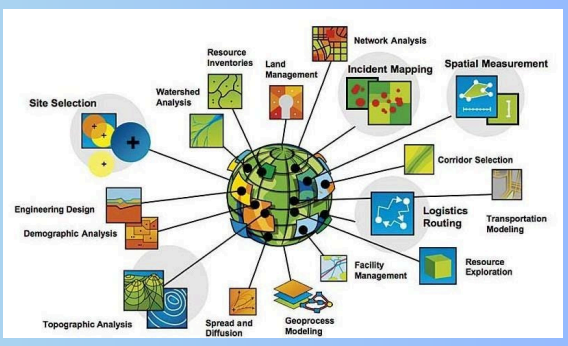
Miranda House, University of Delhi
in collaboration with
Centre for Himalayan Studies, University of Delhi
and
Department of Geography, School of Earth Sciences,
Hemavati Nandan Bahuguna Garhwal University
invites registrations for

Short Term Course on

SPATIAL ANALYTICAL TOOLS FOR ADVANCED ACADEMIC RESEARCH

Duration: **7 weekends** (From 6 June - 16 July 2025)
Mode: **Online**



Eligibility:
4th year UG & PG students/research scholars/faculty members.
Seats are limited; 100

Registration Fee:
Rs 2000 (Faculty); Rs 1700 (Research Scholars)
Rs 1500 (PG and upcoming 4th year UG students)

Last date to register:
5 June 2025 (5:00pm)

Registration Link:

https://forms.gle/NN9CSyXbymoYjoF7A

Payment Link:
https://www.onlinesbi.sbi/sbicollect/icollecthome.htm

Patrons

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Director
Centre for Himalayan Studies

Prof. Bijayalaxmi Nanda
Principal
Miranda House

Prof. M.S. Panwar
Head
Department of Geography, HNBGU

Convenor

Prof. Ritu Ahlawat
Coordinator
Centre for Himalayan Studies

Co-Convenors

Dr. Praffulit Bisht
Coordinator
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Dr. Rashmi Singh
Coordinator
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Dr. Hasibur Rahaman
Coordinator
HNB Garhwal Central University

Organising Secretaries

Dr. Shikha Yadav
Department of Geography
Miranda House

Dr. Om Jee Ranjan
Department of Geography
Miranda House

Short-Term Online Course
on

SPATIAL ANALYTICAL TOOLS FOR ADVANCED ACADEMIC RESEARCH

Organized by: Miranda House in collaboration with Centre for Himalayan Studies, University of Delhi and Department of Geography, School of Earth Sciences, Hemavati Nandan Bahuguna Garhwal University
Duration: 6 June - 16 July 2025 (36 Hours)
Mode: Weekend Short-Term Online Course
Target Participants: Faculty members, research scholars and students
Certificate: E-certificates will be issued upon successful completion of 36 hours for the participants and 60 hours in case of interns.

About the Programme:

The course on Spatial Analytical Tools is designed to provide a hands-on, practical understanding of key spatial techniques and analytical methods that are crucial in research and applied sciences today. With the expansion of GIS, satellite imaging and data science in research, this program equips participants with foundational as well as advanced knowledge in spatial technologies.

The course is ideal for faculty, researchers and students working in disciplines such as Geography, Environmental Science, Urban Studies, Development Studies and Data Science. Participants will gain exposure to tools and applications through demonstrations, exercises, and real-life case studies.

By integrating Spatial Analysis into their teaching practices, participants will be able to provide students with engaging and interactive learning experiences. They can incorporate geospatial technologies across various subjects, fostering interdisciplinary connections and promoting a deeper understanding of spatial relationships in the world. Furthermore, participants will be equipped to conduct research and explore innovative applications of GIS and Remote Sensing in their respective fields.

Who can participate?

Researchers and academicians from various fields such as geography, environmental science, urban planning, agriculture, archaeology and natural resource management who use spatial data and analysis in their research.

PROGRAMME SCHEDULE

Inaugural session: 6 June 2025
Venue: Centre for Himalayan Studies (CHS), University of Delhi

Week 1: Introduction to GIS & Basic Mapping ***(4 Hours + 2 Hours Hands-on)***

What is GIS?; Introduction to search engines and geo-databases; Overview of GIS software: QGIS**,** ArcGIS**,** Google Earth; Data types: Raster vs. Vector; Basic GIS operations: pan, zoom, identify, measure; Data creation: points, lines, polygons; Input of attribute data and table editing; Basic geoprocessing tools: clip, dissolve, merge; Map types: Thematic, Choropleth, Heat maps

Week 2: Advanced Digitization & Spatial Analysis ***(4 Hours + 2 Hours Hands-on)***

Advanced digitization: digitizing scanned maps/images; Editing tools: reshape, split, node adjustment; Spatial tools: Buffering: create influence zones, Clipping: extract spatial subset, Spatial Join: integrate data from multiple layers; Spatial queries: select by location, intersect, contain; Handling geometric errors: topology checks, error fixes; Exporting maps and data visualization techniques; Introduction to WebGIS, mobile mapping and Google Earth Engine

Week 3: Data Acquisition & Terrain Analysis ***(4 Hours + 2 Hours Hands-on)***

Basics of remote sensing, sensors, and resolutions; Satellite data platforms: Landsat, Sentinel, SRTM; DEM fundamentals: elevation, slope, aspect, watershed delineation; Band combinations & visualization techniques; LULC (Land Use/Land Cover) classification: Supervised vs. Unsupervised

Week 4: Indices, LULC & Urban Heat Island Analysis ***(4 Hours + 2 Hours Hands-on)***

