

Choice Based Credit System (CBCS)

# UNIVERSITY OF DELHI

FACULTY OF INTER-DISCIPLINARY &  
APPLIED SCIENCES

UNDERGRADUATE PROGRAMME  
(Courses effective from Academic Year 2015-16)



SYLLABUS OF COURSES TO BE OFFERED  
Core Courses, Elective Courses & Ability Enhancement Courses

**Disclaimer:** The CBCS syllabus is uploaded as given by the Faculty concerned to the Academic Council. The same has been approved as it is by the Academic Council on 13.7.2015 and Executive Council on 14.7.2015. Any query may kindly be addressed to the concerned Faculty.

Undergraduate Programme Secretariat

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## **Preamble**

The University Grants Commission (UGC) has initiated several measures to bring equity, efficiency and excellence in the Higher Education System of country. The important measures taken to enhance academic standards and quality in higher education include innovation and improvements in curriculum, teaching-learning process, examination and evaluation systems, besides governance and other matters.

The UGC has formulated various regulations and guidelines from time to time to improve the higher education system and maintain minimum standards and quality across the Higher Educational Institutions (HEIs) in India. The academic reforms recommended by the UGC in the recent past have led to overall improvement in the higher education system. However, due to lot of diversity in the system of higher education, there are multiple approaches followed by universities towards examination, evaluation and grading system. While the HEIs must have the flexibility and freedom in designing the examination and evaluation methods that best fits the curriculum, syllabi and teaching-learning methods, there is a need to devise a sensible system for awarding the grades based on the performance of students. Presently the performance of the students is reported using the conventional system of marks secured in the examinations or grades or both. The conversion from marks to letter grades and the letter grades used vary widely across the HEIs in the country. This creates difficulty for the academia and the employers to understand and infer the performance of the students graduating from different universities and colleges based on grades.

The grading system is considered to be better than the conventional marks system and hence it has been followed in the top institutions in India and abroad. So it is desirable to introduce uniform grading system. This will facilitate student mobility across institutions within and across countries and also enable potential employers to assess the performance of students. To bring in the desired uniformity, in grading system and method for computing the cumulative grade point average (CGPA) based on the performance of students in the examinations, the UGC has formulated these guidelines.

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**CORE COURSE(C): (Credit: 06 each) (1 period/week for tutorials or 4 periods/week for practical)**

- I. Basic Circuit Theory and Network Analysis (4+4)
- II. Mathematics Foundation for Electronics (4+4)
- III. Semiconductor Devices (4+4)
- IV. Applied Physics (4+4)
- V. Electronic Circuits (4+4)
- VI. Digital Electronics and VHDL (4+4)
- VII. C Programming and Data Structures (4+4)
- VIII. Operational Amplifiers and Applications (4+4)
- IX. Signals and Systems (4+4)
- X. Electronic Instrumentation (4+4)
- XI. Microprocessors and Microcontrollers (4+4)
- XII. Electromagnetics (4+4)
- XIII. Communication Electronics (4+4)
- XIV. Photonics (4+4)

**NOTE: Core Courses No. I, VI and VIII are common with B.Sc. (Hons) Instrumentation**

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**Discipline Specific Electives (DSE): (Credit: 06 each) (4 papers to be selected) - DSE 1-4**

1. Power Electronics (4+4)
2. Numerical Analysis (4+4)
3. Modern Communication Systems (4+4)
4. Semiconductor Fabrication and Characterization (4+4)
5. Electrical Machines (4+4)
6. Basic VLSI Design (4+4)
7. Digital Signal Processing (4+4)
8. Control Systems (4+4)
9. Computer Networks (4+4)
10. Embedded Systems (4+4)
11. Biomedical Instrumentation (4+4)
12. Transmission Lines, Antenna and Wave Propagation (4+4)
13. Dissertation (4+4)

**Skill Enhancement Course (SEC) (02 papers) (Credit: 02 each) - SEC1 to SEC2**

1. Design and Fabrication of Printed Circuit Boards (4)
2. Robotics (4)
3. Mobile Applications Development (4)
4. Internet and Java Programming (4)
5. Programming with LabVIEW (4)

**Other Discipline - GE 1 to GE 4**

1. Mathematics
2. Computer Science
3. Physics
4. Biomedical Science
5. Chemistry
6. Commerce

Any other discipline of Choice

**Generic Elective Papers (GE) for other Departments/Disciplines: (Credit: 06 each)**

1. Electronic Circuits and PCB Designing (4+4)
2. Digital System Design (4+4)
3. Instrumentation (4+4)
4. Practical Electronics (4+4)
5. Communication Systems (4+4)
6. Microprocessor and Microcontroller Systems (4+4)
7. Consumer Electronics (4+4)

**Important:**

1. The size of the practical group for practical papers is recommended to be 12-15 students.

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FACULTY OF SCIENCE

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## SYLLABUS OF COURSES TO BE OFFERED

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The UGC has formulated various regulations and guidelines from time to time to improve the higher education system and maintain minimum standards and quality across the Higher Educational Institutions (HEIs) in India. The academic reforms recommended by the UGC in the recent past have led to overall improvement in the higher education system. However, due to lot of diversity in the system of higher education, there are multiple approaches followed by universities towards examination, evaluation and grading system. While the HEIs must have the flexibility and freedom in designing the examination and evaluation methods that best fits the curriculum, syllabi and teaching-learning methods, there is a need to devise a sensible system for awarding the grades based on the performance of students. Presently the performance of the students is reported using the conventional system of marks secured in the examinations or grades or both. The conversion from marks to letter grades and the letter grades used vary widely across the HEIs in the country. This creates difficulty for the academia and the employers to understand and infer the performance of the students graduating from different universities and colleges based on grades.

The grading system is considered to be better than the conventional marks system and hence it has been followed in the top institutions in India and abroad. So it is desirable to introduce uniform grading system. This will facilitate student mobility across institutions within and across countries and also enable potential employers to assess the performance of students. To bring in the desired uniformity, in grading system and method for computing the cumulative grade point average (CGPA) based on the performance of students in the examinations, the UGC has formulated these guidelines.

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## **CHOICE BASED CREDIT SYSTEM (CBCS):**

The CBCS provides an opportunity for the students to choose courses from the prescribed courses comprising core, elective/minor or skill based courses. The courses can be evaluated following the grading system, which is considered to be better than the conventional marks system. Therefore, it is necessary to introduce uniform grading system in the entire higher education in India. This will benefit the students to move across institutions within India to begin with and across countries. The uniform grading system will also enable potential employers in assessing the performance of the candidates. In order to bring uniformity in evaluation system and computation of the Cumulative Grade Point Average (CGPA) based on student's performance in examinations, the UGC has formulated the guidelines to be followed.

### **Outline of Choice Based Credit System:**

1. **Core Course:** A course, which should compulsorily be studied by a candidate as a core requirement is termed as a Core course.
2. **Elective Course:** Generally a course which can be chosen from a pool of courses and which may be very specific or specialized or advanced or supportive to the discipline/ subject of study or which provides an extended scope or which enables an exposure to some other discipline/subject/domain or nurtures the candidate's proficiency/skill is called an Elective Course.
  - 2.1 **Discipline Specific Elective (DSE) Course:** Elective courses may be offered by the main discipline/subject of study is referred to as Discipline Specific Elective. The University/Institute may also offer discipline related Elective courses of interdisciplinary nature (to be offered by main discipline/subject of study).
  - 2.2 **Dissertation/Project:** An elective course designed to acquire special/advanced knowledge, such as supplement study/support study to a project work, and a candidate studies such a course on his own with an advisory support by a teacher/faculty member is called dissertation/project.
  - 2.3 **Generic Elective (GE) Course:** An elective course chosen generally from an unrelated discipline/subject, with an intention to seek exposure is called a Generic Elective.

P.S.: A core course offered in a discipline/subject may be treated as an elective by other discipline/subject and vice versa and such electives may also be referred to as Generic Elective.
3. **Ability Enhancement Courses (AEC)/Competency Improvement Courses/Skill Development Courses/Foundation Course:** The Ability Enhancement (AE) Courses may be of two kinds: AE Compulsory Course (AECC) and AE Elective Course (AEEC). "AECC" courses are the courses based upon the content that leads to Knowledge enhancement. They ((i) Environmental Science, (ii) English/MIL Communication) are mandatory for all disciplines. AEEC courses are value-based and/or skill-based and are aimed at providing hands-on-training, competencies, skills, etc.
  - 3.1 AE Compulsory Course (AECC): Environmental Science, English Communication/MIL Communication.
  - 3.2 AE Elective Course (AEEC): These courses may be chosen from a pool of courses designed to provide value-based and/or skill-based instruction.

**Project work/Dissertation** is considered as a special course involving application of knowledge in solving / analyzing /exploring a real life situation / difficult problem. A Project/Dissertation work would be of 6 credits. A Project/Dissertation work may be given in lieu of a discipline specific elective paper.

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**Details of courses under B.A (Honors), B.Com (Honors) & B.Sc. (Honors)**

Course	*Credits	
	Theory+ Practical	Theory + Tutorial
<b><u>I. Core Course</u></b>		
(14 Papers)	14X4= 56	14X5=70
<b>Core Course Practical / Tutorial*</b>		
(14 Papers)	14X2=28	14X1=14
<b><u>II. Elective Course</u></b>		
<b>(8 Papers)</b>		
A.1. Discipline Specific Elective	4X4=16	4X5=20
<b>(4 Papers)</b>		
A.2. Discipline Specific Elective Practical/ Tutorial*	4 X 2=8	4X1=4
<b>(4 Papers)</b>		
B.1. Generic Elective/ Interdisciplinary	4X4=16	4X5=20
<b>(4 Papers)</b>		
B.2. Generic Elective Practical/ Tutorial*	4 X 2=8	4X1=4
<b>(4 Papers)</b>		
<ul style="list-style-type: none"> <li>• Optional Dissertation or project work in place of one Discipline Specific Elective paper (6 credits) in 6<sup>th</sup> Semester</li> </ul>		
<b><u>III. Ability Enhancement Courses</u></b>		
<b>1. Ability Enhancement Compulsory</b>		
(2 Papers of 2 credit each)	2 X 2=4	2 X 2=4
Environmental Science		
English/MIL Communication		
<b>2. Ability Enhancement Elective (Skill Based)</b>		
(Minimum 2)	2 X 2=4	2 X 2=4
<b>(2 Papers of 2 credit each)</b>		
<b>Total credit</b>	<b>140</b>	<b>140</b>

Institute should evolve a system/policy about ECA/ General Interest/Hobby/Sports/NCC/NSS/related courses on its own.

\* wherever there is a practical there will be no tutorial and vice-versa

  
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## Course Structure (Chemistry-Major)

Details of courses under B.Sc. (Honours)

Course	Theory+ Practical	Credits
<b>I. Core Course Theory</b> (14 Papers)	14 × 4=56	
<b>Core Course Practical</b> (14 Papers)	14 × 2=28	
<b>Total:</b>		<b>84</b>

### II. Elective Course (8 Papers)

A.1. Discipline Specific Elective (DSE) Theory (4 Papers)	4 × 4=16	
A.2. Discipline Specific Elective (DSE) Practical (4 Papers)	4 × 2=8	
B.1. Generic Elective (GE)/ Interdisciplinary Theory (4 Papers)	4 × 4=16 4 × 5=20	
B.2. Generic Elective (GE) Practical/Tutorial* (4 Papers)	4 × 2=8 4 × 1=4	
<b>Total:</b>		<b>48</b>

**Optional Dissertation or project work in place of one Discipline Specific Elective Paper. (6 credits) in 6<sup>th</sup> Semester**

### III. Ability Enhancement Courses (4 Papers)

1. Ability Enhancement Compulsory (2 Papers of 2 credits each) Environmental Science	2 × 2=4	
2. Ability Enhancement Elective (Skill Based) (2 Papers of 2 credits each) (Minimum 2)	2 × 2=4	
<b>Total:</b>		<b>08</b>

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**Total credit** **140**

\* Wherever there is a practical there will be no tutorial and vice-versa

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SEMESTER	COURSE OPTED	COURSE NAME	Credits
I	AEC-I Compulsory	English Communications/ Environmental Science	2
	Core Course-I	Inorganic Chemistry-I	4
	Core Course-I Practical	Inorganic Chemistry-I Lab	2
	Core Course-II	Physical Chemistry-I	4
	Core Course-II Practical	Physical Chemistry-I Lab	2
	Generic Elective -1 GE-1		4/5
	Generic Elective -1 Practical/Tutorial		2/1
II	AEC-II Compulsory	Environmental Science English Communications	2
	Core Course-III	Organic Chemistry-I	4
	Core Course-III Practical	Organic Chemistry-I Lab	2
	Core Course-IV	Physical Chemistry-II	4
	Core Course-IV Practical	Physical Chemistry-II Lab	2
	Generic Elective -2 GE-2		4/5
	Generic Elective -2 Practical/Tutorial		2/1
III	Core Course-V	Inorganic Chemistry-II	4
	Core Course-V Practical	Inorganic Chemistry-II Lab	2
	Core Course-VI	Organic Chemistry-II	4
	Core Course-VI Practical	Organic Chemistry-II Lab	2
	Core Course-VII	Physical Chemistry-III	4
	Core Course-VII Practical	Physical Chemistry-III Lab	2
	Skill Enhancement Course -1 SEC-1		2
Generic Elective -3	GE-3	4/5	
Generic Elective -3	Practical/Tutorial	2/1	
IV	Core Course-VIII	Inorganic Chemistry-III	4
	Course-VIII Practical	Inorganic Chemistry-III Lab	2
	Core Course-IX	Organic Chemistry-III	4
	Course-IX Practical	Organic Chemistry-III Lab	2
	Core Course-X	Physical Chemistry-IV	4
	Course-X Practical	Physical Chemistry-IV Lab	2

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	<b>Skill Enhancement Course -2 SEC -2</b>		<b>2</b>	
	<b>Generic Elective -4</b>	<b>GE-4</b>	<b>4/5</b>	
	<b>Generic Elective -4</b>	<b>Practical</b>	<b>2/1</b>	
<hr/>				
<b>V</b>	<b>Core Course-XI</b>	<b>Organic Chemistry-IV</b>	<b>4</b>	
	<b>Core Course-XI Practical</b>	<b>Organic Chemistry-IV Lab</b>	<b>2</b>	
	<b>Core Course-XII</b>	<b>Physical Chemistry-V</b>	<b>4</b>	
	<b>Core Course-XII Practical</b>	<b>Physical Chemistry-V Lab</b>	<b>2</b>	
	<b>Discipline Specific Elective -1 DSE-1</b>		<b>4</b>	
	<b>Discipline Specific Elective -1</b>			
		<b>Practical/Tutorial</b>	<b>DSE-1 Lab</b>	<b>2</b>
	<b>Discipline Specific Elective -2 DSE-2</b>		<b>4</b>	
	<b>Discipline Specific Elective- 2</b>			
		<b>Practical/Tutorial</b>	<b>DSE-2 Lab</b>	<b>2</b>
<hr/>				
<b>VI</b>	<b>Core Course-XIII</b>	<b>Inorganic Chemistry-IV</b>	<b>4</b>	
	<b>Core Course-XIII Practical</b>	<b>Inorganic Chemistry-IV Lab</b>	<b>2</b>	
	<b>Core Course-XIV</b>	<b>Organic Chemistry-V</b>	<b>4</b>	
	<b>Core Course-XIV Practical</b>	<b>Organic Chemistry-V Lab</b>	<b>2</b>	
	<b>Discipline Specific Elective -3 DSE-3</b>		<b>4</b>	
	<b>Discipline Specific Elective -3</b>			
		<b>Practical/Tutorial</b>	<b>DSE-3 Lab</b>	<b>2</b>
	<b>Discipline Specific Elective-4 DSE-4</b>		<b>4</b>	
	<b>Discipline Specific Elective -4</b>			
		<b>Practical/Tutorial</b>	<b>DSE-4 Lab</b>	<b>2</b>
<hr/>				
	<b>Total Credits</b>		<b>140</b>	

**Core Papers (C): (Credit: 06 each)**

*(4 Lectures/week for Theory and 4 Periods/week for practical)*

1. Inorganic Chemistry I: Atomic Structure & Chemical Bonding (4 + 4)
2. Physical Chemistry I: States of Matter & Ionic Equilibrium (4 + 4)
3. Organic Chemistry I: Basics and Hydrocarbons (4 + 4)
4. Physical Chemistry II: Chemical Thermodynamics and its Applications (4 + 4)
5. Inorganic Chemistry II: s- and p-Block Elements (4 + 4)
6. Organic Chemistry II: Oxygen Containing Functional Groups (4 + 4)
7. Physical Chemistry III: Phase Equilibria and Electrochemical Cells (4 + 4)
8. Inorganic Chemistry III: Coordination Chemistry (4 + 4)

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- |                             |  |
|-----------------------------|--|
| 9. Organic Chemistry III:   | Heterocyclic Chemistry (4 + 4)           |
| 10. Physical Chemistry IV:  | Conductance & Chemical Kinetics (4 + 4)  |
| 11. Organic Chemistry IV:   | Biomolecules (4 + 4)                     |
| 12. Physical Chemistry V:   | Quantum Chemistry & Spectroscopy (4 + 4) |
| 13. Inorganic Chemistry IV: | Organometallic Chemistry (4 + 4)         |
| 14. Organic Chemistry V:    | Spectroscopy (4 + 4)                     |

**Discipline Specific Elective Papers: (Credit: 06 each) (4 papers to be selected)-  
DSE 1-4**

**DSE 1: Any one of the following**

1. Novel Inorganic Solids (4) + Lab (4)
2. Inorganic Materials of Industrial Importance (4) + Lab (4)

**DSE 2-4: Choose any three of the following**

1. Applications of Computers in Chemistry (4) + Lab (4)
2. Analytical Methods in Chemistry (4) + Lab (4)
3. Molecular Modelling & Drug Design (4) + Lab (4)
4. Polymer Chemistry (4) + Lab (4)
5. Research Methodology for Chemistry (5) + Tutorials (1)
6. Green Chemistry (4) + Lab (4)
7. Industrial Chemicals & Environment (4) + Lab (4)
8. Instrumental Methods of Analysis (4) + Lab (4)
9. Dissertation

**Other Discipline (Four papers of any one discipline)- GE 1 to GE 4**

1. Mathematics (5) + Tut (1)
2. Physics (4) + Lab (4)
3. Economics (5) + Tut (1)
4. Computer Science (4) + Lab (4)

**Skill Enhancement Courses (02 to 04 papers) (Credit: 02 each)- SEC1 to SEC4  
(Emphasis should be given to Hands on Exercises) (Hands on except for papers 3, 5 and 6)**

1. IT Skills for Chemists
2. Basic Analytical Chemistry
3. Chemical Technology & Society
4. Chemoinformatics
5. Business Skills for Chemists
6. Intellectual Property Rights
7. Analytical Clinical Biochemistry
8. Green Methods in Chemistry
9. Pharmaceutical Chemistry
10. Chemistry of Cosmetics & Perfumes
11. Pesticide Chemistry
12. Fuel Chemistry

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**Generic Elective Papers (GE) (Minor-Chemistry) (any four) for other Departments/Disciplines: (Credit: 06 each)**

1. Atomic Structure, Bonding, General Organic Chemistry & Aliphatic Hydrocarbons (4) + Lab (4)
2. Chemical Energetics, Equilibria & Functional Group Organic Chemistry-I (4) + Lab (4)
3. Solutions, Phase Equilibrium, Conductance, Electrochemistry & Functional Group Organic Chemistry-II (4) + Lab (4)
4. Chemistry of s- and p-block elements, States of matter and Chemical Kinetics (4) + Lab (4).
5. Chemistry of d-block elements, Quantum Chemistry and Spectroscopy (4) + Lab (4)
6. Organometallics, Bioinorganic chemistry, Polynuclear hydrocarbons and UV, IR Spectroscopy (4) + Lab (4)
7. Molecules of life (4) + Lab (4).

**At least two mathematics papers are compulsory for admission for MSc Chemistry in Delhi University.**

**Discipline (Two Mathematics papers compulsory, two papers of one other discipline may be selected)- GE 1 to GE**

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# **B.Sc. (Honours) Botany under CBCS**

**THREE-YEAR FULL-TIME PROGRAMME**

**Choice based credit system**

**(Six Semester Course)**



**COURSE CONTENTS**

**APPROVED IN THE COMMITTEE OF COURSES HELD ON JUNE 9, 2015**

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### Preamble

The B.Sc. (Hons.) Botany is presently being run in different colleges of the University of Delhi. It was converted from annual system to six-semester mode course in 2009. A new system, **Choice Based Credit System (CBCS)** is being introduced based on the recommendation of University Grant Commission (UGC) to create uniformity in teaching at various central universities and to facilitate seamless mobility of students across universities based on the credits. This credit based semester system will provide flexibility in designing curriculum and assigning credits based on the course contents and number of hours of teaching. In this system students have the option to take courses of their choice, learn at their own pace, take additional courses and acquire more than the required credits, making it an interdisciplinary approach of learning. This new syllabus was been prepared keeping in view the unique requirements of B.Sc. (Hons.) Botany students. The contents have been drawn to accommodate the widening horizons of the Botany discipline and reflect the changing needs of the students. The semester wise course distribution and detailed syllabus for each paper is appended with a list of suggested reading.

Under this system, there will be 14 core course paper (C1 to C14). These are compulsory to be studied by a student to complete the requirement of B.Sc. (Hons.) Botany programme. The students will study two core papers per semester in first year, three core paper per semester in the second year and two core papers per semester in the third year. The core papers (6 credits each) will comprise of theory (4 credits) and practicals (2 credits). Each practical batch will be of 15 students. A number exceeding 15 (at least ten) will be divided into equal batches.

Elective courses can be chosen from a pool of papers. There are two kinds of electives:

a) **Discipline Specific Elective (DSE):** There are nine such papers (DSE:1-9). out of which Botany student will choose any two in fifth and sixth semester each. The Discipline specific elective papers (6 credits each) will comprise of theory (4 credits ) and practicals (2 credits) like the core papers. A particular option of DSE paper will be offered in V and VI semester, only if the minimum number of students opting for that paper is 10. One of the elective in DSE is project work which can be opted in lieu of one of the elective and will also carry 6 credits. Number of students who will be offered project work will vary from for college depending upon



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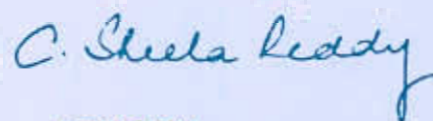
the infrastructural facilities and may vary each year. The college shall announce the number of seats for project work well in advance and may select the students for the same based on merit. Project will involve experimental work and the student will have to do this in the time after their regular theory and practical classes. The final evaluation of the project work will be through a committee involving internal and external examiners. In this regard guidelines provided by University of Delhi for executing and evaluation of project work will be final. Students will be asked their choice for Project work at the end of IV semester and all formalities of topic and mentor selection will be completed by this time.

**b) Generic Elective (GE) :** Different generic elective papers will be offered to students of other departments of the college and the student will have the option to choose one generic elective paper each in the first four semesters. The generic elective will be of six credits each. The Department of Botany is offering eight generic elective papers (GE: 1-8) for students of other departments. These generic elective papers (6 credits each) will comprise of theory (4 credits) and practicals (2 credits).

Besides the core and elective courses, there are two ability enhancement compulsory courses, AE-I (Environmental Sciences) and AE-2 (English Communication) of two credits each. The student is supposed to take one in each semester of the first year.

The students will also undertake two skill Enhancement (SE) courses of two credits each in III and IV semesters of second year which they can choose from the list of SE courses offered by their college. The Department of Botany is offering seven such papers (SE: 1-7).

