



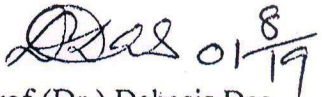
UNIVERSITY OF CALCUTTA

Notification No. CSR/19/19

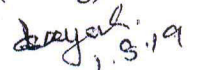
It is notified for information of all concerned that the Syndicate in its meeting held on 22.01.2019 (vide Item No.25) approved revision in the existing syllabus for the Two-year four-Semester M.A./M.Sc. course of study in Museology (notified in Notification No.CSR/21/18 dated 25.07.18 and Notification No.CSR/45/18 dated 13.08.18) under CBCS in the Post-Graduate Departments of the University and in the affiliated Colleges offering Post-Graduate Courses under this University, as laid down in the accompanying Pamphlet.

The above shall be effective from the session 2018-2019.

SENATE HOUSE
KOLKATA-700 073
The 29th July,2019


Prof.(Dr.) Debasis Das

Deputy Registrar (Acting)


1.3.19

Revised CSR/21/18 & CSR/45/18

**COURSE STRUCTURE, SYLLABUS &
REGULATIONS
FOR
FOUR SEMESTER MA/ MSc DEGREE
Under CBCS
IN
MUSEOLOGY
2018**



**DEPARTMENT OF MUSEOLOGY
UNIVERSITY COLLEGES OF ARTS & COMMERCE
UNIVERSITY OF CALCUTTA
(ALIPORE CAMPUS)
1, REFORMATORY STREET (9TH FLOOR)
KOLKATA 700 027
Telephone: (91) (33) 2479 2861, Extn: 360**

**Regulations Relating to Two-year (Four Semester) MA/ MSc Degree Course of Study in
Museology (CBCS) attached to the Post Graduate Faculty of Arts, University of
Calcutta**

In exercise of the powers conferred by Section 54 of the Calcutta University Act, 1979, the Syndicate of the University hereby makes the following Regulations, namely:

- These Regulations may be called the University of Calcutta [Regulations relating to two-year (Four Semesters) MA/ MSc Degree Course of Studies in Museology] Regulations, 2018.
- It shall apply to every candidate persecuting the above courses in this University.
- Notwithstanding anything contained in any Regulations or Rules for the time being in force, the study for the above course shall be guided by these Regulations.
- These Regulations shall come into effect from the academic session 2018-19.

Regulations

1. General

- 1.1.** The course of study leading to the Post-graduate MA/ MSc Degree in MUSEOLOGY of the University of Calcutta shall be conducted by the Department of Museology.
- 1.2.** The University shall lay down from time to time such subsidiary rules of admission, courses of study and methods of examination as may be deemed necessary for the maintenance of standards of University Education, in conformity with the relevant authorities.

2. Duration of the Course

- 2.1.** Two full academic years including project work, field/ study tour and internship divided into four semesters.
- 2.2.** The classes may be held both in the Department or allied Departments/ Institutions subjected to the availability of the resources & approval of the Departmental Committee.

3. Admission Criteria

- 3.1.** A Masters' degree or a good Bachelors' degree (10+ 2 + 3 system), with Honours, wherever applicable, in Anthropology/ Ancient Indian History and Culture/ Archaeology/ Botany/ Chemistry/ Computer Science/ Electronics/ Environmental Studies/ Environmental Science/ Folklore/ Fine Arts/ Geography/ Geology/ History/ History of Art/ Islamic History and Culture/ Pali/ Persian/ Physics/ Physiology/ Sanskrit/ Visual Art/ Zoology.
- 3.2.** Candidates having post-graduate degrees in the above subjects will be given preference in admission irrespective of year of passing.
- 3.3.** One seat will be kept reserved for the candidates who are regularly employed in museums or similar organisations/ institutions for at least two years, if they have requisite qualifications and deputed by the institutions concerned. However, the seat will be de-reserved in case of non-availability of suitable candidates.
- 3.4.** The number of seats is limited to 30 (thirty). The seats will be distributed in the following manner:
Archaeology/ History/ AIHC/ IHC: **6** (1 SC)
Fine Art/ Visual Art/ Graphic Art/ Applied Art/ Commercial Art/ History of Art: **1**
Anthropology: **5** (1 SC)
Pali/ Sanskrit/ Persian/ Folklore: **1**
Zoology/ Botany/ Physiology: **6** (1 SC)
Physics/ Chemistry/ Electronics/ Computer Science: **5** (2 SC and 1ST)
Geology/ Geography/ Environmental Science/ Environmental Studies: **5** (2 SC and 1 ST)
In-Service (deputed): **1**
- 3.5.** In case of non-availability of eligible candidates of one category, the seat/s will be filled up from the applicants of other categories proportionately.
- 3.6.** Reservations for SC/ ST/ PH candidates shall be applicable as per rules.
- 3.7.** The last date for the receipt of applications, the last date for admission, the date of commencement of classes of the MUSEOLOGY course shall be notified each year by the University.
- 3.8.** The candidates will be selected in order of merit or through admission test or both as decided by the University authority from time to time.
- 3.9.** After the selection for the admission to the MUSEOLOGY course, the candidate shall, within the date fixed by the University deposit the necessary fees prescribed for the purpose. If the candidate fails to deposit the fees within the stipulated time,

his/ her selection shall automatically be cancelled. Such a candidate shall not be admitted to the course unless fresh order for selection is made or an extension of the date of payment is granted by the appropriate authority.

3.10. Admission to the MUSEOLOGY course shall only be made in the first semester of the first year of the two-year academic programme.

4. Course of Study

4.1. A candidate admitted to the MUSEOLOGY course shall register himself/ herself as a student of the University of Calcutta.

4.2. The course of study for the MUSEOLOGY course shall be two-year full time course divided into four semesters.

4.3. Students admitted to the two-year MUSEOLOGY course shall pursue the regular courses of lectures, practical classes, study tour, internship and other academic assignments given in the two-year academic term.

4.4. A student of the MUSEOLOGY course shall not be permitted to seek admission concurrently to any other equivalent or higher degree course in this university.

4.5. A student shall be deemed to have pursued a regular course of study in a subject provided he/ she has attended at least **65 per cent** of the lectures delivered and **75 per cent** of the practical classes in each subject of his/ her semester course of study.

4.6. The attendance of a candidate shall be counted from the date on which the respective classes begin, or from the date on which he/ she is admitted whichever is later.

4.7. The University shall have the power to condone a deficiency in attendance, as per rule.

4.8. A student who fails to pursue a regular course of study as stated in **4.5** to **4.7** may be allowed to take re-admission to the same course in the next year only.

4.9. Students of the two-year Post Graduate MUSEOLOGY course shall have to pursue a course of study of thirteen courses (seven core courses, four discipline specific elective courses and two generic elective courses), divided into Four Semesters.

4.9.1. The first semester would comprise three core courses of 8 credits each; second semester would have two discipline specific elective courses of 8 credits each, depending upon the basic disciplines of the students as defined below with the scheme of studies and two discipline specific elective practical courses of 4 credits each, corresponding with the courses taken in the second semester; third semester would comprise two core courses of 8 credits each, and two generic elective courses of 4 credits each; and the fourth semester would again have two core courses of 12 credits each.

4.9.2. Students from the related departments can choose to study two generic elective courses of 4 credits each in the third semester (total 8 credits). Such students have to attend classes with the regular students.

4.9.3. Similarly, students of Museology shall have choice to opt for courses equivalent to that of generic elective courses in Museology, i.e., 8 credits, in third semester, in the related departments, without disturbing the academic calendar of the Museology Department.

4.10. The syllabus as presented along with the Regulation shall be subjected to changes, if so required, by the University from time to time.

5. Examinations

5.1. Semester Examinations in MUSEOLOGY shall be held every six months. The date of commencing of the examination shall be duly notified.

5.2. Semester I, II, III & IV Examinations will be sequentially held at the interval of every six months.

- 5.3.** In each academic session two semesters will be conducted simultaneously, i.e., I & III or II & IV, at the end of which corresponding semester examinations will be held.
- 5.4.** A student will be allowed to appear in a semester examination only after he/ she completes his/ her regular course of study for that semester.
- 5.5.** Classes for the next semester course will start as per notification by the Department of Museology.
- 5.6.** Semester wise distribution of courses and the syllabus are given below.
- 5.7.** Examinations will be held in **1200 marks/ 96 credits** with **300 marks/ 24 credits** in each semester. 20% of marks in each course will be reserved for internal assessment.
- 5.8.** Internal assessment (20%) of different courses shall be done in the following ways:
- 5.8.1.** For internal assessment of the theoretical courses, each teacher shall take monthly tests of 20 marks on the topics assigned to him/ her by the Departmental Committee. Duration of such tests shall be one hour and the questions may be of broad/ short/ multiple-choice type. The marks given by the respective teachers shall be reviewed in the meeting of the Board of Studies, convened for the purpose, at the end of each semester (1st, 2nd & 3rd) and the pro-rata marks for individual courses shall be awarded.
- 5.8.2.** For internal assessment of the practical courses, assigned teachers for conducting practical classes, shall regularly award marks considering the performance of the candidates in the experiments/ works and practical note books (wherever applicable), which will be reviewed in the meeting of the Board of Studies, convened for the purpose, at the end of the 2nd & 3rd semester.
- 5.8.3.** For internal assessment of project report & field report:
- 5.8.3.1.** The teacher/s assigned to supervise (by the Departmental Committee) the project shall assess and internally evaluate each candidate, based on his/ her performance in a Departmental Seminar, which will be reviewed in the meeting of the Board of Studies, convened for the purpose, at the end of the 3rd semester.
- 5.8.3.2.** Field study/ educational tour shall be the compulsory feature in the course curriculum. Study tour and field works in museums, prehistoric sites, tribal areas, archaeological sites & monuments, geological & geographical areas, botanical & zoological gardens, national parks, reserve forests, planetarium, aquaria, vivarium, science centres, science parks, theme parks, heritage sites, etc. in different parts of India would enhance the visualisation, field technique, evaluation of different areas of study & overall efficiency of the students. Without participating in the Field study/ educational tour and without submitting the Field Report, students will not be allowed to appear in the MA/ MSc 3rd Semester Examinations. The teacher/s-in-charge (assigned by the Departmental Committee) shall make the internal assessment that would be reviewed in the meeting of the Board of Studies, convened for the purpose, at the end of the 3rd semester.
- 5.8.3.3.** The project report and the field report shall be evaluated during the 3rd semester examinations.
- 5.8.4.** On completion of the 3-month internship, the concerned institutions shall provide individual certificates to the participating candidates stating that the particular candidate has completed the internship along with an assessment in percentage of marks as well as grades on a 7-point scale, i.e., O = 80% and above, A⁺ = 70 to 79%, A = 60 to 69%, B⁺ = 55 to 59%, B = 50 to 54%, C = 40 to 49%, F = less than 40%, as well as marks, which will be reviewed in the meeting of the Board of Studies, convened for the purpose, at the end of the 4th semester. The internship report shall be evaluated during the final examinations.

