



TU Digitalization Strategy Plan, 2023

5 Year Plan (2023-2027)



TRIBHUVAN UNIVERSITY
Planning Division, Kirtipur

2023

PREFACE

On behalf of the respected Vice Chancellor and the respected Tribhuvan University's Management, it gives me a great pleasure to present this document on how to use technology to improve academic activities. In the fast-paced world, we live in now, where technological advances have a big impact on education, it is important for our schools to embrace digital transformation. This strategy plan aims to lay out our whole plan for digital change with a focus on key areas like connectivity, digital infrastructure, learning management systems, interactive learning materials, improving digital skills, EMIS, which includes system automation, and learning management systems.

Broadband connectivity is essential for online communication and the access to resource. We are investing in robust connectivity infrastructure along with stakeholders to improve the digital experience for our students, teachers, and staff. This will provide high-speed, consistent internet connectivity on campus for online collaboration, research, and learning.

We have a plan to build and enhance own data center and acquired cloud services as part of our digitization strategy, also. These advances enable secure and scalable storage for our university's massive data. Cloud services facilitates the access to resource and collaboration in learning and researching.

Our dedication to effective learning environments includes deploying a modern learning management system. This complete platform will streamline course management, content delivery, and evaluations, providing our students with a dynamic and engaging digital learning experience.

We understand the relevance of interactive learning resources for face-to-face, online, and hybrid learning. We focus on creating and integrating interactive digital content and tools to improve learning and encourage student participation in the TU digital library.

We prioritize digital skills and pedagogy for teaching and non-teaching faculty and students to ensure university consistently with the digital age. Our comprehensive training program and resources equip students, faculty, and staff with the digital skills to use technology effectively in their academic endeavors.

Finally, EMIS and system automation are part of our digitization strategy. These projects will improve data management, administrative operations, and online and blended learning.



Finally, to stay relevant and effective in a constantly evolving digital marketplace, we must continuously evaluate and improve our digitization tactics. This five-year digitization strategy plan directs TU's digital development. We strive to develop an innovative and inclusive learning environment that prepares students for digital age by empowering them with consistent digital connectivity, digital infrastructure, learning management systems, interactive learning materials, digital skills, and system automation.

Sincerely,

Prof. Dr. Dharma Kanta Baskota

Vice Chancellor



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ABBREVIATION

AI	Artificial Intelligence
CCTV	Closed-circuit television
CEDA	Centre for Economic Development and Administration
CERID	Research Center for Educational Innovation and Development
CNAS	Centre for Nepal and Asian Studies
EMIS	Educational Management Information System
ERP	Enterprises Resource Planning
GEA	Government Enterprise Architecture
GIDC	Government Integrated Data Center
GIS	Geographical Information System
IaaS	Infrastructure as a service
ICT	Information and Communication Technology
IT	Information Technology
LMS	Learning Management System
NTA	Nepal Telecom Authority
OER	Open Educational Resources



PaaS	Platform as a service
PWD	Persons with disabilities
RECAST	Research Centre for Applied Science and Technology
SaaS	Software as a service
SDG	Sustainable Development Goal
STEAM	Science, Technology, Engineering, Art and Management
STEM	Science, Technology, Engineering and Management
TPACK	Technological Pedagogical Content Knowledge
UGC	University Grants Commission
UNESCO	United Nations Educational, Scientific and Cultural Organization



1. INTRODUCTION

1.1. CONTEXT

The digitalization strategy and guidelines of Tribhuvan University (TU Digitalization Strategies, after this) outline the digitalization activities undertaken by the university, campuses, and colleges. It highlights the integration of technology to improve teaching, learning, and administrative processes, including online platforms, virtual classrooms, digital libraries, research tools, connectivity, and student engagement platforms. The strategy aims to create an inclusive and interconnected educational environment that empowers students, faculty, and staff in the digital age.

By adopting digital tools and platforms, universities can enhance the accessibility and flexibility of education, facilitate collaboration and knowledge sharing, and enable personalized and interactive learning experiences. Furthermore, digitalization streamlines administrative processes, improves operational efficiency, and provides valuable data for informed decision-making. In a rapidly evolving digital landscape, universities must embrace digitalization to remain competitive, relevant, and effectively prepare students for the challenges and opportunities of the 21st century.

1.2. BACKGROUND

Tribhuvan University (TU), established in 1959, is the first national institution of higher education in Nepal. Tribhuvan University is a public university, and runs five institutes: Agriculture & Animal Science, Engineering, Forestry, and Medicine and Science & Technology. Similarly, its four faculties: Education, Humanities & Social Science, Law and Management and four research centers (CEDA, CNAS, RECAST and CERID) have been providing academic excellence in the country.

