

**ORDINANCES**  
**FOR**  
**Integrated BS-MS Program**  
(Effective from the session 2023-24)



**HARCOURT BUTLER TECHNICAL UNIVERSITY**  
**KANPUR-208002 (UP) - INDIA**

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In pursuance of the provision of Section 45 (1-3) of the Uttar Pradesh Harcourt Butler Technical University, Kanpur Act, 2016, these are the first ordinances for BS-MS Programs of Harcourt Butler Technical University, Kanpur:

1. INTRODUCTION

Short Title, Commencement and Definitions

- 1.1 These Ordinances shall be called the First Ordinances, 2024 of Harcourt Butler Technical University, Kanpur.
- 1.2 They shall come into force from session 2023-24 for new entrants, unless otherwise mentioned.
- 1.3 Anything contained in the Ordinances in violation to provisions of Act shall be invalid, and the provisions of Act shall prevail.
- 1.4 In these Ordinances, unless the context otherwise requires,
  - a) 'Act' means the Uttar Pradesh Harcourt Butler Technical University Act, 2016 as amended from time to time.
  - b) 'Section' means a section of the Act.
  - c) 'Clause' means a clause of the Ordinances.
  - d) 'University' means the Harcourt Butler Technical University, Kanpur.
- 1.5 Words and expressions used herein but not defined in the Act shall have the same meaning as assigned to them in the Act.
- 1.6 The multiple entry and exit system for students with eligibility and admission to various courses of study, qualifications, attendance, registration, course structure, grading system, award of degrees, certificates, medals and other academic distinctions are covered in these Ordinances.
  - a) The 'University' may start other Degree, Diploma, Certificate programmes and other academic distinctions as deemed necessary for fulfilling its objectives. The Ordinances for the same shall be as prescribed by the Academic Council and the Executive Council.
  - b) The 'Courses of Study' shall be as prescribed by the Academic Council and approved by the Executive Council.
  - c) Fellowships and Awards shall be instituted as per the requirements with approval of the Vice Chancellor under intimation to the Academic Council and the Executive Council.

2. SCHOOLS AND PROGRAMMES OF STUDY

The BS-MS Programme in Mathematics and Data Science is offered by the School of Basic and Applied Sciences of the university. Other programmes offered by various schools of the university are given here in.

A. School of Engineering (SoE)

- B. Tech. in Electronics Engineering
- B. Tech. in Electrical Engineering
- B. Tech. in Mechanical Engineering
- B. Tech. in Civil Engineering
- B. Tech. in Computer Science & Engineering
- B. Tech. in Information Technology

B. School of Chemical Technology (SoCT)

- B. Tech. in Chemical Technology (Plastic Technology)
- B. Tech. in Chemical Technology (Paint Technology)
- B. Tech. in Chemical Technology (Oil Technology)
- B. Tech. in Chemical Technology (Biochemical Engineering)

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- B. Tech. in Chemical Technology (Leather Technology)
- B. Tech. in Chemical Technology (Food Technology)
- B. Tech. in Chemical Engineering
- B. Tech. in Biotechnology

**C. School of Basic and Applied Sciences (SoBAS)**

Presently, the School offers M.Sc. Programs and an integrated BS-MS Programme in Mathematics and Data Science. However, the faculty members of this School offer Basic Science Courses (BSC) to Under graduate, Post graduate and Ph.D. students of the University.

**D. School of Humanities and Social Sciences (SoHSS)**

Presently, no programme is being offered at the Undergraduate level. However, the faculty members of this School offer Humanities, Social Science and Management Courses (HSMC) to Undergraduate, Post graduate and Ph.D. students of the University.

**E. School of Entrepreneurship and Management (SoEM)**

Presently, this school offers BBA, MBA and Ph.D. programmes.

**3 MULTIPLE ENTRY AND EXIT SYSTEM:**

In view of NEP-2020 the Program follows multiple entry and exit system.

**Admission**

- 3.1 Admissions to BS-MS programmes shall be made as per the rules prescribed by the University from time to time.
- 3.2 The reservation policy as prescribed by the U.P. State Government or its directions issued from time to time shall be adhered to by the University.
- 3.3 If at any time after admission, it is found that a candidate has not fulfilled all the requirements stipulated in the offer of admission or has resorted to some fraudulent means to obtain admission; the University reserves the right to cancel the admission of the candidate.
- 3.4 Qualifications for admission to BS-MS programmes shall be as per the provisions of The Ordinances and the decisions of the Academic Council/Admission Committee of The University.
- 3.5 For all admission. Reservation and domicile shall be as per UP Government rules.

**3.6 Eligibility**

- a) The admission to BS-MS program will be carried out strictly on the merit of the candidate in the JEE (Mains). If the seats remain vacant, they shall be filled through the CUET (UG) exam or the University Exam in that order of preference. All other eligibility criteria for appearing in JEE (Mains) /CUET (UG) Examination shall be applicable to the candidates.
- b) The candidate must have clearly passed the Intermediate (10+2) qualifying examination from U.P. Board or its equivalent from any other recognized Board / University with a minimum of five subjects in which Mathematics and Physics are Compulsory subjects along with one of the subjects from Chemistry/Computer Science.
- c) Candidates must have obtained at least 55% marks (50% for SC / ST / OBC-NCL / Persons with Disability (PwD) candidates) in aggregate in the above three subjects i.e. Mathematics, Physics and Chemistry / Computer Science.

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**3.7 Multiple Entry to the Programme:** Re-entry at various levels as lateral entrants in the academic Program will be based on the earned credits and proficiency in test records.

**Table-1**

Year/ Semester	Entry/Re- -entry	Level	Entry Requirements		Seats Earmarked
			Qualification Requirement	Entrance Requirement	
I, I	Entry-1	5	10+2 passed with a minimum of 5 subjects and 55% Marks (50% for SC/ST/OBC-NCL/PwD Candidates), in aggregate, in Physics and Mathematics as compulsory subjects and any one of Chemistry, Computer Science	JEE-Mains/CUET (UG) University Entrance Exam Rank/Score	60
II, III	Entry-2 (Lateral)	6	Undergraduate Certificate (44 Credits) in relevant disciplines/ Program + 10 credits	University Entrance Exam; specified level of attainment : 40%	10% of Intake
III, V	Entry-3 (Lateral)	7	Diploma (92 Credits) with 44 credits at level 5 and 48 credits at level 6+10 credits	University Entrance Exam; specified level of attainment : 40%	10% of Intake
IV, VII	Entry-4 (Lateral)	8	B.Sc. (136 Credits) with 44 credits at level 5, 48 credits at level 6 and 44 credits at level 7 with minimum CGPA 7.5 + 10 credits	University Entrance Exam; specified level of attainment : 40%	10% of Intake
V, IX	Entry-5 (Lateral)	9	BS (Honors/ Research) (180 credits) with 44 credits at level 5, 48 credits at level 6, 44 credits at level 7 and 44 credits at level 8 with minimum CGPA 7.5	University Entrance Exam; specified level of attainment : 40%	10% of Intake

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3.8 Multiple Exit from the Program:

A student may opt for an Intermediate exit from the program. Scopes will be there for further continuation of study. After taking exit the student can re-enter into the system within 6 years.

