

**OPTIMIZING SUBJECT
ALLOCATION AND WORKLOAD
CALCULATION**

MINI PROJECT REPORT

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OPTIMIZING SUBJECT ALLOCATION AND WORKLOAD CALCULATION

A MINI PROJECT REPORT

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to

the APJ Abdul Kalam Technological University in partial fulfillment of the
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CERTIFICATE

This is to certify that the report entitled “Optimizing Subject Allocation And Workload Calculation” is a bonafide record of the work done by Mr. A Harikrishnan, Mr. Aneesh P.B, Mr. Rahul S, Ms. Riya Roy, University Register Numbers U2008001, U2008012, U2008052, U2008054 in partial fulfillment of the award of the Degree of Bachelor of Technology in Artificial Intelligence and Data Science at Rajagiri School of Engineering & Technology, Kakkad, Kochi during the academic year 2022-23.

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A strong foundation is a necessity to step on and to start building and expanding. We are thankful for the management and our Principal Dr. P. S. Sreejith who has ensured this strong foundation for us, students, to start building our lives on.

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ABSTRACT

Subject allocation and workload calculation are essential components of an effective education system. In today's rapidly changing and competitive world, it is imperative to have a system that optimizes resources, improves efficiency, and enhances outcomes. The subject allocation and workload calculation system aim to achieve these goals by assigning subjects to teachers and determining their workload in a fair and equitable manner.

The project on subject allocation and workload calculation aims to develop a specialized system for managing subject allocation and workload calculation for faculty members. The system analyzes course requirements, faculty preference to optimize subject allocation. The workload calculation module considers the number of teaching hours, tutorial hours, laboratory work, and administrative responsibilities to ensure an equitable workload distribution. The system is designed to enhance academic efficiency, promote faculty satisfaction, and improve student outcomes by creating a balanced and effective teaching environment. This project is particularly important for engineering courses due to the diverse range of topics and technical skills involved, and the need for specialized expertise in subject allocation and workload management.

An effective subject allocation and workload calculation system can significantly enhance academic efficiency, promote faculty satisfaction, and improve student outcomes. With an optimized workload, teachers can focus on delivering quality instruction, engaging with students, and conducting research. Students benefit from improved teaching quality and increased faculty engagement, leading to better academic performance and career prospects.

The subject allocation and workload calculation system is essential for institutions that offer engineering courses. These courses require specialized expertise and knowledge, making it challenging to manage workload and allocate subjects effectively. With an effective system, institutions can enhance academic efficiency, promote faculty satisfaction, and improve student outcomes.

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CHAPTER 1

INTRODUCTION

1.1 GENERAL BACKGROUND

In the context of higher education, the process of subject allocation and workload calculation for college faculties has long been a crucial aspect of academic resource management. Traditionally, this process has been undertaken manually by college administrators, academic coordinators, or department heads. It involves a complex decision-making process, where educators are assigned subjects to teach based on their qualifications, expertise, preferences, and the overall institutional requirements.

The manual subject allocation process typically begins with college administrators reviewing the qualifications and expertise of each faculty. They consider factors such as academic degrees, certifications, research specializations, teaching experience, and feedback from previous students. Additionally, faculty preferences are taken into account, including their interest in specific subjects or teaching at particular times or days.

Subject allocation decisions are further influenced by subject prerequisites and the alignment of course content with faculty expertise. This requires a careful examination of curriculum requirements and course dependencies to ensure that teachers are assigned to subjects where they can offer the most value.

After the subject allocation, workload calculation is carried out manually to determine the number of hours each teacher will be assigned to teach in a semester. This process involves considering the number of classes, class hours, preparation time, and any other administrative duties or committee responsibilities assigned to faculty members.

While the manual approach has served educational institutions adequately, it has inherent limitations that impact efficiency and optimization. Some of the challenges with the manual subject allocation and workload calculation process

include:

Time-Consuming and Prone to Errors: The manual process is labor-intensive and time-consuming, especially in large institutions with numerous faculty members and subject offerings. As a result, it can be prone to errors or oversights that lead to suboptimal resource allocation.

Limited Optimization: Manual subject allocation may not fully leverage the available data and historical workload records to optimize the distribution of subjects among teachers. As a result, some faculty members may be burdened with excessive workloads, while others may be underutilized.

Difficulty in Adaptation: The manual process may struggle to accommodate changes in faculty preferences or institutional requirements promptly. As faculty members join or leave the institution or modify their teaching preferences, manually adjusting subject allocation becomes increasingly challenging.

Inequitable Workload Distribution: Workload imbalances can arise in the manual process, leading to burnout for some teachers and underutilization of others, impacting their overall job satisfaction and productivity.

To overcome these challenges and enhance the efficiency and effectiveness of subject allocation and workload calculation, this project aims to introduce an advanced automated system. The "Optimization of Subject Allocation and Workload Calculation" will leverage intelligent algorithms and data-driven techniques to optimize the allocation process, leading to a more balanced and equitable distribution of teaching responsibilities. By streamlining administrative tasks and reducing the burden on college administrators, the project seeks to empower educational institutions with an innovative tool for enhanced academic resource management.

1.2 PROJECT OBJECTIVE

The primary objective of the "Automatic Optimization of Subject Allocation and Workload Calculation for College Teachers" project is to develop an advanced and automated system that significantly enhances the efficiency, accuracy, and fairness

of subject allocation and workload calculation for college faculty members. By leveraging intelligent algorithms and data-driven techniques, the project aims to address the inherent challenges of the manual process and achieve the following key goals:

Optimal Subject Allocation:

The project seeks to automate and optimize the subject allocation process, which was traditionally conducted manually by college administrators. By utilizing intelligent algorithms, the system will consider a multitude of factors, including faculty qualifications, expertise, teaching preferences, and historical teaching records. It will also analyze subject prerequisites and course dependencies to ensure a well-aligned assignment of subjects to teachers. The goal is to maximize the utilization of faculty expertise and create a harmonious balance between faculty strengths and subject requirements. By optimizing subject allocation, the project aims to enhance the overall quality of teaching and learning experiences within the institution.

Equitable Workload Distribution:

The project places significant emphasis on ensuring a fair and balanced distribution of teaching responsibilities among college teachers. By automating workload calculation, the system will consider multiple parameters, including the number of classes, class hours, preparation time, and other administrative duties. The workload calculation algorithm will intelligently distribute teaching hours, preventing workload imbalances that could lead to faculty burnout or underutilization of certain educators. The project seeks to enhance faculty satisfaction by creating a workload distribution that respects individual preferences and aligns with institutional guidelines.

Efficiency and Time Savings:

An essential objective of the project is to streamline the resource allocation process and reduce the time and effort required from college administrators. By automating subject allocation and workload calculation, the system will

significantly accelerate decision-making, allowing administrators to focus on higher-value tasks. The reduction in administrative burden will lead to increased operational efficiency and ultimately contribute to a more effective management of academic resources.

1.3 SCOPE

The scope of the "Automatic Optimization of Subject Allocation and Workload Calculation for College Teachers" project is comprehensive, encompassing the entire process of subject allocation and workload calculation for college faculty members. The project aims to develop a robust and efficient system that leverages advanced technologies to streamline administrative tasks and enhance academic resource management. The key components and aspects within the scope of the project include:

Subject Allocation Automation:

The project will focus on automating the subject allocation process, which was traditionally carried out manually by college administrators. The system will employ intelligent algorithms to analyze faculty qualifications, expertise, and teaching preferences, as well as subject prerequisites and course dependencies. The outcome will be an optimized subject allocation plan that maximizes the alignment between faculty expertise and subject requirements.

Workload Calculation Automation:

Automating workload calculation is another significant aspect of the project's scope. The system will consider various workload-related factors, such as the number of classes, class hours, preparation time, and additional administrative duties. By efficiently distributing teaching hours, the system will strive to achieve a fair and balanced workload distribution among college teachers.

Algorithm Development and Implementation:

The heart of the project lies in the development and implementation of intelligent algorithms for subject allocation and workload calculation. These algorithms will

be designed to analyze complex data sets efficiently and generate optimized allocation plans.

User Interface Development:

To facilitate seamless interactions between college administrators and the system, the project will include the development of a user-friendly interface. The interface will allow administrators to input data, set preferences, and visualize the optimized subject allocation and workload distribution plans.

Integration with Existing Infrastructure:

The project will focus on integrating the developed system with the college's existing infrastructure, such as student information systems, faculty databases, and administrative platforms. Seamless integration is crucial to ensure smooth operation within the institution's ecosystem.

Security and Data Privacy:

To safeguard sensitive information, the project will address security and data privacy concerns. Proper security measures will be implemented to protect faculty and student data, ensuring compliance with relevant regulations.

Testing and Validation:

The project will undergo rigorous testing and validation using sample data sets to ensure the accuracy and effectiveness of the automated subject allocation and workload calculation processes.

Deployment and Maintenance:

Once developed and validated, the system will be deployed for real-world usage in the college environment. Regular maintenance and updates will be provided to ensure the system's continued performance and adaptability to evolving requirements.

1.4 MOTIVATION

The motivation behind the "Automatic Optimization of Subject Allocation and Workload Calculation for College Teachers" project stems from the recognition of several challenges and inefficiencies faced by higher education institutions in managing their teaching resources. The project aims to address these issues by leveraging technology to automate and optimize the subject allocation and workload distribution processes. The key motivations behind the project are as follows:

Enhancing Administrative Efficiency:

The manual process of subject allocation and workload calculation is labor-intensive and time-consuming for college administrators. By automating these tasks, the project seeks to free up valuable administrative time, allowing administrators to focus on other critical aspects of academic management and strategic decision-making. The automation of resource allocation can significantly improve administrative efficiency and streamline academic operations.

Improving Resource Utilization:

Institutions often struggle to achieve an optimal match between faculty qualifications and subject requirements. As a result, some teachers may be underutilized, while others may be burdened with excessive workloads. The project's motivation is to optimize subject allocation based on faculty expertise, interests, and historical teaching records, leading to better resource utilization and enhanced teaching quality.

Fostering Faculty Satisfaction:

A balanced workload and appropriate subject assignments contribute to faculty members' job satisfaction. By distributing teaching responsibilities fairly and considering faculty preferences, the project aims to create a positive and conducive environment for educators. Higher faculty satisfaction can lead to increased motivation and better student outcomes.

Facilitating Academic Excellence:

Academic institutions strive to provide the highest quality of education to their students. The project's goal is to optimize subject allocation, ensuring that students are taught by instructors with the most relevant expertise and passion for the subjects. This alignment between faculty strengths and subject requirements can lead to improved learning experiences and academic excellence.

Promoting Equitable Opportunities:

Subject allocation and workload distribution can sometimes be influenced by subjective factors in the manual process. The project's motivation is to implement an automated system that operates objectively and fairly, providing all faculty members with equitable opportunities to teach subjects of their expertise and interest.

Responding to Institutional Growth and Changes:

As educational institutions grow and evolve, their resource management requirements change. The manual process may struggle to adapt quickly to such changes. The project's automation and algorithmic approach enable the system to respond swiftly to faculty preferences, institutional shifts, and new subject offerings, ensuring ongoing optimization.

Data-Driven Decision-Making:

The project seeks to promote data-driven decision-making in academic resource management. By leveraging historical workload data, faculty profiles, and subject prerequisites, the system can make informed and objective allocation decisions, mitigating potential biases and enhancing resource allocation accuracy.

Advancement in Technology:

Rapid advancements in technology, including artificial intelligence and data analytics, offer new opportunities for educational institutions to optimize their operations. The project's motivation is to harness these technologies and apply them to subject allocation and workload calculation, unlocking greater efficiency and effectiveness.

In conclusion, the motivation behind the "Automatic Optimization of Subject Allocation and Workload Calculation for College Teachers" project lies in enhancing administrative efficiency, resource utilization, faculty satisfaction, and academic excellence within higher education institutions. By introducing an advanced automated system, the project seeks to transform how institutions manage their teaching resources, ultimately elevating the overall educational experience for students and educators alike.

CHAPTER 2

LITERATURE SURVEY

In the traditional realm of academia, the allocation of subjects to faculty members and the calculation of their respective workloads were painstakingly carried out through manual processes. College and university Head of Departments (HODs) often found themselves immersed in a labyrinth of administrative tasks as they sought to strike a delicate balance between faculty preferences, subject expertise, and institutional requirements. However, this manual approach was not without its limitations and challenges, prompting the need for a transformative solution.

As educational institutions evolved and expanded their academic offerings, the intricacies of subject allocation became increasingly complex. The HOD's responsibility extended beyond merely distributing subjects; it involved ensuring an equitable distribution of workload among faculty members while considering their teaching strengths, research commitments, and additional responsibilities. This process demanded significant time and effort, and even then, it was not always possible to achieve an ideal allocation.

2.1 MANUAL SUBJECT ALLOCATION

In the manual subject allocation process, the college Head of Department (HOD) typically relied on a combination of factors to allocate subjects to faculty members for a particular academic year. These factors may have included:

- a) Expertise and Specialization: The HOD would consider the faculty members' expertise and specialization in different subject areas. Subjects would be allocated to teachers who were most qualified and experienced in the relevant fields.

- b) Seniority and Experience: The seniority and experience of faculty members might have been taken into account. Senior teachers may have been given priority in choosing subjects they preferred to teach.
- c) Teacher Preference: Teachers might have been asked to express their preferences for the subjects they wanted to teach. The HOD would then try to accommodate these preferences to the extent possible while ensuring a balanced distribution of workload.
- d) Student Enrollment and Demand: The HOD would consider the number of students enrolled in each subject and try to ensure that there was an appropriate number of faculty members assigned to handle the workload.

2.2 MANUAL WORKLOAD CALCULATION

Once the subjects were allocated to the faculty members, the workload calculation was typically based on various parameters such as:

- a) Number of Classes: The number of classes or contact hours required for each subject would be taken into account. Subjects with more contact hours would result in a higher workload for the faculty teaching those subjects.
- b) Preparation and Grading Time: The time required for lesson preparation, grading assignments, and examinations would be factored in.
- c) Additional Responsibilities: Faculty members often had additional responsibilities such as guiding student projects, participating in committees, or conducting research, which would also be considered in workload calculation.
- d) Class Size and Complexity: Larger class sizes or subjects with complex content might demand more effort from the faculty, leading to a higher workload.

2.3 DIFFICULTIES AND LIMITATIONS

Despite the efforts made during the manual subject allocation and workload calculation, there were several difficulties and limitations with this approach:

- a) Time-Consuming Process: Manual allocation of subjects and workload calculation was a time-consuming task, especially for larger departments with many faculty members and subject offerings. It required significant administrative effort and coordination.
- b) Sub-Optimal Allocation: The manual process might not always lead to the most optimal allocation of subjects and workload. Faculty preferences, seniority, or other subjective factors could sometimes influence decisions, resulting in imbalanced workloads or mismatched expertise.
- c) Limited Consideration of Preferences: While teacher preferences were taken into account to some extent, it was challenging to accommodate everyone's preferences fully, leading to potential dissatisfaction among faculty members.
- d) Difficulty in Adaptation: When changes occurred, such as faculty availability, subject modifications, or enrollment variations, manually adjusting the allocations and calculations became even more challenging.
- e) Lack of Transparency: The manual process might lack transparency, and faculty members might not fully understand the criteria used for allocation and calculation, leading to feelings of unfairness or lack of involvement.
- f) Static and Inflexible: The manual method might not easily adapt to dynamic situations, making it difficult to optimize resource allocation efficiently.

CHAPTER 3

SYSTEM ARCHITECTURE

3.1 BLOCK DIAGRAM

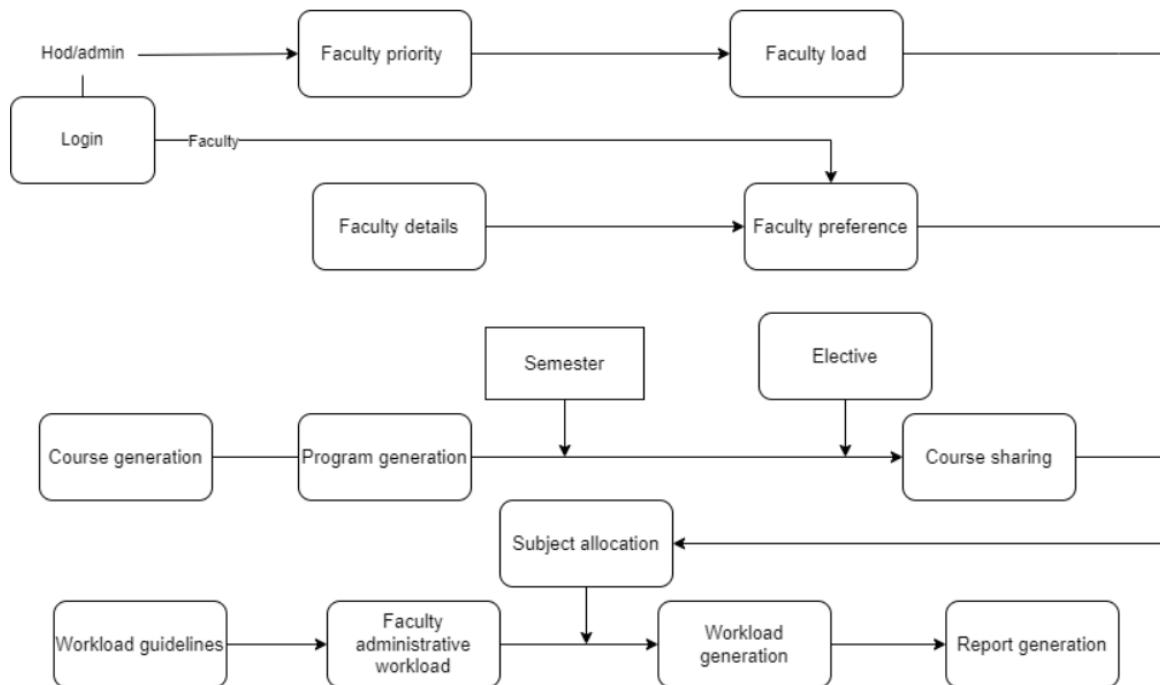


Figure 3.1 Block Diagram

Figure 3.1 depicts the block diagram of the proposed system. Below shows the component wise description of the block diagram.

- **Login :** The login page provides an option for the user to login to the website. If the user is a faculty member, the page redirects to the faculty preference page. If the user is the HoD, the page redirects to the Hod login page.
- **Faculty priority :** After the HoD login page, the HoD is displayed the page for assigning priority to faculty members. HoD may assign priority to the faculty based on their experience, expertise, seniority, etc.

- Faculty load : Hod assigns the number of theory and/or lab courses which are to be taken by faculty members.
- Faculty preference : If the user is a faculty member, the faculty is directed to the faculty preference page where the faculty chooses his/her preferred subjects.
- Faculty details : The details of faculty members are stored in a database and are referred to in the faculty preference page.
- Course generation : This module generates all the courses in a particular semester.
- Program generation : This module generates all the programs in a semester.
- Semester & Elective : The HoD selects the semester and the elective subjects of that particular program of a semester.
- Course Sharing : The course sharing page allows HoD to share courses between faculty members. The core courses are shared between two faculty members and lab courses are shared between four faculty members.
- Faculty administrative load : Refers to the non-teaching responsibilities and administrative duties that faculty members are assigned within an educational institution. In addition to their primary role as educators, faculty members often take on various administrative tasks and service commitments to contribute to the effective functioning and governance of the institution.
- Subject allocation : The algorithm allocates subjects based on subject preference and faculty priority. The algorithm starts with the highest priority faculty member as assigned by the HOD. The system attempts to allocate the faculty's first preferred subject. If the first preferred subject is already allocated to another higher priority faculty, the system tries to allocate the faculty's second preferred subject, and so on. This process continues until a subject is allocated to the faculty or all preferences are exhausted. The top-down approach ensures that higher priority

faculty members get their preferred subjects first. In the second iteration, the algorithm adopts a bottom-up approach, starting from the lowest priority faculty member. The lowest priority faculty is allocated their preferred subject first, following a similar process as in the top-down approach. The algorithm continues to allocate subjects to lower priority faculty members based on their preferences until all faculty members have at least one subject allocated. After the top-down and bottom-up approaches, some subjects may still remain unallocated. In the third iteration, the algorithm forcefully allocates the remaining unallocated subjects to faculty members to ensure maximum utilization of teaching resources. This step aims to minimize any subject gaps or unused teaching capacity. After three iterations, the algorithm verifies if all subjects have been allocated to faculty members. If any subjects remain unallocated, one more iteration is conducted to further optimize the allocation.

- Workload guidelines : Refers to the established policies and principles that define the expected amount and distribution of workload for faculty members. These guidelines aim to ensure a fair and balanced distribution of responsibilities among faculty, taking into account their teaching, research, administrative duties, and other professional commitments.

- Workload generation : Based on the workload guidelines, faculty administrative guidelines and the allocated subjects, the workload for each faculty member is generated.

- Report generation : Finally the report for the subject allocation is generated.

3.2 DATA FLOW DIAGRAM

The data flow diagram presents a visual representation of the seamless flow of information and processes within the automated system. It illustrates how faculty preferences, subject requirements, and institutional data are efficiently processed to optimize subject allocation and ensure equitable workload distribution, fostering a dynamic and transparent educational

environment.

Level 0

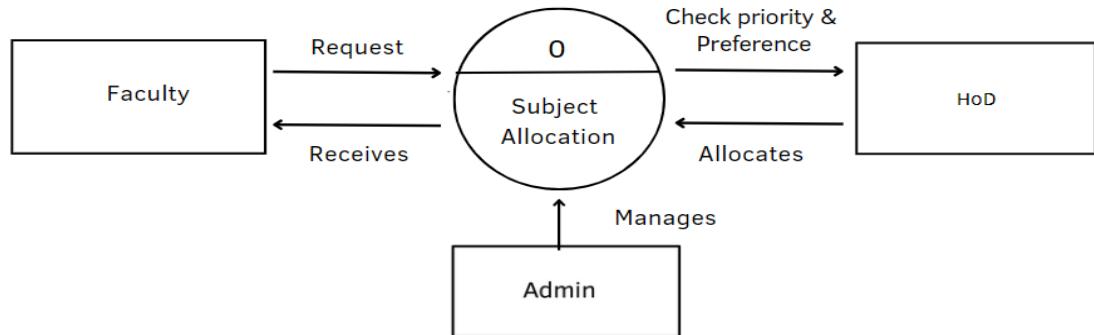


Figure 3.2 Level 0 Data flow diagram

- Figure 3.2 shows the data flow diagram in level 0 . There are three users which are Faculty, Administrator and HoD.
- The faculty requests his/her preferred subjects from the subject allocation module and the module allocates subjects based on the preferences.
- HoD assigns priority to faculty members and also provides preferred subjects. HoD receives the allocated subjects from the subject allocation module.
- The Admin/administrator manages the subject allocation process.

Level 1

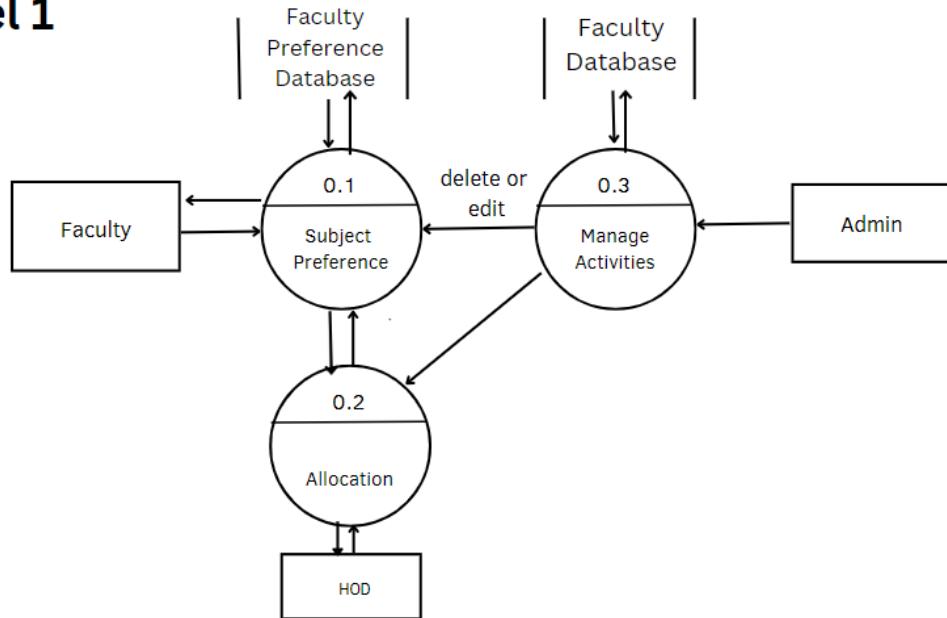


Figure 3.3 Level 1 Data flow diagram

- The data flow diagram in level 1 which expands the subject allocation module.
- Faculty chooses the preferred subjects and the faculty preference database stores the preferred subjects of faculty members.
- Admin manages the faculty details stored in the faculty database and has the power to delete or edit the preferred subjects. Admin also controls the subject allocation process.
- HoD assigns priority to faculty members and also provides preferred subjects. HoD receives the allocated subjects from the subject allocation module.

