**CANDIDATE PLAN OF STUDY (CPS) - SOFTWARE APPLICATION**

**Team: Achievers**

**Name and Student ID**

**Table of contents**

**1. Introduction**

## **1.1 Purpose**

The purpose of this document is to provide a detailed description of the requirements, features, system functionalities, interactions, and their technical dependencies of the candidate plan of study application. This document primarily serves for the development team to develop the Candidate plan of study (CPS) software application.

## **1.2 Scope**

The Candidate plan of study software application system is designed to automate the existing manual process for filing the CPS document for the students by the faculty advisors and the academic advisors. This system reduces the time needed to finalize the cps document approval process for the end users (students) and also the faculty advisors and academic advisors. This also saves all the paperwork process which needs to be done in filing a CPS document.

## **1.3 Project Overview**

The Candidate plan of study application involves students, faculty advisors and academic advisors as the actors. This application aims to eliminate the existing manual process of filing the cps document for students which also involves faculty advisors and academic advisors. Some of the existing system drawbacks are it involves more amount of time for students, faculty advisors, and academic advisors. It involves a lot of paperwork process. The network shared folder in which the cps document resides are not secured and exposed to deletion anytime. Since paperwork process is involved, human errors are also possible. So, by consolidating the above issues, it is concluded that the existing system is not reliable and secured.

The proposed candidate plan of study software application has been built to serve the students, academic advisors and the faculty advisors to generate the cps in a more secured and reliable process. The students are the person who is currently admitted into the degree program. The Faculty advisors are the teaching staffs of particular majors who is assigned to each student. Usually each faculty advisor has 15 to 20 students for whom he/she needs to advise students on the coursework. The Academic advisors are the person who is validating the final cps, student’s transcripts and assigning the faculty advisors to students. The scope or feature of candidate plan of study software application for students consists of login to the portal, setting up appointments with the faculty advisor, consulting the cps with the faculty advisor, view and print the final cps, and request form to change or modify cps. The features of faculty advisors include

## **2.0 Requirements**

**2.1 Introduction**

This section contains the detailed system requirements for Candidate plan of study software application. These requirements have been documented based on the several sources including the inputs from the academic advisors, faculty advisors, students and UHCL website.

**Types of Reader:**

The different types of reader of this document are students, faculty advisors and academic advisors (end-users) and developers, testers.

**Requirements Overview:**

What is the actual process of the CPS?

When the student gets enrolled in the degree academic program, the initial generic CPS will be generated by the academic advisor which has all the details such as student ID, student name, major, foundation courses, degree requirements, core requirements and program electives. Now once the initial generic CPS is generated it’s been sent to students as well as the assigned faculty advisor where the students makes an appointment with the faculty advisor to modify CPS. This modified CPS is called draft CPS which is later been sent to academic advisor who checks the academic and program rules and finalize the final CPS by approving the draft CPS.

What are the databases we can have in this CPS process?

We can have three databases Catalog database, Academic advising database and e-services database. The catalog database has all course details, whereas academic advising database has all records of students CPS and e-services has all the details of the student.

Do they consider mandated year or term in CPS?

Yes, they do consider mandated year. Mandated year is the year of getting acceptance from the college to completion of the degree program. For example, if a student continues his masters for 4 years it is important to have a mandated year to generate CPS because there may or may not be change in the CPS in these 4 years. If in case, there's any change in the cps that student will have a CPS generated for which academic year he got acceptance for.

Is there anyone other than faculty advisor, academic advisor and student involved in the entire CPS process?

No, the whole CPS process just makes an involvement of these three actors.

## **3.0 Class Diagrams**



*Figure 1.UML Class Diagram for Academic Advising*

**Brief Description:**

The class diagram for the academic advising deals with both the CPS and Course catalog. Candidate Plan of Study is considered as the main class from which three different classes like draft CPS, approve CPS and Final CPS are inherited. Initially Student CPS is a generic CPS where he makes appointment with the assigned faculty advisor to make a draft CPS. This draft CPS is being sent to academic advisor where they approve CPS and make a final CPS.



*Figure 2. UML Class Diagram for Academic Advising*

**Brief Description:**

The course catalog consists of all the majors that are in the school of science and engineering at graduate level. The majors are statistics, math, Software Engineering, CENG, computer engineering, system engineering, bio-technology and computer science.

## **4.0 Use Case Diagrams**

**Student:**



*Figure 3. UML Use-Case Diagram for Student*

**Brief Description:**

The UML Use-Case for students deals with the student interaction in modifying the CPS. Student is one of the actor where he/she can perform the functionalities like Request for an appointment, View draft and Final CPS, and also can request for a change in the final CPS.

