Laptop Buying Guide 2025-26:

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Welcome to IIT Mandi

Hey juniors,

Welcome to IIT Mandi! Before the courses, clubs, and chaos begin, there's one thing you should take seriously — your laptop.

This will be your main tool for the next four years. From assignments and coding to internships and placements — it all starts here.

If you're buying a new one, this guide is for you.

Quick Tip Before We Start

If you're thinking of spending a big chunk on a **new phone, smartwatch, or headphones**, consider **cutting back a little there** and adding that to your **laptop budget**.

A good laptop will help you far more in the long run — and it'll spare you the frustration of lag during submissions or slowdowns in class.

"Which Laptop Brand is Best?"

Honestly, **every laptop will have mixed reviews** — no matter the brand. What matters more is:

- **Buy new**, not second-hand or refurbished
- Make sure it has **at least 1-year warranty**
- **Prefer on-site service warranty** (so you don't need to visit a service center)
- Consider **extended warranty or accidental damage protection**, if budget allows

These steps will protect you from the usual *"My laptop broke in 6 months"* horror stories.

What's Inside This Guide?

For any further queries, feel free to reach out to your seniors — everyone is happy to help. This is a big investment, so take your time, do proper research, and make the right decision. Don't rush it.

1. Windows or Mac?

If you're unsure — **go with Windows**.

Most engineering software runs better on Windows. You can always install Linux later if needed for specific labs or coding tasks.

But that doesn't mean MacBooks are bad:

MacBooks are a great choice if:

- You're into **app/web development**, UI/UX, or design
- You prefer **battery life, build quality, and long-term performance**
- You're okay with using **cloud services** (like Google Colab, Kaggle, etc.) for ML work

If you're in a coding-heavy branch and want full compatibility, Windows is the safe bet.

If you know your workflow suits macOS, feel free to go Mac.

2. Will I Need a Laptop with GPU for AI/ML/DL?

Maybe not in your first semester. But by second or third year, **many students from CS, Data Science, and even Electrical** start exploring:

- **AI** (Artificial Intelligence)
- **ML** (Machine Learning)
- **DL** (Deep Learning)

These fields are in-demand, and the projects are super exciting.

Examples of what you might build later:

- A model that **detects emotions from faces** using a webcam
- A system that **predicts whether a tweet is hate speech**
- An app that **recommends books/movies** using past data
- A project that **generates art or music** using neural networks
- A tool that **detects plant diseases from leaf images**

All of these need **a good Dedicated GPU** and enough memory. So even if you don't start with ML now, it's smart to **buy a laptop that won't limit you later**. Integrated GPUs are not recommended, they fool you, these are completely different from Dedicated GPUs

If you still don't want to buy a GPU then prefer Books like Samsung Books, VivoBook, ZenBook, MacBook or Lenovo's Ideapad. Online GPUs are available too, so if you can't afford a minimum RTX 3050 GPU, then instead of going lower than that simply choose a laptop with better CPU. Online GPUs are slower than 3050 but still better than any other lower GPUs.

3. Which Processor (CPU) Should I Buy?

The CPU is your laptop's brain. It handles everything from multitasking to running ML models, so choose it carefully.

"Minimum" to look for:

- Intel Core **i5** (12th gen or newer)
- AMD Ryzen **5** (5th gen or newer)
- Must be **H-series or HX** (e.g., i5-12450H, Ryzen 5 5600H)

Avoid U-series processors (like i5-1235U or Ryzen 5 5500U). They are made for battery life, not performance, and feel slow when multitasking.

What about Intel's new Ultra Series?

Intel's new **Ultra 5 and Ultra 7** processors are part of their latest series.

- If it's **Ultra 5/7 with H (like Ultra 7 155H)** – it's good and comparable to i7 H-series.
- If it's **just Ultra 5 (without H)** – it's weaker and not ideal for heavy use.

Stick to **H-series** whether you're going for regular or Ultra series CPUs.

HS – High Performance Slim

H – High Performance

HX – High Performance Extreme

Performance – HX > H > HS

Power Efficiency – HS > H > HX

If you're buying a laptop with a dedicated GPU, it's okay to just meet the minimum CPU requirements.

4. Do I Need a Graphics Card (GPU), Which one?

Yes — especially if you're interested in ML, graphics, simulations, or even video editing.

