

Basic GIS Mapping with QGIS : SEC-1		
Course Code:	Course Title: Basic GIS Mapping with QGIS (Practical)	
Credits: 02+01	No of Lectures= 30 Hours+10 Hours	CBPBU
Full Marks: 50 (Evaluated by External Expert+ Lab Note book + Project+ Attendance)		
Total No. of Lectures-Tutorials-Project (in hours per week): 2-0-1		
Course Objectives: <ol style="list-style-type: none"> To learn how to navigate the QGIS interface, load various types of geospatial data, and create basic maps and visualizations. To conduct essential spatial analysis tasks such as buffering, overlaying, querying, and geo-processing using QGIS tools and plugins. To learn how to build and manage geospatial databases, import/export data, and utilize QGIS as a powerful tool for data management and spatial data integration. 		
Unit	Topic (Value in parenthesis indicates Marks)	No. of Lectures
Unit I Introduction to GIS and QGIS	1.1. Definition and applications of GIS; Overview of QGIS software; Understanding spatial data and coordinate systems; QGIS Interface, Plugins and Basic Functions; Layer management and styling, 1.2. Sources of GIS Data; Downloading of LANDSAT, Bhuvan image, Sentinel 2 image and DEM 1.3. Basic Concept of Map Projection (10 Marks)	10
Unit II Basic Operations of QGIS	2.1. Georeferencing of Topographical Map 2.2. Digitizing features and creating new layers, editing spatial and attribute data, attribute table manipulation and queries, Spatial query and selection tools, exporting of data from excel. 2.3. Overlay operations (intersections, unions, etc.), Buffering and proximity analysis (10 Marks)	10
Unit III Application of GIS	3.1. Creating thematic maps using graduated and colour symbols 3.2. Creating thematic maps using proportional diagrams (Pie and Bar) 3.2. Data Input and Visualization, Importing and exporting data in various formats, Symbolizing and labelling spatial data, creating map layouts and adding map elements (10 Marks)	10
Unit IV	Case Study: Project Report and Viva Voce (This is an Internal Part) (10 Marks)	10

Suggested Reading:

- Kurt Menke, GISP, Richard Smith Jr., GISP, Luigi Pirelli (2016). Mastering QGIS - Second Edition, Publisher: Packt
- Tarafder Sujoy Kumar (2021). Learning GIS with QGIS Software (Paperback), A.S. Publication, Ranaghat, Nadia
- Graser, Anita (2016). Learning QGIS - Third Edition: Create great maps and perform Geoprocessing tasks with ease, Packt Publishing
- Andrew Cutts (2019). QGIS Quick Start Guide, Packt Publishing.

Basic GIS Mapping with QGIS : SEC-2		
Course Code:	Course Title: GIS Mapping with QGIS (Practical)	
Credits: 02+01	No of Lectures= 30 Hours+10 Hours	CBPBU
Full Marks: 50 (Evaluated by External Expert+ Internal Evaluation + Project+ Attendance)		
Total No. of Lectures-Tutorials-Project (in hours per week): 2-0-1		
Unit	Topic (Value in parenthesis indicates Marks)	No. of Lectures
Unit I Basic concept of Remote Sensing	1.1. Definition and scope of Remote Sensing, Principles EMR, Energy interactions with matter 1.2. Spectral Signature and its Response of Soil, Vegetation, Built-up and Water 1.3. Basic Concept of Visual, Thermal, Infra-Red, Microwave Remote Sensing (10 Marks)	10
Unit II GIS Models and Map Layout	2.1. Image Classification: Supervised and Unsupervised; 2.2. Accuracy Assessment, Class Editing; Change Detection Study and Layout of Maps (10)	10
Unit III Image Classification	3.1. Georeferencing of satellite image 3.2. Preparation of LULC Map. 3.3. Preparation of Different Indices map such as NDVI, NDBI, NDWI, MNDWI, EVI (10)	10
Unit IV Project	Case Study: Project Report and Viva Voce (This is an Internal Part) (10)	10

Suggested Reading:

1. Kurt Menke, GISP, Richard Smith Jr., GISP, Luigi Pirelli (2016). Mastering QGIS - Second Edition, Publisher: Packt
2. Tarafder Sujoy Kumar (2021). Learning GIS with QGIS Software (Paperback), A.S. Publication, Ranaghat, Nadia
3. Graser, Anita (2016). Learning QGIS - Third Edition: Create great maps and perform Geoprocessing tasks with ease, Packt Publishing
4. Andrew Cutts (2019). QGIS Quick Start Guide, Packt Publishing.