**Flow of Events:**

**Basic Flow:**

1. Student will login to the system to view his/her initial CPS.
2. Student request for an appointment to faculty advisor.
3. Student must be able view his/her draft and Final CPS.
4. Students also has the feature to print their CPS.
5. Students can also make a request for a change form in their final CPS with Academic Advisor.

**Alternative Flow:**

**Pre-conditions:**

1. Student must be admitted into University and currently enrolled in semester.
2. Student must be able to login to the system.
3. Student should know their Faculty Advisor prior to request for an appointment.
4. Student must be able to view their initial CPS.

**Post-conditions:**

1. Student can know the status of their requested CPS.
2. –

**Faculty Advisor:**



*Figure 4. UML Use-Case Diagram for Faculty Advisor*

**Brief Description:**

The UML Use-Case for faculty advisors explains the role of the faculty and his / her functionalities in generating CPS. Faculty Advisor will check for the student appointment and modifies the initial CPS. The draft CPS is sent to Academic Advisor for approval.

**Flow of Events:**

**Basic Flow:**

1. Faculty will login to the system to view his/her student appointment and they retrieve the details of student.
2. Faculty will check with the schedule and confirm student’s appointment.
3. Faculty will make changes to student initial CPS and approve modified CPS only if the criteria is met.
4. Faculty will generate Draft CPS and send it to Academic Advisor for approval.

**Alternative Flow:**

**Pre-conditions:**

1. Faculty is provided with username and password to login into system.
2. Upon appointment, faculty must be able to get student details.

**Post-conditions:**

1. -

**Academic Advisor:**



*Figure 5. UML Use-case Diagram for Academic Advisor*

**Brief Description:**

The UML Use-Case for Academic Advisor explains the functionalities that an academic advisor can perform and the role in generating CPS for students. He/she generates initial CPS that need to be modified by faculty advisor and send back for approval of the final CPS.

**Flow of Events:**

**Basic Flow:**

1. Academic advisor will login to the system and generates initial CPS for newly admitted students.
2. Academic advisor will check or make changes to the CPS based on the current academic system.
3. As soon as the Faculty Advisor sends draft CPS, Academic advisor will verify draft CPS.
4. Academic Advisor will approve draft CPS if the corresponding criteria is met.
5. They will then generate the final CPS and it is notified to both student and faculty.
6. If any student request for a modification in his final CPS, then they will register for change request form. Academic advisor will modify the final CPS.

**Alternative Flow:**

**Pre-conditions:**

1. Academic advisor must be provided with login credentials.
2. They must be able to retrieve the student details from admissions.
3. They should have the course catalogue prior to change CPS format for every two years.

**Post-conditions:**

## **4.0 Architectural Diagram**

**Description:**

Candidate Plan of Study software application is designed in three tier architecture model. The three tiers are Presentation or User Interface Layer, Business Logic Layer and Data Access or Database Layer. The CPS software application is designed using ASP.NET framework. Some of the benefits of the three-tier architecture are that the database layer will be more secured and client will not have direct access to the database since application layer is between the user interface layer and the data access layer. There is a logical separation between the presentation layer and the data access layer. Changes to the business logic layer does not affect the user interface layer. So, anytime the new rules and the validation can be defined and also it can be modified. Business Logic layer hides the complex details from the user so that it is not shown to the users in the user interface layer. Object oriented concepts are easily applied in the three-tier architecture.

Working of three tier architecture involves the following. Presentation layer or user interface layer is where the designing of interface for the system takes place. It is done using the html and other web controls. This layer communicates only with the business logic layer or the application layer. Application layer is considered as the bridge between the presentation layer and the data access layer. The validation code or logic which are required as per the business requirements is written in the business logic layer. The data which the user post goes through the application layer to validate the business rules and after validation process data is posted to the database through data access layer.

Presentation Layer 3

Academic Advisor

Presentation Layer 2

Faculty Advisor

Presentation Layer 1 Student

Student

Academic Advisor

Course Catalog

E-services

**S**

**E**

**C**

**U**

**R**

**I**

**T**

**Y**

Data Access Layer -3

Academic Advisor

Data Access Layer -2

Faculty Advisor

Data Access Layer -1

Student

Business Logic -3

Academic Advisor

Business Logic -2

Faculty Advisor

Business Logic -1

Student

*Figure 6. Three-tier architecture for CANDIDATE PLAN OF STUDY (CPS) - SOFTWARE APPLICATION*