



The Higher Technological Institute
The Quality Assurance Unit – 10th of Ramadan



Teaching, Learning, and Assessment Strategies
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Introduction

The Teaching, Learning, and Assessment Strategy Document outlines the strategic goals and the policies of education and learning pursued by the various scientific programs in The Higher Technological Institute. In line with the institute's commitment to keeping pace with modern trends and preparing graduates who are qualified to meet the demands of the contemporary job market with distinction, the institute has adopted a number of strategies that support teaching and learning based on competencies and learning outcomes aligned with NARS 2018. These strategies ensure excellence, foster creativity and innovation, and sustain this excellence across various programs, while also fulfilling the specifications required for the institute's graduates.

Updating Teaching, Learning and Assessment Strategies

Teaching, learning, and assessment strategies are updated in the following cases:

- Updating the institute's strategic plan.
- The occurrence of new developments or any decisions that require such updates due to periodic reviews considering exam results and the results of the student survey and faculty and teaching assistants survey regarding educational effectiveness.

Teaching, Learning, and Assessment Strategies Preparation Team

- The Quality Assurance Unit Team at the Institute.
- Faculty members in the educational programs by selecting appropriate teaching strategies.
- Relevant community stakeholders through surveys.
- The academic leadership at the institute through discussing and approving the strategies document in the Academic Council.



Teaching, Learning, and Assessment Strategies Goal

Excellence and maintaining the quality of learning through highly efficient educational programs that apply teaching and learning based on targeted learning outcomes (NARS) and keep pace with modern teaching methods.

Teaching, Learning, and Assessment Strategies Sub-goals

- Implementing diverse teaching and learning methods to achieve the learning outcomes of academic programs.
- Working on prestigiously developing the educational process at the institute and graduating students capable of competing in the labor market.
- Equipping students with diverse skills and experiences that qualify them to work in various fields and encouraging them to think in multiple ways to solve problems and use information technology.
- Establishing mechanisms to address struggling students, motivate them, and maintain the level of academically outstanding students.
- Promoting collaboration between faculty members and students and activating the role of the academic advisor.
- Developing assessment methods and examination systems.
- Fully utilizing material and human resources to enhance the educational process.
- Developing the teaching expertise of faculty members and teaching assistants, student assessment, and various teaching methods.

Announcement of Teaching, Learning, and Assessment Strategies

- Disseminating copies to faculty members affiliated with the academic programs
- The institute's website.
- The communication channels of the programs.



Mechanism for monitoring the implementation of teaching, learning, and assessment strategies

To monitor the implementation and effectiveness of the adopted teaching, learning, and assessment strategies in various programs and courses, the following procedures and mechanisms are followed:

- Awareness and Communication: At the beginning of the semester, students are informed and made aware of the teaching and learning methods that will be used in the course.
- Course Documentation: A course file is maintained, containing all materials that describe the course workflow, including assignments, timelines, samples of student performance in various tasks, and the criteria for evaluating and assessing these assignments, along with their objectives.
- Continuous Monitoring: Ongoing follow-up is conducted to ensure the implementation of the strategy through the review of course descriptions and reports by the internal audit unit of the Quality Assurance Department.
- Alignment and Fairness: Specific mechanisms are established to ensure that exams align with and link to learning outcomes (blueprint) and that student assessment is fair.
- Course Surveys: A course survey is conducted for students in the final third of the semester to gather their feedback on the effectiveness of the teaching and learning strategies used in the course, as well as the extent of their benefit from these strategies.
- Analysis and Improvement: Student feedback is analyzed through course surveys, and the actions taken by the faculty member in response are documented in the course report. Additionally, statistical analysis of student results at the end of the academic year is conducted, along with comments from internal and external reviewers, to develop a corrective pathway if needed for the teaching and learning strategies used in the course for the following semester.
- Faculty Responsibility: The faculty member assigned to teach in the following semester is tasked with improving performance and implementing the corrective plan proposed by the department council.



Implementation Mechanism for Monitoring and Developing Teaching, Learning, and Assessment Strategies

- Training faculty members and their teaching assistants on modern teaching, learning, and assessment methods, including the application of e-learning and the preparation of electronic exams, given the availability of internet infrastructure and computer equipment.
- Providing virtual lab programs, simulations, and other tools.
- Raising student awareness of modern teaching and assessment methods by sharing course specifications.
- Consistent updating of academic courses.
- Prioritizing the institute's library, its ongoing development, and equipping it with scientific journals and the latest editions of references.
- Ensuring the quality of classrooms, lecture halls, and labs, and equipping them with the latest projectors, screens, and all necessary facilities to enhance educational effectiveness.

