

THE STUDENT'S ENGINE

Knowledge Compounds

User Manual & Onboarding Guide

Field: Academic Productivity · Engine 5 of 12 · \ Offline.Ltd

8 Tools	3 Killer Features	100% Offline	SM-2 Spaced Repetition
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This manual covers every tool, feature, and keyboard shortcut in The Student's Engine — a single-file, offline-first academic productivity suite with eight interconnected tools: Dashboard, Courses, Weekly Planner, Assignments, Notes, Flashcards, Pomodoro Timer, and GPA Calculator. It includes three killer features: Smart Flashcard Generation, a GPA Forecaster with What-If Simulator, and an Intelligent Study Scheduler.

Version 2.0 · For use with The_Students_Engine.html

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1 Getting Started

The Student's Engine is a single HTML file. No installation, no accounts, no internet connection required. Open it in any modern browser and start using it immediately.

System Requirements

BROWSER	VERSION	NOTES
Google Chrome	90+	Recommended. Full feature support.
Mozilla Firefox	88+	Full support.
Safari	14+	Full support on macOS and iOS.
Microsoft Edge	90+	Chromium-based. Full support.
Brave / Vivaldi	Latest	Chromium-based. Should work fine.

How to Open

Double-click `The_Students_Engine.html` on your computer. It opens in your default browser. That's it. You can also right-click the file and choose "Open with" to select a specific browser.



PRO TIP

Email the HTML file to yourself. Open it on your phone, tablet, or any other device — it works everywhere. Save it to a USB drive or cloud folder as a backup.

The Welcome Screen

On first launch, a welcome modal introduces the engine and its eight tools. Click "**Start studying**" to close it. The modal will not appear again on subsequent visits (it sets a flag in your browser's localStorage).

2 Interface Overview

The interface has four main zones: header, tab bar, content area, and disclaimer bar.

The Header

The header contains the red backslash (/) brand mark on the left, the product title “**THE STUDENT’S ENGINE**” in a blue-to-violet gradient, and the tagline “*Knowledge Compounds*” beneath it. On the right, the semester name and today’s date are displayed.

The Tab Bar

Eight tool tabs sit in the main bar: **Dashboard**, **Courses**, **Planner**, **Assignments**, **Notes**, **Flashcards**, **Pomodoro**, and **GPA**. Two system tabs are separated on the right: ■ **Files** and ? **Help**. The active tab is highlighted in blue. An amber dot appears on the Files tab when you have unsaved changes.

The Content Area

Below the tab bar, the content area displays the active tool’s interface. Each tool has its own panel with input fields, output displays, stat cards, and action buttons. The area scrolls vertically when content exceeds the viewport.

The Disclaimer Bar

A narrow footer at the bottom reads: “*Personal academic tool. Data stored locally. Export often.*” The version identifier (`student-engine v2.0`) appears on the right.

3 Saving & File Management

Your data saves automatically to your browser's `localStorage` every time you make a change. No save button needed for day-to-day use. However, `localStorage` is tied to a specific browser on a specific device, and can be cleared accidentally.

Exporting Your Data

1. Click the **Files** tab in the system tab bar.
2. Click "**Export Everything**".
3. A JSON file named `student-engine-YYYY-MM-DD.json` downloads to your device.
4. Keep this file safe. It contains all your courses, assignments, notes, flashcards, pomodoro sessions, planner events, and GPA entries.

Importing Data

1. Click the **Files** tab.
2. Click "**Import Session**".
3. Select a previously exported JSON file.
4. All data is replaced with the imported file's contents.

CAUTION

Importing a file **overwrites all current data**. Export first if you have unsaved work you want to keep. There is no merge — it is a full replacement.

Resetting All Data

The **Reset All Data** button (red, in the Files tab) erases everything and reloads the page. A confirmation dialog protects against accidental clicks. This action cannot be undone.

PRO TIP

Name your export files by semester: `student-engine-fall2026.json`. At the start of each semester, import a fresh file or reset and start clean.

4 Dashboard

Tab: Dashboard · Shortcut: Ctrl/⌘ + 1

The Dashboard is your academic command centre. It pulls live data from every other tool and presents a summary of your semester at a glance.

Outputs

ELEMENT	DESCRIPTION
Stat Cards (6)	Courses, Pending assignments, Studied Today, GPA, Total Hours, Flashcards.
Upcoming Deadlines	Next 5 pending assignments sorted by due date, with days-remaining badges.
Study Streak	Consecutive days with at least one Pomodoro focus session.
Today's Schedule	Planner events for the current day of the week, sorted by time.
Flashcards Due	Count of flashcards due for review today, with a "Review Now" button.
■ Optimize My Week	Button that triggers the Intelligent Study Scheduler (see Section 6).