The university has produced the largest number of graduates and post-graduates in Nepal. According to time and technological transformation, TU wishes to adopt cutting-edge technology to give access to its services to students and other stakeholders. Through effective implementation of these policies and standards, the university strikes create an effective, professional, legal, ethical and equitable IT usage environment across TU to the quality of education.

IT and Innovation center, dean office and campuses, school, department of university enforce these strategies and guidelines through appropriate technology, of all TU's IT resources.

1.3. CURRENT STATE OF DIGITALIZATION

Digitalization initiatives in TU have significantly impacted various dimensions of the university operations, the development of their own data center, leading to advancements in online learning platforms, virtual classrooms,



digital libraries, administrative systems, plagiarism detection and research collaboration tools, and student engagement platforms.

Following are the remarkable achievement of university.

- Operation of TU data center and centralized secure Wi-Fi Zone in Kirtipur
- Centralized email system for all faculties and students
- Established a virtual learning environment on MS Team for all the academic institutes
- Implementation process ongoing to integrate centralized website development
- MOU between NTA and TU to access broadband to all community and constituent campuses.

1.3. MISSION STATEMENT

Enhancing higher educational academic, research, and administrative processes through digital technologies for accessible, flexible, and quality learning experiences.

1.3. VISION STATEMENT

Creating a digitally integrated ecosystem that empowers teaching and non-teaching faculties, fosters innovation, and prepares students for the future challenges of the digital age.

1.4. OBJECTIVE

This digitalization strategy document has the following objectives:

- To establish and enhance robust and reliable internet connectivity and infrastructure to ensure seamless access to eservices, digital resources, and online learning platforms.
- To develop and implement interactive and engaging online and blended learning modules within the LMS and VLE platforms to promote active student participation, collaboration, and knowledge acquisition in virtual and hybrid learning environments.
- To create and promote a diverse range of high-quality learning resources and open educational resources (OER) within digital platforms to foster access, affordability, and continuous learning opportunities for students and educators.
- To enhance digital skills and competencies of faculty, staff, and students through targeted training programs and MOOC platform.
- To implement an EMIS and e-governance framework to streamline administrative processes and improve data management at the university.



2. MAJOR COMPONENT OF STRATEGIES

2.1. CONNECTIVITY AND INFRASTRUCTURE DEVELOPMENT

TU has prioritized connectivity and digital infrastructure development for our university. Several key activities will be undertaken to achieve this goal. Upgrading of the network infrastructure will be carried out, ensuring high-speed and reliable internet connectivity in all campuses. Wi-Fi hotspots will be established in outdoor spaces to facilitate learning and collaboration beyond the traditional classroom setting. By undertaking these activities, an environment will be created that fosters seamless communication, supports innovative teaching methods, and empowers our students and faculty to thrive in an increasingly digital world.

The following program and activities will be carried out in this component.

Component 1: Connectivity and Infrastructure Development	
Programs	Activities (7)
Program 1.1: Connectivity	Activity 1.1.1: Broadband Connection Activity 1.1.2: Secure Wi-Fi Zone Activity 1.1.3: Intranet Development
Program 1.2: Infrastructure Development	Activity 1.2.1: Data Center Development Activity 1.2.2: Cloud Services Activity 1.2.3: End User Devices Management Activity 1.2.4: IT Support Unit

Key Strategies initiatives:

Collaboration with NTA and telco services to improve network coverage is a crucial strategy for Connectivity and Infrastructure Development, as is an MOU with NTA's RTDF fund.

Campus-wide secure Wi-Fi zones will be built to provide safe internet access. Furthermore, integrating all colleges through an intranet will enhance seamless communication. We ensure efficient and scalable infrastructure by making cutting-edge own Data Centre improvements and promoting cloud services. To improve user experience, we will also support a larger variety of end-user devices. To provide effective help to users, a campus/department/school-level support center/unit will be built.



Objective:

- To establish reliable internet connectivity throughout the university campuses, facilitating seamless access to digital resources for all stakeholders.
- To improve the university's digital infrastructure, encompassing the upgrade of data centers, implementation of cloud services, and provision of modern end-user devices, enabling efficient and secure access to digital resources for all users.