In the CBCS system, a credit is unit by which the course work is measured. It determines the number of hours of instructions required per week. One credit is equivalent to one hour of teaching (lecture or tutorial) or two hours of practical work/field work per week. A minimum of 140 credits are required to obtain degree in B.Sc. (Hons.) Botany.



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SEMESTER	COURSE OPTED	COURSE: NAME	Credits
I	Ability Enhancement Compulsory Course-I	English /MIL Communications/ Environmental Science	2
	Core Course-I	Microbiology and Phycology	4
	Core Course-I <b>Practical</b>	Microbiology and Phycology- Practical	2
	Core Course-II	Biomolecules and Cell Biology	4
	Core Course-II <b>Practical</b>	Biomolecules and Cell Biology-Practical	2
	Generic Elective-I	GE-I (Any one) 1. Biodiversity (Microbes, Algae, Fungi and Archegoniatae) 2. Plant Diversity and Human Welfare	4
	Generic Elective-I <b>Practical/Tutorial</b>	GE-I- Practical	2
II	Ability Enhancement Compulsory Course-II	English /MIL Communications/Environmental Science	2
	Core Course-III	Mycology and Phytopathology	4
	Core Course-III <b>Practical</b>	Mycology and Phytopathology- Practical	2
	Core Course-IV	Archegoniatae	4
	Core Course-IV <b>Practical</b>	Archegoniatae- Practical	2
	Generic Elective-II	GE-II 3. Plant Anatomy and Embryology	4
	Generic Elective-II <b>Practical</b>	GE-II – Practical	2
III	Core Course-V	Anatomy of Angiosperms	4
	Core Course-V <b>Practical</b>	Anatomy of Angiosperms- Practical	2
	Core Course-VI	Economic Botany	4
	Core Course-VI <b>Practical</b>	Economic Botany –Practical	2
	Core Course-VII	Genetics	4
	Core Course-VII <b>Practical</b>	Genetics-Practical	2
	Skill Enhancement Course-I	SEC-I (Any one) 1. Ethnobotany 2. Intellectual Property Rights	2
	Generic Elective-III	GE-III (Any one) 4. Plant Ecology and Taxonomy	4

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		5. Environmental Biotechnology	
	<b>Generic Elective-III Practical</b>	GE-III -Practical	2
IV	Core Course-VIII	Molecular Biology	4
	Core Course-VIII <b>Practical</b>	Molecular Biology – Practical	2
	Core Course-IX	Ecology	4
	Core Course-IX <b>Practical</b>	Ecology – Practical	2
	Core Course-X	Plant Systematics	4
	Core Course-X <b>Practical</b>	Plant Systematics- Practical	2
	Skill Enhancement Course- II	SEC-II (Any one) 3. Biofertilizers 4. Medicinal Botany	2
	Generic Elective-IV	GE-IV Economic Botany and Biotechnology	4
	Generic Elective-IV <b>Practical</b>	GE-IV - Practical	2
V	Core Course-XI	Reproductive Biology of Angiosperms	4
	Core Course-XI <b>Practical</b>	Reproductive Biology of Angiosperms - Practical	2
	Core Course-XII	Plant Physiology	4
	Core Course-XII <b>Practical</b>	Plant Physiology- Practical	2
	Discipline Specific Elective-I	DSE-I Analytical Techniques in Plant Science	4
	Discipline Specific Elective-I <b>Practical</b>	DSE-I- Practical	2
	Discipline Specific Elective-II	DSE-II Biostatistics	4
	Discipline Specific Elective-II <b>Practical/Tutorial</b>	DSE-II – Practical	2
VI	Core Course-XIII	Plant Metabolism	4
	Core Course-XIII <b>Practical/Tutorial</b>	Plant Metabolism- Practical	2
	Core Course-XIV	Plant Biotechnology	4
	Core Course-XIV <b>Practical/ Tutorial</b>	Plant Biotechnology- Practical	2
	Discipline Specific Elective-III	DSE-III Industrial and Environmental Microbiology	4
	Discipline Specific Elective-III <b>Practical</b>	DSE-III- Practical	2

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	Discipline Specific Elective-IV	DSE-IV Bioinformatics	4
	Discipline Specific Elective-IV <b>Practical/Tutorial</b>	DSE-IV Bioinformatics- Practical	2
<b>Total</b>			140

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## **Structure of B.Sc. (Hons) Biological Science under CBCS**

### **Core Course**

BS-C1: Chemistry  
BS-C2: Light and Life  
BS-C3: Biophysics  
BS-C4: Biodiversity  
BS-C5: Proteins and Enzymes  
BS-C6: Concepts in Cell Biology  
BS-C7: Functional Ecology  
BS-C8: Systems Physiology  
BS-C9: Concepts of Molecular Biology  
BS-C10: Metabolism and Integration  
BS-C11: Growth and Reproduction  
BS-C12: Fundamentals of Genetics  
BS-C13: Defense Mechanisms  
BS-C14: Concepts of Evolutionary Biology

### **Discipline Specific Elective (*Any four*)**

DSE-1: Analytical Techniques in Plant Sciences  
DSE-2: Stress Biology  
DSE-3: Natural Resource management  
DSE-4: Wild Life Conservation  
DSE-5: Animal Behavior and Chronobiology  
DSE-6: Endocrinology  
DSE-7: Biomaterials  
DSE-8: Microbiology  
DSE- 9: Plant Biochemistry

### **Ability Enhancement Compulsory Course**

AE-1: English communication  
AE-2: Environmental science

### **Skill Enhancement Elective Courses (*Any two*)**

SEC-1: Medicinal Botany  
SEC-2: Bio fertilizers  
SEC-3: Medical Diagnostics  
SEC-4: Public Health and Management  
SEC-5: Biochemical Techniques  
SEC-6: Recombinant DNA Technology

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**B.Sc. (HONOURS) BIOLOGICAL SCIENCES  
CORE COURSES**

S.No.	Code	Title
1	BS-C1	Chemistry
2	BS-C2	Light and Life
3	BS-C3	Biophysics
4	BS-C4	Biodiversity
5	BS-C5	Proteins and Enzymes
6	BS-C6	Concepts in Cell Biology
7	BS-C7	Functional Ecology
8	BS-C8	Systems Physiology
9	BS-C9	Concepts of Molecular Biology
10	BS-C10	Metabolism and Integration
11	BS-C11	Growth and Reproduction
12	BS-C12	Genetics
13	BS-C13	Defense Mechanisms
14	BS-C14	Evolutionary Biology

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**SCHEME FOR CHOICE BASED CREDIT SYSTEM IN B.Sc. BIOLOGICAL  
SCIENCE HONOURS**

Semester	Core Courses (14)	Ability Enhancement Compulsory Course (2)	Skill Enhancement Course (SEC) (2)	Discipline specific elective (DSE) (4)	Generic Elective (GE) (4)
I	Chemistry	English communication			GE-1
	Light and Life				
II	Biophysics	Environmental Science			GE-2
	Biodiversity				
III	Proteins and enzymes		SEC-1		GE-3
	Concepts in Cell Biology				
	Functional Ecology				
IV	Systems Physiology		SEC-2		GE-4
	Concepts of Molecular Biology				
	Metabolism and Integration				
V	Growth and Reproduction			DSE-1 DSE-2	
	Fundamentals of Genetics				
VI	Defense Mechanisms			DSE-3 DSE-4	
	Concepts of Evolutionary Biology				

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SEMESTER	COURSE OPTED	COURSE NAME	CREDITS
I	Ability Enhancement Compulsory Course – I	English communication / Environmental Science	2
	Core course – I	Chemistry	4
	Core course – I Practical	Chemistry	2
	Core course – II	Light and Life	4
	Core course – II Practical	Light and Life	2
	Generic Elective – 1	GE – 1	4
	Generic Elective – 1 Practical	GE – 1	2
II	Ability Enhancement Compulsory Course – II	English communications/ Environmental Science	2
	Core course – III	Biophysics	4
	Core course – III Practical	Biophysics	2
	Core course – IV	Biodiversity	4
	Core course – IV Practical	Biodiversity	2
	Generic Elective – 2	GE-2	4
	Generic Elective – 2 Practical	GE-2	2
III	Core course – V	Proteins and Enzymes	4
	Core course – V Practical	Proteins and Enzymes	2
	Core course – VI	Concepts in Cell Biology	4
	Core course – VI Practical	Concepts in Cell Biology	2
	Core course – VII	Functional Ecology	4
	Core course – VII Practical	Functional Ecology	2

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	Skill Enhancement Course – 1	SEC-1	4
	Generic Elective – 3	GE-3	4
	Generic Elective – 3 Practical	GE-3	2
IV	Core course – VIII	Systems Physiology	4
	Core course – VIII Practical	Systems Physiology	2
	Core course – IX	Concepts of Molecular Biology	4
	Core course – IX Practical	Concepts of Molecular Biology	2
	Core course – X	Metabolism and Integration	4
	Core course – X Practical	Metabolism and Integration	2
	Skill Enhancement Course-2	SEC-2	4
	Generic Elective – 4	GE-4	4
	Generic Elective – 4 Practical	GE-4	2
V	Core course – XI	Growth and Reproduction	4
	Core course – XI Practical	Growth and Reproduction	2
	Core course – XII	Fundamentals of Genetics	4
	Core course – XII Practical	Fundamentals of Genetics	2
	Discipline Specific Elective – 1	DSE-1	4
	Discipline Specific Elective – 1 Practical	DSE-1	2
	Discipline Specific Elective – 2	DSE-2	4
	Discipline Specific Elective – 2 Practical	DSE-2	2
VI	Core course – XIII	Defense Mechanisms	4

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Core course – XIII Practical	Defense Mechanisms	2
Core course – XIV	Concepts of Evolutionary Biology	4
Core course – XIV Practical	Concepts of Evolutionary Biology	2
Discipline Centric Elective – 3	DSE-3	4
Discipline Centric Elective – 3 Practical	DSE-3	2
Discipline Centric Elective – 4	DSE-4	4
Discipline Centric Elective – 4 Practical	DSE-4	2

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Choice Based Credit System (CBCS)

# UNIVERSITY OF DELHI

FACULTY OF INTER-DISCIPLINARY &  
APPLIED SCIENCES

UNDERGRADUATE PROGRAMME  
(Courses effective from Academic Year 2015-16)



SYLLABUS OF COURSES TO BE OFFERED  
Core Courses, Elective Courses & Ability Enhancement Courses

**Disclaimer:** The CBCS syllabus is uploaded as given by the Faculty concerned to the Academic Council. The same has been approved as it is by the Academic Council on 13.7.2015 and Executive Council on 14.7.2015. Any query may kindly be addressed to the concerned Faculty.

Undergraduate Programme Secretariat

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## **Preamble**

The University Grants Commission (UGC) has initiated several measures to bring equity, efficiency and excellence in the Higher Education System of country. The important measures taken to enhance academic standards and quality in higher education include innovation and improvements in curriculum, teaching-learning process, examination and evaluation systems, besides governance and other matters.

The UGC has formulated various regulations and guidelines from time to time to improve the higher education system and maintain minimum standards and quality across the Higher Educational Institutions (HEIs) in India. The academic reforms recommended by the UGC in the recent past have led to overall improvement in the higher education system. However, due to lot of diversity in the system of higher education, there are multiple approaches followed by universities towards examination, evaluation and grading system. While the HEIs must have the flexibility and freedom in designing the examination and evaluation methods that best fits the curriculum, syllabi and teaching-learning methods, there is a need to devise a sensible system for awarding the grades based on the performance of students. Presently the performance of the students is reported using the conventional system of marks secured in the examinations or grades or both. The conversion from marks to letter grades and the letter grades used vary widely across the HEIs in the country. This creates difficulty for the academia and the employers to understand and infer the performance of the students graduating from different universities and colleges based on grades.

The grading system is considered to be better than the conventional marks system and hence it has been followed in the top institutions in India and abroad. So it is desirable to introduce uniform grading system. This will facilitate student mobility across institutions within and across countries and also enable potential employers to assess the performance of students. To bring in the desired uniformity, in grading system and method for computing the cumulative grade point average (CGPA) based on the performance of students in the examinations, the UGC has formulated these guidelines.



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## CHOICE BASED CREDIT SYSTEM (CBCS):

The CBCS provides an opportunity for the students to choose courses from the prescribed courses comprising core, elective/minor or skill based courses. The courses can be evaluated following the grading system, which is considered to be better than the conventional marks system. Therefore, it is necessary to introduce uniform grading system in the entire higher education in India. This will benefit the students to move across institutions within India to begin with and across countries. The uniform grading system will also enable potential employers in assessing the performance of the candidates. In order to bring uniformity in evaluation system and computation of the Cumulative Grade Point Average (CGPA) based on student's performance in examinations, the UGC has formulated the guidelines to be followed.

### **Outline of Choice Based Credit System:**

1. **Core Course:** A course, which should compulsorily be studied by a candidate as a core requirement is termed as a Core course.
2. **Elective Course:** Generally a course which can be chosen from a pool of courses and which may be very specific or specialized or advanced or supportive to the discipline/ subject of study or which provides an extended scope or which enables an exposure to some other discipline/subject/domain or nurtures the candidate's proficiency/skill is called an Elective Course.
  - 2.1 **Discipline Specific Elective (DSE) Course:** Elective courses may be offered by the main discipline/subject of study is referred to as Discipline Specific Elective. The University/Institute may also offer discipline related Elective courses of interdisciplinary nature (to be offered by main discipline/subject of study).
  - 2.2 **Dissertation/Project:** An elective course designed to acquire special/advanced knowledge, such as supplement study/support study to a project work, and a candidate studies such a course on his own with an advisory support by a teacher/faculty member is called dissertation/project.
  - 2.3 **Generic Elective (GE) Course:** An elective course chosen generally from an unrelated discipline/subject, with an intention to seek exposure is called a Generic Elective.

P.S.: A core course offered in a discipline/subject may be treated as an elective by other discipline/subject and vice versa and such electives may also be referred to as Generic Elective.
3. **Ability Enhancement Courses (AEC)/Competency Improvement Courses/Skill Development Courses/Foundation Course:** The Ability Enhancement (AE) Courses may be of two kinds: AE Compulsory Course (AECC) and AE Elective Course (AEEC). "AECC" courses are the courses based upon the content that leads to Knowledge enhancement. They ((i) Environmental Science, (ii) English/MIL Communication) are mandatory for all disciplines. AEEC courses are value-based and/or skill-based and are aimed at providing hands-on-training, competencies, skills, etc.
  - 3.1 AE Compulsory Course (AECC): Environmental Science, English Communication/MIL Communication.
  - 3.2 AE Elective Course (AEEC): These courses may be chosen from a pool of courses designed to provide value-based and/or skill-based instruction.

**Project work/Dissertation** is considered as a special course involving application of knowledge in solving / analyzing /exploring a real life situation / difficult problem. A Project/Dissertation work would be of 6 credits. A Project/Dissertation work may be given in lieu of a discipline specific elective paper.

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**Details of courses under B.A (Honors), B.Com (Honors) & B.Sc. (Honors)**

Course	*Credits	
	Theory+ Practical	Theory + Tutorial
<b><u>I. Core Course</u></b>		
(14 Papers)	14X4= 56	14X5=70
<b>Core Course Practical / Tutorial*</b>		
(14 Papers)	14X2=28	14X1=14
<b><u>II. Elective Course</u></b>		
<b>(8 Papers)</b>		
A.1. Discipline Specific Elective	4X4=16	4X5=20
<b>(4 Papers)</b>		
A.2. Discipline Specific Elective Practical/ Tutorial*	4 X 2=8	4X1=4
<b>(4 Papers)</b>		
B.1. Generic Elective/ Interdisciplinary	4X4=16	4X5=20
<b>(4 Papers)</b>		
B.2. Generic Elective Practical/ Tutorial*	4 X 2=8	4X1=4
<b>(4 Papers)</b>		
<ul style="list-style-type: none"> <li>• Optional Dissertation or project work in place of one Discipline Specific Elective paper (6 credits) in 6<sup>th</sup> Semester</li> </ul>		
<b><u>III. Ability Enhancement Courses</u></b>		
<b>1. Ability Enhancement Compulsory</b>		
(2 Papers of 2 credit each)	2 X 2=4	2 X 2=4
Environmental Science		
English/MIL Communication		
<b>2. Ability Enhancement Elective (Skill Based)</b>		
(Minimum 2)	2 X 2=4	2 X 2=4
<b>(2 Papers of 2 credit each)</b>		
<b>Total credit</b>	<b>140</b>	<b>140</b>

Institute should evolve a system/policy about ECA/ General Interest/Hobby/Sports/NCC/NSS/related courses on its own.

\* wherever there is a practical there will be no tutorial and vice-versa

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## Structure of B.Sc. (Honours) Biochemistry under CBCS

### Core Course

BCH C-1:	Molecules of Life
BCH C-2:	Cell Biology
BCH C-3:	Proteins
BCH C-4:	Enzymes
BCH C-5:	Metabolism of Carbohydrates and Lipids
BCH C-6:	Membrane Biology and Bioenergetics
BCH C-7:	Hormone: Biochemistry and Function
BCH C-8:	Human Physiology
BCH C-9:	Gene Organization, Replication and Repair
BCH C-10:	Metabolism of Amino Acids and Nucleotides
BCH C-11:	Concepts in Genetics
BCH C-12:	Gene Expression and Regulation
BCH C-13:	Genetic Engineering and Biotechnology
BCH C-14:	Immunology

### Discipline Specific Elective (*Any four*)

BCH DSE-1:	Nutritional Biochemistry
BCH DSE-2:	Research Methodology
BCH DSE-3:	Molecular basis of non-infectious human diseases
BCH DSE-4:	Molecular basis of infectious diseases
BCH DSE-5:	Research Project
BCH DSE-6:	Advanced cell biology
BCH DSE-7:	Plant Biochemistry
BCH DSE-8:	Basic Microbiology

### Generic Elective (*Any four*)

BCH GE-1:	Biochemistry of Cell
BCH GE-2:	Proteins and Enzymes
BCH GE-3:	Intermediary Metabolism
BCH GE-4:	Gene Organization, Expression and Regulation
BCH GE-5:	Fundamentals of Cell Biology and Immunology
BCH GE-6:	Fundamentals of Genetic Engineering
BCH GE-7:	Biochemical Correlations in Diseases

### Ability Enhancement Compulsory Course

AECC-1:	English communication
AECC-2:	Environmental science

### Skill Enhancement Elective Course (*Any two*)

BCH SEC-1:	Tools and Techniques in Biochemistry
BCH SEC-2:	Protein Purification Techniques
BCH SEC-3:	Clinical Biochemistry
BCH SEC-4:	Bioinformatics
BCH SEC-5:	Recombinant DNA Technology

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Choice Based Credit System (CBCS)

# UNIVERSITY OF DELHI

FACULTY OF SCIENCE

UNDERGRADUATE PROGRAMME  
(Courses effective from Academic Year 2015-16)



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Dhaura Kuan, New Delhi-110021

Details of Courses Under Undergraduate Programme (B.Sc.)

Course	*Credits	
	Theory+ Practical	Theory+Tutorials
<b><u>I. Core Course</u></b>	12X4= 48	12X5=60
(12 Papers)		
04 Courses from each of the 03 disciplines of choice		
<b>Core Course Practical / Tutorial*</b>	12X2=24	12X1=12
(12 Practical/ Tutorials*)		
04 Courses from each of the 03 Disciplines of choice		
<b><u>II. Elective Course</u></b>	6x4=24	6X5=30
(6 Papers)		
Two papers from each discipline of choice including paper of interdisciplinary nature.		
<b>Elective Course Practical / Tutorials*</b>	6 X 2=12	6X1=6
(6 Practical / Tutorials*)		
Two Papers from each discipline of choice including paper of interdisciplinary nature		
<ul style="list-style-type: none"> <li>• Optional Dissertation or project work in place of one Discipline elective paper (6 credits) in 6<sup>th</sup> Semester</li> </ul>		
<b><u>III. Ability Enhancement Courses</u></b>		
1. Ability Enhancement Compulsory	2 X 2=4	2X2=4
(2 Papers of 2 credits each)		
Environmental Science		
English/MIL Communication		
2. Ability Enhancement Elective	4 X 2=8	4 X 2=8
(Skill Based)		
(4 Papers of 2 credits each)		
	Total credit= 120	Total credit= 120

Institute should evolve a system/policy about ECA/ General Interest/Hobby/Sports/NCC/NSS/related courses on its own.

\*wherever there is practical there will be no tutorials and vice-versa

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**Structure of B.Sc. Life Science under CBCS**  
**[BOTANY COMPONENT]**

**Core Courses –Botany**

1. Biodiversity (Microbes, Algae, Fungi and Archegoniatae)
2. Plant Ecology and Taxonomy
3. Plant Anatomy and Embryology
4. Plant Physiology and Metabolism

**Discipline Specific Electives-Botany (Any two)**

Semester V DSE-I	<b>DSE-I(Any one)</b> 1.Cell and Molecular Biology 2. Bioinformatics
Semester VI DSE-II	<b>DSE-II(Any one)</b> 3. Economic Botany and Biotechnology 4. Analytical Techniques in Plant Sciences
<b>Ability Enhancement Compulsory Courses</b>	
1. Environmental Science 2. English/MIL Communication	
<b>Skill Enhancement Courses ( four)</b>	
Semester III SEC-I	1. Biofertilizers
Semester IV SEC-II	2. Medicinal Botany
Semester V SEC-III	3. Ethnobotany
Semester VI SEC-IV	4. Intellectual Property Rights

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Structure of B.Sc. Programme (Life Science)/B.Sc. Medical under CBCS

[BOTANY COMPONENT]

Semester	Core Course	Ability Enhancement Compulsory Courses	Skill Enhancement Courses (SEC)(4)	Discipline Specific Elective DSE(4)
I	CC-Botany I 1. Biodiversity (Microbes, Algae, Fungi and Archaezoans)	English/MIL Communication/ Environmental Science		
	CC-Zoology I CC-Chemistry I			
II	CC-Botany II 2. Plant Ecology and Taxonomy	English/MIL Communication/ Environmental Science		
	CC-Zoology II CC-Chemistry II			
III	CC-Botany III 3. Plant Anatomy and Embryology		SEC-I 1. Biofertilizers	
	CC-Zoology III CC-Chemistry III			
IV	CC-Botany IV 4. Plant Physiology and Metabolism		SEC-II 2. Medicinal Botany	
	CC-Zoology IV CC-Chemistry IV			
V			SEC-III 3. Edaphobotany	DSE-I Botany (Any one) 1. Cell and Molecular Biology 2. Bioinformatics
VI			SEC-IV	DSE-II Botany (Any one)

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			4. Intellectual Property Rights	5. Software, Databases and E-Infrastructure
				6. Analytical Techniques and Plant Services

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Choice Based Credit System (CBCS)

# UNIVERSITY OF DELHI

DEPARTMENT OF COMMERCE

UNDERGRADUATE PROGRAMME  
(Courses effective from Academic Year 2015-16)



## SYLLABUS OF COURSES TO BE OFFERED

Core Courses, Elective Courses & Ability Enhancement Courses

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Undergraduate Programme Secretariat

*C. Sheila Reddy*

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## Preamble

The University Grants Commission (UGC) has initiated several measures to bring equity, efficiency and excellence in the Higher Education System of country. The important measures taken to enhance academic standards and quality in higher education include innovation and improvements in curriculum, teaching-learning process, examination and evaluation systems, besides governance and other matters.

The UGC has formulated various regulations and guidelines from time to time to improve the higher education system and maintain minimum standards and quality across the Higher Educational Institutions (HEIs) in India. The academic reforms recommended by the UGC in the recent past have led to overall improvement in the higher education system. However, due to lot of diversity in the system of higher education, there are multiple approaches followed by universities towards examination, evaluation and grading system. While the HEIs must have the flexibility and freedom in designing the examination and evaluation methods that best fits the curriculum, syllabi and teaching-learning methods, there is a need to devise a sensible system for awarding the grades based on the performance of students. Presently the performance of the students is reported using the conventional system of marks secured in the examinations or grades or both. The conversion from marks to letter grades and the letter grades used vary widely across the HEIs in the country. This creates difficulty for the academia and the employers to understand and infer the performance of the students graduating from different universities and colleges based on grades.

