



**Dada Ramchand Bakhru  
Sindhu Mahavidyalaya  
Nagpur**

*Key Indicator 1.3*

*Curricular Enrichment*

*Criteria 1 Curricular Aspects*

NAAC Reaccredited



**B+ Grade**  
(3<sup>rd</sup> cycle)

Affiliation



**Rashtrasant Tukadoji  
Maharaj Nagpur University**

National ID



**AISHE**  
All India Survey on Higher Education

<https://www.drbsmvnagpur.ac.in>



**Dada Ramchand Bakhru  
Sindhu Mahavidyalaya  
Nagpur**

*Criteria 1 Curricular Aspects*

*1.3.2. Percentage of students undertaking project work/field work/internships (Data for the latest completed academic year).*

NAAC Reaccredited



**B+ Grade**  
(3<sup>rd</sup> cycle)

Affiliation



**Rashtrasant Tukadoji  
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National ID



**AISHE**  
सत्यमेव जयते

All India Survey on Higher Education

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# Dada Ramchand Bakhru Sindhu Mahavidyalaya Nagpur

## Declaration

*This is to declare that the information, reports, true copies and numerical data, etc. furnished in this file as supporting documents are verified and found correct.*



  
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Dada Ramchand Bakhru  
Sindhu Mahavidyalaya, Nagpur-17

NAAC Reaccredited



B+ Grade  
(3<sup>rd</sup> cycle)

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**SINDHI HINDI VIDYA SAMITI**  
**DADA RAMCHAND BAKHRU SINDHU MAHAVIDYALAYA, NAGPUR**

**CRITERIA 1 (1.3.2)**

**OVERVIEW:**

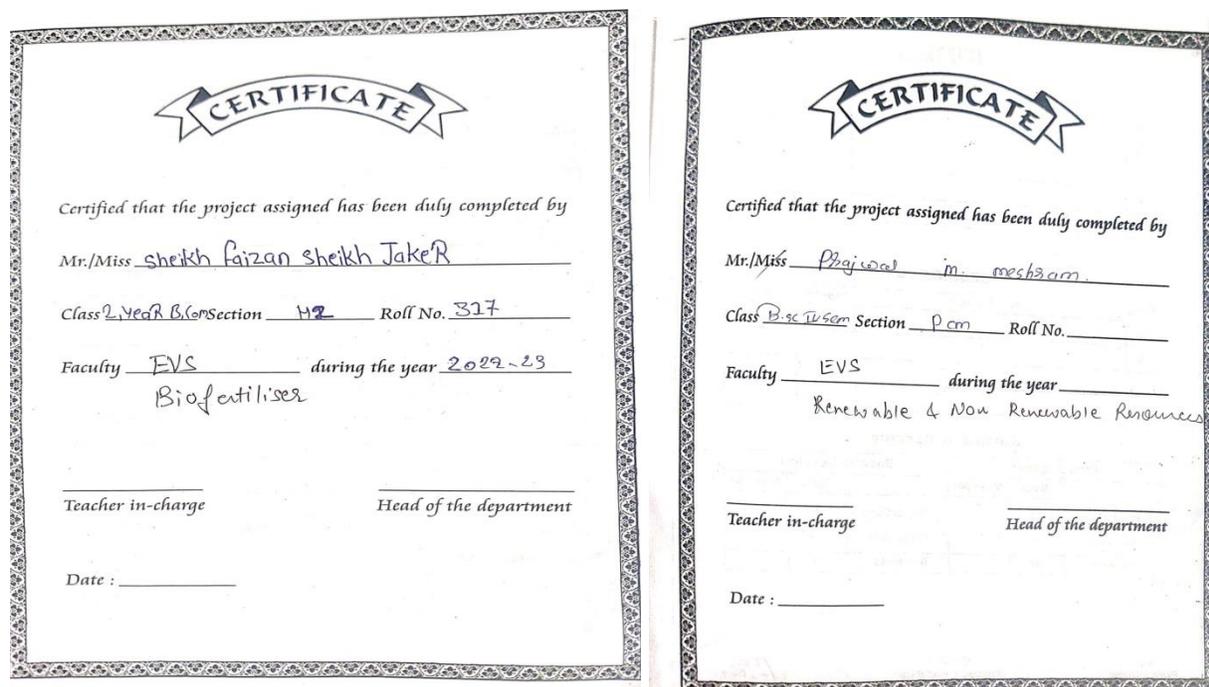
During the recently completed academic year 2022-23 total 844 students have undertaken a wide range of research work and projects. This work helped them build their experiential learning through critical thinking, problem solving and in-depth understanding of the theoretical concepts leading to building of cognitive abilities of the students.

List of Students undertaking project work/field work/internship for the academic year 2022-23.