Table-2 Qualification Type and Credit Requirements

Exit Point	Program Duration: after successful completion of	Levels	Qualification Title	Credit Requirements
I	1 Year/2 Sem.	5	Certificate in Mathematics and Data Science	44+10
II	2 Year/4 Sem.	6	Diploma in Mathematics and Data Science	92+10
III	3 Year/6 Sem.	7	B.Sc. in Mathematics and Data Science	136+10
IV	4 Year/8 Sem.	8	B.S. (Honors) in Mathematics and Data Science, OR	180
			B.S. (Honors) in Mathematics and Data Science with Minor, OR	
			B.S. (Honors with Research) in Mathematics and Data Science, OR	
			B.S. (Honors with Research) in Mathematics and Data Science with Minor.	
V	5 Year/10 Sem.	9	M.S. in Mathematics and Data Science	224

4. PROGRAMME DURATION

- 4.1 The duration of all BS-MS programmes shall be five academic years (ten semesters).
- 4.2 Maximum duration for completion of BS-MS programme is seven years while for lateral entrants in 2<sup>nd</sup> year, 3<sup>rd</sup> year, 4<sup>th</sup> year and 5<sup>th</sup> year, it shall be six years, five years, four years and three years, respectively. Additional relaxation of one year may be granted by the Vice Chancellor on case to case basis on specific recommendation of Head of the Department, concerned Dean of School and Dean of Academic Affairs. Admission of the candidates who are not able to complete their degree requirements in stipulated period shall automatically be cancelled.
- 4.3 Each semester shall have a minimum of 90 working days (including the days of examinations) or as prescribed by AICTE/ UGC from time to time.
- 4.4 There shall be two regular semesters in one academic year. The semester that begins in July (July to December) is known as the Odd Semester and the one that begins in January (January to May) is known as the Even Semester.

5. ATTENDANCE

- 5.1 Students are required to attend all the classes: lectures, tutorials, practicals, projects and other prescribed curricular and co-curricular activities. However, a relaxation of 25 percent attendance may be granted in normal course during the semester.
- 5.2 A further relaxation of 15 percent can be granted by the Vice Chancellor on specific recommendations of the concerned Head of the Department/Dean of School, provided that the student was absent on medical grounds and / or due to any exigencies beyond the control of the student. In such cases, a prior permission from concerned Head/Dean of School is required. In case of medical exigencies, the student is required to report immediately after the medical fitness issued by the hospital.
- 5.3 No student shall be allowed to appear in the Mid Semester / End Semester Examination of a subject, if he / she does not have requisite 75 percent (or requisite 60% after availing relaxation as per the provisions of Clause 5.2). Students not allowed to appear in the examination due to poor attendance shall be awarded 'U'

grade. Such candidates, who do not fulfill the eligibility of minimum attendance in end semester examination have to register a fresh in subsequent year.

- 5.4 The attendance shall be counted from the date of start of academic session or the actual date of admission/registration. The commencement of classes shall begin one day after the date of registration.

### 6. CURRICULUM STRUCTURE

6.1 (A) The University has adopted and implemented the NEP 2020 from 2022-23 academic session. It follows a Credit Based Evaluation System. Every programme shall have a specific curriculum for all semesters (semester I to semester X) consisting of theory, practical, seminar and project work etc..The departments of University Schools are allowed minor modifications / adjustments in course distributions. Different types of courses and their credits are listed in Table 3 and 4.

**Table- 3 Different Types of Courses and their Credits for BS**

Different types of courses	Minimum credits
Basic Science Courses (BSC): ICC	20
Engineering Science Courses (ESC): ICC	36
Hum., Social Sc. & Management Courses (HSMC): ICC	09
Program Core Courses (PCC)	73(H)/66(R)
Program Elective (PEC)	16(H)/17(R)
Open Elective Courses (OEC)	06
Seminar /Internship	02
Project	18(H)/24(R)
Mandatory Courses (MC)	No Credits
<b>Total</b>	<b>180</b>

*Remark: Compulsory Courses for Students who exit from the program:*

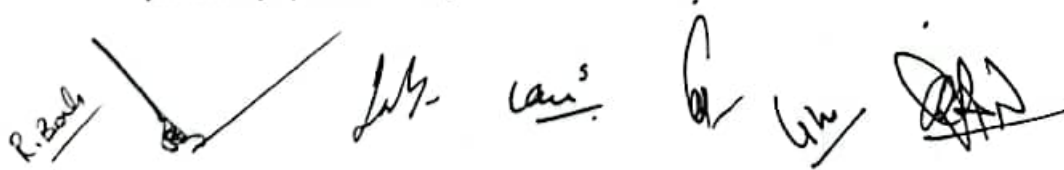
- 1. Skill Enhancement course 4 credits
- 2. Job- Specific internship 6 credits

**Table- 4 Different Types of Courses and their Credits for MS**

Different types of courses	Minimum credits
Program Core Courses (PCC)	12
Program Elective (PEC)	10
Open Elective Courses (OEC)	04
Project	18
<b>Total</b>	<b>44</b>

*A maximum of 40 percent of total courses being offered in BS-MS program in a semester may be offered through the online courses through the SWAYAM portal /Massive Open Online Courses (MOOC). However, the evaluation of such courses shall be through in-house examination. For evaluation of Mid Semester and End Semester Examinations, Subject Coordinators shall be nominated. Any other issue pertaining to selection of SWYAM/MOOC by a student shall be decided by the Committee constituted as per the provisions of Clause 9.7 of these Ordinances.*

Each course is assigned a credit weightage depending upon the academic workload for a subject per week. One hour lecture / tutorial is equivalent to one credit, while 2-3 hours practical / project work is equivalent to one credit.


