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A Comparative Study of IT and IS: Curriculum and Skills Development

Excel Avenido, Roseline B. Lorican

Bohol Northern Star College Inc.

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***Corresponding Author:** Excel Avenido

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Abstract **Original Research Article**

Information Technology (IT) and Information Systems (IS) programs were compared in terms of curriculum content and skills development. A descriptive research design was used, with data gathered from first- and second-year students through structured questionnaires and analyzed using frequency counts and percentage distributions.

Findings show that both programs share a strong foundation in core computing subjects, particularly programming. However, IT curricula emphasize technical domains such as networking, system administration, and software development, while IS curricula integrate technical subjects with business and organizational components. IT students demonstrate stronger focus on programming and selected technical skills, whereas IS students exhibit broader exposure across technical areas and stronger development of communication, teamwork, and leadership skills.

Overall, the study concludes that IT is oriented toward technical specialization, while IS emphasizes interdisciplinary competencies combining technology and organizational applications.

Keywords: information technology, information systems, curriculum comparison, technical skills, interdisciplinary competencies.

Introduction

Technology has become an integral force shaping modern societal and organizational operations. It continues to transform how institutions manage information, communicate, and support decision-making across various sectors, including education, business, healthcare, and government. As digital systems evolve, organizations increasingly rely on technology-driven solutions to improve efficiency, accuracy, and productivity.

In response to these developments, higher education institutions have established computing-related programs designed to prepare students for careers in the digital economy. Among these programs, Information Technology (IT) and Information Systems (IS) are two closely related disciplines that are widely offered in academic institutions. Both programs provide foundational knowledge in computing, including areas such as programming, database management, and systems analysis.

Despite these shared foundations, the two programs differ significantly in their academic focus and professional orientation. Information Technology is primarily concerned with the technical aspects of computing, including software development,

networking, cybersecurity, and system administration. It is designed to develop professionals who are capable of building, maintaining, and managing technological infrastructures and systems.

In contrast, Information Systems emphasizes the integration of technology within organizational and business contexts. It focuses on how information systems are utilized to support business processes, enhance decision-making, and improve overall organizational performance. This program develops graduates who are equipped with both technical competencies and managerial understanding, allowing them to bridge the gap between technology and business operations.

Although both programs share a common academic foundation, students often encounter confusion regarding their distinctions in terms of curriculum emphasis and skill development. This uncertainty highlights the need to clearly examine how each program shapes student competencies and prepares them for their respective career paths.

Therefore, this study aims to compare Information Technology and Information Systems programs in terms of curriculum content and the development of technical and non-technical skills among first- and second-year students.

Objectives of the Study

This study compares Information Technology (IT) and Information Systems (IS) programs regarding curriculum content and competencies developed. Specifically, it seeks to:

1. Identify and compare curriculum subjects taken by IT and IS students, including perceived subject relevance;

2. Evaluate technical skills development and students' confidence in their application;

3. Assess non-technical skills development—including communication, teamwork, and leadership—and confidence levels; and

4. Determine students' perceptions of overall program orientation (technical versus balanced).

Review of Related Literature

Computing Education Frameworks

Computing education is structured around standardized curriculum frameworks that define the scope and competencies of Information Technology (IT) and Information Systems (IS) programs. The ACM/IEEE Computing Curricula (2020) identifies IT as a discipline focused on technical infrastructure, system implementation, and operational computing support, while IS is defined as a field that integrates computing technologies with organizational and business processes.

Similarly, the IS 2010 curriculum guidelines emphasize the integration of technical competencies with communication, teamwork, and business understanding as core components of IS education (Topi et al., 2010). In contrast, IT curriculum guidelines prioritize technical depth in areas such as programming, networking, and system administration (Lunt et al., 2008). These frameworks establish a clear theoretical distinction between both disciplines while acknowledging shared foundational computing knowledge.

Distinction Between Information Technology and Information Systems

Prior studies consistently distinguish IT and IS based on their academic and professional orientations. Information Technology is characterized by its focus on technical specialization, including programming, cybersecurity, networking, and systems administration (Laudon & Laudon, 2022; Stair & Reynolds, 2020). These competencies prepare graduates for roles that require technical infrastructure development and system maintenance.

In contrast, Information Systems emphasizes the application of technology within organizational contexts, focusing on business processes, decision-making, and management support systems (Association for Information Systems, 2010). IS professionals are expected to bridge the gap between technical systems and organizational needs, requiring both technical and managerial competencies.

