EURECOM
Sophia Antipolis

EURECOM's Master's Degree (MSC)

RULES AND REGULATIONS

2022-2023

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1 ORGANIZATION

1.1 Tracks

These Rules and Regulations apply to both Masters Degrees delivered by EURECOM:

- Master's Degree in Science and Technologies, in Computer Science
  - Tracks: Digital Security
  - Tracks : Data science and Engineering
- Master's Degree in Science and Technologies, in Networks and Telecommunication
  - Tracks: Systems for Mobile Computing Systems
  - Tracks: Internet of Things (IoT)

1.2 Teaching language

All courses are taught in English.

1.3 Recruitment

Students are recruited by an admission jury that studies all applications. An interview may be proposed to candidates.

1.4 Registration

Students must register each year with Student Affairs. Registration is confirmed after payment of the year's tuition fees and validation of CVEC.

1.5 Curriculum duration

The total duration of the Master's degree is usually 24 months, divided into three semesters at EURECOM (S7, S8, S9) and one semester devoted to the final-year project (S10) in a corporate or academic research laboratory. However, this can be reduced if students are directly admitted in Semester 8 or 9, in which case they do one to two semesters at EURECOM (S8, S9) and one semester for the final-year project. This possibility is open only to students who have acquired all or part of the skills of the M1 in a partner institution, and by decision of the admission jury.
These periods may be extended if students:
- Repeat a year (one year maximum),
- Do a gap year (one year maximum),
- Interrupt voluntarily their studies (one year maximum),
- Do a study leave,
- Do a double degree.

1.5.1 Repeating a year

Only one year can be repeated during the curriculum. This requires registration with Student Affairs. In case of repetition, the regulations of the year of repetition apply.

1.5.2 Gap year

Between the first and second year, a gap year of up to one year may be granted to students, depending on their personal project. The request must be made in writing to Student Affairs.
The request is studied by the gap year jury, composed of the Director of Studies, the Head of Student Affairs and at least one professor, for approval or rejection. A student's possible obligation to retake exams or repeat a year will be taken into account.
If the petition is approved, the student will be enrolled in the school as any other student, and will be allowed to sign internship agreements in accordance with the May 18, 2018 2018-372 Decree. Under no circumstances can this internship replace the final-year internship.

A gap year agreement will be drawn and signed by the student and the school's representative.
Students whose request was denied may appeal to the School Director within one week of the decision.
Tuition fees are reduced during the gap year.
The terms of the gap period will be determined in accordance with the provisions of the *Code de l'éducation* in force on the date of the request. At the end of the gap year, students resume their initial study program and keep their previous credits. The regulations applicable the year students resume their studies are enforced.

1.5.3 Voluntary suspension of studies

Students may request to suspend their studies for a maximum of one year. The request must be made in writing to Student Affairs.
The petition may be motivated by a personal project, i.e. setting up a business or carrying out a civic/volunteer project. Students are notified of the decision in writing. Students remain registered, but are exempted from paying the tuition fees. The school can support their projects if they are deemed in line with the overall objectives of the curriculum. At the end of the year, students resume their course of study, and keep their credits as well as their requirements to catch up or repeat a year. The regulations applicable the year students resume their studies are enforced.

1.5.4 Study leave

The Director of Studies will review the situation of students who had to interrupt their studies for justified reasons of *force majeure* (illness, accident, maternity leave, etc.). It may decide to consider that the student is on "study leave" for all or part of the academic year. It may invite the student to re-register for the incomplete academic year. This new registration may be subject to the authorization of a medical doctor. Study leaves are different from repeating a year. At the end of the leave, students resume their course of study and keep their credits and their requirements to catch up or repeat a year. The regulations applicable the year students resume their studies are enforced.

1.5.5 Double degree opportunities in France and abroad

With bilateral agreements, students can opt for a double degree, with one period at EURECOM and the other at the other institution. At the end of the training, and if successful, students graduate from EURECOM with a Master's degree and from the second institution, or receive a joint degree. The criteria to obtain a double degree are described in the bilateral agreements.

1.6 Teaching formats

Several teaching formats may be used: lectures or conferences, tutorials, practical work, tutored self-training, asynchronous tutored self-training, planned personal work (supervised projects), visits, and internships. Students are informed of the number of hours devoted to each course. This is the supervised part, duly posted on the timetable. Students' personal work is not indicated, but it is built in the attribution of ECTS credits.

2 ACADEMIC PROGRAM

2.1 Semesters - ECTS credits - Teaching units

Each academic semester is made up of indivisible and compulsory teaching Units representing a total of 60 ECTS credits per year. Each year is made up of two semesters of 30 ECTS credits each. Students authorized to take the Master's degree in 18 months are exempted from semester 7. Students authorized to take the Master's degree in 12 months are exempted from semesters 7 and 8.

Courses are presented in the form of teaching units (UE in French) with components (ECUE in French). The names of the teaching units and components as well as the names of the relevant professors are clearly identified.

ECTS credits are awarded for each teaching unit, regardless of the type (technical or general courses, language courses, internships, projects, research awareness...).

Each component has a weight used to calculate the weighted average within teaching units.

The list of teaching units and the corresponding ECTS credits are set for each semester of each academic year.
All of the teaching units of one year, their credits, and their validation terms, are communicated to students at the beginning of the year.

Some teaching units include elective courses (components). Students must make their choice at the beginning of the semester. The procedure and the deadline are communicated to them at the beginning of the academic year. It is forbidden to choose two components that are taught in the same time slot.