  
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**6.1(B) Course Structure and Evaluation Scheme:**

B.S. Program (Mathematics and Data Science)  
 Semester wise Course Structure and Evaluation Scheme  
 (With effect from Session 2023-2024)

Year I, Semester-I

S. No.	Course Type	Course Title	Subject Code *	Credits	Periods			Sessional Marks				ESE	Total Marks
					L	T	P	MSI	TA	Lab	Total		
1	BSC	Engineering Physics	NPH-101	4	3	0	2	15	20	15	50	50	100
2	BSC	Engineering Mathematics-I	NMA-101	4	3	1	0	30	20	-	50	50	100
3	ESC	Introduction to Electrical Engineering	NEE-101	4	3	0	2	15	20	15	50	50	100
4	ESC	Introduction to Mechanical Engineering	NME-101	4	3	1	0	30	20	-	50	50	100
5	HSMC	Professional Communication	NHS-101	4	2	1	2	15	20	15	50	50	100
6	ESC	Engineering Graphics	NCE-103	2	0	0	4	30	20	-	50	50	100
<b>Total Credits: 22</b>												<b>600</b>	

Year I, Semester-II

S. No.	Course Type	Course Title	Subject Code*	Credits	Periods			Sessional Marks				ESE	Total Marks
					L	T	P	MSI	TA	Lab	Total		
1	BSC	Engineering Chemistry	NCY-102	4	3	0	2	15	20	15	50	50	100
2	ESC	Introduction to Computer Science & Engineering	NCS-102	4	3	1	0	30	20	-	50	50	100
3	ESC	Introduction to Electronics Engineering	NET-102	4	3	1	0	30	20	-	50	50	100
4	ESC	Introduction to Data Science and Analytics	NMA-112	4	3	0	2	15	20	15	50	50	100
5	ESC	Python for Data Science	NMA-114	4	3	0	2	15	20	15	50	50	100
6	ESC	Workshop Practice		2	0	0	4	-	20	30	50	50	100
<b>Total Credits: 22</b>												<b>600</b>	

**Remark:** The above 44 credit hours will be followed by an exit-credits 10 with skill-enhancement courses of 4 credits and job-specific internship of 6 credits in summer vacation for the award of Certificate after the study of One year.



S. No.	Course Type	Course Title	Subject Code *	Credits	Periods			Sessional Marks				ESE	Total Marks
					L	T	P	MSE	TA	Lab	Total		
1	BSC	Engg. Math-II	NMA-201	4	3	1	0	30	20	-	50	50	100
2	ESC	Data Structures and Algorithms	NMA-211	4	3	0	2	15	20	15	50	50	100
3	PCC	Statistical Methods	NMA-213	4	3	0	2	15	20	15	50	50	100
4	PCC	Probability and Random Processes	NMA-215	4	3	0	2	15	20	15	50	50	100
5	PCC	Real Analysis	NMA-217	3	3	0	0	30	20	-	50	50	100
6	HSMC	Economics & Management	NHS-201	3	3	0	0	30	20	-	50	50	100
7	PCC	Data Science Lab-1	NMA-219	2	0	0	4	-	20	30	50	50	100
<b>Total Credits: 24</b>													<b>700</b>

**Year II, Semester-IV**

S. No.	Course Type	Course Title	Subject Code*	Credits	Periods			Sessional Marks				ESE	Total Marks
					L	T	P	MSE	TA	Lab	Total		
1	BSC	Engineering Maths-3	NMA-202	4	3	1	0	30	20	-	50	50	100
2	ESC	CONM	NMA-204	4	3	0	2	15	20	15	50	50	100
3	PCC	Numerical Optimization	NMA-212	4	3	0	2	15	20	15	50	50	100
4	PCC	Computational Linear Algebra	NMA-214	4	3	0	2	15	20	15	50	50	100
5	PCC	Discrete Mathematical Structures	NMA-216	3	3	0	0	30	20	-	50	50	100
6	PCC	R for Data Science	NMA-218	3	2	0	2	15	20	15	50	50	100
7	PCC	Data Science Lab-2	NMA-220	2	0	0	4	-	20	30	50	50	100
<b>Total Credits: 24</b>													<b>700</b>

**Remark:** The above 92 credit hours will be followed by an exit-credits 10 with skill-enhancement courses of 4 credits and job-specific Internship of 6 credits in Summer Vacation for the award of Diploma after the study of Two years.

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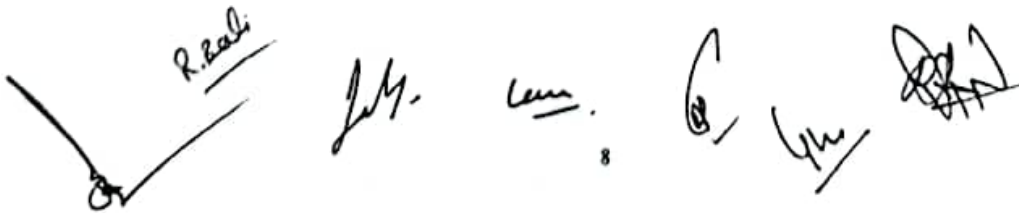
S. No.	Course Type	Course Title	Subject Code *	Credits	Periods			Sessional Marks				ESE	Total Marks
					L	T	P	MSE	TA	Lab	Total		
1	PCC	Principles of Data Science	NMA-311	4	3	0	2	15	20	15	50	50	100
2	PCC	Machine Learning	NMA-313	4	3	0	2	15	20	15	50	50	100
3	PCC	Modern Algebra	NMA-315	3	3	0	0	30	20	-	50	50	100
4	PCC	Topology & Geometry	NMA-317	3	3	0	0	30	20	-	50	50	100
5	PCC	Computational Statistics	NMA-319	4	3	0	2	15	20	15	50	50	100
6	PCC	Data Science Lab-3	NMA-321	2	0	0	4	-	20	30	50	50	100
7	HSMC	Entrepreneurship Development		2	2	0	0	30	20	-	50	50	100
<b>Total Credits: 22</b>													<b>700</b>

