

# A Feasibility Study on the Effectiveness of Manual Scheduling and Room Allocation

John Vincent B. Recreo\*, Jhana Rica S. Villaceran\*\*, Mike Stephen D. Tedoso\*\*\*, Dominic Gabriel V. Tayong\*\*\*\*, Dino Ilustrisimo, PhD\*\*\*\*\*

\*(Bachelor of Science in Information Technology Madridejos Community College, Bunakan, Madridejos, Cebu, Philippines  
Email: [johnvincent.recreo@mcclawis.edu.ph](mailto:johnvincent.recreo@mcclawis.edu.ph))

\*\* (Bachelor of Science in Information Technology Madridejos Community College, Bunakan, Madridejos, Cebu, Philippines  
Email: [jhanarica.villaceran@mcclawis.edu.ph](mailto:jhanarica.villaceran@mcclawis.edu.ph))

\*\*\* (Bachelor of Science in Information Technology Madridejos Community College, Bunakan, Madridejos, Cebu, Philippines  
Email: [mikestephen.tedoso@mcclawis.edu.ph](mailto:mikestephen.tedoso@mcclawis.edu.ph))

\*\*\*\* (Bachelor of Science in Information Technology Madridejos Community College, Bunakan, Madridejos, Cebu, Philippines  
Email: [dominic.tayad@mcclawis.edu.ph](mailto:dominic.tayad@mcclawis.edu.ph))

\*\*\*\*\* (Bachelor of Science in Information Technology Madridejos Community College, Bunakan, Madridejos, Cebu, Philippines  
Email: [dino.ilustrisimo@mcclawis.edu.ph](mailto:dino.ilustrisimo@mcclawis.edu.ph))

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## Abstract:

This study assessed the feasibility and effectiveness of the manual scheduling and room allocation system at Madridejos Community College. The participants were composed of students and instructors selected through purposive sampling based on their availability and willingness to participate. This non-probability sampling approach was used to ensure that respondents were relevant to the institutional context of the study. Using a descriptive research design, data were gathered through a researcher-made questionnaire and analyzed using frequency counts, percentages, and weighted mean to evaluate time efficiency, scheduling accuracy, conflict frequency, room utilization, and stakeholder satisfaction. Results revealed that the manual scheduling system is moderately effective but still experiences scheduling conflicts, delayed schedule dissemination, and communication gaps. Respondents suggested adopting a simple computerized scheduling system to improve coordination, minimize errors, and enhance operational efficiency. The study concludes that while manual scheduling is functional in limited-resource settings, digital scheduling can provide higher reliability and productivity.

**Keywords — Manual scheduling, room allocation, feasibility study, digital scheduling system, scheduling conflicts, classroom utilization, operational efficiency, descriptive research design, purposive sampling, weighted mean analysis, madridejos community college, centralized database, scheduling errors, instructor satisfaction, students’ satisfaction.**

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## I. INTRODUCTION

Scheduling classes and assigning rooms are essential tasks in any academic institution. However, when these processes are done manually, they often become time consuming, repetitive, and prone to errors. Many studies have shown that manual scheduling struggles to keep up with growing student populations, increasing course offerings, and the

need for conflict free timetables. Manual scheduling often leads to conflicts and requires multiple revisions, making it difficult for administrators to maintain accurate and organized schedules [1]. The study highlights that automated scheduling systems can prevent overlapping classes, reduce administrative workload, and improve overall efficiency [1].

Similar issues are reported in other educational settings such as manual timetable preparation which commonly results in inefficiencies and inconsistent scheduling because it relies heavily on human judgment. They emphasize that automated systems can help minimize these problems by using algorithms that systematically match resources with scheduling needs [2]. In the area of room allocation, a study found that traditional manual methods are slow and often require long processing times, creating delays for both students and administrators. By contrast, automated systems using genetic algorithms make room assignment faster, more accurate, and more transparent [3].

Earlier research also supports the idea that structured, SYSTEM-BASED approaches are more effective than manual ones. It showed that linear programming models can significantly improve classroom allocation by prioritizing available rooms and reducing conflicts [4]. More recent work demonstrates that automated scheduling and room mapping systems provide clearer information, reduce errors, and improve user satisfaction, especially when handling practical or laboratory sessions [5]. Broader institutional studies, such as the report by Francis, show that institutions using manual or decentralized scheduling often face challenges in classroom utilization, leading to underused rooms and inconsistent scheduling patterns [6].

