Maintaining and Extending Existing Ecosystems and Biodiversity

1. EXECUTIVE SUMMARY

JSS Academy of Higher Education & Research (JSS AHER) works directly to maintain and extend existing ecosystems and their biodiversity, of both plants and animals, with particular focus on ecosystems under threat. This report directly addresses **SDG 15, Indicator 15.2.3** and the university-level answer is **Yes** — supported by documented activities across six dimensions: campus ecosystem maintenance, wild land restoration, threatened species conservation, animal biodiversity protection, soil ecosystem restoration, and research-based conservation.

The question asks whether JSS AHER works **"directly"** — meaning hands-on, operational actions that maintain or extend biodiversity, not just awareness or education. Five direct actions stand out: (1) the **JSSCPO campus actively maintains 86 species of trees and plants** in the Nilgiris Biosphere, with an explicit "no trees cut" policy and biodiversity integrated into all planning; (2) the **SLSM Tissue Culture Laboratory** preserves the GI-tagged, threatened **Nanjangud Rasabale banana cultivar** through tissue culture and DNA barcoding; (3) **JSS KVK maintains a Beekeeping Laboratory** and conducted experimental beekeeping to address the documented **decline in honeybee populations** — a threatened pollinator ecosystem; (4) the **Smart Campus Committee directly increased tree count on all campuses**, creating documented habitat for birds, insects, bees, and earthworms; (5) **JSSCPO NSS restored 10 hectares of forest ecosystem** in direct collaboration with Forest Department and Biodiversity Conservation Trust officials.

A further dimension of ecosystem and biodiversity maintenance that is unique to JSS AHER as a health sciences university is the **elimination of amphibians, rodents, and similar species from undergraduate teaching** — a direct conservation action that removes institutional demand for wild-caught animals that deplete local biodiversity. The university also maintains the **Institutional Biosafety Committee (IBSC)** to ensure research activities do not threaten the ecosystem, and the JSS KVK provides biocontrol agents (Trichoderma, Rhizobium, PSB, Metarhizium) to farmers as natural alternatives to chemical pesticides — directly reducing chemical pressure on soil and agricultural biodiversity.

86	4,596	Tissue Culture	Beekeeping Lab
PLANT SPECIES — JSSCPO CAMPUS *Nilgiris Biosphere · no trees cut · biodiversity in all planning · 6.45 acres*	**CAMPUS TREES — JSS AHER (ALL)** *Smart Campus Committee · annual increase · shelter for birds, bees, earthworms*	**GI-TAGGED NANJANGUD RASABALE PRESERVED** *SLSM · threatened cultivar · DNA barcoded · Indian J Hortic. 2025*	**HONEYBEE POPULATION RECOVERY — JSS KVK** *"Decline in honeybee populations" documented · 70+ farmers trained · pollinator ecosystem*

10 ha	Zero	Biocontrol	ISO 14001
FOREST ECOSYSTEM RESTORED — JSSCPO *NSS + Forest Dept. + Biodiversity Conservation Trust · Apr 2026*	**AMPHIBIANS/RODENTS IN UG TEACHING** *Direct species protection · eliminates wild-catch institutional demand*	**SOIL ECOSYSTEM PROTECTION — JSS KVK FARMERS** *Trichoderma · Rhizobium · PSB · Metarhizium · 2,229 farmers/year*	**ENVIRONMENTAL MANAGEMENT — JSSCPO** *ISO 14001:2015 (EMS) · Nilgiris Forestry Ministry compliance*

The word **"directly"** in Question 15.2.3 distinguishes operational ecosystem maintenance from education or advocacy. Direct work means the institution's actions physically maintain or extend a living ecosystem. JSS AHER works directly across six dimensions:

CAMPUS ECOSYSTEM MAINTENANCE	THREATENED SPECIES CONSERVATION	ANIMAL BIODIVERSITY — POLLINATORS	WILD LAND RESTORATION	SPECIES PROTECTION — TEACHING REFORM	SOIL ECOSYSTEM HEALTH
4,596 trees; 86 species; no-cut policy; biodiversity in planning	*GI-tagged Nanjangud Rasabale tissue culture; DNA barcoding; native species preservation*	*Beekeeping Lab; honeybee decline addressed; 70+ farmers; experimental colonies*	*10 ha forest restoration; Forest Dept. collaboration; native species replanted*	*Amphibians, rodents eliminated from UG teaching; direct conservation of wild populations*	*Biocontrol agents to 2,229 farmers; vermicompost; biogas slurry; organic farming*

Dimension	What JSS AHER Does	Which Ecosystem Is Maintained/Extended	Who Does It
Campus plant biodiversity maintenance	Smart Campus Committee directly increases tree count; no trees cut; 86 species maintained at JSSCPO; native medicinal plants in campus gardens across all institutions	Campus terrestrial ecosystem; urban biodiversity corridor; habitat for birds, insects, bees, earthworms	Smart Campus Committee (university-wide); Eco Club (JSSDCH); Prakriti Green Club (JSSCPO); NSS units
Threatened cultivar preservation	Tissue culture and DNA barcoding of GI-tagged Nanjangud Rasabale banana; active growing stock maintained; conservation through use	Genetic diversity of threatened traditional cultivar; prevents extinction of GI-tagged agrobiodiversity	SLSM Tissue Culture Laboratory
Pollinator ecosystem recovery	Beekeeping Laboratory maintained; experimental colonies; training 70+	Honeybee pollinator ecosystem — critically under threat from chemical agriculture; addressed	ICAR JSS KVK Beekeeping Laboratory; Dr. Y.P.

	farmers; honeybee decline documented and addressed institutionally	through institutional beekeeping and farmer education	Prasad (Plant Protection)
Wild land / forest restoration	10 ha of weed removal, plantation, riverbank cleaning; native seed collection (soap nut, Albizia, Seemai Karuvelam); vegetation enhancement for wildlife	Active forest restoration in Nilgiris biosphere — India's first biosphere reserve; tribal area forest ecosystems	NSS JSSCPO + Forest Department + Biodiversity Conservation Trust
Species protection through teaching reform	Eliminated amphibians, rodents, and similar species from all undergraduate teaching and demonstrations — institutionally mandated zero-use policy	Wild amphibian and reptile populations in Mysuru/Nilgiris region; prevents institutional demand driving wild-catch	All campuses — JSSCPM explicitly confirmed; university-wide policy
Agricultural soil ecosystem restoration	Bio-fertilizer packages (Rhizobium, PSB, Trichoderma) distributed to 2,229+ farmers annually; vermicompost technology transfer; biogas slurry as organic fertilizer replacing chemicals; natural farming (Panchagavya, Jeevamrutha) for 55+ farmers	Agricultural soil microbiome and biodiversity ecosystem; 52.07% Mysuru district soils unhealthy — institutional outreach directly addresses this	ICAR JSS KVK; campus vermicompost and biogas plants

JSS COLLEGE OF PHARMACY, OOTY (JSSCPO) | *Nilgiris Biosphere · 86 plant species · No-cut policy · ISO 14001:2015 · Forest restoration · Forestry Ministry compliance*

3. JSSCPO — DIRECT ECOSYSTEM MAINTENANCE IN INDIA'S FIRST BIOSPHERE RESERVE

JSSCPO occupies a unique ecological position: it operates within the **Nilgiris Biosphere Reserve** — India's first UNESCO-designated biosphere reserve — making every campus ecosystem maintenance action directly relevant to a globally significant biodiversity area. The institution explicitly states: ***"The College is actively engaged in preserving and expanding the ecosystems within the Nilgiris Biosphere. The biodiversity of medicinal plants is protected and nurtured within the college grounds. A total of 86 species of trees and plants are on the campus. No trees on the campus are cut down and green resilience is promoted by the College Smart Campus Committee."***

3.1 Campus Biodiversity Maintenance — 86 Species, Zero Deforestation

CAMPUS AREA: *6.45 acres — entire campus within Nilgiris Biosphere Reserve ecological zone*

PLANT SPECIES MAINTAINED: *86 species of trees and plants — native and medicinal plants specifically chosen to support local flora and fauna*

NO-CUT POLICY: *Explicit commitment: "No trees on the campus are cut down" — deforestation is institutionally prohibited*

BIODIVERSITY INTEGRATION: *Biodiversity considered in all campus planning and development; Nilgiris Ministry of Forestry and HADP approval required for any building expansion — formal legal ecosystem protection*

GREEN SPACES: *Native medicinal plants maintained on campus to support local flora and fauna — explicit statement of ecosystem support function*

ISO 14001:2015 (EMS): *External environmental management certification; surveillance audit conducted 7 May 2026 by IRQS — independent annual verification of ecosystem management effectiveness*

SDG 15.2.3 APPLICATION: *Campus is an actively maintained ecosystem within India's most biodiverse region; each maintained species contributes to the resilience of the Nilgiris biosphere network*

3.2 Direct Forest Ecosystem Restoration — 10 Ha, Forest Department Collaboration

The NSS Special Camp (29 March–4 April 2026) at Thengumarahada, Alimayar, and Kallampalayam is the clearest example of **"directly working to maintain and extend"** ecosystems. On 1 April 2026, volunteers undertook restoration activities across **nearly 10 hectares** in direct collaboration with Forest Department officials.

DIRECT RESTORATION ACTIONS: *Removal of weeds and thorny bushes (invasive species control); plantation activities to enhance vegetation for wildlife; riverbank cleaning and water channel restoration*

AREA TREATED: *~10 hectares of forest ecosystem — a measurable, documented restoration area*

FOREST DEPARTMENT COLLABORATION: *Direct working partnership with Forest Department officials; institutional-government joint restoration action*

BIODIVERSITY CONSERVATION TRUST: *Interactive session 2 April 2026 at Kallampalayam; biodiversity experts highlighted ecosystem restoration and wildlife habitat management; native seed collection (soap nut, Seemai Karuvelam, Albizia)*

NILGIRIS SIGNIFICANCE: *Forest restoration in the Nilgiris directly extends ecosystems that support endemic species, tribal livelihoods, and global biodiversity*

3.3 Plastic Removal from Wildlife Corridors — Protecting Animal Biodiversity

World Vultures Day (19 July 2025): NSS JSSCPO with **Singara Forest Range** removed nearly **100 bags of plastic** from the Kallatti–Masinagudi–Moyar wildlife corridor — directly protecting the animal biodiversity of a critical wildlife corridor connecting **Mudumalai Tiger Reserve** and Sathyamangalam Wildlife Sanctuary. This action directly maintains the habitat quality for vultures, tigers, elephants, leopards, and other species in one of India's most critical wildlife corridors.

3.4 QR-Enabled Medicinal Plant Garden — Planned Extension of Campus Ecosystem

The Department of Pharmacognosy has planned the establishment of a **QR-enabled Medicinal Plant Garden** — a systematic, digitally documented living collection of medicinal plant species. This garden will directly extend the campus plant ecosystem, provide in-situ conservation for medicinally significant species, and create a documented biodiversity record accessible to students and visitors via mobile devices.

📷 **JSSCPO Campus — 86 Plant Species Maintained in Nilgiris Biosphere · "No Trees Cut" Policy · ISO 14001:2015 Environmental Management Certified**

JSSCPO 86 species: native and medicinal plants maintained for local flora/fauna support; ISO 14001:2015 EMS certified (surveillance audit 7 May 2026 IRQS); Nilgiris Ministry of Forestry approves building expansion; green resilience promoted





SCHOOL OF LIFE SCIENCES, MYSURU (SLSM) | *GI-tagged Nanjangud Rasabale tissue culture · DNA barcoding · Threatened cultivar preservation · Wildlife management research*

4. SLSM — TISSUE CULTURE PRESERVATION OF A THREATENED, GI-TAGGED CULTIVAR

The **School of Life Sciences, Mysuru** provides the most scientifically precise example of directly working to maintain a threatened ecosystem component. The 2025 publication — ***Bhat AR. Preservation of a GI-tagged banana cultivar: insights from tissue culture and DNA barcoding of Nanjangud Rasabale. Indian J Hortic. 2025;82(3):297-302*** — documents the actual preservation of a cultivar that is under multiple threats: loss of traditional agricultural land, monoculture pressures, and lack of documentation of its genetic identity.

4.1 Why Nanjangud Rasabale Is an Ecosystem Under Threat

Nanjangud Rasabale (**Nanjangud Banana**) is a **Geographical Indication (GI)-tagged** traditional banana cultivar grown exclusively in the Nanjangud belt of Mysuru district, Karnataka. Its GI tag recognises both its unique quality and its cultural-geographic identity. However, the cultivar faces multiple conservation challenges:

- Loss of cultivation area: traditional Nanjangud farmland is being converted to commercial banana monocultures or non-agricultural use
- Genetic erosion: without documentation and ex-situ conservation, traditional cultivars disappear within one generation

- Pest and disease pressure: traditional cultivars are often more susceptible to commercial-scale pests, reducing farmer incentive to maintain them
- Absence of certified planting material: farmers who want to grow Nanjangud Rasabale cannot access verified, disease-free planting stock

4.2 How SLSM Directly Maintains This Threatened Ecosystem Component

TISSUE CULTURE PRESERVATION: *In-vitro cultivation of authentic Nanjangud Rasabale plant material; produces disease-free, genetically verified planting stock — directly extending the cultivar's population by making certified material available*

DNA BARCODING: *Molecular identification of the cultivar's genetic identity; creates a permanent DNA record; prevents adulteration and misidentification; enables future restoration even if field populations decline*

CONSERVATION THROUGH USE: *Demonstrating the cultivar's therapeutic value (documented in the Phytomed Plus 2025 paper on Artocarpus altilis, a related species) supports commercial viability, which is the strongest biodiversity conservation incentive*

DIRECT LINK TO ECOSYSTEM: *Nanjangud Rasabale is not just an agricultural variety — it supports the specific agro-ecosystem of the Nanjangud microclimate, the pollinators adapted to it, and the soil mycorrhizal communities associated with traditional banana cultivation*

PRIOR KVK SUPPORT: *Dr. Anuradha Sane (Vikasit Krishi Sankalp Abhiyan, May–Jun 2025) inspected tissue-cultured banana plantations at Jeemaranahalli village, Nanjangud Taluk — SLSM tissue culture work directly supplying certified material to farmers in the field*

PUBLICATION: *Bhat AR. Preservation of a GI-tagged banana cultivar: insights from tissue culture and DNA barcoding of Nanjangud Rasabale. Indian J Hortic. 2025;82(3):297-302*

4.3 Additional SLSM Research Directly Maintaining Biodiversity

Research / Activity	Ecosystem / Species Maintained	Direct Action	Publication / Source
Soil suitability assessment for organic sorghum cultivation	Mysuru/Coimbatore soil ecosystem and soil microbiome; sorghum agrobiodiversity	Soil health data directly informs organic farming decisions, reducing chemical degradation of soil ecosystems	Maalavika N. Int J Plant Soil Sci. 2025;37(9):367-77
AI-based sustainable wildlife management research	Wildlife populations and terrestrial ecosystems needing data-driven conservation tools	Research tools for wildlife monitoring directly support conservation managers in maintaining animal biodiversity	Sivamani Y. Int J Environ Sci. 2025;11(24s):5922-5938
Epidemiological insights into canine rabies — One Health approach	Wildlife-domestic animal interface ecosystem; rabies reservoir management	One Health approach means maintaining ecosystem balance between wildlife, domestic animals, and humans	Viswanathan N. One Health. 2025;00:101-128
Honey bee gut microbiome analysis (Apis mellifera)	Honeybee colony microbiome and pollinator ecosystem health	Direct study of internal bee ecosystem; contributes to understanding and protecting honey bee health — a threatened pollinator	Student dissertation: Lactobacillus plantarum and Staphylococcus epidermidis from honey bee gut

Demographic history of Varanus species (monitor lizards)	Varanus acanthurus and Varanus salvator — monitor lizard populations	Population genomics informing conservation status and management of reptile species	Student dissertation: PSMC Analysis of Varanus species
Transcriptomic impact of environmental stress on Aedes aegypti response to Dengue	Mosquito population ecology; arboviral disease vector ecosystem	Understanding ecological stress on vector ecosystems; contributes to disease-free ecosystem management	Student dissertation: Aedes aegypti dengue response under environmental stress
Thunbergia mysorensis bioactive compounds	Thunbergia mysorensis — Mysuru-endemic ornamental plant	Phytochemical characterisation of a Mysuru-endemic species; conservation through demonstrated utility	Kokila NR et al. J Biomol Struct Dyn. 2025

ICAR JSS KRISHI VIGYAN KENDRA, SUTTUR | *Beekeeping Laboratory · Honeybee decline addressed · 70+ farmers trained · Biocontrol ecosystem agents · Soil health restoration*

5. JSS KVK — BEEKEEPING TO ADDRESS POLLINATOR DECLINE AND SOIL ECOSYSTEM RESTORATION

5.1 Beekeeping Laboratory — Directly Addressing Honeybee Population Decline

The **ICAR JSS KVK Suttur maintains a Beekeeping Laboratory** (Agricultural Science Centre) and in 2025–26 conducted a training programme on beekeeping with over 70 farmers — responding to a specifically documented ecosystem threat. The SDG 2.5.1 source document explicitly states: ***"Noting the recent decline in honeybee populations due to increased chemical use in agriculture, [KVK head Dr. B.N. Gnanesh] advised farmers to cultivate honey (beekeeping) to enhance pollination and improve yields."***

> ***"Noting the recent decline in honeybee populations due to increased chemical use in agriculture, he advised farmers to cultivate honey (beekeeping) to enhance pollination and improve yields... Plant Protection Expert Dr. Y. P. Prasad emphasized that beekeeping is integral to agriculture: it boosts crop pollination and, when practiced as an enterprise or sideline, can deliver substantial returns."***

ECOSYSTEM UNDER THREAT: *Honeybee populations — documented decline due to chemical agriculture; pollinators are a keystone species whose loss cascades through the entire agricultural ecosystem*

DIRECT MAINTENANCE ACTION: *JSS KVK Beekeeping Laboratory maintains experimental honeybee colonies; honey extraction demonstrated; scientific methods of beekeeping taught to farmers*

EXTENSION OF ECOSYSTEM: *Training 70+ farmers in beekeeping directly extends the honeybee population across agricultural landscapes; each bee colony trained out is a new pollinator ecosystem unit*

RESOURCE PERSON: *Mr. Ravi, progressive bee farmer — provided comprehensive beekeeping training covering bee species, stinging and stingless bees, roles of bees, and demonstrated at the JSS KVK Beekeeping Lab*

SDG 15 TARGET 15.5 ALIGNMENT: *Halting loss of biodiversity: honeybee population decline is a biodiversity crisis; institutional beekeeping lab and farmer training directly combat this loss*

5.2 Soil Ecosystem Restoration — Biocontrol Agents to 2,229 Farmers Annually

The soil ecosystem is itself a biodiversity system — containing millions of microorganisms, fungi, nematodes, earthworms, and invertebrates. When chemical pesticides and synthetic fertilisers are used, this soil biodiversity ecosystem collapses. JSS KVK directly maintains and extends soil ecosystems by distributing **biological control agents and bio-fertilisers** to farmers as alternatives to chemicals, reaching **2,229 farmers annually**.