Bhumi Sahayak / Amin / Surveying : SEC-1			
Course Code:	Course Title: Bhumi Sahayak / Amin / Surveying (Practical)		
Credits: 02+01	No of Lectures= 30 Hours+10 Hours	CBPBU	
Full Marks: 50 (Evaluated by External Expert+ Lab Note book + Project+ Attendance)			
Total No. of Lectures-Tutorials-Project (in hours per week): 2-0-1			
Course Objectives:			
<ol style="list-style-type: none"> 1. To introduce the fundamental concept of Aminship and Job opportunities 2. To know the basic concept of surveying 3. To learn about the land Classification and Area Measurement 4. To make an understanding about land survey (Hands-on-training) . 			
Unit	Topic (Value in parenthesis indicates Marks)		No. of Lectures
Unit I Introduction of Aminship / Surveying	1.1. Introductory Note for Aminship, Responsibility of Amin, Job Opportunity of Amin, 1.2. Introduction to Mouza Map, Concept of Scale-R. F, Statement, plane and diagonal scale; Symbols used in Amin survey. 1.3. Familiarization of Unit of measurement; Measurement of distance: Pacing, odometer, chaining (Metric Chain, Gun Chain, Revenue Chain, Engineer's Chain), Tape, Electronic Distance Measurement (EDM) (10 Marks)		10
Unit II Basic Surveying	2.1. Definition and Types of Surveying, Definition and Objectives of Cadastral Survey, Terms related to Cadastral Survey- Quadrilateral, Shikmi line, Partial Line, Goda, Chanda, Dhai, Khaka, Thoka line, Trijunction Pillar, Alamat Khatian, Khanapuri, Bhujarat, J.L Number, RS Map, C.S Map, L.R Map, Parcha; 2.2. Definition of Traverse, classification, and methods of measuring traverse. 2.3. Principles of Chain and Compass surveying, Concept of Bearing, WCB, RB and conversion, Plotting of Traverse by Prismatic Compass and Chain, Error correction of Prismatic compass and Determination of Chaining, and their corrections (10 Marks)		10
Unit III Land Classification and Area Measurement	3.1. Basic concept of Land classification of Land and Land Revenue System and instrument used as Amin Survey. 3.2. Draft a plan about Batwara /Zamin/ House; Drawing of conventional signs & symbols used in maps of ground or surface 3.3. Calculating area of a plot (By Chain and Prismatic Compass, Drawing of Sketch Map. (10 Marks)		10
Unit IV Project	Visit to local area and study conduct survey any plot, draw sketch map and preparation of a project report. Not more than 10 pages (This is an Internal Part) (10 Marks)		10

Suggested Reading:

1. Pal Subir, Kumar, (2018): Guide to Land Survey Procedure (In Bengali), Kamal Law House, India
2. Gangopadhyay, Arun (2018): Amin Survey || NSQF Level - 3, Sector - Construction (Paperback, Bengali)
3. Basak, N N (2017). Surveying & Levelling 2/E, McGraw Hill Education, Noida, Uttar Pradesh

Bhumi Sahayak / Amin / Surveying : SEC-2			
Course Code:		Course Title: Bhumi Sahayak / Amin / Surveying (Practical)	
Credits: 02+01		No of Lectures= 30 Hours+10 Hours	CBPBU
Full Marks: 50 (Evaluated by External Expert+ Lab Note book + Project+ Attendance)			
Total No. of Lectures-Tutorials-Project (in hours per week): 2-0-1			
Unit	Topic (Value in parenthesis indicates Marks)		No. of Lectures
Unit I Measurement of Area	1.1. General principles of measurement of an area of regular and irregular boundary, Using instruments (Acre Comb, Planimeter, Digital Planimeter etc.) 1.2. Mathematical calculation (division into squares, the mid-ordinate rule, the average ordinate rule, the trapezoidal rule and Simpson's rule.) (10 Marks)		10
Unit II Dumpy/Auto Level Survey	Levelling by Dumpy Level/ Auto Level 2.1. Terms related to levelling. Types of benchmarks, The basic components of dumpy level, Types and description of levelling staff, Temporary adjustment of dumpy level. 2.2. Methods of levelling: simple levelling; differential levelling or fly levelling; profile levelling, cross section levelling; reciprocal levelling. 2.3. Methods of calculation of reduced level. 2.4. Conduct a Longitudinal and cross-section levelling with the necessary entry in the level book, calculate and plotting with R.L. (10 Marks)		10
Unit III Plane Table Survey	Plane table Survey 3.1. Objective 3.2. Accessories used for plate table survey and their uses. 3.3. Temporary adjustment (setting) of the plane table over a station. 3.4. Methods of plane table survey-radiation, intersection, traversing, resection method. 3.5. Conduct plane table survey of any plot of land with few details such as pond, tree etc. by radiation, intersection, traversing method (10 Marks)		10
Unit IV Project	Case Study: Students must conduct a survey of any plot, draw a sketch map and write a report. (This is an Internal Part) (10 Marks)		10

Suggested Reading:

1. Pal Subir, Kumar, (2018): Guide to Land Survey Procedure (In Bengali), Kamal Law House, India
2. Gangopadhyay, Arun (2018): Amin Survey || NSQF Level - 3, Sector - Construction (Paperback, Bengali)
3. Basak, N N (2017). Surveying & Levelling 2/E, McGraw Hill Education, Noida, Uttar Pradesh

SKILL ENHANCEMENT COURSE (PHYSICS)

Semester I

Physics - SEC - 1 : Computational Physics - 1

(Credits: 03)

Lab: 60 Lectures

Report Writing and Presentation Tools

Getting Started with Python Introduction to programming, constants, variables and data types, dynamical typing, operators and expressions, modules, I/O statements, iterables, compound statements, indentation in python, the if-elif-else block, for and while loops, nested compound statements, lists, set, tuples, classes, dictionaries and strings, basic ideas of object oriented programming.

NumPy Arrays; Indexing; Iterating. Creating Arrays : array(), arange(), linspace(), zeros(). Basic Operations : Add, Subtract, Multiply, Divide, and Exponentiation. Vector/Linear Algebra.

