

Heritage Centre, IIT Madras presents

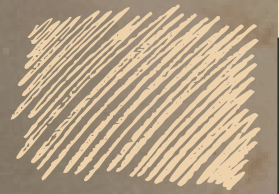
Volume 4 - Issue 4

Glass Panels

July
2026



Heritage Centre
IIT Madras



THE ELECTRON MICROSCOPE

ALUMNI STORY:
A PLATE FULL OF
MEMORIES

STUDENT LIFE:
A QUESTION OF
IDENTITY

THE HERITAGE
SQUARE:
A DAY WITH THE
HORTICULTURE UNIT

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At the Heritage Centre, 3 March 2006: Prof. S. Narayanan (Dean of Academic Research), Prof. Ajit Kumar Kolar (Faculty-in-Charge of the Heritage Centre), Prof. M. S. Ananth (Director of IIT Madras), Dr. A. E. Muthunayagam (Chairman, Board of Governors), and Dr. Arcot Ramachandran (Former Director of IIT Madras) are seen in discussion.

The photograph was captured on the day the Heritage Centre was first opened. Following an inauguration ceremony outside the Administration Building, Dr. Ramachandran cut the ceremonial ribbon to officially open the Centre. The establishment of the Heritage Centre was the result of over eight years of planning, stemming from an original idea proposed by the former Director, Prof. R. Natarajan.

The opinions expressed in this publication are those of the contributors and do not necessarily reflect the views of the Heritage Centre or IIT Madras.



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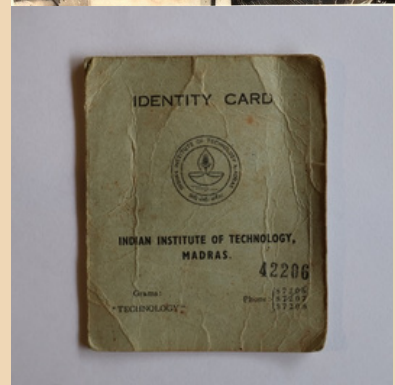
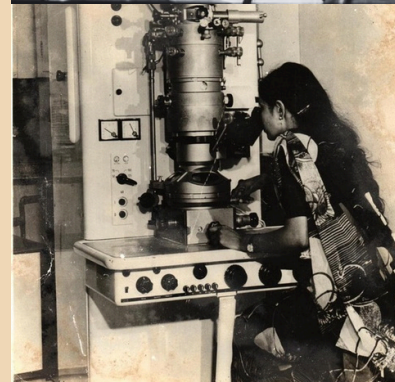
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A Chime From an Older Time

Dr. Mymoon Moghul, a former student of Kendriya Vidyalaya, shared this image with me sometime back. She told me that the bell still hangs in the school, although an electronic bell is used now. Do you know anything about this bell? Is there a story behind it? We would love to know. Send us an article, and we will publish it in the next issue of *Glass Panels*!

- Ed.

Letter from the EDITOR



After a series of eventful months, May and June have been relatively quiet. The sweltering summer heat engulfed the campus, and we witnessed some intense heatwaves. Despite the lull, the Heritage Centre continued to host visitors, including large groups of BS degree students during the Paradox event in June.

This issue of *Glass Panels* features several interesting stories. Sashi Rao talks about the concept of hostel messes and their historical significance. While it may seem odd to current students, there was a time when messes were located inside hostels, allowing residents to socialise and engage in daily conversations. Rao traces the evolution of these intimate dining spaces into today's mega messes, creating a compelling argument for the bygone era.

Sreyoshi Basu's article about the Siemens Elmiskop 1A electron microscope is another fascinating piece inspired by a rare photograph in our collections. Basu traces the history of the electron microscope, linking it to its arrival at IIT Madras in 1968. Meticulously researched, this comprehensive article unveils a truly wonderful story that you do not want to miss.

This time around, we have changed things up in **The Heritage Square**. Since submissions for the **Classified Divertissements** were abysmally low, we have decided to remove that section for now. Instead, a mystery awaits our readers—one that will test your familiarity with the Heritage Centre.

The Heritage Herald section brings some fun tidbits of information, including Rajiv Dalal's (1977/B.Tech. Metallurgical and Materials Engineering) photographs of life at Saraswathi Hostel in the 1970s. We also share an exciting update: *Glass Panels* is now being made available across all hostels.

With that, I hand over this issue of *Glass Panels* to you. I hope you enjoy reading it. Before I sign off, I would like to extend a heartfelt welcome to all the freshers to campus on behalf of the Heritage Centre.

- Bhuvanesh Santharam

Send me your feedback at
ic35226@iitm.ac.in



GLASS PANELS



Scan the QR code to read all the
issues of *Glass Panels* on your
device!



ABOUT US

Glass Panels is the Heritage Centre's bi-monthly magazine. Over the last few years, it has gained immense popularity among alumni, campus residents and students. The magazine contains articles, poems, cartoons and much, much more. If you haven't got the opportunity to read this publication, it is never too late! Scan the QR code shared on this page and flip away!

A Plate Full of Memories

And a पेट Full of Contentment!

REMINISCING ABOUT HOSTEL MESSES

Photo courtesy: N. S. Vinodh (Alumnus - 1986 Batch)

Mandakini Hostel Mess Interior, taken during Mardi Gras 1983. Girls from Mount Carmel College, Bangalore were hosted there.



For the current generations of students on campus, this must sound strange! Hostel Messes? What is this all about? This is all about the reminiscences and bittersweet memories of what they were, and what they meant to all of us who populated the campus long before the concept of mega messes emerged (apparently in the early 2000s). So let me take you all on a journey into the past of hostel messes and the nostalgia they still evoke among all those whose IITM lives were deeply influenced by them.

First of all, let us understand the etymology of the word “mess” and where it comes from. Does it mean that such messes were as messy as one may normally understand them, to represent being dirty and untidy? You will see there is much more to it, and it has a hoary history as well!

The root of the word “mess” is the Old French *mes*, “portion of food or dish” drawn from the Latin verb *mittere*, meaning “to send” and “to put” (modern French *mettre*), the original sense being “a course of a meal put on the table.” Military food and dining areas are called a “mess”. Since the 13th century, it has meant a prepared meal, and later became slang for the small groups of service members who ate together from the same dishes.

The mess (also called a mess deck aboard ships and commonly a mess hall) is a designated area where military personnel socialise, eat, and (in some cases) live. The term is also used to indicate the groups of military personnel who belong to separate messes, such as the officers' mess, the chief petty officer mess, and the enlisted mess. In some civilian societies, this military usage has been extended to the eating arrangements of other disciplined services such as firefighting and police forces. And now this whole meaning is extended to student hostels on college and university campuses as well. So that's where it all started.

In a military context, MESS often stands for Maintenance of Equal Social Status. It refers to an institution—typically a dining hall, lounge, or canteen—where officers or service personnel gather to dine, socialize, and foster camaraderie. In my view, this was exactly the purpose of our hostel messes. It was not just food or meals as such, but an entire social structure designed to bring together people from different backgrounds and milieus. It was a space to build lasting friendships and share individual joys and sorrows (plenty for students in terms of periodicals/exam results).

The transition of the word “mess” to mean a “disorderly state” occurred around the 14th century as a disparaging reference to messy, pulpy, or mixed food (such as a “mess of pottage”). Over time, the term evolved into slang denoting a state of disorder, confusion, or filth. Yet, it must be admitted that our hostel messes were generally well-managed and kept in good condition.

