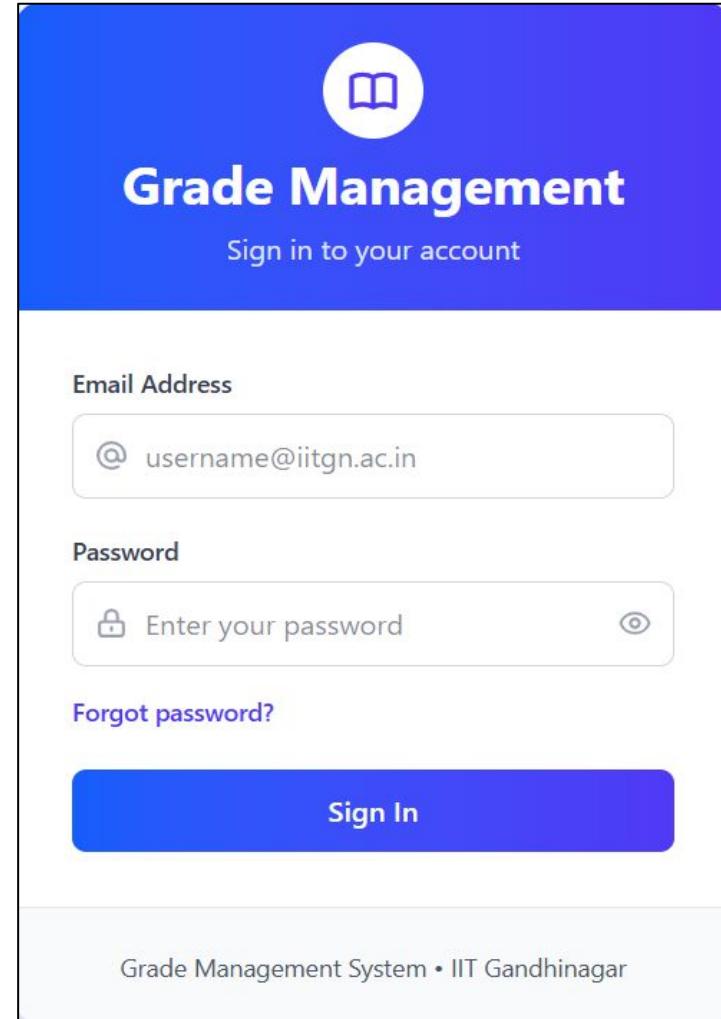


Course and Grading Management System

A full-stack Course & Grading Management System designed for three user roles: Admin, Professor, and Student.

by Akash Gupta, Kaushal Bule, Luv Aggarwal, Rachit Mehta





Problem Statements

An online platform to automate and streamline the grading process for academic courses enabling instructors to define grading criteria, upload assessment scores, and automatically compute final grades, while students can securely access their course results in real time.



Interactive UI

Dashboard for course creation and grade matrix setup.



Grade Calculation

Automated Letter Grade assignment to students by calculating Z-score.



Secure Access

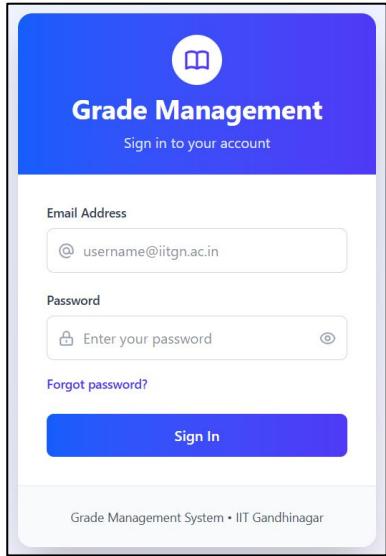
Role-based login for Students and Instructors



