

# Electronic Program of Study

SDDEC21-04

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## Overview

Each semester, advisors who teach E E, CPR E, S E and CYB E 166 spend hours checking programs of study. These programs contain all the courses a student plans on taking at Iowa State in order to fulfill all the graduation requirements. Our solution is a web application where students enter their program courses electronically with some automated checking to save advisor's time.

## Testing

Out intended testing environment was to utilize students in CPRE/SE/EE 166 to gain their opinions and insight on the flowchart tool versus the traditional Excel spreadsheet version. Students would gain a dropped absence if they tested the tool and provided feedback.

## Design Requirements

### Functional Requirements

- Students able to search for and select classes in order to construct a program of study including a section for transfer courses and each following semester
- Students able to check schedule against list of core courses
- Advisors able to update list of classes as they are added or removed for the programs
- Advisors able to comment on students program of study

### Operating environment

- Web app developed using Django
- Web server hosted by the ecpe department
- Website able to be accessed by students and advisors on university network/vpn

### Engineering Constraints

- Departmental hosting and funding

### Non-Functional Requirements

- Website should load within three seconds
- Website able to be maintained and continually improved
- Login information securely stored and transmitted, unauthenticated user cannot view or save changes
- Checking the schedule takes less than two seconds

### Relevant Standards

- P23026 - Systems and Software Engineering -- Engineering and Management of Websites for Systems, Software, and Services Information
- IEEE/ISO/IEC 23026-2015 - ISO/IEC/IEEE International Standard - Systems and software engineering - Engineering and management of websites for systems, software, and services information

## Student View

## Advisor View

Transfer	Semester 1	Semester 2	Semester 3	Semester 4	Semester 5	Semester 6	Semester 7
S E 101 MATH 165 COM S 227 ENGL 150 PHYS 221	MATH 166 S E 166 LIB 160 S E 185	CPR E 281 ENGL 250 COM S 228	S E 319 MATH 267 CPR E 288 COM S 230	S E 309 S E 339	COM S 363 COM S 311 S E 317 ENGL 314 COM S 321	SP CM 212 S E 491 STAT 330 S E 421 CPR E 308	S E 492

## Intended users

### Students

This app is intended for use by any student in the Electrical (E E), Computer (CPR E), Software (S E) or Cyber Security (CYB E) Engineering majors. They are able to select their degree program and check that core class requirements are met.

### Advisors

Advisors in the corresponding respective departments who teach any version of 166 course will use this app to view student's schedules who choose to use the app. They will use this to significantly reduce the time required to check programs of study.

## Technical Details

### Frontend

- HTML/JavaScript /CSS
- JQuery
- Django

### Backend

- Python
- SQLite
- Django

## Design Approach

### Frontend

Broken up into a student account which can be utilized to create and save schedule plans. The advisor account can view the students schedule and type comments that the student can view.

### Backend

The database has 4 models, Student, Advisor, Class, and Degree. The Student and Advisor model has a one-to-one field connected to the Django.auth.user model. The Class model stores all the courses in the ISU catalog. The Degree model stores the required class for CYB E, S E, EE, and CPR E. Our database can be populated with the thousands of Iowa State courses using a python web scraper

### System Concern

The main security concern is that the accounts are not MFA through Okta.

