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THE NEED FOR ACADEMIC REFORM IN VIETNAMESE HIGHER EDUCATION (VHE) TO ALIGN WITH EMPLOYERS' EXPECTATIONS

By

Hoang-Yen T. Dang (aka Maya Dang)

A DISSERTATION

Presented to the Affiliated Faculty of

The College of Graduate and Professional Studies at the University of New England

Submitted in Partial Fulfillment of Requirements

For the degree of Doctor of Education

Portland & Biddeford, Maine

April 20, 2019

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April 20, 2019
Educational Leadership

THE NEED FOR ACADEMIC REFORM IN VIETNAMESE HIGHER EDUCATION (VHE) TO ALIGN WITH EMPLOYERS' EXPECTATIONS

Abstract

The effort to comprehensively reform Vietnamese higher education (VHE) in order to produce an educated workforce better able to contribute to economic development is a major concern not only of educators and the Vietnamese government but also of employers, workers, and the general populace.

Successful implementation of VHE's "Vision 2020" relies on legal change together with macro-policies to support these educational initiatives. For the purposes of this study, however, the author focused on the current state of VHE in providing employable graduates to meet the needs of Vietnam's knowledge economy in the 21st century. In particular, through an analysis of the advanced training programs (ATPs), the author argues that the wider use and expansion of ATPs is the key to the academic reform necessary to meet the expectations of Vietnamese employers in the 21st century.

University of New England

Doctor of Education
Educational Leadership

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My father used to say: “I have nothing to give you. I can only try my best to give you an education. Only knowledge can change your life.” I promised myself that once I achieved success as an entrepreneur, I would devote myself to higher education in Vietnam, my country of birth, in order to give Vietnamese youth a chance to widen their perspective and reach out to the world.

I am grateful that the U.S. has given me an opportunity to grow these past years. This thesis is only the beginning of my life-long project to bring American pedagogical standards to Vietnam. On this day of my graduation, I would like to thank my professors, particularly Dr. Hitch, Dr. Betonazzi, Dr. Collay, and Dr. Arrowood, who have been instrumental in my journey so far. I want to thank my three daughters and lastly, my late husband. Thank you all for your encouragement and support.

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CHAPTER 1

INTRODUCTION

Human capital is the backbone of sustainable economic growth for any country (Nguyen, 2010). In the 21st century, a worldwide trend of technological advances is driving prosperity and the global economy (Tremblay, Lalancette, & Roseveare, 2012). The competitive arenas of trade, security, and defense are becoming increasingly fierce in Asia, propelling a growing demand for an educated workforce to align with the knowledge economy (Mok, 2016). Decades ago, many countries, including South Korea, Japan, Singapore, and Thailand, initiated higher education reforms to improve the quality of their workforces (Tremblay et al., 2012, p. 16). Tremblay et al. (2012) related that approximately 32.5 million students had enrolled in tertiary schools worldwide by the 1970s. However, in this century, the United Nations Educational, Scientific and Cultural Organization (UNESCO) Institute for Statistics estimated that this number had increased to nearly 178 million by 2010, equal to a 4.3% average annual growth over the last four decades in tertiary enrollment, spelling an increase of almost 270% compared to the 1.6% average annual growth in the world population over the same period (Tremblay et al., 2012, pp. 12–17). Furthermore, according to Tremblay et al. (2012), "The number of higher education students is forecast to further expand to reach 263 million by 2025" (Tremblay et al., p. 17). In light of this dramatic and rapid growth over the past 20 years, Vietnamese Higher Education (VHE) has aligned itself with this global trend (World Bank, 2014a). Since 1987, the number of universities in Vietnam rose by 4.3%, and the number of students has increased by nearly 18% (Clark, 2014, p. 6). However, VHE began its climb at a point lower than that of other member countries of The Association of Southeast Asian Nations (ASEAN); therefore, its growth ratio

has remained lower than the world average, even when taking into account the growth rate of Asia and China:

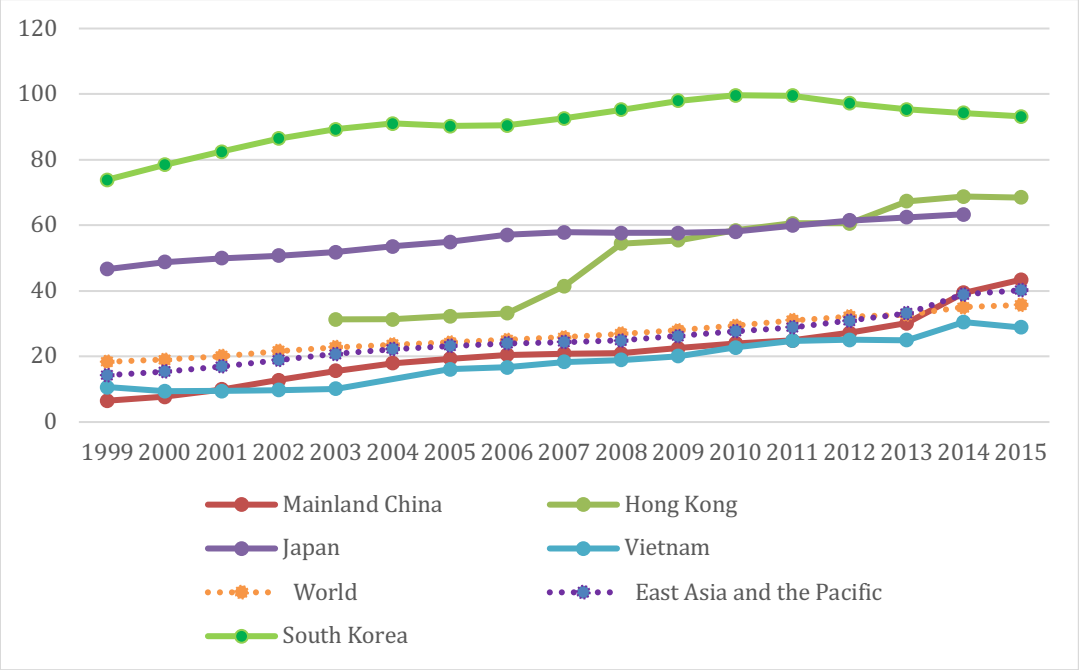


Figure 1. Expansion of higher education enrollment rate in selected Asian countries (1999–2015). From *Assessment of Higher Education Learning Outcomes: AHELO Feasibility Study Report: Volume 1: Design and Implementation*, by K. Tremblay, D. Lalancette, and D. Roseveare, 2012, Paris, France: United Nations Educational, Scientific, and Cultural Organization, p. 16. Copyright UNESCO. Used with permission.

Although it has been organized around a central-plan economy for the last 74 years, Vietnam has recently recognized the need to apply advanced technologies to manage costs and to create products that are more competitive (Staack & Moebius, 2015). For decades, Vietnam has set its sights on attracting foreign investors, which has resulted in significant contributions, equaling more than 27% of gross domestic product (GDP) and more than 70% of total value for exports (General Statistics Office [GSO], 2017).

Over the past decades, many educators have agreed with Harvard scholars Vallely and Wilkinson who pointed to the necessity for an educated workforce that would be commensurate with the rising national demand (Vallely and Wilkinson, 2008, p. 2). However, 20 years after the 1998 implementation of higher education reform (and at the time of this dissertation), VHE

quality remains problematic and may not meet the need for the national, educated workforce which is required for the country's globally competitive, economic development (Pham & Starkey, 2016).

In 2017, the quality score of the Vietnamese workforce remained at 3.79 out of 10 with 10 being the highest level (World Bank, 2018). This rank level alerted the Vietnamese government to the need for reform of VHE in order to "enhance the national intellectual capacity, the competitiveness of human resources, and the country's economy" (World Bank, 2015a, p. 22). Therefore, the Vietnamese government issued Resolution No. 14/2005 / NQ-CP, dated November 2, 2005, to entrust the Ministry of Education and Training (MOET) with developing a dedicated Higher Education Reform Agenda between 2006 and 2020 (HERA; also known as Vision 2020). HERA was tasked with piloting advanced training programs (ATPs) based upon the curricula of developed countries as a key method to initiate the 'Fundamental and Comprehensive Reforms' of VHE with the following aim:

> To reform higher education fundamentally and comprehensively and make fundamental changes to educational quality, quantity, and effectiveness to meet the requirements of Vietnam's processes of industrialization and modernization, international economic integration, and the learning opportunities for people. By the year 2020, Vietnam aims at having a higher education system that is advanced by regional standards, shows promise of excelling international standards in time, and is highly competitive and quickly responsive to the socialist-oriented market mechanism. (Pham & Starkey, 2016, p. 376)

Statement of the Problem

Vietnam is among the world's poor countries with a GDP rank of 62 out of 189 with one being the poorest (Gregson, 2017). Of Vietnam's population, 13.5% live below the national poverty line (World Bank, 2015b). Vietnam is aware that a knowledge-intensive economy is a

proven vehicle for raising a country out of poverty and developing a desirable, sustainable economy (Nguyen, 2010). It has learned from the experiences of Japan and South Korea, two countries that were devastated and impoverished after World War II and the Korean War, but which have risen to become world economic powers after only a few decades because of the rapid development of advanced industries such as the electronics industry (Nguyen, 2010). Vietnam is determined to develop its economy through industrialization and modernization (Nguyen, 2010). Improving the quality of VHE so that Vietnam can provide human capital for the country's "knowledge-intensive economy" is an urgent matter on the national agenda (Thach, 2017; World Bank, 2012). This situation has occurred for multiple reasons; one of the most important of these is the disconnection between the classroom and the labor market that has resulted in graduates who are not sufficiently equipped with the necessary skills for a 21st, knowledge-intensive economy (Tran, 2015; World Bank, 2018). In addition, according to Clark (2014), the many Vietnamese students who go abroad for higher education tend not to return afterwards to Vietnam, creating a "brain drain" (p. 4) trend reducing human capital in Vietnam. Numerous scholars have revealed in their reports that, despite 20 years of reform, VHE remains unable to meet the goals of HERA's Vision 2020 and to produce the skilled, educated workforce necessary to build the country into a viable economic entity (World Bank, 2012, 2014). The importance of reforming VHE to meet national goals is the main reason for this study.

Purpose of the Study

The aim of this study was to investigate what has both been achieved and what has occurred over the last 20 years of VHE reform, and to explore the current state of VHE in light of the HERA/Vision 2020 directive as "a blueprint for the fundamental and comprehensive transformation of the country's higher education system by 2020" (Pham, 2009, p. 1). As Pham (2009) stated, the HERA/Vision 2020 directive is aimed at:

> … modernizing the system, improving its quality and effectiveness, increasing its size, and diversifying its institutions and delivery modes. Renovation of the system's governance, academic programs and curricula, teaching and research, staff development and appointment processes, now needs to be addressed. (p. 1)

The directive's reference to educators appears to limit it to those who are Vietnamese educators, government officials, and other related interest groups who play an important role in the success of VHE. The aims of Vision 2020 include:

- Assessing and understanding the current situation of VHE after the last 20 years of primary reforms;
- Identifying how VHE aligns with the goals of Vision 2020 to meet the specific needs of employers for new recruits in the 21st century;
- Investigating the core competencies of the pilot ATPs that MOET has selected to meet the goals of the HERA/Vision 2020 and the employers' expectations of the skills needed for the globalization and industrialization of the Vietnamese economy.

Research Questions

The research was guided by the following questions:

1. What is the current state of VHE after the implementation of reforms over the last 20 years?
2. How does the current state of VHE align with the goals of HERA/Vision 2020 specific to an employable workforce in the 21st century?

Conceptual Framework

The goal of this study is to explore the achievements and failures of reforms over the last 20 years and to examine how VHE could meet the goals of HERA/Vision 2020 set by MOET

(Dang, 2009, Pham, 2009, Vallely & Wilkinson, 2008; World Bank, 2015a, 2015b). The conceptual framework was designed to illustrate the above statement by approaching the topic with a methodology of content-analysis.

Assumptions and Limitations

VHE has been shaped for more than 1,000 years by Chinese culture, and more recently by the Soviet model of higher education that the former Union of Soviet Socialist Republics (USSR) promoted, which inserted Marxist and other doctrines into the curricula (Goyette, 2012, pp.197-222). This Soviet model has resulted in the establishment of a society that has not been able to make good use of well-educated people, and prevents them from being creative and innovative by forcing them to comply with the system (Goyette, 2012, pp. 197-222). Vietnamese who moved to the United States or other developed countries for higher education to later live and work in these more open and flexible societies have become creative and successful leaders in business, politics, and athletics in their host countries. Their notable achievements demonstrate that the Vietnamese educational system remains the limiting issue rather than learners within that system (Lam, 2016).

Despite its limitations, the fact remains that Vietnam strives to be an economic player in the world through industrialization and modernization (Dang, 2009). Therefore, its workforce requires improved higher education to make that happen, as articulated by Vietnamese Communist Party Center's Decree No. 29 signed into law by General Secretary Nguyen Phu Trong on November 4, 2013 (Seven solutions, 2013).

To comprehensively transform VHE, the government designed HERA/Vision 2020 with three primary objectives: (a) reform VHE to provide an educated workforce for economic growth in the 21st century, (b) increase the quality and quantity of research produced by VHE, and (c) increase the number of students enrolled in higher education (Pham, 2009). The goal of this

study is to investigate the employability of the VHE graduates; therefore, it is focused only on examining the first goal and particularly on understanding the disconnection between the classroom and the skills required by labor markets in the 21st century.

Significance

Many complex issues affect VHE, including the country's historical legacy, economy, and changing legal system (Dang, 2009; Goyette, 2012; Vallely & Wilkinson, 2008; World Bank, 2015a, 2015b). Few researchers have offered a satisfactory answer to the question of why VHE languishes in its current state despite the many attempts to improve it (7 Giải pháp [Seven solutions], 2013). Although the Vietnamese government has subsidized the costly implementation of 35 pilot ATPs at 23 public universities in partnership with 9 American universities over the last 13 years (Hanoi University of Science and Technology [HUST], 2016), the quality of VHE remains alarmingly poor and the government's goals have not been met (Thach, 2017). Determining why VHE reform has yet to achieve the goals set by the HERA/Vision 2020 project could contribute a new approach to comprehensively and effectively transforming VHE.

Definitions

Economic growth: This type of growth is the increase in a country's productive capacity, as measured by comparing gross national product (GNP) in one year with the gross national product of the prior year. Increase in capital stock, advances in technology, and improvement in the quality and level of literacy are considered to be the principal causes of economic growth. In recent years, the concept of sustainable development has included additional factors such as environmentally sound processes that must be taken into account in growing an economy (Agarwal, 2017).

Gross domestic product (GDP): The GDP is "the size of the economy and how an economy is performing. The growth rate of real GDP is often used as an indicator of the general health of the economy" (Callen, 2017, p. 5).

Investment for nonprofits in Vietnamese higher education: This phrase refers to those organizations and investors who are committed to using at least 51% of their income for reinvestment in pursuit of social and environmental goals such as registration of the 2012 Law on VHE (Theo, 2017).

Ministry of Education and Training: MOET is the Vietnamese governmental authority that is responsible for the governance of education and higher education in Vietnam.

Teaching university or teaching institution in Vietnam: A teaching university or teaching institution is an institution of higher education that focuses more on teaching activities than it does on research (Thach, 2017).

A community college is "a type of educational institution. The term can have different meanings in different countries: many community colleges have an "open enrollment" for students who have graduated from high school. The term usually refers to a higher educational institution that provides workforce education and college transfer academic programs" (Baker, 1994).

Conclusion

Chapter 1 consists of an introduction to the topic, the problem of practice, the purpose, the research questions, an introduction to the conceptual framework, study assumptions, the significance of the study, and definitions. Chapter 2 explores relevant literature and examines the work of other researchers. Chapter 3 focuses on the methodology, content analysis, and process for conducting the study. Chapter 4 gathers and analyzes the data to explore the study's findings. Chapter 5 turns to discussions and recommendations, followed by references and appendices.

CHAPTER 2

LITERATURE REVIEW

"Today, more than ever before in human history, the wealth—or poverty—of nations depends on the quality of higher education."– Malcolm Gillis, former President of Rice University and one of the key founders of Tan Tao University (as cited in Ewen, 2011, p. 11).

Growing economies today require educated workers with global knowledge and skills who also engage in life-long learning (Mok, 2016). The economies of the late 20th and early 21st centuries have increasingly depended on technology, resulting in unprecedented progress and the intensification of global integration (Organization for Economic Cooperation and Development [OECD], 2008). Tertiary education plays a central role in providing an educated workforce that facilitates the success and sustainable development of each country's "knowledge intensive economy" (Dill & Van Vught, 2010, p. 16). This "knowledge intensive economy" has led to profound worldwide changes to systems of higher education over the past decades (OECD, 2008, p. 16). The United Nations' Educational, Scientific, and Cultural Organization experts, Altbach, Reisberg, and Rumbley (UNESCO, 2009), also confirmed this global trend, stating that "an academic revolution has taken place in higher education in the past half century marked by transformations unprecedented in scope and diversity" (Althbach et al., 18). This means that higher education systems worldwide have changed and expanded to meet the demand for human capital capable of keeping up with advances in technology and competition in the global marketplace (Tremblay et al., 2012).

In the following literature review the researcher briefly examines the history of VHE and then explores VHE reform efforts over the past 20 years. The researcher will also review the

country's ongoing need to implement comprehensive and effective reform of VHE to meet the country's economic objectives.

The Impact of Vietnam's Cultural and Historical Legacy

The Vietnamese education system was built and influenced by Confucianism (Dodd, Lewis, & Emmons, 2009, p. 486). It was then replaced by "a French-Vietnamese education system, which served mainly to train personnel to serve the French colonial rulers" from the end of the 19th century to 1945 (Tran, 2015, p. 74) resulting in the situation that "95 percent of the Vietnamese population was illiterate" (Minh, 2016, para. 2). After Vietnam declared its independence in 1945, Ho Chi Minh, the first President of Vietnam, called for the elimination of illiteracy. In less than a year, "75,000 people and about 96,000 teachers had begun helping more than 2.5 million people escape from illiteracy" (Schwab & Sala-i-Martín, 2016, p. 6). However, the 100-year French domination weakened Vietnam's higher education (VHE) because French remained the main language at universities during this period (World Bank, 2015a). The stature and prominence of French meant that only the wealthy and those who spoke French could aspire to attend universities. Vallely and Wilkinson (2008) suggest that the poor quality of VHE was the result of a long historical legacy left behind by the French colonial regime, which included investing "very little in tertiary education" (Vallely & Wilkinson, p. 3), causing VHE to regress in the early 20th century while neighboring countries took advantage of "the wave of institutional innovation in higher education" (Vallely & Wilkinson, 2008, p. 3).

Despite its impressive achievement in eradicating illiteracy (Goyette, 2012), Vietnam was confounded by the challenge of developing higher education; therefore, the government resorted to following the higher education model that the former USSR had engineered (Goyette, 2012). The Vietnamese educational system was designed to institute "the same degree program and follow the same curriculum" (Nguyen & Vu, 2015, p. 134), making "the end-product of teaching

and learning in Higher Education Institutions identical regardless of institutional mission and scope" (Nguyen & Vu, 2015, p. 134). This resulted in a workforce that, according to Bao (2016), had "textbook knowledge but no ability to take that knowledge to think critically, innovate, solve complex problems and work well with a team" (para. 15). Additionally, MOET annually allocated its educational budget for public universities according to new enrollment head counts to subsidize tuition fees, and poured research funds into research institutes and the Ministry of Science and Technology, causing universities to be divided into "primarily teaching institutions, [with] research [being] carried out by research institutes" (Nguyen & Vu, 2015, p. 93). Thus, VHE became a passive teaching machine isolated from the world at the same time higher education systems of more advanced countries focused on equipping students for future careers and promoting research and world changing inventions (Nguyen & Vu, 2015).

Milestones of Vietnamese Higher Education Reform

More than four decades following the end of the American-Vietnam war, the central-planned economy continued to prohibit the development of free markets, contributing to Vietnam's impoverished status (Dang, 2009). Although the Vietnamese economy was mainly agricultural, food production was insufficient to feed its population during the late 1970s and early 1980s. To remedy this, Vietnam initiated a comprehensive series of economic reforms in 1986, moving from a bureaucratic, subsidized, and centrally planned economy to a socialist-oriented market economy, beginning the process of opening the economy to global trade (Dang, 2009). In the period since these economic reforms, "Vietnam has experienced rapid economic growth, which has catapulted it to middle income status in 2010 and has contributed to a fast decline in poverty" (World Bank, 2014a, p. 11). Vietnam has recently achieved a substantial increase in labor productivity that aided in a doubling of the GDP per employed person between 1990 and 2010 (World Bank, 2014a, p. 11).

The current government insists that Vietnam's economy is a socialist-oriented market economy in which the state economy plays a key role (Dang, 2009). However, the World Bank (2018) reported that for the past five years the "living wage per family in Vietnam remained unchanged at 7,475,300 Vietnam Dong (VND) per month in 2017" (p. 07; approximately $340 USD per month). In comparison, the living wage for an American family in 2016 was $2,240 USD per month, nearly seven times the Vietnamese wage of some $340. Even the monthly living wage for families in Uganda ($390 USD), in Mexico ($443 USD), or in South Africa ($742 USD) was higher than in Vietnam ($340 USD; World Bank, 2018), indicating that the Vietnamese standard of living is relatively low.

Following various reform initiatives in the early 1990s the Vietnamese government has signaled that higher education plays a pivotal role in economic renewal and that the quality of tertiary education is a crucial factor for the future. Therefore, the government routinely prioritizes VHE which has led to the rapid proliferation of universities (Nguyen & Vu, 2015). Nevertheless, the country does not yet have an elite university that ranks in the top 100, 200, or 500 of world universities, nor, according to Nguyen and Vu (2015), have they been ranked at all by any world higher education indicator as on a path toward the goal set forth by MOET of "developing multidisciplinary/comprehensive higher education institutions with one or two ranked among the top 200 ranked world (top 200) by 2020" (p. 88). While Vietnam's neighbors (the Philippines, Thailand, South Korea, Cambodia, Indonesia, and Hong Kong) were in the same situation 50 years ago, all six countries now have an elite or semi-elite university with a very strong field in business orientation, technology, and social sciences (Lohani & Sarvi, 2012, pp. 10–11).

Vietnam has initiated many reforms with the goal of making "a sustained effort to build and reform the higher education system" (Dang, 2009, p. 4). These include three key milestones:

the inception of non-state universities, VHE legislative reforms, and academic reforms as shown in Figure 2:

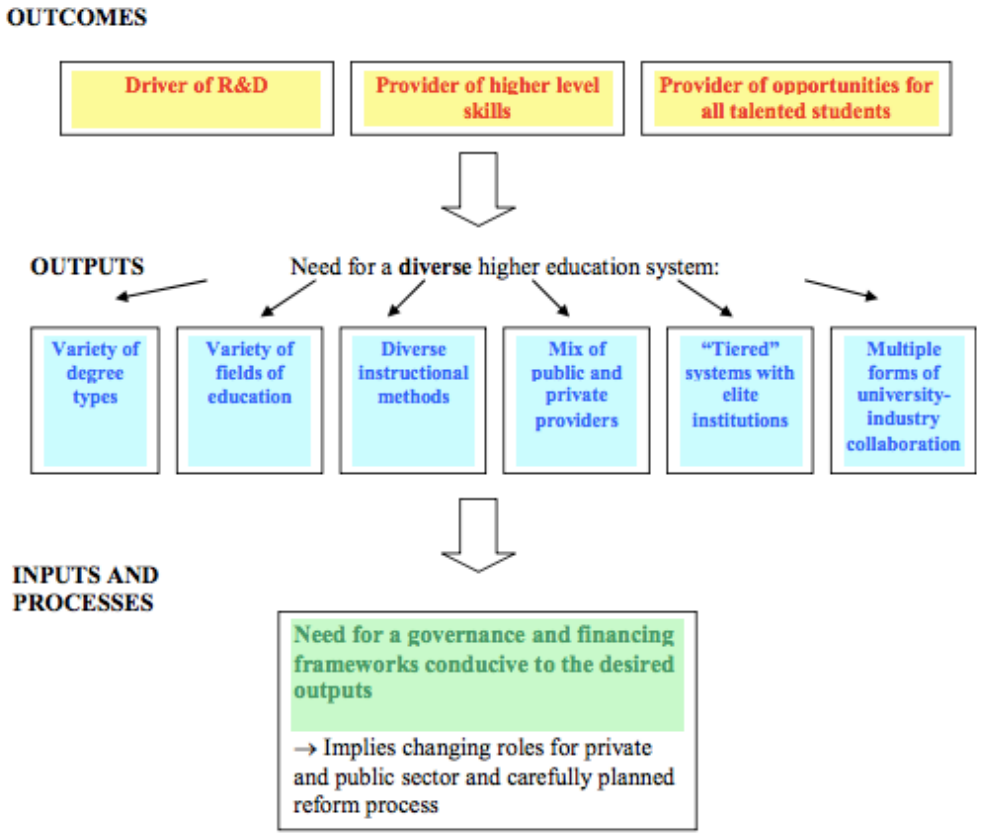


Figure 2. Outcomes of Vietnamese higher education reforms. From *Putting Higher Education to Work: Skills and Research for Growth in East Asia*, World Bank, 2012, Washington, DC: Author, p. 14. Copyright World Bank. Used with permission.

The birth of non-state universities, legislative reforms, and the reforms of academics in terms of curricula or pedagogy are shown in Figure 3 (Glewwe & Patrinos, 1998, Goyette, 2012, World Bank, 2017):

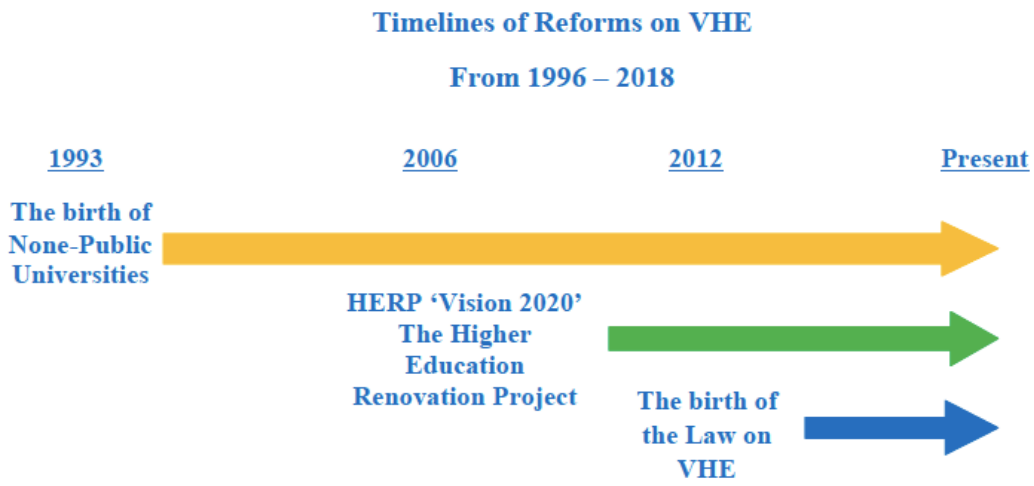


Figure 3. Timeline of reforms of Vietnamese higher education. Extracted from *The role of the private sector in education in Vietnam*, by P. Glewwe, and H. A. Patrinos, 1998 (Working Paper No. 132), Washington, DC: World Bank, Living Standards Measurement Study. World Bank. Used with permission.

The Birth of Non-Public Universities

Before 1975, Vietnam had approximately 30 public universities in the North and 15 in the South, half of which were public institutions (Goyette, 2012, p. 199). The entire educational system in both North and South Vietnam was under the authority of MOET. Private education institutions did not rely on public funding; however, those private institutions were abolished after Vietnamese reunification in 1975 (Goyette, 2012).

The goal of establishing private higher educational institutions.

Private universities were at the heart of General Secretary Nguyen Van Linh's vision as he initiated a reform of VHE "to mobilize all possible resources in the society for educational development" (World Bank, 2016, p. 21). The goal was that "by 2020 the non-public (private) higher education sector should enroll 40 percent of all higher education students" (Hayden & Lam (2015, p. 12) which would in turn "enhance the national intellectual capacity, the competitiveness of human resources, and the country's economy" (World Bank, 2016, p. 9).

Implementation of diversifying the VHE system.

Following the establishment of these reforms, the first ten private and semipublic universities (state universities in partnership with the private sector) were established in 1993 in Vietnam's three largest cities: Hanoi (the capital), Ho Chi Minh City, and Danang (Glewwe & Patrinos, 1998, p. 6). The size of a typical private university ranged from 550 to 4,700 students with the exception of Ho Chi Minh City's Open University which had 21,000 students (Glewwe & Patrinos, 1998, p. 6). Although no system of accreditation was in place yet, private and semi-public universities followed MOET's temporary regulations. According to Glewwe and Patrinos (1998), most of the non-public universities concentrated on "foreign languages, computers, economics, and management" (Glewwe & Patrinos, 6), and faculty were professors at public institutions who worked part-time in these private institutions. According to Lohani and Sarvi (2012), most Vietnamese private higher educational institutions "tend to focus on low-cost, but high profit 'business-related fields" (p. 16). However, in 2005, the Vietnamese government began regulating the semi-public universities, which then become fully private (Lohani & Sarvi, 2012, p. 5).

MOET now permits investments in non-public and private universities, motivating investors with the incentive that they will be able to "receive annual income [that] shall not exceed the interest rate of government bonds" (Anh, 2016, para.6). VHE investors are allowed to earn dividends up to 49% of income, and in supporting this policy, the Vietnam senate and MOET insisted that if investors were not permitted to earn reasonable profits, then investments in education might not attract them (Theo, 2017, para. 7). The word "investment" in the context of VHE does not share the same meaning noted in an American context (Lohani & Sarvi, 2012). The American context refers to the success of private universities as universities, not as businesses, motivated by altruism and run as institutions devoted to the public good, as distinct

from investment corporations (Lohani & Sarvi, 2012); however, investment in VHE means allowing a reasonable profit (Thach, 2017). The lack of private investment and VHE's legal structure undermines the potential of private universities as thriving education institutions; according to Hayden and Lam (2015), Vietnam's private universities struggle to survive and cannot grow as quickly as planned by the HERA/Vision 2020 Project.

Current state of private higher educational institutions.

Permission for the development of non-state-operated universities in the early 1990's was a major turning point in the reform of VHE (Goyette, 2012). The birth of non-public universities was a great change for VHE, creating the foundation for bringing VHE out of its isolation in which it was controlled by a single governmental player and allowing it to emerge into a diversified, educational world (Tran, 2014). Appendix D shows the number of students, including new enrollments and graduates, over the last six years. However, this enrollment figure accounts for only 232,367 students in private universities in comparison to 1,520,807 students in public universities (GSO, 2017). Graduates from private universities in 2016 totaled 45,029 students compared with 307,760 students from the public universities, indicating that non-public universities carry little influence on the quality of VHE (Nguyen & Vu, 2015). Nevertheless, the number of students enrolled in those non-public institutions remains low at about 15.3% after many years of reform (MOET, 2017), and most of those enrollments occurred because these students were not qualified for the public institutions (Tran, 2014).

According to Thach (2017), financial support from the government and communities plays a significant role in developing higher education, including cost sharing schemes found in American universities and the regional universities of developing countries. The governments and communities of South Korea, Singapore, and the United States contribute 70%–82% towards training, depending on their budgets and tuition fees; they also contribute only 18%–30% for

training expenditures, while Vietnam relies more heavily on tuition fees with 40.4% for public universities and 96.7% for private universities (Thach, 2017, p. 86). Without financial support from the government, the development of private institutions relies heavily on mobilizing funds from the private sector (Thach, 2017, p. 86). However, considering the diversification of the VHE system, according to the World Bank (2012), the birth of private universities means that VHE has been "transformed from a 'monotonous' system lacking distinction between uniformity and uniqueness into one with diverse organizational and operational styles, leading to the expansion of learning opportunities and increased responsiveness to people's learning demands" (p. 37).

Despite this reform effort, non-public universities have faced a lack of legal and financial support from the government (Hayden & Lam, 2015, pp. 12–13). MOET limits its funding solely to public universities, including scholarships and aid for their students. Private universities are not entitled to government funding (Sheridan, 2010, p. 14). Trines (2017a) confirmed that only public institutions have been entitled to funds "through government block grants apportioned on the basis of enrollment figures" (Trines, p. 134), while private universities are primarily "dependent on tuition fees collected from the students" (Trines, p. 134). This makes it challenging for private institutions to meet annual enrollment quotas using faculty head-counts and classrooms allocated by MOET.

Other than some very limited and well-defined exceptions, only the public educational system is funded by the state or by the national government. This structure is somewhat similar to that in the United States (U.S. Department of Homeland Security, 2013; Lohani & Sarvi, 2012). However, a broad difference between Vietnam and the United States is that Vietnamese public universities enjoy academic privileges and a monopoly since the Communist government

was established in 1945, while private universities were only given the "green light" to operate in 2005 (Tran, 2014).

Vietnam is one of the poorest countries in the world (World Bank, 2018). Thus, Vietnamese investors do not have enough capital to invest in higher education nor can many students afford to pay private universities' high tuition fees without financial support from the government (Hayden & Lam, 2015, p. 13). In addition, the Vietnamese historical legacy affects the growth of non-public universities (Vallely & Wilkinson, 2008). In its 4,000-year history, Vietnam suffered under feudalism which fostered a culture in which educators and intellectuals were considered noble, in the upper social tier. Teachers were ranked just below the king and above the father, and laborers like farmers and manual workers ranked as the lowest class (Dang, 2009, p. 7).

According to Hays (2014), the political system was heavily influenced by "the ancient Chinese system, based on Confucianism, [which] established a political center surrounded by loyal subjects" (p. 7). Since August 1945, when the Communists took over the government and declared their intention to transform colonial Vietnam into the Democratic Republic of Vietnam (Dang, 2009, p. 7), they have emphasized egalitarianism, praising the working class in order to gain its support. Hays (2014) noted that the Communists enacted an ideology in which proletarians were considered "the vanguard" (p. 7) and were seen as the nation's rightful masters. Though some argue that the middle class (bourgeoisie) creates wealth and knowledge for society, Marxist doctrine considered it an exploitative class which needed to be eliminated (Szelenyi, 2016, para. 1).

For many decades, educators, intellectuals, teachers, scientists, and entrepreneurs were perceived as disloyal to Communism (Sagan & Denney, 1986/2012). Sagan and Denney (1986/2012) stated that the government enacted Resolution 49-NQTVQH on 20 June 1961 to

create a "system of re-education, according to the circular of the Council of Ministers, [which will] follow the line of combining labor and political education" (Hays, 2014, p. 4) and "the system of re-education developed in North Vietnam since 1961, and in all of Vietnam since 1975" (Hays, 2014, p. 4). Hays (2014) also stated that the consequence of these cultural and historical factors is a national mindset that does not value knowledge, but rather emphasizes "revolutionary achievements, victories over foreign invaders, and acts of heroism" (Hays, 2014, p. 4). Communism promotes the ideal of proletarians as an elite class, rather than intellectuals. Thus, ideology and practice often reduces or dismisses a learning culture, giving private universities the added disadvantage of not only having to raise their own funds, but also the difficult task of having to recruit their own lecturers and students (Dang, 2009). Given these disadvantages, most private institutions in Vietnam are unable to perform their missions effectively or robustly so that they, too, can grow to meet the goals of Vision 2020 (Thach, 2017).

Legislative Reforms

According to the World Bank (2015a) the education systems of South and North Vietnam were different before 1975. North Vietnam adopted the 10-year general education structure of the USSR, while South Vietnam used a 12-year structure. However, both North and South systems were replaced by a 12-year general education structure in 1978 (World Bank, 2015a, p. 5). The current structure is similar to that found in the United States (Trines, 2017b, para. 22) which supports and provides continuity to higher education. In addition, according to Clark (2014), Vietnam and the United States follow an identical structure of "12 years of schooling followed by a four-year bachelor's degree, a two-year master's degree and a three- to four-year Ph.D. degree" (par. 22).

Accreditation for all training programs was introduced and made compulsory under the Education Law in 2005 (Nguyen, Ta, & Nguyen, 2017, p. 153). The model for VHE quality assurance and accreditation was combined from the models implemented in countries in the Asia–Pacific Region (Asia–Pacific Quality Network APQN Chiba Principles), Southeast Asia (ASEAN University Network–AUN), and Europe (through Bologna Process); Nguyen et al. (2017) noted that it includes "three components: internal quality assurance, external quality assurance, and accrediting agencies" (p. 154). According to Nguyen et al. (2017), VHE quality assurance is a new concept: "even the term 'quality culture' has only been mentioned in recent years in workshops or conferences organized by MOET or some universities" (p. 158) and a full 30% of university staff "had no idea about quality culture and building quality culture" (pp. 158–159). By the end of 2016, 256 out of 436 universities and colleges had completed a self-evaluation report. Of more than 5,000 training programs, only 30 universities had undergone an external evaluation, and only 105 programs had been externally evaluated. However, as Nguyen et al. (2017) pointed out, these percentages account for less than 3% of all VHE institutions (pp. 156–158), indicating that it might take more than a decade to accredit the entire VHE system (pp. 156–158). Nguyen et al. (2017) agreed that the last 10 years of quality assurance and accreditation of VHE have "marked significant change" (p. 156) and "earned certain results" (Nguyen et al, 2017, p. 156), but they admitted that it still needs to be reformed because MOET was "assigned by the government to be in charge of managing and supervising accreditation activities" (p. 154), but that it "interferes in the process of evaluating and accrediting universities" (Nguyen et al, 2017, p. 159). Therefore, Nguyen et al. (2017) suggested that, to develop quality assurance on par with the global standard:

1. Accrediting agencies should be independent from MOET and have autonomy in developing accreditation procedures and standards compatible with world tertiary assurance standards (p. 159); and
2. To improve the competence of these accrediting agencies, Vietnam needs not only to continue collaborating with international quality assurance networks, but also to join with "members of regional and international quality assurance networks such as AQAN, AUN, APQN and INQAAHE as well as taking advantage of projects with overseas partners" (p. 159).

July 2012 marked the first time Vietnam passed a law on higher education ratified by its National Assembly (World Bank, 2018). Previously, Vietnam only had a general law on education and some articles that mentioned tertiary education (World Bank, 2018). According to Thach (2017), the concepts of "autonomy" and "accountability" (p. 84) in higher education were first introduced by the Education Law ratified in 1998; however, only with the 2012 Law on Higher Education did the concepts of autonomy and social responsibility gain a specific legal protocol for implementation with two important results: non-public, higher education institutions are now legal, and all higher education institutions enjoy greater autonomy. Nevertheless, the 2012 and 2014 ordinances require that each university host a Communist Party youth group and also require that at least one member of each non-profit private university's 15-member Board of Trustees be a Communist. If a university fails to comply with these two regulations that university does not qualify as a nonprofit organization entitled to the preferential income tax tariff (Ordinance No. 08/2012/QH13, June 18, 2012 [Clause 3, Article 17] and Regulation No.70/2014/QĐ-TTg dated December 10, 2014 [Clause 3, Article 29] issued by the Prime Minister). These regulations continue to place VHE institutions under the firm control of the Communist Party for all academic, research, and social activities (Clark, 2014; World Bank,

2018). If a university does not comply, its employees are taxed at the much higher rate of a business (Trines, 2017c, para. 26).

Governance of Vietnamese higher education.

Vallely and Wilkinson (2008), after more than 10 years of directly observing VHE, determined that VHE faced great challenges in governance and that the "failure of the governance [was] the most immediate cause of today's crisis" (pp. 3–4). After VHE's reforms, this problem still remains, and many scholars have pointed out that the legal structure and the exclusive control of MOET on VHE continue to create steep challenges for university governance (Clark, 2014; World Bank, 2018). To suggest a reform of VHE's legal structure, Thach (2017) studied the California tertiary system of higher education, noting that this structural system falls into three categories:

1. **The University of California (UC).** This is the highest level of California's higher education system with 600 high quality training programs, including bachelor's degrees, master's degrees, and doctorate degrees. Ten colleges affiliated with UCS are located in nine major California cities (p. 82).
2. **The California State University (CSU).** This level of California higher education consists of 23 universities located in 23 cities. CSU offers only two types of bachelor's and master's degrees. Doctoral degrees are only available in collaboration with UCs. In addition, CSU has research facilities for the implementation of projects, research, and applications that promote the economy and society of the state (p. 82).
3. **Community Colleges.** These are 2-year training programs that award diplomas or vocational certificates to graduates (p. 82).

Thach (2017) also studied higher education systems in the United Kingdom, Australia, South Korea, Japan, India, Thailand, Singapore, and Malaysia, and concluded that those

countries also have built a number of multidisciplinary universities similar to the American system. India has 217 universities, including 11 national universities, 6,759 general universities, and 1,770 professional colleges (p. 82). Singapore's higher education system strongly correlates with that of England, in which there are two national universities, four polytechnics, and a technology college (Thach, 2017, p. 82). Finally, Thach (2017) concluded that California's three levels of higher education enable it to scale its offerings to a large and diverse population, while maintaining a very high quality of training and outcomes (p. 82). Using this study, Thach (2017) has recommended that Vietnam should apply the American higher educational structure in general and the California higher education system in particular to reform VHE, to provide autonomy for VHE, and to solve the problems with governance (pp. 84–85).

