PERIYAR MANIAMMAI INSTITUTE OF SCIENCE & TECHNOLOGY

PMIST

PERIYAR MANIAMMAI

INSTITUTE OF SCIENCE & TECHNOLOGY

(Deemed to be University)

Established Under Sec. 3 of UGC Act, 1956 • NAAC Accredited

think • innovate • transform

NAAC ACCREDITED

M. Sc. Regulations 2020

REGULATIONS 2018

Degree Programme with Semester System

1. ADMISSION AND ELIGIBILITY

Applicants for admission to the M.Sc. Programmes must have passed higher secondary examination (10+2) or 10 + three years technical diploma examination.

S.No.	Programme	Eligibility
1.	Chemistry	A Degree in B.Sc (Chemistry)/ B.Sc. B.Ed., Any other degree with Chemistry as one of the major subjects.
2.	Mathematics	A Degree in B.Sc (Mathematics) / Applied Mathematics / B.Sc. B.Ed, Any other degree with Mathematics as one of the major subjects.
3.	Physics	A Degree in B.Sc (Physics)/ Applied Physics/ Electronics / Applied Electronics/ B.Sc B.Ed/ Any other degree with Physics as one of the major subjects.

2. DURATION OF THE PROGRAMME

M.Sc. (Chemistry/ Mathematics/ Physics)

The duration of M.Sc. Programmes will be two years, divided into four semesters. The duration of each semester will be 90 teaching days. The maximum number of years to complete the programme is 3 years (+1 for exceptional cases).

3. DEFINITIONS

Programme refers to M.Sc.; *Course* refers to a Theory or Practical Subject. University means Periyar Maniammai Institute of Science & Technology (PMIST), Deemed-to-be University.

4. PRE-REQUISITE

If a prerequisite is specified for a particular course, then the student should have studied the prescribed prerequisite course to register for that particular course.

5. MEDIUM OF INSTRUCTION

Medium of instruction is English.

6. TEACHING HOURS

10.00 a.m. to 3.05 p.m. consisting of 6 periods, each with 50 minutes duration.

7. PROGRAMMES OFFERED

Programmes offered under M.Sc. are

- Chemistry
- Mathematics
- Physics

8. CURRICULUM AND CREDIT SYSTEM

The present curriculum of the programme is based on the Outcome Based Education (OBE) or the Choice Based Credit System (CBCS). The Outcome Based Education (OBE) is the system in which the teaching, learning and evaluation process are focused towards the skills and ability acquired by the students during the course of their study. The Choice Based Credit System (CBCS) allows the students to earn their credits according to their interests. Discipline Specific Elective and Open Elective (Generic Elective) courses are different categories of courses offered to impart Choice Based Credit System. Open Elective courses help the student to move horizontally between different branches of Humanities, Sciences and Engineering. Discipline Specific Elective courses help them to expand the knowledge in their field. Student can take non-credit self-learning courses offered in her/his department or any other department which is not considered for grading purpose. One credit stands for one lecture hour or one tutorial or two lab hours. Credits can be obtained only after successful completion of the assessments.

9. PROGRAMME STRUCTURE

9.1. Curriculum Structure

M.Sc. (Chemistry / Mathematics/ Physics) Programme has minimum of 80 credits and maximum of 90 credits. The programme structure consisting of courses drawn from Core Course (CC), Project Work in industry or elsewhere, relevant to the chosen specialization/branch; Discipline Specific Elective (DSE), relevant to the chosen specialization/ branch.

9.2. Number of Courses per Semester

M.Sc (Chemistry/ Mathematics/ Physics)

Curriculum of a semester shall normally have a blend of 4 or 5 lecture courses and laboratory courses not exceeding 2.

9.3. Industrial Visit

Every student is required to go for at least one Industrial Visit every year starting from the second year of the Programme. The Heads of Departments shall ensure that necessary arrangements are made in this regard.

10. REQUIREMENT FOR END SEMESTER EXAMINATIONS

10.1. Overall Attendance Requirement

10.1.1. Eligibility constraints

1.	Overall 75% and above	Eligibility to write all examinations.
2.	Overall 65% and above but below Overall 75%	Shortage of attendance is to be condoned on medical grounds with proper documents. Condonation fee of Rs. 300/- per course is to be paid by the students. ***Medical reasons*** *– Granting of permission on production of all the necessary medical documents (like hospitalization, medical problem, treatment, Medical bills etc) and medical certificate from a registered medical practitioner not below the rank of a Civil Assistant Surgeon.*
3.	Below Overall 65%	The student will fall under redo category. The student has to redo the semester during the subsequent year.

