

**MATERIALS and NANOTECHNOLOGY ENGINEERING PhD Program (on BSc)**

REMEDIAL COURSES				
Dept.	Code	Course Name	CR.	ECTS
MSN	220	Materials Characterization I	NC	
MSN	230	Transport Phenomena	NC	
MSN	240	Phase Diagrams	NC	
MSN	223	Mechanical Behavior of Materials	NC	
MSN	321	Materials Characterization II	NC	
MSN	301	Materials Production Processes-I	NC	
MSN	302	Materials Production Processes-II	NC	
PROGRAM COURSES				
Dept.	Code	Course Name	CR.	ECTS
MSN	660	Advanced Manufacturing Techniques in Materials Engineering	3	10
MSN	510	Advanced Materials Characterization Techniques	3	10
MSN	501	Methods in Scientific Research	3	10
MSN	5XX/6XX	Departmental Elective I	3	10
MSN	5XX/6XX	Departmental Elective II	3	10
MSN	5XX/6XX	Departmental Elective III	3	10
MSN	5XX/6XX	Departmental Elective IV	3	10
	5/6XX	Free Elective I	3	10
	5/6XX	Free Elective II	3	10
	5/6XX	Free Elective III	3	10
	5/6XX	Free Elective IV	3	10
	5/6XX	Free Elective V	3	10
	5/6XX	Free Elective VI	3	10
	6XX	Free Elective VII	3	10
MATH	690	PhD Seminar	NC	10
MATH	691	Independent Study for Qualifying Exam	NC	30
MATH	700	PhD Dissertation	NC	150
		TOTAL	42	330
EXTRA/NON-DEGREE COURSES				
Dept.	Code	Course Name	CR.	ECTS
		Extra/Non-degree	NC	

Course Group	Description
Department Elective I-IV	Materials and Nanotechnology courses under GSNAS
Free Elective I-VI	Unrestricted, by approval of advisor and MSN department
Free Elective VII	6XX, by approval of advisor and MSN department
Extra/Non-degree	Optional non-credit (NC) courses that are not part of the program.
Remedial Courses	Undergraduate level courses offered by department.