Biocontrol / Bio-input Agent	Ecosystem Role	How JSS KVK Delivers It	Scale
Rhizobium inoculant	Nitrogen-fixing bacteria in soil; supports legume ecosystem; replaces synthetic nitrogen fertiliser that disrupts soil microbiome	Rhizobium + PSB + Trichoderma package distributed with training at LBG 791 programme (Model Pulse Villages, 275+ farmers + 80+ SC/ST Akkur farmers)	275+ Model Pulse Village farmers + 80+ SC/ST Akkur village farmers
Phosphate Solubilising Bacteria (PSB)	Soil phosphorus ecosystem; enables plant phosphorus uptake without synthetic phosphate; maintains soil bacterial diversity	Part of bio-fertiliser package with practical training on application based on soil health	Part of KVK annual bio-input distribution
Trichoderma (fungal biocontrol agent)	Soil fungal ecosystem; biological suppression of plant pathogens; replaces chemical fungicides that destroy soil fungal diversity	Training on use of bio-fertilisers like vermicompost, Trichoderma, and Pseudomonas provided to farmers	2,229+ farmers annually
Metarhizium (entomopathogenic fungus)	Insect ecosystem; natural pest control by fungus; replaces chemical insecticides; maintains beneficial insect populations	Mentioned in integrated bio-management training alongside pest control measures	Part of annual training curriculum
Vermicompost	Earthworm ecosystem; soil structure; soil biological activity; replaces chemical fertilisers	On-campus vermicompost production demonstrated; technology transferred to farmers including progressive farmer Krishnegowda (Varakhodu)	Campus demonstration → farmer adoption
Biogas slurry (digestate)	Soil organic matter; microbial activity; replaces chemical fertilisers; closes organic cycle	JSSMC 300 kg/day biogas plant: slurry used as campus organic fertiliser; KVK campus biogas as demonstration	Campus-scale + farmer outreach

SOIL HEALTH CRISIS DOCUMENTED: *52.07% of Mysuru district soils are unhealthy (Dr. B.N. Gnanesh, KVK Head, stated at World Coconut Day training, Sep 2025) — JSS KVK's biocontrol outreach directly addresses this documented soil ecosystem crisis*

NATURAL FARMING SCALE: *Vikasit Krishi Sankalp Abhiyan (May–Jun 2025): 34,669 farmers, 131 villages; natural farming (Panchagavya, Jeevamrutha, Brahmastra) promoted — these are soil ecosystem restoration practices at community scale*

JSSMC · JSSDCH · JSSCPM · SMART CAMPUS COMMITTEE | *4,596 trees · Smart Campus increases tree count · Amphibian/rodent elimination from UG teaching · ICMR phytoremediation · Eco Club*

6. JSSMC, JSSDCH, JSSCPM — SMART CAMPUS TREE MAINTENANCE AND TEACHING REFORM

6.1 Smart Campus Committee — Directly Increasing the Campus Ecosystem

JSSCPM's explicit 15.2.3 response states: ***"Yes. The Smart Campus Committee has increased the number of trees on campus, which provide shelter to birds, insects, bees, and earthworms."*** This is a direct, operational ecosystem maintenance action: the Committee actively decides to increase tree count, sources saplings, plants them, and maintains them — creating documented habitat for multiple animal species (birds, insects, bees, earthworms) in the campus ecosystem.

DIRECT ACTION: *Smart Campus Committee actively increases campus tree count — an institutional body with authority to extend the campus plant ecosystem*

ANIMAL BIODIVERSITY SUPPORTED: *Trees shelter birds, insects, bees, and earthworms — four distinct animal categories supported; campus becomes a biodiversity island in the urban landscape*

TOTAL CAMPUS TREES: *4,596 trees across all JSS AHER campuses (from campus tree census data); JSSCPM 60%+ green campus recognised by Horticulture Department*

MIYAWAKI METHOD: *Applied at JSSCPM — 10× faster growth than conventional plantation; creates dense native forest microhabitat; accelerates ecosystem development*

ALL INSTITUTIONS: *JSSMC: Jackfruit saplings (World Environment Day, 5 Jun 2025); JSSDCH: Eco Club green campus drives; JSSCPO: 86 species maintained*

6.2 Elimination of Amphibians and Rodents from Undergraduate Teaching

The JSSCPM explicit response to 15.2.3 includes a second, significant direct ecosystem action: ***"Additionally, the University has eliminated the use of amphibians, rodents, and similar species in undergraduate teaching and demonstration, as part of its commitment to protecting micro and macro-ecological systems."***

This is a direct biodiversity conservation action of measurable impact. Universities that use amphibians (frogs, toads) and rodents in teaching create sustained demand for wild-caught animals. By eliminating this institutional demand, JSS AHER directly reduces the pressure on:

- Amphibian populations (frogs, toads) — among the most threatened vertebrate groups globally (IUCN lists >40% of amphibian species as threatened)
- Rodent populations in the Mysuru/Nilgiris ecosystem — small mammals are foundational to forest food webs
- The local biodiversity supply chain — wild-catch markets that deplete local populations to supply institutional demand

REPLACEMENT WITH ALTERNATIVES: *3Rs principles (Replace, Reduce, Refine); CPCSEA guidelines implemented; in-silico methods, computer models, cell-based assays used instead*

UNIVERSITY-WIDE APPLICATION: *Applies to all constituent colleges — medical, dental, pharmacy, life sciences — multiplying the conservation impact across all undergraduate programmes*

SDG 15 TARGET 15.5 ALIGNMENT: *Directly halts biodiversity loss by removing institutional demand that depletes wild amphibian and small mammal populations*

6.3 ICMR Phytoremediation Research — Plant-Based Ecosystem Restoration Science

The ICMR-funded project ***"Phytoremediation of indoor air pollution using plant wall air filtration systems"*** (PI: Dr. Rajesh Kumar T, Biochemistry, ₹40,31,649) is a research programme that directly applies plant biodiversity to solve human ecosystem degradation problems. Phytoremediation uses living plants to remove pollutants from soil, water, and air — a direct ecosystem maintenance technology. This research contributes scientific knowledge to the field of using plant-based ecosystems for environmental restoration.

7. INSTITUTIONAL BIOSAFETY COMMITTEE (IBSC) — ECOSYSTEM PROTECTION FROM RESEARCH RISKS

JSS AHER's **Institutional Biosafety Committee (IBSC)**, constituted under DBT guidelines and the **Environment Protection Act, 1986**, directly protects ecosystems from the risks of biological research. The IBSC's primary mission is explicitly: ***"to ensure the safety of faculty and researchers involved in biological research at our institute, and to protect the general public and the environment from the adverse consequences of the proposed research."***

The IBSC reviews all research involving: recombinant DNA, RNAi, pathogens, transgenic animals, genetically modified plants and seeds, CRISPR, gene knockouts, and bacterial/viral vector-based research. This review process is a direct ecosystem protection mechanism — ensuring that laboratory research cannot accidentally release modified organisms, pathogens, or potentially invasive biological material into the natural environment.

MISSION STATEMENT: *To protect the general public and the environment from adverse consequences of biological research — explicit environmental protection role*

ECOSYSTEM PROTECTION SCOPE: *Reviews GMOs, transgenic animals, modified plants, CRISPR — all categories that could theoretically impact ecosystems if released*

LEGAL BASIS: *DBT guidelines; Environment Protection Act, 1986 — compliance with national ecosystem protection law*

SDG 15.2.3 APPLICATION: *IBSC directly maintains ecosystem integrity by preventing research-driven biosafety incidents that could threaten biodiversity*

8. MASTER EVIDENCE TABLE — INDICATOR 15.2.3

Action / Activity	Ecosystem / Biodiversity Maintained or Extended	Direct Mechanism	Institution	SDG 15 Target	Evidence Source
86 plant species maintained; no trees cut; biodiversity in planning	Nilgiris Biosphere plant ecosystem; local flora and fauna supported by native medicinal plants	Active maintenance by Smart Campus Committee; ISO 14001:2015 EMS certification; Nilgiris Forestry Ministry oversight	JSSCPO	15.1 (conservation of terrestrial ecosystems)	JSSCPO SDG 15 source document

10 ha forest ecosystem restoration (weeding, plantation, riverbank cleaning)	Nilgiris tribal area forest ecosystem; vegetation for wildlife; invasive species removal	Direct physical restoration by NSS volunteers + Forest Dept. officials; native seed (soap nut, Albizia) collected and replanted	JSSCPO NSS + Forest Dept. + Biodiversity Conservation Trust	15.1 (restoration); 15.5 (halt biodiversity loss)	JSSCPO SDG 15 source; NOTICESID=7251
Wildlife corridor plastic removal — Kallatti–Masinagudi–Moyar (100 bags)	Animal biodiversity in Nilgiris wildlife corridor; vultures, tigers, elephants protected from plastic contamination	Hands-on removal of 100 bags of plastic from active wildlife corridor; government forest authority partnership	JSSCPO NSS + Singara Forest Range	15.5 (halt biodiversity loss)	JSSCPO SDG 15 source document
Tissue culture preservation of Nanjangud Rasabale (GI-tagged, threatened cultivar)	Genetic diversity of threatened traditional banana cultivar; Nanjangud agro-ecosystem	In-vitro cultivation; DNA barcoding; certified planting material supplied to farmers at Jeemaranahalli, Nanjangud Taluk	SLSM Tissue Culture Laboratory	15.6 (fair sharing of genetic resources); 15.5	Bhat AR, Indian J Hortic. 2025;82(3):297-302
Beekeeping Laboratory — experimental colonies; 70+ farmer training	Honeybee pollinator ecosystem under threat from chemical agriculture; pollinator biodiversity	Maintained honeybee colonies at KVK; farmer training creates new colonies across agricultural landscape	ICAR JSS KVK	15.5 (halt biodiversity loss of pollinators)	SDG 2.5.1 PDF; JSS KVK SDG source
Biocontrol agents distributed (Rhizobium, PSB, Trichoderma, Metarhizium)	Soil microbiome ecosystem; soil biodiversity; replaces chemical inputs that kill soil organisms	Distribution with practical training to 2,229+ farmers/year; LBG 791 package to 275+ Model Pulse Village farmers	ICAR JSS KVK	15.3 (reduce land degradation)	SDG 2.5.1 PDF; SDG 2.5.3 session data
Elimination of amphibians and rodents from UG teaching (all constituent colleges)	Wild amphibian populations (IUCN: >40% threatened); small mammal populations in Mysuru/Nilgiris	Institutional mandate; 3Rs CPCSEA compliance; in-silico/in-vitro alternatives operational; zero wild-catch institutional demand	All constituent colleges (university-wide)	15.5 (halt biodiversity loss)	JSSCPM explicit 15.2.3 "Yes" response with explanation
Smart Campus Committee increases campus tree count annually (4,596 total)	Campus urban biodiversity; habitat for birds, insects, bees, earthworms	Institutional body actively sources and plants trees; campus tree census; Miyawaki method applied	Smart Campus Committee (university-wide); JSSCPM 60%+ green campus award	15.2 (promote sustainable forest management)	JSSCPM 15.2.3 "Yes" response; SDG 7 session data
Vermicompost technology and biogas slurry as soil ecosystem restoration	Agricultural soil microbiome; earthworm ecosystem; soil organic matter	On-campus demonstration → farmer technology transfer; progressive farmer Krishnegowda (Varakhodu) practising vermicompost	ICAR JSS KVK + JSSMC (300 kg/day biogas + organic manure)	15.3 (land degradation neutrality)	SDG 2.5.1 PDF; SDG 2 session data
Institutional Biosafety Committee (IBSC) oversight of GMO/pathogen research	Ecosystem protected from biosafety incidents; natural environment protected from modified organisms	Legal review under Environment Protection Act 1986; DBT guidelines compliance; independent assessment of containment	All research institutions (university-wide)	15.1 (conservation of terrestrial ecosystems)	JSSMC/JSSDCH IBSC documentation in SDG 15 source
Natural farming promotion (Panchagavya, Jeevamrutha) for	Soil ecosystem and agricultural biodiversity; chemical-free farming zones	5-day residential training; progressive farmer models (Parashivamurthy	ICAR JSS KVK	15.3 (land degradation); 15.1	SDG 2.5.1 PDF; Vikasit Krishi Sankalp data

55+ farmers; 34,669 farmers aware		organic farm, Krishnegowda integrated farm)			
SLSM dissertation research: Varanus sp. (monitor lizard) demographic history; Apis mellifera gut microbiome	Monitor lizard population biodiversity; honeybee colony health	Population genomics (PSMC); microbial analysis — creates conservation knowledge base for animal biodiversity protection	SLSM student research	15.5 (biodiversity)	SDG 15 source document: SLSM dissertation list
GI-tagged crops promotion (Nanjangud Rasabale, Mysuru Mallige, black paddy)	Agrobiodiversity; traditional cultivar genetic diversity; region-specific crop ecosystems	Active promotion in KVK field days; government scheme support encouraged; tissue culture supply chain (SLSM → KVK → farmers)	ICAR JSS KVK + SLSM	15.6 (genetic resources)	SDG 2.5.1 PDF; SDG 15 SLSM data

JSS ACADEMY OF HIGHER EDUCATION & RESEARCH
(DEEMED TO BE UNIVERSITY) MYSURU

JSS Academy of Higher Education & Research

(Deemed to be University) (Accredited A+ Grade by NAAC)

COMPENDIUM ON SDG-15

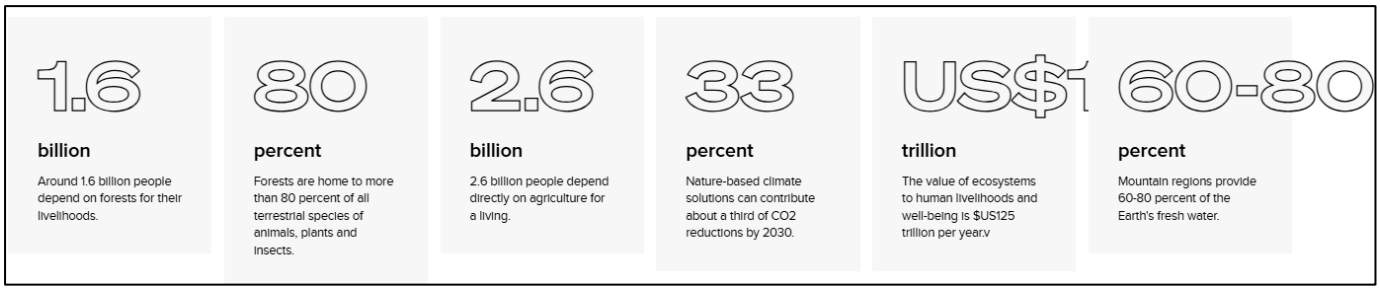
Life on Land

Compendium of Activities in Achieving UN Sustainable Development Goals



2025-26

JSSMC





Publications

1. S Rajeshwari, Abu Safana Biswas, Suresh J, Erica Alves, Gurupadayya BM, Archana Pilli, Subba

Sl No	Title of the project	Principle investigator(s)	Department(s)	Funding agency	Amount sanctioned
1.	Phytoremediation of indoor air pollution in urban homes to improve air quality using innovative-sustainable technology-based plant wall air filtration system	PI: **Dr. Rajesh Kumar T**	Biochemistry	ICMR	40,31,649.00
2.	Development of millet-based dietary fiber for protection of allergic asthma by modulating gut microbiome-derived short-chain fatty acids	PI: **Dr. Kiran** Co-PI: **Dr. Rajesh Kumar T**	School of Life Sciences Biochemistry	ICMR	40,00,000.00

Rao M V S S T, Pattaluchetty P. Phytochemicals from corn plant as Anti-Inflammatory Agents: Molecular Insights and Therapeutic Perspectives. Pharmacological Research - Natural Products. 2026 Jan;100497. doi:10.1016/j.prenap.2026.100497.

