INSTITUTE OF SCIENCE, NAGPUR

(An Autonomous Institute of Government of Maharashtra)

DIRECTION NO. 2 OF 2023

DIRECTION RELATING TO THE EXAMINATION LEADING TO THE TWO YEAR / ONE YEAR MASTER OF SCIENCE DEGREE WITH SEMESTER PATTERN IN INSTITUTE OF SCIENCE, NAGPUR AS PER NEP 2020

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Whereas, Maharashtra Universities Act, 2016 (hereinafter referred to as Act) has come into force from 2016-17 and was amended from time to time

AND

Whereas, Maharashtra Government issued a Government Resolution Number एनईपी-२०२२/प्र. क्र. ०९/ विशी – ३ शिकाना dated 16 may 2023 regarding guidelines for the Two Year / One Year Post Graduate Degree With Semester Pattern,

AND

Whereas, the Board of Studies in all the Science subjects in their meeting prepared the syllabi and scheme of examination for the two year / one year Master of Science Degree with semester pattern

AND

Whereas, Dr. Abhay Khamborkar, the Academic Coordinator has considered, accepted and recommended to the Academic Council, Institute of Science, Nagpur with draft direction and other details

AND

Whereas, the Academic Council, Institute of Science, Nagpur in its emergent meeting has accepted and forwarded to the Director, Institute of Science, Nagpur with draft direction and other details

AND

I, Dr. Jairam Khobragade, Director, Institute of Science, Nagpur do hereby issue the following Direction.

1. This Direction may be called, " Direction relating to the examination leading to the two year / one year Master of Science Degree with semester pattern in Institute of Science, Nagpur as per NEP 2020**".**

2. This direction shall come into force with effect from the date of its issuance.

3. Details of Eligibility for M.Sc. Semester I Admission

Subject to their compliance with the provisions of this direction and of other ordinances in force from time to time, the following applicant candidates shall be eligible for the admission to Master of Science and examinations their of

Table 1: Eligibility for M.Sc. Semester I Admission

A	For M.Sc. (Physics) Semester-I	For admission to the M. Sc. Semester I in Physics, a candidate shall have offered Physics as one of the Major subjects at the qualifying B.Sc. Examination
B	For M.Sc. (Chemistry) Semester-I	For admission to the M. Sc. Semester I in Chemistry, a candidate shall have offered Chemistry / Industrial Chemistry as one of the Major subjects at the qualifying B.Sc. Examination
C	For M.Sc. (Mathematics) Semester-I	For admission to the M. Sc. Semester I in Mathematics, a candidate shall have offered Mathematics as one of the Major subjects at the qualifying B.Sc. Examination.
D	For M. Sc. (Statistics) Semester-I	For admission to the M. Sc./ M.A. Semester I in Statistics, a candidate shall have offered Statistics/Mathematics as one of the Major subjects at the qualifying B.Sc./B.A. Examination.
E	For M.Sc. (Botany) Semester-I	For admission to the M. Sc. Semester I in Botany, a candidate shall have offered Botany as one of the Major subjects at the qualifying B.Sc. Examination.
F	For M.Sc. (Zoology) Semester-I	For admission to the M. Sc. Semester I in Zoology, a candidate shall have offered Zoology as one of the Major subjects at the qualifying B.Sc. Examination
G	For M.Sc. (Environmental Science) Semester-I	For admission to the M. Sc. Semester I in Environmental Science, a candidate shall have offered Environmental Science as one of the Major subjects at the qualifying B.Sc. Examination.

Candidates shall have passed any one of the above examinations from Rashtrasant Tukadoji Maharaj Nagpur University or any other statutory University of India or abroad, recognized by the UGC or any other concerned apex regulatory authority / body of India.

4. Duration of the Program, Student Progression Path and Provisions for Multiple Exit

Duration of the M.Sc. shall be TWO years with the provision for exit at the end of first year.

Exit Option:

Students will have the flexibility to enter a program in odd semesters and exit a program after the successful completion of even semester as per their future career needs:

a. A student can exit the program after successful completion of semesters I & II having earned requisite number of credits as mentioned in the scheme of examination. Such a student shall be eligible for the award of **'PG Diploma in Major Subject'** by the Institute of Science, Nagpur.

OR a student can continue the program in 2nd year.

b. A student, on successful completion of all the 4 semesters and having earned requisite number of credits as mentioned in the scheme of examination shall be eligible for the award of either **'Master of Science Degree with Major subject'**.

