THE FACULTY OF SCIENCE AND TECHNOLOGY

DIRECTION NO. 02 OF 2021

ADMISSION AND EXAMINATIONS OF STUDENTS IN THE FULL TIME, SEMESTER PATTERN (CHOICE BASED CREDIT SYSTEM) PROGRAMMES LEADING TO THE AWARD OF THE DEGREES OF BACHELOR OF ENGINEERING (B.E.) AND BACHELOR OF TECHNOLOGY (B. Tech.), DIRECTION, 2021.

Whereas, The Maharashtra Public Universities Act, 2016 (VI of 2017) has come into force from 1st March 2017;

AND

Whereas, Rashtrasant Tukadoji Maharaj Nagpur University (hereinafter "the University") is now being governed by The Maharashtra Public Universities Act, 2016 (VI of 2017) (hereinafter the Act);

AND

Whereas, the Board of Studies in Applied Science and Humanities and Ad-hoc Committee in General Engineering, in the Faculty of Science and Technology, at their meetings held on 11/12/2020 and 14/1/2021, keeping the guidelines of All India Council of Technical Education (AICTE) in mind have decided to make uniform guidelines to design new 160 credits curriculum for the Bachelor of Engineering (B.E.) and Bachelor of Technology (B.Tech.)

programmes leading to the award of degrees of Bachelor of Engineering & Bachelor of Technology (Full time), in the Faculty of Science and Technology;

AND

Whereas, Hon‟ble Vice–Chancellor in exercise of his powers under section 12(7) of the Act has on behalf of the Faculty of Science & Technology and also the Academic Council approved the structure of the Bachelor of Engineering (B.E.) and Bachelor of Technology (B.Tech.) programmes, having 160 credits and also the draft Direction in that regard, as required by the provisions of sections 35(d) and33 (s) and(t) of the Act;

AND

Whereas, introduction of new academic programme requires making of an Ordinance as per the provisions of section 73(1) of the Act however, since Ordinance making is a time consuming process and there is urgency in introducing the new 160 credit based Full Time Bachelor of Engineering and Bachelor of Technology programmes in the faculty of Science and Technology from the academic session 2020-21 provisions of section 12 (8) of the Act is attracted warranting issuance of a Direction by the Vice-Chancellor, as an interim measure;

Now, therefore, I, Dr. Subhash R. Chaudhari, Vice-Chancellor of Rashtrasant Tukadoji Maharaj Nagpur University, in exercise of my powers under section 12(8) of the Act, do hereby issue the following Directions:-

1. This Direction shall be called "**ADMISSION AND EXAMINATIONS OF STUDENTS IN THE FULL TIME, SEMESTER PATTERN (CHOICE BASED CREDIT SYSTEM) PROGRAMMES LEADING TO THE AWARD OF THE DEGREES OF BACHELOR OF ENGINEERING (B.E.) AND BACHELOR OF TECHNOLOGY (B. Tech.), DIRECTON, 2021".**

2. This Direction shall come in to force from the date of its issuance.

3. This Direction shall be applicable from the academic session 2020-21 for first year of the program and progressively Onwards.

4. In this Direction unless the context requires otherwise:-

   a. **"ATKT"** means "Allowed to Keep Term" in the higher semester, as per the rules herein.

   b. **"Board of Studies"** means the Board of Studies in Applied Science and Humanities and General Engineering, in the Faculty of Science and Technology.

   c. **"Course"** means a theory, practical (or the combination of theory and practical) subject, and research project, prescribed for any semester and carrying maximum and minimum passing marks, which a student, admitted to the programme of the Bachelor of Engineering (B.E.) and Bachelor of Technology (B.Tech.) governed

by this Direction has to study in order to become eligible for the award of the Degree under this Direction.

d. **"Credit"** means the unit by which the course work is measured. It is measured in terms of weekly class hours assigned to a Course.

e. **"Credit Point" (CP)** is the value obtained by multiplying the Grade Point by the Credit i.e. No. of Credits assigned for the course x Grade Points secured for that course.

f. **"Cumulative Grade Point Average (CGPA)"** CGPA refers to the Cumulative Grade Point Average weighted across all the semesters. It is obtained by dividing total number of credit points in all the semesters by the total number of credits in all the semesters.

g. **"Degree"** means the Degrees of Bachelor of Engineering (B.E.) and the Bachelor of Technology (B.Tech.) (Full Time) (Semester Pattern) (Credit Based System).