Matplotlib and PyPlot 2D Plot; Interactive Plotting; Plot method; Labels; Log and Polar Plots; Multiple Figures and Curves; Subplots;

Interpolation and Curve Fitting Interpolation Schemes : Nearest Neighbor; Linear; Quadratic; Spline. Least-Squares Fit: Linear and Polynomial.

Roots of equations Real roots of single variable function; iterative approach; qualitative behavior of the function; Closed domain methods (bracketing): Bisection; False position method; Open domain methods: Newton-Raphson, Secant method; Roots of polynomials; Roots of non-linear equations.

Reference Books

- [1] Steven C. Chapra and Raymond P. Canale, Numerical Methods for Engineers (8ed), McGraw-Hill.
- [2] Rubin H. Landau, Manuel J. Páez and Cristian C. Bordeianu, Computational Physics: Problem Solving with Python (3ed), Wiley.
- [3] Alex Gezerlis, Numerical Methods in Physics with Python, Cambridge.
- [4] Jaan Kiusalaas, Numerical methods in engineering with Python 3, Cambridge.

Semester II

Physics - SEC - 2 : Computational Physics - 2

(Credits: 03)

Lab: 60 Lectures

Linear algebra Matrix Factorizations: QR Factorization; Gram-Schmidt Orthogonalization; Householder Triangularization; LU and Cholesky factorization; Schur factorization; Direct elimination methods: Gauss elimination (pivoting, scaling); Tri-diagonal systems; Iterative methods: Jacobi iteration; Conjugate Gradients; Eigenvalue problems: Rayleigh Quotient; Arnoldi and Lanczos methods.

Monte Carlo Simulation Random Sequences; Random-Number Generation; Examples : Value of π , Random Walk, Spontaneous Decay.

Differentiation Forward Difference; Central Difference; Backward Difference; Extrapolated Difference; Second Derivatives.

Integration Quadrature as Box Counting; Trapezoid Rule; Simpson's Rule; Gaussian Quadrature; One and Multidimensional Monte Carlo Integration.

Ordinary Differential Equations Initial-Value Problems : Euler's Method; 2nd and 4th Order Runge-Kutta Methods; Simultaneous Differential Equations. Boundary-Value Problems : Shooting Method; Matrix Approach.

Reference Books

- [1] Steven C. Chapra and Raymond P. Canale, Numerical Methods for Engineers (8ed), McGraw-Hill.
- [2] Rubin H. Landau, Manuel J. Páez and Cristian C. Bordeianu, Computational Physics: Problem Solving with Python (3ed), Wiley.
- [3] Alex Gezerlis, Numerical Methods in Physics with Python, Cambridge.
- [4] Jaan Kiusalaas, Numerical methods in engineering with Python 3, Cambridge.

SEMESTER-I

Course Title: INDIAN GAMES

Course Type-Skill Enhancement Course

Per week:6 Hours (3 Credits)

Total Marks: =50

Course Outcome:

- I. To learn the basic skills related to the different Indian Games.
- II. Improvement of physical attributes along with the mental capacity of an individual leading towards the ultimate goal of overall development.
- III. To enhance the neuro-muscular coordination along with other physical factors.
- IV. To learn about the rules and regulation of Kabaddi and Kho-Kho games.

PRACTICAL PART: Total marks - 40 (Preparation of Record Book is Compulsory which will be evaluated by Internal and External Examiner Both)

UNIT –I Kabaddi (Marks-20)

- 1.1. Raiding Skills: Touching with hands, Use of Leg, toe touch, squat leg thrust, side kick, mule kick, arrow

Fly kick, crossing of baulk line, crossing the bonus line.
- 1.2. Holding Skills: Wrist, Hand and Waist Catch. Techniques of various chain formation. Additional Skills in Raiding: Escaping Techniques from various holds, techniques of escaping from various chain formation.
- 1.3. Game practice with Practical Knowledge of rules and regulations.

UNIT-II Kho-Kho (Marks-20)

- 2.1. Skills in Chasing: Sit on the box (parallel & Bullet toe methods), Get up from the box (proximal & Distal foot method), Give Kho (Simple, early, late and judgment), Tiger Jump, Pole turn, pole drive, Trapping, Hammering, Rectification of foul.
- 2.2. Skills in Running: Chain play, Ring play, Ring play and chain & ring mixed play.
- 2.3. Game Practice with practical knowledge of rules and regulations.

Guideline for Record Book–Content of Record Book-History, Major Rules Regulation, National and International Level Tournament, Name of famous National and International Players, Major Skill (Fundamentals with Picture).