Raster analysis: NDVI, NDBI, NDWI; LULC classification validation (basic accuracy check); Urban Heat Island (UHI) concept & assessment using Land Surface Temperature (LST); Integration of indices with LULC & elevation for spatial insights

Week 5: Fundamentals of Excel and SPSS ***(4 Hours + 2 Hours Hands-on)***

Advanced spreadsheet functions- measures of central tendency, measures of dispersion, data validation, functions and power functions, advanced range names, what-if analysis, data table, data analysis tool pack, corelation and regression analysis, advanced usage of pivot tables and charts; Understanding the SPSS environment, Data View vs Variable View, menu structure, and basic file operations; Variable definition, data entry techniques, importing data from Excel/CSV files, data cleaning procedures, handling missing values and basic data transformation; Generating frequency tables, measures of central tendency and dispersion,

creating basic charts and graphs (histograms, bar charts, scatterplots) and interpreting descriptive output to understand data characteristics

Week 6: Advanced Statistical tools *(4 Hours + 2 Hours Hands-on)*

Introduction to hypothesis testing concepts, conducting t-tests (one-sample, independent samples, paired samples), chi-square tests for association and basic correlation analysis with proper interpretation of significance levels and confidence intervals.

Qualitative Analysis: data coding and categorisation, thematic analysis, content analysis (through SPSS)

Week 7: Case study-based project report preparation *(6 Hours Hands-on)*

Valedictory session: 22 July 2025

Venue: Miranda House, University of Delhi

Instructions for the participants:

1. This online course is open to postgraduate students, research scholars and faculty members from all disciplines.
2. The course will run in online mode on Saturdays and Sundays in the weekend (Expected timings to be between 1 PM to 5 PM).
3. 80% attendance is mandatory for getting the certificates.
4. Submit your fee through the link provided in the form. And attach the screen shot along with the Transaction ID. Fee submitted in any other way will not be accepted.
5. Seats are limited. Hence, they will be filled on First-Come-First-Serve basis. Your seat will be considered reserved after successful submission of fee.
6. Fee once deposited will not be refunded under any circumstances.
7. Every participant has to submitted appropriate fee to reserve the seat.
8. Miranda House has the full authority to determine the time and duration of the course and take all decisions related to its implementation. Miranda House reserves the right to make changes.

Registration fees: Rs. 2000 (for faculty members), Rs 1700 (for research scholars), Rs 1500 (for PG students and Fourth year Undergraduate Students)

For Foreigners: $ 45 (for faculty members), $ 35 (for research scholars, PG students and Fourth year Undergraduate Students)

Additional Note:

Interns will also get certificates upon successful completion of the programme with 60-hour duration (including assistance to participants).

Patrons

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Director
Centre for Himalayan Studies

Professor Bijayalaxmi Nanda
Principal
Miranda House

Professor Mohan Singh Panwar
Department of Geography, School of Earth Science
H.N.B Garhwal University

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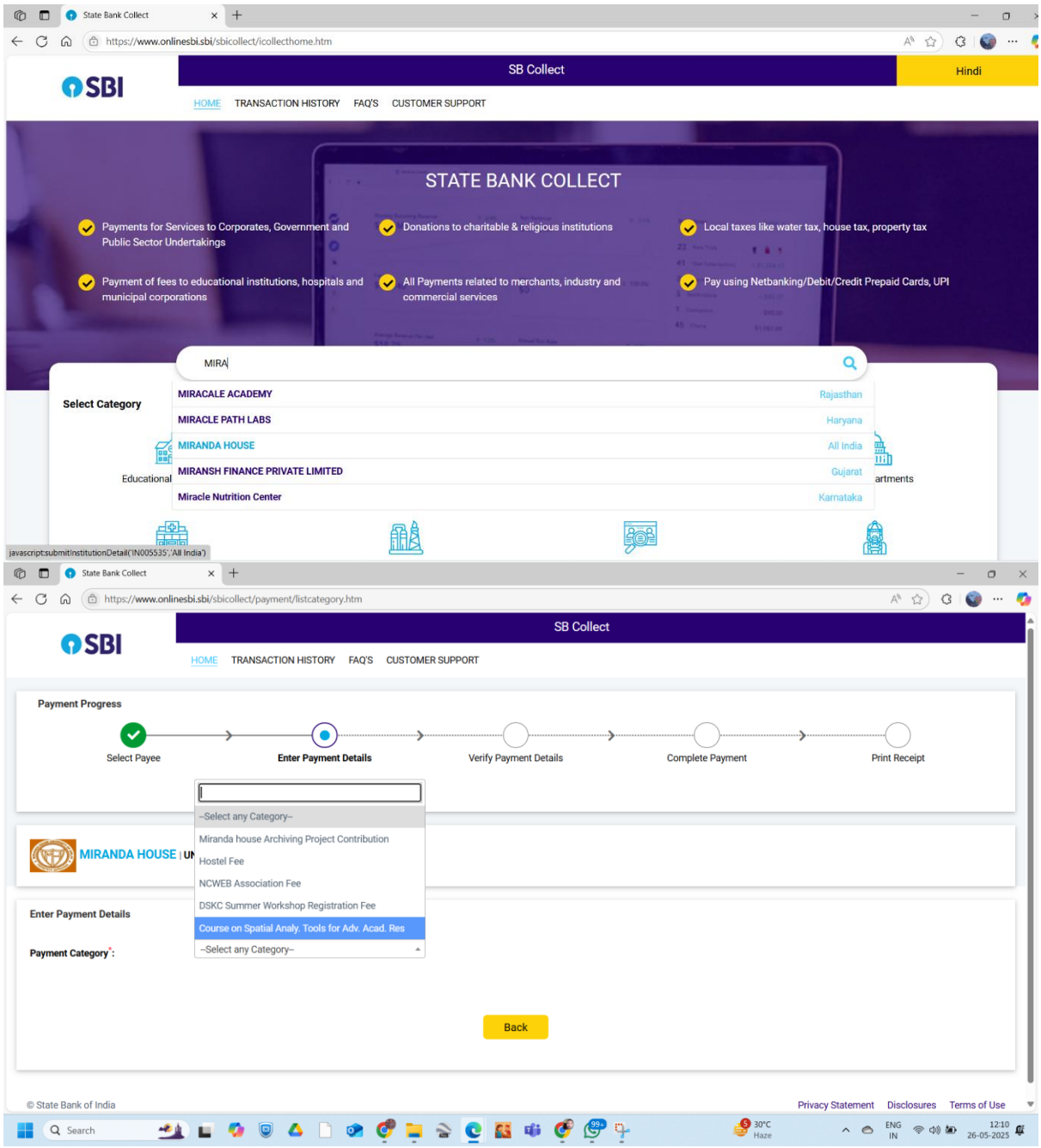