**Year III, Semester- VI**

S. No.	Course Type	Course Title	Subject Code *	Credits	Periods			Sessional Marks				ESE	Total Marks
					L	T	P	MSE	TA	Lab	Total		
1	PCC	Deep Learning	NMA-312	4	3	0	2	15	20	15	50	50	100
2	PCC	Big Data Analytics	NMA-314	4	3	0	2	15	20	15	50	50	100
3	PCC	Multivariate Analysis	NMA-316	3	3	0	0	30	20	-	50	50	100
4	PCC	Functional Analysis	NMA-318	3	3	0	0	30	30	-	50	50	100
5	PCC	Fundamentals of Computing	NMA-320	3	3	0	0	30	20	-	50	50	100
6	PEC-I			3	3	0	0	30	20	-	50	50	100
7	OEC-I			2	2	0	0	30	20	-	50	50	100
<b>Total Credits: 22</b>													<b>700</b>

**PEC-I: Mathematical Modeling and Numerical Simulation (NMA-322), Statistical Computing (NMA-324), Cloud Computing for Data Science (NMA-326)**

**Remark:** The above 136 credit hours will be followed by an exit-credits 10 with skill-enhancement courses of 4 credits and job-specific internship of 6 credits in Summer Vacation for the award of B.Sc. Degree after the study of Three years.



S. No.	Course Type	Course Title	Subject Code *	Credits	Periods			Sessional Marks				ESE	Total Marks
					L	T	P	MSI	TA	Lab	Total		
1	PEC-II			4	3	1	0	30	20	-	50	50	100
2	PEC-III			3	3	0	0	30	20	-	50	50	100
3	PEC-IV			3	3	0	0	30	20	-	50	50	100
4	OEC-II			2	2	0	0	30	20	-	50	50	100
5	BS Project-I		NMA-429	8	0	0	16		50		50	50	100
6	Internship/ Seminar		NMA-431	2	0	0	4		50		50	50	100
Total Credits: 22												600	

**PEC-II :** Mathematical Methods (NMA-411), Bayesian Analysis (NMA-413), Computer Vision (NMA-415).

**PEC-III :** Graph Theory (NMA-417), Time Series Analysis(NMA-419), Natural Language Processing (NMA-421).

**PEC-IV :** Convex Optimization (NMA-423), Stochastic Processes & Applications(NMA-425), Design and Analysis of Algorithms (NMA-427).

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Year IV, Semester-VIII

[BS (HONORS)]

S. No.	Course Type	Course Title	Subject Code *	Credits	Periods			Sessional Marks				ESE	Total Marks
					L	T	P	MSE	TA	Lab	Total		
1	PCC	Differential Equations	NMA-412	4	3	0	2	15	20	15	50	50	100
2	PCC	Data Mining	NMA-414	3	2	0	2	15	20	15	50	50	100
3	PEC-V			3	3	0	0	30	20	-	50	50	100
4	OEC-III			2	2	0	0	30	20	-	50	50	100
5	BS Project-II		NMA-422	10	0	0	20		50		50	50	100
Total Credits: 22												500	

**PEC-V:** Fluid Mechanics (NMA-416), Statistical Pattern Recognition (NMA-418), Recommender Systems with Python (NMA-420).

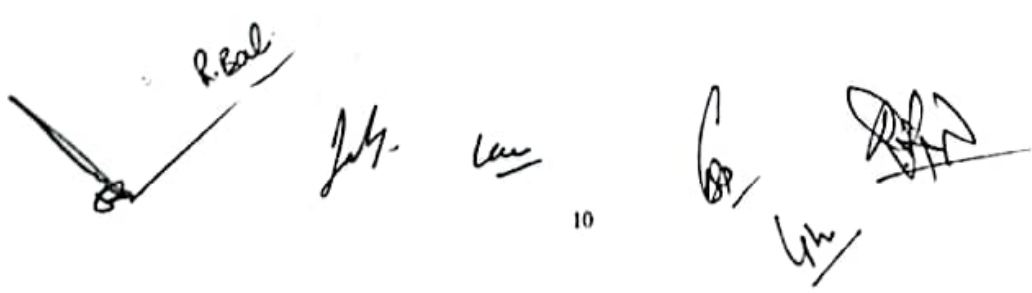
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Year IV, Semester-VIII

[BS (HONORS WITH RESEARCH)]

S. No.	Course Type	Course Title	Subject Code *	Credits	Periods			Sessional Marks				ESE	Total Marks
					L	T	P	MSE	TA	Lab	Total		
1	PEC-V			4	3	1	0	30	20	-	50	50	100
2	OEC-III			2	2	0	0	30	20	-	50	50	100
3	BS Project-II		NMA-424	16	0	0	32		200		200	200	400
Total Credits: 22												600	

**PEC-V:** Fluid Mechanics (NMA-416), Statistical Pattern Recognition (NMA-418), Recommender Systems with Python (NMA-420).

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LIST OF OPEN ELECTIVES	
1	OEC-I
	a. Human Values
	b. Cyber Security
	c. Indian Knowledge Tradition
	d. Environment & Ecology
	e. One Course Offered by each degree awarding departments
	f. One Course Offered by School of Basic & Applied Sciences
	g. One Course Offered by School of Humanities & Social Sciences
2	OEC-II
	a. Soft Computing
	b. Artificial Intelligence
	c. 3-D Printing
	d. Logistics & Supply Chain Management
	e. One Course Offered by each degree awarding departments
	f. One Course Offered by School of Basic & Applied Sciences
	g. One Course Offered by School of Humanities & Social Sciences
3	OEC-III
	a. Robotics
	b. Data Sciences
	c. Machine Learning
	d. Sustainable Development
	e. One Course Offered by each degree awarding departments
	f. One Course Offered by School of Basic & Applied Sciences
	g. One Course Offered by School of Humanities & Social Sciences

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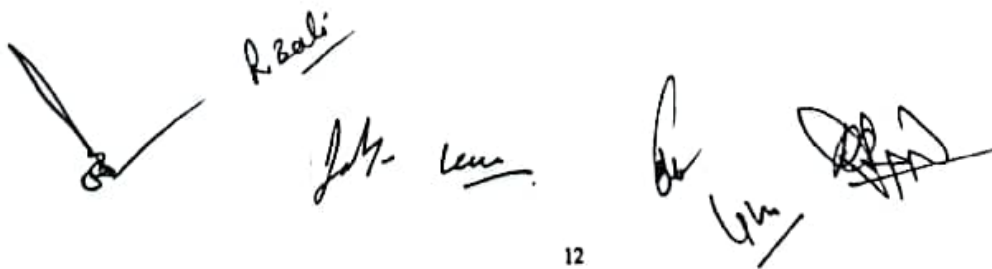
Year V, Semester - IX