The grading system is considered to be better than the conventional marks system and hence it has been followed in the top institutions in India and abroad. So it is desirable to introduce uniform grading system. This will facilitate student mobility across institutions within and across countries and also enable potential employers to assess the performance of students. To bring in the desired uniformity, in grading system and method for computing the cumulative grade point average (CGPA) based on the performance of students in the examinations, the UGC has formulated these guidelines.

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## CHOICE BASED CREDIT SYSTEM (CBCS):

The CBCS provides an opportunity for the students to choose courses from the prescribed courses comprising core, elective/minor or skill based courses. The courses can be evaluated following the grading system, which is considered to be better than the conventional marks system. Therefore, it is necessary to introduce uniform grading system in the entire higher education in India. This will benefit the students to move across institutions within India to begin with and across countries. The uniform grading system will also enable potential employers in assessing the performance of the candidates. In order to bring uniformity in evaluation system and computation of the Cumulative Grade Point Average (CGPA) based on student's performance in examinations, the UGC has formulated the guidelines to be followed.

### **Outline of Choice Based Credit System:**

1. **Core Course:** A course, which should compulsorily be studied by a candidate as a core requirement is termed as a Core course.
2. **Elective Course:** Generally a course which can be chosen from a pool of courses and which may be very specific or specialized or advanced or supportive to the discipline/ subject of study or which provides an extended scope or which enables an exposure to some other discipline/subject/domain or nurtures the candidate's proficiency/skill is called an Elective Course.
  - 2.1 **Discipline Specific Elective (DSE) Course:** Elective courses may be offered by the main discipline/subject of study is referred to as Discipline Specific Elective. The University/Institute may also offer discipline related Elective courses of interdisciplinary nature (to be offered by main discipline/subject of study).
  - 2.2 **Dissertation/Project:** An elective course designed to acquire special/advanced knowledge, such as supplement study/support study to a project work, and a candidate studies such a course on his own with an advisory support by a teacher/faculty member is called dissertation/project.
  - 2.3 **Generic Elective (GE) Course:** An elective course chosen generally from an unrelated discipline/subject, with an intention to seek exposure is called a Generic Elective.

P.S.: A core course offered in a discipline/subject may be treated as an elective by other discipline/subject and vice versa and such electives may also be referred to as Generic Elective.
3. **Ability Enhancement Courses (AEC)/Competency Improvement Courses/Skill Development Courses/Foundation Course:** The Ability Enhancement (AE) Courses may be of two kinds: AE Compulsory Course (AECC) and AE Elective Course (AEEC). "AECC" courses are the courses based upon the content that leads to Knowledge enhancement. They ((i) Environmental Science, (ii) English/MIL Communication) are mandatory for all disciplines. AEEC courses are value-based and/or skill-based and are aimed at providing hands-on-training, competencies, skills, etc.
  - 3.1 AE Compulsory Course (AECC): Environmental Science, English Communication/MIL Communication.
  - 3.2 AE Elective Course (AEEC): These courses may be chosen from a pool of courses designed to provide value-based and/or skill-based instruction.

**Project work/Dissertation** is considered as a special course involving application of knowledge in solving / analyzing /exploring a real life situation / difficult problem. A Project/Dissertation work would be of 6 credits. A Project/Dissertation work may be given in lieu of a discipline specific elective paper.

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**Details of courses under B.A (Honors), B.Com (Honors) & B.Sc. (Honors)**

Course	*Credits	
	Theory+ Practical	Theory + Tutorial
<b><u>I. Core Course</u></b>		
(14 Papers)	14X4= 56	14X5=70
<b>Core Course Practical / Tutorial*</b>		
(14 Papers)	14X2=28	14X1=14
<b><u>II. Elective Course</u></b>		
<b>(8 Papers)</b>		
A.1. Discipline Specific Elective	4X4=16	4X5=20
<b>(4 Papers)</b>		
A.2. Discipline Specific Elective Practical/ Tutorial*	4 X 2=8	4X1=4
<b>(4 Papers)</b>		
B.1. Generic Elective/ Interdisciplinary	4X4=16	4X5=20
<b>(4 Papers)</b>		
B.2. Generic Elective Practical/ Tutorial*	4 X 2=8	4X1=4
<b>(4 Papers)</b>		
<ul style="list-style-type: none"> <li>• <b>Optional Dissertation or project work in place of one Discipline Specific Elective paper (6 credits) in 6<sup>th</sup> Semester</b></li> </ul>		
<b><u>III. Ability Enhancement Courses</u></b>		
<b>1. Ability Enhancement Compulsory</b>		
<b>(2 Papers of 2 credit each)</b>	2 X 2=4	2 X 2=4
Environmental Science		
English/MIL Communication		
<b>2. Ability Enhancement Elective (Skill Based)</b>		
<b>(Minimum 2)</b>	2 X 2=4	2 X 2=4
<b>(2 Papers of 2 credit each)</b>		

**Total credit**

**140**

**140**

**Institute should evolve a system/policy about ECA/ General Interest/Hobby/Sports/NCC/NSS/related courses on its own.**

**\* wherever there is a practical there will be no tutorial and vice-versa**

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**B. Com. (Hons.): Three-Year (6-Semester) CBCS Programme**

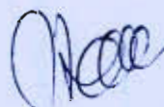
Paper No.	Course Structure	
<b>Semester I</b>		
BCH-1.1	Environmental Studies	Ability Enhancement Compulsory Course (AECC-1)
BCH-1.2	Financial Accounting	Core Course (C-1)
BCH-1.3	Business Laws	Core Course(C-2)
BCH-1.4	Generic Elective (GE-1) (Any one of the following)	Generic Elective(GE-1)
	a. Micro Economics	
	b. Insurance and Risk Management	
<b>Semester II</b>		
BCH-2.1	Business Communication (Language-English/Hindi/MIL)	Ability Enhancement Compulsory Course (AECC-2)
BCH-2.2	Corporate Accounting	Core Course (C-3)
BCH-2.3	Corporate Laws	Core Course (C-4)
BCH-2.4	Generic Elective (GE-2) (Any one of the following)	Generic Elective(GE-2)
	a. Macro Economics	
	b. Investing in Stock Markets	
<b>Semester III</b>		
BCH-3.1	Human Resource Management	Core Course (C-5)
BCH-3.2	Income-tax Law and Practice	Core Course (C-6)
BCH-3.3	Management Principles and Applications	Core Course (C-7)
BCH-3.4	Generic Elective (GE-3) (Any one of the following)	Generic Elective(GE-3)
	a. Business Statistics	
	b. Project Management	
BCH-3.5	Skill-Enhancement Course (SEC-1) (Any one of the following)	Skill-Enhancement Course (SEC-1)
	a. E-Commerce	
	b. Training and Development	
	c. E-Marketing	
	d. Personal Tax Planning	

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Semester IV		
BCH-4.1	Cost Accounting	Core Course (C-8)
BCH-4.2	Business Mathematics	Core Course (C-9)
BCH-4.3	Computer Applications in Business	Core Course (C-10)
BCH-4.4	Generic Elective (GE-4) (Any one of the following)	Generic Elective (GE-4)
	a. Indian Economy	
	b. Economics of Regulation of Domestic and Foreign Exchange Markets	
BCH-4.5	Skill-Enhancement Course (SEC-2) (Any one of the following)	Skill-Enhancement Course (SEC-2)
	a. Entrepreneurship	
	b. Collective Bargaining and Negotiation Skills	
	c. E-Filing of Returns	
	d. Cyber Crimes and Laws	
Semester V		
BCH-5.1	Principles of Marketing	Core Course (C-11)
BCH-5.2	Fundamentals of Financial Management	Core Course (C-12)
BCH-5.3	Discipline Specific Elective (DSE-1) (Any one of group A)	Discipline Specific Elective (DSE-1)
BCH-5.4	Discipline Specific Elective (DSE-2) (Any one of group A)	Discipline Specific Elective (DSE-2)
	a. Management Accounting	
	b. Corporate Tax Planning	
	c. Advertising	
	d. Banking and Insurance	
	e. Computerised Accounting System	
	f. Financial Markets, Institutions and Financial Services	
	g. Industrial Laws	
	h. Organisational Behaviour	
Semester VI		
BCH-6.1	Auditing and Corporate Governance	Core Course (C-13)



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BCH-6.2	Indirect Tax Laws	Core Course (C-14)
BCH-6.3	Discipline Specific Elective (DSE-3) (Any one of group B)	Discipline Specific Elective(DSE-3)
BCH-6.4	Discipline Specific Elective (DSE-4) (Any one of group B)	Discipline Specific Elective (DSE-4)
	a. Fundamentals of Investment	
	b. Consumer Affairs and Customer Care	
	c. Business Tax Procedures and Management	
	d. International Business	
	e. Industrial Relations and Labour Laws	
	f. Business Research Methods and Project Work	
	g. New Venture Planning	
	h. Financial Reporting & Analysis	
	i. Compensation Management	

**Notes:**

1. For Practical Lab based
  - a. Core Courses BCH 1.2 (Financial Accounting), BCH 3.2 (Income-tax Law and Practice), BCH 3.4 (Business Statistics), BCH 4.2 (Business Mathematics), and BCH 5.2 (Fundamentals of Financial Management) there shall be 4 Credit Hrs. for Lectures + one Credit hr. (Two Practical Periods per week per batch) for Practical Lab + one credit Hr for Tutorials (per group)
  - b. Core Courses BCH 4.3 (Computer Applications in Business) and Discipline Specific Elective BCH Group A (e) (Computerised Accounting System), there shall be 4 Credit Hrs. for Lectures + Two Credit hrs. (4 Practical Periods per week per batch) for Practical Lab
  - c. Skill Enhancement Elective Course BCH 3.5(E-Commerce), there shall be 3 Credit Hrs. for Lectures + One Credit hrs. (2 Practical Periods per week per batch) for Practical Lab
2. For other core and elective papers, there shall be 5 lectures and one Tutorial (per batch)



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Choice Based Credit System (CBCS)

# UNIVERSITY OF DELHI

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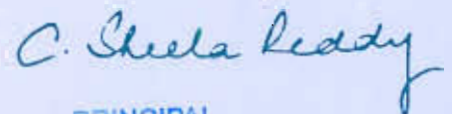
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Details of Courses Under Undergraduate Programme (B.A./ B.Com.)

Course	*Credits	
	Paper+ Practical	Paper + Tutorial
<b><u>I. Core Course</u></b> (12 Papers) Two papers – English Two papers – MIL Four papers – Discipline 1. Four papers – Discipline 2. <b>Core Course Practical / Tutorial*</b> (12 Practicals)	12X4= 48      12X2=24	12X5=60      12X1=12
<b><u>II. Elective Course</u></b> (6 Papers) Two papers- Discipline 1 specific Two papers- Discipline 2 specific Two papers- Inter disciplinary Two papers from each discipline of choice and two papers of interdisciplinary nature. <b>Elective Course Practical / Tutorials*</b> (6 Practical/ Tutorials*) Two papers- Discipline 1 specific Two papers- Discipline 2 specific Two papers- Generic (Inter disciplinary) Two papers from each discipline of choice including papers of interdisciplinary nature.	6x4=24      6 X 2=12	6X5=30      6X1=6
<ul style="list-style-type: none"> <li>• <b>Optional Dissertation or project work in place of one elective paper (6 credits) in 6<sup>th</sup> Semester</b></li> </ul>		
<b><u>III. Ability Enhancement Courses</u></b>		
1. <b>Ability Enhancement Compulsory</b> (2 Papers of 2 credits each) Environmental Science English Communication/MIL	2 X 2=4	2 X 2=4
2. <b>Ability Enhancement Elective</b> (Skill Based) (4 Papers of 2 credits each)	4 X 2=8	4 X 2=8
	<hr/> Total credit= 120	<hr/> Total = 120

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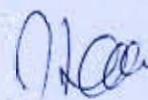


B. Com: Three-Year (6-Semester) CBCS Programme		
Programme Structure		
Course No.	Course Title	Course Type
<b>Semester I</b>		
BC 1.1	Environmental Studies	Ability Enhancement Compulsory Course (AECC-1)
BC 1.2	Financial Accounting	Core Course (DSC-1)
BC 1.3	Business Organisation and Management	Core Course (DSC-2)
BC 1.4	English Language	Language-1
<b>Semester II</b>		
BC 2.1	Language: English/Hindi/Modern Indian Language	Ability Enhancement Compulsory Course (AECC-2)
BC 2.2	Business Laws	Core Course (DSC-3)
BC 2.3	Business Mathematics and Statistics	Core Course (DSC-4)
BC 2.4	Hindi/Modern Indian Language	Language-2
<b>Semester III</b>		
BC 3.1	Company Law	Core Course (DSC-5)
BC 3.2	Income Tax Law and Practice	Core Course (DSC-6)
BC 3.3	Hindi/Modern Indian Language	Language-3
BC 3.4	Skill Based (Any one of the following)	Ability Enhancement Elective Course (Skill Based-AEEC-1)
	(a) Computer Applications in Business	
	(b) Cyber Crimes and Laws	
<b>Semester IV</b>		
BC 4.1	Business Communication (English/Hindi)	Language-4
BC 4.2	Corporate Accounting	Core Course (DSC-7)
BC 4.3	Cost Accounting	Core Course (DSC-8)
BC 4.4	Skill Based (Any one of the following)	Ability Enhancement Elective Course (Skill Based-AEEC-2)
	(a) E-Commerce	
	(b) Investing in Stock Markets	

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<b>Semester V</b>		
BC 5.1	Discipline Specific Elective (Any one of the Following)	Discipline Specific Elective (DSE-1)
	(a) Human Resource Management	
	(b) Principles of Marketing	
	(c) Auditing and Corporate Governance	
	(d) Financial Reporting and Analysis	
BC 5.2	Discipline Specific Elective (Any one of the following)	Discipline Specific Elective (DSE-2)
	(a) Fundamentals of Financial Management	
	(b) Indirect Tax Laws	
	(c) Training and Development	
	(d) Industrial Laws	
BC 5.3	Skill Based (Any one of the following)	Ability Enhancement Elective Course (Skill Based-AEEC-3)
	(a) Entrepreneurship	
	(b) Advertising	
BC 5.4	Generic Elective (Any one of the following)	Generic Elective (GE-1)
	(a) Principles of Micro Economics	
	(b) Economics of Regulation of Domestic and Foreign Exchange Markets	
<b>Semester VI</b>		
BC 6.1	Discipline Specific Elective (Any one of the following)	Discipline Specific Elective (DSE-3)
	(a) Corporate Tax Planning	
	(b) Banking and Insurance	
	(c) Management Accounting	
	(d) Computerised Accounting System	
	(e) Financial Markets and Institutions	
BC 6.2	Discipline Specific Elective (Any one of the following)	Discipline Specific Elective (DSE-4)
	(a) International Business	
	(b) Office Management and Secretarial Practice	
	(c) Fundamentals of Investment	
	(d) Consumer Protection	
	(e) Organisational Behaviour	
BC 6.3	Skill Based (Any one of the following)	Ability Enhancement Elective Course (Skill Based-AEEC-4)
	(a) Personal Selling and Salesmanship	
	(b) Collective Bargaining and Negotiation Skills	



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BC 6.4	Generic Elective (Any one of the following)	Generic Elective (GE-2)
	(a) Indian Economy	
	(b) Project Management	

## Notes:

1. For Practical Lab based
  - a. Core Course papers BC 1.2 (Financial Accounting) and BC 3.2 (Income-tax Law and Practice), there shall be 4 Credit Hrs. for Lectures + one Credit hr. (Two Practical Periods per week per batch) for Practical Lab + one credit Hr for Tutorials (per group)
  - b. Discipline Specific Elective paper ~~6.1~~(d) (Computerised Accounting System), there shall be 4 Credit Hrs. for Lectures + Two Credit hrs. (4 Practical Periods per week per batch) for Practical Lab
  - c. Ability Enhancement Elective Course (Skill Based) AEEC-2 paper BC 4.4 (E-Commerce), there shall be 3 Credit Hrs. for Lectures + One Credit hrs. (2 Practical Periods per week per batch) for Practical Lab
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Environmental Science		
English/MIL Communication		
<b>2. Ability Enhancement Elective (Skill Based)</b>		
<b>(Minimum 2)</b>	2 X 2=4	2 X 2=4
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**Total credit**

**140**

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**BA (Honors) Sociology under CBCS**

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Choice Based Credit System (CBCS)

# UNIVERSITY OF DELHI

DEPARTMENT OF POLITICAL SCIENCE

UNDERGRADUATE PROGRAMME  
(Courses effective from Academic Year 2015-16)



## SYLLABUS OF COURSES TO BE OFFERED

Core Courses, Elective Courses & Ability Enhancement Courses

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The University Grants Commission (UGC) has initiated several measures to bring equity, efficiency and excellence in the Higher Education System of country. The important measures taken to enhance academic standards and quality in higher education include innovation and improvements in curriculum, teaching-learning process, examination and evaluation systems, besides governance and other matters.

The UGC has formulated various regulations and guidelines from time to time to improve the higher education system and maintain minimum standards and quality across the Higher Educational Institutions (HEIs) in India. The academic reforms recommended by the UGC in the recent past have led to overall improvement in the higher education system. However, due to lot of diversity in the system of higher education, there are multiple approaches followed by universities towards examination, evaluation and grading system. While the HEIs must have the flexibility and freedom in designing the examination and evaluation methods that best fits the curriculum, syllabi and teaching-learning methods, there is a need to devise a sensible system for awarding the grades based on the performance of students. Presently the performance of the students is reported using the conventional system of marks secured in the examinations or grades or both. The conversion from marks to letter grades and the letter grades used vary widely across the HEIs in the country. This creates difficulty for the academia and the employers to understand and infer the performance of the students graduating from different universities and colleges based on grades.

The grading system is considered to be better than the conventional marks system and hence it has been followed in the top institutions in India and abroad. So it is desirable to introduce uniform grading system. This will facilitate student mobility across institutions within and across countries and also enable potential employers to assess the performance of students. To bring in the desired uniformity, in grading system and method for computing the cumulative grade point average (CGPA) based on the performance of students in the examinations, the UGC has formulated these guidelines.

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## **CHOICE BASED CREDIT SYSTEM (CBCS):**

The CBCS provides an opportunity for the students to choose courses from the prescribed courses comprising core, elective/minor or skill based courses. The courses can be evaluated following the grading system, which is considered to be better than the conventional marks system. Therefore, it is necessary to introduce uniform grading system in the entire higher education in India. This will benefit the students to move across institutions within India to begin with and across countries. The uniform grading system will also enable potential employers in assessing the performance of the candidates. In order to bring uniformity in evaluation system and computation of the Cumulative Grade Point Average (CGPA) based on student's performance in examinations, the UGC has formulated the guidelines to be followed.

### **Outline of Choice Based Credit System:**

1. **Core Course:** A course, which should compulsorily be studied by a candidate as a core requirement is termed as a Core course.
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**CHOICE BASED CREDIT SYSTEM**

**LIST OF PAPERS AND COURSES**

**B.A (HONOURS) POLITICAL SCIENCE**

**A) CORE COURSE (14)**

- 1.1 Paper I- Understanding Political Theory
- 1.2 Paper II- Constitutional Government and Democracy in India
- 2.1 Paper III – Political Theory-Concepts and Debates
- 2.2 Paper IV- Political Process in India
- 3.1 Paper V- Introduction to Comparative Government and Politics
- 3.2 Paper VI –Perspectives on Public Administration
- 3.3 Paper VII- Perspectives on International Relations and World History
- 4.1 Paper VIII- Political Processes and Institutions in Comparative Perspective
- 4.2 Paper IX- Public Policy and Administration in India
- 4.3 Paper X- Global Politics
- 5.1 Paper XI- Classical Political Philosophy
- 5.2 Paper XII- Indian Political Thought-I
- 6.1 Paper XIII- Modern Political Philosophy
- 6.2 Paper XIV- Indian Political Thought-II

**B) Generic Elective -4 (Interdisciplinary): Any Four**

1. Nationalism in India
2. Contemporary Political Economy
3. Feminism: Theory and Practice (This paper has been swapped by the paper titled 'Women, Power and Politics')
4. Gandhi and the Contemporary World
5. Understanding Ambedkar
6. Governance: Issues and Challenges

*C. Sheila Reddy*

7. Politics of Globalization
8. United Nations and Global Conflicts

**C) Discipline Specific Elective-4 (DSE): Any Four**

1. Citizenship in a Globalizing World
2. Human Rights in a Comparative Perspective
3. Development Process and Social Movements in Contemporary India
4. Public Policy in India
5. Understanding Global Politics (This paper has been replaced by the paper titled 'Colonialism and Nationalism in India')
6. India's Foreign Policy in a Globalizing world
7. Women, Power and Politics (This paper has been swapped by the paper titled 'Feminism: Theory and Practice')
8. Dilemmas in Politics

**D) Ability Enhancement-2 (AE Skill Based): Any Two**

1. Your Laws, Your Rights
2. Public Opinion and Survey Research
3. Legislative Practices and Procedures
4. Peace and Conflict Resolution

**E) Ability Enhancement (Compulsory) Foundation: Two**

1. Language-MIL/ENGLISH
2. Environmental Science

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CHOICE BASED CREDIT SYSTEM

B.A (HONOURS) POLITICAL SCIENCE

SERIAL NO.	SEMESTER -I	PAPER
1.1	Language-MIL/ENGLISH Environmental Science	Ability Enhancement (AE) Compulsory
1.2	Understanding Political Theory	Core Discipline -1
1.3	Constitutional Government and Democracy in India	Core Discipline -2
1.4	Any One of the Following	Generic Elective –I (Interdisciplinary)
A	Nationalism in India	
B	Contemporary Political Economy	
C	Feminism: Theory and Practice (swapped by 'Women, Power and Politics')	
D	Gandhi and the Contemporary World	
E	Understanding Ambedkar	
F	Governance: Issues and Challenges	
G	Politics of Globalization	
H	United Nations and Global Conflicts	
	<b>SEMESTER -II</b>	
2.1	Environmental Science Language-MIL/ENGLISH	Ability Enhancement Compulsory (AE)
2.2	Political Theory-Concepts and Debates	Core Discipline -3
2.3	Political Process in India	Core Discipline -4
2.4	Any One of the Following	Generic Elective –II (Interdisciplinary)
A	Nationalism in India	
B	Contemporary Political Economy	
C	Feminism: Theory and Practice (swapped by 'Women, Power and Politics')	
D	Gandhi and the Contemporary World	
E	Understanding Ambedkar	
F	Governance: Issues and Challenges	
G	Politics of Globalization	
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	<b>SEMESTER -III</b>	
3.1	Introduction to Comparative Government and Politics	Core Discipline -5
3.2	Perspectives on Public Administration	Core Discipline -6
3.3	Perspectives on International Relations and World History	Core Discipline -7
3.4	Any One of the Following	Generic Elective –III (Interdisciplinary)
A	Nationalism in India	
B	Contemporary Political Economy	
C	Feminism: Theory and Practice (swapped by 'Women, Power and Politics')	
D	Gandhi and the Contemporary World	
E	Understanding Ambedkar	
F	Governance: Issues and Challenges	

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G	Politics of Globalization	
H	United Nations and Global Conflicts	
3.5	Any one of the following	Ability Enhancement-I (Skill Based)
A	Your Laws, Your Rights	

B	Public Opinion and Survey Research	
C	Legislative Practices and Procedures	
D	Peace and Conflict Resolution	
	<b>SEMESTER -IV</b>	