Academic Reforms

Vallely and Wilkinson (2008) identified three problems that VHE faces: no autonomy, no academic freedom, and no "international links and standards" (p. 4), allowing foreign scholars to stay connected with Vietnamese educators. Vallely and Wilkinson (2008) also argued, "The Vietnamese academy is very inward looking" (p. 3), and corruption disrupts "merit-based selection" (p. 4) within VHE. Nguyen et al. (2017) stressed that MOET is completely in charge of designing, implementing, and monitoring "every single undergraduate program, specifying the details of educational objectives regarding ethics, content knowledge and practical skills, program structure, and compulsory courses including detailed course topics" (p. 134). Moreover, for political reasons, students must devote 12 of 122 total credits to political courses during their four-year undergraduate degree programs, including courses specifically focused on selected tenets of Marxism and Leninism (Tran, Nguyen, & Nguyen, 2011). Smolentseva, Platonova, Froumin, and Semyonov (2016) discounted this view about higher education by stating that the USSR "was one of the first countries in the world which reached the mass stage of higher

education in the 1960–1970s" (p. 03). Some researchers even have concluded that, although the time spent on learning Marxism and Leninism was wasted, it was merely an annoyance rather than an impediment to education. However, Vallely and Wilkinson (2008) showed that these compulsory requirements squeeze out other specialized courses and result in a student's lack of necessary knowledge and experience in their chosen career, causing students to be "ill-prepared for professional life" (p. 2). Thus, with only two years devoted to professional knowledge and skills, and with no design or content input by students, parents, or employers, VHE produces graduates with skills that do not fully reflect the needs of the labor market (World Bank, 2013, p. 24).

Nguyen and Vu (2015) found that, for a long time, VHE "used the Soviet's curricular model which was oriented to the centrally planned economy. The main feature of this kind of curriculum is that it focused too much on narrow specialization" (p. 90). What is more, MOET requests that Vietnamese universities submit for approval lists of all of the required textbooks for every new degree, which results not only in the continued use of outdated teaching texts and other materials, but also in a teaching faculty that, without the incentive to keep up with global trends, has been slow to adopt the development of newer and better materials (Nguyen & Vu, 2015, p. 91). Thus, these regulations result in "Vietnamese universities [that] are not producing the educated workforce that Vietnam's economy and society demand" (Nguyen & Vu, 2015, p. 91). Hayden and Lam (2015) also emphasized that without autonomy, "teaching methods continue to be very traditional; the process of curriculum renewal is slow moving and bureaucratic; academic salaries are not sufficiently attractive to elicit a strong professional commitment; and most academics are not involved in research" (p. 2).

According to the World Bank (2008), the official reform of general education curricula in Vietnam was initiated in 2000 (p. 21), aiming "at increasing both access and quality, while also

strengthening the institutional foundation of the higher education system" (p. 21), while seeking "to promote a system that is more research-oriented and is more aligned with international standards of quality" (pp. 13–14). Therefore, in 2005, the government tasked MOET with developing the HERA/Vision 2020 from 2006–2020 "to enhance the national intellectual capacity, the competitiveness of human resources, and the country's economy" (World Bank, 2016a, p. 21). According to the World Bank (2016a), the prominent objectives of the HERA/Vision 2020 were focused on academic reform to "ensure greater institutional autonomy and accountability of all aspects" (p. 23). These objectives ensured that "the state management and the society's monitoring and evaluation roles are carried out in the activities of higher education institutions" (World Bank, 2016a, p. 23). According to the World Bank (2016a), higher education reformation was implemented in three phases:

> Phase 1: a) In the period 2006–2010, the detailed higher education renovation project was finalized. Emphasis was placed on several of the above-stated approaches, including renewal of training content and methods and renovation of management and resource mobilization mechanisms to bring about improvements.
>
> Phase 2: b) During 2011–2015, the renovation concentrated on strengthening achievements gained during the first phase. Timely implementation of solutions focused on improving efficiency of human resource utilization, and sufficient provision in both quantity and quality, including lecturing staff and higher education managers. The renovation aimed at significant improvements in quality so as to come closer to regional and international standards.
>
> Phase 3: c) In the 2016–2020 period, the reform strove to ensure the establishment of a modern higher education system with an appropriate qualification structure and network. The goal of this system is to be equal to that of other countries in the region, and to meet

> the demands for highly qualified human resources for industrialization and modernization. (p. 23)

One of the most significant results of HERA/Vision 2020 has been a change in the perception "that higher education was simply considered as vocational training" (World Bank, 2016a, p. 9). According to the World Bank (2016a), this was accomplished by starting to restructure the institutional network to overcome the "patchwork" or "piecemeal" (p. 9) approach to the problem by "establishing new types of higher education institutions (universities with various members, open universities, community colleges, semipublic/private/people-founded universities, etc." (p. 9). From this perspective, VHE was given some autonomy and subsequently was transformed from year-based courses along the USSR's model to credit-based training in keeping with the higher education system of the United States and in most of the developed countries (World Bank, 2016a, p. 9). Nevertheless, according to Nguyen and Vu (2015), despite the rapid proliferation of universities in Vietnam, the country still has not succeeded in meeting MOET's goal of "developing multidisciplinary/comprehensive higher education institutions with 1–2 world class universities (top 200) by 2020" (p. 88). It is impossible to predict when Vietnam will reach this goal given that VHE has been a hotly debated topic in the mainstream media for the last decade and a source of national concern, impelling Vietnam to assess and upgrade its academic standards and curriculum (Nguyen & Vu, 2015; Nguyen, 2016). In 2007, MOET introduced a new American-style credit system and applied it to VHE which allowed higher educational institutions to have "greater freedom to structure their curricula" (Trines, 2017b, par. 22).

Curricular Reforms

According to T. Phan (2015), the concept of "curriculum" was not well defined for many decades in Vietnam, but referred to "the content of higher education" (p. 87). Phan (2015) also

pointed out that the development of curriculum has been "shaped and reshaped under the various influences of China, France, the USSR and the USA" (p. 7) and by state control, along with the chaos of Vietnam's national history (p. 8) with the result that for many decades, VHE "has failed to meet the learners' demands, for example, for job preparation, and to prepare them for later life" (p. 12; see also Hayden & Lam, 2010). MOET explained that the purpose of curricular control was "to ensure consistency in the training quality in different institutions of the same degree programs" (T. Phan, 2015, p. 9). However, Phan (2015) revealed that MOET controls curricular development by managing the procedure of curricular development as well as by producing the materials and structure of the syllabus (Phan, 2015, pp. 8, 10). Tran (2012a) pointed out that governmental control of curricular structures results in a situation in which different institutions with different needs must teach the same curriculum for the same degree, preventing optimal use of the knowledge and skill of each faculty member (p. 134). Consequently, Tran (2012a) continued, this system mass produces identical graduates with disconnected knowledge, with the result that the "development of both Vietnam's economy and its higher education system (HES) is at a much lower stage" (p. 2). The procedure of developing curriculum for all programs of VHE is described in Figure 4:

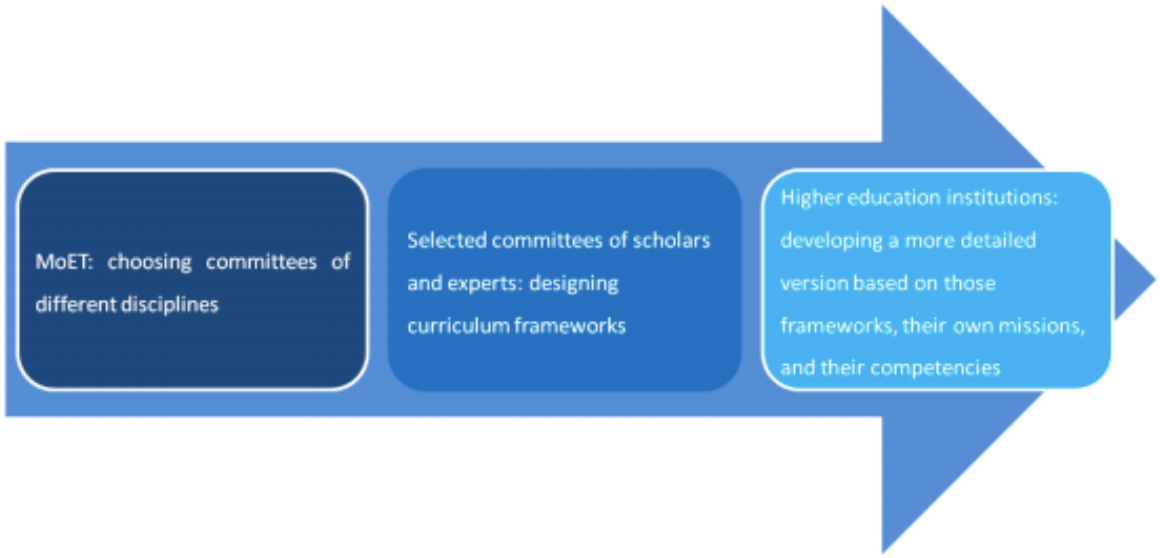


Figure 4. The procedure of developing curriculum. From *Approaches to Curriculum Development in Vietnamese Higher Education: A Case Study*, by T. Phan, 2015 (Doctoral thesis), Queensland University of Technology, Brisbane, Australia, p. 9. Copyright Author. Used with permission.

According to Phan (2015), this procedure not only prevents students and faculty from participating in the process, but also ignores input from labor markets (pp. 8, 10). The World Bank (2008), Phan (2015), Hayden and Lam (2015, p. 12), and Phan (2015, p. 9) agreed that the staff, who are in charge of curriculum development are not qualified, and that the lack of faculty who are trained as curriculum designers prevents swifter growth and academic reform in Vietnam. To overcome those hurdles, Pham and Tran (2013) suggested a process of curriculum development that includes the needs of employers and students (p. 11). See Figure 5:

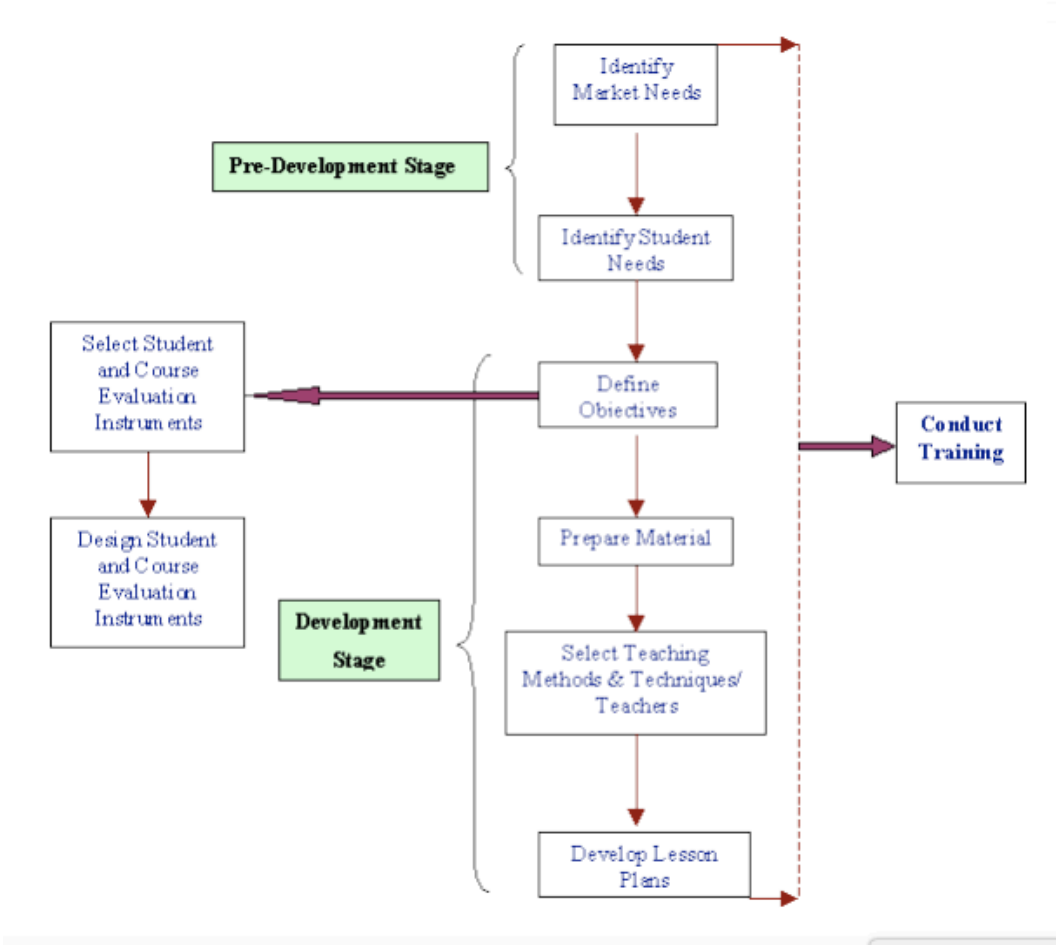


Figure 5. Curriculum development. From Vietnam, by Pham and Tran, 2013, Hanoi, Vietnam: p. 11. Copyright: University of Tasmania. Used with permission.

Whether to import a model of higher education from a more advanced country or to create and implement its own model has been a source of controversy in VHE over the last decade (Trinh, 2016). In 2011, MOET (2014b) proposed a budget of $3.3 billion for VHE reform; in 2014, the budget was reduced to $1.6 billion with an emphasis on the university system. Thach (2017) revealed that the first lesson of successful higher education is that diversification creates better quality and efficiency, and considered that the American model is most typical of a higher educational open system. Characteristics are multi-types, flexibility, and different quality levels, which renders it most capable of responding best to the diverse learning needs of the whole society (p. 81–82). By pointing this out, Thach (2017) emphasized that the

diversification of the American higher education system allowed the percentage of American citizens who attend college and university to increase rapidly from 56% in 1970 to 76% at the beginning 1990 and to about 85% in 2016 (p. 81). Although Vietnam has been through many reforms, the figure for VHE is only about 20%, which is half of the HERA/Vision 2020 target of 40–50% by 2020 (Thach, 2017, p. 81).

Pilot programs of the Advanced Training Program (Cuong Trinnh Tiên Tiến).

In an effort to pursue the HERA/Vision 2020 goals, MOET turned to reforming curricula by implementing the pilot ATPs. MOET grants annual budgets for Vietnam's 23 public universities with funds allocated for sponsoring training costs and retraining faculty to be able to teach in English and use the curricula of foreign universities (MOET, 2016, in Appendix E). With sponsored budgets the facilities of these universities were upgraded and better equipped to enable implementation of the ATPs (T. C. Le, 2016). The government envisioned effort as the key solution for VHE academic reform (Hayden & Lam, 2015). In addition, MOET (2016) requested that Vietnamese universities establish managements for each ATP, which would be in charge of stipulating academic regulations, tuition fees, training plans, teaching and learning conditions, program management, and the remuneration level for lecturers, teaching assistants, and study advisors. The ATPs are under the supervision of MOET (2016, p. 3; see Appendix E).

During the project's implementation, MOET (2016) undertook the following tasks:

Task 1. Establishing the criteria for the recruitment and selection of universities to be tasked with implementing the pilot ATP;

Task 2 approving the ATPs that the Vietnamese universities have coordinated with the foreign partners;

Task 3 annually monitoring and supervising the implementation by focusing on the contents of the programs, including achieved results and limitations;

Task 4 soliciting lecturers and students;

Task 5 conducting a preliminary review and drawing experiences from the implementation of the ATPs (p. 3; see also Appendix E).

Assessing the 10-year implementation of the advanced training programs.

MOET's Minister Phung Xuan Nha chaired a meeting on December 31, 2016 in Hanoi, the capital of Vietnam, to assess the ATPs a decade after their implementation. Educators and other participants agreed that the ATPs had brought significant changes and improvements (Le, 2017, para. 3).

Textbook and teaching materials.

Vietnamese universities are allowed to use the textbooks and related teaching materials of their foreign partners' original programs. Vietnamese universities initially encountered some difficulties in gaining copyright permission; however, with governmental sponsorship, they succeeded in linking with their foreign partners to access 99 learning resources with thousands of up-to-date electronic knowledge materials, enabling them to develop a total of 2,285 curricula together with all necessary teaching materials to meet 100% of the requirements of the ATPs to facilitate teaching and learning, Vietnamese universities built e-libraries that connect not only with their foreign partners' learning resources, but also with other global learning resources (MOET, 2016; see also Appendix E). Thus, the teaching materials utilized in ATPs are constantly updated, spurring students to keep up with the quick pace of advances in technology and globalization. This is markedly different from the standard training programs of the VHE system (HUST, 2016; MOET, 2016, p. 5; see also Appendix E).

Development of facilities and the learning conditions of the students.

Universities that have implemented ATPs have done well in establishing appropriate facilities, such as offices, classrooms, preparation rooms, lecture halls, and laboratories (MOET,

2016; see Appendix E). Libraries are well-stocked with books and materials for the ATPs. Governmental funds have helped universities to improve their learning environment with such amenities as dormitory network equipment and e-library connections with their foreign partners (HUST, 2016; MOET, 2016, p. 6; see also Appendix E).

Development of faculty and managers of the ATPs.

The Vietnamese universities have sent their faculty to partner sites for training, supporting, and promoting professional qualifications, teaching methods, and English skills (HUST, 2016). By December 31, 2016, more than a thousand Vietnamese faculty had been trained and fostered in foreign countries and 675 lecturers were trained to improve both their professional skills and English at home and abroad (HUST, 2016). Vietnamese faculty gradually replaced foreign professors and became the main teaching force in the ATPs. As recently as 2016, twenty-two state-operated universities employ 63 professors, 356 associate professors, and 727 teachers who hold doctoral degrees, and 849 who have master's degrees in the 35 ATPs (MOET, 2016, p. 6; see also Appendix E & G). This is the unique advantage of the ATPs and perhaps accounts for the success of their graduates. A Vietnamese proverb says, "Nothing can succeed without the help of the teacher." Knowledgeable teachers with excellent foreign language skills that enable them to create and curate up-to-date learning materials are essential to the education of great students.

Achievement of graduates.

In the last 10 years of applying the ATPs, 23 universities have recruited 13,270 students. Not all of these remained enrolled in the programs: 1,518 students were transferred out, 396 qualified for scholarships to study abroad, and 1,122 were not qualified in English or failed to meet the learning requirements and so were required to move to other programs (MOET, 2016, p. 9). As of this writing, 8,151 students study in the programs (MOET, 2016, p. 9).

The highest priority of the ATPs is to establish a strong connection between theoretical and practical learning (Le, 2016). In total, there were 76 reviews and modifications of the curricula of the pilot ATPs with the participation of 136 enterprises. This is the first time employers were invited to participate in developing curricula for VHE (T. C. Le, 2016); nearly 300 enterprises (i.e. 297) provided 2,872 scholarships worth nearly VND10 billion (approximately $431, 140 USD), 18 foreign lecturers were invited to teach, 28 enterprises provided hands-on equipment and practice, many organizations and individuals donated books and materials for the program, and approximately 200 companies received students for internship from the ATPs (MOET, 2016, p. 18). Overall, these benefits ensured that the curricula of the ATPs would address employers' expectations for new recruits and ensured that the theories found in the classroom would be illuminated by actual business case study experiences, enabling students to experience the reality of their chosen professions as well as creating more opportunities to seek employment after graduation (MOET, 2016, p. 18). As Goyette (2012) showed, students in the pilot programs shifted from a vocational model of straight-ahead "training in science and industry" (p. 200) to a liberal arts model with a full curriculum in English (Hanoi Medical University [HUST], 2016). In 2016, these programs graduated 3,601 students, 100% of whom obtained jobs 6 months after graduation (HUST, 2016). Out of 2,561 graduates in 2015, 539 students were offered scholarships to study abroad (449 earned master's degrees and 90 graduate students earned doctoral degrees), 274 undergraduate students continued to pursue graduate programs in Vietnam (241 students earning master's degrees and 33 students earning doctoral degrees), 123 became lecturers at universities and colleges, 104 worked in research institutes, 269 worked in other public facilities, 660 worked in joint venture agencies with foreign countries, 592 worked in private sectors or started their own businesses, and 1,040 graduates (about 40.6%) continued to study as lecturers and researchers (HUST, 2016); T. C. Le,

2016, p. 18). According to MOET (2016) providing good human resources involves not only the socioeconomic development of the country, but also attending to its source of motivation for sustainable development, which will in turn contribute to the future reform of VHE (p. 18; see Appendix E).

Publication and research on the advanced training programs (ATPs)

MOET approved pilot ATPs and tasked the chosen universities to improve the quality of training and research (T. C. Le, 2016). According to the curricular design, lecturers participating in these programs must spend at least 40% of their time on research and have works published in peer-reviewed journals annually. Students qualified for the ATPs were given opportunities to take part in research led by their instructors (T. C. Le, 2016).

Although MOET (2016) does not grant the state budget for research, students in these programs benefited from the initiatives in the following ways: they participated in 2 state-level research projects, 21 ministerial and/or provincial projects, 13 international cooperation research projects, 175 university research projects, 409 student projects, and they co-authored 145 overseas publications, 156 international publications, and 192 published works in Vietnam (p. 20; see Appendix E). Students were encouraged to take part in early-stage scientific research and to build a research culture in the classroom (HUST, 2016; Appendix E, MOET, 2016, p. 20)

Conclusion

Phan (2015, pp. 8–18) stated that a significant outcome was that other programs' curricula at his university are being improved to match the standard set by the ATPs. Overall, 23 Vietnamese public universities have successfully implemented 35 ATPs (T. C. Le, 2016). According to T. C. Le (2016), training costs per graduate are 10 times lower than sending a student overseas. Moreover, graduates remain in Vietnam to join the labor market instead of

going abroad and not returning to work at the end of their studies (para. 21). Therefore, MOET Minister Phung Xuan Nha insisted that those programs be expanded (T. C. Le, 2016).

Difficulties expanding the Advanced Training Program.

Despite the many positive results from implementing the ATPs, they have met with significant difficulties. The budget for the pilot programs has lapsed or is no longer available because the government cannot continue subsidizing them (HUST, 2016). The average budget structure of all 35 pilot ATPs is accounted as 54.24% of the state budget; universities contribute approximately 15.57%, 28.57% comes from tuition fees, and funding from organizations and individuals accounted for 1.62% (Appendix E, MOET, 2016, p. 25). Universities reduced student enrollments when the state stopped funding the programs.

The programs have been implemented in 23 public universities, but private higher educational institutions are not entitled to implement them, preventing their expansion (Trinh, 2016). In December 2016, MOET Minister Phung Xuan Nha stated that MOET would allow private universities to participate in implementing the ATPs; however, MOET has not enacted any policy to date to make this feasible (HUST, 2016).

The English language barrier is also significant. As Le (2017) has pointed out, activities in the ATPs are conducted in English. This makes it challenging to recruit faculty and in particular to attract students from rural areas where English is less frequently studied and less well-known (para. 14). Le (2017) also noted that tuition fees are a great barrier to implementing ATPs (para. 16). Existing regulations stipulate very low fees for public universities and even for private schools. According to MOET (2015b), tuition for the academic years 2015–2016 and 2020–2021 was $750–$900 USD per year for university and $1,900 USD per year for medical school. According to OECD (2016), the United States spent $29,328 USD per student, which is equal to 49.2% of the United States' GDP per capita of $59,609. According to OECD (2012,

2016), its member countries spent an average of $16,143 USD per tertiary student (p. 5), approximately 50% of their GDP per capita, while tuition fees in Vietnam are equal to 32.5% of the Vietnamese GDP per capita (World Bank, 2018). Low tuition fees also lead to poor salaries, causing a shortage of high quality university lecturers (World Bank, 2012). To survive, most Vietnamese universities have a high student–faculty ratio (World Bank, 2012). The World Education Services staff (2012, as cited in International College of Economics and Finance, 2015) stated: "In the 22-year period between 1987 and 2009, the number of students has increased 13 times, the number of institutions of higher education by a factor of 3.3, and the number of lecturers just threefold. Student to teacher ratio has increased from 6.6:1 in 1987 to 28:1 in 2009" (para.6). According to Le (2017), all of these factors mean that the ATPs are "Lonely Stars" unable to grow and become sustainable within the goals set by HERA/Vision 2020 (para. 14).

Current State of Vietnamese Higher Education after Primary Reforms

Several scholars and researchers (Hayden & Lam, 2015; Nguyen et al., 2017; World Bank, 2018) agree that VHE's reforms over the last 20 years resulted in significant change and achieved valuable results: (a) they transformed VHE from a monoculture of government-controlled universities to a competitive market with a profusion of non-public universities; (b) they changed from the Soviet course system to a credit system; and (c) they improved VHE by implementing ATPs and establishing accrediting agencies (World Bank, 2018). However, after a few decades of reform, VHE still cannot keep pace with the country's economic growth (Tran & Vu, 2015). This is reflected in the current state in which VHE produces a low-quality labor workforce (H. L. Le, 2016), inadequate publications (Tran, 2014), substandard intellectual property (Tremblay et al., 2012), and faltering innovation (Nguyen et al., 2017).

Increasing Unemployment of Graduates

Vietnam is considered a market desperate for labor (World Bank, 2013**)** and yet unemployment has increased dramatically every year. In a 10-year study, Vallely and Wilkinson (2008) pointed out that 50% of Vietnamese graduates could not find jobs even "in their area of specialization" (p. 2). Despite many years of reform, Nguyen and Vu (2015) corroborated that finding, stating "About 50% of Vietnamese [higher education] graduates cannot find jobs in their area of specialization" (p. 94). In addition, regardless of VHE growth, according to Bao (2016), more than "400,000 university graduates are entering the Vietnamese job market each year, but many of them have to struggle to find a job" (Bao, 2016). 5). In addition, MOET (as cited in Bao, 2016) stated, "225,500 people with a bachelor's or master's degree are currently without a job, up 13.3% from the third quarter in 2015" (para. 12).

According to the GSO (2017), the number of Vietnamese universities increased from 204 in 2012 to 224 in 2016, a 10% increase. Even more notable is the number of lecturers which increased by 37%, an indication that higher education institutions understand the necessity of this factor to improve teaching quality. However, in Table 2, the data extracted from the GSO's (2017) annual statistics shows that graduate unemployment rates are twice as high as the national unemployment rate and have increased from 7.3% of the Vietnamese population in 2008 to 17.5% in 2016 while national unemployment has decreased from 2.9% to 2.3% of the population (GSO, 2017). Even the Communist Party admitted that more than 60% of bachelor's degree graduates and master's degree graduates are unemployed (H. L. Le, 2016) and that many postgraduates must retrain by taking a few years to learn the skills necessary for their jobs (H. L. Le, 2016). The country's media blames the poor quality of higher education for failing to provide the educated labor force needed for economic development and for failing to meet enterprises' recruitment requirements. However, a study by Tran (2012b) reveals that surveyed students

focus most of their efforts on securing good grades in their examinations and that they attend classes only to prepare for examinations (p. 320) rather than to prepare for future employment.

Table 1. *Vietnamese Unemployment 2008–2016*

	2009	2010	2011	2012	2013	2014	2015	2016
Vietnamese unemployment rate	2.90%	2.88%	2.22%	1.96%	2.18%	2.10%	2.33%	2.30%
Number of unemployed workers	1,430,338	1,464,106	1,148,273	1,026,021	1,160,763	1,128,708	1,257,827	1,252,235
Rate of graduate unemployment	7.3%	6.1%	7.6%	10.1%	14.0%	16.5%	16.3%	17.5%
Total workers (person)	49,322,000	50,837,000	51,724,000	52,348,000	53,246,000	53,748,000	53,984,000	54,445,000

Note. From 2009–2017, by the General Statistics Office, 2017, Hanoi, Vietnam: Author. Copyright GSO. Used with public permission. Retrieved from http://gso.gov.vn

In neighboring countries such as South Korea, Japan, and Hong Kong, the graduate unemployment rate at the same time in 2015 was around 38%, equal to approximately 4–5% of the national unemployment rate (Mok, 2016, pp. 12–13). By comparison, the Vietnamese rate for graduate unemployment was much higher at 17.5% of its national unemployment rate in 2016 and equal to the unemployment rate found in China (Mok, 2016, p. 13). According to Tremblay et al. (2012), students worldwide currently seek courses of study that can enrich their knowledge and endow them with expertise and skills that will equip them to meet labor market needs throughout their working lives (p. 21). In addition, Schwab and Sala-i-Martín (2016), the director of the World Economy Forum, pointed out that VHE's world ranking was one of the world's lowest and continuing to decline, having dropped from 83rd to 84th in 2017, confirming that "the lack of an educated workforce constitutes a significant hurdle for doing business" (p. 25).

The Poor Quality of the Educated Workforce

According to H. L. (Le, 2016), Vietnam is considered to be in a "golden" period because its workforce is young and plentiful, although its quality is regrettably limited. The World Bank (as cited in H. L. Le, 2016) ranked Vietnam's workforce in 2011 at only 3.39 out of 10, compared with South Korea at 6.91, India at 5.76, Malaysia at 5.59, and Thailand at 4.94. In addition, the World Bank (as cited in Do, 2015) ranked Vietnam's labor workforce at only 3.79 on a 10-point scale, 11th in quality of the 12 Asian countries, while South Korea's score was 6.91, India's was 5.76, Malaysia's was 5.59, and Thailand's was 4.94.

Limited Publications

The World Bank (2008) reported that 1950 data comparing Japan, South Korea, and Vietnam showed Vietnam was "right on schedule" and even "ahead" (pp. 122–124) in terms of tertiary income and enrollment achievement against GDP per capita. Unlike the Vietnam War

that attracted such intense media focus, South Korea and Japan both suffered wars that did not receive as much attention from the media. After 1950, Japan continued to suffer for many decades following the tragic aftermath of the atomic bombs detonated over Hiroshima and Nagasaki (Taylor, 2014). In June 1950, 75,000 soldiers from North Korea invaded Korea, resulting in the division of the country into two separate governments. Nevertheless, today's Japan and South Korea are far ahead of Vietnam, boasting high enrollment ratios, research incomes, many excellent universities with 4 to 20 times more publications in peer-reviewed journals than those by Vietnamese scholars (Gurry, 2016). Vallely and Wilkinson (2008) stated, "Vietnam lacks even a single university of recognized quality…Vietnam's universities are largely isolated from international currents of knowledge" (p. 2). Eight years later, the World Bank (2016a) reported that Vietnam had only 5,563 publications in peer-reviewed journals, and those journal articles were mainly theoretical works with only a few focused on applied research (Pham & Vu, 2015).

Substandard Intellectual Property

In the late 20th and early 21st, technological innovation has created unprecedented economic growth (Tremblay et al., 2012). According to Gurry (2016), Americans hold almost 50% of the technological advance patents, and the United States dominates the world in economics, science, and defense capabilities Japan, with 455,005 patents granted, is the second-biggest world player after the United States, and it has now taken its place as one of the world's wealthiest countries (Thach, 2017). South Korea, which holds roughly 23% of international patents, attests to high technology's ability to turn a poor country into an economic power in just a few decades (Thach, 2017). Vietnam, with a population of almost 100 million in 2016, holds only 679 patents, while Singapore with a population of 6 million holds 6,115 patents and 24,125

patent applications (World Intellectual Property Organization [WIPO], 2017). Malaysia and Indonesia hold twice as many patents as Vietnam (see Appendix E).

Faltering Innovation

The WIPO also revealed a worsening trend for Vietnam with Innovation Index Rankings of 52 in 2016, down seven levels from 2015 (Gurry, 2016), while Singapore's Innovation Index remained in the Top 7 and Top 6 in 2015 and 2016 respectively (Gurry, 2016), as shown in Table 2. *Global Innovation Index 2015 and 2016*

		Innovation Index Rankings 2015		Innovation Index Rankings 2016	
No.	Country	Score (0–100)	Rank	Score (0 100)	Rank
1	United States	60.1	5	61.4	4
2	Singapore	59.36	7	59.16	6
3	Republic of Korea	56.26	14	57.15	11
4	China	47.47	29	50.57	25
5	Malaysia	45.98	32	43.36	35
6	Thailand	38.1	55	36.51	52
7	Vietnam	38.35	52	35.37	59

Note. From 2015–2016, by the World Intellectual Property Organization, 2017, Geneva, Switzerland: Author. Copyright WIPO. Used with permission. Retrieved from at http://www.wipo.int/portal/en/index.html

Many researchers including Vallely and Wilkinson (2008), Dang (2009), Sheridan (2010) Tran (2014, 2015), Clark (2014), Hayden and Lam (2015), Tran & Vu (2015), Nguyen et al. (2017), and the World Bank (2018), have investigated why VHE remains deficient in spite of the reforms of the last 20 years. VHE's problems remain unsolved despite an annual increase in undergraduate students enrolled after the launch of non-public universities in the early 1990s. This is evidenced in Gurry's (2016) Innovation Index Country Patents that shows Vietnam's

decreasing trend on the Innovation Index Rankings of Vietnam in 2016, down seven levels from 2015, while Singapore's Innovation Index is at Number 7 (2015) and Number 6 (2016). Researchers have suggested that Vietnam's historical and cultural legacy may account for some of the current status. While there surely are many reasons for this educational situation the researcher considers some primary reasons in the following sections.

VHE's Disconnect from its mission.

In attempting to explain why VHE does not produce desired results despite the government's many efforts and reforms, the World Bank (2012) pointed out that this failure is because higher educational institutions are separated from the core mission of VHE: to produce quality human capital and to promote science and technology for economic development. VHE has been unable to fulfill its training missions; and thus, become disconnected from research (World Bank, 2012). Less than 20% of university lecturers in Vietnam have doctoral degrees, and most of their main work is teaching, not assuming research responsibilities (World Bank, 2012, p. 56). The World Bank (2013) also emphasizes that three causes of the disconnection between the classroom and the labor market are 'poor information', 'weak incentives,' and 'low capacity' (pp. 26, 49).

Employers' lack of connection with the classroom

The World Bank (2014b) compared business and college education with oxygen: both are absolutely necessary and required for a flourishing life (p. 25). After many decades studying what skills are in demand today and will be required in the near future, The World Bank (2012) reported that an employer's skill-set comprises three different domains of skills: cognitive skills, social and behavioral skills, and technical skills as shown in Figure 6 (p. 15).

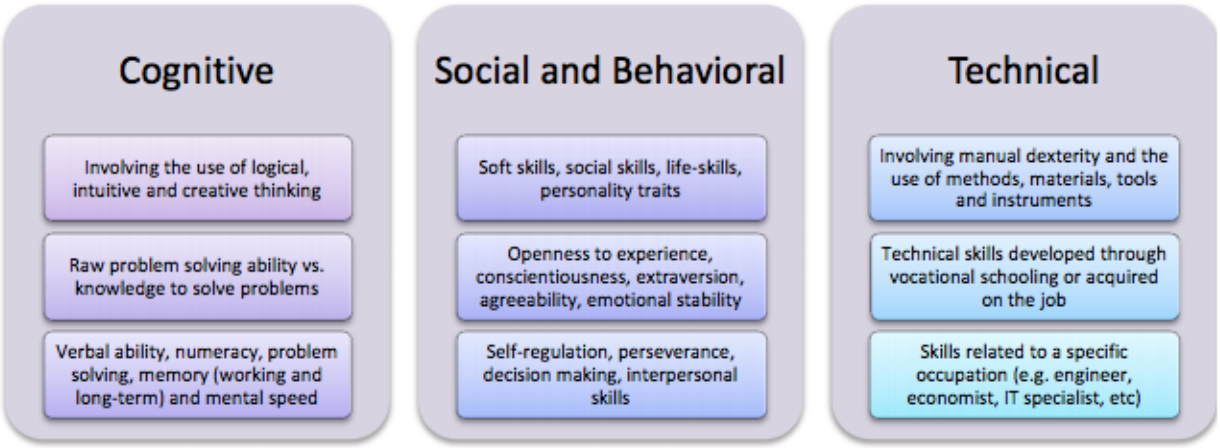


Figure 6. The three dimensions of skills measured in the Skills toward Employment and Productivity (STEP) survey. From *Skilling up Vietnam: Preparing the workforce for a modern market economy*, by World Bank, November 2013 (Vietnam Development Report 2014), Washington, DC: Author, p. 15.

The World Bank (2013) also emphasized that "Vietnamese employers are looking for a mix of high quality cognitive, behavioral, and technical skills" (p. 15). In addition, after many decades of studying the Vietnamese labor market and VHE, The World Bank (2013) defined an employable workforce as having the following, necessary skills:

(a) "Cognitive skills include the use of logical, intuitive and critical thinking as well as problem solving using acquired knowledge"; (World Bank, 2013, p. 15)

(b) "Social and behavioral skills capture personality traits that are linked to labor market success: openness to new experiences, conscientiousness, extraversion, agreeability, and emotional stability"; (World Bank, 2013, p. 15)

(c) "Technical skills range from manual dexterity for using complex tools and instruments to occupation-specific knowledge and skills in areas". (World Bank, 2013, p. 15)

However, the decades long influence of the Soviet Union's higher education system compelled VHE to focus on teaching mathematics, science, Communism, and the dogmas of Karl Marx instead of providing the skill-set in (a) and (b) above, resulting in a disconnect

between VHE and the workforce market (Goyette, 2012, Nguyen & Vu, 2015). This disconnect between higher educational institutions and employers can be understood as a systemic problem as this statement from The World Bank (2014a) makes clear:

> Without good information about employers' skill needs, conditions in the labor market and returns to certain fields of study, education and training providers cannot make good choices on the programs to develop and offer. Second, without such information, students and parents cannot make good decisions on which school or university and which study program to choose. Third, without information on the quality of education programs and employment success of graduates, prospective students may not be able to make good choices. (p. 25)

To explain graduates' increasing unemployment rate some stakeholders have argued that this problem might not pertain solely to the realm of education. Some have suggested that it could be any of the following three:

(a) because students choose the wrong majors or curricula, (b) because universities do not offer suitable majors or curricula, or (c) because the quality of education is inadequate (World Bank, 2014a). In addition, Nguyen and Nguyen (2015) examined data from 22 public universities, revealing further evidence of the disconnect between classroom teaching and the labor market that negatively affects the quality of Vietnamese college graduates:

> The lowest evaluated quality is the "ability to apply knowledge in the field" with a quality gap of 37.04%. Subsequent skills with low quality indexes are foreign language proficiency, logical thinking ability, research ability, and creativity, with quality deficiencies of approximately 20%. It is noteworthy that the criteria of "work discipline"

> and "ability to update new knowledge" also have a low quality index, even lower than the indicators of "specialized knowledge." (p. 6)

The World Bank (2012) also observed that "the perception of employers about the lack of sufficient tertiary graduates is a key reason for skill gaps" (p. 45) and that more than 30% of graduates must be retrained by their employers so that they can actually do their jobs (p. 56).

The World Bank (2012) further emphasized that the international rankings and outputs of VHE studies show that the VHE system lacks a focus on research. According to The World Bank (2012), fewer than 3% of businesses declare cooperation with universities or institutes in their production development, meaning that VHE lacks information on which skill-sets employers expect new recruits to have learned (p. 56). To explain this situation, The World Bank (2012, 2017) suggested that the "lack of capacity and incentives [is] the principal cause for the broader disconnect between HEIs [Higher Education Institutions] and skill users" (p. 74). According to Theo (2017), VHE institutions are unaware of how important the links are to businesses (para. 1). The World Bank (2012) also emphasized that:

> The weak nature of the relationships between universities and firms could be attributed to four constraints: a credibility gap between industry and academia from both sides; bureaucratic regulations and attitudes not conducive to innovative partnerships and links; insufficient understanding of intellectual property rights and related matters, possibly constraining partnership efforts; and inadequate incentive structures and financial support programs. (p. 86)

Finally, the World Bank (2012) concluded that "lack of incentives to focus on the skills that matter, lack of links with industry in curriculum development, and lack of capacity to adopt a competency-based approach" (p. 83) resulted in graduates' weak competencies.

One challenge is that 90% of Vietnam's population currently work in agriculture. Developing a workforce with the skills needed for current and future jobs in Vietnam will require a shift away from agricultural activities and non-farm enterprises and activities. Fifty percent of VHE students come from rural provinces. In an effort to increase the number of rural student training, MOET awards 1–3 additional points for rural students and allows a lower standard of qualification for admissions than for students from urban backgrounds. Because of their relative poverty (many rural householders earn only $50–500 per year), rural students lack the educational background and soft skills employers seek. Unfortunately, VHE has yet to design a program to help them come up to speed with their city peers.

Graduates' soft skills do not meet employers' expectations. Vietnam is considered a market that is desperate for labor (World Bank, 2013) yet the unemployment rate has increased dramatically every year. For centuries, Vietnamese people have been guided by the philosophies of Confucius and Lao Tse emphasizing the virtue of obedience to leadership of a single governing entity — a virtue that leaves Vietnamese workers at a disadvantage in the work place (Phan, 2016). Vietnam's workforce is ranked at 94 out of 140 on the index of skills, but graduate skills were ranked at 128 out of 140. Vietnam's competitiveness index ranks 77th among 140 countries in 2018, unchanged for many decades, providing further evidence of the disconnect between the classroom and labor markets (Schwab, 2018, pp. 599–601). The country's stream media blames what it perceives as the poor quality of higher education for failing to provide the educated labor force needed for economic development and for failing to meet the recruitment requirements of enterprises. However, a study by Tran (2012b) revealed that students focus most of their effort on securing good marks in their examinations, and that they attend classes to prepare them for examinations rather than for future employment (p. 320).