At Madridejos Community College, scheduling and room allocation are still done manually. While this method has been functional for many years, it now struggles to keep up with the growing number of students, courses, and room requirements. Conflicts, last-minute changes, and communication delays are becoming more common. Given these challenges and the findings of current research, it is important to evaluate whether the existing manual system is still effective for the needs of the college.

This study examines how well the manual process works at Madridejos Community College. It evaluates accuracy, efficiency, room utilization, and satisfaction among students and instructors. By

comparing the current system with insights from recent literature, this research aims to determine whether improvements or a shift toward digital scheduling tools are necessary to support the college's operations more effectively.

### **1.1 Statement of the problem**

At Madridejos Community College, where classes buzz and events fill the calendar, scheduling rooms and allocating spaces manually often turns into a daily battle. Staff pore over spreadsheets, handwritten logs, and frantic group chats, only to hit snags like double-booked computer labs, empty classrooms during peak hours, or rushed fixes for overlapping meetings. These issues don't just disrupt the day—they drain time from teaching and learning, spark avoidable errors, and leave faculty, staff, and students sighing in frustration.

This study aims to answer these following questions:

1. What is the demographic profile of the respondents based on the group:
  - 1.1. College Instructor
    - 1.1.1. Age
    - 1.1.2. Length of Experience
    - 1.1.3. Assigned Program
  - 1.2. Student
    - 1.2.1. Age
    - 1.2.2. College/Department
    - 1.2.3. Year level
2. What tools are currently used in manual scheduling and room allocation?
3. What procedures are currently used in manual scheduling and room allocation?
4. What is the level of satisfaction of the following respondents with the current scheduling system:
  - 4.1. College Instructor
  - 4.2. Student
5. What challenges are commonly encountered in manual room scheduling and space allocation?

6. What is the level of technicality of the current manual scheduling system in room scheduling and space allocation?
7. What is the level of frequency at which scheduling errors and schedule conflicts occur under the current manual system?
8. What suggestions can be provided to address the problems identified in the current scheduling system?

## II. METHODOLOGY

This study employed a descriptive research design to evaluate the feasibility and effectiveness of the manual scheduling and room allocation system at Madridejos Community College (MCC), Bunakan, Madridejos, Cebu. A descriptive design is appropriate for feasibility studies because it allows researchers to systematically examine and describe existing conditions without manipulating variables [7]. This approach enabled the collection of detailed insights into respondents' experiences, perceived challenges, and overall assessment of the current scheduling and room allocation system.

The participants consisted of students and instructors from Madridejos Community College. A purposive sampling technique was used to select respondents based on their availability and willingness to participate. Purposive sampling is widely used in institutional and exploratory research, where relevance and accessibility are prioritized over statistical representativeness [8]. Additional literature supports the use of purposive sampling in operational and administrative studies, as it ensures that respondents possess direct familiarity with the system being evaluated [9].

Data were collected using a researcher-developed questionnaire designed to assess perceptions of the manual scheduling and room allocation system. The questionnaire began with an informed consent statement explaining the study's purpose and ensuring voluntary participation, confidentiality, and anonymity. A demographic section gathered information on age, gender, year level, and department for students, and age, gender, teaching

experience, and assigned program for instructors. Close ended checklist items identified specific scheduling and room allocation concerns, while Likert-scale items measured the frequency of issues, satisfaction levels, agreement with identified challenges, and perceived system effectiveness. Content validity was established through expert review by a qualified faculty member to ensure clarity, relevance, and alignment with the study's objectives. Expert validation is recognized as a reliable strategy for enhancing questionnaire credibility and ensuring item relevance [10].

The questionnaire was administered over a two-week period from February 12 to 25, 2026. Students received the survey via Google Forms for accessibility, while instructors were provided printed copies to accommodate their preference for paper-based responses. Participation was voluntary, and informed consent was secured prior to completion. Responses were screened for completeness and anonymity before analysis.

Data were analyzed using descriptive statistics, including frequencies, percentages, means, and standard deviations. Frequencies and percentages summarized demographic data and checklist responses. Weighted means were calculated for Likert-scale items to determine overall perception levels.