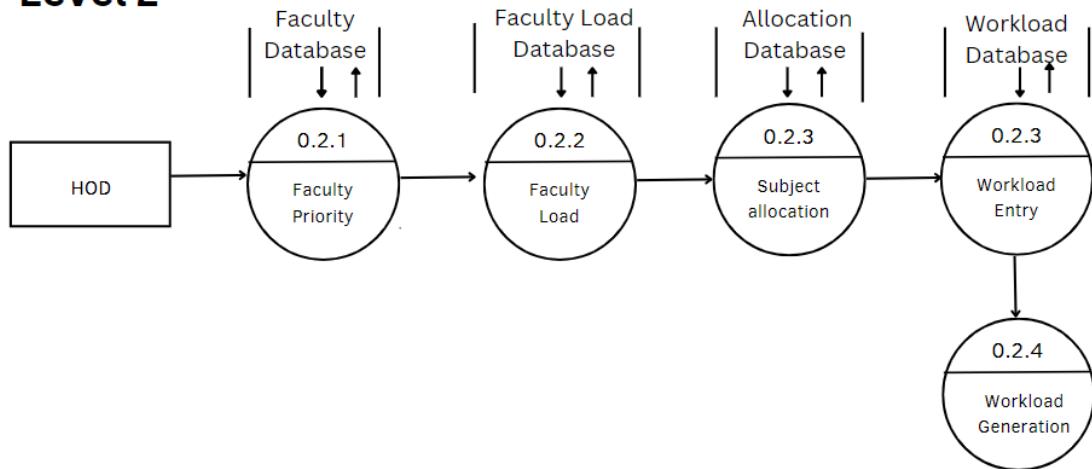
Level 2

Figure 3.4 Level 2 Data flow diagram

- HoD will assign faculty priority and store it in the faculty database.
- HoD will assign faculty load and store it in the Faculty load database.
- The allocation database stores the allocated subjects of each faculty.
- HoD assigns the workload for faculty members and stores it in the Workload database.
- Finally the workload for each faculty is generated.

3.3 DATABASE DESIGN

Faculty

Faculty	
<u>FacultyID</u>	
FacultyName	
FacultyKTUID	
FacultyPhone	
FacultyEmail	
Priority	
DepartmentID	(FK)
WorkloadID	(FK)

The faculty table contains information about faculty, which will be used to get the faculty details. It has foreign keys DepartmentID which references the Department table, WorkloadID which references the Workload Table.

Course

Course	
<u>CourseID</u>	
CourseName	
CourseCode	
CourseSem	
CourseTypeID	
CourseLecture	
CourseTutorial	
CoursePractical	
CourseTotMod	
	(FK)

The Course table contains information about the courses. The primary key in this table is CourseID.

Department

Department	
<u>DepartmentID</u>	
DepartmentName	
HODID	
EffectiveDate	

The Department table contains information about the department. The primary key

is DepartmentID.

Programme

Programme	
ProgrammeID	
ProgrammeName	
ProgrammeCode	
DepartmentID	

The Programme table contains the details about the programmes. It contains information about which programme belongs to each department. It has ProgrammeID as the primary key.

FacultyPreference

FacultyPreference	
PreferenceID	
FacultyID	
CourseID	
PreferenceOrder	
FacultyID (FK)	
CourseID (FK)	

The FacultyPreference table contains information about the preferred subjects chosen by the faculty. The primary key is PreferenceID and the foreign keys are FacultyID which references the Faculty table and CourseID which references the Course table.

SubjectAllocation

SubjectAllocation	
AllocationID	
FacultyID	
CourseID	
AllocationType	
FacultyID (FK)	
CourseID (FK)	

The SubjectAllocation table contains information about the allocated subjects. It stores the information about the faculty and the subjects allocated to the faculty. It has foreign keys as FacultyID which references the Faculty table and CourseID which references the Course table.

WorkloadCategory

Workload Category	
<u>CategoryID</u>	
CategoryName	
CategoryLoad	

The WorkloadCategory table contains information about the workload category. The CategoryID is the primary key and the other attributes are CategoryName and CategoryLoad.

WorkloadTable

WorkloadTable	
<u>WorkloadID</u>	
ProgrammeID	
FacultyID	
CategoryID	
WorkloadHours	
CategoryID (FK)	
ProgrammeID (FK)	

Table contains information about the workload of each faculty having attributes: WorkloadID as the primary key ProgrammeID, FacultyID, CategoryID, WorkloadHours. FacultyID, CategoryID, ProgrammeID are the foreign keys.

CourseSharing

CourseSharing	
<u>CourseSharingID</u>	
CourseID	
ProgrammeID	
EffectiveDate	
Description	
CourseID (FK)	
ProgrammeID (FK)	

The CourseSharing table contains information about the courses shared by the different faculty. It has CourseSharingID as the primary key. The foreign keys are CourseID which references the Course table, ProgrammeID which references the Programme table.

ElectiveCourse

ElectiveCourse	
<u>ElectiveCourseID</u>	
CourseID	
ElectiveCombination	
EffectiveDate	
Description	
CourseID (FK)	

The Elective Course table contains information about the elective courses offered in each semester. It has ElectiveCourseID as the primary key. It has CourseID as the foreign key, which references the Course table.

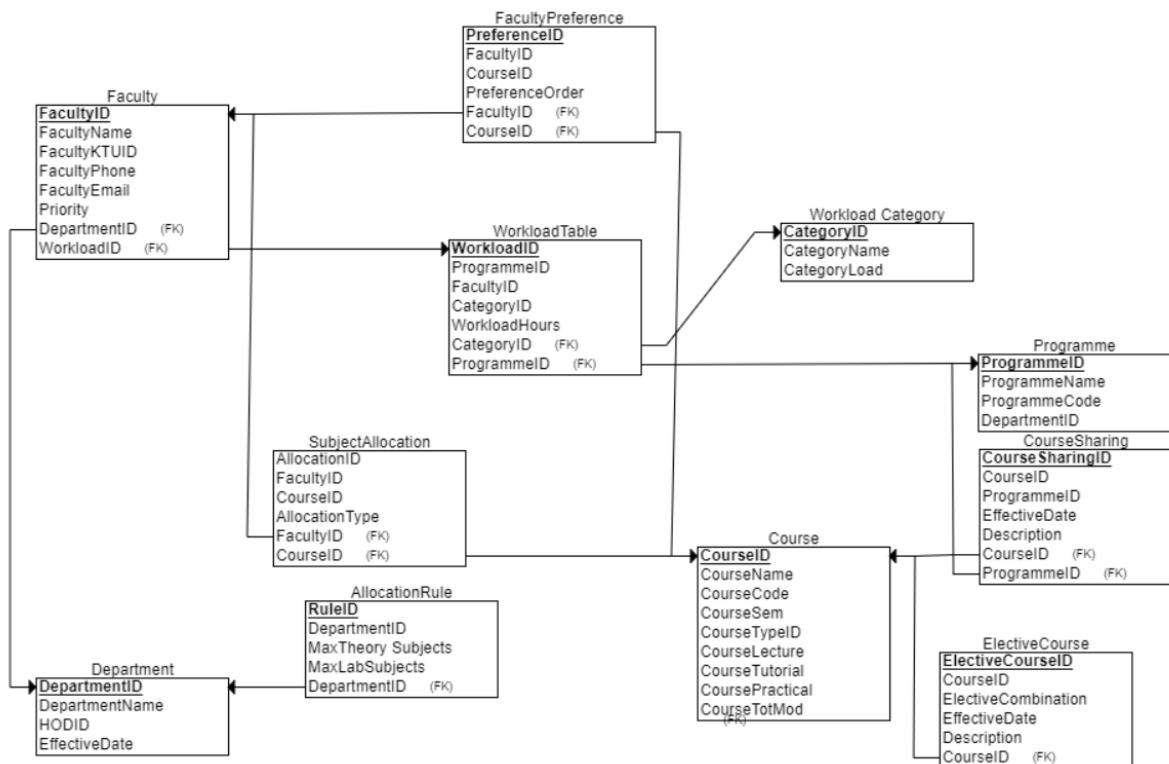


Figure 3.5 Depicts the Database design

3.4 IMPLEMENTATION REQUIREMENTS AND SCHEDULE

3.4.1 HARDWARE REQUIREMENTS

The selection of hardware configuration is a very important task related to software development, particularly inefficient RAM may adversely affect the speed and correspondingly the efficiency of the entire system. The processor should be powerful to handle all the operations. The hard disk should have sufficient capacity to solve the database and the application. The network should be efficient to handle the communication fast.

1. CPU: i3 Processor
 2. Memory: 128 MB
 3. Cache: 512KB
 4. Floppy Disk. : 1.44MB
 5. HardDisk: 4.3GB
 6. Display: 15" Monitor

-
- 7. Keyboard: Standard 108keys Enhanced KeyBoard
 - 8. Mouse: MS Serial Mouse

3.4.2 SOFTWARE REQUIREMENTS

- 1. Operating System: Windows XP, 7, 8 or above
- 2. Programming Languages and Technologies used: HTML5, CSS3, Javascript, PHP 8.2
- 3. Database: MySQL 8.0
- 4. Platform: XAMPP, Apache Server
- 5. IDE: Visual Studio Code

CHAPTER 4

ALGORITHM IMPLEMENTATION

4.1 SUBJECT ALLOCATION

The subject allocation algorithm in the "Automatic Optimization of Subject Allocation and Workload Calculation for College Teachers" project operates through several iterations, incorporating both top-down and bottom-up approaches. The head of the department (HOD) plays an administrative role, assigning priorities to faculty members and specifying the number of subjects each faculty can be allocated. The allocation process follows the following iterations:

4.1.1. First Iteration - Top-Down Approach

- The algorithm starts with the highest priority faculty member as assigned by the HOD.
- The system attempts to allocate the faculty's first preferred subject.
- If the first preferred subject is already allocated to another higher priority faculty, the system tries to allocate the faculty's second preferred subject, and so on.
- This process continues until a subject is allocated to the faculty or all preferences are exhausted.
- The top-down approach ensures that higher priority faculty members get their preferred subjects first.

OPTIMIZING SUBJECT ALLOCATION AND WORKLOAD CALCULATION

[Home](#)

Subject Allocation

Iteration 1

[Next](#)

Priority	Name	Subject
1	Dr. Poulose Jacob	200104/IT100B - Advanced Computer Networks - M1 - NE
2	Fr. Jaison Paul Mulerickal	101009/IT300E - DATABASE MANAGEMENT SYSTEMS - S3 - CU
3	Ms. Kuttyamma A J	101908/CO900E - DESIGN AND ENGINEERING - S3 - AD
4	Dr. Biju Paul	101908/CO300F - SUSTAINABLE ENGINEERING - S3 - AD
5	Dr. Neeba E A	100008/IT500C - DATA WAREHOUSING AND DATA MINING - S5 - AD
6	Dr. Sherly K K	101004/IT500B - OPERATING SYSTEM CONCEPTS - S5 - IT
7	Mr.Binu A	101903/CO300B - DATA STRUCTURES - S3 - AD
8	Dr. Lakshmi K S	101008/IT300D - OPERATING SYSTEM - S3 - AD
9	Ms. Divya James	200104 IT3XXA - Program Elective IV - M3 - NE
10	Dr. Nikhila T Bhuvan	101907/*70°C - OPEN ELECTIVE - S7 - AD
11	Ms. Chinchu Krishna	100008/IT500D - ARTIFICIAL INTELLIGENCE - S5 - AD
12	Ms. Bency Wilson	101009/IT300A - FORMAL LANGUAGE AND AUTOMATA THEORY - S3 - CU
13	Mr. Mathews Abraham	101009/IT300B - COMPUTER ORGANIZATION AND ARCHITECTURE - S3 - CU
14	Mr. Tinku Soman Jacob	-
15	Ms. Jeshmol P J	101009/IT100C - FUNDAMENTALS OF COMPUTER SCIENCE - S1 - CU
16	Dr. Priya Mariam Raju	101009/IT500F - PROGRAMME ELECTIVE I - S5 - CU
17	Dr. Ranju S Kartha	101004/IT500C - DATA COMMUNICATION AND NETWORKING - S5 - IT
18	Ms. Viji Mohan	100908/CO500F - DISASTER MANAGEMENT - S5 - IT

19	Ms. Aiswarya Mohan	101902/IT500E - MANAGEMENT FOR SOFTWARE ENGINEERS - S5 - AD
20	Ms. Taniya Shirley Stalin	101009/IT700A - USABILITY DESIGN OF SOFTWARE APPLICATIONS - S7 - CU
21	Ms. Ancy C A	101009/IT700B - IT WORKSHOP SKYLAB / MATLAB - S7 - CU
22	Mr. Ajith Jacob	101908/CO500F - DISASTER MANAGEMENT - S5 - AD
23	Ms. Diana Mathew	101008/IT722T - SEMINAR - S7 - AD
24	New faculty 1	200104/IT100D - Cloud Computing Concepts - M1 - NE
25	New Faculty 2	-
26	New Faculty 3	-

Unallocated Subjects:				
S.No	Sem	Programme	Course Code	Course Name
1	S3	IT	101004/IT300C	DIGITAL SYSTEM DESIGN
2	S3	IT	101004/IT300D	PROBLEM SOLVING USING PYTHON
3	S5	IT	101004/IT500A	WEB APPLICATION DEVELOPMENT
4	S7	IT	101004/IT70*B	PROGRAMME ELECTIVE II
5	S7	IT	101004/IT700A	DATA ANALYTICS
6	S7	AD	101008/IT70*B	PROGRAMME ELECTIVE II
7	S7	AD	101008/IT700A	TEXT MINING
8	S3	CU	101009/IT300C	OBJECT ORIENTED PROGRAMMING
9	S5	CU	101009/IT500A	SOFTWARE DESIGN WITH UML
10	S5	CU	101009/IT500B	COMPILER DESIGN
11	S7	CU	101009/IT70*E	PROGRAMME ELCTIVE III
12	S7	CU	101009/IT70*F	PROGRAMME ELECTIVE IV
13	S7	IT	10190*/*70*C	OPEN ELECTIVE
14	S5	IT	101902/IT500E	MANAGEMENT FOR SOFTWARE ENGINEERS
15	S3	IT	101903/CO300B	DATA STRUCTURES
16	S3	IT	101908/CO300F	SUSTAINABLE ENGINEERING
17	S3	IT	101908/CO900E	DESIGN AND ENGINEERING
18	M1	NE	200104/1T122G	Seminar I
19	M3	NE	200104/1T322C	Seminar II
20	M3	NE	200104/1T3XXB	Program Elective V
21	M1	NE	200104/IT1**E	Program Elective I
22	M1	NE	200104/IT100A	Theoretical Foundation in Computer Networking
23	M1	NE	200104/IT100C	Wireless & Adhoc Networks
24	M1	NE	200902/CO100F	Research methodology

Figure 4.1 First Iteration

In the first iteration, the subjects are allocated in a top down approach and shows the unallocated subjects

4.1.2. Second Iteration - Top-Down Approach

- In the second iteration, the algorithm adopts a bottom-up approach, starting from the lowest priority faculty member.
- The lowest priority faculty is allocated their preferred subject first, following a similar process as in the top-down approach.
- The algorithm continues to allocate subjects to lower priority faculty members based on their preferences until all faculty members have at least one subject allocated.

OPTIMIZING SUBJECT ALLOCATION AND WORKLOAD CALCULATION

Subject Allocation		
Iteration 2		
Priority	Name	Subject
1	Dr. Poulose Jacob	200104/IT100B - Advanced Computer Networks - M1 - NE
2	Fr. Jaison Paul Mulerickal	101009/IT300E - DATABASE MANAGEMENT SYSTEMS - S3 - CU
3	Ms. Kuttyamma A J	101908/CO900E - DESIGN AND ENGINEERING - S3 - AD
4	Dr. Biju Paul	101908/CO300F - SUSTAINABLE ENGINEERING - S3 - AD
5	Dr. Neeba E A	100008/IT500C - DATA WAREHOUSING AND DATA MINING - S5 - AD
6	Dr. Sherly K K	101004/IT500B - OPERATING SYSTEM CONCEPTS - S5 - IT
7	Mr.Binu A	101903/CO300B - DATA STRUCTURES - S3 - AD 200104/IT100C - Wireless & Adhoc Networks - M1 - NE
8	Dr. Lakshmi K S	101008/IT300D - OPERATING SYSTEM - S3 - AD 101009/IT300C - OBJECT ORIENTED PROGRAMMING - S3 - CU
9	Ms. Divya James	200104 IT3XXA - Program Elective IV - M3 - NE 200104/IT1**E - Program Elective I - M1 - NE

10	Dr. Nikhila T Bhuvan	10190/*70*C - OPEN ELECTIVE - S7 - AD
		101004/IT70*B - PROGRAMME ELECTIVE II - S7 - IT
11	Ms. Chinchu Krishna	100008/IT500D - ARTIFICIAL INTELLIGENCE - S5 - AD
		101009/IT500A - SOFTWARE DESIGN WITH UML - S5 - CU
12	Ms. Bency Wilson	101009/IT300A - FORMAL LANGUAGE AND AUTOMATA THEORY - S3 - CU
		101004/IT700A - DATA ANALYTICS - S7 - IT
13	Mr. Mathews Abraham	101009/IT300B - COMPUTER ORGANIZATION AND ARCHITECTURE - S3 - CU
		101004/IT300D - PROBLEM SOLVING USING PYTHON - S3 - IT
14	Mr. Tinku Soman Jacob	-
15	Ms. Jeshmol P J	101009/IT100C - FUNDAMENTALS OF COMPUTER SCIENCE - S1 - CU
		200104/IT3XXB - Program Elective V - M3 - NE
16	Dr. Priya Mariam Raju	101009/IT50*F - PROGRAMME ELECTIVE I - S5 - CU
17	Dr. Ranju S Kartha	101004/IT500C - DATA COMMUNICATION AND NETWORKING - S5 - IT
18	Ms. Viji Mohan	100908/CO500F - DISASTER MANAGEMENT - S5 - IT
		101004/IT500A - WEB APPLICATION DEVELOPMENT - S5 - IT
19	Ms. Aiswarya Mohan	101902/IT500E - MANAGEMENT FOR SOFTWARE ENGINEERS - S5 - AD
		200902/CO100F - Research methodology - M1 - NE
20	Ms. Taniya Shirley Stalin	101009/IT700A - USABILITY DESIGN OF SOFTWARE APPLICATIONS - S7 - CU
21	Ms. Ancy C A	101009/IT700B - IT WORKSHOP SKYLAB / MATLAB - S7 - CU
		101009/IT70*F - PROGRAMME ELECTIVE IV - S7 - CU
22	Mr. Ajith Jacob	101908/CO500F - DISASTER MANAGEMENT - S5 - AD
		101004/IT300C - DIGITAL SYSTEM DESIGN - S3 - IT
23	Ms. Diana Mathew	101008/IT722T - SEMINAR - S7 - AD
		101008/IT700A - TEXT MINING - S7 - AD
24	New faculty 1	200104/IT100D - Cloud Computing Concepts - M1 - NE
25	New Faculty 2	-
26	New Faculty 3	-

Unallocated Subjects:

S.No	Sem	Programme	Course Code	Course Name
1	S7	AD	101008/IT70*B	PROGRAMME ELECTIVE II
2	S5	CU	101009/IT500B	COMPILER DESIGN
3	S7	CU	101009/IT70*E	PROGRAMME ELECTIVE III
4	S7	IT	10190/*70*C	OPEN ELECTIVE
5	S5	IT	101902/IT500E	MANAGEMENT FOR SOFTWARE ENGINEERS
6	S3	IT	101903/CO300B	DATA STRUCTURES
7	S3	IT	101908/CO300F	SUSTAINABLE ENGINEERING
8	S3	IT	101908/CO900E	DESIGN AND ENGINEERING
9	M1	NE	200104/IT122G	Seminar I
10	M3	NE	200104/IT322C	Seminar II
11	M1	NE	200104/IT100A	Theoretical Foundation in Computer Networking

Footer

Figure 4.2 Depicts the Second Iteration

In the Second Iteration, the subjects are allocated in a bottom-up approach and the unallocated subjects are shown.

4.1.3. Third Iteration - Forced Allocation

- After the top-down and bottom-up approaches, some subjects may still remain unallocated.
- In the third iteration, the algorithm forcefully allocates the remaining unallocated

subjects to faculty members to ensure maximum utilization of teaching resources.

- This step aims to minimize any subject gaps or unused teaching capacity.

OPTIMIZING SUBJECT ALLOCATION AND WORKLOAD CALCULATION

[Home](#)

Subject Allocation

Iteration 3

[Next](#)

Priority	Name	Subject
1	Dr. Poulose Jacob	200104/IT100B - Advanced Computer Networks - M1 - NE
2	Fr. Jaison Paul Mulerrickal	101009/IT300E - DATABASE MANAGEMENT SYSTEMS - S3 - CU
3	Ms. Kuttyamma A J	101908/CO900E - DESIGN AND ENGINEERING - S3 - AD
4	Dr. Biju Paul	101908/CO300F - SUSTAINABLE ENGINEERING - S3 - AD
5	Dr. Neeba E A	100008/IT500C - DATA WAREHOUSING AND DATA MINING - S5 - AD
6	Dr. Sherly K K	101004/IT500B - OPERATING SYSTEM CONCEPTS - S5 - IT
		200104/IT100A - Theoretical Foundation in Computer Networking - M1 - NE
7	Mr. Binu A	101903/CO300B - DATA STRUCTURES - S3 - AD
		200104/IT100C - Wireless & Adhoc Networks - M1 - NE
		200104/IT322C - Seminar II - M3 - NE
8	Dr. Lakshmi K S	101008/IT300D - OPERATING SYSTEM - S3 - AD
		101009/IT300C - OBJECT ORIENTED PROGRAMMING - S3 - CU
9	Ms. Divya James	200104 IT3XXA - Program Elective IV - M3 - NE
		200104/IT1**E - Program Elective I - M1 - NE
10	Dr. Nikhil T Bhuvan	10190**70*C - OPEN ELECTIVE - S7 - AD
		101004/IT70*B - PROGRAMME ELECTIVE II - S7 - IT
11	Ms. Chinchu Krishna	100008/IT500D - ARTIFICIAL INTELLIGENCE - S5 - AD
		101009/IT500A - SOFTWARE DESIGN WITH UML - S5 - CU
		200104/IT122G - Seminar I - M1 - NE
12	Ms. Bency Wilson	101009/IT300A - FORMAL LANGUAGE AND AUTOMATA THEORY - S3 - CU
		101004/IT700A - DATA ANALYTICS - S7 - IT
		101908/CO900E - DESIGN AND ENGINEERING - S3 - IT
13	Mr. Mathews Abraham	101009/IT300B - COMPUTER ORGANIZATION AND ARCHITECTURE - S3 - CU
		101004/IT300D - PROBLEM SOLVING USING PYTHON - S3 - IT
14	Mr. Tinku Soman Jacob	101908/CO300F - SUSTAINABLE ENGINEERING - S3 - IT
15	Ms. Jeshmol P J	101009/IT100C - FUNDAMENTALS OF COMPUTER SCIENCE - S1 - CU
		200104/IT3XXB - Program Elective V - M3 - NE
16	Dr. Priya Mariam Raju	101009/IT50*F - PROGRAMME ELECTIVE I - S5 - CU
		101903/CO300B - DATA STRUCTURES - S3 - IT
17	Dr. Ranju S Kartha	101004/IT500C - DATA COMMUNICATION AND NETWORKING - S5 - IT
		101902/IT500E - MANAGEMENT FOR SOFTWARE ENGINEERS - S5 - IT

18	Ms. Viji Mohan	100908/CO500F - DISASTER MANAGEMENT - S5 - IT 101004/IT500A - WEB APPLICATION DEVELOPMENT - S5 - IT
19	Ms. Aiswarya Mohan	101902/IT500E - MANAGEMENT FOR SOFTWARE ENGINEERS - S5 - AD 200902/CO100F - Research methodology - M1 - NE
20	Ms. Taniya Shirley Stalin	101009/IT700A - USABILITY DESIGN OF SOFTWARE APPLICATIONS - S7 - CU 10190**70*C - OPEN ELECTIVE - S7 - IT
21	Ms. Ancy C A	101009/IT700B - IT WORKSHOP SKYLAB / MATLAB - S7 - CU 101009/IT701F - PROGRAMME ELECTIVE IV - S7 - CU
22	Mr. Ajith Jacob	101908/CO500F - DISASTER MANAGEMENT - S5 - AD 101004/IT300C - DIGITAL SYSTEM DESIGN - S3 - IT
23	Ms. Diana Mathew	101008/IT722T - SEMINAR - S7 - AD 101008/IT700A - TEXT MINING - S7 - AD
24	New faculty 1	200104/IT100D - Cloud Computing Concepts - M1 - NE 101009/IT701E - PROGRAMME ELCTIVE III - S7 - CU
25	New Faculty 2	101009/IT500B - COMPILER DESIGN - S5 - CU
26	New Faculty 3	101008/IT701B - PROGRAMME ELECTIVE II - S7 - AD

Unallocated Subjects:

S.No	Sem	Programme	Course Code	Course Name
-	-	-	-	-

Figure 4.3 Third Iteration

In the third iteration, the subjects are again allocating subjects in bottom-up approach and the unallocated subjects are shown

4.1.4. Fourth Iteration - Final Allocation Check

- After three iterations, the algorithm verifies if all subjects have been allocated to faculty members.
- If any subjects remain unallocated, one more iteration is conducted to further optimize the allocation.