The number of components to be chosen in each unit is communicated to students for each teaching unit. A unit cannot be validated if a student chooses less than the required number of components. In this case, no ECTS credit can be obtained for said teaching unit. Within a teaching unit, students can choose more components than the required number, provided that the schedule allows them to follow all the selected components. Choosing more than the required number of components does not change the number of ECTS credits of the teaching unit, and does not give the right to additional credits.
A component can only be chosen once during the curriculum, except when repeating the corresponding teaching unit.
A component can only be a component of one teaching unit.

2.1.1 Tracks: semesters 7, 8, and 9

Both Master's degrees include technical, non-technical and language courses as well as supervised projects in Semesters 7, 8, and 9.
The Master's degree in Computer Science includes common courses and units in two distinct tracks: Data Science and Digital Security.
The Master's degree in Networks and Telecommunication includes common courses and units in two distinct tracks: Intelligent communication systems and Internet of Things.
The choice between the four tracks is done during admission, before classes begin. Students cannot change curriculum or emphasis in the middle of the year.

2.1.2 The final-year project (PFE): semester 10

The final-year project takes the form of a professional thesis based on an internship and a dissertation which students defend before a jury.
The PFE internship covers at least 20 weeks (outside holidays) over six months, and is carried out in a university or corporate R&D lab.
At the end of their internship, students must demonstrate the ability to:

- Be a team player, and demonstrate adaptability and interpersonal skills.
- Be able to manage time across the different phases of their work assignments.
- Know how to present the progress of their work.
- Be able to carry out substantial tasks that showcase knowledge and know-how, both theoretical and practical, acquired during their training.
- Be able to analyze the internship topic through analytical and/or formal and bibliographical approaches of the subject.
- Be able to provide a relevant and substantial contribution to the host company or research lab.
- Be able to present and analyze the results, and draw conclusions from the work carried out, both orally and in writing.

Students are responsible for contacting companies and obtaining interviews to be recruited as interns. Students are assisted in their search by Student Affairs, which provides a database of internship offers from companies.

The company and the topic must be pre-approved by Student Affairs. All internships are subject to a contractual agreement which specifies the name of the company supervisor and the school's academic director.
The final-year internship validates 30 ECTS credits.

2.2 Timetable

For each semester, a timetable is set by Student Affairs and communicated to students, professors and outside contributors before the beginning of each semester. The assessment tests of the 1st and 2d exam sessions are explicitly mentioned.

3 ASSESSMENTS

3.1 Assessment of teaching units

3.1.1 Methods

At the beginning of the year, the faculty of each teaching unit provides students with a list of the learning outcomes (knowledge, abilities and/or skills).
For each teaching unit, the assessment of the learning outcomes may include a continuous assessment and/or a final assessment. It can also include an assessment of the practical work, and/or of a tutored project or personal work related to the teaching unit.

The components of a given teaching unit can be assessed in two different ways, depending on the academic team:

- A grade-based assessment or
- A learning outcome-based assessment

Whatever the method, the principle of compensation within the teaching unit applies.

3.2 Assessment of internships and projects

3.2.1 Assessment of projects

Projects are evaluated on the basis of a written report and an oral defense, according to the following criteria:

- Analysis of the topic/issue (coefficient 2)
- Outcomes (coefficient 2)
- Project management (coefficient 1)
- Written report (coefficient 1)
- Oral exam (coefficient 1)

3.2.2 Assessment of the final-year internship

Final internships are defended before an internship panel and assessed based on five criteria:

Analysis of the topic/issue: the analytical, formal and bibliographical approach of the subject.
Results: the usefulness of the results for the host company.
Project management: i.e. how students defined the topic, analyzed the phases, reviewed their progress at regular intervals (in particular by communicating regularly with the academic director), and managed unforeseen events (changes in topic, deadlines, etc.).
Quality of the written report: presentation of the report, clarity, precision, references used, oral skills.
Quality of the defense: quality of the presentation, capacity for synthesizing, speech delivery, relevance of demonstrations, if any.

For each criterion, a score out of 20 is awarded by the jury. The five scores are combined and weighted as follows:

- Coefficient 1 for the project management, the oral presentation and the report
- Coefficient 2 for the conceptual work and analysis of the issue and the results

3.3 Validation of teaching units

The academic year includes two examination sessions.

At the end of the 1st session, the teaching unit team meets to assess each student's outcomes. The assessment of the unit is defined by a grade between A+ and F. The grading system is as follows:

- A+ = 18 - 20 OUTSTANDING
- A = 16 - <18 EXCELLENT
- B = 14 - <16 VERY GOOD
- C = 12 - <14 GOOD
- D = 11 - <12 SATISFACTORY
- E = 10 - <11 FAIR
- F = 0 - <10 NOT VALID

Students who receive an "A" to "E" grade get their teaching unit validated and the corresponding ECTS credits. An F means that the unit is not validated and no ECTS credits are awarded for this unit. The validation of teaching units and credits is definitive.

3.3.1 Results of the first assessment session

- In the case of a grade-based assessment, the average of the 1st session of the unit is calculated based on the grades obtained in each component of the unit, and by applying the coefficients provided in the syllabus. If the average mark of the teaching unit is greater than or equal to 10/20, the student receives the ECTS credits of said teaching unit and the status corresponding to the average.
- If a student has chosen one or more additional courses within a unit, he/she can ask Student Affairs to drop these additional courses, provided that the minimum number of courses of said teaching unit is respected. In this case, these courses will not appear on the student's transcript and the average and grade of the teaching unit will be recalculated based on the grades and coefficients of the remaining courses.
- If the average of the teaching unit is below 10/20, the student is asked to take the exams at the 2d session for the components with a grade below 10/20.
- The student is not authorized to take the exams of the 2d session for the components of a validated Teaching unit, whatever the mark obtained in this component.
- The student is not authorized to take the exams of the 2d session for the components of a unit that is not validated in which he/she received a mark higher or equal to 10/20.
- In a learning outcome-based assessment, the jury of the unit gives directly the unit grade based on the level of the skills assessed. For an F grade, the student is called for the exams of the 2d session, according to the terms proposed by the unit jury.