Use Cases

Open the Dashboard each morning to see what's due, how much you've studied, and which flashcards need review. It's the first tab for a reason — it tells you exactly what needs attention today.

5 Courses

Tab: *Courses* · Shortcut: *Ctrl* + 2

The Courses tab is where your semester begins. Add each course with its name, code, credits, professor, and a colour tag. Courses populate dropdown menus across every other tool.

Inputs

FIELD	DESCRIPTION
Semester Name	Free text. Displayed in the header (e.g. “Fall 2026”).
Course Name	Full name of the course (e.g. “Introduction to Psychology”).
Code	Short identifier (e.g. “PSY101”). Used in dropdowns across tools.
Credits	Number of credit hours. Used by the GPA Calculator for weighting.
Professor	Instructor name. Informational only.
Colour	Pick from 8 preset colours. Applied throughout the UI for visual grouping.

Use Cases

Set up all your courses at the start of the semester. Every other tool — Assignments, Notes, Planner, Flashcards, Pomodoro, and GPA — references this list. The colour tag lets you visually identify which course a task or event belongs to at a glance.



PRO TIP

Use the course **code** field (e.g. CS201) rather than the full name. It keeps dropdowns compact and readable across all tools.

6 Weekly Planner

Tab: Planner · Shortcut: Ctrl/⌘ + 3

Build your recurring weekly timetable. Add lectures, labs, study sessions, and any other commitments. The planner displays a 7-day grid showing all events sorted by time.

Inputs

FIELD	DESCRIPTION
Day	Day of the week (Monday–Sunday).
Time	Start time in 24-hour format.
Duration (min)	Length of the event in minutes (minimum 15, step 15).
Course	Optional. Links the event to a course for colour coding.
Event Title	Name of the event (e.g. “Lecture”, “Lab”, “Study session”).
Location	Optional. Room or building name.

■ Optimize My Week — Intelligent Study Scheduler

This is one of the engine’s three killer features. Click “**■ Optimize My Week**” and the engine:

1. Scans your pending assignments (weight, priority, due date).
2. Checks your Pomodoro history for average daily study capacity (last 14 days).
3. Finds free time slots in your planner (8 AM–10 PM window).
4. Generates study blocks prioritised by urgency: high-weight, high-priority, soon-due assignments get scheduled first.
5. Shows a preview of suggested blocks. Accept individually or all at once.

Common Difficulties

PROBLEM	CAUSE & SOLUTION
No study blocks generated	You have no pending assignments with due dates. Add them in Assignments.
All slots say “No free time”	Your planner is fully booked 8 AM–10 PM. Remove or shorten events.
Too many blocks for one course	The algorithm caps at 2 blocks per course per day. Multiple high-priority items in the same course can still fill up. Spread out due dates or lower weights.

7 Assignments

Tab: *Assignments* · Shortcut: *Ctrl/⬛ + 4*

Track every piece of coursework. Each assignment has a title, course, due date, priority level, percentage weight, and optional notes. Stat cards show totals at a glance.

Inputs

FIELD	DESCRIPTION
Title	Name of the assignment (e.g. “Midterm Essay”).
Course	Linked course from the Courses tab.
Due Date	Calendar date picker.
Priority	High, Medium, or Low. Affects visual indicators and study scheduling.
Weight (%)	Percentage of overall course grade (0–100). Used by the GPA Forecaster.
Notes	Optional free text for details.

Outputs & Features

ELEMENT	DESCRIPTION
Stat Cards	Total, Pending, Overdue (red), Completed (green).
Filters	All, Pending, Done, Overdue — buttons toggle the view.
Assignment Cards	Show title, course colour, due date, weight, priority dot, and notes preview.
Overdue Highlight	Rose/red left border when an assignment is past due and not completed.
Due Soon Highlight	Gold left border when due within 2 days.
Done Toggle	Click “Done” to mark complete; click “Undo” to revert.

8 Notes

Tab: Notes · Shortcut: Ctrl/⌘ + 5

A distraction-free note-taking space with a two-panel layout: a sidebar listing all notes, and an editor for writing. Notes can be tagged by course, searched, and used as source material for automatic flashcard generation.

Inputs

FIELD	DESCRIPTION
Note Title	Heading for the note.
Course	Optional course tag for filtering.
Note Body	Free-form text area. Supports bold (**), italic (*), and lists for flashcard detection.
Search	Filters the sidebar list by title and body content.
Course Filter	Dropdown to show only notes from a specific course.

■ Smart Flashcard Generator

The first killer feature. Click “**■ Generate Flashcards from Note**” and the engine parses your note text for patterns:

- **Bold/italic terms** → “What is [term]?” / context as answer.
- **Definitions** (X is..., X means..., X refers to...) → “Define: X” / definition as answer.
- **“Because” explanations** → “Why...?” / reason as answer.
- **Numbered/bulleted lists** → “What are the N key points of [topic]?” / list as answer.