OPTIMIZING SUBJECT ALLOCATION AND WORKLOAD CALCULATION		
		Home
Subject Allocation		
Iteration 4		Submit
Priority	Name	Subject
1	Dr. Poulose Jacob	200104/IT100B - Advanced Computer Networks - M1 - NE Edit
2	Fr. Jaison Paul Mulerickal	101009/IT300E - DATABASE MANAGEMENT SYSTEMS - S3 - CU Edit
3	Ms. Kuttyamma A J	101908/CO900E - DESIGN AND ENGINEERING - S3 - AD Edit
4	Dr. Biju Paul	101908/CO300F - SUSTAINABLE ENGINEERING - S3 - AD Edit
5	Dr. Neeba E A	100008/IT500C - DATA WAREHOUSING AND DATA MINING - S5 - AD Edit
6	Dr. Sherly K K	101004/IT500B - OPERATING SYSTEM CONCEPTS - S5 - IT 200104/IT100A - Theoretical Foundation in Computer Networking - M1 - NE Edit
7	Mr.Binu A	101903/CO300B - DATA STRUCTURES - S3 - AD 200104/IT100C - Wireless & Adhoc Networks - M1 - NE 200104/IT322C - Seminar II - M3 - NE Edit
8	Dr. Lakshmi K S	101008/IT300D - OPERATING SYSTEM - S3 - AD 101009/IT300C - OBJECT ORIENTED PROGRAMMING - S3 - CU Edit
9	Ms. Divya James	200104 IT3XXA - Program Elective IV - M3 - NE 200104/IT1**E - Program Elective I - M1 - NE Edit
10	Dr. Nikhila T Bhuvan	10190**70C - OPEN ELECTIVE - S7 - AD 101004/IT707B - PROGRAMME ELECTIVE II - S7 - IT Edit
11	Ms. Chinchu Krishna	100008/IT500D - ARTIFICIAL INTELLIGENCE - S5 - AD 101009/IT500A - SOFTWARE DESIGN WITH UML - S5 - CU 200104/IT122G - Seminar I - M1 - NE Edit
12	Ms. Bency Wilson	101009/IT300A - FORMAL LANGUAGE AND AUTOMATA THEORY - S3 - CU 101004/IT700A - DATA ANALYTICS - S7 - IT 101908/CO900E - DESIGN AND ENGINEERING - S3 - IT Edit
13	Mr. Mathews Abraham	101009/IT300B - COMPUTER ORGANIZATION AND ARCHITECTURE - S3 - CU 101004/IT300D - PROBLEM SOLVING USING PYTHON - S3 - IT Edit
14	Mr. Tinku Soman Jacob	101908/CO300F - SUSTAINABLE ENGINEERING - S3 - IT Edit
15	Ms. Jeshmol P J	101009/IT100C - FUNDAMENTALS OF COMPUTER SCIENCE - S1 - CU 200104/IT3XXB - Program Elective V - M3 - NE Edit
16	Dr. Priya Mariam Raju	101009/IT507F - PROGRAMME ELECTIVE I - S5 - CU 101903/CO300B - DATA STRUCTURES - S3 - IT Edit

17	Dr. Ranju S Kartha	Edit	101004/IT500C - DATA COMMUNICATION AND NETWORKING - S5 - IT 101902/IT500E - MANAGEMENT FOR SOFTWARE ENGINEERS - S5 - IT
18	Ms. Viji Mohan	Edit	100908/CO500F - DISASTER MANAGEMENT - S5 - IT 101004/IT500A - WEB APPLICATION DEVELOPMENT - S5 - IT
19	Ms. Aiswarya Mohan	Edit	101902/IT500E - MANAGEMENT FOR SOFTWARE ENGINEERS - S5 - AD 200902/CO100F - Research methodology - M1 - NE
20	Ms. Taniya Shirley Stalin	Edit	101009/IT700A - USABILITY DESIGN OF SOFTWARE APPLICATIONS - S7 - CU 10190**70°C - OPEN ELECTIVE - S7 - IT
21	Ms. Ancy C A	Edit	101009/IT700B - IT WORKSHOP SKYLAB / MATLAB - S7 - CU 101009/IT700F - PROGRAMME ELECTIVE IV - S7 - CU
22	Mr. Ajith Jacob	Edit	101908/CO500F - DISASTER MANAGEMENT - S5 - AD 101004/IT300G - DIGITAL SYSTEM DESIGN - S3 - IT
23	Ms. Diana Mathew	Edit	101008/IT722T - SEMINAR - S7 - AD 101008/IT700A - TEXT MINING - S7 - AD
24	New faculty 1	Edit	200104/IT100D - Cloud Computing Concepts - M1 - NE 101009/IT700E - PROGRAMME ELECTIVE III - S7 - CU
25	New Faculty 2	Edit	101009/IT500B - COMPILER DESIGN - S5 - CU
26	New Faculty 3	Edit	101008/IT700B - PROGRAMME ELECTIVE II - S7 - AD

Unallocated Subjects:

S.No	Sem	Programme	Course Code	Course Name
-	-	-	-	-

Figure 4.4 Fourth Iteration

In the fourth iteration, it is verified that all the subjects are allocated. The edit option is enabled which allows the manual edit of the allocated subjects.

4.1.5. Edit Button for Manual Adjustments

- In the fourth iteration, the system displays an "Edit" button, allowing the HOD or college administrators to manually review and adjust the allocated subjects if needed.
- During the manual edit, the system ensures that no duplicate subjects are allocated to any faculty members.

OPTIMIZING SUBJECT ALLOCATION AND WORKLOAD CALCULATION

Home

Subject Allocation

Edit

Priority	Name	Subject
1	Dr. Poulose Jacob	200104/IT100B - Advanced Computer Networks - M1 - NE
2	Fr. Jaison Paul Mulerickal	<input style="width: 100%; height: 25px; border: 1px solid #ccc; border-radius: 5px; margin-bottom: 5px;" type="text" value="Select Subject"/> Select Subject
3	Ms. Kuttyamma A J	101908/CO900E - DESIGN AND ENGINEERING - S3 - AD
4	Dr. Biju Paul	101908/CO300F - SUSTAINABLE ENGINEERING - S3 - AD
5	Dr. Neeba E A	100008/IT500C - DATA WAREHOUSING AND DATA MINING - S5 - AD
6	Dr. Sherly K K	101004/IT500B - OPERATING SYSTEM CONCEPTS - S5 - IT M1 NE : Theoretical Foundation in Computer Networking
7	Mr.Binu A	101903/CO300B - DATA STRUCTURES - S3 - AD M1 NE : Wireless & Adhoc Networks M3 NE : Seminar II

Submit

Figure 4.5 Editing the subjects of faculty

OPTIMIZING SUBJECT ALLOCATION AND WORKLOAD CALCULATION

Home

Subject Allocation

Edit

Priority	Name	Subject
1	Dr. Poulose Jacob	200104/IT100B - Advanced Computer Networks - M1 - NE
2	Fr. Jaison Paul Mulerickal	<input style="width: 100%; height: 25px; border: 1px solid #ccc; border-radius: 5px; margin-bottom: 5px;" type="text" value="Select Subject"/> Select Subject
3	Ms. Kuttyamma A J	101009/IT500B - COMPILER DESIGN
4	Dr. Biju Paul	101009/IT300B - COMPUTER ORGANIZATION AND ARCHITECTURE
5	Dr. Neeba E A	101004/IT500C - DATA COMMUNICATION AND NETWORKING
6	Dr. Sherly K K	101903/CO300B - DATA STRUCTURES 100005/IT500B - DATA WAREHOUSING AND DATA MINING 101009/CO900E - DATABASE MANAGEMENT SYSTEMS 101908/CO900E - DESIGN AND ENGINEERING 101908/CO900E - DESIGN AND ENGINEERING 101004/IT300C - DIGITAL SYSTEM DESIGN 101908/CO500F - DISASTER MANAGEMENT 100008/CO500F - DISASTER MANAGEMENT 101009/IT300A - FORMAL LANGUAGE AND AUTOMATA THEORY 101009/IT100C - FUNDAMENTALS OF COMPUTER SCIENCE 101009/IT700B - IT WORKSHOP SKYLAB / MATLAB M1 NE : Wireless & Adhoc Networks
7	Mr.Binu A	M3 NE : Seminar II

Submit

Figure 4.6 Dropdown menu showing the subjects to be allocated

OPTIMIZING SUBJECT ALLOCATION AND WORKLOAD CALCULATION

[Home](#)

Subject Allocation

Edit

Priority	Name	Subject
1	Dr. Poulose Jacob	200104/IT100B - Advanced Computer Networks - M1 - NE
2	Fr. Jaison Paul Mulerickal	<input style="width: 100%;" type="text" value="200104/IT100D - Cloud Computing Concepts"/> Submit
3	Ms. Kuttyamma A J	101908/CO900E - DESIGN AND ENGINEERING - S3 - AD
4	Dr. Biju Paul	101908/CO300F - SUSTAINABLE ENGINEERING - S3 - AD
5	Dr. Neeba E A	100008/IT500C - DATA WAREHOUSING AND DATA MINING - S5 - AD
6	Dr. Sherly K K	101004/IT500B - OPERATING SYSTEM CONCEPTS - S5 - IT M1 NE : Theoretical Foundation in Computer Networking
7	Mr.Binu A	101903/CO300B - DATA STRUCTURES - S3 - AD M1 NE : Wireless & Adhoc Networks M3 NE : Seminar II

Figure 4.7 New subject selected to be allocated and submitted

4.1.6. Duplicate Subjects Check and Resolution

- The system checks for any duplicate subject allocations among faculty members after the manual edit.
- If any duplicates are found, the HOD is prompted to resolve the issue by swapping the subjects between affected faculty members.
- The goal is to ensure that each subject is allocated to only one faculty member and avoid any overlaps.

OPTIMIZING SUBJECT ALLOCATION AND WORKLOAD CALCULATION

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Subject Allocation

Duplicates Found

Name	Subject
New faculty 1	200104/IT100D - Cloud Computing Concepts - M1 - NE
Fr. Jaison Paul Mulerickal	200104/IT100D - Cloud Computing Concepts - M1 - NE

Current Allocation

[Submit](#)

Priority	Name	Subject
1	Dr. Poulose Jacob	Edit 200104/IT100B - Advanced Computer Networks - M1 - NE
2	Fr. Jaison Paul Mulerickal	Edit 200104/IT100D - Cloud Computing Concepts - M1 - NE
3	Ms. Kuttyamma A J	Edit 101908/CO900E - DESIGN AND ENGINEERING - S3 - AD

Figure 4.8 Details of the duplicate subjects with the faculty name is displayed

		S5 IT : WEB APPLICATION DEVELOPMENT
19	Ms. Aiswarya Mohan	101902/IT500E - MANAGEMENT FOR SOFTWARE ENGINEERS - S5 - AD M1 NE : Research methodology
20	Ms. Tanya Shirley Stalin	101009/IT700A - USABILITY DESIGN OF SOFTWARE APPLICATIONS - S7 - CU S7 AD : OPEN ELECTIVE
21	Ms. Ancy C A	101009/IT700B - IT WORKSHOP SKYLAB / MATLAB - S7 - CU S7 CU : PROGRAMME ELECTIVE IV
22	Mr. Ajith Jacob	101908/CO500F - DISASTER MANAGEMENT - S5 - AD S3 IT : DIGITAL SYSTEM DESIGN
23	Ms. Diana Mathew	101008/IT722T - SEMINAR - S7 - AD S7 AD : TEXT MINING
24	New faculty 1	<input type="text" value="Select Subject"/> <input type="text" value="Select Subject"/> Submit
25	New Faculty 2	101009/IT500B - COMPILER DESIGN - S5 - CU
26	New Faculty 3	101008/IT70*B - PROGRAMME ELECTIVE II - S7 - AD

Unallocated Subjects:

Figure 4.9 Editing the subjects of New Faculty 1 to avoid duplicates

		S5 IT : WEB APPLICATION DEVELOPMENT
19	Ms. Aiswarya Mohan	101902/IT500E - MANAGEMENT FOR SOFTWARE ENGINEERS - S5 - AD
M1 NE : Research methodology		
20	Ms. Taniya Shirley Stalin	101009/IT700A - USABILITY DESIGN OF SOFTWARE APPLICATIONS - S7 - CU
S7 AD : OPEN ELECTIVE		
21	Ms. Ancy C A	101009/IT700B - IT WORKSHOP SKYLAB / MATLAB - S7 - CU
S7 CU : PROGRAMME ELECTIVE IV		
22	Mr. Ajith Jacob	101908/CO500F - DISASTER MANAGEMENT - S5 - AD
S3 IT : DIGITAL SYSTEM DESIGN		
23	Ms. Diana Mathew	101008/IT722T - SEMINAR - S7 - AD
S7 AD : TEXT MINING		
24	New faculty 1	101009/IT300E - DATABASE MANAGEMENT SYSTEMS
101009/IT700E - PROGRAMME ELECTIVE III		
		<input type="button" value="Submit"/>
25	New Faculty 2	101009/IT500B - COMPILER DESIGN - S5 - CU
26	New Faculty 3	101008/IT700B - PROGRAMME ELECTIVE II - S7 - AD

Unallocated Subjects:

S.No	Sem	Programme	Course Code	Course Name
1	S3	CU	101009/IT300E	DATABASE MANAGEMENT SYSTEMS

Figure 4.10 Selecting the subjects of New Faculty

OPTIMIZING SUBJECT ALLOCATION AND WORKLOAD CALCULATION

[Home](#)

Subject Allocation

Current Allocation

Priority	Name	Subject
1	Dr. Poulose Jacob	200104/IT100B - Advanced Computer Networks - M1 - NE
2	Fr. Jaison Paul Mulerrickal	200104/IT100D - Cloud Computing Concepts - M1 - NE
3	Ms. Kuttyamma A J	101908/CO900E - DESIGN AND ENGINEERING - S3 - AD
4	Dr. Biju Paul	101908/CO300F - SUSTAINABLE ENGINEERING - S3 - AD
5	Dr. Neeba E A	100008/IT500C - DATA WAREHOUSING AND DATA MINING - S5 - AD
6	Dr. Sherly K K	101004/IT500B - OPERATING SYSTEM CONCEPTS - S5 - IT 200104/IT100A - Theoretical Foundation in Computer Networking - M1 - NE

7	Mr.Binu A	Edit	101903/CO300B - DATA STRUCTURES - S3 - AD 200104/IT100C - Wireless & Adhoc Networks - M1 - NE 200104/IT322C - Seminar II - M3 - NE
8	Dr. Lakshmi K S	Edit	101008/IT300D - OPERATING SYSTEM - S3 - AD 101009/IT300C - OBJECT ORIENTED PROGRAMMING - S3 - CU
9	Ms. Divya James	Edit	200104 IT3XXA - Program Elective IV - M3 - NE 200104/IT1**E - Program Elective I - M1 - NE
10	Dr. Nikhila T Bhuvan	Edit	10190***70*C - OPEN ELECTIVE - S7 - AD 101004/IT70*B - PROGRAMME ELECTIVE II - S7 - IT 100008/IT500D - ARTIFICIAL INTELLIGENCE - S5 - AD
11	Ms. Chinchu Krishna	Edit	101009/IT500A - SOFTWARE DESIGN WITH UML - S5 - CU 200104/IT122G - Seminar I - M1 - NE
12	Ms. Bency Wilson	Edit	101009/IT300A - FORMAL LANGUAGE AND AUTOMATA THEORY - S3 - CU 101004/IT700A - DATA ANALYTICS - S7 - IT 101908/CO900E - DESIGN AND ENGINEERING - S3 - AD
13	Mr. Mathews Abraham	Edit	101009/IT300B - COMPUTER ORGANIZATION AND ARCHITECTURE - S3 - CU 101004/IT300D - PROBLEM SOLVING USING PYTHON - S3 - IT
14	Mr. Tinku Soman Jacob	Edit	101908/CO300F - SUSTAINABLE ENGINEERING - S3 - IT
15	Ms. Jeshmol P J	Edit	101009/IT100C - FUNDAMENTALS OF COMPUTER SCIENCE - S1 - CU 200104/IT3XXB - Program Elective V - M3 - NE
16	Dr. Priya Mariam Raju	Edit	101009/IT50*F - PROGRAMME ELECTIVE I - S5 - CU 101903/CO300B - DATA STRUCTURES - S3 - AD
17	Dr. Ranju S Kartha	Edit	101004/IT500C - DATA COMMUNICATION AND NETWORKING - S5 - IT 101902/IT500E - MANAGEMENT FOR SOFTWARE ENGINEERS - S5 - AD
18	Ms. Viji Mohan	Edit	100908/CO500F - DISASTER MANAGEMENT - S5 - IT 101004/IT500A - WEB APPLICATION DEVELOPMENT - S5 - IT
19	Ms. Alswarya Mohan	Edit	101902/IT500E - MANAGEMENT FOR SOFTWARE ENGINEERS - S5 - AD 200902/CO100F - Research methodology - M1 - NE
20	Ms. Taniya Shirley Stalin	Edit	101009/IT700A - USABILITY DESIGN OF SOFTWARE APPLICATIONS - S7 - CU 10190***70*C - OPEN ELECTIVE - S7 - AD
21	Ms. Ancy C A	Edit	101009/IT700B - IT WORKSHOP SKYLAB / MATLAB - S7 - CU 101009/IT70*F - PROGRAMME ELECTIVE IV - S7 - CU
22	Mr. Ajith Jacob	Edit	101908/CO500F - DISASTER MANAGEMENT - S5 - AD 101004/IT300C - DIGITAL SYSTEM DESIGN - S3 - IT
23	Ms. Diana Mathew	Edit	101008/IT722T - SEMINAR - S7 - AD 101008/IT700A - TEXT MINING - S7 - AD
24	New faculty 1	Edit	101009/IT300E - DATABASE MANAGEMENT SYSTEMS - S3 - CU 101009/IT70*E - PROGRAMME ELCTIVE III - S7 - CU
25	New Faculty 2	Edit	101009/IT500B - COMPILER DESIGN - S5 - CU
26	New Faculty 3	Edit	101008/IT70*B - PROGRAMME ELECTIVE II - S7 - AD

Unallocated Subjects:

S.No	Sem	Programme	Course Code	Course Name
-	-	-	-	-

Figure 4.11 Subjects Allocated After Edit

4.1.7. Final Submission and Report

- Once the manual edit and duplicate resolution are completed, the final subject

allocation is submitted and confirmed by the HOD.

- The system generates a comprehensive final report, showcasing the optimized subject allocation and workload distribution for each faculty member.
- The report provides valuable insights to the HOD and college administrators for resource management and future academic planning.

OPTIMIZING SUBJECT ALLOCATION AND WORKLOAD CALCULATION

[Home](#)

Subject Allocation

Submit Successful!

Final Allocation:

Priority	Name	Subject
1	Dr. Poulose Jacob	200104/IT100B - Advanced Computer Networks - M1 - NE
2	Fr. Jaison Paul Mulerickal	200104/IT100D - Cloud Computing Concepts - M1 - NE
3	Ms. Kuttyamma A.J	101908/CO900E - DESIGN AND ENGINEERING - S3 - AD
4	Dr. Biju Paul	101908/CO300F - SUSTAINABLE ENGINEERING - S3 - AD
5	Dr. Neeba E A	100008/IT500C - DATA WAREHOUSING AND DATA MINING - S5 - AD
6	Dr. Sherly K K	101004/IT500B - OPERATING SYSTEM CONCEPTS - S5 - IT
		200104/IT100A - Theoretical Foundation in Computer Networking - M1 - NE
7	Mr.Binu A	101903/CO300B - DATA STRUCTURES - S3 - AD
		200104/IT100C - Wireless & Adhoc Networks - M1 - NE
		200104/IT322C - Seminar II - M3 - NE
8	Dr. Lakshmi K S	101008/IT300D - OPERATING SYSTEM - S3 - AD
		101009/IT300C - OBJECT ORIENTED PROGRAMMING - S3 - CU
9	Ms. Divya James	200104 IT3XXA - Program Elective IV - M3 - NE
		200104/IT1**E - Program Elective I - M1 - NE
10	Dr. Nikhila T Bhuvan	10190**70*C - OPEN ELECTIVE - S7 - AD
		101004/IT70*B - PROGRAMME ELECTIVE II - S7 - IT
11	Ms. Chinchu Krishna	100008/IT500D - ARTIFICIAL INTELLIGENCE - S5 - AD
		101009/IT500A - SOFTWARE DESIGN WITH UML - S5 - CU
		200104/IT122G - Seminar I - M1 - NE
12	Ms. Bency Wilson	101009/IT300A - FORMAL LANGUAGE AND AUTOMATA THEORY - S3 - CU
		101004/IT700A - DATA ANALYTICS - S7 - IT
		101908/CO900E - DESIGN AND ENGINEERING - S3 - AD
13	Mr. Mathews Abraham	101009/IT300B - COMPUTER ORGANIZATION AND ARCHITECTURE - S3 - CU
		101004/IT300D - PROBLEM SOLVING USING PYTHON - S3 - IT
14	Mr. Tinku Soman Jacob	101908/CO300F - SUSTAINABLE ENGINEERING - S3 - IT
		101009/IT100C - FUNDAMENTALS OF COMPUTER SCIENCE - S1 - CU
15	Ms. Jeshmol P J	200104/IT3XXB - Program Elective V - M3 - NE
		101009/IT50*F - PROGRAMME ELECTIVE I - S5 - CU
16	Dr. Priya Mariam Raju	101903/CO300B - DATA STRUCTURES - S3 - AD

17	Dr. Ranju S Kartha	101004/IT500C - DATA COMMUNICATION AND NETWORKING - S5 - IT 101902/IT500E - MANAGEMENT FOR SOFTWARE ENGINEERS - S5 - AD
18	Ms. Viji Mohan	100908/CO500F - DISASTER MANAGEMENT - S5 - IT 101004/IT500A - WEB APPLICATION DEVELOPMENT - S5 - IT
19	Ms. Aliswarya Mohan	101902/IT500E - MANAGEMENT FOR SOFTWARE ENGINEERS - S5 - AD 200902/CO100F - Research methodology - M1 - NE
20	Ms. Tanya Shirley Stain	101009/IT700A - USABILITY DESIGN OF SOFTWARE APPLICATIONS - S7 - CU 10190*/*70*C - OPEN ELECTIVE - S7 - AD
21	Ms. Ancy C A	101009/IT700B - IT WORKSHOP SKYLAB / MATLAB - S7 - CU 101009/IT70*F - PROGRAMME ELECTIVE IV - S7 - CU
22	Mr. Ajith Jacob	101908/CO500F - DISASTER MANAGEMENT - S5 - AD 101004/IT300C - DIGITAL SYSTEM DESIGN - S3 - IT
23	Ms. Diana Mathew	101008/IT722T - SEMINAR - S7 - AD 101008/IT700A - TEXT MINING - S7 - AD
24	New faculty 1	101009/IT300E - DATABASE MANAGEMENT SYSTEMS - S3 - CU 101009/IT70*E - PROGRAMME ELECTIVE III - S7 - CU
25	New Faculty 2	101009/IT500B - COMPILER DESIGN - S5 - CU
26	New Faculty 3	101008/IT70*B - PROGRAMME ELECTIVE II - S7 - AD

Figure 4.12 After Submit Showing Final Allocation

By incorporating a multi-iteration approach and allowing for manual adjustments, the subject allocation algorithm ensures an efficient, fair, and optimized distribution of subjects to college faculty members, aligning with their preferences and qualifications while promoting academic excellence within the institution.

4.2 WORKLOAD CALCULATION

4.2.1 Retrieve Values from Table using SQL Queries

- Connect to the database containing the desired table.
- Formulate SQL queries to select the relevant data from the table.
- Execute the queries and fetch the data.

4.2.2 Apply Formulas and Manipulations to the Data

- Process the retrieved data using the necessary calculations, transformations, and formulas as required by the project's logic.
- Apply any required data manipulations, such as filtering, aggregating, or sorting

the data.