Vietnam has traditionally been an agricultural country, meaning that the soft skills required for the development of an industrialized and modernized economy are almost unknown. Many students do not know what soft skills are and do not understand their role in developing these skills in tandem with active participation in class activities. Instead, many criticize their universities for failing to teach them properly (Tran, 2012b, p. 320). D. N. Phan (2015) reported that students, faculty and employers do not believe that VHE's quality is improving. The majority of these stakeholders believe that VHE's weak quality is caused by outdated curricula, underdeveloped programs and lack of theory and up-to-date knowledge. At present, most stakeholders do not believe that VHE can improve over the next 5–10 years (p. 59). The World Bank (2013, 2014) indicated that soft skills are formed by a general education system. The World Bank studies further demonstrate that VHE's poor quality itself is only one reason for the shortfall in graduate skills (2013, 2014). Reforming the Vietnamese general education system from primary school to university will take decades, while the development of the country's economy cannot wait.

Vietnamese higher education depends on state universities. The HERA/Vision 2020 aims to reform the private tertiary sector and implement pilot ATPs to improve the workforce. However, for more than 10 years, the ATPs have provided fewer than 14,000 graduates to the national workforce while every year VHE flooded the labor market with approximately 400,000 graduates (Trinh, 2016). Moreover, data on VHE annual admission and graduation, extracted from MOET's 2011–2016 reports in Appendix D, shows that the annual recruitments of the state universities are approximately 1.23–1.8 million students of whom only roughly 173,000–233,000 are admitted into the private universities, equal to 86.8% and 13.2% of annual enrollment nationwide, respectively. Therefore, the non-state universities provide fewer than 12% of

graduates yearly (GSO, 2017) indicating that the state universities are the key players providing the Vietnamese labor workforce needed for developing the country's economy. Therefore, the current quality of VHE is largely dependent on government universities. The graduates of those universities account for more than 95% of total graduates over the last 20 years (GSO, 2017). Thus, it seems necessary for public schools to innovate to improve the quality of VHE. The Vietnamese private university system is too small to contribute much to the overall quality of VHE.

Official Language in Higher Educational Institutes

Under Vietnamese regulations, all higher educational institutes must ensure that their students will be proficient at reading and writing in their mother tongue (World Bank, 2016a, p. 29). The 2012 Law on VHE allowed foreign universities that deliver transnational programs in Vietnam to teach in English, but the law stipulated that Vietnamese is the official language of VHE (MOET, 2013). Therefore, one contribution of the ATPs is to diversify the VHE system and to contribute a high-quality labor workforce; however, the curricula of these ATPs must be translated into the Vietnamese language and modified to enable them to be taught in Vietnamese, which can then be applied to the entire VHE system (MOET, 2016). However, the textbooks and learning materials of ATPs are in English, contributing to the challenge of transferring these ATPs into the national programs of VHE. Without up-to-date teaching materials, the ATPs would also be out of date if students had to use current Vietnamese language textbooks (HUST, 2016).

The Potential of Vietnamese Higher Education

Vietnam has the potential to become a leading educational system in the world (MOET, 2013). In terms of population, Vietnam has a young workforce with 56% of its population under

30 years old (Nielsen, 2010, p. 4). According to Do (2015), this "golden" period is predicted to last until 2041. Vietnamese culture greatly values education; parents are willing to trade their financial well-being for their children's education, as shown by Dang and Rogers (2016, pp. 104–142) in their twenty-year investigation. The Hong Kong and Shanghai Banking Corporation (2016) conducted a survey in 15 countries and territories in which more than 6,200 parents participated. Results showed that 84% of Vietnamese parents are primarily responsible for the costs of their children's education and 60% are willing to borrow to finance their children's college education. In comparison, this percentage is significantly lower for parents in the United Kingdom (43%), Australia (44%), and France (46%; Thanh, 2016). Despite the relatively low standard of living for the majority of the Vietnamese population with only $2000 USD per capita over a 5-year period from 2011 to 2016 and with student enrollment in 35 OECD member countries remaining stable for the last 5 years (OECD, 2016), VHE has been growing. The number of universities increased by 10.3% and the number of students rose by 21% (GSO, 2017) reflecting the culture's respect for higher education (GSO, 2017).

Budget for National Education

The Vietnamese government considers education a top priority in comparison with other sectors (World Bank, 2015b, p. 32) and has continuously increased the national budget share for education from 3.5% of the GDP in 1994 to 4.6% in 2004 and 5.61% in 2015 (GSO, 2017). However, the unemployment rate remains high while the rate of publications remains low, indicating that VHE cannot meet the goals of HERA 2020 Vision (World Bank, 2015b). According to the World Bank (2015), by increasing educational spending as "a proportion of total public expenditure to 20%" (p. 32), the government's target is to improve "educational quality and efficiency, and [to make possible] the achievement of national goals" (p. 32). In

addition, according to Nguyen and Penfold (2017), Vietnamese individual expenditures on education were forecasted to increase from $8.6 billion in 2015 to $12.8 billion by 2012 (para. 4). Nguyen and Penfold (2017) also discovered that:

> Vietnamese parents in fact contribute more to public education than in other countries in the region. The latest PISA [Programme of International Student Assessment] tests also show that commitment to education among Vietnamese parents and students is among the highest in PISA countries. (para. 4)

Furthermore, according to Macleod (2016), Vietnamese parents tend to sacrifice for the education of their children, creating ideal conditions for VHE to develop further.

Strong Digital Potential

Vietnam has been among the poorest countries in the world for many decades (World Bank, 2018). However, according to Nguyen and Penfold (2017), this might change as the number of internet users continues to grow dramatically:

> In early 2017, 53 % of the population were active internet users—up from 50% the previous year—while 87 % of this segment is online daily. Internet access is boosted further by mobile device ownership: there are 131 mobile subscriptions for every 100 of the population and, in early 2017, 55 % of the population used the internet more often via a mobile device. (para. 5)

According to Nguyen and Penfold (2017), this environment encourages VHE to embrace new technology and research (para. 5) which has the potential to greatly improve its quality. They go on to state that because the Vietnamese government has "focused on developing human resources specialized in electronics, telecommunications, information technology, and

information security, Vietnam offers a supportive environment to capitalize on digital opportunities across many industries including education" (para.7).

Conclusion

The researcher has focused this literature review on (a) assessing the three primary reforms of VHE over the last 20 years; and (b) understanding the links between curricular development and the quality of the labor workforce. The literature review provides a clearer view of the past and current state of VHE.

Conceptual Framework

The literature review reveals that, despite extensive reform efforts initiated over the past decades and the increased national budget allocation for its development, VHE still lags behind world standards regarding international scholarly publications, tertiary world ranking, and the production of an educated workforce to facilitate the country's economic development, signaling that it cannot meet the goals of the HERA Vision 2020 set by MOET (Dang, 2009, Pham, 2009, Vallely & Wilkinson, 2008; World Bank, 2015a, 2015b). Therefore, the conceptual framework of this study is designed by the content–analysis methodology to focus on answering two research questions:

1. What is VHE's current state following the implementation of reforms over the last 20 years?
2. How does VHE's current state align with the goals of HERA/Vision 2020 specific to an employable workforce for the 21st century?

The conceptual framework aims to provide a full picture of VHE's current status and explores the achievements of ATPs, especially those that facilitate the meeting of employers' expectations for new recruits. The researcher also focused on evaluating the curricula of all 35 of

the pilot ATPs alongside the standard current ones designed by MOET to discover their similarities and differences to determine how VHE aligns with employers' expectations as outlined in the directives of the 2020 Vision.

The content-analysis approach "affects the researcher's interpretation of the informants' story and the conclusions given in the result" (Bengtsson, 2016, p. 13), requiring that the researcher "must know the context, but he/she must also be aware of this knowledge so that it does not affect process nor outcome" (Bengtsson, 2016, p. 13). Bengtsson (2016) also emphasized that the researcher must reflect the differences of perspectives of the stakeholders; therefore, a theoretical assumption will underline this study. According to Gabriel (2008), a theoretical assumption is "formulated to explain, predict, and understand phenomena and, in many cases, to challenge and extend existing knowledge within the limits of critical bounding assumptions" (p. 179). In this study, the researcher uses a theoretical assumption to assess VHE's reforms over the last 20 years from different perspectives with a focus on its academic reform. From educators' perspectives, it will be the assumptions on evaluating the curricula of VHE and the ATPs of the 23 largest public Vietnamese universities that have been implemented over the last ten years that promise a model to meet the directives of HERA/Vision 2020. From employers' expectations, the researcher will deduce the skill-sets for new recruits required for a Vietnamese workforce in the 21st century. To approach the topic with a methodology of content-analysis, the theories of "Correcting Error and Bias in Research Findings" of Hunter and Schmidt (2004) and Scott (2008) are also taken into account to maintain a concept of trustworthiness.

CHAPTER 3

METHODOLOGY AND DATA COLLECTION

The difficulties of studying socio-cognitive and perceptual constructs in Vietnam points to content-analysis methodology as the best approach for this study (Bengtsson, 2016). Kohlbacher (2006) cited Mayring (2000b, pp. 468–469, 2000a) in stating that "the development of content analysis is fundamentally connected to the development of mass media and international politics" (p. 4) — a methodology well-suited for research in Vietnam, where VHE is exclusively controlled by a Communist regime (Vallely & Wilkinson, 2008). Kohlbacher *(*2006) emphasized that the strengths of content analysis are (a) "openness and ability to deal with complexity"; (b) theory-guided analysis c) integration of context; (d) integration of different material/evidence; and (e) integration of quantitative steps of analysis (pp. 76–80).

In this study, the combination of openness and theory-guided analysis fostered the ability to reduce and address the complexities of data collection. This methodology also aimed to "take a holistic and comprehensive approach towards analyzing data material and thus to (almost) completely grasp and cover the complexity of the social situations examined and social data material derived from them" (Kohlbacher, 2006, p. 77). The integration of context and different material/evidence confers "a great advantage when dealing with various, heterogeneous types of data material" (Kohlbacher, 2006, p. 83). Therefore, in this study, the researcher examined the evidence of data, materials, documents, and the communications of related stakeholders. The researcher observed, but did not participate; therefore, according to Ary et al. (1996, as cited by Datt, 2016, p. 1), content analysis was the best approach for this study.

Setting

According to Fargard (1996), the content-analysis methodology requires that data collection be "conducted like a scientific experiment and begin with a protocol, which clearly states its aim and methodology" (p. 5). In the study setting, the researcher aimed (a) to understand and acknowledge the successes and failures of the last 20 years of VHE reform; (b) to explore the implementation of the ATPs (Chương Trình Tiên Tiến) as the key methodology that MOET initiated to pursue the goals of HERA/Vision 2020 and (c) to evaluate data that consultant companies collected about the skill-sets that employers seek in new employees to compare those requirements with the skills taught in the curricula designed by MOET.

Site, Participants, and Sample

MOET (2008) asserted that implementation of the pilot ATPs was a primary solution to improving the quality of graduates and to meeting the demand for an educated workforce. Thus, the curricula of 35 ATPs for degrees in engineering, business, environment, and health science formed the study sample. To look for connections and gaps between the classroom and "skilling up" (World Bank, 2012, p. 7) that students need to join an educated workforce, the researcher used content analysis methodology to review (a) documents from the ATPs; and (b) documents from the corresponding standard VHE curriculum in comparison with the needs of current employers.

Data Collection Methods

For decades, scholars have written about autonomy and governance within VHE, including such prominent international scholars as Gurry (2016), Clark (2014), Banyan (2013), Goyette (2012*),* Sheridan (2010), Vallely and Wilkinson (2008), and Vietnamese researchers, including Nguyen and Vu (2015), Nguyen and Nguyen (2015), Tran (2014, 2015), Tran et al.

(2014), Vu, Le, and Muhajarine (2012), and Tran et al. (2010). Other sources for this study included current reports distributed by the World Bank (2013, 2014), the U.S. Central Intelligence Agency (CIA; 2017), the Heritage Foundation (2016), the GSO (2017), and other reliable sources of data that support the research arguments. The researcher connected data and lessons learned from reports and assessments of the MOET-approved ATPs of 23 public universities that partnered with foreign universities (MOET, 2017) and the reports of the World Bank on the skill-set requirements of employers. Through these assessments and data, the researcher investigated and examined the VHE's curricula and compared it with the curricula of the ATPs with an eye to addressing the needs of Vietnamese employers and to meeting the goals of MOET's HERA/Vision 2020. The aim of the data collection was twofold:

1. to define what constitutes a Vietnamese educated workforce, and
2. to evaluate the curricula of the ATPs and corresponding standard programs to determine similarities and differences and to identify important gaps.

In accord with Bengtsson's (2016) description of the content-analysis methodology, the data was collected by observation and documents. The main purpose of this data collection was to answer key research questions. According to Kohlbacher *(*2006), "the object of content analysis can basically be any kind of recorded communication (i.e., transcripts of interviews, discourses, protocols of observation, video tapes, and written documents in general)" (p. 4). The researcher focused on interpreting data by systematically evaluating documents, oral communication, reports, and graphics to convert them into quantitative data to find trends, thus representing data with the highest level of evidence (Kohlbacher*,* 2006, p. 87). Note that for the purposes of this study no interviews were conducted or verbal communications made. This methodology helped the researcher to understand the similarities and differences between the

curricula of the ATPs and corresponding standard VHE programs that resulted in different outcomes and to address employers' expectations of the skills needed for the globalization and industrialization of the Vietnamese economy. In addition, the literature review revealed three necessary skill dimensions of the Vietnamese employable workforce as "cognitive skills," "social and behavioral skills," and "technical skills" (World Bank, 2013, p. 15). Data collection was also used to explore these gaps between VHE curricula and employers' requirements of new recruits. In turn, the findings served as a basis for narratives and conclusions that the content analysis approaches produced. In addition, the researcher reviewed lessons learned from the 23 Vietnamese public universities that MOET (2008) permitted to teach 35 pilot programs through 22 foreign universities under the ATP project in Phase 2008–2015 to examine whether those programs could be a solution for VHE reform to achieve the goals of the HERA/Vision 2020 project.

The content-analysis approach allowed data and materials to be collected from different resources, including from individuals' correspondence, reports, scholarly publications, and other sources. The research procedure for data collection is shown in Figure 7:

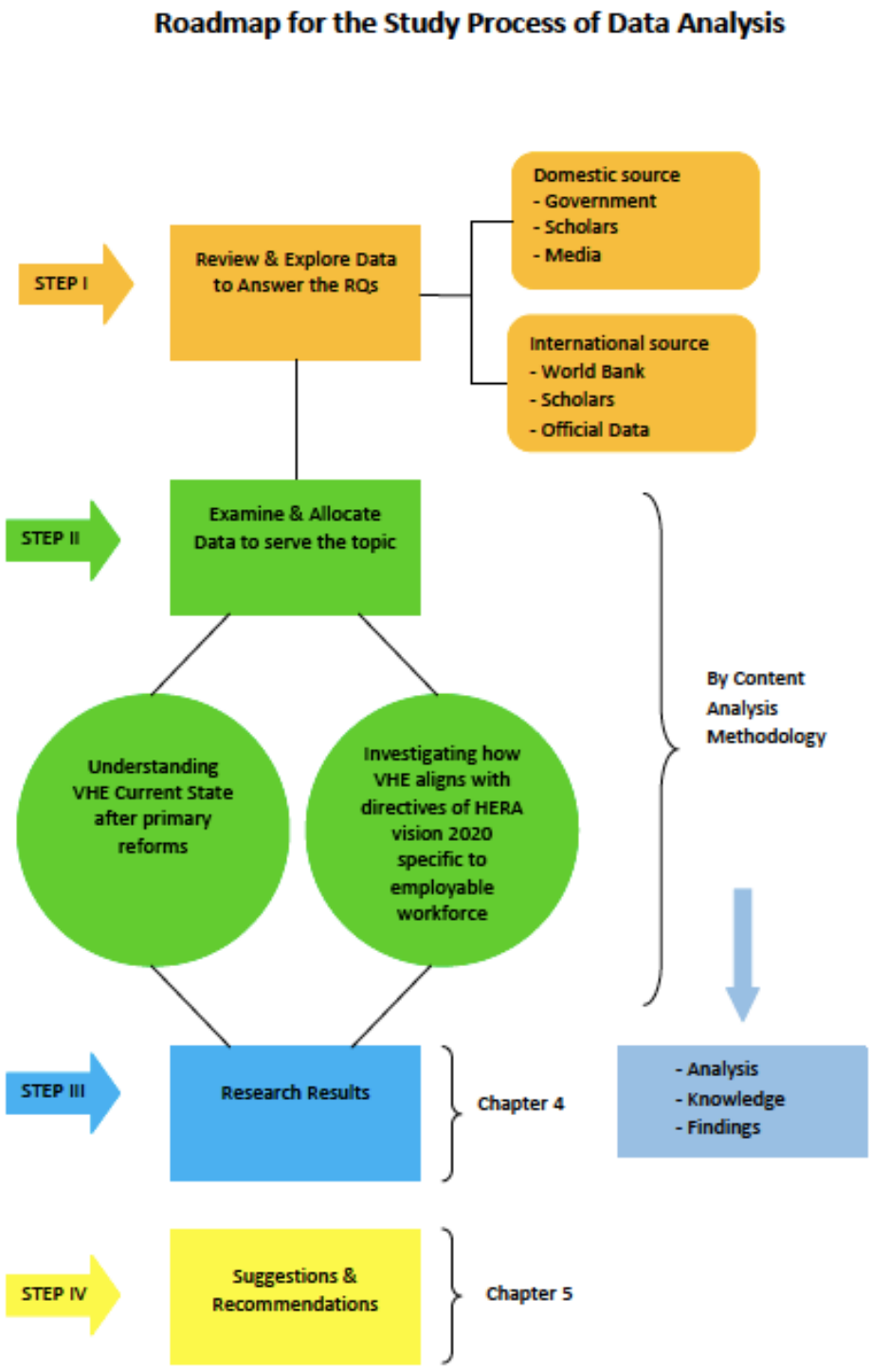


Figure 7. Roadmap for data collection and analysis.

The study included the following major sources:

1. Assessments over the 10 years of implementing MOET's pilot ATPs and the individual reports from the universities that participated in those programs. Vietnam publishes its official data on government websites and on those of higher education institutions; as such, every researcher can access and use it because the data is regulated by the Ministry of Information and Communication (2017). These reports and documents are reliable and objective and include World Bank reports, CIA Fact Books, and studies conducted by Sheridan (2010), Clark (2014), the Asian Development Bank, major international organizations such as Heritage and Transparency and international researchers on VHE.
2. Findings of Vietnamese scholars who assessed the current state of VHE and the last 20 years of reforms were examined. In particular, the researcher relied on the research performed by Harvard University scholars Vallely and Wilkinson (2008), Thach (2017), T. C. Le (2016), and other educators. The researcher examined VHE from both external and insider perspectives as well as through the lens of advanced higher education practitioners.
3. Existing reposts of various consulting firms as well as World Bank reports were examined to determine the skills needed for employment in the 21st century and to use them as a guide for comparing the outcome-based education and competency-based education of Vietnamese graduates. These reports clarified the expectations and requirements of employers who seek to sustainably develop their business in a global integrated environment.

4. The researcher examined reviews of literature and data collection on the curricula of the 22 foreign partner universities that were applied as pilot ATPs in 23 of the largest Vietnamese public universities to examine corresponding standard curricula and how they did or did not meet the skills employers sought in a new employee.
5. The 2020 document (applicable sections).

Analysis

According to Bengtsson (2016), content analysis has two key approaches: "Manifest analysis/Surface structure" and "Latent analysis/Deep structure" (p. 9). To learn how VHE aligns with the goals of HERA/Vision 2020 specific to an employable workforce for the 21st century, the manifest analysis was used to assess the curricula of the pilot ATPs and the corresponding standard curricula of VHE to understand the similarities and the gaps of those training programs as well as the links to what employers seek in new recruits. One of the main goals of HERA/Vision 2020 is to provide an educated workforce by implementing the pilot ATPs (MOET, 2008). Thus, the latent analysis of this study was to:

(a) discover how the curricula of pilot ATPs can meet the needs of producing an educated workforce as defined by World Bank (2013, p. 15); and
(b) explore the possibility of expanding ATPs as an effective solution for academic reform of VHE to meet the directive of Vision 2020 of MOET.

Recruitment evaluations allow employers to assign their employees a position in which they can maximize their strongest capabilities and competence, while pursuing their goal of developing leadership for sustainable growth (Dang, 2009). Therefore, by using content analysis, the researcher can also understand how Vietnamese employers evaluate new employees and how VHE reform aligns with core competencies stated as necessary for successful careers, including

intellectual exploration, individual identity development, interpersonal development, equity, and community and global engagement (World Bank, 2013).

Ethics and Potential Limitations

The content-analysis methodology provided flexibility, no strict rules, no consensus, and is suitable for controversial topics (Bengtsson, 2016, p. 12); those qualities facilitated this study, given limited access to data and government officials' perspectives. In addition, this methodology depended heavily on the ethics, knowledge, and experiences of researchers. The researcher assessed the pilot ATPs of 23 public universities and their corresponding existing programs. These samples were smaller than desired and thus might not have revealed the full advantages and disadvantages of these curricula to meet the needs of Vietnamese employers.

The stakeholders of this research are MOET's officials, educators, students, parents of students, administrators, and others who care about improving VHE. To minimize inherent bias, the researcher focused on exploring the perspectives of previous scholars and officials by using information and data that was published by MOET and others. In addition, employers' perspectives on the skills needed for a 21st century workforce of World Bank (2012, 2014ab, 2016ab) allowed for a comparison between the existing MOET-regulated curricula and the curricula of the ATPs, which ensured that both sides would be represented objectively and that readers would be exposed to the full spectrum of ideas on the subject of VHE academic reform.

CHAPTER 4

CONTENT ANALYSES AND FINDINGS

Over the past 20 years, many well-documented efforts have been made to reform VHE (World Bank, 2012, 2013, 2017; Nguyen, 2011; T. Phan, 2015; Tran, 2016). Nonetheless, Vietnam's workforce for 2017 was still ranked only 64th in the Asia–Pacific region according to reports of the World Economic Forum in 2018 as follows:

Table 3. *Country Scores and Rank for the Asia–Pacific Region, 2015–2017*

		2015		2016		2017	
No.	Country	Scores	Rank	Scores	Rank	Scores	Rank
1	New Zealand	81.74	9	82.79	6	74.14	7
2	Singapore	78.15	24	80.94	13	73.28	11
3	Japan	82.74	5	83.44	4	72.05	17
4	Australia	80.22	13	80.8	18	78.44	20
5	Korea, Rep.	76.84	30	76.89	32	69.88	27
7	Malaysia	70.24	52	74.26	42	68.29	33
8	China	67.47	64	67.81	71	67.72	34
9	Thailand	68.78	57	71.86	48	66.15	40
10	Philippines	71.24	46	71.75	49	64.36	50
11	Mongolia	70.75	51	70.71	55	64.35	51
12	Vietnam	68.48	59	68.39	68	62.19	64
14	Indonesia	66.99	69	67.61	72	62.19	65

16	Lao PDR	56.16	105	57.66	106	58.36	84
17	Myanmar	52.97	112	56.52	109	57.67	89
19	Cambodia	58.55	97	58.88	100	57.28	92
20	India	57.62	100	57.73	105	54.51	103

Note. Extracted from the *Human Capital Reports* by The World Economic Forum, 1/2018. Retrieved from http://reports.weforum.org

The primary goal of the HEPA/Vision 2020 was to reform VHE to provide an educated workforce to support the country's economic development (World Bank 2013; Nguyen, 2011; Tran, 2014). Therefore, in this study, the researcher sought to explore and address the following questions through a content analysis with the following two research questions:

1. What is the current state of VHE after the implementation of reforms over the last 20 years?
2. How does the current state of VHE align with the goals of HERA/Vision 2020 specific to the development of an employable workforce for the 21st century?

One of the critical actions of the HERA/Vision 2020 was to focus on reforming the VHE acedemics by inaugurating and developing ATPs, which led this researcher to focus on analyzing the curriculum and textbooks, especially in connection with the link between classrooms and industry and the development of the soft skills of graduates. To learn whether these pilot programs could meet MOET's expectations, the researcher collected materials and compared the curricula of the standard VHE with those of this relatively new entry, the ATPs. Using thousands of documents available in the public domain, in both English and Vietnamese, the researcher performed content analysis on curriculum, curriculum development, textbooks, course offers, and skill competencies to discover the competencies sought by employers (World Bank, 2013).

Vietnamese Higher Education Standard Training Programs

VHE has continued to evolve following the 1945 Communist takeover of North Vietnam, through the Reunification in 1975 to the present day (Clark, 2014). MOET regulates all aspects of the entire VHE system, including the creation of textbooks, curricula, admission criteria, the issuance, design, format and appearance of diplomas, and major coding e.g., Circular No. 19/2011/TT-BGDĐT, issued Circulation No. 09/2012/TT-BGDĐT, N0.24/2012/TT-BGDĐT, Circulation No. 03/2013/TT-BGDĐT, issued Circulation No. 09/2014/TT-BGDĐT, Circulation No. 02/2015/TT-BGDĐT, Circulation No. 02/2016/TT-BGDĐT, and many others). According to these regulations, the entire VHE system must adhere to the same curricular structure, the same degrees, and the same codes for admission. In 2011, MOET issued Circular No. 19/2011, listing 24 items that would regulate the design of a bachelor's diploma. These items include the requirement that the color red be used on each diploma as well as very detailed items such as "(7) inscribe the graduation year in full, in 4 digits," "(8) Inscribe Excellent, Very Good, Good, Average Good or Ordinary, in Vietnamese," "(9) Inscribe "Full-time" or one of the following methods: "Part-time," "Distance learning," "Guided Self-learning," in Vietnamese." MOET also ordered all universities to submit their selected design for MOET's approval. The result is an enforced similarity of millions of diplomas from different Vietnamese universities.

Advanced Training Programs

In an effort to pursue the HERA/Vision 2020 goal of developing an educated workforce, MOET invested in curricular reform by sponsoring 23 Vietnamese public universities nationwide, including Hanoi University of Science, Ho Chi Minh University of Science, Ho Chi Minh City University of Technology, Can Tho University, Hue University, Da Nang University, National Economics University, HUST, and Agriculture University. In these universities, courses

are taught in English in partnership with 22 American universities, according to the Vice Prime Minister's Decree Number 1505/QD-TTG, signed on October 15, 2015 (MOET, 2015b, p. 45). In partnership with the 23 public Vietnamese universities, MOET launched 35 pilot "chương trình tiên tiến" (ATPs) which use the curricula of 22 world universities (T. C. Le, 2016). Foreign universities must meet MOET's requirement of being highly ranked, according to the United Kingdom's higher education grading system (THE), the *US News and World Report*, and Shanghai Jiaotong University (MOET, 2015b). Those 35 ATPs included

(a) 30 programs that were created in partnership with American universities,

(b) two programs created in partnership with British universities,

(c) one program linked to a Belgian university, and

(d) two programs created in partnership with Australian universities.

These 35 programs included (a) 18 programs in the fields of engineering technology, information technology, transportation, architecture, and construction; (b) five programs in economics, business, and management; (c) six programs in the field of natural sciences and mathematics; (d) five programs in agriculture, forestry and fishery, and veterinary science; and (e) one program in the health sector (MOET, 2016, pp. 2–3; see Appendix E). Most of the ATPs are designed according to the liberal educational system typically found in American university curricula including the University of Illinois at Urbana–Champaign, Portland State University, Michigan State University, the University of Washington, CSU–Long Beach, CSU–Chico, and the University of California–Davis (MOET, 2015b, p. 45). American universities are thus viewed as the guiding partners for developing ATPs according to a liberal arts curriculum (MOET, 2016, see Appendix E).

Input from industries for the Advanced Training Program development process.

In online searches for "curricular development process," most results suggested that VHE's curriculum has been influenced by Vietnam's historical, cultural, and political legacy (T. Phan 2015, pp. 81–108; World Bank, 2013, 2014, 2017). Curricular frameworks for undergraduate degrees are organized so that (a) during the first two years of a typical four-year program, students must take compulsory political courses and acquire general knowledge in science, humanities, mathematics, and foreign languages and (b) only in the last two years are undergraduates allowed to focus on acquiring professional knowledge in the specific area of their training programs T. Phan, 2015, pp. 109–110). MOET regulates and oversees all curricular content, textbooks, graduation requirements, credit allocation, and compulsory courses. Each university is permitted to develop its own syllabus as long as it adheres to these regulations; faculty and students, however, have very little input into the process (MOET, 2015). MOET also regulates all VHE programs, assigning a code to each and requires that all students enroll, meaning that students who are enrolled at different universities in Vietnam must all take the same courses and use the same textbooks (Appendix F). Furthermore, the ministry regulates the procedure by which the ATPs are developed (MOET, 2016 in Appendix E):

Step 1. Vietnamese universities are free to use the curriculum of their foreign partner schools known as the "original program"; however, they must also add mandatory courses, including Marxism, physical education, and defense education. These courses are governed by MOET's regulations. MOET developed and approved most university programs subject to the inclusion of these compulsory courses (T. Phan, 2016).

Step 2. In the process of implementation, most universities collaborated with their foreign partners and business enterprises to review, update, supplement, and adjust the ATPs to suit the

requirements of the educated workforce markets in Vietnam. In total, 76 reviews were conducted, and some program modifications were made involving the participation of 136 enterprises (MOET, 2016, see Appendix E).

Step 3. Retraining programs were initiated for faculty and facilities were upgraded for the ATPs. Foreign partners sent experienced professors to assist and retrain Vietnamese partners as they developed and updated the curricula, consulted about modernizing laboratories and regularly obtaining appropriate research and teaching equipment. The ATP curricula benefits from regular industry input to align with its foreign partners' original curricula. VHE curricula remain unchanged and are regulated by MOET.

Data Gathering Strategies

Data gathering focused on comparing and contrasting VHE standard programs and corresponding ATPs. The researcher focused on investigating course offerings, textbooks, admissions and graduation requirements in VHE standard programs and in the corresponding advanced ones. That search used key words, including "employers' expectations," "attributes of graduates," "achievement of ATPs," "VHE current status," and "admission requirements," as well as graduate requirements found in the Vision 2020 report (see Appendices E, F, and G) and the primary World Bank reports on key attributes for employable workforce in the 21st century. The researcher then coded the extracted data and information into three categories: (a) skills needed for new recruits, (b) gaps between the classroom and employers' expectations, and (c) comparison between the ATPs and the corresponding standard programs (see Appendix F). The following four major findings show significant differences between the curricula of the VHE and the pilot ATPs in these areas discussed in Findings 1-4 below.

Finding 1. VHE textbooks are comparable to those of the ATPs

More than 20,000 titles of textbooks from 4,550 courses of the ATPs and the corresponding VHE standard programs were collected and categorized by publication year (Appendix G) showing that the VHE standard programs and ATPs use textbooks of roughly equivalent publication dates, as shown in Table 4.

Table 4. *Comparison of Textbook Publication Dates for the Advanced Training Programs and the Vietnamese Higher Education Standard Training Programs*

	Advanced training programs	VHE standard programs
Books published within 5 years	8%	9%
Books published within 5–10 years	26%	13%
Books published within 10–15 years	34%	35%
Books published within 15–20 years	14%	24%
Books published more than 20 years ago	19%	19%

Note. VHE = Vietnamese higher education.

Appendix G shows that even for subjects such as engineering and physics that rely on current research and discoveries, only 9% of VHE textbooks were published in the last 5–10 years with the remaining textbooks older than 10 years, including a full 19% older than 20 years. However, currently all textbooks for VHE standard programs must be approved by MOET while faculty can give input to textbook choices for the ATPs. In developing the ATPs, Vietnamese universities are allowed to use textbook and teaching materials sourced from the original programs of their foreign partners. Vietnamese universities initially encountered some difficulties involving copyrights; however, given government support, these universities succeeded in linking with their foreign partners to access desired materials. This included access to 99 learning resources with tens of thousands of up-to-date electronic knowledge materials

enabling them to develop a total of 2,285 curricula and all the teaching materials necessary to meet 100% of the requirements of the ATPs. To facilitate teaching and learning, Vietnamese universities then created e-libraries that connect with the learning resources of their foreign partners and other global learning resources (MOET, 2016; see Appendix E).

Finding 2. VHE Programs Do Not Fully Reflect the Needs of the Labor Market

Researching the set of employable skills currently taught by the VHE regular programs and by the ATPs, as well as the current state of the Vietnamese labor markets, the researcher found that (a) both employers and graduates reported that VHE does not provide all the skills needed in the current Vietnamese labor market, and that (b) these gaps in skills and occupational skill shortages present an urgent concern for Vietnam (World Bank, 2013, pp. 49–26; Nguyen, 2011). Conversely, graduates of the ATPs met employers' criteria for new recruits (MOET, 2016, in Appendix F). The findings are further explained in the following sections.

Credit Requirements of VHE Programs and ATPs

A comparison between the credit requirements in the ATPs and in the corresponding VHE standard programs (shown in Appendix G) reveals that the proportions of the general, mandatory, and elective courses are roughly similar within VHE programs and the ATPs as shown in Table 5:

Table 5. *Comparison of the Credit Requirements in the Vietnamese Higher Education Standard Programs and the Advanced Training Programs*

Course requirements	Vietnamese higher education	Advanced training programs
General, mandatory	20–30% of total credits	20–30% of total credits
Knowledge training, mandatory	50–70% of total credits	50–70% of total credits
Elective courses	10–20% of total credits	10–20% of total credits

Note. Extracted from 35 ATPs and the corresponding VHE programs.

The total number of credits required for VHE undergraduates ranges from 120 to 140, while students who are enrolled in the ATPs must earn a minimum of 165 to 184 credits, which includes 6 months during which they must take MOET's compulsory courses. The result of this imbalance is that VHE students graduate approximately 25 credits short and with fewer credits in courses with soft skills than their peers in the ATPs (Appendix F).

VHE undergraduate degrees are organized so that (a) during the first two years of a 4-year program, students take compulsory political courses and acquire general knowledge that includes Communism, natural science, mathematics, and foreign languages; (b) in the last two years, undergraduates focus on acquiring professional knowledge in the specific area of their training programs (T. Phan, 2015, pp. 109–110). By searching for "graduation credit requirements of VHE standard and advanced programs," the researcher compiled data in Appendix F which compares credit requirements for the 35 regular programs and the corresponding advanced one's side-by-side. Table 6 summarizes this information.

Table 6. *Comparison of the Standard Information Technology Program and the Advanced Information Technology Program*

Item	Standard IT program* (minimum–maximum)	Advanced IT program* (minimum–maximum)
Total number of credits	122–168	158–202
Political courses	22	22
General courses (*not including Physical Education, Defense Education-Security)*	27–34	34–44
Mandatory courses	60–67	90–100
Elective courses	22–52	24–48

**Note*. IT = information technology. The sources from which these data are drawn are listed in Appendix G.

Instead of requiring that students be trained in soft skills—whether students are enrolled in ATPs, standard programs, or foreign universities in Vietnam—MOET insists that every student must take 22 credits comprised of seven MOET-regulated courses on the fundamental principles of Marxism–Leninism: Basic Principles of Marxism–Leninism by MOET (2011a), Marxist–Leninist Philosophy Course book by MOET (2008b), Dialectical Materialism by Ho Chi Minh National Political Academy (2002) and others. There are also four courses about Ho Chi Minh ideology, including Ho Chi Minh Ideology by MOET (2014), and Ho Chi Minh Thought Paper by The Central Theoretical Council of the Central Committee of the Communist Party of Vietnam (2003). In addition, students must also take four courses about the Communist Party, such as The Revolutionary Line of the Communist Party of Vietnam by MOET (2014b). Moreover, all students must take the National Defense Education Course designed by MOET (2012). Often these courses are taught in large auditoriums with a minimum of 100 students in attendance (Tran, 2011).

Professional Training Within Courses and Programs

To establish an equitable comparison, the researcher collected, sorted and analyzed 4,550 course descriptions in the 35 pilot ATPs and in corresponding standard VHE programs from 22 universities in Vietnam in cooperation with American partners (Appendix H). All textbooks and course descriptions were gathered for the VHE standard programs and for the corresponding ATPs.

Viewed altogether, the structure and the purpose of these courses and supporting materials revealed surprising similarities—with one key difference. Despite different course titles, descriptions and goals, most of the compulsory courses for professional educational knowledge are similar. Although VHE courses such as mathematics and algebra require more

credits than in the ATPs, students of the ATPs benefit from guest speakers and are guided to undertake an independent thesis on a topic supporting their future career. For example, VHE students must take 1.5 times more mathematics credits than in the ATP Finance undergraduate program of National Economics University, yet ATP allocates three credits for guest speakers and seminars hosted by successful entrepreneurs, multinational bankers, and hedge fund managers. Students of this ATP are also required to devote 12 credits to "independent study in finance under a professor's guidance" (Appendix H). As part of an analysis of the finance industry, students are encouraged to select a research topic of their choice in the area of finance aimed at increasing research skills and soft skills for their future careers (see Appendix H).

Another example of such professional training is the Electrical and Electronic Engineering Undergraduate Program of Ha Noi University of Science and Technology. Although the VHE program focuses on learning theories, students in the ATP are required to take 22 credits to complete the projects, thesis, engineering internship experiences, and a 'senior design project' in which each group of three to five students works with employers to analyze their requirements to formulate a design and then to test and implement the project (see Appendix H).

A third example is the Nursing Program of Hanoi Medical University. Students in both the regular and ATP program are required to earn 98 credits for professional knowledge including anatomy, physiology, pathophysiology, microbiology, pharmacology, nutrition, nursing heath care, health care for the elderly, children, and women, critical care, general psychology and the legal healthcare system. Graduates of the ATP take advantage of a two-credit extracurricular course in administration and management. English credits required for the regular and ATP programs are seven and 27 credits respectively (see Appendix H).

Finding 3. Vietnamese Higher Education Alignment with Expectations of the Industries

One noteworthy finding of the MOET reports (Appendix E) and the GSO reports (2018) was that 100% of graduates from the ATPs found a job or were accepted into graduate programs within 3 months of graduation. This contrasts sharply with VHE outcomes where only 30%–40% of graduates found a job (GSO, 2016, 2017, 2018) with 72% of that percentage working in private enterprises, 13% in small enterprises, and 15% in state-owned enterprises, and only 37.6% of the graduates needed to be retrained (Bui, 2016). Furthermore, a full 31% of VHE graduates work in different industries from those in which they were trained (Bui, 2016). These results indicate that the current state of VHE does not align with the goals of Vision 2020 to develop an employable workforce for the 21st century.

Differences Between Graduates' Competencies and the Curricula

The researcher sought to understand what differences, if any, exist between the criteria or requirements for new recruits of Vietnamese and international employers and graduates' work competency, as well as the way in which those differences are reflected in the curricula of both the VHE standard programs and ATPs. The researcher found that the curriculum of each is divided into three parts:

1. Compulsory courses by MOET.
2. Fundamental science and society courses.
3. Professional educational knowledge with composite and elective courses.

The fundamental science and society courses of both systems consist of 10 and 13 subjects corresponding to 22 required credits for VHE standard programs and 47 for the ATPs. Students undertake 15–25 credits of advanced program work primarily in laboratories, while VHE standard programs require undergraduates to enroll in an internship worth six credits. The

ATPs do not require an internship but MOET (2008) permits foreign universities to develop these ATPs in cooperation with employers' input from the very beginning of the curricular development process. To accommodate the training gap in professional knowledge, students enrolled in the ATPs, while earning 22 credits for the political courses as regulated by MOET, are still required to earn 15 to 25 additional credits for soft skills and knowledge. However, over the last 10 years, the ATPs graduated fewer than 14,000 students in total, while VHE produces 400,000 graduates per year (GSO, 2017). In searching within the MOET (2016) and HUST (2016) reports for "achievement of graduates of the ATPs" and "links between employers and the ATPs" the researcher learned that the highest priority of the ATPs is to establish a strong connection between universities and employers by working together to ensure that the curriculum addresses employers' expectations for new recruits and that classroom theory is put into practice in real-life business situations; this priority means that students are familiar with the reality of their chosen professions before they graduate and creates more opportunities for them to seek employment after graduation (p. 18). As a result, 100% of the 3,601students cohort found jobs six months after graduation (HUST, 2016).

Quality of Enrollments' Connection to Graduates' Work Competency. Each year, universities submit their enrollment requirements to MOET. The standard programs' enrollment requirements are broadly divided into two levels: the universities carry higher requirements while private colleges are less competitive (MOET, 2015; see also Appendix F). In short, most students accepted into private universities are excluded from state universities. VHE programs tend to set their admissions requirements low enough to accept almost all high school students who apply. The ATPs select only the top students accepted by the state universities with the

highest scores in the national exams and English qualification (MOET, 2015, in Apendix F). Admission requirements of the programs are summarized in Table 7.

Table 7. *Comparison of the Admission Requirements of the VHE Standard Programs and the Advanced Training Programs*

No.	Requirements	VHE standard programs	Advanced training programs
1.	High school national graduation exams	Passed	Passed with the highest scores
2.	English proficiency	N/A	English test score of TOEFL paper ≥ 450, TOEFL CBT ≥ 140, TOEFL CBT ≥ 50 IELTS ≥ 4.5 or passed the university entrance English test

Note. IELTS = International English Language Test System.TOEFL = Test of English as a Foreign Language.

Because of these requirements, less than 1% of prospective students were qualified for the pilot ATPs (Appendix F).

Connecting English Facility and Faculty to Graduates' Competence

Although VHE students are only required to take 14 credits in English, students in the ATPs achieve a much greater competency in English during their freshman year by earning the required 36 credits as shown in Table 8.

Table 8. *Comparison of English Language Competency in the Vietnamese Higher Education Standard Programs and the Advanced Training Programs*

No.	VHE standard programs	Credit	Advanced training programs	Credits
1.	General English I	4	General English I	14
2.	General English II	5	General English II	8
3.	General English III	5	General English III	3
4.			Advanced English I	6
5.			Advanced English II	5

Note. From *Decision No. 1114 / QD-DT*, April 15, 2011, by the Director of Hanoi National University.