3.3.2 Results of the second assessment session

The exams of the 2d session are organized by semester only for the components for which the student had a mark below 10 and which are included in a teaching unit that the student did not validate in the first session. The component grades greater than or equal to 10/20 received at the 1st session are maintained for the calculation of the 2d session grade average.

Following the exams of the 2d session, the teaching unit jury meets again as it does after the 1st session. If the average mark of the teaching unit is greater than or equal to 10/20, and the jury validates the learning outcomes when evaluating student's learning, the student receives the ECTS credits of said teaching unit.

In case the average of the teaching unit is below 10/20, the jury may propose to validate the teaching unit through a jury decision if it deems the learning outcomes as sufficient. In this case, the students receives the ECTS credits for this unit with the E grade.

If, at the end of the 2d session a teaching unit is not validated, the student's report shows this unit as "With a debt" (see 3.7.2).

3.4 Validation of projects

For their project to be validated, students must obtain a final grade of at least 10/20 in a grade-based assessment, or validate the required competencies in a learning outcome-based assessment.
Even if the project is carried out in a group, the assessment is individual and may differ among students in the same group.

If the project is not validated, the teaching committee decides on the possibility of making up the project and defines the terms (e.g. new report, additional work, etc.). This is not systematic and it will depend on the quality of the student's work and his/her personal investment during the project.

If this possibility is not authorized by the teaching committee, the student does not validate the corresponding unit and must repeat it.

3.5 Validation of internships

3.5.1 Summer internships

Students can carry out a summer internship. This is optional. The report from the summer internship must be validated by the internship supervisor in the research or corporate lab. However, students do not get credits for it, but it will be mentioned in their grade/skill transcript delivered with the diploma.

3.5.2 Internship as part of the final-year project

To obtain ECTS credits for the internship unit, students must validate their learning outcomes corresponding to this teaching unit. In case of a grade-based assessment, their final grade must be at least 10 over 20. The final-year project must last at least 20 weeks.

Only one professional thesis defense is allowed.

If the professional thesis is deemed insufficient, the internship jury (cf. 4.2.2) may request that it be further developed in a manner to be decided at the Teaching Committee meeting. A complete repetition of the internship is also possible, in which case the student will do a new internship.

3.6 Semi-annual pedagogical assessment

A pedagogical assessment is organized at the end of each semester. It is held by class or by field of study if necessary, with faculty members and student representatives present.

3.7 Validation of the academic year

3.7.1 Criteria

The year is validated if students obtain 60 ECTS credits, i.e. all of the teaching units. This does not apply to students who are exempted from S7, and who advance to the second year if they receive 30 credits during the semester.

The jury may propose that a student who does not have 60 credits (or 30 credits for students exempted from S7) advance to the second year.
In this case, the student will have "debts" and will need to validate the missing teaching units in the following year(s). After the juries make their decisions, the Teaching Committee defines the terms for the validation of the teaching units "with a debt".

3.7.2 Teaching units with a debt

- First-year students who have teaching units with a debt and who advance to the second year keep all the components' grades greater than or equal to 10 that they received at the 1st or 2d session. In the second year, they will only retake the exams for which the mark was still below 10 after the 2d session, including the practical work (TPs) and guided studies (TDs) (oral if necessary). The weighed average of the teaching unit with a debt is then calculated with the new grades, and the grades are maintained.

- Students with a teaching unit with a debt who repeat the year (complete repetition of the year or semester) retake all the components of said teaching unit that was not validated. No assessment of a teaching unit with a debt is maintained. The ECTS credits obtained in the other teaching units are definitively maintained.

In all cases (advancing to the next year with one or several debt(s) or repeating the year), a study contract specifying the subject matters to be passed will be issued by Student Affairs and co-signed by the student.

4 EXAMS AND JURIES

4.1 Examination sessions

For each semester of the academic year, two examination sessions are organized.

Only students registered in the components of a teaching unit will be able to take an exam.
For each component, a make-up exam is possible at the second session.

Students who did not attend the first examination session without a valid reason will not be able to attend the second examination session of the relevant component.

The schedule of examination sessions is communicated each semester by Student Affairs.

The Teaching Committee may authorize a student to make up a project. The terms are set by the Teaching Committee.

Only one professional thesis defense is allowed, except in the case of a medical reason duly justified by a doctor or in case of *force majeure*.

4.1.1 Absences and late arrivals

Students must arrive on time at the examination sessions of the courses in which they are registered. Absences from exams without a medical certificate written in French or English and sent to Student Affairs beforehand will result in the cancellation of the relevant credits without the possibility of a make-up session. Any unjustified absence from an exam will result in a grade of zero (in a grade-based assessment).
Student who are late will not be allowed to take the exam once the distribution of subjects has begun. They will be considered absent.

For students with a valid absence to one or several exams, the exam taken during the 2d session will serve as the first session exam. The result of the exam will then replace the results of the exams not taken by the student. The terms of any make-up session are decided on a case-by-case basis.

4.1.2 Frauds

The terms for the examinations as well as the consequences of any fraud (including plagiarism) are specified to students by Student Affairs for each teaching component before each examination session.