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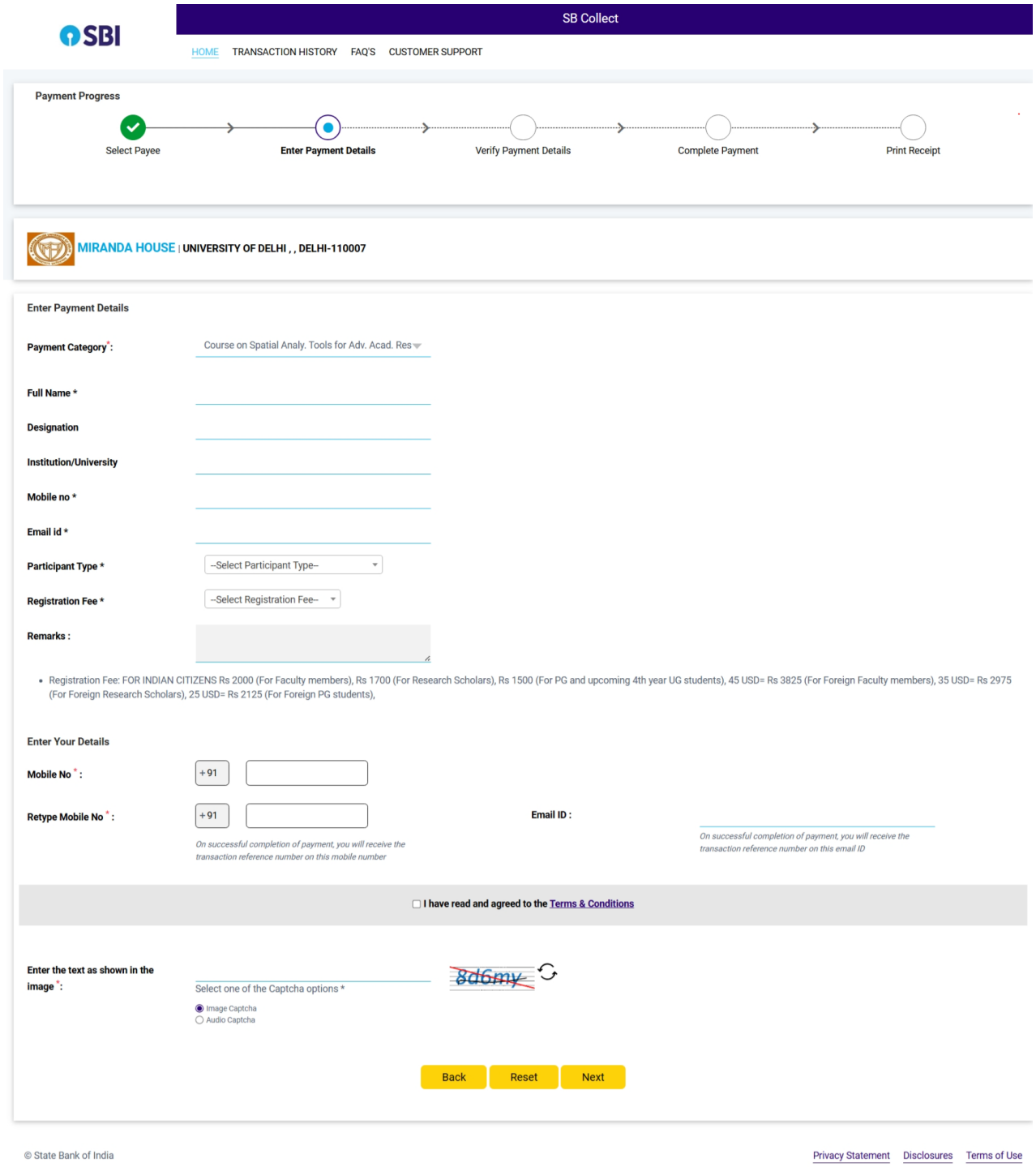
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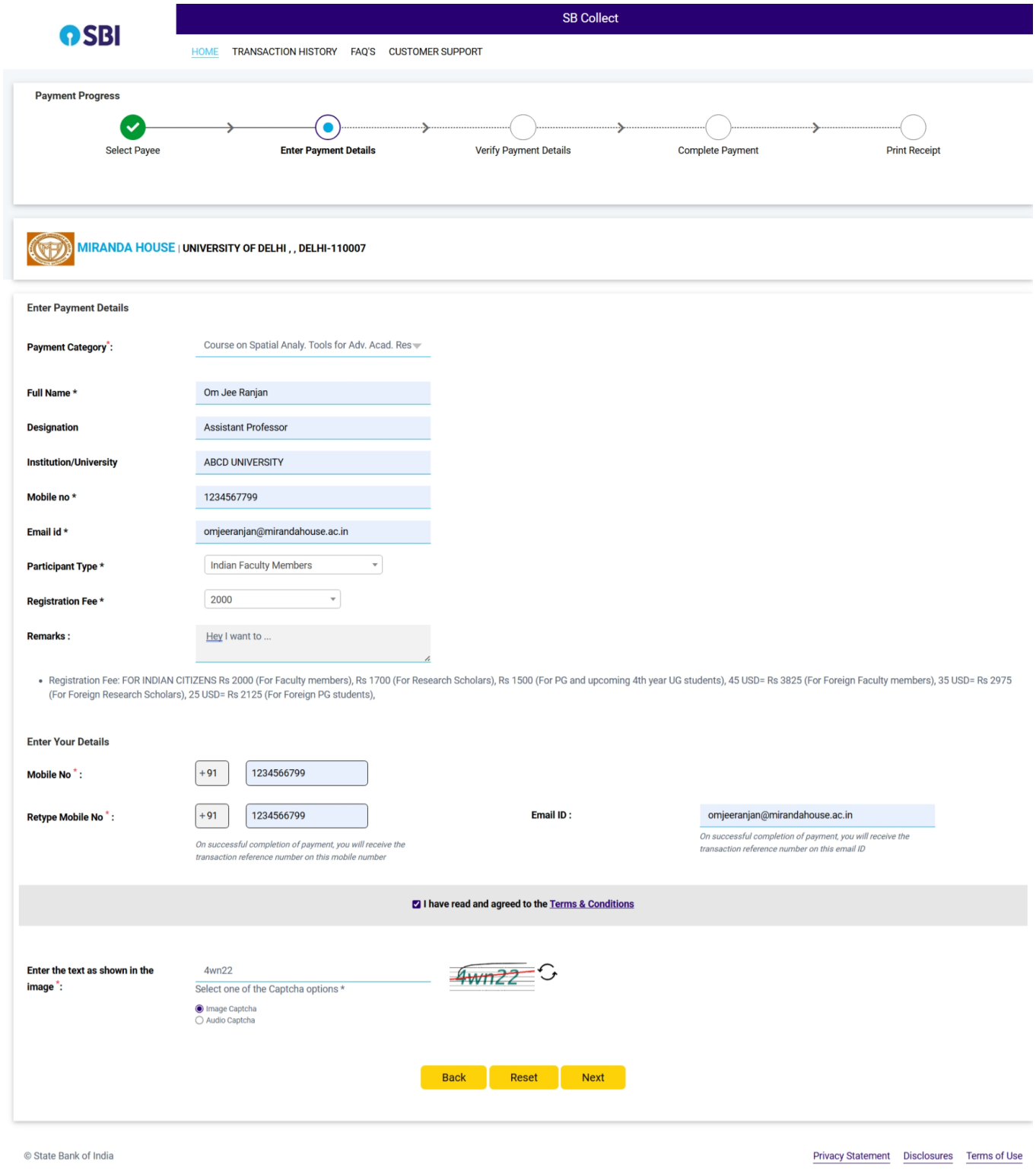
