(2 YEARS – 120 EC)

Core courses	30 EC	→ Organized in 6 topics
Specialization courses	20 EC	→
Free elective courses	15 EC	→ Organized in 6 tracks
Interdisciplinary Team Internship	15 EC	→
Graduation Project	45 EC	→

AI&ES TIMELINE (1)



AI&ES CORE PROGRAM (30 EC)

To offer you a solid basis in Artificial Intelligence *and* Engineering Systems

Topic	Core course	Code
Data Science	Data Acquisition and analysis	5ARB0
Human Interaction & Ethics	Human and ethical aspects of AI	5ARCO
Programming	Software engineering for artificial intelligence	5ARA0
Engineering Systems	Control principles for linear systems Physical and data-driven modelling	5ARD0* 4CM40
Learning in AI	Bayesian Machine Learning and information processing Decision making with Artificial and Computational Intelligence	5SSD0 1BM120
Mathematics	Statistical Signal Processing Engineering Optimization	5CTA0 4DM20

AI&ES CORE COURSES (30 EC)

- Core Courses 5ARB0, 5ARCO, 5ARA0 are mandatory
- Selection of core courses 4, 5 and 6 depends on, e.g.:
 - Track choice
 - Educational background
 - Interest in a research domain and/or department
 - Time slots
- It is strongly recommended to discuss your core courses with your TU/e track mentor
- Core courses can also be chosen as electives, in case you need to graduate in a specific domain

AI&ES SPECIALIZATION COURSES (20 EC)

To bridge AI and ES and to prepare for track research projects

- Each track has its own specialization course list → AI&ES education guide!
- Per track courses are spread over four themes
- You need to select 20 EC from this list, one course from each theme
- All courses have to be discussed with and supported by the track mentor

AI&ES INTERDISCIPLINARY TEAM INTERNSHIP

To apply your knowledge on AI&ES to resolve real-life practical engineering problems

- Track depending, open-ended problems & Industrial applications
- Small team of 3 to 5 students
- Professional skills training (academic writing, intercultural communication & collaboration)
- Entrance requirements: Sufficiently completed 10 EC AI&ES core or specialization courses

AI&ES FREE ELECTIVES (15 EC)

To adapt the program to your interests and ambition

- Courses at MSc level from TU/e or from another university
- Additional AI&ES core or specialization courses
- Students with mandatory homologation: courses are part of your free electives!
- Other homologation courses at MSc level or BSc level **3**
(can be necessary to graduate in a specific AI&ES domain or Department)
- 5 EC on TU/e language courses at C level

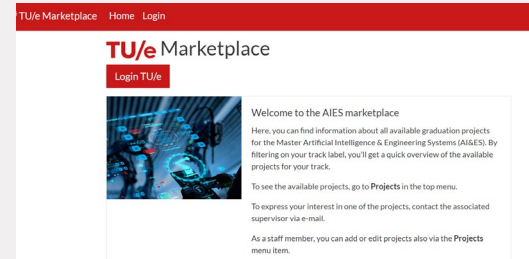
Discuss all options with your TU/e track mentor.

Be aware: no overlap between free elective courses and core - specialization electives is allowed.