- 5.8.5.** Every candidate has to defend his/ her dissertation in a seminar before the members of the Board of Studies, meeting of which convened for the purpose, at the end of the 4th semester, to review the internal assessment marks awarded by the supervisor. The dissertation shall be evaluated during the final examinations.
- 5.8.6.** The internal assessment marks shall be displayed in the Departmental Notice Board immediately after review by the Board of Studies and the same shall be sent to the Controller of Examinations.
- 5.9.** The first 3 Courses of semester I, 2 Courses of 100 (80 + 20) marks each in semester III and 2 Courses of 150 (120 + 30) marks in Semester IV will be Core Courses (CC). The Discipline Specific Elective Courses (DSE) will be in semester II – 2 Courses of 100 (80 + 20) & 2 Courses of 50 (40 + 10) and 2 Courses of 50 (40 + 10) marks each in semester III will be the Generic Elective Courses (GE).
- 5.9.1.** Students from related departments, opted for pursuing generic elective courses in the third semester, will have to appear in the corresponding examinations along with the regular students.
- 5.10.** The duration of semester examinations shall be three hours for each theoretical course of 80 marks and the candidates shall have to answer five (5) questions in each course (out of 9) of 16 marks each. Duration of Examinations in Practical courses shall be 5 hours for each course of 80 marks. Duration will be proportionately reduced for courses of lesser marks. Although the medium of the course is English but the answers may be written in English or in Bengali as regional language.
- 5.11.** 30% marks in any course in any semester will be deemed as pass marks for that course. A candidate who fails to secure 30% marks in any course/s will be allowed to appear in that course/s, even the entire semester (no detention policy), when the corresponding semester examination is held next. He/ she will be allowed two such consecutive chances for each course. Such candidates need not to re-appear in the monthly tests for Internal Assessment marks.
- 5.12.** A student will be declared to have passed the MA/ MSc examination on the basis of the results in semesters I, II, III, IV examinations. The minimum qualifying marks for this will be 40 % in total (C in the 7-point scale of CGPA).
- 5.13.** The final examinations for evaluation of internship report and dissertation shall be conducted as decided by the Board of Studies.
- 5.14.** Candidates having passed as per **5.12** will be declared to have passed the MA/ MSc examination in Museology.
- 5.15.** A candidate who fails to appear in one semester examination or in any course in the examination may be allowed to appear for that examination/ course along with other semester examination (based on the syllabus in force at the time of examination) or separately, for which he/she will be given next two consecutive chances. To avail the chance, the candidates need to fill-up examination forms and obtain admit cards for the particular semester in which he/ she failed to appear.
- 5.16.** A student of MUSEOLOGY Course, if he/ she so desires, may cancel any course or courses, in any semester examination within one month, in writing, from the date of issuing the mark-sheets and may re-appear in those courses in the next available examination. The marks obtained in that examination will be treated as his/ her final marks. This facility shall however be offered only once. However, if the candidate fails to appear in the repeat examination the marks obtained in the earlier examination shall be deemed to be final.

- 5.17. The Controller of Examinations shall arrange to tabulate and incorporate the marks awarded, both assessed internally and in the semester-end examinations, to prepare the results, as per rules of the University.
- 5.18. The Board of Examiners, duly constituted by the Board of Studies, shall meet after each semester-end examination to consider and recommend the results to the Vice-Chancellor for approval.
- 5.19. On completion of the results of all the four semesters, the University shall publish a list of successful candidates arranged in a Cumulative Grade Point Average (CGPA) based on a 7-point scale, i.e., O = 80% and above, A⁺ = 70 to 79%, A = 60 to 69%, B⁺ = 55 to 59%, B = 50 to 54%, C = 40 to 49%, F = less than 40%, in order of merit (marks in numerical shall also be given, along with the grades) and the final mark-sheet shall be awarded. Details of the Grade Point Calculation are laid down hereunder:

Percentage of Marks*	Grades	Numerical Grade Points	Remarks
80 – 100	O	5.00 – 6.00	Outstanding
70 – 79	A+	4.50 – 4.99	Excellent
60 – 69	A	4.00 – 4.49	Very Good
55 – 59	B+	3.75 – 3.99	Good
50 – 54	B	3.50 – 3.74	Fair
40 – 49	C	3.00 – 3.49	Satisfactory
0 – 39	F	**	Fail

* *In case Percentage value of Marks involves decimal figures, candidates shall be awarded the next higher integer value if the decimal value (Rounded off up to two decimal places) exceeds 0.50.*

** *Numerical Grade Points shall not be calculated in respect of a failed course.*

The multiplicative factors shall be 0.05 for all Grades for the purpose of calculating numerical Grade Point. More generally, if the student secures P%, where $P > 40$ or $P = 40$, his/ her grade point will be $[3.0 + \{(P - 40) \times 0.05\}]$.

The Semester Grade Point Average (SGPA) will be just the average of the grade points obtained in all the modules of the given semester. If the Numerical Grade Points obtained by a student are denoted by c_i ($i = 1$ to n , where n is the number of course/ course/ module/ part/ group in each semester), the SGPA will simply be $(\sum c_i / n)$, as all modules have equal weightage. The average should be shown in the mark sheet up to the third decimal point.

Cumulative Grade Point Average (CGPA) over four semesters shall be simple average of the four SGPA's. $CGPA = (\sum SGPA_j / 4)$ where $j = 1$ to 4. CGPA should be calculated up to *three decimal places*.

- 5.20. The final mark-sheet shall categorically indicate the marks obtained by the candidate in each course, along with the total marks, separately showing marks for internal assessment and semester-end examinations, in numerical and in CGPA.
- 5.20.1. Both SGPA and CGPA will be rounded off to the third place of the decimal and will be shown as such on the mark sheet. The mark sheet issued at the end of each semester shall include both GPA and the total marks obtained in each module, as

well as the SGPA and the total marks obtained in that semester. The final mark sheet shall also include the CGPA and the total marks obtained out of total marks.

- 5.20.2.** Full marks, marks obtained and grade point, SGPA, CGPA of the examination shall be reflected in the mark sheets wherever applicable. If a candidate gets '**F**' grade in one or more courses/ modules/ groups in a semester examination, his SGPA in that Semester shall be temporarily withheld and GPW (Grade Point Withheld) shall be marked against SGPA on the mark sheet. A fresh mark sheet with duly calculated SGPA shall be issued only when a candidate clears the course subsequently but within the stipulated period.
- 5.20.3.** Students from the related departments opted to study the generic elective courses in Museology may use second semester mark sheet for calculating their final grade and class in their respective departments.
- 5.20.4.** Students of Museology opted for credits from related departments have to produce corresponding mark sheets from the admissible authorities for calculating their final scores in Museology.
- 5.20.5.** On the basis of CGPA obtained by a candidate over four semesters, final grade and class shall be awarded as follows:

<i>CGPA</i>	<i>Grade</i>	<i>Class</i>
5.000 – 6.000	O (Outstanding)	1 st Class
4.500 – 4.995	A+ (Excellent)	1 st Class
4.000 – 4.495	A (Very Good)	1 st Class
3.750 – 3.995	B+ (Good)	2 nd Class
3.500 – 3.745	B (Fair)	2 nd Class
3.000 – 3.495	C (Satisfactory)	2 nd Class
0.000 – 2.995	F (Fail)	Fail

- 5.21.** Candidates having BA/ MA/ BFA/ MFA/ BVA/ MVA degrees in their qualifying examinations shall receive **MA degree in Museology**, while the students having BSc/ MSc/ BE/ BTech degrees shall receive **MSc degree in Museology**.
- 5.22.** Each successful candidate shall receive his/ her degree in the form of a certificate stating the year of passing, the class and grade in which he/ she was placed.
- 5.23.** In case any issue emerges/ difficulties arises in pursuance of this CSR or otherwise related to the CSR, the matter will be discussed by the Departmental Committee/ Board of Studies and the recommendation/s shall be forwarded to the Vice-Chancellor for approval.
- 5.24.** This CSR of Department of Museology supersedes all other previous CSR of Department of Museology existing in any form.

A. Scheme of Studies

Duration: 2 Academic Years, comprising four semesters, leading to MA/MSc degree

Semester 1 (July to December)

Course	Title	Type	Classes			Marks	Credits
			L	T	P		
CC – 101	Organisation & Management	Theoretical	8	2	-	100	8
CC – 102	Exhibition & Education	Theoretical	8	2	-	100	8
CC – 103	Care & Conservation	Theoretical	8	2	-	100	8

Semester 2 (January to June): Two from DSE – 201 to DSE – 209 & Two from DSE – 210 to DSE – 218

Course	Title	Type	Classes			Marks	Credits
			L	T	P		
DSE – 201	Anthropology	Theoretical	8	2	-	100	8
DSE – 202	Archaeology	Theoretical	8	2	-	100	8
DSE – 203	Computer Science	Theoretical	8	2	-	100	8
DSE – 204	Earth Science	Theoretical	8	2	-	100	8
DSE – 205	Ethnography	Theoretical	8	2	-	100	8
DSE – 206	History of Art	Theoretical	8	2	-	100	8
DSE – 207	History of Science	Theoretical	8	2	-	100	8
DSE – 208	Life Science	Theoretical	8	2	-	100	8
DSE – 209	Physical Science	Theoretical	8	2	-	100	8
DSE – 210 to DSE – 218	Any two depending upon the theoretical DSEs taken above	Practical	-	2	8	100 (50 × 2)	8 (4 × 2)

Relational mapping of subjects/ departments: Students of Museology having first degrees in the following subjects would have to choose two theoretical Discipline Specific Elective Courses (DSE) from the groups mentioned below besides two corresponding Practical Courses (**subjected to availability of adequate students and/ or experts at the given time**):

1. Anthropology: DSE – 201, DSE – 202, DSE – 204, DSE – 205, DSE – 207, DSE – 208.
2. Archaeology: DSE – 201, DSE – 202, DSE – 204, DSE – 205, DSE – 206, DSE – 207.
3. Environmental Studies/ Environmental Science/ Geography/ Geology: DSE – 201, DSE – 204, DSE – 205, DSE – 207, DSE – 209.
4. History/ History of Art/ Ancient Indian History and Culture/ Islamic History and Culture/ Pali/ Persian/ Sanskrit: DSE – 201, DSE – 202, DSE – 205, DSE – 206, DSE – 207.
5. Folklore/ Fine Arts/ Visual Art: DSE – 201, DSE – 202, DSE – 205, DSE – 206, DSE – 207.
6. Physics/ Chemistry/ Computer Science/ Electronics: DSE – 203, DSE – 204, DSE – 206, DSE – 207, DSE – 209.
7. Zoology/ Botany/ Physiology: DSE – 201, DSE – 204, DSE – 205, DSE – 207, DSE – 208.