4.1	Political Processes and Institutions in Comparative Perspective	Core Discipline -8
4.2	Public Policy and Administration in India	Core Discipline -9
4.3	Global Politics	Core Discipline -10
4.4	Any One of the Following	Generic Elective -IV (Interdisciplinary)
A	Nationalism in India	
B	Contemporary Political Economy	
C	Feminism: Theory and Practice (swapped by 'Women, Power and Politics')	
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E	Understanding Ambedkar	
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G	Politics of Globalization	
H	United Nations and Global Conflicts	

4.5	Any One of the following	Ability Enhancement-II (Skill Based)
A	Your Laws, Your Rights	
B	Public Opinion and Survey Research	
C	Legislative Practices and Procedures	
D	Peace and Conflict Resolution	

	<b>SEMESTER -V</b>	
5.1	Classical Political Philosophy	Core Discipline -11
5.2	Modern Indian Political Thought-I	Core Discipline -12
5.3 & 5.4	Any two of the Following	Discipline Specific Elective (DSE)-1&2
A	Citizenship in a Globalizing World	
B	Human Rights in a Comparative Perspective	
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**SEMESTER -VI**

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6.1	Modern Political Philosophy	Core Discipline -13
6.2	Indian Political Thought-II	Core Discipline -14

6.3 & 6.4	Any two of the Following	Discipline Specific Elective (DSE) 3 &4
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Choice Based Credit System (CBCS)

# UNIVERSITY OF DELHI

DEPARTMENT OF HISTORY

UNDERGRADUATE PROGRAMME  
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## Semester wise Details of History Course

SEMESTER 1				
No. of Core Courses	CREDITS IN EACH CORE COURSE			
Course	Theory	Practical	Tutorial	Credits
Core Course 1	4		1	5
<b>Total Credit in Core Cours</b>	<b>5</b>			
No. of Elective Courses	CREDITS IN EACH ELECTIVE COURSE			
Elective Course 1	4		1	5
Elective Course 2	4		1	5
Elective Course 3	4		1	5
<b>Total Credit in Core Course</b>	<b>15</b>			
<b>TOTAL CREDIT SEMESTER 1</b>	<b>20</b>			

SEMESTER 2				
No. of Elective Courses	CREDITS IN EACH ELECTIVE COURSE			
Elective Course 1	4		1	5
Elective Course 2	4		1	5
Elective Course 3	4		1	5
Elective Course 4	4		1	5
<b>Total Credit in Elective Course</b>	<b>20</b>			
<b>TOTAL CREDIT SEMESTER 2</b>	<b>20</b>			

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<b>SEMESTER 3</b>				
<b>No. of Elective Courses</b>	<b>CREDITS IN EACH ELECTIVE COURSE</b>			
Elective Course 1	4		1	5
Elective Course 2	4		1	5
Elective Course 3	4		1	5
Elective Course 4	4		1	5
<b>Total Credit in Elective Course</b>	<b>20</b>			
<b>No. of Open Elective Course</b>	<b>CREDITS IN EACH OPEN ELECTIVE COURSE</b>			
Open Elective Course 1	4			4
<b>Total Credit in Open Elective Course</b>	<b>4</b>			
<b>TOTAL CREDIT SEMESTER 3</b>	<b>20 + 4</b>			

<b>SEMESTER 4</b>				
<b>No. of Core Courses</b>	<b>CREDITS IN EACH CORE COURSE</b>			
<b>Course</b>	<b>Theory</b>	<b>Practical</b>	<b>Tutorial</b>	<b>Credits</b>
Core Course 2	4		1	5
<b>Total Credits in Core Course 2</b>	<b>5</b>			
<b>No. of Elective Courses</b>	<b>CREDITS IN EACH ELECTIVE COURSE</b>			
Elective Course 1	4		1	5
Elective Course 2	4		1	5
Elective Course 3	4		1	5
<b>Total Credit in Elective Course</b>	<b>15</b>			
<b>No. of Open Elective Course</b>	<b>CREDITS IN EACH OPEN ELECTIVE COURSE</b>			
Open Elective Course 1	4			4
<b>Total Credit in Open Elective Course</b>	<b>4</b>			
<b>TOTAL CREDIT SEMESTER 4</b>	<b>20 + 4</b>			

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## Structure of B.A (Hons) History Course under CBCS

### CORE COURSE (14)

- Paper I: History of India-I  
Paper-II: Social Formations and Cultural Patterns of the Ancient World  
Paper III: History of India-II  
Paper IV: Social Formations and Cultural Patterns of the Medieval World  
Paper V: History of India-III (c. 750-1206)  
Paper VI: Rise of Modern West-I  
Paper VII: History of India IV (c.1206-1550)  
Paper VIII: Rise of Modern West -II  
Paper IX: History of India-V (c. 1550-1605)  
Paper X: History of India-VI (c. 1750-1857)  
Paper XI: History of Modern Europe- I (c. 1780-1939)  
Paper XII: History of India-VII (c. 1605-1750)  
Paper XIII: History of India-VIII (c. 1857-1950)  
Paper XIV: History of Modern Europe- II (1780-1939)

#### Discipline Specific Elective (Any Four)

- Paper I: History Of United States Of America -I(C. 1776 -1945)  
Paper II: History Of United States Of America -II(C. 1776 - 1945)  
Paper III: History Of The USSR-I (c. 1917- 1964)  
Paper IV: History Of The USSR-II (c. 1917- 1964)  
Paper V: History Of Africa (c. 1500 - 1960s)

#### Paper VI: History Of Latin America (c. 1500 - 1960s)

- Paper VII: History Of Southeast Asia-The 19TH Century  
Paper VIII: History Of Southeast Asia-The 20TH Century  
Paper IX-History of Modern East Asia-I(c.1840-1919)  
Paper X-History of Modern East Asia-II (c. 1868-1945)

#### Generic Elective (Interdisciplinary Any Four)

- Paper-1: Environmental Issues In India  
Paper-II: Research Methodology in History  
Paper-III: Making of Contemporary India  
Paper-IV: Delhi: Ancient  
Paper-V: Delhi: Medieval  
Paper-VI: Delhi: Modern  
Paper-VII: Issues in Contemporary World

#### Ability Enhancement Course (AEC)

#### Compulsory-II Papers

Environmental Science

English/ MIL

Skill Enhancement Courses (SEC)

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**Any Two**

Paper-I Understanding Heritage

Paper-II: Art Appreciation: An Introduction to Indian Art

Paper-III: Archives and museums

Paper-IV: Understanding Popular Culture

**B.A (Hons) History**

Core Papers(C): 14,Credits: 6 each, 5classes,1 tutorial

Paper I: History of India-I

Paper-II: Social Formations and Cultural Patterns of the Ancient World

Paper III: History of India-II

Paper IV: Social Formations and Cultural Patterns of the Medieval World

Paper V: History of India-III (c. 750-1206)

Paper VI: Rise of Modern West-I

Paper VII: History of India IV (c.1206-1550)

Paper VIII: Rise of Modern West -II

Paper IX: History of India-V (c. 1550-1605)

Paper X: History of India-VI (c. 1750-1857)

Paper XI: History of Modern Europe I (c. 1780-1939)

Paper X: History of India-VI (c. 1750-1857)

Paper XI: History of Modern Europe I (c. 1780-1939)

Paper XII: History of India-VII (c. 1605-1750)

Paper XIII: History of India-VIII (c. 1857-1950)

Paper XIV: History of Modern Europe II (1780-1939)

**Discipline Specific Elective (Any Four) Credits- 6 Each, 5 classes, 1 Tutorial**

Paper I-I: History Of United States Of America -I(C. 1776 ñ 1945)

Paper2- II: History Of United States Of America -II(C. 1776 ñ 1945)

Paper3- I: History Of The USSR-I (c. 1917- 1964)

Paper4-II: History Of The USSR-II (c. 1917- 1964)

Paper5-I: History Of Africa (c. 1500 - 1960s)

Paper 6: History Of Latin America (c. 1500 - 1960s)

Paper 7: History Of Southeast Asia - The 19TH Century

Paper 8: History Of Southeast Asia - The 20TH Century

Paper 9-History of Modern East Asia-1 (c. 1840-1919)

Paper 10-History of China & Japan-II (c. 1868-1939)

**Generic Elective (Interdisciplinary Any Four) CREDITS-6 Each, 5 Classes, 1 Tutorial**

Paper-1: Environmental Issues In India

Paper-II: Research Methodology in History

Paper-III: Making of Contemporary India

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Paper-IV: Delhi: Ancient  
Paper-V: Delhi: Medieval  
Paper-VI: Delhi: Modern  
Paper-VII: Issues in Contemporary World

**Ability Enhancement Course (AEC)**  
**Compulsary-2 Papers, Credits-2 Each, 2 Classes**

Environmental Science  
English/ MIL

**Skill Enhancement Courses (SEC)**  
**Any Two Papers, Credits-2 Each, 2 Classes**

Paper-I Understanding Heritage  
Paper-II: Art Appreciation: An Introduction to Indian Art  
Paper-III: Archives and museums  
Paper-IV: Understanding Popular Culture

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Choice Based Credit System (CBCS)

# UNIVERSITY OF DELHI

DEPARTMENT OF ECONOMICS

UNDERGRADUATE PROGRAMME  
(Courses effective from Academic Year 2015-16)



## SYLLABUS OF COURSES TO BE OFFERED

Core Courses, Elective Courses & Ability Enhancement Courses

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Undergraduate Programme Secretariat

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## **Preamble**

The University Grants Commission (UGC) has initiated several measures to bring equity, efficiency and excellence in the Higher Education System of country. The important measures taken to enhance academic standards and quality in higher education include innovation and improvements in curriculum, teaching-learning process, examination and evaluation systems, besides governance and other matters.

The UGC has formulated various regulations and guidelines from time to time to improve the higher education system and maintain minimum standards and quality across the Higher Educational Institutions (HEIs) in India. The academic reforms recommended by the UGC in the recent past have led to overall improvement in the higher education system. However, due to lot of diversity in the system of higher education, there are multiple approaches followed by universities towards examination, evaluation and grading system. While the HEIs must have the flexibility and freedom in designing the examination and evaluation methods that best fits the curriculum, syllabi and teaching-learning methods, there is a need to devise a sensible system for awarding the grades based on the performance of students. Presently the performance of the students is reported using the conventional system of marks secured in the examinations or grades or both. The conversion from marks to letter grades and the letter grades used vary widely across the HEIs in the country. This creates difficulty for the academia and the employers to understand and infer the performance of the students graduating from different universities and colleges based on grades.

The grading system is considered to be better than the conventional marks system and hence it has been followed in the top institutions in India and abroad. So it is desirable to introduce uniform grading system. This will facilitate student mobility across institutions within and across countries and also enable potential employers to assess the performance of students. To bring in the desired uniformity, in grading system and method for computing the cumulative grade point average (CGPA) based on the performance of students in the examinations, the UGC has formulated these guidelines.

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## **CHOICE BASED CREDIT SYSTEM (CBCS):**

The CBCS provides an opportunity for the students to choose courses from the prescribed courses comprising core, elective/minor or skill based courses. The courses can be evaluated following the grading system, which is considered to be better than the conventional marks system. Therefore, it is necessary to introduce uniform grading system in the entire higher education in India. This will benefit the students to move across institutions within India to begin with and across countries. The uniform grading system will also enable potential employers in assessing the performance of the candidates. In order to bring uniformity in evaluation system and computation of the Cumulative Grade Point Average (CGPA) based on student's performance in examinations, the UGC has formulated the guidelines to be followed.

### **Outline of Choice Based Credit System:**

1. **Core Course:** A course, which should compulsorily be studied by a candidate as a core requirement is termed as a Core course.
2. **Elective Course:** Generally a course which can be chosen from a pool of courses and which may be very specific or specialized or advanced or supportive to the discipline/ subject of study or which provides an extended scope or which enables an exposure to some other discipline/subject/domain or nurtures the candidate's proficiency/skill is called an Elective Course.
  - 2.1 **Discipline Specific Elective (DSE) Course:** Elective courses may be offered by the main discipline/subject of study is referred to as Discipline Specific Elective. The University/Institute may also offer discipline related Elective courses of interdisciplinary nature (to be offered by main discipline/subject of study).
  - 2.2 **Dissertation/Project:** An elective course designed to acquire special/advanced knowledge, such as supplement study/support study to a project work, and a candidate studies such a course on his own with an advisory support by a teacher/faculty member is called dissertation/project.
  - 2.3 **Generic Elective (GE) Course:** An elective course chosen generally from an unrelated discipline/subject, with an intention to seek exposure is called a Generic Elective.

P.S.: A core course offered in a discipline/subject may be treated as an elective by other discipline/subject and vice versa and such electives may also be referred to as Generic Elective.
3. **Ability Enhancement Courses (AEC)/Competency Improvement Courses/Skill Development Courses/Foundation Course:** The Ability Enhancement (AE) Courses may be of two kinds: AE Compulsory Course (AECC) and AE Elective Course (AEEC). "AECC" courses are the courses based upon the content that leads to Knowledge enhancement. They ((i) Environmental Science, (ii) English/MIL Communication) are mandatory for all disciplines. AEEC courses are value-based and/or skill-based and are aimed at providing hands-on-training, competencies, skills, etc.
  - 3.1 AE Compulsory Course (AECC): Environmental Science, English Communication/MIL Communication.
  - 3.2 AE Elective Course (AEEC): These courses may be chosen from a pool of courses designed to provide value-based and/or skill-based instruction.

**Project work/Dissertation** is considered as a special course involving application of knowledge in solving / analyzing /exploring a real life situation / difficult problem. A Project/Dissertation work would be of 6 credits. A Project/Dissertation work may be given in lieu of a discipline specific elective paper.

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**Details of courses under B.A (Honors), B.Com (Honors) & B.Sc. (Honors)**

Course	*Credits	
	Theory+ Practical	Theory + Tutorial
<b><u>I. Core Course</u></b>		
(14 Papers)	14X4= 56	14X5=70
<b>Core Course Practical / Tutorial*</b>		
(14 Papers)	14X2=28	14X1=14
<b><u>II. Elective Course</u></b>		
<b>(8 Papers)</b>		
A.1. Discipline Specific Elective	4X4=16	4X5=20
<b>(4 Papers)</b>		
A.2. Discipline Specific Elective		
Practical/ Tutorial*	4 X 2=8	4X1=4
<b>(4 Papers)</b>		
B.1. Generic Elective/		
Interdisciplinary	4X4=16	4X5=20
<b>(4 Papers)</b>		
B.2. Generic Elective		
Practical/ Tutorial*	4 X 2=8	4X1=4
<b>(4 Papers)</b>		
<ul style="list-style-type: none"> <li>• <b>Optional Dissertation or project work in place of one Discipline Specific Elective paper (6 credits) in 6<sup>th</sup> Semester</b></li> </ul>		
<b><u>III. Ability Enhancement Courses</u></b>		
<b>1. Ability Enhancement Compulsory</b>		
(2 Papers of 2 credit each)	2 X 2=4	2 X 2=4
Environmental Science		
English/MIL Communication		
<b>2. Ability Enhancement Elective (Skill Based)</b>		
(Minimum 2)	2 X 2=4	2 X 2=4
<b>(2 Papers of 2 credit each)</b>		
<b>Total credit</b>	<b>140</b>	<b>140</b>

Institute should evolve a system/policy about ECA/ General Interest/Hobby/Sports/NCC/NSS/related courses on its own.

\* wherever there is a practical there will be no tutorial and vice-versa

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Course Structure for B.A. (Hons.) Economics

Semester-I	Semester-II
Economics Core Course 1 : Introductory Microeconomics	Economics Core Course 3 : Introductory Macroeconomics
Economics Core Course 2 : Mathematical Methods for Economics-I	Economics Core Course 4 : Mathematical Methods for Economics-II
Ability Enhancement Compulsory Course (AECC)-I	Ability Enhancement Compulsory Course (AECC)-II
Generic Elective (GE) Course-I	Generic Elective (GE) Course-II
<b>Semester-III</b>	<b>Semester-IV</b>
Economics Core Course 5 : Intermediate Microeconomics-I	Economics Core Course 8 : Intermediate Microeconomics-II
Economics Core Course 6 : Intermediate Macroeconomics-I	Economics Core Course 9 : Intermediate Macroeconomics-II
Economics Core Course 7 : Statistical Methods for Economics	Economics Core Course 10 : Introductory Econometrics
Skill Enhancement Course (SEC)-I	Skill Enhancement Course (SEC)-II
Generic Elective (GE) Course-III	Generic Elective (GE) Course-IV
<b>Semester-V</b>	<b>Semester-VI</b>
Economics Core Course 11 : Indian Economy-I	Economics Core Course 13 : Indian Economy-II
Economics Core Course 12 : Development Economics-I	Economics Core Course 14 : Development Economics-II
Discipline Specific Elective (DSE) Course-I (From List of Group-I)	Discipline Specific Elective (DSE) Course-III (From List of Group-II)
Discipline Specific Elective (DSE) Course-II (From List of Group-I)	Discipline Specific Elective (DSE) Course-IV (From List of Group-II)
<b>Group-I (Discipline Specific Elective (DSE) Courses)</b>	<b>Group-II (Discipline Specific Elective (DSE) Courses)</b>
(i) Economics of Health and Education	(viii) Political Economy-II
(ii) Applied Econometrics	(ix) Comparative Economic Development (1850-1950)
(iii) Economic History of India (1857-1947)	(x) Financial Economics
(iv) Topics in Microeconomics-I	(xi) Topics in Microeconomics-II
(v) Political Economy-I	(xii) Environmental Economics
(vi) Money and Financial Markets	(xiii) International Economics
(vii) Public Economics	(xiv) Dissertation/Project

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Choice Based Credit System (CBCS)

# UNIVERSITY OF DELHI

DEPARTMENT OF SANSKRIT

UNDERGRADUATE PROGRAMME  
(Courses effective from Academic Year 2015-16)



## SYLLABUS OF COURSES TO BE OFFERED Core Courses, Elective Courses & Ability Enhancement Courses

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## **Preamble**

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English/MIL Communication		
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UNDER GRADUATE COURSES FOR SANSKRIT (HON.)  
UNDER CHOICE BASED CREDIT SYSTEM (CBCS)

List of Courses

Core Papers (14) B.A. (Hons) Sanskrit		
Semester: I		
C-1 Classical Sanskrit Literature (Poetry)	C-2 Critical Survey of Sanskrit Literature	
Semester: II		
C-3 Classical Sanskrit Literature (Prose)	C-4 Self-Management in the Gītā	
Semester: III		
C-5 Classical Sanskrit Literature (Drama)	C-6 Poetics and Literary Criticism	C-7 Indian Social Institutions and Polity
Semester: IV		
C-8 Indian Epigraphy, Palaeography and Chronology	C-9 Modern Sanskrit Literature	C-10 Sanskrit and World Literature
Semester: V		
C-11 Vedic Literature	C-12 Sanskrit Grammar	
Semester: VI		
C-13 Indian Ontology and Epistemology	C-14 Sanskrit Composition and Communication	
Discipline Specific Elective (DSE) B.A. (Hons) Sanskrit		
DSE-1 Indian System of Logic and Debate	DSE-2 Art of Balanced Living	

PROPOSED UNDER GRADUATE COURSES FOR SANSKRIT (HON.)  
UNDER CHOICE BASED CREDIT SYSTEM (CBCS)

Background/Preamble and Guidelines

DSE -3 Theatre & Dramaturgy	DSE-4 Tools and Techniques for Computing Sanskrit Language
DSE-5 Sanskrit Linguistics	DSE-6 Computational Linguistics for Sanskrit
DSE-7 Fundamentals of Ayurveda	DSE-8 Environmental Awareness in Sanskrit Literature
<b>Generic Elective (GE)</b> <b>(Any Four)</b> <b>B.A. (Hons) Sanskrit</b>	
<b>Semester: III/IV</b>	
GE-1 Basic Sanskrit	GE-2 Indian Culture and Social Issues
GE-3 Sanskrit and Other Modern Indian Languages	GE-4 Basic Principles of Indian Medicine System (Ayurveda)
GE-5 Indian Aesthetics	GE-6 Fundamentals of Indian Philosophy
GE-7 Ancient Indian Polity	GE-8 Indian Epigraphy & Paleography
GE-9 Computer Applications for Sanskrit	GE-10 Individual, Family and Community In Indian Social Thought
GE-11 Nationalism and Indian Literature	GE-12 Indian Architectural System
<b>Ability Enhancement Elective Course (AEEC)</b> <b>(Any Two)</b> <b>Skill Based</b> <b>B.A. (Hons) Sanskrit</b>	
<b>Semester: III/IV</b>	

PROPOSED UNDER GRADUATE COURSES FOR SANSKRIT (HON.)  
UNDER CHOICE BASED CREDIT SYSTEM (CBCS)

Background/Preamble and Guidelines

AEEC-1 Acting & Script Writing	AEEC -2 Reading skills in Brāhmī Scripts
AEEC-3 Machine Translation: Tools and Techniques	AEEC-4 Evolution of Indian scripts
AEEC-5 Sanskrit Meters and Music	

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Choice Based Credit System (CBCS)

# UNIVERSITY OF DELHI

DEPARTMENT OF HINDI

UNDERGRADUATE PROGRAMME  
(Courses effective from Academic Year 2015-16)



## SYLLABUS OF COURSES TO BE OFFERED Core Courses, Elective Courses & Ability Enhancement Courses

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## **Preamble**

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The UGC has formulated various regulations and guidelines from time to time to improve the higher education system and maintain minimum standards and quality across the Higher Educational Institutions (HEIs) in India. The academic reforms recommended by the UGC in the recent past have led to overall improvement in the higher education system. However, due to lot of diversity in the system of higher education, there are multiple approaches followed by universities towards examination, evaluation and grading system. While the HEIs must have the flexibility and freedom in designing the examination and evaluation methods that best fits the curriculum, syllabi and teaching-learning methods, there is a need to devise a sensible system for awarding the grades based on the performance of students. Presently the performance of the students is reported using the conventional system of marks secured in the examinations or grades or both. The conversion from marks to letter grades and the letter grades used vary widely across the HEIs in the country. This creates difficulty for the academia and the employers to understand and infer the performance of the students graduating from different universities and colleges based on grades.

The grading system is considered to be better than the conventional marks system and hence it has been followed in the top institutions in India and abroad. So it is desirable to introduce uniform grading system. This will facilitate student mobility across institutions within and across countries and also enable potential employers to assess the performance of students. To bring in the desired uniformity, in grading system and method for computing the cumulative grade point average (CGPA) based on the performance of students in the examinations, the UGC has formulated these guidelines.

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## **CHOICE BASED CREDIT SYSTEM (CBCS):**

The CBCS provides an opportunity for the students to choose courses from the prescribed courses comprising core, elective/minor or skill based courses. The courses can be evaluated following the grading system, which is considered to be better than the conventional marks system. Therefore, it is necessary to introduce uniform grading system in the entire higher education in India. This will benefit the students to move across institutions within India to begin with and across countries. The uniform grading system will also enable potential employers in assessing the performance of the candidates. In order to bring uniformity in evaluation system and computation of the Cumulative Grade Point Average (CGPA) based on student's performance in examinations, the UGC has formulated the guidelines to be followed.

### **Outline of Choice Based Credit System:**

1. **Core Course:** A course, which should compulsorily be studied by a candidate as a core requirement is termed as a Core course.
2. **Elective Course:** Generally a course which can be chosen from a pool of courses and which may be very specific or specialized or advanced or supportive to the discipline/ subject of study or which provides an extended scope or which enables an exposure to some other discipline/subject/domain or nurtures the candidate's proficiency/skill is called an Elective Course.
  - 2.1 **Discipline Specific Elective (DSE) Course:** Elective courses may be offered by the main discipline/subject of study is referred to as Discipline Specific Elective. The University/Institute may also offer discipline related Elective courses of interdisciplinary nature (to be offered by main discipline/subject of study).
  - 2.2 **Dissertation/Project:** An elective course designed to acquire special/advanced knowledge, such as supplement study/support study to a project work, and a candidate studies such a course on his own with an advisory support by a teacher/faculty member is called dissertation/project.
  - 2.3 **Generic Elective (GE) Course:** An elective course chosen generally from an unrelated discipline/subject, with an intention to seek exposure is called a Generic Elective.