Any misbehavior during exams will result in the nullification of the exams and disciplinary sanctions may be taken by the Disciplinary Board and communicated to Student Affairs and the Teaching Committee. These sanctions can go as far as the temporary or permanent exclusion of the student.

4.2 Juries

4.2.1 Teaching unit juries

Teaching unit juries are made up of the teaching unit academic heads and professors. They decide on the awarding of ECTS credits after each examination session, and recommend decisions to the Teaching Committee.
A semi-annual assessment is made by Student Affairs to identify students who may face difficulties early on.

4.2.2 Final-year internship juries

These juries are made up of the academic head and the representative of the host company or, failing that, an outside specialist.

4.2.3 Yearly jury

A jury is set up per year. It is made up of the academic heads of the year's teaching units.

The jury reviews all students who have not obtained 60 ECTS credits (or 30 ECTS credits for students exempted from S7).
The jury may decide to set up individual hearings with students who have failed.

For each of these students, a proposal is submitted to the Teaching Committee:

- Validation of teaching units if the teaching unit jury deems the skills acquired
- Admission with a teaching unit with a debt
- Authorization to repeat the year, or
- Exclusion

Student Affairs informs these students of the Teaching Committee's proposals.
For students who do not meet the criteria to advance to the next year, the jury may propose to the Teaching Committee that they be allowed to repeat the year or that they be excluded. Exclusions require a motivated decision by the jury to the Teaching Committee.

4.2.4 Appeals

Following the juries' recommendations, students have 48 hours to submit a written request for appeal to Student Affairs who reviews it in the presence of the students' elected representatives.

4.2.5 Teaching Committee

The Teaching Committee reviews the results of all students who are administratively registered in the year, and the juries' proposals. It also makes sure that every student is treated equally across all tracks. Its decisions are final. The Teaching Committee is made up of EURECOM's permanent research professors, a representative of Student Affairs, and a representative of the founding member. Four students (including the President of the Students Association [BDE], and three students elected by the student body) also attend the meetings but without voting rights. The committee is chaired by the Director of Studies.

The Teaching Committee makes the final decision on:

- Validation of the year
- The possible validation of one or several teaching units based on a jury decision
- The admission with a teaching unit with a debt
- The terms to repeat a course
- The possibility to repeat or the exclusion of failing students

The Teaching Committee's decisions are communicated to students via Student Affairs. For students who are repeating, a study contract specifying the teaching units to be passed successfully is issued by Student Affairs and is co-signed by the student.
The Teaching Committee may decide to exclude a student following an interview and the recommendations of the juries.

4.2.6 Diploma jury

The diploma jury meets after the Teaching Committee to decide on the graduation of students at the end of the program. The diploma jury is made up of the following members:

- The Director of the school, who chairs it
- The Director of Studies
- The Head of Student Affairs
- The heads of the Master's degree programs
- A referent professor
- A representative of the founding member of EURECOM's consortium

The jury ensures that all the prerequisites for the diploma are validated.

The diploma jury is sovereign and as such has full authority over the awarding of the diploma.

4.2.7 Disciplinary Board

The Disciplinary Board is composed of the School Director or his/her representative, the Director of Studies or his/her representative, the Head of Student Affairs, and the professor in charge of the student's field of study.
The board decides on possible sanctions to be taken

- following cases of examination fraud,
- more generally, in case a student did not comply with the responsibilities set out in the Academic Charter.

After an interview, the Disciplinary Board may decide to exclude a student temporarily or permanently for failure to comply with the above, and after an interview.

5 GRADUATION REQUIREMENTS

The jury diploma jury takes into account the following elements when deciding whether or not to grant a diploma:

- The academic program must be validated (see 5.1).
- The internship obligations must be validated.
- Proof of a proficient level of English (cf. 5.2)
- Proof of successful French level for non-French speaking students (cf. 5.2).
- The Awareness to Research module must be validated (cf.5.3).

The diploma jury is sovereign.

5.1 Validation of the academic program

Students must have obtained 30 ECTS credits per semester, i.e. 120 ECTS credits, except for students exempted from S7 or S7 and S8, who must obtain 90 or 60 ECTS credits respectively.

5.2 Level of English and French

To graduate, students whose native language is not English must validate a minimum level of English which will be assessed by an external test. This level is required as early as the admission process to ensure that students are able to follow the program in English.
Allophone students must also validate a minimum level in French to graduate.

If the required level is not reached by the end of their studies, the Teaching Committee will suspend the delivery of the diploma for a maximum of two years. After said period, students will no longer be able to graduate from EURECOM. If the required level is reached, the diploma will be issued immediately as long as the other conditions are met.

EURECOM covers the cost of registering for one test in English or French for each student during the course of their studies, as part of group tests organized by EURECOM. Registration for additional tests is the responsibility of each student.

5.2.1 English level requirement

A minimum level of B2 is required to graduate. This level is required as early as the admission process. It must be validated by an external test of the student's choice:

- Grade A or B in the Cambridge English First Certificate
- Grade A, B or C in the Cambridge English Advanced or Proficiency Certificate
- TOEFL ITP: 547
- TOEFL IBT: 78
- TOEIC: 750
- IELTS: 6.0

English-speaking students are exempted from the test.

5.2.2 End-of-studies requirement in French for allophone students

A minimum level of B1 in French is required to graduate. It must be validated by an external test of the student's choice:

- DELF B1
- TFI: 345
- DCL FLE B1
- DALF B1
- TCF: 300

5.3 Validation of the Awareness to research module

During their studies, students must take once the "Aware" component (Awareness to Research) which is offered during semesters S7, S8 and S9 as part of the opening units. Some double degree students may be exempted from this requirement if they followed an introduction to research at their home institution.

