International Education Guide

FOR THE ASSESSMENT OF EDUCATION FROM THE ISLAMIC REPUBLIC OF PAKISTAN

IQAS

INTERNATIONAL QUALIFICATIONS ASSESSMENT SERVICE

Government of Alberta
Canada

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Welcome to the Alberta Government's International Education Guides

The International Qualifications Assessment Service (IQAS) developed the International Education Guides for educational institutions, employers and professional licensing bodies to help facilitate and streamline their decisions regarding the recognition of international credentials.

These guides compare educational systems from around the world to educational standards in Canada. The assessment recommendations contained in the guides are based on extensive research and well documented standards and criteria. This research project, a first in Canada, is based on a broad range of international resources and considerable expertise within the IQAS program.

Organizations can use these guides to make accurate and efficient decisions regarding the recognition of international credentials. The International Education Guides serve as a resource comparing Alberta standards with those of other countries, and will assist all those who need to make informed decisions, including:

- employers who need to know whether an applicant with international credentials meets the educational requirements for a job, and how to obtain information comparing the applicant's credentials to educational standards in Alberta and Canada
- educational institutions that need to make a decision about whether a prospective student meets the education requirements for admission, and that need to find accurate and reliable information about the educational system of another country
- professional licensing bodies that need to know whether an applicant meets the educational standards for licensing bodies

The guides include a country overview, a historical educational overview, and descriptions of school education; higher education; professional, technical, vocational education; teacher education, grading scales, documentation for educational credentials and a bibliography.

The guides also include placement recommendations for comparison and application in Alberta, Canada.

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Revised December 2016
ISBN: 978-0-7785-5895-8

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Country Overview

Land

Pakistan is situated in South Asia in the Northern Hemisphere. It borders on Iran to the southwest, Afghanistan to the north and northwest, China to the northeast, India to the east and southeast, and the Arabian Sea to the south. Its longest shared border is with India (2,912 km), followed by Afghanistan (2,430 km), Iran (909 km), and China (523 km). Its coastline stretches for 1,064 kilometres along the Arabian Sea. The national capital, Islamabad, is located in the northwest of Punjab Province.

Alberta is seven hours behind UTC. Pakistan, with its single time zone 5.5 hours ahead of UTC, is 12.5 hours ahead of Alberta.

Pakistan features diverse landscapes ranging from mountains and plateaus to deserts and wetlands. Its territory encompasses some of the world's highest and most spectacular mountains, including K2, which at 8,611 metres above sea level stands as the world's second tallest peak. The Indus River enters Pakistan in the northeast and empties into the Arabian Sea.

The country has four provinces. The North-West Frontier Province (NWFP) consists largely of mountain valleys, Balochistan is an area of rugged plateaus, and Punjab and Sindh provinces boast irrigated plains along the Indus River and its tributaries. Balochistan has the largest land area, followed by Punjab, Sindh and NWFP.

With a total area of nearly 800,000 square kilometres (not including portions of Jammu and Kashmir under its control), Pakistan is about 20 per cent larger than Alberta's 661,190 square kilometres.

While much of Pakistan tends to be dry and fairly warm, its climate varies greatly from north to south, mainly because of differences in elevation. It has roughly four seasons: winter (December to March), summer (April to June), the monsoon season (July to September) and the post-monsoon season (October to November). In the mountainous areas of the north and west, temperatures are mild in summer and drop well below freezing in winter. In the low-lying areas of the south and east, summer can mean sweltering heat of up to 50 C, while winter is pleasantly cool with temperatures ranging between 10 C and 25 C.

FIGURE 1. MAP OF PAKISTAN

People and Languages

Pakistan's population of over 164 million is growing at an annual rate of around 1.8 per cent. The populace is quite young, with 36.9 per cent aged 14 or younger, 58.8 per cent aged 15 to 64 and only 4.3 per cent aged 65 or older. Only 35 per cent of people live in urban areas. The population is unevenly distributed, with 80 per cent living in Punjab and Sindh, and only about five per cent in the largest province of Balochistan.

With a population in 2009 of 3,653,840, Alberta has only a minuscule fraction of Pakistan's population.

Canada and Pakistan enjoy strong economic, social and cultural ties. The Pakistani community in Canada is estimated at more than 300,000.

Throughout history the area occupied by present-day Pakistan has experienced repeated invasions and large-scale migrations. Therefore the people of Pakistan are diverse in terms of ethnicity, cultural tradition and religious affiliation, and they speak many different languages and dialects.

Pakistan is among Canada's top five sources of immigrants, with more than 22,000 visas issued in 2006.

The great majority of Pakistanis—over 96 per cent—are Muslim, of whom about 95 per cent are Sunni and 5 per cent are Shia. Qadiani (0.2 per cent of the population), also known as Ahmadi, is a small but influential sect that maintains some Islamic beliefs but is considered non-Muslim by law. There are also small minorities of Hindus (1.6 per cent of the population) and Christians (1.6 per cent).

The national language of Pakistan is Urdu, an Indo-Aryan language belonging to the Indo-European language family. It uses a version of the Perso-Arabic script with 39 basic letters and, like Arabic and Persian, is written from right to left. Much Urdu vocabulary comes from Persian and Arabic. Urdu is closely related to Hindi, the national language of India. The two languages have virtually identical grammar and vocabularies, although Hindi has its roots in Sanskrit and is written in the Devanagari script. Figure 2 and Table 1 show the Urdu alphabet and numbers along with the Devanagari script and English transliteration.

FIGURE 2. URDU ALPHABET

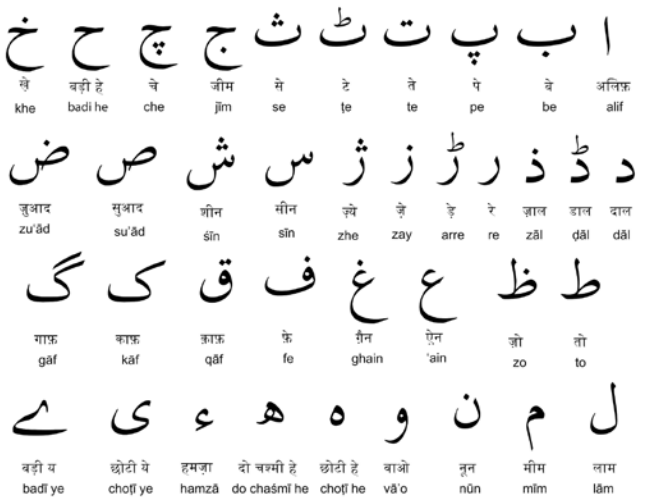


TABLE 1. URDU NUMBERS, 1 THROUGH 10

NUMBER	URDU	ENGLISH TRANSLITERATION
1	۱	ek
2	۲	do
3	۳	teen
4	۴	char
5	۵	panch
6	۶	chae
7	۷	sath
8	۸	aath
9	۹	nao
10	۱۰	das

While only a small minority of the population speak it as their first language, Urdu serves as the lingua franca of the country and is spoken as a second language by most of the populace. English also has official status and, along with Urdu, is widely used in government, commerce and higher education.

Pakistan's literacy rate (defined, for any language, as the ability to read a newspaper and write a simple letter) is around 53 per cent.

The most common first language in Pakistan is Punjabi (spoken by 44.2 per cent of the population), followed by Pashto/Pakhtu (15.2 per cent), Sindhi (14.1 per cent), Siraiki (10.5 per cent), Urdu (7.8 per cent) and Balochi (3.8 per cent). As provincial boundaries are linguistically based, each of the four provinces has one dominant ethno-linguistic group:

TABLE 2. MAJOR ETHNO-LINGUISTIC GROUPS

PROVINCE	CAPITAL	DOMINANT GROUP	LANGUAGE
Punjab	Lahore	Punjabis	Punjabi
North-West Frontier Province	Peshawar	Pashtuns/ Pakhtuns	Pashto/Pakhtu
Sindh	Karachi	Sindhis	Sindhi
Balochistan	Quetta	Balochis	Balochi

Muhajir is the ethno-linguistic group that speaks Urdu as its first language. Muhajirs are Muslims who migrated to Pakistan after the partition of British India in 1947, and their descendants. Most of them live in Sindh.

History

Pakistan came into existence in August 1947, when British-ruled India gained independence and was partitioned into India and Pakistan. The name Pakistan, meaning "land of the pure" in Urdu, was coined by using letters from the five regions of north British India—Punjab, Afghan (NWFP), Kashmir, Sindh and Balochistan. Founded as the Dominion of Pakistan, it was renamed the Islamic Republic of Pakistan in 1956. It initially consisted of two areas, West Pakistan and East Pakistan, divided by 1,600 kilometres of Indian territory. In 1971 East Pakistan seceded and became the independent nation of Bangladesh.

Early History (Before the 8th Century)

The area of present-day Pakistan has a long history of human settlement. One of the oldest civilizations in the world, the Indus River Civilization, first developed around 3000 BC. Excavations in the ancient cities of Harappa (Punjab Province) and Mohenjodaro (Sindh Province) point to a highly sophisticated social system. The Indus Valley people, most likely Dravidians, raised domesticated animals, grew various crops, engaged in extensive trade and used a written script that remains undeciphered.

Starting from 2000 BC the Aryans, a nomadic people from Central Asia, migrated to the Indian subcontinent. They brought with them an early form of the Sanskrit language, the Hindu religion and a tiered social system based on ethnicity and occupation.

From the coming of the Aryans to the arrival of the Europeans at the end of the 15th century, numerous empires have ruled various portions of the subcontinent. Prominent among the early great powers were the Mauryan Empire (326–200 BC) and the Gupta Empire (AD 320–550).

Islamic Period (8th to 18th Centuries)

The Islamic period began in the early eighth century and lasted for almost a thousand years. During this time, Muslims controlled much of the area of present-day Pakistan, and Islamic culture, education and religion flourished. About a quarter of the population converted to Islam.

In 711 the Arab general Muhammad bin Qasim brought Islam to Sindh. In the early 11th century the Afghan sultan Mahmud of Ghaznī conquered the region of Punjab and made Lahore his capital. Between 1175 and 1186 Sindh and Punjab were conquered by the Turkish leader Muhammad of Ghur. One of his generals, Qutubuddin Aybak, established the first dynasty of the Delhi Sultanate in 1206. Comprising a series of Muslim dynasties, the Delhi Sultanate ruled much of India, including most of Punjab and Sindh, for over three hundred years, until it was absorbed by the Mughal Empire.

Islam continued to spread in India during the rule of the Mughal Empire, founded in 1526 by Babur, a descendant of Tamerlane, the Mongol conqueror who invaded India and sacked Delhi in 1398. Of the twenty Mughal rulers, Akbar (r.1556–1605) was widely considered to be the greatest. He expanded and consolidated the empire, practiced religious tolerance and promoted art and literature. Another Mughal emperor, Shah Jahan, ordered the construction of the incomparable Taj Mahal in memory of his favourite wife. The rule of the Mughal emperors was greatly weakened by the early 18th century, and formally ended in 1858.

British Rule (1774 to 1947)

In 1498 the Portuguese explorer Vasco da Gama sailed across the Indian Ocean into the harbour of Calicut. The Portuguese were followed by the Dutch, the French and

the British. The Europeans set up commercial companies, such as the British East India Company and the Dutch East India Company, to trade first in spices and then in textiles. To compete against one another, they engaged in political, economic and military alignments with the Mughal rulers. By the late 18th century the British had become the dominant power in the subcontinent, defeating the French and reducing the Mughal emperor to a puppet ruler. The first British governor-general of India took office in 1774.

The British continued to expand their control of the Indian subcontinent through military operations and political alliances with local rulers. By the late 19th century they had annexed Sindh, Punjab and parts of Balochistan. British expansion met with strong resistance from Pashtun tribes on the northwest frontier. An agreement with the King of Afghanistan resulted in the partition of the Pashtun territories into areas of Afghan and British control. The North-West Frontier Province was established as a loosely administered area where Pashtuns were not subject to British colonial laws.

Revolt against British rule began with the Sepoy Rebellion of 1857 to 1858, when Indian sepoys (soldiers) in the service of the East India Company mutinied and tried to restore the rule of the Mughal emperor. After crushing the rebellion, the British government abolished the East India Company, banished the last Mughal emperor and assumed direct control of India. It also introduced a series of political, administrative and educational measures to help consolidate its rule. As Muslim leaders were believed to have been involved in the rebellion to regain the power and status they had enjoyed under the Mughal Empire, the British removed many Muslims from their positions in the Indian administration and replaced them with Hindus. The perception that Hindus were accomplices in the British oppression of Muslims was to last for many years.

The founding of the Indian National Congress in 1885 marked the rise of the independence movement. Led by Mahatma Gandhi and Jawaharlal Nehru, it advocated Indian autonomy from British rule and launched its non-violent resistance movement in 1920. Indian Muslims established the Muslim League in 1906, as many of them believed the National Congress represented only Hindu interests. In 1940 the Muslim League, led by Muhammad Ali Jinnah (popularly known by the title Quaid-i-Azam, "Great Leader"), made its first official demand for the partition of India into separate Muslim and Hindu nations.

After Independence (1947 to Present Times)

In August 1947, two years after the end of World War II, the subcontinent was partitioned into India and Pakistan. Pakistan gained independence on August 14, and India the following day. They both became independent dominions of the British Commonwealth of Nations. The hundreds of princely states joined either India or Pakistan.

The partition of British India brought about mass migration and great communal strife. The provinces of Punjab and Bengal were divided between the two countries to become the states of Punjab and West Bengal in India and the provinces of Punjab and East Bengal in Pakistan. Millions of people relocated across the newly drawn borders, with Hindus and Sikhs moving from Pakistan to India, and Muslims moving from India to Pakistan. An estimated half million people died in the ensuing violence, and 12 to 14 million people were permanently displaced. After partition about a third of the subcontinent's Muslim population was left in India.

Since partition, the two countries have gone to war twice. The first Indo-Pakistani war broke out in October 1947 due to a dispute over Kashmir. India now occupies about two-thirds of the former princely state as the State of Jammu and Kashmir, while Pakistan rules the remaining area as Azad (free) Kashmir and the Northern Areas. The second war took place in 1971, when Indian troops crossed the border into East Pakistan, defeating the West Pakistan army that had been sent there to hold back the independence movement of the East Pakistanis. This enabled East Pakistan, which had about 55 per cent of Pakistan's population, to secede and form the independent republic of Bangladesh.

In addition to border disputes, post-independence Pakistan has faced many other challenges, with ethnic strife, civic unrest, and mass poverty and illiteracy set in a background of political instability. The first Constitution, enacted in 1956, designated Pakistan as an Islamic republic and a parliamentary democracy. However, the military has played a prominent role in national politics, and several governments have been brought to an end by assassination or military coup. The last President, Pervez Musharraf, came to power as the result of a military coup in 1999 and resigned under pressure in August 2008. The current President, Asif Ali Zardari, took office in September 2008.

In recent years market-based reforms and external factors have contributed to a fairly robust economic growth. However, with a per capita annual GDP of about US$650, Pakistan remains a low-income country. Underdevelopment, poverty and illiteracy are major concerns.

Administration

The 1956 Constitution, which established Pakistan as an Islamic republic, was abrogated two years later with the imposition of martial law in the country. The current government is based on the 1973 Constitution, which was substantially amended in 1986.

Pakistan has a federal system with a president as head of state and a prime minister as head of government, and a bicameral legislature consisting of the Lower House (National Assembly) and the Upper House (Senate). The prime minister, who serves a four-year term, is the leader of the national assembly's dominant party or coalition but is formally appointed by the president. An electoral college, consisting of members of the national and provincial legislatures, elects the president for a five-year term. The president acts on the advice of the prime minister but has the power to prevent the passage of non-finance bills and to dissolve the national assembly. The senate has 100 members elected by provincial assemblies, with equal representation from the four provinces. The national assembly has 342 members elected by popular vote. The judicial system comprises the Supreme Court and provincial high courts. There is also the federal sharia court, which hears cases that primarily involve sharia, or Islamic law.

The four provinces of Pakistan—Balochistan, North-West Frontier, Punjab and Sindh—are divided into 26 divisions, which are further divided into 101 districts. Each province is headed by a governor appointed by the president, and administered by a chief minister, who is the leader of the provincial assembly's majority party or coalition. In addition, there are federally administered areas such as the Islamabad Capital Territory and the 13 Federally Administered Tribal Areas (FATAs). Azad Kashmir and Northern Areas have their own autonomous administration, although certain affairs are handled by the federal government through the Ministry of Kashmir Affairs and Northern Areas.

FIGURE 3. NATIONAL FLAG AND EMBLEM OF PAKISTAN

The national flag of Pakistan has a dark green field and a white bar, representing the Muslim majority and the non-Muslim minorities respectively. In the dark green area is a white crescent, symbolizing progress, and a five-pointed star, symbolizing light and knowledge. The national emblem has four components: the crescent and star at the top are traditional symbols of Islam; the shield in the centre shows the main crops of Pakistan, which are cotton, wheat, tea and jute; the wreath surrounding the shield features the floral design of traditional Mughal art, and the scroll supporting the shield carries Muhammad Ali Jinnah's famous motto, "faith, unity and discipline."

Historical Education Overview

Although Islamic education in present-day Pakistan dates back to the early eighth century, the current system has developed largely on the basis of Western-style education from the British colonial period. Since gaining independence in 1947, Pakistan has expanded its education system to meet the needs of a rapidly growing population.

Traditional Education (Before the 19th Century)

Islamic education in present-day Pakistan began in the early eighth century, when the Arab general Muhammad bin Qasim brought Islam to Sindh. Islamic culture in the form of art, literature and architecture, as well as religious studies and education, spread across the subcontinent during the Delhi Sultanate (1206–1526) and flourished in the heyday of the Mughal Empire (1526–1858). The languages of instruction at Islamic schools, commonly known as madrassas or madaris, were Persian and Arabic. The madrassas provided both religious and secular training, teaching a wide range of subjects such as architecture, drawing, grammar, literature, logic, mathematics, medicine and philosophy.

The British Period (Early 19th Century to 1947)

The formal education system of modern Pakistan has its roots in the British rule of the Indian subcontinent. In 1813 the British East India Company assumed responsibility for the education of Indians. At that time there was a great controversy between supporters of indigenous education and those who advocated for Western learning. Macaulay's *Minute on Education* of 1835 argued for the promotion of Western learning through the English language, with a view to forming "a class who may be interpreters between us and the millions whom we govern; a class of persons, Indian in blood and colour, but English in tastes, in opinions, in morals and intellect." The governor general of India accepted the proposal and ordered all education funds to be allocated for teaching English literature and science to the native population.

The government of India under the British rule, which took over control of India from the East India Company in 1858, appointed a number of commissions to study education and formulated policies based on their recommendations. For example, while rejecting the idea of compulsory primary education, the government resolution on educational policy of 1913 acknowledged that literacy and primary education should have a predominant claim on public funds, and proposed to double the 4.5 million enrolment of public primary schools in the "not distant future." As it turned out, few of the recommendations and policies were fully implemented, in part due to two world wars and the Great Depression. Nevertheless, an educational administrative structure was developed covering elementary and secondary as well as higher education.

The Government of India Act of 1935 clarified the role of the central and state governments in education: most educational activities fell under the jurisdiction of state governments, with the central government becoming responsible for the national library and museums, the preservation of ancient monuments, the Banaras Hindu University and the Aligarh Muslim University, and for education in centrally administered areas.

The British system was basically elitist. Its main objective was not mass education but the training of a class of civil servants for colonial government. Only the aristocracy, the upper and upper middle classes, and senior officials of the British bureaucracy and military could send their children to English-language schools. Children from middle and working classes attended vernacular-language schools. Those from very poor families could only go to madrassas, which charged no tuition and even provided free room and board. Thus one's position and status in society roughly corresponded to the type of school one attended. The socioeconomic stratification supported by three separate school systems has persisted to the present day.

A lasting legacy of British rule in India was the development of modern universities. 1817 saw the establishment of India's first Western-style college, the Hindu College in Calcutta, later renamed Presidency College to admit non-Hindu students. In 1857, universities were created in Bombay, Calcutta and Madras. The University of the Punjab at Lahore was established in 1882 and the University of Allahabad in 1887. Modelled after the University of London, these early universities functioned mainly as examining and degree-granting bodies; teaching took place at affiliated colleges. The Indian Universities

Act of 1904 granted universities the right to teach along with the right to conduct examinations. Some of the oldest affiliating universities gradually established teaching departments, and a number of residential and teaching universities were set up. At the time of partition in 1947, India had 19 universities, whereas the University of the Punjab at Lahore was the only university in Pakistan.

As the modern education system introduced by the British gained influence, some Muslim leaders in India advocated the expansion of traditional Islamic education to safeguard the Islamic identity of their people. Others were more concerned that Muslims would be kept out of the bureaucracy if they failed to participate in the new system as readily as did the Hindus. A prominent representative of the latter group, Sir Syed Ahmad Khan, considered access to British-style education the best means of social advancement for Muslims, and founded the Muhammadan Anglo-Oriental College at Aligarh (present-day Aligarh Muslim University in India) in 1875.

After Independence (1947 to Present Times)

At the time of independence Pakistan inherited an underdeveloped and fragmented education system. Further exacerbating the situation, large numbers of Hindu teachers and school administrators migrated to the newly partitioned India. There were 8,431 primary schools, 2,190 middle schools, 408 secondary or high schools, 46 secondary vocational institutions, 40 arts and science colleges, and two universities (the University of the Punjab, established in 1882, and the University of Sindh, established in 1947). The total student population was estimated at one million. In 1951 the literacy rate was estimated at 18.9 per cent.

Since independence, educational institutions at all levels have been expanded to meet the needs of a rapidly growing population. In 2005 there were 251,134 educational institutions at various levels, with a total enrolment of over 36 million.

TABLE 3. INSTITUTIONS AND ENROLMENTS IN PAKISTAN EDUCATION, 2005

INSTITUTION TYPE	INSTITUTION NUMBER	TOTAL ENROLMENT
Pre-Primary*	794	7,135,447
Primary	156,732	16,834,417
Middle	39,370	5,262,323
Secondary	22,909	2,133,008
Higher Secondary and Intermediate Colleges	2,996	853,535
Degree Colleges	1,135	325,993
Non-Formal Basic Education	10,185	361,747
Technical and Vocational	3,059	238,687
Teacher Training	169	596,592
Universities	116	424,012
Professional Institutions	1,516	419,231
Deeni Madaris	12,153	1,512,445
TOTAL	251,134	36,097,437

* The pre-primary institution number refers to private facilities. In government schools, most children in pre-primary education sit in classes along with students from Grades 1 and 2.

Education in Pakistan still faces many challenges. According to the *Human Development Report 2009* published by the United Nations Development Program, Pakistan's human development index ranked 141 among 182 countries. Although successive governments acknowledge the importance of education to national development, Pakistan is one of only a dozen countries that habitually spend less than two per cent of Gross Domestic Product (GDP) on education. On many occasions, even the allocated funds were not fully used.

Urdu, spoken by only a small minority of the population as their first language, has been made the national language and a compulsory subject in schools. This has caused tension and occasional violent confrontations between Urdu-speaking Muhajirs and other ethno-linguistic groups, particularly Sindhis.

Immediately after independence the government pledged to achieve universal primary education by 1967, but that goal has yet to be reached. Only about half of the children in the relevant age group manage to complete primary (Grade 5) education. There remain large urban–rural and gender disparities in education.

Pakistan's literacy rate has steadily increased:

- 26.2 per cent in 1981
- 40 per cent in 1998
- 51.6 per cent in 2004 (63.7 per cent for men and 39.2 per cent for women)

It still, however, remains one of the lowest in South Asia.

Constitution of Pakistan

At the time of independence Pakistan acquired the Government of India Act of 1935 and the Indian Independence Act of 1947 as its interim constitution. Most educational activities fell under the jurisdiction of provincial governments, with the federal government being responsible for education in federal areas.

Pakistan's first constitution, promulgated in 1956, made no mention of education on the federal list. Provinces were responsible for "education, including universities, technical education and professional training" and for "coordination and determination of standards in institutions for higher education or research and scientific and technical institutions."

The constitution of 1962 indicated that free and compulsory primary education should be provided for everyone "as soon as is practicable."

The current constitution took effect in 1973 and was substantially amended in 1986. It indicates the state shall provide free and compulsory secondary education, but gives no deadline for achieving the target. It also declares, in line with the United Nations Universal Declaration of Human Rights, that the state shall "make technical and professional education generally available and higher education equally accessible to all on the basis of merit." The federal government is responsible for centrally administered institutes for the purpose of research, promotion of special studies and professional and technical training. Federal and provincial governments are jointly responsible for "curriculum, syllabus, policy, centres of excellence and standards of education."

Based on the 1973 constitution, parliament passed the Federal Supervision of Curricula, Textbooks, Maintenance of Standards of Education Act in 1976. Federal supervision is to be carried out by two authorities:

- Curriculum Wing of Ministry of Education—school education (Grades 1 to 12) and all certificates and diplomas not awarded by universities and other degree-awarding institutions
- University Grants Commission—all degrees, certificates and diplomas awarded by universities and other degree-awarding institutions. The UGC was replaced by the Higher Education Commission in 2002.

National Policy and Planning

Soon after it gained independence, Pakistan convened a National Education Conference in November 1947. Since then the federal government has published over a dozen major reports on educational policy and planning. The educational policies, along with the government's Five-Year Plans (1955 to 1995) and annual plans (since 1995), have played an important role in shaping the course of educational development in the country.

The policy goals and plan objectives set in the national education reports, however, often remain unrealized, due to poorly conceived planning and the lack of measures and resources for implementation. The situation is compounded by political instability, as a change of government often leads to new education policy and development plans.

Highlights of some of the educational policies are described in the following:

National Education Conference, 1947

- Free and compulsory primary education for a period of five years, to be later expanded to eight years.
- Initiation of mass literacy programs.
- Reorganization of technical education.
- Focus on Islamic ideology to build a national identity for the new state.

Commission on National Education, 1959

- Separation and transfer of intermediate classes from the jurisdiction of universities to that of boards of secondary education.
- Increase in the duration of bachelor's degrees in arts and sciences from the prevailing two years to three years. (This was implemented in 1961–62 but withdrawn the following year.)
- Four years minimum duration (after intermediate stage) for degree courses in all engineering colleges.

- Five years duration (after matriculation) for degree courses in agriculture.
- Minimum two years for a master's degree, a further minimum two years for a PhD.
- Extension of LLB degree (after first bachelor's degree) from two years to three years.
- Establishment of agricultural universities.
- Establishment within two or three years of a University Grants Commission to coordinate the programs of universities and colleges.

New Education Policy, 1970

This policy was soon abandoned due to a change of government, but some of its recommendations were adopted in the subsequent policy.

Education Policy, 1972–1980

- Nationalization of private institutions.
- Establishment of six universities, raising the total number from six to 12.
- Establishment of the University Grants Commission.
- Establishment of centres of excellence in universities in the fields of chemistry, physics, mathematics, and so on, and area study centres in general universities.
- Establishment of professional councils to lay down minimum standards in professional fields.

National Education Policy, 1979

- Reversal of nationalization policy.
- Establishment of Urdu as the language of instruction at government schools, to foster national unity.
- Establishment of English as the language of instruction at private institutions.
- Establishment of a national testing system for admission to higher education. (This did not happen.)

National Education Policy, 1992–2000

- Qualitative improvement of higher education.
- Introduction of three-year bachelor's (honours) degrees to enhance the employability of students.
- The rule of 80 per cent attendance to be strictly enforced.
- Establishment of the National Council of Academic Awards and Accreditation to regulate both public and private universities and degree-granting institutions. (This did not happen.)

National Education Policy, 1998–2010

- A jihad against illiteracy.
- Universalization of primary education through legislation.
- More emphasis on female education.
- Access to higher education to be raised to five per cent of the relevant age group.
- Mainstreaming the madrassas sector.
- Introduction of three-year bachelor's (honours) degrees, with honours students given preference in university admission and government recruitment.
- Encouragement of private provision of higher education.
- Encouragement of investment in education from local and foreign sources.
- Upgrading of teaching, learning and research to achieve comparability with international standards.
- Modernization of curricula.

National Education Policy (draft), 2008

- Free and universal primary education by 2015.
- Improving quality of education at all levels.
- Establishment of a National Education Standards Authority to set up minimum standards for educational institutions and learning outcomes.
- Greater emphasis on vocational and technical education.
- Promoting research and innovation at universities.

Outline of Current Education System

Administration

Pakistan comprises four provinces (Balochistan, North-West Frontier, Punjab and Sindh), which are further divided into 26 divisions and 101 districts. In addition, there are the Islamabad Capital Territory, 13 Federally Administered Tribal Areas (FATAs), Azad Jammu and Kashmir, and Northern Areas. According to the constitution of 1973, education is the joint responsibility of the provincial and federal governments.

At the federal level, the Ministry of Education is responsible for:

- national policy, planning and guidelines
- supervision of curricula and textbooks and maintenance of standards for school education
- funding and quality control for higher education
- direct administration of educational institutions in the Islamabad Capital Territory, Federally Administered Tribal Areas, and Azad Jammu and Kashmir

The MOE is headed by the Minister of Education, with executive authority vested in the Secretary of Education.

The implementation of educational policy and the administration of educational institutions and programs is traditionally the responsibility of the provincial education departments. Each provincial education department is headed by the relevant Minister of Education, with executive authority vested in the Secretary of Education.

Since 2001–02, district rather than provincial governments have been responsible for administering education up to the college level (excluding professional colleges) and technical education. The district governments now allocate educational resources, monitor schools and carry out teacher evaluations in accordance with federal and provincial guidelines.

Dozens of autonomous bodies attached to the Ministry of Education deal with matters in various sectors of education. Two important organizations, the Inter Board Committee of Chairmen (IBCC) and the Higher Education Commission (HEC), assist the Ministry of Education in coordinating school and technical and higher education respectively. The functions of the IBCC and the HEC are discussed in more detail in two subsequent chapters, School Education and Higher Education.

Structure of Current System

School education in Pakistan follows the 5+3+2+2 pattern:

- five years of primary school
- three years of middle school
- two years of secondary school or high school
- two years of higher secondary school, also known as the intermediate stage

Children start school at the age of five. School education totals 12 years. Students take external examinations conducted by one of the Boards of Intermediate and Secondary Education to receive the following two main exit credentials:

- Secondary School Certificate (SSC), also known as Matriculation Certificate, representing completion of Grade 10
- Higher Secondary Certificate (HSC), also known as Intermediate Examination Certificate, representing completion of Grade 12

Formal technical and vocational education and training is generally available from the secondary school level. Secondary school students may choose the technical course group and graduate with the Secondary School Certificate in technical subjects. Specialized technical and vocational institutions such as polytechnics, commercial institutes and engineering colleges offer certificate and diploma programs that usually involve two to three years of full-time study, with entry based on possession of the Secondary School Certificate.

Higher education is provided by universities and other degree-awarding institutions, as well as by affiliated colleges. Entry into undergraduate programs is based on possession of the Higher Secondary Certificate. Major types of programs include:

- traditional general bachelor's (pass) degrees (for example, arts, commerce and science): two years
- traditional general bachelor's (honours) degrees (for example, arts, commerce and science): three years
- upgraded general bachelor's (honours) degrees (for example, arts, commerce and science): four years
- professional bachelor's degrees (for example, agriculture, architecture, engineering, medicine and pharmacy): four to five years
- bachelor's after-degree programs, known as postgraduate bachelor's degrees, such as Bachelor of Law (LLB) (three years) and Bachelor of Education (BEd) (one year)

Entry into master's degree programs is based on possession of a bachelor's degree (pass, honours or professional). Major types of programs include:

- traditional general master's degrees (for example, arts, commerce and science): two years after completion of

a bachelor's (pass) degree or one year after a bachelor's (honours) degree

- upgraded general master's degrees (for example, arts and science): one-and-a-half to two years after completion of a four-year bachelor's degree
- professional master's degrees: one-and-a-half to two years after completion of a professional bachelor's degree
- Master of Philosophy (MPhil): two years after completion of a general master's degree or professional bachelor's degree

A doctoral degree involves at least two years of full-time study after an MPhil, or three or more years after completion of a master's degree.

Language of Instruction

In the public system of school education the language of instruction is usually Urdu, although some schools teach in a regional language such as Sindhi or Pashto. English is the language of instruction in many private schools. In higher education, Urdu is the most common language of instruction, although science and technical subjects are traditionally taught in English.

School Year

The typical school year begins in September and ends in June. There is a 10-week vacation from early June to mid-August and a three-week winter vacation from late December to early January.

Pakistan has a six-day work week (Monday through Saturday). Between 1977 and 1997, Friday, rather than Sunday, was the weekly public holiday. Schools hold classes six hours per day, from 8 a.m. to 2 p.m. except on Friday, when classes end at noon. Each class session or period lasts 40 minutes.

Government Schools

Government-funded schools, where the language of instruction is usually Urdu, are the mainstay of the school system. In their efforts to provide quality education they are faced with great difficulties such as insufficient school buildings, lack of basic facilities, poorly trained teachers and teacher absenteeism, and unavailability of textbooks and teaching aids. In 2003–04 in the province of Punjab, which accounts for half of Pakistan's population, 3,572 schools had no building, 29,020 had no electricity, and 18,515 had no furniture. Only a third of secondary and higher secondary schools in the country met the minimum requirements of an equipped lab.

To alleviate this situation, the government aims to improve the infrastructure at existing schools and to build new schools through allocation of funds, enlisting the help of donor organizations at home and abroad, and encouraging public–private partnerships. In addition, the quality of education will be raised through revising the curricula periodically and through strengthening teacher education and training.

The 2000 national curriculum is being replaced by a new curriculum published in 2006, which requires English to be the language of instruction for math and science courses. Pre-service teacher training programs are being upgraded. The Primary Teacher Certificate (10+1) and Certificate in Teaching (12+1) will be replaced by a Diploma in Education, which requires one-and-a-half years of full-time study after completion of the Higher Secondary Certificate (12+1.5). Six-month bridging programs will also be provided for in-service teachers with old qualifications.

The education system at both school and university levels is driven by examinations, but widespread cheating and mismanagement have made their results unreliable indicators of student performance and learning. In its *Education Sector Reforms Action Plan 2001–02 – 2005–06*, the Ministry of Education acknowledged that "the incidence of cheating and increased use of malpractices have severely eroded the credibility of our current examination system. Examinations are unreliable and do not provide any indicator of student's ability." Furthermore, the examinations put emphasis on students' ability to reproduce materials from the textbooks rather than their creative and analytical skills. The government has pledged to reform the examination and assessment system, but concrete measures and targets are unclear.

In the government-funded school system there are also a small number of English-language secondary and higher secondary schools, mostly administered by the armed forces. Compared with other government schools, they have excellent facilities including well-equipped libraries and labs and qualified teaching staff. They use English textbooks recommended by the government textbook boards.

Private Schools

Before 1972, privately managed institutions at the school and college levels constituted an important part of the education system. They were funded by student fees and donations and also received government grants-in-aid. In 1972 the federal government decided to nationalize all private institutions. More than 19,000 private institutions, including schools, madrassas, colleges and technical institutions, were nationalized. However, inadequate funding and poor management soon led to the deterioration of standards at the newly nationalized schools. The policy was reversed in 1979 when the government acknowledged it must encourage the establishment of private institutions to tackle the poor participation rates at all levels of education.

Partly due to the poor quality of government-funded schools, private education is playing an increasingly important role. In 2003–04, students in private schools accounted for 42 per cent of total enrolment at the primary level, 37 per cent at the middle school level, 30 per cent at the secondary level and 64 per cent at the higher secondary level.

The quality of education at private schools, although uneven, generally compares favourably with that at government schools. While some schools, especially in poor and remote areas, charge very low fees and offer fee waivers or scholarships, others cater to high income families in urban areas. Some English-language private schools that prepare students for the British General Certificate of Education A and O Level examinations or the United States SATs have reputations for high quality. English-language schools are popular with parents, who believe the knowledge of English opens up more opportunities for their children in both employment and further education, as English is the working language in higher levels of the Pakistani military and bureaucracy.

Madrassas

In addition to the regular government-funded education system, Pakistan has a network of religious seminaries, commonly known as madrassas or madaris, which teach Islamic religion, culture, arts and sciences at primary through graduate levels.