4.2.3 Present Processed Data as an HTML Table

- Generate an HTML template or structure to create a table representation.
- Populate the HTML table with the processed data obtained from Step 2.
- Style the HTML table using CSS to ensure a visually appealing and user-friendly presentation.

4.2.4 Export the HTML Table Data to Excel

- Utilize libraries or tools to convert the HTML table into an Excel-compatible format (e.g., .xlsx).
- Map the table data to the appropriate cells and formatting in the Excel file.
- Save the Excel file to the desired location, making it accessible for further analysis or distribution.

CHAPTER 5 CONCLUSION

Through the successful development and implementation of our project on "Automatic Subject Allocation and Workload Calculation for Teachers" at our college, we have achieved significant milestones in improving the academic management process and fostering a more efficient and equitable environment for both faculty members and the college administration.

Our project commences with a secure and user-friendly login page, enabling teachers and Heads of Departments (HODs) to access the system using their unique faculty ID. Once logged in, HODs are directed to their personalized homepage, where they gain access to various essential functionalities that streamline the subject allocation and workload calculation process.

The project's core features include the following key processes:

1. Faculty Load Definition: HODs have the authority to define faculty loads, encompassing the allocation of theory and lab hours for individual teachers. By giving HODs the power to make these decisions, the project ensures that the distribution of teaching responsibilities is aligned with the expertise and preferences of faculty members, optimizing their overall performance.
2. Faculty Priority Assignment: Another critical aspect of the project is the "Faculty Priority" feature, empowering HODs to assign priority levels to teachers based on their qualifications, experience, and other relevant factors. This ensures that the most suitable faculty members are assigned to preferred subjects, thereby enhancing the quality of education and faculty satisfaction.
3. Subject Allocation: With the aid of the prioritization system, HODs allocate subjects to teachers based on their respective priority levels. This data-driven approach ensures a fair and balanced distribution of subjects among faculty members,

avoiding overloading certain individuals while utilizing the college's teaching resources effectively.

4. Workload Generation: The system then calculates the workload for each faculty member, considering the assigned subjects, theory and lab hours, and other relevant factors. This automated workload calculation eliminates potential errors and discrepancies, leading to a more accurate and balanced workload distribution.

5. Comprehensive Project Report: Throughout the project's implementation, detailed records and reports are generated, providing valuable insights for the college administration. These reports capture information on subject allocation, workload distribution, faculty preferences, and overall performance, facilitating data-driven decision-making for continuous improvement.

In conclusion, the successful realization of the "Automatic Subject Allocation and Workload Calculation for Teachers" project marks a significant milestone in enhancing the efficiency, transparency, and fairness of academic operations within our college. By empowering HODs with data-driven tools to allocate subjects and define faculty loads, the project optimizes resource utilization while ensuring faculty members receive a workload that aligns with their expertise and preferences. The system's adaptability and scalability ensure its long-term relevance, while the comprehensive project reports pave the way for evidence-based decisions and continuous enhancements in the college's academic processes.

As we embrace the future with this innovative system, we envision a more productive and harmonious learning environment, promoting the overall growth and success of our college's academic community.

APPENDIX A

PSEUDO CODE

SUBJECT ALLOCATION

```
<?php
include("allocation functions edit 05-07-2023.php");
$_SESSION['itercount']=1;
?>
<!DOCTYPE html>
<html>
    <head>
        <title>Subject Allocation</title>
    </head>
    <link rel="stylesheet" type="text/css" href="style.css">
</head>
<body>
    <div id="wrapper-div">
        <div id="logo-div"></div>

        <div id="nav-div">
            <button onclick="document.location='adminhome.php'">Home</button>
            <div id="header-banner-div">Subject Allocation</div>

            <div id="main-div" class="clearfix">
                <div id="bodyarea-div">
                    <form action = "subjectallocation_allocationpost.php" method = "POST">
<input type = "submit" value="Next" name = "seconditer">
                </form>
            </div>
        </div>
    </div>
</body>
```

```
<?php
// First iteration

$subcountquery="select count(*) as count from subjects";
$subcountres=mysqli_query($conn,$subcountquery);
$subcountarray=mysqli_fetch_array($subcountres);
$subcount=$subcountarray['count'];

$selectedsubcountquery="select count(distinct Course_code) as count from selected_subjects";
$selectedsubcountres=mysqli_query($conn,$selectedsubcountquery);
$selectedsubcountarray=mysqli_fetch_array($selectedsubcountres);
$selectedsubcount=$selectedsubcountarray['count'];
//echo $selectedsubcount;

$delquery="delete from tempallocation";
$resu=mysqli_query($conn,$delquery);
$query="select * from faculty order by priority";
$resu=mysqli_query($conn,$query);
$i=0;
$j=1000;

$subarray=array();

while($row=mysqli_fetch_array($resu)){
$allocationcount=0;
++$i;
++$j;
```

```
$Fid=$row['Fid'];

//echo $Fid;
$theoryquery="select * from faculty where Fid='$Fid'";
$theoryres=mysqli_query($conn,$theoryquery);
$theorycol=mysqli_fetch_array($theoryres);
$theorynum=$theorycol['Theory'];
//echo $theorynum;

$subquery="select * from selected_subjects where FID='$Fid' order by Pref";
$subres=mysqli_query($conn,$subquery);

while ($subcol=mysqli_fetch_array($subres))
{
    $sub=$subcol['Course_name'];
    $subid=$subcol['Course_code'];
    $subsem=$subcol['Semester'];
    $subprogram=$subcol['Program'];

    if (!(in_array(array($subid,$subprogram),$subarray)) && $allocationcount<1)
    {
        //echo "1";
        array_push($subarray,array($subid,$subprogram));
        $inquiry="insert into tempallocation (FacultyID,CourseID,AllocationType,Semester,
        $inquiryres=mysqli_query($conn,$inquiry);
        $allocationcount++;
    }
}
```

```
        }
    }

}

$_SESSION['subarray']=$subarray;
display();

?>

</div>

</div>
|
</div>
<div id="footer-div">Footer</div>
</script>

</body>

</html>
```

```
<?php

include('config.php');
session_start();
function display()
{
    global $conn;
    $itercount=$_SESSION['itercount'];
    //global $itercount;
    //echo $itercount;
    ?>

    <h3>Iteration <?php echo $itercount++; ?></h3>
    <table border="black" width=100% height=30%>
        <tr>

            <th>Priority</th>
            <th>Name</th>
            <th>Subject</th>
        </tr>

        <form action='subjectallocation_allocationpost.php' method='POST'>
        <?php
            //Display
            $i=1;
            $query="select * from faculty order by priority";
            $resu=mysqli_query($conn,$query);

            while($row=mysqli_fetch_array($resu)){
```

```

$allocationcount=0;

$Fid=$row['Fid'];

//echo $Fid;
$theoryquery="select * from faculty where Fid='$Fid'";
$theoryres=mysqli_query($conn,$theoryquery);
$theorycol=mysqli_fetch_array($theoryres);
$theorynum=$theorycol['Theory'];
//echo $theorynum;

$allocatedquery="select * from tempallocation where FacultyID='$Fid'";
$allocatedres=mysqli_query($conn,$allocatedquery);
$allocatedsub=mysqli_fetch_array($allocatedres);

$allocaccountquery="select count(*) as count from tempallocation where FacultyID='$Fid'";
$allocaccountres=mysqli_query($conn,$allocaccountquery);
$allocaccountcol=mysqli_fetch_array($allocaccountres);
$allocaccount=$allocaccountcol['count'];
if (!$allocaccount){
    $allocaccount=1;
}

?>

<tr>
<td rowspan=<?php echo $allocaccount;?>><?php echo $row['Priority'];?></td>
<td rowspan=<?php echo $allocaccount;?>><?php echo $row['FName'];?>
<?php if($itercount>4){?
    <input name=<?php echo $Fid; ?>" type='submit' value='Edit'>
    <?php }?>
</td>
<td><?php if ($allocatedsub) {
    $allocatedsubcode=$allocatedsub['CourseID'];
    $allocatedsubprogram=$allocatedsub['Program'];

    $allocatedsubnamequery="select * from subjects where CourseCode='"
    $allocatedsubnameres=mysqli_query($conn,$allocatedsubnamequery);
    $allocatedsubnamecol=mysqli_fetch_array($allocatedsubnameres);
    $allocatedsubname=$allocatedsubnamecol['CourseName'];
    $allocatedsubsem=$allocatedsubnamecol['Semester'];
    $allocatedsubprogram=$allocatedsubnamecol['Program'];
    echo $allocatedsubcode.' - '.$allocatedsubname.' - '.$allocatedsubsem.' - '.$allocat
}
else {
    echo "-";
}??> </td>
</tr>
<script>

```

```

<?php
while($allocatedsub=mysqli_fetch_array($allocatedres))
{?>
|   document.write(`

|   <tr>

|       <td><?php if ($allocatedsub) {
|           $allocatedsubcode=$allocatedsub['CourseID'];
|           $allocatedsubprogram=$allocatedsub['Program'];
|           $allocatedsubnamequery="select * from subjects where CourseCode='".$allocatedsubcode' and P

|           $allocatedsubnameres=mysqli_query($conn,$allocatedsubnamequery);
|           $allocatedsubnamecol=mysqli_fetch_array($allocatedsubnameres);
|           $allocatedsubname=$allocatedsubnamecol['CourseName'];
|           $allocatedsubsem=$allocatedsubnamecol['Semester'];
|           $allocatedsubprogram=$allocatedsubnamecol['Program'];
|           echo $allocatedsubcode.' - '.$allocatedsubname.' - '.$allocatedsubsem.' - '.$allocatedsubp

|
|       }
|       else {
|           echo "-";
|       }?>
|       </td>
|       </tr>
|   )

|<?php } ?>

|   </script>
|
|   <?php } ?>
|</form>



| S.No | Sem | Programme | Course Code | Course Name |
|------|-----|-----------|-------------|-------------|
|------|-----|-----------|-------------|-------------|


```

```
<?php
if ($unallocrows>0)
{
while ($unallocsub=mysqli_fetch_array($unallocsubres))
{
?>
<tr>
    <td><?php echo $i; $i++ ?></td>
    <td><?php echo $unallocsub['Semester'];?></td>
    <td><?php echo $unallocsub['Program'];?></td>
    <td><?php echo $unallocsub['CourseCode'];?></td>
    <td><?php echo $unallocsub['CourseName'];?></td>
</tr>
<?php }?>
else{?>
<tr>
    <td style="text-align:center">-</td>
    <td>-</td>
    <td>-</td>
    <td>-</td>
    <td>-</td>
</tr>
<?php }?>
</table>

<?php $_SESSION['itercount']++; }
```

```
function secondditer(){
echo'<script>
document.body.innerHTML="";
</script>';

?>
<html>
<head>
    <title>Subject Allocation</title>
    <link rel="stylesheet" type="text/css" href="style.css">
</head>

<body>
<div id="wrapper-div">
    <div id="logo-div"></div>

    <div id="nav-div">
        <button onclick="document.location='adminhome.php'">Home</button>

        <div id="header-banner-div">Subject Allocation</div>
    <div id="main-div" class="clearfix">
        <div id="bodyarea-div">
```

```

<form action = "subjectallocation_allocationpost.php" method = "POST">
<input type = "submit" value="Next" name = "unalloc" >

</form>

<?php

global $conn;
$subarray=$_SESSION['subarray'];
global $selectedsubcount;

// echo"subarray:".count($subarray);
// echo"selectedsub:".$selectedsubcount;

$query="select * from faculty order by priority desc";
$resu=mysqli_query($conn,$query);
$i=0;
$j=1000;
//print_r($subarray);
//$/subarray=array();
while($row=mysqli_fetch_array($resu)){
    $allocationcount=0;

$theoryquery="select * from faculty where Fid='$Fid'";
$theoryres=mysqli_query($conn,$theoryquery);
$theorycol=mysqli_fetch_array($theoryres);
$theorynum=$theorycol['Theory'];
//echo $theorynum;

$subquery="select * from selected_subjects where FID='$Fid' order by Pref";
$subres=mysqli_query($conn,$subquery);

$allocatedquery="select * from tempallocation where FacultyID='$Fid'";
$allocatedres=mysqli_query($conn,$allocatedquery);
$allocatedsub=mysqli_fetch_array($allocatedres);

$allocaccountquery="select count(*) as count from tempallocation where FacultyID='$Fid'";
$allocaccountres=mysqli_query($conn,$allocaccountquery);
$allocaccountcol=mysqli_fetch_array($allocaccountres);
$allocaccount=$allocaccountcol['count'];
//echo $allocaccount.' '.$Fid;
if (!$allocaccount){
    $allocaccount=0;
}
}

```

```

while ($subcol=mysqli_fetch_array($subres))
{
    $sub=$subcol['Course_name'];
    $subid=$subcol['Course_code'];
    $subsem=$subcol['Semester'];
    $subprogram=$subcol['Program'];
    $duplicatecheckquery="Select * from tempallocation where CourseID='$subid' and Program=$subprogram";
    $duplicatecheckqueryres=mysqli_query($conn,$duplicatecheckquery);
    $duplicaterowcount= mysqli_num_rows($duplicatecheckqueryres);

    if (($duplicaterowcount==0) && ($allocationcount==0) && ($alloccount<$theorynum) )
    {
        array_push($subarray,array($subid,$subprogram));
        $inquery="insert into tempallocation (FacultyID,CourseID,AllocationType,Semester,Program) values ('$facultyid','$subid','$alloc','$subsem','$subprogram')";
        $inqueryres=mysqli_query($conn,$inquery);
        $allocationcount++;
    }
}

}

//print_r($subarray);

//Display
$_SESSION['subarray']=$subarray;
display();

?>

</div>
</div>
</div>

<div id="footer-div">Footer</div>
</script>

</body>

</html>
<?php }

```

```

function unalloc()
{
    echo'<script>
document.body.innerHTML="";

</script>';

?>
<html>
<head>
    <title>Subject Allocation</title>

    <link rel="stylesheet" type="text/css" href="style.css">
</head>

<body>
<div id="wrapper-div">
    <div id="logo-div"></div>

    <div id="nav-div">
        <button onclick="document.location='adminhome.php'">Home</button>

    <div id="header-banner-div">Subject Allocation</div>

<div id="main-div" class="clearfix">
    <div id="bodyarea-div">

        <form action = "subjectallocation_allocationpost.php" method = "POST">
        <input type = "submit" value="Next" name = "unallocadd" >

    </form>

    <?php

    global $conn;
    $subarray=$_SESSION['subarray'];
    $subcountquery="select count(*) as count from subjects where Type='CORE' and Semester in ('$";
    $subcountres=mysqli_query($conn,$subcountquery);
    $subcountarray=mysqli_fetch_array($subcountres);
    $subcount=$subcountarray['count'];

}

```

```

for ($k=0;$k<5;$k++)
{
    //echo count($subarray).' '.$subcount.' ';

if(count($subarray)<$subcount)
{

    $query="select * from faculty order by priority desc";
    $resu=mysqli_query($conn,$query);
    $i=0;
    $j=1000;

    // $subarray=array();
    while($row=mysqli_fetch_array($resu)){
        $allocationcount=0;
        ++$i;
        ++$j;
        $Fid=$row['Fid'];

        //echo $Fid;
        $theoryquery="select * from faculty where Fid='$Fid'";
        $theoryres=mysqli_query($conn,$theoryquery);
        $theorycol=mysqli_fetch_array($theoryres);
        $theorynum=$theorycol['Theory'];
        //echo $theorynum;

        $subquery="select * from subjects where (CourseCode,Program) not in (select CourseID,Program from tempallocation) and Type='CORE' and FacultyID=$Fid";
        $subres=mysqli_query($conn,$subquery);

        $facultysubcountquery="select count(*) as count from tempallocation where FacultyID='$Fid'";
        $facultysubcountres=mysqli_query($conn,$facultysubcountquery);
        $facultysubcountcol=mysqli_fetch_array($facultysubcountres);
        $facultysubcount=$facultysubcountcol['count'];
        //echo $facultysubcount;

        while ($subcol=mysqli_fetch_array($subres))
        {

            $sub=$subcol['CourseName'];
            $subid=$subcol['CourseCode'];
            $subsem=$subcol['Semester'];
            $subprogram=$subcol['Program'];



            if (!(in_array(array($subid,$subprogram),$subarray)) && ($allocationcount==0) && ($facultysubcount<$theorynum) )
            {

                array_push($subarray,array($subid,$subprogram));
                $inquiry="insert into tempallocation (FacultyID,CourseID,AllocationType,Semester,Program) values('$Fid','$subid','Theory','$subsem','$subprogram')";
                $inquiryres=mysqli_query($conn,$inquiry);
                $allocationcount++;

            }
        }
    }
}

```

```
    }

}

$_SESSION['subarray']=$subarray;
display();

?>

</div>
</div>
</div>

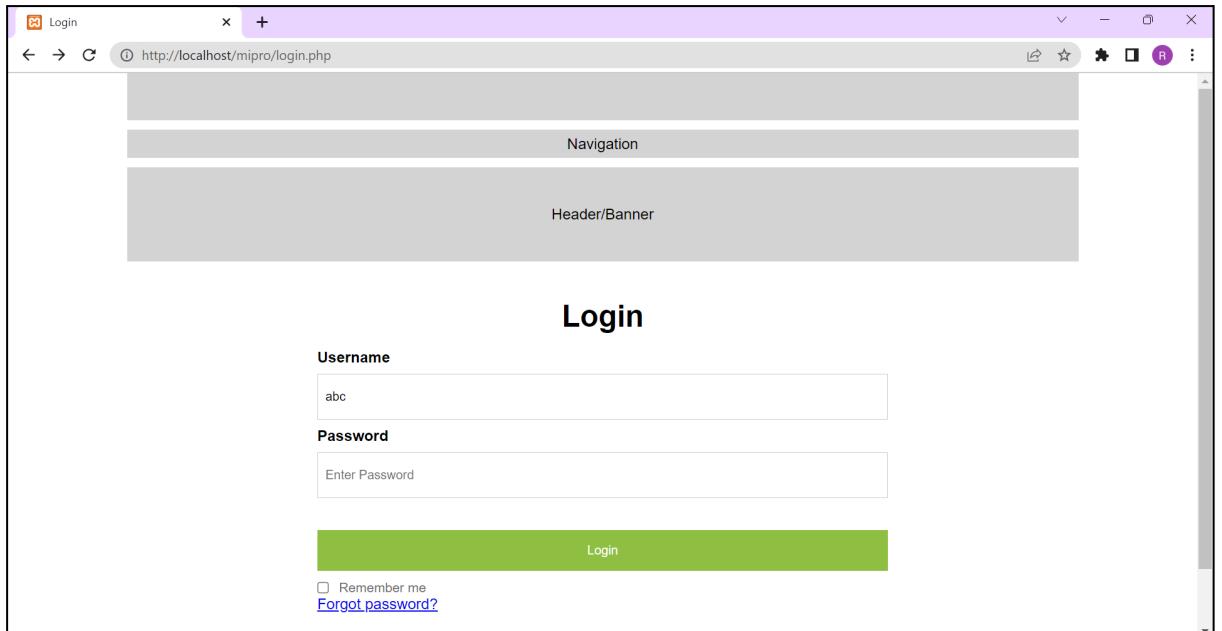
<div id="footer-div">Footer</div>
</script>

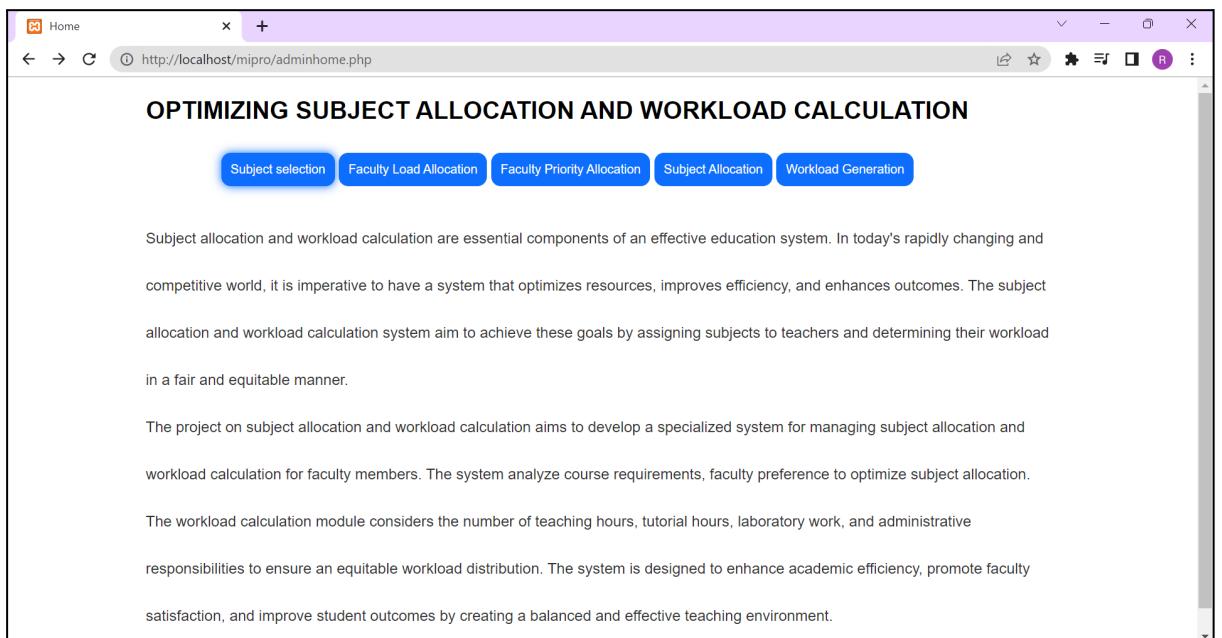
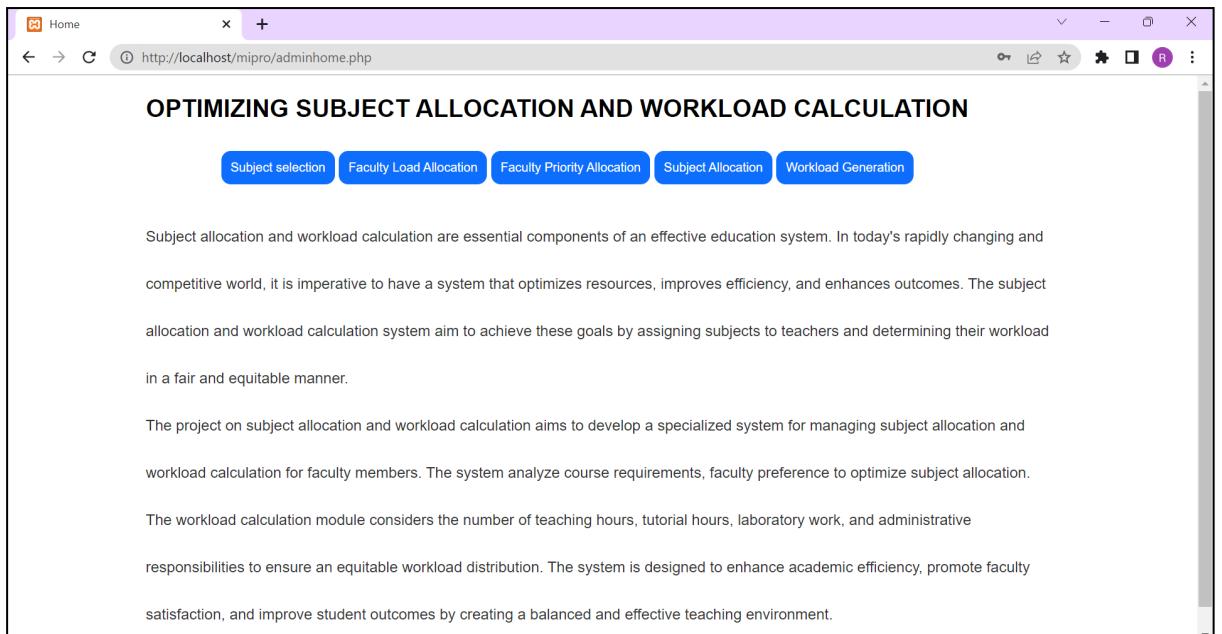
</body>

</html>
```

APPENDIX B

SAMPLE SCREENSHOTS





The screenshot shows a web browser window titled "Subject Selection". The URL is http://localhost/mipro/subjectallocation_subjectpreference.php. The page title is "OPTIMIZING SUBJECT ALLOCATION AND WORKLOAD CALCULATION". A "Home" button is at the top right. Below it is the heading "Subject Selection". A message "Faculty Name: abc" is displayed. There are two rows for subject selection. Each row has a label "Subject 1" or "Subject 2" and a "Select Subject" input field. At the bottom are three buttons: "View Current Selection", "ADD MORE", and "Submit".