h. "**Grade Letter"** is an index to indicate the performance of a student in a particular course/ Paper. It is the transformation of actual marks secured by a student in a course/paper. It is indicated by a Grade letter O,A,B,C,D,E and F. There is a range of marks for each Grade.

i. **"Grade Point"** is weight allotted to each grade letter depending on the marks awarded in a course/paper.

j. **"Programme"** means and includes both the Bachelor of Engineering (B.E.) and the Bachelor of Technology (B.Tech.) (Full Time) (Semester Pattern) (Choice Based Credit System) programmes under this Direction **(for short the 160 credit programmes)**.

k. **"Student"** means a student admitted to the programme under this Direction.

l. **"Semester Grade Point Average (SGPA)"**SGPA indicates the performance of a student in a given semester. It is based on the total credit points earned by the student in all the courses and the total number of credits assigned to the courses/papers in a Semester.

m. **"University"** means Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur.

5. Admission and eligibility to the Programmes:

(a) Subject to the compliance with the provisions of this Direction and other Ordinances/Directions, in force from time to time, an applicant for admission to Semester-I of the programme shall have passed 12th (Science) examination with subjects specified in Director of Technical Education (Maharashtra)" s circulars issued from time to time

(b) The students having Diploma in Technical Education and also the students who are B.Sc. graduates are eligible for the lateral entry in the second year of the programmes.

(c) The minimum percentage of marks in the qualifying examination shall be as per the applicable governing rules Framed by Government of Maharashtra from time to time.

(d) The students having Diploma of Board of Technical Education and taking lateral admission to direct B.E./B.Tech at second year level are not required to appear for any subjects of the first year of B.E./B.Tech of new 160 credit pattern. Their SGPA and CGPA will be considered from second year.

(e) The students with B.Sc. degree taking admission to second year level shall have to appear, additionally, for theory and practical (if applicable) examination of Engineering Graphics-I, Basics of Civil

and Mechanical Engineering, Basics of Electrical Engineering, Computational Skill and Engineering Mechanics of First year in new 160 credit pattern.

6. Duration of the Programmes:

i. The B.E. programme shall consist of 4 Years (Eight Semesters)

ii. The B.Tech. programme(in Chemical Technology , Chemical Engineering and Biotechnology only) shall consist of 4 Years (Eight Semesters)

7. Medium of Instructions: The medium of instructions and examinations shall be English.

8. Structure of the Programmes:

I. The detail structure of the B.E. and B.Tech programmes shall be as given in Annexures A-1 to D-3.

II. The B.E. /B.Tech programme shall also be of two more types i.e. B.E./B.Tech with Minor /Honor and Major/Honor

A) B.E./B.Tech Degree with a Minor/Honor

a) A student who fulfills the requirements of the B.E./B.Tech. program of the discipline in which he/she was admitted, will be awarded with B.E./B.Tech. degree in that discipline. The flexibility is offered for students to successfully complete additional 18 to 20 credits by passing the courses through online mode from the specified platforms. Such students shall be awarded B.E./B.Tech Degree with Minor/Honor.

6

b) If a student is unable to earn additional 18 to 20 credits along with all the prescribed credits of the program in which he/she is admitted within the stipulated allowed duration of the original program he/she will not be awarded Minor/Honor degree.

c) B.E./B.Tech. with Minor :

Minor scheme aims for additional knowledge in any other branch for enhancement of employability. During the span of Four years (Three Years in case of lateral entry) on completion of 18 to 20 additional credits in another discipline, the B.E./B.Tech. degree with "Minor Specialization in -----------" *(concrned discipline/subject)* will be awarded to the student on completion of final semester.

B) B.E./B.Tech. with Major/Honor :

a) Honor" s scheme aims at growth of vertical knowledge of the student in his/her parent branch which may have advance knowledge or research orientation. During the span of four years (Three Years in case of lateral entry) on completion of 18 to 20 additional credits, through online mode, in the same discipline, the B.E./B.Tech. degree with "Major in…………"*(concerned Discipline)* or Honor " will be awarded to the student on completion of Final semester.

b) A student having a CGPA of more than or equal to 7 and no backlog subjects, in any semester, during the span of his/her degree programme will be eligible to get Degree with "Honor", otherwise the student will be eligible to get Degree with "Major" specialization in the discipline, under this category.

9. Curriculum of the Programmes:-

The detail content of the courses prescribed for each semester of the B.E. and B.Tech. programmes shall be as determined by the relevant Board of Studies and notified by the University from time to time.