SUGGESTED READINGS:

- Saha, A.K. Sarir Siksher Ritiniti, Rana Publishing House, Kalyani.
- Bandopadhyay, K. Sarir Siksha Parichay, Classic Publishers, Kolkata.
- Atkins, J.R. (1872). The Book of Racquets. A Practical Guide to the Game and its History and to the different Courts in which it is played London: Frederick Warne & Co.
- Singh, A. et al. (2000) Essential of Physical Education, Kalyani Publishers, Ludhiana, Punjab
- কৰ শুভব্ৰত এবং মন্ডল, ইন্দ্রনীল (২০১০) উচ্চতর শারীরশিক্ষা, শারীরশিক্ষা প্রকাশনী, শিউড়ি বীরভূম।

SEMESTER-II

Course Title: Ball Game and Racket Game

Course Type-Skill Enhancement Course

Per week:6 Hours (3 Credits)

Total Marks: =50

Course Outcome:

- i. To learn the basic skills related to the different ballgames and also the racket games.
- ii. Improvement of physical attributes along with the mental capacity of an individual leading towards the ultimate goal of overall development.
- iii. To enhance the neuro-muscular coordination along with other physical factors.
- iv. To learn about the rules and regulation of different ball and racket games

PRACTICAL PART: Total marks-40 (Preparation of Record Book is Compulsory which will be evaluated by Internal and External Examiner Both)

UNIT-I BALL GAME (ANY TWO)

15X2=30

1.1 FOOTBALL

- 1.1.1 Kicking Skills: Instep kick, Inside kick, Lofted kick (Half volley and Full volley) in-swing and out-swing kicks.
Receiving Skills: With Sole of the foot, Inside and Outside of the foot, with Thigh Hand Chest.
Dribbling: Inside dribbling, Outside dribbling and Zig-zag dribbling.
Heading: Standing and Jumping and Throw- in: In Standing and in Running Condition
- 1.1.2 Goalkeeping–Static and Dynamics Condition
- 1.1.3 Game practice and practical knowledge of rules and regulations.

1.2 VOLLEYBALL

- 1.2.1. Service: Under arm service, Over Head service, Side arm service, Floating service Pass:
Under Arm Pass, Over Head Pass
- 1.2.2 Spiking and Blocking, Rotation and Movement of Libero
- 1.2.3 Game practice with practical knowledge rules and regulations

1.3 NETBALL

- 1.3.1 Catching: One hand, Two hands with feet grounded and flight.
Throwing (Different passes and their uses): One hand passes-, High should pass, Under arm pass, Bounce pass, Lob pass, Two hand Passes – Push pass, Over head pass and Bounce pass.
Foot work: Landing on one foot, Landing on two feet, Pivot, Running pass.
Shooting: One hand Shot, Forward step shot, and Backward step shot. Techniques of free dodge and sprint, Sudden sprint, Sprint and Stop, Sprinting with change of speed.
- 1.3.2. Defending: Marking the player, Marking the ball, Blocking inside the circle, Blocking outside the circle, Defending the circle edge against the passing. Intercepting: Pass and Shot
- 1.3.3 Game practice with practical knowledge of rules and regulations.

1.4. HANDBALL

- 1.4.1. Fundamental Skills, Catching, Throwing and Ball control
- 1.4.2. Goal Throws: Jump shot, Center shot, Dive shot, Reverse shot.
- 1.4.3. Dribbling: High and low.
- 1.4.4. Attack and counter attack, simple counter attack, counter attack from two wings and center.
- 1.4.5. Blocking, Goal Keeping and Defensive skills.
- 1.4.6. Game practice with application of Rules and Regulations.
- 1.4.7. Game practice with practical knowledge of rules and regulations.

UNIT-II RACKET GAME (ANY ONE)

10X1=10

2.1 BADMINTON

- 2.1.1. Racket parts, Racket grips, Shuttle grip
- 2.1.2 Service: Short service, Long service, Long high service
Shots: Over head shot, Defensive clear shot, Attacking clear shot, Drop shot, Smash.
- 2.1.2. Game practice with practical knowledge of rules and regulations.

2.2 TABLE TENNIS

- 2.2.1. Basic Knowledge: Grip of Racket, Shake hand grip, Pen hold grip. Stance-Alternate & Parallel Stance.
- 2.2.2. Push and Service: Backhand, Forehand. Chop: Backhand and Forehand.
Receive: Push and chop with Back hand and Forehand.
- 2.2.3. Game practice with practical knowledge of rules and regulation.

Guideline for Record Book – Content of Record Book- History, Major Rules Regulation, National and International level Tournament, Name of famous National and International Players, Major Skill (Fundamentals with Picture).

SUGGESTED READINGS:

- Saha, A.K. Sarir Siksher Ritiniti, Rana Publishing House, Kalyani.
- Bandopadhyay, K. Sarir Siksha Parichay, Classic Publishers, Kolkata.
- Atkins, J.R. (1872). The Book of Racquets. A Practical Guide to the Game and its History and to the different Courts in which it is played London: Frederick Warne & Co.
- [Lord Aberdare](#). The JTFaber Book of Tennis and Rackets. London: Quiller Press, 2001. ISBN1-899163-62-X.
- Jamaica Netball Association. "The History of Netball". Archived from the original on 18 March 2011. Retrieved 13 March 2011.
- "Young Netballers March On". *Jamaican Gleaner*. 10 April 2008. Archived from the original on 8 October 2012.
- Barbara Schrodt (6 October 2011). "Team Handball". The Canadian Encyclopedia . Historica- Dominion Institute
- Serinex.NET, Sega Alex in. "Handball History: HAND-BALL.ORG". www.hand-ball.org. Retrieved 28 November 2017.
- Shekar, K.C. (30 August 2008), "Volleyball: Skills and Techniques" Khel Sahitya Kendra, ISBN-10: 8175244100

SEC-1

Medicinal & Pharmaceutical Chemistry

Total Credit: 3

Total Hours: 72

(Objective: to provide the basic knowledge and laboratory exposure to the students to develop professional skills regarding the medicinal plant at local area, their usefulness and isolation of the active ingredients of the medicinal plants)