If one studies how the IITM campus grew year by year and from hostel to hostel, each hostel had its own mess along with the student rooms and the common/recreational room, all designed as a closed and boxed structure. All of these individual hostel messes were situated at one end of the hostel structure, with the common room at the opposite end. Internally, each mess featured two serving counters; one at each end for vegetarian and non-vegetarian options. The seating was typically arranged with twin square tables grouped to accommodate eight people, two on each side. A noteworthy feature just outside the messes was a large open area with a concrete platform; this provided extra open space and served as a stage for music or entertainment programs, particularly during celebratory Hostel Day events.

How were they managed? Each hostel mess had a full-time Manager, a Supervisor-cum-Accountant, and a staff of around twelve, including cooks, waiters, and cleaners. Overall supervision was provided by a Hostel Mess Committee, which, besides the Manager and the Supervisor-cum Accountant, comprised the Warden, the Assistant Warden (who usually resided in the hostel), and several student representatives, ensuring both vegetarian and non-vegetarian interests were met. While the Committee monitored food quality, quantity, upkeep, and cleanliness, the menu selection was invariably the most contentious issue. Differences frequently arose between the vegetarian and non-vegetarian factions, as well as between students preferring South Indian dishes versus those favoring North Indian options. A standing joke at the time was how the cooks would first prepare the dal, then progressively dilute it to create sambar and then rasam. Another frequent flashpoint was the expected softness and thickness of the chapatis.

Does it mean that such messes were as messy as one may normally understand them, to represent being dirty and untidy? You will see there is much more to it, and it has a hoary history as well!

The good thing is that we all somehow survived, not for a short time, but for all the years of our IITM stay. All said and done, I would personally say (even if many disagree!) that our overall food meals and messes were quite okay, though many would always complain for the flimsiest of reasons, without realising what it meant to manage and satisfy a whole bunch of 200-250 hungry adults!

Individual hostel messes, in many ways, represented a microcosm of our social culture that we all experienced and went through, sharing our joys and sorrows and ups and downs. And being an essential part of growing up, making friendships for life! While there, going to the common room for newspapers, indoor games, TV, or just chatting was always optional, but going to the mess three times a day was fundamental, and we had no choice. There were no campus eateries or restaurants at all in those days - except Knick Knack in the early years, which we visited to just have coffee (mainly) and bakery items in between classes or when the lecturer came late or missed the class. Sharing bathroom spaces was another leveler in all student hostels, irrespective of our backgrounds. All in all, this proved to be the place where we matured and grew physically and mentally. It was also where we developed our personalities and learned how to tolerate and get along with others.

Somehow, folks of our generation think that the current crop of students just don't have that kind of friendship or camaraderie that we had, thanks to our hostel messes, which became such an important part of our IIT lives. Everyone now seems to be lost more in their own private worlds—personal rooms, laptops, and internet access—with classes at their own times and schedules. We wonder if they do have any social interactions while at the mega messes.

We do understand that the sheer size of the student population now makes it really difficult to develop and sustain meaningful relationships with your fellow students unless one has shared subjects or courses, academic pursuits, and/or extracurricular interests like sports or cultural activities.

Today's personal food choices at the mega messes make it even more odd that one did not want to or wish to experiment with other types of regional cuisines. Somehow, the prevailing fast-food culture among today's youth has further distorted our food habits.



Cauvery Mess Recollection - Sketch by alumnus Thomas K.

In hostel messes, selecting menu items was always a challenge, requiring a fine balance between the differing tastes and food preferences of our cosmopolitan hostel mates. Eating out at the city's restaurants was often a weekend option and usually accompanied by a movie on Sundays. Of course, many local guys would always disappear on the weekends for home-cooked meals. One noteworthy feature of our mess was the standard arrangement allowing us to inform the supervisor in advance to set aside dinner for late-night arrivals. Though the arrangement usually worked, we sometimes found our dinner had been gobbled up, either as a prank or by someone who had failed to book in advance. This left us entirely hungry for the night. Having faced this ordeal a few times myself, I started keeping a permanent stock of biscuits in my room for such an eventuality. All part of the hostel game, I suppose!

Somehow, the prevailing fast-food culture among today's youth has further distorted our food habits.

As expected, most menu choices revolved around standard South Indian and North Indian staples. Weekends featured special highlights like vegetable cutlets, eggs, or keema dosas, while simpler dishes like curd rice were intentionally included to provide the mess staff a well-deserved break from their intense cooking schedule. While the simple curd rice offered a healthy option, it also sparked contention, as adding salt remained a debated topic in Mess Committee meetings. Another thorny issue was to always ensure that all take additional food from the serving dishes in their non-eating hand. A Saturday movie night special, curd rice would be accompanied by fruits such as bananas and oranges. Fruits were later removed from the menu due to their use as missiles at the Open Air Theatre on unsuspecting audience in the front seats!

There were some special dishes that many of us fondly remember. The masala dosa breakfast on Sundays was another weekly indulgence, and manually made ice cream was one of the weekday dinners. Some tasty tea snacks, such as a variety of vadas, mixtures, sundals, and masala puffs, warmed our hearts after a long and hard academic day.

A Saturday movie night special, curd rice would be accompanied by fruits such as bananas and oranges. Fruits were later removed from the menu due to their use as missiles at the Open Air Theatre on unsuspecting audience in the front seats!

The hostel menu dishes became even more special during the annual Hostel Day functions, with both veg and non-veg biryanis and other additional items to closely resemble outside restaurant menus. My experiences showed that more often than not, the dessert was inevitably cassata ice cream bought from outside. Another tradition on Hostel Days was to invite your close friends from other hostels, a practice usually honoured on a reciprocal basis.

What about mess bills? During my undergraduate years, the average basic monthly mess bill during the mid 1960s was around Rs 60 for vegetarians and around Rs 80 for non-vegetarians. I understand from my junior mates that this rose in the early 1970s to around Rs 100 per month (vegetarian) and Rs 125 (non-vegetarian). Of course, individual extras counted as additional items. I, for one, consumed a lot of Coca-Cola, especially after the daily evening sports exertions. I think this ranged from Rs 30-40 paise per bottle during the 1960s to about Rs 50-60 paise each around 1970-71.

Semester exams were always incredibly stressful. Fortunately, our hostel mess provided late-night coffee around 10 pm to keep us going. The coffee breaks not only served as a breather for exam study preparations but also as a Godsend to clear doubts from our academically more illustrious classmates. I recall how once, quite a few of us gathered in the hostel quadrangle to hear a mini lecture from one of our bright minds on how to anticipate questions and tackle them. Equally hilarious was how we had a common group reading session for a History and Culture exam.



Krishna Hostel Mess Interiors, ca. 2011

Photo courtesy: P. Senthil as reproduced in Campaschimes

The social dynamics of hostel living, along with our own mess, also meant interacting with the mess staff. Many learnt bits and pieces of Tamil from them, played volleyball and other games, creating something of an extended family atmosphere within the hostel. Some of us still fondly remember staff members and shared their family concerns, and money if possible as well. One of my batchmates narrated to me an incident about teaching a cook how to make French fries. A notable memory during 1964-65 in Godavari Hostel was of our Mess Manager, who had a shaved head and sported a luxurious kudumi. He was promptly nicknamed Taras Bulba – after the famous Yul Brynner

character of that eponymous 1962 movie. Another junior mate has narrated to me a gruesome episode about how chickens were made ready for cooking. Once, an angry mess secretary berated the mess staff about food quality in his own truculent style. I am sure that each of us from those times will have our own favorite mess anecdotes—whether positive or negative—and also individual mess members and waiters to remember.