10.1.2. There may be a student whose overall attendance is equal to or above 75 / 65% (65% in case of medical grounds) and for that student, there may be some course's attendance below 75 / 65% (65% in case of medical grounds). In that case, the student can be allowed to write the examinations in the regular stream for the courses in which the student attained the required attendance 75 / 65% (65% in case of medical grounds).

10.1.3. Moreover, for the courses in which the attendance is less than 75 / 65% (65% in case of medical grounds), the student is permitted to write the courses as supplementary in the

subsequent semesters after the payment of Condonation fee and compensating the lack of attendance.

10.2. Attendance requirement for Continuous assessments

10.2.1. A student should attain at least 75% attendance to qualify for taking all written Formative Assessments of theory part and mid semester exam of lab part.

10.2.2. Maximum of five marks is allotted for attendance as one of the component in CA3

Percentage of Attendance	76-81	82-87	88-93	94-99	100
Marks	1	2	3	4	5

10.2.3. The minimum percentage of attendance required to appear for the end semester examinations is 75% (course wise).

10.2.4. If the percentage of attendance is between 65% and below 75% for the individual courses due to medical reasons; then the student is eligible to apply for condonation with a prescribed fee of Rs. 300/ per course and also to produce a medical certificate from a registered medical practitioner not below the rank of a Civil Assistant Surgeon

10.2.5. If the percentage of attendance is less than 75% and above 65% (overall attendance), she /he has to appear for the exam as supplementary after gaining the required attendance.

10.2.6. If the percentage of attendance is less than 65% (all courses put together) then the student will be categorized under “Redo candidate”.

10.2.7. For calculating the percentage of attendance; following norms are framed: For Formative Assessment – From the reopening date to the day before FA. For End semester – From starting date to last working day.

10.2.8. If a student falls under Redo category, while rejoining he/she has to again pay the prescribed semester fees along with re-registration fees (Rs.500/-).

10.2.9. If a student could not pass the Formative Assessments, she/he should take the exam in the forthcoming semesters with the approval of Department Head, Faculty Dean and Dean (Academics).

10.2.10. Special Exams: Participation on behalf of Institution (PMIST) in Curriculum / Sports Event or related work or any other activity as recommended by the HOD/Authorities. This is applicable for all exams.

10.2.11. The following letter grade will appear in the mark sheet for every course for the attendance gained in that course.

Performance	**Letter Grade**	**% of Attendance**
Outstanding	**O**	>=95%
Medium	**M**	>=85% and <95%
Satisfactory	**S**	>=80% and <85%

11. STUDENT MENTOR

Each faculty member of the Department will be attached with certain number of students as student mentor, appointed by the respective Head of the Department, to help the students in planning their courses of study and for general advice on the academic programme throughout their period of study. The student mentor shall also discuss with or inform the parents about the progress / performance of the students concerned and also monitor the academic/general performance of the students including attendance.

12. EXAMINATION AND ASSESSMENT

12.1 Theory L:T:P 3:0:0 and 3:1:0 **F:S = 50:50 (Formative versus summative)**

S.No	**Task**	**Notes**	**%**	**Duration**	**Venue**	**Time Tabling and supervision**	**Authority**
1	CA 1 Real time evaluation (Subject Specific)	45 to 80 Days	20	-	Department	Class teacher and Course Teacher	HoD

2	CA2 such as Seminar, Assignment, case study/method study/project study,demonstration, drawing, sketch, essay, exhibition/Showcase, interview,journal, laboratory/practical, literature review, model, presentation, portfolio, practicum, problem solving, projects, reflection, reports, self assessment, research paper, thesis and workshop, etc.	0 to 75 Days (Minimum 5 and maximum 8)	30	-	-	-	Course Teacher
3	CA 3- End Semester Pattern (MCQ – 20% + Descriptive 80%)	After 90 Days (Equal weightage to all portions)	50	3 Hours	University Classrooms	Chief Superintendent	CoE

For S. No. 1, 2 Rubrics should be given.

