

# **INSTITUTE OF SCIENCE, NAGPUR.**

**(An Autonomous Institute of Government of Maharashtra)**



## **DIRECTION NO. 2 OF 2021**

**DIRECTION RELATING TO THE EXAMINATION  
LEADING TO THE DEGREE OF BACHELOR OF SCIENCE  
(THREE YEARS DEGREE COURSE – SEMESTER PATTERN)**

**(TO BE IMPLEMENTED FROM 1 JULY 2021)**



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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, the Board of Studies in all the Science subjects in their meeting prepared the syllabi, scheme of examination and absorption scheme for the M. Sc.,

AND

Whereas, Dr. Abhay Khamborkar, the Academic Coordinator, has considered, accepted and recommended to the Director, Institute of Science, Nagpur B. Sc. Semester-I to VI with draft direction and other details.

AND

I, Dr. Anjali Rahatgaonkar, Director, Institute of Science, Nagpur do hereby issue the following Direction.

- 1.** This Direction may be called, "**Examination leading to the Degree of Bachelor of Science (Three Year Degree Course-Semester Pattern).**"
- 2.** This direction shall come into force with effect from the date of its issuance.
- 3.** The duration of the B. Sc. course shall be of three academic years consisting of six semesters with the examinations at the end of each semester namely:
  - a.** The B.Sc. Semester-I Examination;
  - b.** The B.Sc. Semester-II Examination;
  - c.** The B.Sc. Semester-III Examination;
  - d.** The B.Sc. Semester-IV Examination;
  - e.** The B.Sc. Semester-V Examination; and
  - f.** The B.Sc. Semester-VI Examination.

4. The theory examination of Semester-I, II, III, IV, V and VI shall be conducted by the Institute of Science, Nagpur and shall be held separately at the end of each semester at such dates as may be decided and notified by the Institute of Science, Nagpur and shall be held as per the schedule given in Table below.

<b>Table 1</b>			
<b>Sr. No.</b>	<b>Name of the examination</b>	<b>Main Examination</b>	<b>Supplementary Examination</b>
<b>1</b>	<b>Semester I, III &amp; V</b>	<b>Winter</b>	<b>Summer</b>
<b>2</b>	<b>Semester II, IV &amp; VI</b>	<b>Summer</b>	<b>Winter</b>

#### **ELIGIBILITY TO THE COURSE:**

5. Subject to compliance with the provisions of this Direction and of other Ordinances in-force from time to time, the following persons shall be eligible for admission to the examinations:-

A student who has prosecuted a regular course of study for not less than one academic semester prior to that examination; provided that an applicant to the examination shall have attended a full course of laboratory instructions in a College in the subject in which laboratory work is prescribed. The candidate shall submit a Certificate to that effect signed by the Head of the Department / Director Institute of Science, Nagpur.

6. Eligibility of every applicant for admission to B. Sc. Semester course shall:-

#### **A) In case of the B. Sc. Semester I examination:-**

The candidate should have passed the 12th Standard Examination of the Maharashtra State Board of Secondary and Higher Secondary Education with English and other Modern Indian Languages together with any three Science subjects comprised in the faculty of Science or an examination recognized as equivalent thereto in such subjects and with such standards of attainments as may be prescribed.

Provided that students passing the 12th Standard Examination of the Maharashtra State Board of Secondary and Higher Secondary Education and offering Vocational Stream with one Language only and with any one of the following groups of subjects shall be eligible for admission to the B. Sc. Semester I course and in onward semesters with the corresponding group of subjects as shown in **Table 2**