You must be wondering if monkeys haunted the hostel messes. Oddly enough, in the '60s and '70s, there were no monkeys at all. The whole Hostel Zone was then flattened into a plain (to facilitate hostel construction), with no vegetation. One could see beyond Ganga Hostel from Cauvery itself. Possibly, with the growth of vegetation and trees, monkeys began populating the campus and then came to forage for food, and our hostel messes were prime targets. A junior mate recalls a particular incident when monkeys destroyed a mess's food stocks and created a real mess. It took quite some time and money to clean up things. While hostel messes have now disappeared, we wonder how the current mega messes keep the monkeys out of the much larger food storage, consumption, and waste areas.

Mega messes are now the reality on the campus, and understanding started sometime in 2004-05. Oddly enough, they are named after the mountain ranges Himalaya, Nilgiri, and Vindhya. We oldies recall how,

then, the Institute buses were named as Kanchenjunga, Gowrishankar, and Kailash. It was unique then, as the campus was the only place on the planet where the rivers were stationary, and mountain peaks moved!

A final question remains. What happened to all those individual hostel messes? I recently visited the campus and entered a few hostels. I found that the old mess structures have completely disappeared, and in place, each hostel has a common three-storeyed structure where there is a TV room, a gym, and a ground floor area with a makeshift lobby-like space with a makeshift badminton court, which could also possibly be used as the stage space for any hostel day functions. And to add to it, additional rooms have been built at the rear on all three floors. I reckon that now each hostel has about 350 rooms and accommodates about 500 residents, many of whom have to share their rooms.



A view of Tapti Hostel, 2026



A makeshift badminton court in Saraswathi Hostel, 2026

The mess structures, old and new, are only one part of this story. But what they totally represented to all of us—the bonding, the relationships, the good and bad memories, fond reminisces, and nostalgia—all wrapped up together (with food, of course!) is what made our IITM lives truly memorable.



K. Sashi Rao

is an alumnus of the 1969 B.Tech. and 1971 M.Tech. batches. Keenly interested in sports, he represented IIT Madras in hockey for six of the seven years he spent on campus. He was a member of the gold medal-winning team when IITM secured its first-ever victory at the Inter-IIT Sports Meet in 1970. He went on to have a long corporate career, working with several reputed Indian and multinational companies in areas such as business and strategic planning, project planning and development, and, finally, supply chain management. Giving back to society has been a lifelong passion, and he has been actively involved in numerous societal impact initiatives as an IITM alumnus.

THE ELECTRON MICROSCOPE



A photograph of a researcher in the Laboratory of Metallurgy at IIT Madras operating a Siemens transmission electron microscope, most likely of the model Elmiskop 1A, taken after 1971.

Introduction

The Indian Institute of Technology, Madras, was established in the year 1959. From its inception until 1974, the Federal Republic of Germany assisted the Institute's development by providing German teaching staff, establishing laboratories, and organising workshops. The first Indo-German Collaboration assistance programme was primarily focused on practical workshop training. However, when the second Indo-German Collaboration was signed in 1966, support increased significantly, and its focus shifted toward establishing technology research laboratories. A total of 30 laboratories were established across multiple departments at IIT Madras to facilitate industry-oriented research and were equipped with state-of-the-art technology.¹

As a result, an electron microscope was to be installed in the Department of Metallurgy at IIT Madras as part of the second Indo-German collaboration. The laboratory received a transmission electron microscope in 1968², most likely a Siemens Elmiskop 1A model, introduced in 1964, and was installed by Edith Butenuth, associate professor of Physical Metallurgy, in 1971.

The Story of the Electron Microscope

An electron microscope illuminates the object under inspection with a high-voltage beam of accelerated electrons.³ Unlike an optical microscope, which utilises light to magnify images, an electron microscope uses a beam of electrons. Electrons have a wavelength that is 100,000 times smaller than light photons, allowing for increased resolving power and magnification, making it easier to see the microstructure of small objects. In an article, Tim Palucka notes, "The earliest microscopes merely proved the concept: electron beams could, indeed, be tamed to provide visible images of matter."⁴

In the 1930s, metallurgists employed electron microscopy to expand the capabilities of the optic microscope and obtain better images of the surfaces they were studying.⁵

Physicist Ernst Ruska and electrical engineer Max Knoll developed the prototype of the electron microscope capable of four-hundred-power magnification in 1931 at the Berlin Technical University.⁶ Ernst Ruska built the first electron microscope with a higher resolution than the optical (light) microscope in 1933.⁷



Photo courtesy: https://en.wikipedia.org/wiki/Ernst_Ruska

The first commercial electron microscope with resolving power higher than that of a light microscope was constructed by Ernst Ruska.

^{1, 2} Roland Wittje, The Establishment of IIT Madras: German Cold War Development Assistance and Engineering Education in India, 2020.

³ Science Museum Group, "Siemens 'Elmiskop 1' Electron Microscope, Germany, 1955 | Science Museum Group Collection."

^{4, 5} "Rate Limit Reached," n.d., https://authors.library.caltech.edu/5456/1/hrst.mit.edu/hrs/materials/public/ElectronMicroscope/EM_HistOverview.htm.

⁶ Smrithi Sunil, "Making the Electron Microscope," Asimov Press (blog), October 26, 2025, <https://www.asimov.press/p/electron-microscope#footnote-3>.

⁷ Frängsmyr, Tore, Nobelstiftelsen, and Gösta Ekspång. Nobel Lectures in Physics: 1981-1990. World Scientific Publishing Company Incorporated, 1993. http://inis.jinr.ru/sl/vol2/Physics/Nobel%20Lectures%20in%20Physics%201901-1995%20-%20complete%20CD/images/physics_1981-90.pdf.

Four years later, in 1937, Siemens & Halske hired Ernst Ruska and Bodo von Borries to establish their Electron and Optics Laboratory and funded their research to develop the applications of the electron microscope. By 1939, the development of the first commercially viable electron microscope – the Siemens Super Microscope – was complete, and it entered series production.⁸ It had a single condenser lens and a two-stage magnification system.⁹

Under the headship of Ernst Ruska, the Research Laboratory at Siemens developed the first high-resolution electron microscope – the Elmiskop 1 – manufactured in series production in 1954 in Berlin.¹⁰ This was the first transmission electron microscope with a 'double condenser' – magnetic lenses that focused electron beams onto the object using magnetic fields. Ernst Ruska, in his 1986 Nobel lecture,¹¹ noted, "This allowed thermal protection of the specimen by irradiating only the small region that is required for the desired final magnification."