Toolkits and Utility

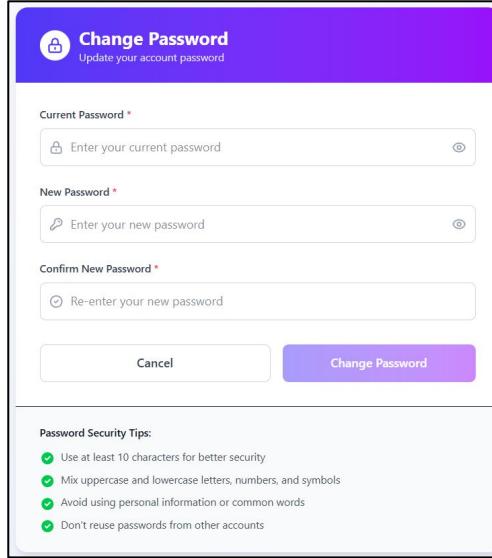
HTML, JavaScript, Node.js, MongoDB

Secure Login



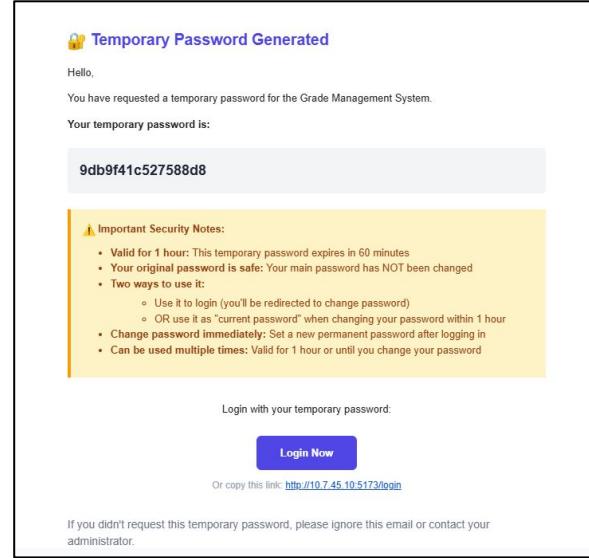
The screenshot shows the Grade Management login page. It features a blue header with a book icon and the text "Grade Management". Below the header is a sub-header "Sign in to your account". The main form contains fields for "Email Address" (with placeholder "@ username@iitgn.ac.in") and "Password" (with placeholder "Enter your password"). Below the form is a "Forgot password?" link and a prominent blue "Sign In" button. At the bottom, it says "Grade Management System • IIT Gandhinagar".

Login Page



The screenshot shows the Change Password page. The title is "Change Password" with the subtitle "Update your account password". It has three input fields: "Current Password *", "New Password *", and "Confirm New Password *". Each field has a placeholder and a visibility toggle icon. Below the fields are "Cancel" and "Change Password" buttons. At the bottom, there's a section titled "Password Security Tips:" with five green checkmark tips: "Use at least 10 characters for better security", "Mix uppercase and lowercase letters, numbers, and symbols", "Avoid using personal information or common words", and "Don't reuse passwords from other accounts".

Change Password Page



The screenshot shows an email titled "Temporary Password Generated". It greets the user with "Hello," and informs them that a temporary password has been requested for the Grade Management System. The temporary password is displayed in a large, bold, black box: "9db9f41c527588d8". Below this, a yellow box contains "Important Security Notes:" with four items: "Valid for 1 hour: This temporary password expires in 60 minutes", "Your original password is safe: Your main password has NOT been changed", "Two ways to use it:" (with two sub-points: "Use it to login (you'll be redirected to change password)" and "OR use it as 'current password' when changing your password within 1 hour"), and "Change password immediately: Set a new permanent password after logging in". At the bottom, it says "Login with your temporary password:" and has a "Login Now" button. It also provides the URL "Or copy this link: <http://10.7.45.10:5173/login>". A note at the bottom states: "If you didn't request this temporary password, please ignore this email or contact your administrator."

Email notification for Forgot Password

Forgot Password Features:

- A randomly generated secure password is generated and sent to the linked email.
- The random password acts as the accounts original password for 60 minutes before expiry.
- On login with this secure password, the user is prompted to immediately and mandatorily change their password.