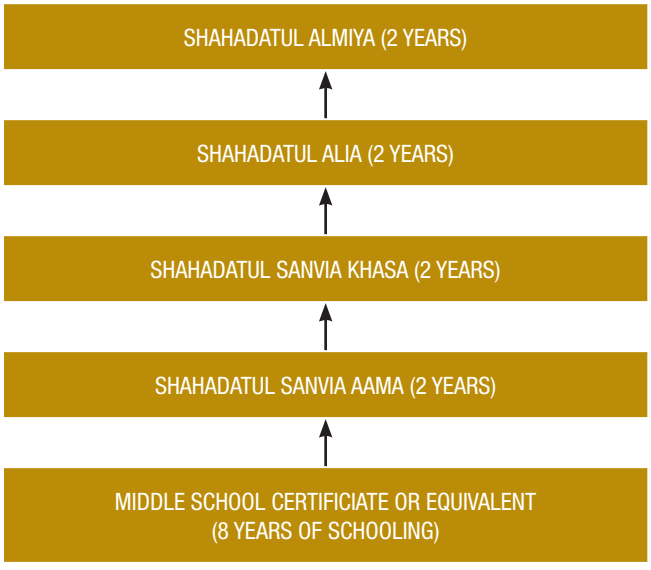
Madrassas date back to the Islamic period in Indian history. Under British rule the number of madrassas and their enrolment declined steadily. At the time of independence in 1947, there were only about a hundred madrassas in Pakistan. Since the late 1970s the system has expanded rapidly. The deteriorating infrastructure and falling standards at government-funded schools and their failure to provide an education that is considered relevant to the everyday life and economic necessities of the poorer sectors of the population partially account for the boom of madrassas. In 2002 there were an estimated 10,000 madrassas with a total enrolment of 1.7 million.

Main subjects taught at the madrassas include the Koran, Islamic law and jurisprudence, logic and the tradition of the Prophet. The language of instruction is Urdu or a regional language such as Sindhi, but students also learn Arabic and Persian from ancient religious texts. The vast majority of madrassas are funded by charity and, in some cases, by foreign donors. As they generally charge no tuition fees and even provide free room and board, they attract very poor students who could not otherwise afford any education.

While many madrassas remain unregistered, the registered ones mostly belong to five religious education boards that prescribe the curricula, conduct examinations and award certificates to successful candidates:

- Wafaq-ul-Madaris Al-Arabia, Multan
- Tanzeem-ul-Madaris Alhe Sunnat, Lahore
- Wafaq-ul-Madaris Al-Salfia, Faisalabad
- Wafaq-ul-Madaris Shia, Lahore
- Rabita-ul-Madaris Al Islamia, Lahore

The major madrass certificates (called sanad) are:



The government of Pakistan considers the Shahadatul Sanvia Aama issued by one of the five religious boards to be equivalent to the Secondary School Certificate (Grade 10) if the student has also passed the compulsory subjects in the Secondary School Certificate examination conducted by a Board of Intermediate and Secondary Education.

The government considers the Shahadatul Sanvia Khasa issued by one of the five religious boards to be equivalent to the Higher Secondary Certificate (Grade 12) if the student has also passed the compulsory subjects in the Higher Secondary Certificate examination conducted by a Board of Intermediate and Secondary Education.

The first madrassa degree, Shahadatul Alia, is not recognized by the government of Pakistan as equivalent to a bachelor's degree.

The final degree (Shahadatul Almiya) in Arabic and Islamic Studies, called Shahadatul Almiya Fil Uloomal Arabia wal Islamia, is considered equivalent to a Master of Arts (MA) in Arabic and Islamic Studies for the purpose of teaching or further education, if it is issued by one of the five religious boards or by one of the following five private institutions:

- Jamia Islamia Minhaj-ul-Quran, Lahore
- Jamia Taleemat-e-Islamia, Faisalabad
- Jamia Ashrafia, Lahore
- Darul Uloom Mohammadia Ghousia, Sargodha
- Darul Uloom Korangi Greek, Karachi

To curb the religious extremism taught in madrassas and ultimately integrate their students into the regular education system, the federal government, in consultation with provincial governments, has attempted to reform the curriculum at madrassas. According to the plan, formal subjects including English, math, social and Pakistan studies, and general science will be introduced at the primary, middle and secondary school levels, while English, economics, Pakistan studies and computer science will be introduced at the higher secondary level.

The madrassas introducing formal education will receive government support in the form of grants, salaries to teachers, teacher training and the cost of textbooks. This curriculum reform has encountered resistance from religious leaders, and so far has been carried out in only a small number of madrassas.

Growth of Private Higher Education

At the time of partition Pakistan had only one university, the University of the Punjab. The number of universities and other degree-granting institutions grew slowly over the years, reaching 25 in 1989–90. At that time there were only two recognized private universities, the Lahore University of Management Sciences and the Aga Khan Medical University in Karachi, both of which enjoy a reputation of high quality.

Higher education in the public sector has not had the capacity to meet growing demand, with only a small percentage of higher secondary graduates gaining admission to higher education each year. Although the policy of nationalizing private institutions was reversed in 1979, the growth of private higher education institutions remained limited until the mid 1990s. Since the late 1990s there has been a rapid expansion of higher education in Pakistan, with much of the increase coming from the private sector (see Table 4).

TABLE 4. NUMBER OF UNIVERSITIES AND DEGREE-AWARDING INSTITUTIONS (DAIs), 1948–2008

YEAR	PUBLIC	PRIVATE	TOTAL
1948	2	0	2
1960	6	0	6
1971	10	0	10
1980	15	0	15
1990	23	2	25
1995	28	6	34
2000	35	19	54
2008	65	57	122

Private institutions typically charge high tuition fees which are beyond the reach of ordinary Pakistanis. The rapid expansion of private higher education has raised serious concerns about quality and standards.

To have its programs recognized, a private institution can either seek affiliation with an existing university or apply for a charter from the provincial government (or federal government if located in federal areas) to independently offer degree programs. A private institution that operates as an affiliated college usually has to surrender part of its gross income (15 to 20 per cent) to the affiliating university, from which it often receives little support in academic supervision or quality assurance of its programs.

A private institution that operates independently as a university or degree-awarding institution must obtain a charter from the federal or provincial legislature under the recommendation of the Higher Education Commission. While it used to be difficult to obtain such a charter, the accelerated pace of chartering private institutions in recent years has resulted in a number of chartered institutions that do not fully meet HEC criteria. For more information on the issue of quality of higher education institutions, refer to Higher Education.

School Education

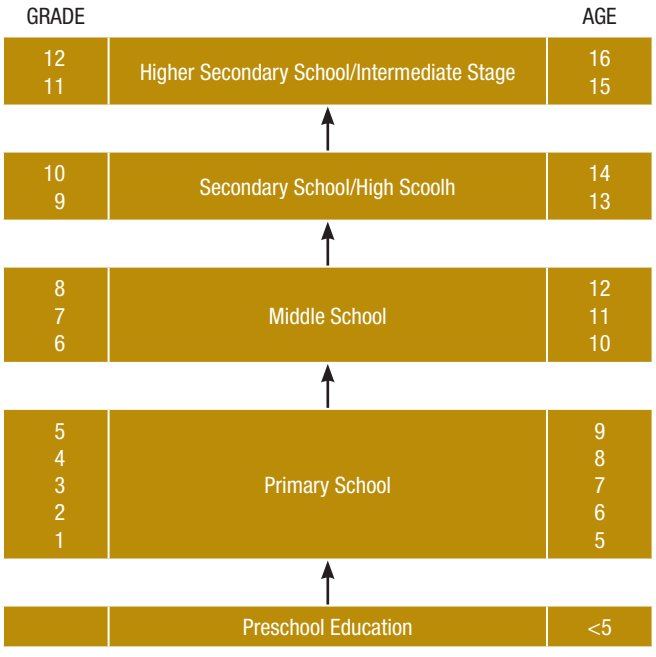
Overview

School education in Pakistan follows the 5+3+2+2 pattern:

- five years of primary school
- three years of middle school
- two years of (lower) secondary school, also known as high school
- two years of higher secondary school, also known as intermediate stage

Children usually start school at the age of five. The system described here refers to government-funded regular schools. Running parallel to the regular system are religious seminaries called madrassas, devoted almost exclusively to religious teachings, and English-language private schools that use British- or American-style curricula. Government schools and madrassas are single-gender for either boys or girls, while English-language private schools are usually coeducational.

FIGURE 4. OUTLINE OF SCHOOL EDUCATION SYSTEM



Administration

School education is the joint responsibility of the federal, provincial and district governments.

- At the federal level, the Ministry of Education is responsible for educational policy, planning and guidelines, supervision of curricula and textbooks, maintenance of standards and direct administration of educational institutions in federal areas.
- Provincial education departments implement the national educational policy, coordinate with the federal government on educational issues, develop school curriculum according to federal guidelines and oversee Grade 10 and Grade 12 exit examinations.
- District governments are responsible for the day-to-day administration of schools in their jurisdictions and conduct Grade 5 and Grade 8 exit examinations.

The Inter Board Committee of Chairmen is an autonomous body attached to the Ministry of Education. Established in 1972, it coordinates the activities of federal and provincial Boards of Intermediate and Secondary Education (BISEs) as well as a number of Boards of Technical Education, Textbook Boards and Curriculum Bureaus in various provinces. It makes recommendations to the central government with regard to intermediate, secondary and technical education. In addition, it grants equivalency to foreign credentials in school and technical education and attests to certificates and diplomas issued by BISEs and Boards of Technical Education for individuals who plan to go abroad for further education or employment.

Curriculum and Textbooks

The Curriculum Wing of the Ministry of Education revises the national curriculum periodically in collaboration with provincial curriculum bureaus and education departments. In the past, curriculum revision cycles generally corresponded to the publication of national education policies.

NEP	Curriculum Reform
1972	1973-1976
1979	1982-1985
1992	1992-1995 (“1995 curriculum”)
1998	1998-2002 (“2000 curriculum”)

In 2003 the Ministry of Education decided to carry out comprehensive curriculum revision every five years. The most recent national curriculum was published in 2006 and began to be introduced in schools in 2007.

The Textbook Boards, under the provincial educational departments, are responsible for the compilation and production of uniform provincial textbooks for government schools based on the national curriculum. The textbook reform initiated in 2007 envisages a system of regulated competitive publishing of textbooks in a public–private partnership. Under this scheme, Textbook Boards will be transformed into facilitating, regulating and monitoring authorities and will, in consultation with the Curriculum Wing of MOE, review and assist in approving multiple textbooks submitted by competing publishers.

External Examinations

Students must pass external examinations upon completion of secondary school (Grade 10) to receive the Secondary School Certificate or Matriculation Certificate, and upon completion of higher secondary school (Grade 12) to receive the Higher Secondary Certificate or Intermediate Certificate.

The 26 public examination bodies, all of which are members of the IBCC, include:

- The Federal Board of Intermediate and Secondary Education (FBISE)
- provincial Boards of Intermediate and Secondary Education (BISEs)
- Boards of Technical Education (BTEs)
- Armed Forces Board (AFB)

TABLE 5. LIST OF BOARDS OF INTERMEDIATE AND SECONDARY EDUCATION

JURISDICTION	BOARD OF INTERMEDIATE AND SECONDARY EDUCATION
Armed Forces	Armed Forces Board for Higher Education, Rawalpindi
Azad Jammu and Kashmir	AJK Board of Intermediate and Secondary Education, Mirpur
Balochistan	Board of Intermediate and Secondary Education, Quetta
NWFP	Board of Intermediate and Secondary Education, Abbottabad
	Board of Intermediate and Secondary Education, Bannu
	Board of Intermediate and Secondary Education, Kohat
	Board of Intermediate and Secondary Education, Malakand
	Board of Intermediate and Secondary Education, Mardan
	Board of Intermediate and Secondary Education, Peshawar
	Board of Intermediate and Secondary Education, Swat
Pakistan	Federal Board of Intermediate and Secondary Education, Islamabad
	Private Examination Board under Agha Khan University Trust of Intermediate and Secondary Education, Karachi
	Examination Board under Karakurum International University
Punjab	Board of Intermediate and Secondary Education, Bahawalpur
	Board of Intermediate and Secondary Education, D.G.Khan
	Board of Intermediate and Secondary Education, Faisalabad
	Board of Intermediate and Secondary Education, Gujranwala
	Board of Intermediate and Secondary Education, Lahore
	Board of Intermediate and Secondary Education, Multan
	Board of Intermediate and Secondary Education, Rawalpindi
	Board of Intermediate and Secondary Education, Sargodha
Sindh	Board of Intermediate and Secondary Education, Hyderabad
	Board of Intermediate Education, Karachi
	Board of Secondary Education, Karachi
	Board of Intermediate and Secondary Education, Larkana
	Board of Intermediate and Secondary Education, Sukkur

School Year

The typical school year begins in September and ends in June. A 10-week vacation usually takes place from early June to mid-August, and a two- to three-week winter vacation from late December to early January. The total number of school days each year varies greatly, generally ranging from 150 to 210 days, but it may be as low as 120 days, as there are many official and unofficial holidays and schools may be closed because of bad weather. The 2006 curriculum prescribed 210 school days each year.

Pakistan has a six-day work week (Monday through Saturday). Between 1977 and 1997, Friday, rather than Sunday, was the weekly public holiday. Schools are usually open six hours each day, from 8 a.m. to 2 p.m. except on Friday, when they are open until noon. Each class session or period lasts 40 minutes. Table 6 shows the standard school day schedule according to the 2006 curriculum.

TABLE 6. SCHOOL DAY SCHEDULE, 2006 CURRICULUM

DAY OF THE WEEK	PERIOD	TIME
Normal Days	Morning Assembly	08:00 a.m. – 08:10 a.m.
	Physical Training	08:10 a.m. – 08:25 a.m.
	1st period	08:30 a.m. – 09:10 a.m.
	2nd period	09:10 a.m. – 09:50 a.m.
	3rd period	09:50 a.m. – 10:30 a.m.
	4th period	10:30 a.m. – 11:10 a.m.
	Recess	11:10 a.m. – 11:40 a.m.
	5th period	11:40 a.m. – 12:20 p.m.
	6th period	12:20 p.m. – 13:00 p.m.
	7th period	13:00 p.m. – 13:40 p.m.
Friday	Morning Assembly	08:00 a.m. – 08:10 a.m.
	Physical Training	08:10 a.m. – 08:25 a.m.
	1st period	08:30 a.m. – 09:10 a.m.
	2nd period	09:10 a.m. – 09:50 a.m.
	3rd period	09:50 a.m. – 10:30 a.m.
	4th period	10:30 a.m. – 11:10 a.m.
	5th period	11:10 a.m. – 11:50 a.m.

Grading Scales

Percentage marks are predominantly used. The Pakistani system is low marking, with 33 per cent as the common minimum pass mark. Grading scales, which vary by examining board and time period, are usually provided on the Secondary School Certificates and Higher Secondary School Certificates. Table 7 shows a grading scale commonly used by the Boards of Intermediate and Secondary Education.

TABLE 7. SIX-LEVEL GRADING SCALE, SECONDARY AND HIGHER SECONDARY EDUCATION

PERCENTAGE (%) MARK	LETTER GRADE	DESCRIPTOR
80 and above	A One/A-1/A+	Outstanding/ Distinction/Exceptional
70 and above, but below 80	A	Excellent
60 and above, but below 70	B	Very Good
50 and above, but below 60	C	Good
40 and above, but below 50	D	Fair
33 and above, but below 40	E	Satisfactory

For more information, refer to Grading Scales.

Preschool Education (Ages 3 to 5)

Preschool education, called pre-primary education or *katchi*, is not compulsory. It is generally geared to children aged 3 to 5, and can be formal or informal, public or private. Before 2007, preschool education was not considered one of the stages of the education system, and no national curriculum existed; various kinds of teaching materials were developed by different organizations. The 2006 national curriculum, which began to be introduced in 2007, provides a scheme of studies for early childhood education for children aged 4 to 5.

Pre-primary education was well-organized until the 1970s but was discontinued in the 1980s. The National Education Policy of 1998–2010 called for the reintroduction of pre-primary education in primary schools, and the federal government allocated specific funds for pre-primary education for the very first time in 2001–02. Since then the gross enrolment ratio of preschool education for children aged 3 to 4 has increased from 36 per cent to 91 per cent in 2005–06.

Pre-primary education is available at some public schools in either the "traditional" or an "improved" style. In the traditional style, a preschool child sits in a mixed classroom along with Grade 1 and Grade 2 students. In the improved style, a separate classroom is provided for preschool children, along with trained teachers and proper materials and facilities. Less than one per cent of public primary schools offer *katchi* classes under the improved style. The educational qualification for teaching *katchi* classes in public schools is the same as for teaching in primary school, that is, a one-year Primary Teaching Certificate, with entry based on possession of the Secondary School Certificate.

A few private, profit-making schools, mostly located in urban areas, offer kindergarten, nursery, or Montessori-style education to children aged 2 to 5. They usually have well-trained teachers and proper teaching materials.

Primary School Education (Grades 1 to 5)

Primary education lasts five years (Grades 1 to 5) and is geared to children aged 5 to 9. It is compulsory only in certain parts of the country, such as the provinces of Punjab and Sindh and the Islamabad Capital Territory. The government of Pakistan aims to achieve free, compulsory primary education by the year 2015.

In 2005, 16.8 million students, or about 86 per cent of the target age group, were enrolled in 156,732 primary schools. Due to a high dropout rate, only about 52 per cent of children in the age group completed primary education. A large gender gap remained in rural areas, where six female students attended for every 10 male students. A variety of factors have contributed to the low enrolment and high dropout rate in primary schools, including poverty, child labour, rapid population growth, poor access to schools in rural areas, lack of essential teaching facilities, teacher absenteeism, poor quality of education and the perceived irrelevance of education for girls.

The language of instruction is usually Urdu, the national language. Some schools teach in a regional language; for example, there are many Sindhi-language schools in Sindh province. Main subjects include:

- regional language
- Urdu (introduced at Grade 3 in schools teaching in a regional language)
- arts and crafts
- mathematics
- science
- Pakistan studies
- Islamiyat/Islamiat (alternative spellings)
- health and physical education

Teaching at primary schools officially requires possession of a one-year Primary Teaching Certificate, with entry based on possession of the Secondary School Certificate. However, about a quarter of primary school teachers are untrained.

Middle School Education (Grades 6 to 8)

Middle school education lasts three years (Grades 6 to 8) and is geared to students aged 10 to 12. Although middle school education is often grouped with Grades 9 and 10 under the general term "secondary education," the government plans to eventually integrate primary and middle school education into one stage called elementary education (Grades 1 to 8).

In 2005, approximately 5.2 million students, or about 52 per cent of the target age group, were enrolled in 39,370 middle schools. Due to the high dropout rate, only about 18 per cent of children in the target age group completed middle school.

The language of instruction remains Urdu or a regional language, and English is introduced as a compulsory subject. Main subjects include:

- Urdu
- English
- regional language, Arabic, Persian, and so on
- mathematics
- science
- Pakistan studies or social studies
- Islamiat (for Muslims) or ethics (for non-Muslims)

Upon completion of their study, students take the Middle Standard Certificate Examination administered at the district level. Examination results are used for awarding merit-based scholarships.

Teaching at middle schools officially requires possession of a one-year Certificate in Teaching, with entry based on possession of the Higher Secondary Certificate.

Secondary Education (Grades 9 and 10)

Secondary education lasts two years (Grades 9 and 10) following the completion of middle school and is geared to children aged 13 to 14. In Pakistan, the term "secondary education" may also be used to describe the combination of middle school and secondary school (Grades 6 to 10) or the entire post-primary school education (Grades 6 to 12).

In 2005, over 2.1 million students were enrolled at 22,909 secondary schools. Only about 11 per cent of children in the target age group completed secondary school.

The language of instruction is Urdu. Students must study a few compulsory subjects plus additional subjects based on a chosen course group. On completion of their studies, they sit examinations administered by the various Boards

of Intermediate and Secondary Education or Boards of Technical Education in order to receive the Secondary School Certificate or Matriculation Certificate.

The organization of the course groups changes with each revision of the national curriculum. The study schemes for different course groups prescribed by the 1995 and 2000 curricula are described below. These schemes serve only as general guidelines, as the actual format and allocation of marks may vary depending on the time period and examining board.

Scheme of Studies, 1995 Curriculum

The 1995 curriculum mandated four compulsory subjects for all students, worth a maximum total of 450 marks.

Compulsory Subject	Mark
Urdu/regional language	150
English	150
Islamiat	75
Pakistan Studies	75
Subtotal	**450**

Students may choose either the general group (which includes various streams) or the science group. Each of these groups requires four additional subjects, each of which is worth 100 marks. The Secondary School Certificate Examination, therefore, has a maximum total of 850 marks.

Tables 8 and 9 show the scheme of studies for the general and science groups, as prescribed in the 1995 national curriculum.

TABLE 8. SCHEME OF STUDIES (1995) FOR SECONDARY SCHOOL CERTIFICATE, GENERAL GROUP

SUBJECT	MARKS	WEEKLY PERIODS
Urdu	150	4–6
English	150	6
Pakistan Studies	75	3
Islamiat	75	3
Mathematics	100	4
General Science	100	4
2 subjects from Y list, or 1 subject from Y list +1 subject from Z list	100 x 2 100 x 2	4 x 2 4 x 2
TOTAL	850	

TABLE 9. SCHEME OF STUDIES (1995) FOR SECONDARY SCHOOL CERTIFICATE, SCIENCE GROUP

SUBJECT	MARKS	WEEKLY PERIODS
Urdu	150	4–6
English	150	6
Pakistan Studies	75	3
Islamiat	75	3
Mathematics	100	4
Physics	100	4 / 3
Chemistry	100	4 / 3
Biology or Computer Science	100	4 / 3
TOTAL	850	

Y list of subjects

1. Physical physiology and hygiene
2. Geometrical and technical drawing
3. Geology
4. Astronomy and space science
5. Arts and model drawing
6. Environmental studies
7. Islamic studies or Islamic history
8. History of Indo-Pak. sub-continent
9. Arabic
10. Persian
11. Geography
12. Economics
13. Civics
14. Food and nutrition
15. Related art
16. Household accounts and related problems
17. Elements of home economics
18. Management for better homes
19. Clothing and textiles
20. Child development and family living
21. Military science
22. Commercial geography
23. Computer science
24. Music
25. Urdu literature
26. English literature
27. Sindhi
28. Punjabi
29. Pashto
30. Balochi
31. Gujarati

32. Turkish
33. Bengali
34. Chinese
35. French
36. Russian
37. German
38. Japanese
39. Spanish

Z list of subjects

GENERAL STREAM (100 MARKS EACH)

1. Education
2. Health and physical education
3. Elementary nursing and first aid
4. Calligraphy
5. Photography
6. Local (community) crafts
7. Computer education

COMMERCIAL STREAM (50 MARKS EACH)

Students must take typewriting and choose one subject from Numbers 2 through 8

1. Typewriting (compulsory)
2. Bookkeeping and accounting
3. Secretarial practice
4. Business methods
5. Salesmanship
6. Insurance
7. Banking
8. Import and export procedures

AGRICULTURE STREAM (50 MARKS EACH)

Students must take general agriculture and choose one subject from Numbers 2 through 7.

1. General agriculture (compulsory)
2. Farm education
3. Crop production
4. Livestock farming
5. Animal production
6. Productive insects and fish culture
7. Horticulture

INDUSTRIAL STREAM

Students select one subject from the following trade groups except the mechanical trades group. Each subject carries 100 marks, including 50 marks for technical drawing.

1. Mechanical trades group: (fitting is compulsory in Grade 9 for all students. In Grade 10, students continue fitting or choose one of the remaining trades.)
   i. Fitting
   ii. Turning
   iii. Plumbing
   iv. Welding
   v. Electro-plating
   vi. Moulding and casting

2. Electrical Trades group
   i. Electrical wiring
   ii. Electrical winding
   iii. Household appliances
   iv. Radio servicing

3. Wood trades group
   i. Furniture and cabinet making
   ii. Wood carving and inlay work
   iii. Joinery
   iv. Wood turning and lacquer work

4. Draft trades group
   i. Mechanical drafting
   ii. Civil drafting

Scheme of Studies, 2000 Curriculum

Mathematics has been made a compulsory subject for all students. There are a total of five compulsory subjects, with a total maximum of 550 marks.

Compulsory Subject	Mark
Urdu/regional language	150
English	150
Islamiat	75
Pakistan Studies	75
Mathematics	100
Subtotal	**550**

Students may choose from the science group, the humanities group, the technical group, and the Islamic studies group. The Islamic studies group has been introduced as part of the government's efforts to mainstream religious education. Students must sit examinations in additional subjects from their chosen

course group worth 300 marks. The total maximum of marks for all subjects taken for the Secondary School Certificate Examination remains 850.

Tables 10 through 13 show the scheme of studies for various course groups, as prescribed in the 2000 national curriculum.

TABLE 10. SCHEME OF STUDIES (2000) FOR SECONDARY SCHOOL CERTIFICATE: SCIENCE GROUP

SUBJECTS	MARKS			WEEKLY PERIODS
	THEORY	PRACTICAL	TOTAL	
Urdu (A+B)	75 + 75		150	6
English (A+B)	75 + 75		150	6
Islamiat for Muslims Ethics for Non-Muslims	75		75	3
Pakistan Studies	75		75	3
Mathematics	100		100	6
Physics	85	15	100	4 + 2
Chemistry	85	15	100	4 + 2
Biology or Computer Science or 1 technical subject	85 75 50	15 25 50	100 100 100	4 + 2 3 + 3 2 + 4
TOTAL			850	42

TABLE 11. SCHEME OF STUDIES (2000) FOR SECONDARY SCHOOL CERTIFICATE: HUMANITIES GROUP

SUBJECTS	MARKS			WEEKLY PERIODS
	THEORY	PRACTICAL	TOTAL	
Urdu (A+B)	75 + 75		150	6
English (A+B)	75 + 75		150	6
Islamiat for Muslims Ethics for Non-Muslims	75		75	3
Pakistan Studies	75		75	3
Mathematics	100		100	6
General Science	100		100	6
2 Social Science subjects or 1 Social Science subject plus 1 technical subject	100+100 100 50	 50	200 100 100	6 + 6 6 2 + 4
TOTAL			850	42

TABLE 12. SCHEME OF STUDIES (2000) FOR SECONDARY SCHOOL CERTIFICATE: TECHNICAL GROUP

SUBJECTS	MARKS			WEEKLY PERIODS
	THEORY	PRACTICAL	TOTAL	
Urdu (A+B)	75 + 75		150	6
English (A+B)	75 + 75		150	6
Islamiat for Muslims Ethics for Non-Muslims	75		75	3
Pakistan Studies	75		75	3
Mathematics	100		100	6
General Science	100		100	6
2 technical subjects	50 50	50 50	100 100	2 + 4 2 + 4
TOTAL			850	42

TABLE 13. SCHEME OF STUDIES (2000) FOR SECONDARY SCHOOL CERTIFICATE: DARSE NIZAMI (ISLAMIC STUDIES) GROUP

SUBJECTS	MARKS			WEEKLY PERIODS
	THEORY	PRACTICAL	TOTAL	
Urdu A + Urdu B (Al Qawaid wal Insha)	75 + 75		150	6
English (A+B)	75 + 75		150	6
Seeratul Rasool (in lieu of Islamiat)	75		75	3
Pakistan Studies	75		75	3
Mathematics	100		100	6
General Science	100		100	6
Al–Quran Al–Hadith (Sayings and Deeds of Mohammed) Al–Fiqah (Islamic Jurisprudence)	100 50 50		100 50 50	6 3 3
TOTAL			850	42

Social science subjects

1. Art and model drawing
2. Islamic studies
3. Islamic history
4. Geography
5. Economics
6. Management for better homes
7. Child development and family living
8. Commercial geography
9. Shorthand and typing
10. Bookkeeping and accounts
11. Business methods
12. Secretariat practice
13. Salesmanship
14. Banking and insurance
15. Import and export procedure
16. Geometrical and technical drawing
17. Physiology and hygiene
18. Geology
19. Astronomy and space science
20. Military science
21. Environmental studies
22. History of Indo-Pak sub-continent
23. Civics
24. Food and nutrition
25. Elements of home economics
26. Clothing and textiles
27. Computer science
28. Physical education
29. Education
30. Urdu literature
31. English literature
32. Arabic
33. Persian
34. Sindhi
35. Pushto
36. Punjabi
37. Balochi
38. Gujarati
39. Bengali
40. Turkish
41. French
42. Spanish
43. Chinese
44. Russian
45. Japanese
46. German

Technical subjects

PHASE I

1. Repair and maintenance of domestic refrigerators and air conditioners
2. Radio and tape recorder repairing
3. Plumbing and sanitary fitting
4. Electrical wiring
5. Woodwork (boat making)
6. Auto mechanic (motorcycles and scooters)
7. Computer hardware
8. Repair and maintenance of household electrical appliances
9. Servicing and minor repair of tractors
10. Food processing and preservation
11. Poultry farming
12. Beautician
13. Woodworking (furniture making)
14. Welding (gas and electric)
15. Fish farming
16. Dressmaking and fashion designing
17. TV repairing

PHASE II

1. Auto electrician
2. Ceramics
3. Leather goods making
4. Minor repair and maintenance of petrol engines
5. Floriculture
6. Photography
7. Glass work (glass blowing, cutting and framing)
8. Pottery (cottage industry)
9. Wheel balancing and vulcanizing
10. Sheet metal work
11. Minor repair and maintenance of diesel engines
12. Sericulture (silkworm raising)
13. Stuffed toys and doll making
14. Floral work
15. Art, painting and calligraphy
16. Cooking and baking
17. Embroidery and knitting
18. Textiles and weaving
19. Carpeting
20. Sports goods
21. Cutlery and surgical instruments
22. Metallurgy
23. Masonry or building construction
24. Bookkeeping and cash handling

25. Computer operating and shorthand or typing
26. Mining
27. Petroleum
28. Agro industries
29. Farm management

Composite and Partwise Examinations

Depending on the year and the examining board, the Secondary School Certificate examination may be either composite or partwise:

- The SSC composite examination is conducted at the end of Grade 10.
- The SSC (partwise or part system) examination is conducted in two parts, one at the end of Grade 9 (SSC Part I) and one at the end of Grade 10 (SSC Part II).

A new scheme of partwise SSC examinations introduced by the Ministry of Education around 2005 has a total of 1050 marks. The allocation of marks to subjects in Part I and Part II may vary by examining board.

TABLE 14. PARTWISE SSC EXAMINATION (2005), SCIENCE GROUP (WITH BIOLOGY), BOARD OF INTERMEDIATE AND SECONDARY EDUCATION, RAWALPINDI

	PART I (GRADE 9)	PART II (GRADE 10)	
SUBJECT	THEORY	THEORY	PRACTICAL
Urdu	75	75	
English	75	75	
Islamiat (compulsory)	75		
Pakistan Studies		75	
Mathematics	75	75	
Physics	60	60	30
Chemistry	60	60	30
Biology	60	60	30
Subtotal	480	480	90
TOTAL	1050		

TABLE 15. PARTWISE SSC EXAMINATION (2008), SCIENCE GROUP (WITH BIOLOGY), FEDERAL BOARD OF INTERMEDIATE AND SECONDARY EDUCATION (FBISE)

	PART I (GRADE 9)		PART II (GRADE 10)	
SUBJECT	THEORY	PRACTICAL	THEORY	PRACTICAL
Urdu	75		75	
English	75		75	
Islamiat (compulsory)	75			
Pakistan Studies			75	
Mathematics	75		75	
Physics	65	10	65	10
Chemistry	65	10	65	10
Biology	65	10	65	10
Subtotal	495	30	495	30
TOTAL	1050			

Secondary School or Matriculation Certificate

The minimum mark for passing each subject at the SSC Examination is 33 per cent. The certificate usually indicates the chosen course group, total marks obtained for all subjects and the corresponding letter grade. A student who fails one or two papers may repeat those subjects in "compartmental exams" conducted in the same year. A student who fails more than two papers is required to repeat all subjects the following year. It is also a common practice to give "grace marks" to students who fail one or two papers by a few percentage points, to allow them to pass the examination.

By passing all subjects in the board examination, students receive the **Secondary School Certificate**, also called Matriculation Certificate, which is required for entry into higher secondary school. The SSC holder may also seek admission into vocational and technical programs such as the three-year Diploma of Associate Engineer (DAE). In addition to the SSC, students also receive a detailed marks sheet.

Teaching at secondary schools officially requires possession of a one-year Bachelor of Education degree, with entry based on possession of a first bachelor's degree (for example, Bachelor of Arts or Bachelor of Science).

Higher Secondary Education (Grades 11 and 12)

Higher secondary education lasts two years (Grades 11 and 12), with entry based on possession of the Secondary School Certificate, and is geared to children aged 15 to 16. It is offered mainly at higher secondary schools. Though the practice of offering higher secondary education at intermediate and degree colleges is being phased out, several older terms are still used, such as intermediate stage (higher secondary stage), FA (Faculty of Arts—humanities group of higher secondary education) and FS or FSc (Faculty of Science—science group of higher secondary education).

In 2005, 853,535 students were enrolled at 2,996 higher secondary schools and intermediate colleges.

The language of instruction is Urdu. Students must study a few compulsory subjects plus additional subjects based on a chosen course group. On completion of their studies, they sit examinations administered by the various Boards of Intermediate and Secondary Education in order to receive the Higher Secondary Certificate or Intermediate Examination Certificate.

The organization of course groups changes with each revision of the national curriculum. The scheme of studies for different course groups prescribed by the 1995 and 2000 curricula are described below.

Scheme of Studies, 1995 Curriculum

The 1995 curriculum mandated four compulsory subjects for all students, worth a total maximum of 500 marks.

Compulsory Subject	Mark
Urdu	200
English	200
Islamic Education	50
Pakistan Studies	50
Subtotal	**500**

Students may choose the science group (which includes several sub-groups), the humanities group, the medical technology group, or the home economics group (for girls), each having additional subjects worth 600 marks. The Higher Secondary Certificate Examination, therefore, has a maximum total of 1100 marks.

Table 16 shows the scheme of studies for the various course groups, as prescribed in the 1995 national curriculum.

Scheme of Studies, 2000 Curriculum

As with the 1995 curriculum, the 2000 curriculum mandated four compulsory subjects for all students, worth a total maximum of 500 marks.

Compulsory Subject	Mark
Urdu or Pakistan Culture (for foreigners)	200
English	200
Islamic Education or Civics (for non-Muslims)	50
Pakistan Studies	50
Subtotal	**500**

Table 18 shows the scheme of studies, in addition to the four compulsory subjects, for various course groups, as prescribed in the 2000 national curriculum.