Sr No	Course Name	Total Students	Particulars
1	B.Sc and B.Com	667	EVS Projects
2	BBA	109	Research Projects
3	M.Sc Zoology	24	Research Projects
4	M.Sc Botany	21	Research Projects
5	M.Sc Chemistry	23	Research Projects
	<b>TOTAL</b>	<b>844</b>	

Following are the sample documents for the said details:

**B.Sc and B.Com – EVS Projects**

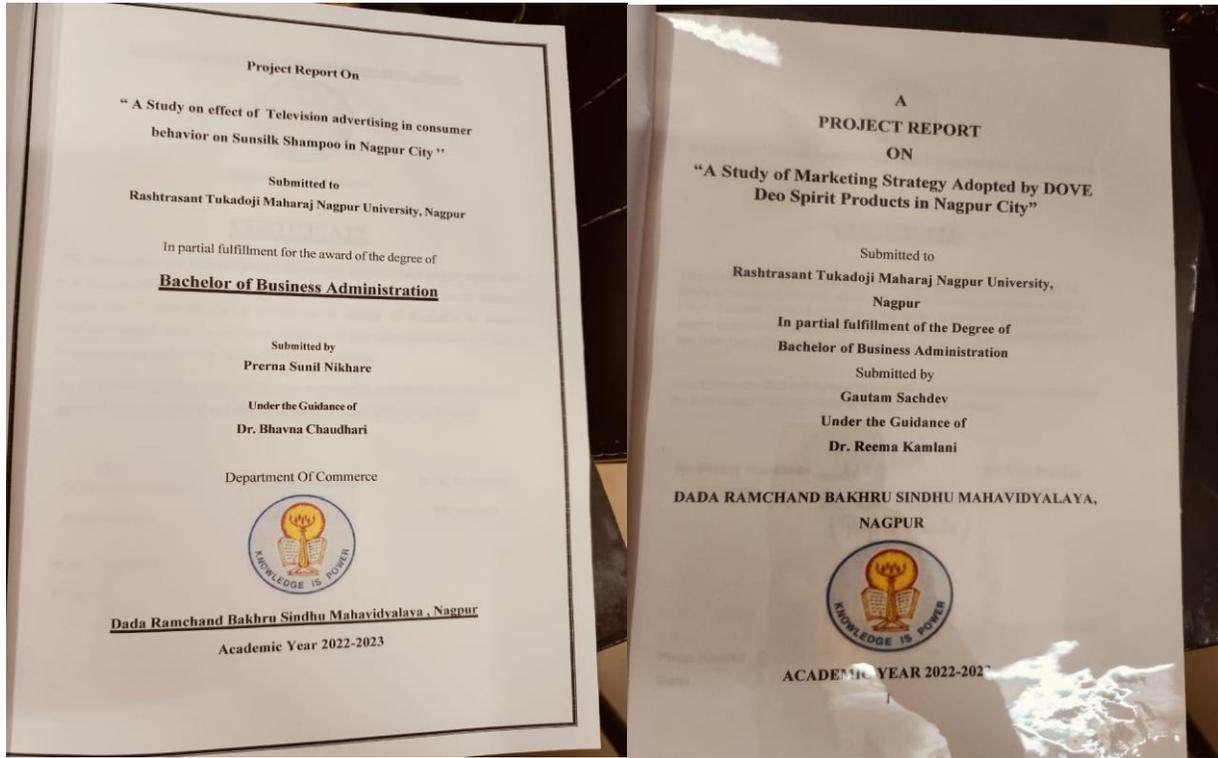


Sample of EVS Projects B.Sc / B.Com Session 2022-23



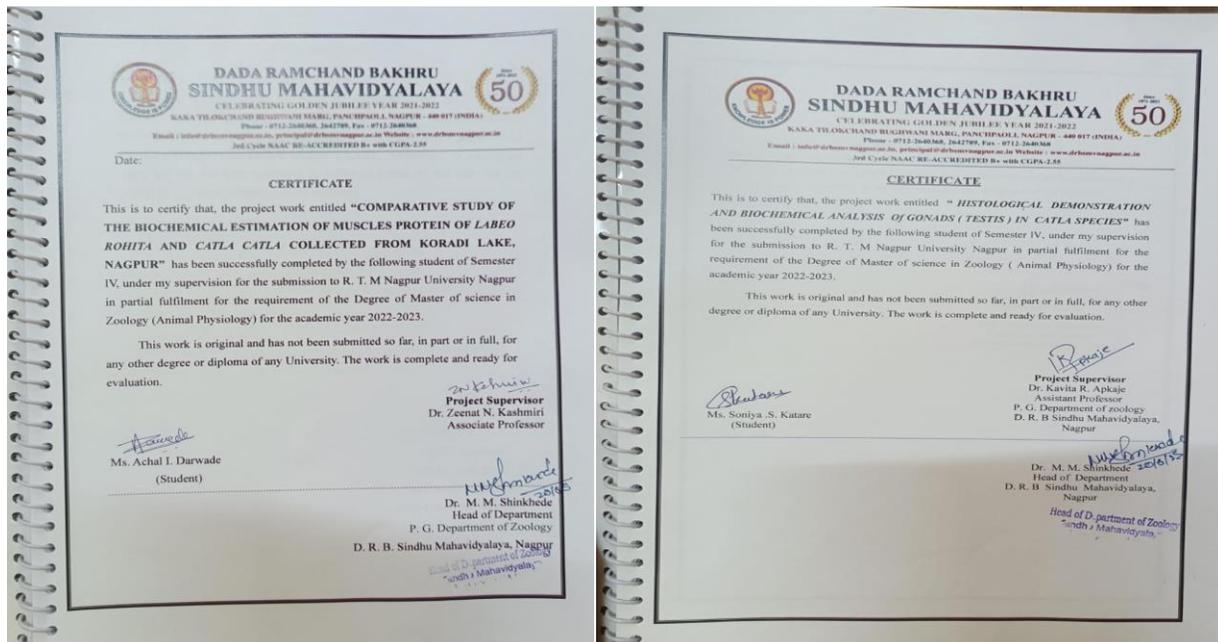
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**BBA – Research Projects**