P.S.: A core course offered in a discipline/subject may be treated as an elective by other discipline/subject and vice versa and such electives may also be referred to as Generic Elective.
3. **Ability Enhancement Courses (AEC)/Competency Improvement Courses/Skill Development Courses/Foundation Course:** The Ability Enhancement (AE) Courses may be of two kinds: AE Compulsory Course (AECC) and AE Elective Course (AEEC). "AECC" courses are the courses based upon the content that leads to Knowledge enhancement. They ((i) Environmental Science, (ii) English/MIL Communication) are mandatory for all disciplines. AEEC courses are value-based and/or skill-based and are aimed at providing hands-on-training, competencies, skills, etc.
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**Project work/Dissertation** is considered as a special course involving application of knowledge in solving / analyzing /exploring a real life situation / difficult problem. A Project/Dissertation work would be of 6 credits. A Project/Dissertation work may be given in lieu of a discipline specific elective paper.

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**Details of courses under B.A (Honors), B.Com (Honors) & B.Sc. (Honors)**

Course	*Credits	
	Theory+ Practical	Theory + Tutorial
<b><u>I. Core Course</u></b>		
(14 Papers)	14X4= 56	14X5=70
<b>Core Course Practical / Tutorial*</b>		
(14 Papers)	14X2=28	14X1=14
<b><u>II. Elective Course</u></b>		
<b>(8 Papers)</b>		
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Practical/ Tutorial*	4 X 2=8	4X1=4
<b>(4 Papers)</b>		
<ul style="list-style-type: none"> <li>• <b>Optional Dissertation or project work in place of one Discipline Specific Elective paper (6 credits) in 6<sup>th</sup> Semester</b></li> </ul>		
<b><u>III. Ability Enhancement Courses</u></b>		
<b>1. Ability Enhancement Compulsory</b>		
<b>(2 Papers of 2 credit each)</b>	2 X 2=4	2 X 2=4
Environmental Science		
English/MIL Communication		
<b>2. Ability Enhancement Elective (Skill Based)</b>		
(Minimum 2)	2 X 2=4	2 X 2=4
<b>(2 Papers of 2 credit each)</b>		
<b>Total credit</b>	<b>140</b>	<b>140</b>
<p>Institute should evolve a system/policy about ECA/ General Interest/Hobby/Sports/NCC/NSS/related courses on its own.</p>		

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प्रश्नपत्रों का ऽम इस प्रकार होगा :

हिंदी कोर पाठ्यक्रम (HCC)

- सेमेस्टर-1 :
  - हिन्दी कोर प्रश्नपत्र-1 : हिन्दी भाषा और उसकी लिपि का इतिहास
  - हिन्दी कोर प्रश्नपत्र-2 : हिन्दी कविता (आदिकाल एवं भक्तिकालीन काव्य)
- सेमेस्टर-2 :
  - हिन्दी कोर प्रश्नपत्र-3 : हिन्दी साहित्य का इतिहास (आदिकाल और मध्यकाल)
  - हिन्दी कोर प्रश्नपत्र-4 : हिन्दी कविता (रीतिकालीन काव्य)
- सेमेस्टर-3 :
  - हिन्दी कोर प्रश्नपत्र-5 : हिन्दी साहित्य का इतिहास (आधुनिक काल)
  - हिन्दी कोर प्रश्नपत्र-6 : हिन्दी कविता (आधुनिक काल छायावाद तक)
  - हिन्दी कोर प्रश्नपत्र-7 : हिन्दी कहानी
- सेमेस्टर-4 :
  - हिन्दी कोर प्रश्नपत्र-8 : भारतीय काव्यशास्त्र
  - हिन्दी कोर प्रश्नपत्र-9 : हिन्दी कविता ( छायावाद के बाद)
  - हिन्दी कोर प्रश्नपत्र-10 : हिन्दी उपन्यास
- सेमेस्टर-5 :
  - हिन्दी कोर प्रश्नपत्र-11 : पाश्चात्य काव्यशास्त्र
  - हिन्दी कोर प्रश्नपत्र-12 : हिन्दी नाटक/एकांकी
- सेमेस्टर-6 :
  - हिन्दी कोर प्रश्नपत्र-13 : हिन्दी आलोचना
  - हिन्दी कोर प्रश्नपत्र-14 : हिन्दी निबंध और अन्य गद्य विधाएँ

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हिंदी सामान्य (Generic) ऐच्छिक पाठ्यक्रम (HGEC)

- सेमेस्टर 1
  1. लोकप्रिय साहित्य अथवा हिंदी सिनेमा और उसका अध्ययन
- सेमेस्टर 2
  2. रचनात्मक लेखन अथवा पटकथा तथा संवाद लेखन
- सेमेस्टर 3
  3. हिंदी में व्यावहारिक अनुवाद अथवा भाषा और समाज
- सेमेस्टर 4
  4. हिन्दी का वैश्विक परिदृश्य अथवा भाषा शिक्षण

हिंदी विषय आधारित ऐच्छिक पाठ्यक्रम (HDSEC)

- सेमेस्टर 5
  1. हिंदी की मौखिक और लोक-साहित्य परंपरा अथवा अस्मितामूलक विमर्श और हिंदी साहित्य अथवा भारतीय एवं पाश्चात्य रंगमंच सिद्धांत
- सेमेस्टर 5
  2. हिंदी भाषा का व्यावहारिक व्याकरण अथवा कोश विज्ञान : शब्दकोश और विश्वकोश अथवा भारतीय साहित्य की संक्षिप्त रूपरेखा
- सेमेस्टर 6
  3. लोकनाट्य अथवा हिन्दी की भाषिक विविधताएँ अथवा भारतीय साहित्य : पाठपरक अध्ययन
  4. शोध-प्रविधि अथवा अवधारणात्मक साहित्यिक पद अथवा हिंदी रंगमंच

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Choice Based Credit System (CBCS)

# UNIVERSITY OF DELHI

DEPARTMENT OF ENGLISH

UNDERGRADUATE PROGRAMME  
(Courses effective from Academic Year 2015-16)



## SYLLABUS OF COURSES TO BE OFFERED Core Courses, Elective Courses & Ability Enhancement Courses

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Undergraduate Programme Secretariat

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English/MIL Communication		
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**Structure of B. A. Honours English under CBCS****Core Course****Paper Titles**

1. Indian Classical Literature
2. European Classical Literature
3. Indian Writing in English
4. British Poetry and Drama: 14th to 17th Centuries
5. American Literature
6. Popular Literature
7. British Poetry and Drama: 17th and 18th Centuries
8. British Literature: 18th Century
9. British Romantic Literature
10. British Literature: 19th Century
11. Women's Writing
12. British Literature: The Early 20th Century
13. Modern European Drama
14. Postcolonial Literatures

**Discipline Centric Elective (Any four)****Paper Titles**

1. Modern Indian Writing in English Translation
2. Literature of the Indian Diaspora
3. British Literature: Post World War II
4. Nineteenth Century European Realism
5. Literary Theory
6. Literary Criticism
7. Science fiction and Detective Literature
8. Literature and Cinema
9. World Literatures
10. Partition Literature
11. Research Methodology
12. Travel writing
13. Autobiography

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**Generic Elective (Any four)**

**Paper Titles**

1. Academic Writing and Composition
2. Media and Communication Skills
3. Text and Performance
4. Language and Linguistics
5. Contemporary India: Women and Empowerment
6. Gender and Human Rights\*
7. Language, Literature and Culture

*\*Syllabus not received*

**Ability Enhancement Course (Compulsory)**

**Paper Titles**

1. Environmental Study\*
2. English/MIL Communication

*\* Syllabi not received*

**Ability Enhancement Elective Course (Any two)**

**Paper Titles**

1. Film Studies \*
2. English Language Teaching
3. Soft Skills
4. Translation Studies
5. Creative Writing
6. Business Communication
7. Technical Writing

*\*Syllabus not received*

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**List of Core Courses**

1. LLC I (Medieval) (CORE)
2. LLC II (Early Modern World) (CORE)
3. LLC III (16<sup>th</sup> and 17<sup>th</sup> Century Drama) (CORE)
4. Criticism and Theory I (CORE)
5. LLC IV (Long 18<sup>th</sup> Century) (CORE)
6. LLC V (Long 19<sup>th</sup> Century) (CORE)
7. LLC VI (Long 20<sup>th</sup> century) (CORE)
8. Post-independence Indian Literature (CORE)

**List of Elective Courses**

9. Classical to Pre-modern Literatures (ELECTIVE)
10. Poetry 1 (ELECTIVE)
11. Aesthetics and Literature (ELECTIVE)
12. Politics, Philosophy and Literature (ELECTIVE)
13. Introduction to the Study of Language (ELECTIVE)
14. Poetry 2 (ELECTIVE)
15. Fiction (ELECTIVE)
16. Literature of the Americas (ELECTIVE)
17. Postcolonial Literatures and Theory (ELECTIVE)
18. Research Methodology (ELECTIVE)
19. Criticism and Theory 2 (ELECTIVE)
20. Gender Studies (ELECTIVE)
21. Dissertation (ELECTIVE)
22. Religion and Literature (ELECTIVE)

**List of Open Elective Courses**

23. Dalit Studies (OPEN ELECTIVE)
24. Visual Studies (OPEN ELECTIVE)
25. Discursive Prose (OPEN ELECTIVE)
26. Violence and Memory Studies (OPEN ELECTIVE)
27. Disability Studies (OPEN ELECTIVE)

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### **Selection of Elective Courses**

1. The particular elective courses to be offered in any one semester will depend on faculty availability and student preference.
2. Only those students who complete Poetry I will be allowed to opt for Poetry II.
3. Only those students who complete the Research Methodology Course will be allowed to opt for the dissertation.
4. Subject to faculty availability no more than eighty students will be allowed to opt for the dissertation.

### **Teaching**

The faculty of the Department is primarily responsible for organising lecture work for English. The instructions related to tutorials are provided by the respective registering units under the overall guidance of the Department.

The schedule for the meetings in connection with the dissertation will be announced by the supervisions in question at the commencement of the semester.

### **Eligibility for Admissions**

As per existing departmental and university norms

### **Assessment of Students' Performance and Scheme of Examinations**

1. English shall be the medium of instruction and examination.
2. Assessment of students' performance shall consist of:  
As per existing guidelines where the department is responsible for assessing a thousand words essay per student per course for 25 marks, with 5 marks per student per course being the responsibility of the concerned colleges  
Assessment will be based on Learning Outcomes for the course

### **Pass Percentage & Promotion Criteria**

As per existing departmental and university norms

### **Semester to Semester Progression**

As per existing departmental and university norms

### **Conversion of Marks into Grades**

As per existing university norms

### **Grade Points**

Grade point table as per University Examination rule

### **CGPA Calculation**

As per University Examination rule.

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**Division of Degree into Classes**

Post Graduate degree to be classified based on CGPA obtained into various classes as notified into Examination policy.

**Attendance Requirement**

As per existing university norms

No student shall be admitted as a candidate for the examination for any of the Parts/Semesters after the lapse of **four** years from the date of admission to the Part-I/Semester-I of the English Programme.

**Guidelines for the Award of Internal Assessment Marks English Programme (Semester Wise)**

As per existing guidelines where the department is responsible for assessing a thousand words essay per student per course for 25 marks, with 5 marks per student per course being the responsibility of the concerned colleges. All essays submitted for evaluation will need to be put through **Turnitin / comparable software** to guard against plagiarism. An essay that shows an Plagiarism score of 20% or more is liable to be awarded no marks at all, at the discretion of IA committee.

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Choice Based Credit System (CBCS)

# UNIVERSITY OF DELHI

FACULTY OF SCIENCE

UNDERGRADUATE PROGRAMME  
(Courses effective from Academic Year 2015-16)



## SYLLABUS OF COURSES TO BE OFFERED

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### **Outline of Choice Based Credit System:**

1. **Core Course:** A course, which should compulsorily be studied by a candidate as a core requirement is termed as a Core course.
2. **Elective Course:** Generally a course which can be chosen from a pool of courses and which may be very specific or specialized or advanced or supportive to the discipline/ subject of study or which provides an extended scope or which enables an exposure to some other discipline/subject/domain or nurtures the candidate's proficiency/skill is called an Elective Course.
  - 2.1 **Discipline Specific Elective (DSE) Course:** Elective courses may be offered by the main discipline/subject of study is referred to as Discipline Specific Elective. The University/Institute may also offer discipline related Elective courses of interdisciplinary nature (to be offered by main discipline/subject of study).
  - 2.2 **Dissertation/Project:** An elective course designed to acquire special/advanced knowledge, such as supplement study/support study to a project work, and a candidate studies such a course on his own with an advisory support by a teacher/faculty member is called dissertation/project.
  - 2.3 **Generic Elective (GE) Course:** An elective course chosen generally from an unrelated discipline/subject, with an intention to seek exposure is called a Generic Elective.

P.S.: A core course offered in a discipline/subject may be treated as an elective by other discipline/subject and vice versa and such electives may also be referred to as Generic Elective.
3. **Ability Enhancement Courses (AEC)/Competency Improvement Courses/Skill Development Courses/Foundation Course:** The Ability Enhancement (AE) Courses may be of two kinds: AE Compulsory Course (AECC) and AE Elective Course (AEEC). "AECC" courses are the courses based upon the content that leads to Knowledge enhancement. They ((i) Environmental Science, (ii) English/MIL Communication) are mandatory for all disciplines. AEEC courses are value-based and/or skill-based and are aimed at providing hands-on-training, competencies, skills, etc.
  - 3.1 AE Compulsory Course (AECC): Environmental Science, English Communication/MIL Communication.
  - 3.2 AE Elective Course (AEEC): These courses may be chosen from a pool of courses designed to provide value-based and/or skill-based instruction.

**Project work/Dissertation** is considered as a special course involving application of knowledge in solving / analyzing /exploring a real life situation / difficult problem. A Project/Dissertation work would be of 6 credits. A Project/Dissertation work may be given in lieu of a discipline specific elective paper.

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**Details of courses under B.A (Honors), B.Com (Honors) & B.Sc. (Honors)**

Course	*Credits	
	Theory+ Practical	Theory + Tutorial
<b><u>I. Core Course</u></b>		
(14 Papers)	14X4= 56	14X5=70
<b>Core Course Practical / Tutorial*</b>		
(14 Papers)	14X2=28	14X1=14
<b><u>II. Elective Course</u></b>		
<b>(8 Papers)</b>		
A.1. Discipline Specific Elective	4X4=16	4X5=20
<b>(4 Papers)</b>		
A.2. Discipline Specific Elective		
Practical/ Tutorial*	4 X 2=8	4X1=4
<b>(4 Papers)</b>		
B.1. Generic Elective/		
Interdisciplinary	4X4=16	4X5=20
<b>(4 Papers)</b>		
B.2. Generic Elective		
Practical/ Tutorial*	4 X 2=8	4X1=4
<b>(4 Papers)</b>		
<ul style="list-style-type: none"> <li>• <b>Optional Dissertation or project work in place of one Discipline Specific Elective paper (6 credits) in 6<sup>th</sup> Semester</b></li> </ul>		
<b><u>III. Ability Enhancement Courses</u></b>		
<b>1. Ability Enhancement Compulsory</b>		
(2 Papers of 2 credit each)	2 X 2=4	2 X 2=4
Environmental Science		
English/MIL Communication		
<b>2. Ability Enhancement Elective (Skill Based)</b>		
(Minimum 2)	2 X 2=4	2 X 2=4
<b>(2 Papers of 2 credit each)</b>		

**Total credit**

**140**

**140**

**Institute should evolve a system/policy about ECA/ General Interest/Hobby/Sports/NCC/NSS/related courses on its own.**

**\* wherever there is a practical there will be no tutorial and vice-versa**

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## SCHEME AND SYLLABUS FOR CHOICE BASED CREDIT SYSTEM

## FOR B.Sc. HONOURS ZOOLOGY

Semester	Core Course(14)	Ability Enhancement Compulsory Course (2)	Skill Enhancement Course SEC (2)	Discipline Specific Elective DCE (4)	Generic Elective GE (4)
I	Non-chordates I: Protista to Pseudocoelomates	English Communication			GE-1
	Principles of Ecology				
II	Non-chordates II: Coelomates	Environmental Science			GE-2
	Cell Biology				
III	Diversity of Chordates		SEC -1		GE-3
	Physiology: Controlling and Coordinating Systems				
	Fundamentals of Biochemistry				
IV	Comparative Anatomy of Vertebrates		SEC -2		GE-4
	Physiology: Life Sustaining Systems				
	Biochemistry of Metabolic Processes				
V	Molecular Biology			DSE-1	
	Principles of Genetics			DSE-2	
VI	Developmental Biology			DSE -3	
	Evolutionary Biology			DSE-4	

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Semester	Course Opted	Course Name	Credits
I	Ability Enhancement Compulsory Course-I	English communications/ Environmental Science	2
	Core course-I	Non-chordates I: Protista to Pseudocoelomates	4
	Core Course-I Practical		2
	Core course-II	Principles of Ecology	4
	Core Course-II Practical		2
	Generic Elective -1	GE-1	4
	Generic Elective -1 Practical/Tutorial		2
II	Ability Enhancement Compulsory Course-II	English Communications/ Environmental Science	2
	Core course-III	Non-chordates II: Coelomates	4
	Core Course-III Practical		2
	Core course-IV	Cell Biology	4
	Core Course-IV Practical		2
	Generic Elective -2	GE-2	4
	Generic Elective -2 Practical		2
III	Core course-V	Diversity of Chordata	4
	Core Course-V Practical		2
	Core course-VI	Physiology: Controlling and Coordinating systems	4
	Core Course-VI Practical		2
	Core course-VII	Fundamentals of Biochemistry	4
	Core Course-VII Practical		2
	Skill Enhancement Course-1	SEC-1	4
	Generic Elective -3	GE-3	4
	Generic Elective -3 Practical		2
IV	Core course-VIII	Comparative anatomy of vertebrates	4
	Course-VIII Practical		2
	Core course-IX	Physiology: Life Sustaining Systems	4
	Course-IX Practical		2
	Core course-X	Biochemistry of Metabolic Processes	4
	Core Course- X Practical		2
	Skill Enhancement Course-2	SEC-2	4
	Generic Elective -4	GE-4	4
	Generic Elective - 4Practical		2
V	Core course-XI	Molecular Biology	4
	Core Course-XI Practical		2
	Core course-XII	Principles of Genetics	4
	Core Course-XII Practical		2

Semester	Course Opted	Course Name	Credits
	Discipline Specific Elective -1	DSE-1	4
	Discipline Specific Elective -1 Practical		2
	Discipline Specific Elective -2	DSE-2	4
	Discipline Specific Elective- 2 Practical/Tutorial		2
VI	Core course-XIII	Developmental Biology	4
	Core Course-XIII Practical/Tutorial		2
	Core course-XIV	Evolutionary Biology	4
	Core Course-XIV Practical/Tutorial		2
	Discipline Centric Elective -3	DSE-3	4
	Discipline Centric Elective -3 Practical/Tutorial		2
	Discipline Centric Elective-4	DSE-4	4
	Discipline Centric Elective -1 Practical/Tutorial		2
<b>Total: 140</b>			

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Choice Based Credit System (CBCS)

# UNIVERSITY OF DELHI

## DEPARTMENT OF STATISTICS

### BACHELOR OF SCIENCE (HONS.) IN STATISTICS

(B.Sc. (Hons.) Statistics)

(Effective from Academic Year 2018-19)

### PROPOSED SYLLABUS



XXXXX Revised Syllabus as approved by Academic Council on XXXX, 2018 and

Executive Council on YYYY, 2018

*C. Sheila Reddy*

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**CBCS Course Structure for B.Sc. (Hons.) Programme**

Course	*Credits	
	Theory+ Practical	Theory + Tutorial

**I. Core Course**

(14 Papers)	14X4= 56	14X5=70
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**Core Course Practical / Tutorial\***

(14 Papers)	14X2=28	14X1=14
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**II. Elective Course**

(8 Papers)

A.1. Discipline Specific Elective	4X4=16	4X5=20
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(4 Papers)

A.2. Discipline Specific Elective

Practical/ Tutorial*	4 X 2=8	4X1=4
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(4 Papers)

B.1. Generic Elective/

Interdisciplinary	4X4=16	4X5=20
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(4 Papers)

B.2. Generic Elective

Practical/ Tutorial*	4 X 2=8	4X1=4
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(4 Papers)

- Optional Dissertation or project work in place of one Discipline Specific Elective paper (6 credits) in 6<sup>th</sup> Semester

**III. Ability Enhancement Courses****1. Ability Enhancement Compulsory**

(2 Papers of 4 credit each)	2 X 4=8	2 X 4=8
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Environmental Science

English/MIL Communication

**2. Ability Enhancement Elective (Skill Based)**

(Minimum 2)	2 X 4=8	2 X 4=8
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(2 Papers of 4 credit each)

Total credit

148

148

Institute should evolve A system/policy About ECA/

Interest/Hobby/Sports/NCC/NSS/related courses on its own.

\* Wherever there is a practical there courses will be no tutorial and vice-versa

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## LIST OF THE COURSES

### **Core Papers (Credits: 6 each) (14 papers)**

- STAT-C-101 Descriptive Statistics (Theory+ Practical)
- STAT C-102 Calculus
- STAT-C-201 Probability and Probability Distributions (Theory+ Practical)
- STAT C-202 Algebra (Theory+ Practical)
- STAT-C-301 Sampling Distributions (Theory+ Practical)
- STAT-C-302 Survey Sampling and Indian Official Statistics (Theory+ Practical)
- STAT C-303 Mathematical Analysis (Theory+ Practical)
- STAT-C-401 Statistical Inference (Theory+ Practical)
- STAT-C-402 Linear Models (Theory+ Practical)
- STAT-C-403 Statistical Quality Control (Theory+ Practical)
- STAT-C-501 Stochastic Processes and Queuing Theory (Theory+ Practical)
- STAT-C-502 Statistical Computing Using C/C++ Programming (Theory+ Practical)
- STAT-C-601 Design of Experiments (Theory+ Practical)
- STAT-C-602 Multivariate Analysis and Nonparametric Methods (Theory+ Practical)

### **Discipline Specific Elective Papers (Credits: 6 each) (4 papers to be selected)**

#### **DSE-1**

- (A) Time Series Analysis (Theory+ Practical) or
- (B) Demography and Vital Statistics (Theory+ Practical)

#### **DSE-2**

- (A) Operations Research (Theory+ Practical) or
- (B) Econometrics (Theory+ Practical)

#### **DSE-3**

- (A) Actuarial Statistics (Theory+ Practical) or
- (B) Biostatistics and Survival Analysis (Theory+ Practical)

#### **DSE-4**

- (A) Financial Statistics (Theory+ Practical) or
- (B) Project Work (Sixth Semester)

### **Skill Enhancement Electives (Credits: 4 each) (2 papers to be selected)**

1. Statistical-Data Analysis Using Software Packages
2. Statistical Data Analysis Using R
3. Statistical Techniques for Research Methods
4. Statistical Simulation Techniques

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**Generic Elective Papers (GE) (Credits: 6 each) (to be offered to other Departments/Disciplines)**

1. Statistical Methods
2. Introductory Probability
3. Basics of Statistical Inference
4. Applied Statistics

**Note:**

1. There **will** be one batch of 15 students for practical classes.
2. Each practical will carry 50 marks including 25 marks for continuous evaluation and 5 marks for the oral test.
3. Colleges are advised and encouraged to conduct at least 50% of the practicals using spreadsheet (MS Excel) or any statistical package (SPSS/R/MATLAB).
4. At least four questions have to be compulsorily attempted in the final practical examination.
5. Hardcopy of practical file has to be maintained by the students for each practical paper.