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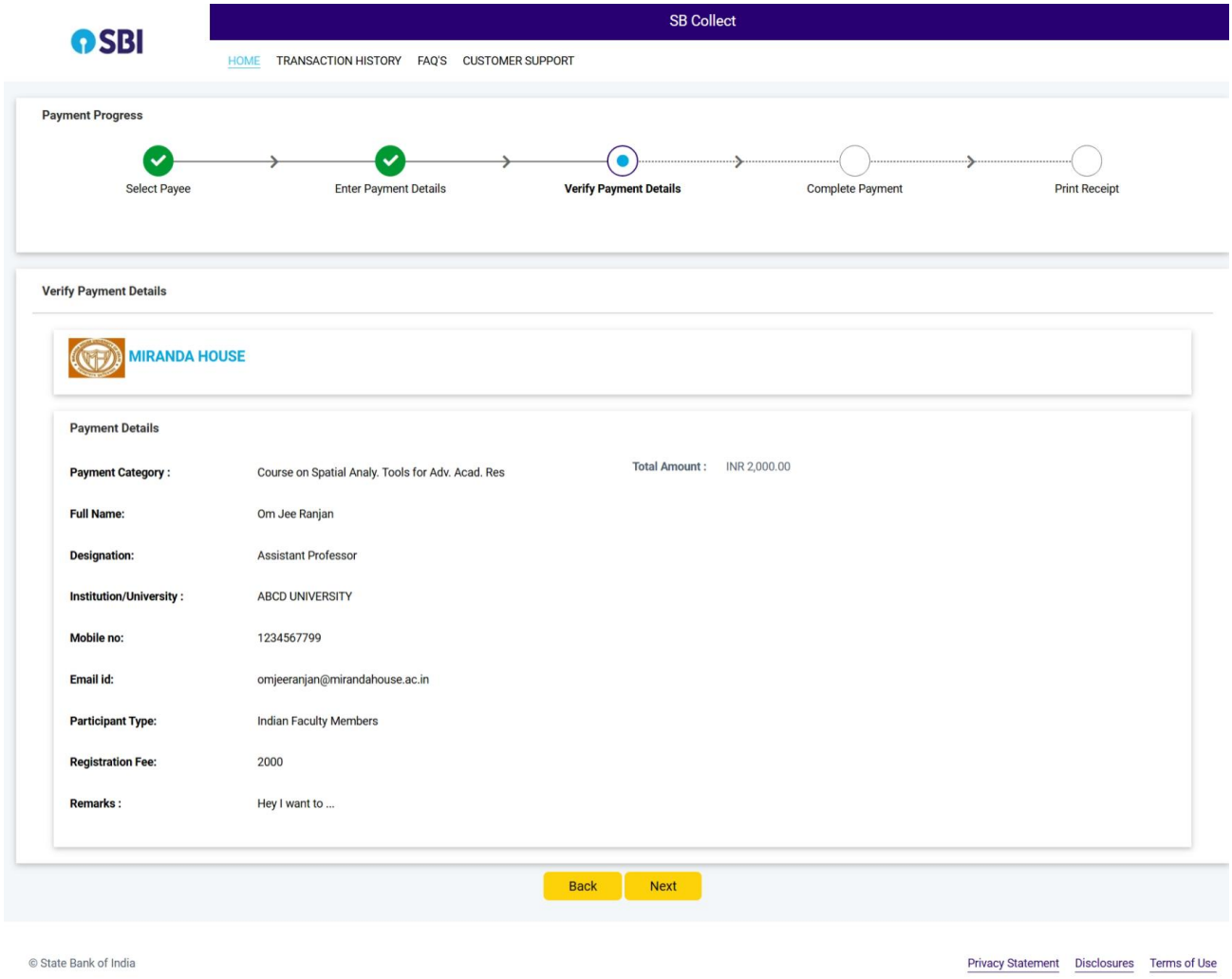
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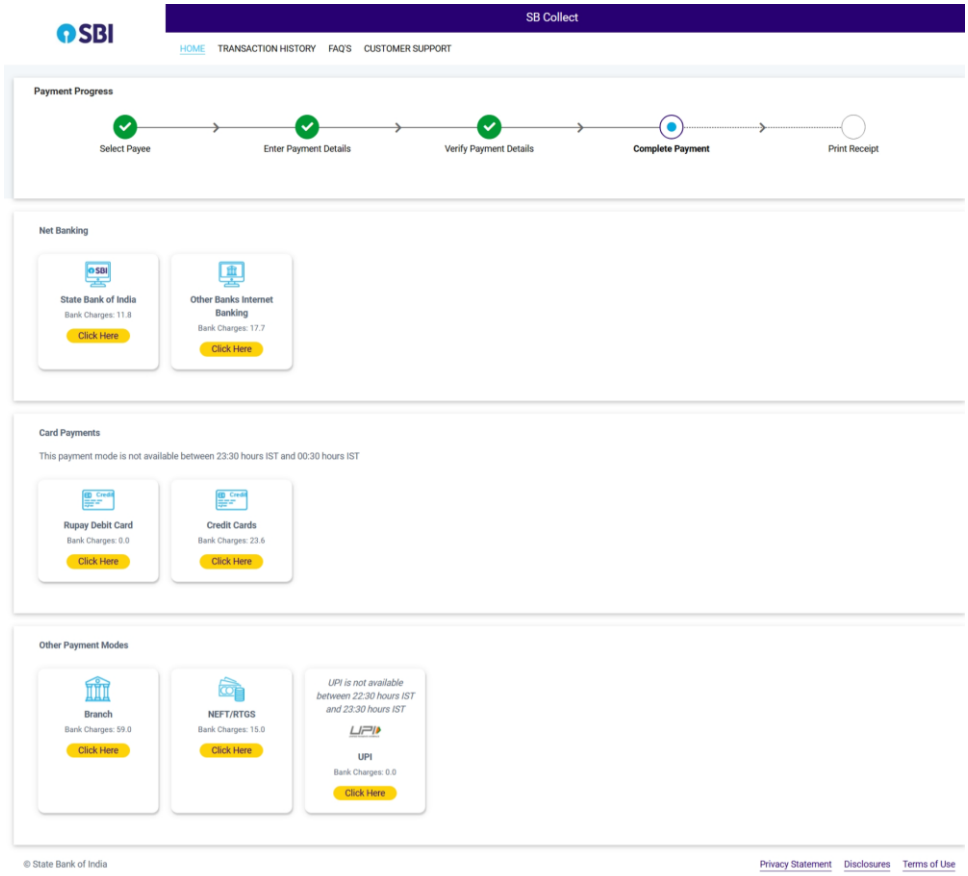