**Sample Research Project BBA 2022-23**

**M.Sc ZOOLOGY - Research Projects**

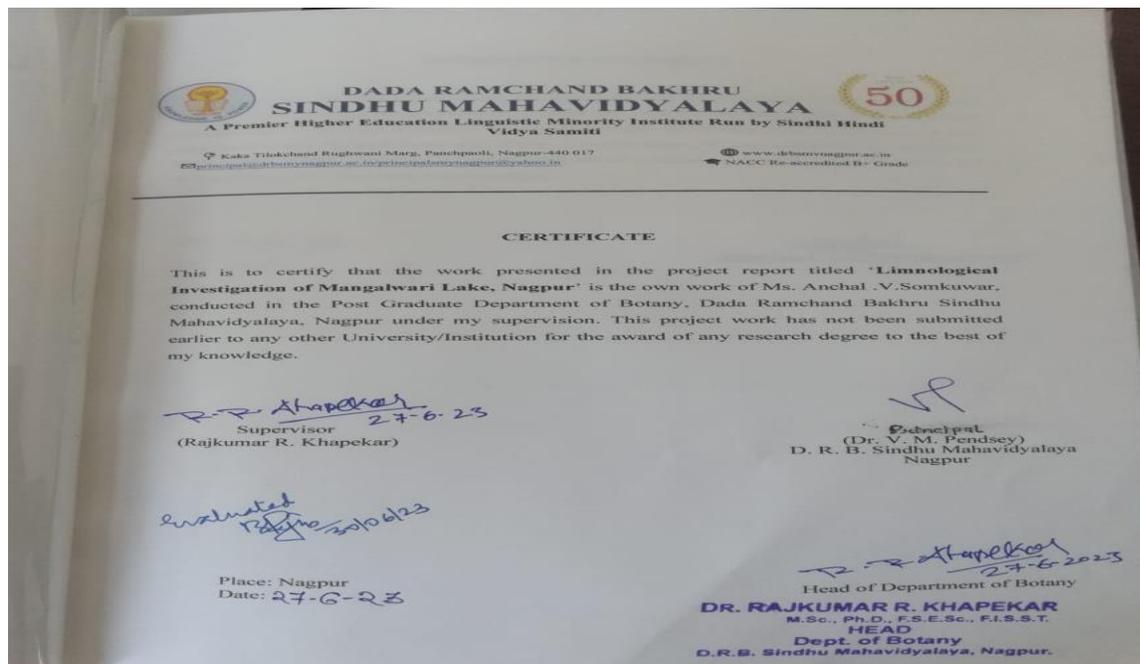


**Sample Research Projects M.Sc Zoology Session 2022-23**



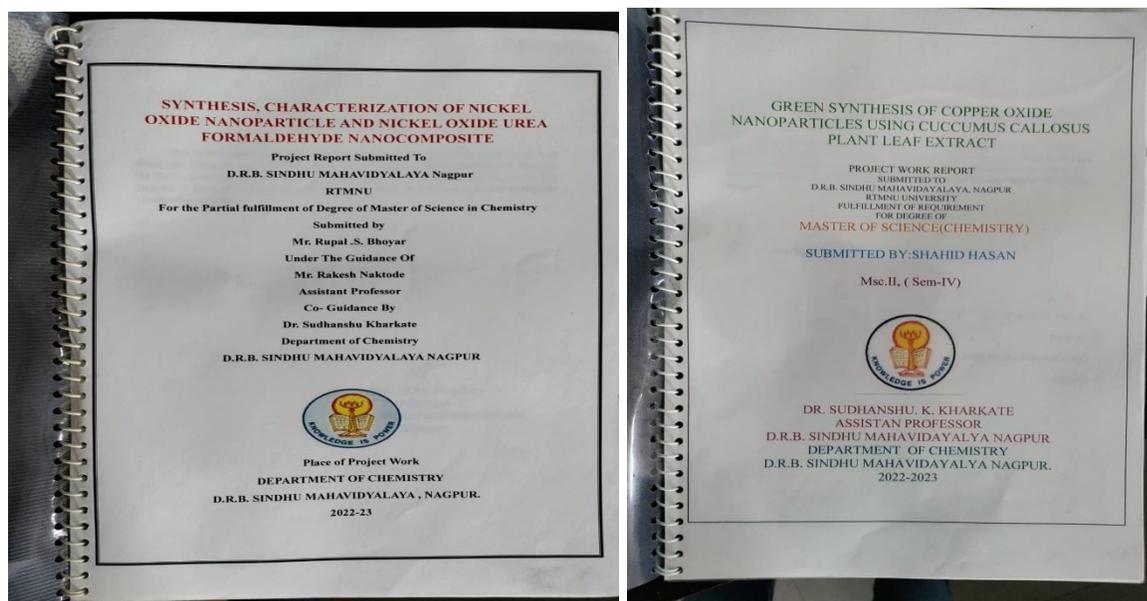
**SINDHI HINDI VIDYA SAMITI**  
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**M.Sc BOTANY - Research Projects**



**Sample Research Projects M.Sc Botany Session 2022-23**

**M.Sc Chemistry - Research Projects**



**Sample Research Projects M.Sc Chemistry Session 2022-23**



# RASHTRASANT TUKADOJI MAHARAJ NAGPUR UNIVERSITY

## NOTIFICATION

No. 2.