2. Saraswathi S, Venkataravanappa JT, Nambiar C, et al. Plant-derived neuroprotective compounds and nanoformulations targeting Parkinson's disease: a semi-systematic review of mechanisms and therapeutic potential. Metabolic Brain Disease,2026 May;41:101. doi:10.1007/s11011-026-01868-y.
3. Mouvanal Sajana, Mutthuraj Dasegowda, MS Brunda A, K R Arjun, Kanthesh M Basalingappa. Emerging Research on Bioactive Compounds and Cancer Stem Cells. Medicinal Plants and Their Bioactives in Human Diseases. 2025 Oct;293-329. doi:10.1007/978-3-032-01356-9_13.

Research Projects

SUSTAINABLE AGRICULTURE (Kitchen Garden in the hostel campus)

The kitchen garden in the hostel campus promotes sustainable agriculture by encouraging the cultivation of fresh vegetables and plants using eco-friendly practices. It supports environmental conservation, enhances biodiversity, and creates awareness about sustainable food production among students. The initiative also reduces the environmental impact associated with food transportation and promotes healthy living. Through this practice, JSS Medical College reinforces its commitment to SDG 13 – Climate Action by encouraging sustainable resource use and environmental stewardship



Water Observation Community

Regular water and conducted on college, and by the team Department of Medicine.

Sanitation by the Medicine team.

assessments of sanitation are the hospital, hostel premises from the Community

The hospital and college premises have well-established water disinfection and RO facilities. Water is treated with liquid chlorine using a 12% Sodium Hypochlorite solution.



Label with tank capacity and dates of storage tank cleaning.



Chlorination Pump

World Hand Hygiene Day 2026

As part of its commitment to promoting sanitation, hygiene, and infection prevention, JSS Hospital observed World Hand Hygiene Day on 5 May 2026**,** organized by the Infection Prevention and Control Committee (IPCC**)** in association with the Department of Microbiology and the Special Interest Group

(SIG): Building Healthcare Resilience for Combating Hospital-Acquired Infections**.** The program aligned with the World Health Organization's *"Save Lives: Clean Your Hands"* campaign and aimed to reinforce effective hand hygiene practices among healthcare professionals while strengthening the institution's commitment to patient safety and infection prevention. The event featured awareness sessions on WHO-recommended hand hygiene guidelines, reinforced the 'Five Moments for Hand Hygiene', recognized hospital departments demonstrating exemplary hand hygiene compliance, and emphasized the critical role of hand hygiene in reducing healthcare-associated infections. The program also promoted a culture of patient safety and institutional excellence in infection prevention and control, directly contributing to the objectives of SDG 6: Clean Water and Sanitation, particularly Target 6.2 on improving hygiene practices.





Foundation Course – Biomedical Waste Management and Hand Hygiene

As part of the Foundation Course held on 3 October 2025, the Department of Microbiology organized orientation sessions on Biomedical Waste Management and Hand Hygiene to instill essential infection-prevention and patient-safety practices among newly admitted medical students. The sessions provided comprehensive training on the Biomedical Waste Management Rules, 2016**,** emphasizing the importance of color-coded segregation, safe handling and disposal of biomedical waste, and compliance with statutory guidelines. Participants were also sensitized to the WHO Hand Hygiene Guidelines**,** including the importance of hand hygiene in preventing healthcare-associated infections. Additional topics included needle-stick injury prevention**,** occupational exposure risks, and post-exposure prophylaxis (PEP) protocols, equipping students with the knowledge and skills required to maintain a safe healthcare environment. Through this initiative, the institution reinforced responsible waste management practices and promoted a culture of hygiene and infection prevention, contributing to the achievement of SDG 6: Clean Water and Sanitation, particularly Targets 6.2 (sanitation and hygiene) and 6.3 (reducing pollution through safe waste management)**.**



Gamified Hand Hygiene Education

As part of its innovative teaching initiatives during the 2025 academic year, the Department of Microbiology introduced gamified hand hygiene education to promote infection prevention and improve students' understanding of hygiene practices. The department developed creative educational tools, including hand hygiene poems and other gamified learning resources, to make learning interactive, engaging, and memorable. These innovative approaches enhanced students' awareness of proper hand hygiene practices, reinforced the importance of infection prevention and control, and encouraged long-term retention of essential public health concepts. By integrating active learning methodologies into microbiology education, the department fostered behavioral change and strengthened students' commitment to safe healthcare practices, thereby contributing to SDG 6: Clean Water and Sanitation, particularly Target 6.2, which promotes adequate sanitation and hygiene for all.

Plastics Policy:

JSS AHER has adopted a Plastic Policy to protect the environment by minimizing plastic use on campus. The institution is committed to minimizing plastic waste and promoting a clean, healthy and sustainable environment by reducing the use of single-use plastics and encouraging environmentally responsible practices.

The main aim of the policy is:
1. Minimize the use of plastic on campus by auditing & setting standards, i.e., banning plastic less than 50 microns & use of only recyclable plastic on campus.
2. Encourage innovative recycling methods for recycling & work with the stakeholders to develop capability & capacity for recycling of plastic. Work in partnership with research bodies, universities, suppliers & other stakeholders to meet these policy objectives.
3. Maintaining the housekeeping standards at the campus to address plastic litter. Ensure proper segregation & collection of plastic waste.
4. Expanding the campaign by promoting the plastic hazard program to promote awareness programs about the minimization of use of plastic on the campus.
5. Support & encourage staff, students and the community to remove plastic waste from the environment.
6. The policy mainly relates to Swatchh Bharat Mission (Urban) guidelines, Govt. of India &

National conservation strategy and policy statement on environment and development.

Plastic Free Campus



Signage - Ban on use of plastics inside the JSS AHER campus premises

NSS – Swachhatha Abhiyana: 10-01-2026

Swachhatha Abhiyana was organized by Mysuru City Corporation at Kukkarahalli Kere on the eve of “Swatch Sarvekshan 2025-26” on 10-01-2026. The event aimed at promoting hygiene and environmental awareness among the general public. The event commenced at 7:00 am and saw enthusiastic participation from >300 students eager to contribute to this noble cause. From JSS MC, 15 medical students joined the event.

Throughout the morning, the students collected and filled numerous garbage bags, clearing the area of plastic waste, wrappers, and other debris. This hands-on experience not only enhanced the students' understanding of the importance of cleanliness but also highlighted the significant impact collective action can have on maintaining a sustainable environment.

The drive concluded with a brief reflection session, during which participants shared their experiences and discussed the need for continued efforts to promote cleanliness. This NSS initiative aligns with the broader goals of the Swachh Bharat mission, inspiring future generations to prioritize cleanliness and environmental stewardship. The event was a resounding success, leaving a lasting impression on both the students and the community.

The event was coordinated by Dr Manu G, NSS Program Officer, JSSMC, Mysuru.









Biomedical Waste Management









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Lecture series on Disposal of Biomedical Waste & Hazardous materials.

The series of sessions commenced with Dr. Preethika Ravi, Senior Resident in the Department of Microbiology, who delivered an insightful overview of biosafety. She explained the objectives of biosafety, containment principles, risk groups, hazardous procedures, and the four biosafety levels. She further discussed biomedical waste categories, the consequences of improper disposal, the color-coded segregation system mandated under the Biomedical Waste Management Rules, 2016, and commonly used waste management methods.

The next session, by Dr. Arun M., Professor in the Department of Forensic Medicine and Toxicology, focused on Reflective Writing. Through an activity-based approach, he explained the concept, layers, levels, and models of reflection. He highlighted its role in enhancing clinical reasoning, bridging theory and practice, improving patient care, and fostering lifelong learning.
Sri S. R. Satish Chandra, Administrative Officer, JSS Medical College, delivered a motivating talk on Positive Attitude, emphasizing optimism, resilience, adaptability, and effective stress management.

This was followed by Dr. Sujatha S R, Assistant Professor, Department of Microbiology, who detailed hand hygiene practices, WHO guidelines, needle-stick injuries, occupational exposure risks, and post-exposure prophylaxis recommendations.

The day concluded with Kannada language learning by Dr. Bheemaraju Eeregowda, Assistant Professor, School of Life Sciences, JSSAHER, who introduced essential vocabulary and encouraged interactive peer learning.



Biosafety Institutional Committee (IBSC)

In accordance with the Rules for the use and storage of hazardous microorganisms/ genetically engineered organism/plants/cells, Government of India, under the Environment Protection Act, 1986, has enforced rules and regulations on the biosafety and biocontainment of hazardous, recombinant DNA, synthetic nucleic acids, and use of hazardous biomaterials of any kind. Under the guidelines of this Act, JSS Academy of Higher Education & Research, Mysuru, has constituted an Institutional Biosafety Committee (IBSC) in accordance with the DBT guidelines of the Government of India.

Mission

The primary mission of the IBSC is to ensure the safety of faculty and researchers involved in biological research at our institute, and to protect the general public and the environment from the adverse consequences of the proposed research.

Purpose of IBSC

The IBSC is responsible for reviewing projects that involve, but are not limited to, recombinant DNA, RNAi, pathogens, human materials (specimen repositories) and other potentially infectious materials, as well as transgenic animals, genetically modified plants and seeds, CRISPR and Gene knockouts, and bacterial- and viral vector-based transfections. The IBSC provides recommendations for controlling biohazards associated with the use of microbiological agents, their vectors, and related research.

The IBSC will determine approval or make recommendations regarding the proposed experiments by reviewing the application submitted by the principal investigator, along with supporting materials. This review and oversight involve independent assessment of the proposed biosafety containment level for the work and, through coordination with the biological safety officer, assessment of the facilities, procedures, practices, training, and expertise of the personnel involved in the research.

Specifically, the IBSC will review research proposals with the following potentially hazardous biological agents and experiments

Infrastructure

Center for Experimental Pharmacology and Toxicology, JSS Academy of Higher Education & Research (JSS AHER) has endowed an extensive ABSL2 preclinical facility “Center for Experimental Pharmacology and Toxicology” to support the comprehensive research activities of its constituent colleges (medical, dental, pharmacy, life sciences) and departments. The facility is licensed (261/PO/ReBi/S/2000/CPCSEA) by the Committee for the Purpose of Control and Supervision of Experiments on Animals (CPCSEA), Government of India, to conduct experiments on small-animal models and to breed for in-house use. The vivarium is located in a serene, peaceful setting on the University campus. A built space of 7000 sq ft primarily comprises a rodent barrier facility, small-animal clinicopathology labs, and supportive suites. The animal facility plant is built in compliance with the guidelines of the National Institutes of Health (NIH), USA, and CPCSEA, Government of India

Physical Plant

• PT is a BSLII barrier facility with dual corridors, temperature, humidity, light, noise, and differential air pressure monitored 24X7
• Epoxy terrazzo-coated floor, concrete masonry walls, and moisture-resistant ceilings
• Facility is provisioned with isolated ventilated cages
• Clinicopathology, test item control office, archive on site

Animal care is monitored on a daily basis including weekends and holidays

• Health monitoring within the animal facilities is ensured through a sentinel program, supplier reports, and environmental testing by trained veterinarians
• Sterilised Bedding, food, and portable mineral water
• Consistent healthcare from study initiation to study completion
• Practice in force on humane endpoints policy to minimize pain and discomfort

Experience with and equipped to conduct studies in a wide array of species

• Rat
• Mouse
• Rabbit
• Guinea Pig

Scientific services- With cutting-edge technologies in scientific research along with a wide range of experienced professionals, CPT alliances with its partners to bring forth an endless variety of disease models and preclinical services in the following areas- Pharmaceuticals, Medical devices, Agrochemicals and Pesticides, Food products and Nutraceuticals, Folklore Remedies

Collaborations

International

• NIAAA, NIH, USA
• Macquarie University, Australia
• Sultan Qaboos University, Oman
• University of Saskatchewan, Canada
• Seton Hall University, USA
• University of Johannesburg

National

• CSIR Central Food Technological Research Institute, Mysuru
• CSIRIITR, Lucknow
• IIT, Madras
• Department of Chemistry, University of Delhi
• National Institute of Mental Health and Neurosciences (NIMHANS), Bangalore
• Birla Institute of Technology and Science, Hyderabad
• Annamalai University, Tamil Nadu

Animal House facilities



Plants on the campus





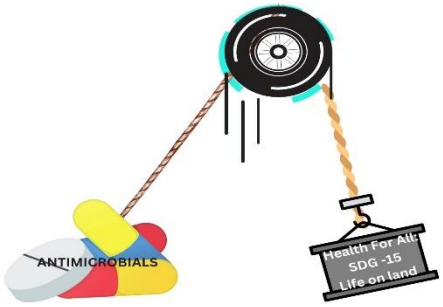
Related Activities Conducted
AMR Awareness Week (18th–23rd November 2024)

Antimicrobial resistance (AMR) has become a significant global health challenge, requiring urgent attention to promote rational antibiotic use. JSS Medical College and Hospital for AMSP actively contributed to AMR Awareness Week (18th–23rd November 2024) by organizing a series of innovative, interactive activities, including games, talks, and training sessions, to educate diverse groups about the irrational use of antimicrobials and strategies to mitigate AMR. The initiatives targeted healthcare professionals, students, and the community to raise awareness of antimicrobial resistance and enhance understanding of prudent antimicrobial use, particularly in clinical and community settings, using a One Health approach.









Innovative Teaching for Antimicrobial Stewardship (2026)

The Department of Microbiology adopted innovative gamified and origami-based teaching methodologies to strengthen students' understanding of antimicrobial stewardship and infectious diseases. Interactive educational tools covering MRSA and MSSA infections, enteric fever, acute undifferentiated fever, lower respiratory tract infections, sepsis, and rational antibiotic use enhanced student engagement, diagnostic reasoning, and awareness regarding appropriate antimicrobial use. These initiatives support the One Health approach by promoting responsible antimicrobial practices and awareness of antimicrobial resistance.

Faculty Capacity Building in Antimicrobial Stewardship (20/01/2026)

As part of efforts to strengthen institutional capacity in antimicrobial stewardship and support the One Health approach, four faculty members from the Department of Microbiology, JSS Medical College, Mysuru—Dr. Sowmya G.S., Professor; Dr. Raghavendra Rao, Professor; Dr. Vidyavathi B.C., Associate Professor; and Dr. Neetha S. Murthy, Assistant Professor—successfully completed the Stanford Medicine Antimicrobial Stewardship Course on 20 January 2026. The program enhanced faculty expertise in the judicious use of antimicrobials, antimicrobial resistance surveillance, infection prevention, and evidence-based stewardship practices, thereby contributing to responsible management of microbial ecosystems and supporting the One Health principles.



Sustainable Development Goal 15 strives to ensure the protection, restoration, and sustainable utilization of terrestrial ecosystems, including the responsible management of forests, the fight against desertification, the reversal of land degradation, and the preservation of biodiversity. Preserving the variety of life on land necessitates targeted endeavors to conserve, restore, and sustainably utilize terrestrial and other ecosystems. Goal 15 focuses on sustainable forest management, land restoration, desertification control, the reduction of degraded habitats, and the cessation of biodiversity loss. Collectively, these efforts aim to secure the long-term benefits of land-based ecosystems, including sustainable livelihoods, for future generations.

