



**INDIRA GANDHI DELHI TECHNICAL
UNIVERSITY FOR WOMEN
DEPARTMENT OF ARCHITECTURE AND PLANNING**

VULNERABILITY MAPPING OF SHAHJAHANABAD THROUGH GIS

**6 WEEKS
SUMMER INTERNSHIP PROGRAMME
10th June,2024 -19th July,2024**

ORGANIZING COMMITTEE



Patron - Hon'ble VC, IGDTUW,
Dr (Mrs) Amita Dev



Registrar,
Prof. R.K. Singh



Coordinator – **Prof.(Dr.).
Rashmi Ashtt, HOD, Prof., DAP**



Co-coordinator –**Dr. Monali
Wankar, Asso. Prof, DAP**



Member –**Ar. Anubhav Jangra,
Assistant. Prof, DAP**

OBJECTIVE

1. To provide students with an understanding of and exposure to the concept of urban vulnerability, particularly in the context of heritage sites.
2. To render multi-disciplinary and inter-disciplinary practices in the study.
3. To provide students with hands-on experience in using Geographic Information System (GIS) tools.

LEARNING OUTCOME

- The 5-day training program will sufficiently equip students in dealing with spatial and non-spatial data in an open-source GIS environment.
- By the end of the training program, the participants would have learned to handle different types of raster images - satellite images, historic maps, Digital elevation models - using QGIS.
- The participants would have also learned to use field data collection apps like SW Maps which will help them in collecting geo-spatial data on-cultural heritage later during the summer workshop.
- Students will explore the various factors that contribute to vulnerability in historic areas, including physical characteristics and socio-economic factors.

THEMES TO BE COVERED

Unit 1: Understanding Heritage and Urban Vulnerabilities

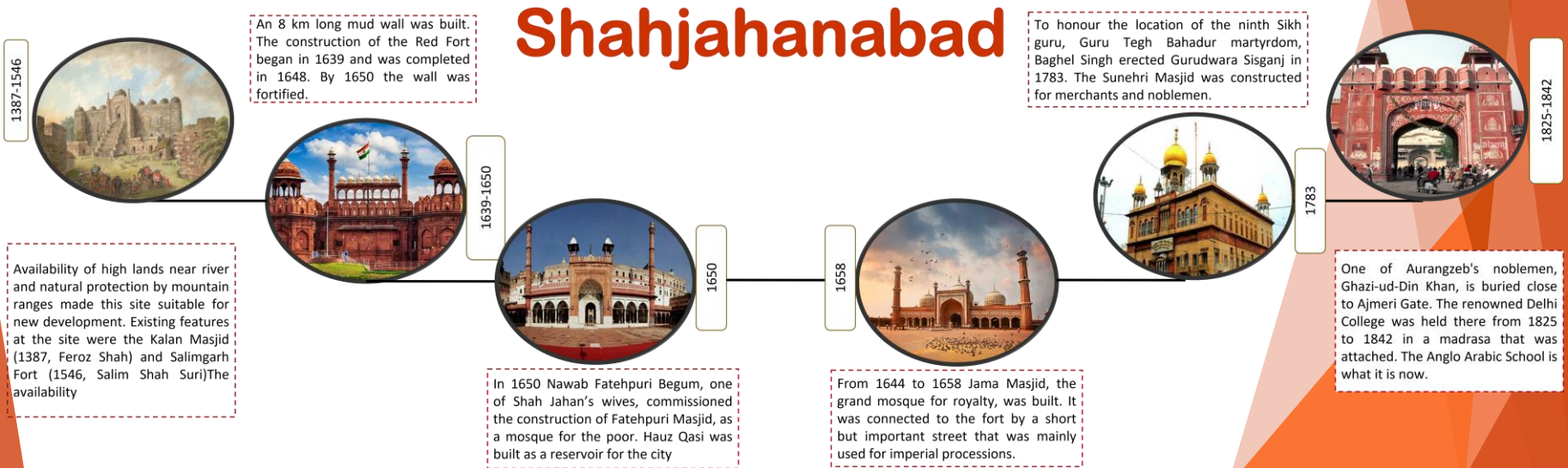
Unit 2: GIS and its Interdisciplinary Applications

Unit 3: Importance of Heritage in Urban Planning

Unit 4: Project Work: Mapping Vulnerability points of
Shahjahanabad, the heritage city of Delhi

INTRODUCTION

- Delhi went into something of an eclipse from the time of Humayun's Delhi to the accession of Shahjahan, the great Mughal builder who in 1648 built **Shahjahanabad, the seventh city of Delhi**. Shahjahan's Delhi is today more visible than all the Delhi built before it. The scale on which he built was also more heroic, as can be seen from the Red Fort and the Jama Masjid.
- The imperial capital Shahjahanabad was built by Mughal Emperor Shahjahan (1628- 58) between 1639 and 1648 and it spread out over a large area along the banks of river Yamuna in the southeastern parts of the Delhi triangle.