Curriculum Overlap and Student Perception

Although IT and IS programs are distinct in focus, several studies have identified overlap in foundational courses such as programming, database systems, and systems analysis. This overlap may lead to ambiguity among students regarding program identity and career pathways (DelaTorre-Diaz et al., 2025; Lunt et al., 2008).

Such findings suggest the need for clearer curriculum differentiation and improved academic guidance to help students better understand program distinctions and make informed career decisions.

Technical and Non-Technical Skills Development

Employability literature emphasizes that modern computing graduates must possess both technical and non-technical competencies. Employers increasingly require not only programming and technical proficiency but also soft skills such as communication, teamwork, critical thinking, and problem-solving (Andrews & Higson, 2008; Robles, 2012).

The National Association of Colleges and Employers (2022) identifies communication, teamwork, and problem-solving as among the most important skills for new graduates. Similarly, the OECD (2019) highlights the growing importance of cognitive and interpersonal skills in the digital economy.

Industry Demand and Digital Transformation

Global workforce trends indicate a rising demand for hybrid skill sets combining technical and interpersonal competencies. The World Economic Forum (2023) reports that analytical thinking, resilience, flexibility, and technology literacy are among the top skills required in future jobs. McKinsey Global Institute (2021) further emphasizes that digital transformation requires employees who can integrate technical knowledge with problem-solving and collaboration skills.

IBM (2023) also highlights that organizations increasingly prioritize digital fluency and adaptability in their workforce, reinforcing the need for balanced skill development in computing education.

Emerging Technologies in Computing Education

The integration of emerging technologies such as artificial intelligence, cloud computing, and data analytics has significantly influenced computing curricula. IT programs tend to focus on the technical implementation of these technologies, while IS programs emphasize their strategic and organizational applications (Russell & Norvig, 2021; Kennedy & Gupta, 2025).

This distinction reflects the broader difference between technical specialization and interdisciplinary application within computing education.

Employability and Soft Skills

Research indicates that technical skills alone are insufficient for workplace success. Soft skills such as communication, leadership, and teamwork are critical for professional performance and career advancement (Robles, 2012; Andrews & Higson, 2008).

Studies have shown that graduates who possess both technical and soft skills are more adaptable to workplace demands and demonstrate higher employability outcomes.

Higher Education and Curriculum Alignment

Higher education institutions play a key role in aligning academic programs with industry needs. UNESCO (2021) emphasizes the importance of integrating ICT competencies in education systems, while the World Bank (2019) highlights the need for digital skills development to support workforce readiness.

ABET (2022) further stresses continuous curriculum improvement to ensure alignment with global educational and industry standards in computing disciplines.

Research Gap

Although extensive literature exists on computing education, most studies focus on curriculum frameworks, industry expectations, or theoretical distinctions between IT and IS. There is limited empirical research that directly compares IT and IS programs based on student-level curriculum exposure and perceived skill development, particularly among first- and second-year students.

This study addresses this gap by examining and comparing Information Technology and Information Systems students in terms of curriculum content and the development of technical and non-technical competencies.

Materials and Methods

Research Design

A descriptive research design was utilized. This approach suits the examination of existing Information Technology (IT) and Information Systems (IS) curricula and their contributions to student skills development. It describes current program structures and learning outcomes without variable manipulation.

This method facilitates systematic comparison by identifying similarities and differences in academic focus and competencies. Consequently, it clarifies distinctions between IT and IS programs in curriculum content and skills development.

Data Gathering Procedure

A structured questionnaire was developed and reviewed for clarity to collect data on IT and IS curricula and competencies from students. Permission to conduct the study and distribute questionnaires was secured from school authorities and instructors prior to data collection.

Curriculum documents from both programs were reviewed to identify official subjects and competencies. Questionnaires were then administered to respondents.

Post-collection, responses and documents were organized, verified for completeness and accuracy, and prepared for analysis.

Data Analysis

The collected data were analyzed using frequency counts and percentage distributions. Responses from Information Technology (IT) and Information Systems (IS) students were organized, tabulated, and presented in tables to ensure clarity and ease of interpretation.

Frequency counts were used to determine the number of responses in each category. Percentage values were computed to describe the proportion of responses using the following formula:

$$Percentage\ (\%) = \frac{Frequency}{Total\ Number\ of\ Responses} \times 100$$

Percentage distribution was used to show the occurrence of curriculum subjects and skills in both programs, allowing a direct comparison of IT and IS in terms of curriculum and competencies.

