



Learning Centre



Student Centre



Goonmeet Chauhan

A Sustainable Campus

Project: National Institute of Technology, Narela, Delhi
Architects: Design Forum International, New Delhi

Conceived as the first vehicle-free campus built on the principles of sustainability and design innovation, the campus is sited on over 2 lakh sq m of site area on the outskirts of Delhi. The campus aims to create an environment that will invoke the spirit of innovation, technology and invention. The design is driven by the focused themes of crafting a unique, educational/research environment in the technology/engineering domain for about 5000-8000 students. Master planning a green field educational campus is perhaps the most coveted and fulfilling assignment an architect can undertake. Ergo architecture in a campus becomes a great medium for expression of the power of inspiration, innovation and constructive disruption.

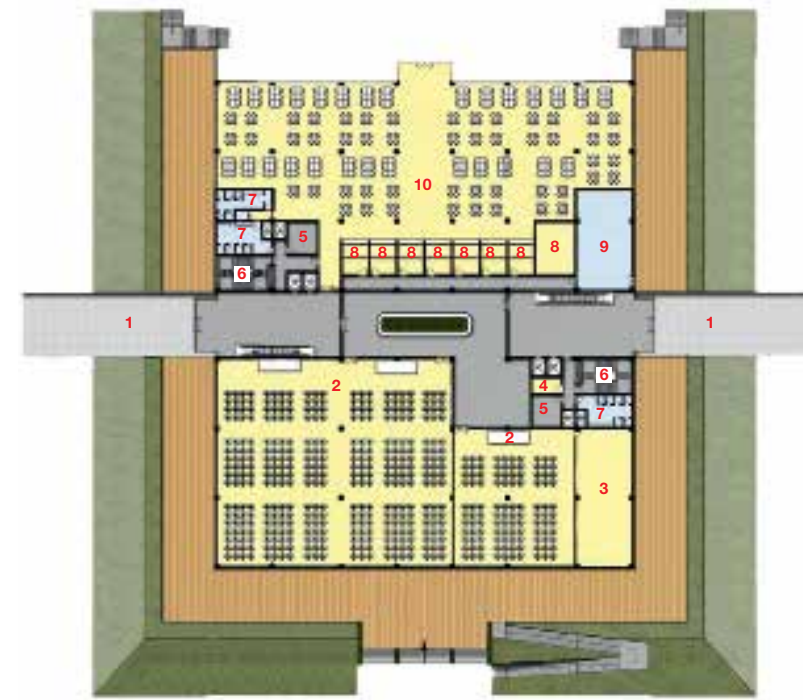
Optimizing the scale of the 56-acres site, the intent was to ensure that distances could be covered by foot and that one would not really require any vehicle to commute from one building to another internally, yet enable openness that was devoid of clutter and congestion.

The planning for this gold LEED rated campus is derived conceptually from the intent of zoning and building segregation, and is essentially divided into four units that include the administration block, academic block, cultural block/convention centre and the residential complex with each zone imbibing its own social fabric. A fine balance is achieved by positioning all the sports facilities in the centre using them as an open buffer, surrounded by an amphitheatre that can accommodate 3000 students. This oval-shaped central green on a triangular site provides openness to the built form, and is flanked by the academic block on one side and residential on the other. The green buffer zone on the outer periphery from all three sides of the site ensures an acoustical barrier and reduces the noise of honking traffic and heavy motor vehicles. It also contributes in the enhancement of air quality inside the campus. Keeping safety in mind as an important determinant, the overall planning provides visual connectivity and transparency.