<b>Table 2</b>		
Sr. No.	Groups of subjects of 12th Standard students	Corresponding Next Higher Examination groups of Science subjects at B. Sc. Semester I (Along with Compulsory English and any one of the languages from Marathi, Hindi, Urdu, Gujarati, Telugu, Bengali, Sanskrit, Supplementary English, French, German, Russian, Persian, Arabic, Pali and Prakrit or Latin in B. Sc. Semester I & II only).
1.	1. English or Any Modern Language 2. Physics, Chemistry, Mathematics, Biology	Combination of any 3 science subjects as shown in table 4.
2.	1. English or Any Modern Language 2. Vocational Course of 200 Marks 3. Physics, Chemistry, Mathematics	Combination of any 3 science subjects as shown in table 4 Sr. No. (1), (2), (3) and (4).
3.	1. English or Any Modern Language 2. Vocational Course of 200 Marks 3. Physics, Chemistry, Biology	Combination of any 3 science subjects as shown in table 4 Sr. No. (5), (6), and (7).
4.	MCVC Group	
	a) Agriculture Group Or Fisheries Group	Combination of any 3 science subjects as shown in table 4 Sr. No. (5), (6), and (7).
	b) Para-medical group	Combination of any 3 science subjects as shown in table 4 Sr. No. (5), (6), and (7).
	c) Engineering and Technology or Engineering & Technology repairs & maintenance group at M.C.V.C.	Combination of any 3 science subjects as shown in table 4 Sr. No. (1), (2), (3) and (4).
	d) Engineering and Technology Group Electronics Technology Trade	Combination of any 3 science subjects as shown in table 4 Sr. No. (1), (2), (3) and (4).
<p><b>Note:</b> For finalization of admission under Sr. No. 4 a) and b), Chemistry at Standard XII level will be compulsory AND For admission under Sr. No. 4 c) and d), Mathematics at Standard XII level will be compulsory.</p>		

**B) In case of the B. Sc. Semester II, III, IV, V and VI Examinations:-** The student should have attended a minimum of 90 days in the respective semester and passed the previous semester examination as per the rules of ATKT as mentioned in Para 7 of this direction.

7. The ATKT rules for admission for the B.Sc. (**Theory, Practical and Seminar as separate passing head and on calculation fraction, if any, shall be rounded. Ex. If one half of the passing heads value is 3.5 then it shall be considered as 3** ) shall be as given in the following **Table- 3**.

<b>Table 3</b>		
<b>Admission to Semester</b>	The student should have attended the Session / term satisfactorily	Candidates should have passed at least one half of the passing heads of the following examinations (Theory and Practical as separate passing head and on calculation fraction, if any, shall be ignored)
1	2	3
<b>B. Sc. Semester I</b>	Semester I and admitted as per para 5 of this Direction	--
<b>B. Sc. Semester II</b>	Semester II	--
<b>B. Sc. Semester III</b>	Semester III	One half of the total head prescribed for Sem I and Sem II examination
<b>B. Sc. Semester IV</b>	Semester IV	--
<b>B. Sc. Semester V</b>	Semester V	a) Passed Sem I & II examination and b) One half of the total head prescribed for Sem III & IV examination
<b>B. Sc. Semester VI</b>	Semester VI	--

8. The students admitted to this Degree course shall be governed by the general Ordinances / Directions of the Institute of Science, Nagpur which are applicable to all the regular or ex-students as issued from time to time.

9. The fee for each Semester examination shall be as prescribed by the Institute of Science, Nagpur from time to time.

10. Every examinee for the B. Sc. Semester I & II examination shall be examined in:

- i. Compulsory English
- ii. Any one of the following Languages Marathi, Hindi, Supplementary English
- iii. Subjects from any one of the following groups, as indicated in Table 4 given below:

<b>Table 4</b>	
<b>Sr. No.</b>	<b>Group</b>
1	Physics, Chemistry, Mathematics (PCM)
2	Physics, Statistics, Mathematics (PSM)
3	Physics, Electronics, Mathematics (PEM)
4	Statistics, Computer Science , Mathematics (SCoM)
5	Chemistry, Botany, Zoology (CBZ)
6	Chemistry, Zoology, Environmental Science (CZEnv)
7	Chemistry, Botany, Environmental Science (CBEnv)

11. Every examinee for the B.Sc. Sem-III, IV, V and VI Examination shall be examined in each of the three Science subjects in which he/she has been examined at the B.Sc. Sem-I & II Examination.

12. The Scope of the subjects of all semesters of B.Sc. examination shall be as indicated in the respective syllabi in force from time to time. The medium of instruction and examination shall be English, except for the courses in Languages.

13. The maximum marks allotted to each subject and the minimum marks which an examinee must obtain in order to pass the examination shall be as per the Appendix A appended to this Direction.

14. The practical examination of all semesters shall be conducted at the end of each semester as indicated in Table 5 given below.

