Telecommunication Engineering Master in Universidad de Jaén.

Spanish requirements by law for official studies:

- Official master studies partially supported by the government.

- The official studies recognize a regulated profession with some attributions protected by law.

- The official studies require students acquire a set of competences in a limited number of credits.

Telecommunication Engineering Master:

- Telecommunication Engineering Master is a normalized profession.

- The competences are integrated in two modules:

  - Telecommunication technologies module with 50 ECTS credits.

  - Project management module with 10 ECTS credits.

Telecommunication technologies module. 50 credits.

Competences
Advance techniques of signal processing for communication and audiovisual systems. Information theory methods, adaptive modulation and channel coding.
Radiocommunication systems: antenna design, equipment and subsystems, channel models and link budget.
Communication systems: wired, satellite, mobile.
Distribution, broadcast and transport networks for multimedia signals.
Radiodetermination, positioning and radar systems.
Services and networks: modelling, design, implementation, management, administration and maintenance.

Telecommunication technologies module. 50 credits.

Competences
Planning, decision making and packaging for networks, services and applications considering the quality of service, costs, monitoring, safety procedures, scaling and maintenance.
Internet organization and developing, new generation technologies and internet protocols, component models, software and services.
Convergence, interoperability and design of local, access and core networks, and the integration of services: telephony, data, television and interactive.
Design and manufacturing methods of integrated circuits.
Hardware description languages for complex circuits.

Telecommunication technologies module. 50 credits.

Competences
Programmable logic devices, advance electronic systems: analogic and digital. Communication components: routers, commuters, concentrators, receptors and transmitters in different bands.
Photonics, optoelectronics and electronics for high frequency.
Electronic instrumentation: transductors, actuators and sensors.

Telecommunication project management module. 10 credits.

Competences

Integration of technologies and systems of telecommunication engineering. Multidisciplinary: bio-engineering, photovoltaic conversion, nanotechnology, telemedicine…

Development of abilities to develop, coordinate and manage projects (technically and economically) about:
a) systems, networks, infrastructure and telecommunication services.
b) common telecommunication infrastructures in buildings or residential areas, including digital home projects.
c) telecommunication infrastructures in transport and environment with their corresponding power supply facilities and assessment of electromagnetic emissions and electromagnetic compatibility.

Master thesis. 6-30 credits.

Competence
Development, implementation and public presentation of an original individual work that must consist in an integral project of telecommunication engineering.

Telecommunication technologies module. Subjects.

Subjects	Credits	Semester
Circuits for Electronic Instrumentation	6	1
Complex Digital Systems Design	6	1
Network and Service Technologies	6	1
Multimedia Advanced Services	6	2
IP Based Networks	6	2
Radiocommunications and Radiodetermination	6	1
Signal Processing for Communications	4	2
Communications Systems and Circuits	6	1
Optical Technologies	4	2

Telecommunication project management module.
Subjects.

Subjects	Credits	Semester
Integration Project	4	2
Project Management	6	2

Master thesis: 30 credits.

Telecommunication Engineering Master. Overview.

Telecommunication technologies. 50 credits.

Project management. 10 credits.

Master thesis. 30 credits.

Points to take into account:

- TE-UJA Master and ICE-THM Master both comprise 90 ECTS credits.

- Some competences of the TE-UJA master are equivalents to some of the ICE-THM master but not others (electronic and some communications related competences).

- Proposal for UJA students: 60 ECTS credits in UJA + 30 ECTS credits in THM + 30 ECTS for master thesis.

- Proposal for THM students: 60 ECTS credits in THM + 30 ECTS credits in UJA + 30 ECTS for master thesis.

UJA students. Proposal.

1st semester: 30 ECTS credits in UJA.

2nd semester: 30 ECTS credits in UJA.

3rd semester: 30 ECTS credits in THM.

4th semester: Master thesis in THM.

UJA students. Proposal.

- The 2nd semester subjects of the THM should be recognized, since the contents are similar to some UJA subjects.
- These subjects are:
  - IP Based Networks and Protocols (6 ECTS credits).
  - Internet Protocols and Applications (7 ECTS credits).
  - Strategic and Project Management (5 ECTS credits).
  - Three Electives of 4 ECTS credits: Photonics or Optical Fiber Communications, Computer Networks Part 1 and Project Work.

UJA students. Proposal.

THM subjects	⟸	UJA subjects
(17 ECTS credits) IP Based Networks and Protocols Internet Protocols and Applications Computer Networks Part 1		(18 ECTS credits) Network and service technologies Multimedia Advanced Services IP Based Networks
(9 ECTS credits) Strategic and Project Management Project Work		(10 ECTS credits) Project management Integration Project
(4 ECTS credits) Photonics		(4 ECTS credits) Optical Technologies

Dual Degree: Module for UJA students.

Subjects at THM	Credits	Semester
Data Transmission	7	1
Optical Fiber Communications	4	1
Advanced Digital Signal Processing	7	1
Wireless Access Technologies	4	1
Professional Practice & Scientific Methods	4	1
German as a Foreign Language	4	1

Total: 30 ECTS credits.

THM students:

- Interested in PhD Degree: direct access to the research lines after finishing the ICE-THM Master.

- Interested in TE-UJA Master: B2 level of English and A1 level of Spanish. First semester UJA subjects are taught in English by B2 level (at least) lecturers.

THM students. Proposal.

1st semester: 30 ECTS credits in THM.

2nd semester: 30 ECTS credits in THM.

3rd semester: 30 ECTS credits in UJA.

4th semester: Master thesis.

THM students. Proposal.

- The 2nd semester subjects of the UJA should be recognized, since the contents are similar to some THM subjects.
- These subjects are:
  - Multimedia Advances Services (6 ECTS credits).
  - IP Based Networks (6 ECTS credits).
  - Signal Processing for Communications (4 ECTS credits).
  - Optical Technologies (4 ECTS credits).
  - Integration project (4 ECTS credits).
  - Project management (6 ECTS credits).

THM students. Proposal.

THM subjects	UJA subjects
(13 ECTS credits) IP Based Networks and Protocols Internet Protocols and Applications	(12 ECTS credits) Multimedia Advanced Services IP Based Networks
(9 ECTS credits) Strategic and Project Management Project Work	(10 ECTS credits) Project management Integration Project
(4 ECTS credits) Photonics or Optical Fiber Communications	(4 ECTS credits) Optical Technologies
(7 ECTS credits) Advanced Digital Signal Processing	(4 ECTS credits) Signal Processing for Communications

Dual Degree: Module for THM students.

Subjects at UJAEN - Linares	Credits	Semester
Circuits for Electronic Instrumentation	6	1
Complex Digital Systems Design	6	1
Network and Service Technologies	6	1
Radiocommunications and Radiodetermination	6	1
Communications Systems and Circuits	6	1

Total: 30 ECTS credits.