FEASIBILITY ASSESSMENT REPORT (30-06-2022) –VERSION 1

IGBC GREEN CAMPUS - Certification

Sri Sivasubramaniya Nadar (SSN) Institutions

EARTHONOMIC ENGINEERS

IGBC GREEN CAMPUS

CREDITS	POINTS AVAILABLE
Site Planning and Management	22
Sustainable Transport	11
Water Conservation	18
Energy Efficiency	21
Materials and Resource Management	3
Health and Well-being	6
Green Education	3
Innovation in Design	6
TOTAL	**90**

Indian Green Building Council

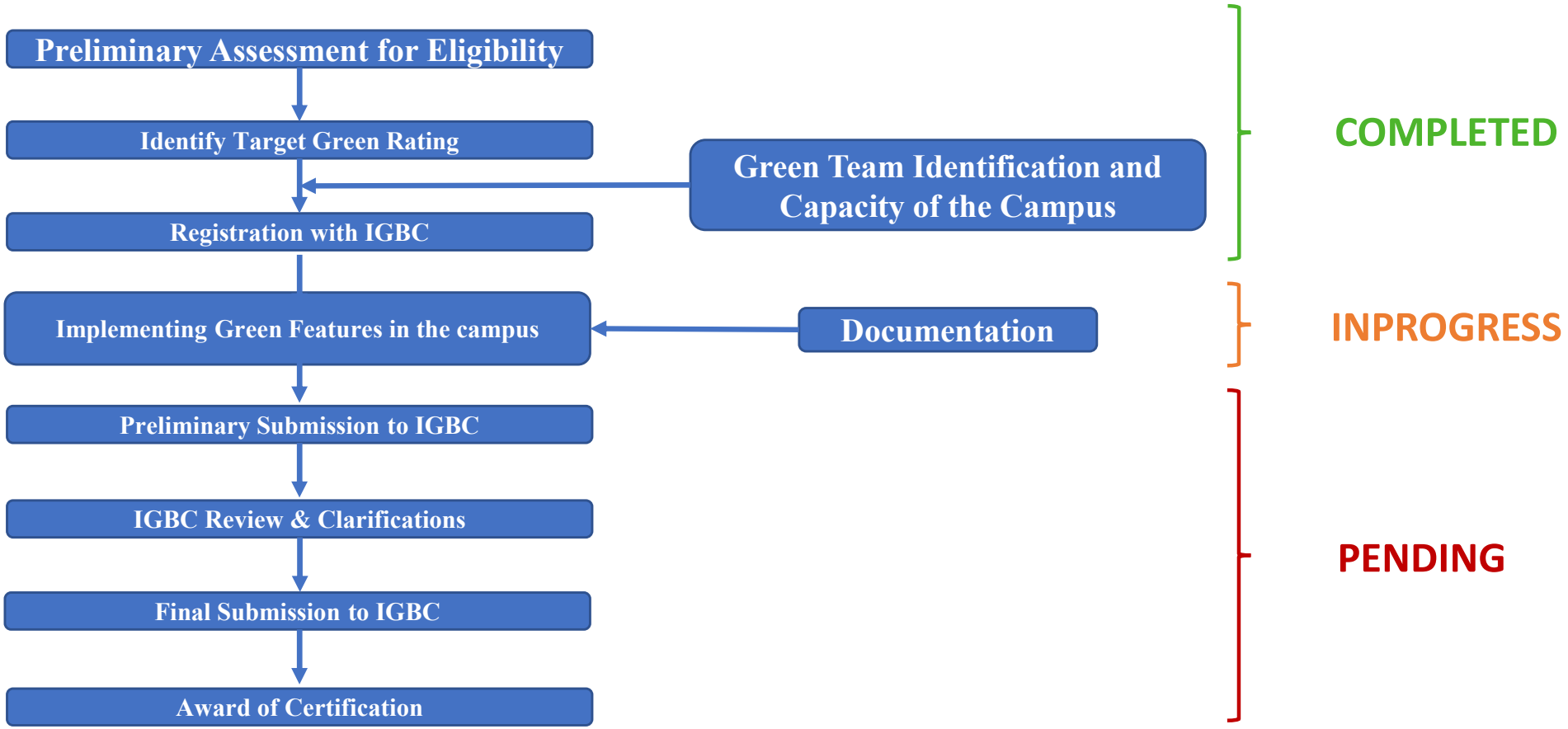
Certification Level	Points Required	Recognition
Certified	36 – 44	**Best Practices**
Silver	45 – 53	**Outstanding Performance**
Gold	54 – 66	**National Excellence**
Platinum	67 - 90	**Global Leadership**