S.No 1 to 3 should be mapped to

Method: D= Direct; I= Indirect

Domain: C= Cognitive; P= Psychomotor; A= Affective

Usage Type: F= Formative; S= Summative

Bloom's level: K= Knowledge; C= Comprehension; A= Application; ASE= Analysis or Synthesis or Evaluation

12.2. Practical Courses

Laboratory: L:T:P 0:0:1 and 0:0:2 F:S = 70:30 (Formative versus summative)

S.No.	Task	Notes	%	Duration	Venue	Time Tablin g and supervi sion	Authority
1	CIA-1 (Real Time Evaluation)	45 to 80 Days	30	2 Hours	Respective labs	Class Teacher	HoD
2	CIA -2 (Based on observation Note and rubrics designed by lab teacher)	Every fortnight	30	-	-	Lab course Teacher	HoD
3	CIA -3 or EA-1- Product/Simulati on / Design/Programme /Process (CIA/EA to be decided by the course teacher)	After 45 days	10	-	Respective labs	Lab course Teacher	HoD
		After 90 Days (Summative)	10				
4	EA-2 End semester exam (External Assessment)	After 90 Days	20	3 Hours	University Labs	Time tabling by HoD and Supervi sion by Externa l	CoE

S.No 1 to 4 should have Rubrics and should be mapped to

Method: D= Direct; I= Indirect

Domain: C= Cognitive; P= Psychomotor; A= Affective

Usage Type: F= Formative; S= Summative

Bloom's level: K= Knowledge; C= Comprehension; A= Application; ASE= Analysis or Synthesis or Evaluation

12.3 Theory cum Lab based courses:

12.3.1 Theory cum Laboratory L:T:P 3:0:1, 3:1:1 and 2:1:1

Assessment to be done as I and II. The entry has two components. The examination software will take the respective weightage as given below.

Note: Theory part : Lab part = **3:0:1(75:25), 3:1:1(75:25) and 2:1:1 (**50:50) (Note: Course teacher can suggest any change if required)

12.3.2 Theory cum Laboratory L:T:P 2:0:1 F:S = 60:40 (Formative versus summative)

S.No	Task	Notes	%	Duration	Venue	Time Tabling and supervision	Authority
1	Real Time Evaluation-T	During 1- 90 Days	30	-	-	Subject Teacher	HoD
2	CA-T - End Semester Pattern (MCQ – 20% + Descriptive	After 90 Days (Equal weightage to all portions)	20	2 Hours	University Classrooms	Chief Superintendent	CoE

	80%)						
3	CA-L 1 (Based on observation Note and rubrics designed by lab teacher)	During 1- 90 Days	30	-	-	Lab Subject Teacher	HoD
4	CA-L 2 End semester exam (Internal Assessment)	After 90 Days	20	3 Hours	University Labs	HoD and Lab Subject Teacher	HoD

For S.No. 1,3 and 4 Rubrics should be given.

S.No 1 to 4 should be mapped to

Method: D= Direct; I= Indirect

Domain: C= Cognitive; P= Psychomotor; A= Affective

Usage Type: F= Formative; S= Summative

Bloom's level: K= Knowledge; C= Comprehension; A= Application; ASE= Analysis or Synthesis or Evaluation

Note: Theory part : Lab part = 50:50

12.3.3 Theory cum Laboratory: 1:0:2 F:S = 60:40 (Formative versus summative)

S.No	Task	Notes	%	Duration	Venue	Time Tabling and supervi	Authority

						sion	
1	Real Time Evaluation- T	During 1- 90 Days	15	2 Hours	Department	Class teacher	HoD
2	CA-T 1 (End of the semester) (Class Test- Descriptive 10)	Will be conducted after 90 working days	10	2 Hours	Department	Class teacher	HoD
3	CIA-L 2 (Based on observation Note and rubrics designed by lab teacher)	During 1- 90 Days	15	-	-	Lab Course Teacher	HoD
4	CIA or EA – L 3- Product/Simulation /Design/Programme /Process (CIA/EA to be decided by the course teacher)	During 0-45 Days	30	-	Respective labs	Lab Course Teacher	HoD
		After 90 Days	10				
5	EA-L 4 End semester exam (External Assessment)	After 90 Days	20	3 Hours	University Labs	HoD and Lab Subject Teacher	HoD

For S.No. 3,4 Rubrics should be given.

S.No 1 to 5 should be mapped to

Method: D= Direct; I= Indirect

Domain: C= Cognitive; P= Psychomotor; A= Affective

Usage Type: F= Formative; S= Summative

Bloom's level: K= Knowledge; C= Comprehension; A= Application; ASE= Analysis or Synthesis or Evaluation

Theory part : Lab part = 25:75

12.4 Project

Projects are reviewed in continuous basis. The details are given below.