S. No.	Course Type	Course Title	Subject Code *	Credits	Periods			Sessional Marks				ESE	Total Marks
					L	T	P	MSI	TA	Lab	Total		
1	PCC	Abstract Algebra	NMA-511	4	3	1	0	30	20		50	50	100
2	PCC	Ethics and Data Science	NMA-513	4							50	50	100
3	PEC-VI			4							50	50	100
4	OEC-IV			2							50	50	100
5	MS Project-I			8			16		50		50	50	100
<b>Total Credits: 22</b>													<b>500</b>

Year V, Semester - X

S. No.	Course Type	Course Title	Subject Code *	Credits	Periods			Sessional Marks				ESE	Total Marks
					L	T	P	MSE	TA	Lab	Total		
1	PCC	Generative AI	NMA-512	4	3	0	2	15	20	15	50	50	100
2	PCC-VII			3							50	50	100
3	PEC-VIII			3							50	50	100
4	OEC-V			2							50	50	100
5	MS Project-II			10			20		50		50	50	100
<b>Total Credits: 22</b>													<b>500</b>

PCC-VII : Complex Analysis

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**B. Tech.- MS PG (Mathematics and Data Science) (from other programs)**

UG Pre-Requisites					
Odd Semester	Credits	LTP	Even Semester	Credits	LTP

**PG Requirement**

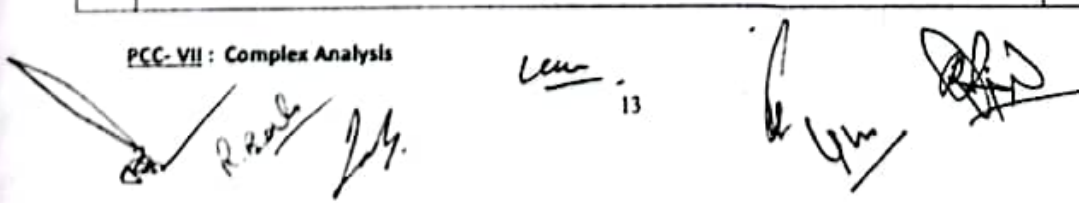
**Year V, Semester - IX**

S. No.	Course Type	Course Title	Subject Code *	Credits	Periods			Sessional Marks				ESE	Total Marks
					L	T	P	MSE	TA	Lab	Total		
1	PCC	Abstract Algebra	NMA-511	4	3	1	0	30	20		50	50	100
2	PCC	Ethics and Data Science	NMA-513	4							50	50	100
3	PEC-VI			4							50	50	100
4	OEC-IV			2							50	50	100
5	MS Project-I			8			16		50		50	50	100
<b>Total Credits: 22</b>													<b>500</b>

**Year V, Semester - X**

S. No.	Course Type	Course Title	Subject Code *	Credits	Periods			Sessional Marks				ESE	Total Marks
					L	T	P	MSE	TA	Lab	Total		
1	PCC	Generative AI	NMA-512	4	3	0	2	15	20	15	50	50	100
2	PCC-VII			3							50	50	100
3	PEC-VIII			3							50	50	100
4	OEC-V			2							50	50	100
5	MS Project-II			10			20		50		50	50	100
<b>Total Credits: 22</b>													<b>500</b>

PCC-VII : Complex Analysis


  
 Several handwritten signatures and initials are present below the tables, including one that appears to be 'R. R. R.' and another that looks like '13'.

**6.2 Seminar**

Seminar is a course wherein a student is expected to do in-depth study on upcoming field of the respective branch and present it before a duly constituted Department Committee comprising of the concerned Head, Seminar In-charge and Supervisor. Seminar shall involve the state of the art, principles, design criteria and practical applications of the topic.

**6.3 Internship/Industrial Training**

Students shall have to undergo a 4 to 8 weeks internship/industrial/practical training at the end of VI<sup>th</sup> Semester. This training could be carried out in an industry, research organizations, other institute or any other organization of repute in the subject domain. Once the industrial training/Internship is complete, the student shall have to submit a report cum Training Diary to the concerned Head of Department through the In-charge, industrial training/Internship. The evaluation of Industrial training/Internship shall be done in the VII<sup>th</sup> semester by a duly constituted Department Committee comprising of the Head, industrial training/Internship In-charge and a senior faculty of the Department. Students who are selected and have undergone industrial training/ Internship of eight weeks duration, a fifteen days relaxation will be allowed for registration without any late fee. This duration will be treated as academic leave for the purpose of attendance calculation.

**6.4 Mandatory Courses**

These are the courses which do not carry any credits but a student is required to pass these courses in order to be eligible for award of Degree.

**6.5 NSS Training & University Student Activity Council (USAC) Programmes**

The participation in any one activity group 'A' (NSS/Sports/Cultural) and any one activity in Group 'B' (Social & Print Media/ Technical/ Literary/ Hobby/ Photography/ Yoga) is compulsory (total two activity minimum) for all undergraduate students. The activities are meant for character building, physical fitness and sensitize the students towards social and national issues. Students are required to participate and complete the above activities up to first six semesters. Although these activities carry no credit but a students must have to obtain 'S' Grade for satisfactory performance in above indicated activities in each semester and will be certified by the respective conveners of the councils/ clubs/ programmes, however the decision of DSW/ Chairman USAC will be final.

**7. GRADING AND EVALUATION SCHEME**

**7.1 Grading System**

Students are evaluated out of a maximum 100 marks in each subject. On the basis of marks obtained by the student, grades shall be awarded as per the Grading Scheme presented in Table 5 and 6. Depending upon the performance of the student in all the subjects offered during the semester, Semester Grade Point Average (SGPA) shall be calculated. (\* as per the decision of 19<sup>th</sup> Academic Council, Item 19.0 held on 23.02.2024)

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Table 5: Grading Scheme for BS			
Marks (Out of 100)	Grade Obtained	Grade Points	Description
90 and above	A+	10	Outstanding
80 and above	A	9	Excellent
70 and above	B+	8	Very Good
60 and above	B	7	Good
50 and above	C	6	Average
40 and above	P	5	Pass
Less than 40	F (marks secured between 25-39)*	2	Fail
	F (marks secured below 25)*	0	Fail
	W	-	Withdrawn
	U	-	Short Attendance
	I	-	Incomplete
	S	-	Satisfactory in USAC Activities

Table 6: Grading Scheme for MS			
Marks (Out of 100)	Grade Obtained	Grade Points	Description
90 and above	A+	10	Outstanding
80 and above	A	9	Excellent
70 and above	B	8	Good
60 and above	C	7	Average
50 and above	P	6	Pass
Less than 50	F (marks secured between 35-49)*	2	Fail
	F (marks secured below 35)*	0	Fail
	W	-	Withdrawn
	U	-	Short Attendance
	I	-	Incomplete
	S	-	Satisfactory in USAC Activities

7.2 Evaluation Scheme

The evaluation of performance shall comprise of continuous assessment throughout the semester in the Mid Semester Examinations, End Semester Examinations and Teachers' Assessment through class work and tutorials. Evaluation Scheme is presented in Table 7 for different types of courses.