Semester 3 (July to December): Two Core Courses (Practical) besides two Generic Elective Courses (GE) in the third semester. Two Generic Elective Courses shall also be open to the students from corresponding department opted for Choice Based Credit System

Course	Title	Type	Classes			Marks	Credits
			L	T	P		
CC – 301	Museum Technique (including Project and Field Study)	Practical	-	2	8	100	8

CC – 302	Care & Conservation	Practical	-	2	8	100	8
GE – 301	Heritage Studies	Theoretical	4	1	-	50	4
GE – 302	Science Communication	Theoretical	4	1	-	50	4

Semester 4 (January to June)

Course	Title	Type	Classes			Marks	Credits
			L	T	P		
CC – 401	Internship Report	Report	-	-	-	150	12
CC – 402	Dissertation	Thesis	-	-	-	150	12

Distribution of Marks/ Credits:

Theoretical Courses – 600/ 48 (CC = 24, DSE = 16, GE = 8)

Practical Courses – 300/ 24 (CC = 16, DSE = 8)

Reports & Dissertation (CC) – 300/ 24

Total Marks/ Credits: 1200/ 96 (20% for internal assessment as per the provisions in the clauses 5.7 & 5.8 of the Regulations)

B. The detailed syllabus is attached as the annexure.

Senate House
Kolkata – 700 073

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(Registrar)

Preface

The Department of Museology of the University of Calcutta, founded in the year 1959, is one of the pioneering university museology departments in India. The speciality of the museology course has been the equal emphasis on the theory & practice of the core museological principles, as well as, on the application of basic academic disciplines.

The department is a centre for advanced academic activities, by means of organising, *inter alia*, internship, projects, conferences, seminars, symposia, publications, etc., to disseminate knowledge in museology, encourage its development and set its scientific and social objective on a firm foundation. Being situated within the sphere of a number of museums, galleries, heritage institutions and centres, the Department ensures appropriate blending of theoretical instruction with practical experience in the various specialist museum techniques.

The syllabus is in conformity with the UGC guidelines as well as the International Council of Museums (ICOM) Curricula Guidelines for Museum Professional Development (ICGMPD).

Some of the salient features of the curriculum are as follows:

1. The curriculum is structured and divided into several complete application-oriented Courses. Some of the topics of the Graduation level have to be repeated in different Courses in order to emphasize their relevance in different museological contexts. All the topics have been upgraded and some new topics/techniques/methodologies have been included to keep pace with current developments and make the course wide based.
2. Conforming to the UGC mandate for Academic Reforms, the Curriculum follows ***no detention and continuous evaluation*** policy. 20% marks in each Course is evaluated through Internal Assessment.
3. Stress is given to cover the wider aspects of related subjects, such as information technology, communication, modern management theories, quality management, accreditation, marketing, cultural and natural heritage, tourism, entrepreneurship, etc.
4. Internship in industries is an integral part of the curriculum of any professional course in modern world. The compulsory three-month internship is also an integral part of this curriculum.
5. India possesses numerous excellent science and technology museums, planetaria, science parks, theme parks, spread all over the country. Growth in this sector has been enormous, new science centres and science cities are coming up regularly. The existing science museums are also regularly upgrading their infrastructure and services. Properly trained museologists are regularly needed in these museums. Unfortunately, at present there is no course available in the country that caters to the needs of the science & technology museums. The new Courses would train museologists specially trained for the science & technology museums.
6. Globalisation has opened enormous opportunities for the Department as well as properly trained museologists. The course is in conformity with the international standard. Emphasis has been put to make the students self-sufficient.

The outline of the curriculum is given below:

A. Details of the Courses of 1st Semester (Compulsory Courses)

CC – 101: Organisation & Management (Theoretical, full marks 100/ 8 credits)

Unit- 1:

- Definition of Museum – scope and function (aims and objectives).
- Museology, museography and other developments, e.g. new museology, critical museology, total museology, inclusive museology, heritage study, digital heritage, public humanities, etc.
- Types and classification of museums, changing concepts of museums.
- History and philosophy of museums in India and abroad
- Museum movement in India.
- Inclusion of zoo, botanical garden, planetarium, science centre, reserve forest & sanctuary, ecomuseum, open-air museum, neighbourhood museum, virtual museum, interpretation centres, heritage centres, etc., in the ambit of classical museums.
- Cultural property: definition, scope and changing concepts, Indian Cultural Policy.
- Laws governing cultural property:
 - The Indian Treasure Trove Act, 1878.
 - The Ancient Monuments and Archaeological Sites and Remains Act, 1958.
 - The Antiquities and Art Treasure Act, 1972.
 - The Wild Life Protection Act, 1972.
 - The Indian Museums Act, 1961.
 - International laws governing cultural heritage, copyright, intellectual properties, etc.
- Museology as a profession – Professional ethics.

Unit – 2:

- **Administration:** Administrative set-up & control, Governing bodies & other committees, Societies – their relationships, rules & procedures, mission/ vision statement, tender, contracts, MoU, etc.
- **Personnel Management:** Human resource planning & management: personnel patterns, hierarchy, duties & responsibilities, eligibility, recruitment, training, motivation, control, etc. Part-timers, time sharers, volunteers, etc.
- **Financial Management:** Strategy, planning, fund, fund raising, grant, sponsorship, income generation, budgeting, accounting and financial control, audit.
- **Marketing & Public relations:**
 - Museum, heritage and non-profit making institution marketing principles & ethics, marketing strategy, types & means, segmentation, market research.
 - Mass media – media relations, advertisement, hand outs, briefing for print & electronic media, Reception, Museum shop.
 - Museum societies, friends of museums, museum club.
 - Professional organisations like ICOM, ICOMOS, MAI, etc.
 - Corporate relations – sponsorship.
 - Heritage, museums and tourism.
 - Museum Information Service, Information Management.

Unit – 3:

- **Museum Architecture:**
 - Concept and development of museum architectural types.
 - Planning a new building: selection of site, architectural considerations, like space, climate, need, fund, selection of architect, construction, supervision, completion, etc.
 - Adaptation of old building.

- Requirements for different types of museums.
- Gardening & landscaping.
- Museum building interior: space utilisation & management, colour, lighting, circulation, ventilation, and air-conditioning.
- Installation of machinery & equipment.
- Infrastructure:
 - ✓ Museum Store – material management, stacking/racking, access, climate control, etc., for reserve collection and other materials.
 - ✓ Museum workshop.
 - ✓ Museum laboratory.
 - ✓ Conference hall, projection hall, auditorium.
 - ✓ Exhibition hall.
 - ✓ Museum library.
 - ✓ Restaurant & cafeteria.
- **Museum Access:** Different categories of disabled, rights of disabled, concerned national & international legal provisions, steps to make barrier free environment, access audit.
- **Safety & Security:** of building, collection, staff and public; physical, mechanical against various destructive factors, e.g., accident, theft, fire, cyclone, flood, earthquake, armed conflict, terrorist act, vandalism, etc., including prevention, disaster management.

Unit – 4:

- **Collection Management:**
 - **Acquisition:**
 - ✓ History of collection.
 - ✓ Ethics of collection.
 - ✓ Modes of acquisition: Gift/ bequeath, excavation, exploration, expedition, loan, exchange, purchase, confiscation, and fabrication.
 - ✓ Art purchase committee.
 - ✓ Insurance.
 - ✓ Replication/duplication, forgery, export/import, auction.
 - **Registration & Documentation:**
 - ✓ Accessioning & deaccessioning.
 - ✓ Numbering.
 - ✓ Marking.
 - ✓ Identification, classification, dating, search of bibliographical reference.
 - ✓ Cataloguing.
 - ✓ Indexing.
 - ✓ Photo documentation.
 - ✓ Computerised documentation, digital cataloguing.
 - ✓ Problems in documentation, e.g., fabricated exhibits, plastic art, oral history (non-material culture/ intangible heritage), etc.
 - **Storage & transport of collection.**
 - **Packaging** – material, methods, etc.
 - **Transshipment** – modes, methods, insurance.

Unit – 5:

- **Information Technology:**
 - Use of IT in museums and other non-profit cultural/ heritage institutions.
 - Creation of database – methods, software.
 - Information processing, storage, access/retrieval, dissemination.

- CD-ROM, DVD, Websites.
- Public access to information.
- Image management.
- Copyright/ intellectual property right.
- Fair use (ethics).

Unit – 6:

- **Project management:**
 - Strategic planning: resources, core competence, comparative advantage, USP, etc.
 - Feasibility study.
 - Setting goal (target).
 - Resource mobilisation – fund, space, know-how/ expertise, collection, etc.
 - Selection & organisation of project team.
 - Project execution/ implementation.
 - Evaluation/ impact factors/ assessment, correction/ adjustment.
 - Project report.
- **Business and operational management.**
- **Organisational Theory.**
- **Museology & entrepreneurship.**

CC – 102: Exhibition & Education (Theoretical, full marks 100/ 8 credits)

Unit-1:

- **Display & Exhibition:**
 - Purpose and principles.
 - Display furniture and fixtures: cases, pedestals, stands, panels, mounts, structures, etc.
 - Lighting fixtures.
 - Circulation: random, suggestive, directional.
 - Labels: types, material, size, language, position, execution, evaluation, etc.; digital label.
 - Visual & verbal aids: charts, graphs/ graphics, photographs, film/ video, CD-ROM/ DVD, etc.
 - Types of exhibits: original/ fabricated, static/ movable, models (scale/ non-scale, working/ non-working), participatory/ interactive, diorama/ habitat group, tableaux, etc.
 - Types of exhibitions: object-oriented/ concept-oriented, thematic, contextual, chronological, geographical, integral, comparative, natural, synthetic, didactic, special, permanent/ temporary/ travelling/ circulating/ mobile, etc.
- **Exhibition Designing:**
 - Principles of exhibition designing.
 - Human factors: basic human dimensions (anthropomorphic data), ergonomics, human nature & tendencies.
 - Principles of exhibit arrangement & use of space.
 - Objective (individual exhibits & overall exhibition).
 - Conceptualisation, goal/target, theme development, sequencing & story development, reference research.
 - Curator – Designer – Educator interaction; division of labour.
 - Planning & designing exhibits in a particular setting: layout drawing, mock-up (scale model), colour scheme, accessibility, visitor circulation, evaluation (front-end) & correction.