IGBC GREEN CAMPUS

CREDITS	POINTS AVAILABLE	POINTS AS PER CURRENT STAND	POINTS REQUIRED CLARITY/DETAILED ASSESSMENT	POINTS NOT ATTEMPTED
Site Planning and Management	22	19	3	0
Sustainable Transportation	11	9	2	0
Water Conservation	18	6	7	5
Energy Efficiency	21	11	4	6
Materials and Resources Management	3	0	3	0
Health & Well-being	6	5	1	0
Green Education	3	3	0	0
Innovation in Design	6	5	1	0
TOTAL	**90**	**58**	**21**	**11**

Certification Level	Points Required	Recognition
Certified	36 – 44	**Best Practices**
Silver	45 – 53	**Outstanding Performance**
Gold	54 – 66	**National Excellence**
Platinum	67 - 90	**Global Leadership**

IGBC GREEN CAMPUS CERTIFICATION PROCESS



PROJECTED TIMELINE FOR THE ACTIVITIES

Activities/Months	Date	2021				2022										
		SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV
Preliminary meeting and Team Setting	03-09-2021															
WO for Green campus certification	21-10-2021															
First site audit for gap analysis	27-10-2021															
Tree census shared with team	30-10-2021															
Target rating level and EOI to IGBC	22-11-2021															
IGBC - Registration initiated	22-12-2021															
Second Site Audit for gap analysis and documentation exchange	23 & 24-12-2021															
IGBC - preliminary presentation and qualification	11-02-2022															
IGBC Registration Confirmation with Invoice	22-02-2022															
Detailed documentation, calculations, and gap analysis. Detailed Activity reports shared.	23-02-2022															
Third site audit for gap analysis	25-03-2022															
Presentation of status and list of implementations	27-03-2022															
CII online Training Programme and backend documentation work	28-04-2022															
Implementation guideline shared	09-06-2022															
Forming of a Green Committee	13-06-2022															
Fourth Site audit for gap analysis	15-06-2022															
MoM and Implementation guideline shared as per site audit	15-06-2022															
Fifth site audit for gap analysis	30-06-2022															
Implementation of green features on the campus to target Platinum rating (features mentioned in mail and slides)	30-07-2022															
Preliminary Submission	05-08-2022															
IGBC Review Report - Response	05-09-2022															
Final Submission (including 1 month to implement any pending aspects and justification narration preparations)	05-10-2022															
Site Audit from IGBC Team	15-11-2022															
Award of Green Building Certification	20-11-2022															

MANDATORY CRITERIA

- Green building within the campus
- Soil Erosion Control
- Rainwater Harvesting
- Segregation of Waste, post-occupancy
- Tobacco Smoke Control
- Water Efficient Fixtures
- Fresh Air Ventilation

SITE PLANNING AND MANGEMENT

Mandatory Criteria

- Green Building within Campus
- Soil Erosion Control

Credit Criteria

Green Building within the campus	10
Green Cover or Vegetation	6
Heat Island Reduction, Non-Roof	4
Outdoor Light Pollution	2

SITE PLANNING AND MANGEMENT

Credit	Available Points	Current Stand	NA/further Assessment
Green Building within the campus	Required	-	-
Soil Erosion Control	Required	-	-
Green Building within the campus	10	7	3
Green Cover or Vegetation	6	6	
Heat Island Reduction, Non-Roof	4	4	
Outdoor Light Pollution Reduction	2	2	

Points As per current stand	19
Points Require Further Assessment	3
Points Not Attempted	

SITE PLANNING AND MANGEMENT

Credit Outdoor Views	Available Points	Current Stand	NA/further Assessment
Green Building within the campus (Max 10 Points under 5 Category)			
Passive Architecture	2	1	1
Heat Island Effect, Roof	2		2
Water Efficient Plumbing Fixtures	3		3
Waste Water Reuse	2		2
Eco-Friendly Refrigerants	1		1
Energy Efficient Lighting Fixtures	3	2	1
High Performance Air-conditioning Equipment	3		3
On-site Renewable Energy	3	3	
Daylighting	2		2
Outdoor Views	1	1	