In an interview with the Oxford Materials Department in 2002, Professor Michael Whelan talks about his experiences with electron microscopy. Speaking about the Elmiskop 1, he says, "Although you could do selected area diffraction with it, there was an inconvenient system for energizing the lenses, which made it difficult to obtain electron diffraction patterns initially. But after a few years, Siemens modified the electronics to enable fine-focus illumination for electron diffraction. For many years, the Siemens Elmiskop had most of the world market."¹²

Ten years later, in 1964, the Elmiskop 1A transmission electron microscope, manufactured by Siemens, was produced. It was an updated version of the Elmiskop 1. A high-voltage power source (40–100 kV) is connected to the electron source located at the top of the microscope. This heated the hairpin tungsten filament cathode (electron source) fitted within the electron gun and produced the electron beam, which was then



An Elmiskop 1, the first electron microscope used in the Department of Human Anatomy at Oxford University.

accelerated by an anode¹³ The electron beam was then focused onto the item using two magnetic lenses called condensers, and then passed through the object, which was partly transparent to electrons and partially scattered them out of the beam.

The objects to be viewed are inserted into the microscope column through the specimen airlock. This section allows the specimens to be changed without completely evacuating the column of the microscopes. The electron beam passing through the specimen is then refocused and magnified by the objective and intermediate lenses, before the projector lens projects the image onto a zinc sulfide screen for viewing.¹⁴ This zinc sulphide screen is situated in the viewing portion of the column and is visible through

Photo courtesy: <https://collection.sciencemuseumgroup.org.uk/objects/co120526/siemens-elmiskop-1-electron-microscope-germany-1955>

^{8, 10} Siemens. "Siemens' History and Heritage," n.d. <https://new.siemens.com/global/en/company/about/history/people/scientists.html>.

^{9, 12} "Rate Limit Reached," n.d. https://authors.library.caltech.edu/5456/1/hrst.mit.edu/hrs/materials/public/Whelan/Whelan_interview.htm.

¹¹ Ruska, Ernst. "The Development of the Electron Microscope and of Electron Microscopy," December 8, 1986. <https://www.nobelprize.org/uploads/2018/06/ruska-lecture.pdf>.

^{13, 14} "Elmiskop Electron Microscope - Physics Museum - the University of Queensland, Australia," n.d. <https://physicsmuseum.uq.edu.au/elmiskop-electron-microscope>.

the viewing part's lead glass window. The zinc sulphide screen can be slid back to reveal a photographic plate beneath if the image has to be permanently recorded.

This photographic chamber allows the user to install not only single photographic plates but also a mechanism (known as a film cassette) that allows the user to rotate through and use several photographic plates.¹⁵ Several fine adjustment nozzles are located along the length of the electron microscope column to allow the magnetic lenses to be adjusted. Switched magnifications, simple high-quality vacuum pumps,¹⁶ and excellent image quality with up to 160,000 times magnification in high-resolution were all features of the Elmiskop 1A.¹⁷

Photo courtesy: <https://physicsmuseum.uq.edu.au/elmiskop-electron-microscope>



Elmiskop 1A – Purchased and used by the Electron Microscope Centre at the University of Queensland. It was acquired by the Physics Museum in the mid 1980s.

The Story of the Elmiskop 1A at IIT Madras

The Laboratory of Metallurgy at IIT Madras received a Siemens electron microscope in 1968. Edith Butenuth joined the Physical Metallurgy department as an associate professor on 3 October 1968 and stayed until 1971. Aside from teaching classes and conducting laboratory courses, her primary objective was to set up the electron microscope, which she did in 1971.¹⁸

Butenuth was the only German woman hired by IIT Madras as a professor. She was 51 years old when she came to IIT Madras in 1968. She began her career as a laboratory technician in electron microscopy, studied physics while working, and completed her dissertation at RWTH Aachen in 1965. Before her time at IIT Madras, she worked at the electron microscopy laboratory of the Department of Ferrous Metallurgy at RWTH Aachen. She arrived in Madras with her husband Gottfried Butenuth, a professor of Chemistry at IIT Madras, and their three daughters. In December 1968, she conducted a session on "Vacuum Techniques in Electron Microscopy" as part of the short course on "High Vacuum Technology" organised by IIT Madras and the Bhabha Atomic Research Centre, Trombay.

Since the Central Leather Research Institute already had a Siemens electron microscope, it was thought that installing the Elmiskop 1A at IIT Madras would be simple. The setup of the Electron Microscope Laboratory was completed in 1969¹⁹; however, as Professor Roland Wittje writes in *The Establishment of IIT Madras: German Cold War Development Assistance and Engineering Education in India*: "The installation was hampered by tropical hot and humid climate, lack of cooling water, fluctuations in the electricity supply, and vibrations way above the permissible limits."²⁰ These complications explain why the installation of the Elmiskop 1A spanned three years. While originally acquired as a general-purpose instrument for institutional use, Professor E. G. Ramachandran indicated that it was unable to fulfill this intended role.²¹

^{15, 17} "Elmiskop Electron Microscope - Physics Museum - the University of Queensland, Australia," n.d. <https://physicsmuseum.uq.edu.au/elmiskop-electron-microscope>.

¹⁶ "Molecular Expressions Microscopy Primer: Museum of Microscopy - Siemens Elmiskop 1A Transmission Electron Microscope," n.d. <https://micro.magnet.fsu.edu/primer/museum/siemenselmiskop.html>.

^{18, 20} Roland Wittje, *The Establishment of IIT Madras: German Cold War Development Assistance and Engineering Education in India*, 2020.

¹⁹ "Eleventh Annual Report 1969-70." <https://www.iitm.ac.in/Sites/Default/Files/iitm-Annualreport-1969.Pdf>. IIT Madras, n.d. <https://www.iitm.ac.in/sites/default/files/iitm-annualreport-1969.pdf>.

²¹ IIT Madras Heritage Centre. "Prof E.G. Ramachandran in Conversation With Prof. B.S. Murty," February 19, 2018. <https://www.youtube.com/watch?v=Zg4F3nRYcPw>.

The Second Electron Microscope

The Regional Sophisticated Instrumentation Centre (RSIC), today known as the Sophisticated Analytical Instrument Facility (SAIF), was sponsored by the Department of Science and Technology and had spectroscopic equipment related to almost every branch of spectroscopy, and provided services to users both in IIT and outside.

The IIT Madras *Annual Report* from 1979 mentions that a Cambridge Stereoscan 180 scanning electron microscope was acquired and was under installation. A scanning electron microscope probes a specimen with a focused electron beam that is scanned across its surface in a raster pattern to produce an image. The interaction of the electron beam with the specimen generates a variety of signals, including heat, secondary electrons, backscattered electrons, characteristic X-rays, and light emission (cathodoluminescence). These signals provide information about the specimen's surface topography and composition and form the basis of image formation and elemental analysis in a scanning electron microscope.

The Cambridge Stereoscan 180 was manufactured in 1975 and consisted of features such as 3 pre-aligned electromagnetic lenses, 7–10 nm resolution, automated control, a Polaroid camera, a digital scanning system, and a minimum magnification of x10.

The arrival of these two microscopes marked a turning point, reflecting IIT Madras's evolution from a teaching-focused institute into a hub of advanced, industry-oriented research.



