

Assessment of the current state of the teaching program and proposal of measures to improve the quality of the Physical Education subject for students at Thai Nguyen University of Technology

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ABSTRACT: *Improving the quality of subjects in particular, and enhancing the effectiveness of training in general, is a top priority for universities. Through methods such as document review, interviews, and surveys, we assess the current state of the Physical Education curriculum at Thai Nguyen University of Technology. Based on this assessment, we will guide the development of a Physical Education program for students that is suitable to the university's existing conditions, and subsequently propose several measures to improve the quality of the Physical Education subject, as well as the training work at Thai Nguyen University of Technology.*

Keywords: *Curriculum, physical education, students, current state, Thai Nguyen University of Technology.*

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I. INTRODUCTION

Over the years, the Party and State of Vietnam have always placed education above all else, considering it a top national priority. Throughout various stages of development and educational reform, the Party and State have consistently affirmed that the goal of education is to train well-rounded Vietnamese people.

Thai Nguyen University of Technology (TNUT) is a member unit of Thai Nguyen University – a key regional university in the Northwest region, one of the three largest regional universities in the country, and has been designated by the Party and Government as a key national university. With over 60 years of establishment and development, TNUT is a multi-disciplinary university, primarily focusing on Mechanical Engineering, Electronics and Telecommunications, and Information Technology. The faculty and students of the university always strive to fulfill the noble mission entrusted by the Party and State.

The goal of Physical Education in schools is to equip students with basic knowledge and motor skills, develop their physical fitness comprehensively, and cultivate lifelong exercise habits, thereby contributing to building a generation of students with good health, willpower, and character, meeting the demands of the reform era.

Recognizing the importance of training in general, and Physical Education in particular, over the years, the Physical Education department of the Faculty of Basic and Applied Sciences has focused on researching and investing in addressing many areas related to training to improve the effectiveness of Physical Education. However, many limitations still exist in physical education, such as: students' understanding of the role and benefits of the subject is incomplete, the curriculum content is not suitable, the facilities for training are still inadequate, and assessment is still neglected... significantly affecting the effectiveness of training.

To achieve the above goal, TNUT University has actively implemented reforms in physical education in all aspects, especially promoting research and development to build a physical education curriculum for students that meets societal demands and is suitable for the practical conditions of the University.

The research used the following methods: document analysis and synthesis; interviews and statistical mathematics.

II. SEARCH RESULTS AND DISCUSSION

Current Status of the Physical Education Program at Thai Nguyen University of Technology

2.1. Current Status of the Old Physical Education Program (Phase 1 Program: Compulsory Program – from 2017 onwards) for students of Thai Nguyen University of Technology.

Over the years, along with the change in the training program from a semester-based system to a credit-based system as it is today, the Physical Education program has also constantly changed to suit the

school's training plan. Specifically, the Physical Education program for full-time students in the university before 2018 stipulated that it would be implemented over 3 semesters corresponding to 3 credits (i.e., two semesters of the first year and the first semester of the second year) with 90 hours, divided into two parts: theory and practice. The theory part was taught at the beginning of each semester, equipping students with basic knowledge of the subject, while the practice part equipped students with basic techniques and skills in various sports. Specifically:

Physical Education Module 1 - Corresponds to Physical Education 1 course.

Physical Education Module 2 - Corresponds to Physical Education 2 course.

Physical Education Module 3 - Corresponds to Physical Education 3 course.

In the three modules above, students who achieve a final grade of 4.0 or higher for each module are considered for a Physical Education certificate (on a 10-point scale).

For each course module, the Physical Education department stipulates the following conditions for students to be eligible to take the final exam:

Must attend more than 80% of the total course duration.

Must meet the requirements of the practical exercises specified in the course module.

Must have a sense of discipline and good ethics.

The specific content of the compulsory Physical Education courses for students at TNUT University is presented in Table 1.

Table 1. Current status of the Physical Education program content, phase 1

No	Course module	Subject	Content		
			Theory	Practice	Total
1	1	Physical Education 1 (Run 100m)	4	26	30
2	2	Physical Education 2 (Volleyball Techniques)	4	26	30
3	3	Physical Education 3 (Football Techniques)	4	26	30
Total					90

The results from Table 1 show that the 90-hour curriculum is divided into 3 modules, with 30 hours per module for Physical Education. The number of theoretical and practical hours developed by the department is quite suitable for the course objectives. With 4 theoretical lessons, accounting for 1.33% of the total time, students are equipped with basic knowledge about the historical origins, characteristics, functions, and significance of the subject. The 26 practical lessons, accounting for 86.67% of the total time, equip students with fundamental techniques, the characteristics of the techniques, methods of acquiring technical skills, and basic methods of both in-class and extracurricular training.