10. Scheme of Examinations: -

i) Subject to the provisions of the general rules of the University with respect to conduct of examinations and in particular the rules regarding payment of examination fees, award of grace marks, and the maximum and minimum passing marks and eligibility for getting exemption in any passing heads, as shown in the relevant Annexures herein, there shall be end semester examination to be conducted by the University as per the scheme and modalities to be notified from time to time.

ii) An examinee who does not pass or who fails to present himself/herself for the examination(s) shall be eligible for reappearing in the same examination on payment of a fresh fee and such other fees as may be prescribed from time to time. However, re-admission to the semester would be allowed only when a regular session is running for a particular semester.

1. Annexure A-1 :B.E 1st Semester Scheme of Examination
2. Annexure A-2 :B.E 2nd Semester Scheme of Examination
3. Annexure A-3 :B.E 1st & 2nd Semester Absorption Scheme
4. Annexure A-4 :B.E (Fire Engineering) 1st & 2nd Semester Scheme of Examination
5. Annexure B-1 :B.Tech (Chemical Engineering) 1st Semester Scheme of Examination
6. Annexure B-2 :B.Tech (Chemical Engineering) 2nd Semester Scheme of Examination

7. Annexure B-3 :B.Tech (Chemical Engineering) 1st& 2nd Semester Absorption Scheme

8. Annexure C-1 :B.Tech (Chemical Technology) 1st Semester Scheme of Examination

9. Annexure C-2 :B.Tech (Chemical Technology) 2nd Semester Scheme of Examination

10. Annexure C-3 :B.Tech (Chemical Technology) 1st& 2nd Semester Absorption Scheme

11. Annexure D-1 :B.Tech (Biotechnology) 1st Semester Scheme of Examination

12. Annexure D-2 :B.Tech (Biotechnology) 2nd Semester Scheme of Examination

13. Annexure D-3 :B.Tech (Biotechnology) 1st& 2nd Semester Absorption Scheme

11. Calculation of SGPA and CGPA

Degree will be based on SGPA and CGPA calculations since First Semester (Third semester in case of lateral entry students)

a) SGPA and CGPA will be calculated on the basis of the grades as detailed below

  i) Conversion of Marks to Grades using Absolute Grading system.
  - For each course taken, the student will be assigned with a grade based on the combined performance in all the assessments.
  - Table -1 shows the various grades awarded to students with mark range as indicated.

Table-1: Award of Grades for Theory Courses

(a) Course/Subject carrying maximum 100 marks

Marks Range)	Grade
X ≥ 91	AA
91 >X ≥ 85	AB
85 >X ≥ 76	BB
76 >X ≥ 66	BC
66 >X ≥ 56	CC
56 >X ≥ 45	CD
X<45	FF
Absent	ZZ

X = Marks obtained out of 100

(b): Course/Subject carrying maximum 50 marks

Marks Range(for Max 50 marks)	Grade
X ≥ 46	AA
46 >X ≥ 42	AB
42 >X ≥ 38	BB
38 >X ≥ 33	BC
33>X ≥28	CC
28>X ≥ 23	CD
X<23	FF
Absent	ZZ

X = Marks obtained out of 50

(c): Award of Grades for Practical Courses

Marks Range (for Max 50 marks)	Grade
X ≥ 46	AA
46>X ≥ 42	AB
42>X ≥ 38	BB
38 >X ≥ 34	BC
34>X ≥30	CC
30>X ≥ 25	CD
X<25	FF
Absent	ZZ

X = Marks obtained out of 50

- Audit Course does not carry any credit, hence, will not be considered in the SGPA/CGPA calculation. But the grade card will reflect "Audit course" and will be awarded with grade as in Table-1(a or b or c). However, the student will have to pass the course with minimum required attendance and evaluation result to clear the semester.

ii) Obtaining Grade Point

- The academic performance of a student will be graded on Ten point scale.
- The qualitative assessment of student's performance will be indicated by these grades.
- Each grade is associated with a grade point as listed in Table-2.

Table-2: Grades and Equivalent Grade Points

Grade	Grade Point
AA	10.00
AB	9.00
BB	8.00
BC	7.00
CC	6.00
CD	5.00
FF	0
ZZ	0

iii) Calculating SGPA and CGPA

- The grades upto „CD‟ awarded to student in all the courses shall be converted into a Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA).