The screenshot shows the same "Subject Selection" page. The "Select Subject" input field for "Subject 1" is open, displaying a list of subjects. One item, "101008/IT622S - MACHINE LEARNING LAB", is highlighted with a blue background. Other items in the list include: 101004/IT600A - INTERNETWORKING WITH TCP/IP, 101004/IT600B - ALGORITHM ANALYSIS AND DESIGN, 101004/IT600C - DATA SCIENCE, 101004/IT600F - COMPREHENSIVE COURSE WORK, 101004/IT622S - COMPUTER NETWORKS LAB, 101004/IT622T - MINI PROJECT, 101008/IT600B - MACHINE LEARNING, 101008/IT600C - BIG DATA ANALYTICS, 101008/MA600A - TOPOLOGICAL DATA ANALYSIS-I, and 101908/ES900E - INDUSTRIAL ECONOMICS AND FOREIGN TRADE.

The screenshot shows a web browser window titled "Subject Selection". The URL is http://localhost/mipro/subjectallocation_subjectpreference.php. The main title of the page is "OPTIMIZING SUBJECT ALLOCATION AND WORKLOAD CALCULATION". Below it, there is a "Home" button. The section "Subject Selection" is displayed, with the text "Faculty Name: abc". There are two rows for subject selection. The first row has "Subject 1" and a box containing "101008/IT600B - MACHINE LEARNING". The second row has "Subject 2" and a box containing "101008/MA600A - TOPOLOGICAL DAT/". At the bottom, there are three buttons: "View Current Selection", "ADD MORE", and "Submit".

The screenshot shows a web browser window titled "Subject Selection". The URL is http://localhost/mipro/subjectallocation_subjectpreference.php. The main title of the page is "OPTIMIZING SUBJECT ALLOCATION AND WORKLOAD CALCULATION". Below it, there is a "Home" button. The section "Subject Selection" is displayed, with the text "Faculty Name: abc". There are three rows for subject selection. The first row has "Subject 1" and a box containing "101008/IT600B - MACHINE LEARNING". The second row has "Subject 2" and a box containing "101008/MA600A - TOPOLOGICAL DAT/". The third row has "Subject 3" and a box labeled "Select Subject" with a red "Remove" button next to it. At the bottom, there are three buttons: "View Current Selection", "ADD MORE", and "Submit". A "Footer" is visible at the very bottom.

Subject Selection

Faculty Name: abc

Subject 1	101008/IT600B - MACHINE LEARNING
Subject 2	101008/MA600A - TOPOLOGICAL DATA
Subject 3	101004/IT622T - MINI PROJECT
Subject 4	Select Subject

View Current Selection **ADD MORE** **Submit**

Subject Selection

Faculty Name: abc

Subject 1	101008/IT600B - MACHINE LEARNING
Subject 2	101008/MA600A - TOPOLOGICAL DATA
Subject 3	101004/IT622T - MINI PROJECT
Subject 4	Select Subject

View Current Selection **ADD MORE** **Submit**

Footer

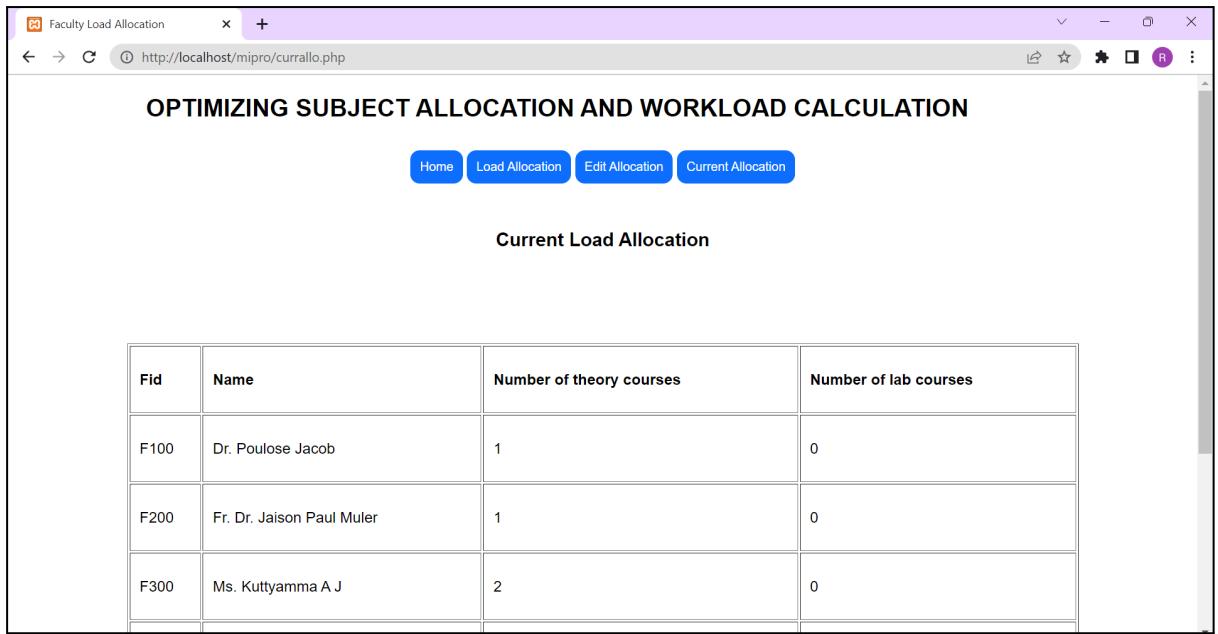
The screenshot shows a web browser window titled "Subject Selection". The URL is http://localhost/mipro/subjectallocation_subjectpreference_viewinsert.php. The page has a header "Home" and a main section titled "Current Selection". It displays the following data:

Faculty Name:	EDIT
Subject 1	101008/IT600B - MACHINE LEARNING
Subject 2	101008/MA600A - TOPOLOGICAL DATA ANALYSIS-I
Subject 3	101004/IT622T - MINI PROJECT

The screenshot shows a web browser window titled "Home". The URL is <http://localhost/mipro/adminhome.php>. The page has a header "OPTIMIZING SUBJECT ALLOCATION AND WORKLOAD CALCULATION". Below the header is a navigation menu with five items: "Subject selection", "Faculty Load Allocation", "Faculty Priority Allocation", "Subject Allocation", and "Workload Generation". The "Subject selection" item is highlighted with a blue background. The main content area contains the following text:

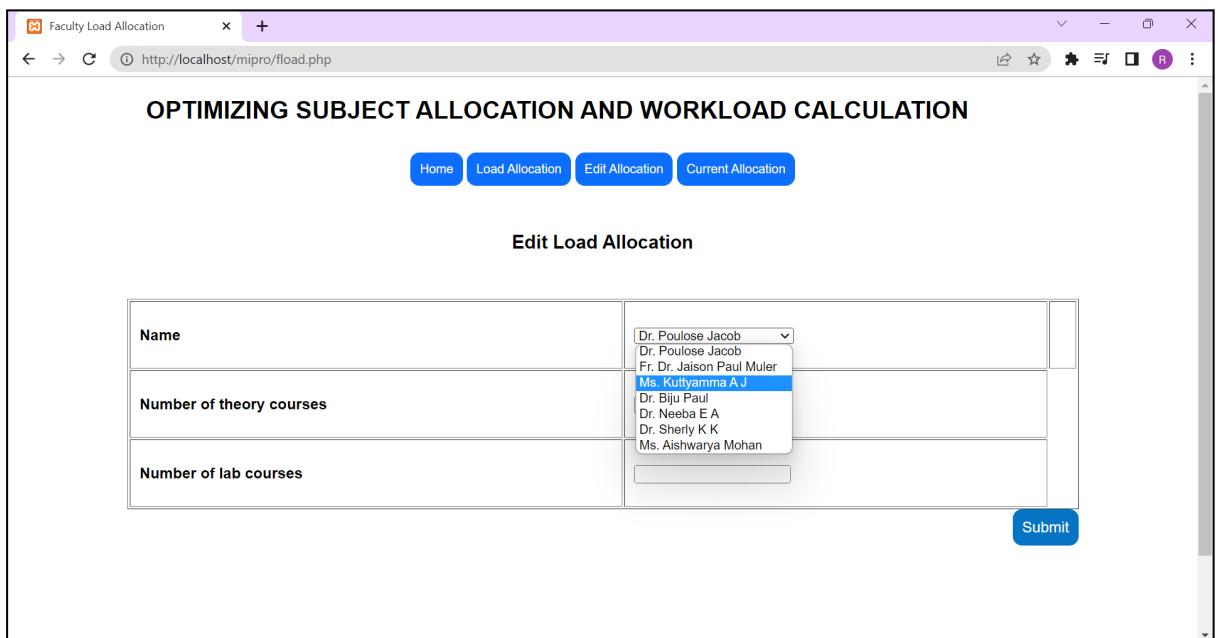
Subject allocation and workload calculation are essential components of an effective education system. In today's rapidly changing and competitive world, it is imperative to have a system that optimizes resources, improves efficiency, and enhances outcomes. The subject allocation and workload calculation system aim to achieve these goals by assigning subjects to teachers and determining their workload in a fair and equitable manner.

The project on subject allocation and workload calculation aims to develop a specialized system for managing subject allocation and workload calculation for faculty members. The system analyze course requirements, faculty preference to optimize subject allocation. The workload calculation module considers the number of teaching hours, tutorial hours, laboratory work, and administrative responsibilities to ensure an equitable workload distribution. The system is designed to enhance academic efficiency, promote faculty satisfaction, and improve student outcomes by creating a balanced and effective teaching environment.



The screenshot shows a web browser window titled "Faculty Load Allocation". The URL is <http://localhost/mipro/curreallo.php>. The main title is "OPTIMIZING SUBJECT ALLOCATION AND WORKLOAD CALCULATION". Below it is a navigation bar with four buttons: "Home", "Load Allocation", "Edit Allocation", and "Current Allocation". The main content is titled "Current Load Allocation" and contains a table with the following data:

Fid	Name	Number of theory courses	Number of lab courses
F100	Dr. Poulose Jacob	1	0
F200	Fr. Dr. Jaison Paul Muler	1	0
F300	Ms. Kuttayamma A J	2	0



The screenshot shows a web browser window titled "Faculty Load Allocation". The URL is <http://localhost/mipro/fload.php>. The main title is "OPTIMIZING SUBJECT ALLOCATION AND WORKLOAD CALCULATION". Below it is a navigation bar with four buttons: "Home", "Load Allocation", "Edit Allocation", and "Current Allocation". The main content is titled "Edit Load Allocation" and contains a form with three input fields: "Name", "Number of theory courses", and "Number of lab courses". The "Name" field has a dropdown menu open, listing several names. The "Ms. Kuttayamma A J" option is highlighted in blue. A "Submit" button is located at the bottom right of the form.

OPTIMIZING SUBJECT ALLOCATION AND WORKLOAD CALCULATION

Home Load Allocation Edit Allocation Current Allocation

Edit Load Allocation

Name	<input type="text" value="Ms. Kuttyamma A J"/>
Number of theory courses	<input type="text" value="1"/>
Number of lab courses	<input type="text" value="0"/>

Submit

OPTIMIZING SUBJECT ALLOCATION AND WORKLOAD CALCULATION

Home Load Allocation Edit Allocation Current Allocation

Current Load Allocation

Fid	Name	Number of theory courses	Number of lab courses
F100	Dr. Poulose Jacob	1	0
F200	Fr. Dr. Jaison Paul Muler	1	0
F300	Ms. Kuttyamma A J	1	0

OPTIMIZING SUBJECT ALLOCATION AND WORKLOAD CALCULATION

Subject selection Faculty Load Allocation Faculty Priority Allocation Subject Allocation Workload Generation

Subject allocation and workload calculation are essential components of an effective education system. In today's rapidly changing and competitive world, it is imperative to have a system that optimizes resources, improves efficiency, and enhances outcomes. The subject allocation and workload calculation system aim to achieve these goals by assigning subjects to teachers and determining their workload in a fair and equitable manner.

The project on subject allocation and workload calculation aims to develop a specialized system for managing subject allocation and workload calculation for faculty members. The system analyze course requirements, faculty preference to optimize subject allocation. The workload calculation module considers the number of teaching hours, tutorial hours, laboratory work, and administrative responsibilities to ensure an equitable workload distribution. The system is designed to enhance academic efficiency, promote faculty satisfaction, and improve student outcomes by creating a balanced and effective teaching environment.

OPTIMIZING SUBJECT ALLOCATION AND WORKLOAD CALCULATION

Home Priority Allocation Edit Priority Allocation Current Priority Allocation

Current Priority Allocation

Fid	Name	Priority
F100	Dr. Poulose Jacob	1
F200	Fr. Dr. Jaison Paul Muler	2
F300	Ms. Kuttyamma A.J	3

The screenshot shows a web browser window titled "Faculty Priority Allocation". The URL is http://localhost/mipro/priority_edit.php. The main title of the page is "OPTIMIZING SUBJECT ALLOCATION AND WORKLOAD CALCULATION". Below the title is a navigation bar with four buttons: "Home", "Priority Allocation", "Edit Priority Allocation" (which is highlighted in blue), and "Current Priority Allocation". The main content area is titled "Edit Priority Allocation". It contains a form with two rows. The first row has two columns: "Name" (containing "Dr. Poulose Jacob") and "Priority" (an empty input field). The second row is partially visible. At the bottom right of the form is a blue "Submit" button.

The screenshot shows a web browser window titled "Faculty Priority Allocation". The main title of the page is "COURSE SHARING". Below the title is a form with four dropdown menus: "Program select" (AD), "Semester" (S1), "Course Type" (CORE), and a green "Submit" button.

COURSE SHARING

Program select:

AD
AD
CU
IT
S1

Course Type:

CORE

Submit

COURSE SHARING

Program select:

AD

Semester:

S1
S1
S2
S3
S4
S5
S6
S7
S8
M1
M2
M3
M4

COURSE SHARING

Program select:

AD

Semester:

S1

Course Type:

CORE
CORE
LAB

Submit

COURSE SHARING

Program select: AD

Semester: S6

Course Type: CORE

Course Details

Course Code	Course Name	Faculty 1	Faculty 2
101008/IT600D PROGRAMME ELECTIVE I		Dr. Poulose Jacob	Dr. Poulose Jacob
101008/IT600B MACHINE LEARNING		Fr. Jason Paul Mulenicka Ms. Kuttyamma A.J Dr. Biju Paul	Dr. Poulose Jacob
101008/IT600C BIG DATA ANALYTICS		Dr. Neeba E.A Dr. Shelly K.K	Dr. Poulose Jacob
101008/IT600F COMPREHENSIVE COURSE WORK		Ms. Aishwarya Mohan Ms. Bency Wilson Mr. Binu A Ms. Chinchu Krishna	Dr. Poulose Jacob

Submit Course Details

COURSE SHARING

Program select: AD

Semester: S6

Course Type: LAB

Course Details

Course Code	Course Name	Faculty 1	Faculty 2	Faculty 3	Faculty 4
101008/IT622S MACHINE LEARNING LAB		Dr. Poulose Jacob	Dr. Poulose Jacob	Dr. Poulose Jacob	Dr. Poulose Jacob
101008/IT622T MINI PROJECT		Dr. Poulose Jacob	Dr. Poulose Jacob	Dr. Poulose Jacob	Dr. Poulose Jacob

Submit Course Details

The screenshot shows a web browser window titled "Home" with the URL "http://localhost/mipro/adminhome.php". The page has a header with the title "OPTIMIZING SUBJECT ALLOCATION AND WORKLOAD CALCULATION" and a navigation bar with five buttons: "Subject selection", "Faculty Load Allocation", "Faculty Priority Allocation", "Subject Allocation", and "Workload Generation". Below the navigation bar is a paragraph of text explaining the importance of subject allocation and workload calculation in modern education. It highlights the system's goal of optimizing resources, improving efficiency, and enhancing outcomes by fairly assigning subjects to teachers and determining their workload.

Subject allocation and workload calculation are essential components of an effective education system. In today's rapidly changing and competitive world, it is imperative to have a system that optimizes resources, improves efficiency, and enhances outcomes. The subject allocation and workload calculation system aim to achieve these goals by assigning subjects to teachers and determining their workload in a fair and equitable manner.

The project on subject allocation and workload calculation aims to develop a specialized system for managing subject allocation and workload calculation for faculty members. The system analyze course requirements, faculty preference to optimize subject allocation. The workload calculation module considers the number of teaching hours, tutorial hours, laboratory work, and administrative responsibilities to ensure an equitable workload distribution. The system is designed to enhance academic efficiency, promote faculty satisfaction, and improve student outcomes by creating a balanced and effective teaching environment.

The screenshot shows a web browser window titled "Subject Allocation" with the URL "http://localhost/miniproject/subjectallocation_allocation.php". The page has a header with the title "OPTIMIZING SUBJECT ALLOCATION AND WORKLOAD CALCULATION" and a navigation bar with a single "Home" button. Below the navigation bar is a section titled "Subject Allocation" with a sub-section titled "Iteration 1". A "Next" button is located at the top right of this section. A table below lists seven entries, each with a priority number, name, and subject information. The table has three columns: "Priority", "Name", and "Subject".

Priority	Name	Subject
1	Dr. Poulose Jacob	200104/IT100B - Advanced Computer Networks - M1 - NE
2	Fr. Jaison Paul Mulerickal	101009/IT300E - DATABASE MANAGEMENT SYSTEMS - S3 - CU
3	Ms. Kuttyamma A J	101908/CO900E - DESIGN AND ENGINEERING - S3 - AD
4	Dr. Biju Paul	101908/CO300F - SUSTAINABLE ENGINEERING - S3 - AD
5	Dr. Neeba E A	100008/IT500C - DATA WAREHOUSING AND DATA MINING - S5 - AD
6	Dr. Sherly K K	101004/IT500B - OPERATING SYSTEM CONCEPTS - S5 - IT
7	Mr.Binu A	101903/CO300B - DATA STRUCTURES - S3 - AD

8	Dr. Lakshmi K S	101008/IT300D - OPERATING SYSTEM - S3 - AD
9	Ms. Divya James	200104 IT3XXA - Program Elective IV - M3 - NE
10	Dr. Nikhila T Bhuvan	10190*/*70*C - OPEN ELECTIVE - S7 - AD
11	Ms. Chinchu Krishna	100008/IT500D - ARTIFICIAL INTELLIGENCE - S5 - AD
12	Ms. Bency Wilson	101009/IT300A - FORMAL LANGUAGE AND AUTOMATA THEORY - S3 - CU
13	Mr. Mathews Abraham	101009/IT300B - COMPUTER ORGANIZATION AND ARCHITECTURE - S3 - CU
14	Mr. Tinku Soman Jacob	-
15	Ms. Jeshmol P J	101009/IT100C - FUNDAMENTALS OF COMPUTER SCIENCE - S1 - CU
16	Dr. Priya Mariam Raju	101009/IT50*F - PROGRAMME ELECTIVE I - S5 - CU
17	Dr. Ranju S Kartha	101004/IT500C - DATA COMMUNICATION AND NETWORKING - S5 - IT
18	Ms. Viji Mohan	100908/CO500F - DISASTER MANAGEMENT - S5 - IT
19	Ms. Aiswarya Mohan	101902/IT500E - MANAGEMENT FOR SOFTWARE ENGINEERS - S5 - AD
20	Ms. Tanya Shirley Stalin	101009/IT700A - USABILITY DESIGN OF SOFTWARE APPLICATIONS - S7 - CU
21	Ms. Ancy C A	101009/IT700B - IT WORKSHOP SKYLAB / MATLAB - S7 - CU
22	Mr. Ajith Jacob	101908/CO500F - DISASTER MANAGEMENT - S5 - AD
23	Ms. Diana Mathew	101008/IT722T - SEMINAR - S7 - AD
24	New faculty 1	200104/IT100D - Cloud Computing Concepts - M1 - NE
25	New Faculty 2	-
26	New Faculty 3	-

Unallocated Subjects:				
S.No	Sem	Programme	Course Code	Course Name
1	S3	IT	101004/IT300C	DIGITAL SYSTEM DESIGN
2	S3	IT	101004/IT300D	PROBLEM SOLVING USING PYTHON
3	S5	IT	101004/IT500A	WEB APPLICATION DEVELOPMENT
4	S7	IT	101004/IT70*B	PROGRAMME ELECTIVE II
5	S7	IT	101004/IT700A	DATA ANALYTICS
6	S7	AD	101008/IT70*B	PROGRAMME ELECTIVE II
7	S7	AD	101008/IT700A	TEXT MINING
8	S3	CU	101009/IT300C	OBJECT ORIENTED PROGRAMMING
9	S5	CU	101009/IT500A	SOFTWARE DESIGN WITH UML

10	S5	CU	101009/IT500B	COMPILER DESIGN
11	S7	CU	101009/IT70*E	PROGRAMME ELECTIVE III
12	S7	CU	101009/IT70*F	PROGRAMME ELECTIVE IV
13	S7	IT	10190*/*70*C	OPEN ELECTIVE
14	S5	IT	101902/IT500E	MANAGEMENT FOR SOFTWARE ENGINEERS
15	S3	IT	101903/CO300B	DATA STRUCTURES
16	S3	IT	101908/CO300F	SUSTAINABLE ENGINEERING
17	S3	IT	101908/CO900E	DESIGN AND ENGINEERING
18	M1	NE	200104/IT122G	Seminar I
19	M3	NE	200104/IT322C	Seminar II
20	M3	NE	200104/IT3XXB	Program Elective V

21	M1	NE	200104/IT1**E	Program Elective I
22	M1	NE	200104/IT100A	Theoretical Foundation in Computer Networking
23	M1	NE	200104/IT100C	Wireless & Adhoc Networks
24	M1	NE	200902/CO100F	Research methodology

OPTIMIZING SUBJECT ALLOCATION AND WORKLOAD CALCULATION

Home

Subject Allocation

Iteration 2

Next

Priority	Name	Subject
1	Dr. Poulose Jacob	200104/IT100B - Advanced Computer Networks - M1 - NE
2	Fr. Jaison Paul Mulerrickal	101009/IT300E - DATABASE MANAGEMENT SYSTEMS - S3 - CU
3	Ms. Kuttyamma A J	101908/CO900E - DESIGN AND ENGINEERING - S3 - AD
4	Dr. Biju Paul	101908/CO300F - SUSTAINABLE ENGINEERING - S3 - AD
5	Dr. Neeba E A	100008/IT500C - DATA WAREHOUSING AND DATA MINING - S5 - AD
6	Dr. Sherly K K	101004/IT500B - OPERATING SYSTEM CONCEPTS - S5 - IT
7	Mr.Binu A	101903/CO300B - DATA STRUCTURES - S3 - AD 200104/IT100C - Wireless & Adhoc Networks - M1 - NE
8	Dr. Lakshmi K S	101008/IT300D - OPERATING SYSTEM - S3 - AD 101009/IT300C - OBJECT ORIENTED PROGRAMMING - S3 - CU
9	Ms. Divya James	200104 IT3XXA - Program Elective IV - M3 - NE 200104/IT1**E - Program Elective I - M1 - NE

10	Dr. Nikhila T Bhuvan	10190770C - OPEN ELECTIVE - S7 - AD
		101004/IT70B - PROGRAMME ELECTIVE II - S7 - IT
11	Ms. Chinchu Krishna	100008/IT500D - ARTIFICIAL INTELLIGENCE - S5 - AD
		101009/IT500A - SOFTWARE DESIGN WITH UML - S5 - CU
12	Ms. Bency Wilson	101009/IT300A - FORMAL LANGUAGE AND AUTOMATA THEORY - S3 - CU
		101004/IT700A - DATA ANALYTICS - S7 - IT
13	Mr. Mathews Abraham	101009/IT300B - COMPUTER ORGANIZATION AND ARCHITECTURE - S3 - CU
		101004/IT300D - PROBLEM SOLVING USING PYTHON - S3 - IT
14	Mr. Tinku Soman Jacob	-
15	Ms. Jeshmol P J	101009/IT100C - FUNDAMENTALS OF COMPUTER SCIENCE - S1 - CU
		200104/1T3XXB - Program Elective V - M3 - NE
16	Dr. Priya Mariam Raju	101009/IT50F - PROGRAMME ELECTIVE I - S5 - CU
17	Dr. Ranju S Kartha	101004/IT500C - DATA COMMUNICATION AND NETWORKING - S5 - IT
18	Ms. Vijji Mohan	100908/CO500F - DISASTER MANAGEMENT - S5 - IT
		101004/IT500A - WEB APPLICATION DEVELOPMENT - S5 - IT
19	Ms. Aliswarya Mohan	101902/IT500E - MANAGEMENT FOR SOFTWARE ENGINEERS - S5 - AD
		200902/CO100F - Research methodology - M1 - NE
20	Ms. Tanya Shirley Stalin	101009/IT700A - USABILITY DESIGN OF SOFTWARE APPLICATIONS - S7 - CU
21	Ms. Ancy C A	101009/IT700B - IT WORKSHOP SKYLAB / MATLAB - S7 - CU
		101009/IT70F - PROGRAMME ELECTIVE IV - S7 - CU