The nine outcome targets include conserving and restoring terrestrial and freshwater ecosystems, ending deforestation and restoring degraded forests, combatting desertification and restoring degraded land, ensuring the conservation of mountain ecosystems, protecting biodiversity and natural habitats, safeguarding access to genetic resources and ensuring fair sharing of benefits, eliminating poaching and trafficking of protected species, preventing the invasion of alien species in terrestrial and aquatic ecosystems, and integrating ecosystem and biodiversity considerations in governmental planning.

The three means of achieving targets involve increasing financial resources for the conservation and sustainable use of ecosystems and biodiversity, providing financial incentives for sustainable forest management, and combating global poaching and trafficking.

Human beings rely on the Earth and the oceans for their existence. This goal aims to establish sustainable livelihoods that can be enjoyed by future generations. Plant life, which constitutes 80% of the human diet, is a crucial economic resource through agriculture. Forests, covering 30% of the Earth's surface, provide essential habitats for countless species, offer clean air and water, and play a critical role in combating climate change. Terrestrial ecosystems provide various goods, such as raw materials for construction and energy, as well as ecosystem services like carbon capture, soil quality maintenance, habitat provision for biodiversity, water quality regulation, water flow regulation, and erosion control, which reduce the risks of natural disasters and help regulate climate while sustaining agricultural productivity. Preserving these ecosystems significantly supports efforts in climate change mitigation and adaptation. Protecting our land resources must be a top priority to facilitate the transition towards a more sustainable society. It is crucial to adopt an inclusive approach that promotes the conservation and sustainable utilization of biodiversity across different sectors such as agriculture, forestry, fisheries, and tourism. These sectors are interconnected with food security, economic growth, human health, improvements in living conditions, and the enjoyment of a healthy environment. Therefore, the preservation of biodiversity enhances the provision of these vital services.

Land and forests form the bedrock of sustainable development. Forests play a vital role in addressing climate change, safeguarding biodiversity, ensuring food security, and serving as habitats for indigenous communities. These natural reserves are home to over 80% of terrestrial animal, plant, and insect species. Furthermore, approximately 1.6 billion people, including 70 million indigenous individuals, rely on forests for their livelihoods.

Our existence and well-being depend on both land and sea. Plants, which constitute 80% of the human diet, and agriculture, as a significant economic resource, are essential for our sustenance. Forests, covering 30% of the Earth's surface, serve as crucial habitats for millions of species, purvey clean air and water, and play a pivotal role in combatting climate change. Despite the protection of 15% of land, biodiversity remains under threat. Illegal trade has endangered nearly 7,000 species of plants and animals. Wildlife trafficking not only depletes biodiversity but also fosters insecurity, fuels conflicts, and nurtures corruption.

Urgent measures are required to curtail the loss of natural habitats and biodiversity, which are part of our shared heritage and contribute to global food and water security, climate change mitigation and adaptation,

as well as peace and security. Hence, Goal-15 aims to safeguard, restore, and promote sustainable utilization of terrestrial ecosystems, ensure the sustainable management of forests, combat desertification, reverse land degradation, and halt the loss of biodiversity. These efforts are instrumental in fostering the flourishing of life on Earth.

Green campus initiatives

The Institution also has included a subject Environmental Sciences in all courses as stipulated by UGC and organizes Environment Day and Water Day. The Institution believes in preserving traditional medicine and has established medicinal plants garden and promotes eco-friendly cultivation practices by organizing medicinal plants exhibition in JSS Urban Health Centre. To meet the needs and sustainable management of fresh water, the rainwater harvesting, and utilization systems have been established in all the campuses of the university to aid towards the greater objectives of water management and conservation and increasing recharge of groundwater by capturing and storing rainwater, rainwater harvesting from rooftop run-offs and natural water bodies and the community development. The below mentioned models are established in the various buildings based on the size of the building and the extent and topography of the land. • Simple roof water collection systems - Most of the rooftop rainwater harvesting has been completed by constructing five water storage structures with a storage capacity of 1000 m^3. • Land surface catchments – a simple way of collecting rainwater by retaining the flows (including flood flows) of small creeks and streams in small storage reservoirs (on surface or underground) created by low-cost dams • Collection of storm water – The surface runoff collected in storm water ponds/ reservoirs is subject to a wide variety of contaminants and every effort is made to keep these catchments clean.

- Rain water harvesting and retention facility in the campus
- Collection of storm water and every effort is made to keep these catchments clean.
- Save water reminders

Centre For Experimental Pharmacology and Toxicology JSS Academy of Higher Education & Research (JSS AHER). Centre For Experimental Pharmacology and Toxicology JSS Academy of Higher Education & Research (JSS AHER) has endowed an extensive ABSL2 preclinical facility “Centre for Experimental Pharmacology and Toxicology” to support the comprehensive research activities of its constituent colleges (medical, dental, pharmacy, life sciences) and departments. The facility is licensed (261/PO/ReBi/S/2000/CPCSEA) by Committee for the Purpose of Control and Supervision of Experiments on Animals (CPCSEA), Government of India, to conduct experiment on small animal models and breeding for in-house use. The vivarium is in a serene and peaceful ambiance within the University campus. A built space of 7000 sq ft primarily constitutes rodent barrier facility, small animal clinicopathology labs and supportive suites. Animal facility plant is built in compliance with guidelines of National Institutes of Health (NIH), USA and CPCSEA, Govt of India

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• Seton Hall University, USA
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• IIT, Madras
• Department of Chemistry, University of Delhi
• National Institute of Mental Health and Neurosciences (NIMHANS), Bangalore
• Birla Institute of Technology and Science, Hyderabad
• Annamalai University, Tamil Nadu

Biochemistry lab



PPE changing rooms



Rodent room



Clean corridor



Cage autoclave



IVC cage





Greenery in campus











Smart Campus Initiatives:

- Replacement of 50% of regular bulbs with LED bulbs
- Landscaping around the college
- Providing water purifiers in every floor of the institution
- Initiation of G health Digital store software

- Installation of two effluent treatment plants
- Software for patient management and payment

Programs aligning to SDG 15

Publications in alignment with Goal 15

1. Koduru Sravani, Ashwin Prabhu, Pallavi Nanaiah, Archana R Naik, Anupama Aradya, Pradeep Chandra K - Animal models in Periodontal research: Insights into disease pathogenesis and therapeutic strategies - RGUHS Journal of Dental Sciences - Jun 2025; 17(2):1-6 ISSN: 0976-9439, National In Alignment with Goal 15

2. Krubaa P, Renuka Sharma, Anitha Subbappa, Swathi Priya AK, Suchitra MR, Parthasarathy S - Evaluating the Effectiveness of Nutraceutical as supportive Therapies in Cancer Treatment - Health Leadership and Quality of life - July 2025; 4():605 ISSN:3008-8488, International In Alignment with Goal 15.

3. Sanjay C J - Burden of 375 diseases and injuries, risk attributable burden of 88 risk factors, and healthy life expectancy in 204 countries and territories, including 660 subnational locations, 1990-2023: a systematic analysis for the Global Burden of Disease study 2023 - Lancet - October 2025 :18(406) 1873-1922 ISSN:0140-6736, International In Alignment with Goal 15.

4. Payal Tripathi, Shubham Patel, Evolina Dutta, Sakshi, Sunila B S, Ganiga Channaiah Shivakumar - The Dentist in palliative care addressing oral health for holistic end of life support - Journal of Pharmacy and Bioallied Sciences - December 2025;17(4)-223-225 ISSN:0975-7406, International In Alignment with Goal 15.

5. Indira M Devarj, Girish MS, Sushma K, Brahmananda Dutta, Kanika S Dhull - Oral Health Status and oral Health related quality of life among children born preterm A cross sectional study - International journal of clinical pediatric Dentistry - December 2025: 18(12)1454-1460 ISSN:0974-7052, International In Alignment with Goal 15.

Programs aligning to SDG 15

Best Out of Waste Competition Conservative Dentistry and Endodontics Day 2026



The judges are reviewing the competition entries to determine and announce the prize winners

The Department of Conservative Dentistry and Endodontics, JSS Dental College and Hospital, organized a “Best Out of Waste” Competition on 25th February 2026 as part of the celebrations of Conservative Dentistry and Endodontics Day (5th March 2026).

Centered on the theme “Minimal Waste, Maximum Restoration!”, the event reflected the core philosophy of conservative dentistry — preserving maximum tooth structure while minimizing unnecessary removal — while also promoting environmental responsibility and sustainability.

The event was hosted by Dr. Suneeth Shetty (Reader), Dr. Sowmya (Senior Lecturer), and Dr. Harini (Tutor) under the guidance of the Head of the Department, Dr. Ashwini T.S. The program was efficiently coordinated by postgraduate students Dr. Deepti, Dr. Gouri, and Dr. Kartik.

A total of 31 teams comprising 2nd, 3rd, and 4th year BDS students participated enthusiastically. Participants showcased exceptional creativity by transforming discarded materials into innovative models, artwork, and functional items, many incorporating dental concepts and conservation principles.

The competition successfully promoted sustainability, innovation, teamwork, and the philosophy of minimal intervention dentistry. The department expresses its sincere gratitude to the management of JSS Dental College and Hospital and JSS Academy of Higher Education & Research for their continued support, and to the Principal, Dr. Dhakshaini M. R., for her guidance and encouragement.

International Yoga Day 2026



JSS Dental College & Hospital, Mysuru, celebrated International Yoga Day 2026 with great enthusiasm on its campus. The programme was organized by the National Service Scheme (NSS) Unit of the institution with the objective of promoting physical fitness, mental well-being, and holistic health among students, faculty members, and non-teaching staff.

The event was graced by Dr. Dhakshaini M. R., Principal, JSS Dental College & Hospital. Speaking on the occasion, Dr. H. P. Jaishankar, Vice Principal, emphasized the importance of incorporating yoga into daily life to achieve physical, mental, and emotional balance. He highlighted the significance of International Yoga Day as a global movement that encourages healthy living and overall wellness.

The yoga session witnessed the participation of 40 students and staff members. The session was conducted by Mr. Maltesh, Dental Hygienist at JSS Dental College & Hospital and a certified yoga and meditation practitioner. He guided the participants through various yoga asanas, pranayama exercises, and meditation techniques, explaining their benefits in improving flexibility, concentration, stress management, and overall health.The programme was coordinated by Dr. Sharath Wodeyar, NSS Programme Officer and Faculty, Department of Periodontology, along with Dr. Alok U. A., Assistant NSS Programme Officer and Faculty, Department of Orthodontics, with valuable support from Dr. Ravi M. B., Faculty, Department of Prosthodontics.

Participants actively engaged in the session and appreciated the initiative, which reinforced the importance of yoga as an effective means of achieving a healthy and balanced lifestyle. The programme concluded with a vote of thanks and a collective pledge to incorporate yoga into daily life for personal well-being and community health

World No Tobacco Day 2026







In observance of World No Tobacco Day 2026, a comprehensive awareness campaign was organized to educate the public about the harmful effects of tobacco use, tobacco smoking, and smokeless tobacco exposure. The campaign benefited more than 250 participants, including schoolchildren, degree college students, and members of the general public

Following the directives of the Government of India and the 2026 campaign theme, “Unmasking the Appeal – Countering Nicotine and Tobacco Addiction,” the Departments of Oral Medicine & Radiology, Periodontics, and Public Health Dentistry, in collaboration with the Tobacco Control and Cessation Centre (TCC), JSS Dental College & Hospital, Mysuru, organized and participated in a series of awareness activities on 31st May 2026

As part of the observance, Dr. Suman Basavaraj, Professor and Head, Department of Periodontics, coordinated with All India Radio (AIR) for a special radio talk. Dr. Avinash B.S. delivered an

informative session on the World No Tobacco Day theme and highlighted the role and services of Tobacco Control and Cessation Centres

Several community outreach activities were conducted in collaboration with the Primary Health Centre (PHC), Suttur, under the coordination of Dr. Poornima S.P., Staff and In-charge, JSS Hospital Dental Unit, Suttur. The programme was graced by Dr. Ramya M., Medical Officer, PHC Suttur, and Mr. Nagaraj, Head Master, Government School, Suttur, as Guests of Honour

A public awareness rally (Jatha) involving government school students, teachers, and ASHA workers was organized to spread awareness about the detrimental effects of tobacco use. A human chain was also formed to convey a strong anti-tobacco message to the public. An educational health talk was delivered emphasizing the adverse health consequences of nicotine addiction. The economic burden imposed on families due to tobacco consumption

Information, Education, and Communication (IEC) materials were procured from the District Health and Family Welfare Office (DHO) and distributed among the public. Oral healthcare products and educational pamphlets promoting tobacco cessation and oral hygiene were also distributed

The programme was conducted under the guidance and support of Dr. Dhakshaini M.R., Principal, JSS Dental College & Hospital, Dr. Karthikeya Patil, Professor and Head, Department of Oral Medicine & Radiology, Dr. Thippeswamy H.M., Professor and Head, Department of Public Health Dentistry, and was coordinated by Dr. Maurya M., Member, Tobacco Control and Cessation Centre (TCC)

The event successfully raised awareness regarding the health risks associated with tobacco use and reinforced the importance of tobacco cessation for a healthier

International Meditation Day



The Department of Periodontology commemorated International Meditation Day on Saturday, 20th December 2025, by organizing a refreshing and meaningful meditation session aimed at promoting mental well-being and mindfulness among staff members.

The session was led by Mr. Maltesh, Dental Hygienist, Department of Periodontology, a trained meditation practitioner. Utilizing singing bowl and rain stick meditation techniques, the session offered a deeply calming and immersive experience to the 30 participants in attendance. The tranquil environment allowed participants to momentarily step away from daily professional pressures and reconnect with themselves.

Through simple explanations and guided practice, Mr. Maltesh highlighted the significance of mindfulness and meditation in enhancing mental clarity, emotional balance, and overall well-being. The session fostered a sense of relaxation, awareness, and inner calm among the participants.

The event was thoughtfully initiated under the guidance of Dr. Suman Basavaraju, Head of the Department of Periodontology, whose vision and leadership played a pivotal role in ensuring the success and impact of the program. The active participation of staff members from various roles further enriched the collective spirit of the event, creating a warm, supportive, and harmonious atmosphere.

Eco club 2025



The Eco Club at JSS Dental College and Hospital (JSSDCH), Mysuru, is a student-driven initiative focused on promoting environmental consciousness, green campus drives, and sustainability. Led by faculty coordinators like Dr. Premalatha B.R. and Dr. Thippeswamy H.M., the club actively engages students in ecological preservation.

Fire Safety Training





Training Program: Fire Safety Training Program (Code Red)
Duration: 2 Days
Dates: July 21, 2025 & July 22, 2025
Venue: Fire Station Mysuru
Training Type: Theory and Hands-on Practical

EXECUTIVE SUMMARY

A comprehensive two-day Fire Safety Training Program was successfully conducted for JSS Dental College & Hospital staff from July 21-22, 2025, at Fire Station Mysuru. The program focused on Code Red emergency response procedures, combining theoretical knowledge with practical hands-on training. A total of 10 staff members participated in the program, representing various departments including maintenance, electrical, and general attendees.

TRAINING PARTICIPANTS

Total Participants: 10 Staff Members

Sl No	Name	Designation	Training Status
01	Mr. Shivarudrappa N	Maintenance Mechanic	Completed
02	Mr. Kishor L	Electrician	Completed
03	Mr. Girisha C	Attender	Completed
04	Mr. Mahadevaswamy S	Attender	Completed
05	Mr. Chethana H N	Attender	Completed
06	Mr. Rajesh M	Attender	Completed
07	Mr. Dinesh V	Attender	Completed
08	Mr. Mahadevaswamy R	Attender	Completed

Sl No	Name	Designation	Training Status
09	Mr. Kiran S	Attender	Completed
10	Mr. Mahesha S	Attender	Completed

TRAINING CURRICULUM

Day 1 (July 21, 2025): Theoretical training covering fire safety fundamentals, Code Red protocols, and emergency procedures.

Day 2 (July 22, 2025): Hands-on practical training including fire extinguisher operation, evacuation drills, and emergency response simulation.

TRAINING OUTCOMES

Knowledge Areas Covered

- **Code Red Protocols:** Understanding of emergency activation and response procedures
- **Fire Prevention:** Identification and mitigation of fire hazards in hospital environment
- **Equipment Usage:** Proper handling and operation of fire safety equipment
- **Emergency Response:** Systematic approach to fire emergency situations
- **Team Coordination:** Effective communication and coordination during emergencies

Skills Developed

- Fire extinguisher operation
- Emergency evacuation leadership
- Code Red activation procedures
- Incident reporting and communication
- Basic fire suppression techniques

CONCLUSION

The two-day Fire Safety Training Program was highly successful, achieving 100% participation and certification rates. All staff members demonstrated excellent understanding of fire safety procedures. The training has significantly enhanced the hospital's emergency response capabilities and strengthened our commitment to patient and staff safety.