TABLE 16. SCHEME OF STUDIES (1995) FOR HIGHER SECONDARY CERTIFICATE

GROUP		SUBJECT	MARKS
Compulsory for all students		Urdu	200
		English	200
		Pakistan Studies	50
		Islamic Education	50
Science	Pre-Medical	Physics, Chemistry, Biology	200 x 3
	Pre-Engineering	Physics, Chemistry, Mathematics	200 x 3
	General	Mathematics, Physics, Statistics	200 x 3
		Mathematics, Economics, Statistics	200 x 3
		Mathematics, Economics, Computer Studies	200 x 3
		Mathematics, Physics, Computer Studies	200 x 3
		Mathematics, Statistics, Computer Studies	200 x 3
Humanities		1 subject from each of set I, set II and set III (see Table 17 for allowed subject combinations)	200 x 3
Medical Technology		Elementary Anatomy and Micro Techniques	100
		Hematology and Blood Banking	100
		Microbiology I	100
		Microbiology II	100
		Clinical Pathology and Serology	100
		Elementary Chemistry and Chemical Pathology	100
Home Economics (for girls)		Food and Home Management	200
		Clothing and Related Arts	200
		Child Development and Group Behaviour, Childcare and Home Nursing	200
TOTAL FOR EACH GROUP			1100

TABLE 17. LIST OF SUBJECTS FOR HUMANITIES GROUP

	SET I	SET II	SET III
1.	Mathematics	Statistics	Psychology
2.	Mathematics	Statistics	Geography
3.	Economics	Statistics	Geography
4.	Economics	Islamic Studies	Civics
5.	History	Islamic Studies	Civics
6.	History	Islamic Studies	Arabic or Persian
7.	Economics	Islamic Studies	Psychology
8.	Islamic Studies	Health and Physical Education	Urdu (advanced) or Arabic
9.	Library Science	History	Civics
10.	Any other combination adopted by the examining boards		

TABLE 18. SCHEME OF STUDIES (2000) FOR HIGHER SECONDARY CERTIFICATE

GROUP		SUBJECT	MARKS
Science	Pre-Medical	Physics, Chemistry, Biology	200 per subject
	Pre-Engineering	Physics, Chemistry, Mathematics	
	General	1. Mathematics, Physics, Statistics 2. Mathematics, Economics, Statistics 3. Mathematics, Economics, Computer Science 4. Mathematics, Physics, Computer Science 5. Mathematics, Statistics, Computer Science	
Humanities		Choose three from the following: 1. Arabic, Persian, French, English (elective) or Urdu (elective) 2. Economics 3. Fine Arts 4. Philosophy 5. Psychology 6. Statistics 7. History of Modern World, Islamic History, History of Muslim India, or History of Pakistan 8. Islamic Studies 9. Health and Physical Education 10. Sindhi (elective) 11. Civics 12. Education 13. Geography 14. Sociology 15. Mathematics 16. Computer Science 17. Islamic Culture 18. Library Science 19. Outlines of Home Economics	200 per subject
Commerce	Grade 11	1. Principles of Accounting 2. Principles of Economics 3. Principles of Commerce 4. Business Mathematics	100 75 75 50
	Grade 12	1. Principles of Accounting 2. Commercial Geography 3. Computer Studies, Typing or Banking 4. Statistics	100 75 75 50
Medical Technology	1. Medical Lab Technology group 2. Dental Hygiene Technology group 3. Operation Theatre Technology group 4. Medical Imaging Technology group 5. Physiotherapy Technology group 6. Ophthalmic Technology group		
TOTAL FOR EACH GROUP			600

Various examining boards may offer other course groups in addition to those listed in the national curriculum. Examples include the nursing group, the agricultural group and the military science group.

Composite and Partwise Examinations

Depending on the year and the examining board, the Higher Secondary Certificate examination may be either composite or partwise.

- The HSC composite examination is conducted at the end of Grade 12.
- The HSC (partwise or part system) examination is conducted in two parts, one at the end of Grade 11 (HSC Part I) and one at the end of Grade 12 (HSC Part II).

Table 19 shows the allocation of marks to subjects in Part I and Part II of the partwise HSC examination (pre-medical) conducted by the Aga Khan University Examination Board.

Higher Secondary Certificate or Intermediate Examination Certificate

The minimum mark for passing each subject is 33 per cent. The certificate usually indicates the chosen course group, the total marks obtained for all subjects and the corresponding letter grade. A student who fails one or two papers may repeat those subjects in "compartmental exams" conducted in the same year. A student who fails more than two papers is required to repeat all subjects the following year. It is also a common practice to give "grace marks" to students who fail one or two papers by a few percentage points, to allow them to pass the examination.

After passing the examination, students receive the **Higher Secondary Certificate** or Intermediate Examination Certificate, which is the prerequisite for entry into university undergraduate study. In addition to the HSC, students also receive a detailed marks sheet. The format of the HSC and marks sheet varies by issuing board and time period.

Teaching at higher secondary schools officially requires possession of a Master of Education or MA (Education).

2006 Curriculum

In 2006 the Ministry of Education announced a new national curriculum for Grades 1 to 12, to be adopted across the school system over a period of three years, starting in 2007. It was first introduced in that year in Grades 1, 6, 9 and 11. The new curriculum and course syllabi are available on the Ministry of Education website.

Some of the changes to the previous (2000) curriculum include:

- an increase in school days from 170 to 210
- provision of a scheme of studies for early childhood education for children aged 4 to 5
- teaching of Urdu and English from Grade 1 as compulsory subjects
- introduction of a few compulsory subjects for middle school (Grades 6 to 8), including computer literacy, geography and history
- provision of a five-year period for schools to adopt English as the language of instruction for selected subjects, including mathematics, science and computer literacy
- provision of the option for non-Muslims to study ethics instead of Islamiat in all grades

TABLE 19. HIGHER SECONDARY CERTIFICATE EXAMINATION (2008 AND 2009), SCIENCE GROUP (PRE-MEDICAL), AGA KHAN UNIVERSITY EXAMINATION BOARD

SUBJECTS		MARKS		
		THEORY	PRACTICAL	TOTAL
Part I (Class XI)	English Compulsory I	100		100
	Urdu Compulsory I or Pakistan Culture I	100		100
	Islamic Education or Civics	50		50
	Physics I	85	15	100
	Chemistry I	85	15	100
	Biology I	85	15	100
	Subtotal			**550**
Part II (Class XII)	English Compulsory II	100		100
	Urdu Compulsory or Pakistan Culture II	100		100
	Pakistan Studies	50		50
	Physics II	85	15	100
	Chemistry II	85	15	100
	Biology II	85	15	100
	Subtotal			**550**

Higher Education

Overview

In Pakistan, the term higher education refers to all levels of education above higher secondary school (Grade 12), generally corresponding to the 17- to 23-year-old age group. This chapter deals with general and professional programs in higher education.

When Pakistan gained independence in 1947 it had only one university—the University of the Punjab at Lahore. Despite the rapid expansion of the higher education sector in recent years, it has not been able to keep up with growing demand. Currently there are 122 recognized universities and degree-awarding institutions, over 1,000 colleges and over 1,000 professional institutions. Total enrolment is over 1.1 million, representing about three per cent of the college-age population. The government has set a target of doubling higher education enrolment over the next five years.

Administration

Pakistan has a complex and sometimes overlapping structure for the administration of its higher education institutions. While the federal government is directly responsible for a few national universities and institutions in the federal areas, most universities and other degree-awarding institutions fall under provincial administration. The Higher Education Commission coordinates university education across the country.

Affiliated colleges, which currently enrol about one-third of students in higher education, are under provincial administration, but are also answerable to their affiliating universities. The Ministry of Education coordinates college education across the country.

The President of Pakistan is the ex-officio chancellor of the universities located in the federal areas. Provincial governors are the ex-officio chancellors of the universities under their jurisdictions. The syndicate is the executive body of the university and the academic council the main academic body. The vice chancellor, appointed by the Higher Education Commission, is the academic and administrative head of the university. The vice chancellor is assisted by the dean of the faculties, chairmen of the departments, principals of the constituent colleges, and other university officers such as the registrar, controller of examinations, and treasurer.

One criticism of university administration in Pakistan is that the appointment of vice chancellors is often politically based rather than merit based.

Funding

Universities and colleges in Pakistan are either public or private. Private institutions do not receive government funding. They are fully self-financed, with student fees as their main source of income.

Since 1979 the federal government has been responsible for funding public universities and degree-awarding institutions across the country, although the provinces may provide small grants to a select number of universities. Federal funding to universities, in the form of recurring and development grants, is mainly allocated through the Higher Education Commission, which replaced the University Grants Commission in 2002.

Many universities spend most of their recurring grants on salaries and have little money for research, facilities or professional development of faculty members. A self-financing scheme was introduced in the mid-1990s to help reduce public universities' dependence on government funding. The main source of self-generated income is student fees—as reflected in the gradual fee increase for regular students, who pay a fraction of the cost of their education—and the introduction of seats for self-financed students.

Affiliated colleges in the public sector are funded by provincial governments.

Public expenditure on education has long been inadequate. Since the establishment of the Higher Education Commission in 2002, government funding for universities has enjoyed a substantial increase. However, little improvement has been seen in the financial situation of the affiliated colleges.

National Bodies

The **University Grants Commission** (1974–2002) had the following function, as defined in the UGC Act of 1974: "Promotion and coordination of university education, the determination and maintenance of standards of teaching, examination and research in universities, the promotion of national unity and solidarity, and the orientation of university programs to national needs." The UGC had no control of funding but merely passed on the universities'

budgetary requests to the Ministry of Education and distributed federal grants to the universities.

Upon the recommendation of the Taskforce on Improvement of Higher Education in Pakistan, the Higher Education Commission was established in 2002 to replace the University Grants Commission. As an autonomous body linked to the Ministry of Education, the HEC has the mandate to evaluate, improve and promote higher education and research. It allocates funding for higher education and advises the provincial and federal governments on the evaluation and approval of universities and other degree-awarding institutions. Since its inception, the HEC has enjoyed ample funding and has taken a series of initiatives to revitalize the higher education sector.

No associations currently represent universities at either national or provincial levels.

Recognized Institutions

Universities and other degree-awarding institutions gain recognition by obtaining charters through acts of the national or provincial legislature. This is often referred to as "accreditation." Federal and provincial authorities generally grant such charters after the Higher Education Commission or the provincial education department issue a No Objection Certificate or recommendation letter in response to an institution's application. The HEC website provides an updated list of recognized universities and degree-awarding institutions in both the public and private sectors. See Appendix B for a list of 122 recognized universities and other degree-awarding institutions (updated 2008).

Program Structure

Modern higher education in Pakistan is largely modeled after the British system. It follows the three-tier degree structure (bachelor's, master's and PhD). In addition, certificate and diploma programs exist at both undergraduate and graduate levels. The traditional pattern of undergraduate education, dating back to pre-independence days, represents 14 or 15 years of schooling—Grade 12 followed by a two-year bachelor's (pass) degree or a three-year bachelor's (honours) degree in arts, commerce or science.

As directed by the Higher Education Commission, the two- and three-year bachelor's degree programs are being phased out and replaced by North American-style four-year bachelor's degrees that represent 16 years of total schooling. The higher education system is therefore under transition, with the change in bachelor's degree structure affecting other levels of programs. The HEC conducts periodic curriculum revisions in consultation with the universities and publishes updated model curricula on its website. The model curricula cover program structure, credit hours of major and supporting courses, course descriptions and recommended readings. In following the HEC curricula, universities may introduce revisions up to 15 to 20 per cent in courses and content.

In traditional Pakistan terminology, a first degree holder is called a "graduate," and "graduate education" refers to undergraduate education. The term "postgraduate education" is also used to refer to graduate education.

Typical higher education programs include:

- two-year general bachelor's (pass) degrees, for example, in arts, commerce and science
- three-year general bachelor's (honours) degrees, for example, in arts, commerce and science
- three-year bachelor's degrees in specialized fields, for example, in business, education and computing
- newly upgraded four-year general bachelor's degrees
- four-year bachelor's degrees in specialized and professional fields, for example, in agriculture, engineering, dentistry, pharmacy (pre-2004) and veterinary medicine (pre-2002)
- five-year bachelor's degrees in specialized and professional fields, for example, in architecture, medicine, pharmacy (since 2004) and veterinary medicine (since 2002)
- Bachelor of Law (LLB) and Bachelor of Education as postgraduate bachelor's degrees (three years and one year respectively) or as integrated programs (five and three years respectively), and one-year postgraduate Bachelor of Library Science (BLS) degrees
- general master's degrees (arts, commerce and science), involving two years of full-time study following achievement of a bachelor's (pass) degree or one year of full-time study following achievement of a bachelor's (honours) degree
- master's degrees in professional fields involving three to four semesters of full-time study following achievement of a bachelor's degree in the same or a related field

- Master of Philosophy (MPhil) degrees involving two years of full-time study following achievement of a master's degree or a four-year bachelor's degree
- PhD programs lasting at least two years after achievement of an MPhil or three years after achievement of a master's degree
- various certificate and diploma programs lasting from six months to three years at both the undergraduate and graduate levels, with entry requirements ranging from possession of a secondary school certificate (Grade 10) to possession of a four-year bachelor's degree

FIGURE 5. OUTLINE OF HIGHER EDUCATION SYSTEM

Academic Year and Credit System

The organization of the academic year varies from institution to institution, and different programs in the same institution may follow different academic calendars. In the traditional annual system, examinations are held at the end of each academic year. In recent years many universities have adopted the semester system, with final exams held and credits awarded for completed courses at the end of each semester. There are usually two main semesters (called fall and spring or autumn and winter), lasting about four months each, and a short summer semester of about two months.

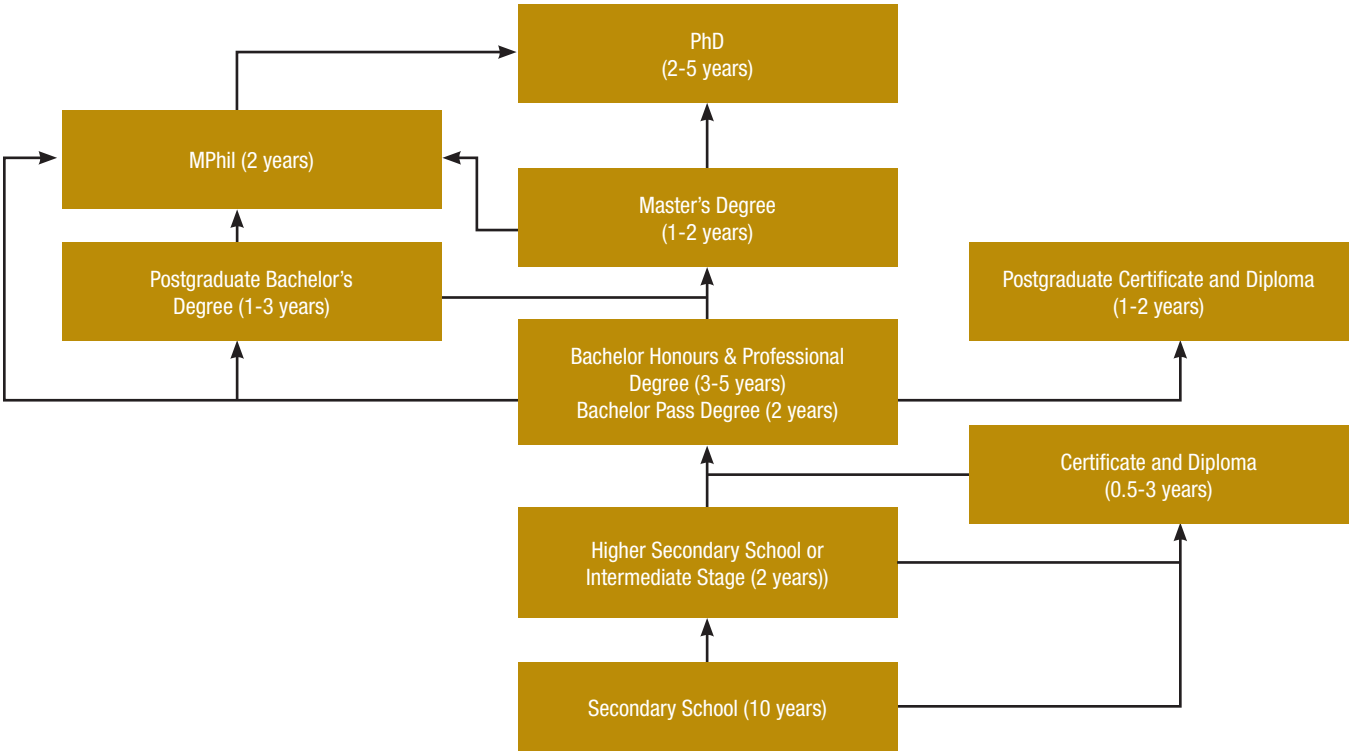


TABLE 20. ACADEMIC CALENDAR 2007–08, BAHAUDDIN ZAKARIYA UNIVERSITY, MULTAN (PUBLIC)

FALL SEMESTER 2007	
Semester begins	15 Aug 2007
Mid-term exams	15–20 Oct 2007
Final exams	17–22 Dec 2007
Results	31 Dec 2007
SPRING SEMESTER 2008	
Semester begins	17 Jan 2008
Mid-term exams	3–8 Mar 2008
Final exams	5–10 May 2008
Results	19 May 2008
SUMMER SEMESTER 2008	
Semester begins	2 Jun 2008
Mid-term exams	30 Jun 2008
Final exams	4 Aug 2008
Results	11 Aug 2008

TABLE 21. ACADEMIC CALENDAR 2006–07, SINDH AGRICULTURE UNIVERSITY (PUBLIC)

FIRST SEMESTER (SPRING)	
Admission test	19 Nov 2006
Class begins	1 Jan 2007
Examinations	2–31 May 2007
Results	17 Jun 2007
SECOND SEMESTER (FALL)	
Class begins	2 Jul 2007
Examinations	29 Oct – 3 Nov 2007
Results	16 Dec 2007

Program length has traditionally been defined by years of full-time study, for example, two-year bachelor's (pass) degrees and three-year bachelor's (honours) degrees. This is being replaced by the credit system, with program length defined in terms of minimum credits or credit hours. One credit or credit hour generally represents one instructional hour per week over the course of an 18-week semester (with 14 to 15 weeks of instruction). For example, a four-year bachelor's degree may require between 120 and 140 credits of coursework.

Language of Instruction

English has been the language of instruction for higher education since the British colonial period. After Pakistan gained independence in 1947, Urdu was made the national language. Several national education documents envisaged the eventual replacement of English by Urdu as the language of advanced study and research, but this has not happened.

Today both Urdu and English are languages of instruction in higher education. While English is the dominant language in science and technical programs, Urdu remains a common language of instruction in most other subjects, partly due to the lack of English competence on the part of faculty and students and to the lack of English language learning resources.

Grading Scale

Percentage marks are commonly used. The Pakistani system is low marking, with 40 per cent as a common minimum pass mark, although some institutions or programs have a 50 per cent pass. Grading scale information is usually provided on the marks sheets issued by universities.

TABLE 22. GRADING SCALE, ALLAMA IQBAL OPEN UNIVERSITY (NATIONAL)

PERCENTAGE (%) MARK	LETTER GRADE
80 and above	A+
70–79	A
60–69	B
50–59	C
40–49	D
Below 40	Fail

TABLE 23. GRADING SCALE, UNIVERSITY OF AGRICULTURE, FAISALABAD (PUBLIC)

LETTER GRADE	GRADE POINT	PERCENTAGE (%) MARK	DESCRIPTOR
A	4	80–100	Excellent
B	3	65–79	Good
C	2	50–64	Satisfactory
D	1	40–49	Pass
F	0	Below 40	Fail

TABLE 24. GRADING SCALE, CITY UNIVERSITY OF SCIENCE AND TECHNOLOGY, PESHAWAR (PRIVATE)

PERCENTAGE (%) MARK	LETTER GRADE	GRADE POINTS
92–100	A+	4.00
86–91	A	3.67
79–85	B+	3.33
70–78	B	3.00
63–69	C+	2.50
56–62	C	2.00
50–55	D	1.50
Below 50%	F	Fail
Withdrawal	W	–
Incomplete	I	–

For more information, refer to Grading Scales.

Types of Institutions

Higher education in Pakistan is delivered by over one hundred universities and degree-awarding institutions, over 1,000 general colleges and over 1,000 professional colleges.

Universities and Degree-Awarding Institutions (DAIs)

Two types of institutions are authorized to award academic degrees in Pakistan: universities and other degree-awarding institutions. Their total number is 122 (2008), including 93 universities and 29 DAIs. Although they offer both undergraduate and graduate programs, their focus is on graduate education and research, with undergraduate teaching mostly conducted at affiliated colleges.

Universities and DAIs can be classified in various ways. In terms of jurisdiction, they are **national** or **provincial**, as they receive their charters through acts of federal or provincial legislatures. There are 21 national institutions, most of which are located in Islamabad, the national capital. The remaining 101 institutions belong to the four provinces: Sindh (38), Punjab (36), NWFP (21), and Balochistan (6).

In terms of funding, institutions are **public** or **private**. Universities in Pakistan were all public until 1982. Since the late 1990s many private institutions have been chartered. There are now 65 public and 57 private universities and DAIs. The federal government is responsible for funding all public universities and DAIs in Pakistan. Private institutions are self-financed, with student fees as their main source of income.

In terms of structure, universities can be **affiliating** or **non-affiliating**. An affiliating university has a number of colleges attached to it. It formulates the curricula and syllabi, administers examinations and awards degrees for undergraduate programs at its affiliated colleges. Its own faculties, departments and/or constituent colleges conduct research and offer graduate programs. Some public universities have very large numbers of affiliated colleges, the top one being the University of the Punjab, which had about 530 affiliated colleges in 2008. A few universities have no affiliated colleges; their faculties, departments and/or constituent colleges conduct research and offer both undergraduate and graduate programs. DAIs usually do not have affiliated colleges.

In terms of fields of study, universities are **general** or **specialized**. General universities offer programs in a wide range of fields. Specialized universities offer programs only in specific areas such as art and design, agriculture and veterinary medicine, health sciences, engineering, or business and IT. DAIs are usually specialized institutions.

Universities may offer programs in **traditional learning mode** or **distance learning mode**.

Distance Learning Institutions

The two national universities that offer programs mainly through distance learning are the Allama Iqbal Open University and the Virtual University of Pakistan. Compared with traditional universities, they are flexible in terms of admission rules and modes and duration of study.

Established in 1974 as People's Open University, the Allama Iqbal Open University assumed its current name in 1977 (it is named after the poet and philosopher Allama Muhammad Iqbal). It is the oldest institution of its kind in Asia. It is also the largest university in Pakistan, having a total enrolment of 1.8 million in 2004–05. Some of its prominent features include:

- offering several hundred courses ranging from secondary school certificate level to PhD level
- nine regional campuses, over 100 regional centres and offices, and over 1,400 study centres across the country
- the nation's largest provider of teacher education, with an average enrolment of one million students
- reliance on non-traditional methods of instruction including correspondence, AIOU-approved self-

study textbooks and audiovisual materials, and daily broadcasting of TV and radio programs
- study centres offering guidance from part-time teachers (tutors), teaching practice for teacher education courses, and practical training for professional and technical courses
- no age limit for student enrolment
- option for students to proceed at their own pace from semester to semester
- students in the workforce accounting for over 70 per cent of total enrolment
- female students accounting for more than half of total enrolment

Established in 2002, the Virtual University of Pakistan has a federal charter to offer certificate, diploma and degree programs. Instruction is provided mainly through the distance learning mode (TV broadcast and the Internet), with over a hundred associated institutions providing infrastructure and support to the students. Student–teacher interaction, assignments and quizzes are mainly handled over the Internet. Mid-term and final examinations are conducted at designated exam centres across the country. Major programs offered by the Virtual University include:

- certificate courses with no entry requirement
- one-year diplomas in computer science and technology, with entry based on achievement of Grade 12
- two-year bachelor's degrees (arts, commerce, science, business administration, and so on)
- 130-credit Bachelor of Science degrees
- 72-credit Master of Computer Science (MCS) degrees, Master of Information Technology (MIT) degrees and Master of Business Administration (MBA) degrees
- 30-credit Master of Science in Computer Science degrees, with entry based on possession of a four-year bachelor's degree

University Quality Indicators

The rapid expansion of the higher education sector in recent years has raised serious concerns about quality and standards in both public and private institutions. The number of public universities has almost doubled since 2000, partly through upgrading colleges to university status. Some of those newly upgraded public universities lack facilities and qualified staff.

Many private institutions are of questionable quality and not recognized by the government. However, even among the newly chartered private institutions, the quality and standards are fairly uneven. The Higher Education Commission provides a list of the 57 private universities and degree-awarding institutions in four categories.

UNIVERSITY QUALITY INDICATORS		
CATEGORY	STANDARD ACHIEVED	NUMBER
W	Meets major requirements	22
X	With minor shortfalls, expected to meet criteria by 2007	29
Y	Does not meet requirements	2
Z	Seriously deficient	4
Total Institutions Assessed		57

Another quality indicator for Pakistan universities is the HEC university ranking based on 2001–04 data on students, facilities, faculties, finance and research. The ranking only covers about half of the universities in the country, as many institutions—such as private institutions in categories Y and Z, institutions chartered after 2001 and distance learning institutions—are excluded.

Colleges

Like universities, colleges in Pakistan can also be classified in various ways. A major distinction exists between **constituent colleges** and **affiliated colleges**. Constituent colleges (also called university colleges or campuses) are directly administered by the university and offer both undergraduate and graduate programs. The majority of colleges, called either colleges or institutes, are affiliated colleges. The affiliating university sets the syllabi, conducts major examinations and awards degrees, while teaching is undertaken at the affiliated colleges. Most affiliated colleges only teach at the undergraduate level, and some offer only bachelor's (pass) programs. The practice of offering higher secondary or intermediate education at colleges is being phased out.

The majority of the affiliated colleges are public, and their teachers and staff are government employees. A small number of affiliated colleges are private.

Affiliated colleges can be general or specialized. General colleges offer a variety of courses in arts, commerce and science. Specialized and professional colleges offer programs in areas such as medicine, engineering, technology, law, education and management.

Foreign Universities and Institutions Offering Degree Programs

Among the newly emerged private institutions in Pakistan, many claim to be branches, campuses or partners with overseas institutions. Some of the claims are false, and some of the overseas institutions operating in Pakistan are unrecognized in their own jurisdictions. The Higher Education Commission publishes a list of foreign universities and degrees allowed to run collaborative degree programs in Pakistan.

Admissions

Undergraduate Admission

Admission to higher education is mainly based on results of the Higher Secondary Certificate or Intermediate Certificate. Although successive national education policies and Five-Year Plans stressed the need for admission tests for universities and colleges, the practice has only begun to be adopted in recent years.

Admission to certificate and diploma courses is based on the completion of either secondary school (Grade 10) or higher secondary school (Grade 12). For example, the three-year Diploma of Associate Engineer (DAE) requires Grade 10 in the science group for admission.

Admission to bachelor's degree programs is based on the completion of higher secondary school (Grade 12). Applicants must pass the HSC or Intermediate Certificate Examination administered by a recognized Board of Intermediate and Secondary Examination. Refer to the previous chapter, School Education, for a list of recognized boards. Equivalencies such as the British General Certificate of Education Advanced Level (GCE A-level) examinations in relevant subjects may be considered.

For entry into their various undergraduate programs, universities prescribe minimum marks (for example, 45 per cent) in the required course group (for example, pre-engineering) for the HSC or Intermediate Certificate.

Entry into professional programs such as engineering, medicine, dentistry and pharmacy is more competitive than entrance into general programs (BA, BCom and BSc). Admission to bachelor's degree programs at the Allama Iqbal Open University is also based on possession of the HSC or Intermediate Certificate, but there are no minimum mark requirements.

In addition to the HSC or Intermediate Certificate, some institutions require applicants to attend an admission test and/or interview. A university may administer its own admission test, recognize the test conducted by another university, or use the results of the National Testing Service described below. The university decides the weight of the admission test results versus HSC marks in the admission criteria, for example, 20:80, 30:70 or 40:60.

Not all applicants are admitted on an equal basis. In addition to the seats open to general competition, usually called the merit list, universities may prescribe a small number of reserved seats for various groups such as refugees, tribal area inhabitants, children of armed forces personnel, and so on. An applicant may receive additional marks for being a Hafiz-e-Quran (a person who has memorized the Holy Quran). Students from well-to-do families may choose the self-finance scheme, which has lower admission standards than those for regular students.

Graduate Admission

Admission into master's programs generally requires a bachelor's degree in a related discipline in the First or Second Division. Some selective institutions or programs may require a bachelor's degree in the First Division or a high minimum mark in aggregate. Like undergraduate programs, graduate programs in professional fields, such as engineering, medicine, dentistry and pharmacy, are more competitive than general programs (for example, MA, MCom and MSc).

Universities usually require graduate program applicants to attend an admission test and interview. A university may administer its own admission test, recognize the test conducted by another university, or use the results of the National Testing Service, as described below. Some universities may require or accept international tests such as Graduate Record Examinations or the Graduate Management Admission Test. The university decides the weight of the different elements in the admission criteria,

for example, 30 per cent for the admission test and 70 per cent for bachelor's degree examinations.

National Testing Service

The National Testing Service conducts a range of tests for admission and employment purposes. A number of associated universities and degree-awarding institutions use the National Aptitude Test results for admission into their undergraduate and graduate programs.

National Aptitude Test Category One (NAT-I) has three test categories for candidates with 12 years of schooling who seek admission into bachelor's degree programs:

- NAT-IE: pre-engineering or computer science
- NAT-IM: pre-medical
- NAT-IA: arts

National Aptitude Test Category Two (NAT-II) has five test categories for candidates with 14 years of schooling who seek admission into master degree programs:

- NAT-IIA: arts or social sciences
- NAT-IIB: biological sciences
- NAT-IIM: management sciences
- NAT-IIP: physical sciences
- NAT-IIO: Oriental and Islamic studies

Programs and Credentials: General Education

Certificates and Diplomas

Universities, colleges and technical and commercial institutes offer a variety of certificates and diplomas. Length of study is usually one year, and entry requirements may be a Higher Secondary Certificate or a Secondary School Certificate. Within the same field of study, a diploma is typically a higher credential than a certificate. For example, the University of the Punjab offers:

- one-year certificate programs in some European languages, with entry based on possession of an SSC
- one-year diploma programs in the same languages, with entry based on possession of an HSC

Many certificate and diploma programs are terminal in nature and do not give any advanced standing for the purpose of further education, although there are notable exceptions. For more information on such programs, refer to Vocational and Technical Education and Teacher Education.

Bachelor's Degrees

Two-year bachelor's (pass) degrees. Traditional undergraduate education in Pakistan represents 14 years of schooling (12+2), with 12 years of school education followed by a two-year bachelor's (pass) degree. Two-year pass degrees are typically offered in arts, commerce and science—Bachelor of Arts (BA), Bachelor of Commerce (BCom) and Bachelor of Science (BSc). Entry is based on possession of the HSC or equivalent. Students are required to complete a number of courses (usually three to five per semester) or "papers" and pass two annual examinations (Part I and Part II). These are general programs with no area of specialization and no thesis requirement.

Pass degree programs are mostly offered at affiliated colleges, with the affiliating universities conducting annual examinations at the end of each academic year and awarding the degrees. Internal assessment by the colleges accounts for a small percentage of the total marks.

In addition to arts, commerce and science, two-year bachelor's (pass) degrees are also available in a few specialized areas such as business administration (BBA), technology (BTech), Information Technology (BIT) and computer science (BCS). Some of these programs have an area of specialization, for example, a BTech in Mechanical Technology or a BTech in Electrical Technology. The BSc (Home Economics) may be offered as a four-year program following completion of secondary school (Grade 10).

A bachelor's (pass) degree gives an individual access to further education such as a general master's degree (for example, MA, MCom or MSc), a postgraduate bachelor's degree (for example, BEd), or postgraduate certificate and diploma programs.

Refer to Appendix C for sample program structures of two-year bachelor's (pass) degrees.

Three-year bachelor's (honours) degrees. Some universities offer three-year (honours) degrees in general areas (for example, arts, commerce and science). Like the two-year pass degrees, these require possession of an HSC or equivalent for admission. Students must complete a number of courses (usually three to five per semester) or "papers" and pass three annual examinations (Part I, Part II and Final). Unlike two-year degrees, these programs usually have areas of specialization, such as BA (English),

BA (Philosophy), BSc (Geology), BSc (Forestry), and so on. There is no thesis requirement.

In addition to arts, commerce and science, three-year bachelor's (honours) degrees are also available in a few other areas such as business administration (BBA), fine arts (BFA), education (BEd), information technology (BIT) and computer science (BCS).

A bachelor's (honours) degree gives an individual access to further education, such as a general master's degree (for example, MA, MCom or MSc), a postgraduate bachelor's degree (for example, BEd), or postgraduate certificate and diploma programs. It takes holders of a three-year honours degree one year to complete a general master's degree program (MA, MCom or MSc), compared to two years for holders of a two-year pass degree.

The three-year bachelor's (honours) degree programs are being phased out and replaced by four-year degrees, as described below.

Upgraded four-year bachelor's (honours) degrees (4 or 2+2). In recent years, universities in Pakistan in both the public and private sectors are adopting the North American pattern of four-year general bachelor's degrees following completion of Grade 12. Two types of programs are available to applicants depending on their previous education:

- four-year bachelor's (honours) degrees following completion of Grade 12
- two-year bachelor's (honours) degrees following completion of a first two-year bachelor's (pass) degree

Regardless of the route, the resulting bachelor's degree represents a total of 16 years of education. The credit system is predominantly used, with about 120 to 140 minimum credit hours required for graduation. For example, the HEC-approved model curriculum for the four-year BCom (honours) or BS Commerce (2006) requires 136 total credits. The weight of the research component in the curriculum depends on the program; some consist of coursework only with no thesis requirement, while others list research methodology as a compulsory course and require students to complete a thesis and attend a *viva voce* (oral exam).

In addition to the BA, BCom and BSc, four-year upgraded bachelor's (honours) programs are available in a few other areas such as business administration (BBA), fine arts (BFA) and computer science (BCS).

The four-year bachelor's degrees are considered equivalent to traditional general master's degrees for purposes of employment and further education, as both represent 16 years of education. At institutions that offer both types of programs, the Year 3 and Year 4 courses of the newly upgraded four-year bachelor's degree program may be identical to the traditional two-year master's program. Students in the four-year bachelor's degree program may have the option to exit the program after two years and receive a bachelor's (pass) degree.

See Appendix D for sample program structures of four-year bachelor's (honours) degrees.

Bachelor's degrees in many specialized and professional areas, such as engineering and agriculture, are traditionally four years in length. For more information, refer to Programs and Credentials: Specialized and Professional Education.

Postgraduate Bachelor's Degrees

A few bachelor's degrees in specialized or professional fields require the completion of a previous bachelor's degree (for example, BA, BCom or BSc) for admission. Examples of one-year courses include Bachelor of Education (BEd) and Bachelor of Library Science (BLS) or the newer Bachelor of Library and Information Science (BLibISc). A postgraduate Bachelor of Law (LLB) involves three years of full-time study.

For more information about some of the above programs, refer to Programs and Credentials: Specialized and Professional Education.

Postgraduate Certificates and Diplomas

Universities offer a variety of certificates and diplomas, called postgraduate certificates or diplomas, that require at least a bachelor's (pass) degree for admission. Programs in certain fields (for example, engineering) and some newly established programs require at least 16 years of education for admission, for example a four-year bachelor's degree (12+4) or a traditional general master's degree (12+2+2).

Length of study is usually one year. Within the same field of study, a diploma is typically a higher credential than a certificate—for example, University of the Punjab offers:

- a one-year certificate in statistics, with entry based on possession of a bachelor's degree in any discipline
- a one-year diploma in statistics, with entry based on possession of a BSc, BSc (Engg), MSc or certificate in statistics

Master's Degrees

General master's degrees (for example, in arts, commerce and science) requiring at least a two-year bachelor's degree for admission. Traditional general master's degree programs in Pakistan represent 16 years of education (12+2+2 or 12+3+1). A master's degree in arts, commerce or science—MA, MCom or MSc—involves two years of full-time study following the completion of a two-year bachelor's (pass) degree, or one year of full-time study following the completion of a three-year bachelor's (honours) degree. Universities may set minimum marks for admission, for example, Second Division from a bachelor's degree, and may require applicants to write an admission test administered by the institution or the National Testing Service, and attend an interview. Some institutions offer only one-year general master's degree programs that require a three-year bachelor's (honours) degree for admission.

Many MA, MCom and MSc programs consist of coursework only, although some require students to complete a research report or thesis. In the traditional annual system, examinations—generally known as Part I/Previous Examination (for the first year) and Part II/Final Examination (for the second year)—are held at the end of each year.

MA and MSc programs often have areas of specialization, for example, MA (English), MA (Economics), MA (Islamic and Oriental Studies), MSc (Chemistry) or MSc (Physics). Some MSc programs, such as MSc (Agriculture) and MSc (Engineering), are professional degrees, with entry based on possession of a four-year bachelor's degree in the same field. These are discussed in Programs and Credentials: Specialized and Professional Education.

A general master's degree gives an individual access to further education such as a Master of Philosophy (MPhil), and to postgraduate certificate and diploma programs. Prior to 31 May 2005, a general master's degree was the minimum entry requirement for PhD programs.

Go to Appendix E for sample program structures of two-year general master's degrees.

One-and-a-half or two-year general master's degrees requiring a four-year bachelor's degree for admission. Along with the introduction of general four-year bachelor's degrees, some institutions have upgraded their general master's degree programs to one and a half or two years of full-time study after a four-year bachelor's degree. For example, the HEC-approved model curriculum for the four-year BCom (honours) or BS Commerce (2006) also includes recommendations for the MS Commerce program, which comprises 36 credit hours, including 6 credit hours of thesis research, after completion of a four-year upgraded bachelor's degree in commerce. The upgraded general master's degree is considered equivalent to an MPhil.