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Semester wise Details of B.Sc. (Hons.) Statistics Course & Credit Scheme

Sem-ester	Core Course	Ability Enhancement Compulsory Course (AEC)	Skill Enhancement Course (SEC)	Elective Discipline Specific (DSE)	Elective Generic (GE)	Total Credits
I	STAT-C-101: Descriptive Statistics (L+P)	AECC 1			STAT-GE-1 (L+P)	22
	STAT -C-102: Calculus (L+T)					
L+T/P	4+2=6; 5+1=6.	4			4+2=6	
II	STAT-C-201: Probability and Probability Distributions (L+P)	AECC 2			STAT-GE-2 (L+P)	22
	STAT -C-202: Algebra (L+P)					
L+T/P	4+2=6; 4+2=6.	4			4+2=6	
III	STAT-C-301: Sampling Distributions (L+ P)		SEC (1/2/3/4) (L+P)		STAT-GE-3 (L+P)	28
	STAT-C-302: Survey Sampling and Indian Official Statistics (L+ P)					
	STAT-C-303: Mathematical Analysis (L+ P)					
L+T/P	4+2=6; 4+2=6; 4+2=6.		2+2=4		4+2=6	
IV	STAT-C-401: Statistical Inference (L+ P)		SEC (1/2/3/4) (L+P) Different from semester III option (L+P)		STAT-GE-4 (L+P)	28
	STAT-C-402: Linear Models (L+ P)					
	STAT-C-403: Statistical Quality Control (L+ P)					
L+T/P	4+2=6; 4+2=6; 4+2=6.		2+2=4		4+2=6	

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V	STAT-C-501: Stochastic Processes and Queuing Theory (L+P)			DSE-1- (A/B) (L+P)	24
	STAT-C-502: Statistical Computing Using C/C++ Programming (L+P)			DSE-2- (A/B) (L+P)	
L+T/P	4+2=6; 4+2=6.			4+2=6; 4+2=6.	
VI	STAT-C-601: Design of Experiments (T+ P)			DSE-3- (A/B) (L+P)	24
	STAT-C-602: Multivariate Analysis and Nonparametric Methods (T+P)			DSE-4- (A/B) (L+P)	
L+T/P	4+2=6; 4+2=6.			4+2=6; 4+2=6.	
Total Credits					148

Legend: L -Lecture Class; T =Tutorial Class; P = Practical Class

Note: One-hour lecture per week equals 1 Credit, 2 hours practical class per week equals 1 credit.

### Teaching:

The faculty of the Department is primarily responsible for organizing lecture work for B.Sc. (Hons.) Statistics. The instructions related to tutorials are provided by the respective registering units under the overall guidance of the Department. Faculty from some other Departments and constituent colleges are also associated with lecture and tutorial work in the Department.

There shall be 90 instructional days excluding examination in a semester.

(Add details about Projects/Dissertation and role of supervisor)

### Teaching Pedagogy:

Teaching pedagogy involve class room interactions, discussion, presentation etc. to be detailed out. The description should not be more than 300 words and could be both in general for all the courses and even for some particular papers requiring specific pedagogy like project work, group activities, or live projects.

This section (for each paper) could include the class-wise/week-wise flow of the course.

### Eligibility for Admissions:

Minimum percentage of marks for admission B.Sc. (Hons.) in Statistics is 50% marks in Mathematics and 45% marks in aggregate in any one of the examination mentioned on page (as per under- graduate Bulletin).

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Choice Based Credit System (CBCS)

# UNIVERSITY OF DELHI

DEPARTMENT OF PHYSICS

UNDERGRADUATE PROGRAMME  
(Courses effective from Academic Year 2015-16)



## SYLLABUS OF COURSES TO BE OFFERED

Core Courses, Elective Courses & Ability Enhancement Courses

**Disclaimer:** The CBCS syllabus is uploaded as given by the Faculty concerned to the Academic Council. The same has been approved as it is by the Academic Council on 13.7.2015 and Executive Council on 14.7.2015. Any query may kindly be addressed to the concerned Faculty.

Undergraduate Programme Secretariat

*C. Sheila Reddy*

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## **Preamble**

The University Grants Commission (UGC) has initiated several measures to bring equity, efficiency and excellence in the Higher Education System of country. The important measures taken to enhance academic standards and quality in higher education include innovation and improvements in curriculum, teaching-learning process, examination and evaluation systems, besides governance and other matters.

The UGC has formulated various regulations and guidelines from time to time to improve the higher education system and maintain minimum standards and quality across the Higher Educational Institutions (HEIs) in India. The academic reforms recommended by the UGC in the recent past have led to overall improvement in the higher education system. However, due to lot of diversity in the system of higher education, there are multiple approaches followed by universities towards examination, evaluation and grading system. While the HEIs must have the flexibility and freedom in designing the examination and evaluation methods that best fits the curriculum, syllabi and teaching-learning methods, there is a need to devise a sensible system for awarding the grades based on the performance of students. Presently the performance of the students is reported using the conventional system of marks secured in the examinations or grades or both. The conversion from marks to letter grades and the letter grades used vary widely across the HEIs in the country. This creates difficulty for the academia and the employers to understand and infer the performance of the students graduating from different universities and colleges based on grades.

The grading system is considered to be better than the conventional marks system and hence it has been followed in the top institutions in India and abroad. So it is desirable to introduce uniform grading system. This will facilitate student mobility across institutions within and across countries and also enable potential employers to assess the performance of students. To bring in the desired uniformity, in grading system and method for computing the cumulative grade point average (CGPA) based on the performance of students in the examinations, the UGC has formulated these guidelines.



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## **CHOICE BASED CREDIT SYSTEM (CBCS):**

The CBCS provides an opportunity for the students to choose courses from the prescribed courses comprising core, elective/minor or skill based courses. The courses can be evaluated following the grading system, which is considered to be better than the conventional marks system. Therefore, it is necessary to introduce uniform grading system in the entire higher education in India. This will benefit the students to move across institutions within India to begin with and across countries. The uniform grading system will also enable potential employers in assessing the performance of the candidates. In order to bring uniformity in evaluation system and computation of the Cumulative Grade Point Average (CGPA) based on student's performance in examinations, the UGC has formulated the guidelines to be followed.

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  - 2.2 **Dissertation/Project:** An elective course designed to acquire special/advanced knowledge, such as supplement study/support study to a project work, and a candidate studies such a course on his own with an advisory support by a teacher/faculty member is called dissertation/project.
  - 2.3 **Generic Elective (GE) Course:** An elective course chosen generally from an unrelated discipline/subject, with an intention to seek exposure is called a Generic Elective.

P.S.: A core course offered in a discipline/subject may be treated as an elective by other discipline/subject and vice versa and such electives may also be referred to as Generic Elective.
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**Project work/Dissertation** is considered as a special course involving application of knowledge in solving / analyzing /exploring a real life situation / difficult problem. A Project/Dissertation work would be of 6 credits. A Project/Dissertation work may be given in lieu of a discipline specific elective paper.

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**Details of courses under B.A (Honors), B.Com (Honors) & B.Sc. (Honors)**

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B.1. Generic Elective/		
Interdisciplinary	4X4=16	4X5=20
<b>(4 Papers)</b>		
B.2. Generic Elective		
Practical/ Tutorial*	4 X 2=8	4X1=4
<b>(4 Papers)</b>		
• <b>Optional Dissertation or project work in place of one Discipline Specific Elective paper (6 credits) in 6<sup>th</sup> Semester</b>		
<b><u>III. Ability Enhancement Courses</u></b>		
<b>1. Ability Enhancement Compulsory</b>		
(2 Papers of 2 credit each)	2 X 2=4	2 X 2=4
Environmental Science		
English/MIL Communication		
<b>2. Ability Enhancement Elective (Skill Based)</b>		
(Minimum 2)	2 X 2=4	2 X 2=4
<b>(2 Papers of 2 credit each)</b>		
<b>Total credit</b>	<b>140</b>	<b>140</b>
<b>Institute should evolve a system/policy about ECA/ General Interest/Hobby/Sports/NCC/NSS/related courses on its own.</b>		

\* wherever there is a practical there will be no tutorial and vice-versa

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Dhaura Kuan, New Delhi-110021

## B.Sc. (Hons) Physics

**Core Papers (C): (Credit: 06 each)** (1 period/week for tutorials or 4 periods/week for practical)

1. Mathematical Physics-I (4 + 4)
2. Mechanics (4 + 4)
3. Electricity and Magnetism (4 + 4)
4. Waves and Optics (4 + 4)
5. Mathematical Physics-II (4 + 4)
6. Thermal Physics (4 + 4)
7. Digital Systems and Applications(4 + 4)
8. Mathematical Physics III (4 + 4)
9. Elements of Modern Physics (4 + 4)
10. Analog Systems and Applications (4 + 4)
11. Quantum Mechanics and Applications (4 + 4)
12. Solid State Physics (4 + 4)
13. Electromagnetic Theory (4 + 4)
14. Statistical Mechanics (4 + 4)

**Discipline Specific Elective Papers: (Credit: 06 each) - DSE 1-4**

**(4 papers to be selected: 02 each for Odd semester and Even semester as listed below)**

### Odd semester:

1. Experimental Techniques (4) + Lab (4)
2. Advanced Mathematical Physics (4) + Lab (4)
3. Embedded systems- Introduction to Microcontroller (4) + Lab (4)
4. Nuclear and Particle Physics (5) + Tutorial (1)
5. Physics of Devices and Communication (4) + Lab (4)
6. Astronomy and Astrophysics (5) + Tutorial (1)
7. Atmospheric Physics (4) + Lab (4)
8. Biological physics (5) + Tutorial (1)

### Even Semester:

9. Advanced Mathematical Physics-II (5) + Tutorial (1)
10. Communication System (4) + Lab (1)
11. Applied Dynamics (4) + Lab (4)
12. Verilog and FPGA based system design (4) + Lab (4)
13. Classical Dynamics (5) + Tutorial (1)
14. Digital Signal processing (4) + Lab (4)
15. Nano Materials and Applications(4) + Lab (4)
16. Physics of the Earth (5) + Tutorial (1)
17. Medical Physics (4) + Lab (4)
18. Dissertation

**Skill Enhancement Courses (02 to 04 papers) (Credit: 02 each)- SEC1 to SEC4**

1. Physics Workshop Skills
2. Computational Physics Skills
3. Electrical circuits and Network Skills

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4. Basic Instrumentation Skills
  5. Renewable Energy and Energy harvesting
  6. Technical Drawing
  7. Radiation Safety
  8. Applied Optics
  9. Weather Forecasting
- 

**Generic Elective Papers (GE) (Minor-Physics) for other Departments/Disciplines:  
(Credit: 06 each)**

**Odd Semesters (1<sup>st</sup> and 3<sup>rd</sup> semesters)**

1. Electricity and Magnetism (4) + Lab (4)
2. Mathematical Physics(4) + Lab (4)
3. Digital, Analog and Instrumentation(4) + Lab (4)
4. Applied Dynamics (4) + Lab (4)
5. Medical Physics (4) + Lab (4)
6. Waves and Optics (4) + Lab (4)
7. Quantum Mechanics (4) + Lab (4)\*
8. Communication System (4) + Lab (4)\*
9. Verilog and FPGA based system design (4) + Lab (4)\*
10. Nano Materials and Applications(4) + Lab (4)\*

**\*Not offered in 1<sup>st</sup> semester.**

**Even semesters (2<sup>nd</sup> and 4<sup>th</sup> semesters)**

11. Mechanics (4) + Lab (4)
12. Elements of Modern Physics (4) + Lab (4)
13. Solid State Physics (4) + Lab (4)
14. Embedded System: Introduction to microcontroller(4) + Lab (4)
15. Biological physics (5) + Tutorials (1)
16. Thermal Physics (4) + Lab (4)
17. Digital Signal processing (4) + Lab (4)
18. Nuclear and Particle Physics (5) + Tut (1)\*\*
19. Astronomy and Astrophysics (5) + Tutorials (1)\*\*
20. Atmospheric Physics (4) + Lab (4)\*\*
21. Physics of the Earth (5) + Tutorials (1)\*\*

**\*\*Not offered in 2<sup>nd</sup> semester.**

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Choice Based Credit System (CBCS)

# UNIVERSITY OF DELHI

DEPARTMENT OF MATHEMATICS

UNDERGRADUATE PROGRAMME  
(Courses effective from Academic Year 2015-16)



## SYLLABUS OF COURSES TO BE OFFERED

Core Courses, Elective Courses & Ability Enhancement Courses

**Disclaimer:** The CBCS syllabus is uploaded as given by the Faculty concerned to the Academic Council. The same has been approved as it is by the Academic Council on 13.7.2015 and Executive Council on 14.7.2015. Any query may kindly be addressed to the concerned Faculty.

Undergraduate Programme Secretariat

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## **Preamble**

The University Grants Commission (UGC) has initiated several measures to bring equity, efficiency and excellence in the Higher Education System of country. The important measures taken to enhance academic standards and quality in higher education include innovation and improvements in curriculum, teaching-learning process, examination and evaluation systems, besides governance and other matters.

The UGC has formulated various regulations and guidelines from time to time to improve the higher education system and maintain minimum standards and quality across the Higher Educational Institutions (HEIs) in India. The academic reforms recommended by the UGC in the recent past have led to overall improvement in the higher education system. However, due to lot of diversity in the system of higher education, there are multiple approaches followed by universities towards examination, evaluation and grading system. While the HEIs must have the flexibility and freedom in designing the examination and evaluation methods that best fits the curriculum, syllabi and teaching-learning methods, there is a need to devise a sensible system for awarding the grades based on the performance of students. Presently the performance of the students is reported using the conventional system of marks secured in the examinations or grades or both. The conversion from marks to letter grades and the letter grades used vary widely across the HEIs in the country. This creates difficulty for the academia and the employers to understand and infer the performance of the students graduating from different universities and colleges based on grades.

The grading system is considered to be better than the conventional marks system and hence it has been followed in the top institutions in India and abroad. So it is desirable to introduce uniform grading system. This will facilitate student mobility across institutions within and across countries and also enable potential employers to assess the performance of students. To bring in the desired uniformity, in grading system and method for computing the cumulative grade point average (CGPA) based on the performance of students in the examinations, the UGC has formulated these guidelines.

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## CHOICE BASED CREDIT SYSTEM (CBCS):

The CBCS provides an opportunity for the students to choose courses from the prescribed courses comprising core, elective/minor or skill based courses. The courses can be evaluated following the grading system, which is considered to be better than the conventional marks system. Therefore, it is necessary to introduce uniform grading system in the entire higher education in India. This will benefit the students to move across institutions within India to begin with and across countries. The uniform grading system will also enable potential employers in assessing the performance of the candidates. In order to bring uniformity in evaluation system and computation of the Cumulative Grade Point Average (CGPA) based on student's performance in examinations, the UGC has formulated the guidelines to be followed.

### **Outline of Choice Based Credit System:**

1. **Core Course:** A course, which should compulsorily be studied by a candidate as a core requirement is termed as a Core course.
2. **Elective Course:** Generally a course which can be chosen from a pool of courses and which may be very specific or specialized or advanced or supportive to the discipline/ subject of study or which provides an extended scope or which enables an exposure to some other discipline/subject/domain or nurtures the candidate's proficiency/skill is called an Elective Course.
  - 2.1 **Discipline Specific Elective (DSE) Course:** Elective courses may be offered by the main discipline/subject of study is referred to as Discipline Specific Elective. The University/Institute may also offer discipline related Elective courses of interdisciplinary nature (to be offered by main discipline/subject of study).
  - 2.2 **Dissertation/Project:** An elective course designed to acquire special/advanced knowledge, such as supplement study/support study to a project work, and a candidate studies such a course on his own with an advisory support by a teacher/faculty member is called dissertation/project.
  - 2.3 **Generic Elective (GE) Course:** An elective course chosen generally from an unrelated discipline/subject, with an intention to seek exposure is called a Generic Elective.

P.S.: A core course offered in a discipline/subject may be treated as an elective by other discipline/subject and vice versa and such electives may also be referred to as Generic Elective.
3. **Ability Enhancement Courses (AEC)/Competency Improvement Courses/Skill Development Courses/Foundation Course:** The Ability Enhancement (AE) Courses may be of two kinds: AE Compulsory Course (AECC) and AE Elective Course (AEEC). "AECC" courses are the courses based upon the content that leads to Knowledge enhancement. They ((i) Environmental Science, (ii) English/MIL Communication) are mandatory for all disciplines. AEEC courses are value-based and/or skill-based and are aimed at providing hands-on-training, competencies, skills, etc.
  - 3.1 AE Compulsory Course (AECC): Environmental Science, English Communication/MIL Communication.
  - 3.2 AE Elective Course (AEEC): These courses may be chosen from a pool of courses designed to provide value-based and/or skill-based instruction.

**Project work/Dissertation** is considered as a special course involving application of knowledge in solving / analyzing /exploring a real life situation / difficult problem. A Project/Dissertation work would be of 6 credits. A Project/Dissertation work may be given in lieu of a discipline specific elective paper.

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## Structure

	<b>Core Course (14)</b>	<b>Ability Enhancement Compulsory Course (AECC) (2)</b>	<b>Skill Enhancement Course (SEC) (2)</b>	<b>Elective Discipline Specific DSE (4)</b>	<b>Elective: Generic (4)</b>
I	C 1 Calculus (including practicals)	(English communication/MIL) /Environmental Science			GE-1
	C 2 Algebra				
II	C 3 Real Analysis	(English communication/MIL) /Environmental Science			GE-2
	C 4 Differential Equations (including practicals)				
III	C 5 Theory of Real functions		SEC-1 LaTeX and		GE-3

  
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			HTML	
	C 6 Group Theory-I			
	C 7 Multivariate Calculus (including practicals)			
IV	C 8 Partial Differential Equations (including practicals)		SEC-2 Computer Algebra Systems and Related Softwares	GE-4
	C 9 Riemann Integration & Series of functions			
	C 10 Ring Theory & Linear Algebra-I			
V	C 11 Metric Spaces			
			<b>DSE-1 (including practicals)</b> (i) Numerical Methods or (ii) Mathematical Modeling and Graph Theory or (iii) C++ Programming <b>DSE-2</b> (i) Mathematical Finance or (ii) Discrete Mathematics	

				or (iii) Cryptography and Network Security	
	C 12 Group Theory-II				
VI	C 13 Complex Analysis (including practicals)			<b>DSE-3</b> (i) Probability theory & Statistics or (ii) Mechanics or (iii) Bio-Mathematics  <b>DSE-4</b> (i) Number Theory or (ii) Linear Programming and Theory of Games or (iii) Applications of Algebra	
	C 14 Ring Theory and Linear Algebra-II				



*(Revised based on the inputs in the standing Committee meeting on 24<sup>th</sup> August 2018)*

# UNIVERSITY OF DELHI

## MASTER OF ZOOLOGY (MSZOL)

(Effective from Academic Year 2019-20)

### PROGRAMME BROCHURE



XXXXX Revised Syllabus as approved by Academic Council on XXXX, 2018 and

Executive Council on YYYY, 2018

(Head of the Department)  
4<sup>th</sup> September 2018

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Dhaura Kuan, New Delhi-110021

### **III. M.Sc. Zoology Programme Details:**

#### **Programme Objectives (POs):**

The programme **M.Sc. in Zoology** aims to equip students with recent advances in Zoology from organismic to reductionist biology. It also aims to empower students to understand the challenges of society and the country that falls into the realms of Zoology, such as Aquaculture, Reproductive health, Behavior and Biological time keeping, Cancer Biology, Microbiome and their roles in health and diseases, Bioremediation of pollutants and pesticides, etc. It also offers students to a series of elective courses so that they can choose to specialize in the specific area of their interests in Zoology.

Keeping the true spirit of choice-based credit system scheme, close to 40% of the total credits are offered as elective courses. First and second semester courses are offered as core-courses, and in that 33% credits are assigned for lab work and hands-on experience. At third semester, to choose two elective courses, a student has a bouquet of six courses divided in two groups. The open elective has been chosen to attract students from diverse interdisciplinary areas of sciences, such as Anthropology, Environmental studies, Biomedical Sciences, etc. This course is designed to ignite the inquisitive mind to enter in to research in interdisciplinary areas. The fourth semester offers a total of 16 elective courses, which for logistics of programme management, are divided in to four streams, where a student has to choose a stream. In the fourth semester also, the major emphasis is on skill-based training into socially relevant areas of Zoology.

These courses are open for admission to students from Zoology (Hons.) to Life Sciences and Biomedical sciences if they have studied Zoology and Chemistry as generic elective at undergraduate level under CBCS scheme.

#### **Programme Specific Outcomes (PSOs):**

It is expected that a student after successfully completing four semesters of **M.Sc. in Zoology programme** would sufficiently be skilled and empowered to solve the problems in the realms of Zoology and its allied areas. They would have plethora of job opportunities in the education, environment, agriculture-based, and health related sectors. The bright and ignited mind may enter into research in the contemporary areas of Zoological/Biological Sciences. The broad skills and the deeper knowledge in the field would make them highly successful and excellent researcher in advanced areas of research in the Biological sciences.

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### Programme Structure:

The M.Sc. in Zoology programme is a two-year course divided into four-semester. A student is required to complete 94 credits for the completion of course and the award of degree.

		<b>Semester</b>	<b>Semester</b>
<b>Part – I</b>	First Year	Semester I	Semester II
<b>Part – II</b>	Second Year	Semester III	Semester IV

### Course Credit Scheme

Semester	Core Courses			Elective Course			Open Elective Course			Total Credits
	No. of papers	Credits (L+P)	Total Credits	No. of papers	Credits (L+P)	Total Credits	No. of papers	Credits (L+P)	Total Credits	
I	5	16L+6P	22	-	-	-	-	-	-	22
II	5	16L+6P	22	-	-	-	-	-	-	22
III	2	8L+4P	12	2	8L+ 4P	12	1	4L	4	28
IV	-	-	-	5	16L+6P	22	-	-	-	22
<b>Total Credits for the Course</b>	12	40L+18P	56	6	24L+10P	34	1	4L	4	94

- For each Core and Elective Courses (4 credit each), there will be 4 lecture hours of teaching per week. For practical (1 credit) will be of two hours of practical every week. Therefore, for a 6 credit practicals, there will be 12 hours of practicals every week.
- Open Electives will be of 4 credits.

**UNIVERSITY OF DELHI**

**One Year P.G. Diploma Course  
in  
Molecular & Biochemical Technology**

**SCHEME OF EXAMINATION  
&  
COURSE OF STUDY FOR SEMESTER SYSTEM**

**Effective from the Academic Year 2011-2012**

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1. **Affiliation:** The Programme shall be governed by the Department of Biochemistry, University of Delhi, South Campus under the Faculty of Interdisciplinary & Applied Sciences.