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*[Signature]*      *[Signature]*      *[Signature]*      *[Signature]*



**Table 7: Evaluation Scheme for Different Types of Courses**

Sr. No.	Course Title	Sessional Marks				ESM	Total Marks
		MSE	TA	Lab	Total		
1.	Theory Course X (L-T-P)	30	20	-	50	50	100
2.	Theory cum Lab. Courses X (L-T-P)	15	20	15	50	50	100
3.	Lab Courses	-	20	30	50	50	100
4.	Seminar	-	50	-	50	50	100
5.	Internship/Industrial Training	-	50	-	50	50	100
6.	BS-Project-I	-	50	-	50	50	100
7.	BS(H)-Project-II	-	50	-	50	50	100
8.	BS(R)-Project-II		200		200	200	400
9.	MS Project-I		50		50	50	100
10.	MS Project-II		50		50	50	100

**TA:** Distribution of TA marks (maximum marks 20) shall be as under:  
 10 marks: participation in class room teaching.  
 10 marks: Assignment / Quizzes

Internal Evaluation of BS Project in VII semester/MS Project in IX semester will be conducted by the Departmental Committee. Evaluation of BS Project in VIII Semester / MS project in X semester will be conducted by External and Internal Examiners.

The total of sessional and end semester marks required to pass a particular course in BS is 40%, while the same in MS is 50%. However, a student must secure a minimum of 30% marks (15) in sessional and end semester marks, each to pass the course. "I" grade shall be given to the students who leaves the course midway during the semester. "W" grade shall be given to the students who withdraw from a course during the semester. Students not allowed to appear in the examinations due to poor attendance shall be awarded "U" grade.

**7.3 Calculation of SGPA, YGPA and CGPA**

The performance of a student shall be evaluated in terms of *three* indices: Semester Grade Point Average (SGPA) which is Grade Point Average for a Semester, *Yearly Grade Point Average (YGPA) and Cumulative Grade Point Average (CGPA) which will be calculated at the end of final semester cumulatively.*

**I. Semester Grade Point Average (SGPA)**

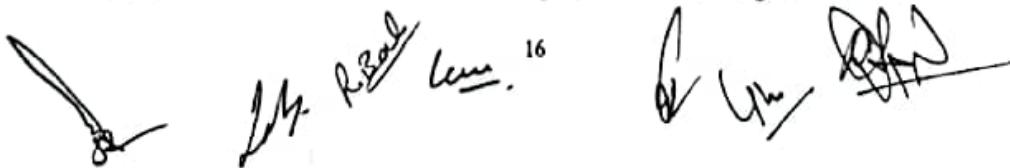
$$SGPA = \frac{\sum (\text{Credit weight of a subject} \times \text{Grade point earned in the subject})}{\sum \text{Total credits for all subjects offered during Semester}}$$

**II. Yearly Grade Point Average (YGPA)**

$$YGPA = \frac{(\text{SGPA for odd sem} \times \text{Total credit of odd sem}) + (\text{SGPA for even sem} \times \text{Total credit of even sem})}{\text{Total credits offered in the current year (Odd and Even Semester)}}$$

**III. Cumulative Grade Point Average (CGPA)**

$$CGPA = \frac{\sum (\text{SGPA} \times \text{Semester total credits for all semesters})}{\text{Total credits of all eight semesters}}$$

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The CGPA is calculated on the basis of all passed courses with 'P and above grades'. For Training & Placement requirements, CGPA of the student up to his/her recent completed semester may be computed for reporting purpose.

**7.4 Award of Division**

CGPA 7.500 or above	First Division with Honors
CGPA 6.500 or above	First Division
Below a CGPA 6.500	Second Division

**7.5 Conversion of CGPA to Absolute Percentage**

$$\text{CGPA} \times 10 = \text{Absolute Percentage}$$

**8. MID SEMESTER EXAMS**

There shall be two mid semester exams of 15 marks each. The erstwhile practice of make-up tests is no more applicable from October 2022 onwards. (as per decision of the 14<sup>th</sup> Academic Council, under Agenda Item 14.15 held on 10.11.2022)

Students who are not able to appear in Mid Semester Examination for extraordinary and genuine reasons (such as accident, hospitalization, death or them representing the University in Sports/ Conference etc. on examination dates) are required to seek PRIOR permission of the Vice Chancellor on the recommendations of the concerned Head of Departments and the Dean of School for Make-up Examination. In case of hospitalization, a written intimation within 5 days of hospitalization is MANDATORY. Make-up Examination will be conducted one week before the End Semester Examination and shall cover the whole syllabus covered till that date.

**9. GRANT OF PERMISSION FOR EXTENDED INTERNSHIP**

If a student gets an opportunity for Extended Internship / Industrial Project in India / Abroad for a period of six months after VII semester, he / she may be allowed to complete course work of VIII Semester through SWAYAM Portal/Massive Open Online Courses (MOOC). In such situations, the grant of permission and modalities for drawing the equivalence of SWAYAM/MOOC will be decided by a Committee comprising of the Dean of respective School, Head of the Department and two faculty members of the concerned Department.

**10. CARRYOVER EXAMINATION**

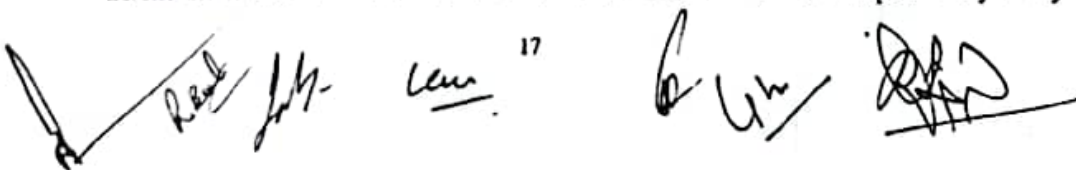
Student with 'F' grade in any subject will be required to appear in the Carryover Examination in the subsequent years. In addition, all the students shall have the option of appearing in special carry over exams at the end of the year. (as per decision of the 16<sup>th</sup> Academic Council, under Agenda Item 16.11 held on July 12<sup>th</sup> 2023 and 17<sup>th</sup> Academic Council, under Agenda Item 17.05 held on September 18<sup>th</sup> 2023).