Key Indicators:

- Percentages of constituent campuses/department/schools and central offices having a reliable broadband connectivity at Kathmandu valley.
- Percentages of constituent campuses and central offices having reliable broadband connectivity outside of valley in collaboration with RTDF Fund by NTA.
- Percentage of established secure Wi-Fi zone at constituent campuses and academic institutes.
- Number of campuses and academic institutes that have intranet services.
- Number of data centers upgrading and operating to run centralized service hosting at central level.
- Percentage of IT services using the cloud services platform.
- Number of research and learning laboratory establishments.
- Number of IT support unit establishments.

Targets:

- Ensuring 100% of constituent campuses/department/schools and central offices Kathmandu valley have a reliable and strong broadband connectivity and use centralized system.
- Ensuring 100% of constituent campuses and academic institutes have a connection on intranet with collaboration with ISPs.
- Establishing 80% secure Wi-Fi zone at campuses level
- Ensuring 50% of academic institutes of TU are connected in Local area network.
- Upgrading of 100% data center at TU central level.
- Moving at least 10% of university services to government and private cloud services.
- Making sure that 9 research laboratories under the dean offices.
- 100% campuses/department/school establish the IT support unit.



Sub-Activities and Timeline

Sub Activities	Short-Term		Mid-Term		Long-Term
	2023	2024	2025	2026	2027
Broadband Connection in Constituent campuses/department/schools	X	X			
Internet at University Level	X	X	X	X	
Secure Wi-Fi Zone at all academic institutes	X	X	X		
Upgrade Data Center	X	X	X	X	X
Promotion of Cloud Services		X	X	X	X
Research Laboratory		X	X	X	X

2.2. LEARNING MANAGEMENT SYSTEM

The Learning Management System (LMS) provides a centralized platform for educators and students to organize, deliver, and manage educational content and activities at the TU. LMS designed for TU will encompass several major features, such as providing a centralized platform for instructors to manage courses creating and organizing course materials, offering collaboration and communication, supporting assessment and grading functionalities and providing timely feedback to students, allowing for content sharing and multimedia integration, offering analytics and reporting of student performance, engagement, and progress, and assisting educators in making data-driven decisions and improving the learning experience.

Component 2: Learning Management System	
Programs	Activities (4)
Program 2.1: Learning Management System	Activity 2.1.1: Establish Centralized LMS Activity 2.1.2: Self-paced Learning Environment



Program 2.2: Virtual Learning Platform	Activity 2.2.1: Establish Video Conference System Activity 2.2.2: Cloud Services Access (Virtual Lab)
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Key Strategic initiatives:

Several projects are part of the Learning Management System (LMS) strategy. First, TU will set up a central LMS platform like Moodle to make learning easier and more uniform for all academic units at TU. Second, TU will actively support a platform for self-paced learning called MOOC to make learning flexible and easy to access. TU will also set up a tool-based video conference system to make learning more engaging. The collaboration will be used to get access to virtual labs, which will let people learn by doing. Through these projects, TU wants to make an effective and complete learning environment that helps both students and teachers.

Objective:

- To implement a campus-level LMS to provide a centralized platform for course management, content delivery, student collaboration, and assessment
- To integrate a virtual learning environment within the campus-level LMS to facilitate online learning and remote education.
- To enhance the personalization and customization capabilities of the campus-level LMS to cater to the diverse needs and preferences of students and instructors.

Key Indicators:

- Number of centralized Learning Management System Host.
- Number of Dean office level learning management system hosting.
- Number of centralized self-place learning platform.
- Number of video conferencing and virtual learning platform provide.
- Percentage of educational application and virtual lab access through cloud services.

Targets:

- A centralized LMS system hosting at central level
- 50% of campuses and dean office integrate with central LMS with own LMS platform.
- A centralized self-place learning platform develop for train student, teaching and non-teaching faculties.
- A video conferencing and virtual learning platform(VLE) provide use of third-party system like MS teams.
- 20% of campuses use educational application and virtual lab access through cloud services.

Sub-Activities and Timeline

Sub Activities	Short-Term		Mid-Term		Long-Term
	2023	2024	2025	2026	2027
Hosting and Operation of Centralized LMS	X	X	X	X	X
LMS Integration by dean office and campuses		X	X	X	X
Established and operation of Self-paced learning platform		X	X	X	
Centralized VLE system with email	X				
System hosting and virtual lab access		X	X		

2.3. TU EDUCATIONAL MANAGEMENT INFORMATION SYSTEM

Educational Management Information System (EMIS) in higher education is a comprehensive system that collects, manages, and analyzes data to support decision-making and planning of the administration in educational institutions. The EMIS in TU include student data collection and management, comprehensive reporting and analysis, information of student's tracking, curriculum and course management, and integration with other administrative systems, such as examination, finance, planning for efficient planning and decision-making.