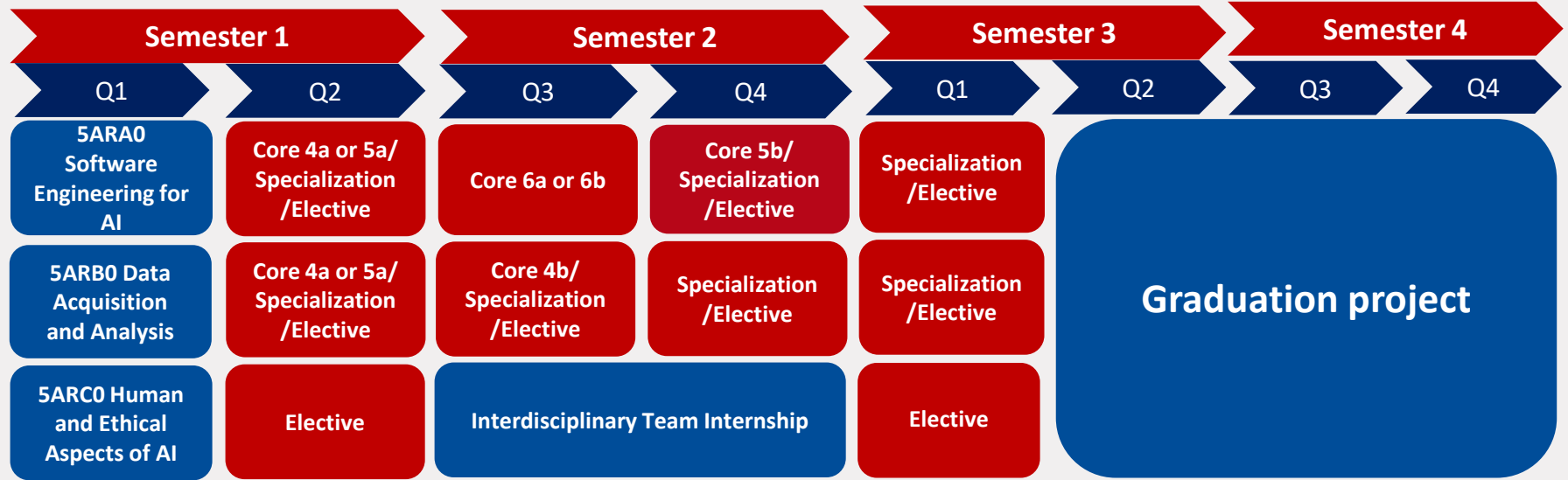
AI&ES GRADUATION PROJECT (45 EC)

To independently execute an academic research project

- Track depending research problems
- Options:
 - Internal project in a research group in one of the Departments or;
 - External project in close cooperation with industry, at a research institute or abroad
- Duration is 32 weeks
- Concluded with an academic report, presentation and defense
- Starting point: Master Market Place / meeting with track mentor



AI&ES TIMELINE (2)



SUBMITTING PROGRAM OF EXAMINATIONS

- You need to fill in a program form and submit this PDF, with an advice of your mentor, via [Osiris Case](#) to the examination committee for approval.
- It is strongly recommended to do this no later than **six months after the start** of your MSc program.
- Consult your mentor about the courses you would like to include and if there is sufficient coherence.
- The examination committee will have to approve your entire program.
- This [form](#) is available in the digital education guide.

Program of Examinations of the Master Artificial Intelligence & Engineering Systems		
Personal information		
Student name:		Remarks
Student ID:		
TU/e email address:		
Date of master enrollment:		
Prior university bachelor and/or pre-master education:		
General information		
Submission date:	dd/mm/yyyy	Remarks
First version study program:	YES	
Track		
AI&ES track:		1. High-tech systems and robotics, 2. Mobility, 3. Healthcare, 4. Smart cities, 5. AI foundations and science applications, or 6. Manufacturing systems
AI&ES track mentor:		
Program of examinations discussed with track mentor (yes/no):		
Master Curriculum		
Core courses	ECTS	Remarks
1. SARBO Data acquisition and analysis	5	Mandatory core course
2. SAROO Human and ethical aspects of AI	5	Mandatory core course
3. SARAO Software engineering for artificial intelligence	5	Mandatory core course
4a. ACM140 Physical and data-driven modelling OE	5	Depending on your choice, leave only course 4a or 4b visible
4b. SARDO Control principles for linear systems		
5a. SSSOO Bayesian machine learning and information processing OE	5	Depending on your choice, leave only course 5a or 5b visible
5b. SBV120 Decision making with artificial and computational intelligence		
6a. SICTAO Statistical signal processing OE	5	Depending on your choice, leave only course 6a or 6b visible
6b. 6DNQD Engineering optimization		
TOTAL	30	
Interdisciplinary team project		
SARIPD interdisciplinary team project	10	Remarks

TODAY

- Communication and Information
- AI&ES Track Selection
- AI&ES Curriculum
- **Broadening**
- Coaching and support
- GS Regulations
- Fraud
- Practicalities