The key words "faculty-to-student" and "English-language requirements" in the documents listed in Appendix F and the reports of MOET (2016) indicate that the average faculty-to-student ratio in VHE is 1/24 and 1/16 for public and private schools respectively, while in the ATPs this ratio is one lecturer per three students with some majors allowing for one-on-one teaching (MOET, 2016, see in Appendix F). In addition, an important difference between the standard programs and ATPs is that professors in ATPs are required to be proficient in English; in fact, 100% of them graduated from or were trained by foreign partner universities (Appendix F).

Finding 4. Expectations of Employers for New Recruits

The researcher searched the key terms "employer's expectations for new recruits," "employable workforce for the 21st century," and "graduates' attributes" to investigate why VHE has not yet created an educated workforce necessary to meet the goals of HERA/Vision 2020. This research revealed that both international and domestic employers almost unanimously require common knowledge and soft skills—despite the fact that each business has its own specific requirements for new recruits. A search was enacted using the key words

"employability" and "attributes employers seek," within the reports of the National Association of Colleges and Employers (NACE) which collected data and surveys covering some six decades from more than 8,100 universities in the United States and worldwide, as well as from recruiting professionals. NACE data shows that 82.9% of employers seek 10 main strengths in new graduates including "problem-solving skills," "ability to work in a team," "communication skills," "leadership," "strong work ethic," "analytical skills," "innovation," "flexibility/adaptability," "interpersonal skills," "strategic planning skills," "creativity," "fluency in a foreign language," "technical skills," and "computer skills" (National Association of Colleges and Employers, 2017, p. 30). In addition, while searching with these key words in World Bank reports on Vietnam (2013, 2014, 2017) and in a study by Nguyen (2011), the researcher discovered that critical thinking and problem solving were considered most important, ranking 4.62 out of 5 points. Teamwork follows close behind with 4.56 out of 5, and is then followed by ethics with 4.46 points, the ability to work independently with 4.36 points, communication with 4.3 points, leadership at 3.82, digital technology at 3.73, and 3.1 points for English-language fluency. These findings amplify the World Bank's assertion that a skilled workforce is key to Vietnam's successful economic and social transformation and the skills Vietnamese employers require are almost identical, with English-language facility in high demand among new recruits (World Bank, 2013, p. 16). Overall these findings indicate that the top 10 most highly valued and desired skills ranked by Vietnamese employers are the following:

1. Job-specific technical skills.
2. Problem solving.
3. Creativity and critical thinking.
4. Teamwork.

5. Communication.
6. Adaptability.
7. Leadership.
8. Ability to work independently.
9. Strong work ethic.
10. English proficiency.

Employers' emphasis on soft skills.

An interesting finding was that, although job-specific technical skills are in highest demand, eight out of the top 10 named requirements by industries were soft skills that transcend mere technical ability (World Bank, 2013; Nguyen, 2011). The employers seek employees with 3.8–4.8 out of 5 scores in cognitive, social, and behavioral skills. More than 82% of employers expect their new recruits to be able to independently solve problems, to adapt to and create a healthy environment in the workplace, to think critically, to communicate well, to work in teams, and to have a positive attitude and strong work ethic (World Bank, 2013; Nguyen, 2011).

Conclusion

Although there are similarities between the VHE standard programs and the ATPs in terms of textbooks and required courses, graduate outcomes for the two programs are completely different. The most significant difference is that the unemployment rate for VHE graduates is increasing while 100% of ATP graduates have jobs. The primary differences are detailed in the following list:

1. Students admitted into ATPs fall within the top 1% of all students accepted into all Vietnamese universities, while the VHE standard program admits nearly all students

who wish to attend university, including students from schools in the provinces or from private colleges.

2. Lecturers' capability and experience and the teacher–student ratio of the two programs are very different. ATP teachers tend to be proficient in English and because the programs are partnered with foreign universities, teachers are better able to stay current with their professional practice (MOET, 2016).
3. The curricula of the two programs are completely different. The VHE standard program curriculum is designed by MOET and allows for only limited faculty input, all of which must be approved by MOET; however, the ATPs from their inception are built to address industry and employer expectations.
4. ATPs require more credits than VHE standard programs. In addition, students in ATPs must learn soft skills and attend experience sharing sessions with successful entrepreneurs;, they also design and implement business projects to gain and apply knowledge that will be applicable to their future careers.

CHAPTER 5

DISCUSSION AND RECOMMENDATIONS

The primary focus of this research is the concern that, despite decades of reform, the VHE system is not graduating individuals with the requisite skills for employment in the 21st century. Within the scope of this study, four principle findings have emerged regarding the inception and development of advanced training programs (ATPs) and their potential to improve the quality of human resources in Vietnam in accordance with the objectives of HERA/Vision 2020. A key difference between ATPs and Vietnamese Higher Education (VHE) standard programs is that universities gather input from employers while developing curricula for ATPs. VHE standard curriculum development shows that it is structured from the top down, in contrast with the ATPs that include more varied input (T. Phan, 2015; MOET, 2008 in Appendix F).

Globalization and integration trends have attracted high-quality workers from other countries into Vietnam. At the same time, many well-educated Vietnamese workers have emigrated to other countries that promise better working environments and increased opportunities to learn and advance, propelling an overall increase in the worldwide demand for a skilled workforce (Le, 2018). The World Bank (2013) also confirms that, unlike many other countries, Vietnam does not suffer from low labor demand; Vietnamese employers seek workers, but they cannot find workers who match their skill needs (World Bank, 2013, p. 7). In this study, the researcher observed that the gap between employment prospects, abilities, training, and education rests mainly on the absence of soft skills rather than technical skills in a specific training area. Despite the considerable similarities between the VHE and ATPs regarding textbooks and courses, a significant gap continues between the employment rate and the success

of graduates of these different programs. Even given many reforms over the last 20 years, this study indicates that VHE graduates continue to fail to meet employers' expectations regarding 11 of the 22 desired factors, including adaptability, analytical thinking, problem solving, client focus, change leadership, communication, conflict management, continuous learning, decision making, risk management, and values and ethics. Prospective employees met only 29%–35% of prospective employers' expectations with regard to these factors, while with seven out of 35 factors, including initiative, networking and relationship building, organization and environment awareness, partnering, stress management, and teamwork, they met fewer than 40% of requirements. At best, graduates meet 42% and 45% of only 2 factors: planning and organizing and English, respectively (Nguyen, 2011, p. 186, p. 191). In particular, employees' creative thinking competency meets only 5% of employers' expectations (Nguyen, 2011, p. 191).

The curricula of standard VHE programs are disconnected from Vietnam's labor markets and remain heavily burdened by MOET's traditional curriculum and by Vietnam's political legacy (Phan, 2016). By contrast, from the very beginning, the ATPs have sought input from employers and have designed internships in collaboration with and sponsored by those employers (MOET, 2016, see Appendix E). This process forges important learning opportunities between academic study and employers' expectations, contributing to the difference in outcomes of the VHE standard programs and ATPs. This study finds that not only do 100% of ATP graduates find jobs following graduation; they also claim higher salaries because of their English fluency, enabling them to work for international enterprises in Vietnam (HMU, 2016).

These findings lead to the following recommendations specific to addressing the goals of HERA/Vision 2010.

Recommendations

Curricular Development Process

The employment rate of the advanced program graduates shows that the ATPs' curricular development process—one which relies on industry input from the beginning—is highly beneficial (MOET, 2016, in Appendix F). ATPs have demonstrated that linking school and business in curricular development yields positive results, thus it seems advisable that in order to continue pursuing the economic and educational goals of HERA/Vision 2020, VHE should have autonomy in the academy. Universities should be free to apply the curricular development process pioneered by ATPs for the entire VHE system to establish a strong connection to employers and industry.

Developing Advanced Training Programs (ATP) as a Model to Build Elite Universities

The study's findings also show that even though ATPs graduates still take many required political courses, they also receive additional training in soft skills which serves them well in their future careers. To achieve the goals of HERA/Vision 2020, Vietnam should develop elite universities to complement the community college system. While the community colleges fulfill an important task of creating more opportunities for a wide range of students, elite universities can improve the quality of VHE in accord with MOET's expectations. Vietnam currently lacks a system of elite universities. State universities are publically funded and employ large faculties. However, they do not have a three-tiered development strategy as does the University of California, for example. A solution is to transform the ATPs into elite institutions within the public universities and to encourage private universities to participate in developing these elite colleges.

This is where universities can actively cooperate with Vietnamese enterprises in a number of ways: (a) inviting employers to contribute during the process of curricular development; (b) designing corporate scholarship programs to support students who meet business expectations and requirements, and (c) designing training programs according to the requirements of employers.

MOET administers the entire VHE system, not solely the national public universities; therefore, it might be relatively easy to adapt the initiative to actively open new training programs. If state universities are innovative, then the quality of VHE will likely be improved automatically. Further, an analysis of VHE programs and corresponding advanced ones shows that admission requirements, English courses, and the quality of the faculty play an important role in graduate success in the ATPs. The faculty's facility with English and English-language fluency requirements for enrollments will greatly contribute to connecting students with updated, accurate, globally relevant information, technology, and methodologies. MOET has the opportunity to transform itself into a strategic agency that guides VHE. VHE, for the most part, continues to carry out a mission much like that found in many community colleges worldwide: to provide opportunities for everyone to enter. As such, there is no incentive to develop elite universities. If Vietnam cannot or does not build a system of elite colleges, it seems likely that it will continue to fail to provide an educated workforce to meet the demands of a knowledge-based economy and global integration.

Incentives to Develop an Elite University System

The state budget for VHE is very large (GSO, 2016, 2017). The present policy grants 1.6 million VND (approximately $69 USD) for each student admitted to public universities. The results of this policy are as follows: (a) public universities increased enrollment quotas to receive

more government funding; (b) huge inequalities have been created between public and private education, hindering private universities from growth that could arguably help to meet the goals of MOET's (2016) HERA/Vision 2020 project; and (c) there has been a lapse in innovation at state universities which could, following necessary changes, play a large part in improving the quality of VHE. MOET should consider using state funds more productively. Instead of broadly allocating the fund to include every single student accepted into the public colleges, MOET should create talent-based scholarships for outstanding students in both public and private universities, and should initiate preferential income taxes as an incentive for VHE to improve the quality of its faculty.

Developing Graduates' Soft Skills Is the Responsibility of All Major Players

Traditionally, Vietnam has been a mainly agricultural country with 80% of its population working as farmers (GSO, 2016) with the result that the soft skills required for the development of an industrialized and modernized economy are almost unknown to the general population (World Bank, 2014a). Students often do not know what soft skills are or understand that it falls upon them to develop these skills individually in concert with their participation in class activities; many criticize their universities for failing to teach them properly (Tran, 2012a, p. 320). The majority of these stakeholders, believing that the poor quality of VHE is caused by backward-facing curricula, underdeveloped programs, and lack of theory and up-to-date knowledge, do not feel a sense of responsibility in this matter (Tran, 2014). However, findings show that the textbooks and curricula of both VHE and the ATPs are similar; the World Bank emphasized that all major stakeholders, including students, parents, educators, and local and central government, must take responsibility for the quality of VHE.

Literature and data collection for this study found that the major shortage of VHE graduates' soft skills was the main impediment in hiring many graduates, causing a dramatic rise in the unemployment rate (World Bank, 2014a; Tran, 2014). However, the World Bank (2013) showed that soft skills are taught by a combination of main players and particularly by the general education system. The World Bank (2013, 2014ab) demonstrated that the poor quality of VHE itself is the only reason for the shortfall in graduate skills. Reforming Vietnamese general education from primary school to university will take decades, but the development of the country's economy cannot wait. This topic should be futher studied. However, for an immediate solution, the researcher suggests replicating the curriculum of the ATPs so that many more students can take advantage of its focus on 21st century skills. VHE should provide soft skills training courses, especially focusing on communication, analysis, critical thinking, independent work, and team work so as to meet employers' expectations and the objectives of the HERA/Vision 2020 (MOET, 2008).

Suggested Further Research

Suggestions for a complete reform of VHE are beyond the scope of this study, but significant points have been raised that warrant further attention. Three prospective areas for future investigation are the following:

1. The employment of ATP graduates should be tracked to explore the full impact of these programs on graduates' work lives and potential contribution to Vietnam's economy and academia.
2. Fifty percent of VHE students come from rural provinces and, in an attempt to increase this less-privileged applicant pool, MOET awards one to three additional points for rural students and requires a lower standard of qualification than for

students from urban backgrounds. Therefore, research should be conducted about the needs of students from rural and agricultural areas, with an eye to designing a program that teaches them soft skills and puts them on par with their peers in the cities.

3. In the long run, the researcher suggests that consideration should be given to reforming the entire general education system with the goal of improving future workers' key interpersonal attributes, including cognitive skills and social and behavioral skills. The World Bank emphasized that cognitive skills provide a solid foundation for students whose future work will require them to become adept at "the use of logical, intuitive and critical thinking as well as problem solving using acquired knowledge" (World Bank, 2013, p. 15). Although it can take years to establish an individual's social and behavioral skills, appropriate soft skills training at school can identify and support personality traits that serve students long beyond graduation and help to ensure their success in the workplace.

Conclusion

This study asserts that two main initiatives would greatly improve the quality of VHE. The first of these is to improve the quality of graduates from rural and agricultural areas. Many rural students live in relative poverty (with many rural householders only earning USD$50–USD$500 per year); many lack the educational background and soft skills that employers seek. Developing a workforce with the skills needed for current and future jobs in Vietnam will require a shift away from agricultural activities and into non-farm enterprise activities. It is an urgent need to design programs to help them come up to speed with their peers in the city.

The second initiative is to expand the pilot ATPs. The researcher suggests that VHE, including both public and private institutions, be encouraged to seek foreign partners and to actively create more ATPs, depending on the needs of each locality and its financial capacity. Finally, as it seems clear that ATPs have contributed to improving the quality of VHE, to enabling the creation of a vastly improved workforce, and to bringing to fruition the goals of HERA/Vision 2020, building upon these advances seems advisable.

Research Conclusion

Comprehensive reform of the Vietnamese higher education system to provide an educated workforce that will support economic development is a rightful concern not only of educators, the Vietnamese government and the public, but also is the top concern of employers, economists, and parents of students. A complete reform of VHE will require changes to the country's legal and academic systems (recommendations that lay beyond the scope of the present study). However, through this study, the researcher has come to believe that an important key to the reform of VHE lies in the development and expansion of the ATPs which offer the potential of providing skilled, trained, and work-ready graduates who can meet employers' needs and expectations and help to carry Vietnam into a more advantageous position in the 21st century knowledge-based economy.

One of the most important obstacles to VHE reform is the limited autonomy of universities. This limitation is even more acute for private universities which have traditionally been viewed as profitable businesses and consequently found themselves at a disadvantage because of economic policies which favor public universities. In order for Vietnam to meet the objectives of HERA/Vision 2020, it is vital that VHE be granted the same kind of rights and autonomy found in other countries whose advanced education systems are beyond the influence

of political agendas. Only then will VHE be able to meet its potential of equipping and providing a capable, well-educated workforce and of fostering the research, innovation and scientific achievement that will catapult Vietnam forwards into a new era of progress, prosperity, and global integration.

As of this writing, Vietnam has made a significant change to its education system. The amendment of the Law on Higher Education will become effective in July 2019, enabling VHE to apply many of this study's recommendations.

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APPENDIX A.

NUMBER OF UNIVERSITIES IN THE TOP 100, 200, AND 500 OF THE WORLD

Table A

Number of Universities in TOP 100, 200, and 500 of the World

	2013–2014			2014–2015			2015–2016			2016–2017		
Country	Top 100	Top 200	Top 500	Top 100	Top 200	Top 500	Top 100	Top 200	Top 500	Top 100	Top 200	Top 500
United States	46	77	109	45	74	108	39	63	122	41	63	120
China	2	2	10	2	3	11	2	2	10	2	4	12
Japan	2	5	11	2	5	12	2	2	11	2	2	12
Korea	3	4	7	3	4	9	1	4	11	2	4	11
Singapore	2	2	2	2	2	2	2	2	2	2	2	2
Thailand	0	0	1	0	0	1	0	0	0	0	0	1
Vietnam	0	0	0	0	0	0	0	0	0	0	0	0

Note. From *The World University Rankings 2013–2017*, by Times Higher Education, London, United Kingdom: Author, Copyright Times Higher Education. Used with permission. Retrieved from https://www.timeshighereducation.com/world-university-rankings

APPENDIX B.

NUMBER OF PATENTS

Table B

Number of Patents

Country	No. of patents in 2011	No. of patents in 2012	No. of patents in 2013	No. of patents in 2014	No. of patents in 2015
United States	440,632	473,489	501,162	509,521	529,632
Japan	475,051	490,271	473,141	465,971	455,005
Republic of Korea	187,747	203,836	223,527	230,553	238,045
Malaysia	1,948	1,975	2,299	2,661	2,299
Singapore	4,572	4,884	5,471	5,927	6,155
Indonesia	600	n/a	755	771	1,174
Vietnam	322	426	497	561	679
Philippines	301	290	350	607	729

Note. From 2011–2015, by the World Intellectual Property Organization (WIPO), Geneva, Switzerland, WIPO: Author. Copyright WIPO. Used with permission. Retrieved from http://www.wipo.int/portal/en/

APPENDIX C.

TOP DESTINATION COUNTRIES FOR OVERSEAS STUDENTS 2006-2016

Table C

Top Destination Countries for Overseas Vietnamese Students 2006-2016

Country	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Australia		10,387	15,931	23,755	25,788	23,592	22,551	25,935	29,931	29,362	29,766
United States	4597	6036	8769	12823	13112	14888	15572	N/A	18,722	21,403	29,101
Japan	2,119	2,582	2,873	3,199	3,597	4,033	4,373	6,290	11,174	20,131	28,579
China	5785	9,702	10,396	12,247	13,018	13,549	13,133	12,799	N/A	N/A	13,000
United Kingdom	1,448	1,686	1,791	2,064	2,515	3,192	3,769	4,048	4,236	7,160	11,000
Australia	N/A	N/A	5,190	7,595	8,950	10,967	11,094	11,194	12,030	N/A	N/A
Russia	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4,676	N/A
France	N/A	4,498	6,295	6,295	6,664	6,115	6,295	6,235	5,863	5284	N/A

Note. From 2006–2017, by United Nations Educational, Scientific, and Cultural Organization, New York, NY: Author. Retrieved from http://data.uis.unesco.org/, https://www.hesa.ac.uk/data-and-analysis/students/international-study. https://www.iie.org and https://internationaleducation.gov.au/

APPENDIX D.

STATISTICS OF VIETNAM HIGHER EDUCATION DURING THE SCHOOL YEARS 2011–2016

Table D

Statistics of Vietnam Higher Education During the School Years 2011–2016

	2011–2012	2012–2013	2013–2014	2014–2015	2015–2016	Growth rate of 2011 compared to 2016
Number of universities	204	207	214	219	223	9.3%
Public	150	153	156	159	163	8.6%
Private	54	54	58	60	60	11.1%
Number of students	1,448,021	1,453,067	1,670,023	1,824,328	1,753,174	21%
Public	1,258,785	1,275,608	1,493,354	1,596,754	1,520,807	21%
Private	189,236	177,459	176,669	227,574	232,367	23%
Graduates	232,877	248,291	244,880	353,936	352,789	51%
Public	–	–	212,344	302,617	307,760	88%
Private	–	–	32,536	51,319	45,029	12%

Note. The number of universities and institutions does not include public security, military, and international universities and institutions. From VHE Reports 2011–2016, by the General Statistics Office, 2017, Hanoi, Vietnam, Copyright GSO. Used with public permission. Retrieved from http://gso.gov.vn

APPENDIX E.

MINISTRY OF EDUCATION AND TRAINING SUMMARY REPORT: THE IMPLEMENTATION OF "ADVANCED PROGRAMS IN SOME VIETNAMESE UNIVERSITIES FOR THE 2008–2015 PERIOD" SCHEME

SUMMARY REPORT

THE IMPLEMENTATION OF "ADVANCED PROGRAMS IN SOME VIETNAMESE UNIVERSITIES FOR THE 2008–2015 PERIOD" SCHEME

HANOI – 2016

SYNTHESIS REPORT OF
RESULTS OF IMPLEMENTATION OF THE ADVANCED PROGRAMS IN A NUMBER OF VIETNAMESE UNIVERSITIES
FOR 2008–2015 PERIOD BY MOET (Oct. 2015)

I. SCHEME FORMATION PROCESS

As of 2006, after twenty years of renovation and five years of implementation of the "Education Development Strategy 2001–2010," Vietnam's higher education has developed significantly in terms of scale and diversification of types and forms of training, program development, training process and mobilization of many social resources. However, compared to the country's socioeconomic development and international integration requirements, Vietnam's tertiary education still has many shortcomings in management mechanism, system structure, industry structure, programs and training processes, teaching methods, teachers and management staff, etc. which should be addressed soon.

On the basis of the orientations in the Resolution of the 10th National Party Congress, the Resolution No. 37/2004/QH11 of the 11th National Assembly, the Education Law 2005, the Decision No. 201/2001 / QD-TTg dated December 28, 2001 approving the "Education Development Strategy for 2001–2010" the Government issued Resolution No. 14/2005/NQ-CP dated November 2, 2005 on "*Fundamental and comprehensive renovation of Vietnam higher education system for 2006–2020 period"* which affirmed the necessity for *"Selection and use of advanced programs and curricula of countries*. "

Following the Resolution No. 14/2005/NQ-CP, the Ministry of Education and Training commenced pilot implementation of 10 advanced training programs (Phase 1) in 2006 and provided guidelines for the implementation under Official Letter No. 300/BGD & ĐT-ĐH & SĐH, on January 12, 2006. At the same time, the MOET has formulated the Project of implementation of advanced programs at a number of Vietnamese universities for submission to the Prime Minister for approval. Based on the pilot implementation of 10 advanced programs, high quality programs, talented programs, international cooperation programs, and international experience, the Ministry of Education and Training (MOET) finalized the Project of "Implementation of advanced programs for 2008–2015 period" which was approved by Prime Minister under Decision No. 1505/QD-TTG dated 15/10/2008.

To implement the Project synchronously, the Ministry of Finance and the Ministry of Education and Training jointly promulgated regulations on the financial use of advanced programs in Official Letter No. 15853/BTC-HCSN dated December 7, 2006, Joint Circular No. 220/2009/TTLT-BTC-BGDDT, Official Letter No. 10980/BTC-HCSN dated August 19, 2013 and Official Letter No. 6068/BGDDT-KHTC dated September 03, 2013.

After the Scheme was approved, MOET deployed and selected advanced programs for Phase 2 and Phase 3 of the Project. The selection and implementation process of advanced programs fell under the Scheme. By 2012, there were 23 universities nationwide implementing 35 training programs of 22 foreign universities, including: Phase 1 includes 10 advanced programs which have been piloted since 2006; Phase 2 includes 13 advanced programs which have commenced enrollment since 2008; Phase 3 includes 12 programs from 2010. The universities offering advanced programs in cooperation with foreign universities have high rankings according to the Shanghai Jiaotong University (SJTU) World University Rankings, the Times Higher

Education World University Rankings, and US News ranking for top universities and World Report or Webometrics. Among 35 advanced programs in three Phases, there are 30 advanced programs in cooperation with US universities, two programs with British universities, one program with a Belgium university, two programs with Australian universities, 18 programs in the fields of Engineering--Technology, Information Technology, Transportation, Architecture and Construction; 5 programs in economics, business and management; 6 programs in natural sciences--mathematics; 5 programs in agriculture, forestry, fishery and veterinary medicine; one program in the health care sector.

In 2011, following the decision of the Prime Minister, MOET approved two additional advanced programs (Aircraft flight control system, Control and informatics in technical systems) for implementation in the Military Technical Academy in association with two universities of the Russian Federation in Decision No. 2827 /QD-BGDDT dated July 12, 2011. These two advanced programs provide training for national defense and are taught in Russian; by 2015, 77 students were enrolled in these two advanced programs, including 30 students studying in partner universities and 30 students studying in foreign universities. Since these two programs have been organized and managed different from other advanced programs (not taught in English, not following the credit system) and there haven't been any graduates, so the Summary Report doesn't provide evaluation on these two programs.

The detailed list of advanced programs is shown in Appendix 1.

II. RESULTS OF THE SCHEME

1. Modes of implementation of advanced programs

a) Signing agreements with partner universities

– The universities under the advanced program scheme signed cooperation agreements with partner universities. The main contents of the agreements focus on: Curriculum development, permission to use the original curriculum, use of teaching materials; infrastructure development consultancy; providing lecturers for advanced programs and support for scientific research; exchanging students and lecturers in the training process; accreditation training supervision, graduation degree granting.

– Three universities in Phase 2 including Thuyloi University, Hanoi University of Architecture and HCMC University of Architecture changed curricula and partner universities due to the characteristics of their disciplines. The two architecture universities signed agreements with partner universities later than planned (in late 2009) and only started their enrollment in 2010.

– Two universities in Phase 3 including Hanoi Medical University and Thai Nguyen University of Technology also had to change their partner universities and completed the signing of agreements in 2012. However, these two universities still conducted their enrollment and training on schedule (2010).

b) Establishment of the Management Board and issuance of regulations

Based on the legal documents, all universities which have been assigned to provide advanced programs must have established the Management Board of the Advanced Program, and must have issued regulatory documents specifically for the Advanced Program such as: Academic Regulations, tuition fees and compensation for lecturers, teaching assistants, study advisors, training plans, teaching and learning conditions, management of the Advanced Program.

c) Management and supervision of the Ministry of Education and Training

In the process of implementing the Scheme, the Ministry of Education and Training shall perform the following tasks: developing criteria for recruitment and selection of universities to deploy advanced programs; approval of curricula of advanced programs that Vietnamese universities and partner universities have jointly developed; annual supervision and inspection of implementation of the following contents: organization and management of training; achieved results and limitations; soliciting lecturers and students; preliminary evaluation and discernment.

2. Development of curriculum, syllabus and learning materials

a) Curriculum development

On the basis of the curriculum being implemented at the partner universities (original program) and the agreement between the two entities, universities have developed the curriculum with the following principles: adhering to training contents, teaching methods, evaluation methods, training organization and management of original program. General education courses including Marxist–Leninist science, physical education and defense education are adjusted in accordance with the Vietnamese regulations. With the above requirements, most of the curricula of the universities have been properly developed with quality assurance and have been approved by the Ministry of Education and Training.

During the implementation, most of the universities have collaborated with partner universities and companies to review, update, and supplement and adjust curricula appropriately for the development process and practical conditions of Vietnam. In total, there were 76 reviews and modifications of the curricula with the participation of 136 companies (Appendix G). The universities have actively reviewed and adjusted curricula, such as Vietnam Academy of Agriculture (5 times), Thuyloi University (4 times), University of Technology-Da Nang (4 times); Every year, the Department of Chemistry of the University of Illinois sends experienced experts to assist the Department of Chemistry of Hanoi University of Science to complete, update and modernize the curriculum, upgrade syllabus, modernize laboratories and provides consultation for procurement of research equipment.

b) Preparation of textbooks, reference materials

The universities use syllabus and reference materials of the original programs of partner universities for the advanced programs. Despite some initial difficulties in copyright and payment procedures, the universities have made efforts to cooperate with partner universities to prepare enough textbooks and reference materials to meet training requirements of the training programs. To date, the universities have prepared a total of 2,285 textbooks and many reference materials to meet 100% of the requirements of the advanced programs; Connection with 99 learning resources with tens of thousands of electronic materials with the latest knowledge in the world and close to the discipline of the advanced programs. To facilitate teaching and learning, many universities have built e-libraries, connecting learning resources of partner universities and other learning resources in the world, such as National Economics University, University of Science; Vietnam National University, Hanoi; University of Technology, a Nang University.

The development of curricula and the preparation of textbooks for curricula are shown in Appendix G.

3. Development of facilities and learning conditions of students

Classroom: Each university has private classrooms (total of 238 classrooms), which have conditions of space, lighting, ventilation, air conditioning, sound system, projector for teaching

and learning of lecturers and students of the advanced programs. In addition, the universities also have group study rooms, student counseling rooms. However, some universities have classrooms not meeting the requirements; the maintenance of equipment is not timely and regular.

Office of the advanced program: The universities have a total of 56 rooms for the office of the advanced program (from 1 to 3 rooms per university), assign staff to manage programs, prepare plan of inviting lecturers and assisting students. The managerial staff of the office of advanced program and head teachers has worked effectively.

Room for lecturers of the advanced programs: All of the universities offering advanced programs have working rooms and waiting rooms for lecturers of the advanced programs with a total of 62 rooms. Some universities have arranged many working rooms for lecturers of the advanced programs, such as Da Nang University of Technology (5 rooms), Can Tho University (5 rooms), HCM City University of Science (6 rooms).

Laboratory: During the implementation of the Scheme, 123 laboratories and practice facilities have been invested and upgraded with a total cost of 181.17 billion VND. Most of the laboratories used for the advanced program are the existing laboratories in the universities, which were invested under other programs, such as Higher Education Project 1, Higher Education Project 2... Laboratories can meet experiments of generation knowledge education. The universities have coordinated with partner universities to improve their labs and develop experiments and practice exercises for specialized courses. The advanced programs have laboratories meeting almost all the experiments and practice required for basic courses of discipline and disciplinary courses such as: Chemistry, Digital System, Embedded System, Computer Science, Food Technology, Aquaculture, Crops Science, Biotechnology, and Veterinary Medicine. Especially, the College of Education at Hue University has used the budget from the advanced program for laboratory tools and equipment to serve practical work of the Physics Advanced Program. However, there are still limitations for labs and practice such as: The experiments have not been able to fully meet the original programs due to the low investment costs for lab equipment; most of technical and technological disciplines do not have labs or practice rooms as required by partner universities due to the large funding requirements; some of the advanced programs have difficulty in arranging labs, practice rooms taught in English for some courses of general knowledge (Chemistry of Biotechnology Program, Physics of Digital System Program). The universities offering the advanced programs of economics and management fields do not have to build laboratories, and have actively developed learning resources, building relationships with companies and businesses so that students can study and expand knowledge, practice and do internship in the real working environment (National Economics University, Foreign Trade University).

Library: The universities have 61 private library rooms or private reading rooms located in the universities' common libraries used for students of the advanced programs. The universities have their own library with a variety of materials such as: Da Nang University of Technology, National University of Economics, Hanoi University of Technology, Thuy Loi University, University of Communications and Transport. Some universities have modern learning centers with plentiful materials, such as: Can Tho University, Da Nang University of Technology, Hue College of Education, Thai Nguyen University of Technology, Thai Nguyen University of Agriculture and Forestry. Some universities have connected to the partner universities electronic learning resources and other sources, such as the Hanoi University of Science, National Economics University, and Thai Nguyen University of Technology.

Computer Network System: Most of classrooms, reading rooms of the advanced programs are provided with Internet connection and Wi-Fi to facilitate faculty members and students in teaching and learning. However, the network systems have common difficulties of low bandwidth, slow Internet speed which affect information search and exchange of documents.

Dormitory: Most of the universities have paid attention to providing students with information on the advanced programs at the university's dormitories, such as the University of Technology and the University of Agriculture and Forestry of Thai Nguyen University, Can Tho University. In addition, some universities have difficulty in doing it, such as University of Information Technology (Vietnam National University–Ho Chi Minh City), Foreign Trade University.

In general, the universities offering advanced programs have provided appropriate facilities including offices, classrooms, group study rooms; new construction or effective use of invested laboratories; the libraries have been provided with sufficient books and materials for the advanced programs. In addition, there are some limitations in several universities in the arrangement of experiments and practice for some courses of general knowledge, dormitory arrangement, Internet connection, e-library connection with partner universities. The conditions of facilities for the advanced programs are shown in Appendix G.

4. Development of lecturers and managerial staff for advanced programs

a) Development of lecturers

The universities have deployed plans to send lecturers for further training, professional qualifications, and teaching methods at partner universities and others, as well as English-language fluency training in Vietnam and abroad for a period of one to three months. Some universities have also invited partner universities or English lecturers in English-speaking countries to train faculty members at their universities. To date, according to Appendix 3, 1002 lecturers have been further trained to improve professional qualifications in foreign countries, of which 666 lecturers have come to partner universities (162 lecturers from the Advanced Program's Phase 1, 254 lecturers from Phase 2, 250 lecturers from Phase 3, and 336 lecturers from other universities (105 lecturers from Phase 1, 127 lecturers from Phase 2, 104 lecturers from Phase 3); 675 lecturers were trained to improve their English skills domestically and abroad. The advanced programs with many lecturers participating in further training in partner universities: Computer Science (49), Mechanical Engineering (60), Engineering (56); the advanced programs with few lecturers participating in further training: Urban Design (8), Biotechnology (9).

The knowledge and skills acquired during the training and retraining courses have been applied by lecturers not only in teaching and course evaluation, but also in the organization and management of other general training programs in the universities. The training and improvement courses of lecturers in the advanced programs were highly appreciated by partner universities and have really brought a new air of innovation of teaching method, improvement of training quality and development of curricula in the universities offering advanced programs, which has helped the goals and positivity of the advanced programs to spread to other programs in the universities.

Most lecturers and teaching assistants involved in the advanced programs of the universities have graduated from English-taught degree programs abroad, have provided instructions abroad or other programs taught in English, and have good qualifications to ensure the requirements of partner universities. Many Vietnamese teachers are dynamic with good English skills and advanced teaching methods. In most universities, domestic lecturers have

participated in teaching the programs in accordance with the plan. Domestic lecturers have gradually replaced foreign lecturers to become the main force in teaching the advanced programs. According to Appendix 6, the Scheme has had 63 professors, 356 associate professors, 727 doctors and 849 masters providing instructions in 35 advanced programs. With professional knowledge, teaching methods and English proficiency accumulated from overseas training and improvement courses, observation and academic exchange with international lecturers involved in the advanced programs, Vietnamese lecturers have gradually and independently taken the lead role in teaching courses of the advanced programs and have confidence in the cooperation in training and scientific research with international partners.

In addition to these advantages, several Vietnamese teachers have limitations in English pronunciation and have difficulties in expression and explanation of concepts or technical terms in English. The teaching also depends much on the PowerPoint presentation materials. The reading and interpretation have not applied modern teaching method and thus have not met the requirements of the advanced programs. The teaching assistants have limitations in professional skills and English skills for providing instructions for students to do experiments and practice according to the original programs, especially for courses of general knowledge in the technical and technological advanced programs. Several universities did not provide enough equipment and tools for basic courses. Some universities had to provide instructions of practice and experiments in Vietnamese; therefore, they did not meet the quality of practice and experiment courses.

Development of managerial staff for advanced programs

The managerial staff of the advanced programs is training managers and academic counselors to serve the advanced programs. According to the regulations, managerial staff are required to be competent and have new management skills; proficient in training management and student management software; ability to support and advise students in the learning process; English proficiency meets the work requirements. During the implementation of the Scheme, 613 managerial staff attended further professional training courses abroad, of which 327 staff were trained in partner universities (76 in Phase 1 and 80 in Phase 2, 171 in Phase 3) and 197 staff were trained in other renowned universities in the world (10 in Phase 1, 83 in Phase 2, 104 in Phase 3); 154 managerial staff participated in English training courses. The advanced programs with a high number of managerial staff attending training courses in partner universities: International Economics (72), Mechanical Engineering (41), Maritime Economics and Globalization (53), Civil Engineering (44); The advanced programs with few managerial staff attending training courses in partner universities: Architecture (3), Urban Design (1), Biotechnology (1), Business Administration (2). The number of managerial staff in the universities attending professional training courses and English courses are provided in Appendix 3.

5. Enrollment result

All universities have actively introduced enrollment information on their websites and have provided information on the annually-published volume, 'Necessary information about university or college enrollment', or have produced printed leaflets. Candidates are students who have passed the entrance exam of such university and/or other universities in the same subject group with required English skills and wish to study the advanced programs. Most universities have examined English proficiency based on the TOEFL or IELTS scores. Some universities have examined candidates' English proficiency based on the 10-point scale or TOEIC test; however, students had different level of knowledge and English skills. Some had university entrance exam scores higher than the average admission score of the university, some only met the base score provided by the

MOET, and some were transferred from the previous courses. Students from rural and remote areas have limitations in English skills, especially weak listening and writing skills.

Some universities focused on enrolling good students such as: Chemistry Program of Hanoi University of Science (i) *Direct admission does not include English proficiency requirement* for candidates participating in the International Olympiads, winning third or higher in the national academic competitions in mathematics, computer science, physics, chemistry; (ii) *Admission with English proficiency level* of 450 TOEFL score for candidates with the university entrance exam of 22.5 points or higher in the subject groups A, A1. With this enrollment method, students from the Chemistry advanced program showed competence, initiative and achieved high academic results. With a large pool of candidates, the Accounting advanced program of the National Economics University enrolled students with the scores of 1–4 points higher than the standard admission score, with the desire to pursue the advanced program and had to pass two selection rounds: English test; essay writing, and interview to determine motivation, determination and learning goals.

The HCM City University of Technology, due to the difficulty in recruiting students for its advanced program, expanded the enrollment to candidates who have achieved a base score or above in the national university entrance examination. As a result, the number of students in the Power System advanced program increased, but their study results had limitations since many students had poor study results in the first year. Hue University of Economics, Vietnam Maritime University recruited students with low English level, the number of enrolled students increased, but the English level of students was not equal.

The enrollment scale of the universities differed greatly, with the number of students enrolled dependent on the training fields. The enrollment scale was not stable in the same training field over the courses. After the enrollment in 2015, according to Appendix 4, the Scheme recruited and trained 13,270 students, of which Phase 1 recruited 10 courses with 4,831 students, Phase 2 recruited 8 courses with 4,008 students and Phase 3 recruited 6 courses with 4,431 students. In the training process, 1,518 students were transferred out of the advanced programs, of which 396 students with sufficient English skills applying for scholarships to study abroad, the remaining students not meeting English requirements or with poor study results could not pursue the advanced programs and had to transfer to other programs. There are currently 8,151 students studying the advanced programs (2,444 students in Phase 1; 2,268 students in Phase 2; 3,439 students in Phase 3).

The disciplines of economics and management (Finance, International Economics, and Business Administration) have enrolled a high number of students with an average number of 50–100 students per course. The technical disciplines have had an average enrollment of 30-45 students per course. Some disciplines had a low number of students enrolled in the advanced program with only 20 to 30 students enrolled, such as: Embedded Systems–Da Nang University of Technology, Physics–Hue College of Education, Material Science–Hanoi University of Technology, Electrical Engineering–Thai Nguyen University.

Some advanced programs could not recruit students due to the limited jobs in the labor market or the lack of interest from the university' management board, such as the Material Science and Engineering program of Hanoi University of Technology did not enroll two courses (2012, 2014), Biomedical Engineering program of Hanoi University of Technology did not enroll two courses (2011, 2015), Mathematics program of Hanoi University of Science and Technology did not enroll four courses from 2012.

The Architecture program of Hanoi University of Architecture and Urban Design (Architecture University of HCMC) in Phase 2, due to the specific characteristics of training programs, the two universities reselected partner universities and developed curricula based on original programs with additional adjustments suitable to practical conditions of Vietnam. Therefore, these two advanced programs had to delay enrollment and started first enrollment in 2009.

Since the universities assigned to provide advanced programs are located in different regions of the country (large cities, northern, central, southern and northern mountains), students from the advanced programs also came from large cities to rural areas. Especially, there were 69 students of ethnic minorities meeting the criteria for entering the advanced programs, such as the Science and Environmental Management program of Thai Nguyen University of Agriculture and Forestry (43 students), the Natural Resources management program of the University of Forestry (26 students).

6. Training management

The universities set up the university management boards and departmental management boards to manage the advanced programs. The universities managed the advanced programs according to the academic management of partner universities, such as application of training management software, placement of academic counselors, application of information technology in the notification of study plan, schedule and training programs of the whole course, plan for organizing seminars, workshops. To set up the advanced program management model, besides sending managerial staff of the universities to professional training courses, the universities also invited a total of 464 managerial staff from the world's renowned universities to work in the advanced programs, of which 179 managerial staff came from partner universities (Appendix 5).

The organization of training and management of students of the advanced programs are the coordination between departments such as: Advanced Program Office, Training Department, Student Affairs Department and Departments of Specialization. The Advanced Program Office develops annual training plans, teaching plans, and invites lecturers and teaching assistants. The training departments coordinate to create detailed timetable, exam schedule, end-of-term review and year-end review. The Student Affairs Office manages students, organize student competitions, evaluate and review code of conduct and emulation activities

The management model of Advanced Programs is different among the universities. The Vietnam National University Hanoi has focused on management of students from the advanced program in the first year to improve English proficiency and then transferred to the University of Science to manage and provide specialized training courses. This management model more or less affects first year students' access to specialized areas. Some advanced programs have the departmental management boards in association with specialized departments, which have had a positive impact on the development of the specialized departments. Some advanced programs were under the management of the centers, and the connection with specialized departments was not close, such as the HCM City University of Technology, National Economics University, which has affected the spread effect of the advanced programs for specialized departments, decreasing engagement of students from the advanced programs with other students in the specialized departments. The Vietnam Agricultural Academy established separate university-level management boards of two advanced programs which affected more or less consistency of the two advanced programs.