Points As per current stand	**7**
Points Require Further Assessment	11
Points Not Attempted	4

REQUIREMENTS FOR COMPLIANCE

CREDIT	COMPLIANCE REQUIEMENT	CURRENT STATUS
Green Buildings within the campus	***At least one building in the campus or 15% of the built up area within the campus to be certified under IGBC.*** ***(OR)*** ***Individual buildings should have green features associated with water, lighting and energy.***	Please submit the Water Fixtures specification sheets or Brand name with Model Number and Lighting Fixtures Layout for External, Internal and Common Area
Soil Erosion Control	***Soil erosion control measures must conform to best management practices pre and post occupancy.*** ***The fertile topsoil to be stockpiled prior to construction .***	Erosion prevention measures to be adopted shall be shared by Earthonomic

REQUIREMENTS FOR COMPLIANCE

CREDIT	COMPLIANCE REQUIEMENT	CURRENT STATUS
Green Buildings within the campus		
1) Passive Architecture (2 Points)	a) Exterior openings of at least 50% of the buildings in campus shall have a projection factor of at least 0.5. b) Skylights shall comply with the maximum U-factor and maximum SHGC requirements as prescribed in ECBC. c) Passive cooling/ Heating Technologies like wind tower, earth tunnel and geothermal technologies should cover of at least 10% of the campus built up area .	Calculation is Under process
2) Heat island Effect, Roof (2 Points)	a) Use high solar reflective index to cover at least 75% of the total exposed roof area including parking. b) At least 50% of the total exposed roof area should be covered with vegetation. c) 75% of the roof area to be covered with a combination of high solar reflective index and vegetation.	Difficult to achieve

REQUIREMENTS FOR COMPLIANCE

CREDIT	COMPLIANCE REQUIEMENT	CURRENT STATUS
3) Water Efficient Plumbing Fixtures (3 Points)	At least 50% of the buildings in campus should use water efficient plumbing fixtures.	Data yet to be received
4) Waste Water Reuse (2 Points)	At least 50% of the buildings use the treated waste water at for least 25% of the total water required for flushing, landscape and cooling tower make-up water.	Calculation is Under process
5) Eco- friendly Refrigerants (1 Point)	At least 50% of the buildings in Air-conditioning equipment are eco-friendly and have low or no Ozone Depletion	Difficult to achieve
6) Energy Efficient Lighting Fixtures (3 Points)	At least 50% of the buildings should reduce Lighting power density by at least 20	Calculation is under process

REQUIREMENTS FOR COMPLIANCE

CREDIT	COMPLIANCE REQUIEMENT	CURRENT STATUS
7) High Performance Air-conditioning Equipment (3 Points)	At least 50% of the buildings, with air-conditioning equipment, shall have an efficiency/ COP of at least 2.5% over ASHRAE Standard.	• AC Details received • Calculation is under process
8) On-site Renewable Energy (3 points)	At least 50% of the buildings, to have on-site renewable energy generation for at least 5% of total annual lighting energy consumption.	Easy to achieve
9) Daylighting (2 Points)	Through simulation/ measurement approach, at least 50% of the buildings should be exposed to achieve daylight illuminance in the regularly occupied areas.	Difficult to achieve
10) Outdoor Views (1 Point)	• At least 50% of the buildings in campus should achieve direct line of sight of vision. • The buildings occupants must not have any obstructions of views. (OR) • The buildings occupants must have access either to sky or flora & fauna or both.	Already In the design

REQUIREMENTS FOR COMPLIANCE

CREDIT	COMPLIANCE REQUIEMENT	CURRENT STATUS
Green Cover or Vegetation	Retain at least 15% of the green cover or vegetation. (AND/OR) Green cover shall have minimum 15% acreage or plant tree saplings that can be grown into fully grown-up trees in the next 5 to 8 years.	• More of 40% of the site area is covered with Landscape • Nearly 23446 trees are planted in the site
Heat Island Reduction, Non-Roof	Provide shade from existing tree cover/ open grid pavers or grass pavers/ Hardscape materials on exposed non-roof impervious areas. (AND/OR) Provide at least 50% of the parking spaces under cover.	1:Entire Non roof Area of the campus is covered with the Existing Tree Canopy 2:Almost 85% of Parking Area is covered with the existing tree canopy
Outdoor Light Pollution Reduction	• No light fixtures emits more than 5% of the total initial designed fixtures. (AND) • The lighting power density should be reduced by 25% • Site luminaires produce a maximum initial illuminance values. (AND) • The lighting power density should be reduced by 25%	Clarification required