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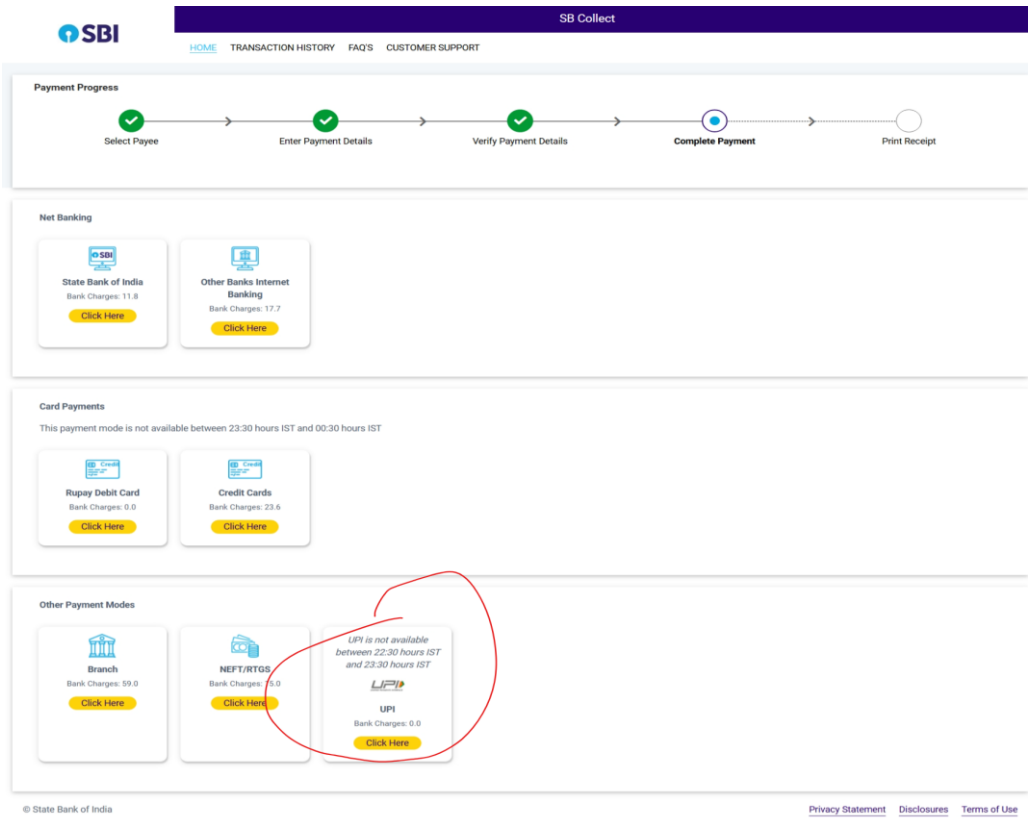
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Dr. Praffulit Bisht