## III. RESULTS AND DISCUSSION

A total of 34 students and 14 instructors participated in the study. Among the student respondents, 55.88% were female, 41.18% were male, and 2.94% identified as other. In terms of age, most students were between 21–23 years old (50%), followed by 18–20 years old (38.24%), and 24 years and above (11.76%). The majority were 3rd-year students (58.82%), and most were enrolled in the BSIT program (52.94%). Among instructor respondents, 57.14% were female and 42.86% were male. Most instructors were aged 30 years and above (42.86%) and had 3–4 years of teaching experience (50%). Most were assigned to the BSED program (42.86%). Based on the findings, it indicates that the

respondents have sufficient academic and professional experience to provide reliable information about the current scheduling system.

Figure 1. Sex of students' respondent

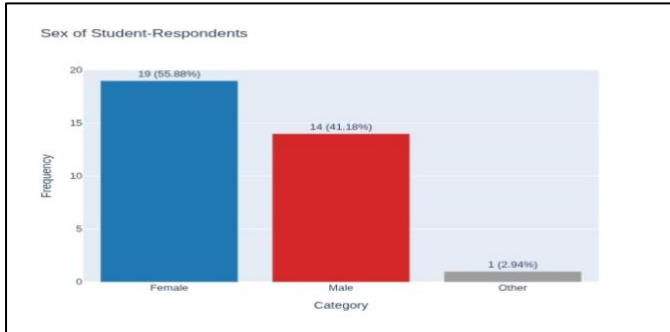


Figure 1 presents the distribution of student respondents according to sex. Most of the respondents were female 55.88%, followed by male students 41.18%, while a small proportion identified as other 2.94%.

Figure 2. Sex of Instructors' respondent

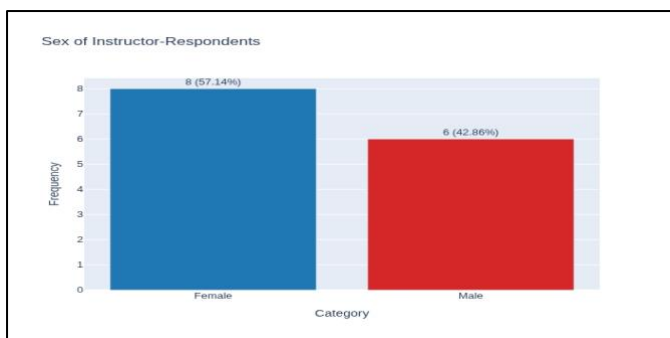


Figure 2 shows the sex distribution of instructor respondents. Female instructors comprised 57.14%, while male instructors accounted for 42.86% of the respondents.

Figure 3. Age of Students respondent

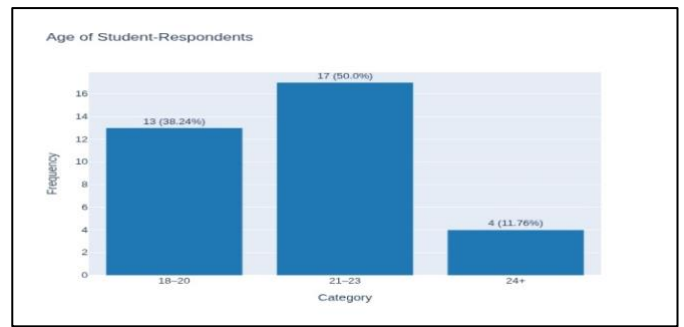


Figure 3 illustrates the age distribution of student respondents. Most students were aged 21–23 years 50.00%, followed by those aged 18–20 years 38.24%, and 24 years and above (11.76%).

Figure 4. Age of Instructors' respondent

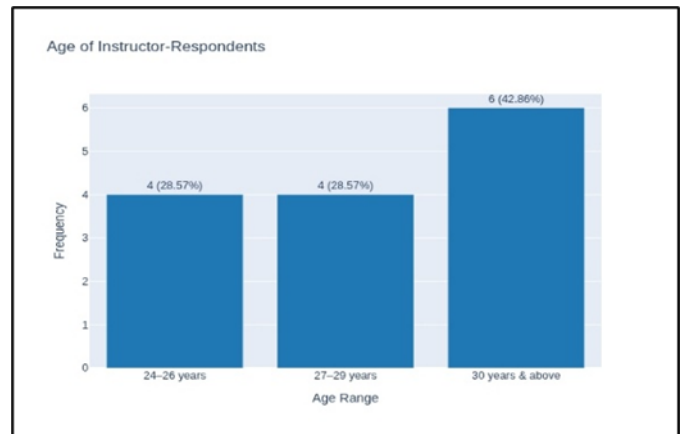


Figure 4 shows the year level of the student respondents. The majority were 3rd year students 58.82% while 1st year and 2nd year students each comprised 14.71%, and 4th year students accounted for 11.76% of the respondents.