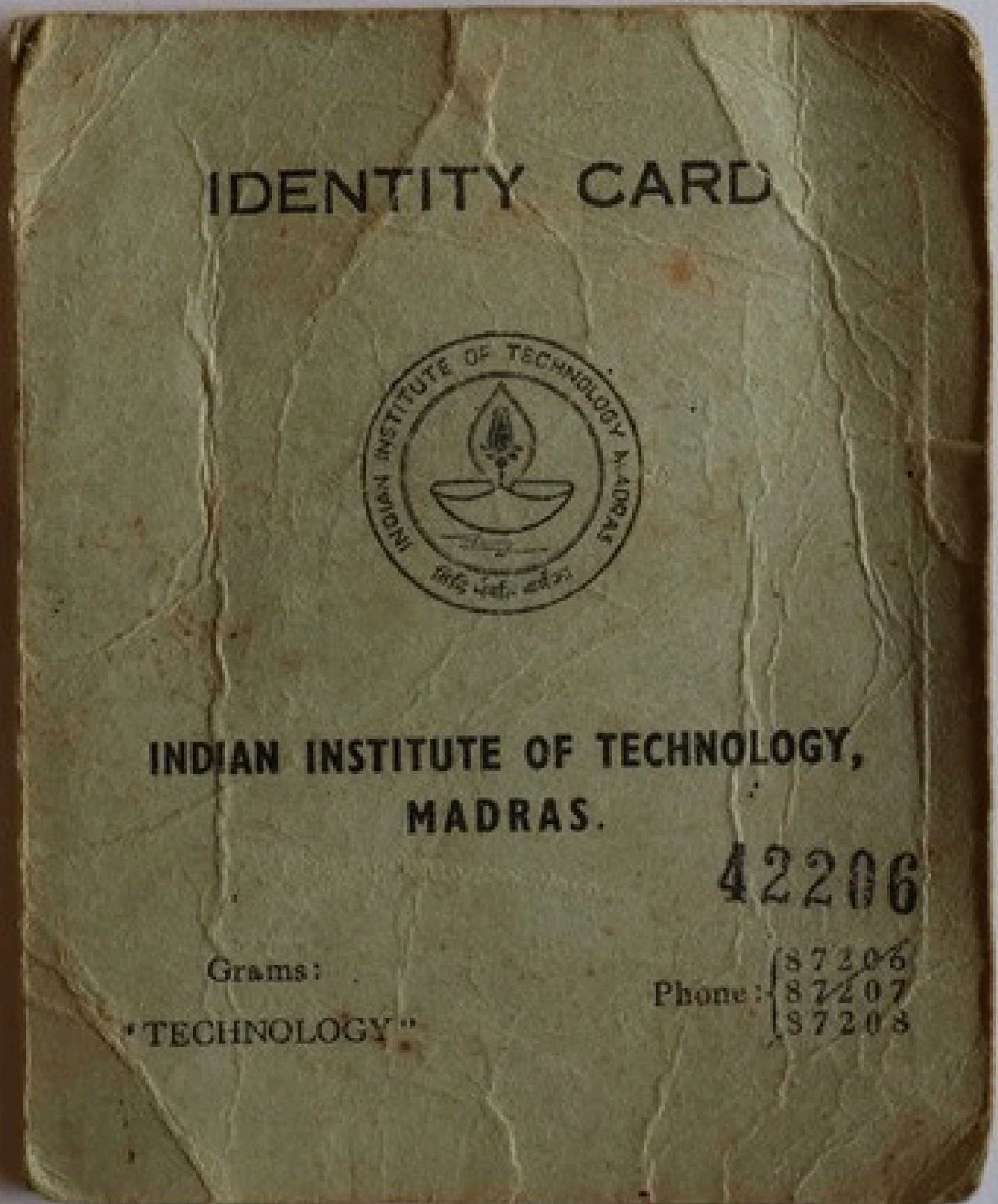
Ed. – Technikgeschichte is a German academic journal dedicated to the history of technology. This particular edition (Volume 87, Issue 4, 2020) covers the theme of technology and politics, and features Prof. Roland Wittje's foundational article, 'The Establishment of IIT Madras.' Sreyoshi Basu has referenced this work in her study on the history of the electron microscope.



Sreyoshi Basu

is a former Project Associate of the Heritage Centre. She holds master's degrees in Literature and Linguistics from Madras Christian College and the University of Rochester, NY, USA. Her current research focuses on adaptive speech perception in Mandarin-accented English. In her free time, she enjoys reading translated fiction, learning languages, painting, and baking.

A QUESTION OF IDENTITY



Student Identification Cards at IIT Madras: 60 Years Apart

Image: A 1963 student identity card belonging to Surendra Swaroop

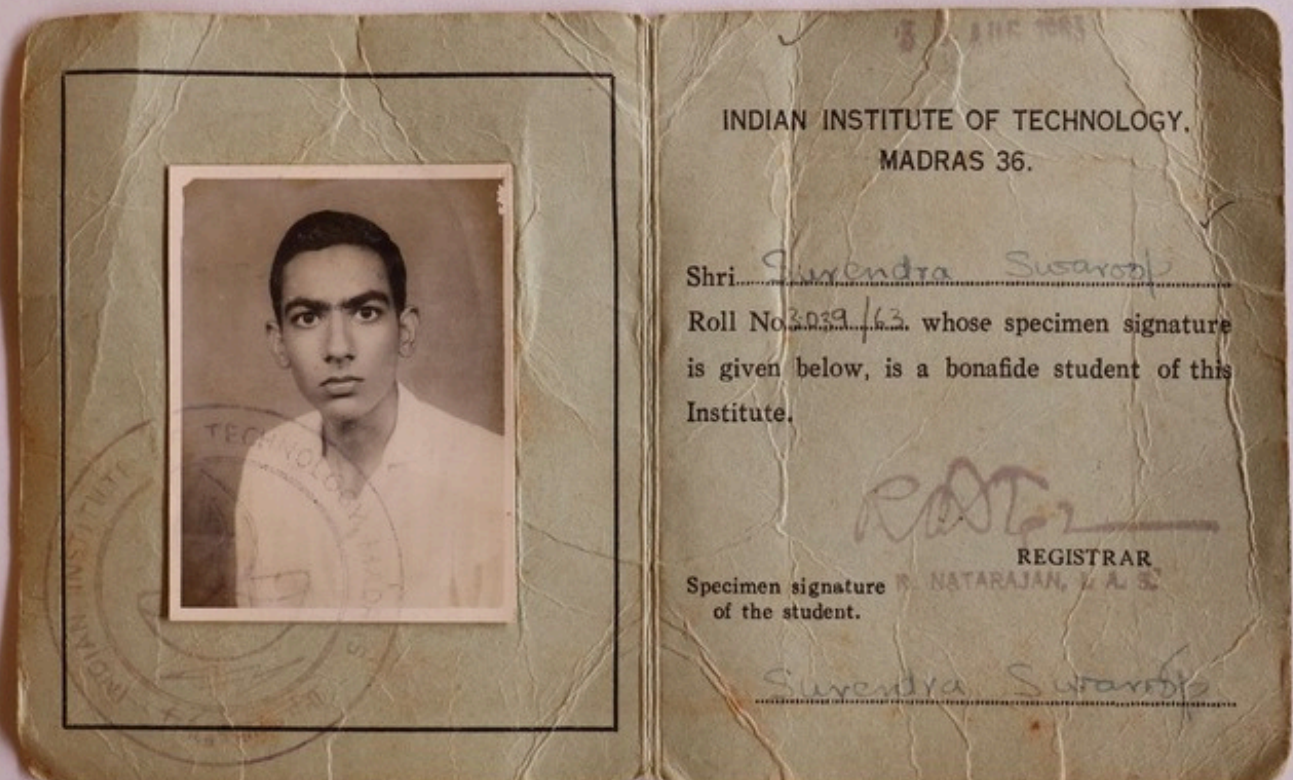
At the Heritage Centre, we have many interesting alumni contributions. One such contribution is an ID card from 1963. It belongs to a Mechanical Engineering Department alumnus named Surendra Swaroop (Roll No. 3039/63). Swaroop graduated in 1966 after completing his three-year degree course. His identity card, a light pastel shade of teal, is a single-fold card that opens like a four-page leaflet. Each page measures 10.5 centimeters in height and 8.5 centimeters in length.

