

TRIBHUVAN UNIVERSITY – INSTITUTE OF ENGINEERING

Academic Marksheet Calculation Reference

How the Updated IOE–TU GPA Marksheet Works

Batch 080 and Later / Revised Curriculum

For the **batch after 080 (new course) / revised curriculum**, IOE uses the new GPA marksheet. GPA is **not** calculated simply as

$$\text{GPA} = \frac{\text{percentage}}{25} \quad (\text{Not the actual calculation method})$$

Instead, IOE first adjusts the internal marks where applicable. It then assigns a letter grade and grade point to each subject or practical row and uses those grade points to calculate the semester GPA.

1. Understanding the Marksheet

For a normal 100-mark theory subject:

Marksheet Column	Meaning
Assessment (Asst.)	Internal marks, normally out of 40
Final	IOE board-examination marks, normally out of 60
Total	Accepted internal marks plus final-examination marks
Grade	Letter grade determined from the subject total
Remarks	Fail, absent, NU, or other applicable result status

The revised curriculum commonly uses

$$40 \text{ Internal} + 60 \text{ Final} = 100$$

for a normal theory subject.

Smaller subjects may use **20 + 30**. The official curriculum specifies the marks and credits assigned to each subject.

Separate pass marks are required in each applicable component.

- Internal: at least **16/40**
- Final examination: at least **24/60**
- Practical: normally at least **40%** of its full marks

Therefore,

$$35 \text{ Internal} + 20 \text{ Final}$$

is still considered a **failure**, because the minimum final-examination requirement has not been satisfied.

2. Subject Grading Scale

The grading pattern reproduced by current marksheet predictors is:

Subject Total	Grade	Grade Point
90–100%	A	4.0
80–89%	A–	3.8
70–79%	B+	3.5
60–69%	B	3.2
50–59%	B–	2.7
40–49%	C+	2.4
Below 40%	NG	0

Thus, under this updated grading pattern,

$$80\% \Rightarrow A^- \Rightarrow 3.8$$

and not automatically 4.0.

3. Internal-Mark Reduction

The **Asst.** mark printed on the final marksheet may be lower than the internal mark originally submitted by the college.

Based on reverse-engineering of recent marksheets, IOE appears to compare the student's **internal percentage** with the **final-examination percentage**.

The observed pattern is approximately:

- A difference of **20 percentage points or less** normally produces no reduction.
- If the difference becomes **greater than 20 points**, the internal mark may be progressively reduced.
- For approximately every additional one-point gap beyond 20, around **2% of the internal mark** may be deducted.
- Reduction is normally not triggered when the final-examination percentage is **80% or higher**.

Minimum Final Mark Needed to Protect the Internal Mark

For a normal **40-internal / 60-final** subject, the minimum whole final mark needed to keep the internal–final percentage difference within 20 percentage points is

$$F_{\min} = \left\lceil 60 \left(\frac{I}{40} - 0.20 \right) \right\rceil$$

where

I = internal mark out of 40.

Simplifying,

$$F_{\min} = \lceil 1.5I - 12 \rceil$$

where $F_{\min}$ is the minimum required final mark out of 60.

Internal	Minimum Final	Internal	Minimum Final
38	45	33	38
37	44	32	36
36	42	31	35
35	41	30	33
34	39	29	32
		28	30

Strategic Interpretation

Because internal marks are normally known before the final examination, this table can be used as a rough target for deciding the minimum final score needed to avoid the estimated internal-mark reduction.

It should **not** be interpreted as an official IOE guarantee.

Simple Analogy

Imagine the internal percentage and final percentage as two students connected by a rope that is **20 points long**.

The internal percentage can remain ahead by up to 20 percentage points without a problem.

If the internal percentage moves more than 20 points ahead of the final percentage, the “rope” begins pulling it backward. In a similar way, the internal mark may begin to be reduced.

Estimated Reduction Formula

Let

$$I_p = \text{internal percentage}$$

and

$$E_p = \text{final-examination percentage.}$$

When

$$E_p < 80$$

and

$$I_p - E_p > 20,$$

the estimated reduction percentage is

$$r = 2 [(I_p - E_p) - 20] \%$$

The estimated accepted internal mark becomes

$$I_{\text{accepted}} = I_{\text{college}} \left(1 - \frac{r}{100} \right)$$

Worked Example

Suppose:

$$I_{\text{college}} = 35/40$$

and

$$F = 36/60.$$

Then

$$I_p = \frac{35}{40} \times 100 = 87.5\%.$$

The final-examination percentage is

$$E_p = \frac{36}{60} \times 100 = 60\%.$$

Therefore,

$$I_p - E_p = 87.5 - 60 = 27.5.$$

The excess gap beyond the allowed 20 points is

$$27.5 - 20 = 7.5.$$

Estimated reduction:

$$r = 2(7.5) = 15\%.$$

Hence,

$$I_{\text{accepted}} = 35(1 - 0.15) = 29.75 \approx 30.$$

The final subject total is approximately

$$30 + 36 = 66.$$

Therefore,

$$66 \Rightarrow B \Rightarrow 3.2$$

Important: The minimum-final table only estimates the score required to avoid the internal-mark reduction. A student must still satisfy the separate minimum pass requirement in every applicable component.

If a student fails or is absent in the final examination, the internal mark may appear as

$$\boxed{\text{NU} = \text{Not Used}}$$

until the corresponding final examination is passed.

4. Semester GPA

IOE first converts every graded subject or practical entry into a grade point.

A simplified example is

$$\text{GPA} = \frac{3.8 + 3.5 + 3.2 + 4.0 + 2.7}{5}.$$

Therefore,

$$\boxed{\text{GPA} = 3.44}$$

The estimated semester GPA in this example is **3.44**, corresponding approximately to an overall grade of **B+**.

Reported overall marksheet bands are approximately:

GPA Range	Overall Grade
4.00	A
3.71–3.99	A–
3.20–3.70	B+
2.80–3.19	B
2.40–2.79	B–
2.00–2.39	C+

Why Similar Total Marks Can Produce Different GPAs

Two students can have almost identical total marks but still receive different GPAs because their individual subject marks may fall into different **grade-point bands**.

For example,

$$79\% \Rightarrow B+ \Rightarrow 3.5$$

whereas

$$80\% \Rightarrow A^- \Rightarrow 3.8.$$

Thus, a one-mark increase from 79 to 80 may change the grade point by

$$3.8 - 3.5 = 0.3.$$

However, an increase such as

$$75 \rightarrow 76$$

remains inside the same B+ band and may therefore produce no change in the subject grade point.

Key Point

GPA is affected not only by the student's total marks but also by **where the marks are distributed across individual subjects and grade boundaries**.

Final Note

A complete and detailed public regulation describing every computational step of the revised GPA marksheet system may not always be easily available through public IOE sources.

Some formulas in this document are therefore based on observations, reverse-engineering of published marksheets, and reconstructed GPA calculators.

Consequently, calculated results may differ from the official marksheet by a small amount.

The GPA and result printed on the official IOE/TU marksheet remain the authoritative result.

ioe.plan.com.np

Educational Reference

ioe.plan.com.np

Unofficial resource for IOE students