<b>Table 5</b>			
<b>Sr. No.</b>	<b>Name of the examination</b>	<b>Main Examination</b>	<b>Supplementary Examination</b>
<b>1</b>	<b>Semester I, III &amp; V</b>	<b>Winter</b>	<b>Summer</b>
<b>2</b>	<b>Semester II, IV &amp; VI</b>	<b>Summer</b>	<b>Winter</b>

15. The scheme of awarding internal marks shall be as per Appendix- B appended with this Direction.

16. The classification of the examinee successful at the semester and examinations and at the end of final semester examination shall be as per the rules and regulations of Choice Based Credit System as prescribed in appendix with this direction.

**Explanation:**

Grading at the B.Sc. Examination shall be declared on the basis of the marks obtained only in the Science Subjects at the Sem-I, II, III, IV, V & VI Examinations taken together.

17. There shall be no classification of successful examinees at the Sem-I to Sem-V Examinations.

18. Successful examinees at the end of B. Sc. Sem - VI Examination who obtained CGPA above 7.51 shall be placed in First Division with distinction, those obtaining CGPA from 6.00 to 7.50 shall be placed in First Division, those obtaining CGPA from 4.50 to 5.99 shall be placed in Second Division and those obtaining CGPA from 4.00 to 4.49 shall be placed in Third Division.

**Explanation :**

(1) Distinction shall be awarded only in the Science Subjects.

(2) Distinction at the B.Sc. Examination shall be awarded on the basis of the marks obtained at the B.Sc. Semester - I, II, III, IV, V and Semester VI Examination taken together.

(3) Distinction shall not be awarded to an examinee availing of the provision of the exemptions and compartments at any of the examination.

19. 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.

20. As soon as possible after the examinations, the Board of Examinations and Evaluation shall publish a list of successful examinees at the B.Sc Sem-I & II; B.Sc. Sem-III & IV and B.Sc. Sem-V & VI Examinations. Such list at the B.Sc. Semester VI Examination shall be arranged in three Divisions. The names of the examinees passing the examination as a whole in the minimum prescribed period and obtaining the prescribed number of places in First or Second Division shall be arranged in Order of Merit. While preparing the Merit list for the B. Sc. Examination the marks secured by the candidate in the compulsory languages at their Semester I & II Examination will be taken into consideration in addition to the marks scored by them in their optional subjects.

20. No Person shall be admitted to B.Sc Sem-I, II, III, IV, V and VI Examinations, if he/she has already passed the corresponding or an equivalent examination of any other Statutory University.

21. Successful examinees at the B. Sc. Sem I, II, III, IV, and V Examinations shall be entitled to receive a **Certificate** signed by the **Controller of Examination and Evaluation of Institute of Science, Nagpur (COEE)** and successful examinees at the end of B. Sc. Sem VI examination shall, on payment of prescribed fees, receive a Degree in the prescribed format, signed by the Director, Institute of Science, Nagpur and Vice-Chancellor of RTM Nagpur University.

**22.** This course is based on Choice Based Credit System and therefore, it will be also regulated by guidelines and regulation given in appendices / annexure which are part of this direction.

Date:

(Dr. Anjali Rahatgaonkar)  
Director,  
Institute of Science, Nagpur



**Appendix – A**  
**Teaching & Examination Scheme**  
**Bachelor of Science**  
**Three Year (SIX SEMESTER) DEGREE COURSE**  
**B. Sc. (Semester I and II)**

Sr. No.	Subject	Teaching scheme			Examination scheme								
		T + Tu = Period	Pr (Practical)	Total Periods	Theory					Practical			Total Marks (Th, Pr, IA)
					Duration Hrs	Max Marks Th paper	Max Marks IA	Total	Min Passing Marks	Duration Hrs	Max marks practical	Min passing marks	
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Compulsory English	4+1	--	4+1	3	60	15	75	30	--	--	--	75
2	Second Language	3	--	3	3	60	15	75	30	--	--	--	75
3	Science subjects excluding Maths (Paper I)	3+@	--	6+@	3	50	10	120	48	--	--	--	150
4	Science subjects excluding Maths (Paper II)	3+@	--		3	50	10			--	--	--	
5	Science subjects excluding Maths (Practical)	--	6	6	--	--	--	--	6-8*	30	12		
6	Mathematics (Paper I)	4+1	--	8+2	3	60	15	150	60	--	--	--	
7	Mathematics (Paper II)	4+1	--		3	60	15			--	--	--	
<b>Note:</b>													
1. Th = Theory; Pr = Practical; Tu = Tutorial; IA = Internal Assessment;													
2. @ = Tutorials wherever applicable;													
3. * = If required, for two days.													
4. Minimum marks for passing will be 40% of the total marks allotted to that paper / practical.													
5. Candidate has to pass theory papers and practical separately													
Point no. 6 & 7 in the above table is applicable only to students offering Mathematics as one of the subjects.													
Grand Total of Semester I & II: 450 + 150 each semester = TOTAL = 600 Marks per semester													