Some respondents did not answer all items; therefore, analysis was based on valid responses per item. This ensured accurate representation of the data per variable and prevented distortion of percentage values.

Furthermore, the results were compared to identify differences and similarities in curriculum and competencies, thereby clarifying the academic focus of each program.

Respondents

The respondents of the study consisted of 50 students, including 25 Information Technology (IT)

students (13 first-year and 12 second-year) from Bohol Northern Star College (BNSC) and 25 Information Systems (IS) students from Talibon Polytechnic College (TPC). These institutions were selected due to the availability of relevant computing programs aligned with the objectives of the study.

Only first-year and second-year students were included to ensure comparable levels of academic exposure. Third-year students, who typically engage in advanced specialization, and fourth-year students, who participate in on-the-job training (OJT), were excluded to maintain focus on foundational curriculum and skill development. This selection helped ensure more consistent and comparable academic backgrounds between the two groups.

The sample size of 25 students per group was determined based on availability and was intended to provide balanced representation while minimizing selection bias. However, since the respondents were drawn from specific institutions and limited year levels, the findings may not be generalizable to all IT and IS programs.

Instruments Used

A structured questionnaire was used as the primary research instrument. It was developed by the researcher to gather data on the curricula and competencies of Information Technology (IT) and Information Systems (IS) students. The questionnaire used clear and concise language to ensure respondent comprehension. It was reviewed and approved by the research instructor to ensure its validity, clarity, and appropriateness prior to distribution.

The instrument consisted of four sections to facilitate systematic data collection:

1. Demographics (program and year level);
2. Curriculum subjects (checklist of enrolled subjects and Likert-scale ratings of relevance);
3. Technical competencies (checklist of acquired skills and Likert-scale ratings of confidence); and
4. Non-technical skills (checklists and Likert-scale ratings of development and confidence).

This format enabled the collection of quantifiable data and supported a detailed comparison between IT and IS programs.

System Design

The system design of this study follows the Input-Process-Output (IPO) Model, which illustrates how data are collected, processed, and transformed into meaningful results.

Input

• IT Curriculum Areas: Programming, Networking, Database Management, Cybersecurity, System Development
• IS Curriculum Areas: Information Systems Analysis, Database Management, Networking, Project Management, Business Organization
• Skills: Technical Skills and Non-Technical Skills
• Respondents: First-year and second-year IT and IS students

Process

• Data collection through survey questionnaire
• Organization and tabulation of data
• Classification based on IT and IS curriculum and skills categories
• Comparative analysis of similarities and differences
• Statistical treatment using frequency counts and percentage distribution

Output

• Comparative analysis of IT and IS programs
• Identified similarities and differences in curriculum and skills development
• Basis for findings, conclusions, and recommendations

SDLC Used

The study follows the Systems Development Life Cycle (SDLC) to present the step-by-step procedure in conducting the research. This approach provides a

structured method for organizing, analyzing, and presenting data related to the comparison of Information Technology (IT) and Information Systems (IS) programs.

Planning Stage
• Identify the research problem
• Define the objectives of the study (comparison of IT and IS curriculum and skills)
• Prepare the research instrument (questionnaire)

Analysis Stage
• Distribute the questionnaire to IT and IS students
• Collect responses from respondents
• Gather curriculum documents from selected schools

Design Stage
• Organize and classify the collected data
• Analyze and compare IT and IS curriculum and skills
• Compute frequency counts and percentage distributions

Implementation Stage
• Interpret the results of the analysis
• Present findings using tables, charts, and comparisons