Table 1 shows that, under this program, students are studying three sports in three Physical Education modules (100m run, Volleyball and Football). However, the curriculum is mandatory from module 1 to module 3, forcing students to follow the school's arrangement without being able to choose their favorite sport. This is considered one of the reasons why students lose enthusiasm for training, train half-heartedly, or train just to pass the course. This significantly affects the quality of class time and the effectiveness of the course. Therefore, to stimulate and encourage students to actively participate in training, The curriculum needs to be changed to make the subject matter richer, more suitable to the school 's facilities , and to allow students to choose their favorite sport that matches their abilities .

2.2. Current status of the elective Physical Education program (program phase 2: from 2017 to 2024) for students of Thai Nguyen University of Technology.

Based on the shortcomings of the old curriculum and the current situation regarding the teaching staff and facilities, the Physical Education Department researched and developed a new curriculum (elective program) for full-time students at TNUT University in the 2017-2018 academic year. The new Physical Education curriculum is divided into two parts: compulsory courses (GDTC1) and elective courses (GDTC2 and GDTC3). The specific details of the new Physical Education curriculum are presented in Table 2:

Table 2. Current status of the content of the elective physical education program.

Course module	Subject	Number of lessons	Content

1	Physical Education 1 (Gymnastics + Athletics)	30	<ul style="list-style-type: none"> • Exercise: + General exercises for developing the arms without using the hands (7 movements). + Formation and drill exercises. • Athletics: 100m running technique.
2	GDTC2 (Basic optional)	30	<ul style="list-style-type: none"> • Basic Football (Football 1) • Basic Volleyball (Volleyball 1) • Basic Basketball (Basketball 1) • Basic Badminton (Badminton 1) • Basic Tennis (Tennis 1) • Basic Dance Music (ANVD1)
3	GDTC3 (Basic Option + Advanced Option)	30	<ul style="list-style-type: none"> • Basic Football (Football 1) • Basic Volleyball (Volleyball 1) • Basic Basketball (Basketball 1) • Basic Badminton (Badminton 1) • Basic Tennis (Tennis 1) • Basic Dance Music (ANVD1) • Advanced Football (Football 2) • Advanced Volleyball (Volleyball 2) • Advanced Basketball (Basketball 2) • Advanced Badminton (Badminton 2)

From Table 2, we can see that the new Physical Education curriculum developed by the department is very diverse, based on the curriculum framework set forth by the Ministry of Education and Training. Specifically, according to this curriculum, the Physical Education subject is divided into two parts: compulsory Physical Education and elective Physical Education.

+ Physical Education 1 (GDTC 1) is a mandatory physical education program conducted in the first semester of the first year for full-time students. In this course, students learn the sports of Gymnastics and Athletics (100m run). Students are equipped with basic knowledge and skills in formation exercises, general physical development exercises without arms, and 100m running techniques. While the old GDTC 1 course only focused on the 100m run for 30 hours, the new program has changed the content (adding sports like general physical development exercises without arms, formation exercises, and the 100m run). The time allocated to each subject is more reasonable, making physical education classes less monotonous and boring, and encouraging students to actively and voluntarily participate in training.

+ GDTC2 and GDTC3 are elective physical education programs. These elective programs are further divided into two parts: basic electives and advanced electives. For the advanced electives, students must first complete and pass the basic electives before they can register for and take the advanced electives.

Elective courses are taken in the second semester of the first year and the first semester of the second year. In this course, students can choose their favorite sports, suitable to their physical characteristics and fitness level. In the elective Physical Education course, students can choose two of the following sports:

- Basic Football (Football 1)
- Basic Volleyball (Volleyball 1)
- Basic Basketball (Basketball 1)
- Basic Badminton (Badminton 1)
- Basic Tennis (Tennis 1)
- Basic Dance Music (BDM1)
- Advanced Football (Football 2)
- Advanced Volleyball (Volleyball 2)
- Advanced Basketball (Basketball 2)
- Advanced Badminton (Badminton 2)

Compared to the old curriculum, the new one has appropriate improvements, giving students more options when choosing a sport that suits their individual characteristics.

2. 3. Current status of the new elective Physical Education program (phase 3 program: from 2024 to the present year) for students of Thai Nguyen University of Technology.