GPU Priority:

RTX 3050 < RX 6600M < RTX 4050 <= RTX 3060 < RTX 3070 < RX 6700M < RTX 3080 < RTX 3070Ti < RX 6800M < RTX 4060 < RTX 4070 < RTX 4080 < RTX 4090.

RTX GPUs are highly recommended.

- **Minimum**: NVIDIA RTX 3050 (6GB VRAM) / RTX 30 series

- **Recommended**: RTX 4050
- **Still Good**: RTX 3060 (older but powerful)
- ***There are many other benefits (except performance) in the 40 series like:***
  – Better power efficiency
  – Newer architecture
  – DLSS 3 support
  – AV1 encoding
  – Lower heat output
  – Better AI performance per watt

These GPUs handle tasks like training models, running simulations, or editing videos — tasks that integrated graphics simply can't.

TGP – Really Important for buying a gaming Laptop:

Always check **the TGP (Total Graphics Power)** when buying a laptop. Some laptops can't fully utilize the GPU's power, while others manage heat and power much better—which directly affects performance. Higher TGP = better performance. For different GPUs, different TGPs are considered good. You can find a table for that on next page.

GPU	TGP Range (W) (Usual)	Good / Ideal TGP	Why It Matters
RTX 3050	35W – 90W	**60W – 90W**	Below 60W, performance drops significantly. 90W is best for consistent gaming and projects.
RTX 3060	60W – 130W	**100W – 130W**	At 100W+, it beats even some lower-end 40 series cards.
RTX 4050	35W – 115W	**75W – 115W**	Below 75W it struggles against even 3050 80W. Look for 90W+ ideally.
RTX 4060	35W – 140W	**100W – 140W**	Big jump in performance at 115W+. 140W is the best variant.

Important Note: Many people confuse **TGP (Total Graphics Power)** with **TDP (Thermal Design Power)**, but they are not the same. TDP usually refers to how much **heat a CPU or GPU generates** and how much cooling is required, while TGP refers to the **total power consumed by a laptop GPU**, which directly affects its performance. In laptops, **TGP is what truly matters for GPU performance**. However, some companies still list TDP instead of TGP (especially for GPUs), which can be misleading. So, when comparing laptops, make sure you're checking the **actual TGP of the GPU**, not just the thermal numbers.

5. How Much RAM is Enough?

Short answer: **16GB minimum**

8GB might work now, but once you run Chrome + VS Code + some medium level task, you'll notice lag.

16GB ensures smooth multitasking and better long-term usability.

What is DDR (RAM Type) and Why It Matters

DDR stands for **Double Data Rate**, and it refers to the generation of your laptop's **RAM (memory)**. The latest RAM generations offer faster speed and better efficiency.

What You Need to Know:

- **DDR4** is still common and perfectly fine for most tasks — including coding, ML, and gaming.
- **DDR5** is faster and more power-efficient, especially useful with newer Intel 13th/14th gen and AMD 7000 series CPUs.

Recommendation:

Go for **DDR5** if your budget allows (₹80K+ laptops often have it), but **DDR4 is still very capable** and not a dealbreaker at all.

If two laptops are otherwise equal, the one with **DDR5 RAM will age better** and support newer workloads more smoothly.

6. SSD vs HDD

Always choose a **Solid-State Drive (SSD).**

Benefits:

- Fast boot-up and app loading
- Better reliability
- Lower risk of failure if your laptop gets bumped or dropped

Ideal: 1TB SSD

Minimum: 512GB SSD

Before focusing on 512GB or 1TB, focus more on other important specs like GPU and CPU.

Avoid laptops with HDD-only storage. They feel painfully slow.

7. Build Quality — Often Ignored, But Very Important

You'll use this laptop daily — in hostels, classes, group projects, travel. So, durability matters.

Good signs:

- Solid hinges (screen shouldn't wobble easily)
- Clean cooling layout (better thermal performance)
- Comfortable keyboard for long coding sessions
- Sturdy body (especially in laptops near and above ₹80k)

Brands like **MacBook, ASUS ROG, Lenovo Legion, HP Omen, Dell XPS** have great build quality in their respective price segments.

Charging Worry? Don't Stress:

Don't reject a powerful laptop just because it has slightly lower battery life.