**Teaching & Examination Scheme**  
**Bachelor of Science**  
**Three Year (SIX SEMESTER) DEGREE COURSE**  
**B. Sc. (Semester III; IV, V and VI)**

Sr. No.	Subject	Teaching scheme			Examination scheme								
		T + Tu = Period	Pr (Practical)	Total Periods	Theory					Practical			Total Marks (Th, Pr, IA)
					Duration Hrs	Max Marks Th paper	Max Marks IA	Total	Min Passing Marks	Duration Hrs	Max marks practical	Min passing marks	
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Science subjects excluding Maths (Paper I)	3+@	--	6+@	3	50	10	120	48	--	--	--	150
2	Science subjects excluding Maths (Paper II)	3+@	--		3	50	10			--	--	--	
3	Science subjects excluding Maths (Practical)	--	6	6	--	--	--	--	6-8*	30	12		
4	Mathematics (Paper I)	4+1	--	8+2	3	60	15	150	60	--	--	--	150
5	Mathematics (Paper II)	4+1	--		3	60	15			--	--	--	
<b>Note:</b>													
1. Th = Theory; Pr = Practical; Tu = Tutorial; IA = Internal Assessment;													
2. @ = Tutorials wherever applicable;													
3. * = If required, for two days.													
4. Minimum marks for passing will be 40% of the total marks allotted to that paper / practical.													
5. Candidate has to pass theory papers and practical separately													
Point no. 4 & 5 in the above table is applicable only to students offering Mathematics as one of the subjects.													
Grand Total of Semester III, IV, V & VI: 450 each semester = TOTAL - 450 Marks per semester													

## **Appendix-B:**

### **Guidelines for Internal Assessment, Theory paper pattern and Practical**

1. Each semester shall comprise of minimum 90 teaching days.
2. Every subject (Except Languages and Mathematics) in each semester will comprise
  - a. Two theory papers – 50 Marks each
  - b. One internal assessment based on the two theory papers for 10 Marks each. Total 20 Marks.
  - c. One practical / laboratory work – Total 30 marks
3. For Mathematics
  - a. Two theory papers – 60 marks each
  - b. One internal assessment based on the two theory papers for 15 marks each. Total 30 marks
4. In addition to the above, Semester I and II will have
  - a. One compulsory English paper of 60 marks with 15 marks internal assessment, Total 75 marks.
  - b. One second language paper (Marathi, Hindi, Supplementary English) of 60 Marks with 15 marks internal assessment, Total 75 marks.
  - c. One Health and Physical Education Paper (grade subject). The notification regarding scheme of examination and grading scale will be issued separately.

### **Internal Assessment:**

5. The internal assessment shall be done by the Department at least 15 days prior to the final examination of each semester. The Marks shall be sent to the Controller of Examination and Evaluation, Institute of Science, Nagpur immediately after the Assessment in the prescribed format.
6. Guidelines for Internal Assessment are
  - a) The internal assessment marks assigned to each theory paper as mentioned in Appendix - A shall be awarded on the basis of assignments like class test, attendance, project assignments, seminar, study tour, industrial visits, visit to educational institutions and research organizations, field work, group discussions or any other innovative practice / activity.
  - b) There shall be one / two assignments (as described above) per Theory paper.
  - c) There shall be no separate / extra allotment of work load to the teacher concerned. He/ She shall conduct the Internal assessment activity during the regular teaching days / periods as a part of regular teaching activity.

- d) The concerned teacher / department shall have to keep the record of all the above activities until six months after the declaration of the results of that semester.
- e) At the beginning of each semester, every teacher shall inform his / her students unambiguously the method he / she proposes to adopt and the scheme of marking for internal assessment.
- f) Teacher shall announce the schedule of activity for internal assessment in advance in consultation with HOD / Director Institute of Science, Nagpur.
- g) Final submission of internal marks to the Controller of Examination and Evaluation , Institute of Science, Nagpur shall be before the commencement of the Theory Examinations.