During the implementation of the Scheme, the management of advanced programs had changes from the transition of the term of the Provost. In some universities, the change of the Provost resulted in the change of managerial staff of the advanced programs, without any detailed inheritance and handover, thus, it affected data storage and reporting, etc. As a result, it affected enrollment, organization and management of training and the organization of the university-level summary conference of the advanced programs, such as Hanoi University of Technology, Hanoi University of Architecture and University of Information Technology (VNU-HCM). Some advanced programs have not implemented the regulations of the Scheme and the University's commitment when registering for the task of promoting the advanced program, the contribution of the university and tuition fees for sustainable development; thus, such programs could not maintain the development and could not enroll students, such as Biomedical Engineering (2 courses), Mathematics (4 courses).

At the final period of the Scheme, there are three models of management of the advanced programs: Keep the university-level and departmental management board, and at the same time develop more advanced programs and high quality programs, thereby maintaining the regulations of advanced programs, development of science and technology activities, business connection, international cooperation and have a good spreading effect in the universities; There is a tendency to assign management of advanced programs to departments (University of Forestry), which will narrow the scope of influence of the advanced program in the whole university, which will affect the spread of the advanced programs, which is unfavorable to the development of scientific and technological activities, business connection, international cooperation; The advanced programs were placed under the management of the Training Department (Hanoi University of Technology, Vietnam Agricultural Academy), which showed the advanced programs were considered as normal programs due to the end of the state funding, and it has affected the achievement of the objectives of the Scheme on sustainable development of the advanced programs.

7. Training Organization

a) Improving English proficiency

Most universities have offered English improvement courses for first year students of the advanced programs. Many universities have invited native English speaking lecturers to teach English for students of the advanced programs, such as Hanoi University of Science, Thuy Loi University, Thai Nguyen University of Technology, Thai Nguyen University of Agriculture and Forestry, University of Communications and Transport, Marine University. HCM City University of Science signed a cooperation agreement with Bell Vietnam (the UK language training organization) to teach English for students of the advanced program. HCM City University of Agriculture and Forestry has sent students of the advanced programs to learn English at SEAMEO Center in Ho Chi Minh City. Thai Nguyen University of Technology also arranged accommodation for students and foreign lecturers to stay in the same dormitory so that students have the opportunity to exchange and improve their English.

A number of universities have allowed students to get international English certificates before studying specialized training courses to help students to improve listening skills and knowledge acquisition. However, it created a great deal of pressure on students to improve their English skills, getting used to new learning approaches and acquiring new knowledge at the same time. To overcome this limitation, some universities only organized examination of students' English level to determine English proficiency level meeting the requirements of the advanced programs and conducted examinations for students to gain international English certificates at the

end of the course so that students can meet all necessary requirements to apply for international scholarship programs.

In addition to studying subjects, students also improve their English through writing exercises, discussions, activities and exchanges with international students. Many universities have established English Clubs for students of the advanced programs to engage in activities to create a playground to practice English skills for students of the advanced programs and standard programs to substitute exchange experience for the TOEFL preparation and scientific research writing. The improvement of English skills for students of the advanced program was also made through the activities: Organizing trips for students to exchange with students from other universities in South East Asia (HCM City University of Agriculture and Forestry, Can Tho University); receiving international students to do internships, academic exchanges with students of the advanced programs (Appendix 7, Appendix 8), arranging the international students to work with students of the advanced programs, serving as teaching assistants for some subjects or working with students of the advanced programs to conduct surveys and internships in Vietnam; enabling students of the advanced programs to participate in international seminars and conferences, participating in international competitions domestically and abroad (HCM University of Science, Can Tho University, Foreign Trade University, National Economics University).

b) Organization of professional training

The universities have adopted modern teaching methods for the advanced programs: learners are at the center and take an active, self-conscious and positive role in the learning process on the basis of being provided with and introduced to a complete curriculum, contents of courses, lectures and references; lecturers provide instructions with modern equipment; Lecturers actively provide instructions for students to get engaged in the lectures to exchange and acquire professional knowledge and training in presentation skills and teamwork skills. The advanced programs are designed according to the credit system with application of academic regulations of the original programs, arrangement of lecturers, teaching assistants, study counselors, providing consultation and guidance for students in study, scientific research, practice of ideology, morality, code of conduct and lifestyle.

Although the training of advanced programs has been implemented under the credit system, students have not been free to register subjects or select lecturers due to the modest number of students, and the passive acceptance of teaching plan of foreign lecturers This limitation will be lifted gradually with the consolidation of lecturers, development of facilities, increasing the number of students enrolled in the advanced program, expanding the training method of advanced programs to other disciplines.

Students after high school graduation admitted to the advanced programs have faced many difficulties, such as not getting used to new teaching methods and studying in English, working with foreign lecturers. It has affected the psychology and study results of some students in the first phase, especially average performance students. However, all students in the advanced programs have been very excited to pursue the advanced programs, working hard with a large amount of completely new knowledge and learning method. In support of students, some universities have provided courses of listening skill, note taking skill, communication skills, in combination with English improvement courses to prepare for students and help students to get used to new teaching method and the style of foreign lecturers. Can Tho University from the first enrollment year of 2006, Ho Chi Minh City University of Technology from the enrollment year of 2009 have prepared a three-month Pre-University semester before students start the official semester of the first year.

The pre-university semester provides students with necessary skills (soft skills) in addition to the improvement of English skills. It has created a good impact on most of students, such as: Helping students to feel secure and confident; students have necessary skills before starting to study courses taught in English in the following semesters (directly with English learning materials, listening to lectures, doing homework and tests in English,). The HCM City University of Science and Da Nang University of Science and Technology allowed students to deploy the Capstone project, which is the last cumulative module popularly for engineering students in the United States. The Capstone project as a research paper to put theory into practice will be assigned to each group of students in multiple years under the guidance of lecturers. To implement the project, students have to actively work, creatively apply knowledge, practice skills to create specific products and defend the creation of products before the professional council.

The evaluation of the advanced programs is also conducted according to the evaluation method of partner universities in terms of form and contents, such as: use of exam questions and tests of the partner university; course results are determined based on the process evaluation (classroom discussion score, group work score, test scores and end-of-course test score); peer evaluation (lecturers/ teaching assistants' evaluation of lecturers/teaching assistants); lecturers' evaluation of organization and management of the advanced programs; students' evaluation of lecturers; students' evaluation of subjects, evaluation of organization and management of the advanced programs; managerial staff's evaluation of advanced programs.

c) Invitation of foreign lecturers

The invitation of foreign lecturers to provide instruction in specialized courses is very significant for the program. Through interaction with foreign lecturers, students of the advanced programs not only learn new knowledge, access to modern teaching methods, improve their English skills but also connect to advanced knowledge resources with the aspiration of advanced education and scientific research. The invitation of foreign lecturers has helped Vietnamese lecturers to have the opportunity to get used to the advanced teaching technology associated with international training environment and scientific research, especially professional capacity and English skills of Vietnamese lecturers have been greatly improved.

Most of the foreign lecturers in the advanced programs are lecturers from partner universities. Some are lecturers from American, UK, French, German and Australian universities participating in teaching a number of courses in the advanced programs, specialized courses, English, consulting curriculum development and technology development.

The number of foreign lecturer visits in the advanced programs is shown in Appendix 5. There were 1,833 foreign lecturer visits in the advanced programs, of which 1,389 lecturers provided instructions of courses in the advanced program (712 lecturers from partner universities, 677 lecturers from other universities in the world) and 444 lecturers teaching specialized courses (most of whom not from partner universities). The following advanced programs have invited many foreign lecturers: Aquaculture (79), Mechanical Engineering (80), Chemical Engineering (86). The advanced programs invited few foreign lecturers: Civil Engineering–University of Communications and Transport (8), Mechatronics (8), Materials Science and Engineering (12), Biomedical Engineering (14), Environmental Science (13).

The invitation of foreign lecturers to teach the advanced programs also had the following difficulties: Foreign professors had difficulty in arranging time for teaching the advanced programs; the cost of inviting lecturers from partner school was high, and some partner universities asked for too high compensations; the teaching time of foreign lecturers was usually short (mostly

from 2 to 3 weeks), so students were under much study pressure. To overcome the above limitations, some universities have arranged a combination of Vietnamese and foreign lecturers, such as the Vietnam Agricultural Academy, Hanoi University of Science, etc. Foreign lecturers provide general instructions of contents, examination methods, reviews, instruction of main and difficult contents, giving questions and marking. Then, Vietnamese lecturers will teach specific sections and organize the examination and review and submit test papers to foreign lecturers.

Some of the advanced programs (Chemistry, Computer Science, Power System) arranged teaching assistants to teach supplementary courses before and after the courses provided by foreign lecturers. Pre-supplementary courses or teaching assistants introduced basic contents of courses, providing lectures of foreign lecturers for students to preparation with the assistance of the teaching assistants in explaining concepts, course objectives. Post-supplementary courses require that teaching assistants do the remaining tasks of the courses, such as: answers to questions, practice a number of exercises, exercises, essay writing, examination and sending to foreign lecturers. Throughout the implementation experience, the method of organizing pre-and post-supplementary courses has helped to reduce academic pressure and improve students' academic performance with foreign lecturers.

The Aquaculture advanced program of Can Tho University had the plan to participate in the distance program of the US partner university to use online courses; foreign professors send video lectures and video recording of lectures by foreign professors to serve supplementary courses before and after courses provided by foreign lecturers.

Many universities have held summer semesters to be able to invite more foreign lecturers with longer teaching hours. Some universities, such as Hue College of Education, Can Tho University, Thuy Loi University, Da Nang University, etc. have made use of foreign lecturers from other programs (e.g. VEF, Fulbright, AIT lecturers) to teach the advanced programs, which has helped to reduce the cost of inviting foreign lecturers, and has increased teaching hours (lecturers taught for 3 months at Can Tho University, Da University Nang).

d) Development of teaching assistants and academic counselors

The placement of teaching assistants and academic counselors is mandatory for the advanced programs, which is a very new task for Vietnam higher education. The universities have arranged a total of 880 teaching assistants for lecturers in the advanced programs (Appendix 6). The advanced programs arranged many teaching assistants such as Mechanical Engineering (86), Water Resources Engineering (68), Civil Engineering (57); the advanced programs with few or no teaching assistant include Mechatronics (0), Urban Design (0), Environmental Science (4). The lecturers in charge of courses become teaching assistants to foreign lecturers to acquire more knowledge, skills and teaching methods to gradually able to undertake independent teaching. Besides, the universities assigned other teaching assistants who were young lecturers with good English proficiency, master's degree or pursuing master and doctoral programs in the universities. Teaching assistants help lecturers in the following tasks: seminar organization, marking and correction, instruction of writing essays in accordance with the teaching method and mode widely deployed in the world's renowned universities. It helped to do many homework assignments and examinations in the advanced programs; this encouraged students to work very hard to meet the requirements of each course and students were more comprehensively evaluated. However, some teaching assistants had limitations in professional qualifications and English skills; this affected the instruction and explanation for students in the advanced programs.

At the beginning of the Scheme, it was the time for issuance of the regulation of training under the credit system. Therefore, the development of academic counselors was still very confusing, and in most of the universities, academic counselors were homeroom lecturers. Along with the development process, the academic counseling system has been established, with the creation of student advisory staff, department management staff, and the training department, who have provided consultations for students of the advanced programs. According to Appendix 6, the Scheme has arranged 275 academic counselors. The advanced programs arranged academic counselors such as Civil Engineering–Thuy Loi University (25), Maritime Economy and Globalization (23), Civil Engineering–University of Communications and Transport (22); The advanced programs have few academic counselors such as Urban Design (0), Chemical Engineering (1), Architecture (2), Environmental Science (3). The academic counseling system is responsible for advising students on: Based on student performance and background, to instruct students to develop their own study plan for each semester to meet their goals, training requirements and personal purposes; to instruct students to learn about training programs, training regulations and relevant regulations; to resolve procedures relating to academic affairs.

d) Class activity and other activities

Students' union activities and class activities were organized according to the classrooms of the advanced programs under the supervision of homeroom lecturers, specialized departments, training department and student affairs department. Besides the union and class activities, students of the advanced program also actively participated in other activities, such as arts and music, supporting the exam season, clubs. These activities have helped students of the advanced programs to have a close and harmonious relationship with other students in the university. However, due to the different study plans and academic pressure, especially when studying with foreign professors in a short time, these activities were limited in some advanced programs.

To improve effectiveness to achieve the objectives of the advanced programs, some universities organized students to participate in extracurricular activities, creative contests, tours, and internships. A number of the advanced programs organized for students to exchange with students of domestic and foreign universities, such as the advanced programs of food technology, aquaculture. Hanoi University of Science organized for the first course students of the Chemistry advanced program to do one-month internship at two Japanese companies in Vietnam. During this internship, students of the advanced program worked in a professional environment, and got used to the foreign advanced production and management model. With good internship results, 12 students were employed by two companies after graduation.

In addition to the above activities, students of the advanced programs also participated in international, national and university-level competitions and have won a total of 58 prizes at creative competitions (Appendix 10). The advanced programs won high prizes such as: Two students from the advanced program in the Sife team of the National Economics University won the first prize national prize and represented Vietnam to take part in the international competition in the US; Students from the advanced program of HCM City University of Science won gold cup and silver cup in the Vietnam Informatics Olympiad and the ACM/ICPC Asian competition, the only representative of Vietnam among the 100 best teams selected to participate in the 2011 ACM / ICPC World Final Competition; students from the Biomedical Engineering program won the first prize of Vietnam Young Science Talent Award organized by the Ministry of Education and Training and received the Toyota Scholarship for outstanding scientific research; Students of Biotechnology advanced program of Can Tho University won first prize in "**Delicious Vietnamese**

rice brand competition" (2008, 2011) and the first prize of the "Young Biotechnology Scientist Contest" (2010) for students of universities in Ho Chi Minh City and Can Tho University, was honored the KOVA Prize for scientific research with the scientific research project "Cane wine fermentation" that is highly practical; students of the electronics and telecommunication discipline (digital system program) of Da Nang University of Technology won two highest prizes in the "Design TI MCU 2011" competition in the Central region (2011), won the third prize in the Central region and the second prize in the national final round (2012) organized by Texas Instruments Singapore Company; HCMC University of Technology organized for students of the advanced program to participate in the presentation contest, film festivals, traditional camps, international conferences.

e) Exchange of international students

During the training process, the universities have focused on international student exchanges, and there have been many promotional efforts to attract foreign students to study the entire advanced program or some credits of the advanced program. There have been 1,903 international students studying, doing internship and participating in academic exchanges in the advanced programs, of which 162 students study the entire program (without any students from partner universities); 417 students study some credits (71 students from partner universities); 1,324 students do internship and participate in academic exchanges with students of the advanced program. The advanced programs with many international students include: Environmental Science and Management (92), International Economics (85), Business Administration (50), Aquaculture (45). International students (many come from partner universities, American and European universities) coming to study and exchange academic programs have positive effects on both Vietnamese students and lecturers. It has helped students of the advanced programs to more actively acquire knowledge and confidently work with foreign lecturers. Statistics of international students in the program is shown in Appendix 7.

To improve the quality of training and international integration, the advanced programs develop student exchanges with foreign universities. According to Appendix 8, the advanced programs have transferred 475 students to study abroad, of which 319 students studied at partner universities; 204 students studied a number of credits, of which 8 students studied at partner universities. The advanced programs have well developed international student exchanges including Computer Science, Digital System (Electronics and Telecommunications), International Economics, Business Administration.

In addition, the advanced programs also organized for 832 students to do internships and academic exchanges in foreign universities. Some universities participated in the Southeast Asian Student Exchange Program (AIMS), HEEAP, VULLI, etc.) such as Da Nang University of Technology and Thuy Loi University. University of Science–Vietnam National University HCM has organized students of the advanced programs to participate in international exchange activities in the United States, Russia, Japan, Indonesia, Malaysia, Thailand, Singapore, Philippines, such as the Vietnam–Japan Exchange Program 2010, International Student Conference on Environment, the 2nd "Green Economy" Summer Camp in Thailand, the 5th Fifth Science and Technology Exchange Program under ASEAN–Japan Cooperation, Southeast Asia Youth Culture Forum. Thai Nguyen University of Agriculture and Forestry sent 131 students of the advanced program to do graduation internships, conduct projects, do end-of-term internships and field trips with a period of 3 to 8 months in Indonesia, Taiwan, and the United States. The university continues to expand this program to other countries such as Israel, Japan.

The international student exchanges show the advanced programs have begun to gain prestige and trust in the world. Thereby, the prestigious universities in the world have recognized training credits in the advanced programs of Vietnamese universities. Through international student exchanges, internships, exchanges abroad, students of the advanced program have had the opportunity to exchange, learn, share about social issues and further improve professional knowledge. It is also the chance to demonstrate the image of Vietnamese students and higher education to the world higher education.

8. Support of employment organizations for the advanced programs

The support of employment organizations for the advanced programs ensures that learning is closely linked to practice, theory is defined in reality and production, and students become familiar with the reality of their career and have the opportunity to obtain jobs after graduation. At the same time, employment organizations have the opportunity to participate in development of curriculum, development of facilities and training process for relevant sectors to train the human resources to meet the job requirements in reality.

Over the past time, the advanced programs have allowed students to practice, intern and do field trips in companies and organizations relating to students' career after graduation; 134 companies participated in the review and development of curricula; 297 companies granted 2,872 scholarships worth nearly VND10 billion, 104 internships abroad, and invitation of 18 foreign lecturers to teach students of the advanced programs; 28 companies provided lab and practice equipment, and many organizations and individuals have donated books and learning materials for the advanced programs; Approximately 200 companies have received students from the program to do internships. The support of employment organizations is shown in Appendix G and Appendix 9.

9. Graduation result and employment of graduates

The advanced programs have had 3,601 graduates, of which 255 students had excellent results (7.1%), 1,307 students had good results (34.3%) and 1,707 students had fair good results (47.4%). To ensure the satisfaction of training requirements and environment, such as studying with highly qualified foreign lecturers and advanced teaching methods, curriculum based on the original program with the strict requirements of knowledge and skills, sufficient facilities, equipment, learning materials, thus, students of the advanced programs not only acquire more advanced knowledge, professional and practical skills, but also equipped with other soft skills. Therefore, students of the advanced programs are well-equipped with knowledge and English skills, and are active learners with self-study skill, teamwork, dynamic and very confident to work in the international environment.

To take advantage of job opportunities and further education, the graduation degree of students pursing the advanced programs clearly states graduation from the advanced program. Some universities granted degrees to students of the advanced programs in the common form provided by the Ministry of Education and Training, and at the same time graduates were also issued an additional certificate from the partner university, such as Can Tho University, HCM City University of Science. The graduation degree granted to students of the Crops Science advanced program (Vietnam Agricultural Academy) has the signature of representative of the partner university. HCM City University of Technology provided transcripts to graduates in the form of an Appendix, which contains information relating to the advanced program.

Since then, graduates from the advanced program have favorable conditions to apply for scholarships to study abroad and have many opportunities to find good jobs. According to the statistics of universities, most graduates found jobs or continued higher studies after 6 months of graduation. Among 2,561 graduates in 2015, 539 graduates obtained scholarships to study abroad (449 in master programs, 90 in PhD programs); 274 pursued post-graduate programs in the country (241 in master programs, 33 in PhD programs); 123 graduates has become lecturers in universities and colleges; 104 graduates working in research institutes; 269 graduates working in other public agencies; 660 graduates working in foreign invested agencies; 592 graduates working in private agencies or starting their own businesses. The number of graduates, graduation results and initial employment situation of graduates are shown in Appendix 10. According to the statistics, 1,040 graduates (40.6%) continuing higher studies, becoming lecturers and researchers are also good human resources not only for socioeconomic development of the country, but also serve as a motivation for sustainable development of the advanced programs and will contribute to the innovation of Vietnam higher education in future. The Nursing advanced program of Hanoi Medical University signed an agreement with German partners and allowed 39 students graduating from the advanced program to learn German to work in German hospitals; In Feb 2016, 16 graduates from the first course meeting the requirements of language and professional knowledge were sent to work in Germany; In Feb 2017, 15 graduates from the second course of the advanced program will continue to be sent to work in Germany. It demonstrates that graduates of the advanced programs have initially been involved in international human resources exchanges, which are expected to be increasingly open and active in the exchange of human resources within the ASEAN Economic Community.

10. Results of scientific and technological activities in the advanced programs

It is an important task for the advanced programs with the aim to improve the quality of training and practical service. According to the design of the Scheme, lecturers involved in the advanced programs have to devote at least 40% time to scientific research; must have works annually published in prestigious magazines and journals; students enrolled in the advanced programs are allowed to take part in scientific research in the research group guided by lecturers.

Although the State budget did not provide funding for scientific research, the advanced programs have achieved positive results. The collection of the university reports in Appendix 11 shows that students of the advanced programs have participated in two State-level projects, 21 ministerial / provincial projects, 13 international cooperation projects, 175 university-level projects, conducting 409 student projects, attending 156 international seminars and conferences, co-authoring 145 overseas publications and 192 publications in the country.

In the process of implementing the advanced programs, there were some bright spots in scientific and technological activities in the advanced programs that are worthy of recognition. Some advanced programs have allowed students to take part in scientific research very early, such as the Chemistry advanced program allowed first year students, the Biotechnology advanced program allowed second year students; students from the Computer Science advanced program were oriented to do scientific research when starting the specialized courses, and were arranged in research groups of lecturers and were supported with funding to attend international scientific conferences. The Crop Science advanced program organized research groups for students of the advanced program and supported the deployment of student projects annually; the digital system advanced program organized for 3rd year students to propose scientific research projects in groups under the guidance of specialized lecturers.

The organization of scientific and technological activities in the advanced programs is a good solution for connecting teaching – scientific research – business, which is the basis for creating publications of students of the advanced programs, increasing job opportunities for graduates, are widely deployed and expanded in the universities such as Can Tho University, Thai Nguyen University of Technology, Thai Nguyen University of Agriculture and Forestry.

The achieved results mainly come from available scientific resources of specialized departments. There were few projects as a result of cooperation in the implementation of the advanced program with the partner university. Lecturers in the advanced programs have not devoted at least 40% time to scientific research; there was still a small number of students participating in scientific research.

The scientific and technological activities of the advanced programs were not strong due to some following subjective and objective reasons: The universities had to focus on the establishment of an entirely new training organization and management system (issue of specific regulations, development and implementation of a new mode of training organization and management procedures); training and developing lecturers both in terms of professional qualifications, English skills and teaching methods, upgrading facilities; The State budget for the advanced programs has no funding for scientific research while the universities' funding for research was limited; the advanced programs were newly established, so there was almost no purchase order for science and technology products; lecturers still devoted much time to teaching, and scientific research cooperation with domestic and international partners was not extensive and sustainable.

However, the above results showed the potential of science and technology activities of lecturers and students in specialized units in implementation of the advanced programs. It also promises good results of scientific and technological activities in the future to achieve the set targets of the advanced programs.

11. Spread and replication of the advanced programs

The positive results of the advanced programs have had a positive effect on the specialized departments and on other training programs of the universities. Curricula, teaching methods, testing and evaluation methods facilities, equipment, teaching and learning materials have become the standard for other training programs to adopt. The results of the training programs on upgrading facilities, equipment, learning and research materials, international relations, etc. can be shared and used together with other training programs in the universities. The lecturers of the advanced programs participating in overseas training and improvement courses have also adopted teaching methods, assessment methods, professional contents, etc. to teach other programs of the universities. Therefore, students in other training programs also have access to the advanced teaching methods as well as abundant resources provided by the advanced programs. Thanks to the approach to developing the advanced program, other training programs in the universities have been fundamentally changed in comparison with the previous ones in terms of the philosophy of curriculum development, knowledge distribution, creating courses to meet the requirements of knowledge and skills in the labor market, in the direction of modern approaches to develop training programs of world's renowned universities.

The universities have adopted all or part of the contents and training methods in the advanced programs to the standard programs, and the only difference is that standard programs are taught in Vietnamese, such as: Thai Nguyen University of Technology (Mechanical Engineering, Electrical Engineering), Hanoi University of Technology (Mechatronics, Materials Science).

Based on the resources and experience gained from the implementation of the advanced programs, some universities have expanded the advanced program to other disciplines and departments with their own funding, such as Hanoi University of Technology, Maritime University. Some universities offer high quality programs in the form of the advanced program, but only a part of the training program is taught in English, such as University of Technology–Vietnam National University HCMC, National Economics University, Foreign Trade University, Can Tho University.

The results of replication of the advanced programs are shown in Appendix 1. Accordingly, the universities offering the advanced programs have expanded 11 additional undergraduate programs, six master programs taught in English and 45 high quality undergraduate programs. In particular, the food technology advanced program of HCMC University of Agriculture and Forestry has been expanded and transferred to Thai Nguyen University of Agriculture and Forestry. In the future, the training model and the result of the advanced products will be transferred to other universities in the higher education system.

12. Evaluation and accreditation of the advanced programs

In addition to review, updating, supplement and adjustment of curricula as mentioned above, to ensure training quality and achieve international integration goals, the advanced programs need to be evaluated and accredited by international accreditation organizations.

During the 2011–2012 period, partner universities (UC-Davis University–USA) collaborated with Vietnam Agriculture Academy to organize the evaluation of the crops science advanced program, in collaboration with the HCM City University of Agriculture and Forestry to evaluate the food technology advanced program. According to the evaluation method of Agriculture, Forestry, Fishery programs at UC Davis University, two universities established the Council; building a comprehensive evaluation criteria on the advanced program; evaluating curriculum development, development of lecturers, students, finance; taking surveys of foreign and domestic lecturers, current students and graduates; analyzing results. According to the evaluation results, both advanced programs (Crop Science, Food Technology) met fundamental requirements (facilities, lecturers, materials) for a successful program; Students are confident, enthusiastic and satisfied with their acquired knowledge, skills and English skills; lecturers are highly qualified and appreciate the future results of the advanced programs; Both advanced programs have operated in the right direction with a promising future. In addition, there are still some limitations, such as: The training quality is not equal among courses; the funding of organizations and individuals was limited; the facilities and lecturers in food technology program need to be strengthened and improved.

In 2012, the Chemistry advanced program was evaluated by the Asian University Network (AUN) with a score of 5.0/7.0. It was the highest ever result among all Vietnamese undergraduate programs and was ranked second among 36 programs accredited by AUN. In 2014, 2015 and 2016, the advanced programs of Mathematics, Environmental Science, Biotechnology, Aquaculture, Energy Systems, Digital System, and Embedded System were evaluated and met the AUN accreditation standards.

The remaining universities are approaching the procedures, records, evaluation criteria of the AUN. Some universities assigned staff to participate in training conferences organized by AUN, such as Thuy Loi University, University of Communications and Transport. The accreditation of advanced programs was slow due to a number of the following reasons: In implementation of the Scheme, the AUN standards were still in the trial phase, the universities

only paid attention to the accreditation organizations of the original programs; The accreditation process of original programs was very complicated and costly, with professional training of staff; The universities did not meet the required conditions to conduct accreditation such as inadequate number of graduation courses; Some original programs did not have external evaluations since the partner country has no accreditation organization for these programs (agriculture–forestry and fishery programs in the United States); the AUN accreditation was only started from 2012, and at present some universities are waiting for AUN to formulate the accreditation plan of their advanced programs.

13. Financial budget and tuition fee of the advanced programs

The budget funding for implementation of the advanced programs includes: State budget, tuition fees, university's contribution and donations. According to the Prime Minister's Decision No. 1505/QD-TTG dated October 15, 2008, the estimated funding sources include: The State budget funds 03 consecutive courses and accounts for 60% of the estimated cost of training; tuition fees account for about 15%; Mobilization of funding from the university (university contributions and donations) makes up for about 25%.

The financial management of implementation of the advanced programs is provided in Joint Circular 220/2009 / TTLT-BTC-BGDDT dated 20 November 2009 (Circular 220). Accordingly, State budget funding for the advanced programs were allocated to the universities on the basis of cost estimates approved by competent authorities.

a) Revenue

The revenue structure of the advanced programs, as reported by the universities, is shown in Appendix 12. It shows average revenue structure of entire 35 advanced programs as following: State budget accounted for 54.24%; tuition fees accounted for 28.57%; university contributions accounted for 15.57%; Funding from organizations and individuals accounted for 1.62%. The average rate of revenue from the State budget of the whole Scheme meets the requirement in Decision 1505; most of the advanced programs have ensured sustainable development of revenues according to the regulations after the State budget support is no longer available. The advanced programs with the revenue rate from the State budget and tuition fees not meeting the regulations: Material Science and Engineering (89.20, 4.73), Physics (81,60; 6,23), Chemistry (75,88; 4,10), Mathematics (75,73; 7, 79), Aquaculture (72.35; 6.58), Environmental Science (75.55, 8.79). The financial resources mobilized from organizations and individuals outside the university funding for the advanced programs was limited, only 1.5% on average. Some advanced programs had relatively high funding rates in the revenue structure, such as Digital System (14.12%), Chemical Engineering (8.37%), and Veterinary Medicine (6.19%). The rate of revenues from tuition and social funding is an important condition for the advanced programs to develop sustainably after the State budget is no longer available.

b) Structure of expenditure

The financial expenditure of the advanced programs shall comply with the provisions in Joint Circular No. 220/2009 / TTLT-BTC-BGDDT dated November 20, 2009, Official Letter No. 10980 / BTC-HCSN of the Ministry of Finance dated August 19, 2013 and Official Letter No. 6068 / BGDDT-KHTC of Ministry of Education and Training dated September 03, 2013. The expenditure structure of the advanced programs, as reported by the universities, is shown in Appendix 13. It shows average rate of expenditure structure in three main areas: Infrastructure development accounted for 30.24%; allowance for training, remuneration for domestic lecturers –

25.79%; Invitation of foreign lecturers – 18.64%. The expenditure structure varied widely among advanced programs: Finance, Mathematics, International Economics, Accounting, Business Administration and Agricultural Economics and Finance had a low expenditure rate on development of facilities (between 1.57 and 6.6%); Finance, International Economics, Business Administration, Agricultural Economics–Finance had a high expenditure rate on inviting foreign lecturers (39.1%–44.78%); Mathematics, Environmental Science, Water Resources Engineering, Civil Engineering (Thuy Loi University), Urban Design had a high expenditure rate on domestic lecturers (40.8%–67.8%). .

c) Tuition fees

The universities offering the advanced programs are allowed to set tuition fees in line with the cost and high-quality training. To sustainably develop the advanced programs after the end of State funding, the universities have had the plan of increasing their tuition fees and the tuition fees differ among universities subject to training sector, regional characteristics, needs of learners. According to the tuition fees of the advanced programs listed in Appendix 12, it can be divided into 3 groups: 5 advanced programs with high tuition fees (between 42–77.5 million per year); 9 advanced programs with average tuition fees (20–30 million VND per year); 15 advanced programs with low tuition fees (10.2–18 million per year); 6 advanced programs with tuition fees equal to standard programs (3.9–9.0 million per year). The advanced programs had low tuition fees for the following reasons: The disciplines of such advanced programs have not attracted students due to limited employment opportunities; The management boards of the universities have not been active, not making effective promotion and investment in the advanced programs, still relying on the State funding; In the Physics advanced program of Hue University of Science, in which students are exempted from tuition fees, so it is difficult to collect tuition fees to cover training costs. The advanced programs with low tuition fees are not commensurate with the training costs, while the universities' contributions to the advanced programs were limited, it is difficult to develop and replicate when there is no State funding. After some graduation courses, graduates from the advanced programs have more opportunities to obtain jobs and pursue higher studies, so the collection of tuition fees have had many advantages and have been improved. The tuition fees of universities are shown in Appendix 11.

III. EVALUATION OF THE ADVANCED PROGRAM SCHEME

1. Evaluation opinions of lecturers and students about advanced programs

Annually, the Ministry of Education and Training solicits opinions from lecturers and students of the advanced program to evaluate organization and management of the advanced programs. The lecturer opinion form on evaluation of the advanced programs is designed in 7 contents including 34 criteria: Course contents – 5 criteria; Organization and management of training – 9 criteria; Professional training – 4 criteria; Facilities and equipment for teaching – 5 criteria; Connection of teaching, research and business – 4 criteria; Finance – 4 criteria; Evaluation and accreditation of the advanced program – 3 criteria. The student opinion form on evaluation of the advanced programs is designed in 7 contents including 37 criteria: Course contents – 4 criteria; Teaching and evaluation method – 7 criteria; Training organization and management – 11 criteria; Facilities and equipment for teaching – 5 criteria; Connection of teaching, research and business – 4 criteria; Finance – 4 criteria; Evaluation and accreditation of the advanced program – 2 criteria. Each criterion is divided into four levels in the following order: Good – 4; Fair Good – 3; Average – 2; Poor – 1. The opinion form for lecturers and students is shown in Appendix 14.

The summary of average value of the evaluation opinion results of the advanced programs is shown in Appendix 15. Accordingly, lecturers' evaluation of 7 contents of the advanced programs was above fair good level. Students evaluated two contents near good level, namely: Connection of teaching, research, business (2,626); Training management and organization (2,837). In particular, the training organization and management had limitations in the following criteria: Foreign lecturers had short time instruction of courses, students of the advanced programs had few and infrequent exchanges in the country and abroad, a small number of exchanges with partner universities; connection of teaching, scientific research and business was limited in terms of small funding for research student groups. The above criteria had limitations for the following reasons: The funding for these activities was limited; the relationship of the advanced programs with partner universities, companies and other specialized agencies was still in an early stage.

Lecturers in the advanced programs have improved their professional qualifications, skills and have become confident in international cooperation for: Improvement of both professional qualification and English skills through training and improvement courses and working with foreign professors; access to advanced curricula and teaching methods in the world; accumulating knowledge and skills on the development of advanced curricula and modern infrastructure and facilities; expanding and tightening international relationships through frequent contact with partner universities and foreign professors who have cooperated in teaching in the advanced programs.

Students are also aware of the benefits of studying the advanced program: Offered high quality training in professional areas and English skills; access to internationally renowned curricula and lecturers; studying in the international environment with the access to the learning conditions of partner universities, international professors and students; having contacts with partner universities and international professors providing instructions in the advanced programs, an important condition for finding scholarships for further study at higher levels; graduation degrees are internationally recognized since they are awarded by two universities or an additional certificate to be issued by the partner university; After graduation, there are many job opportunities in the international environment while the cost of studying the advanced program is much lower than that of overseas study.

2. Evaluation on objectives of the Scheme

Point b, Clause 1, Article 1 of Decision No. 1505/QD-TTG dated October 15, 2008, specifies 7 specific objectives of the Scheme. The assessment of the objectives of the Scheme is shown in Appendix 16. Accordingly, the Scheme has met the number of advanced programs, the number of undergraduate students, masters, doctors and the number of publications according to objectives 1, 2 and 6; the number of lecturers, managerial staff, laboratories and e-libraries meet the objectives 4, 5 and 7. However, the definition of regional and international standards for these objectives is not clear. The Scheme attracted only 1,903 international students to study and intern in the advanced programs, not meeting the target of 3,000 international students, because the brand of advanced program is in the process of forming and the universities have not widely promoted their programs. The mandatory courses for Vietnamese students are not suitable for foreign students studying the advanced programs taught in English.

3. Evaluation on determination and implementation criteria of the advanced programs

The determination and implementation of the advanced programs was evaluated based on 10 criteria defined in Clause 2, Article 1 of Decision No. 1505/QD-TTG. The assessment of the

criteria and implementation of the advanced programs is shown in Appendix 17, showing that most criteria are met except for part of Criteria 8 and 9: The content of "*use of the accreditation criteria and register accreditation of the advanced programs with the organization that have accredited the original program*" stated in Criteria 8 cannot be implemented because of budget constraints, difficulty in accessing and agreement on implementation of accreditation according to the AUN-QA standard. There are currently eight advanced programs accredited by the AUN-QA standard. The content of "*Lecturers in the advanced programs ensure a minimum of 40% of the time devoted to scientific research*" stated in Criteria 9 has not been fully achieved, as lecturers also have to teach in standard programs and there is limited funding for scientific research.

4. General evaluation

4.1. Major results have been achieved

a) The advanced program has had a fairly comprehensive effect on the activities of universities in the direction of standardization, modernization and international integration, such as the development of faculty and staff management; how to develop the curriculum and facilities; organization and management of training; teaching methods and assessment; associate training with scientific research and employment; setting up a model of governance and autonomy management in the university; determining unit costs commensurate with the quality of training; expanding international cooperation.

b) Universities implementing the advanced program have developed highly qualified and professional English lecturers and managers to deploy the training program in accordance with regional standards, gradually approach international standards and confidently participate in international cooperation programs and projects.

c) Advanced programs have shown that there are international teaching and learning environments and conditions; is possible to attract lecturers and scientists who are Vietnamese residing overseas and foreigners to teach and work; is a place for faculty members after being trained abroad (especially English-speaking countries) to work and develop; attracts Vietnamese students who intend to study abroad with quality training and English language proficiency, but at a lower cost. This result, if maintained and promoted, will contribute positively to the fight against "brain drain" and "bleeding foreign currency".

d) The process of implementing the advanced programs has created favorable conditions for the faculty to develop comprehensively and facilitated the formation of strong branches, and strong department, at the same time spreading well to other branches and faculties, to create the basis for the development of existing universities of regional and international level.

e) The exchange of advanced students with other universities in the world (sending students to study and receiving international students to study in advanced programs), including the ASEAN International Mobility for Students (AIMS) and Higher Education English Access Programme (HEEAP), motivates students to strive for learning, helps students to enter internationally after graduation, attracts international students and lecturers to study and teach at the university and contributes to the branding of Vietnamese higher education in the international arena.

f) Graduates of the advanced program, despite the low financial cost compared to studying abroad, having access to advanced training programs, studying with faculty and international

students, should have expertise and good English skills, be highly motivated and have more employment and higher-education opportunities at home and abroad.

g) Through the implementation of the advanced program, the international cooperation of the universities implementing the advanced program has developed clearly, completely active and substantial, creating a comprehensive cooperation between Vietnamese universities and overseas advanced universities in the fields of: develop training programs, build facilities, organize and manage training, scientific research, and exchange lecturers and students.

h) Regulations on financial management of funds for implementation of the Advanced Program have enabled universities to implement the Advanced Program to develop separate financial regulations for the Advanced Program, including the contribution of the university and the learner by the cost of training, thereby contributing to the formation of cost norms for unit training for the training sector in the university.

i) The success of the Advanced Program has been promoted by universities, spreading to other academic programs in the university in many forms: using the curriculum of the advanced program, applying advanced teaching methods for mass training programs and open more advanced program without state funding.

4.2. Limitations

a) There are some shortcomings in management and administration at the university level, such as the way in which administration and management in some advanced programs are inconsistent, lack of professionalism due to change of tenure management board and personnel management; completion of the project due to the end of support from the state budget, some universities have transferred the advanced program in the training departments or the management specialties in line with the mass programs, therefore, the regulations on advanced programs are easy to loose, affecting the Sustainable Development and Replication of the Advanced Program. It is clearly shown in the report summary and implementation summary of the advanced program.

b) Some advanced programs that are difficult to recruit (Materials Science, Mathematics, and Biomedical Engineering) or low tuition fees (Environmental Science, Physics, Chemistry) should affect the sustainable development.

c) In some advanced programs, faculty members teaching basic sciences are weak in English; teaching staff and academic counselors in some universities are still lacking and ineffective.

d) Inviting Lecturers of the partner university participate in advanced programs is challenging in terms of the amount and duration of teaching, especially when the resources available from the state budget are exhausted, will affect the modernity and international environment of the advanced program.

e) The number of international students coming to the advanced program is limited due to many shortcomings in the promotion of the Advanced Program and the replacement of required courses for Vietnamese students.

g) Limited scientific and technological activities, due to: Lack of funding; the time spent by lecturers for scientific research is limited; Mechanisms and policies to encourage lecturers to actively conduct scientific research are not strong enough; International cooperation in scientific research is still in the preparation stage.

h) Due to the lack of funds for the management of the advanced program at the ministerial level, there is an impact on the testing and connection of advanced programs and the establishment of general information portals for advanced programs to exchange and share teaching resources between advanced programs.

k) The accreditation of the Advanced Program is in the early stages of implementation, with little international accreditation and should be continued in the near future.

IV. DIRECTIONS FOR SUSTAINABLE DEVELOPMENT OF THE ADVANCED PROGRAM

1. Universities implementing advanced programs have formed a model of training in the direction of modernity, high quality and international integration, but it is necessary to have a continuation project to develop sustainable models of the program. However, there is a need for a continuation project for sustainable development of successful models of the program, which should be supported in terms of: enhancing the contingent of lecturers and administrators of regional and international standards; promoting scientific and technological activities and international cooperation; expanding international partners to participate in training and scientific research, creating an international environment in the university; opening more master training; and accrediting the program by international accreditation bodies.

2. Evaluate and replicate successful models throughout the university and across the higher education system.

3. Attract overseas Vietnamese and foreign scientists to teach and work at Vietnamese higher education institutions.

4. Compulsory subjects taught in Vietnamese are a problem for international students coming to study in Vietnamese higher education institutions. Therefore, it is necessary to study the substitution of these subjects with subjects that are more favorable to international students (e.g. Vietnamese cultural issues taught in English).

5. Consider how to prioritize the allocation of scientific and technological tasks to research groups of advanced programs; facilitate the development of international cooperation in scientific and technological activities for advanced programs.

6. Expand the promotion of advanced programs through mass media to attract qualified learners to learn advanced programs.

7. Organize experience sharing for advanced program development between universities to replicate best practices in management and training of advanced programs.

8. Study and apply modern management models in universities towards higher self-control and social responsibility.

9. Encourage higher education institutions to actively participate in international student exchange programs, such as AIMS, SHARE, etc. for Vietnamese students to have more opportunities to gain international access and increase their ability to integrate internationally after graduation.