Classrooms, labs, and hostels in IIT Mandi have **charging points everywhere**. You'll find a way to plug in.

Display — Don't Settle for a Bad Screen

You'll be staring at your screen for hours every day — during coding sessions, video lectures, projects, or Netflix. A good display makes a big difference in **eye comfort, color accuracy, and visibility**.

What to Look For:

- **Resolution**:
  Go for **Full HD (1920x1080)** at minimum. Avoid HD (1366x768) screens — they feel cramped and pixelated.

Term	Resolution	Pixels	Aspect Ratio	Type	Notes
HD	1366 × 768	~1M	16:9	Low-End	Avoid — looks pixelated
Full HD (FHD)	1920 × 1080	~2M	16:9	Standard	Default for most laptops
WUXGA	1920 × 1200	~2.3M	16:10	Taller FHD	More vertical space
QHD / WQHD	2560 × 1440	~3.7M	16:9	Quad HD	Sharper — good for design/media

Term	Resolution	Pixels	Aspect Ratio	Type	Notes
WQXGA	2560 × 1600	~4.1M	16:10	Sharp + tall	Great for multitasking, high-end ultra books
4K UHD	3840 × 2160	~8.3M	16:9	Ultra-High Res	Stunning visuals, but battery-heavy

- **Brightness (Measured in Nits)**:

Brightness	Quality	Use-Case
<250 nits	Too dim — avoid	Poor visibility even indoors
250–300 nits	Okay	Usable indoors, not in sunlight
300–400+ nits	Good to Great	Comfortable for most lighting

- **Go for at least 300 nits brightness** — it helps reduce eye strain and gives better clarity in hostels, labs, or classrooms.
- **Panel Type**:
  IPS displays offer better viewing angles and colour reproduction than TN panels. They're especially important if you do any design work or just want a comfortable screen.

Refresh Rate

- **60Hz: Standard — Avoid as you can get 120Hz in same budgets.**
- **120Hz / 144Hz: Smoother visuals, better for gaming and UI work**
- **165Hz+: Found in high-end gaming laptops — not necessary for most students**

Quick Tip:

Don't choose a laptop just because it has a powerful CPU/GPU — make sure the **display isn't compromised**. Low-quality screens can affect your productivity and comfort.

8. Laptop Recommendations by Budget

(Use this for **spec reference**— model names and prices may change.)

Note: The links and model names in this guide may point to Amazon only for **reference and convenience**, since most students are familiar with it.

However, for **purchasing**, we strongly recommend checking out **brand-authorized offline stores** (like Dell Exclusive, Lenovo Exclusive, HP World, etc.) or the **official brand websites**.

Offline stores often provide **better warranty support**, genuine billing, and options for **student discounts or extended protection plans** — which might not be available through all online sellers.
Check for Warranty and check the details whether **physical damage and other defects are covered or not.**

Under ₹50,000 — Avoid if Possible

- No GPU or weak for long-term use.
- Examples:
  - HP Victus - ₹48,990 (Drawbacks – **4GB GPU, RTX is Preferred rather than RX GPUs**)
  - ASUS Vivo Book 15 - ₹49,990 (Drawbacks – **NO GPU**)
  - Lenovo IdeaPad Slim 3 - ₹48,990 (Drawbacks – **NO GPU**)

₹60,000 – ₹80,000 — Entry-Level for ML

- i5/Ryzen 5 (H-series)
- RTX 3050 (6GB), 16GB RAM
- 512GB/1TB SSD
- **Examples**:
  - Acer ALG - ₹64,999 (**Bare minimum**)
  - Asus TUF A15 - ₹64,999 (**Bare minimum**)
  - Lenovo LOQ - ₹64,999 (**Bare minimum, recommended among the other 64,999 options**)
  - MSI Thin A15 - ₹72,400 (MSI is not owned by many, and has lesser service centres, hence not recommended, Benefits - 4050)
  - Dell G15-5530 - ₹74,990 (Benefits – Good Build, HX Processor, Drawbacks – 3050 only)
  - HP Victus - ₹75,990 (Benefits – 4050, Drawbacks – Only 75W TGP, only 2 Ports)
  - Lenovo LOQ - ₹75,990 (Benefits – HX Processor, Drawbacks – i5 only, 3050 only)
  - Acer Nitro V15 - ₹77,990 (Benefits –4050 and DDR5 in this range, Drawbacks – Only 75W TGP)