**Theory Papers:**

7. All Theory papers shall be divided into four units.
8. The theory question papers shall be of 3 hours duration and comprise of 5 questions with equal weightage to all units.
9. The pattern of question papers is
- Each theory paper will be of 50 marks (60 marks for Mathematics and Languages) each.
  - All questions are compulsory and will carry equal marks.
  - Question paper for any theory paper will comprise of five questions of 10 marks (12 marks for Mathematics and Languages) each.
  - Question No. 1 to 4 will be will be from four units each with an internal choice. The questions can be asked in the form of long answer type for 10 marks (12 Marks for Mathematics and Languages) or two questions / short notes of 5 marks each (6 Marks for Mathematics and Languages) or four questions / short notes of 2½ each (3 Marks for Mathematics and Languages).
  - Question No. 5 shall be compulsory with three questions / notes of very short answer type from each of the four units having 1 mark each. The student shall have an option of answering any 10 questions out of the 12 questions. In case of Mathematics and Languages, question 5 shall be compulsory with two questions / notes of very short answer type from each unit having 1½ mark each. The student shall answer all the 8 questions.

**Practical:**

- 10. Practical exam shall be of 6 to 8 hours duration for one or two days, depending on subject and number of students.
- 11. The Practical Record of every student shall carry a certificate as shown below, duly signed by the teacher-in-charge and the Head of the Department.
- 12. If the student fails to submit his / her certified Practical Record duly signed by the Teacher-In-Charge and the Head of the Department, he / she shall not be allowed to appear for the Practical Examination and no Marks shall be allotted to the student.
- 13. The certificate template shall be as follows:

**C E R T I F I C A T E**

Name of the Institution

.....

Name of the Department:

.....

This is to certify that this Practical Record contains the bonafide record of the Practical work of Mr /Ms / Mrs ..... of ..... Semester .....

during the academic year ..... The candidate has satisfactorily completed the experiments prescribed by Institute of Science, Nagpur for the subject

.....

Dated ..... / ..... / .....

Signature of the teacher who taught the examinee

1. ....

2. ....

**Head of the Department**

## Appendix-C

### Guidelines for Performance grading

#### Performance grading

##### Credits:

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 as follows:

Letter Grade	O	A+	A	B+	B	C	P	F	Ab
Grade Point	10	09	08	07	06	05	04	0	0

A student obtaining Grade F shall be considered failed and will be required to reappear for the examination.

##### Valuation pattern:

Every credit is for **25** marks and valuation and grade points will be given as per following pattern.

Marks obtained out of <b>100</b> marks	Marks obtained out of <b>150</b> marks	Marks obtained out of <b>75</b> marks	Letter Grade	Grade point
91 – 100	136 – 150	68 – 75	<b>O</b>	<b>10</b>
81 – 90	121 – 135	61 – 67	<b>A+</b>	<b>09</b>
71 – 80	106 – 120	53 – 60	<b>A</b>	<b>08</b>
61 – 70	91 – 105	46 – 52	<b>B+</b>	<b>07</b>
51 – 60	76 – 90	38 – 45	<b>B</b>	<b>06</b>
41 – 50	61 – 75	31 – 37	<b>C</b>	<b>05</b>
= 40	= 60	= 30	<b>P</b>	<b>04</b>
< 40	< 60	< 30	<b>F</b>	<b>0</b>
AB	AB	AB	<b>Ab</b>	<b>0</b>

### **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

$$\text{SGPA (Si)} = \frac{\sum (C_i \times G_i)}{\sum C_i}$$

where  $C_i$  is the number of credits of the  $i^{\text{th}}$  course and  $G_i$  is the grade point scored by the student in the  $i^{\text{th}}$  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.

$$\text{CGPA} = \frac{\sum (C_i \times S_i)}{\sum C_i}$$

where  $S_i$  is the SGPA of the  $i^{\text{th}}$  semester and  $C_i$  is the total number of credits in that semester.

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

Ex.  $7.0765 = 7.08$  or  $7.0755 = 7.07$  or  $6.5168 = 6.52$  etc. Transcript (Format): 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.