CONCLUSION

Through the implementation of the project, the following conclusions can be drawn:

1. Although there are some limitations, the project, "Advanced program training at some universities in Vietnam for the period of 2008 – 2015," has succeeded, fulfilling almost all objectives.

2. The advanced program has had a positive impact on most of the university's activities in the direction of modernization, standardization and international integration; it brings many benefits for lecturers, administrators, and students of the program.

3. The advanced program has trained lecturers, administrators and students with sufficient professional qualifications, English-language facility, and skills necessary to participate in higher education reform in Vietnam, contributing to the development of the socioeconomic conditions of the country and to the goal of international integration, as well as in the ASEAN economic community.

4. The accreditation of advanced programs by international organizations has attracted lecturers and international scientists to teach and work in Vietnam as well as international exchange students, contributing to the goal of bringing Vietnamese higher education closer to regional standards and building international brands.

5. The success of advanced programs is just the beginning, and needs to be further nurtured and facilitated. It is necessary to develop follow-up projects to support the sustainable development and replication of the model in the Vietnamese higher education system.

Table E

Advanced Programs Realized in Vietnamese Universities

Ord. Inst.	Vietnamese Universities, Trường ĐH Việt Nam	Ord. Progr.	Advanced Programs	Foreign Partner Universities,	Year of Intake
1.	University of Technology, National University of HCM City	1.	Electrical Engineering (major in Power Area)	U. of Illinois at Urbana–Champaign, USA	2006
2.	University of Education	2.	Physics	University of Virginia, USA	2006
3.	Hue University	3.	Agricultural Economics – Finance	Sydney University, Australia	2010
4.	Can Tho University	4.	Aquaculture	Auburn University, Alabama, USA	2008
		5.	Biotechnology	Michigan State University, USA	2006

Ord. Inst.	Vietnamese Universities, Trường ĐH Việt Nam	Ord. Progr.	Advanced Programs	Foreign Partner Universities,	Year of Intake
5.	Hanoi University of Technology	6.	Biomedical Engineering	University of Wisconsin–Madison, USA	2008
		7.	Mechatronics Engineering	California State University, Chico, USA	2006
		8.	Material Science and Engineering	Uni. of Illinois at Urbana–Champaign, USA	2006
6.	Hanoi University of Science	9.	Mathematics	University of Washington, Seattle, USA	2008
		10.	Chemistry	U. of Illinois at Urbana–Champaign, USA	2006
		11.	Environment Science	Indiana University, Bloomington, USA	2010
7.	**University of Transport and Communications**	12.	Civil Engineering	University of Leeds, UK	2008
8.	Vietnam National University, Ho Chi Minh City	13.	Computer Science	Portland State University, Oregon, USA	2006
9.	Vietnam National University of Agriculture	14.	Agribusiness Management	University of Wisconsin–Madison, USA	2008
		15.	Crops Science	University of California–Davis, USA	2006
10.	National Economics University	16.	Finance	CSU, Long Beach, USA	2006
		17.	Accounting, Kế toán	CSU, Long Beach, USA	2010
11.	**Thainguyen University**	18.	Environmental Science and Management	University of California, Davis, USA.	2010
12.	Water Resources University	19.	Water Resources Engineering	Colorado State University, USA	2008

Ord. Inst.	Vietnamese Universities, Trường ĐH Việt Nam	Ord. Progr.	Advanced Programs	Foreign Partner Universities,	Year of Intake
		20.	Civil Engineering	University of Arkansas, USA	2010
13.	University of Technology,TN Uni.	21.	Mechanical Engineering	State University of New York at Buffalo, USA	2008
		22.	Electrical Engineering	Oklahoma State University, USA	2010
14.	HCM Nong Lam University	23.	Food Technology	University of California, Davis, USA.	2008
		24.	Veterinary Medicine	University of Queensland, Australia	2010
15.	Foreign Trade University	25.	International Economics	Colorado State University, Forth Colin, USA	2008
		26.	Business Administration (International Business Management)	California State University, Fullerton, USA	2010
16.	University of Information Technology	27.	Information Systems	Oklahoma State University, USA	2008
17.	**Hanoi Architectural University**	28.	Architecture	University of Nottingham, UoN	2009
18.	HCM City University of Architecture	29.	Urban Design and Planning	Katholieke University Leuven, Vương quốc Bỉ	2009
19.	University of Technology–ĐH Đà Nẵng, **Da Nang University.**	30.	Embedded Systems	Portland State University, USA	2008
		31.	Electronics and Communication Engineering (Digital System)	University of Washington, Seattle, USA	2006
20.	Forestry University	32.	Natural Resources Management	Colorado State University, USA	2010
21.	Maritime University	33.	Global Studies and Maritime Affairs	CSU, The California Maritime Academy, USA	2010

Ord. Inst.	Vietnamese Universities, Trường ĐH Việt Nam	Ord. Progr.	Advanced Programs	Foreign Partner Universities,	Year of Intake
22.	University of Mining and Geology	34.	Chemical Engineering	University of California, Davis, USA.	2010
23.	Hanoi Medical University	35.	Nursing	The California State University (CSU), Long Beach	2010

Note. From *Advanced Programs Realized by Vietnamese Universities*, by the Ministry of Education and Training, December 30, 2016, Hanoi, Vietnam, pp. 2–3.

APPENDIX F.

NUMBER OF TERTIARY TEACHING STAFF OF ADVANCED PROGRAMS TO 2015

1. NUMBER OF TERTIARY TEACHING STAFF OF ADVANCED PROGRAMS TO 2015

1.1. OVERALL STATISTICS

	Full time lecturers						Total number of lecturers	Total number of initial enrollment	Ratio (lecture/ students)
	Prof.	Assoc. Prof.	PhD	Master	Tutors	Academic Adviser			
Phase 1 (From 2006)	16	127	260	281	440	126	**1,250**	**4,831**	**1/4**
Phase 2 (From 2008)	45	143	451	663	683	207	**2,192**	**4,008**	**1/2**
Phase 3 (From 2010)	5	113	223	414	502	191	**1,448**	**4,431**	**1/3**
Total	**66**	**383**	**934**	**1,358**	**1,625**	**524**	**4,890**	**1,3270**	**1/3**

1.2. PROGRAM STATISTICS

No.	Name of Advanced Program University	Full time lecturers/ Prof.	Assoc.Prof.	PhD	Master	Tutors	Academic Adviser	Total number of lecturers	Total number of initial enrollment	Ratio(lecture/ students)
Phase 1 (From 2006)										
1	Material Science and Engineering, Hanoi University of Technology	2	20	17	5	40	10	**94**	**144**	**1/1.5**
2	Mechatronics Engineering, Hanoi University of Technology	0	8	15	15	0	17	**55**	**397**	**1/7**

No.	Name of Advanced Program University	Full time lecturers/ Prof.	Assoc.Prof.	PhD	Master	Tutors	Academic Adviser	Total number of lecturers	Total number of initial enrollment	Ratio(lecture/ students)
3	Finance, National Economics University	5	19	65	28	46	8	**171**	**1019**	**1/6**
4	Physics, Hue University of Education	2	10	7	7	22	16	**64**	**212**	**1/3**
5	Biotechnology, Can Tho University	1	6	8	21	40	12	**88**	**358**	**1/4**
6.	Power System, University of Technology – HCM City National University	2	8	34	49	75	7	**175**	**829**	**1/5**
7	Computer Science, University of Science–Vietnam National University HCM City	0	8	39	118	100	14	**279**	**473**	**1/2**
8	Digital System– University of Technology – Da Nang University	0	24	26	11	27	18	**106**	**510**	**1/5**
9	Crops Science, Vietnam Agriculture Academy	1	9	16	21	70	17	**134**	**504**	**1/4**
10	Chemistry, University of Science, Vietnam National University, Hanoi	3	15	33	6	20	7	**84**	**385**	**1/4.5**
Total		**16**	**127**	**260**	**281**	**440**	**126**	**1,250**	**4,831**	**1/4**
Phase 2 (From 2008)										
1	Embedded System– University of Technology–Da Nang University	0	13	24	35	59	15	**146**	**181**	**1/1**
2	Biomedical Engineering,	1	5	11	17	20	20	**74**	**154**	**1/2**

No.	Name of Advanced Program University	Full time lecturers/ Prof.	Assoc.Prof.	PhD	Master	Tutors	Academic Adviser	Total number of lecturers	Total number of initial enrollment	Ratio(lecture/ students)
	Hanoi University of Technology									
3	Agribusiness Management. Vietnam National Agriculture Academy	2	10	0	63	10	10	**95**	**342**	**1/4**
4	Mathematics, Hanoi University of Technology	36	45	234	15	28	22	**380**	**181**	**1/0.5**
5	Food Technology, HCM City University of Agriculture and Forestry	0	1	9	7	22	12	**51**	**407**	**1/8**
6	Aquaculture, Can Tho University	1	19	31	29	49	12	**141**	**227**	**1/1.6**
7	Information System, University of Information Technology – Vietnam National University, HCM City	0	2	31	30	93	10	**166**	**210**	**1/1.3**
8	Water Resource Engineering, Water Resources University	2	9	11	98	110	18	**248**	**366**	**1/1.5**
9	International Economics, Foreign Trade University	0	3	9	93	84	26	**215**	**754**	**1/3.5**
10	Mechanical Engineering, University of Technology– Thai Nguyen University	0	4	5	61	172	14	**256**	**241**	**1/1**

No.	Name of Advanced Program University	Full time lecturers/ Prof.	Assoc.Prof.	PhD	Master	Tutors	Academic Adviser	Total number of lecturers	Total number of initial enrollment	Ratio(lecture/ students)
11	Urban Planning, HCM City University of Architecture	0	1	10	88	0	0	**99**	**149**	**1/1.5**
12	Architecture, Hanoi University of Architecture	0	6	19	20	21	4	**70**	**372**	**1/5**
13	Civil Engineering, University of Communication and Transportation	3	25	57	107	15	44	**251**	**424**	**1/2**
Total		**45**	**143**	**451**	**663**	**683**	**207**	**2,192**	**4,008**	**1/2**
Phase 3 (From 2010)										
1	Accounting, National Economics University	1	16	39	8	27	6	**97**	**409**	**1/4**
2	Hydraulic engineering– Water Resources University	2	8	9	80	114	50	**263**	**393**	**1/1.5**
3	Chemical Engineering– University of Mining and Geology	0	8	22	7	36	2	**75**	**295**	**1/4**
4	Business Administration– Foreign Trade University	0	1	23	34	80	7	**145**	**418**	**1/3**
5	Agricultural Economics– Finance, Hue Economics University	0	5	7	42	58	6	**118**	**333**	**1/3**
6	Environment Science, Hanoi University of Science	0	13	14	9	7	7	**50**	**236**	**1/5**

No.	Name of Advanced Program University	Full time lecturers/ Prof.	Assoc.Prof.	PhD	Master	Tutors	Academic Adviser	Total number of lecturers	Total number of initial enrollment	Ratio(lecture/ students)
7	Natural Resources Management, Forestry University	0	9	19	10	56	15	**109**	**382**	**1/3.5**
8	Environmental Science and Management, Thai Nguyen University of Agriculture and Forestry	1	15	30	19	23	6	**94**	**364**	**1/4**
9	Global Studies and Maritime Affairs, Maritime University	0	1	2	43	30	46	**122**	**916**	**1/7.5**
10	Electrical Engineering–Thai Nguyen University of Technology	0	1	5	61	20	24	**111**	**207**	**1/2**
11	Veterinary Medicine, HCMC University of Agriculture and Forestry	0	8	11	13	21	11	**64**	**276**	**1/4**
12	Nursing–Hanoi Medical University	1	28	42	88	30	11	**200**	**202**	**1/1**
Total		**5**	**113**	**223**	**414**	**502**	**191**	**1,448**	**4,431**	**1/3**
Total		**66**	**383**	**934**	**1,358**	**1,625**	**524**	**4,890**	**13,270**	**1/3**

Note. Source: MOET Summary Report of implementation of the Advanced Program Project in certain Vietnamese Universities from 2008 to 2015.

CATALOGUE 1. EMPLOYERS' DESIRED SKILLSET FOR NEW RECRUITS

CAT 1.1 Attributes Employers Seek on a Candidate's Resume:

Attribute	% of Respondents
Problem-solving skills	82.9%
Ability to work in a team	82.9%
Communication skills (written)	80.3%
Leadership	72.6%
Strong work ethic	68.4%
Analytical/quantitative skills	67.5%
Communication skills (verbal)	67.5%
Initiative	67.5%
Detail-oriented	64.1%
Flexibility/adaptability	60.7%
Technical skills	59.8%
Interpersonal skills (relates well to others)	54.7%
Computer skills	48.7%
Organizational ability	48.7%
Strategic planning skills	39.3%
Creativity	29.1%
Friendly/outgoing personality	27.4%
Tactfulness	22.2%
Entrepreneurial skill/risk-taker	19.7%
Fluency in a foreign language	4.3%

Source: Job Outlook 2018, National Association of Colleges and Employers (November 2017). The Key Attributes Employers Seek on Students' Resumes (p.30). Bethlehem, USA, Copyright: National Association of Colleges and Employers. Retrieved from https://www.naceweb.org/about-us/press/2017/the-key-attributes-employers-seek-on-students-resumes/

CAT 1.2 Employers Rate the Essential Career Readiness Competencies

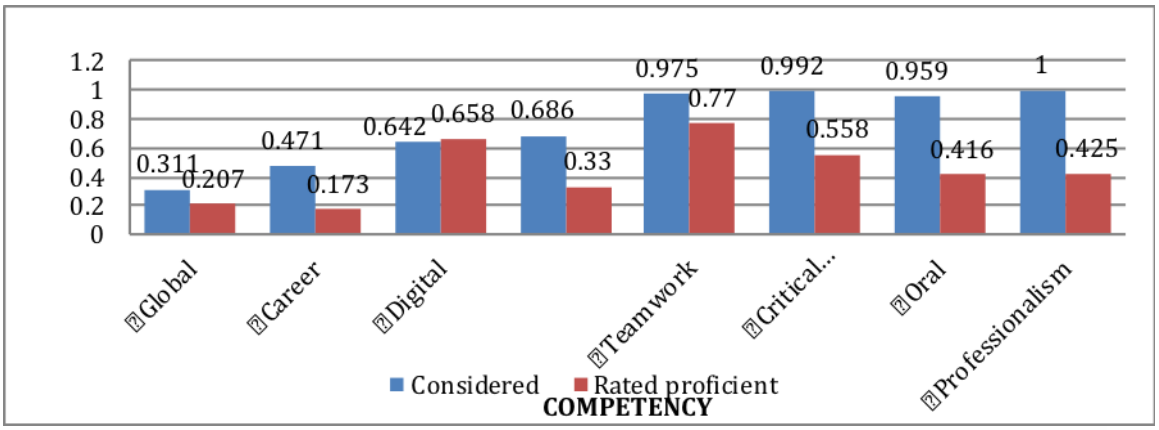
Competencies	Weighted Average Rating*
Critical Thinking/Problem Solving	4.62
Teamwork/Collaboration	4.56
Professionalism/Work Ethic	4.46
Oral/Written Communications	4.3
Leadership	3.82
Digital Technology	3.73
Career Management	3.46
Global/Multicultural Fluency	3.01

Source: Source: Job Outlook 2018, National Association of Colleges and Employers (November 2017). *The Key Attributes Employers Seek on Students' Resumes* (p.32). Bethlehem, USA, Copyright: National Association of Colleges and Employers. Retrieved from https://www.naceweb.org/about-us/press/2017/the-key-attributes-employers-seek-on-students-resumes/

***5-point scale where 1=No influence at all; 2=Not much influence; 3=Somewhat of an influence; 4=Very much influence; 5=Extreme influence.**

CAT 1.3. Needs vs. Proficiency

on Career Readiness Competencies, by Percent of Respondents

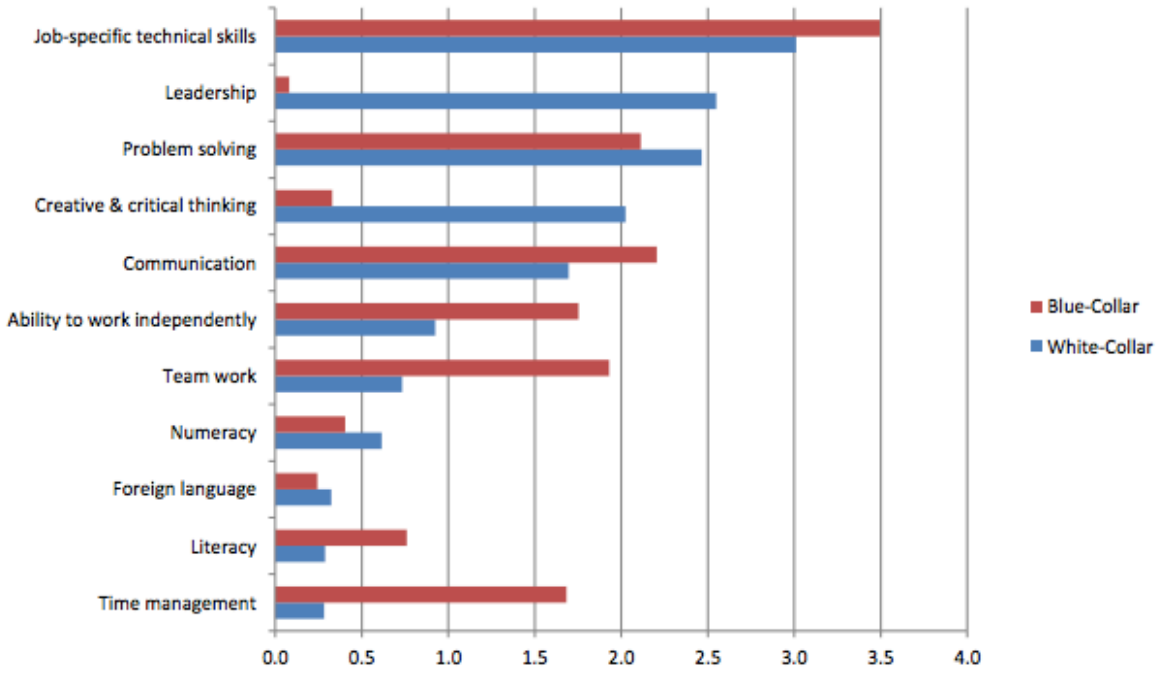


Source: Source: Job Outlook 2018, National Association of Colleges and Employers (November 2017). *The Key Attributes Employers Seek on Students' Resumes* (p.33). Bethlehem, USA, Copyright: National Association of Colleges and Employers. Retrieved from https://www.naceweb.org/about-us/press/2017/the-key-attributes-employers-seek-on-students-resumes/

***5-point scale where 1=No influence at all; 2=Not much influence; 3=Somewhat of an influence; 4=Very much influence; 5=Extreme influence.**

CAT 1.4. Vietnamese employers' expectations

Figure 5: Job-related skills are viewed as the most important among blue- and white-collar workers



Source: World Bank (2013, p. 16).

CATALOGUE 2. GAPS BETWEEN THE CLASSROOM AND EMPLOYERS' EXPECTATIONS

CAT2.1. Influence of attributes

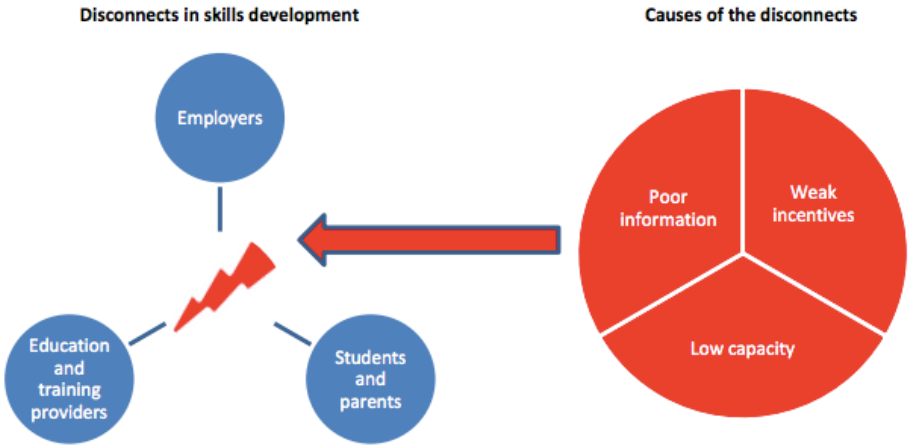
ATTRIBUTE	2018 AVERAGE INFLUENCE RATING	2017 AVERAGE INFLUENCE RATING	2016 AVERAGE INFLUENCE RATING
Has completed an internship with your organization	4.6	N/A	N/A
Has internship experience in your industry	4.4	N/A	N/A
Major	3.8	4.0	4.0
Has held a leadership position	3.7	3.9	3.9
Has general work experience	3.7	N/A	N/A
Has no work experience	3.4	N/A	N/A

Has a high GPA (3.0 or above)	3.4	3.6	3.5
Has been involved in extracurricular activities (clubs, sports, student government, etc.)	3.3	3.6	3.6
School attendance	2.8	2.9	2.9
Has done volunteer work	2.7	2.6	2.8
Is fluent in a foreign language	2.2	2.1	2.2
Has studied abroad	2.2	2.0	2.0

Source: Source: Job Outlook 2018, National Association of Colleges and Employers (November 2017). *The Key Attributes Employers Seek on Students' Resumes* (p.31). Bethlehem, USA, Copyright: National Association of Colleges and Employers. Retrieved from https://www.naceweb.org/about-us/press/2017/the-key-attributes-employers-seek-on-students-resumes/

***5-point scale where 1=No influence at all; 2=Not much influence; 3=Somewhat of an influence; 4=Very much influence; 5=Extreme influence.**

Figure 10: Skills development is not working as a system of connected actors



Source: World Bank, 2013, p. 26

CAT 2.3. Graduate employability versus employer expectation

Table 2. The differences between the competencies possessed by undergraduates and those required by employers/managers

	Undergraduates		Employers		Level of mismatch	
Competencies	Mean	Stdev	Mean	Stdev	mismatch	Significant
Adaptability	2.83	0.85	2.69	0.96	–0.14	
Analytical Thinking	2.67	0.86	2.38	1.21	–0.29	
Change Leadership	3.00	0.99	2.99	1.05	–0.01	

Client Focus	2.74	0.93	2.83	1.08	0.09	
Communication	2.94	1.01	2.55	0.93	–0.39	**
Conflict Management	2.79	0.96	2.76	1.18	–0.03	
Continuous Learning	2.94	0.98	3.34	1.11	0.40	**
Creative Thinking	2.67	0.15	2.85	1.19	0.18	
Decision Making	3.03	0.90	3.06	0.96	0.03	
Initiative	2.97	1.20	2.73	1.29	–0.24	
Networking/Relationship building	2.91	1.06	3.05	1.01	0.14	
Organization & Environment Awareness	2.81	1.03	3.30	1.12	0.49	**
Partnering	2.77	1.00	2.69	1.23	–0.08	
Planning and Organizing	2.40	1.15	2.55	1.28	0.15	
Results Orientation	2.41	1.12	2.08	0.98	–0.33	
Risk Management	2.67	0.91	2.61	1.06	–0.06	
Use of Resources	2.61	1.12	2.18	0.99	–0.43	**
Stress Management	2.59	0.94	2.59	1.00	0.00	
Teamwork	3.04	1.17	3.08	1.19	0.04	
Team Leadership	2.97	1.20	3.15	1.48	0.18	
Values and Ethics	3.03	1.08	3.11	1.32	0.08	
English Skills	1.86	0.84	1.78	0.84	–0.08	

Source: Nguyen, T. (2011, p.186). *Vietnamese Students' Employability Skills*. doi:10.5539/ies.v4n4p175. URL: http://dx.doi.org/10.5539/ies.v4n4p175 & https://files.eric.ed.gov/fulltext/EJ1066555.pdf

Table 3.
The differences between the competencies possessed by undergraduates and those required of employees

	Undergraduates		
Competencies	Mean	Student	+/–
1. AdaptivH	3.14	0.97	–2.17
2. CrithiH	2.87	1.06	–1.81
3. LeaderH	3.07	1	–2.07
4. ClientH	2.99	1.03	–1.96
5. CommuniH	3.31	0.94	–2.37

6. ConfhiH	3.03	1.17	–1.86
7. LeamH	3.17	0.95	–2.22
8. CreateH	2.94	1.11	–1.83
9. DeciH	3.01	1.08	–1.93
10. InitiaH	3.17	0.99	–2.18
11. NetworkH	2.97	1.25	–1.72
12. EnvironH	2.89	1.12	–1.77
13. PartnerH	2.93	1.16	–1.77
14. PlanH	2.87	1.09	–1.78
15. RexulTh	2.76	1.03	–1.73
16. RiskH	2.03	0.98	–1.05
17. ResourH	2.81	1.07	–1.74
18. StressH	2.81	1.13	–1.68
19. TeamWorH	3.53	1.11	–2.42
20. TeamleaH	3.43	1.12	–2.31
21. EthieH	3.1	1.19	–1.91
22. EnglishH	2.76	1.11	–1.65

Source: Extracted from Nguyen, T. (2011, p.191). *Vietnamese Students' Employability Skills*. doi:10.5539/ies.v4n4p175. URL: http://dx.doi.org/10.5539/ies.v4n4p175 & https://files.eric.ed.gov/fulltext/EJ1066555.pdf

CATALOGUE 3. COMPARISON BETWEEN ADVANCED PROGRAMS AND THE CORRESPONDING STANDARD PROGRAMS

CAT 3.1. Similarities

CAT 3.1.1. Six months of compulsory courses for political interests

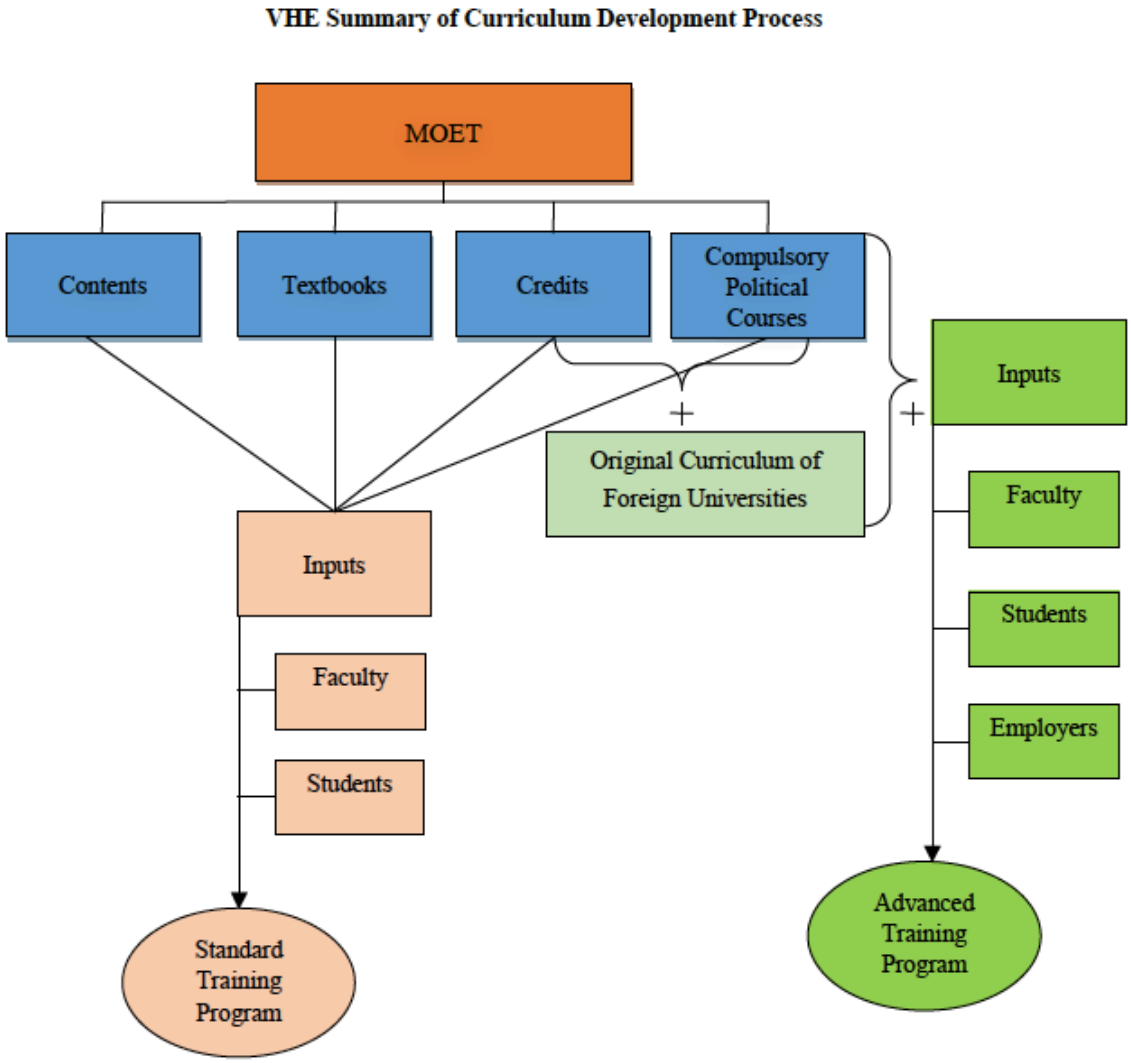
No.	Course	Credit	Study materials
1	Marxist–Leninist Philosophy 1	2	According to MOET Decision No. 52/2008 / QD-BGDDT, dated 18/9/20200, the textbooks include: 1. *Fundamental Principles of Marxism–Leninism* (issued by MOET). 2. Reference Books: Curriculum of Marxist–Leninist Philosophy; Marxist–Leninist Political Economy and Scientific Socialism (written by MOET); National Political Publishing House, Hanoi, 2007; Materials for teaching and learning on Political Theory Program directed and organized by MOET.
2	Marxist–Leninist Philosophy 2	3	
3	The Revolutionary Line of the Communist Party of Vietnam	3	According to MOET Decision No. 52/2008 / QD-BGDDT, dated 18/9/20200, the textbooks include: 1. Revolutionary Way of the Communist Party of Vietnam (issued by MOET) 2.The Communist Party of Vietnam Revolutionary Literature Manual, compiled by the Ministry of Education and Training, published by the National Political Publishing House. 3. The Central Council directed the compilation of the national curriculum of the Marxist–Leninist scientific disciplines, the Ho Chi Minh Thought: History textbook of the Communist Party of Vietnam. 4. Documents and resolutions of the Communist Party of Vietnam
4	Ho Chi Minh Ideology	2	According to MOET Decision No. 52/2008 / QD-BGDDT, dated 18/9/20200, the textbooks include: 1. Ho Chi Minh Thought of MOET. 2. The Ho Chi Minh Thought Textbook, compiled by MOET, published by the National Political Publishing House. 3. The Ho Chi Minh Thought textbook was directed by the Central Council to compile national curricula of Marxist–Leninist sciences, Ho Chi Minh thought to direct the compilation. 4. Reference books: study guides, study of Ho Chi Minh Thought of the Central Propaganda Department. 5. Ho Chi Minh entire Volume, CDROM Ho Chi Minh full set. 6. Resolutions and documents of the Party.
5	Physical Education	4	According to Decision No.3244/2002/GD-ĐT, dated 29/9/2009 by MOET
6	National Defense Education	8	According to Decision No.81/2007/QĐ-BGDĐT, dated 24/12/2007 by MOET
Core courses		**22**	

Source. Phan, 2015, p.111)

CAT 3.2. Differences

CAT 3.2.1. Curriculum Development Process

Summary of VHE's Curriculum Development Process: Top down from MOET



Source: Phan (2015) and Appendix E (MOET)

CAT 3.2.2. Credit requirements for graduation

Item	VHE Standard Program (%)	Advanced Training Program (%)
– Total number of credits required for graduation	**100**	**100**
– General courses (*not including Physical Education, Defense Education Security, Additional Skills)*	20–25%	25–37%
– Mandatory courses	70–80%	50–60%
– Elective courses	0–16%	10–20%

CAT 3.2.3. English courses

	VHE Standard Programs	Credit	Advanced Programs	Credits	Source
1	General English I	4	General English I	14	According to Decision No. 1114 / QD-DT, dated 15/4/2011 of the Director of Hanoi National University.
2	General English II	5	General English II	8	
3	General English III	5	General English III	3	
4			Advanced English I	6	
5			Advanced English II	5	

CAT 3.2.4. Textbooks

	Advanced programs	VHE Standard programs
Books published within 5 years	8%	9%
Books published within 5–10 years	26%	13%
Books published within 10–15 years	34%	35%
Books published within 15–20 years	14%	24%
Books published more than 20 years ago	19%	19%

APPENDIX G.

TOTAL NUMBER OF CREDITS FOR GRADUATION REQUIREMENTS FOR VHE

STANDARD VS. THE ADVANCED PROGRAMS

HANOI UNIVERSITY OF SCIENCE, VIETNAM NATIONAL UNIVERSITY HANOI

1. ENVIRONMENTAL SCIENCE UNDERGRADUATE PROGRAM

Item	Standard Environmental Science Program	Advanced Environmental Science Program (*)
– Total number of credits	**139**	**172**
– General courses (*not including Physical Education, Defense Education – Security, Additional Skills)*	28	64
– Mandatory courses	93	90
– Elective courses	18	18

(*) The Advanced Environmental Science Program of Hanoi University of Science is developed from the original Environmental Science undergraduate program of Indiana University, USA

Source:

– Standard Environmental Science Undergraduate Program of University of Science, Vietnam National University, Hanoi. Retrieved from http://hus.vnu.edu.vn/vi/main/daotao/daihoc/khungchuongtrinh

– Advanced Environmental Science Undergraduate Program of University of Science, Vietnam National University, Hanoi. Retrieved from http://hus.vnu.edu.vn/vi/main/daotao/daihoc/khungchuongtrinh

2. MATHEMATICS UNDERGRADUATE PROGRAM

Item	Standard Mathematics Program	Advanced Mathematics Program (*)
– Total number of credits	**137**	**169**
– General courses (*not including Physical Education, Defense Education – Security, Additional Skills)*	29	64
– Mandatory courses	96	99
– Elective courses	12	6

(*) The advanced Mathematics program is developed from the original Mathematics undergraduate program of University of Washington, Seattle, USA.

Source:

– Standard Mathematics Undergraduate Program of University Of Science, Vietnam National University, Hanoi. Retrieved from http://hus.vnu.edu.vn/sites/default/files/huongdan/1.%20Toan%20hoc.pdf#overlay–context=vi/main/daotao/daihoc/khungchuongtrinh

– Advanced Mathematics Undergraduate Program of University Of Science, Vietnam National University, Hanoi. Retrieved from http://hus.vnu.edu.vn/sites/default/files/huongdan/01tt.pdf#overlay-context=vi/main/daotao/daihoc/khungchuongtrinh

3. CHEMISTRY UNDERGRADUATE PROGRAM

Item	Standard Chemistry Program	Advanced Chemistry Program (*)
– Total number of credits	**139**	**183**
– General courses (*not including Physical Education, Defense Education – Security, Additional Skills)*	28	37
– Mandatory courses	88	122
– Elective courses	23	24

(*) The advanced Chemistry program is developed from the original Chemistry undergraduate program of University of Illinois at Urbana Champaign (UIUC).

Source:

– Standard Chemistry Undergraduate Program of University Of Science, Vietnam National University, Hanoi. Retrieved from http://hus.vnu.edu.vn/vi/main/daotao/daihoc/khungchuongtrinh

– Advanced Chemistry Undergraduate Program of University Of Science, Vietnam National University, Hanoi. Retrieved from http://hus.vnu.edu.vn/vi/main/daotao/daihoc/khungchuongtrinh

UNIVERSITY OF SCIENCE, VIETNAM NATIONAL UNIVERSITY, HO CHI MINH

4. INFORMATION TECHNOLOGY UNDERGRADUATE PROGRAM

Item	Standard Information Technology Program	Advanced Information Technology Program (*)
– Total number of credits	**146**	**182**
– General courses (*not including Physical Education, Defense Education – Security)*	27	34
– Mandatory courses	67	100
– Elective courses	52	48

(*) The advanced Information Technology program is developed from the original Information Technology undergraduate program of Porland State University, USA.

Source:

– Standard Information Technology Undergraduate Program of University Of Science, Vietnam National University, Ho Chi Minh. Retrieved from http://web.hcmus.edu.vn/images/stories/phong_dao_tao/chuongtrinhdaotao/k2015/kh_may_tinh.pdf

– Advanced Information Technology Undergraduate Program of University Of Science, Vietnam National University, Ho Chi Minh. Retrieved from http://www.ctdb.hcmus.edu.vn/download-attachment/4094

5. ELECTRICAL – ELECTRONICS ENGINEERING UNDERGRADUATE PROGRAM

Item	Standard Electrical–Electronics Engineering Program	Advanced Electrical–Electronics Engineering Program (*)
– Total number of credits	**142**	**158**
– General courses (*not including Physical Education, Defense Education – Security)*	45	44
– Mandatory courses	76	90
– Elective courses	21	24

(*) The advanced Electrical–Electronics Engineering program is developed from the original Electrical–Electronics Engineering undergraduate program of University of Illinois at Urbana–Champaign, USA.

Source:

– Standard Electrical–Electronics Engineering Undergraduate Program of University of Technology, Vietnam National University, Ho Chi Minh. Retrieved from http://www.aao.hcmut.edu.vn/catalog/view/theme/default/ctdt_upload/2017/DD/2017_DD_KDU.pdf

– Advanced Electrical–Electronics Engineering Undergraduate Program of University of Technology, Vietnam National University, Ho Chi Minh. Retrieved from http://oisp.hcmut.edu.vn/images/Hoang_Yen__Marketing/Chuong-trinh-dao-tao/1.1_CTTT_Dien_Dien_tu_Electrical-_Electronics_Engineering_40_-_final.xls.pdf

CAN THO UNIVERSITY

6. BIOTECHNOLOGY UNDERGRADUATE PROGRAM

Item	Standard Biotechnology Program	Advanced Biotechnology Program (*)
– Total number of credits	**140**	**154**
– General courses (*not including Physical Education, Defense Education – Security)*	51	68
– Mandatory courses	101	132
– Elective courses	39	22

(*) The advanced Biotechnology program is developed from the original Biotechnology undergraduate program of Michigan State University, USA.

Source:

– Standard Biotechnology Undergraduate Program of Can Tho University. Retrieved from https://www.ctu.edu.vn/ctdt/k40/91_CDR_52420201_Cong%20NgheSinhHoc.pdf

– Advanced Biotechnology Undergraduate Program of Can Tho University. https://www.ctu.edu.vn/ctdt/k40/92_CDR_52420201_Cong%20NgheSinhHoc_CTTT.pdf

7. AQUACULTURE UNDERGRADUATE PROGRAM

Item	Standard Aquaculture Program	Advanced Aquaculture Program (*)
– Total number of credits for graduation	**140**	**141**
– General courses (*not including Physical Education, Defense Education – Security)*	47	68
– Mandatory courses	104	141
– Elective courses	36	

(*) The advanced Aquaculture program is developed from the original Aquaculture undergraduate program of Auburn University, Alabama, USA.

Source:

– Standard Aquaculture Undergraduate Program of Can Tho University. Retrieved from https://www.ctu.edu.vn/ctdt/k40/86_V1_CDR_52620301_NuoiTrongThuySan.pdf

– Advanced Aquaculture Undergraduate Program of Can Tho University. https://www.ctu.edu.vn/ctdt/k40/89_CDR_52620301_NuoiTrongThuySan_CTTT.pdf

HUE UNIVERSITY'S COLLEGE OF EDUCATION

8. PHYSICS UNDERGRADUATE PROGRAM

Item	Standard Physics Program	Advanced Physics Program (*)
– Total number of credits	**134**	**135**
– General courses (*not including Physical Education, Defense Education – Security)*	41	35
– Mandatory courses	119	126
– Elective courses	15	9

(*) The advanced Physics program is developed from the original Physics undergraduate program of University of Virginia, USA.

Source:

– Standard Physics Undergraduate Program of Hue University's College of Education. Retrieved from http://www.dhsphue.edu.vn/media/db_html_cmp_010401/20150311093009_vat_ly.pdf

– Advanced Physics Undergraduate Program of Hue University's College of Education. Retrieved from http://www.dhsphue.edu.vn/cd_cmp.aspx?cd=7702&id=0

HUE UNIVERSITY'S COLLEGE OF ECONOMICS

9. AGRICULTURAL ECONOMICS – FINANCE UNDERGRADUATE PROGRAM

Item	Standard Agricultural Economics – Finance Program	Advanced Agricultural Economics – Finance Program (*)
– Total number of credits	**122**	**174**
– General courses (*not including Physical Education, Defense Education – Security)*	34	44
– Mandatory courses	66	113
– Elective courses	22	17

(*) The advanced Agricultural Economics – Finance program is developed from the original Agricultural Economics – Finance undergraduate program of Sydney University, Australia.

Source:

– Standard Agricultural Economics – Finance Undergraduate Program of Hue University's College of Economics. Retrieved from http://hueuni.edu.vn/portal/vi/index.php/Program/Detail/id/222.html

UNIVERSITY OF TECHNOLOGY, DA NANG UNIVERSITY

10. EMBEDDED SYSTEM UNDERGRADUATE PROGRAM

Item	Standard Embedded System Program (**)	Advanced Embedded System Program (*)
– Total number of credits	132	**184**
– General courses (*not including Physical Education, Defense Education – Security)*	22	34
– Mandatory courses	70	133
– Elective courses	40	17

(*) The advanced Embedded System program is developed from the original Embedded System undergraduate program of Portland State University, USA.