**11. PROMOTION RULES & ACADEMIC CRITERIA FOR CONTINUATION (RE-ADMISSION)**

A candidate may be allowed Re-admission provided he/she satisfies one of the following conditions:

- (a) A student must secure a minimum YGPA of 4.000 in current year in order to be promoted to the next year. If a student fails to fulfill this requirement of 4.000 YGPA, he/she shall be considered 'Fail'. Such candidates will have to repeat the year by

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taking Readmission in the same class paying a fee of Rs. 25000/- and the examination fee as applicable.

- (b) A candidate who failed to appear in examination or he/she was not granted permission to appear in the examination.
- (c) A candidate who was detained by the University and subsequently was permitted to take Re-admission.
- (d) Readmitted students shall have to appear only in the subjects in which he/she has failed (as per decision of the 17<sup>th</sup> Academic Council, under Agenda Item 17.05 held on September 18<sup>th</sup> 2023).
- (e) Even if a student has passed in a particular course, he/she shall have an option of improving his/her marks). (as per decision of the 17<sup>th</sup> Academic Council, under Agenda Item 17.05 held on September 18<sup>th</sup> 2023).
- (f) Students of final year who have failed in some subject of previous years (1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup>) on account of very less sessional marks, shall be eligible to appear for mid Semester exams in those subjects along with the regular students of 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> year. Availing this chance to improve the mid semester marks would require permission from the competent authority i.e. Head of Department concerned, Dean (AA), CoE and the Vice Chancellor.

**12. AWARD OF DIVISION, RANK AND MEDALS**

12.1 A candidate who completes the course requirements for BS-MS programme securing 'P and above grades' in all the courses within the stipulated maximum duration for the BS-MS programme shall be declared qualified for the award of degree subject to the fulfillment of the requirements of Clause 11.

12.2 A candidate who qualifies for the award of the degree securing 'P or above grades' in all the subjects in his/her first attempt in the stipulated maximum duration for the BS-MS Program and secures a CGPA of 7.500 or above shall be awarded FIRST DIVISION with HONORS.

12.3 A candidate who qualifies for the award of the degree by securing 'P or above grades' in all the subjects in the stipulated maximum duration for the BS-MS programme and secures a CGPA of 6.500 and/or above shall be awarded FIRST DIVISION.

12.4 All other candidates who qualify for the award of degree by securing 'P' or above grades in all subjects in the stipulated maximum duration for the BS-MS programme and secures a CGPA less than 6.500 shall be awarded SECOND DIVISION.

12.5 Best three performers in each programme of study will be awarded Certificate of Merit. It is mandatory for such candidates to pass all the subjects in first attempt. The overall topper amongst all branches of study will be adjudged 'University Topper' on the basis of highest CGPA.

12.6 The following medals shall be awarded annually by the University to the passing out students, subject to completion of his/her degree programme within stipulated five years from the date of admission without any carryover.

- a. **Chancellor's Medal** *Undergraduate 1st*  
Toppers of all BS-MS programmes who secures First, Second and Third highest CGPA at the end of ten semesters in first attempt will be awarded Chancellor's Gold, Silver and Bronze Medal, respectively.
- b. **Vice-Chancellor's Medal**

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Students securing First, Second and Third highest CGPA at the end of ten semesters in each School in first attempt will be awarded Vice-Chancellor's Gold, Silver and Bronze Medal, respectively.

### 13. REGISTRATION AND ENROLMENT

- 13.1 The students must register at the beginning of each semester on the prescribed dates announced in the Academic Calendar, till she/he completes the programme. If a student does not register in a particular semester, his/her studentship may be cancelled. Any academic activity undertaken without registration by a student shall not be considered towards the fulfillment of requirements of his / her degree.
- 13.2 Registration should be carried out by the student himself / herself with in stipulated date. A student is allowed registration for 10 working days including the date of registration with a fine of Rs.100 per day. Students will not be allowed to register after that date. Such students shall have to register at the start of next academic session.
- 13.3 Every student admitted to University will be provided a unique Roll Number. The Roll Number shall have nine digits. First two digit shall indicate the year of admission; next two the degree programme; next two the branch of study and last three digits the serial number of student. Every student will be identified by this Roll Number throughout his/her stay in the University.
- 13.4 Students with outstanding dues to the University or hostel, etc. shall be permitted to register only after clearing the outstanding dues.
- 13.5 In-absentia registration may be allowed only in rare cases with the permission of the Vice-Chancellor in case of serious illness/ natural calamities/ unavoidable circumstances upon the recommendation of Dean of Academic Affairs.
- 13.6 Every student admitted and registered in the University shall be required to submit the Enrolment Form within one month of registration for getting enrolled with the University. Non-compliance will lead to cancellation of admission.

### 14. TEMPORARY DISCONTINUATION FOR PROMOTION TO STARTUP /ENTREPRENEURIAL ACTIVITY

This facility will be available to the students of the University to promote startup/entrepreneurial activities. Maximum period of discontinuation shall be limited to two years. Such students on completion of degree shall be allowed by the University for Campus Placement provided that he / she shall apply through the Head of Department, Dean of concerned School and Dean of Academic Affairs to the Vice Chancellor in advance and obtain a written order to this effect. Clause 5.3 shall be relaxed to those students who opt for this facility.

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15. USE OF UNFAIR MEANS

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Unfair Means rules as approved in the meeting of all Deans conducted on Feb. 17, 2023 and as revised in the decision of the 15<sup>th</sup> Academic Council, Agenda Item 15.03 held on February 21, 2023 are given below.