JSSCPM

Objectives with regard to achieving SDG-15

1. Alternatives to animal testing
2. Medicinal plants and uses
3. 3R's Principles in research
4. CPCSEA and ICH guidelines for conducting research
5. Green initiatives to save the environment

List of activities planned to achieve the set objectives

1. Conducting awareness programs on green initiatives like rainwater harvesting and use of solar energy
2. **Tree Census Project for Mysuru city**
3. Seminar on alternatives to animal experimentation.
4. Reduce and replace the use of plastics
5. Training students in proper waste disposal practices and sensitizing them on using the services of biomedical disposal certified agencies.
6. Encourage students to plant trees and adopt animals.

Poster competition, essay writing competition, role play on World Environment Day celebration

Plant a sapling on the occasion of World Environment Day celebration

The National Service Scheme (NSS) Unit of JSS College of Pharmacy, Mysuru, organized a Plant Saplings event on the occasion of World Environment Day (5th June 2025), with the theme 'Our Land, Our Future'. The main aim of this occasion was to raise awareness of the growing threat of global warming and to protect our natural world and planet Earth. It is a day that reminds everyone on the planet to get involved in environmentally friendly activities. People come together to pledge to build a greener planet.





Collaborative Tree Census Project – Mysuru

As part of the institution's continued commitment to environmental sustainability, biodiversity conservation, and community engagement, the NSS Unit of JSS College of Pharmacy, Mysuru, undertook a Collaborative Tree Census Project in Mysuru from 12 October 2025 to 1 March 2026, contributing directly to the objectives of United Nations Sustainable Development Goal (SDG) 15 – Life on Land.

The initiative was carried out in collaboration with Dr. Smitha Hegde, Director, Centre for Advanced Learning (CFAL), Mysuru, and Dr. Bhamy Shenoy, Founder, Mysore Grahakara Parishat (MGP). The project was envisioned as a community-oriented environmental initiative to document Mysuru's urban tree wealth, promote awareness of urban biodiversity, strengthen environmental stewardship, and encourage active community participation in the protection and conservation of green spaces.

Through systematic field-based tree documentation, the initiative provided students with an opportunity to engage directly with the local environment and develop a greater understanding of the ecological significance of urban trees. Such activities contribute to the creation of a reliable baseline of urban vegetation while encouraging citizens and students to recognize the importance of trees in supporting biodiversity, enhancing urban ecological resilience, improving environmental quality, and sustaining healthy communities.

The Collaborative Tree Census Project represents a meaningful grassroots contribution to SDG 15 – Life on Land, particularly by promoting urban biodiversity conservation, sustainable management of terrestrial ecosystems, environmental awareness, and community-based

conservation practices. Beyond data collection, the initiative reflects the institution's commitment to translating sustainability goals into practical, student-driven and community-linked action.

The project also demonstrates the value of academic–community collaboration in addressing local environmental priorities. By bringing together students, academic institutions, environmental organizations, and civic stakeholders, the initiative helped foster a culture of environmental responsibility, sustainability, and active citizenship, while reinforcing the importance of collective action in safeguarding Mysuru's urban green heritage for future generations.









Q: Does your College or University support and/or organize events aimed to promote conservation and sustainable utilization of the land, including forests and wild land?

A: Yes. The National Service Scheme (NSS) team and the Smart Campus Committee actively work to conserve and improve the ecological system, including insects, plants, and trees, through regular sapling plantations and tree mobilization programs. These plants and trees are maintained using in-house manures prepared from green waste, ensuring sustainable upkeep.

Q: Does your College or University have policies to ensure that food on campus is sustainably farmed?

A: While the institution does not operate at the livestock level, the campus garden team cultivates fruit-bearing trees (jackfruit, mango, banana, coconut, tamarind, bael fruit) and vegetable plants (cucumber, ladies' finger, drumstick, etc.) that yield produce seasonally. These are shared with staff, students, and visitors. The institution is currently developing formal policies to enhance its green initiative in this area.

Q: Does your College or University work directly to maintain and extend existing ecosystems and their biodiversity, especially those under threat?

A: Yes. The Smart Campus Committee has increased the number of trees on campus, which provide shelter to birds, insects, bees, and earthworms. Additionally, the University has eliminated the use of amphibians, rodents, and similar species in undergraduate teaching and demonstration, as part of its commitment to protecting micro and macro-ecological systems.

Q: Does your College or University offer educational programmes on ecosystems (including wild flora and fauna) for local or national communities?

A: Yes. JSSAHER offers a dedicated Master's degree in Environmental Sciences, focusing on areas such as water quality analysis, energy harnessing, air quality, climate change, and green technology, producing skilled professionals for environmental stewardship.

Q: Does your College or University offer educational or outreach programmes on sustainable land management for agriculture and tourism?

A: No.

Q: Does your College or University have a policy to ensure conservation, restoration, and sustainable use of terrestrial ecosystems associated with the institution, in particular forests, mountains, and drylands?

A: The institution is in the process of developing such a policy. In the meantime, it organizes multiple programs promoting conservation, restoration, and sustainable use of terrestrial ecosystems.

Evidence: https://jssuni.edu.in/jssaher/activities-and-events/ActivityAndEventDetail.aspx?NOTICESID=3110

Q: Does your College or University have a policy to identify, monitor, and protect any IUCN Red Listed species or national conservation list species within its areas of operation?

A: No formal policy currently exists. However, the campus was developed on residentially approved land, ensuring no displacement of prominent species or habitats. The institution supports the natural ecosystem through initiatives such as green campus development, a herbal garden, a plastic-free campus, and rainwater harvesting.

Q: Does your College or University include local biodiversity considerations in planning and development processes (e.g., new buildings)?

A: Yes. The Smart Campus Committee ensures local biodiversity is incorporated into planning and development.

Q: Does your College or University have a policy to reduce the impact of alien species on campus?

A: No.

Q: Does your College or University collaborate with the local community in efforts to maintain shared land ecosystems?

A: No.

Q: Does your College or University have water quality standards and guidelines for water discharges to protect ecosystems, wildlife, and human health?

A: Yes. An Effluent Treatment Plant (ETP) is under construction to treat waste from chemical and biological laboratories separately before release into municipal drainage. Domestic wastewater will also be treated in the ETP, and the treated water will be reused for gardening, ensuring environmental safety.

Q: Does your College or University have a policy on reducing plastic waste on campus?

A: Yes. The Smart Campus and Herbal Garden Committees have implemented measures to reduce plastic usage, such as:

- Restricting plastic water bottles and files, and promoting paperless communication
- Minimizing e-waste such as CD-ROMs
- Using biodegradable plates and cups in events
- Replacing plastic-wrapped floral bouquets with sapling distributions
- Distributing jute bags during functions

The campus aims to become a fully plastic-free zone in a phased manner.

Q: Does your College or University have a policy, process, or practice on hazardous waste disposal?

A: Yes. The institution has a dedicated policy for disposing of hazardous waste, including biowaste, carcinogens, construction materials, and e-waste.

Policy Link: **https://jssuni.edu.in/jssaher/jssaher-infra/biomedical-waste-management/biomedical-waste-management-home.html**

JSSCPO

ABOUT SDG 15- LIFE ON LAND

Sustainable Development Goal 15 (SDG 15), also known as "Life on Land," is one of the 17 global goals established by the United Nations in 2015, alongside other vital resources such as water. Its core aim is to protect, restore, and promote the sustainable use of terrestrial ecosystems; sustainably manage forests; combat desertification; halt and reverse land degradation; and stop biodiversity loss. This goal features 12 targets to be met by 2030, with progress tracked through 14 specific indicators.

The nine outcome-focused targets include conserving and restoring terrestrial and freshwater ecosystems, ending deforestation and rehabilitating degraded forests, halting desertification and land degradation, ensuring the protection of mountain ecosystems, safeguarding biodiversity and natural habitats, promoting equitable benefit-sharing from genetic resources, fighting poaching and illegal trafficking of protected species, preventing the spread of invasive alien species in ecosystems, and incorporating ecosystem and biodiversity concerns into government policies. The three implementation targets focus on boosting financial support for ecosystem and biodiversity conservation, encouraging sustainable forest management, and addressing global poaching and trafficking.

By committing to these targets, we can help ensure a sustainable and flourishing terrestrial environment for current and future generations.



OUR INITIATIVES FOR LIFE ON LAND (SDG 15)

The College is actively engaged in preserving and expanding the ecosystems within the Nilgiris Biosphere. The biodiversity of medicinal plants is protected and nurtured within the college grounds. Our campus is rich in greenery, featuring seasonal trees and regularly maintained gardens to ensure a clean and orderly environment. The progress toward achieving the targets of SDG 15 is measured through several indicators:

- Research on land ecosystems
- Supporting land ecosystems through education
- Supporting land ecosystems through action
- Land sensitive waste disposal

Research on land ecosystems

JSS College of Pharmacy, Ooty, actively conducts interdisciplinary research supporting biodiversity conservation, sustainable resource utilization, environmental sustainability, and medicinal plant research. The institution undertakes externally funded projects, international collaborations, and high-impact publications addressing terrestrial ecosystem conservation and sustainable healthcare. Notable initiatives include the SPARC Phase II international project, *"Plastics and People: Human Health Implications of Microplastics in the Environment,"* in collaboration with the University of Newcastle, Australia, and research on sustainable pharmaceutical packaging. The institution has also published research on the neuroprotective potential of medicinal plants, highlighting the importance of conserving plant biodiversity and promoting evidence-based herbal medicine, thereby contributing to the objectives of SDG 15 – Life on Land.

Publication

Saravanan S, Malligarjunan N, Subramanian G. Exploring phytomedicine's potential in managing Parkinson's disease: unveiling neuroprotective compounds from medicinal plants.

1. Pachiyappan JK, Marimuthu A, Natarajan J, Krishnamurthy PT, Palanisami T, Kuppusamy G, Karuppasamy PK. Hidden pathways: Detection and quantification of microplastics across treatment stages of pharmaceutical WWTPs. Journal of Hazardous Materials. 2026, 512, 142338
2. Kuttykattil A, Kumar SB, Pachiyappan JK, Chandrasekar S, Raja S, Selvakumar R, Kuppusamy G, Palanisami T. Molecular interactions and dynamics of microplastics in indoor dust with lung-inflammatory receptors: A study in academic settings. Journal of Environmental Sciences. 2026, 161, 384-390 (2026).
3. Kannan E, Logesh L, Priyadharshini S. Evaluation of Anti-Asthmatic Potential of *Emblica Officinalis* Seed Extract in RAW 264.7 Cell Lines. Asian Journal of Green chemistry. 2026, 10, 565-588.

15.2.1 Events for conservation & sustainable land use

The campus promotes green resilience and operates as a plastic-free environment. Spanning 6.45 acres, the JSS College of Pharmacy, Ooty, has 36,032 square meters covered by buildings. While our infrastructure supports a high standard of academic education within a clean, safe, and comfortable setting, the college has also been proactive since its establishment in developing a state-of-the-art SMART campus.

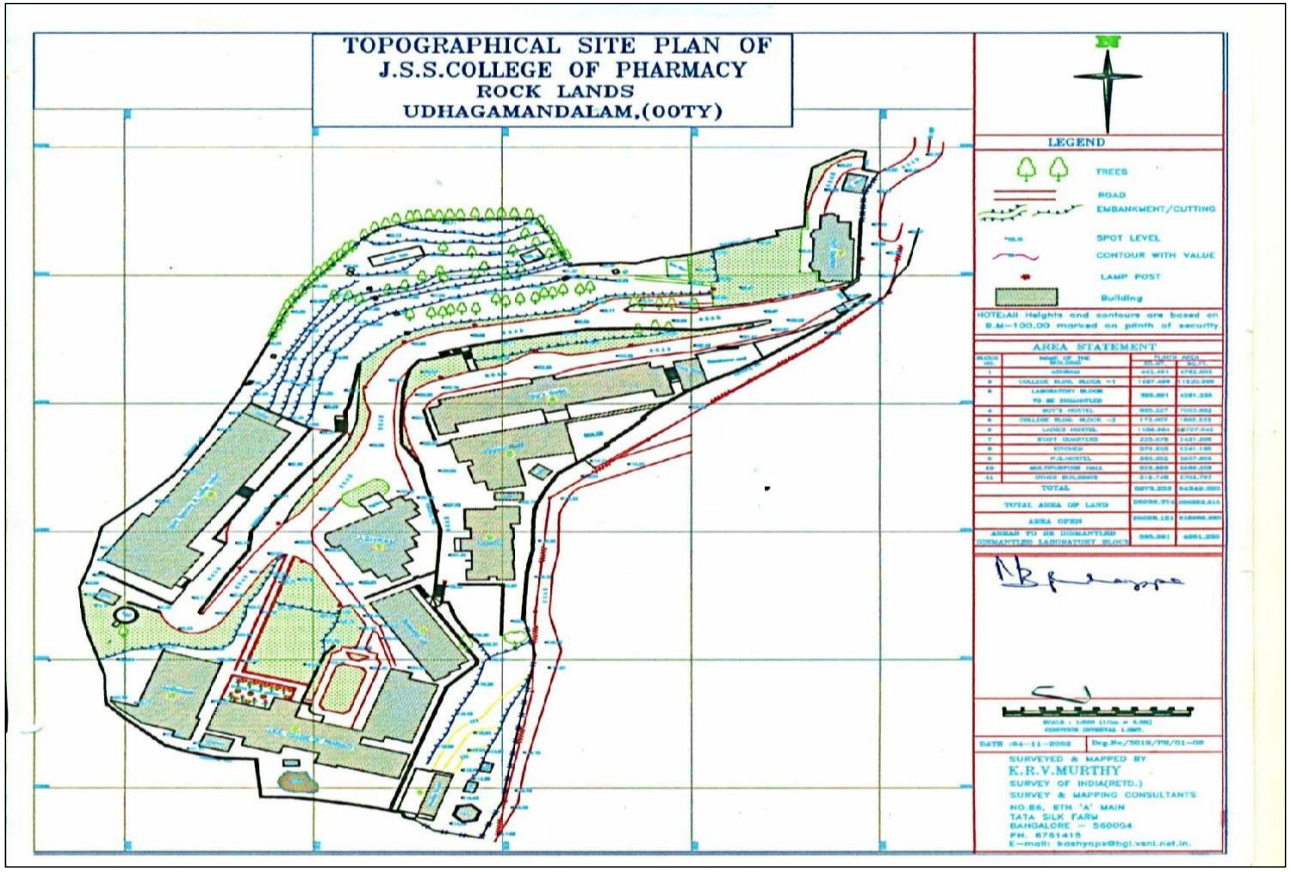



JSS ACADEMY OF HIGHER EDUCATION & RESEARCH
Drive Safely
Clean, Green Plastic Free Campus
Prohibited
Follow



Green Cover in Campus

SMART CAMPUS COMMITTEE- https://jssuni.edu.in/jssaher/college-of-pharmacy-ooty/smart-campus.html



Topographical Map of Green cover in the campus

As per the Policy of Nilgiris District, expansion of Buildings is planned in accordance with Ministry of Forestry and HADP of Nilgiris and prior permission is taken for the same.

The government policy on this is as follows- https://nilgiris.nic.in/plastic-free-nilgiris/#introduction

Medicinal Plants and Trees in Campus

In our college, biodiversity conservation efforts are integrated into our practices to raise awareness among students. Green spaces and native medicinal plants are maintained on campus to support local flora and fauna. Sustainable practices are embraced, promoting recycling and responsible waste management. A total of 86 species of trees and plants are on the campus.

No Trees on the campus are cut down and green resilience is promoted by the College Smart Campus committee.

JSS College of Pharmacy, Ooty, through TIFAC-CORE in Herbal Drugs and the Department of Pharmacognosy, actively promotes biodiversity conservation and the sustainable use of medicinal plants by organizing Medicinal Plants Exhibitions during the 128th Flower Show and Rose Show held at the Government Botanical Garden and Government Rose Garden, Ooty, in May 2026. The exhibitions showcased the therapeutic importance, conservation, and sustainable utilization of medicinal plants, creating awareness among students, researchers, healthcare professionals, tourists, and the general public. The institution secured 21 prizes for its exhibits and attracted over 20,000 visitors. In addition, value-added herbal products, including eucalyptus oil and gaultheria oil, were displayed and sold, generating approximately ₹3.05 lakh. These initiatives strengthened public awareness of medicinal plant conservation, herbal biodiversity, and sustainable utilization of natural resources while reinforcing the institution's commitment to SDG 15 – Life on Land..