Master's degrees in specialized and professional fields, such as engineering and technology, generally involve one-and-a-half or two years of full-time study. Entry is based on possession of a professional bachelor's degree in the same field, although some programs accept possession of a general bachelor's degree. Applicants must meet minimum marks in their undergraduate study. For more information, refer to Programs and Credentials: Specialized and Professional Education.

Master of Philosophy and PhD

The **Master of Philosophy (MPhil)** is a pre-doctoral research degree that usually involves two years of full-time study or three years of part-time study that include both coursework and directed research leading to the completion of a thesis.

Entry to the MPhil program is based on possession of a general master's degree (for example, MA, MCom or MSc), a professional bachelor's degree or an upgraded four-year general bachelor's degree. The HEC's Minimum Criteria for MPhil and PhD Education (effective for students enrolled after 31 May 2005) reiterates the above entry requirement—16 years of schooling or four years of education (130 credits) after higher secondary school—while also requiring applicants to take an admission test equivalent to GRE.

A typical program has two semesters of coursework followed by one year of thesis research. Programs in some

specialized areas may be three years full time. The HEC criteria of 2005 prescribe 24 credits of coursework and six credits of research to award the MPhil or equivalent degree.

In the traditional system, the **Doctor of Philosophy (PhD)** degree typically involved three to five years of full-time study following the completion of a master's degree or MPhil. The minimum entry credential was a general master's degree or a professional bachelor's degree in the relevant field that represented at least 16 years of schooling. Holders of an MPhil degree might be able to complete the PhD program in a minimum of two years.

Along with the upgrading of general bachelor's degrees from two and three years to four years, entry requirement for PhD programs has been raised. According to the HEC's *Minimum Criteria for MPhil and PhD Education*, PhD admission is based on possession of an MPhil or equivalent degree in First Division or with a minimum GPA of 3.0. A GRE (subject) test or a locally developed equivalent test is also required.

The following criteria are prescribed for the award of a PhD degree:

- at least 18 credits of coursework followed by a comprehensive exam
- a PhD dissertation evaluated by at least two experts from technologically advanced countries
- acceptance or publication of at least one research paper in an HEC-approved journal

Some institutions offer MPhil–PhD or MS–PhD combined programs (usually called MPhil leading to PhD or MS leading to PhD) that admit applicants who have a general master's degree, a professional bachelor's degree or a four-year bachelor's degree in the relevant field. Students who score below GPA 3.0 in the MPhil or MS segment or fail the comprehensive exam may receive a "terminal" MPhil or MS that does not allow entry into a PhD program.

Examples of other doctoral programs include Doctor of Science (DSc), Doctor of Literature (DLitt), and Doctor of Law (LLD). They may require a longer term of study than the PhD.

Refer to Appendix F for a sample MPhil program structure.

Programs and Credentials: Specialized and Professional Education

Agriculture

Agricultural education is provided both by universities of agriculture (of which there is at least one in each province) and by general universities. Bachelor's degrees in agriculture such as **Bachelor of Science in Agriculture (BSc Agriculture)** and **Bachelor of Science in Agricultural Engineering (BSc Agricultural Engineering)** involve four years of full-time study. Entry is based on possession of the HSC with required subjects (for example, pre-medical group or pre-engineering group). After completing a number of foundation courses in the first two years, students may study in a major area (for example, agronomy, horticulture, animal sciences, soil science, and food science and technology) in the last two years.

The Higher Education Commission has published model curricula for bachelor's and master's degrees in various agricultural and related disciplines, such as agricultural economics, agricultural engineering, agricultural extension, agronomy, plant pathology and soil science. For example, the model curriculum for a BSc Agricultural Engineering (2005) prescribes 165 total credits of coursework, including 128 credits of major courses and 37 credits of supporting courses.

The BSc Agriculture, considered equivalent to a traditional general MSc (12+2+2), gives an individual access to further education in two-year MSc Agriculture programs. The PhD Agriculture involves two to five years of full-time study beyond what is required for the MSc Agriculture.

See Appendix G for sample program structures for Bachelor of Science in Agriculture and Master of Science in Agriculture degrees.

Business and Management

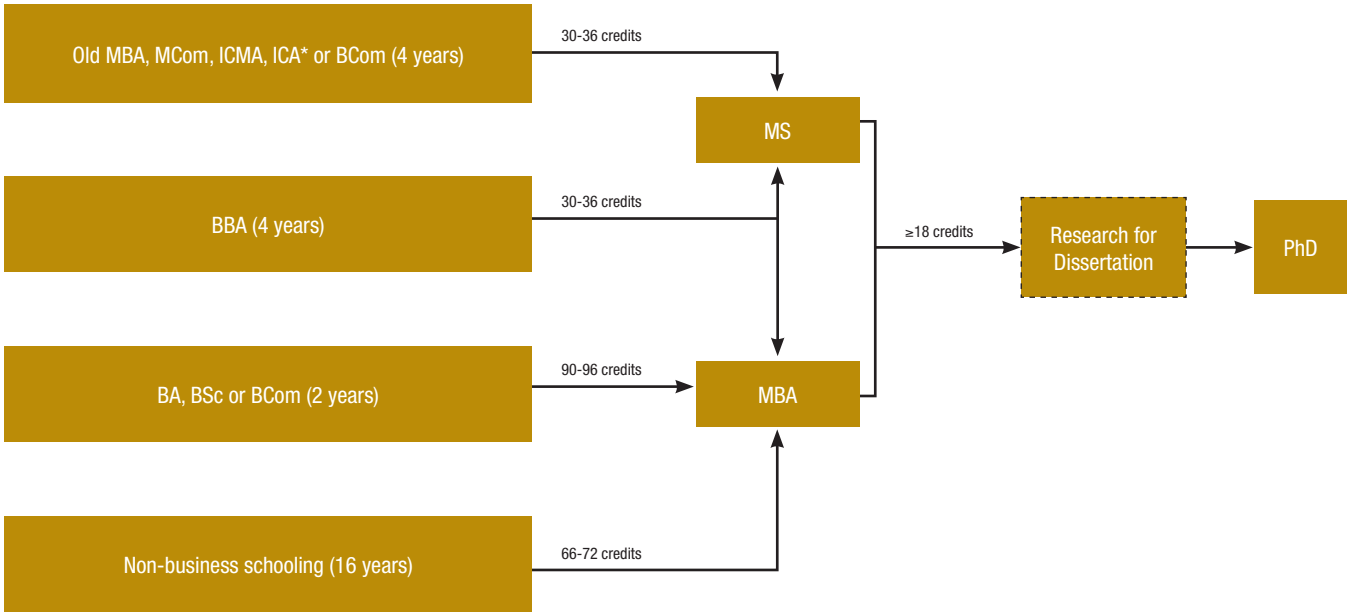
Business and management education is offered at various levels of higher education, including certificates and diplomas, bachelor's degree, master's degree, and PhD levels. The four-year **Bachelor of Business Administration (BBA)** program is replacing the traditional two-year BBA (pass) degree and three-year BBA (honours) degree. Apart from lectures, the program also includes case studies, projects and internships. The HEC model curriculum

(2007) prescribes 126 to 144 credits for the four-year BBA, including a six-credit dissertation or research project, plus a mandatory six- to eight-week business internship.

The structure and length of master's degrees in management, such as the **Master of Business Administration** (**MBA**), depends on the educational qualifications of the incoming students. Figure 6 shows the possible paths of business and management education from two-year bachelor's (pass) degree to PhD levels.

FIGURE 6. ROAD MAP FOR BUSINESS EDUCATION, HIGHER EDUCATION COMMISSION

* ICMA: Institute of Cost & Management Accountants of Pakistan. ICA: Institute of Chartered Accountants of Pakistan.



Refer to Appendix H for sample programs structures of the four-year BBA and MBA degrees.

Education

The traditional **Bachelor of Education** (**BEd**) can be earned as a one-year postgraduate bachelor's degree, with entry based on possession of a first bachelor's degree (for example, BA, BCom or BSc). It may also be earned as a three-year degree, with entry based on possession of the HSC or equivalent. A BEd holder may teach at the secondary level (Grades 9 and 10). A three-year program that specializes in training science teachers may also be called a **Bachelor of Science in Education** (**BSc Ed** or **BS Ed**).

In line with the transition of undergraduate education to North American-style four-year bachelor's degrees, a new four-year **Bachelor of Education** (**BEd**) has been launched. It is considered equivalent to a traditional MEd (described below) and entitles an individual to teach at all levels of school education (Grades 1 to 12).

The **Master of Education** (**MEd**) requires one year of full-time study following completion of a BEd. The **MA in Education** is a two-year program, with entry based on possession of a first bachelor's degree (for example, BA, BCom or BSc). Both the MEd and the MA in Education entitle an individual to teach at the higher secondary level (Grades 11 and 12). The holder of an MA in Education is also eligible to be a lecturer at a university or college.

The **MPhil in Education** is a two-year program involving both coursework and research. Entry is based on possession of an MEd or MA in Education. The new two-year MEd, with entry based on possession of the four-year BEd, is considered equivalent to a traditional MPhil in Education.

For more information on teacher education programs, refer to Teacher Education.

Engineering and Technology

The undergraduate degree in engineering, called the **Bachelor of Engineering** (**BE**) or **Bachelor of Science in Engineering** (**BSc Engg**), involves four years of full-time study, with entry based on possession of the HSC or Intermediate Certificate in the relevant course group (for example, science or pre-engineering). Such programs were initially conducted at engineering colleges affiliated with

general universities. Since the 1980s, they have been offered by specialized universities of engineering and technology.

The Pakistan Engineering Council prescribes the guidelines and standards for engineering bachelor's degree programs.

- Entry is based on possession of the HSC (pre-engineering group) with at least 50 per cent marks in aggregate (raised to 60 per cent in 2008), or equivalent.
- Holders of a Diploma of Associate Engineer (DAE) with at least 60 per cent marks in aggregate may be admitted to the same discipline of engineering.
- The course of study must contain a minimum of 75 per cent engineering subjects and a maximum of 25 per cent non-engineering subjects (revised to 65 per cent and 35 per cent, respectively, in 2008).
- The duration of study is at least four years; the maximum period allowed for completing the program is seven years.
- Universities may adopt either the annual or the semester system. Where the semester system is adopted, students must complete a minimum of 128 credits.

The PEC grants accreditation to programs meeting its standards in terms of curriculum, lectures, laboratory, fieldwork, allied facilities, and so on. The PEC website provides a list of accredited programs in Pakistan. The accreditation status is reviewed at regular intervals.

The Higher Education Commission has published model curricula for bachelor's and master's degrees in various engineering disciplines such as chemical engineering, civil engineering, electrical engineering, industrial engineering and mechanical engineering.

In the annual system, students must pass annual examinations, usually known as the 1st, 2nd, 3rd and final Professional. In the semester system, final examinations are held and credits awarded at the end of each semester. In addition to coursework, students may be required to participate in a period of industrial training and complete a design project.

The BE or BSc Engg degree gives access to further education in engineering master's degree programs. An engineering degree from a PEC-accredited program allows an individual to register with the council. According to the PEC Act, 1976, registration with the PEC is mandatory in order to undertake professional engineering work.

Master's degrees in engineering, with entry based on possession of an engineering bachelor's degree, involve one and a half to two years of full-time study. It may consist of coursework only or a combination of coursework and guided research. Holders of a master's degree in engineering may pursue further education in PhD programs in engineering.

Refer to Appendix I for sample BSc Engineering and MSc Engineering program structures.

Technician-level training in the form of a three-year **Diploma of Associate Engineer (DAE)** is conducted by technical institutes such as polytechnics and colleges of technology under the provincial Boards of Technical Education. Entry is based on possession of the Secondary School Certificate or equivalent. For more information on DAE programs, refer to Vocational and Technical Education.

The **Bachelor of Technology (BTech)** was introduced as a post-diploma degree in 1973.

Table 25 describes the traditional structure of the BTech (pass) and BTech (honours) degree programs:

TABLE 25. TRADITIONAL STRUCTURE OF BTech (PASS) AND BTech (HONOURS)

PROGRAM	DURATION	ENTRY REQUIREMENT
BTech (pass)	One year of guided industrial training followed by one year of study	DAE. Applicants with previous industrial experience might be granted one year's advance standing.
BTech (honours)		BTech (pass). Applicants with industrial experience after DAE might be granted one year's advance standing.

The BTech is designed as a program comparable in level and quality to the engineering degree but focusing on practical applications of established principles rather than on development of new concepts. It retains the features of a technician training program and provides further specialization in the disciplines in which the diploma holders were originally trained. The colleges of technology (upgraded from polytechnics) that offer the BTech programs are affiliated with universities, which conduct major examinations and award the degrees.

Holders of the BTech (honours) may seek employment as "technologists," which is not yet a protected title. The BTech (honours) gives access to further education, although the

applicant may have to obtain a certificate from the Higher Education Commission stating the suitability of the degree for admission to MS–PhD programs.

As indicated by the sample programs structures in Appendix J, BTech programs are being updated, notably with longer durations of academic study. The HEC model curriculum for the BTech (2004) prescribes four years of full-time study, each year consisting of 30 weeks of study and 12 weeks of guided industrial training. The HEC also proposes the establishment of a Pakistan Technology Council for the registration of technologists and provincial universities of technology.

Law

According to the Bar Councils Act, 1973, only an advocate registered with a provincial Bar Council is entitled to practise the profession of law in Pakistan. To enrol as an advocate, one must:

- have a degree in law plus a bachelor's degree in any subject other than law
- undergo training and pass the examination conducted by the provincial Bar Council

The **Bachelor of Law(s) (LLB)** is a three-year program, with entry based on possession of a first bachelor's degree. The curriculum must follow guidelines prescribed in the Pakistan Bar Council Legal Education Rules, 1978. The HEC model curriculum for LLB (2004) includes substantial revisions in the lists of courses and course content.

Some law colleges offer a **five-year BA–LLB integrated or consolidated program** that admits higher secondary school graduates.

The **Master of Law(s) (LLM)** involves two years of full-time study following the completion of an LLB. When applying for enrolment as an advocate, an LLM holder is exempt from training and examinations conducted by the provincial Bar Council.

Refer to Appendix K for sample LLB and LLM program structures.

Medicine and Dentistry

The Pakistan Medical and Dental Council, established in 1962, is a statutory autonomous body responsible for setting the minimum standards for medical and dental education, evaluation and approval of medical and dental institutions, and for registration, licensing and evaluation of medical and dental practitioners.

The first professional degree in medicine is the **Bachelor of Medicine and Bachelor of Surgery (MBBS)**, which involves five years of full-time study, with entry based on possession of the HSC in the required course group (pre-medical). Students must pass annual university examinations, generally known as First Professional Part I (first year), First Professional Part II (second year), Second Professional (third year), Third Professional (fourth year) and Final Professional (fifth year).

The first professional degree in dentistry is the **Bachelor of Dentistry (BD)** or **Bachelor of Dental Surgery (BDS)**, which involves four years of full-time study, with entry based on possession of the HSC in the required course group (pre-medical). Students must pass four Professional BDS Examinations, held at the end of each academic year.

MBBS or BDS graduates must complete one year's house job at a PMDC-approved hospital before they can register with the PMDC and practice professionally in Pakistan. For MBBS graduates, the house job includes six months in medicine and allied disciplines and six months in surgery and allied disciplines. For BDS graduates, the house job includes rotational duties in all four disciplines of dentistry—oral, prosthetic, orthodontic and operative dentistry.

Postgraduate education and training programs in various medical and dental specialties are also available, such as:

- fellowships and diplomas offered by the College of Physicians and Surgeons Pakistan
- postgraduate medical degrees such as MD (Doctor of Medicine), MS (Master of Surgery) and MDS (Master of Dental Surgery), as well as MPhil and PhD

Established in 1962, the College of Physicians and Surgeons Pakistan has the objective of promoting specialist medical practice in Pakistan. It arranges postgraduate medical training in hospitals and medical institutions across the country and conducts examinations for the award of postgraduate fellowships and diplomas. It currently offers fellowships in the

College of Physicians and Surgeons (FCPS) in 53 specialties and membership diplomas in the College of Physicians and Surgeons (MCPS) in 10 specialties. The MCPS is being replaced by a diploma of the college (DCPS). The FCPS programs last three to five years depending on the specialty, and the DCPS programs last two years.

Examples of FCPS specialties

Anesthesiology
Cardiology
Cardiac Surgery
Chemical Pathology
Clinical Pharmacology
Community Medicine
Dentistry
Dermatology
Diagnostic Radiology
Family Medicine
Forensic Medicine
Gastroenterology
Anatomy
Biochemistry
Hematology
Histopathology
Immunology
Intensive Care Medicine
Medical Oncology
Medicine Microbiology
Nephrology
Neurosurgery
Neonatal Pediatrics
Neurology
Nuclear Medicine
Obstetrics and Gynecology
Ophthalmology
Orthopedic Surgery
Otorhinolaryngology (ENT)
Pediatric Cardiology
Pediatrics
Pediatric Surgery
Physical Medicine and Rehabilitation
Physiology
Plastic Surgery
Psychiatry
Pulmonology
Radiotherapy
Surgery
Thoracic Surgery
Urology
Virology

Examples of DCPS specialities

Anesthesiology
Clinical Pathology
Community Medicine
Dermatology
Diagnostic Radiology
Family Dentistry
Family Medicine
Obstetrics and Gynecology
Operative Dentistry
Ophthalmology
Oral Surgery
Otorhinolaryngology (ENT)
Orthodontics
Pediatrics
Periodontology
Prosthodontics
Psychiatry
Pulmonology (including TB)

The **Doctor of Medicine (MD)**, **Master of Surgery (MS)** and **Master of Dental Surgery (MDS)** programs usually last four years; programs in a few specialties are five years. Applicants must have an MBBS or BDS, a valid PMDC certificate of registration, and at least one year of house experience. After successful completion of the program, students receive the degree, with the title of their specialty shown in parentheses, for example, MD (Neurology), MS (Neurosurgery), and MDS (Prosthodontics).

Go to Appendix L for sample MBBS and BDS program structures.

Nursing

The Pakistan Nursing Council is responsible for setting standards of nursing education and for the registration of nurses. The minimum educational requirement for becoming a Registered Nurse (RN) is a diploma in general nursing. All nurses must register with the PNC in order to practise.

The provincial Nursing Examination Boards conduct examinations and issue certificates and diplomas in general nursing. For more information on such programs, refer to Vocational and Technical Education.

The **Bachelor of Science in Nursing (BScN)** involves four years of full-time study. Entry is based on possession of the HSC plus an admission test and interview. The HEC model curriculum (2006) prescribes 138 total credits, with one credit representing one semester hour of instruction or three semester hours of clinical, lab or tutorial work. A period of internship at a PNC-affiliated teaching hospital is also required. A BScN holder is eligible for registration with the PNC as a Registered Nurse. According to the HEC, the BScN program "is designed to accord with the wider professional developments of specialists and higher levels of practice currently being established by the Pakistan Nursing Council."

A bridging program called the **Post-RN BScN** involves two years of full-time study but is also available as a part-time program. It is designed to upgrade the knowledge and skills of experienced Registered Nurses. Entry requirements include at least two years of experience as a Registered Nurse and minimum marks (Second Division) in the provincial Nursing Examination Board exams.

Refer to Appendix M for a sample BScN program structure.

Pharmacy

According to the Pharmacy Act, 1967, to be registered as a pharmacist in Pakistan, one must:

- have a diploma or degree in pharmacy, or
- pass the qualifying examination administered by the provincial Pharmacy Council

The Pharmacy Council of Pakistan sets the standards of pharmacy programs, approves qualifying examinations and recognizes degrees and diplomas for the registration of pharmacists.

The provincial Pharmacy Councils register pharmacists and issue certificates of registration. They hold qualifying examinations for the registration of pharmacists twice every year. To sit the qualifying examination, one must have an HSC or equivalent and at least two years' experience as an apprentice in pharmacy.

The first degree in pharmacy used to be the four-year **Bachelor of Pharmacy (BPharm)**. In 2004 the Higher Education Commission upgraded the program to a five-year **Doctor of Pharmacy (PharmD)**. Entry is based on possession of the HSC in the required course group (pre-medical) with minimum marks. Students must pass annual university examinations, generally known as the First Professional, Second Professional, Third Professional, Fourth Professional and Final Professional. For programs that adopt the semester credit system, the HEC model curriculum prescribes a total of 192 credits. The HEC curriculum also lists the "deficiency courses" that BPharm graduates must take in order to upgrade to the new PharmD. Some universities offer a one-year course by which BPharm holders can upgrade to the PharmD.

The **MPhil** in pharmacy is a two-year course following completion of either the BPharm or the PharmD. This includes one year of coursework and one year of thesis research. The degree is named after the area of specialization, such as MPhil Pharmacology, MPhil Pharmaceutics, MPhil Pharmaceutical Chemistry or MPhil Pharmacognosy. Holders of the MPhil following PharmD may pursue PhD study in pharmacy.

Refer to Appendix N for a sample PharmD program structure.

Veterinary Medicine

Traditionally, three main types of programs for veterinary medicine and animal husbandry were available:

- the four-year **Bachelor of Science (Honours) in Animal Husbandry (BSc AH)**
- the four-year **Bachelor of Veterinary Science (BVSc)**
- the four-year **Doctor of Veterinary Medicine (DVM)**

Entry was based on possession of the HSC in the relevant course group (pre-medical). When the Pakistan Veterinary Medical Council was constituted in 1996, it recognized all those degrees.

The PVMC Standards of Education Regulations of 2001 prescribe the curriculum and syllabi for the five-year composite DVM degree covering both veterinary medicine and animal husbandry. The five-year degree began to be offered in 2002. The previous separate degrees in veterinary medicine and animal husbandry are being phased out.

According to PVMC regulations, the main features of the five-year DVM degree are:

- Entry is based on possession of the HSC or Intermediate Certificate with physics, chemistry, biology and English, or equivalent.
- Duration of study is five years (ten semesters), including a compulsory six-month internship (10 semesters + one summer session).
- Course of study includes training in a teaching veterinary hospital and livestock farm, and field training in veterinary production and technology institutions.
- University examinations are held at the end of each year.
- The university issues a provisional course completion certificate to students who pass the final examination and awards the degree after they complete the compulsory internship.

Students who receive their four-year BSc AH after 2001 are no longer eligible to work as veterinary officers in public and private sectors, nor will they be licensed to practice as veterinarians, unless they take the one-year deficiency DVM course.

See Appendix O for sample program structures for the five-year DVM and the one-year deficiency course leading to DVM.

Technical and Vocational Education

Overview

At the time of independence in 1947, Pakistan had very limited vocational and technical education facilities. A number of vocational institutes, such as artisan and commercial schools and a few engineering and agriculture colleges, were in operation, but no polytechnic existed for training technicians. Since then the vocational and technical education sector has expanded to meet the country's need for skilled manpower.

The entire vocational and technical education sector currently enrols about 315,000 students at 1,647 institutes across the country. This still falls far short of the federal government's annual training target of 950,000. The majority of the vocational and technical institutes are gender-segregated.

The output of the vocational and technical education sector accounts for only a minority of the labour force, whose overall educational level remains low, as shown in Table 26.

Although the terms **technical** and **vocational** are sometimes used interchangeably, they usually denote different levels of education. National planning on vocational and technical education is largely based on the four employment categories outlined by the Commission on National Education of 1959.

TABLE 26. EDUCATIONAL LEVEL OF THE LABOUR FORCE

LEVEL OF EDUCATION	GENDER	1999–2000	2005–06	CHANGE (%)
Less than one year	Male	48.1	40.0	- 8.1
	Female	80.6	71.8	- 8.8
	Both	53.3	46.2	- 7.1
Pre-primary	Male	2.2	3.7	+ 1.5
	Female	0.6	1.6	+ 1.0
	Both	2.0	3.3	+ 1.3
Primary but below middle	Male	16.0	17.1	+ 1.1
	Female	5.0	9.0	+ 4.0
	Both	14.2	15.5	+ 1.3
Middle but below matriculation	Male	11.8	13.4	+ 1.6
	Female	2.8	3.4	+ 0.6
	Both	10.4	11.5	+ 1.1
Matriculation but below intermediate	Male	12.5	15.5	+ 2.0
	Female	5.2	6.1	+ 0.9
	Both	11.4	12.8	+ 1.4
Intermediate but below degree	Male	4.5	5.3	+ 0.8
	Female	2.4	2.9	+ 0.5
	Both	4.1	4.8	+ 0.7
Degree	Male	4.9	6.1	+ 1.2
	Female	3.4	5.1	+ 1.7
	Both	4.6	5.9	+ 1.3

FOUR EMPLOYMENT CATEGORIES AS DEFINED BY THE COMMISSION ON NATIONAL EDUCATION OF 1959	
CATEGORY	DESCRIPTION
1	Unskilled workers who require manual dexterity for the performance of their duties
2	Operators in factories and offices whose skills in industrial and commercial processes produce goods or services
3	Supervisory personnel with the practical skills to appreciate the problems of the skilled workers and the theoretical training to understand the ideas of the engineer or executive and to interpret them to the skilled workers
4	Engineers and executives capable of developing new techniques, methods and designs

Vocational education generally corresponds to Category 2, and trains skilled and semi-skilled workers in various trades. It mainly operates at the secondary level, with entry based on the completion of middle school (Grade 8), although some vocational courses for girls require only completion of primary school (Grade 5) for admission.

Technical education generally corresponds to Category 3, and trains technicians for mid-level supervisory jobs. It mainly operates at the higher secondary level and above, with entry based on the completion of secondary school (Grade 10).

In some contexts, the terms **vocational** and **technical** may refer to fields of study. For example, the Secondary School Certificate (Technical) or Matriculation Certificate (Technical), awarded by the provincial Boards of Technical Education, is a Grade 10-level certificate that requires Grade 8 for admission. Grade 12 and higher level programs may also be offered in a **vocational area** or **vocational stream**.

Administration

Various federal ministries and provincial departments are involved in vocational and technical education. A national skills strategy is being developed to coordinate the work of government departments and to ensure the uniformity of curriculum and standards.

At the national level, the Ministry of Education is responsible for policy, planning, guidelines, coordination of standards and curriculum development for vocational and technical education. According to the Federal Supervision of Curricula, Textbooks, Maintenance of Standards of Education Act, 1976, the curriculum wing of the MOE is in charge of curriculum development for certificate and diploma programs offered by vocational and technical institutes, as well as for school education.

The Ministry of Labour and Manpower is responsible for vocational education and apprenticeship training in the various trades.

Several national bodies assist the federal government in vocational and technical education.

- National Vocational and Technical Education Commission (NAVTEC). Established in 2006 under the Prime Minister's Office, this commission is the national apex body for technical and vocational education and training. Its mandate is to facilitate, regulate and provide policy direction for technical education and vocational training to meet national and international demand for skilled labour.
- National Institute of Science and Technical Education (NISTE). This institute was established in 1997 with the merger of two national institutes under the MOE—the National Technical Teachers Training College and the Institute for the Promotion of Science Education and Training. It undertakes research and develops curriculum and learning resources for science and technical education. It also offers various technical and teacher training programs.
- National Training Bureau. This bureau is the Directorate General of Technical Training under the Labour and Manpower Division of the Ministry of Labour and Manpower. Acting as the secretariat for the National Training Board, it formulates and implements vocational training policies and facilitates training of skilled workers to meet domestic and overseas labour requirements.

At the provincial level, the education departments and departments of labour and manpower are responsible for implementing policy and managing vocational and technical institutions and programs according to national guidelines.

Provincial Boards of Technical Education (in Punjab, Sindh and NWFP) conduct major examinations and issue technical certificates and diplomas such as the Secondary School Certificate (Technical), the Diploma of Associate Engineer (DAE) and the Certificate of Commerce and Diploma of Commerce.

Directorates of Technical Education (in Punjab and Sindh) and the **Directorate of Technical Education and Manpower Training** (in NWFP) administer vocational and technical education institutions such as technical secondary schools, polytechnics and commercial institutes. Since 2002 some administrative responsibilities have been devolved to the district governments.

Punjab and NWFP are attempting to place the technical and vocation education system under one management structure called the Technical Education and Vocational Training Authority. The Punjab TEVTA was established in 1999, and the NWFP TEVTA in 2002.

In Balochistan, the small number of polytechnics and commercial institutes are administered by the Directorate of Colleges (Technical Wing) and affiliated with the Board of Intermediate and Secondary Education, which conducts major examinations and issues certificates such as the DAE.

Institutions

Vocational and technical education and training institutions fall roughly into three categories—formal, non-formal and informal. This chapter mainly deals with the formal and non-formal sectors.

1. The formal sector includes institutions and programs under the supervision of the MOE, provincial education departments, and boards of technical education, such as:
   - **polytechnics** offering three-year Diploma of Associate Engineer (DAE) programs. Some are called monotechnics as they offer programs in only a single technology.
   - **colleges of technology** (upgraded from polytechnics), which are affiliated to universities and offer both DAE and BTech programs (the BTech was introduced in 1973 as a post-diploma degree)
   - **commercial institutes** offering certificate and diploma programs in business and commerce
   - **government vocational (training) institutes** offering trade certificate programs
   - **technical secondary schools** and **higher secondary schools** offering vocational and technical course groups in school education

   Many institutes, such as polytechnics, offer both technical education and lower-level vocational courses.
2. The non-formal sector includes institutions and programs under the supervision of the Ministry of Labour and Manpower, provincial departments of labour and manpower, and various other federal and provincial agencies. There is little inter-agency coordination of policy and standards. Included are:
   - **technical training centres** and **vocational training centres** offering trade certificate programs
   - **apprentice training centres** established in large and medium-sized employers
3. The informal sector includes institutions and programs that do not belong to either the formal sector or the non-formal sector, for example, private institutions, workplace training at government enterprises and private companies, and the traditional tutor–pupil method of training. They generally have no educational requirement for admission, use non-standardized curriculum and offer flexible schedules to suit student needs.

Technical Education

Technical education trains technicians for mid-level supervisory jobs. It mainly operates at the higher secondary level and above, with entry based on the completion of secondary school (Grade 10).

Diploma of Associate Engineer (DAE)

DAE programs are offered by polytechnics and colleges of technology. The first polytechnic was established in Karachi in 1953, and the first polytechnic for women in Lahore in 1967. There are now 200 polytechnics and monotechnics in the country, including 15 for women, with a total enrolment of about 60,000.

The **Diploma of Associate Engineer** involves three years of full-time study. Students may have the option of completing the program in four years through part-time evening study. There are also some specialized DAE programs that involve four years of full-time study.

Entry to DAE programs is based on possession of the Secondary School Certificate (science group), although a small number of applicants hold a Higher Secondary Certificate. The provincial Boards of Technical Education

supervise the curricula, conduct annual examinations and award the diploma.

DAE programs are offered in a range of engineering and non-engineering fields. Traditionally, the three fields with the highest enrolment are the civil, electrical and mechanical technologies. Table 27 lists DAE courses offered in various technologies by the provincial Boards of Technical Education in Punjab, Sindh and NWFP.

The DAE allows an individual to:

- seek employment as a technician or mid-level supervisor in an industrial or office setting
- apply to the Institution of Engineers, Pakistan to become an "associate," one of the eight classes of membership
- seek admission to a BTech program at a college of technology
- apply to the reserved seats for DAE graduates at a four-year BSc Engineering program of an engineering college or university. The DAE must be in the same engineering discipline as the BSc Engineering program.

TABLE 27. DIPLOMA OF ASSOCIATE ENGINEER (DAE) COURSES, PUNJAB, SINDH AND NWFP

PROVINCE	DAE COURSES	
Punjab	1. Architecture Technology 2. Automation Technology 3. Chemical Technology 4. Civil Technology 5. Computer Information Technology 6. Computer Technology 7. Die and Mould Technology 8. Electrical Technology 9. Electronics Technology 10. Food Processing and Preservation Technology 11. Food Technology 12. Glass, Ceramics and Pottery Development Technology 13. Instrument Technology 14. Leather Technology 15. Mechanical Technology 16. Mechanical Technology (Power) with specialization in auto and farm machinery technology 17. Mechanical Technology (Power) with specialization in automobile and diesel technology	18. Mechanical Technology (Power) with specialization in refrigeration and air-conditioning technology 19. Mechanical Technology (Production) with specialization in foundry and pattern-making technology 20. Mechanical Technology (Production) with specialization in metallurgy and welding technology 21. Mechanical Technology (with specialization in construction machinery technology) 22. Mechanical Technology (with specialization in construction machinery) (revised 2007) 23. Petrochemical Technology 24. Petroleum Technology 25. Precision Mechanical and Instrument Technology 26. Printing and Graphic Arts 27. Telecommunication Technology 28. Textile Dyeing and Printing Technology 29. Textile Spinning Technology 30. Textile Weaving Technology
Sindh	1. Auto and Diesel 2. Auto and Farm 3. Architecture 4. Biomedical 5. Civil 6. Chemical 7. Computer Information 8. Electrical 9. Electronics 10. Food Preservation 11. Garment 12. Garment (PSIT) 13. Glass and Ceramics 14. Instrumentation and Process Control	15. Instrumentation and Watch 16. Mechanical 17. Mining 18. Metallurgy and Material Process 19. Power 20. Petroleum 21. Printing and Graphic Arts 22. Refrigeration and Air Conditioning 23. Secretarial 24. Sugar 25. Textile Spinning 26. Textile Weaving 27. Telecommunication 28. Textile Dyeing and Printing
NWFP	1. Electrical 2. Electronics 3. Telecommunication 4. Mechanical 5. Computer Hardware 6. Chemical 7. Auto and Diesel	8. Civil 9. Auto and Farm Machinery 10. Architecture 11. Biomedical 12. Refrigeration and Air Conditioning 13. Dressmaking and Designing 14. Fine Arts

Only a small number of DAE holders are able to get into BSc Engineering programs. Most of those who pursue further education choose BTech (pass) and BTech (honours) programs offered at colleges of technology. The colleges of technology are affiliated to universities, which award the BTech degree.

The Pakistan Engineering Council, in collaboration with NAVTEC, is developing criteria under which DAE holders can register with the PEC as technologists and technicians.

Go to Appendix P for sample DAE program structures.

Diplomas in Commerce and Business

The **Diploma in Commerce (DCom)** and the **Diploma in Business Administration (DBA)** involve two years of full-time study, with entry based on possession of the Secondary School Certificate (Grade 10). Programs are offered by commercial institutes affiliated with the provincial Boards of Technical Education, which supervise the curricula, conduct annual examinations and award the diplomas. Some of the more established commercial institutes have been upgraded to commerce colleges that offer Bachelor of Commerce (BCom) programs along with DCom programs.

DCom students may choose from a number of course groups, such as accounting, banking and shorthand. They may receive a Certificate in Commerce (CCom) after completing one year of the two-year DCom program.

For the purpose of further education, the DCom and DBA are considered comparable to the HSC (commerce group). Many DCom or DBA holders go on to study in related undergraduate programs such as BCom and BBA.

Refer to Appendix Q for a sample DCom program structure.

Health and Paramedical Education

The **Diploma in General Nursing** is a three-year program following the Higher Secondary Certificate (Grade 12). Students must pass examinations conducted by the provincial Nursing Examination Boards in order to receive their diplomas.

The Pakistan Nursing Council is responsible for setting standards of nursing education and for the registration of nurses. The minimum academic qualification required to obtain licensure as a Registered Nurse (RN) is the Diploma in General Nursing awarded by one of the provincial Nursing Examination Boards. All nurses are required to register with the PNC in order to practise.

After a Diploma in General Nursing, one may study for a one-year **Post-Basic Diploma in Midwifery**. An RN with at least two years' experience may seek admission to the two-year Post-Basic BSc Nursing program.

Training programs for dental technicians and assistants, such as the **Diploma in Dental Technology** and the **Diploma in Dental Hygiene**, typically involve two years of full-time study, with entry based on possession of the Higher Secondary Certificate.

Other Technical Certificates and Diplomas

The provincial Boards of Technical Education offer various other certificate and diploma programs which last from six months to four years. For example, in addition to computer-related DAE courses, other computer and information technology diploma programs are available, some of which require the HSC for admission. Table 28 lists some of the programs offered by the Sindh Board of Technical Education.

A one-year post-Diploma of Associate Engineer is available in a few areas. For example, The Pak Swiss Training Centre in Karachi, under the Pakistan Council of Scientific and Industrial Research, conducts post-DAE courses in Electronics Technology and Optical Technology.

