

DOUBLE MAJOR IN MATERIALS SCIENCE AND NANOTECHNOLOGY ENGINEERING GENERAL

First Semester

Course Code	Course Name	C	L/P	C	ECTS
PHY 101	General Physics I	4	2	4	6
CHM 101	General Chemistry	3	2	4	6
MTH 101	Mathematics I	4	2	4	6
ECC 103	Technical Drawing I	3	0	3	4
TOTAL		14	6	15	22

Second Semester

Course Code	Course Name	C	L/P	C	ECTS
MSN 101	Introduction to Materials Science and Nanotechnology Engineering	2	0	2	4
PHY 102	General Physics II	4	2	4	6
MTH 102	Calculus II	4		4	6
ECC 101	Introduction to Computers and Programming	3	1	3	5
MTH 214	Mathematics for Engineering	3	0	3	6
TOTAL		14	3	16	27

Third Semester

Course Code	Course Name	C	L/P	C	ECTS
MSN 201	Materials Science I	3	1	3	5
MSN 203	Mechanics of Materials	4	0	4	5
MSN 207	Nanoscience and Physical Theory in Engineering	4	1	4	6
MTH 201	Differential Equations	4	0	4	
ECC 207	Thermodynamics I	3	2	4	5
TOTAL		18	4	19	21

Fourth Semester

Course Code	Course Name	C	L/P	C	ECTS
MSN 202	Materials Science II	3	1	3	6
MSN 208	Chemical Abstract Nano Science and Engineering	3	0	3	6
PHY 201	Introduction to Quantum Physics	4	0	4	6
ECC 209	Manufacturing Technology I	3	0	3	5
MSN 200	Summer Practice I	0	0	0	1
TOTAL		13	1	13	24

Fifth Semester

Course Code	Course Name	C	L/P	C	ECTS
MSN 302	Introduction to Solid State Physics	3	0	3	6
MSN 305	Phase Transitions and Diagrams	3	0	3	6
ECC 304	Fluid Mechanics	4	0	4	6
ECC 305	Manufacturing Techniques II	3	1	3	6
ECC 306	Heat Transfer I	4	0	4	6
TOTAL		17	1	17	30

Sixth Semester

Course Code	Course Name	C	L/P	C	ECTS
MSN 304	Nanomaterials and Manufacturing Methods	3	0	3	6
MSN 312	Material Selection and Design	4	0	4	6
MSN 303	Mass Transfer	3	0	3	6
MTH 323	Numerical Analysis	3	0	3	6
MSN 300	Summer Practice II	0	0	0	1
TOTAL		13	0	13	25

Seventh Semester

Course Code	Course Name	C	L/P	C	ECTS
MSN 403	Nano-scale Characterization Methods	3	1	3	6
MSN 405	Experimental Methods	2	3	3	6
TOTAL		5	4	6	12

Eighth Semester

Course Code	Course Name	C	L/P	C	ECTS
MSN 400	Graduation Project	2	4	4	12
TOTAL		2	4	4	12

TOTAL	Contact Hs	Lab/Practice Hs	Credit	ECTS
	96	23	103	173