Dated: 27 February, 2007

It is notified for general information of all the concerned that the Hon'ble Vice-Chancellor has approved under Section 14(7) of the Maharashtra University Act, 1994 on behalf of Academic Council accepting the syllabus for compulsory course of six month duration in **Environment Studies at under graduate course of all branches and faculties of higher education on the guidelines of already accepted and approved pattern of UGC model to be implemented for the session 2007-2008.**

Encl:- Syllabus

*K. B. S. Ramteke*  
Registrar,

Rashtrasant Tukadoji Maharaj  
Nagpur University, Nagpur.

Nagpur Dated 27th Feb., 2007

No. Acad./1437.

Copy forwarded for information and necessary action to:-

1. All Principals/Directors of all colleges affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur.
2. All the Deans of the Faculties, Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur
3. The Controller of Examinations.
4. The Deputy Registrar (Exams.)
5. The Asstt. Registrar (Prof. Exams)/(Exams.)  
(Confidential/Exams. & Inq.)
6. The Asstt. Registrar (University Sub-Centre), Gadchiroli
7. The P. A. to the Hon'ble Vice Chancellor,
8. The P. A. to Hon'ble Pro-Vice Chancellor,
9. The P. A. to the Registrar,

Rashtrasant Tukadoji Maharaj  
Nagpur University, Nagpur



*(Ar. Vilas Ramteke)*  
Deputy Registrar (Acad.)  
Rashtrasant Tukadoji Maharaj  
Nagpur University, Nagpur.

*(Signature)*  
Principal

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**Guidelines for Implementation :**

- I. The theory question paper would carry 75 marks - 50 for objective type questions covering various aspects of the syllabus (50 questions, each of one mark) and 25 marks for one essay type question.

At the end of the course the student would be evaluated for 100 marks with distribution as below -

Field note book	-	25
Objective Questions	-	50
Essay type question	-	25
Passing marks	-	40

The result would be declared in grades -

Grade O : above 75; A : 61-75; B : 51-60; C : 40-50

- II. A fee of Rs.100/- per student be charged and its utilization is as : Rs.20/- will be sent to the university and Rs.16/- to Principal to be utilized for infrastructure and administrative expenses pertinent to the course. However the final fee structure may be decided by the appropriate authority of the University.
- III. The Principal would appoint Coordinator and Assistant Coordinator as per need to coordinate the teaching of the course, appoint contributory teachers, if necessary. At the end of the course, the college would conduct the examination. It will appoint paper setters and examiners. The final grades of candidates should be informed to the university. The expenditure for all the required manpower be met from the remaining amount of fees.
- IV. Qualifications of a Teacher : A teacher in any subject possessing knowledge to teach the "Course on Environmental Studies" shall be eligible.
- V. The course should be taught in second year and can be cleared in third year in case the student remains absent or fails to clear the course.
- VI. The candidate will have to pass in the examination of this course in order to obtain degree certificate from the University.

OR batch 201

In view of entire course the student may be assigned a project work Encompassing Community/Biodiversity Register (CBR) of any Gram-Panchayat as per format of National Biodiversity Authority of India under the guidance of a teacher. This CBR should be evaluated for 100 marks.

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cop/curriculum environment

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# Core Module Syllabus for Environmental Studies for Undergraduate Courses of all branches of Higher Education

## Unit 1: The Multidisciplinary nature of environmental studies

- Definition, scope and importance
- Need for public awareness

(2 lectures)

## Unit 2: Natural Resources

- Renewable and non-renewable resources
- Natural resources and associated problems
  - a) Forest resources: Use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forests and tribal people.
  - b) Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems.
  - c) Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies.
  - d) Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies.
  - e) Energy resources: Growing energy needs, renewable and non renewable energy sources, use of alternate energy sources, case studies.
  - f) Land resources: Land as a resource, land degradation, man induced landslides, soil erosion and desertification
- Role of an individual in conservation of natural resources
- Equitable use of resources for sustainable lifestyles

(8 lectures)

## Unit 3: Ecosystems

- Concept of an ecosystem
- Structure and function of an ecosystem
- Producers, consumers and decomposers
- Energy flow in the ecosystem
- Ecological succession
- Food chains, food webs and ecological pyramids
- Introduction, types, characteristic features, structure and function of the following ecosystems:
  - a. Forest ecosystems
  - b. Grassland ecosystems
  - c. Desert ecosystems

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- d. Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)

(6 lectures)

#### Unit 4: Biodiversity and its conservation

- Introduction: Definition: genetic, species and ecosystem diversity
- Biogeographical classification of India
- Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values
- Biodiversity at global, national and local levels
- India as a mega-diversity nation
- Hotspots of biodiversity
- Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts
- Endangered and endemic species of India
- Conservation of biodiversity: *In-situ* and *Ex-situ* conservation of biodiversity

(8 lectures)

#### Unit 5: Environmental Pollution

- Definition
- Causes, effects and control measures of:
  - a. Air pollution
  - b. Water pollution
  - c. Soil pollution
  - d. Marine pollution
  - e. Noise pollution
  - f. Thermal pollution
  - g. Nuclear hazards
- Solid waste Management: Causes, effects and control measures of urban and industrial wastes
- Role of an individual in prevention of pollution
- Pollution case studies
- Disaster management: floods, earthquakes, cyclones and landslides

  
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(8 lectures)

#### Unit 6: Social Issues and the Environment

- From unsustainable to sustainable development
- Urban problems related to energy
- Water conservation, rain water harvesting, watershed management
- Resettlement and rehabilitation of people; its problems and concerns. Case studies.
- Environmental ethics: Issues and possible solutions
- Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. Case studies.