- Designing individual exhibits, working sheets/ drawings, collection/ fabrication, and arrangement/ mounting/ installation.
- Animation techniques: optical, mechanical, electrical, electromechanical, electronic, computerised, robotics, polaroid, etc.
- Interaction/ participation modes.
- Virtual reality, augmented reality, immersive visualisation.
- Principles of exhibit lighting.
- Audio-visual aids.
- Text: content, size, fonts, background, placement, and storyline.
- Documentation.
- Scheduling.
- Evaluation: front-end, formative & summative; correction.
- **Principles & problems of organising exhibitions in different museum set-up:**
 - Art, History, Archaeology, Anthropology, Ethnic Art, Zoology, Botany, Geology, Geography, Marine Science, Fishery, Forestry, Biography/ Personalia, Literary, Philatelic, Science & Technology, etc.

Unit- 2:

- **Communication:**
 - Principle.
 - Theory.
 - Major models.
 - Communication strategies, interpersonal relations.
 - Verbal & visual communication.
- **Museum photography/videography:**
 - Principles of photography/ videography.
 - Digital photography, CD/ DVD

Unit- 3:

- **Principles of museum education:**
 - Definition of education.
 - Museum as a learning resource.
 - Museum education Vs formal education.
 - Museum as centres for special education.
 - Elements of educational & behavioural psychology (cognitive psychology).
 - Theories of learning & visual perception.
- **Educational programmes:**
 - Pre-visit orientation, guiding, popular lectures, demonstration lectures, discovery rooms, film shows, audio-video shows, quiz programmes, declamation, essay competition, science kit, art kit, sit & draw, hobby activities, creativity centres, production of educational resource material, Teachers' training programme, etc.
- **Extension/ out-reach programmes:**
 - School loan service.
 - Travelling exhibition, mobile exhibition, museobus: design, organisation, scheduling.
 - Special programmes at the school, science or art fairs, seminars, walk-through trip to cultural/ natural heritage sites, etc.
- **Special programmes:**
 - For children, aged, disabled, under privileged, etc.
- **Museum recreation & games, discovery/ activity rooms.**

- **Museum publication:** cards, folders, monographs, bulletins, guidebooks, catalogues, statutes, annual reports, mission/ vision statements, forward plans, etc.

Unit- 4:

- **Museum and the community:**
 - Museum & social interactions/ social needs.
 - Social accountability/ responsibilities of museums.
 - Museums as means for social change/ technology transfer.
 - Museum visitor – type, classification, behaviour, etc., visitor service, orientation.
 - Community relations. Community access.
 - Museum and rights of different social categories, like minorities, refugees, immigrants, disables, women, LGBT, etc.
- **Visitor survey & evaluation of museum programmes:**
 - Methods & techniques.
 - Principles of observation, interview & other methods.
 - Questionnaire preparation.
 - Survey design, data collection, data processing, data analysis, data interpretation, reporting.
 - Use of computers in visitor survey.

Unit- 5:

- **Museum & research:**
 - Research methodology (principles).
 - Research on collection/collection management.
 - Research on exhibition.
 - Research on education and other programmes.
 - Research on environment and conservation.
 - Research on visitors.

Unit- 6:

- **Quality management:**
 - Concepts, standards, ethics.
 - Goal setting.
 - Quality tools.
 - Evaluation.
 - Identification of non-conformance.
 - Correction.
 - Social audit in museums.
 - Museum accreditation.

CC – 103: Care & Conservation (Theoretical, full marks 100/ 8 credits)

Unit- 1:

- Understanding conservation, preservation & restoration.
- Ethics of conservation.
- Material composition of objects & their properties, introduction to basic chemistry.
- Laboratory documentation procedures, Photo documentation.
- Instruments & equipment used in a conservation laboratory: Principle & use.

Unit- 2:

- **Museum environment:** Humidity, temperature, light – their effects (individual & combined) on cultural objects.
- **Atmospheric pollution** & their effect on cultural properties.
- **Monitoring** of museum environment, control & remedial measures.
- **Various agents/ factors** for deterioration of cultural objects: Physical, chemical & biological; control & remedy.

Unit- 3:

- **Deterioration, conservation & care of organic materials:**
 - Wood, bamboo, basketry, reed, palm-leaf, birch-bark, etc.
 - Leather, parchment, vellum, hair, feather, etc.
 - Paper, papyrus – prints, drawings, manuscripts, photograph, etc.
 - Textiles.
 - Ivory, bone, horn & antler.
 - Natural history specimens.

Unit- 4:

- **Deterioration, conservation & care of inorganic and siliceous materials:**
 - Metals: iron & steel, copper, gold, silver, lead, tin – their alloys, pewter.
 - Clay & terracotta, porcelain, glass, faience, enamel.
 - Stone.
 - Geological specimens – minerals, rocks & fossils.
 - Polymer, audio/ video tapes, CD/ DVDs.

Unit- 5:

- **Deterioration, conservation & care of composite materials:**
 - Easel painting.
 - Ethnographical objects, Scientific instruments, etc.
 - Building, monuments, murals, etc.

Unit- 6:

- **Museum architecture** & climate control.
- **Museum store & storage of cultural properties:** store design, climate control, and objects storage from the point of view of conservation.
- **Packaging, transport & exhibition:** safety of the objects in transit & in display.
- **Recent advancements in conservation.**

B. Courses of 2nd Semester

The 2nd semester comprises Discipline Specific Elective (DSE). Students have to choose two DSEs from the nine according to their basic UG/ PG disciplines besides two corresponding practical DSEs. Since the courses of 2nd semester comprise the specialised subject fields, the stress has been given on the information on the very recent advancements in the relevant areas of the specialisation. Special emphasis has been given on the technical know-how for proper interpretation of the subjects through exhibition so that the society can be served better.

DSE – 201: Anthropology (Theoretical, full marks 100/ 8 credits)

- Elementary knowledge of comparative anatomy of primates, human Palaeontology and evolution.

- General outline of Anthropology and Ethnology of India.
- General knowledge of Indian pre-history – Palaeolithic, Mesolithic, Neolithic and Chalcolithic Cultures, Indus Valley Civilisation (these include technique, typology, geographical distribution, stratigraphy).
- Megalithic structures.
- Indian prehistoric art.
- Metal ages.
- General knowledge of racial and cultural distribution of Indian people.
- Genetics and heredity.
- Man and living primates.
- Evolution, Ecology and Adaptation.
- Tribal types, distribution in space and time.
- Tribal medicines.
- Tribal arts and crafts.
- Study of any three tribes in India, their material culture – hunting, fishing, agriculture, housing, transport and travel, industries and crafts of people such as pottery, basketry, etc.
- Linguistic Anthropology.
- Forensic Anthropology
- Social customs and manners, religion, institutions – marriage, family, clan, race, etc.
- Technique of fieldwork.
- Collection & preservation of ethnological specimens.
- Museum Anthropology.
- Anthropological/ Ethnographic museums in India.
- Methodology for anthropological research.
- Presentation and interpretation of Anthropology through exhibitions.
- Recent advancements in Anthropology.
- Museum programmes based on different aspects of Anthropology.

DSE – 202: Archaeology (*Theoretical, full marks 100/ 8 credits*)

- Major events in Indian history.
- General History of Archaeology.
- Outline of Indian Archaeology:
 - Pre-historic/ Historic.
- Indian Architecture:
 - Ancient, Mediaeval.
 - Hindu, Buddhist, Jaina, Islamic, Colonial.
- Indian Sculpture:
 - Pre-historic, Ancient, Mediaeval.
- Indian Iconography:
 - Hindu, Buddhist, Jaina.
- Indian Numismatics.
- Indian Epigraphy.
- Pottery & Terracotta:
 - Pre-historic, Ancient, Mediaeval.
- Ornaments & Jewellery.
- Field work:
 - Exploration, Expedition, Excavation.

- Laws governing antiquities, sites & monuments.
- Methodology for archaeological research.
- Collection, display & exhibition of archaeological & historical objects.
- Problems concerning display & interpretation of archaeological & historical objects.
- Archaeological sites, monuments & cultural tourism – role of museums.
- Museums and the heritage sites & structures.
- Museum programmes on History & Archaeology.

DSE – 203: Computer Science (Theoretical, full marks 100/ 8 credits)

- Introduction to electronics and electronic systems.
- Sem PN junction, V-I characteristics, break down mechanism.
- Zener diode and their application, half and full wave rectifiers, clipper, clampers.
- Semiconductor and devices like diodes, BJT, FET, MOSFET, Rectifier and Filters.
- Transistor biasing. Bipolar junction transistors, characteristics, Early effect, biasing, different mode of operation, use of BJT as amplifier, single stage amplifier, feedback amplifier.
- Small signal transistor amplifiers, Operational amplifier and its application, Feedback and Oscillators.
- Digital circuit and combinational logic, Sequential logic and flip-flops, ADC & DAC, Data acquisition systems.
- Microprocessors – programmable.
- Computer concepts; computer languages; operating systems; application programmes.
- Software & hardware basics.
- Data analysis; prototyping.
- IT in museological practices.
- Interactivity in digital media, multimedia tools.
- 2D & 3D animation techniques, development of interactive software programmes for museum display and programmes.
- Introduction to digital computers.
- Introduction to programming – variables, assignments; expressions; input/output; conditionals and branching; iteration; functions; recursion; arrays.
- Introduction to pointers; structures.
- Introduction to data-procedure encapsulation; dynamic allocation; linked structures.
- Introduction to data structures – stacks and queues; time and space requirements.
- Methodologies for research on Computer Science.
- Recent advancements in Electronics & Computer Science.
- Presentation & interpretation of Electronics & Computer Science.
- Museum programmes on Electronics & Computer Science.

DSE – 204: Earth Science (Theoretical, full marks 100/ 8 credits)

- Elementary knowledge about the Earth Sciences – its various branches and importance.
- Elementary knowledge of earth as a planet, its origin, the nature of the crust and interior.
- Geological work done by weathering, ground water, rivers, glaciers, wind, sea, earthquake, volcanic activity and mountain formations (Broad outline).
- Definition of minerals & rocks, classification and formation of rocks, physical character of minerals.

- Palaeontology:
 - Fossil, its definition, modes of preservation of plant and animal, value of fossil in historical geology.
 - Morphology of fossil specimens.
- Introduction to stratigraphy, broad outline of stratigraphy of India.
- India: Special emphasis on physical aspects – Relief-Structure, Climate, Drainage, Soil characteristics, Land use, Soil erosion, Vegetation.
- Geography of settlements – types and patterns.
- Demographic set up of the world with special reference to India and adjacent countries.
- Economic activities and agricultural and mining, pastoral, lumbering, fishing, industries with reference to India.
- Environment:
 - Physical and non-physical.
 - Man's adaptation to environment: changing technique.
 - Environment conservation.
 - Environmentalism and its impact.
- World distribution of natural regions.
- Natural calamities – Earthquake, Cyclone, Flood. Disaster management, with special reference to India.
- Elementary knowledge of the planetary system.
- Recent advancements in Earth Science.
- Research methodology on Earth Sciences.
- Present status of Geographical/ Geological/ Palaeontological museums in India, Fossil parks.
- Collection of specimens related to Earth Sciences.
- Presentation and interpretation of Earth Sciences through exhibition.
- Museum programmes based on various aspects of Earth Sciences.