15.2.3 Maintain/extend ecosystems & biodiversity

The NSS Unit of JSS College of Pharmacy, Ooty, organized a seven-day Special Camp from **29 March to 4 April 2026** at the tribal villages of Thengumarahada, Alimayar, and Kallampalayam to promote environmental conservation and sustainable land use. NSS volunteers undertook plantation activities, removal of weeds and thorny bushes, and cleaning of public spaces, riverbanks, and water channels to support ecosystem restoration. The camp also included interactions with Forest Department officials and biodiversity experts, along with environmental awareness programmes for tribal communities.

































TRIO Celebrations

JSSCPO organized the “Trio Celebrations” on 20th Sep 2025 to mark three important occasions: the 110th Jayanthi of Jagadguru Dr. Sri Shivarathri Rajendra Mahaswamiji (29th Aug 2025), Teachers’ Day (5th Sep 2025) and World Pharmacists Day (25th Sep 2025). The program included cultural, academic, and community-oriented activities involving staff, students, alumni, and stakeholders.

Sustainability & Social Outreach

- Sapling plantation within the campus
- Blood donation: 25 units collected
- Support activities for differently-abled children and an orphanage
- Stationery distribution to the adopted tribal school
- Initiation of the 5th National Pharmacovigilance Week lecture series







Celebration of World Vultures Day:

On the occasion of World Vultures Day (19 July 2025), the NSS Unit of JSS College of Pharmacy, Ooty, in collaboration with the Singara Forest Range, organized a mass plastic removal and cleaning drive along the forest stretch from Kallatti to Masinagudi–Moyar. Around 40 NSS volunteers collected nearly 100 bags of plastic waste and bottles, creating awareness among tourists on maintaining a plastic-free Nilgiris.





Forest officials emphasized the importance of protecting wildlife and forest ecosystems from plastic pollution. This initiative promoted environmental conservation, reduced plastic contamination in terrestrial ecosystems, and reinforced the institution's commitment to biodiversity conservation and SDG 15 – Life onLand.









Special Camp:

On 1 April 2026, as part of the NSS Special Camp, volunteers undertook environmental conservation activities including cleaning riverbanks, removing weeds and thorny bushes across nearly 10 hectares in collaboration with Forest Department officials, and carrying out plantation activities to enhance vegetation for wildlife. The volunteers also cleaned the Primary Health Centre and nearby temple premises, contributing to ecosystem restoration and improved environmental hygiene. These initiatives promoted biodiversity conservation, sustainable land management, and community participation, supporting the objectives of SDG 15 – Life on Land.







Distribution of Water dispenser to the Trible School at Devala:

On 12 September 2025, the NSS Unit of JSS College of Pharmacy, Ooty, in collaboration with the Alumni Association, donated a water dispenser to the Government Tribal Residential School, Devala, to promote access to safe drinking water and improve environmental health. As part of the programme, a tree plantation drive was organized within the school campus to enhance green cover and promote environmental awareness among students and the local community. Conducted during the 110th Jayanthi celebrations of His Holiness Sri Rajendra Swamiji, the initiative reflected the institution's commitment to sustainable community development and biodiversity conservation in alignment with SDG 15 – Life on Land.















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dicinal plant garden, Dept. of Pharmacognosy. we have academic programmes which promotes the conservation of plants and land. At Undergraduate level in B Pharm prescribed by Pharmacy Council of India– Environmental Sciences Subject is taught for conservation of land. Screenshot of it is below and syllabus is attached.

Dept. of Pharmacognosy

- To establish QR-enabled medicinal plant garden that provide students and visitors with instant access to educational content through mobile devices.

- Strengthen the Centre of Excellence in Isolation Technology by enhancing analytical capabilities and promoting consultancy and revenue-generating activities.

'Prakriti' - dedicated Green Club, one of 7 official IQAC-coordinated student clubs with elected Secretary/Joint Secretary

Student Clubs

JSS College of Pharmacy, Ooty, promotes ecosystem education and biodiversity conservation through structured academic and co-curricular initiatives. The Department of Pharmacognosy has planned the establishment of a **QR-enabled Medicinal Plant Garden**, enabling students and visitors to access digital information on medicinal plants, their therapeutic uses, conservation status, and sustainable utilization through mobile devices. To further strengthen environmental education, the institution established **'Prakriti' (Green Club)** as one of the seven IQAC-coordinated student clubs, providing a platform for student-led activities on environmental conservation and sustainable practices. The Green Club was officially inaugurated during the **64th National Pharmacy Week Celebrations (January 2026)**, reinforcing the institution's commitment to promoting biodiversity awareness, ecosystem conservation, and environmental stewardship among students and the wider community. Green Club listed among 7 student clubs launched at National Pharmacy Week 2026





Environmental Sciences and Pharmacognosy

JSS College of Pharmacy, Ooty, integrates ecosystem conservation, biodiversity, environmental sustainability, and the sustainable utilization of medicinal plants into its academic curriculum through undergraduate and postgraduate programmes. Courses such as Environmental Sciences and Pharmacognosy provide students with theoretical knowledge and practical exposure to biodiversity conservation, medicinal plant identification, sustainable harvesting, natural resource management, and ecosystem protection. The curriculum is further strengthened through field visits, medicinal plant garden activities, and hands-on learning, enabling students to understand the ecological significance of medicinal plants and the importance of conserving terrestrial ecosystems in alignment with SDG 15 – Life on Land.

Detailed Syllabus:

Unit No.	Topics	No. of Lectures
I	**Environmental Pollution** • Definition, scope, and importance of environmental studies • Types, causes, effects, and control measures of Air, water, soil, noise, and nuclear pollution • Solid waste and hazardous waste management in pharmaceuticals • Role of pharmacists in conservation and sustainable use of resources	3 Hours
II	**Pharmaceutical Waste and Effluent Management** • Types of pharmaceutical waste: chemical, expired drugs, packaging, biomedical waste • Biomedical Waste Management Rules (2016) and CPCB guidelines • Effluent Treatment Plant (ETP) design and functioning • Water purification methods in pharmaceutical settings (RO, UV, distillation, filtration)	3 Hours
III	**Environmental Impact of the Pharmaceutical Industry** • Sources of pollution in pharmaceutical manufacturing • Types of pharmaceutical waste: solid, liquid, and gaseous • Environmental risks of active pharmaceutical ingredients (APIs) and its dosage forms. Impact of pharmaceutical residues on ecosystems and human health	3 Hours
IV	**Sustainability in the Pharmaceutical Sector** • Principles of sustainable development in pharma • Principles and Practices of Green pharmacy • Energy conservation and resource optimization.	3 Hours
V	**Government Policies, Compliance, and Practical Exposure** • Environmental laws: o Environment (Protection) Act, 1986 o Water (Prevention and Control of Pollution) Act • National Green Tribunal (NGT) and regulatory bodies (CPCB, SPCB) • Government initiatives: o Swachh Bharat Abhiyan o River rejuvenation program- Namami Gange Programme o Jal Jeevan Mission • ISO-14000	3 Hours

Recommended References *(Preferably latest editions)*:

1. Bharucha, E. *Environmental Studies*. University Grants Commission, New Delhi.
2. Rajagopalan, R. *Environmental Studies*. Oxford University Press.
3. Joseph, B. *Environmental Studies*. Tata McGraw Hill.

Course Code	Course Title			Course Type
BP302T	**Environmental Sciences (Theory)**			Core
Credit	Hours Per Week (L-T-P)			Max. Hours
	L	T	P	
1	1	--	--	15
Maximum Marks	SE			ESE
50	20			30

COURSE OBJECTIVES:

The objectives of this course are to:

1. Explain the environmental challenges and disaster risks relevant to human health and pharmaceutical activities.
2. Demonstrate knowledge of waste management protocols and legal guidelines for pharmaceutical and biomedical waste handling.
3. Apply technical understanding of effluent and sewage treatment technologies used in the pharmaceutical sector.
4. Assess the ecological impact of APIs and recommend mitigation strategies for pollution control.
5. Explain sustainable practices and energy-efficient operations within pharmaceutical industries.

COURSE OUTCOMES (CO):

CO No.	Upon successful completion of this course, the students will be able to
1	Understand the basic concepts of environmental pollution, its types, causes, and disaster management strategies.
2	Identify and categorize different types of pharmaceutical and biomedical waste generated in the healthcare and pharmaceutical sectors.

Course Code	Course Title			Course Type
BP708T AEC5	**Transformation of Food Waste into Medicinal Products (Theory)**			Elective
Credit	Hours Per Week (L-T-P)			Max. Hours
	L	T	P	
1	1	--	--	15
Maximum Marks	SE			ESE
50	20			30

COURSE OBJECTIVES:

The objectives of this course are to:

1. Explain the sources, environmental impacts, and regulatory aspects of food waste.
2. Describe sustainable principles and technologies used in food waste management.
3. Explore methods for converting food waste into value-added products.
4. Discuss the recovery of bioactive compounds from food waste and their potential applications.
5. Introduce the use of artificial intelligence and digital technologies in food waste management and resource optimization.

COURSE OUTCOMES (CO):

CO No.	Upon successful completion of this course, the students will be able to
1	Identify types, sources, impacts, and regulations related to food waste.
2	Apply principles and sustainable technologies for effective food waste management.
3	Explain the conversion of food waste into biofuels, biopolymers, and other value-added products.
4	Assess bioactive compounds derived from food waste and their industrial and health applications.
5	Understand the role of AI, IoT, and blockchain in smart food waste management systems.

Interactive session with the Biodiversity Conservation Trust

On 2 April 2026, during the NSS Special Camp at Kallampalayam village, volunteers participated in environmental conservation activities, including cleaning public areas and removing weeds and thorny bushes. They attended an interactive session conducted by the Biodiversity Conservation Trust, where experts highlighted the importance of biodiversity conservation, ecosystem restoration, and wildlife habitat management. Volunteers also collected seeds and leaves of native plant species such as soap nut, Seemai Karuvelam, and Albizia to understand their ecological significance. On 3 April 2026



undertook environmental conservation activities including cleaning temple premises, nearby public a d thorny bushes to improve the local environment. They interacted with tribal communities to underst nental practices, while discussions with Forest Department officials provided insights into the region' nd ecosystem conservation. These activities enhanced environmental awareness, promoted comm olunteers' understanding of biodiversity conservation and sustainable management of terrestrial ecos **15 – Life on Land**.



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cal College PG students on herbal drug standardization

JSS Ayurveda Medical College (JSSAMC), Mysuru,

Hands-on Training Programme on Physicochemical and Phytochemical Analysis

A team comprising two faculty members and nine Postgraduate students from the Dept. of PG Studies in Dravyaguna, JSS Ayurveda Medical College, Mysuru, participated in a Hands-on Training Programme on Physicochemical and Phytochemical Analysis conducted at TIFAC centre

and Dept. of Pharmacognosy and Phytopharmacy from 02 to 11 March 2026 with the objective of imparting practical knowledge and technical skills in the standardization and quality evaluation of herbal drugs. The participants received hands-on exposure to various physicochemical analyses, including determination of moisture content, ash values, extractive values, and other quality control parameters. Training was also provided on preliminary phytochemical screening methods for the identification of important phytoconstituents present in medicinal plants and herbal formulations.

The programme included laboratory demonstrations, practical sessions, data interpretation, and discussions on standard operating procedures followed in herbal drug research. The participants gained valuable experience in analytical techniques and quality assessment methodologies that are essential for research and development in traditional medicine and herbal sciences.

The training programme was successfully completed, and the participants expressed their appreciation for the excellent laboratory facilities, expert guidance, and practical learning opportunities provided. The programme contributed significantly to enhancing the research capabilities and technical competencies of the participating faculty members and students.



One-day training for Sona College of Arts & Science students on herbal standardization

b. One-Day Specialized Training Programme Report

Successfully organized a one-day specialized training programme on **14 Feb 2026** for **26 students from Sona College of Arts and Science, Salem** with the objective of providing comprehensive exposure to **Phyto-pharmacy, Biotechnology, and Herbal Standardization,** while strengthening practical laboratory skills and enhancing students' understanding of herbal drug research. The participants gained hands-on experience with advanced analytical instruments and laboratory techniques employed in the extraction, isolation, and characterization of phyto-constituents from medicinal plants. The **Phyto-pharmacy** module introduced students to herbal drug formulation techniques, pharmacognostic evaluation methods, and phyto-chemical screening procedures essential for the study and development of medicinal plant-based products.

The **Biotechnology** segment provided practical training by Dr.R.Rajesh Kumar, Associate Professor, Department of Pharmaceutical Biotechnology in plant tissue culture techniques, microbial contamination analysis, and DNA bar-coding methods followed by the pharmacology training by Dr.R.Vadevelan, Professor of the pharmacology department. The session highlighted the significance of biotechnological tools in ensuring the quality, authenticity, and purity of herbal raw materials and finished products. Under the **Herbal Standardization** component, students were trained in quality control parameters, chromatographic fingerprinting techniques such as **High-Performance Liquid Chromatography (HPLC),** and regulatory requirements in accordance with **AYUSH guidelines.** The session emphasized the importance of standardization in maintaining the safety, efficacy, and consistency of herbal medicines.

The programme significantly enhanced participants' knowledge of contemporary herbal drug research, quality assurance practices, and emerging technologies in natural product sciences. It fostered scientific curiosity, encouraged research-oriented learning, and motivated students to explore higher studies and career opportunities in herbal medicine, phytopharmaceutical sciences, biotechnology, and traditional healthcare systems.

Overall, the training programme served as a valuable platform for knowledge exchange and skill development, providing students with practical insights into modern herbal drug discovery, development, and standardization processes.



15.3.1 Policy - conservation/sustainable use of land

ISO 14001:2015 (EMS) & ISO 50001 (Energy Mgmt) Surveillance Audit-II, 7 May 2026, conducted by IRQS

ISO Audit

The ISO Surveillance Audit - II (External) for ISO 14001: Environmental Management System (EMS) and ISO 50001: Energy Management System (EnMS) were successfully conducted on 7th May 2026 by Mr. R. Rajagopal, Auditor for ISO 50001 (EnMS), and Mr. Muthu Kumaravel, Auditor for ISO 14001 (EMS) from Indian Register Quality Systems (IRQS). The auditors evaluated the implementation and effectiveness of the Environmental and Energy Management Systems, reviewed the relevant documentation, interacted with faculty and staff, and verified compliance with the ISO standards. The audit was coordinated by Dr. Vadiraj K. T., Assistant Professor, and concluded successfully, reaffirming the institution's commitment to continual improvement and sustainable practices.





ECO SOLUTIONS & LABORATORIES OPC PVT LTD

(Environmental Pollution Testing Laboratory)
10/100, Sedan Thottam,
G N Mills Post,
Coimbatore – 641 029.

87540 32615
0422 2404617
Email: info@ecosolutionsindia.com
Web: www.ecosolutionsindia.com

TEST REPORT

SOURCE EMISSION MONITORING	**Report No:**	**ECO/2025-26/7953**
	Report Date:	**04.04.2026**
	Sample Collected on:	01.04.2026
	Sample Received on:	02.04.2026
	Test Commenced on:	02.04.2026
	Test Completed on:	03.04.2026
Instrument Used:	Stack Monitoring Kit – Ecotech ESS 100 & Flue Gas Analyzer	
ISSUED TO:	**M/s. JSS COLLEGE OF PHARMACY.,** Post Box No:20, Rocklands, Udhagamandalam - 643001, The Nilgiris, Tamil Nadu.	