Teaching, Learning, and Assessment Strategies Used at the Institute

The teaching and learning strategies used varied according to the nature of the courses in the different programs, which include:

1. Direct Instruction
2. Indirect Instruction
 - Cooperative Learning Strategies
 - Interactive Learning Strategies
 - Information Technology-Assisted Learning Strategies.

1. Direct Instruction

It is a method that provides students with concepts, fundamentals, and scientific and practical knowledge, where the lecturer is the primary source of knowledge and educational expertise. It is applied through:



- **Lectures**

Faculty members use various teaching methods to provide students with the best opportunities for learning and to engage with different ways of presenting information. This enables students to utilize these methods and adapt the information in their practical lives. This approach represents one of the fundamental and primary methods for preparing students to interact with other methods.

- **Tutorials/Practical Sessions**

Faculty members or teaching assistants conduct educational activities (questions, exercises, applications, etc.). Experiments are carried out in the laboratories of each scientific department, which are equipped with the necessary requirements according to each course.

Faculty members rely on practical lessons to develop the following skills in students, depending on the nature of each course:

- Conducting practical experiments, using various laboratory equipment, and interpreting and analyzing results.
- Working in teams when students are divided into small groups.
- Using computers and specialized software in some courses.
- Implementing experiments that align with the needs of the labor market.

The Role of Faculty Members in Developing Direct Instruction

- Identifying the knowledge and skills students need to comprehend the course.
- Organizing and planning the presentation in a logical sequence.
- Assessing student understanding (e.g., by asking direct questions during lectures).

2. Indirect Instruction

This strategy relies on students solving a set of applied exercises and completing individual or group assignments based on the knowledge taught in the courses. Faculty members or teaching



assistants monitor the students and provide assistance in solving these problems, which enhances the students' ability to address challenges they may face in practical life. It is implemented through:

- **Cooperative Learning Strategies, including:**

- **Brainstorming**

This is a modern method to enhance traditional lectures. It encourages creative thinking and unlocks students' potential in an atmosphere of freedom, where the student is at the peak of interaction in the educational setting. The lecturer presents a specific topic, and students share their ideas and suggestions related to the discussion topic. The lecturer then collects these suggestions, discusses and analyzes them with the students, and identifies the most suitable ones. This method relies on free thinking and focuses on generating the maximum number of ideas, while also allowing for building on others' ideas.

- **Project-Based Learning**

This is learning that integrates knowledge and action. It involves learning through participation in group projects, which fosters collaboration skills among group members, dialogue, critical analysis of opinions, work organization, and team management. Examples include:

- Designing and implementing small projects within the course (Mini Projects).
- Designing and executing graduation projects (Graduation Projects).

- **Research-Based**

Learning

This is one of the methods of collaborative learning, where students research a specific problem or issue. It aims to develop collaboration skills among group members, dialogue, critical analysis of opinions, work organization, and team management.



- **Case Study Strategy**

Using the case study strategy in teaching allows students to apply the concepts they have learned in lectures to real-life situations. The faculty member presents a case to the students and asks them to identify what they believe is relevant to the case, the information they may need, and the impact of their decisions on the case or issue. This strategy is highly flexible and can be adapted for use in various disciplines. A single question is posed to generate a discussion on how students would handle the case or a specific situation. Students study the case by applying what they have learned in the course. They can present their findings briefly in small groups of 3 to 4 students or individually.

The Role of Faculty Members in Developing Cooperative Learning Strategies:

- Clearly outlines the broad steps and time frame for group activities.
- Distributes students into groups, ensuring diversity in the abilities within each group.
- Accepts and encourages ideas.
- Creates an atmosphere of excitement and challenge among students.
- Avoids criticism and accepts ideas.
- Enhances students' thinking abilities, acceptance of others' ideas, and builds self-confidence.
- Uses various sources to collect, organize, and present ideas.
- Encourages students to use logic and scientific evidence to develop their ideas.
- Fosters a spirit of cooperation and teamwork among students.
- Helps students connect the content to real-life situations.
- Supports shy students and encourages their participation.
- Monitors and evaluates student learning through continuous observation.

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- **Interactive Learning Strategies:**

- **Problem-Based Learning**

The faculty member presents a problem, whether real or hypothetical, that requires thinking and researching to solve it according to specific practical steps. This is done through engaging in a number of educational activities in the new situation faced.

- **Discussion Strategy**

This method is fundamentally based on dialogue. The faculty member relies on students' prior knowledge and experiences, guiding their activities to understand the topic using diverse questions and students' responses to achieve the lecture's objectives. It stimulates prior knowledge, reinforces new knowledge, and ensures comprehension of both. It also promotes active mental engagement among students, enhances their attention, and encourages independent thinking.