TABLE 28. CERTIFICATES AND DIPLOMA PROGRAMS IN TECHNICAL EDUCATION, SINDH

PROGRAM	ENTRY REQUIREMENT	DURATION
Diploma of Associate Engineer	Matriculation (Science), Technical School Certificate	3 years
Diploma in Commerce	Matriculation	2 years
Diploma in Business Administration	Matriculation	2 years
Diploma in Computer Graphic Design	Matriculation	2 years
Diploma in Fine Art 1. Fine Art 2. Graphic Design 3. Textile Design 4. Ceramics 5. Sculpture 6. Architecture Design	Matriculation	4 years
Diploma in Information Technology	Intermediate	1 year
Diploma in Computer and Business Management	Intermediate	1 year
Diploma in Office Management	Intermediate	1 year
Certificate in Leather Garments	Matriculation	1 year
Certificate in Fine Art 1. Fine Art (Painting) 2. Graphic Design (Commercial Design) 3. Textile Design 4. Ceramics 5. Product Design 6. Architecture	Matriculation	2 years
Technical Certificate		
1. Arc Oxy-Acetylene	Matriculation	6 months
2. Auto Electrician	Matriculation	6 months
3. Auto Mechanic	Matriculation	6 months
4. Auto Diesel Mechanic	Matriculation	6 months
5. Advanced Mechanical Drafting	Matriculation	6 months
6. Basic Drafting	Matriculation	6 months
7. Civil Supervisor	Matriculation	6 months
8. Electrician	Matriculation	6 months
9. Electrical Supervisor	Matriculation	6 months
10. Electric Arc Welding	Matriculation	6 months
11. Hand Embroidery	Grade 8	3 months
12. Hand Loom Weaving	Matriculation	6 months
13. Mechanical Drafting	Matriculation	6 months
14. Oxy-Acetylene Welding	Matriculation	6 months
15. Painting	Grade 8	3 months
16. Plumbing	Matriculation	6 months
17. Quantity Surveying	Matriculation	6 months
18. Radio and Transistor Servicing	Matriculation	6 months
19. Refrigeration Mechanic	Matriculation	6 months
20. Turner	Matriculation	6 months
21. Television Servicing	Matriculation	6 months
22. Wireman	Matriculation	6 months

Vocational Education

Vocational education programs train skilled and semi-skilled workers and operate primarily at the secondary level. Minimum entry requirement is the completion of middle school (Grade 8). However, entry into some vocational courses for girls is based on the completion of primary school (Grade 5). Most programs comprise at least 70 per cent practical training with 30 per cent or less of theoretical study.

Vocational Courses for Girls

Some traditional courses are short-term (four months) and require only primary school (Grade 5) for admission. Examples include:

- cutting and sewing
- machine embroidery
- hand embroidery
- machine knitting

Higher-level training in similar fields may be available as a **Certificate in Vocational Training (Girls)**, which requires one year of study following the completion of middle school (Grade 8). Examples include:

- tailoring and dressmaking
- machine embroidery
- hand embroidery
- hand and machine knitting

The above certificate may be followed by a one-year **Diploma in Vocational Training (Girls)**.

Vocational Courses for Boys

Vocational courses for boys typically last two years following the completion of middle school (Grade 8). Examples include:

- auto diesel mechanic
- electrician
- machinist
- refrigeration and air conditioning
- mechanical draftsman (requires Grade 10)
- civil draftsman
- radio and television servicing
- wood pattern making
- furniture and cabinet making
- die making

Grade 2 and Grade 3 Skilled Worker Certificates

Skilled workers are classified as Grade 1, Grade 2 and Grade 3. Grade 1 is the highest classification and represents advanced training in a specific trade or occupation. Currently only Grade 2 and Grade 3 programs are available.

Both Grade 2 and Grade 3 programs require possession of the Secondary School Certificate (Grade 10) for admission. Course duration varies from a few months to two years. Both Grade 2 and Grade 3 certificates can also be obtained through competence testing by individuals with years of industrial experience.

Apprenticeship Training

A system of apprenticeships was introduced with the promulgation of the Apprenticeship Ordinance in 1962. However, it is deemed ineffective, with few incentives for the industry to support the system. In addition, many new trades are not included. The NAVTEC has proposed amending the Apprenticeship Ordinance and establishing linkages so that apprenticeship training will be recognized under a future National Qualifications Framework.

Vocational Stream of Education

To reduce unemployment and alleviate poverty, Pakistan's educational policy calls for the vocationalization of school education to integrate skill development with general education. When the technical and vocational stream (focusing on agro-technical subjects) was first introduced in school education in the 1970s, it was expected to eventually account for a third of total student enrolment. This expectation failed to materialize for a number of reasons, including the low social esteem accorded to vocational study and the lack of facilities and resources with which to effectively run such programs.

Vocational and technical subjects are available at both the secondary and higher secondary levels. Schemes of study are prescribed by the MOE in the national curriculum. Refer to School Education for lists of industrial and technical subjects in the 1995 and 2000 national curricula. As the following examples indicate, the actual subjects being offered depend on the examining board and time period and are not restricted to those listed in the national curriculum.

The Board of Technical Education of Punjab prescribes the following subjects for the Secondary School Certificate (Technical Group):

1. Auto Mechanic
2. Building Construction
3. Civil or Building Drafting
4. General Electrician
5. Machinist
6. Mechanical Drafting
7. Radio and Electronics
8. Refrigeration and Air Conditioning
9. Surveying
10. Tailoring and Dressmaking
11. Welding
12. Woodworking
13. Computer Science
14. Hand and Machine Embroidery
15. Hand and Machine Knitting
16. Domestic Electrical Appliances
17. Colour TV and VCR Technician

Table 29 shows the elective subjects, as prescribed by the Board of Intermediate and Secondary Education, Rawalpindi (Punjab), for some vocational-oriented course groups of the Higher Secondary Certificate Examination.

TABLE 29. HSC SCHEME OF STUDIES (2008), BOARD OF INTERMEDIATE AND SECONDARY EDUCATION, RAWALPINDI: TECHNICAL, COMMERCE, HOME ECONOMICS, NURSING AND AGRICULTURAL GROUPS

GROUP	PART	PAPER	MARKS
Technical Group	a.	Pure and Applied Mathematics – Paper A	100
		Pure and Applied Mathematics – Paper B	100
	b.	Applied Science – Paper A (General)	100
		Applied Science – Paper B (Heat Engines) or Paper B (Electricity AC & DC)	100
	c.	Engineering Drawing	100
	d.	Workshop Practice or Surveying	100
	Subtotal		**600**
Commerce Group	I a.	Principles of Accounting	100
	I b.	Principles of Economics	75
	I c.	Principles of Commerce	75
	I d.	Business Mathematics	50
	II a.	Principles of Accounting	100
	II b.	Commercial Geography	75
	II c.	Computer Studies, Typing or Banking	75
	II d.	Statistics	50
	Subtotal		**600**

GROUP	PART	PAPER		MARKS
Home Economics Group	I A	Biology	Theory (35) Practical (15)	50
	I B	Chemistry	Theory (35) Practical (15)	50
	II	Home Management	Theory (70) Practical (30)	100
	III	Clothing and Textiles	Theory (70) Practical (30)	100
	IV	Applied Art	Theory (70) Practical (30)	100
	V	Food and Nutrition	Theory (70) Practical (30)	100
	VI	Child Development and Family Life	Theory (70) Practical (30)	100
	Subtotal			600
Nursing Group	a.	Anatomy, Physiology and Hygiene		30
		Nursing and First Aid		40
		Practical: Nursing Procedures, First Aid		30
	b.	Anatomy, Physiology		30
		Health of Mother and Child and Dietetics		40
		Practical: Hygiene Health of Mother and Child and Dietetics		30
	c.	Two or more subjects worth 400 marks from any other group or groups		400
	Subtotal			**600**
Agriculture Group	a.	Agriculture Paper A	Theory (100) Practical (100)	
		Agriculture Paper B	Theory (100) Practical (100)	
	b.	Mathematics		
	c.	One or more subject worth 200 marks from any other group or groups		
	Subtotal			**600**

Technical Teacher Education

Many polytechnic instructors who teach technical theory at polytechnics are holders of DAE or engineering degrees. Only a small percentage of the instructors have had any pedagogical training. Examples of technical teacher training programs include:

- One-year (in-service) **Diploma in Technical Teacher Training/Education**. Offered at provincial technical teacher training wings (located in some polytechnics and colleges of technology) and the National Institute of Science and Technical Education, the program teaches a combination of pedagogy and subject updating.
- Short-term courses and workshops conducted by the provincial education departments and international agencies such as the Asian Development Bank, UNESCO and Colombo Plan Staff College.
- Three-year **Bachelor of Education (Technology)**. Introduced in 1999 at the NISTE, the BEd (Technology) involves three years of full-time study following the completion of the DAE or HSC (pre-engineering). It provides pedagogical training as well as study in a specific technological field.

The University of the Punjab offers a two-year **Master of Technology Education (MTE)** degree, formerly known as an MEd Technical (Industrial Arts). Entry is based on possession of a BA, BSc or BSc (Home Economics), although an MSc in school subjects is preferred.

Most instructors at commercial institutes hold a master's degree in related fields.

Teacher Education

Overview

Modern teacher training programs date back to the late 19th century under British colonial rule, when a number of normal schools were established. The Education Conference of 1947 recognized the importance of teacher education, stating that "a properly trained and reasonably well paid teaching profession [is] essential to the development of a great state." Since then, the country has struggled to meet the educational needs of its growing population with adequate teacher training institutions and programs. Currently Pakistan has 1.2 million teachers, a quarter of whom are untrained.

TABLE 30. LEVEL OF TEACHER TRAINING, NATIONAL EDUCATION CENSUS, 2005

LEVEL OF TRAINING	NUMBER OF TEACHERS
Primary Teaching Certificate (PTC)	309,753
Certificate in Teaching (CT)	142,250
Bachelor of Education (BEd)	257,818
Master of Education (MEd)	67,143
Other	104,856
Untrained	310,314
Total	**1,192,134**

The lack of qualified teachers, especially teachers of science and technical subjects, is considered a major cause of low quality and high dropout rates in school education. Even trained teachers may not be adequately prepared for practical management and organization in the classroom, as school conditions—for example, shelterless schools and multi-grade classes taught by a single teacher—often differ drastically from the standard classroom setting taught in the teacher education curriculum.

Programs

Teacher education in Pakistan consists predominantly of pre-service teacher training programs, including certificates and degrees. As with other educational fields, teacher education is gender-segregated except for degree programs at the universities and some colleges of education.

TABLE 31. PRE-SERVICE TEACHER EDUCATION PROGRAMS

CREDENTIAL	ENTRY REQUIREMENT	DURATION (YEARS)	LEVEL OF TEACHING
Primary Teaching Certificate (PTC)*	Grade 10	1	Grades 1–5
Certificate in Teaching (CT)*	Grade 12	1	Grades 1–8
Diploma in Education	Grade 10	3	Grades 1–8
Bachelor of Education (BEd)	Bachelor's degree	1	Grades 1–10
Bachelor of Education (BEd) or Bachelor of Science in Education (BSEd)	Grade 12	3	Grades 1–10
(Newly upgraded) Bachelor of Education (BEd) or Bachelor of Science in Education (BSEd)	Grade 12	4	Grades 1–12 + supervision
Master of Education (MEd)	BEd	1	Grades 1–12 + supervision
MA in Education	Bachelor's degree	2	Grades 1–12 + supervision

* In Punjab, the PTC and CT have been discontinued since 2002 and a bachelor's degree was made the minimum educational requirement for primary school teachers.

Opportunities for in-service teacher training are limited. They are mostly offered through branches of the provincial government such as the provincial Institutes of Teacher Education. The National Institute of Science and Technical Education also conducts in-service teacher education for teachers from across the country.

Individuals may enter the teaching profession after receiving their teacher education certificate or degree. There is no separate professional certification process for teachers at either the provincial or the national level.

In reality, a lot of teachers enter the profession untrained. In Balochistan, for example, many teachers are recruited without the requisite qualifications and are required to undergo a three-month crash course to receive a Certificate of Trained Teacher. Untrained teachers may also be granted paid leave to obtain their Primary Teaching Certificate or Certificate in Teaching.

Administration and Institutions

Pakistan does not have a national body overseeing teacher education. The curriculum wing of the federal Ministry of Education develops the PTC and CT curricula. The Higher Education Commission publishes BEd and MEd model curricula to be used by universities as guidelines and minimum standards; MPhil and PhD programs in education are currently designed by the universities.

Provincial education departments are broadly responsible for institutions offering PTC and CT programs. The agency primarily responsible for managing teacher education varies by province—the Directorate of Staff Development in Punjab, the Directorate of Curriculum and Teacher Education in NWFP, the Bureau of Curriculum and Extension Wing in Sindh, and the Bureau of Curriculum and Extension Centre in Balochistan. Provincial governments are also responsible for university-affiliated colleges of education in their jurisdictions.

Almost all institutions offering PTC and CT programs are public. They mainly include:

- government colleges of elementary education or training and government colleges for elementary teachers
- normal schools, teacher resource centres and PTC units within secondary schools

Degree programs are offered by university-affiliated colleges of education and university departments. Colleges of education operate programs up to the MA (Education) and MEd levels. Research-based education programs, such as MPhil and PhD, are available at a few universities. A number of universities have established Institutes of Education and Research, which may comprise several education departments.

Allama Iqbal Open University has played a major role in teacher education. It offers the PTC, CT, and Diploma in Education as well as degree programs including the BEd, MEd, MA (Education), MPhil and PhD.

Preschool Teachers (Ages 3 to 5)

The educational qualification for teaching katchi (pre-primary) classes at public schools is the same as that for teaching at primary schools—a one-year Primary Teaching Certificate (described below).

Primary School Teachers (Grades 1 to 5)

To teach in primary schools (Grades 1 to 5), teachers are required to complete a one-year **Primary Teaching Certificate (PTC)**. Entry is based on possession of the Secondary School Certificate (Grade 10). The program consists of 10 courses on methodology and content plus six weeks of practice teaching. In reality, the practice teaching may be shorter than six weeks, as many training institutes do not have access to enough school classrooms to accommodate their students.

The PTC program is offered by the government colleges for elementary teachers, government colleges of elementary education or training, normal schools, Allama Iqbal Open University and a few private institutions.

Go to Appendix R for a sample Primary Teaching Certificate program structure.

Middle School Teachers (Grades 6 to 8)

To teach in middle schools (Grades 6 to 8), teachers are required to complete a one-year **Certificate in Teaching (CT)**. Entry is based on possession of the Higher Secondary Certificate (Grade 12). Like the PTC program, the CT program consists of 10 methodology and content courses plus six weeks of practice teaching. The CT allows an individual to teach at all stages of elementary education (Grades 1 to 8).

Like the PTC programs, CT programs are offered by the government colleges for elementary teachers, government colleges of elementary education or training, normal schools, Allama Iqbal Open University and a few private institutions.

An alternative program, the Diploma in Education, currently being offered at Allama Iqbal Open University, involves three years of full-time study, with entry based on possession of the Secondary School Certificate (Grade 10).

Appendix R also provides a sample Certificate in Teaching program structure.

Future requirements for elementary level (Grades 1 to 8) teachers

The province of Punjab discontinued both the PTC program and the CT program in 2002. The federal Ministry of Education plans to phase out these programs and eventually make a bachelor's degree, preferably a BEd, the requirement for teaching at the elementary level (Grades 1 to 8).

Secondary School Teachers (Grades 9 and 10)

To teach in secondary schools (Grades 9 and 10), teachers are required to complete a **Bachelor of Education (BEd)** degree. The traditional BEd is a one-year program, with entry based on possession of a first bachelor's degree (BA or BSc). It is similar in structure to lower-level teacher training programs such as the PTC and the CT, comprising 10 courses on methodology and content plus six weeks of practice teaching. It represents a minimum of 15 years of schooling (14+1).

In the 1970s, two three-year education degrees, the **Bachelor of Education (BEd)** and the **Bachelor of Science in Education (BSEd)**, were introduced. With entry based on possession of the Higher Secondary Certificate (Grade 12), they represent 15 years of schooling (12+3), just like the traditional one-year BEd, but provide more focused and in-depth training in both methodology and subject-area teaching. The three-year BEd student may choose to specialize in teaching either science or language and humanities. The BSEd prepares students to teach science.

In line with the transition of undergraduate education to North American-style four-year bachelor's degrees, a four-year **Bachelor of Education (BEd)** degree program has been launched, with a model curriculum developed by the Higher Education Commission in 2006. Entry is based on possession of the Higher Secondary Certificate (Grade 12). Applicants with a BA or BSc may be admitted to Semester 5 of the program. The recommended nomenclature for the new BEd is **BS Ed (Hons)** for science students and **BA Ed (Hons)** for arts students. Institutions have the option of offering combined programs that award the BEd and another degree (for example, a BA, BSc, BCom or BIT). The four-year BEd is considered equivalent to a traditional MEd, and entitles an individual to teach at all levels of school education (Grades 1 to 12).

Bachelor's degree programs in education are offered at colleges of education and university departments. The universities issue the degrees.

Refer to Appendix S for sample program structures for the one-year BEd degree and the three- and four-year BEd or BSEd degrees.

Higher Secondary School Teachers (Grades 11 and 12)

To teach at higher secondary schools (Grades 11 and 12), teachers are required to hold a traditional master's degree—MEd or MA (Education)—or the new four-year BEd. There are also teachers who hold a master's degree (for example, an MA or MSc in a school subject) and a BEd.

The traditional **Master of Education (MEd)** program involves one year of full-time study, with entry based on possession of the traditional BEd. It represents a minimum of 16 years of schooling (14+1+1). A typical program includes 10 courses plus a thesis or comprehensive examination for a total of 36 credit hours. Universities running the MEd program may offer various specializations such as Elementary Education, Secondary Education, Early Childhood Education or Educational Administration.

The **MA (Education)** program involves one year of full-time study following a three-year bachelor's (honours) degree (BA or BSc) or two years of full-time study following a two-year bachelor's (pass) degree. It represents a total of 16 years of schooling (12+3+1 or 12+2+2). As in the MEd program, students may choose from a number of specializations.

The MEd and MA (Education) are designed to train not only teachers but also teacher educators, researchers and education administrators.

The upgraded MEd program involves two years of full-time study following the four-year BEd. It represents a total of 18 years of education (12+4+2) and is considered equivalent to a traditional MPhil in Education. The HEC model curriculum prescribes eight courses of three credit hours each, plus two semesters of thesis research. Universities may offer various specializations, including but not limited to those listed in the curriculum.

Refer to Appendix T for sample MEd and MA (Education) program structures.

Grading Scales

School Education

The Pakistani system is low marking, with 33 per cent as the common minimum pass mark. Percentage marks are predominantly used. Table 32 shows a grading scale adopted by many of the Boards of Intermediate and Secondary Education for their Secondary School Certificate and Higher Secondary Certificate examinations. Letter grades are assigned according to overall marks in all subjects.

TABLE 32. SIX-LEVEL GRADING SCALE, SECONDARY AND HIGHER SECONDARY EDUCATION

PERCENTAGE (%) MARKS	LETTER GRADE	DESCRIPTOR	IQAS (%)
80 and above	A One A-1 A+	Outstanding/Distinction/ Exceptional	93
70 and above, but below 80	A	Excellent	81
60 and above, but below 70	B	Very Good	74
50 and above, but below 60	C	Good	66
40 and above, but below 50	D	Fair	59
33 and above, but below 40	E	Satisfactory	52

Grading scale information is usually provided on the SSC and HSC and may be available on the websites of the boards. As the following two examples indicate, it may vary by examining board and time period.

TABLE 33. GRADING SCALE FOR SSC EXAMINATION (1977), BOARD OF INTERMEDIATE AND SECONDARY EDUCATION, LAHORE

PERCENTAGE (%) MARKS	LETTER GRADE	DESCRIPTOR
70 and above	A	Excellent
60 and above, but below 70	B	Very Good
50 and above, but below 60	C	Good
40 and above, but below 50	D	Fair
33 and above, but below 40	E	Satisfactory

TABLE 34. GRADING SCALE FOR SSC EXAMINATION (2005), BOARD OF INTERMEDIATE AND SECONDARY EDUCATION, RAWALPINDI

PERCENTAGE (%) MARKS	LETTER GRADE	IQAS (%)
90–100	A+	96
80–89	A	88
70–79	B+	81
60–69	B	74
50–59	C+	66
45–49	C	60
40–44	D	57
33–39	E	52

An older grading scale used by the Boards of Intermediate and Secondary Education, as shown in Table 35, had a minimum pass mark of 33 per cent and assigned divisions according to overall marks in all subjects.

TABLE 35. TRADITIONAL GRADING SCALE, SECONDARY AND HIGHER SECONDARY EDUCATION

PERCENTAGE (%) MARKS	DIVISION	IQAS (%)
75 and above	Distinction	91
60–74	First Division	85
45–59	Second Division	64
33–44	Third Division	54
Below 33	Fail	F

Higher Education

A combination of percentage marks, letter grades and grade points (also called quality points) are used. The marks sheets issued by universities usually provide grading information. As recommended by the Higher Education Commission, universities are gradually moving away from the traditional annual examination system to the semester system.

Grading scale varies by institution, the level and field of the program, and time period. Traditionally, even in higher education the Pakistani system was low marking. As in secondary and higher secondary education, an older scale featured a 33 per cent pass and assigned divisions according to overall marks in all subjects. It may still be in use at a few institutions.

TABLE 36. TRADITIONAL GRADING SCALE, HIGHER EDUCATION

PERCENTAGE (%) MARKS	DIVISION	IQAS (%)
75 and above	Distinction	91
60–74	First Division	85
45–59	Second Division	64
33–44	Third Division	54
Below 33	Fail	F

Institutions today usually designate 40, 50 or 60 per cent as the minimum pass mark. As indicated in Tables 37 through 44, a great variety exists in the alignment of percentage marks with letter grades and grade points.

TABLE 37. GRADING SCALE, ALLAMA IQBAL OPEN UNIVERSITY (NATIONAL)

PERCENTAGE (%) MARKS	LETTER GRADE
80 and above	A+
70–79	A
60–69	B
50–59	C
40–49	D
Below 40	Fail

TABLE 38. GRADING SCALE, UNIVERSITY OF AGRICULTURE, FAISALABAD (PUBLIC)

LETTER GRADE	GRADE POINTS	PERCENTAGE (%) MARKS	DESCRIPTOR
A	4	80–100	Excellent
B	3	65–79	Good
C	2	50–64	Satisfactory
D	1	40–49	Pass
F	0	Below 40	Fail

TABLE 39. GRADING SCALE, BACHELOR OF SCIENCE (BS) PROGRAM, SIR SYED UNIVERSITY OF ENGINEERING AND TECHNOLOGY, KARACHI (PRIVATE)

LETTER GRADE	GRADE POINTS	PERCENTAGE (%) MARKS	DESCRIPTOR	IQAS (%)
A	4.0	90–100	Excellent	96
A-	3.7	85–89	Very Good	89
B+	3.4	80–84	Good	85
B	3.0	70–79	Above Average	79
C+	2.5	60–69	Average	71
C	2.0	50–59	Satisfactory	62
D	1.0	40–49	Pass	54
F	0.0	Below 40	Fail	F

TABLE 40. GRADING SCALE, CITY UNIVERSITY OF SCIENCE AND TECHNOLOGY, PESHAWAR (PRIVATE)

PERCENTAGE (%) MARKS	LETTER GRADE	GRADE POINTS
92–100	A+	4.00
86–91	A	3.67
79–85	B+	3.33
70–78	B	3.00
63–69	C+	2.50
56–62	C	2.00
50–55	D	1.50
Below 50	F	Fail
Withdrawal	W	–
Incomplete	I	–

TABLE 41. GRADING SCALE FOR GRADUATE PROGRAMS, NED UNIVERSITY OF ENGINEERING AND TECHNOLOGY, KARACHI (PUBLIC)

LETTER GRADE	GRADE POINTS	PERCENTAGE (%) MARKS	DESCRIPTOR
A	4.0	85–100	Excellent
B+	3.5	77–84	Very Good
B	3.0	70–76	Good
C+	2.5	65–69	Above Average
C	2.0	60–64	Average
D+	1.5	55–59	Fair
D	1.0	50–54	Pass
F	0.0	Below 50	Fail
S	–	–	Satisfactory (for dissertation)
U	–	–	Unsatisfactory (for dissertation)
P	–	50–100	Pass in non-credit course
X	–	–	Exempted
I	–	–	Incomplete

TABLE 42. GRADING SCALE, DADABHOY INSTITUTE OF HIGHER EDUCATION (PRIVATE)

PERCENTAGE (%) MARKS	LETTER GRADE	GRADE POINTS
90–100	A+	4.0
80–89	A	3.5
70–79	B	3.0
60–69	C	2.5
Below 60	F	0.0
Withdrawal	W	0.0
Incomplete	I	0.0

TABLE 43. GRADING SCALES, UNIVERSITY OF SINDH (PUBLIC)

LETTER GRADE	GRADE POINTS	PERCENTAGE (%) MARKS	DESCRIPTOR
Common Grading Scale			
A	4–5	80–100	Excellent
B	3–< 4	60–79	Good
C	2–< 3	50–59	Satisfactory or Average
D	1–< 2	40–49	Pass
F	0	< 40	Fail
I	0	–	Incomplete
W	0	–	Withdrawn from course
R	0	–	Research in progress
Grading Scale for Pharmacy Programs			
A	4–5	85 and above	Excellent
B	3–< 4	71–84	Good
C	2–< 3	61–70	Satisfactory or Average
D	1–< 2	50–60	Pass
F	0	< 50	Fail
Grading Scale for Business Administration Programs			
A	4–5	87 and above	Excellent
B	3–< 4	72–86	Good
C	2–< 3	60–71	Satisfactory or Average
F	0	< 60	Fail

The grading scale for technical programs, such as the Diploma of Associate Engineer, is determined by the provincial Boards of Technical Education.

TABLE 44. GRADING SCALE, DIPLOMA OF ASSOCIATE ENGINEER (DAE), PUNJAB BOARD OF TECHNICAL EDUCATION

PERCENTAGE (%) MARKS	LETTER GRADE
80 and above	A+
70–79	A
60–69	B
50–59	C
< 50, but passing all subjects	D
To pass a course, registrants must obtain at least 40% in the theory component and 50% in the practical component.	

Documentation

School Education

TABLE 45. MAJOR TYPES OF SCHOOL CREDENTIALS

CREDENTIAL	ISSUING BODY	YEARS OF STUDY
• Secondary School Certificate • Matriculation Certificate	Boards of Intermediate and Secondary Education	2 years after Grade 8
• Secondary School Certificate – Technical • Matriculation Certificate – Technical	Boards of Technical Education	
• Higher Secondary Certificate • Intermediate Certificate	Boards of Intermediate and Secondary Education	2 years

Issuing Bodies

The Secondary School Certificate and Higher Secondary Certificate are issued by the 26 external examination bodies, who are all members of the Inter Board Committee of Chairmen (IBCC). These include:

- the Federal Board of Intermediate and Secondary Education
- provincial Boards of Intermediate and Secondary Education (BISE)
- boards of Technical Education
- Armed Forces Board

Refer to School Education for a complete list of the boards. The Inter Board Committee of Chairmen website provides an updated list of its members.

Students must pass external examinations on completion of secondary school (Grade 10) to receive the Secondary School Certificate or Matriculation Certificate and on completion of higher secondary school (Grade 12) to receive the Higher Secondary Certificate or Intermediate Certificate.

Document Format

Document format varies by examining board and time period.

- Documents are mostly issued in English, but may also be in Urdu.
- They should bear the insignia of the examining board and the signature of the official in charge, such as the controller of examinations or the secretary.
- There are often two documents: the degree certificate and a marks sheet (also called marks statement, marks card, marks certificate, and so on).
- The reverse side of the documents may contain additional information, such as examination regulations and the grading scale.

The certificate may include some or all of the following information:

- issuing body
- name and year of the examination
- name of the candidate
- program studied (for example, academic or vocational stream of higher secondary education)
- group or stream of subjects (for example, humanities or science)
- compulsory and elective or vocational subjects passed
- total marks obtained and maximum total marks (for example, 724 out of 1100)
- marks for individual subjects
- overall achievement in terms of division, grade or class (for example, a grade of B)

The marks sheet may include some of the above information, but should provide details about individual subjects, such as marks obtained (theory and practical), minimum pass marks and maximum marks. Depending on the year and the examining board, the SSC and HSC examinations may be either composite (conducted at the end of the two-year study period) or partwise (conducted at the end of each year).

Refer to Appendix U for sample Secondary School Certificates and Higher Secondary Certificates.

Higher Education

TABLE 46. MAJOR TYPES OF HIGHER EDUCATION CREDENTIALS

CREDENTIAL	ISSUING BODY	DURATION OF STUDY
Diploma of Associate Engineer (DAE)	Provincial Boards of Technical Education	3 years after Grade 10
Certificates and Diplomas	Universities and Colleges	1 to 3 years
Bachelor's Degree (pass) – e.g., BA, BCom, BSc	Universities	2 years
Bachelor's Degree (honours) – e.g., BA, BCom, BSc	Universities	3 years
Bachelor's Degree (honours)* – e.g., BA, BS	Universities	4 years
Bachelor of Education (BEd)	Universities	1 year after bachelor's degree
Bachelor of Education (BEd)	Universities	3 years
Bachelor of Education* (BEd)	Universities	4 years
Bachelor of Technology (Pass)	Universities	2 years
Bachelor of Technology (Honours)	Universities	2 years after BTech pass
Bachelor of Science in Agriculture	Universities	4 years
Bachelor of Engineering (BE) Bachelor of Science in Engineering (BSc Engg)	Universities	4 years
Bachelor of Science in Nursing (BSc Nursing)	Universities	4 years
Bachelor of Dental Surgery (BDS)	Universities	4 years
Bachelor of Medicine and Bachelor of Surgery (MBBS)	Universities	5 years
Bachelor of Law(s) (LLB) (integrated degree)	Universities	5 years
Bachelor of Law(s) (LLB) (postgraduate degree)	Universities	3 years after bachelor's degree (pass)
Master's Degree – e.g., MA, MCom, MSc	Universities	1 year after bachelor's degree (honours) or 2 years after bachelor's degree (pass)
Master's Degree* – e.g., MA, MS	Universities	1.5 or 2 years after 4-year bachelor's degree
Master of Education (MEd)	Universities	1 year after BEd
Master of Education* (MEd)	Universities	2 years after 4-year BEd
Master of Engineering (ME) Master of Science in Engineering	Universities	1.5 or 2 years after BE or BSc Engg
Doctor of Medicine (MD), Master of Surgery (MS)	Universities	4 or 5 years after MBBS
Master of Dental Surgery (MDS)	Universities	4 or 5 years after BDS
Master of Philosophy (MPhil)	Universities	1 to 2 years
Doctor of Philosophy (PhD)	Universities	2 to 5 years

* Programs introduced in recent years by the Higher Education Commission

Issuing Bodies

The Higher Education Commission, which replaced the Universities Grants Commission in 2002, administers universities across the country. Its website has an updated list of recognized universities and degree-awarding institutions in both the public and private sectors. The current list of 122 universities and DAIs is given in Appendix B.

The HEC recognizes degrees awarded by recognized private universities or DAIs before they obtain their charter but after they receive the No Objection Certificate (NOC) or recommendation letter from the provincial education departments or the HEC (or the UGC prior to 2002). The HEC may provide attestation of such degrees as per the request of the institutions.

Document Format

Document formats vary by issuing body and time period.

- There are often two documents: degree certificates and marks sheets (also called marks cards, marks certificates, statement of marks, and so on).
- Documents are usually issued in English. They can also be issued in both English and Urdu or in Urdu only.
- They should bear the seal of the university and the signatures of relevant officials, such as vice chancellor, registrar, controller of examinations and secretary.

Universities and DAIs issue the degrees.

- The certificate should indicate the name of the degree and the field of specialization (if applicable), for example, "Bachelor of Engineering (Mechanical)."
- Some certificates indicate the division of the student based on their overall marks or GPA, for example, "First Division with Distinction."
- In some programs, a student may receive only a provisional certificate upon graduation, with the final certificate being issued afterward.
- The certificate issued by a university sometimes indicates the affiliated college where the instruction took place.

Marks sheets are normally issued by universities that conduct the major examinations.

- The marks sheets should indicate the courses or papers completed, the marks obtained and the maximum marks available, for example, "marks allotted: 150; marks obtained: 76."
- In the annual system there is typically one marks sheet for each year, showing the result of the annual examinations.
- The HEC favours transition to the semester system, with final exams held, and credits or credit hours for completed courses awarded, at the end of each semester.
- One credit or credit hour generally represents one hour per week of instruction over the course of an 18-week semester. In the case of practical or lab components, it may represent two (sometimes three) weekly hours. The marks sheet may provide the theory and practical components of each course, for example, "4 (2–4)" means the total credits for the course are 4, including 2 weekly hours for theory and 4 weekly hours for practical.
- Programs that use the traditional annual system may indicate only the total marks of each course or paper.
- Sometimes the university-issued marks sheet contains only course codes or numbers, with the affiliated college providing more information such as course names and contents.

See Appendix U for sample documents for various major higher education credentials.

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Appendix A—Placement Recommendations

Placement recommendations provide guidelines for comparing international and Canadian educational credentials and standards. These recommendations are advisory in nature and indicate the general level of a credential in Canadian terms.

Placement recommendations represent benchmark assessments and do not cover all credentials. However, the fact that a credential is not mentioned in the placement recommendations does not mean it cannot be assessed by IQAS. International credentials not specifically covered should be referred to IQAS for individual evaluation.

Given the different educational philosophies, objectives and program structures in educational systems around the world, evaluation in terms of direct equivalence to specific Canadian credentials is not possible. For this reason IQAS placement recommendations are made in terms of "generally compares" to and not "equivalent" to.

When evaluating international credentials IQAS considers the following:

- the education system of the country concerned
- the recognition of the awarding institution
- the level, length and structure of the program

When appropriate IQAS may

- consider that comparison to a different level of education may more accurately reflect the level of the international credential in Canadian terms
- combine two or more credentials

CREDENTIAL NAME	IQAS RECOMMENDATIONS
Secondary School Certificate	Generally compares to the completion of Grade 10.
Higher Secondary Certificate	Generally compares to the completion of a high school diploma.
Diploma of Associate Engineer	Generally compares to the completion of a post-secondary certificate. Note: the first two years of the program are considered to be at a secondary level and the completion of a high school diploma is acknowledged.
Bachelor's (Pass) degree (2-year)	Generally compares to the completion of a two-year post-secondary diploma.
Bachelor's (Honours) degree (3-year)	Generally compares to the completion of a three-year bachelor's degree.
Bachelor's (Honours) degree (4- or 5-year)	Generally compares to the completion of a four-year bachelor's degree.
Bachelor of Technology (Pass) degree (one year of academic study)	Generally compares to the completion of a two-year post-secondary diploma.
Bachelor of Technology (Pass) degree (two years of academic study)	Generally compares to the completion of a three-year post-secondary diploma.
Bachelor of Technology (Honours) degree (two years of academic study in total)	Generally compares to the completion of a three-year post-secondary diploma. **Note:** In combination with the Bachelor of Technology (Pass) degree.
Bachelor of Technology (Honours) degree (three or more years of academic study in total)	Generally compares to the completion of an applied bachelor's degree. **Note:** In combination with the Bachelor of Technology (Pass) degree.
Bachelor of Education (BEd) (1-year)	Generally compares to the completion of a three-year bachelor's degree.
Bachelor of Education (BEd) (3-year integrated program)	Generally compares to the completion of a three-year bachelor's degree with a focus in education.
Bachelor of Education (BEd) (4-year upgraded program)	Generally compares to the completion of a four-year Bachelor of Education degree.