SUSTAINABLE TRANSPORTATION

Credit Criteria

- Pedestrian Network 3
- Bicycle Lanes Network 4
- Access to Sustainable Transportation 4

SUSTAINABLE TRANSPORTATION

Credit	Available Points	Current Stand	NA/further Assessment
Pedestrian Network	**3**	3	
Bicycle Lanes Network	**4**	2	2
Access to Sustainable Transportation	4	4	

Points As per current stand	9
Points Require Further Assessment	2
Points Not Attempted	

REQUIREMENTS FOR COMPLIANCE

CREDIT	COMPLIANCE REQUIEMENT	CURRENT STATUS
Pedestrian Network	Provide tree/ structured cover for shade and adequate illumination over pedestrian network.	1:Entire walkway of the campus is covered with the Existing Tree Canopy
Bicycle Lanes Network	• Bicycle lane Network and Bicycle parking to be connected to all the main buildings and basic amenities. • Provide adequate illumination for pedestrian network at lux levels in the range 30 to 100. (AND/OR) • Provide bicycles for campus occupants to commute within or outside the campus. (AND) • Have a bicycle servicing facility within the campus.	Every 25 heads 1 Bicycle need to be proposed Overall occupant of the Campus = 4815 Heads Total Bicycle Required = 193 (2 Points) Approx Investment for each bicycle = 5000rs Separate bicycle lane required (1 Points) Lux Level Calculation is under process (1 Points)

REQUIREMENTS FOR COMPLIANCE

CREDIT	COMPLIANCE REQUIEMENT	CURRENT STATUS
Access to Sustainable Transportation	Provide access to a public transportation facility within 800 meters walking distance from entrance. (AND/OR) At least 10% of the campus occupants should operate electric/ CNG-powered vehicles within or outside the campus. Project should have a electric charging facility for the electric vehicles or one CNG filling station within 5kms from campus entrance. (OR) At least 20% of the campus occupants should operate or have shuttle services within or outside of the campus.	Total Occupant Excluding Hostel – 2815 Heads Total Bus Provided – 48 (60 Seating capacity per bus) Overall 2976 can accommodate the bus service Overall 104% of the campus occupants having a shuttle services

WATER CONSERVATION

Mandatory Criteria

- Rainwater Harvesting

Credit Criteria

❖ Rainwater Harvesting	6
❖ Landscape Design	4
❖ Management of Irrigation System	2
❖ Wastewater Treatment and Reuse	4
❖ Water Metering	2

WATER CONSERVATION

Credit	Available Points	Current stand	NA/further Assessment
Rainwater Harvesting	Required	-	-
Rainwater Harvesting	6		3+3
Landscape Design	4	4	
Management of Irrigation System	2		2
Wastewater Treatment and Reuse	4	2	2
Water Metering	2		2

Points As per current stand	6
Points Require Further Assessment	7
Points Not attempted	5

REQUIREMENTS FOR COMPLIANCE

CREDIT	COMPLIANCE REQUIEMENT	CURRENT STATUS
Rainwater Harvesting	• ***Rainwater harvesting system should capture one day rainfall runoff from the roof and non roof areas.*** • ***Provide justification for not including rainwater harvesting system if groundwater table is less than 8m***	• Currently 418 rain water pit and 12 Well is placed • Well connected storm drains within the facility • Detail study under process
Rainwater Harvesting	Rainwater harvesting system should capture one day rainfall runoff from the roof and non roof areas.	
Landscape Design	Limit use of turf in the campus to conserve water (and /or) the landscaped area is planted with drought tolerant / native/ adaptive species.	From the Landscape Plan we observe that the project is eligible for the current credit Nearly 90% of tree are Drought tolerant and Native trees