BROADENING

Honors track

International Experience

Certificate programs

Extra courses

Training sessions

Career Academy

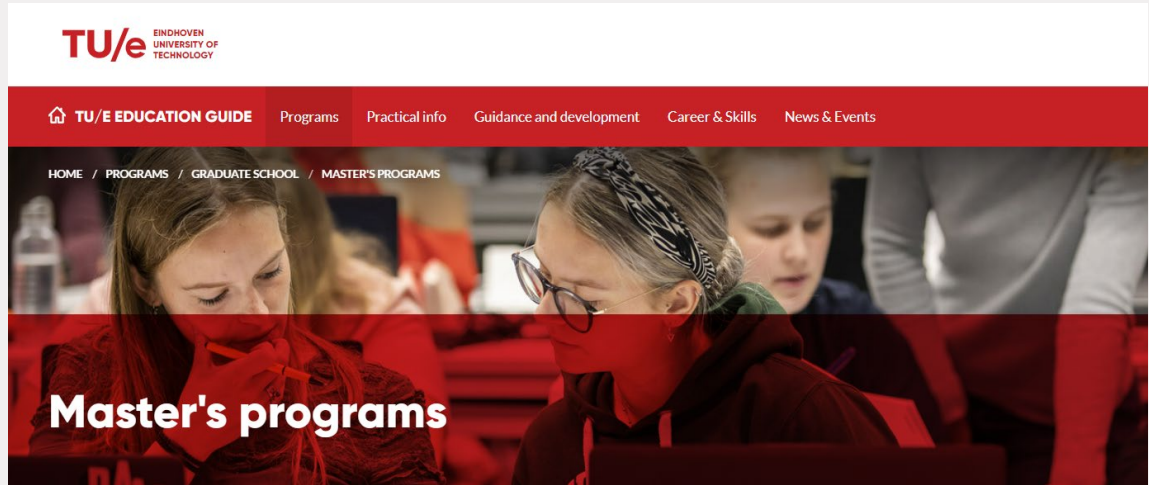
Studium Generale

SkillsLab

Double Degree

.....

Check the education guide, or ask your academic advisor about all possibilities.



TODAY

- Communication and Information
- AI&ES Track Selection
- AI&ES Curriculum
- Broadening
- **Coaching and support**
- GS Regulations
- Fraud
- Practicalities



COACHING - MENTOR AND THESIS SUPERVISOR

- **Track Mentor**

- Supervisor in your allocated research track.
- Supports you in composing your curriculum: core, specialization and free electives.
- Supports you in thinking about your career path.

- **Thesis supervisor**

Is a full, associate or assistant professor in a research group involved in your track, and responsible for the supervision of your graduation project.

COACHING - ACADEMIC ADVISOR

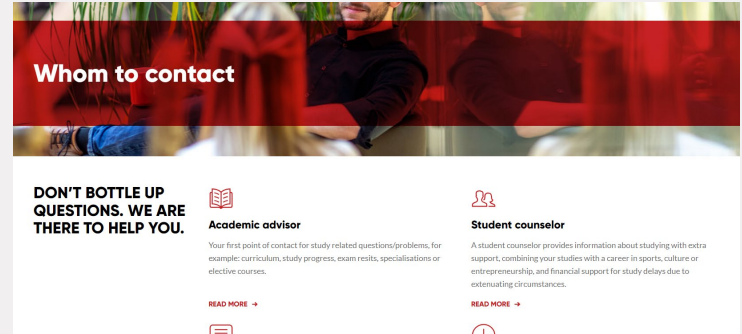
Marijke Creusen-Erica - Flux 0.122

ee.academic.advisor.aies@tue.nl

[Appointment link](#)

040 – 247 5661

- Advice and support: Study progress, study management and planning, course selection, course scheduling, progress graduation project, etc.
- Personal circumstances of influence on study progress and approach.
- Information about procedures and regulations according to the PER.
- Proactive monitoring of progress.
- **Personal and confidential appointments!**



The screenshot shows a website section titled "Whom to contact" with a red header. Below the header, there are two columns of text. The left column is titled "DON'T BOTTLE UP QUESTIONS. WE ARE THERE TO HELP YOU." and describes the role of an "Academic advisor" as the first point of contact for study-related questions. The right column is titled "Student counselor" and describes their role in providing information about studying with extra support. Both columns include a "READ MORE" link with a right-pointing arrow.

Whom to contact

DON'T BOTTLE UP QUESTIONS. WE ARE THERE TO HELP YOU.

Academic advisor

Your first point of contact for study related questions/problems, for example: curriculum, study progress, exam results, specialisations or elective courses.

[READ MORE →](#)

Student counselor

A student counselor provides information about studying with extra support, combining your studies with a career in sports, culture or entrepreneurship, and financial support for study delays due to extenuating circumstances.