Evaluation Stage
• Review results and finalize conclusions and recommendation

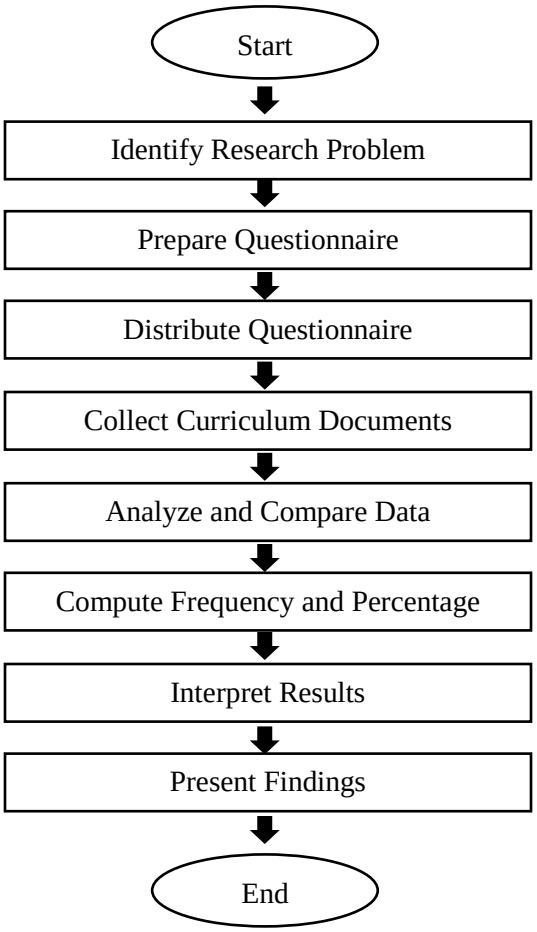

Figure 2: SDLC Flowchart of the Research Process

System Architecture

The system architecture is based on the actual findings of the study, which compare the Information Technology (IT) and Information Systems (IS) programs in terms of curriculum subjects, technical skills, and non-technical skills.

TABLE 1. System Architecture of the Study

Component	Information Technology (IT)	Information Systems (IS)
Curriculum Subjects	Programming Networking System Analysis and Design Database Management Cybersecurity	Programming Database Management Networking System Analysis and Design Project Management Business/Organization Subjects
Technical Skills	Programming/Coding Networking System Administration Software Development Cybersecurity	Programming/Coding Database Management Networking Software Development System Administration
Non-Technical Skills	Teamwork/Collaboration Communication Skills Problem-Solving Time Management Leadership	Communication Skills Teamwork/Collaboration Problem-Solving Project Management Leadership Time Management

This table presents the comparative system architecture of IT and IS programs based on curriculum and skills development.

RESULTS AND DISCUSSION

This chapter presents and discusses the results of the data collected from the respondents. The data were gathered through a structured questionnaire and analyzed using frequency counts and percentage distribution.

The purpose of this chapter is to identify similarities and differences between Information Technology (IT) and Information Systems (IS) students in terms of curriculum subjects and skills development. The findings are organized into sections, including demographic profile, curriculum subjects, technical skills, non-technical skills, and overall program perception. Each section presents the results followed by an interpretation comparing IT and IS responses.

1. Demographic Profile of the Respondents

Results

Profile Variable	Category	Frequency	Percentage
Program	Information Technology (IT)	25	50%
Program	Information Systems (IS)	25	50%
Year Level	1st Year	13	52%
Year Level	2nd Year	12	48%
Total		50	100%

The respondents consist of first-year and second-year students from both Information Technology (IT) and Information Systems (IS) programs, with 25 participants per group. Of the total respondents, 52% are first-year students and 48% are second-year students, indicating a nearly equal distribution across year levels.

Discussion

The balanced distribution of respondents ensures fair representation of both groups. Since the participants are in the early stages of their academic programs, their responses reflect foundational exposure to their respective curricula. This provides a consistent basis for comparison between IT and IS students.

2. Curriculum Subjects

Information Technology (IT)

Results

SUBJECT	FREQUENCY	PERCENTAGE
Programming	22	88%
Database Management	6	24%
Networking	12	48%
Cybersecurity	3	12%
System Analysis and Design	8	32%
Project Management	2	8%
Business/Management Courses (Accounting, Marketing)	1	4%
Other	1	4%

For IT students, Programming is the most commonly taken subject (88%), followed by Networking (48%) and System Analysis and Design (32%). Database Management (24%), Cybersecurity (12%), Project Management (8%), and Business or Management subjects (4%) are less frequently taken.

Information Systems (IS)
Results

SUBJECT	FREQUENCY	PERCENTAGE
Programming	25	100%
Database Management	20	80%
Networking	12	48%
Cybersecurity	3	12%
System Analysis and Design	11	44%
Project Management	10	40%
Business/Management Courses (Accounting, Marketing)	11	44%
Other	0	0%

For IS students, all respondents (100%) reported taking Programming. High enrollment is also observed in Database Management (80%), Networking (48%), System Analysis and Design (44%), Project Management (40%), and Business or Management subjects (44%). Cybersecurity is taken by 12% of respondents.