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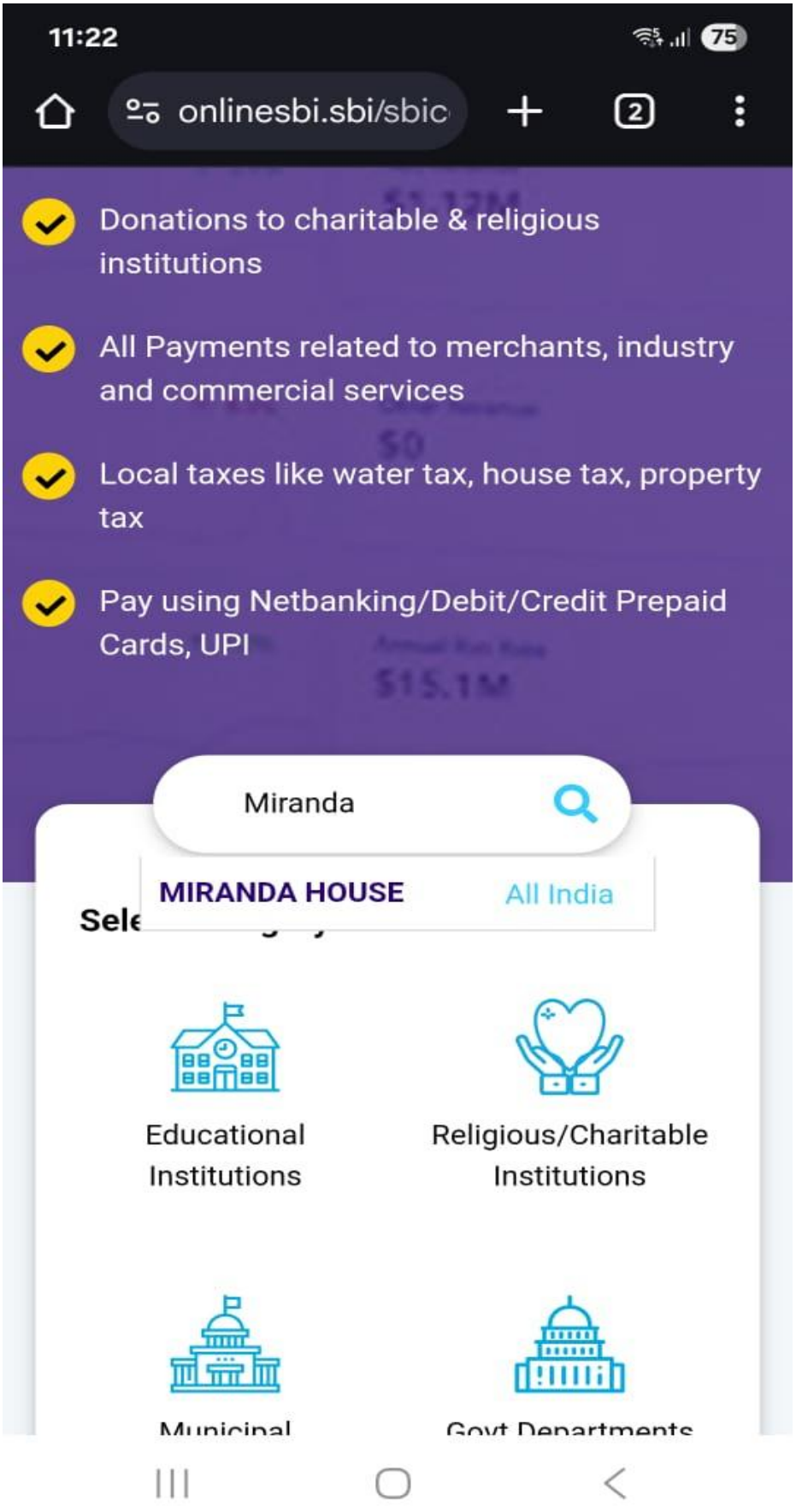
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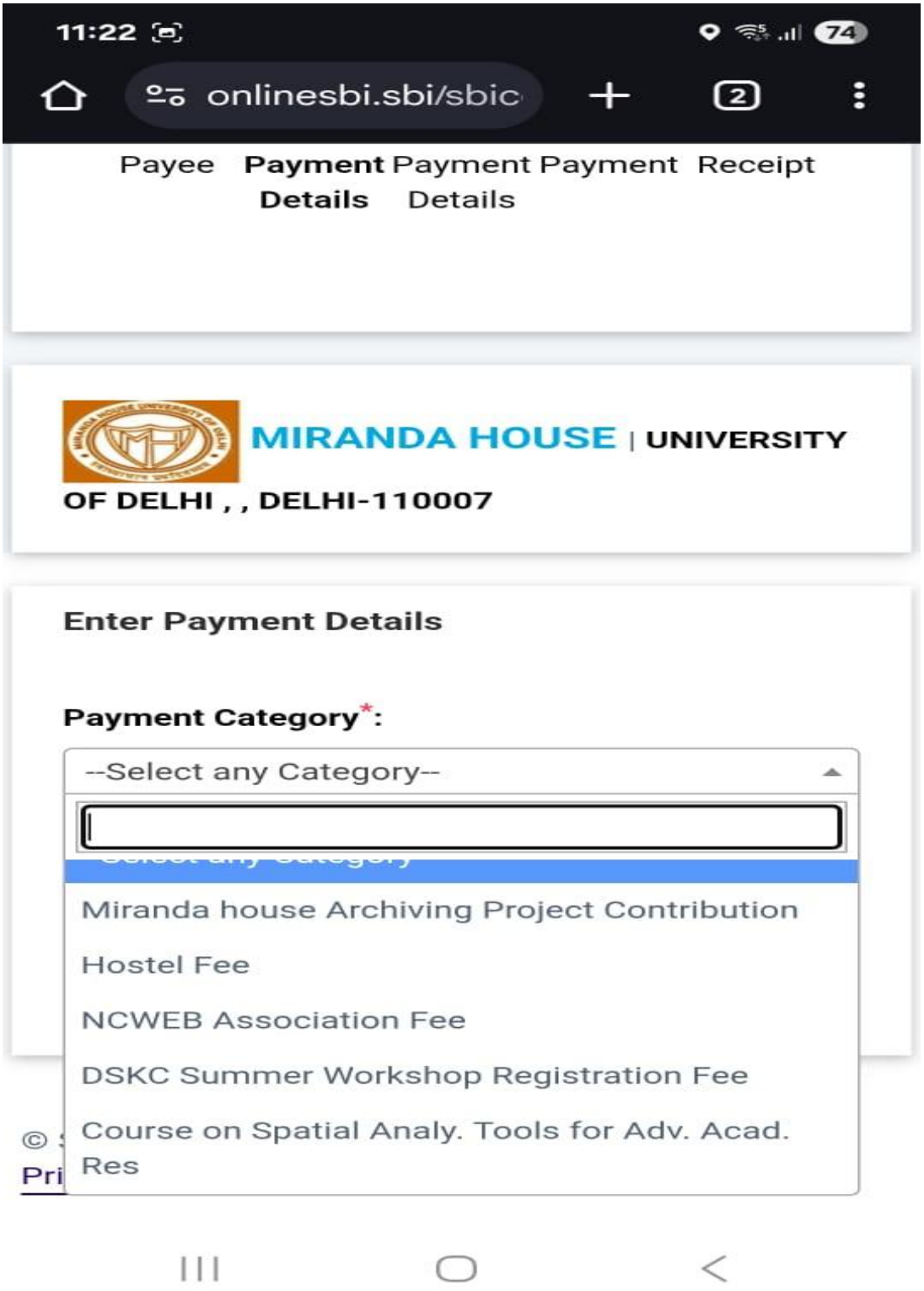