Sl. No.	Types of unfair means used	Punitive action suggested
1.	Unauthorized material in possession in the form of paper chit(s), electronic gadgets such as mobile phone, smart watch, Bluetooth device etc. or writing subject related material on body or on calculator etc. or material found below the desk of the examinee.	<p>a) If material is not related to the subject / paper and it was carried by the student inadvertently, a written strict warning will be issued to the student from the Office of COE.</p> <p>b) If the material is related to the subject / paper, the student will be awarded zero marks in all papers of that particular Mid Semester Examination or End Semester Examination, as the case may be.</p> <p>c) In case the cheating material is confiscated during Carryover / Special Carryover Examination, student will be awarded zero marks in all Carryover / Special Carryover Examinations conducted during that particular semester and student concerned will not be allowed to appear in Carryover / Special Carryover Examination for one year.</p>
2.	If the student is copying from answer book of other student in the Examination Hall or caught talking to other student(s) while allowed to go out for toilet purposes in verandah /toilet.	<p>a) Zero marks will be awarded to the student in that particular subject/paper.</p> <p>b) If the student is in possession of incriminating cheating material, zero marks will be awarded in all subjects of that particular Mid Semester Examination or End Semester Examination, as the case may be.</p>
3.	If the student takes away the answer book or destroys the answer book.	The student will be suspended from the University for one year (full one session).
4.	If the student misbehaves with the invigilator or other Examination officials during the Examination.	The student will be awarded zero marks in subject / paper being conducted that day. Further, the matter will be referred to Proctorial Board of University by the Office of COE.
5.	In case of impersonation where some other student is appearing in the Examination in lieu of a genuine student.	The student who is impersonating and the student on whose behalf someone else is appearing in the Mid Semester Examination or End Semester Examination, both will be rusticated from the University. Further, an FIR should be lodged by the University administration on the written request of Office of COE.
6.	If the student appears in Mid Semester Examination or End Semester Examination with forged Registration Card /Admit Card or tries forced entry in the Examination Hall.	The student concerned will be suspended for one year (one full academic session). Further, the matter will be referred to Proctorial Board of the University by the Office of CoE.
7.	For unforeseen cases not covered above.	Matter will be taken up by the Board of Examination (BoE) and appropriate action will be taken on the basis of the gravity of the case.

16. CHALLENGE EVALUATION, AWARD OF MARKS AND ELIGIBILITY OF TEACHERS FOR REVALUATION:

A. Challenge Evaluation

- a. Challenge Evaluation of answer script will be carried out only for the latest semester whose result has been declared.
- b. The students of all BS-MS courses appearing for the University examinations are eligible to apply for revaluation of answer scripts in all theory subjects.
- c. There will be a single notification inviting applications from the students, to apply for Challenge Evaluation of Answer Scripts mentioning the last date.
- d. Students may apply for Challenge Evaluation by paying the requisite fee of Rs. 5000.00 (Rs. Five thousand only) per subject. This fee may vary in future as decided by the university. After the last date, additional time may be granted, subject to the approval from the competent authority. However, under such case, student will have to pay a late fine (non-refundable) for applying for Challenge Evaluation as decided by the university from time to time.
- e. A student cannot apply Challenge Evaluation of answer scripts in the subjects other than the THEORY subjects.
- f. After the last day of application for challenge evaluation, the Controller of Examination Office shall initiate the process of challenge evaluation as per the procedure detailed hereunder:
  - i. Each answer script marked for Challenge Evaluation will be revaluated by two evaluators.
  - ii. After the revaluation, if the difference between the marks awarded by the two re-evaluators is more than 20% of maximum marks of that subject, then such scripts shall be evaluated once again by a third examiner (who has not evaluated the script in the first revaluation).

B. Award of Marks after Revaluation

- i. If the average marks of two revaluations after revaluation is higher/lesser than the original marks, the revaluation marks shall be awarded to the students in that subject.
- ii. In case of revaluation as discussed in section 16.f(ii) marks to the student shall be awarded in following manner:

Case: I

If the difference of marks awarded by two re-evaluators is more than 20% of maximum marks for a given subject, and the answer script is revaluated by a third examiner, average of Two Nearest Marks shall be awarded.

First revaluation Marks	Second revaluation Marks	Difference between 1 <sup>st</sup> and 2 <sup>nd</sup> revaluator	Third revaluation Marks	Final Marks after Revaluation
15	40	>20%	48	44
25	28	≤20%	Not. Reqd.	27

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When the difference between the nearest two marks in the first, second and the third revaluation is approximately equal then average of Two Higher Marks shall be awarded.

First revaluation Marks	Second revaluation Marks	Difference between 1 <sup>st</sup> and 2 <sup>nd</sup> revaluator	Third revaluation Marks	Final Marks after Revaluation
19	40	>20%	59	50

- In case of average being a fraction, for all above cases the awarded mark shall be rounded to the next higher number.
- The University will display the Original Marks, Marks after challenge evaluation, on the website and result of the subject will be upgraded / uploaded.

**C. Eligibility of Teachers for Revaluation:**

The faculty members who will be evaluating the answer script during revaluation must possess minimum five years of teaching experience and have experience of teaching that subject. If required, expert examiners from other University/Institutions may also be appointed as evaluators.

**17. ELIGIBILITY FOR AWARD OF BS-MS DEGREE**

- A student shall be eligible for the award of the BS-MS Degree if he/she has:
- Registered and successfully passed all courses/subjects of the particular programme with 'P and above grades' with a minimum CGPA of 5.000 for BS and 6.00 for MS or above at the end of programme with other requirements of the programme as prescribed in the Ordinances or as prescribed by the University from time to time.
  - Completed the requirements of USAC activities i.e NSS, Games and Sports, Cultural / Literary activities etc.
  - Has no dues to the University, Hostels, Library and USAC etc., and ;
  - No disciplinary action is pending against the student.

**18. STUDENT DISCIPLINE**

All the students who seek admission will have to abide by the discipline norms of the University and follow conduct or discipline rules/anti ragging measures in the University. In case of any act of indiscipline demonstrated by the student, the student shall be liable for punishment. On the recommendation of Proctorial Board punishment may be awarded in terms of suspension for the semester, expulsion from the hostel, *withholding results, scholarships or other benefits*, barring from the placement facility and/or termination from the University. The decision of the Vice Chancellor shall be final and binding.

**19. POWER TO MODIFY**

Not with standing all that has been stated above, the Academic Council of the University has the right to modify partly or completely the provisions of above Ordinances with the approval of the Executive Council. Under extreme exceptional circumstances arising out of certain in consistency in the Ordinance otherwise, Vice-Chancellor can take suitable decision in deference to the laid down provisions, provided academic standard is not compromised and the same shall be reported to the ensuing Academic Council/Executive Council with proper justification. Such actions of the Vice Chancellor shall not be treated as precedence under any circumstance.

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