STACK EMISSION SOURCE: DIESEL GENERATOR 250 KVA

Sl.NO	DESCRIPTION	UNIT	TEST RESULTS	TEST METHOD
1	Stack Height from Ground Level	m	15	...
2	Stack Diameter	m	0.15	...
3	Ambient Temperature	°C	29	IS:11255 PART 3 2008 RA 2018
4	Stack Temperature	°C	516	IS:11255 PART 3 2008 RA 2018
5	Stack Velocity	m/sec	18.72	IS:11255 PART 3 2008 RA 2018
6	Gas Discharge	Nm^3/hr	563.0	IS:11255 PART 3 2008 RA 2018
7	Particulate Matter (PM)	g/kw-hr	0.12	IS:11255 PART 1 1985 RA 2019
8	Sulphur Dioxide (SO_2)	mg/Nm^3	BDL (D.L:5.0)	IS:11255 PART 2 1985 RA 2019
9	Oxides of Nitrogen (NO_2)	g/kw-hr	0.63	IS:11255 PART 7 2005 RA 2017
10	Carbon Monoxide (CO)	g/kw-hr	1.99	IS: 13270 1992 RA 2019
11	Hydrocarbon (HC)	g/Kw-h	0.70	IS: 13270 1992 RA 2019

< End of Report >

Permissible Limits for Emission Source

S.NO	PARAMETERS	UNIT	TNPCB Norms
1	Particulate Matter (PM)	g/kw-hr	0.2
2	Carbon Monoxide (CO)	g/kw-hr	3.5

Verified by, — for **M/s. ECO SOLUTIONS & LABORATORIES (OPC) PVT LTD**



IRCLASS
SYSTEMS AND SOLUTIONS PRIVATE LIMITED

CERTIFICATE OF APPROVAL

Issued by Indian Register Quality Systems
(A Division of IRCLASS Systems and Solutions Private Limited)

This is to certify that the Environmental Management Systems of

Organisation: JSS Academy of Higher Education & Research

Address: Head Office (University):
JSS Academy of Higher Education & Research,
JSS Medical Institution Campus,
Sri Shivarathreeshwara Nagara,
Mysuru - 570 015, Karnataka, India

Support Location & Scope: Refer Annexure

has been assessed and found conforming to the following requirement

Standard: ISO 14001:2015

Scope: Providing Undergraduate, Post Graduate, and related courses in Medicine, Pharmacy, Life Sciences and Dentistry leading to awarding of Certificate, Diploma and Degree to students and Research Scholars

Certificate No.: IRQS/240300698

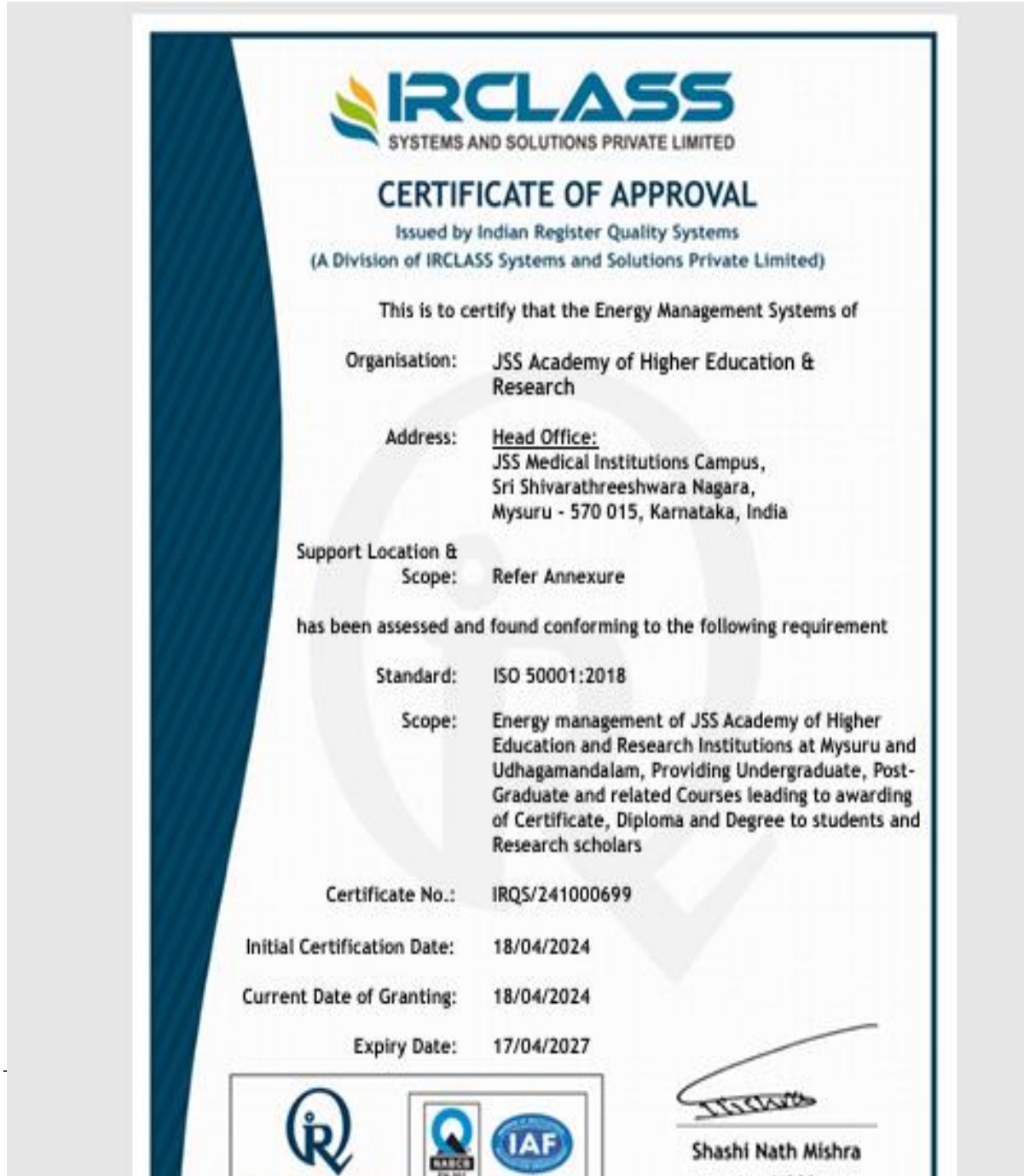
Initial Certification Date: 16/04/2024

Current Date of Granting: 16/04/2024

Expiry Date: 15/04/2027

Indian Register Quality Systems

Shashi Nath Mishra
Head IRQS



IRCLASS
SYSTEMS AND SOLUTIONS PRIVATE LIMITED

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Organisation: JSS Academy of Higher Education & Research

Address: Head Office:
JSS Medical Institutions Campus,
Sri Shivarathreeshwara Nagara,
Mysuru - 570 015, Karnataka, India

Support Location & Scope: Refer Annexure

has been assessed and found conforming to the following requirement

Standard: ISO 50001:2018

Scope: Energy management of JSS Academy of Higher Education and Research Institutions at Mysuru and Udhagamandalam, Providing Undergraduate, Post-Graduate and related Courses leading to awarding of Certificate, Diploma and Degree to students and Research scholars

Certificate No.: IRQS/241000699

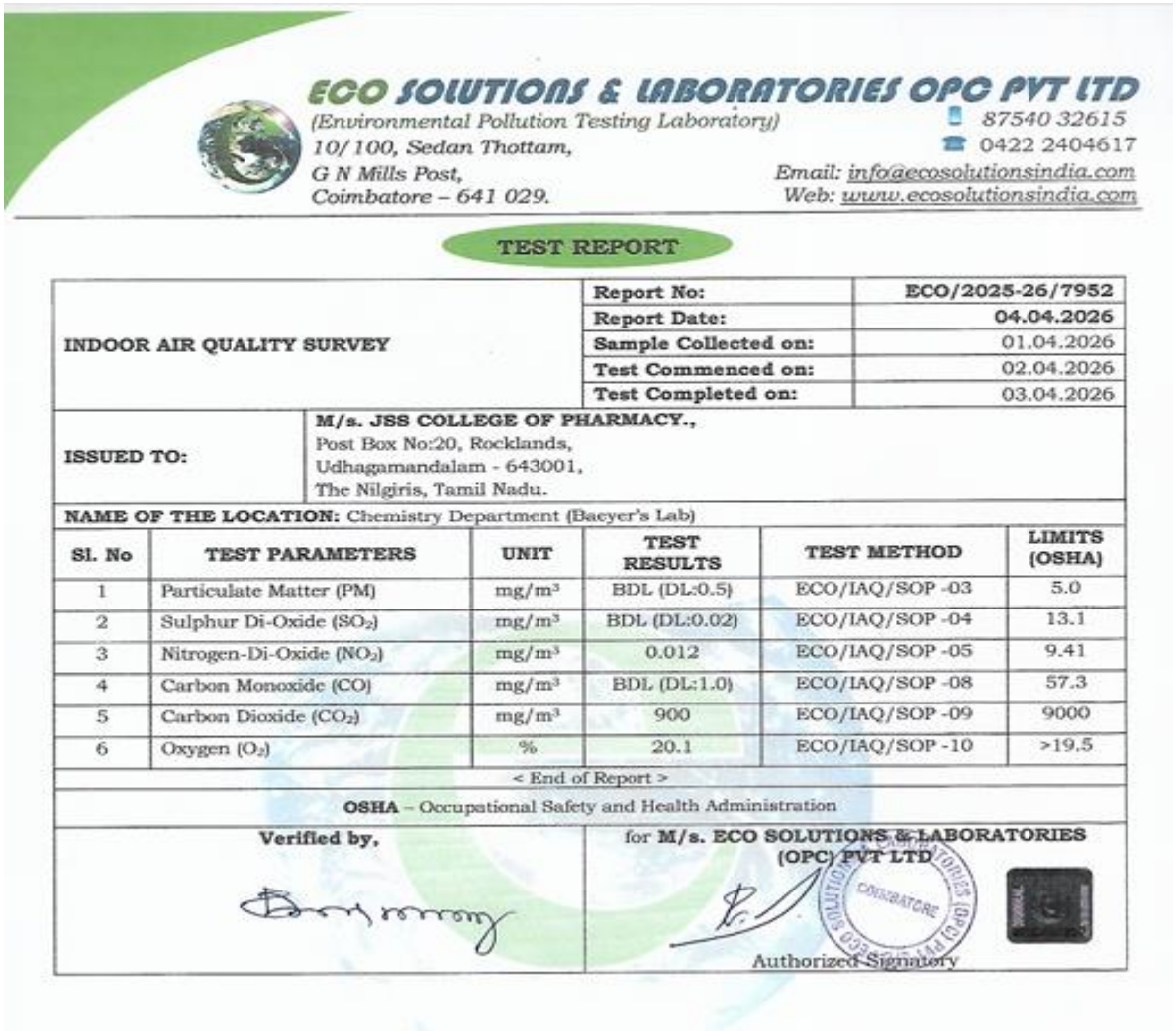
Initial Certification Date: 18/04/2024

Current Date of Granting: 18/04/2024

Expiry Date: 17/04/2027

IAF

Shashi Nath Mishra



ECO SOLUTIONS & LABORATORIES OPC PVT LTD

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Web: www.ecosolutionsindia.com

TEST REPORT

INDOOR AIR QUALITY SURVEY	**Report No:**	**ECO/2025-26/7952**
	Report Date:	**04.04.2026**
	Sample Collected on:	01.04.2026
	Test Commenced on:	02.04.2026
	Test Completed on:	03.04.2026

ISSUED TO: **M/s. JSS COLLEGE OF PHARMACY.,**
Post Box No:20, Rocklands,
Udhagamandalam - 643001,
The Nilgiris, Tamil Nadu.

NAME OF THE LOCATION: Chemistry Department (Baeyer's Lab)

Sl. No	TEST PARAMETERS	UNIT	TEST RESULTS	TEST METHOD	LIMITS (OSHA)
1	Particulate Matter (PM)	mg/m^3	BDL (DL:0.5)	ECO/IAQ/SOP -03	5.0
2	Sulphur Di-Oxide (SO_2)	mg/m^3	BDL (DL:0.02)	ECO/IAQ/SOP -04	13.1
3	Nitrogen-Di-Oxide (NO_2)	mg/m^3	0.012	ECO/IAQ/SOP -05	9.41
4	Carbon Monoxide (CO)	mg/m^3	BDL (DL:1.0)	ECO/IAQ/SOP -08	57.3
5	Carbon Dioxide (CO_2)	mg/m^3	900	ECO/IAQ/SOP -09	9000
6	Oxygen (O_2)	%	20.1	ECO/IAQ/SOP -10	>19.5

< End of Report >

OSHA – Occupational Safety and Health Administration

Verified by,

for **M/s. ECO SOLUTIONS & LABORATORIES (OPC) PVT LTD**

Authorized Signatory

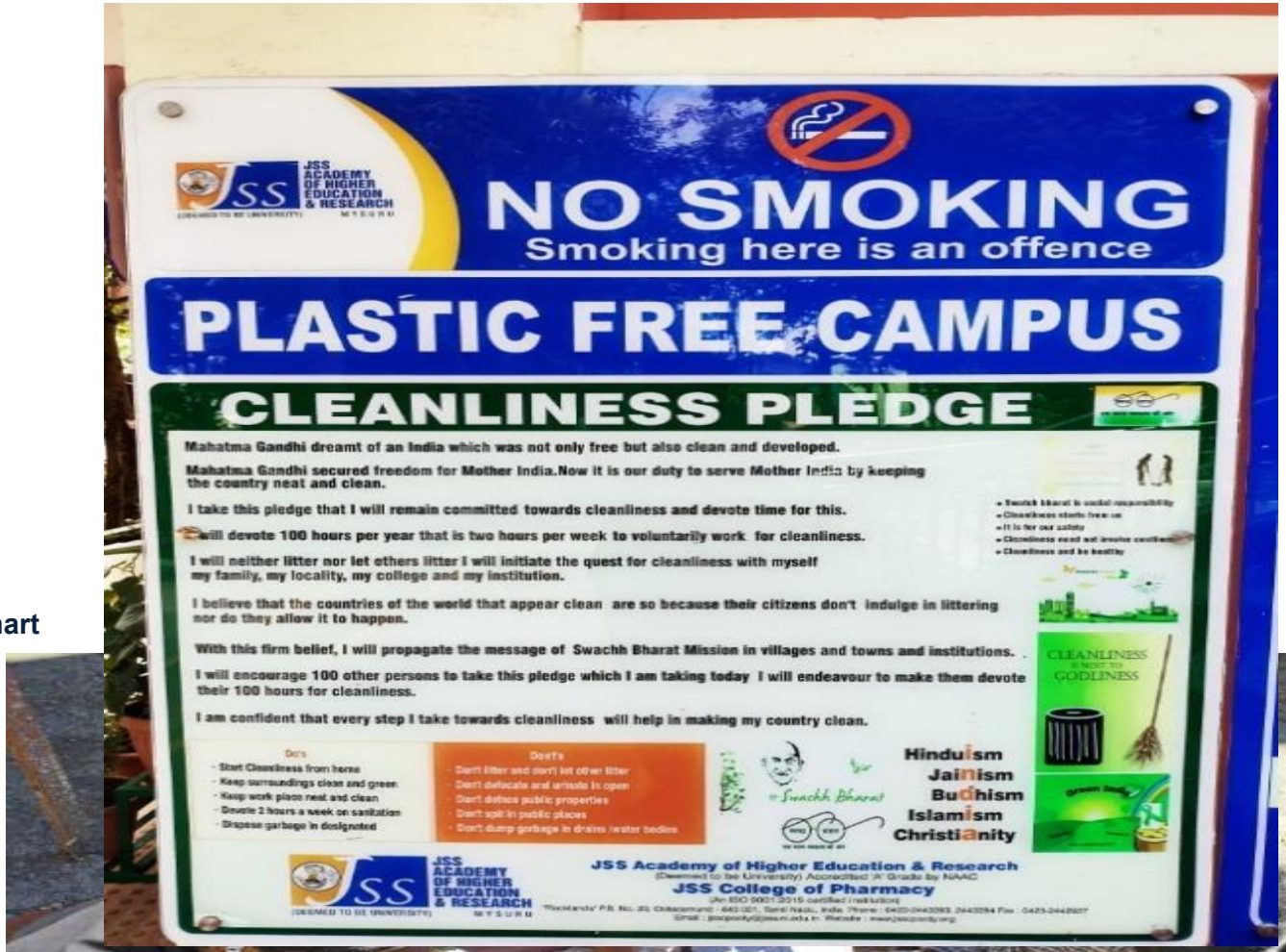
15.4.2 Reducing plastic waste

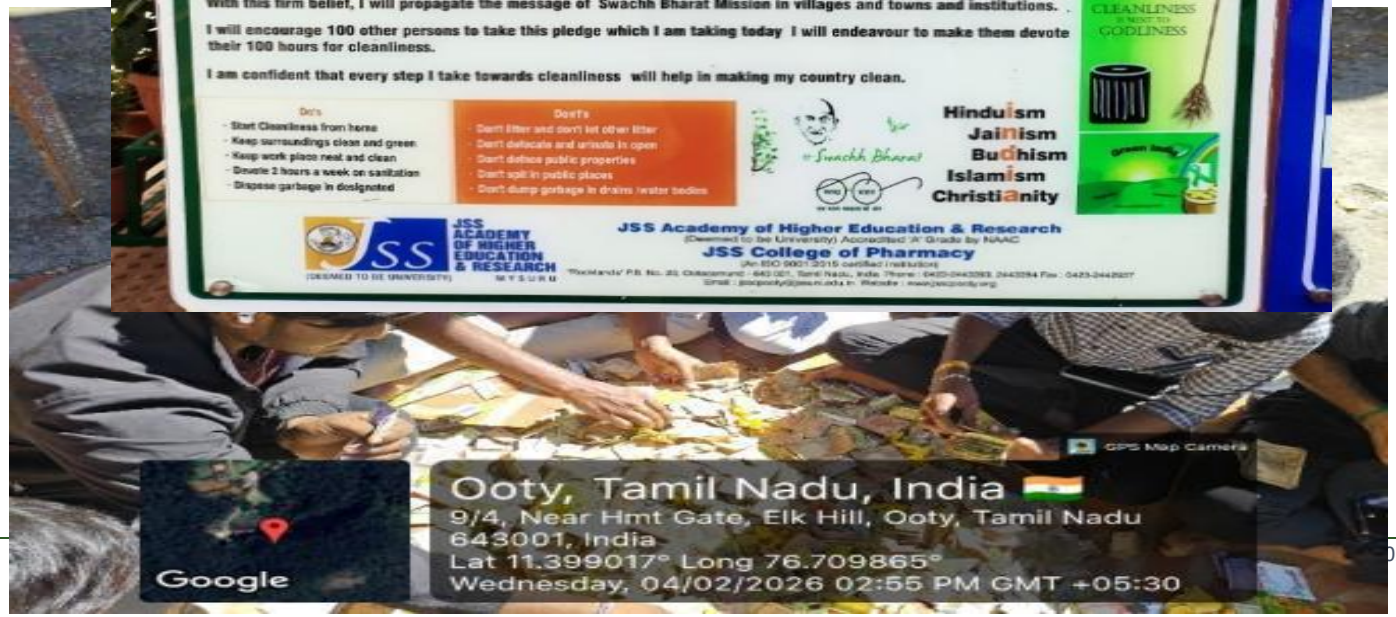
NSS volunteers' plastic removal at Murugan Temple 'to preserve the biosphere of the forest'. JSS College of Pharmacy, Ooty, is committed to reducing plastic waste through institutional initiatives and community engagement. The campus promotes a **Plastic-Free Campus** policy