Figure 5. Year level of Students' respondent

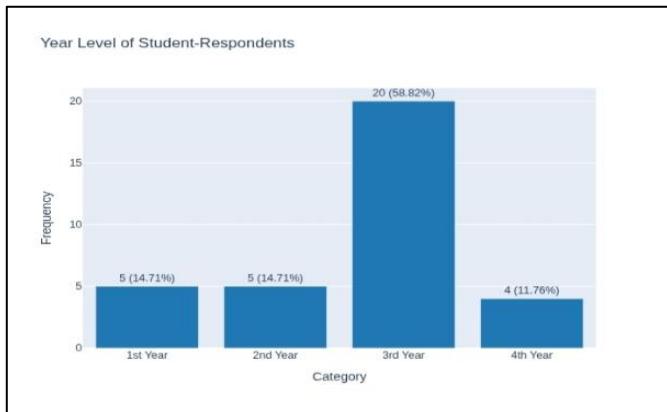


Figure 5 shows the year level of the student respondents. The majority were 3rd year students 58.82% while 1st year and 2nd year students each comprised 14.71%, and 4th year students accounted for 11.76% of the respondents.

Figure 6. Years of experience of instructors' respondent

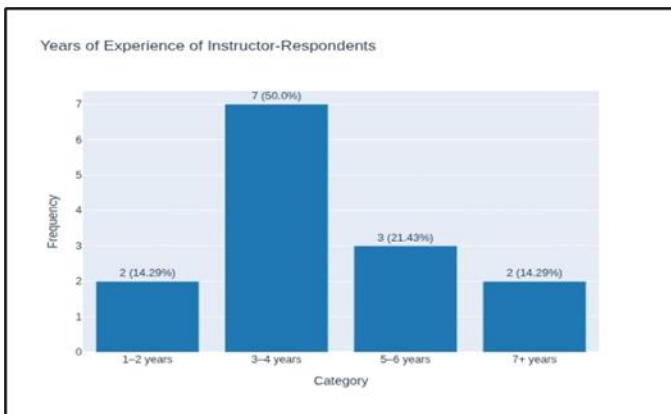


Figure 6 shows the years of teaching experience of instructor respondents. Most instructors had 3–4 years of experience 50.00%, followed by those with 5–6 years 21.43%, while 1–2 years and 7 years and above each accounted for 14.29%.

Figure 7. Assigned program of Instructors respondent

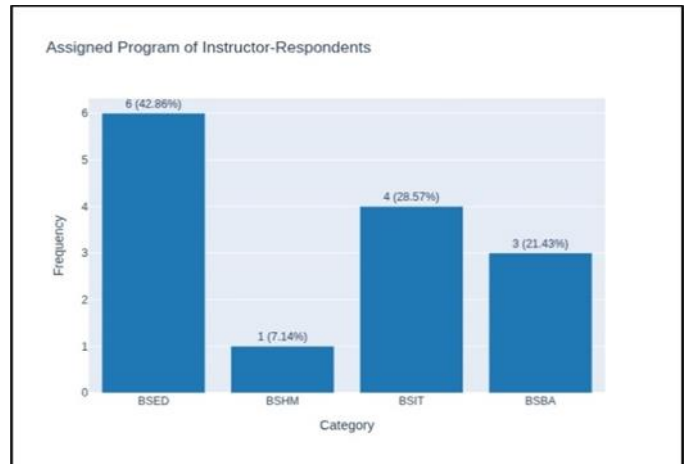


Figure 7 shows the years of teaching experience of instructor respondents. Most instructors had 3–4 years of experience 50.00%, followed by those with 5–6 years 21.43%, while 1–2 years and 7 years and above each accounted for 14.29%.