[READ MORE →](#)

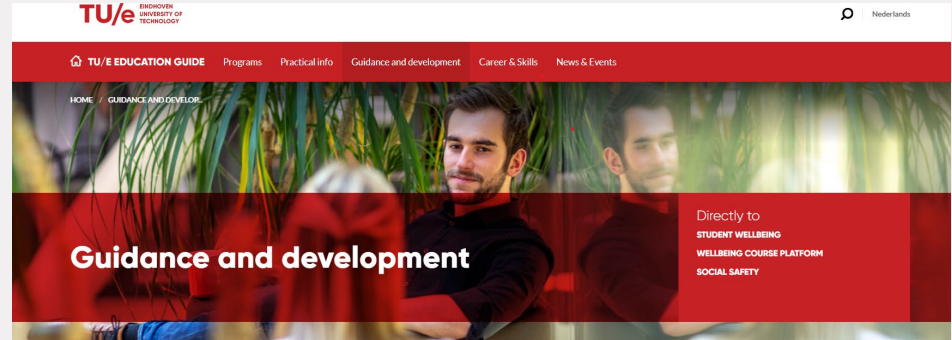
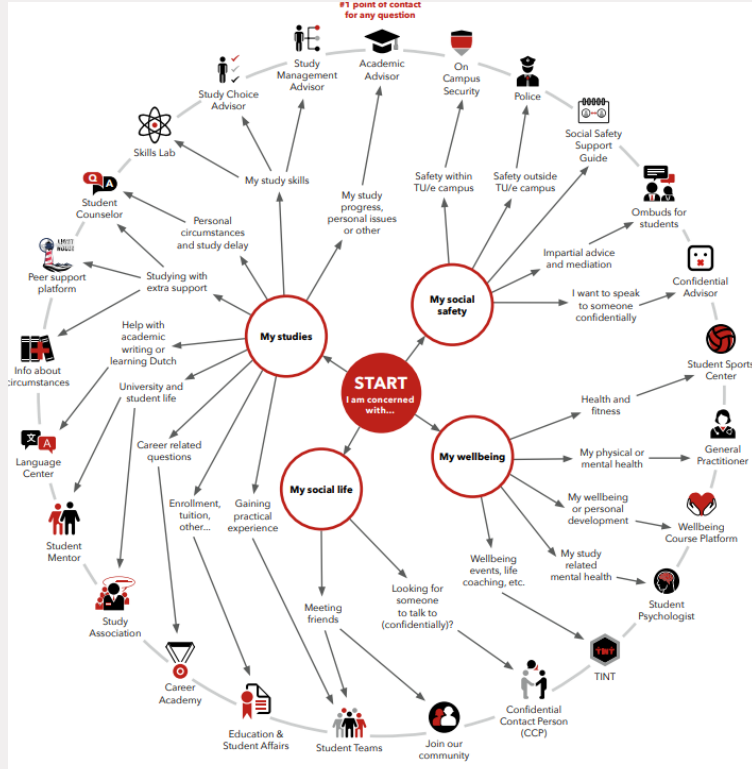
COACHING – STUDENT-MENTOR



All new TU/e students with a first enrollment at TU/e will be assigned to a student mentor!

- A mentor is a senior MSc student
- Goal: → a first point of contact in case of questions
→ supports you in finding your way at TU/e and creating connections with fellow-students
- Semester A: group meetings and individual meetings

OTHER SUPPORT



ONLINE SUPPORT: EDUCATIONAL SYSTEMS



Education guide: Program overview, courses list, regulations, procedures, examination committee, teaching and examination rules, academic year agenda, broadening, communities, extra support, etc....



Osiris: course and exam registration, grades, progress overview



Canvas: Learning management system, course information, course materials, assignments, 5INFO



TimeEdit (TE) timetable, personal time schedule of your courses



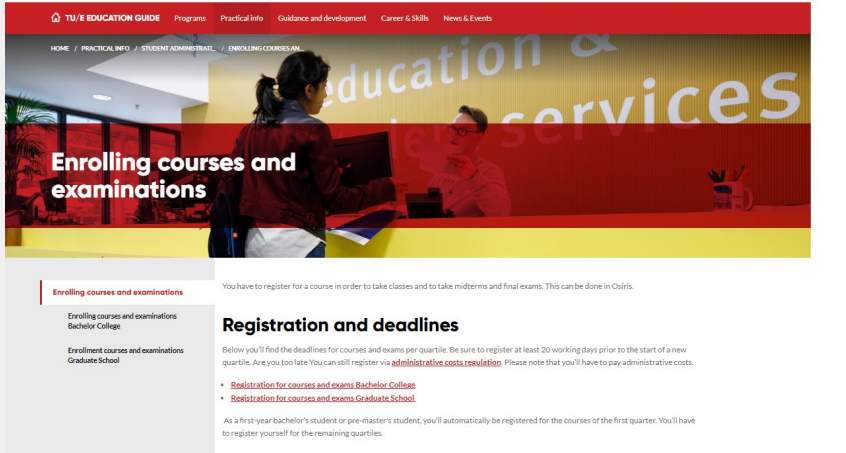
Course Catalogue: Basic course Information