The front of the card features the text 'Identity Card' in capital letters, the IIT Madras logo, and three phone numbers. Under the logo, the institute's name is mentioned in bold, capital lettering. The inner face of the card displays a separately attached, crisp, black-and-white portrait of the student, with a large IITM seal overlaid across a portion of the photograph. The adjacent page features the student's name and roll number, confirming that Surendra Swaroop is a bona fide student of IIT Madras. The information is made official through the Registrar R. Natarajan's seal, which was likely stamped on 30 August 1963. This can be deduced from the rubber date-stamp seal at the top of this page on the card. The student's signature is also

present under the Registrar's seal. The back of the card (the outer fold) is left blank.

While looking at the card, I realized I should, perhaps, draw a comparison between ID cards in 1963 and 2023. What could be different about ID cards at IIT Madras 60 years apart?

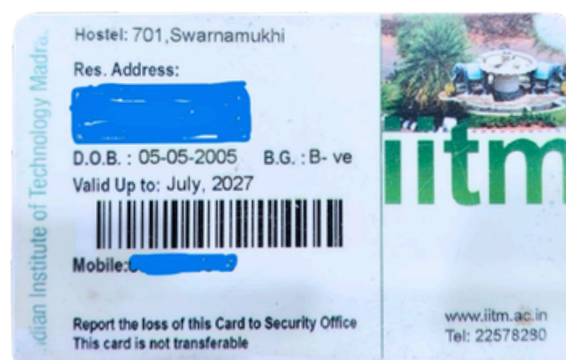
The current ID cards are equipped with Radio Frequency Identification (RFID) and barcodes. RFID is used for entry to the Central Library, and if a student opts to use the food court on campus.



The inside portion of Swaroop's identity card



A photograph displaying the 2023 student ID card of Astha Chand



The reverse side of Astha's identification card

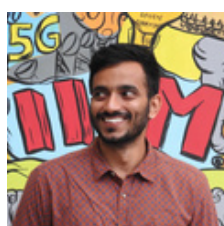
Modern identity cards share the same standardized dimensions as a typical credit card. They come in a lemon green colour. The front face holds the IIT Madras emblem in the top right corner, along with the name of the institute at the top of the card. Below the name of the institution, the student's name, course, roll number, and department are provided. On the bottom left of the front face, the student's signature sits in a white box. To be valid, the ID card must bear the Registrar's signature in the bottom-right corner. A transparent colour illustration of a blackbuck and the letters 'iitm' are in the background, behind the Registrar's signature.

The reverse side of the ID card features the student's hostel details, including their room number and hostel name. Positioned below this are the student's residential address, date of birth, blood group, and card validity date. A barcode is placed directly beneath these details, under which the student's mobile number is printed. An aerial photograph of Gajendra Circle occupies the top right corner, with the lowercase letters 'iitm' placed right below the image. Finally, the bottom right corner features the IIT Madras website and the Security Duty Room landline number,

adjacent to an instruction to report the loss of the card to the security office.

A conversation with former IITM student Kavin Chakaravarthy revealed some interesting facts. The current ID cards are equipped with Radio Frequency Identification (RFID) and barcodes. RFID is used for entry to the Central Library and to the on-campus food court. In the case of a student using the card at a food court, money can be topped up, and they can tap the ID card to pay for their meals. Kavin recalls using the barcode when he had to check out his entry into the Open Air Theatre (OAT) in his first year. This was on the occasion of an Open House with the Director and the Deans to address the students. Apart from this, during Saarang, students who use Ikollege, the IIT Madras student hostel portal, to buy tickets to pro shows, have the barcodes scanned at the entry point to verify purchased tickets. Scanning the barcode using Google Lens gives the student's roll number.

Isn't it interesting how we have come a long way from chart paper ID cards to PVC cards embedded with the latest technology?



Bhuvanesh Santharam

is a Senior Content Writer at the Heritage Centre, IIT Madras. A poet and cartoonist, he published his first collection, *Silence Binds Us*, in 2022 and is working on future volumes. When not writing, Bhuva enjoys boxing, basketball, and long runs that spark new ideas.



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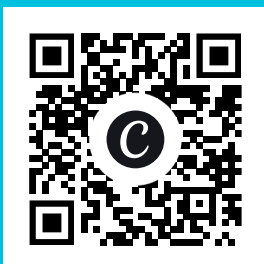
Mystery at the Heritage Centre

Help! Detectives wanted. Kishore the cat has been kittynapped, and the only way to get him released is to solve a mystery at the Heritage Centre. The kittynapper has sent four images to the editor of this magazine via WhatsApp, asking us to identify the artifact or poster situated inside the Heritage Centre. He has given us time until the next issue to solve this mystery. The Heritage Centre needs your help in identifying the spots. The first five detectives to solve the mystery will be rewarded by the Heritage Centre. Please help us get Kishore released!



Solutions to the Heritage Treasure Hunt 2026

In the previous issue, we provided some clues to the Heritage Treasure Hunt held on 1 March 2026. Much to our dismay, nobody attempted them. We forgot to mention that readers who got the most answers right would be given a special prize. Anyhow, here is a QR code that will give you the correct answers.