### Summary of Results Tables

Table 1. Instructor Tools Used in Manual Scheduling

Total used	Instructors Frequency	Instructors %
Logbooks	0	0%
Printed Schedules	7	50%
Whiteboard	0	0%
Microsoft Excel	4	29%
Microsoft Word	0	0%
Handwritten forms	0	0%

Instructors primarily rely on printed schedules (50%) as their main tool for managing classes, showing a preference for traditional, tangible methods of organizing information. The limited use of digital tools like Microsoft Excel (29%) suggests that computerized scheduling has not been fully integrated into their practices. The absence of handwritten forms among instructors reflects a more formalized approach, though reliance on printed documents indicates that scheduling systems remain largely manual and paper-based.

Instructors rely heavily on printed schedules, showing a preference for traditional, tangible methods of organizing class information. The limited use of digital tools like Excel highlights that computerized scheduling has not yet been fully integrated into their practices. This reliance on manual systems suggests a need for modernization to improve efficiency and consistency in scheduling.

Table 2. Students Tools Used in Manual Scheduling

Total used	Students Frequency	Students %
Logbooks	6	18%
Printed Schedules	21	62%
Whiteboard	5	15%
Microsoft Excel	6	18%
Microsoft Word	6	18%
Handwritten forms	10	29%

Students also depend heavily on printed schedules (62%), reinforcing the idea that printed documents are the dominant medium for disseminating schedule information. However, unlike instructors, students still use handwritten forms (29%), which points to inconsistencies and a less standardized approach to scheduling. Their lower use of Excel (18%) highlights limited adoption of digital tools, suggesting that students rely more on accessible, informal methods rather than structured computerized systems.

Students also depend primarily on printed schedules, but their continued use of handwritten forms reflects a less standardized and more informal approach to managing schedules. Their minimal use of digital tools indicates limited exposure or adaptation to computerized methods. This inconsistency in scheduling practices suggests that students could benefit from more accessible and unified digital solutions.

Table 3. Students Level of Satisfaction with Current Scheduling System

Statement	Mean	Interpretation
Clarity of class schedules	3.12	Need improvement
Consistency of room assignment	3.18	Need improvement
Timeliness of schedule announcement	3.35	Need improvement

Table 3 presents the level of satisfaction of student respondents with the current scheduling system.

They reported needs for improvement with clarity of class schedules (mean = 3.12), consistency of room assignments (mean = 3.18), and timeliness of announcements (mean = 3.35).

This indicates that students perceive the scheduling system as moderately functional but not highly effective, highlighting key areas for enhancement in schedule transparency and reliability.

Table 4. Instructor Level of Satisfaction with Current Scheduling System

Statement	Mean	Interpretation
Teaching schedule	3.64	Satisfied
Classroom availability	2.5	Dissatisfied
Schedule change communication	3.14	Need improvement

Instructor respondents reported satisfaction with their assigned teaching schedules (mean = 3.64). However, they reported needs for improvement with classroom availability (mean = 2.50) and communication of schedule changes (mean = 3.14).

These findings reveal instructors' overall contentment with personal schedules but significant concerns regarding room management and communication efficiency, suggesting targeted operational fixes are needed.

Table 5. Students Challenges Encountered in Manual Scheduling.

Challenge	Mean	Interpretation
Schedule conflicts affects attendance	3.56	Agree
Room changes cause delays	3.28	Somewhat agree

Table 5 presents the challenges encountered by student respondents. They agreed that scheduling conflicts affect attendance (mean = 3.56).

This indicates that scheduling problems directly impact student participation and attendance.

Table 6. Instructor Challenges Encountered in Manual Scheduling

Challenge	Mean	Interpretation
Schedule changes disrupt teaching	3	Somewhat agree
Room reassignment cause confusion	3.64	Agree

Instructors agreed that room reassignment causes confusion (mean = 3.64), highlighting persistent issues in room allocation that disrupt teaching preparation and delivery.

This highlights room management as a significant concern, leading to operational confusion for instructors.

Table 7. Students Technicality of Current Scheduling System.

Statement	Mean	Interpretation
Technical complexity of system	3.12	Moderately High
Requires specialized skills	3.39	Moderately High

Table 7 shows that student respondents perceived the system's technical complexity as moderate.

This suggests students find the manual scheduling system somewhat challenging but manageable in terms of technical demands.