2. **Programme Structure and Codification of Papers:**

**EXAMINATION SCHEME:**

**Semester - I**

Theory		Marks	
PGD MB 101	Biophysical Techniques-I	100	
PGD MB 102	Recombinant DNA Technology-I	100	
PGD MB 103	Immunology-I	100	
<b>Practical Examination</b>			
PGDMB L104	Labwork-I	50	
PGDMB L105	Labwork-II	50	
PGDMB L106	Labwork-III	50	
	Viva	50	
<b>Total</b>		<b>500</b>	

**Semester – II**

Theory		Marks	
PGD MB 201	Biophysical Techniques-II	100	
PGD MB 202	Recombinant DNA Technology-II	100	
PGD MB 203	Immunology-II	100	
<b>Practical Examination</b>			
PGDMB L204	Labwork-IV	50	
PGDMB L205	Labwork-V	50	
PGDMB L206	Labwork-VI	50	
	Viva	50	
<b>Total</b>		<b>500</b>	

**Grand Total: Ist Semester + IInd Semester = 1000**

**In each paper, 70% marks are for end Semester Examination while 30% marks are for internal assessment**

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# UNIVERSITY OF DELHI

MASTER OF SCIENCE in PHYSICS

M. Sc. (Physics)

*(Effective from Academic Year 2018-19)*

## PROGRAMME BROCHURE



M.Sc. (Physics) Revised Syllabus as approved by Academic Council on XXXX, 2018  
and Executive Council on YYYY, 2018

i

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Dhaura Kuan, New Delhi-110021

Physics, Statistical Physics, Electromagnetic Theory, Solid State Physics, Electronics, Nuclear and Particle Physics along with Atomic and Molecular Physics. Creative thinking and problem-solving capabilities are also aimed to be encouraged through tutorials. The elective and open elective courses are designed for more specialized and/or interdisciplinary content to equip students with a broader knowledge base. The core and elective labs are designed to develop an appreciation for the fundamental concepts and working of devices used in everyday life employing scientific methods/tools of physics. Computational physics course is aimed to equip the students to use computers as a tool for scientific investigations/understanding. The dissertation(s) in both theory and experimental stream are expected to give a flavor of how research leads to new findings. In addition, the M.Sc. course is to lay a solid foundation for a doctorate in Physics/allied subjects later.

### III.2 Programme Specific Outcomes (PSOs)

- Understanding the basic concepts of physics particularly concepts in classical mechanics, quantum mechanics, statistical mechanics and electricity and magnetism to appreciate how diverse phenomena observed in nature follow from a small set of fundamental laws through logical and mathematical reasoning.
- Learn to carry out experiments in basic as well as certain advanced areas of physics such as nuclear physics, condensed matter physics, nanoscience, lasers, and electronics.
- Understand the basic concepts of certain sub fields such as nuclear and high energy physics, atomic and molecular physics, solid state physics, and plasma physics, and astrophysics, general theory of relativity, nonlinear dynamics and complex system.
- Gain hands-on experience to work in applied fields.
- Gain a through grounding in the subject to be able to teach it at college and school levels.
- Viewing physics as a training ground for the mind developing a critical attitude and a faculty of logical reasoning that can be applied to diverse fields.

### III.3 Programme Structure

The M. Sc. programme is a two-year course divided into four-semesters. A student is required to complete 72 credits for the completion of the course and the award of degree. The M.Sc. Physics Programme would make the students competent in a natural science, viz., Physics, and help them understand its role in modern day technology. Overall, the course would enable the students to understand the fundamental concepts and experimental methods of physics which would help them to innovate/apply/generate new devices/applications/insights/knowledge. Knowledge gained through the open electives would be an asset in branching out in fields other than physics.

		Semester	Semester
Part – I	First Year	Semester I	Semester II
Part – II	Second Year	Semester III	Semester IV

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### Course Credit Scheme for M.Sc. Physics

Semester	Core Courses			Elective Course			Open Elective Course*			Total Credits
	No. of papers	Credits (L+T+P)	Total Credits	No. of papers	Credits (L+T+P)	Total Credits	No. of papers	Credits (L+T+P)	Total Credits	
I	05	12+4+4	20	0	0	0	0	0	0	20
II	05	12+4+4	20	0	0	0	0	0	0	20
III	02	3+1+4	08	3/2	3+1+0	12/8	0/1	3+1+0	0/4	20
					0+0+4					
IV	01	3+1+0	04	4/3	3+1+0	16/12	0/1	3+1+0	0/4	20
					0+0+4					
<b>Total Credits for the Course</b>			52			24 <sup>†</sup> /20			4 <sup>†</sup> /8	80

L= Lecture, T = Tutorial, P = Practical

\*Each student must take at least one and at most two 4-credit open elective course(s) during the M. Sc. Programme.

† Credit for at least one open elective course is accounted for.

- ❖ Each Theory course is of 4 credits for which there will be 4 hours of lectures/tutorials per week. Each practical course is also of 4 credits for which there will be 8 hours of laboratory work per week.
- ❖ The maximum marks for each course will be 100. For theory courses 70 marks shall be allocated for the end- semester examination of 3 hours duration and 30 marks for internal assessment. The laboratory courses will be assessed based on continuous evaluation.

#### III.4 Eligibility for Admissions

As per university rules.

#### III.5 Assessment of Students' Performance and Scheme of Examination

As per university rules.

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**III.6 Pass Percentage & Promotion Criteria**

As per university rules.

**III.7 Semester to Semester Progression**

As per university rules.

**III.8 Conversion of Marks into Grades**

As per university rules.

**III.9 Grade Points**

As per university rules.

**III.10 CGPA Calculation**

As per university rules.

**III.11 Division of Degree into Classes**

As per university rules.

**III.12 Attendance Requirement**

As per university rules.

**III.13 Span Period**

As per university rules.

**III.14 Guidelines for the Award of Internal Assessment Marks**

The mode(s) of internal assessment will vary from course to course. The internal assessment marks will be based on performance in tests / quizzes / assignments / project work / presentations / attendance, etc.

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MASTER OF SCIENCE IN CHEMISTRY  
TWO YEARS FULL TIME PROGRAMME

RULES, REGULATIONS AND COURSE CONTENTS

Department of Chemistry  
Faculty of Science  
UNIVERSITY OF DELHI  
DELHI - 110007

2009

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Dhaura Kuan, New Delhi-110021

## MASTER OF SCIENCE IN CHEMISTRY COURSE

### Examination and Scheme of Papers

- (i) The duration of the Course for the degree of Master of Science in Chemistry shall be two academic years.
- (ii) The course is divided into four semesters and there shall be an examination at the end of each semester as given below:

### Scheme of Papers

#### Part I

##### Semester I-1

		Duration (Hours)	Maximum Marks	Credi
Paper 101	Inorganic Chemistry – I <i>(Metal complexes, supra - molecular and photo- inorganic chemistry)</i>	3	100	4
Paper 102	Organic Chemistry – I <i>(Stereochemistry and reactive intermediates)</i>	3	100	4
Paper 103	Physical Chemistry – I <i>(Quantum chemistry)</i>	3	100	4

##### Semester I-2

		Duration (Hours)	Maximum Marks	Credi
Paper 201	Inorganic Chemistry – II <i>(Group theory and chemistry of d &amp; f block elements)</i>	3	100	4
Paper 202	Organic Chemistry – II <i>(Spectroscopy and organic synthesis)</i>	3	100	4
Paper 203	Physical Chemistry – II <i>(Statistical mechanics, thermodynamics, kinetics and macromolecules)</i>	3	100	4
Paper 204	Practical Chemistry	18	300	18

Note: The Practical test shall consist of three papers, each of six hours duration, suitably spread over three days and shall be at the end of Semester I -2. 25% of the total marks for the Practical test shall be reserved for the Laboratory Record/ Sessional Work of the candidates and 15% marks for viva-voce.

30 marks (24 marks for internal exam and 6 marks for attendance) in each theory paper are reserved for internal assessment.

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## Part II

### Semester II-1

		<i>Duration (Hours)</i>	<i>Maximum Marks</i>	<i>Credit</i>
Paper 301	Inorganic Chemistry – III <i>(Inorganic reaction mechanisms &amp; catalysis and bio-inorganic Chemistry)</i>	3	100	4
Paper 302	Organic Chemistry – III <i>(Photochemistry &amp; pericyclic reactions and chemistry of life processes)</i>	3	100	4
Paper 303	Physical Chemistry – III <i>(Molecular structure: spectroscopic and diffraction methods)</i>	3	100	4
Paper 3101	Inorganic Chemistry (Special - I) <i>(Chemistry of boron and silicon compounds &amp; ligand field theory)</i>	3	100	4
Paper 3201	Organic Chemistry (Special - I) <i>(Newer synthetic reactions and reagents &amp; heterocyclic chemistry)</i>	3	100	4
Paper 3301	Physical Chemistry (Special - I) <i>(Irreversible thermodynamics, transport phenomena &amp; surface phenomena and fast reactions )</i>	3	100	4

### Semester II-2

*(I) Inorganic Group:*

		<i>Duration (Hours)</i>	<i>Maximum Marks</i>	<i>Credit</i>
Paper 4101	Inorganic Chemistry (Special - II) <i>(Spectral techniques in inorganic chemistry)</i>	3	100	4
Paper 4102	Inorganic Chemistry (Special - III) <i>(Organotransition metal chemistry and advanced bio-inorganic chemistry)</i>	3	100	4
Paper 4103	Inorganic Chemistry (Special - IV) <i>(Analytical techniques)</i>	3	100	4
Paper 4104	Inorganic Chemistry (Special - V) <i>(Inorganic materials &amp; nuclear and radiochemistry)</i>	3	100	4
Paper 4105	Practical Inorganic Chemistry	18	300*	18
Paper 4106	Inorganic Chemistry Project & Evaluation	-	100**	4

  
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		<i>Duration (Hours)</i>	<i>Maximum Marks</i>	
Paper 4307	Physical Chemistry (Special - VIII) ( <i>Advanced molecular spectra</i> )	3	100	4
Paper 4308	Physical Chemistry (Special - IX) ( <i>Crystal structure</i> )	3	100	4
Paper 4309	Physical Chemistry (Special - X) ( <i>Macromolecules</i> )	3	100	4
Paper 4310	Physical Chemistry (Special - XI) ( <i>Computational methods in chemistry</i> )	3	100	4
Paper 4311	Physical Chemistry (Special - XII ) ( <i>Physical chemistry of materials</i> )	3	100	4
Paper 4312	Practical Physical Chemistry	18	300*	18
Paper 4313	Physical Chemistry Project & Evaluation	-	100**	4
<b>TOTAL</b>			<b>2100</b>	<b>96</b>

*Note:*

- (1) In the beginning of the Semester II-1, the students will be required to choose their specialization, viz. Inorganic, Organic or Physical Chemistry. They will take one Special Paper in Semester II-1 and four Papers of the specialization of their choice or, alternatively\*\*\*, three special papers of the specialization of their choice and one paper out of the special papers offered in the other two specializations in Semester II-2. They will also have to take one Special Practical Test and project work in Semester II-2. For Physical Chemistry (Special) Semester II-2, the number of options available in a particular year (out of Physical Chemistry Special Papers II - XII) will, however, depend on the availability of teachers, and it will be ensured that at least ten students take each course.
- (2) \* The Practical Tests in each specialization shall consist of three papers, each of 6 hours duration, suitably spread over three days and shall be at the end of the Semester II -2. 25% of the marks will be reserved for the Laboratory Record/ Sessional work of the candidates and 15% marks for viva-voce.
- (3) \*\* A topic will be assigned to the students by the teachers taking practicals in the beginning of the Semester II-1 (by August 15) and they will submit a report by next March 15 each year which will be evaluated by a board of examiners involved in practicals and marks awarded based on project report (60 marks) and presentation/evaluation (40 marks). The pass percentage in the project paper shall be 50%.
- (4) 30 marks (24 marks for internal exam and 6 marks for attendance) in each theory paper are reserved for internal assessment.

... This arrangement will be implemented subject to the availability of logistic support.

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**UNIVERSITY OF DELHI**  
**MASTER OF SCIENCE - BOTANY**  
**(M.Sc. (Bot))**  
(Effective from Academic Year 2019-20)

**PROGRAMME BROCHURE**



M.Sc. Botany Revised Syllabus as approved by Academic Council on XXXX, 2018 and  
Executive Council on YYYY, 2018

*C. Sheila Reddy*  
PRINCIPAL  
Sri Venkateswara College  
Dhaura Kuan, New Delhi-110021

Part	Year	Semester	Semester
Part – I	First Year	Semester I	Semester II
Part – II	Second Year	Semester III	Semester IV

### Course Credit Scheme - Consolidated

Semester	Core Courses			Elective Course			Open Elective Course			Total Credits
	No. of papers	Credits (L+T/P)	Total Credits	No. of papers	Credits (L+T/P)	Total Credits	No. of papers	Credits (L+T/P)	Total Credits	
I	4	16+00+08	24	0	0+0+0	0	0	0+0+0	0	24
II	4	16+00+08	24	0	0+0+0	0	0	0+0+0	0	24
III	4	16+00+08	24	0	0+0+0	0	1	4+0+0	4	28
IV	0	0+0+0	0	4	16+0+08	24	0	0+0+0	0	24
<b>Total no. of Papers and Credits for the Course</b>	<b>12</b>	<b>48+0+24</b>	<b>72</b>	<b>4</b>	<b>16+0+08</b>	<b>24</b>	<b>1</b>	<b>4+0+0</b>	<b>4</b>	<b>100</b>

\* For each Core and Elective Course, there will be **Four** hours of Theory lectures (4 credits) and **four** hours of Practicals (2 credits) per week in a semester (14 weeks).

\* Open Electives can be taken for a maximum of 4 credits in semester III.

\* Duration of Theory examination of each paper shall be 3 hours and of Practical examination of each paper shall be 6 hours.

\* Each paper will be of 150 marks of which, 70 marks shall be allocated for end-semester theory examination, 30 marks for internal assessment and 50 marks for end-semester practical examination. Dissertation will be equivalent to one discipline-specific elective.

#### Core Courses

Semester I (individually for each semester)				
Number of core courses - 4		Credits in each core course		
Course	Theory	Practical	Tutorial	Credits
Physiology and Biochemistry	4	2	0	6
Microbiology and Phycology	4	2	0	6
Biology of bryophytes, pteridophytes and gymnosperms	4	2	0	6
Plant Systematics	4	2	0	6
<b>Total Credits</b>	<b>16</b>	<b>8</b>	<b>0</b>	<b>24</b>

Semester II (individually for each semester)				
Number of core courses - 4	Credits in each core course			
Course	Theory	Practical	Tutorial	Credits
Evolutionary Biology	4	2	0	6
Developmental Biology of Plants	4	2	0	6
Recombinant DNA Technology and Proteomics	4	2	0	6
Pathogens and Pests of Crop Plants	4	2	0	6
Total Credits	16	8	0	24

Semester III (individually for each semester)				
Number of core courses - 4	Credits in each core course			
Course	Theory	Practical	Tutorial	Credits
Principles of Ecology and Environmental Science	4	2	0	6
Plant Biotechnology and Resource Utilization	4	2	0	6
Genetics and Cytogenetics	4	2	0	6
Cell and Molecular Biology	4	2	0	6
Total Credits	16	8	0	24

**Elective Courses**

Semester IV					
	Number of elective courses – <u>Four</u> courses to be selected out of <u>sixteen</u> offered*	Credits in each Elective course			
		Elective Courses	Theory	Practical	Tutorial
1	Cell and Developmental Biology	4	2	0	6
2	Microbial Technology	4	2	0	6
3	Bioinformatics, Computational Biology and Biostatistics	4	2	0	6
4	Genetics, Genomics and Molecular Breeding	4	2	0	6
5	Algae, Environment and Human Welfare	4	2	0	6
6	Genomics and Proteomics	4	2	0	6
7	Topics in Plant Physiology and Biochemistry	4	2	0	6
8	Landscape Ecology	4	2	0	6
9	Agricultural Ecology	4	2	0	6
10	Reproductive Biology of Flowering Plants	4	2	0	6
11	Molecular Interactions of Plants with Symbionts, Pathogens and Pests	4	2	0	6
12	Immunology	4	2	0	6
13	Advances in Archegoniatae	4	2	0	6
14	In Vitro Technologies and Industrial Applications	4	2	0	6



15	Advanced Plant Systematics	4	2	0	6
16	Advanced Evolutionary Biology	4	2	0	6
	Dissertation*				6
	Total Credits				24

\* Please see below for information on Dissertation.

\* The top 20% of students in the merit list drawn on the basis of grades/scores obtained in Semester I and II will have an option of opting for Dissertation, which would provide students with the option of research-based specialization in the subject, in lieu of one elective course in Semester IV. This is subject to the limit of one student per teacher who wishes to mentor students during that academic session. At the end of the 4<sup>th</sup> semester the candidate will submit a dissertation, which will be evaluated by an external examiner along with a presentation and viva-voce examination.

### Open Elective courses

Semester III (individually for each semester)				
Number of Open Electives – one to be selected out of the six offered**	Credits in each open elective			
	Theory	Practical	Tutorial	Credits
Climate Change and Ecosystem Function	4	0	0	4
Plant Diversity	4	0	0	4
Plants, People and World History	4	0	0	4
Sustainable Development	4	0	0	4
Plant Curios – Fascinating Plants	4	0	0	4
Plants for Human Welfare	4	0	0	4
Total Credits	4	0	0	4

\*\* Offered to students from outside the Department of Botany

### Selection of Elective Courses:

All discipline-specific elective courses (as listed above) would be offered in the relevant semesters (except under unforeseen circumstances leading to physical absence of the concerned faculty member from the Department for the entire semester). Every optional paper would have an upper limit of student number based on the total number of students in an academic semester such that every student is able to select the required number of elective papers in a semester.

Selection of elective courses would be strictly based on merit-cum-choice of students. Merit of the student would be calculated based on the combined total score of the student in the first and second semesters as released by the Examination Branch of Delhi University. Each student would have to mark his/her choice of elective papers from "1...n" for a semester in a form. Selection of elective papers for semester IV would be done towards the end of semester III. Change/Exchange of Elective papers would not be permitted under any circumstances.

Choice Based Credit System (CBCS)

# UNIVERSITY OF DELHI

## DEPARTMENT OF STATISTICS

**Master of Statistics**

**(M.A./M.Sc. Statistics)**

(Effective from Academic Year 2019-20)

Proposed Syllabus



XXXXX Revised Syllabus as approved by Academic Council on XXXX, 2019 and  
Executive Council on YYYY, 2019

*C. Sheila Reddy*

PRINCIPAL  
Sri Venkateswara College  
Dhaulta Kuan, New Delhi-110021

### III. M.A./M.Sc. Statistics Programme Details:

#### Programme Structure:

M.A./M.Sc. Statistics programme is a two-year course divided into four-semester. A student is required to complete **84** credits for the completion of course and the award of degree.

		<b>Semester</b>	<b>Semester</b>
<b>Part – I</b>	First Year	Semester I	Semester II
<b>Part – II</b>	Second Year	Semester III	Semester IV

#### Course Credit Scheme:

Semester	Core Courses			Elective Course			Open Elective Course			Total Credits
	No. of Papers	Credits (L+T+P)	Total Credits	No. of Papers	Credits (L+T+P)	Total Credits	No. of Papers	Credits (L+T+P)	Total Credits	
I	5	16+0+4	20							20
II	5	16+0+4	20							20
III	4	12+0+4	16	1	3+0+1	4	1	*	4	24
IV	3	8+0+4	12	2	6+0+2	8				20
Total Credits for the Courses			68			12			4	84

\* Details are given in the list of open elective courses.

#### Semester wise Details:

Semester –I					
Number of Core Courses: 5					
Course code	Course Title	Credits in each core course			
		Theory	Practical	Tutorial	Credits
MSTC 101	Analysis	4	0	0	4
MSTC 102	Probability Theory	4	0	0	4
MSTC 103	Statistical Methodology	4	0	0	4
MSTC 104	Survey Sampling	4	0	0	4
MSTP 105	Practical –I	0	4	0	4
<b>Total credits in core courses</b>		<b>16</b>	<b>4</b>	<b>0</b>	<b>20</b>
Number of elective courses: 0					
Credits in each course		Theory	Practical	Tutorial	Credits
Total credits in elective courses		0	0	0	0
Number of open electives: 0					
Total credits in open elective courses		0	0	0	0
<b>Total credits in Semester –I</b>		<b>16</b>	<b>4</b>	<b>0</b>	<b>20</b>

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## Semester –II

Number of Core courses: 5					
Course code	Course Title	Credits in each core course			
		Theory	Practical	Tutorial	Credits
MSTC 201	Linear Algebra	4	0	0	4
MSTC 202	Stochastic Processes	4	0	0	4
MSTC 203	Statistical Inference-I	4	0	0	4
MSTC 204	Design of Experiments	4	0	0	4
MSTP 205	Practical –II	0	4	0	4
<b>Total credits in core courses</b>		<b>16</b>	<b>4</b>	<b>0</b>	<b>20</b>
Number of elective courses: 0					
Credits in each course		Theory	Practical	Tutorial	Credits
Total credits in elective courses		0	0	0	0
Number of open electives: 0					
Total credits in open elective courses		0	0	0	0
<b>Total credits in Semester –II</b>		<b>16</b>	<b>4</b>	<b>0</b>	<b>20</b>

## Semester -III

Number of Core courses: 4					
Course code	Course Title	Credits in each core course			
		Theory	Practical	Tutorial	Credits
MSTC 301	Statistical Inference-II	4	0	0	4
MSTC 302	Multivariate Analysis	4	0	0	4
MSTC 303	Generalized Linear Model	4	0	0	4
MSTP 305	Practical –III	0	4	0	4
<b>Total credits in core courses</b>		<b>12</b>	<b>4</b>	<b>0</b>	<b>16</b>
Number of elective courses: 1					
		Theory	Practical	Tutorial	Credits
Elective Course 1		3	1	0	4
Total credits in elective courses		3	1	0	4
Number of open electives: 1					
Total credits in open elective courses		*	*	0	4
<b>Total credits in Semester –III</b>		<b>15 + *</b>	<b>5 + *</b>	<b>0</b>	<b>24</b>

\*Details are given in the list of open elective courses.

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## Semester –IV

Number of Core courses: 3					
Course code	Course Title	Credits in each core course			
		Theory	Practical	Tutorial	Credits
MSTC 401	Econometrics and Time Series Analysis	4	0	0	4
MSTC 402	Demography, Statistical Quality Control and Reliability	4	0	0	4
MSTP 405	Practical –IV	0	4	0	4
<b>Total credits in each course</b>		<b>8</b>	<b>4</b>	<b>0</b>	<b>12</b>
Number of elective courses: 2					
		Theory	Practical	Tutorial	Credits
Elective Course 2		3	1	0	4
Elective Course 3		3	1	0	4
<b>Total credits in elective courses</b>		<b>6</b>	<b>2</b>	<b>0</b>	<b>8</b>
Number of open electives: 0					
Total credits in open elective courses		0	0	0	0
<b>Total credits in Semester –IV</b>		<b>14</b>	<b>6</b>	<b>0</b>	<b>20</b>

## List of Elective for Semester-III

Elective Course 1: One optional paper out of the following:		
Course Code:	Course Title	L-T-P
<b>MSTE 304</b>		
MSTE 304 (i)	Bio-statistics	3-0-1
MSTE 304 (ii)	Operational Research	3-0-1
MSTE 304 (iii)	Non- Parametric Inference	3-0-1
MSTE 304 (iv)	Financial Statistics	3-0-1

## List of Elective for Semester-IV

Elective Course II and Elective Course III: Two optional papers out of the following		
Course Code :	Course Title	L-T-P
<b>MSTE 403-404</b>		
MSTE 403 - 404 (i)	Applied stochastic Processes	3-0-1
MSTE 403 - 404 (ii)	Order statistics	3-0-1
MSTE 403 - 404 (iii)	Bayesian inference	3-0-1
MSTE 403 - 404 (iv)	Advanced survey sampling theory	3-0-1

MSTE 403 - 404 (v)	Advanced theory of experimental Designs	3-0-1
MSTE 403 - 404 (vi)	Advanced statistical computing and data mining	3-0-1

### List of Open Elective Courses

Any one course out of the following		
Course Code :	Course Title	L-T-P
MSTOE 306		
MSTOE 306 (i)	Data Analysis Using R	2-0-2
MSTOE 306 (ii)	Computational Techniques	2-0-2
MSTOE 306 (iii)	Essentials of Survey Sampling and Experimental Designs	3-0-1
MSTOE 306 (iv)	Actuarial Statistics	3-0-1
MSTOE 306 (v)	Inferential Techniques	3-0-1
MSTOE 306 (vi)	Statistics for Research and Management Studies	2-0-2
XXXXX	Open Elective from other Departments	X-X-X

### Selection of Elective Courses:

For selection of elective courses, a student may choose one course in semester III and two courses in semester IV from the lists of options being offered by the Department.