22	Mr. Ajith Jacob	101908/CO500F - DISASTER MANAGEMENT - S5 - AD
		101004/IT300C - DIGITAL SYSTEM DESIGN - S3 - IT
23	Ms. Diana Mathew	101008/IT722T - SEMINAR - S7 - AD
		101008/IT700A - TEXT MINING - S7 - AD
24	New faculty 1	200104/IT100D - Cloud Computing Concepts - M1 - NE
25	New Faculty 2	-
26	New Faculty 3	-

Unallocated Subjects:				
S.No	Sem	Programme	Course Code	Course Name
1	S7	AD	101008/IT70B	PROGRAMME ELECTIVE II
2	S5	CU	101009/IT500B	COMPILER DESIGN
3	S7	CU	101009/IT70E	PROGRAMME ELECTIVE III
4	S7	IT	10190770C	OPEN ELECTIVE
5	S5	IT	101902/IT500E	MANAGEMENT FOR SOFTWARE ENGINEERS
6	S3	IT	101903/CO300B	DATA STRUCTURES
7	S3	IT	101908/CO300F	SUSTAINABLE ENGINEERING
8	S3	IT	101908/CO900E	DESIGN AND ENGINEERING
9	M1	NE	200104/1T122G	Seminar I
10	M3	NE	200104/1T322C	Seminar II
11	M1	NE	200104/IT100A	Theoretical Foundation in Computer Networking

Footer

OPTIMIZING SUBJECT ALLOCATION AND WORKLOAD CALCULATION		
		Home
Subject Allocation		
Iteration 3		Next
Priority	Name	Subject
1	Dr. Poulose Jacob	200104/IT100B - Advanced Computer Networks - M1 - NE
2	Fr. Jalson Paul Mulerickal	101009/IT300E - DATABASE MANAGEMENT SYSTEMS - S3 - CU
3	Ms. Kuttyamma A J	101908/CO900E - DESIGN AND ENGINEERING - S3 - AD
4	Dr. Biju Paul	101908/CO300F - SUSTAINABLE ENGINEERING - S3 - AD
5	Dr. Neeba E A	100008/IT500C - DATA WAREHOUSING AND DATA MINING - S5 - AD
6	Dr. Sherly K K	101004/IT500B - OPERATING SYSTEM CONCEPTS - S5 - IT
		200104/IT100A - Theoretical Foundation in Computer Networking - M1 - NE
7	Mr. Binu A	101903/CO300B - DATA STRUCTURES - S3 - AD
		200104/IT100C - Wireless & Adhoc Networks - M1 - NE
		200104/IT322C - Seminar II - M3 - NE
8	Dr. Lakshmi K S	101008/IT300D - OPERATING SYSTEM - S3 - AD
		101009/IT300C - OBJECT ORIENTED PROGRAMMING - S3 - CU

9	Ms. Divya James	200104 IT3XXA - Program Elective IV - M3 - NE 200104/IT1**E - Program Elective I - M1 - NE
10	Dr. Nikhila T Bhuvan	10190**70**C - OPEN ELECTIVE - S7 - AD 101004/IT70**B - PROGRAMME ELECTIVE II - S7 - IT
11	Ms. Chinchu Krishna	100008/IT500D - ARTIFICIAL INTELLIGENCE - S5 - AD 101009/IT500A - SOFTWARE DESIGN WITH UML - S5 - CU 200104/IT122G - Seminar I - M1 - NE
12	Ms. Bency Wilson	101009/IT300A - FORMAL LANGUAGE AND AUTOMATA THEORY - S3 - CU 101004/IT700A - DATA ANALYTICS - S7 - IT 101908/CO900E - DESIGN AND ENGINEERING - S3 - IT
13	Mr. Mathews Abraham	101009/IT300B - COMPUTER ORGANIZATION AND ARCHITECTURE - S3 - CU 101004/IT300D - PROBLEM SOLVING USING PYTHON - S3 - IT
14	Mr. Tinku Soman Jacob	101908/CO300F - SUSTAINABLE ENGINEERING - S3 - IT
15	Ms. Jeshmol P J	101009/IT100C - FUNDAMENTALS OF COMPUTER SCIENCE - S1 - CU 200104/IT3XXB - Program Elective V - M3 - NE
16	Dr. Priya Mariam Raju	101009/IT501F - PROGRAMME ELECTIVE I - S5 - CU 101903/CO300B - DATA STRUCTURES - S3 - IT
17	Dr. Ranju S Kartha	101004/IT500C - DATA COMMUNICATION AND NETWORKING - S5 - IT 101902/IT500E - MANAGEMENT FOR SOFTWARE ENGINEERS - S5 - IT

18	Ms. Viji Mohan	100908/CO500F - DISASTER MANAGEMENT - S5 - IT 101004/IT500A - WEB APPLICATION DEVELOPMENT - S5 - IT
19	Ms. Alswarya Mohan	101902/IT500E - MANAGEMENT FOR SOFTWARE ENGINEERS - S5 - AD 200902/CO100F - Research methodology - M1 - NE
20	Ms. Taniya Shirley Stalin	101009/IT700A - USABILITY DESIGN OF SOFTWARE APPLICATIONS - S7 - CU 10190**70**C - OPEN ELECTIVE - S7 - IT
21	Ms. Ancy C A	101009/IT700B - IT WORKSHOP SKYLAB / MATLAB - S7 - CU 101009/IT701F - PROGRAMME ELECTIVE IV - S7 - CU
22	Mr. Ajith Jacob	101908/CO500F - DISASTER MANAGEMENT - S5 - AD 101004/IT300C - DIGITAL SYSTEM DESIGN - S3 - IT
23	Ms. Diana Mathew	101008/IT722T - SEMINAR - S7 - AD 101008/IT700A - TEXT MINING - S7 - AD
24	New faculty 1	200104/IT100D - Cloud Computing Concepts - M1 - NE 101009/IT701E - PROGRAMME ELECTIVE III - S7 - CU
25	New Faculty 2	101009/IT500B - COMPILER DESIGN - S5 - CU
26	New Faculty 3	101008/IT701B - PROGRAMME ELECTIVE II - S7 - AD

Unallocated Subjects:				
S.No	Sem	Programme	Course Code	Course Name
-	-	-	-	-

OPTIMIZING SUBJECT ALLOCATION AND WORKLOAD CALCULATION				
Subject Allocation				Home
Iteration 4				Submit
Priority	Name	Subject		
1	Dr. Poulose Jacob	200104/IT100B - Advanced Computer Networks - M1 - NE	Edit	
2	Fr. Jaison Paul Mulerickal	101009/IT300E - DATABASE MANAGEMENT SYSTEMS - S3 - CU	Edit	
3	Ms. Kuttyamma A J	101908/CO900E - DESIGN AND ENGINEERING - S3 - AD	Edit	
4	Dr. Biju Paul	101908/CO300F - SUSTAINABLE ENGINEERING - S3 - AD	Edit	
5	Dr. Neeba E A	100008/IT500C - DATA WAREHOUSING AND DATA MINING - S5 - AD	Edit	
6	Dr. Sherly K K	101004/IT500B - OPERATING SYSTEM CONCEPTS - S5 - IT 200104/IT100A - Theoretical Foundation In Computer Networking - M1 - NE	Edit	
7	Mr.Binu A	101903/CO300B - DATA STRUCTURES - S3 - AD 200104/IT100C - Wireless & Adhoc Networks - M1 - NE 200104/IT322C - Seminar II - M3 - NE	Edit	

8	Dr. Lakshmi K S	101008/IT300D - OPERATING SYSTEM - S3 - AD 101009/IT300C - OBJECT ORIENTED PROGRAMMING - S3 - CU	Edit
9	Ms. Divya James	200104 IT3XXA - Program Elective IV - M3 - NE 200104/IT1**E - Program Elective I - M1 - NE	Edit
10	Dr. Nikhila T Bhuvan	10190**70°C - OPEN ELECTIVE - S7 - AD 101004/IT70*B - PROGRAMME ELECTIVE II - S7 - IT	Edit
11	Ms. Chinchu Krishna	100008/IT500D - ARTIFICIAL INTELLIGENCE - S5 - AD 101009/IT500A - SOFTWARE DESIGN WITH UML - S5 - CU 200104/IT122G - Seminar I - M1 - NE	Edit
12	Ms. Bency Wilson	101009/IT300A - FORMAL LANGUAGE AND AUTOMATA THEORY - S3 - CU 101004/IT700A - DATA ANALYTICS - S7 - IT 101908/CO900E - DESIGN AND ENGINEERING - S3 - IT	Edit
13	Mr. Mathews Abraham	101009/IT300B - COMPUTER ORGANIZATION AND ARCHITECTURE - S3 - CU 101004/IT300D - PROBLEM SOLVING USING PYTHON - S3 - IT	Edit
14	Mr. Tinku Soman Jacob	101908/CO300F - SUSTAINABLE ENGINEERING - S3 - IT	Edit
15	Ms. Jeshmol P J	101009/IT100C - FUNDAMENTALS OF COMPUTER SCIENCE - S1 - CU 200104/IT3XXB - Program Elective V - M3 - NE	Edit
16	Dr. Priya Mariam Raju	101009/IT50*F - PROGRAMME ELECTIVE I - S5 - CU 101903/CO300B - DATA STRUCTURES - S3 - IT	Edit

17	Dr. Ranju S Kartha	Edit	101004/IT500C - DATA COMMUNICATION AND NETWORKING - S5 - IT 101902/IT500E - MANAGEMENT FOR SOFTWARE ENGINEERS - S5 - IT
18	Ms. Viji Mohan	Edit	100908/CO500F - DISASTER MANAGEMENT - S5 - IT 101004/IT500A - WEB APPLICATION DEVELOPMENT - S5 - IT
19	Ms. Alswarya Mohan	Edit	101902/IT500E - MANAGEMENT FOR SOFTWARE ENGINEERS - S5 - AD 200902/CO100F - Research methodology - M1 - NE
20	Ms. Tanya Shirley Stalin	Edit	101009/IT700A - USABILITY DESIGN OF SOFTWARE APPLICATIONS - S7 - CU 101904/IT700C - OPEN ELECTIVE - S7 - IT
21	Ms. Ancy C A	Edit	101009/IT700B - IT WORKSHOP SKYLAB / MATLAB - S7 - CU 101008/IT700F - PROGRAMME ELECTIVE IV - S7 - CU
22	Mr. Ajith Jacob	Edit	101908/CO500F - DISASTER MANAGEMENT - S5 - AD 101004/IT300C - DIGITAL SYSTEM DESIGN - S3 - IT
23	Ms. Diana Mathew	Edit	101008/IT220T - SEMINAR - S7 - AD 101008/IT700A - TEXT MINING - S7 - AD
24	New faculty 1	Edit	200104/IT100D - Cloud Computing Concepts - M1 - NE 101009/IT700E - PROGRAMME ELCTIVE III - S7 - CU
25	New Faculty 2	Edit	101009/IT500B - COMPILER DESIGN - S5 - CU
26	New Faculty 3	Edit	101008/IT700B - PROGRAMME ELECTIVE II - S7 - AD

Unallocated Subjects:				
S.No	Sem	Programme	Course Code	Course Name
-	-	-	-	-

OPTIMIZING SUBJECT ALLOCATION AND WORKLOAD CALCULATION

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Subject Allocation

[Edit](#)

Priority	Name	Subject
1	Dr. Poulose Jacob	200104/IT100B - Advanced Computer Networks - M1 - NE
2	Fr. Jalson Paul Mulerickal	Select Subject
3	Ms. Kuttyamma A J	101908/CO900E - DESIGN AND ENGINEERING - S3 - AD
4	Dr. Biju Paul	101908/CO300F - SUSTAINABLE ENGINEERING - S3 - AD
5	Dr. Neeba E A	100008/IT500C - DATA WAREHOUSING AND DATA MINING - S5 - AD
6	Dr. Sherly K K	101004/IT500B - OPERATING SYSTEM CONCEPTS - S5 - IT M1 NE : Theoretical Foundation in Computer Networking
7	Mr.Binu A	101903/CO300B - DATA STRUCTURES - S3 - AD M1 NE : Wireless & Adhoc Networks M3 NE : Seminar II

OPTIMIZING SUBJECT ALLOCATION AND WORKLOAD CALCULATION

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Priority	Name	Subject
1	Dr. Poulose Jacob	200104/IT100B - Advanced Computer Networks - M1 - NE
2	Fr. Jaison Paul Mulerrickal	<input style="width: 100%; height: 100%; border: none; background-color: #f0f0f0;" type="button" value="Select Subject"/> <div style="background-color: #f0f0f0; border: 1px solid #ccc; padding: 5px; width: fit-content; margin-top: 2px;"> Select Subject 200104/IT100B - Advanced Computer Networks 100008/IT500D - ARTIFICIAL INTELLIGENCE 200104/IT100D - Cloud Computing Concepts 101009/IT500C - COMPUTER DESIGN 101008/IT500B - COMPUTER ORGANIZATION AND ARCHITECTURE 101004/IT700A - DATA ANALYTICS 101004/IT500C - DATA COMMUNICATION AND NETWORKING 101903/CO300B - DATA STRUCTURES 100008/IT500C - DATA WAREHOUSING AND DATA MINING 101009/IT500C - DATABASE MANAGEMENT SYSTEMS 101908/CO900E - DESIGN AND ENGINEERING 101004/IT300C - DIGITAL SYSTEM DESIGN 101908/CO500F - DISASTER MANAGEMENT 100908/CO500F - DISASTER MANAGEMENT 101009/IT300A - FORMAL LANGUAGE AND AUTOMATA THEORY 101009/IT110C - FUNDAMENTALS OF COMPUTER SCIENCE 101009/IT700B - IT WORKSHOP SKILAB / MATLAB M1 NE : Wireless & Adhoc Networks M3 NE : Seminar II </div> <input style="float: right; width: 50px; height: 25px; border: 1px solid #007bff; border-radius: 5px; background-color: #007bff; color: white; font-weight: bold; padding: 5px; margin-top: 10px;" type="button" value="Submit"/>
3	Ms. Kuttyamma A J	
4	Dr. Biju Paul	
5	Dr. Neeba E A	
6	Dr. Sherly K K	
7	Mr.Binu A	

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3	Ms. Kuttyamma A J	101908/CO900E - DESIGN AND ENGINEERING - S3 - AD
4	Dr. Biju Paul	101908/CO300F - SUSTAINABLE ENGINEERING - S3 - AD
5	Dr. Neeba E A	100008/IT500C - DATA WAREHOUSING AND DATA MINING - S5 - AD
6	Dr. Sherly K K	101004/IT500B - OPERATING SYSTEM CONCEPTS - S5 - IT M1 NE : Theoretical Foundation in Computer Networking
7	Mr.Binu A	101903/CO300B - DATA STRUCTURES - S3 - AD M1 NE : Wireless & Adhoc Networks M3 NE : Seminar II

OPTIMIZING SUBJECT ALLOCATION AND WORKLOAD CALCULATION																												
Home																												
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24	New faculty 1	101009/IT300E - DATABASE MANAGEMENT SYSTEMS 101009/IT700E - PROGRAMME ELECTIVE III
25	New Faculty 2	101009/IT500B - COMPILER DESIGN - S5 - CU
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Unallocated Subjects:

S.No	Sem	Programme	Course Code	Course Name
1	S3	CU	101009/IT300E	DATABASE MANAGEMENT SYSTEMS

OPTIMIZING SUBJECT ALLOCATION AND WORKLOAD CALCULATION

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Subject Allocation

Current Allocation

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Priority	Name	Subject
1	Dr. Poulose Jacob	200104/IT100B - Advanced Computer Networks - M1 - NE Edit
2	Fr. Jaison Paul Mulericakal	200104/IT100D - Cloud Computing Concepts - M1 - NE Edit
3	Ms. Kuttyamma A J	101908/CO900E - DESIGN AND ENGINEERING - S3 - AD Edit
4	Dr. Biju Paul	101908/CO300F - SUSTAINABLE ENGINEERING - S3 - AD Edit
5	Dr. Neeba E A	100008/IT500C - DATA WAREHOUSING AND DATA MINING - S5 - AD Edit
6	Dr. Sherly K K	101004/IT500B - OPERATING SYSTEM CONCEPTS - S5 - IT 200104/IT100A - Theoretical Foundation in Computer Networking - M1 - NE Edit

7	Mr.Binu A	101903/CO300B - DATA STRUCTURES - S3 - AD
		200104/IT100C - Wireless & Adhoc Networks - M1 - NE
		200104/IT322C - Seminar II - M3 - NE
8	Dr. Lakshmi K S	101008/IT300D - OPERATING SYSTEM - S3 - AD
		101009/IT300C - OBJECT ORIENTED PROGRAMMING - S3 - CU
		200104 IT3XXA - Program Elective IV - M3 - NE
9	Ms. Divya James	200104/IT1**E - Program Elective I - M1 - NE
		101904/*70*C - OPEN ELECTIVE - S7 - AD
		101004/IT70*B - PROGRAMME ELECTIVE II - S7 - IT
10	Dr. Nikhila T Bhuvan	100008/IT500D - ARTIFICIAL INTELLIGENCE - S5 - AD
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15	Ms. Jeshmol P J	101009/IT100C - FUNDAMENTALS OF COMPUTER SCIENCE - S1 - CU
		200104/IT3XXB - Program Elective V - M3 - NE
16	Dr. Priya Mariam Raju	101009/IT50*f - PROGRAMME ELECTIVE I - S5 - CU
		101903/CO300B - DATA STRUCTURES - S3 - AD
17	Dr. Ranju S Kartha	101004/IT500C - DATA COMMUNICATION AND NETWORKING - S5 - IT
		101902/IT500E - MANAGEMENT FOR SOFTWARE ENGINEERS - S5 - AD
18	Ms. Vijji Mohan	100908/CO500F - DISASTER MANAGEMENT - S5 - IT
		101004/IT500A - WEB APPLICATION DEVELOPMENT - S5 - IT
19	Ms. Alswarya Mohan	101902/IT500E - MANAGEMENT FOR SOFTWARE ENGINEERS - S5 - AD
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20	Ms. Tanya Shirley Stalin	101009/IT700A - USABILITY DESIGN OF SOFTWARE APPLICATIONS - S7 - CU
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21	Ms. Ancy C A	101009/IT700B - IT WORKSHOP SKYLAB / MATLAB - S7 - CU
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24	New faculty 1	101009/IT300E - DATABASE MANAGEMENT SYSTEMS - S3 - CU
		101009/IT70*f - PROGRAMME ELECTIVE III - S7 - CU

25	New Faculty 2	Edit	101009/IT500B - COMPILER DESIGN - S5 - CU
26	New Faculty 3	Edit	101008/IT70*B - PROGRAMME ELECTIVE II - S7 - AD

Unallocated Subjects:

S.No	Sem	Programme	Course Code	Course Name
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OPTIMIZING SUBJECT ALLOCATION AND WORKLOAD CALCULATION

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Subject Allocation

Submit Successful!

Final Allocation:

Priority	Name	Subject
1	Dr. Poulose Jacob	200104/IT100B - Advanced Computer Networks - M1 - NE
2	Fr. Jaison Paul Mulerickal	200104/IT100D - Cloud Computing Concepts - M1 - NE
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17	Dr. Ranju S Kartha	101004/IT500C - DATA COMMUNICATION AND NETWORKING - S5 - IT
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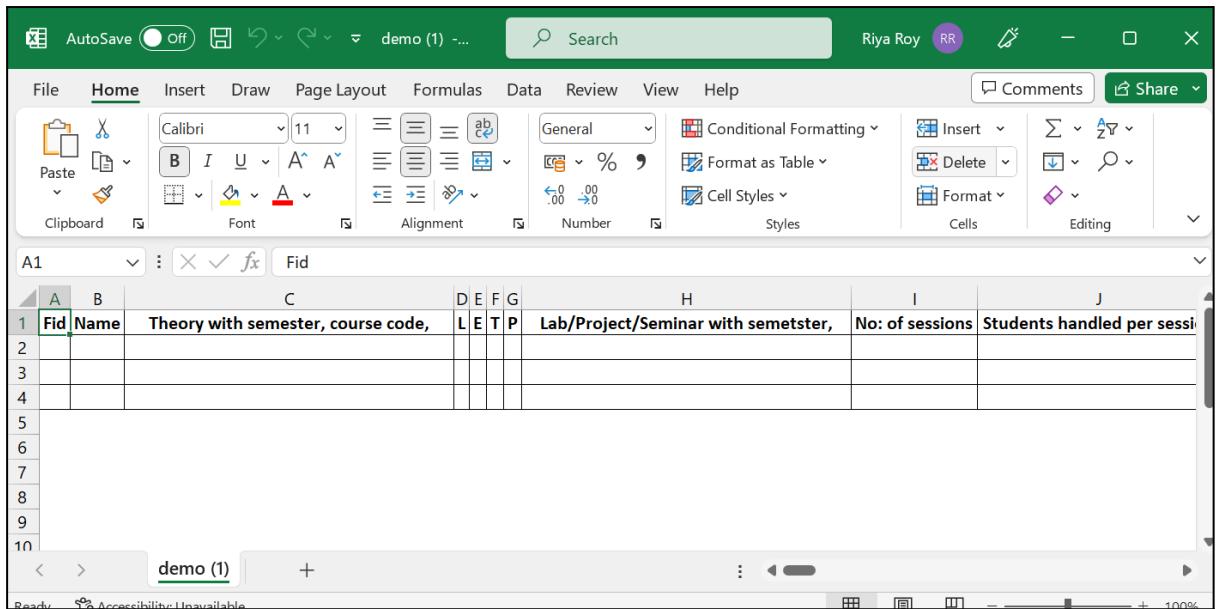
OPTIMIZING SUBJECT ALLOCATION AND WORKLOAD CALCULATION

Subject selection Faculty Load Allocation Faculty Priority Allocation Subject Allocation Workload Generation

Subject allocation and workload calculation are essential components of an effective education system. In today's rapidly changing and competitive world, it is imperative to have a system that optimizes resources, improves efficiency, and enhances outcomes. The subject allocation and workload calculation system aim to achieve these goals by assigning subjects to teachers and determining their workload in a fair and equitable manner.

The project on subject allocation and workload calculation aims to develop a specialized system for managing subject allocation and workload calculation for faculty members. The system analyze course requirements, faculty preference to optimize subject allocation. The workload calculation module considers the number of teaching hours, tutorial hours, laboratory work, and administrative responsibilities to ensure an equitable workload distribution. The system is designed to enhance academic efficiency, promote faculty satisfaction, and improve student outcomes by creating a balanced and effective teaching environment.

