

MASTER DEGREE IN MATERIALS SCIENCE 2019-2020

*at UNIMIB
First year*

MANDATORY COURSES (36 ECTS)

5 COURSES	TYPE	ECTS	year	SEM
FUNCTIONAL ANALYSIS	SUPPLEMENTARY	6	1	1
SOLID STATE PHYSICS	CORE - Physics and Chemistry	8	1	1-2
PHYSICAL CHARACTERIZATION OF MATERIALS WITH LABORATORY	CORE - Physics and Chemistry	8	1	1-2
THERMODYNAMICS AND KINETICS OF MATERIALS	CORE - Physics and Chemistry	6	1	2
APPLIED PHYSICAL CHEMISTRY WITH LABORATORY	CORE - Physics and Chemistry	8	1	1-2

THREE MANDATORY COURSES FROM THE FOLLOWING SETS, ONE PER AREA (18 ECTS)

MATERIALS AREA (PHYSICS)

1 COURSE	TYPE	ECTS	year	SEM
PHYSICS OF SEMICONDUCTORS	CORE - Physics and Chemistry	6	1	2
PHYSICS OF HOMOGENEOUS AND NANOSTRUCTURED DIELECTRICS	CORE - Physics and Chemistry	6	1	2
MOLECULAR ELECTRONICS AND PHOTONICS	CORE - Physics and Chemistry	6	1	2

MATERIALS AREA (CHEMISTRY)

1 COURSE	TYPE	ECTS	year	SEM
CHEMISTRY OF INORGANIC MATERIALS	CORE - Physics and Chemistry	6	1	1
PHYSICAL CHEMISTRY OF SOLID STATE AND SURFACES	CORE - Physics and Chemistry	6	1	2
CHEMISTRY OF MOLECULAR MATERIALS	CORE - Physics and Chemistry	6	1	2

APPLICATIONS AREA (TECHNOLOGY)

1 COURSE	TYPE	ECTS	year	SEM
CHEMISTRY AND TECHNOLOGY OF POLYMERS AND INDUSTRIAL APPLICATIONS	CORE - Physics and Chemistry	6	1	2
LOW ENVIRONMENTAL IMPACT MATERIALS AND PROCESSES	CORE - Physics and Chemistry	6	1	2
PHYSICS AND TECHNOLOGY OF ELECTRONIC DEVICES WITH LABORATORY	CORE - Physics and Chemistry	6	2	1

ONE MANDATORY COURSE OUT THE FOLLOWING ONES (6 ECTS)

MATERIALS AREA (APPLICATIONS)

1 COURSE	TYPE	ECTS	year	SEM
METALS SCIENCE AND SUSTAINABILITY	SUPPLEMENTARY	6	1	1
SURFACES AND INTERFACES	SUPPLEMENTARY	6	1	2
RADIATION MATTER INTERACTION	SUPPLEMENTARY	6	1	2

Second year

ONE MANDATORY COURSE FROM THE FOLLOWING ONES (6 ECTS)

COURSE	TYPE	ECTS	year	SEM
NANOTECHNOLOGY AND INNOVATION	CORE - engineering	6	2	1
ENGINEERED NANOMATERIALS	CORE - engineering	6	2	1

ONE MANDATORY COURSE OUT OF THE FOLLOWING ONES (6 ECTS)

MATERIALS AREA (APPLICATIONS)

1 COURSE	TYPE	ECTS	year	SEM
SYNTHESIS AND SPECIAL ORGANIC TECHNIQUES IN MATERIALS CHEMISTRY	SUPPLEMENTARY	6	2	1
STATISTICAL THERMODYNAMICS OF MATERIALS	SUPPLEMENTARY	6	2	1
MATERIALS AND DEVICES FOR ENERGY ENGINEERING	SUPPLEMENTARY	6	2	1

OTHER ACTIVITIES (48 ECTS)

	TYPE	ECTS	year	SEM
ELECTIVES COURSES	TO BE CHOSEN FREELY BY THE STUDENT (art.10, comma 5, lettera a)	12	1-2	1-2

	TYPE	ECTS	year	SEM
MASTER THESIS	MASTER THESIS (art.10, comma 5, lettera c)	30	2	1-2

	TYPE	ECTS	year	SEM
ADDITIONAL COMMUNICATION SKILLS	ADDITIONAL TRAINING ACTIVITIES (art. 10, comma5, lettera d)	3	2	1-2

	TYPE	ECTS	year	SEM
INTERNSHIP	ADDITIONAL TRAINING ACTIVITIES (art. 10, comma5, lettera d)	3	2	1-2