- Wasteland reclamation
- Consumerism and waste products
- Environment Protection Act
- Air (Prevention and Control of Pollution) Act
- Water (Prevention and Control of Pollution) Act
- Wildlife Protection Act,
- Forest Conservation Act
- Issues involved in enforcement of environmental legislation
- Public awareness

(7 lectures)

### Unit 7: Human Population and the Environment

- Population growth, variation among nations
- Population explosion – Family Welfare Programme
- Environment and human health
- Human Rights
- Value Education
- HIV / AIDS
- Women and Child Welfare
- Role of Information Technology in Environment and human health
- Case Studies

  
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(6 lectures)

### Unit 8: Field Work

- Visit to a local area to document environmental assets—river / forest / grassland / hill / mountain
- Visit to a local polluted site—Urban / Rural / Industrial / Agricultural
- Study of common plants, insects, birds
- Study of simple ecosystems—pond, river, hill slopes, etc.

(Fieldwork Equal to 5 lecture hours)

### Teaching Methodologies

The Core Module Syllabus for Environmental Studies includes classroom teaching and fieldwork. The syllabus is divided into 8 units, covering 50 lectures. The first 7 units, which cover 45 lectures, are classroom-teaching based and intended to enhance knowledge skills and attitude to environment. Unit 8 is based on field activities, to be covered over five lecture hours, and would provide students with first-hand knowledge on various local environmental aspects. Field experience is one of the most effective learning tools for environmental concerns. This moves education out of the scope of the



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**SYLLABUS for M. Sc. CHEMISTRY**  
**Choice Based Credit System (Semester Pattern)**  
Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur  
Effective from 2018-2019

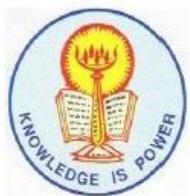
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Candidates opting for this course are advised to go through the direction relating to the course “DIRECTION RELATING TO THE EXAMINATION LEADING TO THE DEGREE OF MASTER OF SCIENCE, SEMESTER PATTERN (CHOICE BASED CREDIT SYSTEM) AND DEGREE OF MASTER OF SCIENCE AND TECHNOLOGY (APPLIED GEOLOGY). SEMESTER PATTERN, (CHOICE BASED CREDIT SYSTEM) (FACULTY OF SCIENCE & TECHNOLOGY)” which is available on R. T. M. Nagpur University website.

The direction will provide details on admission criteria, rules for ATKT, scheme of examination, absorption scheme for CBS students into CBCS pattern, elective papers, foundation course papers, subject centric papers, coding pattern, pattern of question papers, practicals, distribution of marks, seminars, project work, internal assessment, calculation of SGPA and CGPA, etc.



  
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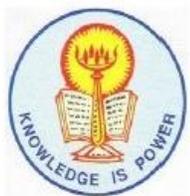


## Scheme of teaching and examination under semester pattern Choice Based Credit System (CBCS) for M.Sc. Program in Chemistry

M. Sc. Chemistry Semester I											
Code	Theory / Practical	Teaching scheme (Hours / Week)			Credits	Examination Scheme					
		Th	Pract	Total		Duration in hrs.	Max. Marks		Total Marks	Minimum Passing Marks	
							External Marks	Internal Ass		Th	Pract
(1T1)	Paper 1: Inorganic Chemistry	4	-	4	4	3	80	20	100	40	
(1T2)	Paper 2: Organic Chemistry	4	-	4	4	3	80	20	100	40	
(1T3)	Paper 3: Physical Chemistry	4	-	4	4	3	80	20	100	40	
(1T4)	Paper 4: Analytical Chemistry	4	-	4	4	3	80	20	100	40	
Pract. (1P1)	Practical 1: Inorganic Chemistry	-	8	8	4	3-8*	100**	-	100		40
Pract. (1P3)	Practical 2: Physical Chemistry	-	8	8	4	3-8*	100**	-	100		40
Seminar 1 (1S1)	Seminar 1	2	-	2	1			25	25	10	
	<b>TOTAL</b>	<b>18</b>	<b>16</b>	<b>34</b>	<b>25</b>		<b>520</b>	<b>105</b>	<b>625</b>	<b>170</b>	<b>80</b>



  
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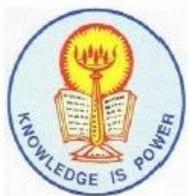


CELEBRATING GOLDEN JUBILEE YEAR

M. Sc. Chemistry Semester II											
Code	Theory / Practical	Teaching scheme (Hours / Week)			Credits	Examination Scheme					
		Th	Pract	Total		Duration in hrs.	Max. Marks		Total Marks	Minimum Passing Marks	
							External Marks	Internal Ass		Th	Pract
(2T1)	Paper 5: Inorganic Chemistry	4	-	4	4	3	80	20	100	40	
(2T2)	Paper 6: Organic Chemistry	4	-	4	4	3	80	20	100	40	
(2T3)	Paper 7: Physical Chemistry	4	-	4	4	3	80	20	100	40	
(2T4)	Paper 8: Analytical Chemistry	4	-	4	4	3	80	20	100	40	
Pract. (2P2)	Practical 3: Organic Chemistry	-	8	8	4	3-8*	100**	-	100		40
Pract. (2P4)	Practical 4: Analytical Chemistry	-	8	8	4	3-8*	100**	-	100		40
Seminar 2 (2S1)	Seminar 2	2	-	2	1			25	25	10	
<b>TOTAL</b>		<b>18</b>	<b>16</b>	<b>34</b>	<b>25</b>		<b>520</b>	<b>105</b>	<b>625</b>	<b>170</b>	<b>80</b>