SITE PLAN

- | | | |
|----------------------------------|--|------------------------------|
| 1. LEARNING CENTRE | 11. SERVICES | 20. PARKING |
| 2. ACADEMIC BLOCK | 12. WORKSHOPS | 21. ARRIVAL FORECOURT |
| 3. ADMINISTRATION BLOCK | 13. MARRIED STUDENT ACCOMMODATION (TYPE-2) | 22. DROP OFF |
| 4. STUDENTS CENTRE | 13.A. SUPPORT STAFF (TYPE-1) | 23. NALA |
| 5. BOYS HOSTEL | 14. ATHLETIC TRACK | 24. PLAZA OF SYNAPSE |
| 6. GIRLS HOSTEL | 15. FOOTBALL FIELD | 25. RESTAURANT/SWIMMING POOL |
| 7. TEACHERS' RESIDENTIAL COMPLEX | 16. CLUB/GUEST HOUSE | 26. EWS |
| 8. DIRECTOR RESIDENCE | 17. SWIMMING POOL | 27. HEALTH CENTRE |
| 9. CEREMONIAL PLAZA | 18. GREEN BUFFER | 28. SITE OFFICE |
| 10. SHOPPING COMPLEX | 19. COVERED PARKWAY | |



1. BRIDGE ABOVE
2. COMPUTER CENTRE
3. SERVER ROOM
4. ELECTRICAL
5. AHU
6. STAIRCASE
7. TOILET
8. STALL
9. KITCHEN
10. FOOD COURT

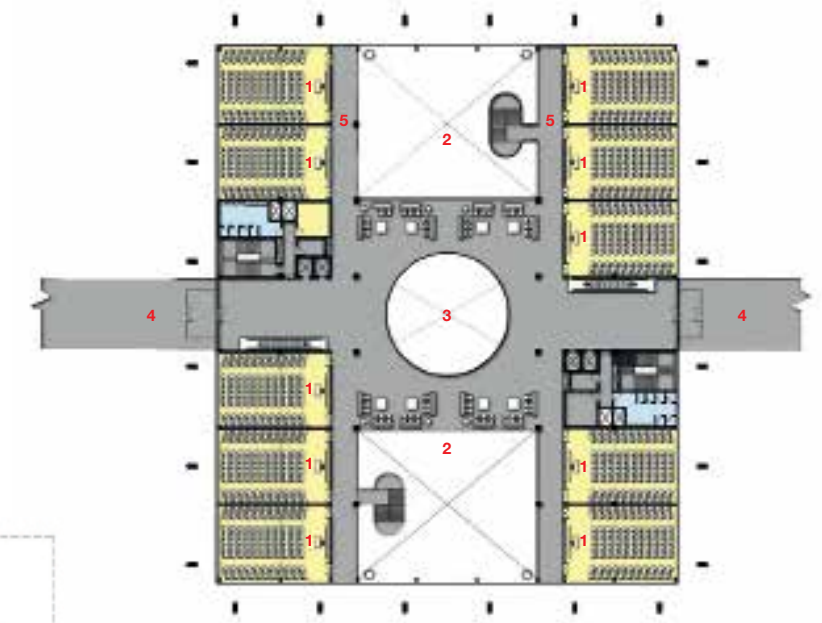
LOWER GROUND FLOOR PLAN



1. BRIDGE ABOVE
2. GREEN MOUND
3. BIG LECTURE HALL
4. DOUBLE HEIGHT
5. DRAWING HALL
6. ELECTRICAL
7. AHU
8. STAFF MEETING ROOM
9. OPEN TO SKY