- A. A project: Collection and brief introduction of at least 10 herbal plants

- B. Extraction
 1. Extraction of eucalyptus leaf ingredient
 2. Extraction of eugenol from clove
 3. Extraction of nicotine from tobacco.
 4. Curcumine from turmeric
 5. Extraction of caffeine from tea/coffee

References:

- Patrick, G. L. Introduction to Medicinal Chemistry, Oxford University Press, UK, 2013.
- Singh, H. & Kapoor, V.K. Medicinal and Pharmaceutical Chemistry, Vallabh Prakashan, Pitampura, New Delhi, 2012.
- Foye, W.O., Lemke, T.L. & William, D.A.: Principles of Medicinal Chemistry, 4th ed., B.I. Waverly Pvt. Ltd. New Delhi.

SEC-2

Medicinal & Pharmaceutical Chemistry

Total Credit: 3

Total Hours: 72

(Objective: to provide the basic knowledge and laboratory exposure to the students to develop professional skills regarding the medicinal plant at local area, their usefulness and isolation of the active ingredients of the medicinal plants)

(Different analytical techniques in Medicinal & Pharmaceutical Chemistry)

- A. Separation of amino acids using paper chromatography
- B. Spectrophotometric detection of
 - i. Preservatives in packaged food items
 - ii. Colour additives in sweet meat
- C. Total sugar estimation from different sources
- D. Vitamin-C estimation using redox titration method
- E. pH of soft drinks & health drinks

Museum and Archival Science Syllabus

Course –SEC

Course Objective:

The aim of this course is to familiarize students with the structure and functioning of archives and museums with a view to understanding how history is written. The special focus of the paper will be on India and it will enlarge on the relationship between the reading, writing and interpretation of history and the preservation and display of its manuscripts, art objects and heritage. It will show how carefully archives and museums organize their materials to create particular interpretations of the past. The paper will be of particular value to those interested in seeking careers as archivists or working in museums, art galleries and keepers of private and public collections.

Learning Outcomes

Upon completion of this course the student should be able to:-

- Examine these two repositories of history from close quarters.
- Discuss the role of colonialism in the growth of archives and museums.
- Explain how the documents and artefacts are preserved and the difficulties faced the process.
- Demonstrate the way in which museums are organized and managed.
- Examine the considerations which govern the way exhibitions in museums are managed.

SEC-I

Museum and Archival Science

Full Mark -50

Time Allotted: 6 hours per week

Credit- 3

Course Details:

- Unit –I : History of Museum :
- i. Definition,
 - ii. History,
 - iii. Scope and functions (Aims and objectives),
 - iv. Heritage Study,
 - v. Types and classifications of Museums,
 - vi. Museum in Indian aspects,
 - vii. Museum in World aspects.
- Unit –II: Collection Management:
- i. History and Ethics of collections,
 - ii. Select procedure,
 - iii. Process of Acquiring,
 - iv. Storage procedure and maintaining collections,
 - v. Cataloguing, Marking,
 - vi. Identification,
 - vii. Classification,
 - viii. Dating,
 - ix. Search of Bibliographical Reference.
- Unit-III: Museum visit.
- Unit-IV: Practical and Project Report.

Selected Bibliography

1. Dr. Binay Barma, S.K.Riajul Midde, *Sangrashala-Lekhyagar O Puratatwa Charcha*, 2022 ,Concept ,New Delhi
2. Nigam M.L.1966. *Fundamentals of Museology*. Navahind Prakashan.
3. Timothy, Ambrose and Paine, Crispin.1993. *Museum Basics*. ICOM. Routledge, NewYork.
4. Agrawal, Usha. *Museums in India – a brief directory*
5. Key concepts of Museology. ICOM Publication (online).
6. Museology working papers. ICOM Publication (online).
7. Seth, Manvi. 2012. *Communication and Education in Indian Museums*. Agam Kala Prakashan, New Delhi.
8. Jain, Sunjay. 2004. *Museum Avam Museology*. Kanika Prakashan, Baroda.