Discussion

The data indicate differences in curriculum structure between the two programs. IT students are primarily exposed to technical subjects such as Programming, Networking, and system-related courses, with limited exposure to business-related areas. In contrast, IS students engage in a broader range of subjects that combine technical computing with business and organizational components.

Despite these differences, both programs share a common foundation in Programming and Networking. This indicates that while both develop core computing competencies, they differ in the scope and application of their curricula.

2.1 Relevance of Curriculum Subjects
Information Technology (IT)
Results

Scale	Programming	Database Management	Networking	Cybersecurity	System Analysis and Design	Project Management	Business Management Courses
5 (Very Relevant)	40%	26.32%	25%	25%	27.78%	18.75%	12.50%
4 (Relevant)	28%	21.05%	45%	31.25%	22.22%	50%	25%

3 (Moderately Relevant)	28%	42.11%	25%	31.25%	33.33%	12.50%	25%
2 (Slightly not Relevant)	4%	10.53%	5%	6.25%	16.67%	6.25%	18.75%
1 (Not Relevant)	0%	0%	0%	6.25%	0%	12.50%	18.75%

The results show that IT students generally rate technical subjects as highly relevant to their program. Programming obtained the highest proportion of "Very Relevant" responses (40%), followed by System Analysis and Design (27.78%) and Database Management (26.32%). Networking is mostly rated as "Relevant" (45%) and "Moderately Relevant" (25%), indicating moderate importance. Cybersecurity shows mixed responses but still leans toward relevance. Project Management is mainly rated as "Relevant" (50%), while Business/Management Courses received lower ratings compared to technical subjects, with only 12.50% rating it as "Very Relevant."

Information Systems (IS)
Results

Scale	Programming	Database Management	Networking	Cybersecurity	System Analysis and Design	Project Management	Busine Management Courses
5 (Very Relevant)	68%	52%	20%	32%	64%	60%	62.50%
4 (Relevant)	28%	40%	32%	48%	32%	28%	29.17%
3 (Moderately Relevant)	4%	8%	36%	20%	4%	12%	8.33%
2 (Slightly not Relevant)	0%	0%	12%	0%	0%	0%	0%

1 (Not Relevant)	0%	0%	0%	0%	0%	0%	0%

The results show that IS students rate most subjects as highly relevant. Programming, System Analysis and Design, and Project Management obtained the highest "Very Relevant" responses.

Database Management and Business/Management Courses are also highly rated, indicating that IS students value both technical and managerial subjects.

Networking shows a more moderate distribution of responses, while Cybersecurity is rated mostly as relevant.

Discussion

IT students strongly prioritize technical subjects such as Programming, System Analysis and Design, and Database Management. Their responses show less emphasis on business-related subjects.

In contrast, IS students rate both technical and business subjects as highly relevant, particularly Project Management and Business/Management Courses.

Both groups agree that Programming is highly relevant, but IS students demonstrate a broader and more balanced view of curriculum relevance.

Overall, IT is more technically focused, while IS integrates both technical and managerial learning areas.

3. Technical Skills
Information Technology (IT)
Results

SUBJECT	FREQUENCY	PERCENTAGE
Programming/Coding	21	84%
Database Management	7	28%
Network Set up and Management	9	36%
System Administration	3	12%
Cybersecurity/ Security Management	4	16%
Software Development	5	20%
Data Analytics /AI Skills	4	16%
Other	1	4%

The results indicate that Programming/Coding is the most developed technical skill among IT students, with 21 respondents (84%) reporting exposure. This is followed by Network Setup and Management (36%) and Database Management (28%), indicating

moderate engagement with core infrastructure and data-related skills.

Software Development is reported by 20% of respondents, while Cybersecurity and Data Analytics/AI Skills each account for 16%. System Administration has the lowest representation at 12%, suggesting limited exposure to system-level management among respondents. A small proportion (4%) reported other technical skills.

The findings show that IT students are strongly oriented toward programming, with comparatively lower exposure to other specialized technical domains.

Information Systems (IS)

Result

SUBJECT	FREQUENCY	PERCENTAGE
Programming/Coding	21	84%
Database Management	11	44%
Network Set up and Management	11	44%
System Administration	10	40%
Cybersecurity/ Security Management	2	8%
Software Development	11	44%
Data Analytics /AI Skills	1	4%
Other	0	0%

The results show that Programming/Coding is also the most common skill among IS students (84%). Database Management, Network Setup, and Software Development all have equal representation at 44%.