- **Field Training**

According to academic regulations, a student cannot graduate without completing the specified number of training hours as per the study regulations. Field training develops various skills in students, contributing to building the graduate's personality and preparing them for the job market.

- **Writing Reports/Research (Short Reports & Research)**

The faculty member asks the student to write a report or research paper on a specific topic. This method enhances the student's research, analysis, expression, and presentation skills.

- **Site Visits**

Through certain courses, field trips are organized to factories and companies, depending on the nature of the program and the course. These visits help students connect theoretical

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scientific facts with their practical applications, emphasizing their role in serving the community.

- **Self-Learning**

The self-learning strategy relies on the student's own abilities to acquire knowledge from various sources, such as the institute's library or the internet (EBK). This strategy aims to develop the student's ability to continue learning independently, helping them progress and stay updated with new developments in their field of specialization with minimal guidance from the faculty members. This makes the learner the center of the educational process.

- **Discovery Learning**

Discovery is one of the most effective modern educational methods for developing creative thinking in students. It involves confronting a problem, reorganizing stored information, and then attempting to address and solve the problem independently. This includes formulating hypotheses, collecting and analyzing data, and ultimately reaching a conclusion. During this process, students acquire concepts and principles about the topic in a self-directed manner, which helps develop their current and future capabilities. It also reinforces the principle of self-learning through personal efforts.

The Role of Faculty Member in Interactive Learning

- Clearly outlines the broad steps and time frame for achieving the objective.
- Teaches students models and methods for problem-solving and research.
- Monitors students' progress and intervenes to support them.
- Assists students in identifying the required references for conducting research.
- Encourages student interaction.
- Helps students acquire positive behavior.
- Guides students in accessing diverse learning resources and sharing them with their peers.
- Identifies the knowledge and skills students need to conduct research and analysis.
- Supports students with various self-learning resources.

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- **Information Technology-Assisted Learning Strategies:**

- **Simulation Programs**

This is a teaching method or approach often used by faculty members to bring students closer to the real world, which is difficult to replicate. It provides students with situations like those they might face in real life and offers realistic training without exposing them to risks, thereby boosting their self-confidence.

- **Virtual Labs**

Virtual labs help in conducting experiments easily and enhancing practical knowledge. They enable students to perform a variety of experiments without the need for costly resources. They also allow students to conduct experiments and learn how to operate complex equipment that is difficult to use in a physical lab. These labs are implemented through some modern computer software programs.

- **Artificial Intelligence (AI) in Education Strategy**

- The applications of artificial intelligence in education are diverse. AI provides interactive tools and analyzes educational data, contributing to the development of a comprehensive and advanced educational system that enhances individuals' skills for a future characterized by innovation, sustainability, and constant change. Through perception, learning, thinking, problem-solving, linguistic interaction, and even creative production, AI interacts with the world to transfer a vast number of experiences.
- Some AI tools that lecturers can utilize to prepare lectures include **Top Hat**, **Education Copilot**, and **ChatGPT**. For example, ChatGPT can be used as an alternative to search engines, where the chatbot is asked to retrieve precise information for questions related to lecture preparation. Any question can be posed to ChatGPT instead of filtering through a list of Google search results.

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- **E-Learning**

- The COVID-19 pandemic caused the largest disruption in traditional education systems, affecting approximately 1.6 billion students worldwide across more than 190 countries and all continents. The closure of educational institutions impacted 94% of the world's students. In response to this challenge, e-learning emerged as the alternative strategy to face-to-face learning.
- This strategy involves teaching scenarios that rely on interacting with various technological innovations and being well-trained in their use before engaging in educational experiences through them. It requires precise preparation to define the elements of educational interaction, learning resources, and ways to access them. It also demands specific skills in both faculty members and students, which must be developed to ensure effective implementation.

Foundations of the E-Learning Strategy at the Institute

Electronic Infrastructure at the Institute

- Availability of a **Server** and a **Backup Server**.
- Provision of university email accounts for students, faculty members, and supporting staff.
- Availability of equipment to support e-learning and the preparation of electronic educational materials (e.g., equipped rooms, computer labs, software, etc.).
- Provision of internet services within the institution for students, faculty members, and supporting staff, along with computer labs.