Table 2: Eligibility for Award of Certificate/Diploma/Degree/Honours or Research Degree

Qualification Title	Credit Earned	Semester	Year
PG Diploma in Major Subject	44	2	1
Master of Science Degree with Major subject	88	4	2

5. Re-entry or Lateral Entry

a. Students, opting for exit at the end of first year, will have the option to re-enter the programme from where they had left off, within THREE years of exit and complete the degree programme within the stipulated maximum period of FIVE years from the date of admission to first year.

b. Re-entry at various levels for lateral entrants in academic programmes shall be based on the earned and valid credits as deposited and accumulated in the Academic Bank of Credits (ABC) through Registered Higher Education Institutions (RHEI) and proficiency test records.

c. Lateral entry into the programme of study leading to the PG Diploma / Two Year Master of Science in Major Subject will be based on the validation of prior learning outcomes achieved and subject to availability of seats based on intake capacity.

6. Availability of 'Major' subjects and 'Intake Capacity'

Institute Science, Nagpur will offer following Major Subjects to the Students for Two Year Master of Science (M.Sc.) in

Table 3: List Major subjects with Intake Capacity

S.No.	Subject Options for Major	Intake Capacity
1	Physics	36
2	Chemistry	36
3	Mathematics	36
4	Statistics	22
5	Zoology	22
6	Botany	22
7	Environmental Science	11
	Total	185

7. Course Code

Courses are structured in the form of codes which are segregated based on learning's outcomes, level of difficulties and academic rigor (As per UGC draft on 'Curricular Framework and Credit Systems for the Four-Year Undergraduate Programme' and 'revised report submitted by Dr. Ravindra Kulkarni Committee dated 4th November 2022'). The illustration is as follows

Master of Science		Two letter Subject Code	Year	Semester	Course Number in ascending order (Initial number is '1')	Two letter for theory or practical Subject Code
M	-	e.g. for STATISTICS code is 'ST'	e.g. For first year code is '5' and for the second year the code is 6	e.g. For first semester code is '1'	e.g. For first paper code is '1'	e.g. For theory paper code is 'T' and for practical the code is "P"
For example, Statistics Theory Paper I in the first semester will have a courses code						
M-ST511T						
For example, Statistics Theory Paper II in the first semester will have a courses code						
M-ST512T						
For example, Statistics practical after theory two in the first semester will have a courses code						
M-ST513P						

8. Teaching and Examination Schemes:

Teaching and Examination Schemes Two Year M.Sc. (of four semesters) programme is as follows.

Table 4: M.Sc. Semester I

Sr No	Course Category	Name of the course (Title of the Paper)	Level	Teaching Scheme (hrs)			Total Credit	Evaluation Scheme			
				Theory	Tutorial	Practical					
				Th	Tu	P		Duration of Examination (Hrs)	End Semester Evaluation (ESE)	Continuous Internal Evaluation (CIE)	Minimum Passing Marks
1	DSC	Paper 1:-	6.0	4	--	--	4	3	80	20	40
		Paper 2:-		4	--	--	4	3	80	20	40
2	DSE	Elective		4	--	--	4	3	80	20	40
3	DSE /DSC	Lab		--	--	12	6	6	100	50	75
4	RM	Research Methodology		4	--	--	4	3	80	20	40
				16	--	12	22		420	130	--

Table 5: M.Sc. Sem- II

Sr No	Course Category	Name of the course (Title of the Paper)	Level	Teaching Scheme (hrs)			Total Credit	Evaluation Scheme			
				Theory	Tutorial	Practical		Duration of Examination (Hrs)	End Semester Evaluation (ESE)	Continuous Internal Evaluation (CIE)	Minimum Passing Marks
				Th	Tu	P					
1	DSC	Paper 1:-	6.0	4	--	--	4	3	80	20	40
		Paper 2:-		4	--	--	4	3	80	20	40
2	DSE	Elective		4	--	--	4	3	80	20	40
3	DSE /DSC	Lab		--	--	12	6	6	100	50	75
4	OJT / FP	Internship / Apprenticeship / Field Project (Related to DSC)		--	--	8	4	4 – 6	80	20	50
				12	--	20	22		420	130	--
Cumulative Credits for : PG Diploma in Major Subject Core = 28 Electives = 8 RM = 4 OJT / FP = 4							44				
Exit option: PG Diploma after First Year PG Degree :- Cumulative Credits required for PG Diploma (After First Year Degree) = 44											