(**) University of Technology – Da Nang University has not provided standard Embedded System Undergraduate Program.

Source:

– Advanced Embedded System Undergraduate Program of Da Nang University. Retrieved from http://coe.dut.udn.vn/vi/nganh-dien-tu-vien-thong/khung-chuong-trinh/

11. ELECTRONICS AND COMMUNICATION ENGINEERING

Item	Standard Electronics and Communication Program	Advanced Electronics and Communication Program (*)
– Total number of credits	**150**	**184**
– General courses (*not including Physical Education, Defense Education – Security)*	63.5	92
– Mandatory courses	43	75
– Elective courses	43.5	17

(*) The advanced Electronics and Communication program is developed from the original Electronics and Communication undergraduate program of University of Washington, Seattle, USA.

Source:

– Standard Electronics and Communication Engineering Undergraduate Program of Da Nang University of Technology. Retrieved from http://daotao.dut.udn.vn/Content/PDF/CTDT/CTDT_DH_D520209_2012.pdf

– Advanced Electronics and Communication Engineering Undergraduate Program of Da Nang University of Technology. Retrieved from http://fast.dut.udn.vn/vi/nganh-dien-tu-vien-thong/khung-chuong-trinh/

NATIONAL ECONOMICS UNIVERSITY

12. FINANCE UNDERGRADUATE PROGRAM

Item	Standard Finance Program	Advanced Finance Program (*)
– Total number of credits	**141**	**159**
– General courses (*not including Physical Education, Defense Education – Security)*	56	74
– Mandatory courses	69	66
– Elective courses	16	19

(*) The advanced Finance program is developed from the original Finance undergraduate program of California State University Long Beach, USA (CSULB).

Source:

– Standard Finance undergraduate program of National Economics University. Retrieved from https://daotao.neu.edu.vn/vi/ctdt-he-chinh-quy/chuong-trinh-dao-tao-he-chinh-quy

– Advanced Finance undergraduate program of National Economics University. Retrieved from http://aep.neu.edu.vn/web/vn/c97/p75/p74/Chuong-trinh-Tien-tien/Khung-chuong-trinh-dao-tao/default.aspx

13. ACCOUNTING UNDERGRADUATE PROGRAM

Item	Standard Accounting Program	Advanced Accounting Program (*)
– Total number of credits	**135**	**172**
– General courses (*not including Physical Education, Defense Education – Security)*	56	87
– Mandatory courses	18	85
– Elective courses	61	

(*) The advanced Accounting program is developed from the original Accounting undergraduate program of California State University Long Beach, USA (CSULB).

Source:

– Standard Accounting undergraduate program of National Economics University. Retrieved from https://daotao.neu.edu.vn/vi/ctdt-he-chinh-quy/chuong-trinh-dao-tao-he-chinh-quy

– Advanced Accounting undergraduate program of National Economics University. Retrieved from http://aep.neu.edu.vn/web/vn/c97/p75/p74/Chuong-trinh-Tien-tien/Khung-chuong-trinh-dao-tao/default.aspx

THAI NGUYEN UNIVERSITY OF TECHNOLOGY

14. MECHANICAL ENGINEERING UNDERGRADUATE PROGRAM

Item	Standard Mechanical Engineering Program	Advanced Mechanical Engineering Program (*)
– Total number of credits	**154**	**151**
– General courses (*not including Physical Education, Defense Education – Security)*	43	93
– Mandatory courses	99	58
– Elective courses	12	

(*) The advanced Mechanical Engineering program is developed from the original Mechanical Engineering undergraduate program of State University of New York at Buffalo, USA.

Source:

– Standard Mechanical Engineering undergraduate program of Thai Nguyen University of Technology. Retrieved from http://tnut.edu.vn/khung-chuong-trinh-chuyen-nganh-thiet-ke-va-che-tao-co-khi-dt2562.html

– Advanced Mechanical Engineering undergraduate program of Thai Nguyen University of Technology. Retrieved from http://itc.tnut.edu.vn/tin-tuc/2015-04-21/chuong-trinh-dao-tao-cttt-nganh-ky-thuat-co-khi-ap-dung-cho-k50-dt418.html

15. ELECTRICAL ENGINEERING UNDERGRADUATE PROGRAM

Item	Standard Electrical Engineering Program	Advanced Electrical Engineering Program (*)
– Total number of credits	**152**	**151**
– General courses (*not including Physical Education, Defense Education – Security)*	45	70
– Mandatory courses	96	81
– Elective courses	11	

(*) The advanced Electrical Engineering program is developed from the original Electrical Engineering undergraduate program of Oklahoma State University, USA.

Source:

– Standard Electrical Engineering undergraduate program of Thai Nguyen University of Technology. Retrieved from http://tnut.edu.vn/khung-chuong-trinh-chuyen-nganh-ky-thuat-den-dt2552.html

– Advanced Electrical Engineering undergraduate program of Thai Nguyen University of Technology. Retrieved from http://itc.tnut.edu.vn/tin-tuc/2015-04-21/chuong-trinh-dao-tao-cttt-nganh-ky-thuat-dien-ap-dung-cho-k50-dt417.html

THAI NGUYEN UNIVERSITY OF AGRICULTURE AND FORESTRY

16. ENVIRONMENTAL SCIENCE AND MANAGEMENT UNDERGRADUATE PROGRAM

Item	Standard Environmental Science Program	Advanced Environmental Science Program (*)
– Total number of credits	**120**	**134**
– General courses (*not including Physical Education, Defense Education – Security)*	48	63
– Mandatory courses	51	66
– Elective courses	21	5

(*) The advanced Environmental Science program is developed from the original Environmental Science undergraduate program of University of California, Davis, USA..

Source:

– Standard Environmental Science undergraduate program of Thai Nguyen University of Agriculture and Forestry. Retrieved from

http://tuaf.edu.vn/gallery/files/Phong_%20DAOTAO/CT%C3%90T/khmt.pdf

– Advanced Environmental Science undergraduate program of Thai Nguyen University of Agriculture and Forestry. Retrieved from

http://tuaf.edu.vn/gallery/files/Phong_%20DAOTAO/CT%C3%90T/khqlmt%20(cttt).pdf

THUYLOI UNIVERSITY

17. CIVIL ENGINEERING UNDERGRADUATE PROGRAM

Item	Standard Civil Engineering Program	Advanced Civil Engineering Program (*)
– Total number of credits	**145**	**151**
– General courses (*not including Physical Education, Defense Education – Security)*	47	68
– Mandatory courses	63	75
– Elective courses	35	8

(*) The advanced Civil Engineering program is developed from the original Civil Engineering undergraduate program of University of Arkansas, USA.

Source:

– Standard Civil Engineering undergraduate program of Thuyloi University. Retrieved from http://www.tlu.edu.vn/Portals/0/2017-3/02_KyThuatCongTrinhThuy.pdf

– Advanced Civil Engineering undergraduate program of Thuyloi University. Retrieved from http://sie.tlu.edu.vn/cttt-dai-hoc-nganh-ky-thuat-xay-dung/chuong-trinh-dao-tao-nganh-ky-thuat-xay-dung-155

18. WATER RESOURCES ENGINEERING UNDERGRADUATE PROGRAM

Item	Standard Water Resources Engineering Program	Advanced Water Resources Engineering Program (*)
– Total number of credits	**145**	**151**
– General courses (*not including Physical Education, Defense Education – Security)*	48	65
– Mandatory courses	63	77
– Elective courses	34	9

(*) The advanced Water Resources Engineering program is developed from the original Water Resources Engineering undergraduate program of Colorado State University, USA.

Source:

– Standard Water Resources Engineering undergraduate program of Thuyloi University. Retrieved from http://www.tlu.edu.vn/Portals/0/2017-3/06_KyThuatTaiNguyenNuoc.pdf

– Advanced Water Resources Engineering undergraduate program of Thuyloi University. Retrieved from http://sie.tlu.edu.vn/cttt-dai-hoc-nganh-ky-thuat-tai-nguyen-nuoc/ban-mo-ta-chuong-trinh-tien-tien-nganh-ky-thuat-156

FOREIGN TRADE UNIVERSITY

19. INTERNATIONAL ECONOMICS UNDERGRADUATE PROGRAM

Item	Standard International Economics Program	Advanced International Economics Program (*)
– Total number of credits	**136**	**142**
– General courses (*not including Physical Education, Defense Education – Security)*	43	49
– Mandatory courses	33	33
– Elective courses	60	60

(*) The advanced International Economics program is developed from the original International Economics undergraduate program of Colorado State University, Forth Colin, USA.

Source:

– Standard International Economics Engineering undergraduate program of Foreign Trade University. Retrieved from http://qlkh.ftu.edu.vn/tintuc/216-chuong-trinh-cu-nhan-kinh-te.html

– Advanced International Economics Engineering undergraduate program of Foreign Trade University. Retrieved from http://qtkd.ftu.edu.vn/index.php?option=com_content&view=section&layout=blog&id=31&Itemid=337

20. BUSINESS ADMINISTRATION UNDERGRADUATE PROGRAM

Item	Standard Business Administration Program	Advanced Business Administration Program (*)
– Total number of credits	**147**	**148**
– General courses (*not including Physical Education, Defense Education – Security)*	43	49
– Mandatory courses	33	33
– Elective courses	60	60

(*) The advanced International Economics program is developed from the original Business Administration undergraduate program of California State University, Fullerton, USA.

Source:

– Standard Business Administration undergraduate program of Foreign Trade University. Retrieved from http://qtkd.ftu.edu.vn/index.php?option=com_content&view=article&id=875:chng-trinh-ao-to-qun-tr-kinh-doanh-quc-te&catid=230:chng-trinh-khung&Itemid=414

– Advanced Business Administration undergraduate program of Foreign Trade University. Retrieved from http://qtkd.ftu.edu.vn/index.php?option=com_content&view=article&id=368:gii-thiu-khung-chng-trinh-ao-to-cttt&catid=228:chuong-trinh-khung&Itemid=418

HANOI UNIVERSITY OF SCIENCE AND TECHNOLOGY

21. ELECTRICAL AND ELECTRONIC ENGINEERING UNDERGRADUATE PROGRAM

Item	Standard Electrical and Electronic Engineering Program	Advanced Electrical and Electronic Engineering Program (*)
– Total number of credits	**176**	**155**
– General courses (*not including Physical Education, Defense Education – Security)*	48	49
– Mandatory courses	120	91
– Elective courses	8	15

(*) The advanced Electrical and Electronic Engineering program is developed from the original Electrical and Electronic Engineering undergraduate program of San José State University, USA.

Source:

– Standard Electrical and Electronic Engineering undergraduate program of Hanoi University of Science and Technology. Retrieved from http://sis.hust.edu.vn/Message/CTDT/2009/Khung_CTDT2010_CNCN_cac%20nganh_20120717.pdf

– Advanced Electrical and Electronic Engineering undergraduate program of Hanoi University of Science and Technology. Retrieved from http://set.hust.edu.vn/images/Chuong_trinh_dac_biet/CTDTDienDientu_.pdf

22. MATERIALS SCIENCE AND ENGINEERING UNDERGRADUATE PROGRAM

Item	Standard Materials Science and Engineering Program	Advanced Materials Science and Engineering Program (*)
- Total number of credits	**176**	**155**
- General courses (*not including Physical Education, Defense Education - Security)*	48	49
- Mandatory courses	120	91
- Elective courses	8	15

(*) The advanced Materials Science and Engineering program is developed from the original Materials Science and Engineering undergraduate program of the University of Illinois at Urbana Champaign, USA (UIUC).

Source:

- Standard Materials Science and Engineering undergraduate program of Hanoi University of Science and Technology. Retrieved from https://mse.hust.edu.vn/theo-chuong-trinh-cu-nhan

- Advanced Materials Science and Engineering undergraduate program of Hanoi University of Science and Technology. Retrieved from https://mse.hust.edu.vn/chuong-trinh-tien-tien

HANOI MEDICAL UNIVERSITY

23. NURSING UNDERGRADUATE PROGRAM

Item	Standard Nursing Program	Advanced Nursing Program (*)
– Total number of credits	**121**	**140**
– General courses (*not including Physical Education, Defense Education – Security)*	35	61
– Mandatory courses	71	64
– Elective courses	15	15

(*) The advanced Nursing program is developed from the original Nursing undergraduate program of California State University, Long Beach (CSULB).

Source:

– Standard Nursing undergraduate program of Hanoi Medical University. Retrieved from http://cttt.hmu.edu.vn/news/xc116_Khung-chuong-trinh.html

– Advanced Nursing undergraduate program of Hanoi Medical University. Retrieved from http://www.hmu.edu.vn/news/tID4066_Quyet-dinh-ve-viec-ban-hanh-Tien-trinh-dao-tao-09-chuyen-nganh-dao-tao-dai-hoc.html

HO CHI MINH CITY UNIVERSITY OF AGRICULTURE AND FORESTRY

24. FOOD TECHNOLOGY UNDERGRADUATE PROGRAM

Item	Standard Food Technology Program	Advanced Food Technology Program (*)
– Total number of credits	**135**	**144**
– General courses (*not including Physical Education, Defense Education – Security)*	21	24
– Mandatory courses	88	85
– Elective courses	26	35

(*) The advanced Food Technology program is developed from the original Food Technology undergraduate program of University of California, Davis, USA.

Source:

– Standard Food Technology undergraduate program of Ho Chi Minh City University of Agriculture and Forestry. Retrieved from http://pdt.hcmuaf.edu.vn/data/file/Chuong%20trinh%20dao%20tao%20tu%20khoa%202014/CONGNGHETHUCPHAM_BAOQUANNSTP_BQ.pdf

– Advanced Food Technology undergraduate program of Ho Chi Minh City University of Agriculture and Forestry. Retrieved from http://advet.hcmuaf.edu.vn/data/Cau%20truc%20chuong%20trinh.pdf and http://ft.hcmuaf.edu.vn/data/file/Program%20Specification.pdf

HO CHI MINH CITY UNIVERSITY OF AGRICULTURE AND FORESTRY

25. VETERINARY MEDICINE UNDERGRADUATE PROGRAM

Item	Standard Veterinary Medicine Program	Advanced Veterinary Medicine Program (*)
– Total number of credits	**135**	**144**
– General courses (*not including Physical Education, Defense Education – Security)*	21	24
– Mandatory courses	88	85
– Elective courses	26	35

(*) The advanced Veterinary Medicine program is developed from the original Veterinary Medicine undergraduate program of University of Queensland, Australia.

Source:

– Standard Veterinary Medicine undergraduate program of Ho Chi Minh City University of Agriculture and Forestry. Retrieved from http://pdt.hcmuaf.edu.vn/data/file/Chuong%20trinh%20dao%20tao%20tu%20khoa%202014/CHANNUOITHUY_BACSYTHUY_TY.pdf

– Advanced Veterinary Medicine undergraduate program of Ho Chi Minh City University of Agriculture and Forestry. Retrieved from http://advet.hcmuaf.edu.vn/data/Cau%20truc%20chuong%20trinh.pdf

VIETNAM NATIONAL UNIVERSITY OF AGRICULTURE

26. CROP SCIENCE UNDERGRADUATE PROGRAM

Item	Standard Crop Science Program	Advanced Crop Science Program (*)
– Total number of credits	**130**	**160**
– General courses (*not including Physical Education, Defense Education – Security)*	55	73
– Mandatory courses	63	67
– Elective courses	12	20

(*) The advanced Crop Science program is developed from the original Crop Science undergraduate program of University of California–Davis, USA.

Source:

– Standard Crop Science undergraduate program of Vietnam National University of Agriculture. Retrieved from

http://www.vnua.edu.vn/dao-tao/chuong-trinh-dao-tao/view.html?cid=4811&tab=TN.News.NV_NewsCategoriesInfo

– Advanced Crop Science undergraduate program of Vietnam National University of Agriculture. Provided by the Training Department of Vietnam National University of Agriculture.

VIETNAM NATIONAL UNIVERSITY OF AGRICULTURE
27. AGRIBUSINESS MANAGEMENT UNDERGRADUATE PROGRAM

Item	Standard Agribusiness Management Program	Advanced Agribusiness Management Program (*)
– Total number of credits	**128**	**178**
– General courses (*not including Physical Education, Defense Education – Security)*	48	71
– Mandatory courses	70	84
– Elective courses	10	23

(*) The advanced Agribusiness Management program is developed from the original Agribusiness Management undergraduate program of University of Wisconsin–Madison, USA.

Source:

– Standard Agribusiness Management undergraduate program of Vietnam National University of Agriculture. Retrieved from http://www.vnua.edu.vn/dao-tao/chuong-trinh-dao-tao/view.html?cid=4830&tab=TN.News.NV_NewsCategoriesInfo

– Advanced Agribusiness Management undergraduate program of Vietnam National University of Agriculture. Retrieved from http://eng.vnua.edu.vn/Portals/3/daotao/AGRIBUSINESS%20MANAGEMENT.pdf

UNIVERSITY OF INFORMATION TECHNOLOGY

28. INFORMATION SYSTEM UNDERGRADUATE PROGRAM

Item	Standard Information System Program	Advanced Information System Program (*)
– Total number of credits	**152**	**143**
– General courses (*not including Physical Education, Defense Education – Security)*	51	53
– Mandatory courses	84	78
– Elective courses	17	12

(*) The advanced Information System program is developed from the original Information System undergraduate program of Oklahoma State University, USA.

Source:

– Standard Information System undergraduate program of HCM City University of Information Technology. Retrieved from https://student.uit.edu.vn/content/ky-su-nganh-he-thong-thong-tin-ap-dung-tu-khoa-7-2012

– Advanced Information System undergraduate program of HCM City University of Information Technology. Retrieved from https://student.uit.edu.vn/content/nganh-he-thong-thong-tin-cttt

UNIVERSITY OF COMMUNICATION AND TRANSPORTATION

29. CIVIL ENGINEERING UNDERGRADUATE PROGRAM

Item	Standard Civil Engineering Program	Advanced Civil Engineering Program (*)
– Total number of credits	**159**	**171**
– General courses (*not including Physical Education, Defense Education – Security)*	93	79
– Mandatory courses	66	92
– Elective courses		

(*) The advanced Civil Engineering program is developed from the original Civil Engineering undergraduate program of University of Leeds, UK.

Source:

– Standard Civil Engineering undergraduate program of University of Communication and Transportation. Retrieved from https://www.utc.edu.vn/gioi-thieu/dao-tao/chuong-trinh-dao-tao-cac-nganh

– Advanced Civil Engineering undergraduate program of University of Communication and Transportation. Retrieved from http://ined.utc.edu.vn/chuong-trinh-dao-tao-dai-hoc-chinh-quy

UNIVERSITY OF MINING AND GEOLOGY

30. CHEMICAL ENGINEERING UNDERGRADUATE PROGRAM

Item	Standard Chemical Engineering Program	Advanced Chemical Engineering Program (*)
– Total number of credits	**114**	**194**
– General courses (*not including Physical Education, Defense Education – Security)*	53	77
– Mandatory courses	39	85
– Elective courses	22	32

(*) The advanced Chemical Engineering program is developed from the original Chemical Engineering undergraduate program of University of Caliornia, Davis, USA..

Source:

– Standard Chemical Engineering undergraduate program of University of Mining and Geology. Retrieved from http://daotao.humg.edu.vn/default.aspx?page=chitietthongtin&id=324

– Advanced Chemical Engineering undergraduate program of University of Mining and Geology. Retrieved from http://adprog.humg.edu.vn/Pages/home.aspx

FORESTRY UNIVERSITY

31. NATURAL RESOURCES MANAGEMENT UNDERGRADUATE PROGRAM

Item	Standard Natural Resources Management Program	Advanced Natural Resources Management Program (*)
– Total number of credits	**132**	**153**
– General courses (*not including Physical Education, Defense Education – Security)*	42	50
– Mandatory courses	74	85
– Elective courses	16	18

(*) The advanced Natural Resources Management program is developed from the original Natural Resources Management undergraduate program of Colorado State University, USA.

Source:

– Standard Natural Resources Management undergraduate program of Forestry University. Retrieved from http://vnuf.edu.vn/165?p_p_id=101&p_p_lifecycle=0&p_p_state=normal&p_p_mode=view&p_p_col_id=column-1&p_p_col_count=1&_101_struts_action=%2Fasset_publisher%2Fview_content&_101_assetEntryId=579035&_101_type=content&_101_urlTitle=nganh-quan-ly-tai-nguyen-thien-nhien-chuong-trinh-%C4%91ao-tao-bang-tieng-viet-

– Advanced Natural Resources Management undergraduate program of Forestry University. Retrieved from http://en.vnuf.edu.vn/undergraduate?p_p_id=101&p_p_lifecycle=0&p_p_state=normal&p_p_mode=view&p_p_col_id=column-1&p_p_col_count=1&_101_struts_action=%2Fasset_publisher%2Fview_content&_101_assetEntryId=2302400&_101_type=content&_101_urlTitle=advanced-program-natural-resources-management

HCM UNIVERSITY OF ARCHITECTURE

32. URBAN DESIGN AND PLANNING UNDERGRADUATE PROGRAM

Item	Standard Urban Design and Planning Program (**)	Advanced Urban Design and Planning Program (*)
– Total number of credits	**132**	**135**
– General courses (*not including Physical Education, Defense Education – Security)*	22	22
– Mandatory courses	110	113
– Elective courses	N/A	N/A

(*) The advanced Urban Design and Planning program is developed from the original Urban Design and Planning undergraduate program of Katholieke University Leuven, Belgium.

(**) HCM City University of Architecture has not provided standard Urban Design and Planning undergraduate program.

Source:

– Advanced Urban Design and Planning undergraduate program of HCM University of Architecture. Retrieved from

http://www.uah.edu.vn/router/chuong-trinh-tien-tien-nganh-thiet-ke-do-thi-388.html

MARITIME UNIVERSITY

33. GLOBAL STUDIES AND MARITIME AFFAIRS

Item	Standard Global Studies and Maritime Affairs Program (**)	Advanced Global Studies and Maritime Affairs Program (*)
– Total number of credits	**132**	**135**
– General courses (*not including Physical Education, Defense Education – Security)*	22	22
– Mandatory courses	110	113
– Elective courses	N/A	N/A

(*) The advanced Global Studies and Maritime Affairs program is developed from the original Global Studies and Maritime Affairs undergraduate program of The California State University Maritime Academy, USA.

(**) Maritime University has not provided standard Global Studies and Maritime Affairs undergraduate program.

Source:

– Advanced Global Studies and Maritime Affairs undergraduate program of Maritime University. Retrieved from

http://ise-vmu.edu.vn/chuong-trinh-tien-tien/nganh-kinh-te-hang-hai-va-toan-cau-hoa-n57.html

Appendix H

COMPARISON OF ENROLLMENT AND GRADUATION REQUIREMENTS OF ADVANCED PROGRAMS AND STANDARD PROGRAMS OF VIETNAMESE UNIVERSITIES

I. ENROLLMENT REQUIREMENTS OF ADVANCED UNDERGRADUATE PROGRAMS AND STANDARD UNDERGRADUATE PROGRAMS

No.	UNIVERSITY	ENROLLMENT REQUIREMENTS	
		ADVANCED PROGRAM	STANDARD PROGRAM
1	**HANOI UNIVERSITY OF TECHNOLOGY**	People who meet the following requirements can be admitted to this program: 1. Passed the high school graduation exam. 2. Passed the undergraduate entry examination in Group A with higher score than a certain level determined by HUT each year, or received special admission to HUT undergraduate program. 3. Having English test score of TOEFL paper ≥ 450, TOEFL CBT ≥ 140, TOEFL CBT ≥ 50 IELTS ≥ 4.5 or passed the entry English test organized by HUST.	People who meet the following requirements can be admitted to this program: 1. Passed the high school graduation exam. 2. Passed the undergraduate entry examination in Group A with higher score than a certain level determined by HUT each year, or received special admission to HUT undergraduate program.
2	**HANOI UNIVERSITY OF SCIENCE, VIETNAM NATIONAL UNIVERSITY HANOI**	– Academic performance: Applicants are required to meet the admission requirements of the Honors Program or earn good results in the national university entrance examination. – English proficiency: Applicants are required to complete the high school English program. Applicants with outstanding academic performances from rural areas where conditions for studying English are severely limited may be considered to be exempted from this requirement.	People who meet the following requirements can be admitted to this program: 1. Passed the high school graduation exam. 2. Passed the undergraduate entry examination in Group A with higher score than a certain level determined by HUS each year, or received special admission to HUS undergraduate program.
3	**NATIONAL ECONOMICS UNIVERSITY**	Students will be selected based on a combination of academic achievement and English proficiency: High scores on the Annual National Entrance Examination held by the	People who meet the following requirements can be admitted to this program: 1. Passed the high school graduation exam. 2. Passed the undergraduate entry examination in Group A with higher score

No.	UNIVERSITY	ENROLLMENT REQUIREMENTS	
		ADVANCED PROGRAM	**STANDARD PROGRAM**
		National Economics University (NEU) or demonstrated scholastic achievement meeting the requirements of MOET for automatic admission AND Meeting the English proficiency requirements for the Bachelor of Accounting in English AND Joining the program voluntarily upon NEU's offer of admission.	than a certain level determined by NEU each year, or received special admission to NEU undergraduate program.
4	**VIETNAM UNIVERSITY OF AGRICULTURE**	Applicants must satisfy the University's general and specific requirements for admission to the program as described below: **** Vietnamese students*** Eligible criteria: Students pass the national entrance exam to university as regulated by MOET; How to apply: Call for application will be announced on university and faculty's websites 2–3 weeks after freshman enrolment. Students are required to submit an application form in Office of Advanced Program–Crop Science of Faculty of Agronomy. Students will take an English exam similar to TOEFL ITP and be selected based on the English results (minimum is score 300). Students who have valid English certificates and with equivalent scores will be exempted. **** International students*** Eligible criteria: International students completing high school or studying at universities are eligible to apply. How to apply: International students should contact and submit an application form and documents through the International Cooperation Office of the University. Documents include high school or university transcript, letter of motivation, English certificates	People who meet the following requirements can be admitted to this program: 1. Passed the high school graduation exam. 2. Passed the undergraduate entry examination with higher score than a certain level determined by the University each year, or received special admission to its undergraduate programs.

No.	UNIVERSITY	ENROLLMENT REQUIREMENTS	
		ADVANCED PROGRAM	STANDARD PROGRAM
		for students from non-English speaking countries. Selection criteria is approved by Rector of the University. The International Cooperation Office will inform selection results.	
5	**FOREIGN TRADE UNIVERSITY**	**For Vietnamese students** Applicants must: Pass the entrance exam to the university and be admitted to a regular full-time course of FTU; Meet English language requirements to attend the program according to the Faculty's/ University's regulations: TOEIC600, TOEFL 500 (paper-based), TOEFL iBT 61, IELTS 6.0, or equivalent; or pass the English (writing) test organized by FTU. **For foreign students** Applicants must have graduated from a high school with good result or higher. The students coming from non-speaking English as the first language have to guarantee their English level with certificates or tests similar to those of Vietnamese students. The applicants must voluntarily take part in the Program and pay the tuition fees as required by FTU. The applicants should meet the requirements of physical conditions as regulated by the MOET. The other requirements will comply with the enrollment regulations by MOET.	– Enrollment based on the application documents: + GPA of 7.5 or higher at 12th, 11th, 10th grade + IELTS score of 6.5, TOEFL PBT score of 550 or TOEFL iBT of 79 or higher, or the third national prize in English competition and the total score of two subjects in the enrollment group including Mathematics (excluding English) of 15 or higher. – Enrollment based on the combined method including the application documents and the National High School exam.
6	**THAI NGUYEN UNIVERSITY OF TECHNOLOGY**	People who meet the following requirements can be admitted to this program: 1. Passed the high school graduation exam. 2. Passed the undergraduate entry examination in Group A, A1 with higher score than a certain level	– Admission is based on the results of the National High School Examination. – Examination points according to the subjects and training majors.

No.	UNIVERSITY	ENROLLMENT REQUIREMENTS	
		ADVANCED PROGRAM	STANDARD PROGRAM
		determined by the University each year. 3. Passed the pre-entry English test by the University.	
7	**THAI NGUYEN UNIVERSITY OF AGRICULTURE AND FORESTRY**	In 2018, students were recruited in two methods: – Admissions based on the results of the 2018 National High School Examination. Applicants must have the results of the university entrance examination according to the MOET regulations. – Admissions based on academic results recorded in high school transcripts: Applicants must have a total grade point average of three subjects in 12th grade equal or higher than 38 points.	– Admission is based on the results of the National High School Examination. – Examination points according to the subjects and training majors.
8	**THUY LOI UNIVERSITY**	– Achieve the admission score for advanced program determined by the university each year. After being admitted, the university will organize English training courses for class placement. Applicants achieve a TOEFL ITP score of ≥ 400 (TOEFL iBT ≥ 32); IELTS ≥ 4.5 or a member of the national English language team will be exempted from English proficiency.	– Admission is based on the results of the National High School Examination. – Examination points according to the subjects and training majors.
9	**HANOI MEDICAL UNIVERSITY**	– Admitted to the standard Nursing Undergraduate Program of Hanoi Medical University – Admitted to other majors with the score equal or higher than the admission score of the standard Nursing Undergraduate Program. – Applicants' English skills meet the entry requirements of the university (after the first semester, students must achieve the B1 level of European standard (according to the enrollment announcement for the 7th advanced nursing program for 2016–2020)	– Admission is based on the results of the National High School Examination. – Examination points according to the subjects and training majors.

No.	UNIVERSITY	ENROLLMENT REQUIREMENTS	
		ADVANCED PROGRAM	**STANDARD PROGRAM**
10	**HANOI UNIVERSITY OF MINING AND GEOLOGY**	– Pass the National High School Examination. – Admission score for advanced program will determined by the University based on the admission quota each year	– Admission is based on the results of the National High School Examination. – Examination points according to the subjects and training majors.
11	**VIETNAM MARITIME UNIVERSITY**	– Pass the National High School Examination. – Admission score for advanced program will determined by the University based on the admission quota each year	– Admission is based on the results of the National High School Examination. – Examination points according to the subjects and training majors.
12	**VIETNAM NATIONAL UNIVERSITY OF FORESTRY**	– Pass the 2018 National High School Examination with a score of 15 or higher. (Admission score for advanced program will be determined by the University based on the admission quota each year). – Grade point average of English subject at 12th grade is 7.0 or higher	– Admission is based on the results of the National High School Examination. – Examination points according to the subjects and training majors.
13	**HANOI UNIVERSITY OF ARCHITECTURE**	– Pass the National High School Examination graduation exam with the score. – Passed the undergraduate entry examination in Group V00 with a score determined by the University each year.	– Admission is based on the results of the National High School Examination. – Examination points according to the subjects and training majors. *Xét tuyển dựa vào kết quả kỳ thi THPT Quốc gia* *– Điểm xét tuyển theo môn thi và ngành đào tạo*
14	**CAN THO UNIVERSITY**	There are two methods: 1. Method A: – Selection based on results from National High School Examination – Conditions for Admission: Candidates who meet the requirements for quality assurance are identified by CTU and do not have a score of 1.0 or less (on a 10-point scale) and English must meet the grade set by CTU. 2. Method B: – Recruited candidates and regular candidates enrolled in CTU who	1 – Selection based on results of the National High School Exam. 2 – Conditions for Admission: Candidates meet the quality assurance criteria set by MOET (Input Qualification Level for Pedagogical Studies by MOET, other criteria identified by CTU) and no score from 1.0 points or less (on a scale of 10).

No.	UNIVERSITY	ENROLLMENT REQUIREMENTS	
		ADVANCED PROGRAM	STANDARD PROGRAM
		wish to transfer to advanced programs. – Conditions for Admission: Candidates who have passed the National High School Examinations at one of the admissions test complexes and have the results of English Proficiency Examination (organized by CTU after enrollment) or Certificate of English equivalent from Level 2 with 6 levels of foreign language ability for Vietnam (equivalent certificates: A2 under the European Reference Framework, IELTS 3.0, TOIEC 400, TOEFL ITP 337, TOEFL iBT 31, KET 70, PET 45, National Certificate of Grade B, etc.) .	
15	**HO CHI MINH CITY UNIVERSITY OF AGRICULTURE AND FORESTRY**	1 –All candidates are admitted to the full-time study program of the University of Agriculture and Forestry or other schools with industry-relevant groups in Food Science and Technology (including aspirations 1 and 2). English proficiency (TOEFL 450, IELTS 5 or equivalent). 2 – Students enrolled in the program without a certificate of English will have to pass the compulsory examination; students who do not have sufficient English proficiency will have to attend the preparatory semester.	1– Examination based on the results of the National High School Examination (For candidates participating in the entrance examination for regular universities). 2 – Examination for candidates who take the test from a regular college to a regular university and 2nd qualification will take part in the exam organized by the school in November every year – details at www.ts.hcmuaf.edu.vn 3 – Direct recruitment and Priority recruitment: According to MOET regulations
16	**HO CHI MINH UNIVERSITY OF SCIENCE**	Graduated from high school; Grade Point Average of 3 years (grade 10, 11, 12) is 6.5 or higher; Direct selection or registration for admission to the University of Natural Sciences to reach the benchmarks of each publication program; Selective subjects: Mathematics – Physics – Chemistry (A00); Math – Physics – English (A01); Mathematics – English – Chemistry (D07); Math – English – Biology (D08).	–For direct selection, priority is given to recruited students according to the regulations of MOET and the selection criteria according to the regulations of VNU-HCM, the threshold for ensuring the quality of inputs, the application is in accordance with MOET regulations and regulations of VNU-HCM. – For recruitment based on the results of the annual national examinations and recruitment based on the results of the competency assessment held by VNU-HCM. Based on the results from the examinations, the School Admissions Committee will decide and announce the

No.	UNIVERSITY	ENROLLMENT REQUIREMENTS	
		ADVANCED PROGRAM	**STANDARD PROGRAM**
		No English proficiency when applying for admission. Students who have an English certificate (TOEFL ITP 450, TOEFL iBT 45 or IELTS 4.5 or higher) are not required to take the English test. Other students will take the English Language Test organized by the School (using the online language testing system) under the Common European Framework of Reference (CEFR) to have a plan for strengthening English language fluency.	threshold for quality assurance, the conditions for receiving the application before the time the candidate has registered to adjust the aspirations under the joint enrollment plan of MOET and VNU-HCM.
17	**UNIVERSITY OF INFORMATION TECHNOLOGY**	–Score from the National High School Examination. – A & A1 (no multiplication factor) – Direct selection: Excellent students are national team members or have won the first and second prizes in Mathematics, Physics and Informatics in National High School Examination. – Selection criteria: + Graduation grade of 1st semester in grade 12 must be quite good. + Average grade point of 5 semesters (grade 10, grade 11 and grade 12) reaches 6.5 or higher.	1. Graduates will be given a straightforward selection of eligible candidates according to the regulations of MOET: students who have won national excellent students, international Olympic team members, national science and technology competition, students won the ASEAN skill contest, etc. (up to 5% of the total) 2– Priority to recruit according to the regulations of VNU-HCM: pupils from 115 specialized schools, gifted and high schools in the group of schools with high scores (maximum 15% of the total target) 3– Selection by the National High School Examination in 2018 (at least 65% of the total) Subject combinations: Math –Physics – Chemistry Math – Physics – English Math – Literature – English The selection point is the total score of the three subjects of the selection group (not multiplied by the coefficient) plus the priority points of the area and subjects. 4– Selection based on the competency assessment held by the National University of Ho Chi Minh City for all sectors (up to 15% of the total)
18	**HO CHI MINH CITY UNIVERSITY OF TECHNOLOGY**	1– Graduated from high school	1– Graduated from high school. 2 – Selection by 4 methods:

No.	UNIVERSITY	ENROLLMENT REQUIREMENTS	
		ADVANCED PROGRAM	STANDARD PROGRAM
		2–Grade Point Averages in the 10th, 11th, and 12th grades are 6.5 or higher. 3. Selection by 4 methods: – Selection by the results of the National High School Examination in 2018 – Prioritized for selection according to the regulations of VNU-HCM – Direct selection according to enrollment regulations of MOET – Selection based on the results of the capacity assessment of VNU-HCM 4– Having an IELTS score of 6.0 or TOEFL iBT ≥ 79 (if not, English language learners in Pre-University)	– Selection by the results of the National High School Examination in 2018 – Prioritized for selection according to the regulations of VNU-HCM – Direct selection according to enrollment regulations of MOET – Selection based on the results of the capacity assessment of VNU-HCM
19	**HUE UNIVERSITY OF EDUCATION**	– Examination results of high school – The admissions requirements for the training sector of the University of Education are the grades of 3 years in the 10th, 11th and 12th grades, which must be good or better (based on the high school transcript). For majors with main subject, the main subject has coefficient 2 and the core subject has not multiplied the coefficient must be> = 5.0; The teachers do not recruit candidates who are deformed, have slurred speech, or stutter.	– – Examination results of high school – The admissions requirements for the training sector of the University of Education are the grades of 3 years in the 10th, 11th and 12th grades, which must be good or better (based on the high school transcript). For majors with main subject, the main subject has coefficient 2 and the core subject has not multiplied the coefficient must be> = 5.0; The teachers do not recruit candidates who are deformed, slurred speech, stuttering.
20	**HUE COLLEGE OF ECONOMICS–HUE UNIVERSITY**	– Eligible for admission – Have registered for the results of National High School Examination to recruit students and colleges and take the National High School Examination at the cluster chaired by the university; – The total marks of the groups of exams used for the entrance examination must not be less than the minimum score for submitting registration dossiers submitted by Hue University and no examination	– Admission is based on the results of the National High School Examination. – Examination points according to the subjects and training majors.

No.	UNIVERSITY	ENROLLMENT REQUIREMENTS	
		ADVANCED PROGRAM	STANDARD PROGRAM
		subjects in the selection group have results from 1.0 points or less.	
21	**DA NANG UNIVERSITY OF SCIENCE AND TECHNOLOGY**	University admissions based on results of National High School Examination. Entry point must meet the minimum threshold as prescribed. Priority in English, Mathematics.	University admissions based on results of National High School Examination. Entry point must meet the minimum threshold as prescribed. Upon successful completion of the high school test, the school will announce a minimum score. Examination score = Total score of 3 subjects in the combination group with the corresponding coefficient of each subject, then the scale of 30 points+ Priority enrollment points are awarded according to the current enrollment regulations.
22	**HCM CITY UNIVERSITY OF ARCHITECTURE**	– Students must graduate from high school – Fine Art Score of 5.0 or higher. – English level is equivalent to IELTS 4.0. Or take the English entrance exam with a level equivalent to IELTS 4.0 organized by the HCMC University of Architecture.	The selection is based on the results of the National High School Examination combined with the examination of additional skills by the HCMC University of Architecture.
23	**UNIVERSITY OF TRANSPORT AND COMMUNICATIONS**	Students who have been admitted to the standard undergraduate programs and wish to study the advanced undergraduate program.	– Admission is based on the results of the National High School Examination. – Examination points according to the subjects and training majors.