  
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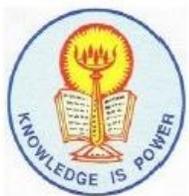
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<b>M. Sc. Chemistry Semester III</b>											
Code	Theory / Practical	Teaching scheme (Hours / Week)			Credits	Examination Scheme					
		Th	Pract	Total		Duration in hrs.	Max. Marks		Total Marks	Minimum Passing Marks	
							External Marks	Internal Ass		Th	Pract
<b>(3T1)</b>	Paper 9: Special – I (Inorganic/ Organic / Physical / Analytical) Chemistry	4	-	4	4	3	80	20	100	40	
<b>(3T2)</b>	Paper 10: Special – II (Inorganic/ Organic / Physical / Analytical) Chemistry	4	-	4	4	3	80	20	100	40	
<b>Elective 1 (3T3)</b>	Paper 11: A) Nuclear Chemistry I (3T3A) ORB) Environmental Chemistry I (3T3B) ORC) Polymer Chemistry I(3T3C) ORD) Medicinal Chemisrty I(3T3D)	4	-	4	4	3	80	20	100	40	
<b>Foundatio n Course 1 / Core Subject Centric 1 (3T4)</b>	Paper 12: Applied Analytical Chemistry-I/ Spectroscopy I	4	-	4	4	3	80	20	100	40	
<b>Pract. Core 9 &amp; 10 (3P1)</b>	Practical 5: Special (Inorganic/ Organic / Physical / Analytical) Chemistry	-	8	8	4	3-8*	100**	-	100		40



  
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Pract. Core Elective 1 (3P3)	Practical 6: A) Nuclear Chemistry I ORB) Environmental Chemistry I ORC) Polymer Chemistry I ORD) Medicinal Chemistry I	-	8	8	4	3-8*	100**	-	100		40
Seminar 3 (3S1)	Seminar 3	2	-	2	1			25	25	10	
	<b>TOTAL</b>	<b>18</b>	<b>16</b>	<b>34</b>	<b>25</b>		<b>520</b>	<b>105</b>	<b>625</b>	<b>170</b>	<b>80</b>

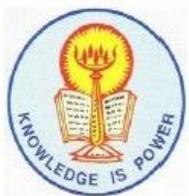
### M. Sc. Chemistry Semester IV

Code	y / P ract	Teaching scheme	e di	Examination Scheme
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		(Hours / Week)				Duration in hrs.	Max. Marks		Total Marks	Minimum Passing Marks	
		Th	Pract	Total			External Marks	Internal Ass		Th	Pract



  
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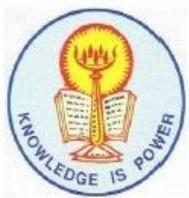
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(4T2)	Paper 14: <b>Special – II (Inorganic/ Organic / Physical / Analytical) Chemistry</b>	4	-	4	4	3	80	20	100	40	
Elective 2 (4T3)	<b>Paper 15: A) Nuclear Chemistry II ORB) Environmental Chemistry II ORC) Polymer Chemistry II ORD) Medicinal Chemistry II</b>	4	-	4	4	3	80	20	100	40	
Foundati on Course 2 / Subject Centric 2 (4T4)	Paper 16: <b>Applied Analytical Chemistry II / Spectroscopy II</b>	4	-	4	4	3	80	20	100	40	
Pract. (4P1)	Practical 7: <b>Special (Inorganic/ Organic / Physical / Analytical) Chemistry</b>	-	8	8	4	3-8*	100**	-	100		40
Project (4PROJ1)	Project	-	8	8	4	3-8*	100**	-	100		40
Seminar 4 (4S1)	Seminar 4	2	-	2	1			25	25	10	
	<b>TOTAL</b>	<b>18</b>	<b>16</b>	<b>34</b>	<b>25</b>		<b>520</b>	<b>105</b>	<b>625</b>	<b>170</b>	<b>80</b>



  
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## SYLLABUS for M. Sc. Zoology

### Choice Based Credit System (Semester Pattern)

**Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur**  
With effect from 2018-19

Candidates opting for this course are advised to go through the direction relating to the course “DIRECTION RELATING TO THE EXAMINATION LEADING TO THE DEGREE OF MASTER OF SCIENCE, SEMESTER PATTERN (CHOICE BASED CREDIT SYSTEM) AND DEGREE OF MASTER OF SCIENCE AND TECHNOLOGY (APPLIED GEOLOGY). SEMESTER PATTERN, (CHOICE BASED CREDIT SYSTEM) (FACULTY OF SCIENCE & TECHNOLOGY)” which is

available on R. T. M. Nagpur University website.

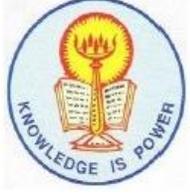
The direction will provide details on admission criteria, rules for ATKT, scheme of examination, absorption scheme for CBS students into CBCS pattern, elective papers, foundation course papers, subject centric papers, coding pattern, pattern of question papers, practicals, distribution of marks, seminars, project work, internal assessment, calculation of SGPA and CGPA, etc.