₹80,000 – ₹1,00,000 — Sweet Spot

- i7/Ryzen 7
- RTX 4050 / 3060
- 16GB RAM, 1TB SSD
- **Examples**: Acer Nitro 5
  - Acer Nitro V15 - ₹86,990 (165Hz, Drawbacks –512 GB)

- ASUS TUF A15 - ₹94,990 (Benefits – 4060 & 140W TGP, Drawbacks – 250 nits only, 512 GB, average build)
- Lenovo LOQ - ₹94,990 (Drawbacks – 512 GB)
- HP Omen - ₹95,990 (165Hz, Drawbacks – Cooling system is average)
- ASUS TUF F15 - ₹99,990 (Benefits – 4060 & 140W TGP, Drawbacks – 250 nits only, 512 GB, average build)
- Acer Predator Helios Neo 16 - ₹99,990 (4050, 14th gen i7, 1TB, 165Hz, Drawbacks – It is mentioned in details that physical damage is not covered in warranty, rest everything makes it perfect for this range, check if you can get this with physical damage warranty.)

₹1,00,000 – ₹1,20,000 — Future-Proof Zone

- RTX 4050 / 4060
- Better display and cooling
- **Examples**:
- HP Victus - ₹1,01,990 (4060, You can get better display in this budget, Average build)
- HP Omen - ₹1,05,490 (4060, Drawbacks – 2023 Omens were famous because of some hall sensor issues due to which screens blacked out suddenly or stopped working.)
- Lenovo Legion Slim 5 - ₹1,09,990 (4050, Drawbacks – Old Model might not be in warranty, 512 SSD)
- Acer Predator Helios Neo 16 - ₹1,11,000 (4050, Benefits – Better Build, 140W TGP)
- ASUS ROG Strix - ₹1,13,500 (4050, Benefits – Premium Feel & Build, 140W TGP)
- HP Omen - ₹1,20,490 (4060 & 120 TGP, you can get better than 120W TGP in this budget, Benefits – 32 GB RAM)
- Lenovo Legion 5 - ₹1,20,990 (4060 & 140 TGP, Benefits – 24GB RAM, Drawbacks – 512GB, you can get better display in this range + in amazon this one has no reviews.)

₹1,20,000 – ₹1,50,000 — Premium Tier

- Beautiful displays, excellent build, quieter fans
- **Examples**: The first 2 are same from last 2 of ₹1,00,000 – ₹1,20,000 Tier.
- HP Omen - ₹1,20,490 (4060 & 120 TGP, you can get better than 120W TGP in this budget, Benefits – 32 GB RAM)
- Lenovo Legion 5 - ₹1,20,990 (4060 & 140 TGP, Benefits – 24GB RAM, Drawbacks – 512GB, you can get better display in this range + in amazon this one has no reviews.)
- MSI Katana 15 - ₹1,24,990 (4060, 144Hz, i9 H processor, MSI is not owned by many, and has lesser service centres, hence not recommended)
- ASUS ROG Strix 16 - ₹1,29,990 (250 nits only (or maybe amazon is showing wrong data), you can go for QHD with 240Hz, i9 and better brightness in ₹1,49,990)
- Acer Predator Helios Neo 16 - ₹1,36,290 (i7, 4060, good for this range)

- ASUS TUF A15 - ₹1,37,990 (Ryzen 9, 4070, you can get way better build quality in this budget)
- MSI Crosshair 16 - ₹1,39,260 (4060, QHD+240Hz, i7 HX processor, MSI is not owned by many, and has lesser service centres, hence not recommended)
- HP Omen - ₹1,42,990 (300 nits, 4070, Ryzen 9, Drawbacks – There are many bad reviews on this one better read then before buying)
- Lenovo Legion 5 - ₹1,46,990 (165Hz, you can get better cooling system than this.)
- Dell G16-7630 - ₹1,49,983 (i7, QHD + 240Hz, 32GB RAM, 4060)
- ASUS ROG Strix G16 - ₹1,49,990 (i9, QHD + 240Hz, 500 Nits, I have this one and have experienced no drawbacks yet.) Though, it is sold out everywhere.