9. Pomian, Kyrzysztof. 1994. „*The Collection: Between the visible and the invisible*,“ Ch 23, Susan Pearce (ed) *Interpreting Objects and Collections*, Routledge
10. Pearce, Susan. 1994. „*Collecting Reconsidered*,“ Ch 26, Pearce op.cit.12
11. Baudrillard, Jean. 1994. „*The system of collecting*,“ From John Elsner and Roger Cardinal (eds) *Cultures of Collecting*, Reaktion Books, London.
12. Shelton, Anthony. „*Cabinets of Transgression: Renaissance Collections and the Incorporation of the New World*,“ from Elsner and Cardinal, op.cit.
13. Findlen, Paula. 2004. „*The Museum: Its Classical Etymology and Renaissance Genealogy*,“ in Bettina Messias Cardinal (ed) *Museum Studies: An Anthology of Contexts*, Blackwell Publishing.
14. Preziosi, Donald. 1996. „*In the Temple of Entelechy: The Museum as Evidentiary Artifact*,“ in *The Formation of National Collections of Art and Archeology*.
15. Roy, Shilpi. 2019. *Museum documentation: a potent tool for collection management*.-- Delhi: Agam Kala Prakashan, 258 p.30165.
16. Wintle, Claire. 2013. *Colonial collecting and display: encounters with material culture from the Andaman and Nicobar islands*.-- New York: Berghahn books, 244 p. 930.1/Win. 27860.
17. *Culture: collection and preservation*.-- Midnapur: Rarh, Sanskriti Sangrahalaya, 1995. vii,104 p.069.53/CUL.15814.
18. Elsner, John.1997. *The Cultures of Collecting*.-- London: Reaction Books Ltd., 312 p. 709/CUL. 21656 19563.
19. Martin, Paul.1999. *Popular collecting and the everyday self: the reinvention, of Museums?* -- London: Leicester University Press, xii,179 p. 069.4/Mar. 19033.
20. Agrawal, O.P. 1977. *Care and Preservation of Museum Objects*, NRLC, New Delhi.
21. Agrawal, O.P. 2003. *Status of Conservation in India. Studies in Museology*, Vol.36. 2003.pp1-8.
22. Agrawal, O.P. 1990. *Problems in the conservation of ethnological objects in the tropics*. Vol.23. pp.52-62.
23. Gairola, T.R. 1960. *Handbook of Chemical Conservation. Department of Museology*. The M. S. University of Baroda.
24. Plenderleith, H.J. and Werner, A.E.A. 1979. *The Conservation of antiquities and works of Art*. Oxford University Press, New York.
25. Thomson, Garry. 1986. *The Museum Environment*. Butterworth-Heiremann.
26. Basa, Kishor K. 2012. *Museum and Sustainable Development*. Humankind 8:27-44.
27. Basa, Kishor K. 2016. *Anthropology and Museum in India*. In Gwen Robbins and S. R. Walimbe (ed) *A Companion to South Asia in the Past*. Willey Blackwell.
28. Das, T.C. 1943. *Practical steps towards the improvement of museums in India*. Calcutta Review November, 1943:97-100.16
29. Crooke, Elizabeth. 2007. *Museums and Community: Ideas, Issues and Challenges*. London: Routledge.
30. Davis, Peter. 2011. *Ecomuseums : A Sense of Place*. London: Continuum International Publishing Group.
31. Smith Bautista, Susana. 2014. *Museums in the Digital Age: Changing Meanings of Places, Community and Culture*. New York: Altamira Press.
32. Dernie David. 2006. *Exhibition Design*. Laurence King. New York.

33. Michael Belcher. 1991. Exhibition in Museums. Leicester University press. Washington (DC).
34. Hall Margaret, 1987. On Display a design grammar in museum exhibitions. Humanities Press.
35. Eilean Hooper, Greenhill. 1991. Museum and gallery education. Leicester University press. Washington (DC).
36. T. Ambrose & C. Paine.2012. Museum Basics. Routledge.
37. Elizabeth Bogle. 2013. Museum Exhibition Planning and Design. Altimira press.
38. Miles .R.S. 1988. The Design of educational exhibits. Routledge.
39. A. R. Desai. 1978. Rural Sociologu in India. Popular Prakashan. Bombay .
40. Andre Beteille. 1974. Studies in Agrarian Social Structure. Oxford Press.
41. M. N. Srinivas. 2005. Social Change in Modern India. Orient Longman, New Delhi.
42. Makhan Jha. 2003. An Introduction to Social Anthropology. Vikas Publishing House. New Delhi.
43. L. P. Vidyarthi, and B. K. Rai. 1985. Tribal Culture of India. Concept Publication. New Delhi.

SEC-II

Museum and Archival Science

Full Mark -50

Time Allotted: 6 hours per week

Credit- 3

Course Details:

Unit-I. Exhibition Design:

- i. Accession procedure,
- ii. Display layout/arrangement of Pictures/Photographs/Exhibits etc.
- iii. Lights factor,
- iv. Colour factor,
- v. Room design.

Unit-II : Define and History of preservation, Classification of Preservation, Procedure of Conservation of Museum objects:

- a) Conservations of Sculpture
- b) Conservation of Terracotta
- c) Manuscript Preservation
- d) Textiles Preservation
- e) Metal objects Preservation
- f) Folk objects Preservation
- g) Painting Preservation
- h) Method of Restoration
- i) Use and Application of Preservatives

Unit-III. Museum visit

Unit-IV: Practical and Project Report.

Selected Bibliography

1. Dr. Binay Barma, S.K.Riajul Midde, *Sangrashala-Lekhyagar O Puratatwa Charcha*, 2022, Concept ,New Delhi
2. Timothy, Ambrose and Paine, Crispin.1993. *Museum Basics*. ICOM. Routledge, NewYork.
3. Agrawal, Usha. *Museums in India – A Brief Directory*.
4. Key concepts of Museology. ICOM Publication (online).
5. Museology working papers. ICOM Publication (online).
6. Seth, Manvi. 2012. *Communication and Education in Indian Museums*, Agam Kala Prakashan, New Delhi.