Component 3: Educational Management Information System (EMIS)	
Programs	Activities (9)
Program 3.1: Centralized ERP at University	Activity 3.1.1: University Central office Automation System Activity 3.1.2: Centralized PIS (HRM) System Activity 3.1.3: Integrated Financial Management Information System Activity 3.1.4: GIS Based Planning and Monitoring System Activity 3.1.5: Integrated Web site deployment
Program 3.2: Educational ERP in Dean/Campus Level	Activity 3.2.1: Dean office ERP Activity 3.2.2: Campus level ERP

Program 3.3: Integrated Exam Management System	Activity 3.3.1: Centralized Exam Management System Activity 3.3.2: Dean office's Exam Management System
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Key Strategies initiatives:

The Educational Management Information System (EMIS) includes a number of important tactics and projects. First, TU will set up a centralized, integrated, and scalable system that makes it easy for different teams to work together to automate the office work and activities. This includes managing information about employees so that HR can handle data more efficiently. Second, integrating a complete financial system will make sure that all of the institution's finances are managed smoothly. TU will also use Geographic Information System (GIS)-based reporting to make the easier to see and understand statistics. Integration of computer services and websites will make them easier to use and more accessible. TU will also develop Enterprise Resource Planning (ERP) system that can be used by everyone on campus. This will enable people use resources more efficiently. TU will make an ERP that deans' offices can use and that can be shared. This will help in running routine tasks effectively. Through these projects, it is expected that a strong EMIS will improve the way schools are run and how decisions are made.

Objective:

- To Implement a university-level Enterprise Resource Planning (ERP) system to streamline administrative processes, PIS system and finance system and enhance data integration across departments.
- To deploy ERP systems at the college level within the university to facilitate efficient management of college-specific operations, such as course registration, student enrollment to certification process.
- To develop a centralized exam management system that automates the process of exam scheduling, registration, grading, and result publication.
- To enhance the data analytics and reporting capabilities of the educational management information system to provide actionable insights and support data-driven decision-making.

Key Indicators:

- Number of university central automation system developed and deployed.
- Number of centralized PIS system developed and deployed.
- Number of Integrated Financial Management Information System developed and deployed.
- Number of GIS Based Planning and Monitoring System developed and deployed including dean offices.
- Number of ERP system developed and implemented on Dean Offices.
- Number of Campus ERP and EMIS developed and deployed at campus level using single platform.
- Number of integrated exam management system, including entrance examination.



Targets:

- Development and operation of centralized university ERP system for automation of system, including office automation process.
- Developed and operation of centralized PIS system providing access to all staff of TU.
- Development and operation of an Integrated Financial Management Information System.
- Integration of 100% constituent campus/department/schools with centralized websites.
- Development and operation of a GIS Based Planning and Monitoring System including dean offices.
- Development and operation of an ERP system in nine Dean Offices.
- Integrating 100% campuses in Campus ERP and EMIS in a single platform.
- Development and operation of a centralized integrated exam management system including entrance examination and all exams held by dean offices.

Sub-Activities and Timeline

Sub Activities	Short-Term		Mid-Term		Long-Term
	2023	2024	2025	2026	2027
Develop and operate a Centralized University ERP system (Automation)		X	X	X	
Develop and operate a Centralized PIS		X	X		
Develop and operate a Centralized Integrated Financial Management Information System	X	X	X	X	
Develop and operate a Centralized GIS Based Planning and Monitoring System	X	X			
Develop and operate a Centralized ERP for 9 dean offices			X	X	
Develop and operate a Centralized ERP and EMIS for campus level	X	X	X		
Develop and deployment a Centralized integrated website	X	X			
Develop and operate a Centralized Integrated Exam Management System	X	X	X		



Develop and operate Dean Office level Integrated Exam Management System					
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2.4. DIGITAL LEARNING RESOURCES

Developing digital learning resources for higher education involves creating interactive and engaging online materials to enhance student learning. Having access to digital learning resources, faculties at TU can engage in activities, such as creating educational videos, designing interactive quizzes, developing online books, recording audio lectures, designing simulations, curating and sharing Open Educational Resources (OER), and subscribing to digital libraries for accessing relevant academic content.