6 Special accommodations

EURECOM has a disability advisor whose name will be communicated to students.
Any student with a disability is invited to contact the disability advisor. Specific accommodations suited to each student will be examined by Student Affairs.
Students admitted with the "Sportif de haut niveau" status are invited to report to Student Affairs to present their DRJCS certificate.

Students looking to be considered as "Artistes de haut niveau" may apply to Student Affairs, with any document proving their artistic status.
Students with the "Etudiant entrepreneur" status for the current academic year are invited to apply to Student Affairs to present their certificate.

Specific pedagogical accommodations may be proposed to artists and high-level athletes and to student entrepreneurs based on their personal situation. Any such accommodations will be specified in a study contract signed by the student and the school representative.

Date: 7/20/2022 Date:

David Gesbert **Name, first name, signature:**
Director
EURECOM

APPENDIX: ORGANIZATION OF THE 4 MASTER SPECIALTIES

MASTER'S DEGREES (MSC)
IN NETWORK AND TELECOMMUNICATION

Intelligent Communication Systems (ICS)

Semester 7 [30 ECTS]		ECTS	Long/ Short	Coef	Teacher
TU Foundations for Telecom		**10**			
Mobsys	Mobile communication systems		L	0.5	R.KNOPP/N. NIKAEIN
SysSec	System and Network Security		L	0.5	A. FRANCILLON
Malis	Machine Learning and Intelligent		L	0.5	Maria ZULUAGA
TU Networks and Models		**10**			
ATWireless	Advanced topics in wireless communications		L	0.5	Petros ELIA
DigiCom	Digital communications		L	0.5	Raymond KNOPP
MobCom	Mobile communication techniques		L	0.5	Petros ELIA
SSP	Statistical signal processing		L	0.5	Dirk SLOCK
TU Humanities 1		**4**			
Property	Intellectual property law		S	0.5	Dominique SERIO
B_INNOV	How to adopt the right posture and move from idea to market!		L	1	Séverine HERLIN
ManagIntro	Introduction to Management		L	1	Kenneth POPE
RDI	Responsible Digital Innovation: Risks, Ethics and Technology		S	0.5	Kenneth POPE
TeamLead	Personal Development and Team Leadership		L	1	Laura DRAETTA
CSE	The challenges of a sustainable economy		S	0.5	Alain SAFA
TU Scientific and Technical opening 1		**5**			
Long technical course			L	1	
Short technical course			S	0.5	
Aware	Awareness-raising to research		S	0.5	Co-teaching
TU Language 1		**1**			
Languages			S	1	

ICS

Semestre 8 [30 ECTS]		ECTS	Long/ Court	Coef	Professeur
TU Networking for Telecom		**10**			
Malcom	Machine Learning for Communication systems communication		L	0.5	Petros ELIA
WiSec	Wireless Security		S	0.25	A.FRANCILLON
Radio	Radio engineering		L	0.5	F. KALTENBERGER
MobAdv	Mobile Advanced Networks		S	0.25	Navid NIKAEIN
MobWat	Wireless Access Technologies		S	0.25	Jérôme HÄRRI
NetSoft	Network Softwerization		S	0.25	Adlen KSENTINI
Mathematical & Algorithmic Methods for ICS		**10**			
ASI	Advanced Statistical Inference		L	0.5	M. FILIPPONE
CompMeth	Computational Methods for digital communications		L	0.5	Raymond KNOPP
AML	Algorithmic Machine Learning		S	0.25	Pietro MICHIARDI
DeepLearning	Deep Learning		S	0.25	Pietro MICHIARDI
Sp4Com	Signal Processing for Communications		L	0.5	Dirk SLOCK
WebSem	Semantic Web and Information Extraction technologies		S	0.25	Raphaël TRONCY
TU Humanities 2		**4**			
Business	Business simulation		L	1	Kenneth POPE
Law	General introduction to law : contracts, setting up a business		L	0.5	Dominique SERIO
ProjMan	Project Management		S	1	J.J. AUREGLIA
SATT	Sociological Approaches of Telecom Technologies		S	0.5	Marc RELIEU
TeamLead	Personal Development and Team Leadership		L	1	Kenneth POPE
WebStra	Web strategy and organizational Performance		S	0.5	C. COMOLE-THEVENIAUD
TU Scientific and Technical opening 2		**5**			
Long technical course			L	1	/
Short technical course			S	0.5	/
Research Project			50 h	1	/
Aware	Awareness-raising to research		S	0.5	Co-teaching
TU Language 2		**1**			
Languages			S	1	

ICS

Semester 9 [30 ECTS]		ECTS	Long/ Short	Coef	Teacher
Advanced Telecom		**10**			
Clouds	Distributed Systems and Cloud Computing		L	0.5	R APPUSWAMY
UMLEmb	Designing embedded systems with UML		S	0.25	L. APVRILLE
MPC	Multiparty Computation and Blockchains		S	0.25	Antonio FAONIO
MobiSec	Mobile Systems and Smartphone Security		L	0.5	D. ANTONIOLI
MobServ	Mobile application and services		L	0.5	Navid NIKAEIN
Quantis	Quantum Information Science		s	0.25	M. KOUNTOURIS
TU Humanities 3		**4**			
Property	Intellectual property law		S	0.5	Dominique SERIO
B_INNOV	How to adopt the right posture and move from idea to market!		L	1	Séverine HERLIN
ManagIntro	Introduction to Management		L	1	Kenneth POPE
RDI	Responsible Digital Innovation: Risks, Ethics and Technology		S	0.5	Kenneth POPE
TeamLead	Personal Development and Team Leadership		L	1	Laura DRAETTA
CSE	The challenges of a sustainable economy		S	0.5	Alain SAFA
TU Scientific and Technical opening 3		**5**			
Long technical course			L	1	
Short technical course			S	0.5	
Aware	Awareness-raising to research		S	0.5	Co-teaching
TU PROJECT		**10**	200 h		
Semester project					/
TU Language 1		**1**			
Languages			S	1	