R 0	**R-I**	**R-II**	**R-III**	**R- IV**	**R- V**	
15th Day	15% (EA) (after 45 days)	15% (EA) (After 90 days)	15% (EA) (After 20 days)	15%(EA) (After 50 days)	40%(EA) Summative (After 90 Days)	50:50 (Formative: Summative)
0	3	3	4	4	6	Total 20 credits
(6 credits) 3rd semester			(14 Credits) 4th semester			

Note: There is no Phase I and Phase II. Clear and distinct Rubrics will be provided

End of 3rd semester a publication in national/international conference/workshop is mandatory and IPR/Product/Patent is desirable

Legend: CA: Continuous assessment CIA: Continuous Internal Assessment EA:External Assessment L – Laboratory T – Theory

Course teacher : Staff who handles that particular subject. The word subject is referred as course

Assessment and Evaluation plan for a particular course:

1. **This has to be given in the course plan. Choosing assessment tools(wherever choices are given) and designing rubrics is the choice of the course teacher.**
2. **Course outcomes should be mapped to assessment tasks. This is macro level. An example is shown below.**

	Course outcomes (COs)			
assessment tasks	**1**	**2**	**3**	**4**
1	✓	✓	✓	
2	x	✓	x	✓
3	✓	x	✓	✓
4	**x**	✓	**x**	**x**

3. **Each task should have rubrics which will tell the % of learning outcome assessed. This is micro level.**
4. **The assessment methods(tools) will give you the data and summing up will help in judgement (Evaluation) on the outcomes achieved. After evaluation decision making is done (example changing of Teaching Learning to achieve the outcomes)**
5. **All Rubrics should be approved by the HoD and Dean**
6. **Even Mid and End semester written exams and the questions has to be mapped to course outcome.**

	Course outcomes (COs)			
Q.No.	**1**	**2**	**3**	**4**
1	**%**	**%**	**%**	**%**
2	**%**	**%**	**%**	**%**
3	**%**	**%**	**%**	**%**
4	**%**	**%**	**%**	**%**
5	**%**	**%**	**%**	**%**

7. **A custom based software or a simple spread sheet will give the Course Outcomes achievement during or end of the course.**

8. **EA- External Assessment is a Internal examiner and an External examiner joint assessment. The external member can be from different University or different department (allied) of PMU.**

13. QUESTION PAPER PATTERN FOR END SEMESTER

End Semester (CA3) Time : 3 Hours	**No. of Questions**	**Marks per Question**	**Total Marks**	**Type**
MCQ - 10	10	1	10	Compulsory
2 marks – 5	2	2	10	Compulsory
15 marks – 4	4	15	60	Either Or
20 marks – 1	1	20	20	Compulsory
		Total	100	

* Continuous Assessment – CA

14. Minimum Requirements of marks for passing a course

M.Sc (Chemistry/ Mathematics/ Physics)

A minimum requirement of marks to pass the course is that the students should gain not less than 50% of marks in case study and summative separately and should gain 50% in both combined formative and summative as per the following structure.

Type of Assessment	**Marks**
Case Study	50%
Summative	50%
Total= Case Study + Summative	50%

Note: The Overall Passing Minimum is 50% marks and marks less than 50% is considered as U Grade. CGPA to % conversion is the multiplication of CGPA with 10.

15. AWARDING GRADES

The University follows absolute grading system.

All assessment of course will be done on absolute marks basis. However for the purpose of the reporting the performance of a candidate, letter grades, each carrying certain points, will be

awarded as per the range of total marks (out of 100) obtained by the candidate as detailed below

Grade Point versus Marks distribution for UG programmes in Arts, Science and Humanities and Education are given below.

Grade Letter	Grade Point	Performance	Existing	Proposed
O	10	Outstanding	A ≥ 91	No Change
A+	9	Excellent	81≤ A< 91	
A	8	Very Good	71≤ A< 81	
B+	7	Good	61≤ A<71	
B	6	Above Average	55≤ A< 61	
C+	5	Average	45≤ A< 55	50≤ A<55
C	4	Pass	40≤ A< 45	40≤ A<50
U	0	Reappear/Absent	Less than 40	No Change
W	0	Withdrawal		

The classification of degree for UG programme in Arts, Science and Humanities and Education as per the table given below.

S.No	CGPA	Class	Proposed CGPA
1	7.5 and above and passed in first attempt Maximum number of courses which can be withdrawn is three and withdrawal considered for only one semester of the programme.	First Class with Distinction	No Change
2	6.0 (in any number of attempt) and above in $n + 1$ consecutive years where n is the number of years for a programme	First Class	No Change
3	6.0<A≤ 5.5	Second Class	6.0<A≤ 5.0
4	Less than 5.5	Third Class	Less than 5.0

16. CALCULATION OF GRADE POINTS

University uses Grade Point Average (GPA), an internationally recognized calculation which is used to find the average result of all grades achieved.