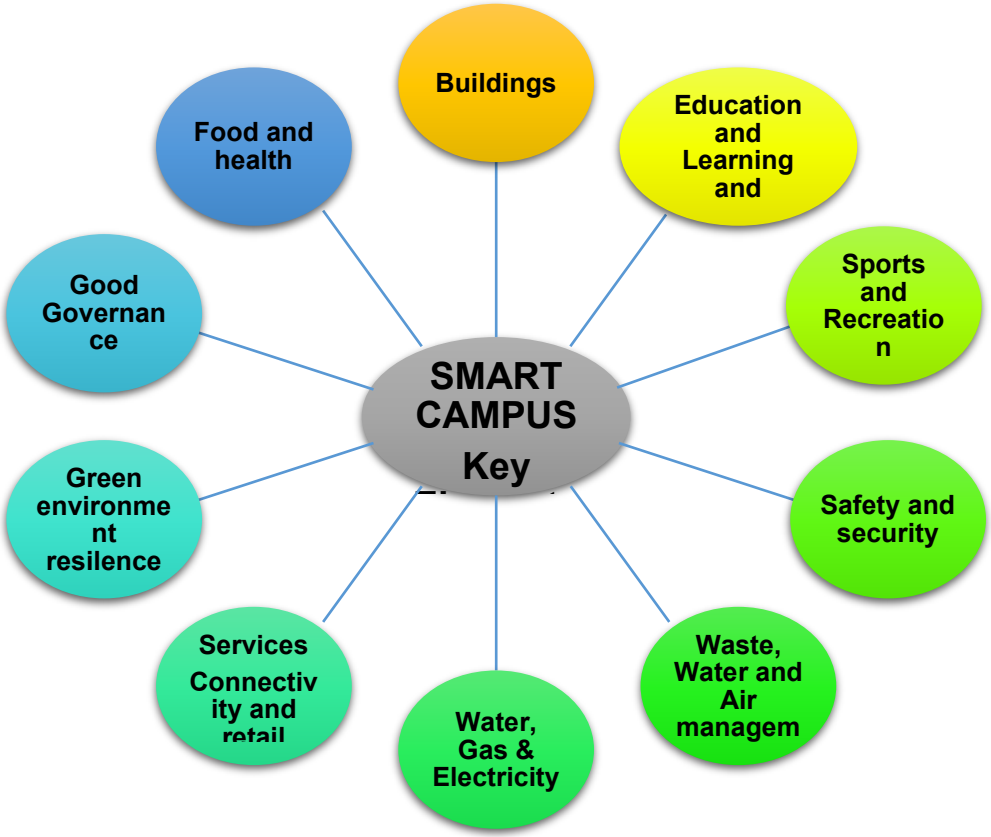
supported by awareness signage encouraging responsible waste management and environmental stewardship. As part of its outreach activities, NSS volunteers conducted a plastic removal drive at the Murugan Temple, Ooty, on **4 February 2026** during the hundi counting programme. The volunteers collected and removed plastic waste from the surrounding forest area to protect wildlife and preserve the forest ecosystem from plastic contamination. These initiatives demonstrate the institution's commitment to minimizing plastic pollution, conserving terrestrial ecosystems, and promoting sustainable environmental practices in alignment with **SDG 15 – Life on Land**.



Smart **campus initative**






Buildings
Food and health
Education and Learning and
Good Governance
Sports and Recreation
SMART CAMPUS Key
Green environment resilence
Safety and security
Services Connectivity and retail
Water, Gas & Electricity
Waste, Water and Air managem

Abstract

The JSS College of Pharmacy (JSSCP), Ooty is a constituent college of JSS Academy of Higher Education & Research, Mysuru, is dedicated to excellence in Pharmacy Education, Research, Training and Practice. Whilst, the existing infrastructure endorse our institution as a conducive place for academic learning which provides a quality education in a clean, safe and comfortable environment, since the inception, JSSCP has been working very active in establishing the state of the art, SMART campus. This report provides an overview of JSSCP's current SMART Campus best practices and future short and long-term initiatives under the following "SMART Key Elements. The SMART CAMPUS is achieved by implementing the below technologies like:

1. SMART Learning Management System (Education and Research)
2. SMART Physical Security and Surveillance
3. SMART Transportation
4. SMART ICT Enabled Campus
5. SMART Drug Information Services
6. SMART Responsibility towards Society (Two adopted tribal villages - Nedugalkombai and Veerakombai)

The college ideology for the SMART is

S - Specific
M - Measurable
A - Achievable
R - Realistic
T - Time based

Objectives

- ✓ To develop 'Our Campus, Our Planet' best practices
- ✓ To assimilate health, transport, energy and environmental management

Future Plan

- ✓ Develop a program to monitor and sustain the best practices on SMART Campus.
- ✓ Survey the pitfall in current practices and research the ways to improve and realize -

"SWACHH CAMPUS SWASTH SHIKSHA"

TARGETS PROGRESS TILL June 2026

Targets	**Status**
Modernization of 07 Sports grounds To foster complete utilization	90% of Civil work is completed, Upgrading Sports ground in next phase
Facelift of the campus	Work in progress
Modernizations of Seminar hall	Work in progress
Submission of Smart Campus Initiatives to the local administration	A short booklet highlighting smart campus initiatives was submitted to the office of District collector and municipal commissioner
Upgradation of Guest House	A new lift is being installed for ease of access for the elderly and physically challenged.

15.4.3 Hazardous waste policy / educational programme

JSS College of Pharmacy embeds hazardous waste and safety education into its M.Pharm curriculum through the course **"Hazards and Safety Management" (MQA 201T)** — a 60-hour paper covering environmental hazards, air-based hazards, and chemical-based hazards, including fire protection and hazard control measures. Additionally, **Ms. Annanya Raman Helchel (II M.Pharm)** completed the **Lead Auditor Course on "Green Energy, Environment and Waste Management Audits,"** conducted by the Nature Science Foundation under the **Quality Council of India, Ministry of Commerce & Industry, Govt. of India** — demonstrating both curricular and individual capacity-building in hazardous waste management. The College has a Biomedical Waste Disposal certificate in accordance with the Nilgiris District Municipality Office. The sanitation team collects the biomedical waste from the campus for incineration process at the Centralized facility at the Government. Managing waste in a smarter way is the most important aspect of any organization. For this management for the waste we have Bio-waste management, initiative of plastic free campus with no plastic bottles, Rain Water harvesting management for the reduction of water waste to save more water. Mechanical Chimneys, Fume hoods for chemical reactions and Bio-safety cabinets (Class II type A/B3).

The College follows the Government Gazette on Plastic Free zone in the whole Nilgiris District. The Enlisted items are completely banned within

the campus. On, MAY 09, 2018 The Government Policy is abided by the College strictly and no single-use plastic items are used on the campus.

- https://nilgiris.nic.in/plastic-free-nilgiris/#banned
- https://cdn.s3waas.gov.in/s339461a19e9eddfb385ea76b26521ea48/uploads/2022/03/2022032483.pdf

The garbage waste disposal by the Municipality collects recycle plastic items from Separate bins placed around the campus.

	Management of combustible gases, Toxic gases and Oxygen displacing gases management, Regulations for chemical hazard, Management of over-Exposure to chemicals and TLV concept.	
4	**Fire and Explosion**: Introduction, Industrial processes and hazards potential, mechanical electrical, thermal and process hazards. Safety and hazards regulations, Fire protection system: Fire prevention, types of fire extinguishers and critical Hazard management system mechanical and chemical explosion, multiphase reactions, transport effects and global rates. Preventive and protective management from fires and explosion-electricity passivation, ventilation, and sprinkling, proofing, relief systems -relief valves, flares, scrubbers.	12 Hrs
5	**Hazard and risk management:** Self-protective measures against workplace hazards. Critical training for risk management, Process of hazard management, ICH guidelines on risk assessment and Risk management methods and Tools Factory act and rules, fundamentals of accident prevention, elements of safety programme and safety management, Physicochemical measurements of effluents, BOD, COD, Determination of some contaminants, Effluent treatment procedure, Role of emergency services.	12 Hrs

REFERENCES

1. Y.K. Sing, Environmental Science, New Age International Pvt, Publishers, Bangalore
2. "Quantitative Risk Assessment in Chemical Process Industries" American Institute of Chemical Industries, Centre for Chemical Process safety.
3. Bharucha Erach, The Biodiversity of India, Mapin Pu blishing Pvt. Ltd., Ahmedabad – 380 013, India,
4. Hazardous Chemicals: Safety Management and Global Regulations, T.S.S. Dikshith, CRC press

HAZARDS AND SAFETY MANAGEMENT
(MQA 201T)

Scope

This course is designed to convey the knowledge necessary to understand issues related to different kinds of hazard and their management. Basic theoretical and practical discussions integrate the proficiency to handle the emergency situation in the pharmaceutical product development process and provides the principle based approach to solve the complex tribulations.

Objectives

At completion of this course it is expected that students will be able to

- Understand about environmental problems among learners.
- Impart basic knowledge about the environment and its allied problems.
- Develop an attitude of concern for the industry environment.
- Ensure safety standards in pharmaceutical industry
- Provide comprehensive knowledge on the safety management
- Empower an ideas to clear mechanism and management in different kinds of hazard management system
- Teach the method of Hazard assessment, procedure, methodology for provide safe industrial atmosphere.

THEORY ***60Hrs***

1.	**Multidisciplinary nature of environmental studies:** Natural Resources, Renewable and non-renewable resources, Natural resources and associated problems, a) Forest resources; b) Water resources; c) Mineral resources; d) Energy resources; e) Land resources **Ecosystems:** Concept of an ecosystem and Structure and function of an ecosystem. Environmental hazards: Hazards based on Air, Water, Soil and Radioisotopes.	12 Hrs
2	**Air based hazards:** Sources, Types of Hazards, Air circulation maintenance industry for sterile area and non sterile area, Preliminary Hazard Analysis (PHA) Fire protection system: Fire prevention, types of fire extinguishers and critical Hazard management system.	12 Hrs
3	**Chemical based hazards:** Sources of chemical hazards, Hazards of Organic synthesis, sulphonating hazard, Organic solvent hazard, Control measures for chemical hazards,	12 Hrs

Colour codes for Biomedical waste collection and Packing

				
▪ Human and animal anatomical wastes ▪ Soiled wastes, ▪ Discarded or expired medicines ▪ Chemical wastes, ▪ Blood and body fluids ▪ Microbiology / Biotechnology wastes	▪ Contaminated waste (recyclable)	▪ Sharps including metals ▪ Needles ▪ Scalpels ▪ Blades	▪ Broken and contaminated glass including vials and ampoules ▪ Metallic body implants	▪ Food items ▪ Papers / paper plates, ▪ Water bottles, etc


HAZARDOUS / BIOMEDICAL / CONTAMINATED WASTE
DRY WASTE
All Types of Package Materials, Plastic Bottles, Glass Bottles, Metal Containers
RECYCLABLE WASTE
All Types of Papers, Plant Materials, Non Contaminated Natural Materials



SOCIETY FOR BIO MEDICAL WASTE MANAGEMENT
THE NILGIRIS
REGISTERED UNDER SOCIETY ACT No: 72 / 2010
GOVERNMENT OF TAMILNADU

SL.No

Membership Certificate

This is to Certify that M/S/DR.....J.S.S. College of Pharmacy.....
...Vidyagiri..... is a member* of Society For Bio Medical Waste Management, The Nilgiris. The Bio Medical Waste Generated in their Hospital / Clinic / Laboratory is being disposed through the treatment plant run by our society as per the norms and approval of Tamil Nadu Pollution Control Board

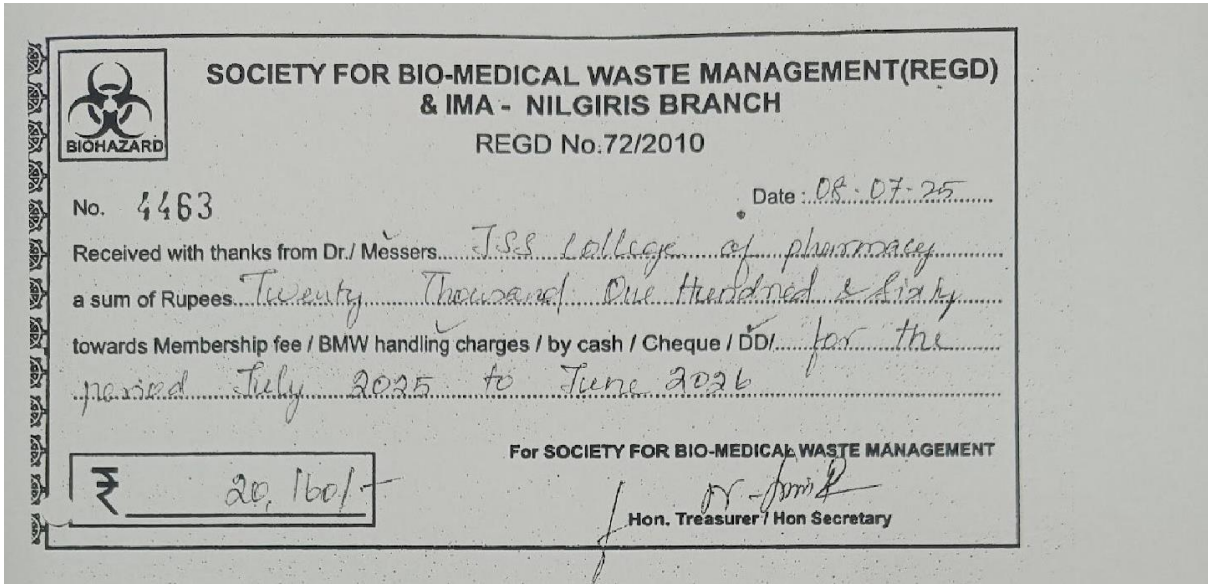
HONORARY PRESIDENT
* Subject to Renewal Annually

REGD.No: 72 / 2010
Date: 20.6.2013

HONORARY SECRETARY

Membership Certificate

The University also publishes the Waste Disposal in a detailed webpage given in the link.
https://jssuni.edu.in/jssaher/jssaher-infra/institutional-biosafety-committee/ibsc-home.html



SOCIETY FOR BIO-MEDICAL WASTE MANAGEMENT(REGD)
& IMA - NILGIRIS BRANCH
REGD No.72/2010

BIOHAZARD

No. 4463 Date : 08-07-25

Received with thanks from Dr./ Messers. JSS College of pharmacy

a sum of Rupees Twenty Thousand One Hundred & Sixty

towards Membership fee / BMW handling charges / by cash / Cheque / DD/ for the period July 2025 to June 2026

₹ 20,160/-

For SOCIETY FOR BIO-MEDICAL WASTE MANAGEMENT

Hon. Treasurer / Hon Secretary