System Administration is also relatively strong at 40%, indicating broader technical exposure. Cybersecurity (8%) and Data Analytics/AI Skills (4%) have the lowest representation.

Discussion

The comparison indicates that both IT and IS students demonstrate strong exposure to Programming/Coding, with identical proportions (84%). However, IS students exhibit broader technical exposure across multiple domains, including Database Management, Networking, System Administration, and Software Development, compared to IT students.

In contrast, IT students display a more concentrated pattern of skill development, with a strong emphasis on programming and relatively lower exposure to other technical areas. This suggests a tendency toward technical specialization rather than diversification.

Both groups show limited engagement in advanced fields such as Cybersecurity and Data Analytics/AI Skills, indicating potential gaps in emerging and high-demand areas.

The findings suggest that IT students are more programming-focused and specialized, whereas IS students demonstrate a more balanced and diversified technical skill set.

3.1 Confidence in Applying Technical Skills
Information Technology (IT)
Results

Scale	Programming/ Coding	Database Management	Networking	System Administration	Cybersecurity	Software Development	Data Analytics/AI Skills
5 (Very Confident)	4%	0%	5%	0%	6.67%	7.14%	0%
4 (Confident)	40%	41.18%	35%	20%	20%	50%	43.75%
3 (Moderately Confident)	36%	52.94%	40%	60%	46.67%	21.43%	43.75%
2 (Slightly not Confident)	20%	5.88%	20%	20%	20%	21.43%	12.50%
1 (Not Confident)	0%	0%	0%	0%	6.67%	0%	0

Based on the results, IT students generally report moderate to high confidence in applying technical skills. Programming/Coding is mostly rated as "Confident" (40%) and "Moderately Confident" (36%). Database Management is concentrated in "Moderately Confident" (52.94%) and "Confident" (41.18%). Networking and Software Development are primarily rated as "Confident," while System Administration is mostly "Moderately Confident" (60%). Cybersecurity shows more varied responses, with most in the moderate range.

Information Systems (IS)
Results

Scale	Programming / Coding	Database Management	Networking	System Administration	Cybersecurity	Software Development	Data Analytics/AI Skills
5 (Very Confident)	20.83%	23.80%	0%	5%	0%	9.52%	20.83%
4 (Confident)	25%	28.57%	32.58%	40%	36.84%	38.10%	37.50%
3 (Moderately Confident)	45.83%	38.10%	31.58%	25%	36.84%	23.81%	41.70%
2 (Slightly not Confident)	8.33%	9.52%	36.84%	30%	26.32%	28.57%	0%
1 (Not Confident)	0%	0%	5.26%	5%	10.53%	0%	0%

The findings indicate that IS students generally rate their confidence as moderate to high. Programming/Coding is mostly "Moderately Confident" (45.83%) with a notable portion "Very Confident" (20.83%).

Database Management and Software Development are distributed between moderate and confident levels. System Administration shows stronger confidence (40% "Confident").

However, Networking and Cybersecurity show lower confidence levels, with higher responses in "Slightly Confident" and "Moderately Confident."

Discussion

The comparison shows that both IT and IS students demonstrate moderate to high confidence in applying technical skills.

IT students show more consistent confidence in core technical areas such as Programming, Networking, and Software Development, reflecting their technical specialization.

IS students, on the other hand, display more varied confidence levels, with stronger performance in applied areas like System Administration but lower confidence in Networking and Cybersecurity.

Both groups show limited confidence in advanced areas such as Cybersecurity and Data Analytics/AI Skills.

Overall, IT students exhibit stronger technical confidence consistency, while IS students demonstrate broader but less concentrated confidence across different skill areas.

4. **Non - Technical Skills**

Information Technology (IT)

Results

SUBJECT	FREQUENCY	PERCENTAGE
Communication Skills	12	48%
Teamwork/Collaboration	20	80%
Problem Solving/Critical Thinking	12	48%
Project Management	6	24%
Leadership/Decision Making	5	20%
Time Management	25	40%

The results show that Teamwork/Collaboration is the most developed non-technical skill among IT students, with 80% of respondents selecting it. Communication Skills and Problem Solving/Critical Thinking both follow at 48%. Time Management is reported by 40% of respondents.

Project Management (24%) and Leadership/Decision Making (20%) are the least developed skills among IT students.