- $\text{SGPA} = S_m = \dfrac{\sum Ci * Pi}{\sum (Ci)}$

  Where S_m = SGPA of „mth"

  semester; C_i = Credit of „ith" Course

  Pi- Grade point earned of ith course

- $\text{CGPA} = \dfrac{\sum Cj * Pj}{\sum (Cj)}$

  Where, P_j = Grade points earned in the jth course;

  C_j = Credit of jth course up to semester for which CGPA is to be calculated.

  J= 1,2, … m represents the number of courses in which a student is registered up to the semester for which CGPA is to be calculated.

iv) Incentive credits to the students participating in NCC/NSS/ Games & Sports/Cultural Activities/Curricular and Co-curricular Activities will be awarded as per the University prevailing ordinance"

12. Class/Division

The class/division in academic performance of the student for the complete duration of program to be classified as follows:

- First Class with distinction: CGPA 7.5 and above,
- First Class: CGPA 6.0 and above, but less than 7.5, and
- Second Class: CGPA less than 6.0

As per requirements, the conversion of the performance index CGPA into equivalent percentage of marks, the formula shall be used is-

Percent marks = (CGPA)*10.

13. Award of Merit Ranks

The students admitted to the programmes governed by this Direction on successful completion of the programme shall be eligible to be awarded a merit rank as per the general rules of the University in this regard.

14. Exit Policy for Failure/Dropout Students:

i). Student who wish to exit before the completion of the program duration, may be issued Certificate/Diploma/Advance Diploma as per their acquired levels of learning with additional skill as mentioned below.

Table-3: Additional online/off line Courses required to qualify

Award	Year of Completion	Additional online/offline courses required.
Certificate	Certificate on exit after First year	1 Certificate course of 30 hours duration
Diploma	Diploma on exit after Second year	1 Diploma Course of 3 months duration in specialized area
Advance Diploma	Advance-Diploma on exit after Third year	1 Diploma Course of 6 months duration in specialized area

Note:- Students may opt for MOOC or specified platforms for online courses with prior permission of University

ii). Student who wish to exit without completing First year and who is not eligible for award of "certificate/Diploma/Adv Diploma" should undergo hands on training for getting Certificate.

		Exit Policy for Failure Students : Hands on Training
i	Orientation	- Engineering Based - Skill Development based - Atmanirbhar - Self employable
ii	Duration	6 Months
iii	Areas of Training	Automobile Workshop, Machine Shop, Welding Shop, Motor Winding, Electric Fittings, TV Repairing, Mobile Repairing, Hardware Repairing, Networking, Road constructions, building constructions, Physician Course, X Ray Technician, Biomedical Instrumentation, etc (Skill Development Courses from Jivan Shikshan Abhiyan, NSQF)
iv	Credits	10-15
v	Nature of award	Certificate

a) Institute and University should have a joint MOU with workshops/Shops/Service Providers/Contractors/Entrepreneurs etc. at local level

b) Certificate to be issued on the basis of regular monitoring and hands on training report from concerned agency after 6 month.

c) In case student is not interested to undertake any above mentioned training then certificate to be issued on the basis of credits earned.

d) Students must earn 20credits and above out of subjects he/she has to pass in First year. This can be provided with credit certification for multidisciplinary entry.

15 A.T.K.T Rules

I.) For calculation of passing heads, any decimal fraction should be rounded off to lower digit.

ii) Passing the semester shall include all the credit and audit subject heads.

iii) For getting promotion in the higher class (under ATKT) a student must obtain minimum 40% credits prescribed for a particular year, comprising two semesters.

16. ABSORBTION SCHEME

i. After introduction of the 160 credit programmes under this Direction existing B.E. and B.Tech. programmes shall be discontinued in a phase-wise (progressive) manner and the failure students of the said programmes shall be provided maximum five attempts to clear all the courses/subject(s) of the said programmes after which they shall be absorbed in the 160 credit programmes under this Direction as per the absorption scheme hereunder.

ii. The students of the existing programmes shall also be entitled to join the 160 credit programmes as per the absorption schemes provided by relevant Board of Studies. However, student will have to appear for the examinations under new 160 Credit Scheme for the matchable subjects in which student has not cleared the subject in the existing programmes.

iii.a) A student having passed in particular course/subject heads of the existing programme at any semester level shall be exempted from such subject heads at any level (lower/higher) of the new 160 Credit

programme. If any course/subject is named with a new nomenclature but is having similar contents it shall also be exempted. The respective Board of Studies shall prepare and notify the list of such subjects. Wherever a student is absorbed in the new 160 credit course with benefit of exemption in courses/subjects, in any semester, proportionate marks/grades shall be awarded in the concerned course/subject heads.

b) Wherever a new course/subject has been introduced in the new 160 Credit programme in any semester which was not to be found in the existing programmes the internal marks shall be awarded in proportion to the marks/grades earned by a student in the university/external examination in the concerned new course/subject head.

c) Student being absorbed in new 160 Credit Pattern shall be exempted from the subject/s which he/she has cleared in the existing semester pattern as per the absorption scheme provided by the concern B.O.S. However the subject/s which he/she has not cleared in the old semester pattern and having no equivalent subject at any level of new 160 Credit Pattern shall not be considered during the absorption irrespective of the status of the result of that subject.