In 2024, pickleball began to develop strongly in Vietnam. Recognizing that this sport is easy to learn and suitable for students at TNUT University, and to align with changes in the university's training program, the development of new sports, and the physical fitness and practical needs of students, the Physical Education Department proposed adjustments to the Physical Education curriculum for the 2024-2025 academic year. Specifically:

Table 3. Current status of the content of the elective physical education program.

Course module	Subject	Number of lessons	Content
1	Physical Education 1 (Gymnastics + Athletics)	30	<ul style="list-style-type: none"> • Exercise: <ul style="list-style-type: none"> + General exercises for developing the arms (7 movements). + Formation and drill exercises. • Athletics: 100m running technique.
2	GDTC2, GDTC3 (Basic optional)	60	<ul style="list-style-type: none"> • Basic Football (Football 1) • Basic Volleyball (Volleyball 1) • Basic Basketball (Basketball 1) • Basic Badminton (Badminton 1) • Basic Pickleball (Pick 1) • Basic Dance Music (BDM)

From Table 3, we can see that the Physical Education program has been streamlined, focusing on basic-level sports suitable for the general needs and skill levels of students. Tennis is a technically difficult sport requiring good physical fitness, and it is not widely popular in rural areas, so most students have not had access to it, while rackets and balls are quite expensive. Recognizing this inadequacy, and with the strong development of pickleball, the Physical Education department replaced tennis with pickleball, which has received positive feedback from most students.

The current Physical Education curriculum is divided into two main modules: compulsory Physical Education modules and elective Physical Education modules.

+ Compulsory Physical Education course: This is a mandatory program for all students at TNUT University. In this course, students will study physical education and athletics for a total of 30 hours per course.

+ Elective Physical Education course: This is an elective program where students choose two different sports from a total of six sports in the curriculum. This choice allows students to select a sport they enjoy and that suits their individual characteristics, thereby maximizing their potential.

To assess the suitability of physical education programs across different stages, we conducted a survey through direct interviews and questionnaires with 30 lecturers and managers of physical education at universities in Thai Nguyen province regarding the suitability of physical education programs to relevant factors (teachers, students, managers, facilities) and their effectiveness. The specific results are as follows ... This is presented by us in Table 4

The experimental setup consists mainly of three parts; humidifier-dehumidifier section, saline water cycle, and cooling water cycle as shown in Fig. 1. The humidifier-dehumidifier tank was manufactured from steel. It consists of built in double tank; the outer tank has 80 cm diameter and 200 cm length and the inner tank has 60 cm diameter and 170 cm length. The gap between double tanks to collect the fresh water condensate, the hot saline water pressured in the nozzles in the inner tank to evaporate, also, then the cold spherical dome condensate the fresh vapor and drag to collect it as a water drop on the inner surface of the spherical dome to collect it in the gap. The non-evaporated saline returns back to level controlled tank to pressure it to the collector.

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Physical Education (n=30)

Object	Level degree flush fit	Phased program 1		Phased program 2		Phased program 3	
		Number of votes	Percentage	Number of votes	Percentage	Number of votes	Percentage
Learners	Very suitable	6	20	8	26.7	22	73.3
	Fit	8	26.7	16	53.3	8	26.7
	Not suitable	16	53.3	6	20	0	0
Teacher	Very suitable	13	43.3	9	30	12	40
	Fit	15	50	11	36.7	12	40
	Not suitable	2	0.7	10	33.3	6	20
Manager	Very suitable	6	20	10	33.3	15	50
	Fit	14	46.7	18	60	14	46.7

	Not suitable	10	33.3	2	6.7	1	3.3
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Table 4 shows that: Representatives of lecturers and physical education managers at universities in Thai Nguyen all assessed each of the physical education programs above as having its own advantages and limitations. Specifically:

Regarding suitability for learners, the physical education program in phase 3 has a superior advantage, with managers and lecturers rating it as suitable and very suitable with a rate ranging from 73.3% to 100%. The program in phase 3 is rated as suitable for learners with a rate of 100%, while the other two programs are rated at 80% for phase 2 and 46.7% for phase 1;

Regarding suitability for instructors, the program in phase 1 has a superior advantage: 93.3% of interviewed lecturers and physical education managers consider the program in phase 1 suitable and very suitable, compared to the other two programs at 66.7% and 80% respectively;

Regarding suitability for managers, both phase 2 and phase 3 programs were considered suitable and highly suitable by physical education instructors and managers at levels ranging from 93.3% to 96.7%, compared to 66.7% for phase 1.