Semester 10 [30 ECTS]	ECTS	Long/ Short	Coef	Teacher
TU Internship	**30**			
6th months Internship in a company/research laboratory			1	

INTERNET OF THINGS (IOT)

Semester 7 [30 ECTS]		ECTS	Long/ Short	Coef	Teacher
TU Foundations for Telecom		**10**			
Mobsys	Mobile communication systems		L	0.5	R.KNOPP/N. NIKAEIN
SysSec	System and Network Security		L	0.5	A. FRANCILLON
Malis	Machine Learning and Intelligent systems		L	0.5	Maria ZULUAGA
TU Networks and Models		**10**			
OS	Operating systems		L	0.5	L. APVRILLE
CompArch	Computer architecture		L	0.5	Renaud PACALET
SoftDev	Software development methodologies		S	0.25	D. BALZAROTTI
MobServ	Mobile application and services		L	0.5	Navid NIKAEIN
MobMod	Mobility Modeling		S	0.25	Jérôme HÄRRI
TU Humanities 1		**4**			
Property	Intellectual property law		S	0.5	Dominique SERIO
B_INNOV	How to adopt the right posture and move from idea to market!		L	1	Séverine HERLIN
ManagIntro	Introduction to Management		L	1	Kenneth POPE
RDI	Responsible Digital Innovation: Risks, Ethics and Technology		S	0.5	Kenneth POPE
TeamLead	Personal Development and Team Leadership		L	1	Laura DRAETTA
CSE	The challenges of a sustainable economy		S	0.5	Alain SAFA
TU Scientific and Technical opening 1		**5**			
Long technical course			L	1	
Short technical course			S	0.5	
Aware	Awareness-raising to research		S	0.5	Co-teaching
TU Language 1		**1**			
Languages			S	1	

IOT

Semestre 8 [30 ECTS]		ECTS	Long/ Court	Coef	Professeur
TU Networking for Telecom		**10**			
Malcom	Machine Learning for Communication systems communication		L	0.5	Petros ELIA
WiSec	Wireless Security		S	0.25	A.FRANCILLON
Radio	Radio engineering		L	0.5	F. KALTENBERGER
MobAdv	Mobile Advanced Networks		S	0.25	Navid NIKAEIN
MobWat	Wireless Access Technologies		S	0.25	Jérôme HÄRRI
NetSoft	Network Softwerization		S	0.25	Adlen KSENTINI
TU Advanced IOT		**10**			
APPIOT	Iot Application Protocols		S	0.25	Adlen KSENTINI
ProtIOT	Iot Communication Protocols		S	0.25	Adlen KSENTINI
DeepLearning	Deep Learning		S	0.25	Pietro MICHIARDI
WebSem	Semantic Web and Information Extraction technologies		S	0.25	Raphaël TRONCY
TU Humanities 2		**4**			
Business	Business simulation		L	1	Kenneth POPE
Law	General introduction to law : contracts, setting up a business		L	0.5	Dominique SERIO
ProjMan	Project Management		S	1	J.J. AUREGLIA
SATT	Sociological Approaches of Telecom Technologies		S	0.5	Marc RELIEU
TeamLead	Personal Development and Team Leadership		L	1	Kenneth POPE
WebStra	Web strategy and organizational Performance		S	0.5	C. COMOLE-THEVENIAUD
TU Scientific and Technical opening 2		**5**			
Long technical course			L	1	/
Short technical course			S	0.5	/
Research Project			50 h	1	/
Aware	Awareness-raising to research		S	0.5	Co-teaching
TU Language 2		**1**			
Languages			S	1	

IOT

Semester 9 [30 ECTS]		ECTS	Long/ Short	Coef	Teacher
TU Advanced Telecom		**10**			
Clouds	Distributed Systems and Cloud Computing		L	0.5	R APPUSWAMY
UMLEmb	Designing embedded systems with UML		S	0.25	L. APVRILLE
MPC	Multiparty Computation and Blockchains		S	0.25	Antonio FAONIO
MobiSec	Mobile Systems and Smartphone Security		L	0.5	D. ANTONIOLI
MobServ	Mobile application and services		L	0.5	Navid NIKAEIN
Quantis	Quantum Information Science		s	0.25	M. KOUNTOURIS
TU Humanities 3		**4**			
Property	Intellectual property law		S	0.5	Dominique SERIO
B_INNOV	How to adopt the right posture and move from idea to market!		L	1	Séverine HERLIN
ManagIntro	Introduction to Management		L	1	Kenneth POPE
RDI	Responsible Digital Innovation: Risks, Ethics and Technology		S	0.5	Kenneth POPE
TeamLead	Personal Development and Team Leadership		L	1	Laura DRAETTA
CSE	The challenges of a sustainable economy		S	0.5	Alain SAFA
TU Scientific and Technical opening 3		**5**			
Long technical course			L	1	
Short technical course			S	0.5	
Aware	Awareness-raising to research		S	0.5	Co-teaching
TU PROJECT		**10**			
Semester project			200 h		/
TU Language 1		**1**			
Languages			S	1	