Super Admin Features

- Has access to every other utility on the management system

The screenshot shows the 'Admin Dashboard' for a 'Super Admin'. At the top, there are navigation links for 'Dashboard', 'Students', 'Professors', and 'Super Admin'. A user profile icon for 'Administrator' is also present. The dashboard features three main cards:

- Register New User**: Adds new students or professors to the system. Includes a 'View All Students' button.
- View All Students**: Manages and views all registered students. Includes a 'View All Professors' button.
- View All Professors**: Manages and views all registered professors. Includes a 'View All Students' button.

A section titled 'Admin Privileges' explains that as an administrator, full access is available to manage users, courses, and grades.

The screenshot shows the 'Register New Users' page. It includes a back-link to the 'Dashboard' and a green 'User' icon. The title is 'Register New Users' with a sub-instruction: 'Add students or professors individually or in bulk'. There are two registration options:

- Single Registration**: For individual users.
- Bulk Upload (CSV)**: For multiple users via CSV file.

The 'User Role' section allows selecting between 'Student' (selected) and 'Professor'. The form fields include:

- Full Name ***: An input field with placeholder 'Enter full name'.
- Email Address ***: An input field with placeholder '@ username@iitgn.ac.in'.
- Password ***: An input field with placeholder 'Create a secure password' and a note: 'Minimum 6 characters recommended'.

A large green 'Register User' button is at the bottom.

- Can register single or multiple students and professors using bulk CSV files
- On creation of multiple accounts, a random password is generated and sent to the linked email address

Professor Features

- Create and manage courses with custom grading policies

Create a New Course

Fill in the details below to create a new course

Course Name *

Course Code *

Course Description *

Grading Policy * (Must total 100%)

Midsem (%)	Endsem (%)
0	0
Quizzes (%)	Project (%)
0	0
Assignment (%)	Attendance (%)
0	0
Participation (%)	
0	

Current total: **0%**

Create Course **Cancel**

- Define weightages for mid-term, end-term, assignments, quizzes, attendance, participation grading policies
- Specify number of quizzes for each course
- Edit the course schema anytime

Quiz Management

Configure the number of quizzes for this course. Each quiz will be weighted equally.

TOTAL WEIGHTAGE 15%	ACTIVE QUIZZES 3	WEIGHT PER QUIZ 5.00%
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+ Add Quiz **- Remove Quiz**

Professor Features

- Bulk grade entry interface

Student	MIDSEM (52%) Max: 100	ENDSEM (21%) Max: 100	Quiz 1 (13.50%) Max: 100	Quiz 2 (13.50%) Max: 100
test_student t@iitgn.ac.in ID: 93b600	0	0	0	0

Bulk Upload Grades

Upload a CSV file to update grades for multiple students at once

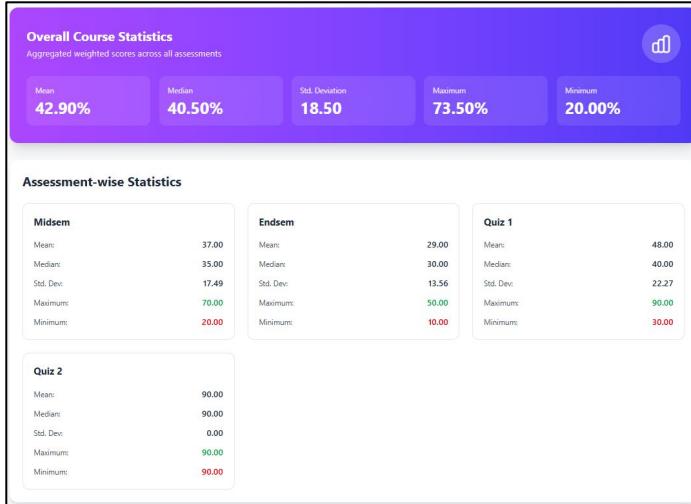
[Download Sample CSV](#)[Upload CSV](#)