### Syllabus for M. Sc. Zoology (Semester with credit based Pattern) w e f 2018-19 Academic session

#### Scheme of teaching and examination under semester pattern Choice Based Credit System (CBCS) for M.Sc. Program in Zoology

M. Sc. Zoology Semester I												
Code	Theory / Practical	Teaching scheme (Hours / Week)				Credits	Examination Scheme					
		Th	Pract	Total	Duration in		Max. Marks		Total Marks	Minimu mPassing Marks		
							Exte rnal	Inte rnal		Th	Prac	
Core 1	Paper 1T1: Structure and Function of Invertebrates	4	-	4	4	3	80	20	100	40		

  
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Samiti



Core 2	Paper <b>1T<sub>2</sub></b> : General Physiology	4	-	4	4	3	80	20	100	40	
Core 3	Paper <b>1T<sub>3</sub></b> : Cell Biology and Genetics	4	-	4	4	3	80	20	100	40	
Core 4	Paper <b>1T<sub>4</sub></b> : Advanced Reproductive Biology	4	-	4	4	3	80	20	100	40	
Pract. Core 1 & 2	Practical <b>1P<sub>1</sub></b> : Based on theory Paper <b>1T<sub>1</sub>&amp; 1T<sub>2</sub></b>	-	8	8	4	3- 8*	100* *	-	100		40
Pract. Core 3 &	Practical <b>1P<sub>2</sub></b> : Based on	-	8	8	4	3- 8*	100* *	-	100		40

  
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4	theory Paper 1T <sub>3</sub> & 1T <sub>4</sub>										
Seminar 1	Seminar -1S <sub>1</sub>	2	-	2	1			25	25	10	
	<b>TOTAL</b>	<b>18</b>	<b>16</b>	<b>34</b>	<b>25</b>		<b>520</b>	<b>105</b>	<b>625</b>	<b>170</b>	<b>80</b>

<b>M. Sc. Zoology Semester II</b>											
Code	Theory / Practical	Teaching scheme (Hours / Week)				Examination Scheme					
		Th	Pract	Total	Credits	Duration in	Max. Marks		Total Marks	Minimum Passing Marks	
							External	Internal		Th	Pract
Core 5	Paper 2T <sub>1</sub> : Structure and Function of Vertebrates	4	-	4	4	3	80	20	100	40	
Core 6	Paper 2T <sub>2</sub> : Comparative Endocrinology	4	-	4	4	3	80	20	100	40	
Core 7	Paper 2T <sub>3</sub> : Molecular Biology and Biotechnology	4	-	4	4	3	80	20	100	40	
Core 8	Paper 2T <sub>4</sub> : Advanced Developmental Biology	4	-	4	4	3	80	20	100	40	
Pract. Core 5 & 6	Practical 2P <sub>1</sub> : Based on theory Paper 2T <sub>1</sub> & 2T <sub>2</sub>	-	8	8	4	3-8*	100*	-	100		40
Pract. Core 7 & 8	Practical 2P <sub>2</sub> : Based on theory	-	8	8	4	3-8*	100*	-	100		40



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	Pape										
Seminar 2	Seminar -2S <sub>2</sub>	2	-	2	1			25	25	10	
	<b>TOTAL</b>	<b>18</b>	<b>16</b>	<b>34</b>	<b>25</b>		<b>520</b>	<b>105</b>	<b>625</b>	<b>170</b>	<b>80</b>

## M. Sc. Zoology Semester III

Code	Theory / Pract	Teaching scheme (Hours / Week)				Credit	Examination Scheme			
		T	P	I	O		D	Max. Marks	T	O

  
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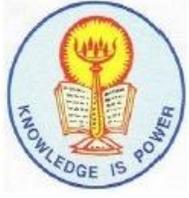
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										Passing Marks	
							External	Internal		Th	Pract
Core 9	Paper 3T <sub>1</sub> : Parasitology and Immunology	4	-	4	4	3	80	20	100	40	
Core 10	Paper 3T <sub>2</sub> : <b>Special Group- Paper I</b> • Entomology • Fish and Fisheries • Mammalian Reproductive Physiology (MRP) • Animal Physiology • Environmental Biology	4	-	4	4	3	80	20	100	40	
Core 11	<b>Special Group- Paper 3T<sub>3</sub></b> • Entomology • Fish and Fisheries • Mammalian Reproductive Physiology (MRP) • Animal Physiology • Environmental Biology	4	-	4	4	3	80	20	100	40	

  
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Foundati on Course 1 <b>(NOTE: Only for students of other M. Sc. Subjects</b>	Paper 3T4: Foundation - I <ul style="list-style-type: none"><li>• Basic Entomology / • Core (Subject Centric)- IWild Life and Avian</li></ul>	4	-	4	4	3	80	20	100	40	
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D											
Biology											
Pract. Core 9	Practical Based 3P <sub>1</sub> : 0 ntheory of 3T <sub>1</sub>	-	8	8	4	3-8*	100*	-	100		40
Pract. Core Elective 1 and 2	Practical Based 3P <sub>2</sub> : 0 ntheory of 3T <sub>2</sub> and 3T <sub>3</sub>	-	8	8	4	3-8*	100*	-	100		40
Seminar 3	Seminar -3S <sub>3</sub>	2	-	2	1			25	25	10	
<b>TOTAL</b>		<b>18</b>	<b>16</b>	<b>34</b>	<b>25</b>		<b>520</b>	<b>105</b>	<b>625</b>	<b>170</b>	<b>80</b>