DSE – 205: Ethnography (Theoretical, full marks 100/ 8 credits)

- Outline of ethnology of India.
- Ethnology vs. ethnography.
- Cultural distribution.
- Social customs & rituals.
- Theatrical arts.
- Ballads/ story-telling forms.
- Puppetry & shadow plays.
- Skits & social satires.
- Wall & floor decorations.
- Tattoo.
- Traditional Textile: major types.
- Dolls & toys.
- Ritual objects.
- Jewelleries & ornaments.
- Scroll paintings.
- Woodcraft, metal craft, pith work.
- Potter's art.
- Basketry.

- Entertainment, games, etc.
- Folklore (oral literature) – folk story, song, proverbs, myths, riddles, etc.
- Collection, arrangement & display of ethnic art.
- Problem of documentation & presentation of non-material culture/ intangible heritage.
- Ethnic art & social dynamics.
- Ethnic art & dissemination of information.
- Ethnic art & traditional knowledge base/ wisdom/ collective memory.
- Research methodology on ethnography.
- Museum Ethnography.
- Ethnographic museums in India.
- Museum programmes on ethnic art.
- Indigenous/ traditional merit & current international trade (Trade Related Intellectual Property Rights – TRIPS).

DSE – 206: History of Art (Theoretical, full marks 100/ 8 credits)

- Art Philosophy:
 - General principle of art, particularly visual art.
 - Principles of Indian art.
 - Indian Treatises on painting – brief survey.
 - References on painting in Indian literature.
 - *Rasa* theory, *Sadanga*, etc.
 - Significant views of visual art – Western, Indian, Chinese, Islamic, Modern.
- History of Indian Painting:
 - Prehistoric murals.
 - Historic murals.
 - Manuscript painting – Western Indian and Eastern Indian (particularly Jain and Buddhist manuscript painting).
 - Mediaeval painting (major schools): Rajasthani, Mughal and *Pahari*.
 - Company's school of painting.
 - Abanindranath Tagore and his disciples (Bengal School).
 - Calcutta Group of Artists.
 - Major painters of modern India.
- Problems:
 - Dating of Art objects.
 - Forgery/ duplication of art.
 - Special features of collection, handling, storage, documentation, mounting and display of art/ decorative art objects.
 - Art appreciation and art criticism (including verbal expression of visual elements in art and problems of art vocabularies).
 - Quality reproduction of painting – colour faithfulness, blow up, close-up view, detail exposure, etc.
 - Research methodology on Art History.
 - Copyright and Intellectual Property Rights.
 - Art collection as educational aids, especially for the visitors with special needs.

DSE – 207: History of Science (Theoretical, full marks 100/ 8 credits)

- Prehistoric man – Palaeolithic tools & implements, discovery & use of fire.
- Neolithic period – Agriculture, domestication of animal, pottery, weaving, house building.

- Discovery of metal & their use – gold, copper, tin, bronze, brass, silver, lead, iron – copper, bronze & iron ages. Glass.
- Invention of wheel, boat & sail, irrigation & river training.
- Development of civilization – Babylon, Egypt & India.
- Indus valley civilization – house building, town planning & architecture, weaving, pottery, metallurgy, metrology, use of decimal system.
- Early history of Mathematics – Babylon (sexagesimal system, algebra), Egypt (Rind Papyrus at the British Museum, arithmetic, geometry), India – Vedic mathematics (number & calculation, decimal system, arithmetic, algebra, geometry), China (Chiu-chang Suan-shu, San-tsu Suan-ching).
- Early history of Astronomy – Babylon, Egypt, India (month, year, zodiacs, knowledge of planets, *Vedanga jyotish*), China (concept of comet, nova).
- Greek Science – Thales, Anaximander, Anaximenes, Pythagoras, Paemenedes, Anaxagorus, Empidocles, Archytus, Leucippus, Democretes. Xenophanes, Alcameon, Theophrastus.
- Athens – Plato, Aristotle, Eudocssus, Menechmus, Heraclides of Pontus, Ecphantus.
- Alexandria – Euclid, Archimedes, Apollonius, Aristarchus, Eratosthenes, Hipparchus, Claudius Ptolemy, Stasibius, Philo, Heron.
- Greek chemistry – Alexandrian Alchemy – Leiden & Stockholm Papyrus.
- Chinese Alchemy.
- Roman & Greco-Roman Science – Stoic & Epicurean philosophy – Lucretius, Roman Mathematics & Astronomy – Diophantus, Pappus, Theon of Alexandria, Hypesia, Boethus. Public works & Architecture – Vitruvius & Frontisus, Socrates, Plato, Varro, Pliny, Botany (Pendaneos Deoscoridis).
- Modern Europe – Albartus Magnus.
- India – post-Vedic period:
 - Technology education.
 - Mathematics & Astronomy – Aryabhata, Varahamihir, Brahmagupta, Mahavira, Munjal, Sripati, Sridhar, Satananda, Bhaskara – the *Bakhshali* manuscript.
 - Mathematics – Decimal system, invention of zero, arithmetic, algebra, geometry, trigonometry.
 - Astronomy – different *Jyotish Siddhantas*.
 - Chemistry – Charak & Susrut, Nabanitak, Vagbhat, Brinda, Chakrapanidatta, *Tantric alchemy*, *Rasaratnakar*, *Rasaratnasamuchyaya*, equipment/ instruments used in ancient Indian chemistry.
 - Metallurgy – Copper, Bronze, Brass, Bell-metal, Iron & Steel, Lead, Tin – discovery of Zinc – test of metals, extraction of metal, process of alloy making.
 - Atomism, Structure of matters, Mechanics – *Vaisesika Nyaya*.
- Arab – Mathematics, Astronomy & Physics (*Al biruni*, *Omar Khayyam*), Chemistry (*Jabir ibn Hayyan*), Botany, Technology (Windmill, irrigation – artesian well, paper, gallery-oven, compass, etc.)
- Europe in mediaeval period – Mathematics, Physics, Alchemy, Astronomy – Robert Grosseteste, Roger Bacon (*Opus majus*), St. Tomas Aquinas, Fibonacci, Dante (*Divina commedia*), Geber, etc.
- European renaissance
 - Advent of Modern Science – Leonardo da Vinci, Roger Bacon, Andreae Vesalii, Hieronymus Fabricius, William Harvey, Robert Hooke, Leeuwenhoek, Malpighi,

Linnaeus, Haeckel, Cuvier, Wallace, Lamarck, Darwin, Schwann, Mendel, Weismann, De Vries, Pasteur, Haldane, Oparin, Morgan, Watson & Crick, etc.\

- Technological inventions – spectacles, mechanical clock, compass, paper, printing, movable type, telescope, etc.– Physics, Mathematics, Mechanics, Chemistry, Metallurgy, Astronomy – Leonardo da Vinci, Copernicus, Tycho Brahe, Kepler, Galileo, etc.
- Research methodology on History of Science.
- Exhibition and interpretation on History of Science.
- Museum displays on History of Science – few examples.
- Organising museum programmes on History of Science.

DSE – 208: Life Science (Theoretical, full marks 100/ 8 credits)

- General principles of Life Science:
 - Phenomenon of life.
 - Difference between living and non-living.
 - Difference between the plant and animal kingdom.
 - General biology and evolution of organs.
 - General morphology of cells, types of cells, tissues and organs.
- Taxonomy of plants and animals – outlines of main systems, Classification and characteristics of different groups, up to families.
- Agricultural crops, fruits and vegetables – few important examples.
- General knowledge of plant pathology – few important examples.
- Horticulture, forestry, fibre, medicinal products, oil seeds and oil yielding plants, gums and resins. Dies and tanning materials, paper and papier-mâché materials, raw products, seeds in various other industries.
- Ethno botany.
- Elements of Tissue Culture.
- Phytogeography: group life in various regions and environments. Adaptation to environments.
- Zoogeography: Origin and distribution of animals in space and time.
- Biodiversity conservation, endangered plants & animals.
- Ecology & Ethology.
- Evolution and heredity.
- Elements of histology, embryology and genetics.
- Bionomics and life history of selected parasites and insects.
- General concept of microbiology and molecular biology.
- Bio statistics.
- Recent advancements in Life Sciences.
- Methodology for research on Life Sciences.
- Collection & preservation of natural history specimens, colour preservation.
- Present status of zoological/ botanical/ forest museums, zoological & botanical gardens, herbaria, biological parks, reserve forest/ sanctuaries, etc. of India.
- Presentation and interpretation of Life Sciences through exhibitions.
- Museum programmes based on different aspects of Life Sciences.

DSE – 209: Physical Science (Theoretical, full marks 100/ 8 credits)

- Viscosity, electricity, surface tension.

- Vectors in particle mechanics, States of equilibrium, Work and Energy, Conservation of energy.
- Simple harmonic motion, Wave equation in one dimension and travelling wave solution, Standing waves, Wave velocity and group velocity.
- Wave Optics.
- Polarization.
- Fibre Optics.
- Acoustics: Propagation of sound waves, acoustics.
- Nuclear Physics: Q-value, exoergic and endoergic reaction, threshold energy for endoergic reaction, packing fraction and binding energy, semi empirical mass formula, principle of reactors.
- Kinetic theory of gases: Expression for pressure, Significance of temperature, Deduction of gas laws, Specific heat of gases at constant volume and pressure.
- Thermodynamics, conduction of heat.
- Quantum Mechanics, Schrodinger time dependent and time independent equation, application to free particle and particle in a box.
- Chemical Bonding: Valence bond theory, Molecular orbital theory, characteristics of different bonds.
- Structure and Reactivity of Organic Molecules: Electronic influencing effects, aromaticity, elementary idea of stereochemistry, mechanisms of some selected organic reactions.
- Coordination Chemistry: Coordination numbers, Chelate effect, Coordination complexes and application, Bioinorganic chemistry: Metal ions in Biological systems.
- Environmental aspects of Metals, NO_x, CO, CO₂.
- Organic Reaction Mechanism: Mechanisms of selected organic, bio-organic, polymerization and catalytic reactions.
- Stereochemistry of Carbon Compounds.
- Natural products and Biomolecules (Amino acids/nucleic acids/proteins).
- Elementary ideas of Polymer chemistry, thermosetting and thermoplastics, Nylon, polyester, SBR, biopolymers, proteins.
- Analytical chemistry, Principles of spectroscopic techniques in Chemistry.
- Electrochemical Systems:, Thermodynamic data, activity coefficients, solubility product and pH, corrosion.
- Kinetics of Chemical Reactions: Reversible, consecutive and parallel reactions, steady state approximation, chain reactions, photochemical kinetics.
- Tension and Compression: Stress, Strain, Elasticity, Elastic limit, Stress-Strain diagram: Working stress.
- Classification of materials: Elastic, Plastic, Ductile, Brittle.
- Stresses and Strains: Strain energy in tension and compression, Stress concentration in tension and compression members, Thermal stresses and strains.
- Tests for mechanical properties of materials: Tensile test, Compression test, Impact test, Fatigue test, Fatigue and stress concentration, Fatigue under compressive stress, Physical properties of materials at high temperatures.
- Methodology for research on Physical Science.
- Recent advancements in Physical Science.
- Presentation & interpretation of Physical Science.
- Museum programmes on Physical Science.