TIMELINE OF SHAHJAHANABAD

Planning Aspects

The city was planned according to hind planning principles of Shilpa shastra from vastu shastra.

- The site was placed on a high land as in the shastra and was kamukha or bow shaped, for this ensured its prosperity.
- The arm of the archer was Chandni Chowk.
- The string was Yamuna river.
- The junction of the two main axes is the most auspicious point in the whole region and was therefore the red fort.

THE FORT & THE MOSQUE

- The Red Fort and Jama Masjid were thorough fares that framed the city.
- From Lahore Gate ran a broad avenue with a covered arcade designed and paid for by Jahan Ara- that housed over 1500 shops. Today known as Chatta Bazaar.
- The remainder of Shahjahanabad took shape within the city walls with its havelis mansions, mosques, temples, Sikh shrines and the gardens of the nobility.
- The walled and guarded establishments of these grandees included private living quarters for the nobles and their harem.

HISTORIC EVOLUTION



16th CENTURY: original shahjahanabad



17th CENTURY: settlements



■ British settlements and establishments.
■ Extent of Middle Class settlements.

18th & 19th CENTURY: settlements



21st CENTURY: present condition



NATURAL FEATURES ON SITE



The site is triangular –
Aravalli ranges to South & West
and Yamuna channel to East

Planning Concepts & Highlights

- ❖ The New Mughal Capital and the fort were designed as an ideal city and a paradise on earth.
- ❖ The design and planning methods were geometric and provided for green areas (Gardens) and water facilities.
- ❖ Principal elements in the town planning were the fort, the Jami masjid, two major streets, city wall and gate, the Bagh, the Id-gah and the Karwan Sarai
- ❖ The Red fort was designed as a symbol of Muslim power and as an ideal living space on a formal geometrical plan.
- ❖ The Jami Masjid was designed as a symbol of Muslim power and of the capital
- ❖ Two Major Street were designed as the Central axis and as processional routes and they were new elements in the capital. The design and the planning method was a new concept in town planning in the Mughal capital
- ❖ Planning in the capital did not provide planning of Residential Areas.
- ❖ The City wall and gateways were drawn on a geometrical plan.
- ❖ Urban Forms and patterns developed on their own in response to the emperor's basic need and idea and little attention was paid to the social planning

THE CITY FORM- MORPHOLOGY ELEMENTS

- The urban infrastructure was laid out in a geometric pattern.
- Shows traces of both Persian and Hindu traditions of town planning and architecture with the Persian influence largely accounting for the formalism and symmetry of the palaces gardens and boulevards.

The designed infrastructure of Shahjahanabad comprised-

- The fort
- The Friday mosque.
- The other major mosques, including the corresponding waqf properties.
- The two main boulevards.
- The bazaars around the Friday mosque.
- The elaborate system of water channels.
- The major gardens and the city wall.
- The arrangement of these planned elements was influenced by certain site features, which precluded absolute geometry.

MAJOR CONTENTS OF THE PROGRAMME

1. Principles and practices, science and techniques in architectural conservation, urbanization and its effects on built cultural heritage.
- ii. Interdisciplinary approach of GIS; role in cultural mapping and its protection.
- iii. GIS as a tool for monitoring and management; GIS and TS theory and hands-on software. Hands-on will consist of understanding the interface, sources of raster and vector data, geo referencing images, digitization of points, lines and polygons, attribute table, joining data from Excel, symbology and labels, creating map layout and spatial analysis.
- iv. Role of urban planners, conservation architects, site managers etc in balancing development with heritage preservation.
- v. Learning the morphology of Shahjahanabad through site surveys and visits; data and resource collection; preparation of GIS map to identify and analyze vulnerabilities.