CREDENTIAL NAME	IQAS RECOMMENDATIONS
Bachelor of Law(s) (LLB) (3-year after-degree program)	Generally compares to the completion of a first professional university degree in law.
Bachelor of Law(s) (LLB) (5-year)	Generally compares to the completion of a first professional university degree in law.
Bachelor of Medicine and Bachelor of Surgery (MBBS)	Generally compares to the completion of a first professional university degree in medicine.
Bachelor of Dentistry or Bachelor of Dental Surgery (BDS)	Generally compares to the completion of a first professional university degree in dentistry.
Doctor of Veterinary Medicine (DVM)	Generally compares to the completion of a first professional university degree in veterinary medicine.
Post-Graduate Certificate or Post-Graduate Diploma [from universities and degree-awarding institutions]	Programs requiring a two-year bachelor's degree for admission: Generally compares to the completion of a post-secondary certificate or diploma. Programs requiring a four-year bachelor's degree or a master's degree for admission: Generally compares to the completion of a graduate certificate or diploma. Shorter programs are generally compared to certificates while longer programs can be compared to diplomas.
Master's degree ((3+1 years) or (2+2 years))	In combination with a preceding bachelor's degree: Generally compares to the completion of a four-year bachelor's degree.
Master of Education (MEd) (1-year)	Generally compares to the completion of a four-year bachelor's degree.
Master of Education (MEd) (2-year)	Generally compares to the completion of a two-year master's degree with a focus in education.
Master of Arts in Education (1- or 2-year)	Generally compares to the completion of a four-year bachelor's degree.
Master of Philosophy (MPhil) and equivalent Master's degrees (1.5 to 3 years)	Generally compares to the completion of a master's degree.
Doctor of Philosophy (PhD)	Generally compares to the completion of a Doctor of Philosophy (PhD) degree.

Appendix B—Recognized Universities and Other Degree-Awarding Institutions (DAIs) in Pakistan

TABLE 47. LIST OF RECOGNIZED UNIVERSITIES AND OTHER DEGREE-AWARDING INSTITUTIONS, HIGHER EDUCATION COMMISSION

AREA	PUBLIC SECTOR	PRIVATE SECTOR
Federal Area	1. Air University, Islamabad 2. Allama Iqbal Open University, Islamabad 3. Bahria University, Islamabad 4. COMSATS Institute of Information Technology, Islamabad 5. Federal Urdu University of Arts, Science & Technology, Islamabad 6. International Islamic University, Islamabad 7. National Defence University, Islamabad 8. National University of Modern Languages, Islamabad 9. National University of Sciences & Technology, Rawalpindi 10. Pakistan Institute of Development Economics, Islamabad 11. Pakistan Institute of Engineering & Applied Sciences, Islamabad 12. Quaid-i-Azam University, Islamabad 13. Virtual University of Pakistan, Lahore 14. Institute of Space Technology, Islamabad	1. Foundation University, Islamabad 2. National University of Computer & Emerging Sciences, Islamabad 3. Riphah International University, Islamabad
AJK	1. University of Azad Jammu & Kashmir, Muzaffarabad, Azad Kashmir	1. Al-Khair University, AJK 2. Mohi-ud-Din Islamic University, AJK
Balochistan	1. Balochistan University of Engineering & Technology, Khuzdar 2. Balochistan University of Information Technology & Management Sciences, Quetta 3. Sardar Bahadur Khan Women's University, Quetta 4. University of Balochistan, Quetta 5. Lasbela University of Agriculture, Water & Marine Sciences, Uthal, Lasbela, Balochistan	1. Iqra University, Quetta
Northern Area	1. Karakurum International University, Gilgit	
NWFP	1. Frontier Women University, Peshawar 2. Gomal University, D.I. Khan 3. Hazara University, Dodhial, Mansehra 4. Institute of Management Science, Peshawar 5. Khyber Medical University, Peshawar 6. Kohat University of Science & Technology, Kohat 7. NWFP University of Agriculture, Peshawar 8. NWFP University of Engineering & Technology, Peshawar 9. Pakistan Military Academy, Abbottabad 10. University of Malakand, Chakdara, Dir, Malakand 11. University of Peshawar, Peshawar 12. University of Science & Technology, Bannu	1. Abasyn University, Peshawar 2. CECOS University of Information Technology & Emerging Sciences, Peshawar 3. City University of Science & IT, Peshawar 4. Gandhara University, Peshawar 5. Ghulam Ishaq Khan Institute of Engineering Sciences & Technology, Topi 6. Northern University, Nowshera 7. Preston University, Kohat 8. Qurtaba University of Science & Information Technology, D.I. Khan 9. Sarhad University of Science & Information Technology, Peshawar

AREA	PUBLIC SECTOR	PRIVATE SECTOR
Punjab	1. Bahauddin Zakariya University, Multan 2. Fatima Jinnah Women University, Rawalpindi 3. Government College University, Faisalabad 4. Government College University, Lahore 5. Islamia University, Bahawlpur 6. King Edward Medical University, Lahore 7. Kinnaird College for Women, Lahore 8. Lahore College for Women University, Lahore 9. National College of Arts, Lahore 10. University of Agriculture, Faisalabad 11. University of Arid Agriculture, Murree Road, Rawalpindi 12. University of Education, Lahore 13. University of Engineering & Technology, Lahore 14. University of Engineering & Technology, Taxila 15. University of Gujrat, Gujrat 16. University of Health Sciences, Lahore 17. University of Sargodha, Sargodha 18. University of the Punjab, Lahore 19. University of Veterinary & Animal Sciences, Lahore	1. Beaconhouse National University, Lahore 2. Forman Christian College, Lahore (university status) 3. The GIFT University, Gujranwala 4. Hajvery University, Lahore 5. Imperial College of Business Studies, Lahore 6. Institute of Management Sciences, Lahore 7. Lahore School of Economics, Lahore 8. Lahore University of Management Sciences, Lahore 9. Minhaj University, Lahore 10. National College of Business Administration & Economics, Lahore 11. National Textile University, Faisalabad 12. Superior College, Lahore 13. University of Central Punjab, Lahore 14. University of Faisalabad, Faisalabad 15. University of Lahore, Lahore 16. University of Management & Technology, Lahore 17. University of South Asia, Lahore
Sindh	1. Dawood College of Engineering & Technology, Karachi 2. DOW University of Health Sciences, Karachi 3. Institute of Business Administration, Karachi 4. Liaquat University of Medical & Health Sciences, Jamshoro Sindh 5. Mehran University of Engineering & Technology, Jamshoro 6. NED University of Engineering & Technology, Karachi 7. Pakistan Naval Academy, Karachi 8. Quaid-e-Awam University of Engineering, Sciences & Technology, Nawabshah 9. Shah Abdul Latif University, Khairpur 10. Sindh Agriculture University, Tandojam 11. Sukkur Institute of Business Administration, Sukkur 12. University of Karachi, Karachi 13. University of Sindh, Jamshoro	1. Aga Khan University, Karachi 2. Baqai Medical University, Karachi 3. Dadabhoy Institute of Higher Education, Karachi 4. DHA Suffa University, Karachi 5. Greenwich University, Karachi 6. Hamdard University, Karachi 7. Indus Institute of Higher Education, Karachi 8. Indus Valley School of Art & Architecture, Karachi 9. Institute of Business Management, Karachi 10. Institute of Business & Technology, Karachi 11. Iqra University, Karachi 12. Isra University, Hyderabad 13. Jinnah University for Women, Karachi 14. Karachi Institute of Economics & Technology, Karachi 15. KASB Institute of Technology, Karachi 16. Muhammad Ali Jinnah University, Karachi 17. Nazeer Hussain University, Karachi 18. Newports Institute of Communications & Economics, Karachi 19. Preston Institute of Management Science & Technology, Karachi 20. Preston University, Karachi 21. Shaheed Zulfikar Ali Bhutto Institute of Science & Technology (SZABIST), Karachi 22. Sir Syed University of Engineering & Technology, Karachi 23. Textile Institute of Pakistan, Karachi 24. University of East, Hyderabad 25. Zia-ud-Din University, Karachi
Subtotals	53 (universities) + 12 (degree awarding institutions) = **65**	40 (universities) + 17 (degree awarding institutions) = **57**
TOTAL	65 + 57 = 122	

Appendix C—Sample Program Structures: Two-Year Bachelor's (Pass) Degrees

TABLE 48. BACHELOR OF COMMERCE, DADABHOY INSTITUTE OF HIGHER EDUCATION (PRIVATE)

DURATION:	2 YEARS
ENTRY REQUIREMENT:	INTERMEDIATE OR A LEVEL
GRADUATION REQUIREMENT:	40% PASS IN EACH SUBJECT AND 45% IN AGGREGATE

Paper	Marks
Part I	
I. Islamic Studies or Ethics and Pakistan Studies	100
II. Functional English (compulsory)	100
III. Introduction to Business	100
IV. Principles of Accounting	100
V. Business Mathematics and Statistics	100
VI. Economic Analysis and Policy	100
Part II	
I. Business Communication	100
II. Principles of Management	100
III. Economic Development of Pakistan	100
IV. Advanced Accounting and Cost Accounting	100
V. Business and Industrial Law	100
VI. Optional Paper (choose one): • Auditing and Income Tax Law • Introduction to Computer Application in Business • Principles of Marketing • Principles of Insurance • Banking and Finance	100
TOTAL	**1200**

TABLE 49. BACHELOR OF INFORMATION TECHNOLOGY (BIT), FEDERAL URDU UNIVERSITY OF ARTS, SCIENCE AND TECHNOLOGY, ISLAMABAD

DURATION:	4 SEMESTERS	
ENTRY REQUIREMENT:	FA OR FSc IN ANY OF THE FOLLOWING: BUSINESS ADMINISTRATION, MATHS, PHYSICS, COMMERCE, COMPUTER SCIENCE, STATISTICS, ECONOMICS	
No.	**Course**	**Credits**
Semester 1		
CSC100	Fundamentals of Algorithms	3
ENG100	Technical and Business Writing	3
CSC101	Introduction to Computer Programming	3
BUS100	Fundamentals of Management	3
BUS101	Introduction to Marketing	3
CSC102	Database Systems	3
Subtotal		**18**
Semester 2		
CSC203	Object Oriented Programming	3
BUS202	Introduction to Accounting	3
CSC204	Data Structures	3
CSC205	Introduction to Computer Organization and Assembly	3
CSC206	Data Communication	3
Subtotal		**15**
Semester 3		
BUS303	Organizational Behaviour	3
BUS304	Financial Management	3
CSC307	Operating Systems Concepts	3
CSC308	Telecommunication Systems	3
CSC309	Web Design and Development	3
Subtotal		**15**
Semester 4		
BUS405	Human Resource Management	3
CSC410	Computer Networks	3
CSC411	Distributed Database Systems	3
CSC412	Visual Programming	3
CSC413	E-Commerce	3
	Software Project (Semesters 3 & 4)	6
Subtotal		**21**
TOTAL		**69**

Appendix D—Sample Program Structures: 4-Year (4 or 2+2) Bachelor's Degrees

TABLE 50. TWO-YEAR BACHELOR OF SCIENCE IN APPLIED MANAGEMENT, GOVERNMENT COLLEGE (GC) UNIVERSITY, LAHORE

DURATION:	2 YEARS	
ENTRY REQUIREMENT:	2-YEAR BACHELOR'S DEGREE (BA, BSc OR BCom)	
GRADUATION REQUIREMENT:	MINIMUM OF 64 CREDIT HOURS WITH A GPA OF 2.0	
No.	**Course**	**Credit Hours**
First Semester (16 weeks)		
MGMT-310	Quantitative Methods for Business	18
MGMT-315	Elements of Financial and Managerial Accounting	
MGMT-320	Management Communication	
MGMT-325	Marketing Foundations and Applications	
MGMT-330	Economics for Business and Management	
Skill Building Term (5 weeks)		
	Personal Productivity Tools	6
Second Semester (16 weeks)		
MGMT-335	Manufacturing and Service Operations	18
MGMT-340	Fundamentals of Management	
MGMT-345	Financial Management	
MGMT-350	International Competitiveness and Technology	
MGMT-355	Applied Research for Business	
MGMT-360	Behaviour in Organizations	
Third Semester (6 months)		
	Work-Based Learning (Students choose courses that match their work placements.)	Up to 9
Fourth Semester (16 weeks)		
MGMT-410	Human Resource Management	Up to 18
MGMT-420	Technology Enabled Business	
MGMT-425	Elective of Marketing	
MGMT-430	Elective of Finance	
MGMT-435	Elective of Management	
MGMT-490	Thesis	
TOTAL MAXIMUM CREDIT HOURS		**69**

TABLE 51. BSc (HONS) ECONOMICS, LAHORE SCHOOL OF ECONOMICS (PRIVATE)

DURATION:	4 YEARS (MINIMUM 136 CREDIT HOURS)	
ENTRY REQUIREMENT:	FA OR FSc WITH AT LEAST 660 MARKS, AMERICAN HIGH SCHOOL DIPLOMA WITH AT LEAST 80% MARKS, OR EQUIVALENT	
Year	**Term**	**Course**
1st	Winter	1. Introduction to Micro Economics
		2. Mathematics I
		3. Statistics I
		4. Introduction to Computers
		5. Communication Skills
	Spring	1. Introduction to Macro Economics
		2. Mathematics II
		3. Statistics II
		4. Computing for Business and Economics
		5. Academic Writing
	Summer	1. Math for Economics and Finance
		2. Islamic Studies
		3. Development Economics
2nd	Winter	1. Micro Economics I
		2. Macro Economics I
		3. Econometrics I
		4. International Relations I; Psychology I; Language, Culture and Society; or Creative Writing
		5. Financial Accounting I
	Spring	1. Micro Economics II
		2. Macro Economics II
		3. Econometrics II
		4. International Relations II; Language, Gender and Power; or Creative Writing
	Summer	1. Introduction to Management
		2. Financial Accounting II
		3. Pakistan Political History I; Pakistan Culture and Literature; or Creative Writing

DURATION:	4 YEARS (MINIMUM 136 CREDIT HOURS)	
ENTRY REQUIREMENT:	FA OR FSc WITH AT LEAST 660 MARKS, AMERICAN HIGH SCHOOL DIPLOMA WITH AT LEAST 80% MARKS, OR EQUIVALENT	
Year	**Term**	**Course**
3rd	Winter	1. Macro Economics III
		2. Monetary Economics
		3. Environmental Economics
		4. Corporate Finance
		5. Management Communications
	Spring	1. Micro Economics III
		2. Public Finance
		3. History and Balance Sheet Analysis of Pakistani Companies
		4. Entrepreneurship and SME
	Summer	1. Pakistani Political History II
		2. Statistical Quality Management
		3. Economic and Financial Analysis of Projects or Managerial Accounting
4th	Winter	1. International Economics
		2. Research Methods
		3. Marketing Management
		4. Investments
		5. Pakistan Economy
	Spring	1. Financial Institutions and Services
		2. Banking
		3. Research Project
		4. Introduction to Taxation and Auditing

Notes

1. All courses are three credit hours.
2. Terms:
   - Winter: September through December
   - Spring: January through April
   - Summer: May through July

Appendix E—Sample Program Structures: Master's Degrees

TABLE 52. MA POLITICAL SCIENCE, DEPARTMENT OF POLITICAL SCIENCE AND INTERNATIONAL RELATIONS, BAHAUDDIN ZAKARIYA UNIVERSITY, MULTAN (PUBLIC)

DURATION:	2 YEARS (20 COURSES X 3 CREDITS PER COURSE = 60 TOTAL CREDITS)
ENTRY REQUIREMENT:	BA WITH POLITICAL SCIENCE AS ELECTIVE SUBJECT
Code	**Course**
1st Semester	
POL-301	Dynamics of Politics in Pakistan
POL-302	Genesis of Pakistan
POL-305	Political Sociology
POL-307	Comparative Politics
POL-309	Theories and Concepts of International Relations
2nd Semester	
POL-302	Western Political Thought
POL-304	Muslim Political Thought
POL-306	Developmental Politics
POL-308	Political Economy
POL-310	Research Methodology
3rd Semester	
POL-401	Political System of USA and UK
POL-403	The Muslim World: Dynamics and Issues
POL-405	External Relations of Pakistan
	Two optional courses
4th Semester	
POL-402	Political Geography
POL-404	Constitutional Development in Pakistan
	Three optional courses

TABLE 53. MA IN MASS COMMUNICATION, SCHOOL OF MEDIA AND COMMUNICATION, BEACONHOUSE NATIONAL UNIVERSITY

DURATION:	2 YEARS	
ENTRY REQUIREMENT:	BA AT LEAST IN SECOND DIVISION, PLUS ADMISSION TEST AND INTERVIEW	
Code	**Course**	**Credits**
Semester I		
MC M501	Communication Theories	3
MC M503	Reporting	3
MC M504	English Language Skills	3
MC M613	Approaches to Mass Communication Studies	3
MC M614	Introduction to Mass Media	3
Subtotal		**15**
Semester II		
MC M505	Newspaper Editing or Production	3
MC M507	Opinion or Editorial Writing	3
MC M611	Magazine Journalism or Urdu	3
MC M603	Advertising	3
MC M610	Documentary and Outdoor Coverage	3
Subtotal		**15**
Semester III		
MC M601	Radio Journalism and Production	3
MC M602	Television Journalism and Production	3
MC M604	Public Relations	3
MC M617	Multimedia Practices	3
MC M608	Research Methodology	3
Subtotal		**15**
Semester IV		
MC M605	International Communication	3
MC M606	Development Communication	3
MC M615	Periodical Journalism	3
MC M609	Thesis	6
MC M616	Globalization in Media	3
MC M618	Project or Dissertation	9
Subtotal		**27**
TOTAL		**72**

Appendix F—Sample Program Structure: Master of Philosophy (MPhil)

TABLE 54. MPhil (HISTORY), DEPARTMENT OF HISTORY, BAHAUDDIN ZAKARIYA UNIVERSITY, MULTAN

DURATION:	2 YEARS		
ENTRY REQUIREMENT:	MA (HISTORY) WITH AT LEAST 45% MARKS, AND NTS ADMISSION TEST		
Semester	**Code**	**Course**	**Credit Hours**
1st	HIST-501	Research Methodology	3
	HIST-503	Philosophy of History I	3
	HIST-505	The Freedom Movement	3
	HIST-507	Muslim History of South Asia	3
2nd	HIST-502	Philosophy of History II	3
	HIST-504	Regional History of Pakistan	3
	HIST-506	Muslim Socio-Political Thought	3
	HIST-508	Analysis of Historiography	3
3rd & 4th	HIST-600	Thesis	6
TOTAL			30

Appendix G—Sample Program Structures: Bachelor of Science in Agriculture and Master of Science in Agriculture

TABLE 55. BACHELOR OF SCIENCE (HONS) AGRICULTURE (AGRI. ENTOMOLOGY), UNIVERSITY COLLEGE OF AGRICULTURE, BAHAUDDIN ZAKARIYA UNIVERSITY, MULTAN

DURATION:	4 YEARS (145 CREDIT HOURS)
ENTRY REQUIREMENT:	INTERMEDIATE EXAMINATION (FSc PRE-MEDICAL), WITH CHEMISTRY, BIOLOGY AND PHYSICS WITH AT LEAST 45% MARKS (I.E., 495/1100) OR EQUIVALENT, PLUS NTS ENTRY TEST (NAT–IM)

No.	Course	Credit Hours (Theory–Practical)
1st Semester		
1.	Basic Agriculture	3 (2–2)
2.	Introduction to Forest and Watershed Management	3 (2–2)
3.	Soil and Environment	3 (2–2)
4.	Introduction to Food Science	2 (2–0)
5.	Introduction to Agriculture Extension Education	2 (1–2)
6.	Introduction to Physiology of Crop Plants	3 (2–2)
7.	Computer Science and Information Technology	3 (0–6)
Subtotal		**19**
2nd Semester		
1.	Principles of Agronomy	2 (1–2)
2.	Introductory Horticulture	3 (2–2)
3.	Soil and Environment II	3 (2–2)
4.	Food Processing and Preservation	3 (2–2)
5.	Introduction to Rangelands and Wildlife Management	3 (2–2)
6.	Islamic Studies or Ethics (for non-Muslims)	2 (2–0)
7.	Functional English	2 (2–0)
Subtotal		**18**
3rd Semester		
1.	Field Crop Production I	3 (2–2)
2.	Introductory Plant Breeding	3 (2–2)
3.	Introductory Entomology	3 (2–2)
4.	Introduction to Plant Pathogens	3 (2–2)
5.	Principles of Horticultural Practices	3 (2–2)
6.	Principles of Agriculture Economics: Theory and Practices	3 (3–0)
7.	Introduction to Animal Sciences	2 (0–4)
Subtotal		**20**
4th Semester		
1.	Field Crop Production II	3 (2–2)
2.	Introductory Molecular Genetics and Biotechnology	3 (2–2)
3.	Applied Entomology	3 (2–2)

DURATION:	4 YEARS (145 CREDIT HOURS)
ENTRY REQUIREMENT:	INTERMEDIATE EXAMINATION (FSc PRE-MEDICAL), WITH CHEMISTRY, BIOLOGY AND PHYSICS WITH AT LEAST 45% MARKS (I.E., 495/1100) OR EQUIVALENT, PLUS NTS ENTRY TEST (NAT–IM)

No.	Course		Credit Hours (Theory–Practical)
4.	Introductory Plant Pathology		3 (2–2)
5.	Principle Horticultural Crops		4 (3–2)
6.	Introduction to Agribusiness and WTO		2 (2–0)
7.	Communication Skills and Leadership Development		2 (1–2)
Subtotal			**20**
5th Semester			
1.	General	Irrigation and Drainage Practices	2 (2–0)
2.		Farm Mechanization	2 (2–0)
3.	Major	Insect Morphology	4 (3–2)
4.		Principles of Insect Taxonomy	4 (3–2)
5.		Insect Ecology and Behaviour	4 (3–2)
6.		Insect Pests of Household, Man and Animals	3 (2–2)
Subtotal			**19**
6th Semester			
1.	General	Pest Management	2 (2–0)
2.		Introductory Statistics	2 (2–0)
3.	Major	Insect Physiology	3 (2–2)
4.		Insect Biodiversity and Evolution	3 (2–2)
5.		Agricultural Pests and their Management	3 (2–2)
6.		Stored Products Pests and their Management	3 (2–2)
7.		Beneficial Insects	3 (2–2)
Subtotal			**19**
7th Semester			
1.	General	Designs of Experiments	2 (2–0)
2.		Pakistan Studies	2 (2–0)
3.	Major	Plant Resistance to Insect Pests	2 (1–2)
4.		Insecticides and their Application	4 (3–2)
5.		Range and Forest Entomology	3 (2–2)
6.		Pest Forecasting and Management	4 (3–2)
7.		Preparation of Research Project and Scientific Writing	2 (1–2)
Subtotal			**19**
8th Semester			
1.	Internship and External Evaluation		15 (0–30)
Subtotal			**15**
TOTAL			**149**

TABLE 56. MASTER OF SCIENCE (HONS) AGRICULTURE (AGRI. ENTOMOLOGY), UNIVERSITY COLLEGE OF AGRICULTURE, BAHAUDDIN ZAKARIYA UNIVERSITY, MULTAN

DURATION:	2 YEARS (62 CREDIT HOURS)
ENTRY REQUIREMENT:	BSc (HONS) AGRICULTURE IN THE RELEVANT SUBJECT, WITH MINIMUM GPA OF 2.2, PLUS ADMISSION TEST EQUIVALENT TO GRE

No.	Course	Credit Hours (Theory–Practical)
1.	Research Methods in Entomology	3 (2–1)
2.	Origin and Phylogeny of Insects	3 (3–0)
3.	Environmental Entomology	2 (2–0)
4.	Advanced Insect Morphology	3 (2–1)
5.	Advanced Insect Ecology	3 (2–1)
6.	Numerical Taxonomy	3 (2–1)
7.	Insect Molecular Biology	3 (2–1)
8.	Insecticide Resistance and Management	3 (2–1)
9.	Insects in Relation to Plant Diseases	3 (2–1)
10.	Insects of Man and Animals	3 (2–1)
11.	Acarology	4 (3–1)
12.	Insecticides Toxicology	3 (2–1)
13.	Insect Nutrition	3 (2–1)
14.	Insecticide and Public Health	2 (2–0)
15.	Biological Control of Insect Pests and Weeds	3 (2–1)
16.	Special Problems	1 (1–0)
17.	Seminar	1 (1–0)
18.	Insecticides Application Equipment	2 (1–1)
19.	Advances in Pest Management Research	2 (2–0)
20.	Insect Cytogenetics and Cytotaxonomy	2 (1–1)
21.	Insect Pathology	3 (2–1)
22.	Insect Biochemistry	3 (2–1)
23.	Chemical Ecology	2 (2–0)
24.	Forensic Entomology	2 (2–0)
TOTAL		**62**

Appendix H—Sample Program Structures: Bachelor of Business Administration (BBA) and Master of Business Administration (MBA)

TABLE 57. BACHELOR OF BUSINESS ADMINISTRATION (BBA), RIPHAH SCHOOL OF LEADERSHIP, RIPHAH INTERNATIONAL UNIVERSITY (PRIVATE)

DURATION:	4 YEARS (126 CREDITS, PLUS 6- TO 8-WEEK INTERNSHIP) (40 COURSES X 3 CREDITS PER COURSE, PLUS 6-CREDIT THESIS = 126 TOTAL CREDITS)
ENTRY REQUIREMENT:	SECOND DIVISION OR GRADE B IN HSC OR EQUIVALENT, PLUS ADMISSION TEST AND INTERVIEW

1st Year	
Semester I	**Semester II**
1. English I	1. English II
2. IT in Business	2. Business Mathematics
3. Pakistan and Islamic Studies	3. Financial Accounting
4. Introduction to Psychology	4. Logic
5. Fundamentals of Accounting	5. Micro Economics
2nd Year	
Semester III	**Semester IV**
1. Business Communication I	1. Business Communication II
2. Statistics	2. Statistical Inferences
3. Introduction to Sociology	3. Fundamentals of Marketing
4. Cost Accounting	4. Business Finance
5. Macro Economics	5. Principles of Management
3rd Year	
Semester V	**Semester VI**
1. Financial Management	1. Money and Banking
2. Marketing Management	2. Consumer Behaviour
3. Business Research Methods	3. Human Resource Management
4. Calculus	4. Business Ethics
5. Pakistan Economy	5. Business Law
4th Year	
Semester VII	**Semester VIII**
1. Organizational Behaviour	1. Entrepreneurship
2. E-Commerce	2. Global and/or International Business
3. Operations/Production Management	3. Management Information System
4. Elective I	4. Elective I
5. Elective II	5. Elective II

Electives: Marketing
- Marketing Research
- Sales Management
- Export Marketing
- Brand Management
- Consumer Behaviour
- Supply Chain Management

Electives: Finance
- Taxation Management
- International Financial Management
- Financial Statement Analysis.
- Islamic Financial System
- Corporate Finance
- Investment and Portfolio Management

Electives: Human Resource Management
- Strategic Human Resource Management
- Industrial Relations and Labour Laws
- Performance Management
- Organization Theory
- International Human Resource Management
- Human Resource Development

Electives: Management Information Systems (MIS)
- Database Management
- Computer Networking
- Operating Systems
- System Analysis and Design
- IT Project Management
- Knowledge Management
- E-Business
- Programming and Systems Development

TABLE 58. MASTER OF BUSINESS ADMINISTRATION (MBA), RIPHAH SCHOOL OF LEADERSHIP, RIPHAH INTERNATIONAL UNIVERSITY

DURATION:	2 YEARS (72 CREDITS) (23 COURSES X 3 CREDITS PER COURSE, PLUS 3-CREDIT THESIS OR PROJECT = 72 TOTAL CREDITS)
ENTRY REQUIREMENT:	SECOND DIVISION OR GRADE B IN BACHELOR'S DEGREE (ANY DISCIPLINE), PLUS ADMISSION TEST AND INTERVIEW

1st Year	
Semester I	**Semester II**
1. Marketing Management	1. International Marketing
2. Business Accounting	2. Cost and Management Accounting
3. Management Theory and Practice	3. Business Mathematics and Statistics
4. Business Communication	4. Human Resource Management
5. Business Economics	5. Financial Management
6. End User Computing	6. Management Information System
2nd Year	
Semester III	**Semester IV**
1. Total Quality Management	1. Strategic Management
2. Organizational Behaviour	2. Production and Operations
3. Project Management	3. Management
4. Business Research Methods	4. Entrepreneurship
5. Elective I	5. Elective I
6. Elective II	6. Elective II

Fields of Specialization:

1. Finance
- Taxation Management
- International Financial Management
- Financial Statement Analysis
- Islamic Financial Systems
- Corporate Finance
- Investment and Portfolio Management

2. Marketing
- Marketing Research
- Sales Management
- Export Marketing
- Brand Management
- Consumer Behaviour
- Supply Chain Management

3. Human Resource Management
- Strategic Human Resource Management
- Industrial Relations and Labour Laws
- Performance Management
- Organization Theory
- International Human Resource Management
- Human Resource Development
- Organizational Development

4. Management Information System (MIS)
- Database Management
- Computer Networking
- Operating Systems
- System Analysis and Design
- IT Project Management
- Knowledge Management
- E-Business
- Programming and Systems Development

Appendix I—Sample Program Structures: Bachelor of Science in Engineering and Master of Science in Engineering

TABLE 59. BSc (CIVIL ENGINEERING), UNIVERSITY COLLEGE OF ENGINEERING & TECHNOLOGY, BAHAUDDIN ZAKARIYA UNIVERSITY, MULTAN

DURATION:	4 YEARS
ENTRY REQUIREMENT:	INTERMEDIATE (PRE-ENGINEERING) EXAMINATION WITH AT LEAST 60% MARKS, OR DAE IN SPECIFIED ENGINEERING FIELDS WITH AT LEAST 60%

Course No.	Course	Contact Hours	
		Theory	Practical
1st Semester			
CE-101	Engineering Mechanics	3	1
HS-103	Communication Skills	0	1
CS-105	Computer Fundamentals	2	1
GS-107	Mathematics I	3	0
HS-109/111	Islamic Studies or Ethics	2	0
CE-112	Construction Materials	3	1
Subtotal		**13 + 4 = 17**	
2nd Semester			
CE-102	Civil Engineering Drawing	2	2
CE-104	Surveying I	2	1
GS-106	Mathematics II	3	0
HS-108	Pakistan Studies	2	0
EE-110	Applied Electrical Engineering	1	1
ME-112	Applied Mechanical Engineering	1	1
Subtotal		**11 + 5 = 16**	
3rd Semester			
CE-201	Mechanics of Solids I	3	1
CE-203	Surveying II	2	1
CE-205	Fluid Mechanics I	3	1
GS-207	Mathematics III	3	0
CE-209	Engineering Geology	2	1
Subtotal		**13 + 4 = 17**	
4th Semester			
CE-202	Elementary Theory of Structures	3	1
CE-204	Geotechnical Engineering I	3	1
CE-206	Civil Engineering Practice	2	1
CE-208	Civil Engineering Construction and Graphics	1	2
HS-210	Technical Report Writing and Presentations	1	1
GS-212	Numerical Analysis	3	0
Subtotal		**13 + 6 = 19**	

DURATION:	4 YEARS		
ENTRY REQUIREMENT:	INTERMEDIATE (PRE-ENGINEERING) EXAMINATION WITH AT LEAST 60% MARKS, OR DAE IN SPECIFIED ENGINEERING FIELDS WITH AT LEAST 60%		
		Contact Hours	
Course No.	Course	Theory	Practical
5th Semester			
CE-301	Structural Analysis	3	1
CE-303	Geotechnical Engineering II	3	1
CE-305	Steel Structures	3	1
CE-307	Construction Planning and Management	2	1
CE-309	Engineering Hydrology	2	1
Subtotal		13 + 5 = 18	
6th Semester			
CE-302	Mechanics of Solids II	3	1
CE-304	Plain and Reinforced Concrete I	3	1
CE-306	Fluid Mechanics II	3	1
CE-308	Environmental Engineering I	2	1
CE-310	Engineering Economics and Management	2	0
Subtotal		13 + 4 = 17	
7th Semester			
CE-401	Water Resources and Irrigation Engineering	3	1
CE-403	Plain and Reinforced Concrete II	3	1
CE-405	Transportation Engineering	3	1
CE-407	Environmental Engineering II	2	1
CE-409	Design of Structures	2	2
CE-411	Final Year Project (Part A)	0	1
Subtotal		13 + 7 = 20	
8th Semester			
CE-402	Structural Engineering	3	1
CE-404	Hydraulic Engineering	3	1
CE-406	Pavement and Foundation	3	1
CE-408	Computer Aided Analysis and Design	1	2
CE-410	Final Year Project (Part B)	0	3
Subtotal		10 + 8 = 18	
TOTAL		142	

TABLE 60. MSc IN STRUCTURAL ENGINEERING, DEPARTMENT OF CIVIL ENGINEERING, UNIVERSITY OF ENGINEERING AND TECHNOLOGY, LAHORE (PUBLIC)

DURATION:	2 YEARS PART TIME (24 CREDIT HOURS)					
ENTRY REQUIREMENT:	UNDERGRADUATE DEGREE IN RELEVANT DISCIPLINE WITH AT LEAST 60% MARKS OR GPA OF 3.0					
		Examination Marks			Hours	
			Part II			
No.	Course	Part I	Sessional	Viva Voce	Credit	Contact
Compulsory Subjects						
SE-501	Structural Analysis	100	60	40	2+1	2+2
SE-502	Reinforced Concrete Structures	100	60	40	2+1	2+2
SE-503	Properties of Structural Materials	100	60	40	2+1	2+2
SE-504	Pre-stressed Concrete	100	60	40	2+1	2+2
SE-505	Steel Structures	100	60	40	2+1	2+2
SE-506	Seismic Design of Structures	100	60	40	2+1	2+2
Elective Subjects (choose two)						
SE-507	Bridge Engineering	100	60	40	2+1	2+2
SE-508	Design of Structures	100	60	40	2+1	2+2
SE-509	Theory of Plates and Shells	100	60	40	2+1	2+2
SE-510	Structural Mechanics	100	60	40	2+1	2+2
SE-511	Stability of Structures	100	60	40	2+1	2+2
GF-501	Advanced Soil Mechanics	100	60	40	2+1	2+2
GF-502	Foundation Engineering I	100	60	40	2+1	2+2
GF-503	Foundation Engineering II	100	60	40	2+1	2+2
GF-505	Geotechnical Investigation	100	60	40	2+1	2+2
GF-505	Environmental Geo-Techniques	100	60	40	2+1	2+2
HI-501	Hydraulic Structures	100	60	40	2+1	2+2
HI-503	Hydro Power Engineering	100	60	40	2+1	2+2
HI-504	Irrigation Engineering and Practices	100	60	40	2+1	2+2
TE-501	Application of RS and GIS in Civil Engineering	100	60	40	2+1	2+2
TE-503	Pavement Analysis and Design	100	60	40	2+1	2+2
TE-505	Airport Planning and Design	100	60	40	2+1	2+2
TE-506	Railway Engineering	100	60	40	2+1	2+2
TE-510	Highway Construction Materials and Equipments	100	60	40	2+1	2+2
TOTAL					16+8	16+16

Appendix J—Sample Program Structures: BTech (Pass) and BTech (Honours)

TABLE 61. BACHELOR OF TECHNOLOGY (PASS) IN MECHANICAL TECHNOLOGY, DADABHOY INSTITUTE OF HIGHER EDUCATION (PRIVATE)

DURATION:	2 YEARS OF COURSEWORK PRECEDED BY 1 YEAR OF GUIDED TRAINING. APPLICANTS WITH 2 YEARS OF INDUSTRIAL EXPERIENCE ARE EXEMPT FROM GUIDED TRAINING. (25 COURSES X 3 CREDITS PER COURSE = 75 TOTAL CREDITS)
ENTRY REQUIREMENT:	DAE OR EQUIVALENT
GRADUATION REQUIREMENT:	MINIMUM 2.5 GPA FOR ALL COURSES

No.	Course
Semester I	
HU314	English Grammar
MS311	Elementary Algebra
PH350	Basic Electricity
CS306	Introduction to Information Technology
Short Summer Semester	
MG301	Basic Management
MG349	Industrial Training or Placement I
MG351	Industrial Relations
MS312	Mathematics I
Semester II	
TE301	Workshop Technology
PH351	Applied Physics
MS313	Mathematics II
MG350	Industrial Training or Placement II
Semester III	
MS406	Applied Mathematics I
PH452	Applied Thermodynamics
PH453	Applied Mechanics
ET401	Electrical Technology
Short Summer Semester	
HU419	Functional English
CS406	Computer Applications
MT401	Manufacturing Process
ET402	Power Plants
TE401	Instrumentation and Control
Semester IV	
MG452	Production Operation Management
ET403	Refrigerator and Air Conditioning
MT402	Engineering Materials and Metallurgy
HU306	Business Communication
HU309	Islamic and Pakistan Studies

