

CSCI 497 Senior Design Requirements

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Expected Graduation: Spring 2026

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ID Number: 01

Type: Functional

Description: Webserver supports needed languages.

Rationale: Several languages are used by various courses for students to build their websites, for the webserver to work for students it will need to support the languages used.

Fit Criterion: It will run websites that make use of various languages including ruby on rails, PHP, and python.

Priority: high

Dependencies: n/a

ID Number: 02

Type: Functional

Description: Webserver can host up to 150 websites at a time.

Rationale: It will need to support numerous websites simultaneously for multiple users.

Fit Criterion: Test performance while having multiple websites deployed simultaneously.

Priority: high

Dependencies: n/a

ID Number: 03

Type: Usability

Description: Needs to be affordable for the university/students.

Rationale: Students will need to deploy their websites; great expense would pose a barrier to their ability to do so.

Fit Criterion: The cost per semester per student should not exceed one hundred dollars.

Priority: medium

Dependencies: n/a

ID Number: 04

Type: Security

Description: Needs to be secure for hosting

Rationale: A non-secure webserver could put the school/students at risk.

Fit Criterion: The security standards will be compared/held to the standards of equivalent school systems.

Priority: high

Dependencies: n/a

ID Number: 05

Type: Usability

Description: It should be easy to deploy websites.

Rationale: If deploying is difficult, it could be a barrier to student success in the course.

Fit Criterion: Deployment process should be no more than ten minutes.

Priority: medium

Dependencies: n/a

ID Number: 06

Type: Security

Description: Must offer a way to manage or have oversight.

Rationale: Website content and users should be in line with university guidelines and standards.

Fit Criterion: Meets IEEE and CIS website security standards

Priority: medium

Dependencies: n/a

ID Number: 07

Type: Maintainability

Description: Must have a way to be maintained/continued long term

Rationale: To best serve the university and students without causing undue stress, the webserver should be a long-term solution.

Fit Criterion: Gain approval from Network Administrator

Priority: low

Dependencies: n/a

ID Number: 08

Type: Performance

Description: Needs to have high availability

Rationale: The students' websites will need to be available to complete and meet course assignments.

Fit Criterion: Availability provided by the solution should be upwards of ninety percent.

Priority: medium

Dependencies: n/a

ID Number: 09

Type: Maintainability and Support

Description: Needs to have support or a way to go about getting support.

Rationale: If the webserver is down or students have issues arise there needs to be an avenue to resolve them.

Fit Criterion: Develop a support plan and receive approval from Network Administrator

Priority: low

Dependencies: n/a

ID Number: 10

Type: Performance

Description: Needs to be able to be able to scale users.

Rationale: The number of users and websites will vary from semester to semester.

Fit Criterion: There will be the ability to add and remove users, and their websites, as needed.

Priority: medium

Dependencies: n/a

ID Number: 11

Type: Usability

Description: Should be easy for new students/users to learn to navigate.

Rationale: Deploying to the webserver should not serve as a barrier to the completion of the rest of their coursework.

Fit Criterion: A walkthrough or tutorial should be available to introduce the solution. Usability testing via user experience evaluation.

Priority: low

Dependencies: n/a

ID Number: 12

Type: Performance

Description: Should run websites smoothly

Rationale: If websites do not run well, it will be difficult for students to complete their coursework.

Fit Criterion: Representative pilot program runs successfully.

Priority: medium

Dependencies: n/a

ID Number: 13

Type: Performance

Description: What the solution's backup and recovery time is. Can they go back to previous versions if something gets messed up?

Rationale: Needs to be able to comeback from program failures

Fit Criterion: Solution offers backups/backup capabilities. Recovery time is minimal.

Priority: low

Dependencies: n/a

ID Number: 14

Type: Performance

Description: Time between failures and time to recover consideration

Rationale: If the solution has a long recovery time or a short time between failures students will not be able to effectively complete coursework.

Fit Criterion: Recovery time should be no longer than a day if possible, and time between failures should be significant.

Priority: low

Dependencies: n/a

ID Number: 15

Type: Usability

Description: The server should be able to integrate with version control systems like GitHub

Rationale: Students, when working individually and especially when in groups, will need to be able to manage their websites and their various versions.

Fit Criterion: The webserver solution will support GitHub integration at a minimum.

Priority: medium

Dependencies: n/a

ID Number: 16

Type: Usability

Description: Technical documentation, record of decisions made and their reasoning

Rationale: Decisions made for the project must be backed up by reasoning and research to use for defense and explanation.

Fit Criterion: Reasoning for decisions is traceable through documentation for explanation.

Priority: low

Dependencies: n/a