7. Jain, Sunjay. 2004. *Museum Avam Museology*. Kanika Prakashan, Baroda.
8. Pomian, Kyrzysztof. 1994. „*The Collection: Between the visible and the invisible*,“ Ch 23, Susan Pearce (ed) *Interpreting Objects and Collections*, Routledge
9. Pearce, Susan. 1994. „*Collecting Reconsidered*,“ Ch 26, Pearce op.cit.12
10. Baudrillard, Jean. 1994. „*The system of collecting*,“ From John Elsner and Roger Cardinal (eds) *Cultures of Collecting*, Reaktion Books, London.
11. Shelton, Anthony. „*Cabinets of Transgression: Renaissance Collections and the Incorporation of the New World*,“ from Elsner and Cardinal, op.cit.
12. Findlen, Paula. 2004. „*The Museum: Its Classical Etymology and Renaissance Genealogy*,“ in Bettina Messias Cardinal (ed) *Museum Studies: An Anthology of Contexts*, Blackwell Publishing.
13. Preziosi, Donald. 1996. „*In the Temple of Entelechy: The Museum as Evidentiary Artifact*,“ in *The Formation of National Collections of Art and Archeology*.
14. Roy, Shilpi. 2019. *Museum documentation: a potent tool for collection management*.-- Delhi: Agam Kala Prakashan, 258 p.30165.
15. Wintle, Claire. 2013. *Colonial collecting and display: encounters with material culture from the Andaman and Nicobar islands*.-- New York: Berghahn books, 244 p. 930.1/Win. 27860.
16. *Culture: collection and preservation*.-- Midnapur: Rarh, Sanskriti Sangrahalaya, 1995. vii,104 p.069.53/CUL.15814.
17. Elsner, John.1997. *The Cultures of Collecting*.-- London: Reaction Books Ltd., 312 p. 709/CUL. 21656 19563.
18. Martin, Paul.1999. *Popular collecting and the everyday self: the reinvention, of Museums?* -- London: Leicester University Press, xii,179 p. 069.4/Mar. 19033.
19. Agrawal, O.P. 1977. *Care and Preservation of Museum Objects*, NRLC, New Delhi.
20. Agrawal, O.P. 2003. *Status of Conservation in India. Studies in Museology*, Vol.36. 2003.pp1-8.
21. Agrawal, O.P. 1990. *Problems in the conservation of ethnological objects in the tropics*. Vol.23. pp.52-62.
22. Gairola, T.R. 1960. *Handbook of Chemical Conservation. Department of Museology*. The M. S. University of Baroda.
23. Plenderleith, H.J. and Werner, A.E.A. 1979. *The Conservation of antiquities and works of Art*. Oxford University Press, New York.
24. Thomson, Garry. 1986. *The Museum Environment*. Butterworth-Heiremann.
25. Basa, Kishor K. 2012. *Museum and Sustainable Development*. Humankind 8:27-44.
26. Basa, Kishor K. 2016. *Anthropology and Museum in India*. In Gwen Robbins and S. R. Walimbe (ed) *A Companion to South Asia in the Past*. Willey Blackwell.
27. Das, T.C. 1943. *Practical steps towards the improvement of museums in India*. Calcutta Review November, 1943:97-100.16
28. Crooke, Elizabeth. 2007. *Museums and Community: Ideas, Issues and Challenges*. London: Routledge.
29. Davis, Peter. 2011. *Ecomuseums : A Sense of Place*. London: Continuum International Publishing Group.
30. Smith Bautista, Susana. 2014. *Museums in the Digital Age: Changing Meanings of Places, Community and Culture*. New York: Altamira Press.

31. Dernie David. 2006. Exhibition Design. Laurence King. New York.
32. Michael Belcher. 1991. Exhibition in Museums. Leicester University press. Washington (DC).
33. Hall Margaret, 1987. On Display a design grammar in museum exhibitions. Humanities Press.
34. Eilean Hooper, Greenhill. 1991. Museum and gallery education. Leicester University press. Washington (DC).
35. T. Ambrose & C. Paine.2012. Museum Basics. Routledge.
36. Elizabeth Bogle. 2013. Museum Exhibition Planning and Design. Altimira press.
37. Miles .R.S. 1988. The Design of educational exhibits. Routledge.
38. A. R. Desai. 1978. Rural Sociologu in India. Popular Prakashan. Bombay .
39. Andre Beteille. 1974. Studies in Agrarian Social Structure. Oxford Press.
40. M. N. Srinivas. 2005. Social Change in Modern India. Orient Longman, New Delhi.
41. Makhan Jha. 2003. An Introduction to Social Anthropology. Vikas Publishing House. New Delhi.
42. L. P. Vidyarthi, and B. K. Rai. 1985. Tribal Culture of India. Concept Publication. New Delhi.
43. Nigam M.L.1966. *Fundamentals of Museology*. Navahind Prakashan.

SEC-III

Museum and Archival Science

Full Mark -50

Time allotted: 6 hours per week

Credit- 3

Course Details:

Unit-I: Laws of Governing Cultural property.

Unit-II: Information Technology in Museum and Archival Science: IT in Museums and other Nonprofit cultural/heritage institutions, Creation of database – Methods, Software.

Unit -III: Audio-Visual Aids.

Unit-IV: Virtual reality, Augmented reality, Immersive visualization.

UnitV: Museum visit.

Unit-VI: Practical and Viva-voce.

N.B. Candidates will be assigned projects under the supervision of particular faculty member/s by the Department Committee. The projects may be completed within the stipulated time. The report be submitted for evaluation purpose before examination.