17. If any difficulty in implementation of the scheme of this Direction is encountered or any doubt regarding interpretation of any provision of this Direction arises the matter shall be referred for decision of the Vice-Chancellor whose decision shall be final and binding on all the concerned people.

-Sd-

Nagpur

(Dr. Subhash Chaudhari)

Date: 18-01-2021

Vice-Chancellor

RASHTRASANT TUKADOJI MAHARAJ NAGPUR UNIVERSITY, NAGPUR.

(Established by Government of Central Provinces Education Department by Notification No. 513, dated the 1ˢᵗ of August, 1923 & presently a State University governed by Maharashtra Public Universities Act. 2016 (Mah. Act No. VI of 2017)

(Academic Section)

Rashtrasant Tukadoji Maharaj Nagpur University, Jamnalal Bajaj Administrative Building, Mahatma Jotiba Phule Educational Premises, Campus Square to Ambazari T-Point Road, Nagpur-440033

No.RTMNU/ Acad../2021/ 9 7

Date: 01 September 2021

NOTIFICATION

It is notified for general information of all the concerned that the Academic Council in its emergent Online meeting held on 31ᵗʰ August, 2021 item No.1 (A) to (C) has approved the following recommendations of the respective Board of Studies and Faculty of Science & Technology. The recommendation of scheme of Examination of B.E.& B.Tech(1ˢᵗ to 8ᵗʰ Sem.) will come to effect from the session 2020-21 and all following recommendation will be implemented from the session 2021-22 & onwards.

Item No	Examination	Details of the approved items
1(A)	**B.E.& B.Tech**	The revised syllabus of Bachelor of Engineering (B.E) and Bachelor of Technology (B.Tech.) third and fourth Semester for choice based credit system along with scheme of examination for third semester onwards for Civil Engg., Electrical Engg., Mechanical Engg., Electronic Engg.,Electonics & Tele Communication Engg., Aeronautical Engg., Computer Engg.,Computer Science & Engg. Information Technology, Computer Technology, Fire Engg. Chemical Engg., Bio-Technology, Chemical, Technology Artificial Intelligence & Data Science and Artificial Intelligence as per as per AICTE Model Curriculum. Will come to effect from the session 2021-22 and onwards phasewise.
(B)	**P.G. Diploma in Industrial Robotics and Cloud Technology**	**The Council considered and approved** the revised Syllabus and Scheme of Examination of Post Graduate Diploma in Industrial Robotics and Post Graduate Diploma in Cloud Technology will come to effect from the session **2021-2022** and onwards phasewise
(C)	**M. Tech in Defense Technology**	**The Council considered and approved** the New Syllabus of M. Tech in Defense Technology first to fourth Semester for choice based credit system along with scheme of examination. Will come into effect from the session **2021-22** and onwards phasewise.

Note:- All the concerned are requested to take a note of this notification & respective changes in the Syllabus. The Revise & New Syllabus is available on Rashtrasant Tukadoji Maharaj Nagpur University Website (www.nagpuruniversity.ac.in)

(Dr.Raju Hiwase)
Registrar

Copy forwarded for information & necessary action to:

1. All the Principal of affiliated and conducted Colleges of Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur.
2. Deans, of Faculty of Science & Technology
3. All Chairman of Faculty of Science & Technology
4. The Director Board of Examinations and Evaluation,
5. The Deputy Registrar (Pre/ Post Exams.),
6. The Asstt. Registrar (Gen./Prof./ Confidential Exams. Enqr. &Gen.Exam),
7. The Officer in –charge, Publication
8. The Deputy Registrar, to the office of the Hon'ble Vice Chancellor,
9. P.A. to Hon'ble Pro-Vice-Chancellor
10. P. A. to Registrar,
11. Smt. Veena Prakashe Information Scientist,

RashtrasantTukadojiMaharaj
Nagpur University, Nagpur.

(Sanjay Bahekar)
Deputy Registrar(Acad)