THE HERITAGE SQUARE

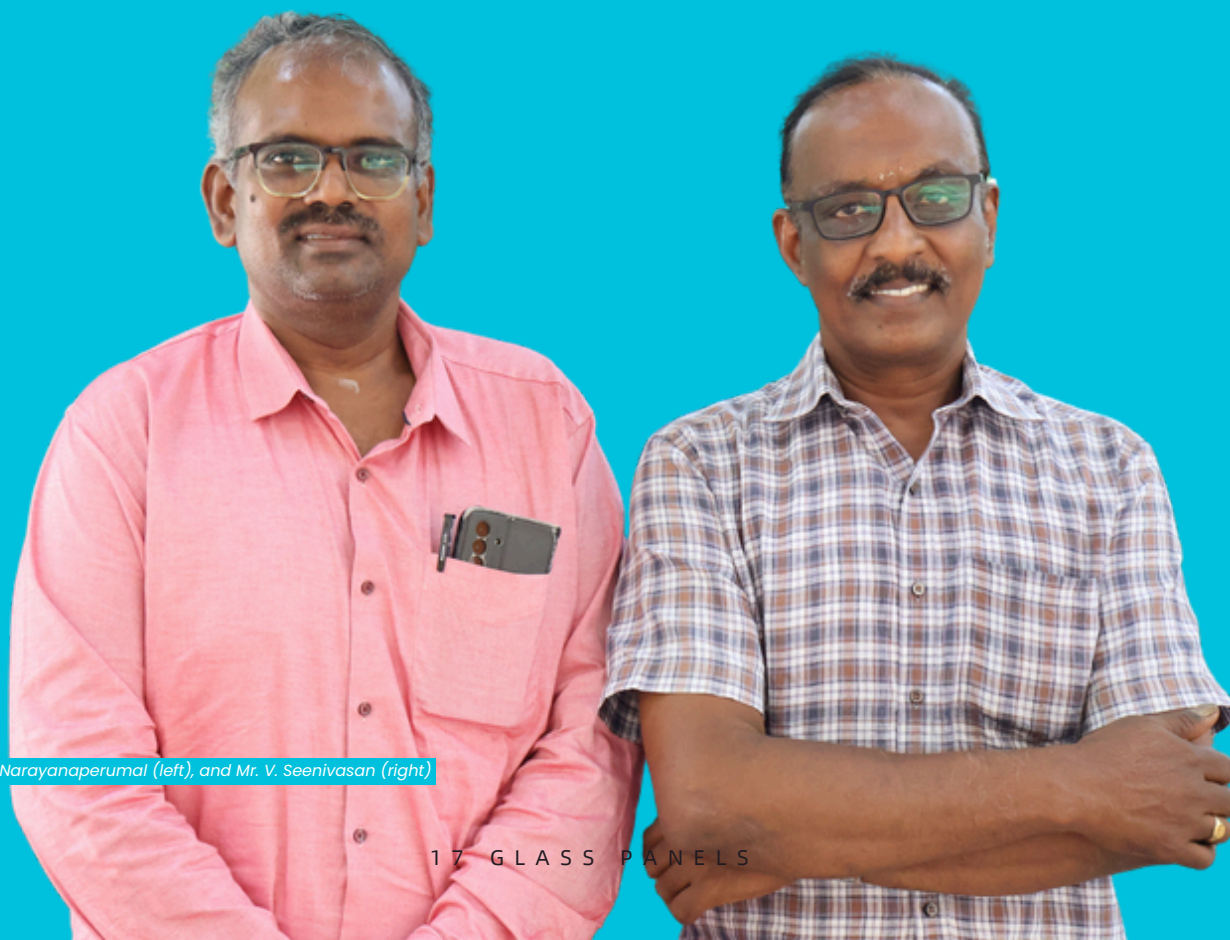
A Day with the Horticulture Unit

The Horticulture Unit (HU) at IIT Madras is responsible for the maintenance of trees and plants on the campus. It functions under the Engineering Unit (EU). According to IIT Madras's Annual Report 2024-2025, the HU maintains 66,181 square metres of lawn, including stadiums, playfields, and other on-campus areas. They handle landscaping around various buildings and the main gate, and provide plants and flowers for all major functions held at the institute. When you see a lush green lawn or a neatly trimmed hedge, it shouldn't take you long to guess who is behind it.

The maintenance activities carried out by the HU strictly adhere to sustainable and organic practices. Chemical pesticides are completely avoided, and neem-based Azadirachtin is used instead, that too, only selectively, when pest populations cross the Economic Threshold Level (ETL). Lawns and gardens are fed with vermicompost, generated from organic waste on campus. The primary source for the organic waste is the hostel messes.

The HU has undertaken several serious sustainable measures to develop the campus. For instance, the lawn turf at the hockey ground was organically developed using local grass species. According to the Annual Report 2024-2025, the lawn serves an aesthetic purpose and also as a feeding ground for the cervid population on campus.

Mr. V. Seenivasan, Senior Horticulture Officer, heads the Horticulture Unit. He joined IIT Madras in December 1996. A brief conversation with him and Mr. K. Narayanaperumal, Assistant Executive Engineer (Civil), revealed many insights into the campus's biodiversity. To give you an idea, I learned that the campus boasts 8000 palmyra trees, 300 wood apple trees, and 400 tamarind trees. I also learned that IIT Madras has six trees declared as heritage trees by the Government of Tamil Nadu. In addition to planting native trees, landscaping, and other important tasks, the HU, consisting of 35 outsourced staff members, also handles the cleaning and filling of 60 water troughs across campus for the wildlife population.



Mr. K. Narayanaperumal (left), and Mr. V. Seenivasan (right)

A Chat with Pushpa and Velmani

At the Heritage Centre, two people are responsible for providing the decorative plants and watering them daily: Ms. Pushpa and Ms. Velmani. Coincidentally, *pushpa* in Sanskrit translates to 'flower'! Pushpa is originally from Padappai, and Velmani is from Theni.

We sat down for a brief chat with the two women to find out a little more about them.

How long have you been working at IIT Madras?

Pushpa: A little over 20 years.

Velmani: 11 years.

What changes have you seen over the years?

P: The nature of my work has remained consistent throughout, but I have been able to take up some more responsibilities over the years.

When do you report for work and when do you go back home?

P & V: We report for work at 8:30 am, and leave at 5:00 pm.

What is your favourite thing about IIT Madras?

P: I am grateful that IIT Madras has allowed me to work, support, and run my family and household.

V: It is difficult to live without a job, so I am glad that IIT Madras has provided me with this chance to work.

What do you like to do outside work on weekends?

P & V: We usually tend to do household chores on weekends, otherwise we go for outings.

If there is one place you would like to visit for a holiday, where would you like to go?

P: If it is nearby, places like Gandhi Mandapam. Otherwise, I like to go to Mahabalipuram. Our office has taken us on tours to some places too.

V: If I go outside, I like to visit the Vadapalani temple, Mettupalayam, and Ooty. In fact, I will be going there soon.

What is your favourite food?

P & V: We like biriyani a lot.

What is your favourite plant?

P & V: Rose.



Ms. Pushpa (left), and Ms. Velmani (right)

Distinguished Visitors

It is always a privilege and delight to welcome eminent personalities to the Heritage Centre. From ministers and entrepreneurs to authors and Nobel laureates, the Centre has never been short of inspiring stories of distinguished visitors. Presented below are glimpses of some of our most notable guests in May and June.



Priya Purushothaman
Hindustani Classical Vocalist, Writer
04 May 2026

"Lovely to see the effort & thought that has gone into this centre. Thank you for the tour!"



Sumith Naik
Tabla Artist, 'A-grade' artist of All India Radio
04 May 2026

"Thank you Bhuvanesh & team for putting great efforts showcasing the rich cultural heritage of IIT Madras."



Prof. Ananth Dodabalapur
Distinguished Alumnus Awardee
1985 batch alumnus (Electrical Engineering)
05 May 2026

"If I were to single out a single place on Earth that had the most overall impact on me, it is the IITM campus. I am impressed with how well the campus (and Depts.) are maintained and run. The Heritage Centre plays a major role in helping alumni & the public connect with the traditions at IIT. Best wishes to all the staff!"



Prof. Viswanath Venkatesh
Verizon Professor
06 May 2026

"An amazingly well-documented history & tribute to a true Indian institution! Great work! Loved it!"



Prof. Robin Banerjee
Pro-Vice-Chancellor (Global and Civic Engagement), University of Sussex
14 May 2026

"A splendid introduction to the past, present, and the future of this beautiful campus and academic community - thank you!!"



Prof. Thomas Nowotny
Co-Director of Sussex AI, University of
Sussex
14 May 2026

"I am honoured to visit IITM - what an amazing place and university!"



Kiran Khatri
IFS, Consul General of India
16 May 2026

"It is an honor to visit the campus of IIT Madras and witness the history and legacy of this great institution. The contribution of this institution in India's development story will always be remembered with awe."