The GPA for each semester is calculated by taking the sum of the products of grade points with the corresponding credits earned by the student divided by sum of credits in that semester. The formula for calculating GPA is given in equation (1).

$$GPA = \frac{\sum_i C_{ni} G_{ni}}{\sum_i C_{ni}} \quad (1)$$

Cumulative Grade Point Average (CGPA) is the sum of the products of grade points with the corresponding credits of all semesters divided by the sum of all credits of all semesters. The formula for calculating CGPA is given in equation (2).

$$CGPA = \frac{\sum_n \sum_i C_{ni} G_{ni}}{\sum_n \sum_i C_{ni}} \quad (2)$$

where *C* denotes course, G denotes grade point, *n* denotes semester number and *i* denotes course number.

17. REVALUATION

17.1. Candidates who wish to apply for revaluation should first apply for photocopy of her/his answer script in the prescribed format through the Head of the Department and Dean of School to the Controller of Examination by paying Rs. 400/- (Rupees Four Hundred only) per script within 10 days after the result is declared.

17.2. After receiving the photocopy, the student can verify the copy for any discrepancy like total mistake and omission in the valuation.

17.3. If any discrepancy is noticed the same may be brought to the notice of the Controller of Examinations for remedial action.

17.4. The valuation in the photocopy of the answer script can also be verified by the subject expert and if the expert is convinced that the script deserves higher marks than awarded, she/he can recommend for applying revaluation.

17.5. The student can apply for revaluation in the prescribed form by paying Rs.300/-(Rupees Three hundred only) per script towards revaluation fee within 15 days after the result is declared by submitting revaluation form duly signed by Head of the department and Dean of Faculty.

18. SUPPLEMENTARY EXAMINATIONS

18.1. The students who have not passed the course have to reappear for the supplementary exams in the subsequent semester. PMIST offers fast track supplementary exams programme in 4th semester of M.Sc (Physics/Chemistry/Mathematics) in a month's time provided she/he have not any standing arrears.

19. RULES FOR WITHDRAWAL FROM THE PROGRAMME

A student can withdraw from a programme temporarily or permanently due to whatsoever reasons. In that case she/he can rejoin the programme if she/he has temporarily withdrawn from a programme. However the maximum number of years to complete the programme is 3 (+1 for exceptional cases) for M.Sc (Physics/Chemistry/Mathematics). In addition, a student can withdraw maximum of three courses in any semester and write the exam as supplementary. This withdrawal will not affect their degree classification. Only one time this withdrawal is permitted during her/his programme.

20. RULES FOR CHANGING PROGRAMME OF STUDY

A student can change the programme of study with the due permission from Dean of the respected School and Dean (Academics) before completing 15 working days from the commencement of the programme.

21. ELIGIBILITY FOR THE DEGREE AND CLASSIFICATION OF CLASSES

21.1. The student is eligible for award of degree in B.Sc. programme if she/he earns total number of credits prescribed by the programme curriculum within permitted duration of the programme.

21.2. The degree is classified as *First Class with Distinction* if the student completes the degree in three years in single attempt (maximum number of courses which can be withdrawn is three and withdrawal considered for only one semester of the programme) with CGPA greater than or equal to 7.50. If the student obtains CGPA greater than or equal to 6.50 (should have completed within four years) but less than 7.5, then the degree is classified as *First Class.* If the student obtains CGPA less than 6.50 and greater than or equal to 5.50, then the degree is classified as *Second Class.* If the student obtains CGPA less than 5.50, then the degree is classified as *Third Class.*

21.3. In order to motivate the students towards research, it is mandatory for the award of the degree that each student should publish one research paper/article in conference/journal during

their study period. This is applicable for the students admitted from the academic year 2018-19 onwards.

22. IDENTIFICATION AND SUPPORT FOR SLOW, MEDIUM AND ADVANCED LEARNERS

22.1. Advanced learners, slow learners and medium learners are identified based on the CGPA.

Category	CGPA
Advanced learners	7.5 and above
Medium learners	Above 6 and below 7.5
Slow learners	Less than 6

22.2. The advanced learners of II year students are exposed to career based life sciences and soft skills. These skills are taught by the senior teachers of the department and also by external experts.

22.3. Medium learners of II year are given special coaching/tutorials classes for the courses which they are currently undergoing.

22.4. Slow learners are given remedial classes (coaching /tuition) for the courses which they have to reappear from previous semesters and in weak subjects during the current semester.

23. PRESENTATION AND PUBLISHING OF RESEARCH ARTICLES

In order to motivate the students towards research, it is proposed that students should make presentation and publish research articles during their study period. It is made mandatory for the award of the degree and is applicable for students admitted from the academic year 2018-19 onwards.

23.1. PG Sciences and Humanities –- 2 papers (1-National/International Journal and 1-National/International conference)