Any two from the following, depending upon the theoretical DSEs taken in second semester, of 50 marks (4 credits) each:

DSE – 210: Anthropology (Practical, full marks 50/ 4 credits)

Unit – 1: (20 marks)

- Identification and classification of racial types.
- Somatometry.
- Identification of prehistoric tools.
- Knowledge of implements and methods of their use as for hunting, fishing, agriculture, weapons of war and chase.
- Methods of transport and travel, industries and crafts of the people.
- Presentation and interpretation of anthropological specimens.
- Preparation of museum educational programmes on various topics of Anthropology.

Unit – 2: (20 marks)

- Practical Note Book (10 marks).
- Viva voce (10 marks).

Unit – 3: (10 marks)

- Internal Assessment.

DSE – 211: Archaeology (Practical, full marks 50/ 4 credits)

Unit – 1: (20 marks)

- Identification of historical & archaeological specimens (sculpture, architecture, terracotta, coin, etc.).
- Dating of archaeological objects.
- Forgery/ duplication of archaeological objects.
- Valuation.
- Presentation and interpretation of historical & archaeological objects.
- Preparation of museum educational programmes on History & Archaeology.

Unit – 2: (20 marks)

- Practical note book (10 marks).
- Viva voce (10 marks).

Unit – 3: (10 marks)

- Internal Assessment.

DSE – 212: Computer Science (Practical, full marks 50/ 4 credits)

Unit – 1: (20 marks)

- Study the Multi-meter.
- Study of Cathode Ray oscilloscope.
- V-I Characteristics of P-N junction Diode.
- Rectifier Circuit (HW/ FW/ BR) with different filter arrangement.
- Digital logic trainer.
- Tenor characteristics.
- Introduction to:
 - LAN,
 - Server-Client,

- Microsoft Windows and Linux Platforms,
- Common OS Commands,
- Editor,
- Compiler.
- Expression evaluation.
- Conditionals and branching.
- Iteration.
- Functions.
- Recursion.
- Arrays.
- Structures.
- Linked lists.
- Data structures.
- Data management.
- Microprocessor programming.
- Preparation, presentation and interpretation of Electronics & Computer Science exhibits.
- Preparation of museum educational programmes on various topics of Electronics & Computer Sciences.

Unit – 2: (20 marks)

- Practical note book (10 marks).
- Viva voce (10 marks).

Unit – 3: (10 marks)

- Internal Assessment.

DSE – 213: Earth Science (Practical, full marks 50/ 4 credits)

Unit – 1: (20 marks)

- Identification of minerals & ores.
- Identification of rocks.
- Identification of fossils.
- Microscopic study of geological specimens.
- Drawing of cartograms to show (a) Economic resources, (b) Demographic changes.
- Study of contour maps.
- Interpretation of Topographical maps (Plateau & Plain).
- Elementary surveying and location of sites.
- Presentation and interpretation of Earth Sciences specimens.
- Preparation of museum educational programmes on various topics of Earth Sciences.

Unit – 2: (20 marks)

- Practical note book (10 marks).
- Viva voce (10 marks).

Unit – 3: (10 marks)

- Internal Assessment.

DSE – 214: Ethnography (Practical, full marks 50/ 4 credits)

Unit – 1: (20 marks)

- Identification of specimens of ethnic art & culture (*Pata chitra, Sara, Manasa Ghat*, dolls and toys, different folk art & culture forms, etc., including tribal and folk textiles and embroideries).
- Presentation and interpretation of ethnological objects.
- Preparation of museum educational programmes on ethnic art & culture.

Unit – 2: (20 marks)

- Practical note book (10 marks).
- Viva voce (10 marks).

Unit – 3: (10 marks)

- Internal Assessment.

DSE – 215: History of Art (Practical, full marks 50/ 4 credits)

Unit – 1: (20 marks)

- Study of characteristic features of different types/ schools/ localities.
- Identification of painting, artist, date, region, media, school, etc.
- Problem of identification.
- Problem of forgery/ duplication: identification.
- Presentation and interpretation of objects of art.
- Preparation of museum educational programmes on art.
- Appreciation/ criticism writing.
- Estimation of quality of reproductions.

Unit – 2: (20 marks)

- Practical note book (10 marks).
- Viva voce (10 marks).

Unit – 3: (10 marks)

- Internal Assessment.

DSE – 216: History of Science (Practical, full marks 50/ 4 credits)

Unit – 1: (20 marks)

- Study of characteristic features of lithic tools and implements.
- Identification of visuals, etc., on history of science.
- Problem of identifying objects related to history of science.
- Presentation and interpretation of objects on history of science.
- Planning exhibition with the objects on the subject; replica.
- Preparation of museum educational programmes on history of science.
- Writing scripts/ reports/ storyline on history of science.
- Evaluation of history of science exhibitions.

Unit – 2: (20 marks)

- Practical note book (10 marks).
- Viva voce (10 marks).

Unit – 3: (10 marks)

- Internal Assessment.

DSE – 217: Life Science (Practical, full marks 50/ 4 credits)

Unit – 1: (20 marks)

- Plant cells, cell-inclusions and cell division.
- Knowledge of algae, fungi, lichen, bryophytes, pteridophytes, gymnosperm and palaeobotany.
- Plant physiology – General principles of assimilation, transpiration, respiration, reproduction.
- Histology, anatomical features of main groups of cryptogams and phanerogams.
- Microscope and microtomic studies of plants, plant materials, animals, staining and mounting of sections and specimens. Photography and photomicrography.
- Field collection, exploration of plant specimen, identification, preservation, separation of dried and fluid plant specimen, Herbarium and Museum techniques. Preservation of fruit. Colour preservation.
- Elements of tissue culture.
- Collection, identification and preservation of various groups of invertebrates and vertebrate animals.
- Detailed knowledge of bones, thin articulations, attachments, knowledge of skeleton system and anatomy.
- Bleaching of bones and mounting of skeletons.
- Study of skin, skinning, mounting of animals.
- Collection, preparation and preservation of egg – fresh, incubated, rotten, etc.
- Preservation of embryo.
- Plaster casts, mounts, moulds and finish.
- Presentation and interpretation of Natural History specimens.
- Collection, culture and analysis of biodeteriogens (flora & fauna) of a museum environment.
- Preparation of museum educational programmes on various topics of Life Sciences.

Unit – 2: (20 marks)

- Practical note book (10 marks).
- Viva voce (10 marks).

Unit – 3: (10 marks)

- Internal Assessment.

DSE – 218: Physical Science (Practical, full marks 50/ 4 credits)

Unit – 1: (20 marks)

- Determination of:
 - Modulus of elasticity,
 - Coefficient of viscosity by Stoke's law,
 - Refractive index of transparent liquid by travelling microscope,
 - Moment of inertia,
 - Surface tension of a liquid,
 - Coefficient of friction.
- Determination of:
 - Wavelength of light by grating,
 - Focal length of concave mirror,
 - Optical activity of polarimeter,

- Resistances in series and parallel combinations,
- Mutual inductance,
- Voltage gain of amplifier.
- Titrations: acid-base, redox, complexometric, conductometric.
- To determine calcium and magnesium hardness of a given water sample separately.
- To determine the value of the rate constant for the hydrolysis of ethyl acetate catalyzed by hydrochloric acid.
- Determination of partition coefficient of acetic acid between n-butanol and water.
- Determination of dissolved oxygen present in a given water sample.
- To determine chloride ion in a given water sample by Argentometric method.
- Estimation of Copper in brass by iodometry.
- Estimation of iron in cement by dichromatometry.
- Determination of different organic groups known and unknown.
- Preparation of emulsion and study of its stability.
- Determination of hardness of water.
- Determination of fats and oils.
- Preparation, presentation and interpretation of Physical Science exhibits.
- Preparation of museum educational programmes on various topics of Physical Sciences.

Unit – 2: (20 marks)

- Practical note book (10 marks).
- Viva voce (10 marks).

Unit – 3: (10 marks)

- Internal Assessment.

C. Courses of 3rd Semester (2 CCs and 2 GEs)

CC – 301: Museum Technique (Practical, full marks 100/ 8 credits)

Unit – 1: (20 marks)

- Basic concept of scale, plan, drawings & museum design.
- Preparation of gallery layout & sketches.
- Preparation of mock-ups, diorama, etc.
- Designing & fabrication of various kinds of exhibits/ exhibition.
- Animation techniques: optical, mechanical, electrical, electromechanical, electronic, computerised, polaroid, robotics, etc.
- Moulding & casting.
- Handling & care of audio-visual equipment.
- Museum photography/ Photo documentation, Silk-screen printing.
- Use of computers in exhibit/ exhibition designing: use of different software, e.g., AutoCAD, PhotoShop, Illustrator, CorelDraw, Flash, etc., Multimedia, Web page designing.
- Use of computers in documentation: use of different software.
- Use of computers in visitor survey & data collection.
- Evaluation & visitor survey.
- Museum training.

Unit – 2: (20 marks)

- Display layout/arrangement of pictures/photographs/exhibits, etc.

- Preparation of catalogues, labels, etc.
- Preparation of layout of poster, folder, guidebook, etc.
- Preparation of report, press release, copies for advertisement, etc.

Unit – 3: (20 marks)

- **Project report**
 - Candidates will be assigned projects under the supervision of particular faculty member/s, by the Departmental Committee, on various aspects of the museology. The projects may be completed within the specified time and the report be submitted for evaluation during the term-end examinations.

Unit – 4: (20 marks)

- **Field report**
 - Field study/ educational tour shall be the compulsory feature in the course curriculum. Candidates shall have to prepare and submit a report, on the tour, for evaluation during the term-end examinations.

Unit – 5: (20 marks)

- **Internal Assessment.**

CC – 302: Care & Conservation (Practical, full marks 100/ 8 credits)

Unit – 1: (60 marks)

- Introduction to conservation, General laboratory procedures, Elementary Chemistry.
- Different equipment & their use.
- Monitoring Museum Environment: Relative Humidity, Temperature, Light, etc.
- Identification of different museum materials.
- Identification of deterioration/ degradation.
- Preparation of various chemicals, preservatives, etc.
- Treatment of decayed objects.
- Methods of restoration.
- Use & application of preservatives, etc.