Prof. Dr. G. Senthilvel
Director, National Institute of Siddha
18 May 2026

"I appreciate all the efforts which were taken by all. We have the new ideas to collaborate Siddha medicine with new technology."



**Vice Admiral Biswajit
Dasgupta (retd.)**
Indian Navy
03 June 2026

"It is a great privilege and honour to visit IITM and see the carefully preserved legacy of my maternal uncle, Prof. B. Sengupto, the first Director of IITM. Indeed nostalgic! Also a wonderful feeling to witness the infectious enthusiasm of Ms. Mamata, in running the Heritage Centre. Thank you very much and all the best."



Oliver Barrett
President, UWA Student Guild
15 June 2026

"Amazing museum, and I love the campus! The greenery is so good for students, and I wish I had the chance to study here. Heard so much about this prestigious institute, very exciting to see it in person!! Thank you."



Bhuvanesh Santharam

is a Senior Content Writer at the Heritage Centre, IIT Madras. A poet and cartoonist, he published his first collection, Silence Binds Us, in 2022 and is working on future volumes. When not writing, Bhuva enjoys boxing, basketball, and long runs that spark new ideas.



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The Heritage Herald

July 2026

<https://heritage.iitm.ac.in/>

Glass Panels is now available at IITM hostels

Freshers and students can now indulge in magazine reading at their hostels

Chennai, June 2026: In a first, physical copies of the Heritage Centre's bi-monthly magazine *Glass Panels* were distributed across all hostels at IIT Madras.

The process involved meetings with all hostel office managers and staff members, and finding a suitable place to display the magazines for students in the hostels.

While some hostels had dedicated newspaper rooms or common rooms, others were still in the process of clearing the dump rooms to make space.

Through this exercise, the Heritage Centre hopes to gain more publicity within the campus student community and encourage them to take part in Heritage Centre activities.



Alumnus contributes photographs to HC

Chennai, May, 2026: Rajiv Dalal, an alumnus from the 1977 batch of Metallurgical and Materials Engineering, contributed several photographs to the Heritage Centre. Taken during his time as a student, these photographs feature student life at Saraswathi Hostel, as well as landmarks and buildings like Gajendra Circle and the Humanities and Social Sciences Block. Dalal's collection offers a rare glimpse into life at IIT Madras in the 1970s. Mamata Dash, Senior Project Officer at the Heritage Centre, consolidated the images and gathered the details behind each photograph following several conversations with Dalal.

This is not the first time the Heritage Centre has received personal photographic collections from IITM alumni. Chaitanya Jayaraman, from the 1985 Mechanical Engineering batch, contributed a set of physical photographs. Jayaraman's collection of 55 photographs, taken around 1984 and 1985, was presented as an album. He provided descriptions for each photograph on Post-it notes. This collection beautifully captures scenes from the hostel, sports events, and Mardi Gras.

Sourav Kumar (2003/EE) had also previously contributed digital photographs to the Centre. Kumar's set of 100+ photographs inspired an article titled "Going Back in Time with Hugga: Uncovering Memories, Nicknames, and Moments Frozen in Time," which was published in the July 2025 issue of Glass Panels.

How do these contributions make an impact at the Heritage Centre and IIT Madras? It is natural for students to wonder what life was like 40 or 50 years ago at their hostel or institute. These photographs speak for that time, serving as a window to a bygone era and sparking a relentless curiosity in young minds.

Both the Heritage Centre and the Archive of IIT Madras are dedicated to conserving history, which comes in myriad forms, shapes, and sizes. The collections include letters, documents, photographs, brochures, and objects like drawing instruments and vintage table lamps. The Archive does an excellent job of digitizing, documenting, and preserving these items, while the Heritage Centre focuses on exhibiting them for visitors.

One section at the Heritage Centre is dedicated entirely to student life, and photographs taken at the hostels or around campus serve as great additions. Jayaraman's photo album now sits next to two models of hostel rooms. It draws plenty of attention from visitors, who assiduously flip through pages of memories captured in the past. Interestingly, Dalal's and Jayaraman's photographs both feature the same wing of Saraswathi Hostel, despite being taken nearly a decade apart.

History may not be for everyone, but we are all a part of it. Through these photographs, the campus community stays connected across generations.



1: Rajiv Dalal on a friend's motorbike.

2: Mechanical Sciences Block in the 1970s.

3: Fine Arts and Literary secretaries, 1978. Dalal - fifth from left, standing.

4: Saraswathi Hostel - (L to R) Shyamal playing a transistor radio, Kannan (1976 batch), Rajiv Dalal, and Rusi - outside Thyagi's room as they tease him to come out.

5: Saraswathi Hostel, Room 210 - Rajiv Dalal studying.



HC Reading Room gets new titles

Chennai, June, 2026: The Heritage Centre Reading Room expanded its list of books with multiple new additions. While most of the books purchased were authored by alumni or faculty members, a hardbound coffee table book was added to the 'Biography' section. This book, titled *Crossing Boundaries: Subra Suresh's Life Journey - Bridging Disciplines, Transforming Institutions, and Inspiring Change*, was edited by David Zieler, from the California Institute of Technology.

The book is based on the life and work of Prof. Subra Suresh, Distinguished Alumnus Awardee, from the 1977 Mechanical Engineering B.Tech. degree programme.

Some of the other books purchased by the Heritage Centre were *Against All Odds* by Kris Gopalakrishnan, N. Dayasindhu, and Krishnan Narayanan, *Ants Among Elephants: An Untouchable Family and the Making of Modern India* by Sujatha Gidla, and *People First: How Odisha's Drink from Tap Mission Quenched Every Thirst* by G. Mathi Vathanan.

This takes the total number of books in the reading room to around 500.



While most of the books purchased were authored by alumni or faculty members, a hardbound coffee table book was added to the 'Biography' section.



Glass Panels, now at the Central Library

Chennai, May, 2026: A couple of days ago, Ms. Saradhambal, Library Technical Superintendent, Central Library invited me for a tour of the Nalanda Light Reading Hall on the second floor of the Central Library. I expected a somewhat boring setup with old, rusty magazine stands and outdated magazines. My apprehensions about the hall were allayed when I stepped into the large hall. The place was splashed with a dedicated colour scheme, brand new individual cubicles for students to work and read, and equally attractive magazine stands with scores of new magazines from across the country.

Each stand, sturdy and space efficient, can accommodate 40 magazines for display. Each display section comes with an openable shelf, where older issues can be stored.

Ms. Saradhambal enthusiastically showed me around, explaining in

great detail, the purpose behind the space, and the philosophy behind it. Apart from magazine stands, and workspace-like cubicles, the hall boasts of newspaper reading stands paired with specially selected chairs, meant for students and readers to read newspapers in-house. Some of these stands have been placed next to windows, allowing for a more pleasurable reading experience.

According to Saradhambal, this space was designed to encourage students to read physical newspapers and magazines. The hall's atmosphere is clearly conducive to this objective.



The hall now also houses Glass Panels in its shelves, a collaboration long overdue!



Top: Glass Panels on a shelf inside Nalanda Light Reading Hall at the Central Library.

Right: A view of the cubicles inside the hall.

Left: Ms. Saradhambal, Central Library

"We leave something of ourselves behind when we leave a place, we stay there, even though we go away. And there are things in us that we can find again only by going back there."

- Pascal Mercier



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