TABLE 62. BACHELOR OF TECHNOLOGY (HONOURS) IN MECHANICAL TECHNOLOGY, DADABHOY INSTITUTE OF HIGHER EDUCATION

DURATION:	2 YEARS (1 YEAR OF COURSEWORK PLUS 1 YEAR OF INDUSTRIAL PROJECT) (11 COURSES X 3 CREDITS PER COURSE + 25-CREDIT INDUSTRIAL PROJECT = 58 TOTAL CREDITS)
ENTRY REQUIREMENT:	BTech (PASS)
GRADUATION REQUIREMENT:	MINIMUM 2.0 GPA FOR ALL COURSES
No.	**Course**
Semester I	
MS510	Applied Mathematics
PH452	Applied Thermodynamics
CT507	Strength of Materials
Short Summer Semester	
PH561	Heat and Mass Transfer I
ET508	Power Plant Engineering
MT504	Machine Design
TE501	Engineering Design
Semester II	
PH562	Heat and Mass Transfer II
MT505	Production Machinery
MG553	Industrial Management and Safety
MT506	Lubrication
Second Year	
Comprehensive Industrial Project Development	

Appendix K—Sample Program Structures: LLB and LLM

TABLE 63. BACHELOR OF LAW (LLB), UNIVERSITY LAW COLLEGE, BAHAUDDIN ZAKARIYA UNIVERSITY, MULTAN

DURATION: 3 YEARS ENTRY REQUIREMENT: BACHELOR'S DEGREE		
No.	**Course**	**Credit Hours**
1st Semester		
BLL 500	Islamic Jurisprudence I	4
BLL 501	Jurisprudence I	3
BLL 502	Law of Contract I	3
BLL 503	Law of Tort	4
BLL 504	Language Skill	2
BLL 505	Guided Library Study or Work	2
Subtotal		**18**
2nd Semester		
BLL 550	Islamic Jurisprudence II	2
BLL 551	Jurisprudence II	3
BLL 552	Law of Contract II	3
BLL 553	Equity	4
BLL 554	Comparative Constitution Law	4
BLL 555	Computer Study	2
Subtotal		**18**
3rd Semester		
BLL 600	Criminal Law I	3
BLL 601	Constitution History of Pakistan	2
BLL 602	Public International Law I	3
BLL 603	Mercantile Law	2
BLL 604	Transfer of Property Law I	3
BLL 605	Islamic Personal Law I	3
BLL 606	Conveyancing	2
BLL 607	Legal Profession	2
Subtotal		**20**
4th Semester		
BLL 650	Criminal Law II	3
BLL 651	Constitution Law of Pakistan	3
BLL 652	Public International Law II	3
BLL 653	Company Law	2
BLL 654	Transfer of Property Law II	3
BLL 655	Islamic Personal Law II	3
BLL 656	Research Methodology	2
Subtotal		**19**

DURATION:	3 YEARS	
ENTRY REQUIREMENT:	BACHELOR'S DEGREE	
No.	**Course**	**Credit Hours**
5th Semester		
BLL 680	Evidence I	3
BLL 681	Criminal Procedure I	3
BLL 682	Civil Procedure I	3
BLL 683	Administrative Law I	3
BLL 684	Pleadings	2
BLL 685	Optional I	3
BLL 686	Office Management and Client Counselling	2
BLL 687	Trial Advocacy Civil	2
BLL 688	Law Moot	2
Subtotal		**23**
6th Semester		
BLL 690	Evidence II	3
BLL 691	Criminal Procedure II	3
BLL 692	Civil Procedure II	3
BLL 693	Administrative Law II	3
BLL 694	Interpretation of Statues, etc.	3
BLL 695	Optional II	3
BLL 696	Seminar	3
BLL 697	Trial Advocacy Criminal	2
Subtotal		**23**
TOTAL		**121**

TABLE 64. MASTER OF LAW (LLM), UNIVERSITY GILLANI LAW COLLEGE, BAHAUDDIN ZAKARIYA UNIVERSITY, MULTAN

DURATION:	2 YEARS	
ENTRY REQUIREMENT:	LLB WITH AT LEAST 55% IN AGGREGATE, PLUS ADMISSION TEST	
No.	Course	Credit Hours
1st Semester		
ML-701	International Trade Law I	2
ML-702	Comparative Constitutional Law I	2
ML-703	Criminology I	2
Subtotal		6
2nd Semester		
ML-704	International Trade Law II	2
ML-705	Comparative Constitutional Law II	2
ML-706	Criminology II	2
Subtotal		6
3rd Semester		
ML-707	Company Law I	2
ML-708	Comparative Study of Islamic and English Jurisprudence I	2
ML-709	Research Methodology I	2
Subtotal		6
4th Semester		
ML-710	Comparative Study of Islamic and English Jurisprudence II	2
ML-711	Company Law II	2
ML-712	Research Methodology II	2
ML-713	Thesis and Viva Voce	6
Subtotal		12
TOTAL		30

Appendix L—Sample Program Structures: Bachelor of Medicine and Bachelor of Surgery (MBBS) and Bachelor of Dental Surgery (BDS)

TABLE 65. BACHELOR OF MEDICINE AND BACHELOR OF SURGERY (MBBS), KHYBER MEDICAL COLLEGE, UNIVERSITY OF PESHAWAR (PUBLIC)

DURATION:	5 YEARS (EACH ACADEMIC YEAR LASTS 9 MONTHS)	
ENTRY REQUIREMENT:	INTERMEDIATE CERTIFICATE (PRE-MEDICAL) WITH AT LEAST 60% MARKS OR EQUIVALENT, PLUS UNIVERSITY-ADMINISTERED ENTRANCE TEST	
No.	**Course**	**Hours**
1st Year		
1.	Anatomy	350
2.	Physiology	350
3.	Biochemistry	100
4.	Islamic and Pakistan Studies	25
5.	Behavioural Sciences	25
6.	Community Medicine	25
7.	Medicine, including Psychiatry and Dermatology	33
8.	Surgery, including Orthopedics, Anesthesia and Dentistry	32
9.	Obstetrics and Gynecology	10
10.	Pediatrics	15
11.	Ophthalmology	5
12.	ENT	5
13.	Radiology	5
Subtotal		**980**
2nd Year		
1.	Anatomy	250
2.	Physiology	250
3.	Biochemistry	100
4.	Islamic and Pakistan Studies	25
5.	Behavioural Sciences	25
6.	Pathology	90
7.	Community Medicine	25
8.	Medicine, including Psychiatry and Dermatology	70
9.	Surgery, including Orthopedics, Anesthesia and Dentistry	70
10.	Obstetrics and Gynecology	30
11.	Pediatrics	40
12.	Ophthalmology	10
13.	ENT	10
14.	Radiology	10
15.	Nuclear Medicine	10
Subtotal		**1015**

DURATION: ENTRY REQUIREMENT:	5 YEARS (EACH ACADEMIC YEAR LASTS 9 MONTHS) INTERMEDIATE CERTIFICATE (PRE-MEDICAL) WITH AT LEAST 60% MARKS OR EQUIVALENT, PLUS UNIVERSITY-ADMINISTERED ENTRANCE TEST	
No.	**Course**	**Hours**
3rd Year		
1.	Pharmacology	300
2.	Pathology	240
3.	Forensic Medicine	60
4.	Community Medicine	75
5.	Medicine, including Psychiatry and Dermatology	143
6.	Surgery, including Orthopedics, Anesthesia and Dentistry	142
7.	Obstetrics and Gynecology	80
8.	Pediatrics	75
9.	Ophthalmology	25
10.	ENT	25
Subtotal		**1165**
4th Year		
1.	Pathology	180
2.	Community Medicine	85
3.	Medicine, including Psychiatry and Dermatology	255
4.	Surgery, including Orthopedics, Anesthesia and Dentistry	275
5.	Obstetrics and Gynecology	140
6.	Pediatrics	80
7	Ophthalmology	65
8.	ENT	65
9.	Radiology	20
10.	Nuclear Medicine	10
11.	General Practice	10
12.	Clinico-Pathological Conference	60
Subtotal		**1245**
5th Year		
1.	Medicine, including Psychiatry and Dermatology	385
2.	Surgery, including Orthopedics, Anesthesia and Dentistry	385
3.	Obstetrics and Gynecology	140
4.	Pediatrics	90
5.	Radiology	25
Subtotal		**1025**
TOTAL		**5430**

TABLE 66. BACHELOR OF DENTISTRY (BDS), ISLAMIC INTERNATIONAL MEDICAL COLLEGE, RIPHAH INTERNATIONAL UNIVERSITY

DURATION:	4 YEARS	
ENTRY REQUIREMENT:	INTERMEDIATE CERTIFICATE (PRE-MEDICAL), WITH AT LEAST 60% MARKS OR EQUIVALENT, PLUS UNIVERSITY-ADMINISTERED ENTRY TEST AND INTERVIEW	
No.	**Subject**	**Marks**
First Professional BDS Examination		
1.	Anatomy and Histology	150
2.	Physiology and Biochemistry	150
3.	Sciences of Dental Material	150
4.	Pakistan and Islamic Studies	50
Subtotal		**500**
Second Professional BDS Examination		
1.	General Pathology and Microbiology	150
2.	General Dental Pharmacology and Therapeutics	150
3.	Oral Anatomy, Histology, Physiology and Tooth Morphology	150
Subtotal		**450**
Third Professional BDS Examination		
1.	Medicine	150
2.	Surgery	150
3.	Oral Pathology and Microbiology	150
4.	Oral Diagnosis and Oral Medicine	150
Subtotal		**600**
Final Professional BDS Examination		
1.	Prosthetics, including Crown and Bridge Work	200
2.	Orthodontia and Radiology	200
3.	Operative, Restorative, and Conservative Dentistry	200
4.	Oral and Maxillofacial Surgery, Anesthesia, Forensics and Toxicology, Medico-Dental Ethics, and Dental Practice Management	200
Subtotal		**800**
TOTAL		**2350**

Appendix M—Sample Program Structure: Bachelor of Science in Nursing (BScN)

TABLE 67. BACHELOR OF SCIENCE IN NURSING, AGA KHAN UNIVERSITY (PRIVATE)

DURATION:	4 YEARS (154 CREDITS)
ENTRY REQUIREMENT:	AT LEAST 55% IN THE HSC EXAMINATION OR EQUIVALENT, OR AT LEAST 50% IN DEGREE EXAMINATIONS FOR DEGREE HOLDERS.

No.	Course	Credits	No.	Course	Credits
Year 1, Semester 1			**Year 1, Semester 2**		
NU141	Fundamentals of Nursing	6.0	NU142	Fundamentals of Nursing	6.5
NU171	Community Health Nursing	3.0	NU171	Community Health Nursing	2.0
SC131	Anatomy and Physiology I	3.0	NU143	Pharmacology I	1.0
SC132	Application of Science in Nursing	3.0	SC131	Anatomy and Physiology II	4.0
SC133	Mathematics I	1.0	SC133	Mathematics II	1.0
EN112	English I	3.0	SC134	Microbiology	3.0
HU121	Computer Skills	0.0	EN112	English II	3.0
SC136	Basic Nutrition	1.5	HU122	Nursing Ethics	1.0
Subtotal		**20.5**	**Subtotal**		**21.5**
Year 2, Semester 1			**Year 2, Semester 2**		
NU273	Family Health: Maternal and Child Care	5.5	NU243	Adult Health Nursing I	13.5
NU281	Child Health Nursing	7.5	SC237	Applied Nutrition	1.0
EN212	English I	2.0	EN212	English II	2.0
NU274	Tropical and Communicable Diseases	1.5	NU244	Pharmacology II	1.5
HU223	Sociology	2.0	HU225	Islamiat or Ethics and Religion	1.5
HU224	Developmental Psychology	1.5	SC231	Pathophysiology I	2.0
Subtotal		**20.0**	**Subtotal**		**21.5**
Year 3, Semester 1			**Year 3, Semester 2**		
NU345	Adult Health Nursing II	11.0	NU348	Advanced Concepts in Nursing	5.0
NU346	Health Assessment	3.0	NU361	Teaching and Learning: Principles and Practices	3.0
NU347	Pharmacology III	1.5	SC333	Introduction to Biostatistics	3.0
SC332	Pathophysiology II	2.0	EN312	English II	2.0
EN312	English I	2.0	HU327	Behavioural Psychology	3.0
HU328	Culture, Health and Society	2.0			
Subtotal		**21.5**	**Subtotal**		**16.0**
Year 4, Semester 1			**Year 4, Semester 2**		
NU454	Ethics and Professional Development in Health Care	3.0	NU443	Senior Elective: Clinical Nursing	5.0
NU452	Nursing Leadership and Management	4.0	NU476	Advanced Concepts in Community Health Nursing	6.0
NU492	Mental Health Nursing	6.0	EN413	English	2.0
SC433	Nursing Research	3.0	HU326	Pakistan Studies	2.0
EN412	English	2.0			
Subtotal		**18.0**	**Subtotal**		**15.0**

Appendix N—Sample Program Structure: Doctor of Pharmacy (PharmD)

TABLE 68. DOCTOR OF PHARMACY (PharmD), DEPARTMENT OF PHARMACY, UNIVERSITY OF PESHAWAR

DURATION:		5 YEARS	
ENTRY REQUIREMENT:		FSc (PRE-MEDICAL), WITH AT LEAST 45% MARKS IN AGGREGATE	
Course			**Marks**
1st Professional			
Theory	1.	Pharmaceutical Chemistry I (Organic)	100
	2.	Pharmaceutical Biochemistry	100
	3.	Pharmaceutics I (Physical Pharmacy)	100
	4.	Physiology and Histology	100
	5.	Anatomy	50
	6.	Pharmaceutical Mathematics I and Bio-Statistics	100
Practicals	7.	Pharmaceutical Chemistry I (Organic)	100
	8.	Pharmaceutical Biochemistry	100
	9.	Pharmaceutics I (Physical Pharmacy)	100
	10.	Physiology and Histology	100
Subtotal			**950**
2nd Professional			
Theory	1.	Pharmaceutics II (Pharmaceutical Preparations)	100
	2.	Pharmacology and Therapeutics I	100
	3.	Pharmacognosy I	100
	4.	Pharmaceutical Microbiology	100
	5.	Pakistan Studies and Islamiat	100
Practicals	6.	Pharmaceutics II (Pharmaceutical Preparations)	100
	7.	Pharmacology and Therapeutics I	100
	8.	Pharmacognosy I	100
	9.	Pharmaceutical Microbiology	100
Subtotal			**900**
3rd Professional			
Theory	1.	Pathology	50
	2.	Pharmacology and Therapeutics I	100
	3.	Pharmacognosy II	100
	4.	Pharmaceutics III (Dispensing and Community Pharmacy)	100
	5.	Pharmaceutical Chemistry II (Instrumentation)	100
Practicals	6.	Pathology	50
	7.	Pharmacology and Therapeutics I	100
	8.	Pharmacognosy II	100
	9.	Pharmaceutics III (Dispensing and Community Pharmacy)	100
	10.	Pharmaceutical Chemistry II (Instrumentation)	100
Subtotal			**900**

DURATION:		5 YEARS	
ENTRY REQUIREMENT:		FSc (PRE-MEDICAL), WITH AT LEAST 45% MARKS IN AGGREGATE	
Course			**Marks**
4th Professional			
Theory	1.	Pharmaceutics IV (Hospital Pharmacy)	100
	2.	Pharmaceutics V (Clinical Pharmacy I)	100
	3.	Pharmaceutics VI (Industrial Pharmacy)	100
	4.	Pharmaceutics VII (Bio-Pharmaceutics)	100
	5.	Pharmaceutics VIII (Pharmaceutical Quality Control)	100
Practicals	6.	Pharmaceutics V (Clinical Pharmacy I)	100
	7.	Pharmaceutics VI (Industrial Pharmacy)	100
	8.	Pharmaceutics VII (Bio-Pharmaceutics)	100
	9.	Pharmaceutics VIII (Pharmaceutical Quality Control)	100
Subtotal			**900**
5th Professional			
Theory	1.	Pharmaceutical Chemistry (Medicinal)	100
	2.	Pharmaceutics IX (Clinical Pharmacy II)	100
	3.	Pharmaceutical Technology	100
	4.	Forensic Pharmacy	100
	5.	Pharmaceutical Management and Marketing	100
	6.	Computer and its Applications in Pharmacy	50
Practicals	7.	Pharmaceutical Chemistry (Medicinal)	100
	8.	Pharmaceutics IX (Clinical Pharmacy II)	100
	9.	Pharmaceutical Technology	100
	10.	Computer and its Applications in Pharmacy	50
Subtotal			**900**
TOTAL			**4550**

Appendix O—Sample Program Structures: Doctor of Veterinary Medicine (DVM) Composite Degree and Deficiency Course Leading to DVM

TABLE 69. DOCTOR OF VETERINARY MEDICINE (DVM) COMPOSITE DEGREE PROGRAM, NWFP AGRICULTURAL UNIVERSITY, PESHAWAR

DURATION:	5 YEARS (206 CREDIT HOURS)	
ENTRY REQUIREMENT:	HSC WITH PHYSICS, CHEMISTRY, BIOLOGY AND ENGLISH, OR EQUIVALENT	
No.	**Course**	**Credit Hours (Theory–Practical)**
1st Semester		
V.ANAT. 301	Gross Anatomy	4 (1–6)
AgCh. 301	Biochemistry	4 (3–2)
V.PHYS. 301	Physiology I	4 (3–2)
STAT. 301	Biostatistics and Computer Application	3 (2–2)
LM. 301	Livestock Management and Practices	3 (2–2)
LM. 302	Fish and Wildlife Management	3 (2–2)
RD. 301	Rural Sociology	2 (2–0)
Subtotal		**23**
2nd Semester		
V.ANAT. 312	Comparative Anatomy	4 (1–6)
V.ANAT. 313	General Histology and Embryology (Development Biology)	4 (1–6)
V.PHYS. 312	Physiology II	4 (3–2)
AgCh.312	Metabolic and Clinical Chemistry	4 (3–2)
ABG. 312	Principles of Genetics and Population Genetics	4 (3–2)
AN. 312	Principles of Animal Nutrition	3 (2–2)
Subtotal		**23**
3rd Semester		
IBGE. 401	Cell and Molecular Biology	2 (2–0)
V.ANAT. 401	Systemic Histology	3 (1–4)
V.PATH. 401	General Pathology	4 (3–2)
V.PARAS.401	General Parasitology and Protozoology	3 (2–2)
V.Mb. 401	General Microbiology and Immunology	4 (3–2)
AN. 401	Animal Feeds Resources or Forage Conservations	3 (2–2)
ABG.401	Principles and Plans of Animal Breeding	3 (2–2)
Subtotal		**22**
4th Semester		
V.PATH.412	Systemic Pathology and Necropsy Practice	4 (3–2)
V.PARAS.412	Helminthology	4 (3–2)
V.Mb. 412	Bacteriology and Mycology	3 (2–2)
V.PHARM. 412	Pharmacology and Toxicology	4 (3–2)
AN.412	Applied Livestock and Human Nutrition	3 (2–2)

DURATION:	5 YEARS (206 CREDIT HOURS)	
ENTRY REQUIREMENT:	HSC WITH PHYSICS, CHEMISTRY, BIOLOGY AND ENGLISH, OR EQUIVALENT	
No.	**Course**	**Credit Hours (Theory–Practical)**
AR.412	Physiology of Reproduction	3 (2–2)
PS. 412	Poultry Housing and Management	2 (1–2)
Subtotal		**23**
5th Semester		
V.PHARM. 501	Systemic Pharmacology	4 (3–2)
AR.602	Reproductive Biotechnology	2 (1–2)
V.PARAS. 501	Veterinary Entomology	3 (2–2)
AN.501	Feed Formulation and Processing Technology	3 (2–2)
PS. 512	Avian Production and Management	3 (2–2)
ExEd.501	Livestock Extension Practices	3 (2–2)
LM. 501	Cattle or Buffalo Production	3 (2–2)
Subtotal		**21**
6th Semester		
CMS.512	General Medicine	3 (2–2)
CMS.513	General Surgery	3 (2–2)
LM.512	Sheep and Goat Production	2 (1–2)
AgEc.501	Livestock Economics and Marketing	3 (3–0)
LM.513	Dairy Products and Processing Technology	3 (2–2)
LM.514	Meat Products and Processing Technologies	3 (2–2)
V.Mb.512	Lab Animals – Care and Management	2 (1–2)
CMS.514	Pet Animals Welfare and Management	2 (1–2)
PakS.512	Pakistan Studies	1 (1–0)
Subtotal		**22**
7th Semester		
CMS.602	Regional Surgery	3 (1–4)
CMS.603	Systemic Medicine I	4 (4–0)
V.Mb.501	General and Systemic Virology	3 (2–2)
V.PARAS/V.PATH.602	Meat Inspection	2 (1–2)
V.Mb.602	Milk and Milk Products Inspection	2 (1–2)
LM.602	Equine and Camel Production	2 (1–2)
V.PATH.602	Clinical Pathology	2 (0–4)
AR.603	Reproduction Clinic I	2 (0–4)
CMS.604	Medicine Clinic I	2 (0–4)
CMS.605	Surgery Clinic I	2 (0–4)
ISES.602	Islamic Studies or Ethics (for Non-Muslims)	1 (1–0)
Subtotal		**25**

DURATION:	5 YEARS (206 CREDIT HOURS)	
ENTRY REQUIREMENT:	HSC WITH PHYSICS, CHEMISTRY, BIOLOGY AND ENGLISH, OR EQUIVALENT	
No.	**Course**	**Credit Hours (Theory–Practical)**
8th Semester		
CMS.612	Systemic Medicine II	3 (3–0)
CMS.613	Radiology, Shoeing and Soundness	2 (1–2)
AR. 612	Obstetrics and Genital Diseases	4 (2–4)
CMS.614	Medicine Clinic II	3 (0–6)
CMS. 615	Surgery Clinic II	3 (0–6)
AR.612	Reproduction Clinic II	3 (0–6)
LM.612	Livestock Farms Operations	5 (1–8)
Subtotal		**23**
9th Semester		
CMS. 622	Veterinary Preventive Medicine and Epidemiology	4 (2–4)
V.PATH. 622	Poultry Pathology	3 (2–2)
ALL DEPTTS. 622	Biodiversity and Hazards Management	2 (2–0)
CMS. 623	Technical Report Writing and Presentation	1 (1–0)
CMS. 624	Medicine Clinic III	3 (0–6)
CMS.625	Surgery Clinic III	3 (0–6)
AR.622	Reproduction Clinic III	3 (0–6)
PS.622	Poultry Farms Operations	5 (1–8)
Subtotal		**24**
10th Semester		
	6-month internship	
TOTAL		**206**

TABLE 70. DEFICIENCY COURSE LEADING TO DVM DEGREE, UNIVERSITY OF VETERINARY & ANIMAL SCIENCES, LAHORE (PUBLIC)

DURATION:	1 CALENDAR YEAR OR 3 4-MONTH SEMESTERS (60 CREDIT HOURS)	
ENTRY REQUIREMENT:	BSc ANIMAL HUSBANDRY	
No.	Course	Credit Hours
1st Semester		
ANAT 01D	Functional Anatomy and Histology	4 (2–4)
PHRM 02D	Pharmacology and Therapeutics	3 (2–2)
PATH 03D	General and Systemic Pathology	4 (2–4)
PARA 04D	Veterinary Parasitology	4 (2–4)
MICR 05D	Microbiology, Immunology, Virology	4 (2–4)
PHYS 06D	Applied Physiology	2 (0–4)
Subtotal		21
2nd Semester		
CLMS 07D	Clinical and Preventive Medicine	5 (2–4)
THER 08D	Breeding, Soundness, Obstetrics and Genital Diseases	4 (2–4)
CLMS 09D	Veterinary Surgery	4 (2–4)
PATH 10D	Clinical and Poultry Pathology	4 (2–4)
PMPH 11D	Veterinary Epidemiology, Food Hygiene and Meat Inspection	4 (2–4)
Subtotal		21
3rd Semester		
CLMS 12D	Medicine Clinic and Diagnostic Techniques and Procedures for Various Diseases	5 (1–8)
CLMS 13D	Surgery Clinic and Various Surgical Operations	5 (1–8)
THER 14D	Animal Reproduction Clinic and Practical on Breeding, Soundness, Reproductive Health, Management and Obstetrical Procedures	5 (1–8)
PMPH 15D	Practical on Public Health and Hygiene-Related Problems (Meat, Milk, Other Foods of Animal Origin)	3 (1–4)
Subtotal		18
TOTAL		60

Appendix P—Sample Program Structures: Diploma of Associate Engineer (DAE)

TABLE 71. DIPLOMA OF ASSOCIATE ENGINEER IN ELECTRICAL TECHNOLOGY, NWFP BOARD OF TECHNICAL EDUCATION

	COURSES		
NO.	FIRST YEAR	SECOND YEAR	THIRD YEAR
1.	Islamiat or Pakistan Studies	Islamiat or Pakistan Studies	Islamiat or Pakistan Studies
2.	English	Applied Mathematics II	Business Communication
3.	Applied Mathematics I	Applied Physics	Industrial Management and Human Relations
4.	Applied Chemistry	Business Management and Industrial Economics	AC Machines
5.	Computer Applications	DC Machines and Batteries	Power Plant and Energy Conservation
6.	Principles of Electrical Engineering	Electrical Instruments and Measurements	Transmission, Distribution and Protection of Electrical Power Systems
7.	Basic Electrical Drawing	Utilization of Electrical Energy	Telecommunication
8.	Workshop Practice I	Installation, Planning and Estimating	Repair and Maintenance of Electrical Equipments
9.		Applications of Computers in Electrical Technology	Digital and Industrial Electronics
10.		Basic Electronics	
11.		Workshop Practice II (Basic Machine Shop)	

TABLE 72. DIPLOMA OF ASSOCIATE ENGINEER IN BIO-MEDICAL TECHNOLOGY, NWFP BOARD OF TECHNICAL EDUCATION

	COURSES		
NO.	FIRST YEAR	SECOND YEAR	THIRD YEAR
1.	Islamiat or Pakistan Studies	Islamiat or Pakistan Studies	Islamiat or Pakistan Studies
2.	English	Applied Mathematics	Industrial Management and Human Relations
3.	Mathematics	Business Communication	Opto Electronics, Fibre Optics and Laser
4.	Applied Physics	Industrial Economics	Fundamentals of Microprocessor and Interfacing Techniques
5.	Applied Chemistry	Measuring Instruments	Medical Terminology, Human Anatomy and Physiology
6.	Computer Applications	Solid State Electronics	Sterilization, Autoclaves and Medical Gases, Vacuum Systems
7.	Electrical Essentials and Networks	Digital Electronics	ECG and Ultrasound Equipments
8.	Electronic Components, Application and Assembly	Electrical Machine and Industrial Electronics	Bio-Chemistry and Clinic Lab Equipments
9.	Fundamentals of Bio-Medical Equipment and Interface	Operational Amplifiers and Applications	Therapeutic Bio-Medical Equipments
10.	General Engineering	Patient Safety and Ultrasound Radiation Physics	Bio-Medical Equipment Maintenance
11.		X-Rays and Film Processing Equipment	

Appendix Q—Sample Program Structure: Diploma in Commerce (DCom)

TABLE 73. DCom ACCOUNTING GROUP, PUNJAB BOARD OF TECHNICAL EDUCATION

	1ST YEAR		2ND YEAR	
COMPONENT	COURSE	MARKS	COURSE	MARKS
Compulsory	English	100	English	100
	Urdu	100	Urdu	100
	Islamic Studies	50	Pakistan Studies	50
	Subtotal	**250**	**Subtotal**	**250**
Supporting	Business IT I	100	Business IT II	100
	Principles of Banking	50	Principles of Economics	50
	Principles of Commerce	50	Communication Skills	50
	Subtotal	**200**	**Subtotal**	**200**
Specialization	Financial Accounting I	100	Financial Accounting II	100
	Business Mathematics and Statistics	50	Applied Accounting; Manual or Computer Based Accounting	50
	Subtotal	**150**	**Subtotal**	**150**
TOTAL	600 + 600 = 1200			

Appendix R—Sample Program Structures: Primary Teaching Certificate (PTC) and Certificate in Teaching (CT)

TABLE 74. PRIMARY TEACHING CERTIFICATE (PTC), MINISTRY OF EDUCATION, 1983

DURATION:	1 YEAR (48 WEEKS, INCLUDING 6 WEEKS OF PRACTICE TEACHING)	
ENTRY REQUIREMENT:	MATRICULATION (GRADE 10)	
No.	**Course**	**Marks**
1.	Principles of Education and Methods of Teaching	100
2.	Child Development and Counselling	100
3.	School Organization and Management	100
4.	Health and Physical Education	100
5.–10.	Six Methods of Teaching Courses in Subject Areas (e.g., language, math, science, social studies, arts and practical arts).	600
11.	Short Term Practice Teaching (2 weeks)	50
12.	Long Term Practice Teaching (4 weeks)	150
TOTAL		1200

TABLE 75. CERTIFICATE IN TEACHING (CT), MINISTRY OF EDUCATION, 1983

DURATION:	1 YEAR (48 WEEKS, INCLUDING 6 WEEKS OF PRACTICE TEACHING)	
ENTRY REQUIREMENT:	INTERMEDIATE CERTIFICATE (GRADE 12)	
No.	**Course**	**Marks**
1.	Theory and History of Education	100
2.	Child Development	100
3.	General Methodology and Preparation of Teaching Aids	100
4.	School and Community Development	100
5.	Counselling, Testing and Evaluation	100
6.	Organization of Elementary Education and School Management	100
7.–10.	Methods of Teaching in Four Subject Areas	400
11.	Short Term Practice Teaching (2 weeks)	50
12.	Long Term Practice Teaching (4 weeks)	150
TOTAL		1200

Appendix S—Sample Program Structures: BEd and BSEd

TABLE 76. ONE-YEAR BACHELOR OF EDUCATION (BEd), MINISTRY OF EDUCATION

DURATION:	1 YEAR (48 WEEKS, INCLUDING 6 WEEKS OF PRACTICE TEACHING)	
ENTRY REQUIREMENT:	BA OR BSc	
No.	**Course**	**Marks**
1.	Perspectives of Education in Pakistan	100
2.	Human Development and Learning	100
3.	School Organization and Management	100
4.	Evaluation and Guidance	100
5.	Society, School and Teachers	100
6.-9.	Two Courses on Special Methods of Teaching (Content and Methodology, separately)	400
10.	Individual Project	100
11.	Practice Teaching	200
TOTAL		1200

TABLE 77. ONE-YEAR BACHELOR OF EDUCATION (BEd), ABASYN UNIVERSITY, 2008

DURATION:	1 YEAR (12 COURSES X 3 CREDITS PER COURSE = 36 TOTAL CREDITS)		
ENTRY REQUIREMENT:	BA OR BSc (SECOND DIVISION OR EQUIVALENT)		
No.	**Course**	**Credits**	**Marks**
1st Semester			
BED-100	Perspective of Education in Pakistan	3	100
BED-101	School Organization and Classroom Management	3	100
BED-102	Human Development and Learning	3	100
BED-103	Curriculum and Instruction	3	100
BED-104	Computer Literacy	3	100
2nd Semester			
BED-200	Teaching of Functional English (compulsory)	3	100
BED-201	Educational Measurement and Evaluation	3	100
BED-202	Research Techniques and Individual Project	3	100
BED-203	Education Technology	3	100
BED-204	Methods of Teaching in two of the following subjects: English, Biological Sciences, Mathematics	3 x 2	100 x 2
EDU-611	Long Teaching Practice	3	100
TOTAL		36	1200

TABLE 78. THREE-YEAR BACHELOR OF SCIENCE IN EDUCATION (BSEd), FEDERAL COLLEGE OF EDUCATION, 1992

DURATION: ENTRY REQUIREMENT:	3 YEARS INTERMEDIATE CERTIFICATE (GRADE 12)	
No.	**Course**	**Marks**
1st Year		
1.	English Functional	100
2.	Physics or Botany	100
3.	Mathematics A or Zoology	100
4.	Mathematics B or Chemistry	100
5.	Biology Minor or Mathematics Minor	100
6.	Perspective of Education in Pakistan	100
7.	Human Development and Learning	100
8.	Special Methods of Teaching Physical Sciences	100
9.	Special Methods of Teaching Mathematics	100
Subtotal		**900**
2nd Year		
1.	Islamiat (for Muslims) or Ethics (for non-Muslims) and Pakistan Studies (for all)	100
2.	Physics or Botany	100
3.	Mathematics A or Zoology	100
4.	Mathematics B or Chemistry	100
5.	Political Science and Current Affairs	100
6.	School Organization and Management	100
7.	Evaluation and Guidance	100
8.	Special Methods of Teaching Biology	100
9.	Techniques of Research	100
Subtotal		**900**
3rd Year		
1.	Urdu	100
2.	Physics or Botany	100
3.	Mathematics A or Zoology	100
4.	Mathematics B or Chemistry	100
5.	Socio-Economic Problems of Pakistan	100
6.	School, Society and Teacher	100
7.	Guidance and Counselling	100
8.	Research Thesis	100
Subtotal		**800**
TOTAL		**2600**

TABLE 79. FOUR-YEAR BACHELOR OF EDUCATION (BEd), HIGHER EDUCATION COMMISSION, 2006

DURATION:	4 YEARS (127 CREDITS)
ENTRY REQUIREMENT:	HIGHER SECONDARY CERTIFICATE WITH AT LEAST 50% MARKS OR EQUIVALENT BA OR BSc GRADUATES MAY BE ADMITTED TO SEMESTER V

Course	Credits	Course	Credits
1st Year			
Semester I		**Semester II**	
Islamiat or Ethics	2	Pakistan Studies	2
Functional English I	3	Communication Skills	3
Computer Literacy	2	How Children Learn	3
Reflective Practices	2	Optional I	3
Optional I	3	Optional II	3
Optional II	3	Critical Thinking	3
Development of Education in Pakistan	3		
Subtotal	**18**	**Subtotal**	**17**
2nd Year			
Semester III		**Semester IV**	
Functional English II	3	Sociological and Cultural Issues	3
Teaching and Learning Strategies (including school visits)	3	Classroom Assessment (including school visits)	3
Child Development	3	Communication Skills	3
Optional I	3	Optional I	3
Optional II	3	Optional II	3
Subtotal	**15**	**Subtotal**	**15**
3rd Year			
Semester V		**Semester VI**	
Philosophy of Education	3	Educational Research	3
Curriculum Development	3	Research Project and Report Writing	3
Contemporary Issues and Trends in Education	3	Short-Term Internship	6
Pedagogy I	3	Inclusive Education	3
Pedagogy II	3		
Subtotal	**15**	**Subtotal**	**15**
4th Year			
Semester VII		**Semester VIII**	
Comparative Education	3	Long-Term Internship (complete semester)	17
School Management	3		
Pedagogy I	3		
Pedagogy II	3		
Society, School and Teacher	3		
Subtotal	**15**	**Subtotal**	**17**

Appendix T—Sample Program Structures: MEd and MA (Education)

TABLE 80. ONE-YEAR MASTER OF EDUCATION (MEd), ABASYN UNIVERSITY

DURATION:	1 YEAR (12 COURSES X 3 CREDITS PER COURSE = 36 TOTAL CREDITS)		
ENTRY REQUIREMENT:	BEd (SECOND DIVISION OR EQUIVALENT)		
No.	**Course**	**Credits**	**Marks**
1st Semester			
MED-500	Comparative Education	3	100
MED-501	Computer in Education	3	100
MED-502	Educational Research	3	100
MED-503	Advance Educational Psychology	3	100
MED-504	Guidance and Counselling	3	100
2nd Semester			
MED-600	Educational Administration and Supervision	3	100
MED-601	Education in Pakistan: Problems, Issues and Trends	3	100
MED-602	Curriculum Development and Implementation	3	100
MED-603	Secondary Education in Pakistan	3	100
MED-604	Teacher Education in Pakistan	3	100
Students may choose Research Thesis or any two of the other subjects:			
MED-650	Adult and Continuing Education	3	100
MED-651	Higher Education	3	100
MED-652	Women Education	3	100
MED-653	Environmental Education	3	100
MED-654	Research Thesis	6	200
TOTAL		**36**	**1200**