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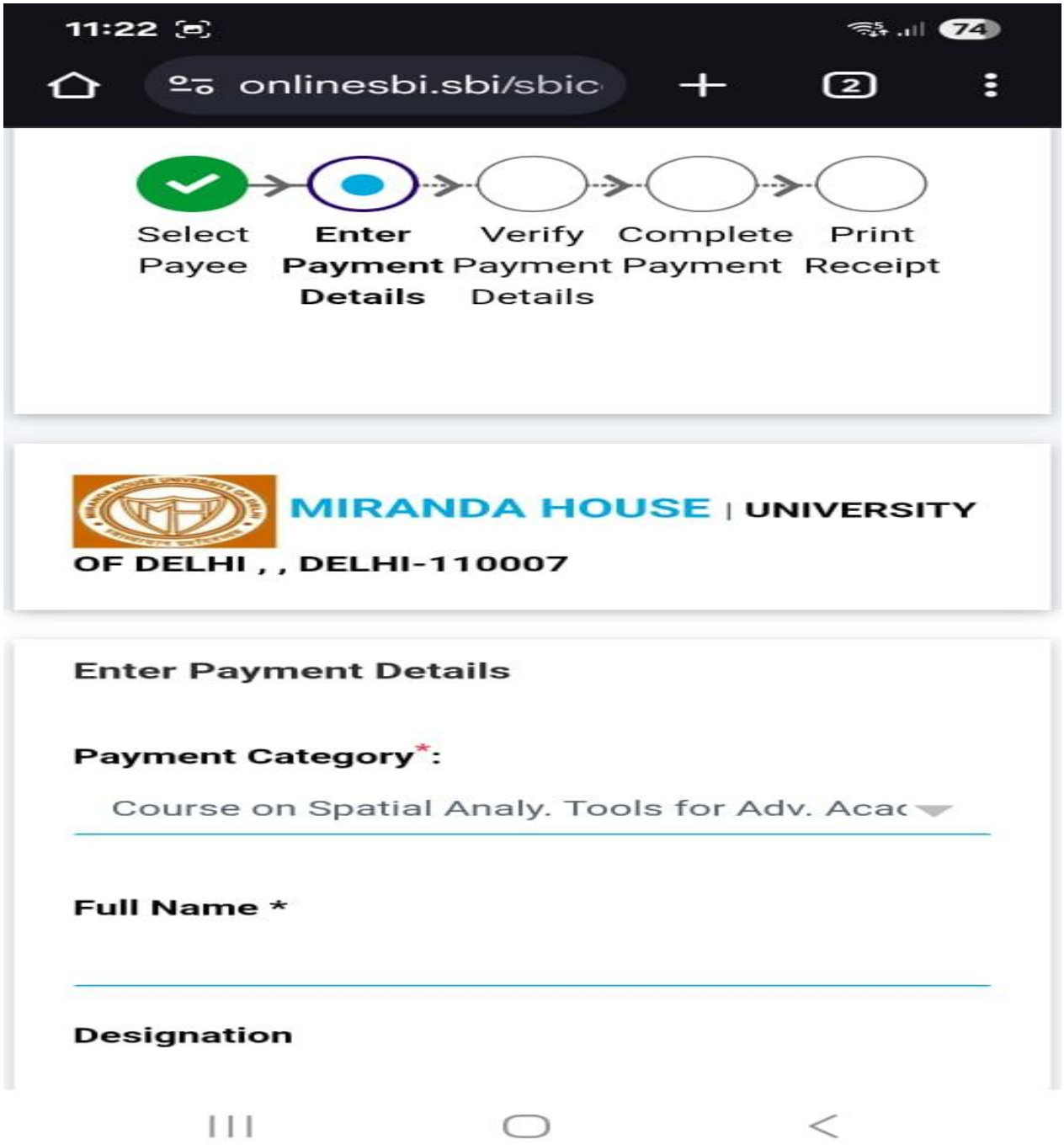