Component 4: Digital Resources	
Programs	Activities (6)
Program 4.1: Development Interactive Learning Materials	Activity 4.1.1: Production and publish interactive digital learning resources. Activity 4.1.1: Development of Digital Studio
Program 4.2: Subscription Services	Activity 4.2.1: e-Resources Subscription Activity 4.2.1: Plagiarism Detector System subscription
Program 4.3: Development of e-Library	Activity4.3.1: Development of E-library Activity4.3.1: Development and promotion of Open Educational Resources (OER)

Key Strategic Initiatives:

To improve digital learning tools, a number of key strategies and projects need to be effectively implemented. First, TU is dedicated to creating and publishing interactive digital learning materials, through central library system that closely follow the curriculum and meet students' educational needs. TU will set up a state-of-the-art regional visual studio with the latest technology so that cutting-edge material can be created and tailored to the teaching and learning needs. TU will also use a cost-sharing model for e-Resources Subscription, which will give more people access to a wide range of training tools and materials. To maintain and promote academic ethics, a cost-sharing plagiarism detector will be put in place. This will make sure that copy rights are respected and that academic activities are ethical. TU will build its own library based on open sources to make more resources available. Lastly, TU will support and encourage both students and teachers to use Open Educational



Resources (OER). This will create a collaborative and innovative learning environment that makes the educational journey better.

Objective:

- To design and development interactive learning resources aided technology to enhance student engagement, interactivity, and learning outcomes.
- To establish a comprehensive library data subscription plan to provide an access to students and faculties with access to a wide range of digital resources, scholarly journals, e-books, and databases.
- To establish a robust e-library platform that offers a digital repository of educational resources, research publications, and reference materials.

Key Indicators:

- Percentages of academic program producing and publishing interactive learning materials.
- Number of digital studios established at dean offices and campus level.
- Percentage of student and teacher access the subscribe centralized database through central library.
- Percentage of campuses/department/schools using the centralized anti-plagiarism software for research level activities.
- Number of digital libraries established and integrated to campuses/departments/colleges.
- Percentages of faculties using and sharing OER resources to accomplish academic purpose.

Targets:

- Ensuring 50% of academic program producing and publishing interactive learning materials to provide access their students.
- Establishing 50 digital studios at dean offices and campuses level within five years.
- Assuring 40% of student and teacher to have the access to subscribe centralized database through central library.
- Ensuring 100% percentage of campuses/departments/schools use centralized anti-plagiarism software for research level activities.
- Establishing one centralized digital libraries (local repository) integrated to campuses/departments/colleges.
- Making it sure that 100% of campuses provide digital library access.
- Ensuring that percentages of faculties use and share OER resources to accomplish academic purpose.

Sub-Activities and Timeline

Sub Activities	Short-Term		Mid-Term		Long-Term
	2023	2024	2025	2026	2027
Designing, developing and producing product interactive learning resources	X	X	X	X	X
Establishing digital studio		X	X	X	
Subscription of library database and dissemination	X	X	X	X	X
Subscription of anti-plagiarism and operation	X	X	X	X	X
Development and operation of the centralized local repository (e-library)	X	X	X		
Digital Library Access environment at campuses level	X	X	X		
Promotion of OER		X	X	X	X

2.5. DIGITAL CAPACITY DEVELOPMENT

Digital capacity enhancement for teaching faculties involves improving their skills in using digital tools for effective teaching; for non-teaching faculties, it means enhancing their proficiency in utilizing digital technologies for administrative tasks and support roles. To enhance digital capacity at TU for teachers, activities can include providing training on digital literacy to improve students' and educators' digital skills, offering training in digital pedagogy to effectively integrate technology into teaching practices, and providing specific training on handling tools and software relevant to digital learning and educational technology.

Component 5: Digital Capacity Enhancement	
Programs	Activities (5)
Program 5.1: Digital Literacy	Activity 5.1.1: Digital Literacy Training for Teaching Faculty

	Activity 5.1.2: Digital Literacy Training for Non-Teaching Faculty
Program 5.2: Digital Pedagogy	Activity 5.2.1: Digital Pedagogy for in-services teacher
Program 5.3: Capacity enhancement for technical support staff	Activity 5.3.1: Digital Skill enhancement for Technical Staffs Activity 5.3.2: Experience sharing and exposé workshop, tours and travels.

Key Strategies Initiatives:

Improving digital capacity development involves a number of key tactics and projects. First, TU will conduct a complete Digital Literacy Training for teachers and staff, which will be available both in-person and online to meet different learning and contextual needs and styles. TU will also focus on Digital Pedagogy for teachers who are already in the classroom, giving them effective and new ways to teach with technology. To make technical support goes smooth program to improve technical staff's digital skills will be offered. This will help create a skilled technical workforce. TU will also build an environment that encourages people to share their experiences and knowledge. This will help people learn from each other and grow together.