II. GRADUATION REQUIREMENTS OF ADVANCED UNDERGRADUATE PROGRAMS AND STANDARD UNDERGRADUATE PROGRAMS

No.	UNIVERSITY	GRADUATION REQUIREMENTS	
		ADVANCED PROGRAM	STANDARD PROGRAM
1	**CAN THO UNIVERSITY**	**Knowledge**	
		1.1. General Knowledge:	
		- Basic knowledge of Marxism–Leninism; Guidelines and policies of the Communist Party of Vietnam, the Ho Chi Minh Thought, having a healthy body, and knowledge of defense education to meet the requirements	- Basic knowledge of Marxism–Leninism; Guidelines and policies of the Communist Party of Vietnam, the Ho Chi Minh Thought, having a healthy body, and knowledge of defense education to meet the

		of building and defending the country. - Basic knowledge of general law, social sciences and humanities, and natural sciences to meet the requirement of acquiring professional knowledge. - Basic knowledge of English is equivalent to level B2. - Have basic knowledge of computers, office software and other basic software.	requirements of building and defending the country. - Basic knowledge of general law, social sciences and humanities, and natural sciences to meet the requirement of acquiring professional knowledge. - Basic knowledge of English is equivalent to level A. - Have basic knowledge of computers, office software and other basic software.
		1.2. Basic knowledge/Khối kiến thức cơ sở ngành	
		- Basic knowledge of the major. - Basic knowledge on conducting scientific research. - Knowledge of specialized foreign languages. - Basic knowledge of professional practice skills.	– Basic knowledge of the major. - Basic knowledge on conducting scientific research. - Knowledge of specialized foreign languages. - Basic knowledge of professional practice skills.
		1.3. Specialized knowledge	
		- In-depth knowledge and practical skills in the areas.	- In-depth knowledge and practical skills in the areas.
		2. Skills	
		2.1. Hard skills	
		- Graduates of the advanced program will gain the following skills: - Apply basic knowledge of social sciences and humanities to specialization. - Applying specialized knowledge in the training area. - Apply the techniques, skills, and tools in practice; design and conduct experiments, as well as survey and data analysis. - Design, organization, management and operation of production	- Ability to work in production, research, training, and state management agencies related to in the training area. - Technical consultancy, investment and design. - Participating in the production, operation, management of teams, or production shifts in plant farms, camp offices, or in relation to in the areas of training. - Join professional management.

		equipment in the training area. - Identify, calculate and solve practical problems in the training area.	- Present, respond to and address issues related to the training area into a number of areas. - Skills in using informatics software to build, operate and develop training programs for undergraduate and undergraduate levels, e-learning. - To have the capacity for scientific research, to solve problems in theory and practice in institutes, professional secondary schools, colleges, universities specialized in the training area, and related fields.
		2.2. Soft skills	
		- Demonstrate communication skills in both English and Vietnamese, using communication methods and arts, negotiating with relevant business partners, exchanging, sharing and cooperating in development. - Ability to work independently and with a team: active and confident in research, professional activities; manage and motivate people to work effectively. - Development of leadership and soft skills for employment, capacity building, implementation and management of short, medium and long-term plans for individuals, groups and collectives. - Use the basic office software such as Word, Excel, PowerPoint, actively exploit and use the internet.	- Ability to develop, implement and manage short, medium, and long-term plans for individuals, groups and collectives. - Ability to work independently and teamwork: active and confident in research, professional activities; Manage, motivate people to work effectively. - Ability to communicate and public relations: using methods and art of communication, negotiation appropriate to the work-related partners. - Ability to communicate in English. Read and understand specialized materials in English or French.. - Use basic office software such as Word, Excel, PowerPoint, and use the internet.
		3. Attitude	
		- Build a lifelong learning sense and perform and integrate research at the international level. Ability to update knowledge, creativity in work. - Knowledge and responsibility of citizens, knowledge of law,	- Have a sense of civic responsibility, proper attitude and ethics, work-readiness. - Ability to study hard, perform hard work with integrity, have a passion for work and progress. - Be patient, energetic and

		understanding of contemporary social and political issues; protect the environment and promote health.	creative, know how to overcome difficulties to complete the task. - Ability to update knowledge, creativity in work.
2	**HO CHI MINH CITY UNIVERSITY OF AGRICULTURE AND FORESTRY**	**Knowledge**	
		- Apply basic knowledge of natural sciences, engineering and social sciences. - Apply the core technical knowledge in the training area. - Apply in-depth knowledge in the training area. - Good use of English for communicating and researching specialized materials: English proficiency of B2 in the framework of a European reference or equivalent international certificates.	- Satisfying Article 17 – Graduation Examination and Graduation Recognition Conditions under MOET's Regulation No. 25/2006 / QD-BGDDT dated June 26, 2006 (for yearly faculty) or Article 27 – Graduation Examination and Graduation Recognition Schemes in accordance with Regulation 43/2007 / QĐ-BGDDT issued on 15/08/2007 by MOET (for credit system training). - Language: Must pass the English entrance test by the NLU Language Center or English B1F CEFR or French DELF 3. - Understand the technical and technological principles of production processes. - Knowledge of production management systems and quality management in the training area.
		2. Skills	
		2.1. Advanced skill	
		- Analysis, systematic reasoning and problem solving in the training area. - Checking and experimenting on solutions to issues related to the training area. - Proficiency in technical skills in the training area. - Formulate ideas, set requirements, design and develop products as required in the training area. - Carry out the processes and offer technical supervision of processing activities.	- Design production plan; project planning; executing and managing technology for processing factories. - Ability to read and understand technical drawings: capable of calculating, designing, building, operating and controlling technological lines, machine-equipment systems in the manufacture of products related to the training area. - Analysis, testing and evaluation of nutritional value, safety and hygiene of raw materials and

			products.
		2.2. Soft skills	
		- Work independently, have leadership skills and work in a team. - Communicate effectively in many forms: speech, text, electronic communication.	- Skillfully communicate and understand the method of creative research methods and good communication. - Good practical skills and applications.
		3. Worldview	
		- Recognizing the role and responsibility of an engineer, knowledge of corporate culture, professional ethics, regulations on food hygiene and safety and industrial behavior. - Active, creative, and lifelong learning.	- Having the right perspective. - Interested in sustainable development - Self-control, self-responsibility.
3	**HO CHI MINH UNIVERSITY OF SCIENCE**	1– Good use of background knowledge. 2– Making good use of professional skills. 3– Recognizing the context, responsibility and ethics of employees in the information technology field. 4– Use of personal skills and group skills. 5– Forming ideas, designing and realizing IT systems 6. Verification, operation, maintenance and development of IT systems 7–English proficiency is achieved through the TOEFL ITP 550, TOEFL iBT 79, or IELTS 6.0	- Understanding status and responsibilities. Understanding the current situation (advantages and disadvantages) of the country, sense of responsibility and professional ethics, understand the obligation of intellectuals in contributing to promote the development of society. - Soft skills: Good interpersonal and presentation skills, teamwork skills, personal contribution to teamwork to fulfill assigned tasks in each project. - Ability to inherit and develop a career: Ability to self-study creatively to update new knowledge as well as inherit the traditional experience of senior colleagues to improve professional skills, aware of the importance of self-development to meet the demands of society, aware of the need for lifelong learning. - Ability to apply basic knowledge: Ability to apply mathematical knowledge, apply

			the fundamentals and basic knowledge of computer science in the process of solving professional problems in the field of information technology. - The ability to analyze, design, implement, test, and maintain systems in the information technology field. Ability to analyze requirements, design, install, deploy, test, commission, transfer and maintain computer-based systems depending on the training field. - Have a professional working style and creativity. Ability to manage projects, organize and assign work to groups, manage and organize personal tasks professionally, handle the work creatively. Ability to use fluent foreign languages in the work. - Ability to use support tools. Ability to use or self-study to use career support tools, especially computer-based tools to maximize the career of IT professionals in general or professional activities belonging to the specialized training.
4	**UNIVERSITY OF INFORMATION TECHNOLOGY**	**Knowledge**	
		–Knowledge of physical education, law in general and policies, guidelines and directions for economic and social development in Vietnam through stages. – Mastering basic science knowledge and applying it to specialization. – Knowledge of basic knowledge, advanced computer-based online information system and commerce, and practical application in support of operational and management activities in the fields of economics, society, proven knowledge and choice is consistent with contemporary. – Knowledge of IT project management and application in practice. – Basic knowledge of computer network	- Knowledge of mathematics, physics, algorithms, analytical methods, modeling. as the foundation for deploying information system applications. - Designing, modeling and building, database management, data warehouse organization, data mining related to management, production and business activities. - Methods, techniques, models for planning, analysis and design of information systems. - Project management and project grouping through the planning, analysis, design and implementation phases of the

		and data security of an information system. – Knowledge of business operations and business administration (ERP, BPM, IT solutions to improve competitiveness, development ability, business management, etc.) – English proficiency from TOEFL ITP 550, TOEFL iBT 79, IELTS 6.0 or above.	information system development project. - Safety and security in information system and computer network - Enterprise management; economic and financial activities of enterprises, legal aspects. Solutions to use information systems to improve the leadership and management of enterprises - To acknowledge the responsibilities and obligations of managers of information systems - English proficiency: TOEFL – International: 400 points or more; or TOEFL – in the country: from 450 points or more
		Skills	
		– Apply knowledge and experience to analyze, synthesize, evaluate and solve problems in the IT field, e-commerce, system thinking skills, and set feasible objectives, in accordance with practical conditions. – Analyze, design the business process application information system. – Programming software application. – Organize knowledge and explore knowledge in the fields of management, business, and trade. – Self-help learning to support future career direction. – Social communication, teamwork skills with professional attitude and good professional ethics, ability to manage working groups, active in the work. – Working directly in English in the field of information technology.	- Ability to apply knowledge, skills and experience to solve situations in IT field in general and information system in particular. - Analysis and design of information systems. - Building and managing database systems, online information systems. Planning and executing the project of building information system. - Programming. - Teamwork and leadership.
		Attitude	**Attitude**
		–Be aware of the roles, responsibilities, ethics, worldview, human life and the ability to perceive and evaluate the	– Be aware of the roles, responsibilities, ethics in the society, worldview, human life and the

		phenomenon logically and positively. – Awareness of the need and ability to participate in lifelong learning, understanding the impact of new technologies in the global economic and social context.	ability to perceive and evaluate the phenomenon logically and positively. – Awareness of the need and ability to participate in lifelong learning, understanding the impact of new technologies in the global economic and social context.
5	**HO CHI MINH CITY UNIVERSITY OF TECHNOLOGY/ TRƯỜNG ĐẠI HỌC BÁCH KHOA TP HỒ CHÍ MINH**	Meeting all basic skills in general knowledge, fundamentals, specializations and English.	Graduates of Electrical Engineering, Electronics, Telecommunication Engineering will have: a. Ability to apply mathematical knowledge, basic science and basic techniques. b. Ability to design and conduct experiments, analysis and interpretation of data. – Ability to design and conduct experiments. – Ability to analyze and interpret data. c. Ability to analyze and design part or all of an Electronic– Telecommunication system. Products are modern, sustainable, can be produced, meet the requirements of socioeconomic development and environment. d. Ability to work effectively in interdisciplinary teams to accomplish a common goal. e. Ability to identify, express and solve technical problems of the field. f. Understanding ethical and professional responsibilities. g. Ability to communicate effectively. – Ability to write reports. – Ability to present, express ideas through words, or pictures Minimum level of English is equivalent to TOEIC 450. h. Knowledge is broad enough to understand the impact of technical solutions in the global economic, environmental, and social context. i. Awareness of need and ability to

			engage in life-long learning. j. Knowledge of contemporary issues. k. Ability to use modern methods, skills and tools, software, and programming languages required for technical practice.
6	**HUE UNIVERSITY OF EDUCATION**	– Having good political qualities, ethics and good professional status. – Strong knowledge of general knowledge, specialized knowledge, theory and practice to teach in high schools, professional secondary schools, colleges, universities, or work in scientific research institutions. – Ability to continue studying and researching at a high level. – Proficiency in the use of specialized equipment, laboratory equipment, and teaching aids. – Creative and engaging teaching methods. – Applying science and technology in the implementation of education plans to maximize the learning efficiency of learners. – English: TOEFL 550 or higher or equivalent	- – Having good political qualities, ethics and good professional status. - – Strong general knowledge, specialized knowledge, theory and practice to teach in high schools, professional secondary schools, colleges, universities, or work in scientific research institutions. - – Ability to continue studying and researching at a higher level. - – Proficiency in the use of specialized equipment, laboratory equipment, and teaching aids. - – Creative and engaging teaching methods. - – Applying science and technology in the implementation of education plans to maximize the learning efficiency of learners. - English proficiency level of B1 or another foreign language of equivalent level.
7	**HUE COLLEGE OF ECONOMICS – HUE UNIVERSITY**	Meeting all basic skills in general knowledge, fundamentals, specializations and English.	1. Knowledge – Understand and master the basic principles of economics and economic management. – Understand and apply the principles of economics to the agricultural sector. – Have in-depth knowledge of agricultural economics. – After graduation students have the minimum English B1 level. – Good use of office software.

			2. Skills – Have the ability to work independently or in a team. – Use mathematical tools and information technology to analyze and evaluate socioeconomic issues in agriculture and rural areas. – Analyze, assess, plan and solve economic problems in the agricultural sector. – Directly take charge of or take part in the settlement of socioeconomic and environmental issues in agriculture, rural areas or other related fields. –Capacity to organize, manage and trade in agriculture in the fields of input supply, processing, consumption and export of agricultural products. 3. Attitude and behavior Diligent, authoritative, harmonious, dynamic, creative. 4. Opportunity to work after graduation – State management agencies in the agricultural sector. – Agricultural research institutes or universities. – Agricultural and rural development projects funded by the Government or funded by foreign countries. – Specific positions that they can undertake: managers, researchers, trainers, or specialists in the agricultural sector.
8	**DA NANG UNIVERSITY OF SCIENCE AND TECHNOLOGY**	Ability to apply basic scientific knowledge in professional work. Ability to design, conduct experiments, analyze and interpret data. Ability to identify, analyze and solve technical problems. Ability to use technical methods, modern technical tools, specialized software in technical practice.	Knowledge 1. Mastering knowledge: basic science, basic discipline and specialization. 2. Applying knowledge of basic science, basic discipline, specialization, practical skills combined with the use of specialized software to solve problems in the field.

		Ability to repair, design, consult, monitor, operate and manage equipment and systems in the field of Electronic–Telecommunication Engineering / Electrical Engineering – Embedded Systems, practical, economic, social, environmental, labor safety and sustainable production. Knowledge of contemporary issues and knowledge needed to understand the impact of technical solutions on social, environmental, economic and globalization contexts. Ability to think independently, critical thinking and effective teamwork Ability to communicate and use foreign languages effectively in professional work and in the international environment. Ability to present and report results. Ability to recognize the need for life-long learning. Awareness of professional ethics, good political attitudes and social and environmental responsibility. In foreign languages ability of level 4 or higher (out of 6), or equivalent international certificate of TOEFL iBT 71, TOEFL PBT 530, IELTS 6.0. Must meet the standard of information technology and IT application standards	3. Identification, analysis and processing: identification, analysis of technical issues in systems; from that to build related models and calculations designed to solve problems.4. Organization of work: know how to effectively organize the management, operation, operation, design, construction; ability to assign work to individuals in each group and coordinate work among groups to solve complex problems. 5. Demonstration, presentation: know how to clearly present the technical issues to be solved and the results achieved. 6. Lifelong learning: the ability to acquire new knowledge, learn and update information to meet the rapid development of the field. 7. Social and environmental understanding: able to participate in solving technical problems in the fields. 8. Communication in foreign languages: Having the ability to work with experts, engineers, technicians in foreign languages to achieve high efficiency in work. 9. Foreign language skills: Graduates with foreign language proficiency have reached grade 3 in the "National Language Competence Scale of 6 levels" by MOET. Attitude: A sense of civic responsibility, sense of discipline and industrial style.
9	**HCMC UNIVERSITY OF ARCHITECTURE / ĐẠI HỌC KIẾN TRÚC TP.HCM**	Meeting all basic skills in general knowledge, fundamentals, specializations and English.	Meet the standards of knowledge, skills, and attitudes. Knowledge: Knowledge of philosophy, sociology, culture, history, natural science knowledge, logical thinking, science, to apply in architecture, creative thinking, knowledge of theory, architectural history, basic principles in architectural design and issues related to engineering works, knowledge of urban, landscape, interior , environment in architecture – construction, knowledge of

			composing, documentation, management of civil and industrial architecture. Good skills in the design of architectural projects. Soft skills: professional presentation skills, ability to work independently. Proficient in applying basic office informatics, presenting documents, lecturing, using specialized informatics software in architectural design. Minimum English TOEIC score 450 or equivalent.
10	**HANOI UNIVERSITY OF TECHNOLOGY**	– Complete the required number of credit hours of the program. – Meet the English proficiency requirement.	– Complete the required number of credit hours of the program. – Meet the English proficiency requirement.
11	**UNIVERSITY OF TECHNOLOGY– VIETNAM NATIONAL UNIVERSITY HANOI**	– Complete the required number of credit hours of the program. – Meet the English proficiency requirement.	– Complete the required number of credit hours of the program. – Meet the English proficiency requirement.
12	**FOREIGN TRADE UNIVERSITY**	According to CSUF and FTU current regulations, graduates' degree will be issued in one of the following models: 1. CSUF and FTU award double degrees, even when the students complete the Program in Vietnam: CSUF will decide on graduation requirements. 2. CSUF degree: the students study at CSUF's campus in the final year and accumulate a sufficient number of credits as required by CSUF. 3. FTU degree signed by the President of FTU with CSUF certificate. Graduation requirements: Students must meet the following requirements: – Students, up to graduation time, are not subjective to criminal responsibility or disciplinary measures at suspension level. – Have completed all compulsory subjects and adequate elective subjects. Have accumulated sufficient credits of the training framework (140 credits).	– Complete the required number of credit hours of the program. – Meet the English proficiency requirement.

		– Have got military and physical training certificates as required. – Meet English language requirements for each specific school year.	
13	**HANOI MEDICAL UNIVERSITY**	Students are required to meet the requirements of specialized nursing knowledge, specialized skills, hard skills, soft skills (organizational capacity, leadership), good conduct and professional ethics. English proficiency of IELTS 5.5.	– Complete the required number of credit hours of the program. – Meet the English proficiency requirement.
15	**HANOI UNIVERSITY OF MINING AND GEOLOGY**	– Complete the required number of credit hours of the program. – Meet the English proficiency requirement.	– Complete the required number of credit hours of the program. – Meet the English proficiency requirement according to the Circular No. 01/2014 / TT-BGDDT issuing the framework of foreign language competence of 6 levels applied in Vietnam and Circular 03/2014 / TT-BTTTT of the Ministry of Information and Communication issuing the standard of skills to use information technology.
16	**VIETNAM MARITIME UNIVERSITY**	– Complete the required number of credit hours of the program. – Meet the English proficiency requirement: IELTS: 6.0 Cambridge: B2 (169–175) TOEFL: 530ITP, 71IBT	– Complete the required number of credit hours of the program. – Meet the English proficiency requirement: IELTS: 4.0 TOEIC: 450 Cambridge: B1 (140–146) TOEFL: 450PBT
17	**VIETNAM NATIONAL UNIVERSITY OF FORESTRY**	– Complete the required number of credit hours of the program. – Meet the English proficiency requirement.	– Complete the required number of credit hours of the program. – Meet the English proficiency requirement.
18	**THUY LOI UNIVERSITY**	– Complete the required number of credit hours of the program. – Meet the English proficiency requirement.	– Complete the required number of credit hours of the program. – Meet the English proficiency requirement: IELTS 4.0

Source:

Can Tho University:

Standard Aquaculture undergraduate Program of Can Tho University:
https://www.ctu.edu.vn/ctdt/k40/86_V1_CDR_52620301_NuoiTrongThuySan.pdf

Advanced Aquaculture undergraduate Program of Can Tho University:
https://www.ctu.edu.vn/ctdt/k40/89_CDR_52620301_NuoiTrongThuySan_CTTT.pdf

Standard Biotechnology Undergraduate Program of Can Tho University:
https://www.ctu.edu.vn/ctdt/k40/91_CDR_52420201_Cong%20NgheSinhHoc.pdf

Advanced Biotechnology Undergraduate Program of Can Tho University
https://www.ctu.edu.vn/ctdt/k40/92_CDR_52420201_Cong%20NgheSinhHoc_CTTT.pdf

Standard Food Technology Program of HCMC University of Agriculture and Forestry Program

HCMC University of Agriculture and Forestry:

Standard Food Technology Program of HCMC University of Agriculture and Forestry.
https://thongtintuyensinh.vn/Truong_Dai_hoc_Nong_Lam_TPHCM_C51_D807.htm

http://ts.hcmuaf.edu.vn/data/file/QD%20BAN%20HANH_CHUAN%20DAU%20RA_CAC%20NGANH%20DAO%20TAO_DAI%20HOC_&_CAO%20DANG.pdf

Advanced Food Technology Program of HCMC University of Agriculture and Forestry:

http://ts.hcmuaf.edu.vn/ts-8192-1/vn/nganh-khoa-hoc-va-cong-nghe-thuc-pham.html

http://ft.hcmuaf.edu.vn/data/file/So%20tay%20sinh%20vien%20CTTT.pdf

University of Natural Sciences, HCMC

Standard Program of University of Natural Sciences, HCMC:
https://tuyensinh.hcmus.edu.vn/attachments/article/149/Deantuyensinh2018-21Mar.pdf

https://web.hcmus.edu.vn/images/stories/phong_tochuc_hanh_chinh/chuan_dau_ra_dh_khtn_15-12.pdf

Advanced Program of University of Natural Sciences, HCMC:
https://tuyensinh.hcmus.edu.vn/component/content/article/97-cac-chuong-trinh-dac-biet/111-thong-bao-tuyen-sinh-cac-chuong-trinh-dao-tao-dac-biet-nganh-cong-nghe-thong-tin

http://www.ctdb.hcmus.edu.vn/vi/educational-program/excellent-program/

University of Information Technology VNU-HCM:

Standard Program of University of Information Technology VNU-HCM:

https://tuyensinh.uit.edu.vn/2018-chi-tiet-cac-phuong-thuc-xet-tuyen-cua-uit-nam-2018

https://tuyensinh.uit.edu.vn/tong-quan-nganh-he-thong-thong-tin

Advanced Program of University of Information Technology VNU-HCM: https://tuyensinh.uit.edu.vn/chuong-trinh-tien-tien-nganh-he-thong-thong-tin

Ho Chi Minh City University of Technology:

Standard Program of Ho Chi Minh City University of Technology:

http://www.aao.hcmut.edu.vn/index.php?route=catalog/chitietts&path=64_66&tid=1649

http://www.aao.hcmut.edu.vn/index.php?route=catalog/chitiettb&thongbao_id=1010

Advanced Program of Ho Chi Minh City University of Technology:

http://oisp.hcmut.edu.vn/chuong-trinh-tien-tien-dien-dien-tu.html

Hue University of Education:

Standard Program of Hue University of Education:

http://tuyensinh.dhsphue.edu.vn/Modules/Nganhhoc/front_detail_nganh.aspx?idnganh=2

http://www.dhsphue.edu.vn/media/db_html_cmp_0603/20170723154659_cdr_daihoc_2015.pdf

http://www.dhsphue.edu.vn/media/db_html_cmp_0603/20170723154659_cdr_daihoc_2015.pdf

Advanced Program of Hue University of Education:
http://tuyensinh.dhsphue.edu.vn/Modules/Nganhhoc/front_detail_nganh.aspx?idnganh=14

http://www.dhsphue.edu.vn/cd_cmk.aspx?cd=39&id=0

Hue College of Economics–Hue University:

Standard Program of Hue College of Economics–Hue University

: https://thongtintuyensinh.vn/Truong-Dai-hoc-Kinh-te-DH-Hue_C93_D843.htm

http://tuyensinh.hueuni.edu.vn/News/Detail/chuan-dau-ra_20170307101547

Advanced Program of Hue College of Economics–Hue University:
http://hueuni.edu.vn/portal/vi/index.php/News/thong-bao-tuyen-sinh-chuong-trinh-tien-tien-song-nganh-kinh-te-nong-nghiep-tai-chinh-lien-ket-voi-dh-sydney-uc.html

Da Nang University of Technology/Trường Đại học Bách Khoa Đà Nẵng:

Standard Program of Da Nang University of Technology: http://dut.udn.vn/Tuyensinh2018/Gioithieu/id/2091

http://daotao.dut.udn.vn/download/DATA_DUT/CTDT/ChuanDauRa_DH_2015_QD_818.pdf

Advanced Program of Da Nang University of Technology: http://fast.dut.udn.vn/vi/chuong-trinh-tien-tien-viet-my-tuyen-sinh-khoa-2018/

HCMC University of Architecture:

Standard Program of HCMC University of Architecture:

http://uah.edu.vn/router_detail/de-an-tuyen-sinh-he-chinh-quy-nam-vao-dh-kien-truc-tp.hcm-3894.html

http://www.uah.edu.vn/datafiles_kientruc/setmulti/1daotao/daihoc/2018/chuadaura_kientruc.pdf

Advanced Program of HCMC University of Architecture:

http://uah.edu.vn/router/doi-tuong-va-tieu-chi-tuyen-sinh-423.html

Hanoi Medical University. Retrieved from http://cttt.hmu.edu.vn/news/tID9894_Thong-Bao-Tuyen-Sinh-Chuong-trinh-tien-tien-nganh-Dieu-duong-Khoa-7.html

Thai Nguyen University of Agriculture and Forestry. Retrieved from http://cttt.tuaf.edu.vn/home/index.php?com=bai-viet&id_cate=41&at=514

Thuy Loi University. Retrieved from http://www.tlu.edu.vn/chuong-trinh-tien-tien-quoc-te/chuong-trinh-tien-tien-cua-dai-hoc-thuy-loi-4242

Vietnam University of Agriculture. Retrieved from http://www1.vnua.edu.vn/khoa/ketoan/en/component/docman/doc_download/469-student-hanbook-k60-fabm

University of Mining and Technology. Retrieved from http://humg.edu.vn/dieu-kien-dam-bao-chat-luong/Pages/chuan-dau-ra.aspx?ItemID=6330

CATALOGUE 4. FACULTY

Tertiary Lecturers Nationwide

Academic Year		2014–2015		2015–2016		2016–2017	
		Quantity	Ratio (lecture/ students)	Quantity	Ratio (lecture/ students)	Quantity	Ratio (lecture/ students)
	Number of students	**1,824,328**		**1,753,174**		**1,767,879**	
	Public	1,596,754		1,520,807		1,523,904	
1	Non-public	227,574		232,367		243,975	
	Lecturers	**65,664**	**1/28**	**69,591**	**1/25**	**72,792**	**1/24**
	Public	52,689	1/30	55,401	1/27	57,634	1/26
	Non-public	12,975	1/18	14,190	1/16	15,158	1/16
	In which, – females Ethics	35,653		32,690		35,064	
	–	1,115		1,063		716	
	– Professor	536		550		574	
	– Associate Professor	3,290		3,317		4,113	
	Divided by qualification						
	Ph.D.	10,424		13,598		16,514	
	Masters	37,090		40,426		43,127	
	Speciality I+II	563		620		523	
	Bachelor and College	17,251		14,897		12,519	
2	Others	336		50		109	

Notes: Students of military and national defense and international students are not included.

Source: Extracted from https://moet.gov.vn/thong-ke/Pages/thong-ko-giao-duc-dai-hoc.aspx?ItemID=4041

Tertiary Lecturers of Advanced Programs

	Full time lecturers						Total number of lecturers	Total number of initial enrollment	Ratio (lecture/ students)
	Prof.	Assoc. Prof.	PhD	Master	Tutors	Academic Adviser			
Phase 1 (From 2006)	16	127	260	281	440	126	**1,250**	**4,831**	**1/4**
Phase 2 (From 2008)	45	143	451	663	683	207	**2,192**	**4,008**	**1/2**

	Full time lecturers						Total number of lecturers	Total number of initial enrollment	Ratio (lecture/ students)
	Prof.	**Assoc. Prof.**	**PhD**	**Master**	**Tutors**	**Academic Adviser**			
Phase 3 (From 2010 – Present)	5	113	223	414	502	191	**1,448**	**4,431**	**1/3**
Total	**66**	**383**	**934**	**1,358**	**1,625**	**524**	**4,890**	**1,3270**	**1/3**

Salary of Lecturers

SALARY TABLE OF TEACHING STAFF (Unit: US dollars)

Group	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8	Level 9	Level 10	Level 11	Level 12
A3 Group												
Professors and Senior Lecturers												
Group 1 (A3.1)												
Salary Coefficient	**6.2**	**6.56**	**6.92**	**7.28**	**7.64**	**8**						
Salary range from 01/7/2018	392	414.47	437.22	459.96	482.71	505						
Group (A3.2)												
Salary Coefficient	**5.75**	**6.11**	**6.47**	**6.83**	**7.19**	**7.55**						
Salary range from 01/7/2018	363.30	386.04	408.79	431.53	454.28	477.02						
Group												
Associate Professors and Main Lecturers												
Group 1 (A2.1))												
Salary Coefficient	**4.4**	**4.74**	**5.08**	**5.42**	**5.76**	**6.1**	**6.44**	**6.78**				
Salary range from 01/7/2018	278	299.48	320.96	342.45	366.65	385	406.89	428.37				
Lecturers												
A1 Group												
Salary coefficient	**2.34**	**2.67**	**3**	**3.33**	**3.66**	**3.99**	**4.32**	**4.65**				
Salary range from 01/7/2018	147.85	168.70	190	210.40	231.25	252.10	272.95	293.80				

The difference between salary (not including other considerations) of professors and lecturers is as follows (US dollars):

No.	Position		Lowest	Highest	Medium
1	Lecturers (A1)		148	294	221
2	Assoc. Prof. – Main lecturers		278	428	353
3	Prof. – Senior lecturers	Group 2	363	500	432
		Group 1	392	505	449

Sources: Resolution No. 204/2004/NĐ-CP dated 14th December 2004 by the Government on the salary benefit for employees in the public sector.

http://moj.gov.vn/vbpq/lists/vn%20bn%20php%20lut/view_detail.aspx?itemid=18674

Circular No. 28/2015/TTLT-BGDĐT-BNV dated 6th November 2015 by the Ministry of Education and Training and the Ministry of Internal Affairs on instructions for the appointment and salary allocation of teaching staff in public education institutions.

http://vbpl.vn/bogiaoducdaotao/Pages/vbpq-van-ban-goc.aspx?ItemID=92847

Resolution No. 49/2007-QH14 dated 13th November 2017 on the budget estimate 2018 (base salary regulation)

http://vbpl.vn/botaichinh/Pages/vbpq-van-ban-goc.aspx?ItemID=12631

On 6th November 2015, the Ministry of Education and Training, the Ministry of Internal Affairs issued Circular No. 28/2015/TTLT-BGDĐT-BNV to guide the appointment and salary allocation for teaching staff in public education institutions.

About salary allocation, senior lecturers (level 1) are applied with the salary coefficient of staff of A3 type, group 1 (A3.1): 6.20–8.00; main lecturers (level 2) are applied with the salary coefficient of staff of A2 type, group 1 (A2.1): 4.40–6.78; lecturers (level 3) are applied with the salary coefficient of staff of A1 group: 2.34–4.98.

http://vbpl.vn/bogiaoducdaotao/Pages/vbpq-van-ban-goc.aspx?ItemID=92847

The Article 5 of this Circular regulates that teaching staff mentioned in the Circular No. 36/2014/TTLT-BGDĐT-BNV are applied with the salary table 3 implemented together with the Decree No. *204/2004/NĐ-CP dated 14th November 2004 by the Government on the salary benefit for employees.*

http://moj.gov.vn/vbpq/lists/vn%20bn%20php%20lut/view_detail.aspx?itemid=18674

On the applicable salary base of 1,390,000 dong regulated in the Resolution No. 49/2007-QH14 dated 13th November 2017 on the budget estimate 2018.

http://vbpl.vn/botaichinh/Pages/vbpq-van-ban-goc.aspx?ItemID=12631

APPENDIX H.

FINANCE UNDERGRADUATE PROGRAM

VHE Regular Program	Pilot Advanced Programs
Mathematics for Economics 1 & 2 *(*5 credits) The course will introduce mathematical concepts and their applications on economics and business, emphasizing linear algebra, which is widely used in almost all branches of science including business and economics. The approach is informal and aims to show students how to do and apply the mathematics required for a successful study of economics. Topics covered include vector spaces, matrix algebra, determinant, system of linear equations, linear models, and its applications in economics.	**Algebra and Calculus with Application to or Business and Economics *(*4 credits)** Functions, derivatives, optimization problems, graphs, partial derivatives. Lagrange multipliers, integration of functions of one variable. Applications to business and economics. Emphasis on problem-solving techniques.
Probability and Mathematical Statistics 1 *(*3 credits) Probability and Mathematical Statistics teaches random phenomena and how to process social-economic data in uncertainty, meaning in the context of incomplete information. This subject includes two sections which are structurally independent though tightly connected in terms of content. The first section, Probability, aims to teach certain rules of random phenomena. It is the direct basis for the analysis and statistical inference in mathematical statistics, and at the same time equips students with knowledge useful for other subjects, i.e., econometrics, demography, and sociology. The second section, Mathematical Statistics, includes a theoretical basis of random samples; the methods of descriptive statistics; and inferential statistics (parameter estimation and statistical hypothesis testing).	
Securities Analysis and Investment (3 credits): Introduces securities analysis and investment: investment risk and return and different types of investments; finance theories of portfolio management (efficient market hypothesis, Markowitz portfolio theory, capital asset pricing model); fundamental analysis versus technical analysis; portfolio management strategies (stock portfolio management strategies and bond portfolio management strategies).	**Investment Principles (4 credits):** Investment markets and transaction; sources of investment information and advice; return vs. risk; margin trading and short selling; investment planning; investing in equities and fixed income securities; speculative tax-sheltered investments; gold and other tangibles; portfolio management. Demonstrations and use of microcomputer technology in the above areas, including accessing various databases available to the investor.
Econometrics (3 credits): Students explore how quantitative researchers use models, data, and analysis to describe the real world. This course introduces the standard methods for estimating relationships among observed variables and	**Econometrics with Application to Economics and Business (3 credits):** This course provides estimates, regression techniques, one variable regression model, and an understanding the technical and economic implications. In addition, this

for testing hypotheses about those relationships. This course is to introduce students to the power of econometric methods, while noting the limitations of those methods. The focus will be on formulation, estimation, and testing of econometric models and result discussion. Moreover, students will have a chance to do an empirical research on their own via group assignment.	course provides students with analysis techniques used in economics, business administration using software applications, and an analysis of Vietnamese and global economic databases.
Accounting Principles (3 credits): This course covers basic knowledge of accounting principles, including the nature of accounting, the generally accepted definition and principles of accounting, reflected objects of accounting, and accounting methods. Students will learn how to recognize the basic business process in accounting.	**Elementary Financial Accounting (3 credits)** This course will equip students with fundamental knowledge of accounting so that they can study effectively other courses in their program. **Cost Accounting for Managers (3 credits)** Use and interpretation of financial statements; evaluation of accounting information systems; accounting for and analysis of costs; managerial use of accounting data for planning and decision-making.
Financial Mathematics: (3 credits) This course provides the foundations of financial mathematics. It aims to equip students with the knowledge of a range of mathematical and computational techniques that are required for a variety of quantitative positions in the financial sector, such as the calculation of interest, discounting, loan repayment, financial indicators in investment projects. During the course, students will learn the nature, principles and quantitative tools applicable to analyzing financial markets in general,	**Business Statistics (3 credits):** Application of statistics to business problems. Data collection and organization, probability theory, measures of central tendency and dispersion, hypothesis testing and estimation, simple regression, and correlation. Use of statistical software.
Microeconomics (3 credits) This course is presented to provide the basic economic principles of microeconomics. Structural lectures are presented simply and reasonably, while ensuring that they are modern. The contents were according with the basic concept of the market: supply and demand, elasticity of demand and supply, consumer behavior, business behavior (production–cost–profit), perfect competition and monopoly, the supply and demand for labor, and market failures.	**Principles of Microeconomics (3 credits)** Business organization, price theory, allocation of resources, distribution of income, and public economy.
Macroeconomics (3 credits) This course introduces the fundamentals of macroeconomic theory and explains their relevance to daily macroeconomic issues. It examines the behavior of macroeconomic variables, e.g., national income, unemployment, inflation, and exchange rates. The short run economic fluctuations and the role of monetary and fiscal policies are also discussed in this course.	**Principles of Macroeconomics *(*3 credits)** Money and banking, price changes, national income analysis, business cycles, economic growth, fiscal and monetary policy, and international trade.
Monetary and Financial Theories 1 & 2 (6 credits). The course is designed to provide students with the understanding of money, banking, and financial markets. The course is focused on the concepts of money, the	**International Business (3 credits)** Introduction to the nature, dimensions, and environment of international business. Emphasis on business functions, practices, and decisions as influenced by

structure of the international financial system, the players and financial instruments of financial markets, and financial intermediaries. Topics of international finance are discussed to explain the behavior of the exchange rate and the operation of international financial system.	cultural, political, economic, social, and institutional factors in various parts of world. Diffusion of information technology.
Fundamentals of Law (2 credits) The course provides basic knowledge about the state and law: (1) origin, nature of state, type and form of state in general, the Vietnamese Socialist Republic in particular, including the functions of the state, system of agencies in the state; (2) the origin, nature of law, regulative mechanism of law for social relations: legal norm, legal relations, legal implementation, legal violation and liability; (3) the concept of legal form, the legal forms in both the world and Vietnam; (4) introducing to students fields of Vietnamese laws: administrative law and administrative procedure law, civil law and civil procedure law, criminal law and criminal procedure law, business law, intellectual property law, labor law, financial law, land law and environmental law; (5) supplying the students with basic knowledge of international law.	**Legal and Business Transactions (3 credits):** Introduction to financial accounting practice. For business majors. Laboratory and class computation applications required.
Risk Management (3 credits) In today's world of rapid information flows, rising volatility, regulatory concerns, and oversight, prudent management increasingly requires understanding and measuring risk. Merged or individual banks, securities dealers, insurance companies and industrial firms with significant financing operations all require enterprise-wide risk management that might span many operations across currencies and locations in real time.	**Principles of Management (3 credits)** Principles and theories of management, organization theory, planning and control techniques. Management of the overall organization and the production/ operations systems of organizations.
Securities Market (3 credits) Specialization of corporate finance, commercial banking, international finance, public finance, securities market, insurance and actuaries. The course consists of six chapters with the basic contents of securities and the securities market. The module provides students the basic knowledge of the securities market, e.g., concepts, characteristics, roles and structures of the securities market; securities and valuation of securities; issuance and trading of securities; information system in the securities market.	**Capital Markets (4 credits)** Capital formation, rates, markets and institutions. Flow of fund analysis, intermediation, interest rate structures, risks and liquidity. Management of financial institutions.
International Finance (3 credits) This module contains the most fundamental issues about international financial operations: the basics of international monetary system; international financial institutions; the international balance of payments; exchange rate and exchange rate policy; activities of international financial markets, international payment,	**International Finance: (4 credits)** International trade theories and international payments; currency value fluctuations and exchange rates; international capital markets; roles of developing countries; international institutions and multinational enterprises. Individual research required.

international credit, and debt and international debt crises.	
International Settlement (3 credits) International Settlement is the core module of The International Finance program. It is designed for third and final-year students who may wish to pursue a career in the commercial and banking industry, to continue to study at a postgraduate institution in business or banking and finance or merely to acquire a good body of knowledge on international settlement.	
Corporate Finance (3 credits) This course provides advanced knowledge about corporate finance: theory of capital structure, working capital management, and long-term financial planning. The topic of corporate restructuring is also discussed. This course also introduces basic knowledge about corporate groups.	**Intermediate Financial Management: (4 credits)** An intermediate level course in financial management integrating computer applications and management information systems into the area of financial functions and decisions. The course is primarily a case study and requires using a computer and appropriate software. The main areas of concentration are cash budgeting, capital budgeting, business combinations and mergers, cost of capital, and international finance.
Commercial Bank (6 credits): This module covers theories and practices in banking management. The topics are divided into four broad themes, comprising an overview of the banking sector, management of liabilities and equity, management of assets portfolio, and methods of interest calculation in banks. This course is also for extensive study in credit activities and theoretical issues of pricing and financial analysis of commercial banks, which are (i) credit operation; (ii) credit policies and analysis; (iii) owners' equity management; (iv) analysis of commercial banks' performance; and (v) risks and risk management in commercial banking operations.	**Commercial Bank Management: (**4 credits) This course discusses how banking operations, one of the most innovative industries in recent times, must keep pace with the dynamic economy and legal regulations. This course focuses on techniques used in bank financial management and operating principles. Along with analysis of management principles, this course also emphasizes the social importance and the role of money in the modern commercial bank system.
Marketing (3 credits) Marketing gives students the opportunity to examine the contribution that marketing can make to the success of a business. This course aims to providing students with an understanding of banking marketing operations, which includes knowledge and professional and management skills.	**Marketing (3 credits):** Relation of marketing system to other activities in the firm. Domestic and world marketing environments. Economic and social effects on marketing. Human behavioral effects on marketing, communications, information systems, management problems and their solutions.
Essentials of Management (3 credits) This compulsory course is designed to equip students with basic knowledge and skills to become a manager, including (1) an overview of management: introduction to social systems, organizations and management of social systems; introduction to process management, managers and the development of managerial ideas; (2) an analysis	**Business Finance (4 credits)** An introductory course for all business majors, integrating computer applications and management information systems in the following areas of finance: (1) time value of money, risk, valuation, cost of capital, capital structure; (2) capital budgeting; (3) long-term financing decisions; (4) working capital policy and management;

of the environment of management; ethical and social responsibilities of management; management in globalization; (3) The decision-making process and information for management decisions; and (4) basic contents of the management process including: planning, organizing, leading, and controlling.	(5) financial analysis and planning; and (6) special topics, including mergers, and bankruptcy.
Business Management (3 credits) Business Management 1 is the foundation module that focuses on business and business management in the market economy. With this general knowledge, students can continue to gain skills in the other modules. This module is considered as a link between the pure theoretical knowledge that students have learned in other basic scientific modules (e.g., mathematics and economics) and the applied science modules (e.g., entrepreneurship, business strategy, operational management, quality management, human resource management, logistic administration, consumption management, financial management, and business cost management).	**Business Strategy and Policy (4 credits)** Integration and application of knowledge theories and techniques derived from the study of business disciplines. Use of the case method and business simulations to formulate business strategies and plans. Written reports required.
Basic Informatics *(*3 credits) This course provides the basic knowledge of informatics, trains students in the method of logical thinking, and equips them with informatics competence and tools to better study other courses and do research. Course contents include: Part 1: (1) Basic concepts of informatics; (2) an overview of information technology; (3) operating systems for computers; (4) computer programming; (5) computer network and internet; and (6) information security and computer maintenance. Part 2: Basic uses of Microsoft Office software: (1) Microsoft Word processing software; (2) Microsoft Excel electronic spreadsheet software; and (3) Microsoft PowerPoint slideshow software.	**Intro to Computer Systems and Applications *(*3)** An introduction to the use of calculators, the Internet and e-mail, Windows, word processing, spreadsheets, and database applications; basic computer literacy. **Management Information Systems (3 credits)** Information systems concepts and components, contemporary organizational applications, development and management of information systems, and future trends in information systems and technologies. Computer team projects, requiring knowledge of the integration and application of conceptual and skills-oriented information systems in a business environment.

Sources: Extracted from Standard Finance undergraduate program of National Economics University, retrieved from https://daotao.neu.edu.vn/vi/ctdt-he-chinh-quy/chuong-trinh-dao-tao-he-chinh-quy, and from Advanced Finance undergraduate program of National Economics University, retrieved from http://aep.neu.edu.vn/web/vn/c97/p75/p74/Chuong-trinh-Tien-tien/Khung-chuong-trinh-dao-tao/default.aspx