Generated cards appear in a preview panel. Accept individually or all at once. You can also select text and click “**∞ Card from Selection**” for targeted card creation.



PRO TIP

Write your notes with flashcard generation in mind. Use **bold** for key terms, write explicit definitions, and use numbered lists. The more structured your notes, the better the auto-generated cards will be.

9 Flashcards

Tab: Flashcards · Shortcut: Ctrl/⌘ + 6

A full spaced repetition system inspired by SM-2. Create question/answer cards, tag them by course and deck, then review. The engine schedules cards based on your recall performance — cards you struggle with appear more frequently; cards you know well space out further.

Inputs

FIELD	DESCRIPTION
Front (Question)	The question or prompt shown during review.
Back (Answer)	The answer revealed when you flip the card.
Course	Optional course tag.
Deck / Tag	Optional grouping label (e.g. “Midterm”, “Chapter 5”).

Review Process

Click “**Start Review**” to begin. Cards due today (or overdue) are shuffled and presented one at a time. Click the card to flip it and reveal the answer. Then rate your recall:

BUTTON	EFFECT
Again	Streak resets to 0. Card due again immediately.
Hard	Streak holds. Card due tomorrow.
Good	Streak +1. Interval multiplied by ease factor. Card scheduled for later.
Easy	Streak +1. Ease factor increases. Interval grows 30% faster.

Stat Cards

Total Cards, Due Today (amber if >0, green if 0), and **Mature** (cards with a streak of 3 or more). The All Cards table shows every card with its front text, course, deck, next review date, and streak badge.

10 Pomodoro Timer

Tab: Pomodoro · Shortcut: Ctrl/■ + 7

A classic Pomodoro implementation: 25 minutes of focused work, 5 minutes of short break, repeat. Every 4 focus sessions, take a 15-minute long break. Tag sessions to courses to track where your study time goes.

Inputs

FIELD	DESCRIPTION
Studying For	Course dropdown. Tags the session for tracking.
Session Type	Focus (25 min), Short Break (5 min), or Long Break (15 min).

Controls

Start/Pause toggles the timer. **Reset** restores the timer to the selected session type's default duration. **Skip** ends the current session early and logs the elapsed time. The session tag indicator shows the current cycle (FOCUS 1/4, FOCUS 2/4, etc.).

Outputs

ELEMENT	DESCRIPTION
Timer Display	Large countdown in MM:SS format. Blue when running, gold on break, green when done.
Stat Cards	Sessions Today, Focus Today (minutes), Total Focus (hours), All Sessions.
Session Log	Today's completed sessions with time, type, duration, and course.

Auto-Advance

When a focus session completes, the timer automatically switches to a short break (or long break after every 4th focus session), and vice versa. This keeps your rhythm going without manual switching.

11 GPA Calculator

Tab: GPA · Shortcut: Ctrl+8

A credits-weighted GPA calculator that supports both letter grades (A+ to F) and percentage input. The big GPA display changes colour based on your standing: green for 3.5+, blue for 3.0+, gold for 2.0+, rose below 2.0.

Inputs

FIELD	DESCRIPTION
Course	Name of the course. Edit inline.
Credits	Credit hours (0–20, step 0.5).
Grade	Letter grade (A+ through F) or percentage (0–100).

Grade Conversion Table

GRADE	POINTS	PERCENTAGE RANGE
A+ / A	4.0	93–100%
A–	3.7	90–92%
B+	3.3	87–89%
B	3.0	83–86%
B–	2.7	80–82%
C+	2.3	77–79%
C	2.0	73–76%
C–	1.7	70–72%
D+	1.3	67–69%
D	1.0	63–66%
D–	0.7	60–62%
F	0.0	Below 60%

■ Final Grade Predictor

The second killer feature. Below the GPA table, the Forecaster section lets you:

1. Set a **target GPA**.
2. Adjust sliders for each ungraded or partially-graded course to set your **expected score** on remaining work (0–100%).
3. See the **projected GPA** update in real time.
4. Get a **verdict**: either “On track!” with the margin above target, or a warning showing exactly what average you need on remaining work to hit your target.
5. A **sparkline** draws the trajectory from current GPA to projected GPA, with your target as a dashed reference line.

The “**Populate from Courses**” button pulls course names and credits from the Courses tab, saving you from re-entering data.

CAUTION

The GPA Calculator uses the standard US 4.0 scale. If your institution uses a different scale, the numbers will not match your official transcript. Use it as a planning tool, not an official record.

12 Keyboard Shortcuts

All shortcuts use Ctrl (Windows/Linux) or **■** Command (macOS) as the modifier key.