TENTATIVE WEEK WISE SCHEDULE

S.No	Week	Date	Day 1	Day 2	Day 3	Day 4	Day 5
1	Week 1 (Literature Reading) Registration + Introduction Resource Persons- INTACH, ICOMOS	10th to 14th June	Day 1: Introduction to Vulnerability Mapping Explore global and Indian applications of GIS Mapping. Examine GIS utilization	Understanding Shahjahanabad Lecture on the history and heritage of Shahjahanabad. Explore spatial attributes and infrastructure with a lens on vulnerability. Introduction to the concept of vulnerability mapping in historic urban contexts.	Identifying Vulnerable Areas: Theoretical approaches and methodologies for using GIS to locate vulnerable zones in Shahjahanabad. Land Use Planning and Vulnerability Assessment. Mapping Vulnerable Areas and Infrastructure.	1. Introduction to Shahjahanabad and application of GIS and Digitization, Demonstration 2. Hands on Queries	Data Collection and Map Composition Outline the trajectory for spatial data collection with a focus on vulnerable points. Engage in map composition, highlighting vulnerable zones. Form groups for collaborative mapping projects. Develop a checklist for vulnerability mapping. Feedback and interaction on the day's activities.
2	Week 2 Session-1 (10 am- 1 pm) Blended mode Resource Persons-Prof.(Dr.) Rashmi Ashtt-Professor, IGDTUW Dr. Monali Wankar-Asso.Prof., IGDTUW Ar. Anubhav Jangra- Assistant Professor, IGDTUW	17th to 21th June	Practical Digitization of Shahjahanabad starts Group Wise, Zone Wise and parameters mapping	Practical Digitization of Shahjahanabad starts Group Wise, Zone Wise mapping of Monuments and categorization	Practical Digitization of Shahjahanabad starts Group Wise, Zone Wise and parameters mapping	Practical Digitization of Shahjahanabad starts Group Wise, Zone Wise and parameters mapping and translation on map	Practical Digitization of Shahjahanabad starts Group Wise, Zone Wise and parameters mapping and translation on map
3	Week 3 Session-1 (10 am- 1 pm) Blended mode Resource Persons-Prof.(Dr.) Rashmi Ashtt-Professor, IGDTUW Dr. Monali Wankar-Asso.Prof., IGDTUW Sunil, Asso.Prof. (HICDAP) Ar. Anubhav Jangra- Assistant Professor, IGDTUW	24th to 28th June	Site visit Zone 1-4	Site visit Zone -4-8	Office visit and collection of data	Cumulative Data presentation	Presentation and Analysis of Data
4	Week 4 Session-1 (10 am- 1 pm) Blended mode Resource Persons-Prof.(Dr.) Rashmi Ashtt-Professor, IGDTUW Dr. Monali Wankar-Asso.Prof., IGDTUW Sunil, Asso.Prof. (HICDAP) Ar. Anubhav Jangra- Assistant Professor, IGDTUW	1st to 5th July	on map transition of various attributes zone wise in lab.	on map transition of various attributes zone wise in lab.	on map transition of various attributes zone wise in lab.	on map transition of various attributes zone wise in lab.	Vulnerability mapping around Monuments zone wise in Lab.
5	Week 5 Session-1 (10 am- 1 pm) Blended mode Resource Persons-Prof.(Dr.) Rashmi Ashtt-Professor, IGDTUW Dr. Monali Wankar-Asso.Prof., IGDTUW Sunil, Asso.Prof. (HICDAP) Ar. Anubhav Jangra- Assistant Professor, IGDTUW	8th to 12th July	Compiling and Merging Maps on GIS		Data finalization sheet, Compiling and Merging Maps on GIS		
6	Week 6 Session-1 (10 am- 1 pm) Blended mode Resource Persons-Prof.(Dr.) Rashmi Ashtt-Professor, IGDTUW Dr. Monali Wankar-Asso.Prof., IGDTUW Sunil, Asso.Prof. (HICDAP) Ar. Anubhav Jangra- Assistant Professor, IGDTUW	15th to 19th July	Printing final sheets, Data finalization sheet, Compiling and Merging Maps on GIS		Exhibition of Printed final sheets, Data finalization sheet, Maps on GIS		Inaugral and certificate by Hon'ble VC mam, Registrar and other members

INFORMATION

Last date to apply: 5th June 2024

Internship Starting Date : 10th June 2024

Internship Completion Date: 19th July 2024

Duration of theory sessions : 10th – 22nd June 2024 (weekdays - 3 hours session)

Duration of Project work: 24th June - 12th July 2024

Submission of GIS heritage mapping: 15th July 2024

Exhibition: 19th July 2024

Issuance of certificate: 19th July 2024