Table 8. Instructor Technicality of Current Scheduling System

Challenge	Mean	Interpretation
Technical complexity	3	Moderately High
Requires specialized skills	3.64	High

Table 8 reveals that instructor respondents reported managing schedules requires a high level of specialized skills (mean = 3.64). This indicates that the manual process demands significant effort, technical understanding, and time investment from those handling schedule coordination.

These findings highlight that the manual system increases workload and reduces efficiency,

particularly for instructors responsible for schedule management.

Table 9. Students Frequency of Scheduling Errors and Conflicts

Statement	Mean	Interpretation
Classes delayed due to conflicts	3.35	Most of the time
Unexpected schedule changes	3.35	Most of the time

The table presents challenges encountered by student respondents. They rated class delays due to conflicts highest (mean = 3.35), followed closely by unexpected schedule changes (mean = 3.35).

These results indicate that scheduling conflicts and last-minute changes are the most frequent issues for students, significantly disrupting their attendance and academic routine.

Table 10. Instructor Frequency of Scheduling Errors and Conflicts

Challenge	Mean	Interpretation
Schedule overlap	3.2	Most of the time
Classroom occupied	3.38	Most of the time
Classes interrupted due to room unavailability	3.57	Often
Last-minute classroom changes	3.19	Most of the time

The results indicate that logistical challenges in classroom scheduling and allocation occur regularly, with most issues happening “most of the time” or “often.” This shows that instructors frequently face disruptions such as overlaps, occupied rooms, and sudden changes, which in turn affect the stability of the teaching–learning process.

These findings highlight a systemic problem in classroom management that consistently undermines instructional efficiency and student learning continuity. To improve the academic environment, institutions must strengthen scheduling systems, communication, and room allocation practices to ensure smoother, more reliable teaching and learning experiences.

Table 11. Instructors Suggestions for Improvement

Statement	Percentage
Simple digital scheduling system	21%
Centralized database	43%
Real-time room monitoring	21%
Reduce manual paperwork	29%
Improve coordination	29%
designated personnel	14%
Provide staff training	14%
Standardize procedures	14%
Improve dissemination	14%
No improvements needed	43%

Instructors’ recommendation of centralized databases (43%) reflects their preference for structured, institution-wide solutions that can ensure consistency and reduce scheduling conflicts. This shows that instructors value reliability and system-level control, emphasizing the need for a scheduling framework that supports efficient management across departments

Instructors recognize the limitations of manual scheduling and see centralized databases as a way to streamline processes, minimize overlaps, and improve coordination. Their perspective highlights the importance of institutional reforms to strengthen scheduling efficiency.

Table 12. Students Suggestions for Improvement

Statement	Percentage
Simple digital scheduling system	65%
Centralized database	32%
Real-time room monitoring	50%
Reduce manual paperwork	0%
Improve coordination	44%
designated personnel	29%
Provide staff training	18%
Standardize procedures	21%
Improve dissemination	29%
No improvements needed	6%

Students’ strong support for digital scheduling systems (65%) demonstrates their desire for accessible, user-friendly tools that provide real-time updates and flexibility. Their preference indicates a need for convenience and transparency in managing schedules, reducing confusion and wasted time.

Students clearly Favor digital solutions that enhance accessibility and adaptability. Their perspective underscores the importance of adopting modern, automated systems that prioritize ease of use and immediate access to information.

#### Overall Discussion

The findings indicate that the current manual scheduling system is inefficient, prone to errors, and heavily dependent on paper-based processes. Respondents reported scheduling conflicts, communication delays, and room availability issues. The results strongly support the development of a computerized or mobile scheduling system to improve efficiency, accuracy, and user satisfaction.

#### IV. CONCLUSION

Manual scheduling achieves basic operational needs but falls short on accuracy, timeliness, and room optimization, as evidenced by neutral-to-low satisfaction scores and recurring errors like overlaps and unavailability. Transitioning to a simple digital system—such as a centralized app or database—offers the most practical upgrade, promising reduced errors, real-time updates, and higher stakeholder productivity without high costs. These findings advocate for targeted tech adoption at similar institutions to sustain growth amid rising enrollment. Through the development of a Room Allocation and Schedule Management System to expedite process involved in the scheduling of subjects, rooms and instructors.

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