Ctrl/ ■ + 1	Switch to Dashboard
Ctrl/ ■ + 2	Switch to Courses
Ctrl/ ■ + 3	Switch to Planner
Ctrl/ ■ + 4	Switch to Assignments
Ctrl/ ■ + 5	Switch to Notes
Ctrl/ ■ + 6	Switch to Flashcards
Ctrl/ ■ + 7	Switch to Pomodoro
Ctrl/ ■ + 8	Switch to GPA
Ctrl/ ■ + S	Export all data
Esc	Close welcome modal

13 Troubleshooting

JavaScript is Disabled

The engine is a JavaScript application. If your browser has JavaScript disabled, nothing will render. Enable JavaScript in your browser settings and reload the page.

Data Disappeared After Clearing Browser Data

All data is stored in localStorage. Clearing cookies and site data in your browser settings will erase it. Always export your data regularly using the Files tab. If you've already cleared the data and have no export, it cannot be recovered.

Flashcard Review Button Does Nothing

Click "Start Review" first. The review buttons only appear after you flip a card by clicking on it. If no cards are due, the system will show a toast notification.

Pomodoro Timer Not Making Sound

The engine does not play audio notifications. The timer display changes colour to indicate completion (green pulse). Consider keeping the tab visible during focus sessions.

GPA Shows "—"

You need at least one course with a valid grade and non-zero credits. Enter a letter grade (e.g. "B+") or a percentage (e.g. "85") in the Grade column.

Import File Rejected

The file must be valid JSON. Open it in a text editor and check for syntax errors. The engine accepts any JSON object and merges it with the default state structure, so the file does not need to have every field present.

Tab Bar Scrolls on Mobile

On narrow screens, the tab bar becomes horizontally scrollable. Swipe left/right to see all tabs, or use keyboard shortcuts if you have a hardware keyboard attached.

14 Accuracy & Limitations

TOOL	ACCURACY	NOTES
GPA Calculator	Exact for US 4.0 scale	Uses the standard A+=4.0 mapping. Non-US grading systems may differ.
Flashcard Scheduling	Heuristic (SM-2 inspired)	Not a full SM-2 implementation. Streak/ease/interval system is simplified.
Study Scheduler	Best-effort heuristic	Suggestions are not optimal in a mathematical sense. Limited to 7-day window.
Flashcard Generator	Pattern-based extraction	Detects bold terms, definitions, "because", and lists. Not AI/NLP.
GPA Forecaster	Accurate given inputs	Projections depend entirely on the accuracy of your expected-score sliders.
Pomodoro Timer	Browser timer accuracy	Depends on the browser's setInterval. May drift by seconds over long sessions.

DISCLAIMER

The Student's Engine is a personal productivity tool. It is not affiliated with any educational institution. GPA calculations use the US 4.0 scale and may not match your institution's official grading policy. Do not use this tool as your sole record of academic standing. No warranty is provided. Use at your own discretion.

15 Glossary

Auto-save	The engine saves to localStorage automatically on every change. No manual save needed.
Credits	The weight assigned to a course, typically reflecting contact hours per week.
Deck	A tag or label for grouping flashcards (e.g. “Midterm”, “Chapter 5”).
Ease Factor	A multiplier (starts at 2.5) that determines how quickly the interval between flashcard reviews grows.
Export	Downloading all engine data as a JSON file for backup or transfer.
Flashcard	A two-sided study card: front (question) and back (answer).
Focus Session	A 25-minute Pomodoro work period.
GPA	Grade Point Average — the credits-weighted mean of your grade points.
Import	Loading a previously exported JSON file to restore data.
Interval	The number of days until a flashcard is due for review again.
JSON	JavaScript Object Notation — the file format used for state export/import.
Killer Feature	One of the three advanced features: Smart Flashcard Generator, GPA Forecaster, Study Scheduler.
localStorage	A browser storage mechanism that persists data between sessions, per origin.
Long Break	A 15-minute break taken after every 4th Pomodoro focus session.
Overdue	An assignment whose due date has passed without being marked as done.
Planner Event	A recurring weekly entry (lecture, lab, study block) in the Weekly Planner.
Pomodoro	A time management technique: 25 min work, 5 min break, repeat in cycles of 4.
Priority	Assignment urgency level: High, Medium, or Low.
Short Break	A 5-minute break taken between Pomodoro focus sessions.
SM-2	A spaced repetition algorithm originally by Piotr Wo■niak. The engine uses a simplified version.
Sparkline	A small inline chart — used in the GPA Forecaster to show current vs. projected trajectory.
Spaced Repetition	A study technique that increases review intervals as material is memorised.
State File	The JSON file containing all engine data, exported via the Files tab.
Streak	In flashcards: the number of consecutive successful reviews. In Dashboard: consecutive study days.
Weight	The percentage of a course’s final grade that an assignment contributes.

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Keep learning.

Version 2.0 · Knowledge Compounds · Your data, your machine.