Unit – 2: (20 marks)

- Laboratory note book (10 marks).
- Viva voce (10 marks).

Unit – 3: (20 marks)

- Internal Assessment.

GE – 301: Heritage Studies (Theoretical, full marks 50/ 4 credits)

- Introduction to Heritage.
- Scope and Importance of Heritage Studies.
- Heritage sites of the world – Heritage Zones.
- Cultural Heritage of India – Tangible and Intangible.
- Tangible Cultural heritage.
 - Built heritage.
 - Industrial, commercial and crafts production areas.
 - Religious sites.
 - Excavated archaeological sites

- Theme parks.
- Literature and archival heritage.
- Scripts and inscriptions.
- Intangible cultural heritage.
 - Festivals, fairs, dance, drama, games, sports, belief, rituals, folklores, etc.
 - Languages and oral traditions.
 - Traditional cuisine.
 - Martial Art, Yoga.
- Natural Heritage of India.
 - Natural Reserves like National Parks, Sanctuaries, Forests, Nature Parks, etc.
 - Sacred Groves.
 - Traditional medicine and healing.
- Ethics and legal procedures regarding heritage.
 - Fakes and forgeries, Illicit trafficking.
 - Poaching of endangered species of natural heritage.
 - International laws governing heritage.
 - Indian Laws governing heritage.
 - Intellectual properties, Copyright and neighboring rights protection.
- Museums, Government organizations, non-Government organizations, Committees, Societies, etc., for heritage studies.
- Marketing for heritage – Principles, Strategy, Means; Promotion of traditional craft products.
- Heritage & Tourism – Cultural heritage tourism, eco-tourism, theme trail through natural attraction areas, etc.; adventure sports in areas of natural attractions.
- Community involvement; Sustainable development.
- International developments on Heritage; role of UNESCO.
- Heritage Awareness Programmes.

GE – 302: Science Communication (Theoretical, full marks 50/ 4 credits)

- Introduction to Science Communication.
- Defining Science Communication.
- Historical development of communication in science – growth of scientific languages.
- Science Communication and Innovation.
- Communication Policy and Strategy.
- Designing Educational and Communication Products and Processes.
- Integration of Science Education and Communication.
- Relationship between science, culture and mass media.
- Defining science in the public sphere; Importance & impact of Science on Society.
- Science & Society relationship – role of society in the development of science; scientific temper and public view of science.
- Activism and political engagement about science.
- Public attitudes and social representations – gender, disability, ethnicity, etc.
- Contemporary issues in science communication.
- Introduction to science in museums.
- Introduction to science journalism and broadcasting.
- Health and medical communication.
- Environmental communication.
- Ethics in science communication.

- Science and entertainment media.
- Digital media.
- Popular Science Books and magazines.
- Audiences and Issues.
- Learning Theories and Practices in Science Communication.
- Theories and Principles of Science Communication.
- Design Theory in Science Communication: Content design – conceptual organization of scientific knowledge for learnability; Format design – selection of modes and protocols of presentation for effective 'free choice' learning; Production design – development of communication artefacts within project standards and constraints.
- Research Methods in Science Communication; ethics of research with human subjects.
- Communicating Science through New Media: engaging online and new media audiences with science-related topics, using digital means.
- Communicating Science through Exhibits.
- Communicating Science through Traditional Media.

D. Courses of 4th Semester (Compulsory Courses)

CC – 401: (Full marks 150/ 12 credits)

Internship report

Candidates shall be required to complete an internship of three months duration in an assigned museum/ alike institution in the 4th semester. Candidates shall submit a detailed report on the internship, along with a certificate from the concerned institution that the internship is successfully completed clearly mentioning the marks & grades obtained that would be counted as Internal Assessment marks.

CC – 402: (Full marks 150/ 12 credits)

Dissertation

Candidates have to prepare and submit, within a stipulated time, a dissertation on a relevant topic from the course content, under the supervision of a faculty member decided by the Departmental Committee.

E. Text Books & References

□ Semester-I

❖ CC – 101: Organisation & Management

1. Agrawal, Usha – Museums of India, a brief directory
2. Ambrose, Timothy & Paine, Crispin – Museum Basics
3. Baxi, Smita & Dwivedi, Devendra – Modern Museum
4. Bennett, Tony – The Birth of the Museum
5. Boylan, Patrick J (ed.) – Museums 2000
6. Coleman, L V – Museum Buildings
7. Dudley, Dorothy, et al – Museum Registration Methods
8. Edson, Gary & Dean, David – The Handbook for Museums
9. Fahy, Anne (ed.) – Collections Management
10. Fenneley – Museum, Archive & Library Security
11. Fondation de France & ICOM – Museums Without Barriers
12. Fopp, Michael A – Managing Museums and Galleries
13. Hooper- Greenhill, Eilean – Museums & the Shaping of Knowledge
14. Hunter, Eric J – Computerised Cataloguing
15. ICOM – Statutes and Code of Professional Ethics

16. Knell, Simon (ed.) – Care of Collections
17. Light, F B, Roberts, D A, Stewarts, J D – Museum Documentation System
18. Liston, David (ed.) – Museum Security and Protection
19. Lord, Gail Dexter and Lord, Barry – The Manual of Museum Management.
20. Markham and Hargreaves – The Museums of India
21. Mclean, Fiona – Marketing the Museum
22. Moore, Kevin (ed.) – Museum Management
23. Moore, Kevin (ed.) – Management in Museums
24. Nigam, M L – Fundamentals of Museology
25. Ripley, Dillon – The Sacred Grove
26. Orna, Elizabeth – Information Handling in Museums
27. Roy Chowdhury, Anil – Art Museum Documentation and Practical Handling
28. Sarasan, L & Neuner, A M – Museum Collection and Computers
29. Sarkar, H – Museums and Protection of Monuments and Antiquities in India
30. Sivaramamurthy, C – A Directory of Museums in India
31. Thompson, John M A, et al (ed.) – Manual of Curatorship
32. Tillotson, Robert G – Museum Security
33. UNESCO – Field Manual for Museums
34. UNESCO – Protection of Cultural Property in the event of Armed Conflict
35. UNESCO – Organisation of Museums, Practical Advice
36. Wittlin, Alma S – Museums in Search of a Usable Future

❖ **CC – 102: Exhibition & Education**

1. Ambrose, Timothy & Paine, Crispin – Museum Basics
2. Baxi, Smita & Dwivedi, Devendra – Modern Museum
3. Brawne, Michael – Museum Interior
4. Brubacher, John S – Modern Philosophies of Education
5. Coleman, L V – Museum Buildings
6. Dale, Edger – Audio-Visual Methods in Teaching
7. Dean, David – Museum Exhibition, Theory & Practice
8. De-Cecco, John P and Crawford, William, R – The Psychology of Learning & Instruction (Education Psychology)
9. Devenish, David C – Museum Display Labels
10. Edson, Gary & Dean, David – The Handbook for Museums
11. Evans, Desmond W – People and Communication
12. Falk, John H and Dierking, Lynn D – The Museum Experience
13. Falk, John H and Dierking, Lynn D – Learning from Museums: The Visitor Experiences and the Making of Meaning
14. Fondation de France & ICOM – Museums Without Barriers
15. Hein, George E – Learning in Museums
16. Hooper-Greenhill, Eilean (ed) – Museum and Gallery Education
17. Hooper-Greenhill, Eilean (ed) – Museum, Media, Message
18. Hooper-Greenhill, Eilean (ed) – Museums and their Visitors
19. Kumar, J – Mass Communication in India
20. Lord, Gail Dexter and Lord, Barry – The Manual of Museum Planning.
21. Maxwell, Joseph A – Qualitative Research Design: An Interactive Approach
22. Miles, R S, et al (ed.) – The Design of Educational Exhibits
23. Nigam, M L – Fundamentals of Museology
24. North, F J – Museum Labels
25. Pearce, Susan M (ed.) – Interpreting Objects and Collections

26. Robinson, E S – The Behaviour of the Museum Visitor and others
27. Sixsmith, Mike – Touring Exhibitions
28. Thompson, John M A, et al (ed.) – Manual of Curatorship
29. UNESCO – Temporary & Travelling Exhibition
30. UNESCO – Museums, imaginations and education

❖ **CC – 103: Care & Conservation**

1. Agrawal, O P – Preservation of Art Objects and Library Materials
2. Agrawal, O P (ed.) – Conservation in the Tropics
3. Agrawal, O P – Conservation of Manuscripts and Paintings of Southeast Asia
4. Agrawal, O P & Barkeshli, Mandana – Conservation of Books, Manuscripts and Paper Documents
5. Agrawal, O P & Dhawan, S (ed.) – Biodeterioration of Cultural Property
6. Ambrose, Timothy & Paine, Crispin – Museum Basics
7. Dhawan, S (ed.) – Recent Trends in Conservation
8. Gairola, T R – Handbook of Chemical Conservation of Museum Objects
9. Horie, C V – Material for Conservation, Organic Consolidants, Adhesives and Coatings
10. Edson, Gary & Dean, David – The Handbook for Museums
11. Knell, Simon (ed.) – Care of Collections
12. Kuhn, H – Conservation and Restoration of Works of Art and Antiquities
13. Mills, John S & White, Raymonds – Organic Chemistry of Museum Objects
14. Mora, Mora, Philippot – Conservation of Wall Paintings
15. Nigam, M L – Fundamentals of Museology
16. Plenderleith, H J and Werner, A E A – The Conservation of Antiquities and Works of Art
17. Savage, George – The Art and Antique Restorers Handbook
18. Stolow, N – Conservation and Exhibition
19. Swarnakamal – Protection and Conservation of Museum Collection
20. Thompson, Garry – The Museum Environment
21. Thompson, John M A, et al (ed.) – Manual of Curatorship
22. UNESCO – The Conservation of Cultural Properties with Special Reference to the Tropical Countries
23. UNESCO – Preserving and Restoring Monuments and Historic Buildings

□ **Semester-II:**

❖ **DSE – 201: Anthropology**

1. Allchin, B R – The Birth of Indian Civilization
2. Burkih, M C – The Old Stone Age
3. Burkih, M C – The Early Ancestors
4. Boas, Franz □ Race, Language and Culture
5. Boule, M – Fossil Men
6. Chakraborti, Mukul & Mukherji, Dipak □ Indian Tribes
7. Das, B M – The Outlines of Physical Anthropology
8. Heladdon, A C – Races of Men
9. Kroeber, A L - Anthropology
10. Leakey, L S B – Adam's Ancestors
11. Le Grof Clark, W E – The Antecedents of Men
12. Le Grof Clark, W E – History of Primates
13. Lowie, R H – Cultural Anthropology