### Teaching:

The faculty of the Department is primarily responsible for organizing lecture work M.A./M.Sc. Statistics. The instructions related to tutorials are provided by the respective registering units under the overall guidance of the Department. Faculty from some other Departments and constituent colleges are also associated with lecture and tutorial work in the Department.

There shall be 90 instructional days excluding examination in a semester.

### Eligibility for Admissions:

Admission to Post-Graduate Courses in Statistics leading to a Master's Degree in Statistics will be made through two modes:

Mode-I : Direct Admission

# UNIVERSITY OF DELHI

MASTER OF SCIENCE in MATHEMATICS  
(MMATH)

(Effective from Academic Year 2019-20)

PROPOSED SYLLABUS



*C. Sheila Reddy*

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### III. M.Sc. Mathematics Programme Details:

#### Programme Objectives (POs):

The M.Sc. Mathematics programme's main objectives are

- To inculcate and develop mathematical aptitude and the ability to think abstractly in the student.
- To develop computational abilities and programming skills.
- To develop in the student the ability to read, follow and appreciate mathematical text.
- Train students to communicate mathematical ideas in a lucid and effective manner.
- To train students to apply their theoretical knowledge to solve problems.
- To encourage the use of relevant software such as MATLAB and MATHEMATICA.

#### Programme Specific Outcomes (PSOs):

On successful completion of the M.Sc. Mathematics programme a student will

- Have a strong foundation in core areas of Mathematics, both pure and applied.
- Be able to apply mathematical skills and logical reasoning for problem solving.
- Communicate mathematical ideas effectively, in writing as well as orally.
- Have sound knowledge of mathematical modeling, programming and computational techniques as required for employment in industry.

#### Programme Structure:

The M.Sc. Mathematics programme is a two-year course divided into four semesters. A student is required to complete at least 80 credits for the completion of the course and the award of degree. Of these, 40 credits have to be earned from Core Courses and 40 from Electives (not including open electives).

	SEMESTER	SEMESTER
PART-I (FIRST YEAR)	Semester I	Semester II
PART-II (SECOND YEAR)	Semester III	Semester IV

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## Course Credit Scheme:

Semester	Core Courses			Elective Courses			Open Elective Courses			Total Credits
	No. of papers	Credits (L+T/P)	Total Credits	No. of papers	Credits (L+T/P)	Total Credits	No. of papers	Credits (L+T/P)	Total Credits	
I	04	05	20	Nil	Nil	Nil	Nil		Nil	20
II	04	05	20	Nil	Nil	Nil	Nil		Nil	20
III	Nil			04	05	20	01	02	02	22
IV	Nil			04	05	20	01	02	02	22
Maximum Credits including Open Elective offered by the other departments			40			40			04	88 (4 Credits from open electives of other departments)
Minimum Credits Required			40			40				80 + 04 (4 Credits from open electives)

- \* For each Core and Elective Course there will be 4 lecture hours and 1 tutorial hour per week.
- \* Students who have done Bachelor degree in any subject and have studied at least one course of one year duration or two courses of one semester duration in Mathematics are eligible to choose Open Elective Courses offered by the Department of Mathematics.
- \* Open Elective Courses can be chosen leading to the maximum total of 8 credits.

### Selection of Elective Courses:

Under each Elective course a student may choose one course from a basket of three or four options being offered by the Department. In case a particular course is over-subscribed, merit in the previous semester(s) examination(s) will be used to determine course allocations.

### Teaching:

The Department of Mathematics is primarily responsible for organizing lecture work for M.Sc. Mathematics programme. Faculty from some other departments and constituent colleges may also be associated with lecture and tutorial work in the department.

### Eligibility for Admissions:

Admission is done via two modes – entrance and merit with equal numbers of seats allotted to both modes. The details are as follows:

Mode	Category	Eligibility: Course requirement	Eligibility: Marks requirement
Entrance	1	Bachelor degree in any subject and has studied at least 3 courses each of one year duration or 6 courses each of one semester duration in Mathematics	50% marks in aggregate
Merit	2	B.A./B.Sc. (Hons.) Mathematics degree of University of Delhi	60% marks in aggregate

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### **Assessment of Students' Performance and Scheme of Examinations:**

1. English shall be the medium of instruction and examination.
2. All assessment will be based on Learning Outcomes for the course.
3. Duration of examination of each paper of 5 credits shall be 3 hours while that of 2 credits will be 2 hours.
4. Each Core and Elective (Open Elective offered by Department of Mathematics) paper will be of 100 (50) marks with two components namely internal assessment for 30 (15) marks and end semester examination for 70 (35) marks.

### **Pass Percentage & Promotion Criteria:**

Pass Percentage: 40% or equivalent grade (as per University rules) in each course. A student must score the minimum pass marks in **each** of the Core and Elective courses to be awarded the degree.

### **Part I to Part II Progression:**

For promotion to Part II, a student must have passed in at least four of the core courses of Part I.

### **Policy for Reappearance:**

A student who has to reappear in a paper prescribed for Semester I/III may do so only in the odd Semester examinations to be held in November/December. A student who has to reappear in a paper prescribed for Semester II/IV may do so only in the even Semester examinations to be held in April/May.

**Conversion of Marks into Grades:** As per University Rules

**Grade Points:** Grade point table as per University Examination rule

**CGPA Calculation:** As per University Examination rule.

**SGPA Calculation:** As per University Examination rule.

**Grand SGPA Calculation:** As per University Examination rule.

### **Conversion of Grand CGPA into Marks:**

As notified by competent authority the formula for conversion of Grand CGPA into marks is:  
Final percentage of marks = CGPA based on all four semesters  $\times$  9.5.

**Division of Degree into Classes:** As per University rules.

**Attendance Requirement:** 66% attendance in lectures required to appear for the end semester examination while 50% attendance for the in-house examination.

### **Span Period:**

No student shall be admitted as a candidate for the examination for any of the Parts/Semesters

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after the lapse of **four** years from the date of admission to the Part-I/Semester-I of the M.Sc. Mathematics Programme.

**Guidelines for the Award of Internal Assessment Marks:**

30 (15) marks are allocated for Internal Assessment in each Core and Elective (Open Elective offered by Department of Mathematics) paper. Of this, 20 (10) marks will be based on in-house examinations, with a common question paper across sections, while 10 (5) marks are for evaluation by individual teachers in each Core and Elective (Open Elective offered by Department of Mathematics) paper. This evaluation may be done by the teacher via class tests, assignment, presentations, viva-voce etc.

**Semester Wise Details:**

SEMESTER I				
<b>Number of Core Courses</b>	Four			
	Credits in each Core Course			
Courses	Theory	Practical	Tutorial	Credits
Core Course 1	04	-	01	05
Core Course 2	04	-	01	05
Core Course 3	04	-	01	05
Core Course 4	04	-	01	05
Total credits in Core Courses	20			
<b>Number of Elective Courses</b>	Nil			
Total credits in Elective Courses	Nil			
<b>Number of Open Elective Courses</b>	Nil			
Total credits in Open Elective Courses	Nil			
<b>Total credits in Semester I</b>	<b>20</b>			

SEMESTER II				
<b>Number of Core Courses</b>	Four			
	Credits in each Core Course			
Courses	Theory	Practical	Tutorial	Credits
Core Course 5	04	-	01	05
Core Course 6	04	-	01	05
Core Course 7	04	-	01	05
Core Course 8	04	-	01	05
Total credits in Core Courses	20			
<b>Number of Elective Courses</b>	Nil			
Total credits in Elective Courses	Nil			
<b>Number of Open Elective Courses</b>	Nil			
Total credits in Open Elective Courses	Nil			
<b>Total credits in Semester II</b>	<b>20</b>			

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SEMESTER III				
<b>Number of Core Courses</b>	Nil			
Total credits in Core Courses	Nil			
<b>Number of Elective Courses</b>	Four			
	Credits in each Elective Course			
Courses	Theory	Practical	Tutorial	Credits
Elective Course 1	04	-	01	05
Elective Course 2	04	-	01	05
Elective Course 3	04	-	01	05
Elective Course 4	04	-	01	05
Total credits in Elective Courses	20			
<b>Number of Open Elective Courses</b>	One			
	Credits in each Open Elective Course			
Course	Theory	Practical	Tutorial	Credits
Open Elective Course 1	02	-	-	02
Total credits in Open Elective Course	02			
<b>Total credits in Semester III</b>	<b>20 + 2 = 22*</b>			

SEMESTER IV				
<b>Number of Core Courses</b>	Nil			
Total credits in Core Courses	Nil			
<b>Number of Elective Courses</b>	Four			
	Credits in each Elective Course			
Courses	Theory	Practical	Tutorial	Credits
Elective Course 5	04	-	01	05
Elective Course 6	04	-	01	05
Elective Course 7	04	-	01	05
Elective Course 8	04	-	01	05
Total credits in Elective Courses	20			
<b>Number of Open Elective Courses</b>	One			
	Credits in each Open Elective Course			
Course	Theory	Practical	Tutorial	Credits
Open Elective Course 2	02	-	-	02
Total credits in Open Elective Course	02			
<b>Total credits in Semester IV</b>	<b>20 + 2 = 22*</b>			

\* Credits from courses offered by the Department of Mathematics

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**UNIVERSITY OF DELHI**  
**MASTER OF ARTS IN HISTORY**  
**(MA HISTORY)**

(Effective from Academic Year 2019-20)

**PROGRAMME BROCHURE**



MA History Revised Syllabus as approved by Academic Council on XXXX,  
2019 and Executive Council on YYYY, 2019

*C. Sheila Reddy*

**PRINCIPAL**  
Sri Venkateswara College  
Dhaura Kuan, New Delhi-110021

- (vii) 'Credit' means the value assigned to a course which indicates the level of instruction; One-hour lecture per week equals 1 Credit, 2 hours practical class per week equals 1 credit. Credit for a practical could be proposed as part of a course or as a separate practical course
- (viii) 'SGPA' means Semester Grade Point Average calculated for individual semester.
- (ix) 'CGPA' is Cumulative Grade Points Average calculated for all courses completed by the students at any point of time. CGPA is calculated each year for both the semesters clubbed together.
- (x) 'Grand CGPA' is calculated in the last year of the course by clubbing together of CGPA of two years, i.e., four semesters. Grand CGPA is being given in Transcript form. To benefit the student a formula for conversation of Grand CGPA into %age marks is given in the Transcript.

### **III. Programme Details:**

The two year Masters Programme in History provides specialised training to students in world History and Indian History. The course builds upon the training that students have received in their B.A. The elementary objective of this training is consolidating their skills with more complex content. Hence the M.A. curriculum and pedagogy are framed with the aim to draw students into a discussion of the reasons why and how newer questions are posed by historians, how the methodology of engaging with the older questions have changed and what this learning reveals about the craft of historiography itself.

The primary objectives of the MA History are therefore many – a chance to learn how historians think, research, analyse and frame their research. The focus on World History in the first year is useful since these historiographies are remote from the experience of most students. They learn about other societies and cultures and the ways in which scholars have interrogated their sources, and challenged, fine-tuned or built upon each other's research methods and conclusions. More critically, with the emphasis on learning research methods, students discover a range of ways in which the human experiences in differing locales and contexts could be made to speak to the 'realities' of past and present in their own immediate environs.

Since the second year MA courses are more specialised students hone the skills gained in their first year in closer proximity to the sources and their readings on the ancient, medieval and modern periods of Indian history. The objective of these courses is to introduce and train students on how sources were/could be used by different scholars. The larger number of courses are thematically framed around specific subjects, regions or events. Their detailed nature foregrounds the materials upon which questions and narratives are raised.

The training deals with the question not just of 'what happened' but also how we know what happened, how a change in perspective, emphasis and/or method might play a role in determining the shape and thrust of historical knowledge, and how concerns of our present might influence the narrative of our past.. The purpose is to make the students read, describe, engage with and question diverse historiographies with a focus on appreciating how arguments are framed in all their complexities. A large number of thematic courses are designed with a

*C. Sheila Reddy*

view to invite students to observe and analyse how human experiences of the same set of injunctions and institutions in the past could differ due to class, status, gender, race, region, occupation, etc. Thus the MA programme encourages the students to understand but also go beyond 'causation' and other standard questions in history. It invites them to read and reflect on the issue of how to read sources but also on the relationships between historical facts and truths. The idea is to draw attention to the thick and multiple dimensions of the experience that enfold them. How may the historians discover the language and method to articulate this complexity in meaningful ways? More critically, with the emphasis on learning research methods, students discover a range of ways in which the human experiences in differing locales and contexts could be made to speak to the 'realities' of past and present in their own immediate environs.

The objective of the diverse range of courses, readings and different kinds of assignments is to underline that learning is not transacted only orally. Especially in the domain of history, the objective is to train students how historians pose questions, read and marshal their evidence, and transcribe it into a cogent argument. The familiarity of the normal is constantly the subject of reflection and it is here that the requirement to read and write meaningfully extends materials discussed in class lectures. The internal evaluations that are an integral part of the MA curriculum place a strong emphasis upon research based writing and oral presentations. The foundations for many future research projects have their incipient formulations in these assignments.

### Programme Structure:

The MA History programme is a two-year course divided into four-semester. A student is required to complete 80 credits for the completion of course and the award of degree.

		<i>Semester</i>	<i>Semester</i>
<b>Part – I</b>	First Year	Semester I	Semester II
<b>Part – II</b>	Second Year	Semester III	Semester IV

### Course Credit Scheme

Semester	Core Courses			Elective Courses			Open Elective Courses			Total Credits
	No. of Papers	Credits (L & T)	Total Credits	No. of Papers	Credits (L & T)	Total Credits	No. of Papers	Credits (L & T)	Total Credits	
I	1	5	5	3	5	15				20
II				4	5	20				20
III				4	5	20	1	4	4	20+4
IV	1	5	5	3	5	15	1	4	4	20+4

- \* For each Core and Elective Course there will be 4 lecture hours of teaching per week.
- \* Open Electives to the maximum total of 8 credits.
- \* Duration of examination of each paper shall be 3 hours.
- \* Each paper will be of 100 marks out of which 70 marks shall be allocated for semester examination and 30 marks for internal assessment.

**MASTER OF ARTS  
(SANSKRIT)**

TWO YEAR FULL TIME PROGRAMME

**REVISED WITH  
MINOR CORRECTIONS AND CHANGES & FORMATTED AS  
PER CBCS TEMPLATE**

**RULES, REGULATIONS AND COURSE CONTENTS**



**DEPARTMENT OF SANSKRIT  
FACULTY OF ARTS  
UNIVERSITY OF DELHI  
DELHI-110007**



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<u>Vyākaraṅga: Laghusiddhāntakaumudī</u>	
3. Core 203 .....	26-28
<u>Sāhitya: Meghadūta &amp; Uttararāmacarita</u>	
Semester III	
8. Core 301 .....	28-30
<u>Linguistic Analysis of Sanskrit, Translation and Laghusiddhānta-Kaumudī</u>	
9. Core 302 .....	30-32
<u>Sāhitya: Kādambarī &amp; Vāsavadattā</u>	
Semester IV	
9. Core 403 .....	32-34
<u>Darśana: Sāṅkhya &amp; Mīmāṅsā</u>	
B. <u>Elective Courses (EC) for Semester III &amp; IV</u> .....	35-104

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1. Group: A .....	37-45
<u>Vaidika Vāṅmaya</u>	
2. Group: B .....	45-52
<u>Darśana</u>	
3. Group: C .....	53-58
<u>Sāhitvāśāstra</u>	
4. Group: D .....	58-67
<u>Sanskrit Bhāṣā aur Vyākaraṇa</u>	
5. Group: E .....	67-72
<u>Dharmaśāstra</u>	
6. Group: F .....	72-80
<u>Epigraphy</u>	
7. Group: G .....	80-86
<u>Modern Sanskrit Literature</u>	
8. Group: H .....	86-91
<u>Itihāsa &amp; Pūrāṇa</u>	
9. Group: I .....	91-98
<u>Bhāratīya Jyotiṣśāstra</u>	
<b>C. Open Elective Courses (OEC).....</b>	<b>105-116</b>
<b>Semester II</b>	
1. OEC:204 Option One .....	106-107
<u>Outline of Culture &amp; Civilization as depicted in Sanskrit Literature</u>	
<b>Semester IV</b>	
1. OEC:404 Option One .....	111-113
<u>Linguistic Speculations in Sanskrit</u>	

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3. **Open Elective Course: (OEC) The Department offers 2 OEC in whole. one OEC in IInd semester as 204 and one OEC in Semester IV as 404. Paper 204 –Outline of Culture & Civilization as depicted in Sanskrit Literature is for M.A. students of all subjects including Sanskrit. The second OEC i.e. paper 404- Linguistic Speculations in Sanskrit can be opted by the other department students and by Sanskrit department students who have not studied this paper as main paper earlier.**

The schedule of papers prescribed for various semesters shall be as follows:

**PART I: Semester I**

Core 101	Vaidika Vāṅmaya : Śikṣāhitā & Nirukta	4+1
Core 102	Poetics: Sāhityadarpaṇa	4+1
Core 103	Sāhitya: Naiṣadha & Māchhakaṇika	4+1
Core 104	Outline of Culture & Civilization as depicted in Sanskrit Literature	4+1

**PART I: Semester II**

Core 201	Darśana: Nyāya & Vedānta	4+1
Core 202	Vyākaraṇa: Laghusiddhāntakaumudī	4+1
Core 203	Sāhitya: Meghadūta & Uttararāmacarita	4+1
Open Elective 204	Outline of Culture & Civilization as depicted in Sanskrit Literature This course is meant only for the students of other Departments.	4

**PART II: Semester III**

Core 301	Linguistic Analysis of Sanskrit, Translation and Laghusiddhānta-Kaumudī	4+1
Core 302	Sāhitya: Kādambarī & Vāsavadattā	4+1

For paper 303, 304, 401 and 402, there would be following optional groups covering the specialised fields of Sanskrit studies so that students may choose any one group for these papers according to their area of interest:

**Elective Group**

1. Group A : Vaidika Vāṁmaya
2. Group B : Darśana
3. Group C : Sāhityaśāstra
4. Group D : Sanskrit Bhāṁā aur Vyākaraṁa
5. Group E : Dharmasāstra
6. Group F : Epigraphy
7. Group G : Modern Sanskrit Literature
8. Group H : Itihāsa & Pūrāṁa
9. Group I : Bhāratīya Jyotiṁśāstra

Elective Course 303	A/B/C/D/E/F/G/H/I	5+1
Elective Course 304	A/B/C/D/E/F/G/H/I	5+1

**PART II: Semester IV**

Elective Course 401	A/B/C/D/E/F/G/H/I	5+1
Elective Course 402	A/B/C/D/E/F/G/H/I	5+1
Core 403	Darśana: Sāṁkhyā & Mīmānsā	4+1
Open Elective 404	Open Elective for all students 404- Linguistic Speculations in Sanskrit can be opted by the other department students and by Sanskrit department students who have not studied this paper.	4

**LIST OF OPEN ELECTIVE PAPERS**

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Successful candidates will be classified on the basis of the combined results of Part-I and Part-II examinations as follows:

Candidates securing 60% and above	:	Ist Division
Candidates securing between 49.99% and 59.99%	:	IInd Division
All others	:	Pass

### SPAN PERIOD

No student shall be admitted as a candidate for the examination for any of the Parts/Semesters after the lapse of 3 years from the date of admission to the Part-I/Semester I-1 of the M.A. programme.

### CREDIT STRUCTURE

Each semester will consist of four courses, where each course would have the following credit structure.

**4 Theory periods + 1 Tutorial period = 5 credits for core courses**

**5 Theory periods + 1 Tutorial periods = 6 credits for Elective Course**

**4 Theory periods + 0 Tutorial periods = 4 credits for Open Elective Course**

#### Course Credit Scheme

Semester	Core Course			Elective Course			Open Elective Course			Total Credits
	No. of Papers	Credits (L+T/P)	Total Credits	No. of Papers	Credits (L+T/P)	Total Credits	No. of Papers	Credits (L+T/P)	Total Credits	
I	04	4+1	20	-	-	-	-	-	-	20
II	03	4+1	15	-	-	-	01	04	04	19
III	02	4+1	10	02	5+1	12	-	-	-	22
IV	01	4+1	05	02	5+1	12	01	04	04	21
Total Credits			50			24			08	82

### ATTENDANCE REQUIREMENT

No student shall be considered to have pursued a regular course of study unless he/she is certified by the Head of the Department of Sanskrit, University of Delhi, to have attended 75% of the total number of lectures, tutorials and seminars conducted in each semester, during his/her course of study. Provided that he/she fulfils other conditions, the Head, Department of Sanskrit may permit a student to the next Semester who falls short of the required percentage of

**UNIVERSITY OF DELHI  
MASTER OF ARTS**

(Effective from Academic Year 2019-20)

PROGRAMME BROCHURE



M A English Revised Syllabus as approved by Academic Council on XXXX, 2018 and

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Dhaura Kuan, New Delhi-110021

The English programme is a two-year course divided into four-semesters. A student is required to complete 83 credits for the completion of course and the award of degree.


**Course Credit Scheme**

Semester	Core Courses			Elective Course			Open Elective Course			Total Credits
	No. of papers	Credits (L+T/P)	Total Credits	No. of papers	Credits (L+T/P)	Total Credits	No. of papers	Credits (L+T/P)	Total Credits	
I	02	(4+1) x 2	10	02	(4 + 1) x 2	10	Nil			20
II	02	(4+1) x 2	10	02	(4 + 1) x 2	10	01	4 x 1	4	24
III	02	(4+1) x 2	10	02	(4 + 1) x 2	10	Nil			20
IV	02	(4+1) x 2	10	01	5 x 1 = 5	5	01	4 x 1	4	19
<b>Total Credits for the Course</b>			<b>40</b>			<b>35</b>			<b>08</b>	<b>83</b>

**Semester I/II/III/IV (individually for each semester)**

Number of core courses	Credits in each core course				
	Course	Theory	Practical	Tutorial	Credits
	Core course 1	4		1	5
	Core course 2	4		1	5
	Core course 3	4		1	5
	Core Course 4	4		1	5
	Core Course 5	4		1	5
	Core Course 6	4		1	5
	Core Course 7	4		1	5
	Core Course 8	4		1	5
<b>Total credits in core course</b>		<b>40</b>			

Number of elective courses	Credits in each Elective course			
Credits in each elective course	Theory	Practical	Tutorial	Credits
Elective course 1	4		1	5
Elective course 2	4		1	5
Elective course 3	4		1	5
Elective course 4	4		1	5
Elective course 5	4		1	5
Elective course 6	4		1	5
Elective course 7	4		1	5
<b>Total Credits in Elective Courses</b>	<b>35</b>			
Number of Open Electives	Credits in each open elective			
	Theory			Credits
Open Elective 1	4			4
Open Elective 2	4		4	
<b>Total credits in Open Elective</b>	<b>08</b>			
<b>Total credits in Semester I/II/III/IV 83</b>				

\* For each Core and Elective Course there will be 4 lecture hours of teaching per week.

\* Open Electives to the maximum total of 8 credits.

\* Duration of examination of each paper shall be 3 hours.

\* Each paper will be of 100 marks out of which 70 marks shall be allocated for semester examination and 30 marks for internal assessment.

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