Faculty Advisory System of NITC

Version 1.0

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# Introduction

## Purpose

## The purpose of this Software Design Description (SDD) is to provide a low-level description of the implementation of Faculty Advisory System data base of NITC, providing insight into the structure and design of each component.

## Scope

This SDD describes the detailed structure of the components of the Faculty Advisory System and the precise implementation details required to satisfy the requirements as specified in the Software Requirements Specification (SRS). It is assumed that the reader has read the SRS, since this document also defines the implementation details of the desired behaviour given the requirements within it.

## Overview of document

## This document provides us mainly with:

* System Architecture required for Faculty Advisory System data base.
* ER Diagram and its description.
* Relational schema and its description.
* Human interface design i.e., functionality of system from user perspective.

## Definitions and Acronyms

* NITC - National Institute of Technology Calicut
* SDD - Software Design Description
* SRS - Software Requirements Specification
* FA – Faculty Advisor
* CGPA – Cumulative Grade Point Average

# System Overview

The Faculty advisory system is composed of three major components:

1. Faculty advisor should be able to access and verify the information such as marks, grades, attendance, CGPA etc. regarding each student under him / her. This system also provides the list of students with backlogs, probation, condonation etc.
2. Students should be able to update their own marks, edit personal information and view messages from FA etc.
3. HOD can have same options as that of Faculty Advisor have but the Domain being the whole Department.

# System Architecture



## Architectural Design

The faculty advisory system is a client-server based system, which contains the following layers:

* User interface
* Internet / LAN
* Communication
* Functional service
* Data storage layers

Data transfers occur in both directions in the system. The users’ input or data request is sent using either an internet browser. This data then connects to the system through the internet and in the case of an internet connection, the data is required to pass through the system’s firewall, for security purposes, prior to connecting to the web server. In the functional services layer, the data input or request is routed to the appropriate functional module in accordance with the user’s login and user type. Through these modules, the users will interact with the database via the SQL server.

|  |
| --- |
| MySQL  Data Storage Layer |
| Functional Service Layer  HOD Functions  Faculty Functions  Student Functions |
| Communication Layer  Web Server |
| Internet Layer  Internet |
| User Interface Layer  User  HTML/PHP/CSS |

**Figure 3.1**

## Server Architecture

The server architecture contains the web server, which interfaces with remote users. The web server will communicate using active server pages PHP and HTML as shown in the communication interface block within the following diagram.

This logical server will have the functionality in order to facilitate all users, and will interact with the database via SQL API.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Students having Condonation | CGPA | Message to Students by FA | Login / Logout into their Accounts | Edit Information |

|  |
| --- |
| Access Control |
| Account Management |
| Media Management |

HTML/CSS/PHP

Web Server

Database Access

SQL

**Figure 3.2**

## Client Architecture

The client architecture is available for all types of systems working on internet service.it will run on any operating system .as a result the developer libraries in the system are utilized during the implementation of the client. This architecture resides above the Windows API layer, which interfaces with the operating system. Utility functions include print, tool bar, edit and send message help and other functions.

System Administration

System Specific Functions

Client Data Store

Access Control

Utility Functions

Application and Data

System

**Figure 3.3**

# Data Design

## Enhanced ER Diagram

Student

Belongs

Department

1

1 N

FA

Controls

HOD

N

Advises

1

1

Registers

M

Consists of

Course

Section

N

1 N

**Figure 4.1**

## Data Dictionary

### Student Entity:

***Description*:**

This Entity contains information such as the student’s Roll No, Name, Date of Birth, Nationality, Date of joining, Religion, Date of leaving, Contact Number, Email ID, Permanent Address, Present Address, Name of local guardian, Relationship of local guardian, Occupation of local guardian, Contact Number, Name of Father, Contact Number of Father, Name of Mother, Contact Number of Mother, Occupation of Parent, Faculty Advisor Code, Entry Course, Entry Period of Study, Entry Board, Entry Institution, Entry Marks Secured, Entry Marks Total, Year of Graduation, Achievements, Scholarships, Conduct, Project, Project Guide, Internship, Placement, Condonation1, Condonation2, Probation, Medical Discontinuation.

The primary key of the Student Entity is Student’s Roll Number.

***Usage*:**

The Student Entity is associated with the Faculty Advisor Entity with Foreign Key Faculty Advisor Code (N:1 Relation) i.e., A Faculty Advisor may advises many Students under his advisory-ship. The Student Entity is associated with Section Entity (M:N Relation) i.e., Many Students may registers for many Sections (courses undertaken by some Faculty) during their graduation period.

### Faculty\_Advisor Entity:

***Description*:**

This Entity contains information such as Faculty Advisor Code, Department Code, Name of the Faculty, Contact Number.

The primary key of the Faculty Advisor Entity is Faculty Advisor Code.

***Usage*:**

Each faculty advisor is associated with corresponding Department (N:1 Relation)

### Department Entity:

***Description*:**

This Entity contains information such as Department Code, Department Name.

The primary key of the Department Entity is Department Code.

***Usage*:**

Each Department is associated with its corresponding HOD (1:1 Relation).

### HOD Entity:

***Description*:**

This Entity contains information such as HOD Code, Name and Department Code.

The primary key of the HOD Entity is HOD Code.

### Section Entity:

***Description*:**

This Entity contains information such as Section Id, Faculty and Semester.

The primary key of the Section Entity is Section Id.

***Usage*:**

Section Entity is associated with Course Entity.

### Course Entity:

***Description*:**

This Entity contains information such as Course Code, Course Name.

The primary key of the Section Entity is Course Code

## Data Relations

Provided below is a summary of various data relations that make up the Faculty Advisory System. Included in each table are the attributes of each relation, data type of each attribute and default value.

### Faculty\_Advisor Relation



### Student Relation



### 

### HOD Relation



### Department Relation



### Section Relation



### Course Relation



### Registers Relation



# Human Interface Design

This section provides the graphic user interface for the online faculty advisory system.

Student, faculty and HOD advisors will be able to log onto the system from any computer connected to the internet. The computer will access the system through an internet browser. The user interfaces will be reflected on the screen. The access control function will determine the level of access based on the user type. The user type will be triggered by the user ID, and a menu will be displayed requesting the login details of the user.

The login credentials submitted will be verified via the access control function. If the user name or password does not match an error message will be displayed. The user will have the option to try again, or cancel the operation.

* If the user has entered the correct login credentials then he/she will have the access to edit/update the information.

## Student Perspective

* A page will be displayed click on the marks option he can enter the marks of his own or can edit his marks.
* In the same page an edit option is provided ,The student can update his personal information for example his current address , contact number etc.,
* Uploading image option is also provided to upload his image.
* An option read is provided to the student, He can read the messages sent by the faculty advisor regarding any.

## Faculty Advisor Perspective

* The marks option is provided to faculty advisor so that he/she can edit/access the marks /information of a student under his/her advisoryship.
* Send option provided can be used to send messages to the students regarding exams/any events.
* He/she can inform the students having attendance shortage backlogs etc.,

## HOD Perspective

* The marks option can be used by the HOD to access the information of all the students in his/her branch.

# Appendix A