- Individual student grade updates

Student	MIDSEM (52%) Max: 100	ENDSEM (21%) Max: 100
test_student t@iitgn.ac.in ID: 93b600	030	0

Professor Features

- Automatic overall as well as assessment wise statistics calculation



- View and respond to student grade challenges

A notification for a student grade challenge. The subject is "Computer Networks" and the student is "Student: test_student (t@iitgn.ac.in)". The challenge is "endsem mark error" and was submitted on "11/12/2025". The status is "Pending" and there is an "Action Required" button.

Computer Networks
Student: test_student (t@iitgn.ac.in)
endsem mark error
Submitted 11/12/2025

Pending

Action Required

Professor Features

- Review student submissions with attachments
- Respond with detailed feedback and optional attachments

This screenshot shows a student submission for a course named "Computer Networks". The student is "test_student". The submission includes three attachments: Attendance (0), Quiz 3 (40), and endsem marks issue (0). Below the attachments, there is a "Student's Challenge" section with the text "endsem marks issue". Under "Attachment", there is a file named "Screenshot 2025-11-12 084940.png" with a "Download" button. At the bottom, there is a "Respond to Challenge" section.

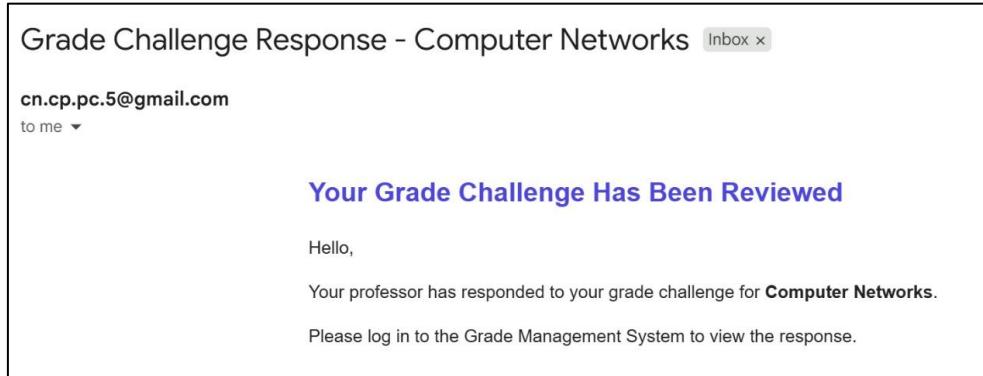
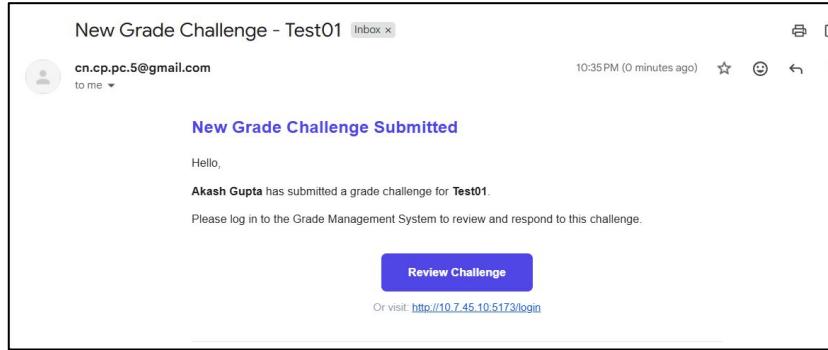
This screenshot shows a response to a challenge from "test_student" for the course "Computer Networks". The response is titled "Screenshot 2025-11-12 084940.png" and includes a "Download" button. Below the response, there is a "Respond to Challenge" section containing the message "Your marks have been updated".

- Track challenge resolution status

This screenshot shows a summary of grade challenges. The title is "Grade Challenges" with the subtitle "Review and respond to student grade challenges". There are three buttons at the bottom: "All (6)" (highlighted in blue), "Pending (2)", and "Reviewed (4)".