During the interview process, we exchanged and synthesized opinions from lecturers and physical education managers to explain, specifically: The reason why the first phase of the program was rated poorly in terms of suitability for learners (46.7%) is because it is a copy of the old program, which has proven outdated, with monotonous content that is no longer suitable for the majority of learners today. However, the first program was evaluated by experts as having outstanding advantages in terms of suitability for teachers and physical education managers for the same reason; this program, being the old program, does not require any changes from teachers or managers to meet the needs of learners as well as the requirements of the program.

The second phase of the program was rated relatively highly for its suitability for learners (80%), as it provided opportunities for the majority of learners to develop their interests and strengths by allowing them to choose their favorite and most suitable sports to practice. At the same time, this second program was rated by 93.7% of respondents as having a superior advantage in terms of suitability for managers because it facilitates management due to the unified learning format (self-selection). However, this program was not rated highly by professionals in terms of suitability for teachers (66.7%) because in this program, teachers and facilities must be continuously improved to meet the diverse needs of learners: in terms of the number of sports and the quality of each sport.

The third phase of the program was deemed appropriate and highly suitable by 100% of respondents because it not only provides opportunities for the majority of students to develop their interests and strengths through the choice of their favorite sport, but also allows them to consolidate and expand their motor skills in elective sports. However, similar to the second phase program, this program requires continuous improvement and innovation in teaching, management, and facilities to meet the diverse professional needs of the program and the needs of the students, thereby achieving the effectiveness of the training program.

These assessments by experts on the physical education curriculum for non-sports majors facilitate universities in selecting a program that suits their specific conditions.

The overarching goal of TNUT School, guided by the principle of "All for the learner," is to gradually overcome the high demands on instructors, management, and facilities for physical education activities in order to successfully implement the above-mentioned Phase 3 program. The aim is to create a program that enables all learners to overcome limitations and maximize their physical potential.

2.4. Proposing several measures to improve the effectiveness of the physical education program at Thai Nguyen University of Technology.

Developing a physical education program that aligns with development trends, the available facilities and human resources, the university's overall curriculum, and the needs of the majority of students is already challenging. Implementing that program effectively is also a difficult task, requiring the support of the university's Board of Directors, faculty heads, functional departments, and above all, the dedication of the lecturers directly involved in teaching. Through research and information gathered from actual teaching sessions, the opinions of lecturers, and physical education experts working in universities in Thai Nguyen province, we propose several measures to improve the effectiveness of the physical education program for students at TNUT. These measures include:

- 1). Innovating teaching methods and forms: Lecturers need to flexibly apply teaching methods and forms to suit the curriculum, each lesson plan, and specific target audience, avoiding rigid and mechanical application. It is necessary to shift from an imposed teaching style to a guided and suggestive approach, encouraging learners to actively participate, and increasing the use of physical games and group competitions to create an exciting atmosphere in each lesson.

2). Improving the quality of the teaching staff: The quality of the teaching staff plays a crucial role in determining the quality of training. Sending instructors to training courses to update their skills, learn new rules of competition in various sports, advanced training methods, and advanced supporting technologies is essential and should be done regularly. In addition, instructors need to regularly encourage, inspire, and be role models in maintaining a healthy lifestyle to attract learners.

3). Investing in key areas, renovating, constructing, and maximizing the use of facilities serving physical education: The school needs to invest in facilities for the subject, repair and upgrade sports fields, purchase new balls and nets for sports, and supplement and update modern, safe, and standard training equipment.

4). Coordinate with functional departments: Encourage and attract students to participate in extracurricular sports training through youth organizations such as the Youth Union and Student Association, and to participate in sports competitions at all levels.

III. CONCLUSION

The Physical Education curriculum for students at TNUT University is constantly being developed and updated to align with the evolving trends of Vietnamese education and society at each stage, adapting to the practical conditions of the university and its students.

With the spirit of "All for the learner," the university, together with the Physical Education department, the Faculty, and other functional departments, is gradually overcoming the high demands on instructors, management, and facilities for Physical Education activities to effectively implement the current Physical Education program. This aims to enable learners to overcome limitations and maximize their physical abilities, thereby gradually improving the effectiveness of the Physical Education program in particular and the quality of training in general.

We have proposed four measures to gradually improve the effectiveness of the current Physical Education program, including:

- 1). Innovating teaching methods and forms
- 2). Improving the quality of the teaching staff
- 3). Invest in key areas, renovate, build, and maximize the utilization of facilities serving physical education activities.
- 4) Coordinating with functional departments

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