TODAY

- Communication and Information
- AI&ES Track Selection
- AI&ES Curriculum
- Broadening
- Coaching and support
- **GS Regulations**
- Fraud
- Practicalities



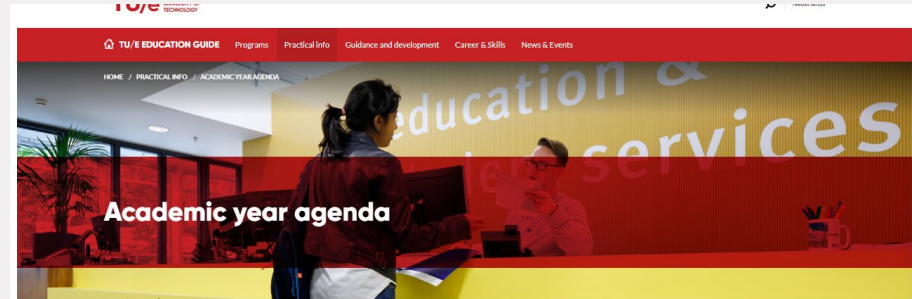
GS REGULATIONS — REGISTRATION COURSES



The screenshot shows the TU/e Education Guide website. The main navigation bar includes 'TU/E EDUCATION GUIDE', 'Programs', 'Practical Info', 'Guidance and development', 'Career & Skills', and 'News & Events'. The breadcrumb trail reads 'HOME / PRACTICAL INFO / STUDENT ADMINISTRATION / ENROLLING COURSES AND EXAMINATIONS'. The page title is 'Enrolling courses and examinations'. The main content area features a red and yellow background with a photo of a student and a staff member at a service desk. The text states: 'You have to register for a course in order to take classes and to take midterms and final exams. This can be done in Osiris.' Below this, there is a section titled 'Registration and deadlines' with a sub-heading 'Enrolling courses and examinations Bachelor College'. It provides details on registration deadlines and administrative costs, with links for 'Registration for courses and exams Bachelor College' and 'Registration for courses and exams Graduate School'. A note at the bottom states: 'As a first-year bachelor's student or pre-master's student, you'll automatically be registered for the courses of the first quarter. You'll have to register yourself for the remaining quarters.'

[Enrolling courses and examinations \(tue.nl\)](#)

- You have to register for your courses and exams in Osiris!
- A course registration also includes a first exam registration.
- Make sure to use the check mark 'exams' in Osiris.



The screenshot shows the TU/e Education Guide website. The main navigation bar is the same as in the previous image. The breadcrumb trail reads 'HOME / PRACTICAL INFO / ACADEMIC YEAR AGENDA'. The page title is 'Academic year agenda'. The background image is the same as in the previous image, but the text overlay is 'Academic year agenda'.

[Academic year agenda \(tue.nl\)](#)

GS REGULATIONS — REGISTRATION COURSES

- Check the course registration [deadlines in the education guide!](#)
- You can register for a maximum of 20 EC per quarter
- Have you missed the deadline → One final opportunity with the AKR deadline.
- Up to fifteen working days prior to the beginning of teaching in quarter 2, 3 and 4 = 20,- administration costs.
- Have you missed this extended AKR deadline? Then registration is not possible anymore.
- Course registration for Q1 is closed. **Only new external students can register for Q1 courses until Friday September 6.**

GS REGULATIONS — REGISTRATION EXAMS

- You are only allowed to take the exam with an exam registration (Osiris).
- A course registration also includes the first exam registration.
- You have to separately register for re-exams. This is not done automatically.
- You can withdraw until 10 working days prior to the exam period (via ESAhelpdesk@tue.nl.)

GS REGULATIONS — REGISTRATION EXAMS

- Check the exam registration [deadlines in the education guide!](#)
- Exam registration deadline = up to 10 working days before examination period
- Have you missed the deadline? One final opportunity with the AKR deadline:
- Up to five working days prior to the beginning of the exam period = 20,- administration costs
- Have you missed this extended AKR deadline? Then registration is not possible anymore. You can't participate in the exam.