Fid	Name	Theory with semester, course code, course name (both B.Tech & M.Tech.)	L E T P	Lab/Project/Seminar with semester, course code and course name (both B.Tech. & M.Tech.)	No. of sessions	Students handled per session	Teaching workload (hrs/week)												Fractional workload (Own Branch)	Fractional workload (Other Branch)	Fractional workload (First Year)	Fractional workload (PG)	Total workload for teaching (hrs/week)	Average class hours per week spent for direct contact out of 40	Research Gates - Funded Project / University Project Guidance	Research work / Institute duties	Departmental administrative work	TOTAL WORK LOAD (hrs/week)										
							B.Tech Workload						M.Tech																									
1701	Dr. Pradeep Jaiswal	2001041TT102B/M1/NC	A		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	7	0.5	0	0	0.5	4	0.5	0.5	a	0.5	a	0.5
1702	Dr. Pradeep Jaiswal	2001041TT102B/M1/NC	B		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	7	0.5	0	0	0.5	4	0.5	1	mid	1	mid	1
1703	Mr. Jaiswal	1010091PT302E/S3/OT	A		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	3.5	1	0	0	0	4	0.5					
1704	Ms. Kalyanee A.J	1019081CO060E/S3/AD	A		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	7	1	0	0	0	8	1.5					
1705	Ms. Kalyanee A.J	1019081CO060E/S3/AD	B		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	7	1	0	0	0	8	1.5					
1706	Mr. Kalyanee A.J	1019081CO060E/S3/PT	A		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	7	1	0	0	0	8	1.5					
1707	Mr. Kalyanee A.J	1019081CO060E/S3/PT	B		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	7	1	0	0	0	8	1.5					
1708	Dr. Kalyanee A.J	1019081CO060E/S3/PT	A		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	7	1	0	0	0	8	1.5					
1709	Dr. Dr. Shyam K. Patel	1019081CO060E/S3/AD	A		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	7	1	0	0	0	8	1.5					
1710	Dr. Dr. Shyam K. Patel	1019081CO060E/S3/AD	B		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	7	1	0	0	0	8	1.5					
1711	Dr. Dr. Shyam K. Patel	1019081CO060E/S3/PT	A		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	7	1	0	0	0	8	1.5					
1712	Dr. Dr. Shyam K. Patel	1019081CO060E/S3/PT	B		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	7	1	0	0	0	8	1.5					
1713	Dr. Neelakshi A.	1000091PT302E/S3/OT	A		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	3.5	1	0	0	0	4	0.5	1	mid	1	mid	1
1714	Dr. Neelakshi A.	1000091PT302E/S3/OT	B		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	3.5	1	0	0	0	4	0.5	1	mid	1	mid	1
1715	Dr. Neelakshi A.	1000091PT302E/S3/PT	A		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	3.5	1	0	0	0	4	0.5	1	mid	1	mid	1
1716	Dr. Neelakshi A.	1000091PT302E/S3/PT	B		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	3.5	1	0	0	0	4	0.5	1	mid	1	mid	1
1717	Dr. Neelakshi A.	1000091PT302E/S3/AD	A		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	3.5	1	0	0	0	4	0.5	1	mid	1	mid	1
1718	Dr. Neelakshi A.	1000091PT302E/S3/AD	B		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	3.5	1	0	0	0	4	0.5	1	mid	1	mid	1
1719	Dr. Neelakshi A.	1000091PT302E/S3/AD	C		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	3.5	1	0	0	0	4	0.5	1	mid	1	mid	1
1720	Dr. Neelakshi A.	1000091PT302E/S3/AD	D		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	3.5	1	0	0	0	4	0.5	1	mid	1	mid	1
1721	Dr. Neelakshi A.	1000091PT302E/S3/AD	E		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	3.5	1	0	0	0	4	0.5	1	mid	1	mid	1
1722	Dr. Neelakshi A.	1000091PT302E/S3/AD	F		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	3.5	1	0	0	0	4	0.5	1	mid	1	mid	1
1723	Dr. Neelakshi A.	1000091PT302E/S3/AD	G		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	3.5	1	0	0	0	4	0.5	1	mid	1	mid	1
1724	Dr. Neelakshi A.	1000091PT302E/S3/AD	H		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	3.5	1	0	0	0	4	0.5	1	mid	1	mid	1
1725	Dr. Neelakshi A.	1000091PT302E/S3/AD	I		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	3.5	1	0	0	0	4	0.5	1	mid	1	mid	1
1726	Dr. Neelakshi A.	1000091PT302E/S3/AD	J		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	3.5	1	0	0	0	4	0.5	1	mid	1	mid	1
1727	Dr. Neelakshi A.	1000091PT302E/S3/AD	K		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	3.5	1	0	0	0	4	0.5	1	mid	1	mid	1
1728	Dr. Neelakshi A.	1000091PT302E/S3/AD	L		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	3.5	1	0	0	0	4	0.5	1	mid	1	mid	1
1729	Dr. Neelakshi A.	1000091PT302E/S3/AD	M		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	3.5	1	0	0	0	4	0.5	1	mid	1	mid	1
1730	Dr. Neelakshi A.	1000091PT302E/S3/AD	N		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	3.5	1	0	0	0	4	0.5	1	mid	1	mid	1
1731	Dr. Neelakshi A.	1000091PT302E/S3/AD	O		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	3.5	1	0	0	0	4	0.5	1	mid	1	mid	1
1732	Dr. Neelakshi A.	1000091PT302E/S3/AD	P		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	3.5	1	0	0	0	4	0.5	1	mid	1	mid	1
1733	Dr. Neelakshi A.	1000091PT302E/S3/AD	Q		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	3.5	1	0	0	0	4	0.5	1	mid	1	mid	1
1734	Dr. Neelakshi A.	1000091PT302E/S3/AD	R		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	3.5	1	0	0	0	4	0.5	1	mid	1	mid	1
1735	Dr. Neelakshi A.	1000091PT302E/S3/AD	S		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	3.5	1	0	0	0	4	0.5	1	mid	1	mid	1
1736	Dr. Neelakshi A.	1000091PT302E/S3/AD	T		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	2												



The screenshot shows a Microsoft Excel spreadsheet titled "demo (1)". The table has the following structure:

	A	B	C	D	E	F	G	H	I	J
1	Fid	Name	Theory with semester, course code,	L	E	T	P	Lab/Project/Seminar with semetster,	No: of sessions	Students handled per sessi
2										
3										
4										
5										
6										
7										
8										
9										
10										

Elective Selection

Choose a Program:

Choose Semester:

Choose Elective:

Choose a Program:

 IT

Choose Semester:

Choose Elective:

Choose a Program: Choose Semester:

Submit

Choose Elective:

Submit Elective

Choose a Program: Choose Semester:

Submit

Choose Elective:

Submit Elective

Choose a Program: Choose Semester:

Submit

Choose Elective:

Submit Elective

SI No	Course Name	Course Code	
1	OOT	OOT100	<input type="checkbox"/>

Submit

Choose a Program: Select Program

Choose Semester: Select Semester

Submit

Choose Elective:

Submit Elective

SI No	Course Name	Course Code	
1	OOT	OOT100	<input checked="" type="checkbox"/>

Submit

Selected courses have been inserted into the 'elective' table successfully!

Choose a Program: Select Program

Choose Semester: Select Semester

Submit

Choose Elective:

Submit Elective

ElectiveCourseID	CourseID	ProgrammID	Description	EffectiveDate	Semester
0	1001	0	Elective 1	2023-07-24	0
0	1001	0	Elective 1	2023-07-24	0
0	1004	0	Elective 2	2023-07-24	0
0	1003	0	Not Elective	2023-07-24	0
0	1001	0	Elective 1	2023-07-24	0
0	1001	0	sad a dfs d a dsd ad gr gfadsd sdsadsfg	2023-07-19	0
0	1001	0	sad a dfs d a dsd ad gr gfadsd sdsadsfg	2023-07-19	0
0	1001	0	sad a dfs d a dsd ad gr gfadsd sdsadsfg	2023-07-19	0
0	1006	0	dsd dsdddddddaasd ss dassdad s	2023-07-19	0
0	1001	0	sad a dfs d a dsd ad gr gfadsd sdsadsfg	2023-07-19	0
0	1001	0	sad a dfs d a dsd ad gr gfadsd sdsadsfg	2023-07-19	0
0	1001	0	sad a dfs d a dsd ad gr gfadsd sdsadsfg	2023-07-19	0

Show all | Number of rows: 25 Filter rows: Search this table

APPENDIX C

SLIDES

Optimizing subject allocation and workload calculation

Project Guide:

Dr. Neeba E.A

Project Coordinator:

Ms. Taniya Shirley Stalin

Team Members:

A Harikrishnan

Aneesh PB

Rahul S

Riya Roy

1

Problem Definition

The problem is to optimize subject allocation and workload distribution in an educational institution considering teacher expertise, preferences, and availability. This is to ensure fair subject assignments, resource utilization, and efficient scheduling while balancing workload to prevent individual overburdening and maximize faculty productivity.

2

Applications/Relevance

- Efficient Subject Allocation
- Balanced Workload Distribution
- Time Management
- Enhanced Transparency
- Improved Faculty Satisfaction
- Resource Optimization
- Scalability and Adaptability

3

Modules

- **Faculty Details:** In this module we enter the faculty details
- **Faculty Load:** In this module we define the load for each faculty (no of theory and no of lab)
- **Faculty Priority:** We assign priority according to seniority, position, qualification etc.
- **Course Sharing:** In this module the faculty who will share the same course are selected.
- **Elective Course:** In this module, the elective courses for the semester are chosen.

4

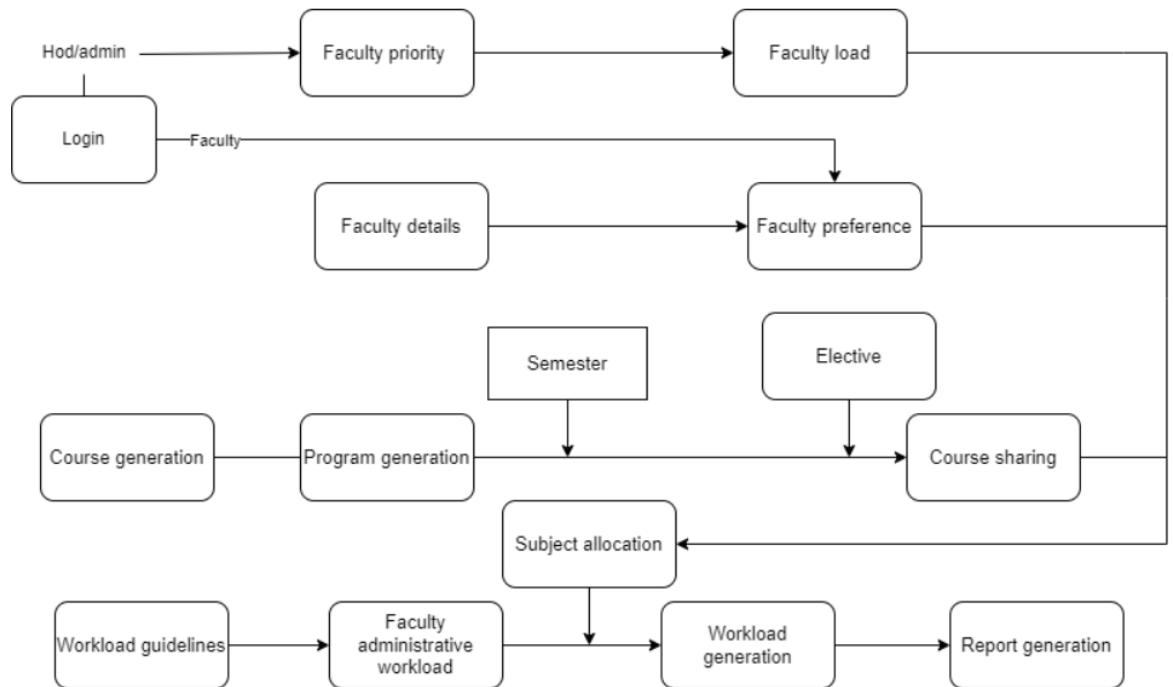
Modules

- **Faculty Preference:** In this module, the faculty chooses their preferred subjects
- **Subject allocation:** In this module, we allocate the subjects according to the priority, preference and other constraints.
- **Workload Generation:** Used to generate the different workload categories.
- **Workload Allocation:** Used to distribute the workload and calculate the workload hours.
- **Report generation** In this module we prepare a report based on the workload allocation.

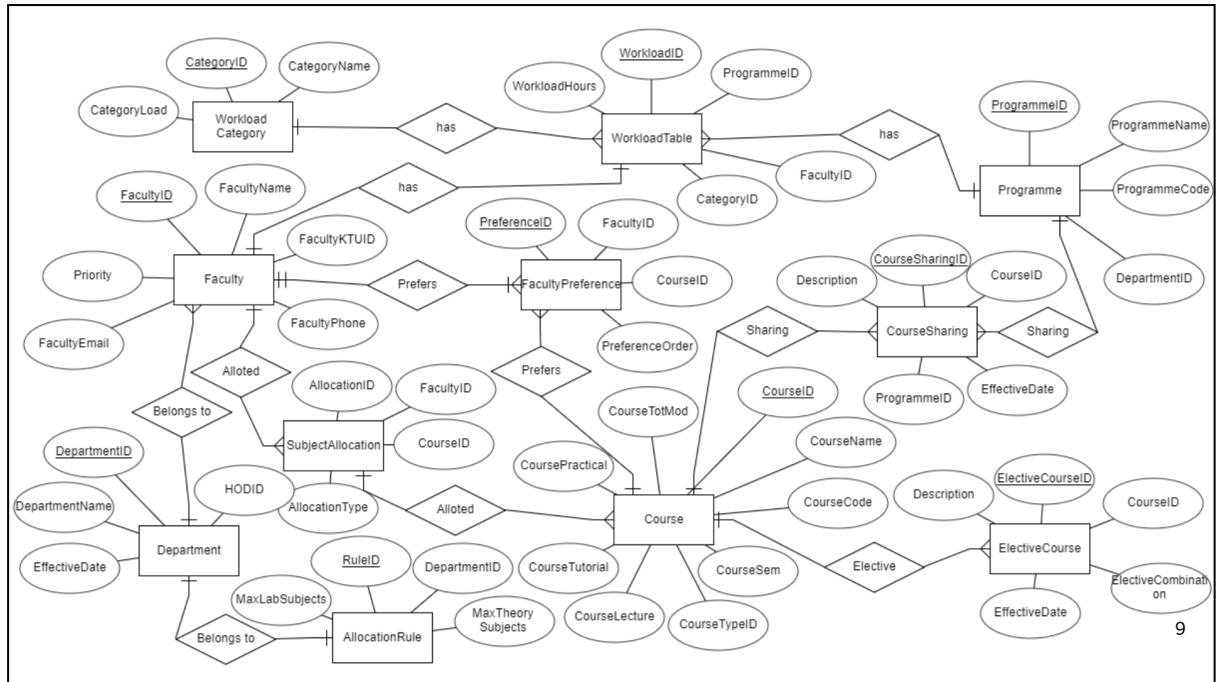
5

Block Diagram

6



ER Diagram



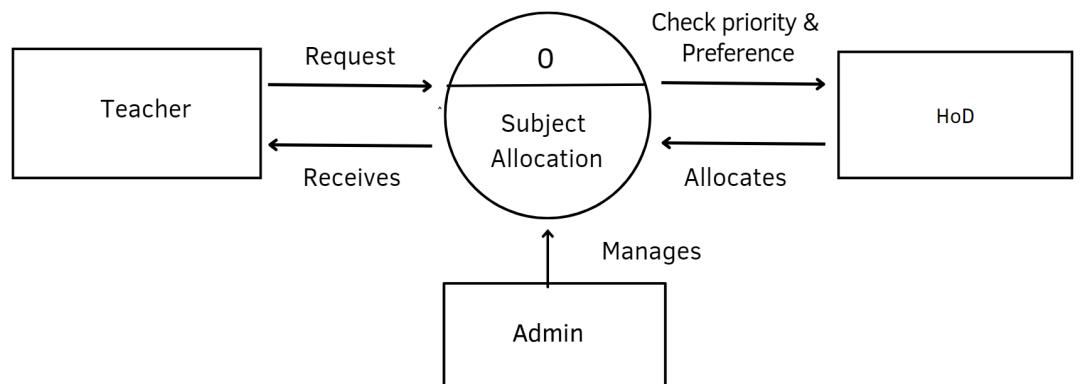
9

Data Flow Diagrams

10

DFD

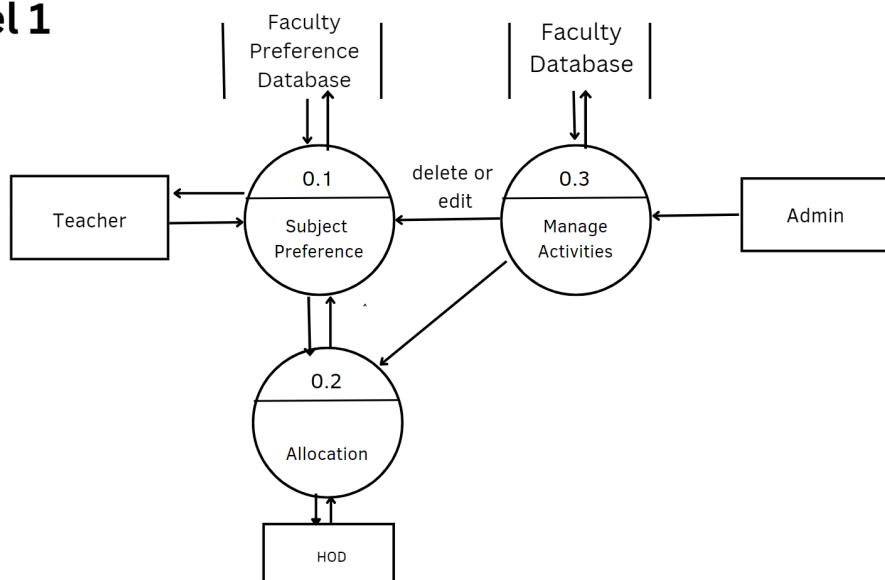
Level 0



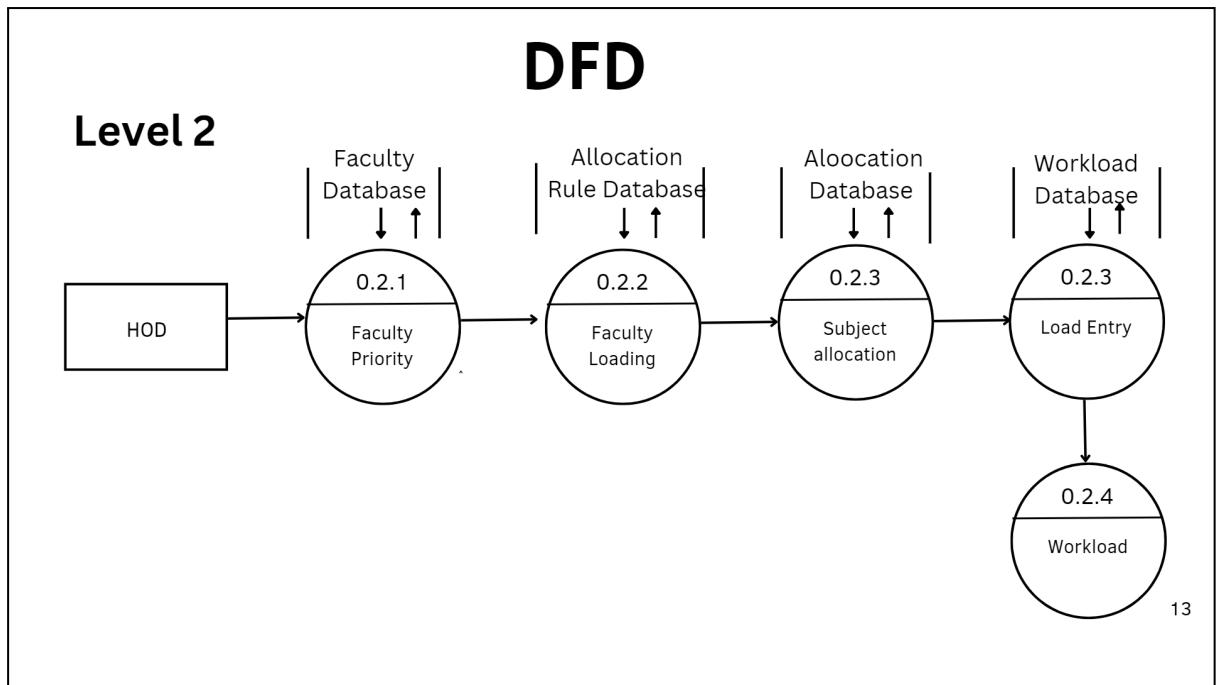
11

DFD

Level 1



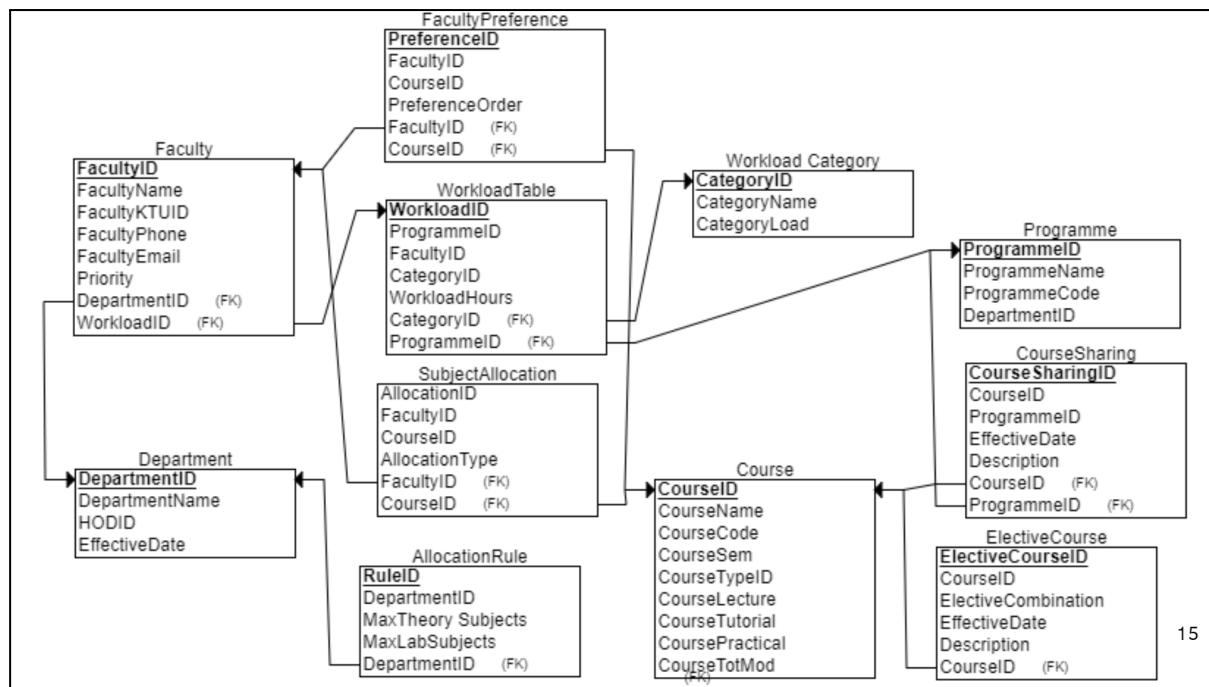
12



13

Database Design

14



15

Literature Survey

Developing a product relying on user inputs requires a user-centric approach, iterative design, and continuous user engagement. By actively involving users throughout the development process, collecting their feedback, and adapting the product based on their preferences, developers can create a product that meets user expectations and delivers a superior user experience.

16

Implementation Details

Software Specifications

Programming Languages and Technologies used: HTML5, CSS3, Javascript, PHP 8.2

Database: MySQL 8.0

Platform: XAMPP, Apache Server

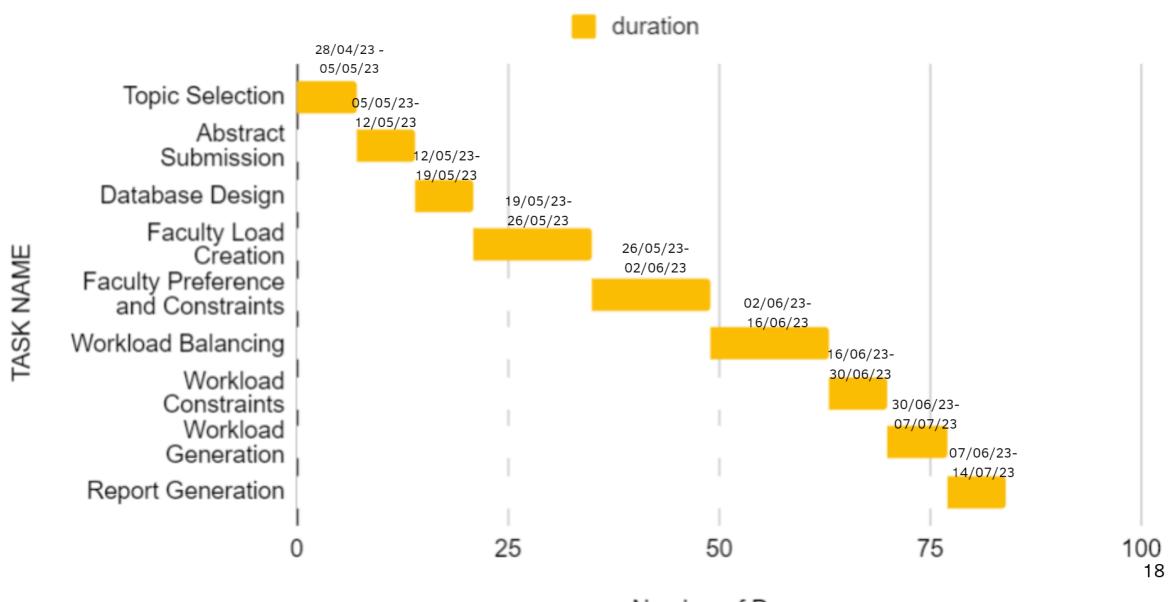
IDE: Visual Studio Code

Hardware Specifications:

- Intel i5 processor
- 4GB RAM
- 1GB free disk space

17

Gantt Chart



Individual tasks

- Aneesh - Subject Selection & Subject allocation
- Riya - Homepage ,Faculty load allocation & workload generation
- Rahul - Elective selection & Login page
- Harikrishnan - Course sharing & Page layout

19

DEMO

20

22-07-23

The screenshot shows a browser window titled "Login" with the URL "http://localhost/mipro/login.php". The page has a header and navigation bar at the top, which are currently empty. Below this is a main content area with a title "Login". It contains fields for "Username" (with value "abc") and "Password" (placeholder "Enter Password"). A green "Login" button is centered below these fields. At the bottom left, there is a "Remember me" checkbox and a link "Forgot password?".