14. Majumder, D N & Madan, T N – An Introduction to Social Anthropology
15. Morgan, L H – Ancient Society
16. Oakley, K P – Man, the Tool Maker
17. Risley, H H – The Peoples of India
18. Sankalia, H D – Prehistory and Protohistory of India and Pakistan
19. Subbarao, B – The Personality of India

❖ **DSE – 202: Archaeology**

1. Banerjea, J N – The Development of Hindu Iconography
2. Basham, A L – The Wonder That Was India
3. Biswas, S S – Terracotta Art of Bengal
4. Brown, Percy – Indian Architecture (Buddhist & Hindu Periods)
5. Coomaraswamy, Ananda Kentish – History of India and Indonesian Art
6. Coomaraswamy, Ananda Kentish – The Dance of Siva
7. Dasgupta, Dr Charuchandra – Origin and Evolution of Indian Clay Sculpture
8. Deva, Krishna – Temples of North India
9. Dublin, Lois Sherr – The History of Beads from 30,000 BC to the Present
10. Ghosh, Amalananda (ed) – An Encyclopaedia of Indian Archaeology (2 vols.)
11. Gopinath Rao, T A – Elements of Hindu Iconography (2 vols.)
12. Gupta, Parameshwari Lal – Coins
13. Gupta, Parameshwari Lal – Gangetic Valley Terracotta Art
14. Gupta, S P – The Roots of Indian Art
15. Majumdar, R C (ed.) – The Struggle for Empire
16. Marshall, John (ed.) – Mohenjo-Daro and the Indus Civilization: Being an Official Account of Archaeological Excavations at Mohenjo-Daro Carried out by the Government of India Between the Years 1922 and 1927
17. Ray, Amita & Mukherjee, S K (eds.) – Historical Archaeology of India: A Dialogue Between Archaeologists and Historians
18. Rowland, Benjamin – The Art and Architecture of India
19. Roy, Sachindranath – The Story of Indian Archaeology, 1784-1947
20. Saraswati, S K – A Survey of Indian Sculpture
21. Srinivasan, K R – Temples of South India
22. Subbarao, B – Personality of India
23. Wheeler, Mortimer – History of India and Pakistan

❖ **DSE – 203: Computer Science**

1. Chanda, B and Dutta Majumder, D – Digital Image Processing and Analysis
2. Deitel, Harvey M and Deitel, Paul J – Internet & World Wide Web: How to Program
3. Gaonkar, Ramesh S – Microprocessor Architecture, Programming and Applications with 8085/8085A
4. Elmasri, R and Navathe, S B – Fundamentals of Database Systems
5. Hall, Douglas V – Microprocessors and Interfacing
6. Hughes, E – Electrical and Electronics Technology
7. Keyes – Multimedia Handbook
8. Knuth, D E – The Art of Computer Programming
9. Kriesel, David – A Brief Introduction to Neural Network
10. Milenkovic, M – Operating Systems: Concepts and Design
11. Rich, E and Knight, K – Artificial Intelligence
12. Stallings, W – Data and Computer Communication

13. Taub, H and Shilling, D – Digital Integrated Electronics
14. Tucker, Allen B – Programming Languages

❖ **DSE – 204: Earth Science**

1. Bateman, A – Formation of Mineral Deposits
2. Broak & Webb – Geography of Mankind
3. Brown, J C & Dey, A K – India's Mineral Wealth
4. Dayal, P – Text of Geomorphology
5. Gregory, J W & Barrett, B H – General Stratigraphy
6. Harker, A – Petrology for Students
7. Holland, T H – Indian Geological Terminology
8. Joffe, J S – ABC of Soil
9. Longwell, C R, Knopt & Flint, R F – Physical Geology
10. Menon – Our Weather
11. Morley, Davis A – An Introduction to Palaeontology
12. Mukherjee, P K – Text Book of Geology
13. Read, M H – Ruttoly's elements of Mineralogy
14. Robinson – Human Geography
15. Simmons, I G – Biogeographical Processes
16. Strahler, A N, Strahler, A H & Willey, John – Elements of Physical Geography
17. Stores, J A – The Unstable Earth
18. Thornbury, W D & Willey, M – Principles of Geomorphology
19. Trewartha, G T – An Introduction to Climatology

❖ **DSE – 205: Ethnography**

1. Allchin, Bridget – The Rise of Civilisation in India
2. Auboyer, I – Daily Life in Ancient India
3. Basham, A L – The Wonder That Was India
4. Bhattacharya, Amitabha – Historical Geography of India and Early Medieval Bengal
5. Bose, Nemai Sadhan – Indian Awakening and Bengal
6. Chakladar, H C – Social Life in Ancient India
7. Chatterji, S K – The Origin and Development of the Bengali Language
8. Chattopadhyaya, Debiprasad – History and Society
9. Dhamija, Jasleen – Folk Arts and Crafts of India
10. Elton, G R – The Practice of History
11. Neumayer, Erwin – Prehistoric Indian Rock Paintings
12. Sen, Dinesh Chandra – Glimpses of Bengal Life
13. Sur, Atul – *Banglar Samajik Itihas* (in Bengali)

❖ **DSE – 206: History of Art**

1. Archer, W G – Bazaar Paintings of Calcutta
2. Archer, W G – Indian Miniatures
3. Barret, Douglas & Gray, Basil – Treasures of Asia: Indian Paintings
4. Bhattacharya, Bholanath – *Shilpabhabna* (in Bengali)
5. Bhattacharya, Tarapada – The Canons of Indian Art or A Study on Vastuvidya
6. Chattopadhyay, Kamaladevi – Handicrafts of India
7. Coomaraswamy, Ananda Kentish – Christian and Oriental Philosophy of Art

8. Coomaraswamy, Ananda Kentish – The Arts And Crafts of India and Ceylon
9. Dhamija, Jasleen – Indian Folk Arts & Crafts
10. Dutta, Gurusaday – Catalogue of Folk Arts
11. Ganguli, K K – *Banglar Lok Silpa* (in Bengali)
12. Mookherjee, A – Folk Art of Bengal
13. Mookherjee, A – Indian Primitive Art
14. Singh, Madanjit – Ajanta Painting

❖ **DSE – 207: History of Science**

1. Alioto, Anthony – A History of Western Science
2. Biswas, A K – Science in India
3. Biswas, A K – History, Science, and Society in the Indian Context: A Collection of Papers.
4. Bose, D M; Sen, S N and Subbarayappa, B V (Eds.) – A Concise History of Science in India
5. Cardwell, D S L – Turning Points in Western Technology
6. Chattopadhyaya, Debiprasad – The History of Science and Technology in Ancient India: The Beginnings
7. Kuhn, Thomas S – The Structure of Scientific Revolutions
8. Mason, Stephen Finney – A History of the Sciences
9. McClellan III, James E and Dorn, Harold – Science & Technology in World History: An Introduction
10. Palit, Chittabrata – Scientific Bengal
11. Sen, Samarendranath – *Bigyaner Itihas* (in Bengali)
12. Subbarayappa, B V – Science in India: A Historical Perspective

❖ **DSE – 208: Life Science**

1. Anderson, Stanley H – Managing our Wildlife Resources
2. Ali, Salem – The Book of Indian Birds
3. Datta, A C – A Class Book of Botany
4. Gangulee, Das & Datta – College Botany
5. Ganguly, Adhikary & Sinha – Biology of Animals
6. Gee, E P – The Wild Life of India
7. Hangay, George & Dingley, Michael – Biological Museum Methods
8. Lull, R – Organic Evolution
9. Mitra, Guha, Chaudhuri – Studies in Botany
10. Mukherjee, A K – Endangered Animals of India
11. Nair, S M – Endangered Animals of India
12. Odum, E P – Fundamentals of Ecology
13. Parker & Haswell – Textbook of Zoology
14. Tikader, B K – Threatened Animals of India

❖ **DSE – 209: Physical Science**

1. Atkins, P W – Physical Chemistry
2. Eisberg, Rober and Resnick, Robert – Quantum Physics of Atoms, Molecules, Solids, Nuclei and Particles
3. Griffiths, David J – Introduction to Electrodynamics
4. Halliday, David and Walker, Robert – Principles of Physics
5. Mahan, B H – University Chemistry
6. Saslow, Wayne M – Electricity, Magnetism, and Light

7. Satyaprakash – Engineering Chemistry
8. Sharma M C – Practical Application of Digital Integrated Circuits
9. Sienko, M J and Plane, R A – Chemistry: Principles and Applications
10. Takwale, R and Puranik – Introduction to Classical Mechanics
11. Volhardt, K P C – Organic Chemistry: Structure and Function

❖ **GE – 301: Heritage Studies**

1. Biswas, S S – Protecting the Cultural Heritage (National Legislations and International Conventions).
2. Albert, Marie-Theres; Bernecker, Roland; and Rudolff, Britta (Eds.) – Understanding Heritage: Perspectives in Heritage Studies
3. Albert, Marie-Theres – Perceptions of Sustainability in Heritage Studies
4. Albert, Marie-Theres and Ringbeck, Birgitta – 40 Years World Heritage Convention: Popularizing the Protection of Cultural and Natural Heritage
5. Harrison, Rodney – Heritage: Critical Approaches
6. Logan, William; Nic Craith, Máiréad; and Kockel, Ullrich (Eds.) – A Companion to Heritage Studies
7. Smith, Laurajane – Uses of Heritage
8. Sørensen, Marie Louise Stig and Carman, John (Eds.) – Heritage Studies: Methods and Approaches

❖ **GE – 302: Science Communication**

1. Allan, S – Media, Risk and Science
2. Bauer, M and Bucchi, M – Journalism, Science and Society: Science Communication between News and Public Relations
3. Bell, A; Davies, S and Mellor, F – Science and its Publics
4. Beteille, Andre – Science and Tradition: A Sociological Perspective
5. Bowler, P – Science for All: the Popularization of Science in Early Twentieth-Century Britain
6. Broks, P – Understanding Popular Science
7. Gregory, J and Miller, S – Science in Public: Communication, Culture and Credibility
8. Hansen, A – The Mass Media and Environmental Issues
9. Holliman, R, et al. – Investigating Science Communication in the Information Age
10. Holliman, R, et al. – Practising Science Communication in the Information Age: Theorising Professional Practices
11. Kirby, D A – Lab Coats in Hollywood: Science, Scientists, and Cinema
12. Raman, Meenakshi and Sharma, Sangeeta – Technical Communication: Principles and Practice
13. Russell, Bertrand – The Impact of Science on Society
14. Pal, Yash; Jain, Ashok and Mahanti, Subodh – Science in Society: Some Perspectives
15. Silverstone, R – Framing Science: The Making of a BBC Documentary
16. Trench, B and Bucchi, M (eds.) – Handbook of Public Communication of Science and Technology
17. Watson, James – Media Communication: An Introduction to Theory and Process