## M. Sc. Zoology Semester IV

Code	Theory / Practical	Teaching scheme (Hours / Week)				Examination Scheme					
		Th	Pract	Total	Credits	Duration in	Max. Marks		Total Marks	Minimum Passing Marks	
							Ext ern	Int er		Th	Pra
Core 11	<b>Paper 4T<sub>1</sub>:</b> Biotechnique, Biostatistics, Ethology, Toxicology and Bioinformatics	4	-	4	4	3	80	20	100	40	

  
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Core 12	<b>Paper 4T<sub>2</sub>: Special Group- Paper 4T<sub>2</sub></b> <ul style="list-style-type: none"><li>• Entomology</li><li>• Fish and Fisheries</li><li>• Mammalian Reproductive Physiology (MRP)</li><li>• Animal Physiology</li><li>• Environmental Biology</li></ul>	4	-	4	4	3	80	20	100	40	
Core	<b>Paper 4T<sub>3</sub>:</b>	4	-	4	4	3	80	20	100	40	

  
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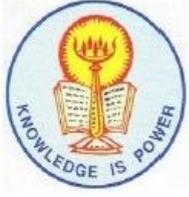


Elective 2	<b>Special Group- Paper 4T<sub>3</sub></b> <ul style="list-style-type: none"> <li>• Entomology</li> <li>• Fish and Fisheries</li> <li>• Mammalian Reproductive Physiology (MRP)</li> <li>• Animal Physiology</li> <li>• Environmental Biology</li> </ul>										
Foundation Course 2 (NOTE: Only for students of other M. Sc. Subjects)	<b>Paper 4T<sub>4</sub>: Foundation- II</b> <ul style="list-style-type: none"> <li>• Applied and Industrial Entomology /</li> <li>• Core (Subject Centric)-II Radiation and Chronobiology</li> </ul>	4	-	4	4	3	80	20	100	40	
Pract. Core 11, 12 & Elective 2	<b>Practical 4P<sub>1</sub>: Based on the theory of 4T<sub>2</sub> and 4T<sub>3</sub></b>	-	8	8	4	3-8*	100**	-	100		40
Project	<b>Project -Pro</b>	-	8	8	4	3-8*	100**	-	100		40
Seminar 4	Seminar- 4S <sub>4</sub>	2	-	2	1			25	25	10	
	<b>TOTAL</b>	<b>18</b>	<b>16</b>	<b>34</b>	<b>25</b>		<b>520</b>	<b>105</b>	<b>625</b>	<b>170</b>	<b>80</b>

Note: Th = Theory; Pr = Practical/lab, \* = If required, for two days.

\*\* = The Practical and Project shall be evaluated by both the External and Internal Examiner in the respective Department / Center / Affiliated College.

  
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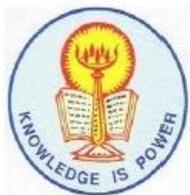
**M. Sc. Botany Syllabus  
Semester pattern with Choice Base Credits System**

**Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur**

**APPENDIX - 1**

**Scheme of teaching under choice based credit system for M. Sc. Program in Botany.**

  
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S. No.	Semester	Course Code / Paper	Title of the Paper	Course /Paper	Teaching Scheme		
					Theory (Hours)	Practical (Hours)	Number of Credits
1	One	1T1	Microbiology, Algae and Fungi	I	04	04	04
2	One	1T2	Bryophytes & Pteridophytes	II	04	04	04
3	One	1T3	Paleobotany and Gymnosperms	III	04	04	04
4	One	1T4	Cytology and Genetics	IV	04	04	04
5	One	1P1	Algae, fungi, Bryophytes	Pract. I	-	-	04
6	One	1P2	Pteridophytes, Gymnosperms, Paleobotany, Cytology & Genetics	Pract. II	-	-	04
7	One	1S1 Seminar					01
8	Two	2T1	Plant Physiology and Biochemistry	I	04	04	04
9	Two	2T2	Plant Development and Reproduction	II	04	04	04
10	Two	2T3	Cell and Molecular Biology-I	III	04	04	04
11	Two	2T4	Angiosperms-I and Ethnobotany	IV	04	04	04
12	Two	2P1	Plant Physiology, Plant Biochem., Plant Development & Reproduction	Pract. I	-	-	04

  
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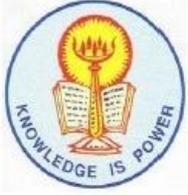
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13	Two	2P2	Cell and Molecular Biology I, Angiosperms I	Pract. II	-	-	04
14	Two	2S1 Seminar					01
15	Three	3T1	Plant Ecology and Conservation Biology	I	04	04	04
16	Three	3T2	Angiosperms-II	II	04	04	04
17	Three	3T3	Elective -I	III	04	08	04
18	Two	3T4	Foundation I	IV	04	-	04

  
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19	Three	3P1	Plant Ecology and Conservation Biology and Angiosperms II	Pract. I	-	-	04
20	Three	3P2	Elective	Pract. II	-	-	04
21	Three	3S1 Seminar					01
22	Four	4T1	Cell and Molecular Biology-II	I	04	04	04
23	Four	4T2	Plant Biotechnology and Plant Breeding	II	04	04	04
24	Four	4T3	Elective II	III	04	-	04
25	Four	4T4	Foundation II	IV	04	-	04
26	Four	4P1	Cell and Molecular Biology-II, Plant Biotechnology and Plant Breeding	Pract. I	-	-	04
27	Four	4P2	Project	Pract. II	-	08	04
28	Four	4S1 Seminar					01

  
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