Objective:

- To develop and implement training programs and workshops to enhance the digital literacy skills of TU faculties.
- To provide guidance and support to faculties at TU and to promote digital pedagogy and the integration of innovative teaching methods.
- To establish platforms and mechanisms for teacher and staff in higher education to collaborate, share best practices, and engage in ongoing professional development in digital environments.

Key Indicators:

- Percentage of teaching faculties trained on digital literacy training.
- Percentage of non-teaching faculties trained on digital literacy training.
- Percentage of teacher trained on digital pedagogy skills.
- Percentage of IT technical staff trained on latest digital skill enhancement.

Targets:

- 100% of teaching faculties trained on digital literacy training.
- 80% of non-teaching faculties trained on digital literacy training.
- 50% of teacher trained on digital pedagogy skills.
- 100% of IT technical staff trained on latest digital skill enhancement.



Sub-Activities and Timeline

Sub Activities	Short-Term		Mid-Term		Long-Term
	2023	2024	2025	2026	2027
Designing and developing course material for digital skill, pedagogy skills course	X				
Conducting digital literacy training at campuses level	X	X	X		
Conducting digital pedagogy training at dean office level	X	X	X		X
Conducting MOOC course for digital literacy and pedagogy skills		X	X	X	X
Designing and developing course materials to enhance the skills of IT technician at central level	X	X	X	X	

2.6 DIGITIZATION POLICY AND GUIDELINES

A digitization policy for TU is needed to provide a strategic framework and guidelines for leveraging digital technologies to enhance teaching, learning, administrative processes, and overall educational experiences systematically and effectively. These policies and guidelines establish a framework for the successful integration of digital technologies in higher education, promoting efficiency, security, and quality in the learning environment.

Component 6: Development of Digitalization policy and guidelines	
Programs	Activities (2)
Program 6.1: Policy Development	Activity 6.1.1: Development and Enhancement of Digitalization Policy
	Activity 6.1.2: Development and Enhancement of Digitalization Guidelines

Key strategic initiatives:

For the Digitization Policy and Guidelines, there are a number of important tactics and activities. First of all, TU is committed to making sure that all digital activities happen within a structured framework of rules, policies,



and instructions. This gives digital processes a clear path to follow. TU will work hard to come up with new guidelines that meet new digital needs and outline the digitalization policy as a whole. TU will also improve the digital rules that are already in place so that they stay relevant and useful in a digital world that is always changing. By carefully guiding digital projects and making changes to our policies all the time, TU works to build a strong base for smooth and safe digitization across Tribhuvan University.

Objective:

- To establish standards and guidelines for higher education institutions to upgrade their digital infrastructure, including network connectivity, hardware, and software systems.
- To develop a policy framework that encourages the integration of digital tools and technologies into the curriculum, instructional methods, and assessment practices.
- To develop a policy framework that ensures equal access to digital resources and technologies for all students, faculties, and staff in higher education institutions.
- To develop policies and guidelines to safeguard data privacy and security in higher education

Key Indicators:

- Number of Digitalization and IT policy at central level.
- Number of digitalization's guidelines at central level.

Targets:

- Establishing one centralized IT and digitalization central level.
- Creating 10 digitalization operation guidelines at central level.

Sub-Activities and Timeline

Sub Activities	Short-Term		Mid-Term		Long-Term
	2023	2024	2025	2026	2027
Developing of IT and Digitalization Policy and Stakeholder consultation	X				
Enhancing Email Operation guidelines	X	X			
Enhancing anti-plagiarism operation guidelines	X	X			
Developing online and blended learning guidelines		X			



Developing online exam operation guidelines		X			
Developing centralized website operation guidelines		X			
Developing EMIS operation guidelines		X			
Developing Data center development guidelines		X			
Developing Data security and privacy guidelines		X			
Developing Digital library and central repository operation guidelines		X			
Enhancing Digital Attendance operation guidelines	X				



4. ROLE AND RESPONSIBILITY

The leading roles for each Activity as follow:

Program	Activities	Leading Responsibility
Program 1.1: Connectivity	Activity 1.1.1: Broadband Connection	IT center and campuses
	Activity 1.1.2: Secure Wi-Fi Zone	IT center and campuses
	Activity 1.1.3: Intranet Development	IT center and campuses
Program 1.2: Infrastructure Development	Activity 1.2.1: Data Center Development	Registrar Office and IT center
	Activity 1.2.2: Cloud Services	Registrar Office and IT center
	Activity 1.2.3: End User Devices Management	Registrar Office and Campuses
	Activity 1.2.4: IT Support Unit	Principal Office/Campuses, Dean office
Program 2.1: Learning Management System	Activity 2.1.1: Establish Centralized LMS	ODEC, IT Center
	Activity 2.1.2: Self-paced Learning Environment	ODEC, IT Center
Program 2.2: Virtual Learning Platform	Activity 2.2.1: Establish Video Conference System	IT Center
	Activity 2.2.2: Access cloud virtual lab	Campuses
Program 3.1: Centralized ERP at University	Activity 3.1.1: University Central office Automation System	Registrar office and IT Center
	Activity 3.1.2: Centralized PIS (HRM) System	Registrar office and IT Center
	Activity 3.1.3: Integrated Financial Management Information System	Registrar office and IT Center
	Activity 3.1.4: GIS Based Planning and Monitoring System	Planning Division and IT Center



Program 3.2: Campuses and Dean office ERP	Activity 3.2.1: Dean office ERP	Dean Office
	Activity 3.2.1: Campuses level ERP	IT center and Campuses
Program 3.3: Integrated Exam Management System	Activity 3.3.1: Centralized Exam Management System	Controller of examination
	Activity 3.3.2: Dean office's Exam Management System	Controller of examination and Dean Offices
Program 4.1: Interactive Learning Materials	Activity 4.1.1: Production and publish interactive digital learning resources.	Campuses/Departments
	Activity 4.1.1: Development of Digital Studio	Dean Office and campuses
Program 4.2: Subscription Services	Activity 4.2.1: e-Resources Subscription	Central Library
	Activity 4.2.1: Plagiarism Detector System subscription	Central Library
Program 4.3: e-Library	Activity4.3.1: Development of E-library	Central Library
	Activity4.3.1: Development and promotion of Open Educational Resources (OER)	Central Library
Program 5.1: Digital Literacy	Activity 5.1.1: Digital Literacy Training for Teaching Faculty	Rector Office
	Activity 5.1.2: Digital Literacy Training for Non-Teaching Faculty	Rector Office
Program 5.2: Digital Pedagogy	Activity 5.2.1: Digital Pedagogy for in-services teacher	Rector Office and ODEC
Program 5.3: Technical Capacity enhancement	Activity 5.3.1: Digital Skill enhancement for Technical Staffs	Rector Office and IT center
Program 6.1: Policy and Guidelines Development	Activity 6.1.1: Development and Enhancement of Digitalization Policy	Registrar office
	Activity 6.1.2: Development and Enhancement of Digitalization Guidelines	Registrar office



5. COST ESTIMATION AND COLLABORATION

Cost estimates for a university's five digitalization strategies include things like hardware and software costs, infrastructure upgrades, costs for training and professional development, vendor and consulting services, and ongoing upkeep and support.

When implementing digitalization tactics in TU, it is important to work together and share costs. This means working with stakeholders like government organisations, industry partners, and other educational institutions to split the costs to be incurred in tasks like improving connectivity, putting in place a learning management system (LMS), making digital resources, improving digital capacity, and making infrastructure changes.

Program	Estimated Cost for TU Expenditure (00,000)	Collaboration and Support
Program 1.1: Connectivity	Estimate in Execution Time	NTA and local ISP
Program 1.2: Infrastructure Development	Estimate in Execution Time	GIDC, Cloud Service provider
Program 2.1: Learning Management System	Estimate in Execution Time	GIDC, UGC
Program 2.2: Virtual Learning Platform	Estimate in Execution Time	Microsoft
Program 3.1: Centralized ERP at University	Estimate in Execution Time	
Program 3.2: Campuses and Dean office ERP	Estimate in Execution Time	
Program 3.3: Integrated Exam Management System	Estimate in Execution Time	
Program 4.1: Interactive Learning Materials	Estimate in Execution Time	Contents Authorizing Company
Program 4.2: Subscription Services	Estimate in Execution Time	OER Data Sources
Program 4.3: e-Library	Estimate in Execution Time	



Program 5.1: Digital Literacy	Estimate in Execution Time	MoEST, MoCIT
Program 5.2: Digital Pedagogy	Estimate in Execution Time	MoEST, CEHRD
Program 5.3: Technical Capacity enhancement	Estimate in Execution Time	MoCIT
Program 6.1: Policy and guide lines Development	Estimate in Execution Time	UGC, MoEST

6. INSTITUTIONAL ARRANGEMENT

For effective implementation, monitoring, and controlling these strategies, the TU will have different hierarchies of ICT units as follows:

Central Digitization Directives Committee:

A Digitalization Committee consisting of members led by the Registrar will be formulated at the central level as an IT governance and regulatory team. The committee will be formed by the Vice Chancellor of the University. Tenure of the committee, its formation and details of roles, responsibility will be developed later.