E-Learning Includes a Learning Management System (LMS)

- Presence of an e-learning platform (e.g., **Microsoft Teams**).
- **E-Lectures**: Lectures are first uploaded as PDF or PowerPoint files, allowing students to print them and follow along during the explanation.
- Availability of **synchronous learning sessions**: Live streaming of lessons through virtual classrooms (e.g., **Microsoft Teams**).
- Availability of **asynchronous learning sessions**: Recorded audio/video explanations of lessons.

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- **E-Tutorials:** Applications of lectures are implemented by presenting exercises and scientific lessons electronically, accompanied by audio explanations of the content.
- **E-Videos:** Use of videos recorded by faculty members or supporting staff to explain lectures, practical sessions, and exercises, enabling students to revisit missed parts during e-lectures.
- **E-Assignments:** Activities or assignments (individual or group) are assigned to students and submitted electronically through the e-learning platform (**Microsoft Teams**), enhancing students' problem-solving abilities.
- Availability of **virtual lab programs** for conducting experiments through virtual classrooms, with easy access on the LMS (e.g., books, links, videos, etc.).
- Provision of **formative assessments** on the LMS.
- Availability of tools for discussion and communication with students, such as **forums, chats, and discussion rooms**, to enhance student engagement.
- An active mechanism for monitoring student performance and interaction electronically (**Learning Analytics Reports**).
- An active mechanism for tracking student attendance in virtual lectures and labs electronically.
- Availability of **technical support** for system users, including faculty members, supporting staff, and students.

Flipped Classroom

Students alternate within a single lesson or course, according to the academic schedule or the teacher's instructions, between face-to-face classroom learning at the institute during the school day and e-learning. The educational content, often delivered in the form of videos on the same topic discussed in the classroom or as a continuation of it, is provided online after school hours. Students can access this content whenever and wherever they choose, discuss it, and use its content in the form of learning activities at another time during class.

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▪ **Academic and Technical Support for Students**

- ✓ **Awareness and training** on the rules for using distance learning methods and technological applications, along with guidelines for their use.
- ✓ **Awareness** of the behavioral and ethical rules to be followed when using e-learning systems (**netiquette**).
- ✓ **Access to communication** with IT support staff.
- ✓ **Access to communication** with academic advisors.
- ✓ **A mechanism** for receiving complaints and suggestions electronically.

▪ **Training for Faculty Members and Supporting Staff**

- ✓ **Training** on using the e-learning platform and techniques of e-learning systems.
- ✓ **Training** on teaching and learning methods suitable for distance education.
- ✓ **Training** on electronic assessment methods.
- ✓ **Training** on managing remote communication processes and motivating students to participate.

Assessment Strategies

The evaluation of student learning is no longer only for the sake of testing and grading, but as a learning opportunity that helps to identify student achievement and evaluate the level of achievement of course learning outcomes. Therefore, it should be appropriate to recognize the level of achievement of each learning outcome of the course.

Foundations of Student Assessment

- **Comprehensive:** Covering all learning outcomes for each course.
- **Continuous:** An ongoing process.
- **Authentic:** Accurately reflecting student performance.
- **Objective and Fair:** Ensuring fairness and objectivity.
- **Diverse Tools and Levels:** Using multiple assessment tools and levels.
- **Clear and Transparent:** Ensuring clarity and transparency in assessment processes.


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Types of Student Assessment

The educational programs at the institute follow several methods to assess and evaluate student performance to measure the achievement of learning outcomes, including:

1. Formative Assessment:

Continuous assessment integrated with the teaching process, aimed at providing feedback to students and faculty to improve the learning process. Methods include:

- Quizzes
- Midterm Written Exams
- Presentations
- Reports and Research
- Assignments
- Lab Experiments

2. Summative Assessment:

The evaluation process conducted at the end of a course to determine the extent to which students have achieved the course learning outcomes and their proficiency in meeting the course's general objectives. Methods include:

- End-of-Semester Written Exams
- End-of-Semester Oral Exams
- End-of-Semester Practical Exams
- Project Submissions

Key Methods for Assessing Student Learning and Achievement:

• Achievement Tests:

A method to determine the level of student achievement in course information and skills. This includes reviewing exam paper specifications (approved by the Academic Council, Resolution No. 5 dated 7/7/2024), such as:

- Essay Exams
- Objective Exams: Applying the approved mechanism for reviewing objective exam questions, which constitute more than 25% of the total exam grade.
- Oral Exams



- **Observation:**

An important assessment tool that sheds light on student performance or behavior.

- **Class Discussions:**

Classroom discussions are a valuable source of information about student learning, abilities, and progress. Faculty members can evaluate student performance through class discussions.

- **Practical Tests:**

Exams that measure practical skills and performance, used as objective tools to assess psychomotor skills, competence, and accuracy.

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