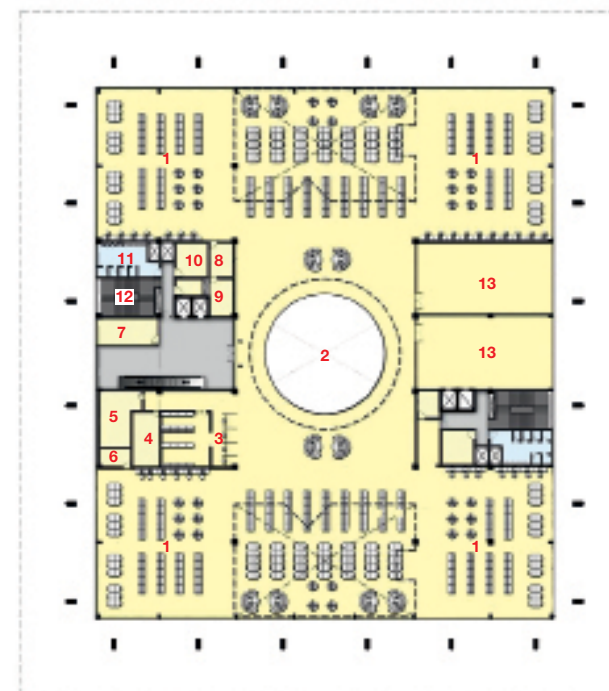
GROUND FLOOR PLAN - LEARNING CENTRE

LEARNING CENTRE



FIRST FLOOR PLAN

1. SMALL LECTURE HALL
2. DOUBLE HEIGHT
3. OPEN TO SKY
4. BRIDGE
5. 400M WIDE CORRIDOR

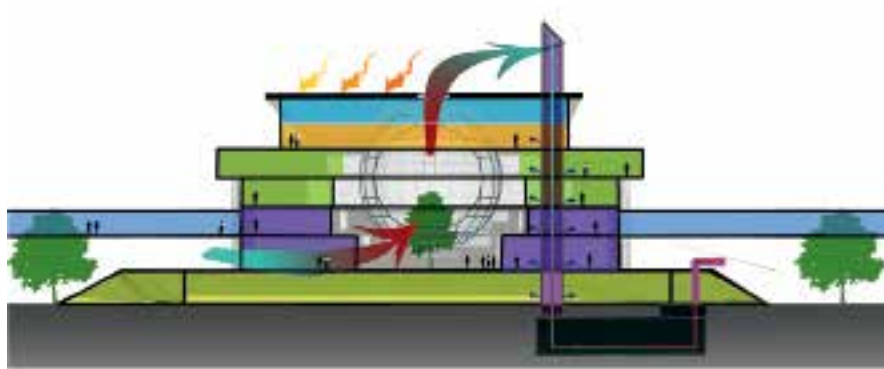
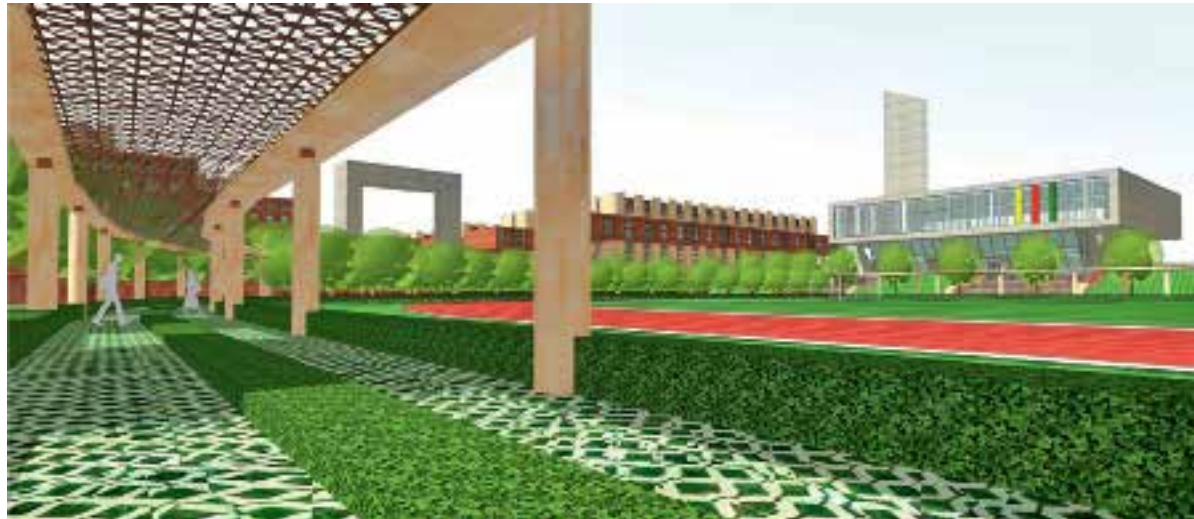