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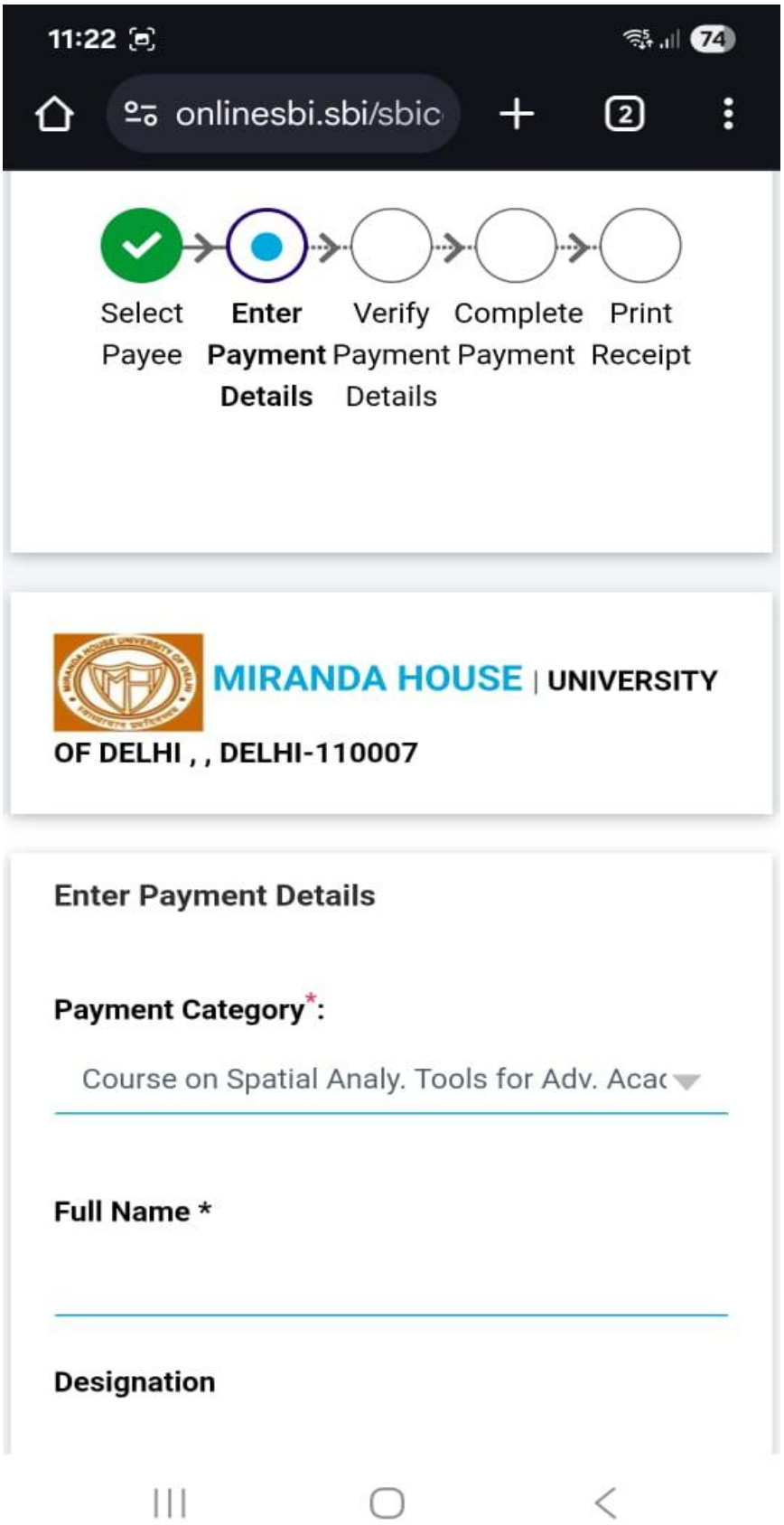

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