Committee structure:

- Chairman, Registrar of TU
- Member, Chief of General Administration Division
- Member, Chief Finance Division
- Member, Planning Division
- Member, One representative from each Dean Office
- Member, IT Expert (From TU, Nepal Govt. or Freelancer)
- Member Secretary, Director IT

Information Technology Innovation Center: For the implementation of the strategy, the Information Technology Innovation Center will be responsible for implementation of IT strategy of TU under the close guidance and coordination of Directive Committee.

IT Unit: Each functional unit i.e., departments, campuses, schools, the office of the deans, the office of the directorate, center will establish IT units to facilitate technical support to the faculties, staff and students.



7. FINANCIAL ARRANGEMENT

The Financial resources arrangement for implementing digitalization strategies over a five-year period, the university will adopt several approaches.

- **UGC Grants and Projects:** The university will seek funding from the University Grants Commission (UGC) to support the implementation of digitalization strategies over a five-year period. This could involve submitting project proposals to secure grants specifically designated for digital transformation initiatives, such as Nurturing Excellence in Higher Education Program (NEHEP).
- **Generating Own Revenue:** The university will develop revenue-generating strategies to fund the digitalization initiatives. This could include leveraging existing resources, such as offering value added digital services, to generate income that can be reinvested in implementing digitalization projects and activities.
- **International Project Collaboration:** The university will explore opportunities for collaboration with international organizations or institutions that provide financial assistance for digitalization projects such as UNESCO, ADB, JICA, USAID, DFID, DFAT, EU, CIDA, CIDCA or more. This could involve partnering with global development agencies or technology companies to access funding and expertise.
- **Government-Sponsored Projects:** The university will seek financial support from the government of Nepal by applying for specific projects or initiatives dedicated to digital transformation. This could involve aligning the proposed digitalization strategies with the Nepal government's priorities and objectives to increase the chances of receiving funding.
- **Nepal Telecom Rural Development Fund:** The university will seek finding from the Nepal Telecom Rural Development Fund, which is specifically aimed at supporting projects that promote digital connectivity and technology adoption in rural areas. It can apply for grants or financial assistance provided by this fund to implement digitalization strategies in under-served regions.
- **Student Contributions:** A system for collecting voluntary contributions from students, such as a digitalization fund or technology fee, to finance the digital transformation initiatives can be established. This approach could involve collaborating with TU Alumni implementing a crowd-funding in campuses, departments and school levels.



- **Public-Private Partnerships:** Partnerships with private sector organizations that have an interest in digitalization or technology advancements can be formed. The university will seek financial support from these organizations by exploring joint funding opportunities, sponsorships, or co-investment models.
- **Research and Development Collaboration:** The university will partner with research institutions or organizations to secure research grants or collaborative funding for digitalization projects. This approach can leverage academic expertise and resources to support the implementation of innovative digital strategies.

8. MONITORING, AND EVALUATION

Monitoring and evaluation of the implementation status of university digitalization strategies related program and activities will be led by planning division of TU. The Division will perform following activities:

- **Establish Key Performance Indicators (KPIs):** Define specific KPIs that align with the objectives of the digitalization strategies at the university level. These KPIs include metrics about objective alignment with each component of digitalization.
- **Conduct Surveys and Feedback Mechanisms:** Implement surveys and feedback mechanisms to gather input from students, faculties, and staff regarding their experiences with the digitalization strategies periodically.
- **Infrastructure Monitoring:** Continuously monitor the performance and reliability of digital infrastructure, including network connectivity, learning management systems, and online collaboration tools.
- **Impact on Pedagogy:** Evaluate the impact of digitalization strategies on teaching and learning practices. Monitor changes in instructional methods, student engagement, and collaboration opportunities facilitated by digital tools.
- **Data Analytics and Reporting:** Utilize data analytics tools and reporting systems to track and analyze relevant data related to the implementation of digitalization strategies. This can include data on website traffic, online course enrollments, usage of digital resources, or student performance indicators.
- **Regular Progress Reviews and Audits:** Conduct regular progress reviews and audits to evaluate the effectiveness and efficiency of the digitalization strategies.