Professor Features

- Automatic notifications for new challenges and responses



Professor Features

- Automated Letter Grade calculation from mean and z-score.
- Option to publish/unpublish grades on demand.

Computer Networks - Grade Management

 Publish Grades

 View Statistics

 Set Max Marks

Grade Distribution (Gaussian Curve)

Letter grades assigned using standard deviation from mean

Student Name	Weighted Score	Z-Score	Letter Grade
k	29.50%	-0.72	 D
test_student	20.00%	-1.24	 E
Akash Gupta	40.50%	-0.13	 C
Rachit	73.50%	1.65	 A+
Prat	51.00%	0.44	 B

Grading Scale (Based on Standard Deviation)



σ = Standard Deviation from Mean

Student Features

- Can register for one or more of the available courses.
- On successful registration, students can see the grades assigned to them

The screenshot shows the student's dashboard under 'Grade Management'. At the top, there are tabs for 'My Courses' and 'My Challenges', and a user profile for 'Akash Gupta' with a grade of 'A'. The main section is titled 'My Enrolled Courses' and shows two courses: 'Computer Networks' and 'Operating Systems', both marked as 'Enrolled'. Each course card includes a 'View Grades' button. Below this is a section titled 'Available Courses' which lists one course: 'Test course', marked as 'Available'. A 'Join Course' button is present. The overall interface is clean with green and purple accents.

The screenshot shows an 'Academic Performance Report' for the course 'Computer Networks'. At the top right, it displays a 'Challenge Grade' icon, '40.50%' in a purple box, and 'Weighted Score'. The main area shows 'Graded Assessments' with a value of '3', a 'Total Weighted Score' of '40.50%', and a 'Letter Grade' status of 'Not Published'. Below this is a 'Detailed Breakdown' section with three items: 'Midsem' (Weightage: 30%, Contribution: 21.00%, score: 35/50), 'Endsem' (Weightage: 30%, Contribution: 18.00%, score: 30/50), and 'Quiz 1' (Weightage: 5.00%, Contribution: 1.50%, score: 30/100). The interface uses a purple color scheme for highlights.

- Automated weighting and aggregation of scores received as per the weightage of each assessment defined by the instructor
- Section to view automated letter grades once published by the instructor

Student Features

- Option to challenge received grades upto a total of 5 times per course
- Students can describe their grievances and attach necessary attachments for the same
- Dashboard to view feedback on challenges submitted by the student.

ⓘ 5 challenges remaining
You have used 0 out of 5 challenges for this course.

Challenge Grade

Course: Computer Networks Course Code: CS 330

Current Grades:

Midsem (30%) 35	Endsem (30%) 30	Assignment (15%) 0
Attendance (10%) 0	Quiz 1 30	Quiz 2 0
Quiz 3 0		

Grade Management My Courses My Challenges Akash Gupta A

My Grade Challenges

Track your grade challenge submissions and professor responses

Test01 test Less marks in midsem Submitted 11/12/2025	Pending
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Describe your concern *

Please explain why you believe your grade should be reconsidered...

Be specific and provide detailed reasoning.

Attach supporting document (optional)

Click to upload or drag and drop
PDF, JPG, JPEG, PNG (max 25MB)



Cancel Submit Challenge

Challenges Faced

- Handling incomplete/partial marks while computing means, standard deviations, and z-scores without skewing the distribution
- Marks of one student are getting allocated to all.
- Keeping grading policy totals at exactly 100% while allowing dynamic quiz/assignment counts and per-component max marks.
- Developing on a shared network with specific IPs required careful CORS whitelisting.

Future Work

- Enable Two-factor Authentication for even secure login
- Create a new role/privilege - Teaching Assistant (TA)
- Ensure TAs and multiple professors can manage a single course.
- Cache expensive statistics and add background jobs for heavy CSV imports.
- Add pagination and server-side filtering for large user/course lists.