Table 6: M.Sc. Sem- III

Sr No	Course Category	Name of the course (Title of the Paper)	Level	Teaching Scheme (hrs)			Total Credit	Evaluation Scheme			
				Theory	Tutorial	Practical					
				Th	Tu	P		Duration of Examination (Hrs)	End Semester Evaluation (ESE)	Continuous Internal Evaluation (CIE)	Minimum Passing Marks
1	DSC	Paper 1:-	6.5	4	--	--	4	3	80	20	40
		Paper 2:-		4	--	--	4	3	80	20	40
2	DSE	Elective		4	--	--	4	3	80	20	40
3	DSE /DSC	Lab		--	--	12	6	6	100	50	75
4	RP	Research Project / Dissertation (Core)		--	--	8	4	--	50	50	50
				12	--	20	22		390	160	--

Table 7: M.Sc. Sem- IV

Sr No	Course Category	Name of the course (Title of the Paper)	Level	Teaching Scheme (hrs)			Total Credit	Evaluation Scheme			
				Theory	Tutorial	Practical					
				Th	Tu	P		Duration of Examination (Hrs)	End Semester Evaluation (ESE)	Continuous Internal Evaluation (CIE)	Minimum Passing Marks
1	DSC	Paper 1:-	6.5	4	--	--	4	3	80	20	40
		Paper 2:-		4	--	--	4	3	80	20	40
2	DSE	Elective		4	--	--	4	2	80	20	40
3	DSE /DSC	Lab		--	--	8	4	6	80	20	50
3	OJT	Research Project / Dissertation (Core)		--	--	12	6	--	75	75	75
				12	--	24	22		395	155	--
Cumulative Credits for PG in Major Subject (One Year PG Degree) = 26 Electives = 8 RP = 10							44				
Cumulative Credits for PG in Major Subject (Two Year PG Degree) = 54 Electives = 16 RM = 4 OJT / FP = 4 RP = 10							88				
Cumulative Credits required for PG in Major Subject (One Year PG Degree) = 44 Cumulative Credits required for PG in Major Subject (Two Year PG Degree) = 88											

Table 8: Table showing total marks in theory and Practical semester wise

Semester	Theory	Practical	Total Marks
1	400	150	550
II	300	250	550
III	300	250	550
IV	300	250	550
For Honors	1300	900	2200

Total Credits:

Cumulative Credits required for PG in Major Subject (One Year PG Degree) = 44

Cumulative Credits required for PG in Major Subject (Two Year PG Degree) = 88

9. Credit Specifications:

a. Theory/Tutorial Courses: One hour/credit/week (a minimum of 15 hours of teaching per credit is required in a semester.

b. Laboratory/Performance Based Courses: A minimum of 30 hours in laboratory or Performance Based activities is required in a semester. Performance based activities include Workshop based activities, internship, Apprenticeship; Field based learning, community engagement learning, etc.

c. Each semester will consist of at least 15 weeks of Academic Work equivalent to 90 actual teaching days.

10. Assessment

Assessment Plan will consist of Continuous Internal Evaluation (CIE) and End Semester Evaluation (ESE) for each course/subject taken together.

(A) Continuous Internal Evaluation (CIE) will be based

(a) Attendance of the student during a particular semester

(b) An assignment (min. two) based on curriculum to be assessed by the teacher concerned

(c) Subject wise class test (min. two) or activities conducted by the teacher concerned with proper rubrics.

(B) Expected classroom activities shall consist of Group Discussion, Seminars, Power Point Presentations, Elocution, Debate, Role Play, Case Studies, Educational Games etc . The teacher is expected to undertake a minimum of four of the aforesaid activity.

(C) The CIE marks will be communicated to the examination cell at the end of each semester, but before the semester end examinations / as instructed by the Examination Cell. These marks will be considered for the declaration of the results.

(D) The record of internal marks, evaluation & results should be maintained for a min. period of three year by the respective department for verification by the competent authority.

11. Standard of Passing

The scope of the course, percentage of passing in Theory and Project and Internal Assessment will be governed as per following rules:

(i) In order to pass the Master of Science (M.Sc.) 1st, 2nd, 3rd, and 4th Semester Examinations, an examinee shall obtain not less than 40 % (Grade 4) marks in each theory course / paper, taking CIE & SEE together. Whereas, for practical / performance-based examination an examinee shall obtain not less than 50 % marks in each practical, taking CIE & SEE together.

(ii) An examinee who is unsuccessful at the examination shall be eligible for admission to the subsequent examinations on payment of a fee prescribed for the examination together with the conditions of the ordinance in force from time to time.