Semester 10 [30 ECTS]	ECTS	Long/ Short	Coef	Teacher
TU Internship	**30**			
6th months Internship in a company/research laboratory			1	

MASTER'S DEGREES (MSC)
IN COMPUTER SCIENCE

DATA SCIENCE

Semester 7 [30 ECTS]		ECTS	Long/ Short	Coef	Teacher
TU Foundations in Machine Learning		**5**			
Malis	Machine Learning and Intelligent systems		L	1	Maria ZULUAGA
TU Foudations in Data Science		**10**			
Clouds	Distributed Systems and Cloud Computing		L	0.5	R APPUSWAMY
DBSys	Database Management System		L	0.5	Paolo PAPOTTI
TU Computer Science for systems		**5**			
ImCod	Image & Video Compression		S	0.5	J.L. DUGELAY
Quantis	Quantum Information Science		S	0.5	M. KOUNTOURIS
WebInt	Interaction Design and Development of Modern Web Applications		S	0.5	Raphaël TRONCY
ImProc	Digital Image Processing		S	0.5	J.L. DUGELAY
SoftDev	Software development methodologies		S	0.5	D. BALZAROTTI
TU Humanities 1		**4**			
Property	Intellectual property law		S	0.5	Dominique SERIO
B_INNOV	How to adopt the right posture and move from idea to market!		L	1	Séverine HERLIN
ManagIntro	Introduction to Management		L	1	Kenneth POPE
RDI	Responsible Digital Innovation: Risks, Ethics and Technology		S	0.5	Kenneth POPE
TeamLead	Personal Development and Team Leadership		L	1	Laura DRAETTA
CSE	The challenges of a sustainable economy		S	0.5	Alain SAFA
TU Scientific and Technical opening 1		**5**			
Long technical course			L	1	
Short technical course			S	0.5	
Aware	Awareness-raising to research		S	0.5	Co-teaching
TU Language 1		**1**			
Languages			S	1	

DSC

Semestre 8 [30 ECTS]		ECTS	Long/ Court	Coef	Professeur
TU Mathematical Tools and Web Science		**10**			
IntroStat	Introduction to statistics		S	0.25	M. KANAGAWA
3DGraph	3-D and virtual imaging (analysis and synthesis)		L	0.5	Pascal GROS
Malcom	Machine Learning for Communication systems communication		L	0.5	Marios KOUNTOURIS
Speech	Speech and audio processing		S	0.25	Nicholas EVANS
WebSem	Semantic Web and Information Extraction technologies		S	0.25	Raphaël TRONCY
ImSecu	Imaging Security		S	0.25	J.L.DUGELAY
APPIOT	Iot Application Protocols		S	0.25	Adlen KSENTINI
ProtIOT	Iot Communication Protocols		S	0.25	Adlen KSENTINI
FormalMeth	FormalMethods-Formal specification and verification of systems		S	0.25	Rabea AMEUR
TU advanced in Machine Learning		**10**			
ASI	Advanced Statistical Inference		L	0.5	M. FILIPPONE
AML	Algorithmic Machine Learning		S	0.25	Pietro MICHIARDI
DeepLearning	Deep Learning		S	0.25	Pietro MICHIARDI
TU Humanities 2		**4**			
Business	Business simulation		L	1	Kenneth POPE
Law	General introduction to law : contracts, setting up a business		L	0.5	Dominique SERIO
ProjMan	Project Management		S	1	J.J. AUREGLIA
SATT	Sociological Approaches of Telecom Technologies		S	0.5	Marc RELIEU
TeamLead	Personal Development and Team Leadership		L	1	Kenneth POPE
WebStra	Web strategy and organizational Performance		S	0.5	C. COMOLE-THEVENIAUD
TU Scientific and Technical opening 2		**5**			
Long technical course			L	1	/
Short technical course			S	0.5	/
Research Project			50 h	1	/
Aware	Awareness-raising to research		S	0.5	Co-teaching
TU Language 2		**1**			
Languages			S	1	

DSC

Semester 9 [30 ECTS]		ECTS	Long/ Short	Coef	Teacher
TU Cloud Security and Blockchain Advanced Telecom		**5**			
BigSec	Security and privacy for Big Data and Cloud		S	0.5	Melek ÖNEN
MPC	Multiparty Computation and Blockchains		S	0.5	Antonio FAONIO
TU Applications in Data Science		**5**			
ImProc	Image & Video Compression		S	0.5	J.L.DUGELAY
ImCod	Digital Image Processing		S	0.5	J.L.DUGELAY
WebInt	Interaction Design and Development of Modern Web Applications		S	0.5	Raphaël TRONCY
Quantis	Quantum Information Science		S	0.5	M. KOUTOURIS
MobServ	Mobile application and services		L	1	Navid NIKAEIN
OpTim	Optimization Theory with Applications		S	0.5	Giulio FRANZESE
SysSec	System and Network Security		L	1	A. FRANCILLON
TU Humanities 3		**4**			
Property	Intellectual property law		S	0.5	Dominique SERIO
B_INNOV	How to adopt the right posture and move from idea to market!		L	1	Séverine HERLIN
ManagIntro	Introduction to Management		L	1	Kenneth POPE
RDI	Responsible Digital Innovation: Risks, Ethics and Technology		S	0.5	Kenneth POPE
TeamLead	Personal Development and Team Leadership		L	1	Laura DRAETTA
CSE	The challenges of a sustainable economy		S	0.5	Alain SAFA
TU Scientific and Technical opening 3		**5**			
Long technical course			L	1	
Short technical course			S	0.5	
Aware	Awareness-raising to research		S	0.5	Co-teaching
TU PROJECT		**10**			
Semester project			200 h		/
TU Language 1		**1**			
Languages			S	1	

