MANGALORE UNIVERSITY

DRAFT REGULATIONS AND SYLLABUS

FOR THE TWO YEAR (FOUR SEMESTER)

M.Sc. DEGREE PROGRAMME IN

MATERIALS SCIENCE UNDER

CHOICE BASED CREDIT SYSTEM (CBCS)

2016

DEPARTMENT OF MATERIALS SCIENCE

MANGALORE UNIVERSITY

MANGALAGANGOTHRI 574199

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SYLLABUS AND SCHEME OF EXAMINATIONS FOR TWO – YEAR (FOUR SEMESTERS) M.Sc. DEGREE COURSE IN MATERIALS SCIENCE UNDER CHOICED BASED CREDIT SYSTEM (CBCS-2016)

HIGHLIGHTS:

The PG Programme comprises “Core” and “Elective” Courses. Core courses are related to the discipline of the programme. This is further divided into hard core and soft core. Hard core courses are compulsorily studied by a student as a core requirement to complete the programme in the discipline. Soft core courses are electives, but related to the discipline the progamme. Open elective is a course chosen by a student unrelated to the discipline within the faculty or across the faculty. Open electives are offered in the II and III semesters. The student will have to pass the course and earn the credit for the completion of the programme, but will not be counted for the calculation of CGPA.

Total Credit requirement for M.Sc. Degree Programme in Materials Science is 86, out of which the Hard Core (H) is 53 and Soft Core(S) is 33, while the open electives (E) will have a fixed 6 credits. The distribution of courses and credits among the four semesters are as shown in the table below.

CBCS PROGRAMME STRUCTURE

SEMESTER	COURSES	TYPE	CREDTS/ COURSE	CREDITS			TOTAL CREDITS
				HARD	SOFT	ELECTIVE	
I	4 Theory	Hard	4	16	-	-	22
	2 Lab	Hard	3	06	-	-	
II	3 Theory	Hard	4	12	-	-	21+3
	1 Theory	Soft	3	-	03	-	
	2 Lab	Soft	3	-	06	-	
	1 Theory	Elective	3	-	-	03	
III	2Theory	Hard	4	08	-	-	20+3
	3 Theory	Soft	3	-	09	-	
	1 Lab	Soft	3	-	03	-	
	1 Theory	Elective	3	-	-	03	
IV	2 Theory	Hard	4	08	-	-	23
	2 Theory	Soft	3	-	06	-	
	2 Lab	Soft	3	-	06	-	
	1 Project	Hard	3	03	-	-	

Total Programme Credits	**53**	**33**	**06***	**86+6***

***Not to be counted for CGPA**

SCHEME OF INSTRUCTION, EXAMINATION AND EVALUATION

Semester	Courses	Type & Credits	Teaching Hours/Week / Course	Duration of Examination Hours	Marks Exam+IA*	Total Marks/ Course
I	4 Theory	Hard 4	4	3	70+30	100
	2 Lab	Hard 3	8	4	70+30	100
II	3 Theory	Hard 4	4	3	70+30	100
	1 Theory	Soft 3	3	3	70+30	100
	2 Lab	Soft 3	8	4	70+30	100
	1 Theory	Elective 3	3	3	70+30	100
III	2Theory	Hard 4	4	3	70+30	100
	3 Theory	Soft 3	3	3	70+30	100
	1 Lab	Soft 3	8	4	70+30	100
	1 Theory	Elective 3	3	3	70+30	100
IV	2 Theory	Hard 4	4	3	70+30	100
	2 Theory	Soft 3	3	3	70+30	100
	2 Lab	Soft 3	8	4	70+30	100
	1 Project	Hard 3	4	-	70+30	100

***IA- Internal Assessment**

The duration of each lab course is 8 hours per week including tutorials.

BASIS FOR INTERNAL ASSESSMENT:

Internal assessment marks in each theory course shall be based on two tests and an assignment. Internal assessment marks in each Laboratory course is assessed by the faculty members of the department based on the regular performance in the laboratory, the viva conducted on each experiment, the internal test and the laboratory records submitted by the student.

PRACTICAL EXAMINATION: End Semester examination for each practical course is based on the consensus evaluation by both the examiners.

PROJECT REPORT: A project carried out by the student in III and IV semesters will be evaluated in the IV semester as stipulated in the regulations. The internal assessment for the project is evaluated by the faculty members of the department.

PRE-REQUISITES FOR THE COURSES: Quantum Mechanics-I is a pre-requisite for Quantum Mechanics-II. Nanoscience and Nanotechnology-I is pre-requisite for Nanoscience and Nanotechnology-II.

QUESTION PAPER PATTERN

Each hard core and Soft core theory course examination is for 70 marks. Two questions from each unit of the course, with internal choice shall be given. One question with 5 or 10 short questions/problems is compulsory. The question paper for open elective shall have 10 questions of 10 marks each out of which the student shall answer any seven questions.

COURSES OFFERED

COURSE CODE	COURSE TITLE	Credit
HARD CORE COURSES		
MSH 401	METHODS OF MATHEMATICAL PHYSICS	4
MSH 402	ELECTROMAGNETIC THEORY & ELECTRONICS	4
MSH 403	ELEMENTS OF MATERIALS SCIENCE - 1	4
MSH 404	THERMODYNAMICS & CHEMISTRY OF METALS	4
MSP 405	MATERIALS SCIENCE LAB - I	3
MSP 406	MATERIALS SCIENCE LAB - II	3
MSH 451	QUANTUM MECHANICS - I	4
MSH 452	CLASSICAL MECHANICS & STATISTICAL PHYSICS	4
MSH 453	ELEMENTS OF MATERIALS SCIENCE -II	4
MSH 501	DIELECTRIC MATERIALS	4
MSH 502	SOLID STATE ENGINEERING MATERIALS - I	4
MSH 551	MAGNETIC MATERIALS & MAGNETIC RESONANCE	4
MSH 552	SOLID STATE ENGINEERING MATERIALS - II	4
MSP 558	MINI PROJECT	3
SOFT CORE COURSES		
MSS 454	SURFACE PHENOMENA & ELECTROCHEMISTRY	3
MSP 455	MATERIALS SCIENCE LAB - III	3
MSP 456	MATERIALS SCIENCE LAB - IV	3
MSS 503	THIN FILMS	3
MSS 504	NEW MATERIALS & TECHNOLOGIES	3
MSS 505	POLYMER SCIENCE	3
MSS 506	NANOSCIENCE & NANOTECHNOLOGY - I	3
MSS 507	CRYSTAL GROWTH	3
MSS 508	QUANTUM MECHANICS - II	3
MSP 509	MATERIALS SCIENCE LAB - V	3
MSS 553	MATERIALS TESTING & CHARACTERIZATION	3
MSS 554	COMPOSITE MATERIALS	3
MSS 555	NANOSCIENCE & NANOTECHNOLOGY - II	3

MSP 556	MATERIALS SCIENCE LAB - VI	3
MSP 557	MATERIALS SCIENCE LAB - VII	3
OPEN ELECTIVES		
MSE 457	SCIENCE OF MATERIALS IN DAILY LIFE	3
MSE 510	MATERIALS IN ENERGY PRODUCTION	3