Selected Bibliography:

1. Dr. Binay Barma, S.K.Riajul Midde, *Sangrashala-Lekhyagar O Puratatwa Charcha*, 2022 ,Concept ,New Delhi
2. Nigam M.L.1966. *Fundamentals of Museology*. Navahind Prakashan.
3. Timothy, Ambrose and Paine, Crispin.1993. *Museum Basics*. ICOM. Routledge, NewYork. Agrawal, Usha. *Museums in India – a brief directory*
4. Key concepts of Museology. ICOM Publication (online).
5. Museology working papers. ICOM Publication (online).

6. Seth, Manvi. 2012. *Communication and Education in Indian Museums*. Agam Kala Prakashan, New Delhi.
7. Jain, Sunjay. 2004. *Museum Avam Museology*. Kanika Prakashan, Baroda.
8. Pomian, Kyrzysztof. 1994. „*The Collection: Between the visible and the invisible*,“ Ch 23, Susan Pearce (ed) *Interpreting Objects and Collections*, Routledge
9. Pearce, Susan. 1994.„*Collecting Reconsidered*,“ Ch 26, Pearce op.cit.12
10. Baudrillard, Jean. 1994. „*The system of collecting*,“ From John Elsner and Roger Cardinal (eds) *Cultures of Collecting*, Reaktion Books, London.
11. Shelton, Anthony. „*Cabinets of Transgression: Renaissance Collections and the Incorporation of the New World*,“ from Elsner and Cardinal, op.cit.
12. Findlen, Paula. 2004. „*The Museum: Its Classical Etymology and Renaissance Genealogy*,“ in Bettina Messias Cardinal (ed) *Museum Studies: An Anthology of Contexts*, Blackwell Publishing.
13. Preziosi, Donald. 1996. „*In the Temple of Entelechy: The Museum as Evidentiary Artifact*,“ in *The Formation of National Collections of Art and Archeology*.
14. Roy, Shilpi. 2019. *Museum documentation: a potent tool for collection management*.-- Delhi: Agam Kala Prakashan, 258 p.30165.
15. Wintle, Claire. 2013. *Colonial collecting and display: encounters with material culture from the Andaman and Nicobar islands*.-- New York: Berghahn books, 244 p. 930.1/Win. 27860.
16. *Culture: collection and preservation*.-- Midnapur: Rarh, Sanskriti Sangrahalaya, 1995. vii,104 p.069.53/CUL.15814.
17. Elsner, John.1997. *The Cultures of Collecting*.-- London: Reaction Books Ltd., 312 p. 709/CUL. 21656 19563.
18. Martin, Paul.1999. *Popular collecting and the everyday self: the reinvention, of Museums?* -- London: Leicester University Press, xii,179 p. 069.4/Mar. 19033.
19. Agrawal, O.P. 1977. *Care and Preservation of Museum Objects*, NRLC, New Delhi.
20. Agrawal, O.P. 2003. *Status of Conservation in India. Studies in Museology*, Vol.36. 2003.pp1-8.
21. Agrawal, O.P. 1990. *Problems in the conservation of ethnological objects in the tropics*. Vol.23. pp.52-62.
22. Gairola, T.R. 1960. *Handbook of Chemical Conservation*. Department of Museology. The M. S. University of Baroda.
23. Plenderleith, H.J. and Werner, A.E.A. 1979. *The Conservation of antiquities and works of Art*. Oxford University Press, New York.

24. Thomson, Garry. 1986. *The Museum Environment*. Butterworth-Heinemann.
25. Basa, Kishor K. 2012. *Museum and Sustainable Development*. *Humankind* 8:27-44.
26. Basa, Kishor K. 2016. *Anthropology and Museum in India*. In Gwen Robbins and S. R. Walimbe (ed) *A Companion to South Asia in the Past*. Willey Blackwell.
27. Das, T.C. 1943. *Practical steps towards the improvement of museums in India*. *Calcutta Review* November, 1943:97-100.16
28. Crooke, Elizabeth. 2007. *Museums and Community: Ideas, Issues and Challenges*. London: Routledge.
29. Davis, Peter. 2011. *Ecomuseums : A Sense of Place*. London: Continuum International Publishing Group.
30. Smith Bautista, Susana. 2014. *Museums in the Digital Age: Changing Meanings of Places, Community and Culture*. New York: Altamira Press.
31. Dernie David. 2006. *Exhibition Design*. Laurence King. New York.
32. Michael Belcher. 1991. *Exhibition in Museums*. Leicester University press. Washington (DC).
33. Hall Margaret, 1987. *On Display a design grammar in museum exhibitions* manities Press.
34. Eilean Hooper, Greenhill. 1991. *Museum and gallery education*. Leicester University press. Washington (DC).
35. T. Ambrose & C. Paine. 2012. *Museum Basics*. Routledge.
36. Elizabeth Bogle. 2013. *Museum Exhibition Planning and Design*. Altimira press.
37. Miles .R.S. 1988. *The Design of educational exhibits*. Routledge.
38. A. R. Desai. 1978. *Rural Sociologu in India*. Popular Prakashan. Bombay .
39. Andre Beteille. 1974. *Studies in Agrarian Social Structure*. Oxford Press.
40. M. N. Srinivas. 2005. *Social Change in Modern India*. Orient Longman, New Delhi.
41. Makhan Jha. 2003. *An Introduction to Social Anthropology*. Vikas Publishing House. New Delhi.
42. L. P. Vidyarthi, and B. K. Rai. 1985. *Tribal Culture of India*. Concept Publication. New Delhi.