Semester 10 [30 ECTS]	ECTS	Long/ Short	Coef	Teacher
TU Internship	**30**			
6th months Internship in a company/research laboratory			1	

MASTER'S DEGREES (MSC)
IN COMPUTER SCIENCE

DIGITAL SECURITY

Semester 7 [30 ECTS]		ECTS	Long/ Short	Coef	Teacher
TU Foundations in Machine Learning		**5**			
Malis	Machine Learning and Intelligent systems		L	1	Maria ZULUAGA
TU Foudations in Data Science		**10**			
SecCom	Secure communications		L	0.5	Melek ÖNEN
SysSec	System and Network Security		L	0.5	A. FRANCILLON
TU Computer Science for systems		**5**			
ImCod	Image & Video Compression		S	0.5	J.L. DUGELAY
Quantis	Quantum Information Science		S	0.5	M. KOUNTOURIS
WebInt	Interaction Design and Development of Modern Web Applications		S	0.5	Raphaël TRONCY
ImProc	Digital Image Processing		S	0.5	J.L. DUGELAY
SoftDev	Software development methodologies		S	0.5	D. BALZAROTTI
TU Humanities 1		**4**			
Property	Intellectual property law		S	0.5	Dominique SERIO
B_INNOV	How to adopt the right posture and move from idea to market!		L	1	Séverine HERLIN
ManagIntro	Introduction to Management		L	1	Kenneth POPE
RDI	Responsible Digital Innovation: Risks, Ethics and Technology		S	0.5	Kenneth POPE
TeamLead	Personal Development and Team Leadership		L	1	Laura DRAETTA
CSE	The challenges of a sustainable economy		S	0.5	Alain SAFA
TU Scientific and Technical opening 1		**5**			
Long technical course			L	1	
Short technical course			S	0.5	
Aware	Awareness-raising to research		S	0.5	Co-teaching
TU Language 1		**1**			
Languages			S	1	

SEC

Semestre 8 [30 ECTS]		ECTS	Long/ Court	Coef	Professeur
TU Mathematical Tools and Web Science		**10**			
IntroStat	Introduction to statistics		S	0.25	M. KANAGAWA
3DGraph	3-D and virtual imaging (analysis and synthesis)		L	0.5	Pascal GROS
Malcom	Machine Learning for Communication systems communication		L	0.5	Marios KOUNTOURIS
Speech	Speech and audio processing		S	0.25	Nicholas EVANS
WebSem	Semantic Web and Information Extraction technologies		S	0.25	Raphaël TRONCY
ImSecu	Imaging Security		S	0.25	J.L.DUGELAY
APPIOT	Iot Application Protocols		S	0.25	Adlen KSENTINI
ProtIOT	Iot Communication Protocols		S	0.25	Adlen KSENTINI
FormalMeth	FormalMethods-Formal specification and verification of systems		S	0.25	Rabea AMEUR
TU Advanced Security 1		**10**			
Forensics	Cyber-crime and Computer Forensics		L	0.5	D. BALZAROTTI
HWSEC	Hardware Security		S	0.25	R.PACALET
WISEC	Wireless Security		S	0.25	A. FRANCILLON
TU Humanities 2		**4**			
Business	Business simulation		L	1	Kenneth POPE
Law	General introduction to law : contracts, setting up a business		L	0.5	Dominique SERIO
ProjMan	Project Management		S	1	J.J. AUREGLIA
SATT	Sociological Approaches of Telecom Technologies		S	0.5	Marc RELIEU
TeamLead	Personal Development and Team Leadership		L	1	Kenneth POPE
WebStra	Web strategy and organizational Performance		S	0.5	C. COMOLE-THEVENIAUD
TU Scientific and Technical opening 2		**5**			
Long technical course			L	1	/
Short technical course			S	0.5	/
Research Project			50 h	1	/
Aware	Awareness-raising to research		S	0.5	Co-teaching
TU Language 2		**1**			
Languages			S	1	

SEC

Semester 9 [30 ECTS]		ECTS	Long/ Short	Coef	Teacher
TU Cloud Security and Blockchain Advanced Telecom		**5**			
BigSec	Security and privacy for Big Data and Cloud		S	0.5	Melek ÖNEN
MPC	Multiparty Computation and Blockchains		S	0.5	Antonio FAONIO
TU Advanced Security 2		**5**			
MobiSec	Mobile Systems and Smartphone Security		L	1	D. ANTONIOLI
Clouds	Distributed Systems and Cloud Computing		L	1	R. APPUSWAMY
TU Humanities 3		**4**			
Property	Intellectual property law		S	0.5	Dominique SERIO
B_INNOV	How to adopt the right posture and move from idea to market!		L	1	Séverine HERLIN
ManagIntro	Introduction to Management		L	1	Kenneth POPE
RDI	Responsible Digital Innovation: Risks, Ethics and Technology		S	0.5	Kenneth POPE
TeamLead	Personal Development and Team Leadership		L	1	Laura DRAETTA
CSE	The challenges of a sustainable economy		S	0.5	Alain SAFA
TU Scientific and Technical opening 3		**5**			
Long technical course			L	1	
Short technical course			S	0.5	
Aware	Awareness-raising to research		S	0.5	Co-teaching
TU PROJECT		**10**			
Semester project			200 h		/
TU Language 1		**1**			
Languages			S	1	

Semester 10 [30 ECTS]	ECTS	Long/ Short	Coef	Teacher
TU Internship	**30**			
6th months Internship in a company/research laboratory			1	