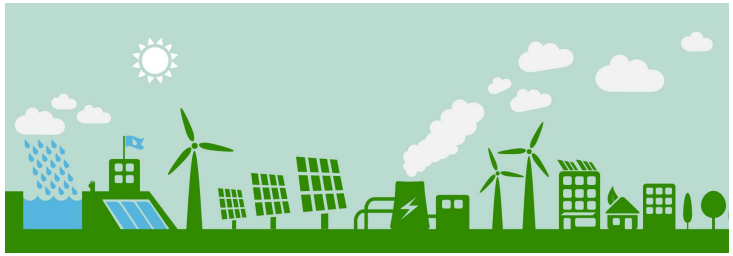
REQUIREMENTS FOR COMPLIANCE

	COMPLIANCE REQUIEMENT	CURRENT STATUS
Management of Irrigation Systems	Install highly efficient irrigation systems and techniques incorporating the features like : • Central shut-off valve • Soil moisture sensors integrated with irrigation system • Turf and each type of bedding area must be segregated into independent zones • 50% of the landscape planting beds must have a drip irrigation system • 75% of turf area must have sprinkler irrigation system to reduce water loses. • Pressure regulating devices to maintain optimal pressure to prevent water loss.	Currently manual methodology irrigation is followed
Waste water Treatment and Reuse	Install onsite treatment system to handle 100% of waste water. Use treated water for at least 25% of the total water required on campus.	• 500KLD STP is in the place Treated Waste water is used for landscape and flushing purpose • Calculation is under process

REQUIREMENTS FOR COMPLIANCE

	COMPLIANCE REQUIEMENT	CURRENT STATUS
Water Metering	Sub metering to be installed for at least three of the below applications: • Municipal water supply • Bore water consumption • Treated waste water consumption • Water consumption for landscape requirements • Water consumption for centralized air-conditioning cooling tower makeup • Building level water consumption	• Currently not in design • Detail Discussion required

ENERGY EFFICIENCY



Credit Criteria

- Energy Efficiency in Infrastructural Equipment 10
- On-Site Renewable Energy 5
- Off-site Renewable Energy 4
- Energy Metering 2

ENERGY EFFICIENCY

Credit	Available Points	Current stand	NA/further Assessment
Energy Efficiency in Infrastructural Equipment	10	5	3+2
On-site Renewable Energy	5	5	0
Off-site Renewable Energy	4		4
Energy Metering	2	1	1

Points As per current stand	11
Points Require Further Assessment	4
Points Not attempted	6

REQUIREMENTS FOR COMPLIANCE

CREDIT	COMPLIANCE REQUIEMENT	CURRENT STATUS
Energy Efficiency in Infrastructural Equipment	• Lighting Systems: (5 points) Reduce lighting power density by at least 30% for exterior area. • Lighting Controls: (2 points) All non-emergency exterior & common area lighting such as landscaping, surface and covered parking, pathways, bicycle lanes, street lighting should have daylight sensor/timer-based control. • Pumps and Motors: Minimum efficiency to followed depending on the capacity of the pump. • Centralized Air-conditioning system: (3 Points) Campuses with centralized air-conditioning systems shall have a COP/IPLV of at least 2.5% over ASHRAE standard.	• Calculation and Analysis is under Process • Data to be Received

REQUIREMENTS FOR COMPLIANCE

CREDIT	COMPLIANCE REQUIEMENT	CURRENT STATUS
On-site Renewable Energy	On-site renewable energy generation for at least 10% Infrastructural Equipment of total annual energy consumption.	Exceed the requirement
Off-site Renewable Energy	Project should have purchased Renewable Energy Certificates equivalent to at least 20% of total annual energy consumption. (OR) The project should invest in off-site renewable energy equivalent to at least 20% of total annual energy consumption.	Not in the scope
Energy Metering	Demonstrate sub-metering for at least three of the following energy use applications : • Municipal water pumping • Ground water pumping • Treated waste water pumping • Exterior area lighting, including landscapes • Centralised air-conditioning systems • Renewable energy generation • Power backup systems • Building-level energy consumption	List of Energy metering installed in the building 1:Treated waste water pumping 2:Exterior Area lighting ,including landscape 3:Renewable Energy generation 4:Power backup system 5:Building Level energy Consumption Six Measures for 2 points already 5 measures has been installed

MATERIALS AND RESOURCES MANAGEMENT

Mandatory Criteria

- Segregation of Waste, Post-Occupancy

Credit Criteria

- Organic Waste Management, Post occupancy 3

MATERIALS AND RESOURCES MANAGEMENT

Credit	Available Points	Current Stand	NA/further Assessment
Separation of Waste, Post-Occupancy	**Required**	-	-
Organic Waste Management, Post-occupancy	3		3

Points As per current stand	
Points Require Further Assessment	3
Points Not Attempted	0