The screenshot shows a browser window titled "Home" with the URL "http://localhost/mipro/adminhome.php". The page features a main title "OPTIMIZING SUBJECT ALLOCATION AND WORKLOAD CALCULATION" in bold capital letters. Below the title is a horizontal navigation bar with five items: "Subject selection", "Faculty Load Allocation", "Faculty Priority Allocation", "Subject Allocation", and "Workload Generation". The "Subject selection" item is highlighted with a blue background. The main content area contains two paragraphs of text. The first paragraph discusses the importance of optimizing subject allocation and workload calculation in a competitive world. The second paragraph provides an overview of the project's goals, mentioning the analysis of course requirements and faculty preferences to optimize subject allocation, and the consideration of various responsibilities to ensure equitable workload distribution.

COURSE SHARING

Program select:

AD

Semester:

S1

Course Type:

CORE

Submit

This screenshot shows a user interface for course sharing. At the top, the title "COURSE SHARING" is displayed. Below it, there are three dropdown menus: "Program select" (set to "AD"), "Semester" (set to "S1"), and "Course Type" (set to "CORE"). A green "Submit" button is located at the bottom right of the form. The "Program select" dropdown is open, showing options "AD", "CU", and "IT", with "AD" currently selected.

COURSE SHARING

Program select:

AD

AD

CU

IT

S1

Course Type:

CORE

Submit

This screenshot shows the same course sharing interface as the previous one, but with a notable difference: the "Program select" dropdown now has "AD" highlighted with a blue selection bar, indicating it is the active or selected option. The other options "CU" and "IT" are visible in the dropdown menu.

COURSE SHARING

Program select:

AD

Semester:

S1
S1
S2
S3
S4
S5
S6
S7
S8
M1
M2
M3
M4

COURSE SHARING

Program select:

AD

Semester:

S1

Course Type:

CORE
CORE
LAB
Submit

COURSE SHARING

Program select:

Semester:

Course Type:

Submit

Course Details

Course Code	Course Name	Faculty 1	Faculty 2
101008/IT60*D PROGRAMME ELECTIVE I		Dr. Poulose Jacob	Dr. Poulose Jacob
101008/IT600B MACHINE LEARNING		Fr. Jaison Paul Mulericka	Dr. Poulose Jacob
101008/IT600C BIG DATA ANALYTICS		Ms. Kuttymma A J	Dr. Poulose Jacob
101008/IT600F COMPREHENSIVE COURSE WORK		Dr. Biju Paul	Dr. Poulose Jacob
		Dr. Neeba E A	Dr. Poulose Jacob
		Dr. Shery K K	Dr. Poulose Jacob
		Ms. Ashwarya Mohan	Dr. Poulose Jacob
		Ms. Bency Wilson	Dr. Poulose Jacob
		Mr Binu A	Dr. Poulose Jacob
		Ms. Chinchu Krishna	

Submit Course Details

COURSE SHARING

Program select:

Semester:

Course Type:

Submit

Course Details

Course Code	Course Name	Faculty 1	Faculty 2	Faculty 3	Faculty 4
101008/IT622S MACHINE LEARNING LAB		Dr. Poulose Jacob	Dr. Poulose Jacob	Dr. Poulose Jacob	Dr. Poulose Jacob
101008/IT622T MINI PROJECT		Dr. Poulose Jacob	Dr. Poulose Jacob	Dr. Poulose Jacob	Dr. Poulose Jacob

Submit Course Details

The screenshot shows a web browser window titled "Subject Selection". The URL is http://localhost/mipro/subjectallocation_subjectpreference.php. The page has a header "OPTIMIZING SUBJECT ALLOCATION AND WORKLOAD CALCULATION" and a "Home" button. Below it is a section titled "Subject Selection". It displays "Faculty Name: abc". There are two rows for selecting subjects. Each row has a "Subject" label, a "Select Subject" input field, and a "View Current Selection" button. At the bottom are "ADD MORE", "Submit", and "View Current Selection" buttons.

Subject	Select Subject
Subject 1	Select Subject
Subject 2	Select Subject

Buttons:
View Current Selection (blue)
ADD MORE (blue)
Submit (blue)

This screenshot is similar to the first one but shows a dropdown menu for "Subject 1". The menu lists various subjects with their codes and names. One item, "101008/IT622S - MACHINE LEARNING LAB", is highlighted with a blue background. The rest of the interface is identical to the first screenshot.

Subject	Description
101004/IT600A	- INTERNETWORKING WITH TCP/IP
101004/IT600B	- ALGORITHM ANALYSIS AND DESIGN
101004/IT600C	- DATA SCIENCE
101004/IT600F	- COMPREHENSIVE COURSE WORK
101004/IT622S	- COMPUTER NETWORKS LAB
101004/IT622T	- MINI PROJECT
101008/IT600B	- MACHINE LEARNING
101008/IT600C	- BIG DATA ANALYTICS
101008/IT622S	- MACHINE LEARNING LAB
101008/MA600A	- TOPOLOGICAL DATA ANALYSIS-I
101908/ES900E	- INDUSTRIAL ECONOMICS AND FOREIGN TRADE

Buttons:
View Current Selection (blue)
ADD MORE (blue)
Submit (blue)

The screenshot shows a web browser window titled "Subject Selection". The URL is http://localhost/mipro/subjectallocation_subjectpreference.php. The page title is "OPTIMIZING SUBJECT ALLOCATION AND WORKLOAD CALCULATION". A "Home" button is at the top right. Below it is the heading "Subject Selection". The text "Faculty Name: abc" is displayed. There are two rows for subject selection. The first row has "Subject 1" and a box containing "101008/IT600B - MACHINE LEARNING". The second row has "Subject 2" and a box containing "101008/MA600A - TOPOLOGICAL DAT/". At the bottom are three buttons: "View Current Selection", "ADD MORE", and "Submit".

The screenshot shows a web browser window titled "Subject Selection". The URL is http://localhost/mipro/subjectallocation_subjectpreference.php. The page title is "OPTIMIZING SUBJECT ALLOCATION AND WORKLOAD CALCULATION". A "Home" button is at the top right. Below it is the heading "Subject Selection". The text "Faculty Name: abc" is displayed. There are three rows for subject selection. The first row has "Subject 1" and a box containing "101008/IT600B - MACHINE LEARNING". The second row has "Subject 2" and a box containing "101008/MA600A - TOPOLOGICAL DAT/". The third row has "Subject 3" and a box labeled "Select Subject" with a red "Remove" button to its right. At the bottom are three buttons: "View Current Selection", "ADD MORE", and "Submit". A "Footer" is visible at the very bottom.

Subject Selection

Faculty Name: abc

Subject 1	101008/IT600B - MACHINE LEARNING
Subject 2	101008/MA600A - TOPOLOGICAL DATA
Subject 3	101004/IT622T - MINI PROJECT
Subject 4	Select Subject

View Current Selection **ADD MORE** **Submit**

Subject Selection

Faculty Name: abc

Subject 1	101008/IT600B - MACHINE LEARNING
Subject 2	101008/MA600A - TOPOLOGICAL DATA
Subject 3	101004/IT622T - MINI PROJECT
Subject 4	Select Subject

View Current Selection **ADD MORE** **Submit**

Footer

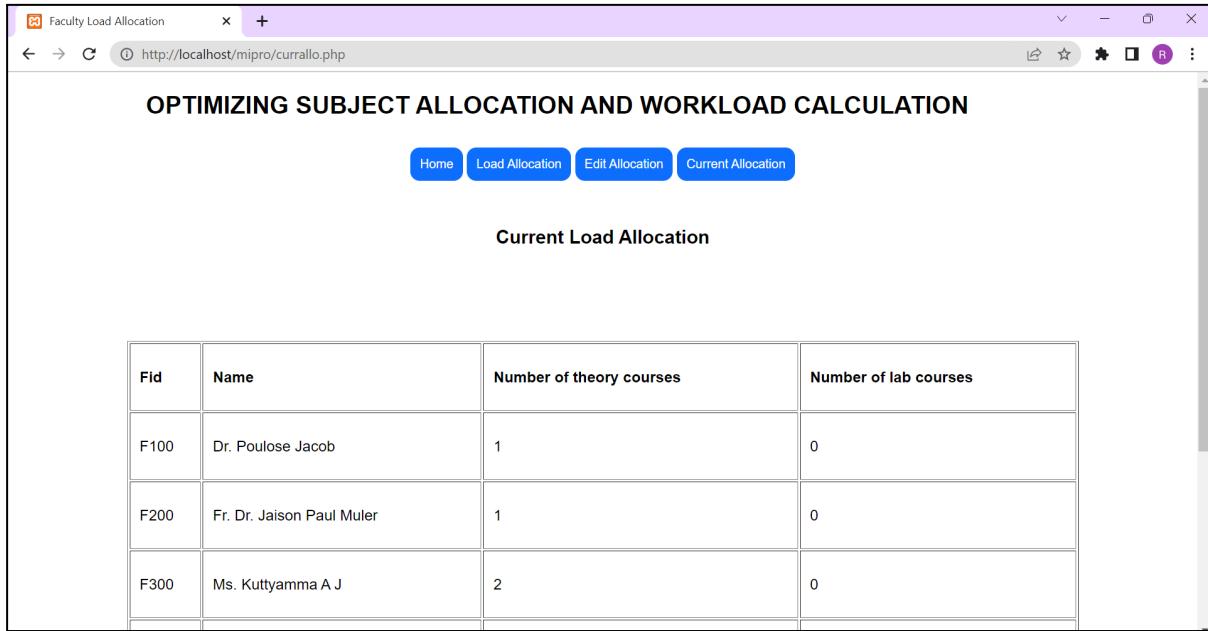
The screenshot shows a web browser window titled "Subject Selection". The URL is http://localhost/mipro/subjectallocation_subjectpreference_viewinsert.php. The page has a header "Home" and a main section titled "Current Selection". It displays the following table:

Faculty Name:	EDIT
Subject 1	101008/IT600B - MACHINE LEARNING
Subject 2	101008/MA600A - TOPOLOGICAL DATA ANALYSIS-I
Subject 3	101004/IT622T - MINI PROJECT

The screenshot shows a web browser window titled "Home". The URL is <http://localhost/mipro/adminhome.php>. The page has a header "OPTIMIZING SUBJECT ALLOCATION AND WORKLOAD CALCULATION". Below the header is a navigation menu with five items: "Subject selection", "Faculty Load Allocation", "Faculty Priority Allocation", "Subject Allocation", and "Workload Generation". The "Subject selection" item is highlighted with a blue background. The main content area contains two paragraphs of text:

Subject allocation and workload calculation are essential components of an effective education system. In today's rapidly changing and competitive world, it is imperative to have a system that optimizes resources, improves efficiency, and enhances outcomes. The subject allocation and workload calculation system aim to achieve these goals by assigning subjects to teachers and determining their workload in a fair and equitable manner.

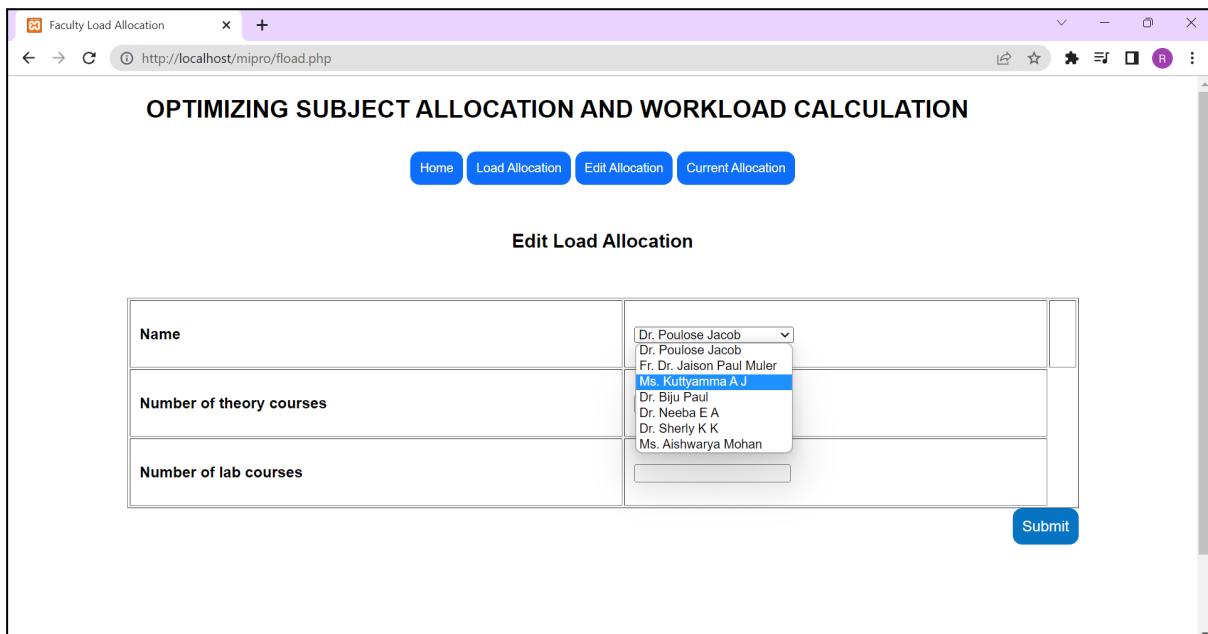
The project on subject allocation and workload calculation aims to develop a specialized system for managing subject allocation and workload calculation for faculty members. The system analyze course requirements, faculty preference to optimize subject allocation. The workload calculation module considers the number of teaching hours, tutorial hours, laboratory work, and administrative responsibilities to ensure an equitable workload distribution. The system is designed to enhance academic efficiency, promote faculty satisfaction, and improve student outcomes by creating a balanced and effective teaching environment.



OPTIMIZING SUBJECT ALLOCATION AND WORKLOAD CALCULATION

Current Load Allocation

Fid	Name	Number of theory courses	Number of lab courses
F100	Dr. Poulose Jacob	1	0
F200	Fr. Dr. Jaison Paul Muler	1	0
F300	Ms. Kuttyamma A J	2	0



OPTIMIZING SUBJECT ALLOCATION AND WORKLOAD CALCULATION

Edit Load Allocation

Name	<input style="width: 150px; height: 20px; border: 1px solid #ccc; border-radius: 5px; padding: 2px 5px; margin-bottom: 5px;" type="text" value="Dr. Poulose Jacob"/> <div style="border: 1px solid #ccc; padding: 5px; background-color: #f9f9f9; width: fit-content; position: absolute; left: -10px; top: 0;"> Dr. Poulose Jacob Fr. Dr. Jaison Paul Muler Ms. Kuttyamma A J Dr. Biju Paul Dr. Neeba E A Dr. Sherly K K Ms. Aishwarya Mohan </div>
Number of theory courses	<input style="width: 150px; height: 20px; border: 1px solid #ccc; border-radius: 5px; padding: 2px 5px; margin-bottom: 5px;" type="text"/>
Number of lab courses	<input style="width: 150px; height: 20px; border: 1px solid #ccc; border-radius: 5px; padding: 2px 5px; margin-bottom: 5px;" type="text"/>

Submit

OPTIMIZING SUBJECT ALLOCATION AND WORKLOAD CALCULATION

Home Load Allocation Edit Allocation Current Allocation

Edit Load Allocation

Name	<input type="text" value="Ms. Kuttyamma A J"/>
Number of theory courses	<input type="text" value="1"/>
Number of lab courses	<input type="text" value="0"/>

Submit

OPTIMIZING SUBJECT ALLOCATION AND WORKLOAD CALCULATION

Home Load Allocation Edit Allocation Current Allocation

Current Load Allocation

Fid	Name	Number of theory courses	Number of lab courses
F100	Dr. Poulose Jacob	1	0
F200	Fr. Dr. Jaison Paul Muler	1	0
F300	Ms. Kuttyamma A J	1	0

The screenshot shows a web browser window titled "Home" with the URL "http://localhost/mipro/adminhome.php". The page has a header with the title "OPTIMIZING SUBJECT ALLOCATION AND WORKLOAD CALCULATION" and a navigation bar with five buttons: "Subject selection", "Faculty Load Allocation", "Faculty Priority Allocation", "Subject Allocation", and "Workload Generation". Below the navigation bar is a large text block that reads:

Subject allocation and workload calculation are essential components of an effective education system. In today's rapidly changing and competitive world, it is imperative to have a system that optimizes resources, improves efficiency, and enhances outcomes. The subject allocation and workload calculation system aim to achieve these goals by assigning subjects to teachers and determining their workload in a fair and equitable manner.

The project on subject allocation and workload calculation aims to develop a specialized system for managing subject allocation and workload calculation for faculty members. The system analyze course requirements, faculty preference to optimize subject allocation. The workload calculation module considers the number of teaching hours, tutorial hours, laboratory work, and administrative responsibilities to ensure an equitable workload distribution. The system is designed to enhance academic efficiency, promote faculty satisfaction, and improve student outcomes by creating a balanced and effective teaching environment.

The screenshot shows a web browser window titled "Faculty Priority Allocation" with the URL "http://localhost/mipro/priority_view.php". The page has a header with the title "OPTIMIZING SUBJECT ALLOCATION AND WORKLOAD CALCULATION" and a navigation bar with four buttons: "Home", "Priority Allocation", "Edit Priority Allocation", and "Current Priority Allocation". Below the navigation bar is a section titled "Current Priority Allocation" which contains a table:

Fid	Name	Priority
F100	Dr. Poulose Jacob	1
F200	Fr. Dr. Jaison Paul Muler	2
F300	Ms. Kuttyamma A.J	3

The screenshot shows a web browser window titled "Faculty Priority Allocation". The URL is http://localhost/mipro/priority_edit.php. The main title of the page is "OPTIMIZING SUBJECT ALLOCATION AND WORKLOAD CALCULATION". Below it, there is a navigation bar with buttons for "Home", "Priority Allocation", "Edit Priority Allocation", and "Current Priority Allocation". The main content area is titled "Edit Priority Allocation". It contains a form with two rows. The first row has a "Name" label and a dropdown menu containing "Dr. Poulose Jacob". The second row has a "Priority" label and an empty input field. At the bottom right of the form is a blue "Submit" button.

The screenshot shows a web browser window titled "Home". The URL is <http://localhost/mipro/adminhome.php>. The main title of the page is "OPTIMIZING SUBJECT ALLOCATION AND WORKLOAD CALCULATION". Below it, there is a navigation bar with buttons for "Subject selection", "Faculty Load Allocation", "Faculty Priority Allocation", "Subject Allocation", and "Workload Generation". The main content area contains several paragraphs of text. The first paragraph discusses the importance of subject allocation and workload calculation in an effective education system. The second paragraph describes the project's aim to develop a specialized system for managing subject allocation and workload calculation for faculty members. The third paragraph details the workload calculation module's responsibilities, such as considering teaching hours, tutorial hours, laboratory work, and administrative responsibilities to ensure an equitable workload distribution. The text is presented in a clean, professional layout with a white background and black text.

OPTIMIZING SUBJECT ALLOCATION AND WORKLOAD CALCULATION

[Home](#)

Subject Allocation

[Iteration 1](#)
[Next](#)

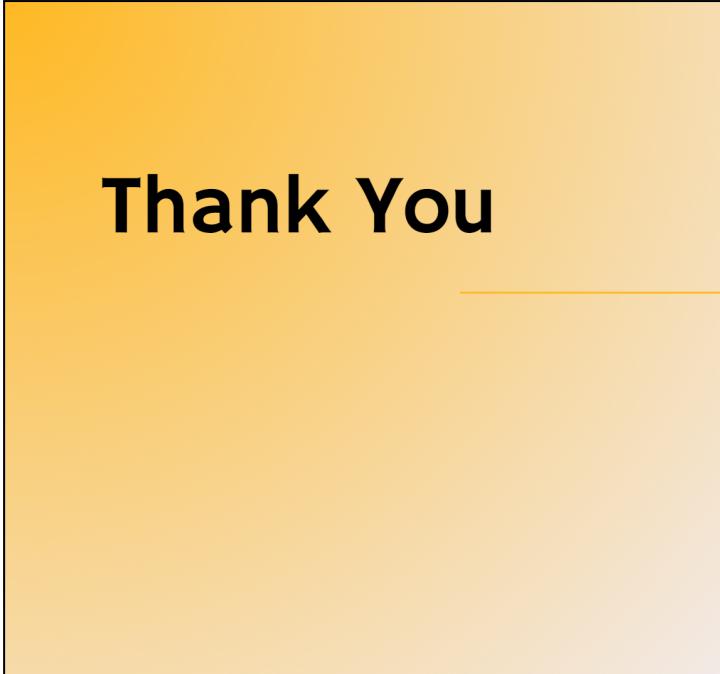
Priority	Name	Subject
1	Dr. Poulose Jacob	200104/IT100B - Advanced Computer Networks - M1 - NE
2	Fr. Jaison Paul Mulerrickal	101009/IT300E - DATABASE MANAGEMENT SYSTEMS - S3 - CU
3	Ms. Kuttyamma A J	101908/CO900E - DESIGN AND ENGINEERING - S3 - AD
4	Dr. Biju Paul	101908/CO300F - SUSTAINABLE ENGINEERING - S3 - AD
5	Dr. Neeba E A	100008/IT500C - DATA WAREHOUSING AND DATA MINING - S5 - AD

OPTIMIZING SUBJECT ALLOCATION AND WORKLOAD CALCULATION

[Subject selection](#)
[Faculty Load Allocation](#)
[Faculty Priority Allocation](#)
[Subject Allocation](#)
[Workload Generation](#)

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Thank You

APPENDIX D

**RAJAGIRI SCHOOL OF ENGINEERING AND
TECHNOLOGY (AUTONOMOUS)**

**DEPARTMENT OF INFORMATION TECHNOLOGY
PROGRAMME: ARTIFICIAL INTELLIGENCE AND DATA
SCIENCE**

VISION

To evolve into a department of excellence in information technology by the creation and exchange of knowledge through leading-edge research, innovation and services, which will in turn contribute towards solving complex societal problems and thus building a peaceful and prosperous mankind.

MISSION

To impart high-quality technical education, research training, professionalism and strong ethical values in the young minds for ensuring their productive careers in industry and academia so as to work with a commitment to the betterment of mankind.

PROGRAM EDUCATIONAL OBJECTIVES (PEO)

Graduates of Artificial Intelligence and Data Science program shall

PEO 1: Have strong technical foundation for successful professional careers and to evolve as key-players / entrepreneurs in the field of information technology.

PEO 2: Excel in analyzing, formulating and solving engineering problems to promote life-long learning, to develop applications, resulting in the betterment of the society.

PEO 3: Have leadership skills and awareness on professional ethics and codes.

PROGRAM OUTCOMES (PO)

Artificial Intelligence and Data Science program students will be able to:

PO 1. Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO 2. Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO 3. Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs

with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO 4. Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO 5. Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO 6. The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO 7. Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO 8. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO 9. Individual and teamwork: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO 10. Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO 11. Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO 12. Life-long learning: Recognize the need for and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAM SPECIFIC OUTCOMES (PSO)

Artificial Intelligence and Data Science program students will be able to:

PSO1: Apply the fundamentals of science, engineering and mathematics to understand, analyze and develop solutions in the areas related to artificial intelligence and data science for optimal design of intelligent systems.

PSO2: Design and Implement appropriate techniques and analytic tools for the integration of intelligent systems, with a view to engaging in lifelong learning for the betterment of society.

PSO3: Practice professional ethics in applying scientific method to model and support multidisciplinary facets of engineering and its societal implications.

COURSE OBJECTIVES:

This course is designed for enabling the students to apply the knowledge to address the real-world situations/problems and find solutions. The course is also intended to estimate the ability of the students in transforming theoretical knowledge studied as part of the curriculum so far into a working model of a software system. The students are expected to design and develop a software/hardware project to innovatively solve a real-world problem.

COURSE OUTCOMES:

After completion of the course the student will be able to

SI.NO	DESCRIPTION	Blooms' Taxonomy Level

CO1	Identify the requirements for the real world problems	Level 3: Apply
CO2	Conduct a survey of several available literatures in the preferred field of study.	Level 3: Apply
CO3	Study and enhance software/ hardware skills.	Level 3: Apply
CO4	Demonstrate and build the project successfully by hardware requirements, coding, emulating and testing.	Level 3: Apply
CO5	To report and present the findings of the study conducted in the preferred domain and demonstrate an ability to work in teams and manage the conduct of the research study	Level 2: Understand

CO-PO AND CO-PSO MAPPING

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO 1	3	3	3	3	3	3	3	3				3	3	3	3
CO 2	3	3	3	3	3		2	3		3	2	3	3		3
CO 3	3	3	3	3	3	2	3	3		2	3	3	2	2	2
CO 4	3	3	2	2				3	3	3	3	3			
CO 5	3					2			3	2	3	2	3		

3/2/1: high/medium/low