Information Systems (IS)

Results

SUBJECT	FREQUENCY	PERCENTAGE
Communication Skills	23	92%
Teamwork/Collaboration	13	52%
Problem Solving/Critical Thinking	11	44%
Project Management	11	44%
Leadership/Decision Making	11	44%
Time Management	10	40%

The results indicates that Communication Skills is the most developed non-technical skill among IS students, with 92% of respondents selecting it. Teamwork/Collaboration follows at 52%.

Problem Solving, Project Management, and Leadership/Decision Making all have equal representation at 44%, while Time Management is reported by 40% of respondents.

Discussion

IT students demonstrate strong development in Teamwork/Collaboration (80%), indicating emphasis on group-based technical work. However, they show lower development in Leadership and Project Management.

Meanwhile, IS students excel in Communication Skills (92%) and show more balanced development

across Project Management and Leadership (44% each).

Both groups show similar levels in Time Management (40%), indicating comparable self-management skills.

IT students are more teamwork and technically oriented, while IS students exhibit stronger communication, leadership, and management skills, reflecting the interdisciplinary nature of their program.

4.1 Confidence in Applying Non-Technical Skills

Information Technology (IT)

Results

Scale	Communication Skill	Teamwork/ Collaboration	Problem Solving/ Critical Thinking	Project Management	Leadership/ Decision Making	Time Management
5 (Very Confident)	15.79%	26.09%	5.26%	0%	6.25%	21.05%
4 (Confident)	31.58%	39.13%	57.89%	46.67%	31.25%	26.32%
3 (Moderately Confident)	42.11%	30.43%	31.58%	46.67%	37.50%	42.11%
2 (Slightly not Confident)	10.53%	4.35%	5.26%	6.67%	18.75%	5.26%
1 (Not Confident)	0%	0%	0%	0%	6.25%	5.26%

The table presents the distribution of Information Technology (IT) students' responses on non-technical skills using a 5-point Likert scale. The results indicate that responses vary across all rating levels for Communication Skills, Teamwork/Collaboration, Problem Solving/Critical Thinking, Project Management, Leadership/Decision Making, and Time Management.

A summary of the data shows that Teamwork/Collaboration is the most developed skill, followed by Communication Skills and Problem Solving/Critical Thinking. In contrast, Time Management, Project Management, and Leadership/Decision Making are less developed based on the distribution of responses.

Information Systems (IS)

Results

Scale	Communication Skills	Teamwork/ Collaboration	Problem Solving/ Critical Thinking	Project Management	Leadership/ Decision Making	Time Managemet
5 (Very Confident)	45.83%	7.14%	0%	7.14%	7.14%	21.43%
4 (Confident)	45.83%	78.57%	64.29%	64.29%	64.29%	50.00%
3 (Moderately Confident)	8.33%	0%	21.43%	14.29%	14.29%	14.29%
2 (Slightly not Confident)	0%	14.29%	14.29%	14.29%	14.29%	14.29%
1 (Not Confident)	0%	0%	0%	0%	0%	0%

The table presents the distribution of Information Systems (IS) students' responses on non-technical skills using a 5-point Likert scale. The results show that responses are generally concentrated in the "Confident" and "Very Confident" levels across most non-technical skills.

Communication Skills obtained the highest concentration in these levels, followed by Teamwork/Collaboration, Problem Solving/Critical Thinking, Project Management, Leadership/Decision Making, and Time Management. Overall, the results indicate a generally high level of confidence in non-technical skills among IS students.

Discussion

IS students demonstrate higher and more consistent confidence levels, with responses concentrated in the "Confident" and "Very Confident" categories across most skills. This suggests that IS students exhibit more balanced development in both technical and non-technical competencies.

In contrast, IT students show more variation in responses, with a significant portion falling under the moderate confidence level. While IT students demonstrate strengths in Teamwork/Collaboration and Problem Solving/Critical Thinking, other skills such as Communication Skills, Leadership/Decision Making, and Time Management show lower and more varied confidence levels. This indicates that IT students are more technically oriented, with non-technical skills still in development.

Despite these differences, both groups share strengths in collaboration and problem-solving, indicating exposure to group-based and analytical learning activities. However, IS students exhibit a broader integration of communication, organizational, and management skills due to the interdisciplinary nature of their program.

IS students demonstrate higher and more balanced confidence across non-technical skills compared to IT students, reflecting differences in program focus and curriculum design.