REQUIREMENTS FOR COMPLIANCE

CREDIT	COMPLIANCE REQUIEMENT	CURRENT STATUS
Separation of Waste, Post occupancy	**Provide separate bins for the dry, hazardous and wet waste at all exterior common areas.**	**Minor Modification is required for waste management system**
Organic Waste Management, Post occupancy	Install an on-site waste treatment system for handling organic waste generated in the campus.	For Food Waste – 360 Kg Capacity of OWC is required Current OWC capacity – 200 Kg Design Analysis required

HEALTH & WELL-BEING

Mandatory Criteria

- Tobacco Smoke Control

Credit Criteria

❖ Basic Amenities	1
❖ Health & Well-being Facilities	4
❖ Universal Design	1

HEALTH & WELL-BEING

Credit	Available Points	Current Stand	NA/further Assessment
Tobacco Smoke Control	**Required**	-	-
Basic Amenities	1	1	
Health & Well-being Facilities	4	4	
Universal Design	1		1

Points As per current stand	**5**
Points Require Further Assessment	1
Points Not Attempted	0

REQUIREMENTS FOR COMPLIANCE

CREDIT	COMPLIANCE REQUIEMENT	CURRENT STATUS
Tobacco Smoke Control	***No smoking zone inside the campus.*** ***Outdoor smoking zone to be kept away at a distance of at least 7.6m***	**No smoking policy should be implemented** **Sign Board is to be placed in different location**
Basic Amenities	Basic amenities to be at a walking distance of 800 meters from the campus.	Already in the campus
Health & Well-being Facilities	At least 10% of the occupants should be provided with health and Well-being Facilities .(2 Points) Emergency & Security Facilities to be provided inside the campus for all the occupants.(2 Points)	Already in the campus
Universal Design	Follow all the measures for differently abled and senior citizen in accordance with the guidelines of the NBC of India 2005. • Ramp Access for all Building • At least one restroom for each building • Main walkways / pathways with adequate width in exterior common areas • Visual warning & Way finding signages in exterior common areas	• Currently not in place. • Confirmation requirement from management • Design Guideline shall be provided by Earthonomic Team

GREEN EDUCATION

Credit Criteria

- Green Education 2
- Green Campus Guidelines 1

GREEN EDUCATION

Credit	Available Points	Current Stand	NA/further Assessment
Green Education	2	2	-
Green Campus Guidelines	1	1	

Points As per current stand	3
Points Require Further Assessment	0
Points Not Attempted	0

REQUIREMENTS FOR COMPLIANCE

CREDIT	COMPLIANCE REQUIEMENT	CURRENT STATUS
Green Education	With the involvement of campus occupants, local communities and NGOs organize : • Organize at least 3 outreach/educational programs in a year • Implement at least 2 eco-friendly practices/ green initiatives • Efforts put up towards eco-friendly initiatives should be acknowledged.	• Early green activities conducted by the college(NSS, Student and faculties) to be documented • Green campus team has to be formed
Green Campus Guidelines	• Provide green campus guidelines information to all campus occupants to implement post occupancy.. • Project specific green campus operation & maintenance and renovation guidelines to implement during the operation and renovation period.	Earthonomic team shall provide guidelines

INNOVATION & DESIGN PROCESS

Credit	Available Points	Current Stand	NA/further Assessment
Innovation and Design Process	4	3	1
IGBC Accredited Professional	2	2	

Points As per current stand	5
Points Requiring further Further Assessment	1

IGBC GREEN CAMPUS

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Site Planning and Management	22	19	3	0
Sustainable Transportation	11	9	2	0
Water Conservation	18	6	7	5
Energy Efficiency	21	11	4	6
Materials and Resources Management	3	0	3	0
Health & Well-being	6	5	1	0
Green Education	3	3	0	0
Innovation in Design	6	5	1	0
TOTAL	**90**	**58**	**21**	**11**

Certification Level	Points Required	Recognition
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Silver	45 – 53	**Outstanding Performance**
Gold	54 – 66	**National Excellence**
Platinum	67 - 90	**Global Leadership**

IGBC GREEN CAMPUS

Total Points Achievable as per preliminary discussions	58
Total Points requiring detailed Analysis/documents	21

Total Credit Points as per current status Gold Rating : 58
Total Credit Points required to achieve Platinum Rating : 10+

THANK YOU!

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