₹1,50,000+ — Overkill Tier

- No need to spend greater than 1,50,000, better save your parents some money too.
- In this range you get very good displays generally 240Hz and 500 Nits Brightness.
- Still here are some **examples** in different ranges:
- Lenovo Legion Pro 5 - ₹1,55,999 (14th gen i7, 4060, 240Hz, 500 nits)
- Acer Predator Helios 16 - ₹1,56,990 (13th gen i9, 4070, Display you can choose better with 14th gen i9 for ₹1,89,990)
- ASUS ROG Strix G16 - ₹1,69,990 (Ryzen 9, 5060, QHD, 240Hz, but only 115 TGP)
- Lenovo Legion Pro 5 - ₹1,99,900 (Ryzen 9, 4070, 240Hz)
- ASUS ROG Strix G16 - ₹1,99,990 (14th Gen i9, 4070, QHD, 240Hz)

9. MacBook Options (If You're Not Doing DL)

MacBooks don't support NVIDIA GPUs, so not ideal for running DL **locally** — but you can always use **cloud tools** like Google Colab or Kaggle.

Review from a Mac user – "Sahi hai but RTX wale laptop preferred hai,
mac saare ache hai…. 16 GB RAM better rahega and **M3 ya M4 air** prefer kar skte ho."
MacBook Pro Models- Buy only if you want to buy a mac and can afford pro models.
MacBook AIR is enough anyway.

10. Final Checklist Before You Click "Buy"/Minimum Requirements

- **CPU**: Intel i5/i7 or Ryzen 5/7 H-series or better
- **GPU**: RTX 3050 or better (4050 ideal)
- **RAM**: 16GB minimum
- **SSD**: 512GB or more (1TB preferred)
- **Build Quality**: Sturdy design, good cooling, solid keyboard
- **Warranty**: 1 year minimum, extended if possible, covers everything.
- **OS**: Windows (unless you're intentionally choosing macOS)

- **Battery Life**: Nice to have, but don't worry — charging ports are everywhere
- **For Windows**: Choose only Windows 11, don't even think about going lower.

11. Final Guidance

This is one of the most important college decisions you'll make — not for social status, but for performance and peace of mind.

Take your time. Think long-term.

If confused, reach out to a senior — we've been in your shoes and are always happy to help.

12. How to Get Discounts on Your Laptop Purchase

Laptops are a big investment — and **smart students know how to cut the price**. Here are a few proven ways you can get discounts:

1. Student Discounts (Flat Savings)

You may need to upload your admission proof/IIT ID/email.
IIT Mandi will provide you one **in the last week of July** so you can wait till then, though some brands don't give too much off but there are **some** which **give plenty of offers and discounts.** Just click the heading below of whatever brand you want to buy.

- **Apple Education Store**
  - Up to ₹10,000 off on MacBooks or iPads.
- **HP Education Store**
  - Instant ₹8,000 cashback + extended warranty as low as ₹3,499 + exchange benefits up to ₹ 17,000.
- **Lenovo Education Store**
  - Avail up to 10% Cashback + Exchange Bonus + No cost EMI+ Loyalty rewards + Back to School offers.
- **Dell Education Store**
  - Save 7% discount selected Inspiron 3000 & 5000 series, Vostro and G Series Laptop, Desktop, 2-in-1 and All in on models.
  - Save 10% discount on selected Dell Laptops & Desktops, Dell Pro Laptops, Inspiron 7000 Series, XPS, Alienware, Latitude, OptiPlex, Monitors and Accessories (2-in-1 models not eligible).
- **Asus Education Store**

    - I checked; there was no exact percentage of discount but prices were surely somewhat less than on the main site. (Discount depends on the model)
- **Acer Education Store**
    - 4% off on all Acer Laptops.

2. Amazon & Flipkart Card Discounts

- Keep an eye on **bank offers** during sales (ICICI, SBI, HDFC, Axis, etc.)
- **Typical discounts: ₹3,000–₹12,000**
- Or wait for:
    - Amazon Great Indian Festival
    - Flipkart Big Billion Days
    - Prime Day (July)

3. GST Invoice (for Business Use / Family Firm)

- If your **parent/relative owns a GST-registered business**, buy the laptop using their **business GST number**
- You can **claim ~18% GST back** as Input Tax Credit (ITC) if used for professional purposes
- Works great if you're self-employed/freelancing or your family has a firm.