5. Overall Feedback

Information Technology (IT)

Results

Main Focus	Frequency	Percentage
Mostly Technical	20	80%
Mostly Non - Technical	2	8%
Balanced	3	12%

Most IT students (80%) perceive their program as mostly technical, while 12% consider it balanced, and only 8% view it as mostly non-technical.

This reflects a strong perception of IT as a technically oriented program, emphasizing programming, system development, networking, and other infrastructure-related competencies. The small percentage of respondents who view it as balanced suggests that non-technical skills are present but not dominant in the curriculum.

Information Systems (IS)

Results

Main Focus	Frequency	Percentage
Mostly Technical	2	8%
Mostly Non - Technical	0	0%
Balanced	23	92%

Most IS students (92%) describe their program as balanced, while 8% consider it mostly technical. The results show that the majority of IS students (92%) perceive their program as balanced, while only 8% consider it mostly technical. No respondents view the program as mostly non-technical.

This indicates that IS students strongly recognize the integration of both technical and non-technical components in their curriculum. The absence of responses in the "mostly non-technical" category further suggests that even the non-technical aspects of the program are still supported by technical foundations.

Discussion

The comparison clearly shows a distinct difference in student perception between the two programs. Information Technology is primarily perceived as a technical discipline, whereas Information Systems is viewed as a balanced program integrating both technical and non-technical competencies.

This finding supports the conceptual distinction between the two programs, where IT emphasizes technical specialization, while IS integrates computing with organizational and managerial aspects.

Despite this difference, both programs still maintain exposure to technical foundations, as reflected in the presence of balanced responses in both groups.

Open-Ended Question: Suggested Improvements to the Program

Question:

What aspects of your program do you think could be improved?

Responses:

Only two respondents provided answers:

- Respondent 1: Programming
- Respondent 2: Need more communication skills and team collaboration, facility improvement, communication skills, and programming

Interpretation

Although the responses are very limited, they suggest that students see improvement opportunities in both technical competencies (programming) and non-technical skills (communication and collaboration). Additionally, learning environment factors such as facilities may also influence their academic experience.

However, due to the small number of respondents, these insights should be interpreted as indicative feedback only and not generalized to the entire population.

CONCLUSION AND RECOMMENDATION

Conclusion

This study compared the Information Technology (IT) and Information Systems (IS) programs in terms of curriculum content and skills development. Both programs share a strong foundation in core computing subjects such as Programming, Data Structures and Algorithms, Human-Computer Interaction, and System Analysis and Design, indicating that students from both programs acquire essential computing competencies.

However, clear differences emerge in terms of academic orientation and specialization. Information Technology is primarily focused on technical specialization, with greater emphasis on programming, networking, system development, and infrastructure-related competencies. In contrast, Information Systems integrates technical computing with business, management, and organizational applications, reflecting a more interdisciplinary structure.

In terms of skills development, IT students demonstrate stronger technical competencies, particularly in networking and system administration. IS students, on the other hand, exhibit more balanced development, showing stronger performance in communication, leadership, and organizational skills alongside technical competencies.

Overall, the findings highlight that IT is oriented toward technical depth and system specialization, while IS emphasizes the integration of technical and business domains. Despite these differences, both programs effectively prepare students with relevant competencies aligned with computing-related careers.

Recommendation

Based on the findings, the following recommendations are proposed:

1. Curriculum Developers

Curriculum designers should maintain the shared computing foundation of both programs while strengthening their distinct orientations. The IT curriculum may further enhance advanced technical areas such as cybersecurity, cloud infrastructure, and systems integration, while the IS curriculum should

continue strengthening business analytics, organizational systems, and decision-support applications.

2. Higher Education Institutions

Institutions offering IT and IS programs should provide clearer academic orientation during admission and advising. Explicit program distinctions, including career pathways and competency expectations, should be emphasized to help students make informed academic decisions.

3. Students

Students should carefully evaluate their interests and strengths when choosing between IT and IS. Those inclined toward technical problem-solving, programming, and system development may find IT more suitable, while those interested in combining technology with business processes and organizational management may be better aligned with IS.

4. Future Researchers

Future studies may expand the scope by including higher-year students and graduates to assess advanced competencies and employment outcomes. Comparative studies across multiple institutions and inclusion of industry stakeholders are also recommended to further validate curriculum alignment with workforce demands.

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