THIRD FLOOR PLAN

1. STACKING AREA
2. OPEN TO SKY
3. ISSUE COUNTER
4. LENDING ROOM
5. ADMIN ROOM
6. PHOTOCOPY
7. CLOAK ROOM
8. PANTRY
9. STORE
10. AHU
11. TOILET
12. STAIRCASE
13. CONFERENCE ROOM

The hot and dry climate of Delhi too impacted the morphology of the constituents and the open spaces adjacent to them. In order to create shaded open spaces that students can use as interactive zones, a series of shaded linear plazas 24 to 30m wide are planned; these plazas are abutted by generous 5m wide 6m high corridors at both sides which in turn form the circulation and hold space for the lecture halls at the ground level.

These linear plazas, called 'Plazas of Synapse' would be open on two ends to allow the rising and setting sun to nourish the greens within the plazas and these plazas would also be breezy. An innovative approach to landscaping that retains the top soil and trees of the campus further enhances the green attitude where the plazas are shaded and interspersed with green cover and trees. The façade is designed with recessed windows and



SECTION – LEARNING CENTRE



ELEVATION – ADMIN BLOCK

AD

shading devices on the southern and western side of the built form with the outer skin designed to keep the solar heat gain coefficient low. Optimum light transmittance reduces HVAC loads, hence, making the campus more efficient in terms of energy.

Designed to be India's largest library-cum-lecture complex, a contemporary, landmark learning centre demonstrates a cutting-edge technology. Since it is created in an open form, the structure endows the visitor with an experience of walking stress-free amidst a clam



green. Based on flexibility, modularity, adaptability and morphology, the design includes a helical glass sphere that is reminiscent of a glass globe suspended from the ceiling. Functionally, this glass structure behaves like a central courtyard and is open from the top to bring in natural light and fresh air into the building. At the bottom is a green space that ensures a healthy environment and a solar roof is inclined to catch maximum sunlight during the day.

Adjoining the learning centre on both sides, the academic block comprises regular classrooms, large lecture halls, 136 labs, libraries and huge workshops. This 35m high block is crafted with a distance of 28 to 30m between two buildings. All buildings are planned in a transparent manner that they remain visually connected to the central buffer. The building is placed in the shape of a non-linear H to move away from the monotony, while creating a visually dynamic, rhythmic form that also provides visual connectivity and see-through views at different angles. Further, a doubly-loaded corridor morphology with open ends and open central courts is used to ensure sufficient light. All buildings are connected through a bridge on the second floor and fifth floor to ensure that one would always be one floor away from the bridge, enabling clearer and convenient circulation. Built in stone, glass and stone jali, a connected structure enables the concept of sharing and the carving of a single entity enabling a flow that keeps the building pulsating with life.

Designed as a symbolic component in the campus, the students' centre is an oval-shaped building with entrances at diametrical opposite sides to enable the coming together of the stage and shared service areas/ approachable exits, the openings provides a framed

view of the campus. Comprising of an auditorium to accommodate 1500 people, seating for 500 people with their own desks and technologically equipped seats that provide language translation and other modern facilities, a large indoor sports facility with four badminton courts, four squash courts, space for dance, table tennis, boxing ring and a basketball court is also housed here.

Inspired from the depth of the Taj Mahal, the administrative block is approached through grand steps and uses strong geometry to create something very powerful, monumental and iconic. Enabling a wider top than the bottom which is a frustum of an inverted cone and a rhombus at the top, the top of the building gets cut at an edge symbolising the touching of the sky. Placed over a pedestal and stilts, the form is visually transparent.

Planned spaces are dedicated to residences and hostels for staff, married students, director(s), guesthouses and accommodation for people who come from outside. The hostel block is also H- shaped to create open shaded spaces in between for outdoor activities, further maximising the view towards the central green lungs. ✚

Factfile

Client: NBCC

Consultants: Mehro Consultants (Structural), VS Kukreja & Associates (Electrical, Plumbing, HVAC), Design Process (Landscape)

Contractors: Global, Krishna (Structural and Civil)

Built-up area: 35,1182sq m

Year of completion: 2024 (Ongoing project)

AD