GS REGULATIONS – more information

- All course – and exam regulations → PER and RE AI&ES [Regulations \(tue.nl\)](https://www.tue.nl/regulations)
- Content of the course, the assessment, and grading → Osiris catalogue [OSIRIS Student Mobile \(osiris-student.nl\)](https://osiris-student.nl)

TODAY

- Communication and Information
- AI&ES Track Selection
- AI&ES Curriculum
- Broadening
- Coaching and support
- GS Regulations
- **Fraud**
- Practicalities



FRAUD - BASICS

- Fraud rules in the Examination Regulations!
 - A mobile phone in your pocket or on your desk during the exam
 - Copy part of your friend's report
 - Don't refer to all the resources
 - "Forget" some results to bring them in line with other data
 - Forget quotation marks
 - Enable somebody else to copy your work

- Based upon visible facts, not on intentions

TU/e CODE OF CONDUCT FOR SCIENTIFIC INTEGRITY

PER MSc AIES, Art. 1.3, TU/e Code of Conduct for Scientific Integrity

'During enrollment students are held to the TU/e Code of Conduct for Scientific Integrity'.

Mandatory: Signing TU/ Code of Scientific Conduct!

1. Semester A: You have to sign a statement in the presence of your mentor. You have to submit this form to the ee.csa@tue.nl.
2. At the completion of the Graduation project a signed statement must be attached to your graduation report.

Forms are available in the AI&ES education guide.

Declaration concerning the TU/e Code of Scientific Conduct

I have read the TU/e Code of Scientific Conduct.

In carrying out research, design and educational activities, I shall observe the five central values of scientific integrity, namely: trustworthiness, intellectual honesty, openness, independence and societal responsibility, as well as the norms and principles which follow from them.

Date

.....

Name

.....

ID-number

.....

Signature


.....

TODAY


- Communication and Information
- AI&ES Track Selection
- AI&ES Curriculum
- Broadening
- Coaching and support
- GS Regulations
- Fraud
- **Practicalities**



PRACTICALITIES - 1

DATE	TO-DO SEMESTER A (Quarter 1 and 2)	
Before September 2	Be informed!	
Before September 6	Only for new TU/e students: Course registration deadline Q1	
September / October	“Occupational Health, Safety, Environment & Radiation Protection”. A mandatory training (under Dutch law). Intended for all new TU/e students	
September	If you prefer: Subscribe for the EAISI Newsletter!	
September - January	Student mentor meetings for new TU/e MSc students	

PRACTICALITIES - 2

DATE	TO-DO SEMESTER A (Quarter 1 and 2)	
September 12	September: 'Choose your Track 'event	
September 19	Submit Final track selection via Canvas 5AIES-INFO	
End of September	First meeting Track Mentor Sign & Submit TU/e Code of Scientific Conduct at ee.csa@tue.nl	
Before October 13	Registration courses Q2 and exams Q1	
November – January	Second meeting Track Mentor Submit final program for approval from Examination Committee	

TO-DO LIST AI&ES SEMESTER A

You can find this list in the AI&ES education guide, section curriculum

[Curriculum \(tue.nl\)](https://www.tue.nl/curriculum)

TO-DO LIST: MSc Program Artificial Intelligence & Engineering Systems

This list is intended for students with a MSc Enrollment per September 2024 in the academic year 2024/2025.

By following these instructions you can be sure that you are taking all the necessary administrative steps to complete your program.

In case you have any questions, don't hesitate to contact the departmental CSA administration via ee.csa@tue.nl or your academic advisor via

ee.academic.advisor.aies@tue.nl. Please always state your name, program and student ID-number in the communication with the CSA Office or the academic advisor.

Prepare your start

When	What	To-do
Before the start of the program	Be informed. Go to the digital education guide to read all information about the master's program.	Go to: Artificial Intelligence & Engineering Systems (tue.nl)
Before the course & exam registration deadline	Course registration. Register for the mandatory core courses in quarter 1. Save the automated confirmations Osiris sends you as a proof of registration.	Your course and exam registration runs via Osiris. Make sure to register before the deadline (August 25, 2024). A course registration also includes a registration for the first exam attempt. Exception: New MSc students with a first TU/e enrollment can register until Friday in the first education week of the program (September 6, 2024). Pay attention: if your MSc enrollment is not yet completed before the course registration deadline, you can only register for the course itself. After receiving your final master's enrollment, you then still need to register for the master's exams before the first applicable deadline .