12. General Guidelines

a. With effect from Academic Year 2023-24, Two years Master's Degree Program will be revamped as per the Illustrative Credit Distribution given in the above Table.

b. Under the One-year PG Diploma program, and two-year master's Degree program, the students must complete on-the-job training/internship of 04 credits during summer break, after completion of the second semester of the first year in the respective Major Subject.

c. The 4 Credits Research Methodology Component is mandatory in the First Year.

d. Electives selected in the PG program may be Relevant to OR Supportive of the Major Subject chosen.

e. The students will have to undertake a research project of 4 credits in Semester III and a research project of 6 credits in Semester IV in the second year of the two-year master's degree program. This is also applicable to the students admitted to one year PG program after completion of four year UG Program.

f. The exit option at the end of one year of the Master's degree program will commence from AY 2024-25. Students who have joined a two-year Master's degree program may opt for exit at the end of the first year and earn a PG Diploma.

g. The PG Diploma may be awarded to a student provided they have earned the requisite credits in one year including on-the-job training of 04 credits during summer break, after completion of the second semester of the first year in the respective Major Subject.

h. The one-year Master's Degree Program will begin with effect from Academic Year 2027-28.

i. For non-credit courses 'Satisfactory' or 'Unsatisfactory' shall be indicated instead of the letter grade and this will not be counted for the computation of SGPA/CGPA.

j. The provisions of the award of grace marks for passing an examination, securing higher grade in subject(s) shall be issued by the Institute of Science, Nagpur separately shall apply to the examination under this direction.

k. Successful examinees at the M. Sc. Sem I, II, III, and IV Examinations shall be entitled to receive a grade card signed by the **Controller of Examination and Evaluation of Institute of Science, Nagpur (COEE)** and Director, Institute of Science, Nagpur and successful examinees opting for the exit at the end M. Sc. Sem II and IV Examinations shall, on payment of prescribed fees, receive a Degree certificate in the prescribed format, signed by the Director, Institute of Science, Nagpur and Vice-Chancellor of RTM Nagpur University.

13. Guidelines for Performance grading

The PERFORMANCE GRADING of a student shall be on the TEN Points Scale. Depending on the marks scored in a subject, student is given a Grade. Each grade has got certain grade points.

Table 9: Grade Conversion Table (Theory)

Letter Grade	**Grade point**	Marks obtained out of **100** marks
O	**10**	90 – 100
A+	**09**	80 – < 90
A	**08**	70 – < 80
B+	**07**	60 – < 70
B	**06**	55 – < 60
C	**05**	50 – < 55
P	**04**	40 – < 50
F	**0**	< 40
Ab	**0**	AB

Table 10: Grade Conversion Table (Practical)

Letter Grade	Grade point	Marks obtained out of **150** marks	Marks obtained out of **100** marks	Marks obtained out of **50** marks
O	**10**	135 – 150	90 – 100	45 – 50
A+	**09**	120 – < 135	80 – < 90	40 – < 45
A	**08**	105 – < 120	70 – < 80	35 – < 40
B+	**07**	90 – < 105	60 – < 70	30 – < 35
B	**06**	83 – < 90	55 – < 60	28 – < 30
P	**04**	75 - < 83	50 - < 55	25 - < 28
F	**0**	< 75	< 50	< 25
Ab	**0**	AB	AB	AB

14. Computation of SGPA and CGPA

Following is the procedure to compute the Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA):

i. The SGPA is the ratio of sum of the product of the number of credits with the grade points scored by a student in all the courses taken by a student and the sum of the number of credits of all the courses undergone by a student, i.e

SGPA (Si) = Σ(Ci x Gi) / Σ Ci

where Ci is the number of credits of the i^{th} course and Gi is the grade point scored by the student in the i^{th} course.

ii. The CGPA is also calculated in the same manner taking into account all the courses undergone by a student over all the semesters of a program, i.e.

CGPA = Σ (Ci x Si) / Σ Ci

where Si is the SGPA of the ith semester and Ci is the total number of credits in that semester.

iii. The SGPA and CGPA shall be rounded off to 2 decimal points and reported in the transcripts.

iv. CGPA to Percentage (%) conversion formula:

Percentage (%) = (CGPA) * 10

- Based on the above recommendations on Letter grades, grade points and SGPA and CCPA, the Institute of Science, Nagpur may issue the transcript for each semester and a consolidated transcript indicating the performance in all semesters.

15. Abbreviations Used

On Job Training (Internship/Apprenticeship): OJT, Research Methodology: RM, Research Project: RP