TABLE 81. TWO-YEAR MASTER OF EDUCATION (MEd), HIGHER EDUCATION COMMISSION, 2006

NO.	COURSE	CREDITS
Core Courses		
1.	Professional Development of Teachers	3
2.	School Improvement	3
3.	Educational Studies (Philosophical, Sociological and Economic Perspectives)	3
Subtotal		**9**
Research Courses		
1.	Qualitative and Quantitative Research	3
2.	Statistics in Educational Research	3
3.	Thesis (two semesters)	6
Subtotal		**12**
Specialization Courses (Students choose three courses from any of the following areas of specialization. Universities may offer any other area of specialization, subject to availability of faculty and resources.)		
1.	Curriculum, Instruction and Design	
2.	Measurement and Evaluation	
3.	Distance and Non-Formal Education	
4.	Educational Technology	
5.	Educational Management	
6.	Inclusive Education	
7.	Policy and Planning	
Subtotal		**9**
TOTAL		30

TABLE 82. MASTER OF ARTS IN EDUCATION (MA EDUCATION), INTERNATIONAL ISLAMIC UNIVERSITY

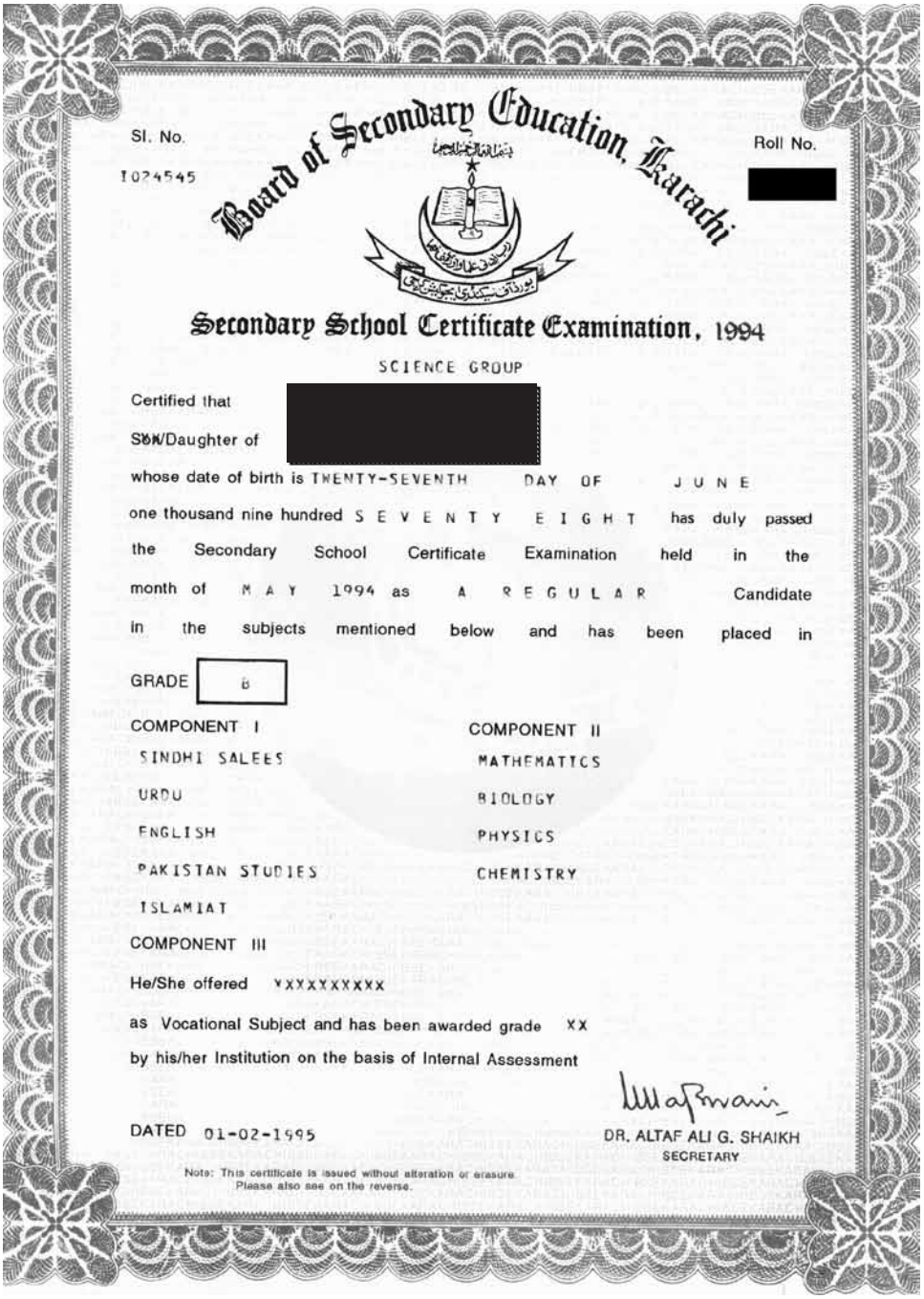
DURATION:	2 YEARS	
ENTRY REQUIREMENT:	BACHELOR'S (PASS) DEGREE WITH AT LEAST 50% MARKS, OR GPA 2.0 OUT OF 4.0	
No.	**Course**	**Credits**
1st Semester		
UR-201	Functional Arabic I	3
UR-202	Islamic Studies I	3
ED-300	Islamic Education History and Institutions	3
ED-301	Western Philosophy of Education	3
ED-302	Educational Psychology	3
ED-303	Research Methods in Education	3
Subtotal		**18**
2nd Semester		
UR-205	Functional Arabic II	3
UR-206	Islamic Studies II	3
ED-304	Curriculum Development	3
ED-305	Educational Measurement and Evaluation	3
ED-306	Counselling and Guidance in Schools	3
ED-307	Methods of Teaching	3
Subtotal		**18**
3rd Semester		
UR-209	Arabic III	3
ED-308	School Organization and Management	3
ED-309	Economics of Education	3
Choose any two of the following:		
ED-310	Teachers' Education	3
ED-311	Functional English	3
ED-312	Higher Education	3
ED-313	Secondary Education	3
ED-326	Moral and Ethical Dimensions in Education	3
ED-327	Education in Pakistan	3
Subtotal		**15**

DURATION:	2 YEARS	
ENTRY REQUIREMENT:	BACHELOR'S (PASS) DEGREE WITH AT LEAST 50% MARKS, OR GPA 2.0 OUT OF 4.0	
No.	**Course**	**Credits**
4th Semester		
Choose any two from ED-314–321, and -328:		
ED-314	Islamic Studies and Its Teaching	3
ED-315	Arabic and Its Teaching	3
ED-316	English and Its Teaching	3
ED-317	General Science and Its Teaching	3
ED-318	Biology and Its Teaching	3
ED-319	Chemistry and Its Teaching	3
ED-320	Physics and Its Teaching	3
ED-321	Mathematics and Its Teaching	3
ED-328	Pakistan Studies and Its Teaching	3
ED-322	Teaching Practice	6
Choose Dissertation or ED-324 and ED-325		
ED-323	Dissertation	6
ED-324	Advance Course on Educational Research and Statistics	3
ED-325	Educational Planning and Management	3
Subtotal		**21**
TOTAL		72

Appendix U—Sample Documents

U.1 Secondary School Certificate (SSC) and Higher Secondary Certificate (HSC)

EXHIBIT 1. SECONDARY SCHOOL CERTIFICATE, BOARD OF SECONDARY EDUCATION, KARACHI, 1994



Sl. No. 1024545

Board of Secondary Education, Karachi

Roll No. [redacted]

Secondary School Certificate Examination, 1994

SCIENCE GROUP

Certified that [redacted]

Son/Daughter of

whose date of birth is TWENTY-SEVENTH DAY OF JUNE one thousand nine hundred SEVENTY EIGHT has duly passed the Secondary School Certificate Examination held in the month of MAY 1994 as A REGULAR Candidate in the subjects mentioned below and has been placed in

GRADE B

COMPONENT I

SINDHI SALEES
URDU
ENGLISH
PAKISTAN STUDIES
ISLAMIAT

COMPONENT II

MATHEMATICS
BIOLOGY
PHYSICS
CHEMISTRY

COMPONENT III

He/She offered XXXXXXXXXX

as Vocational Subject and has been awarded grade XX

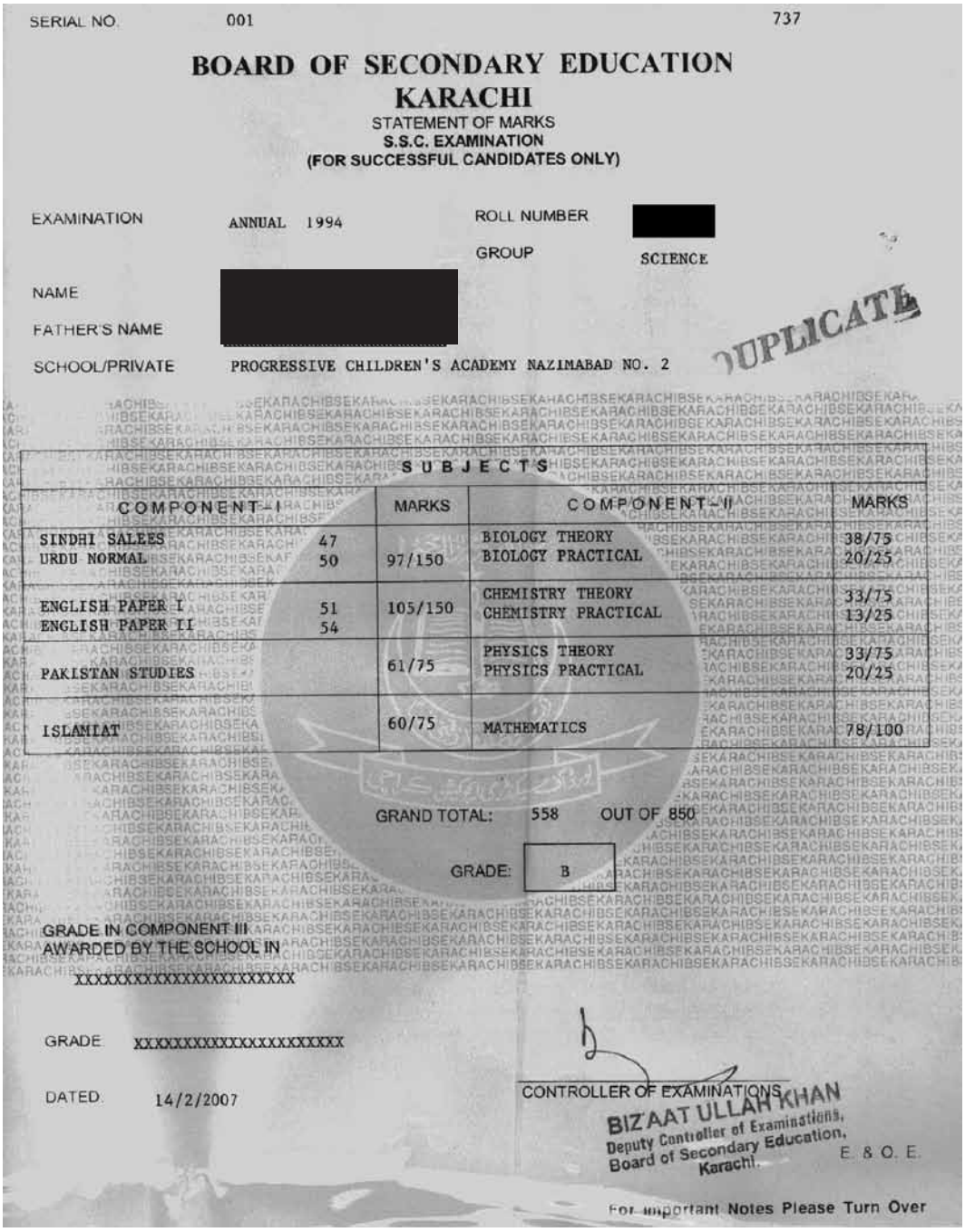
by his/her Institution on the basis of Internal Assessment

DATED 01-02-1995

DR. ALTAF ALI G. SHAIKH
SECRETARY

Note: This certificate is issued without alteration or erasure. Please also see on the reverse.

EXHIBIT 2. SECONDARY SCHOOL STATEMENT OF MARKS, BOARD OF SECONDARY EDUCATION, KARACHI, 1994



SERIAL NO. 001 737

BOARD OF SECONDARY EDUCATION
KARACHI
STATEMENT OF MARKS
S.S.C. EXAMINATION
(FOR SUCCESSFUL CANDIDATES ONLY)

EXAMINATION ANNUAL 1994 ROLL NUMBER [redacted]
GROUP SCIENCE

NAME [redacted]
FATHER'S NAME
SCHOOL/PRIVATE PROGRESSIVE CHILDREN'S ACADEMY NAZIMABAD NO. 2

DUPLICATE

SUBJECTS				
COMPONENT-I		MARKS	COMPONENT-II	MARKS
SINDHI SALEES URDU NORMAL	47 50	97/150	BIOLOGY THEORY BIOLOGY PRACTICAL	38/75 20/25
ENGLISH PAPER I ENGLISH PAPER II	51 54	105/150	CHEMISTRY THEORY CHEMISTRY PRACTICAL	33/75 13/25
PAKISTAN STUDIES		61/75	PHYSICS THEORY PHYSICS PRACTICAL	33/75 20/25
ISLAMIAT		60/75	MATHEMATICS	78/100

GRAND TOTAL: 558 OUT OF 850

GRADE: B

GRADE IN COMPONENT II AWARDED BY THE SCHOOL IN
XXXXXXXXXXXXXXXXXXXXXX

GRADE XXXXXXXXXXXXXXXXXXXXX

DATED 14/2/2007

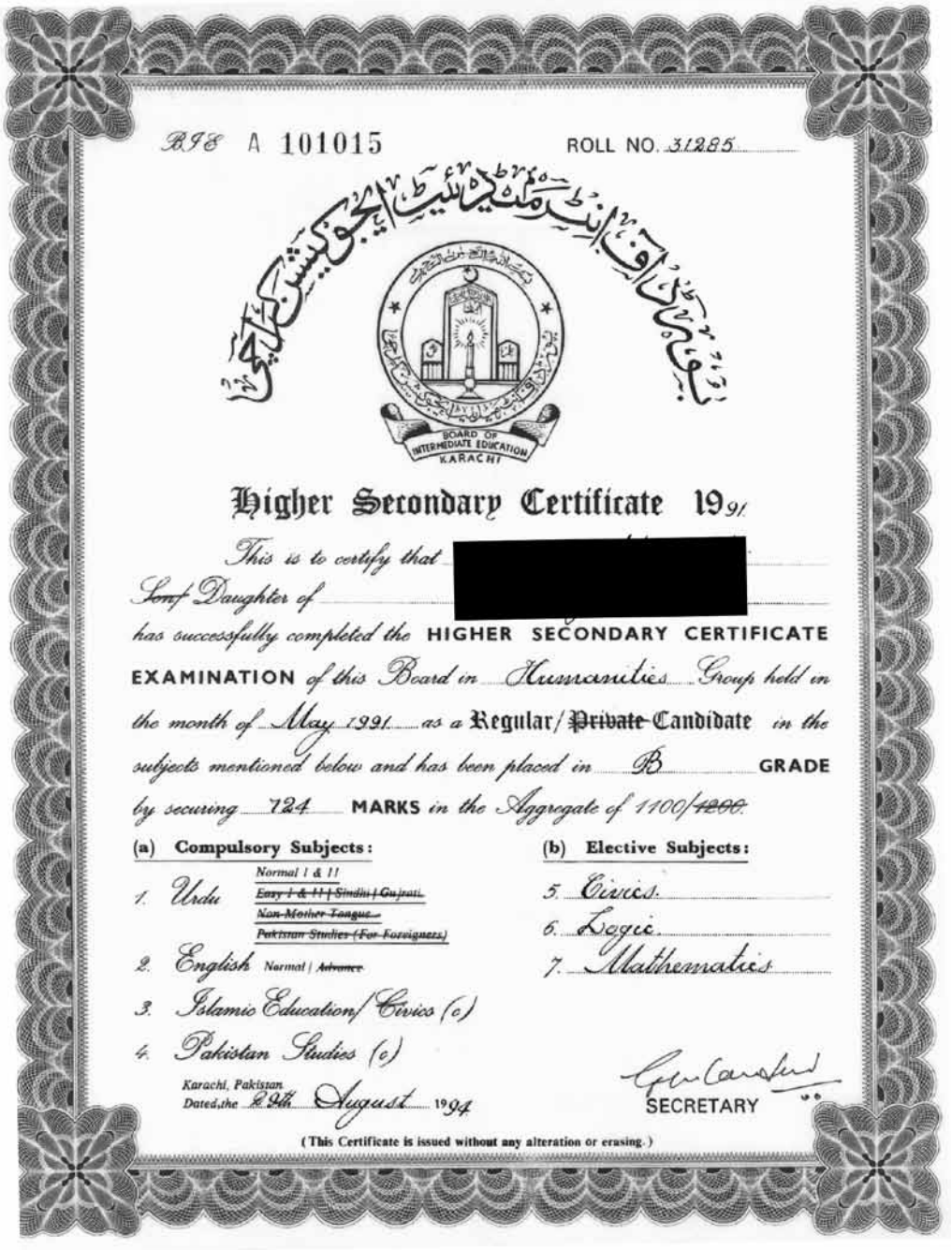
CONTROLLER OF EXAMINATIONS

BIZAAT ULLAH KHAN
Deputy Controller of Examinations,
Board of Secondary Education,
Karachi.

E. & O. E.

For important Notes Please Turn Over

EXHIBIT 3. HIGHER SECONDARY CERTIFICATE, BOARD OF INTERMEDIATE EDUCATION, KARACHI, 1991



BIE A 101015 ROLL NO. 31285

BOARD OF INTERMEDIATE EDUCATION KARACHI

Higher Secondary Certificate 1991

This is to certify that [redacted]
Son/Daughter of
has successfully completed the HIGHER SECONDARY CERTIFICATE EXAMINATION of this Board in Humanities Group held in the month of May 1991 as a Regular/~~Private~~ Candidate in the subjects mentioned below and has been placed in B GRADE by securing 724 MARKS in the Aggregate of 1100/~~1200~~.

(a) Compulsory Subjects:	(b) Elective Subjects:
1. Urdu — Normal I & II / ~~Easy I & II / Sindhi / Gujrati. Non-Mother Tongue. Pakistan Studies (For Foreigners)~~	5. Civics
2. English — Normal / ~~Advance~~	6. Logic
3. Islamic Education/ Civics (c)	7. Mathematics
4. Pakistan Studies (c)	

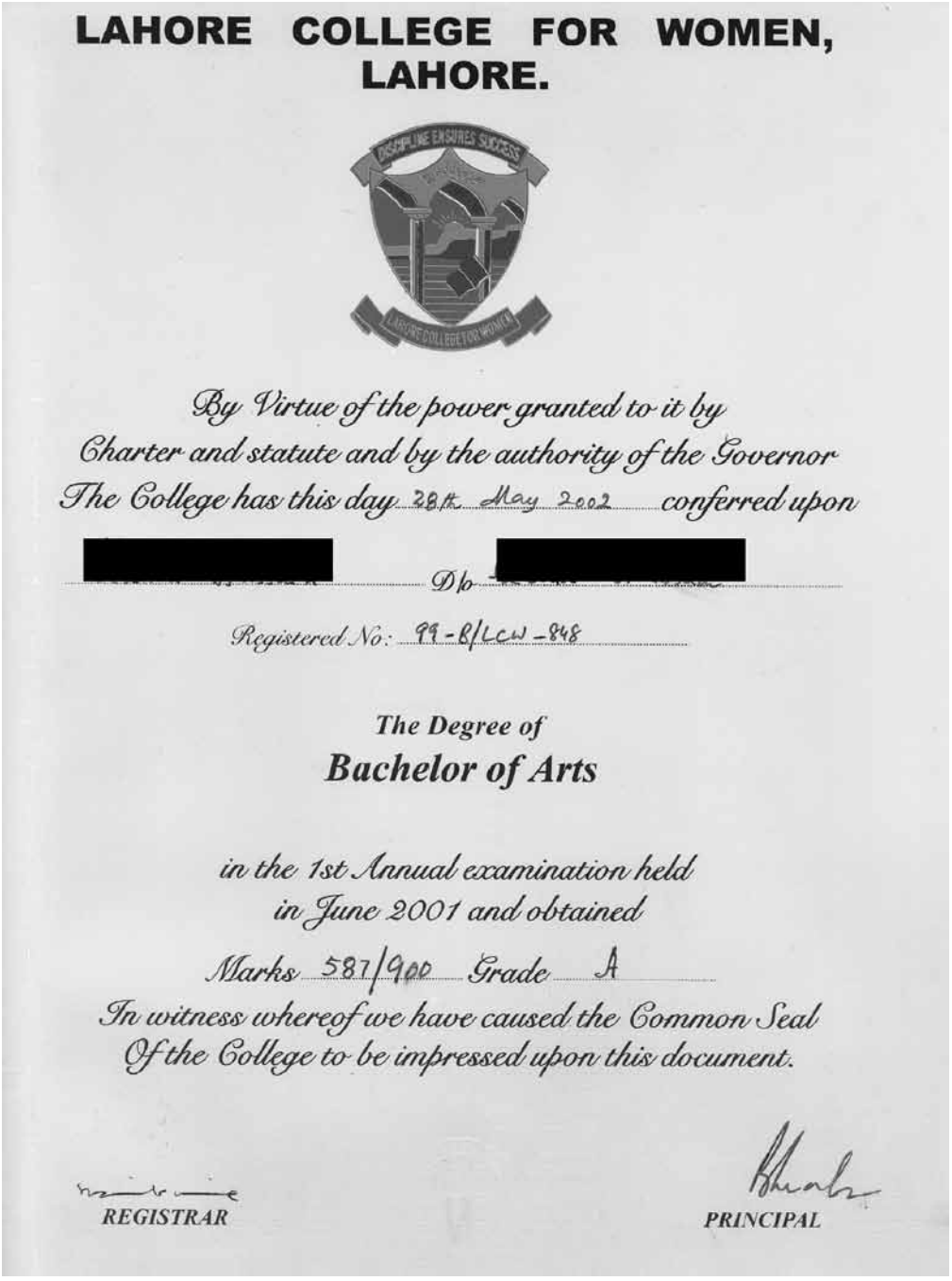
Karachi, Pakistan
Dated, the 29th August 1994

SECRETARY

(This Certificate is issued without any alteration or erasing.)

U.2 Bachelor of Arts

EXHIBIT 4. BACHELOR OF ARTS DEGREE, LAHORE COLLEGE FOR WOMEN, 2002



LAHORE COLLEGE FOR WOMEN, LAHORE.

By Virtue of the power granted to it by
Charter and statute and by the authority of the Governor
The College has this day 28th May 2002 conferred upon

[redacted] D/o [redacted]

Registered No: 99-B/LCW-848

The Degree of
Bachelor of Arts

in the 1st Annual examination held
in June 2001 and obtained
Marks 587/900 *Grade* A
In witness whereof we have caused the Common Seal
Of the College to be impressed upon this document.

REGISTRAR *PRINCIPAL*

EXHIBIT 5. BACHELOR OF ARTS MARKS SHEET, LAHORE COLLEGE FOR WOMEN, 2002

Sr. No.: 603

LAHORE COLLEGE FOR WOMEN, LAHORE
(A Degree Awarding Institution)

PROVISIONAL RESULT INTIMATION
B.A. / B.Sc. Final Examination 2001.

Regd. No.: 99-B / LCW – 0848 **Roll No.:** 643

Name : [redacted]

Father's Name:

Candidate mentioned above is hereby informed that she has passed the B.A. / B.Sc. Final Examination, 2000 held in June / July in 1st Division obtaining 587 /900 marks. She has secured the marks as detailed below.

Paper	External Exam. Marks Obtained	Internal Exam. Marks Obtained	Final Assessment Marks Obtained	Remarks
Isl. Edu. & Pak. Studies (100)	70	73	72	
English (200)	130	121	125	pass
Fine Arts (200)	124	136	130	
Islamiat (200)	141	123	132	
Psychology (200)	125	131	128	
Grand Total (900)	590	584	587	

Note: This result intimation issued as a notice only. Errors and omissions excepted. Any entry appearing in it does not confer any right or privilege granted under the regulations in due course.

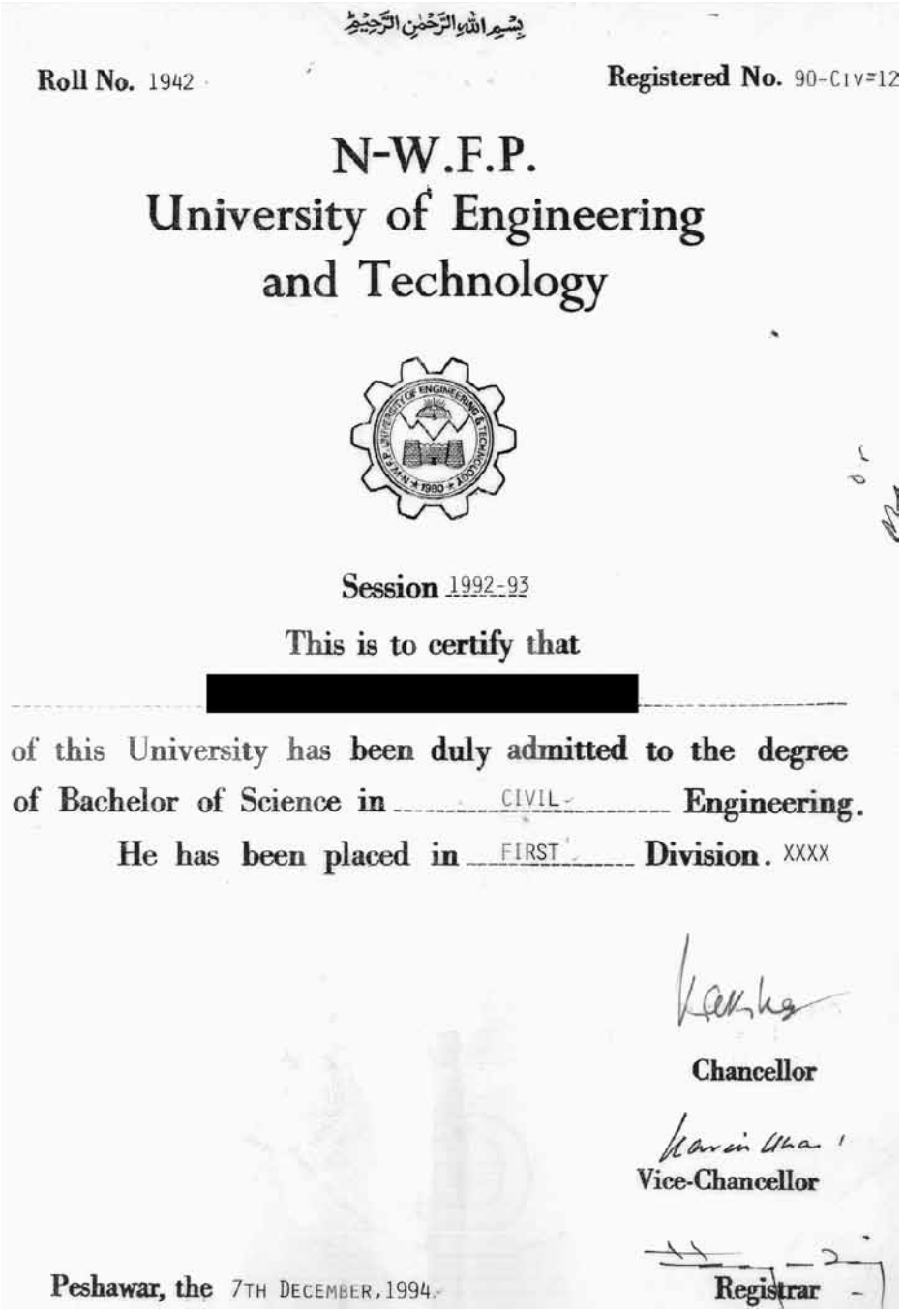
Dated: 25 · 8 · 01

Controller of Examinations

Principal

U.3 Bachelor of Science in Engineering and Certificate of Registration with Pakistan Engineering Council

EXHIBIT 6. BACHELOR OF SCIENCE IN CIVIL ENGINEERING DEGREE, NWFP UNIVERSITY OF ENGINEERING AND TECHNOLOGY, 1994



بِسْمِ اللّٰهِ الرَّحْمٰنِ الرَّحِيْمِ

Roll No. 1942 **Registered No.** 90-Civ=12

N-W.F.P.
University of Engineering and Technology

Session 1992-93

This is to certify that

[redacted]

of this University has been duly admitted to the degree of Bachelor of Science in CIVIL Engineering.

He has been placed in FIRST Division. XXXX

Chancellor

Vice-Chancellor

Peshawar, the 7TH DECEMBER, 1994. **Registrar**

EXHIBIT 7. BACHELOR OF SCIENCE IN CIVIL ENGINEERING MARKS CERTIFICATE (1), NWFP UNIVERSITY OF ENGINEERING AND TECHNOLOGY, 1994

Serial No. 7232

N-W.F.P. University of Engineering & Technology

PESHAWAR (PAKISTAN)

DETAILED MARKS CERTIFICATE

Passed / ~~Reappear~~

FIRST YEAR Civil : ENGINEERING EXAMINATION, 19 90 Annual/~~Supply~~

[redacted] Roll No 150

has secured the following marks:—

SUBJECTS	Total No. of Marks allotted	MARKS OBTAINED	
		In figure	In words
1. Mathematics	150	107	One hundred & seven only
2. Applied Mechanics	150	85	Eighty five only
3. Physics	150	63	Sixty three only
4. Engineering Materials	150	99	Ninety nine only
5. Engineering Drawing & Graphics	150	84	Eighty four only
6. ~~Computer Programming~~ Strength of Materials	~~100~~ 150	97	Ninety seven only
7. Workshop Practice	50	29	Twenty nine only
8. Islamiyat & Pakistan Studies	100	54	Fifty four only
9. Electrical Technology	150	95	Ninety five only
Total:—	~~1150~~ 1200	713	Seven hundred & thirteen.

The Examination was taken as a whole/~~in parts~~

Dated 14-12-1994.

Controller of Examinations,
N-W. F. P. University of
Engineering & Technology

EXHIBIT 8. BACHELOR OF SCIENCE IN CIVIL ENGINEERING MARKS CERTIFICATE (2), NWFP UNIVERSITY OF ENGINEERING AND TECHNOLOGY, 1994

Serial No. 1708

N-W.F.P. University of Engineering & Technology
PESHAWAR (PAKISTAN)

DETAILED MARKS CERTIFICATE
Passed / ~~Reappear~~

SECOND YEAR CIVIL ENGINEERING EXAMINATION, 1993 (Annual/~~Supply~~)

.... [redacted] ..... Roll No. 678 .....
has secured the following marks :—

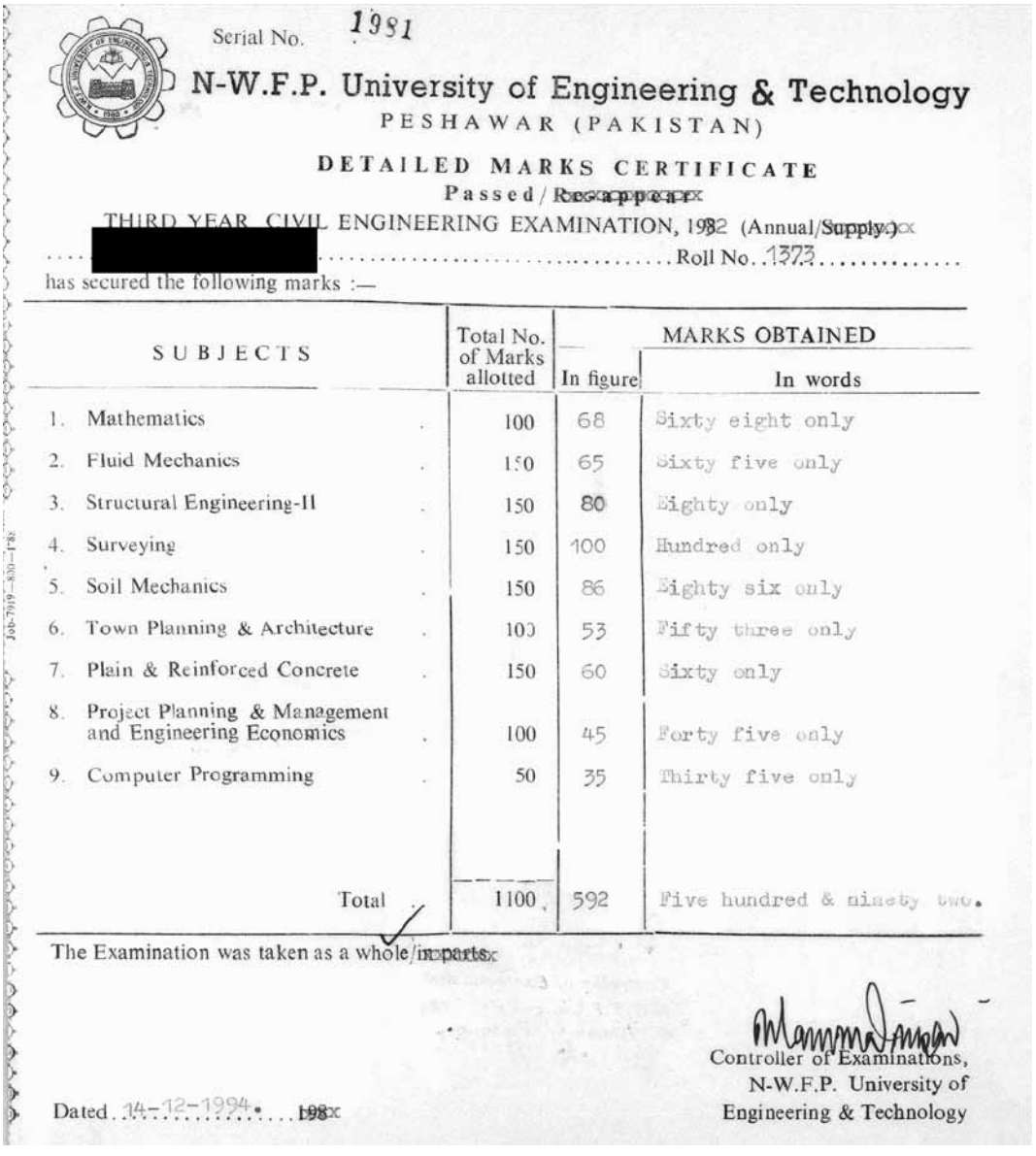
SUBJECTS	Total No. of Marks allotted	MARKS OBTAINED	
		In figure	In words
1. Mathematics ..	150	106	One hundred & six only
2. Mechanical Technology ..	150	84	Eighty four only
3. Fluid Mechanics-I ..	150	70	Seventy only
4. Surveying-I ..	150	100	Hundred only
5. Strength of Materials-II ..	150	95	Ninety five only
6. Engineering Geology ..	150	68	Sixty eight only
7. Building Drawing & Construction ..	150	65	Sixty five only
8. Structural Engineering-II ..	150	90	Ninety only
Total ..	1200	678	Six hundred & seventy eight.

The Examination was taken ~~as a whole~~ in parts.

Controller of Examinations,
N-W.F.P. University of
Engineering & Technology

Dated 14-12-1994 ~~198~~

EXHIBIT 9. BACHELOR OF SCIENCE IN CIVIL ENGINEERING MARKS CERTIFICATE (3), NWFP UNIVERSITY OF ENGINEERING AND TECHNOLOGY, 1994



Serial No. 1981

N-W.F.P. University of Engineering & Technology

PESHAWAR (PAKISTAN)

DETAILED MARKS CERTIFICATE

Passed / ~~Re-appeared~~

THIRD YEAR CIVIL ENGINEERING EXAMINATION, 1992 (Annual/~~Supply~~)

[redacted] Roll No. 1373

has secured the following marks :—

SUBJECTS	Total No. of Marks allotted	MARKS OBTAINED	
		In figure	In words
1. Mathematics	100	68	Sixty eight only
2. Fluid Mechanics	150	65	Sixty five only
3. Structural Engineering-II	150	80	Eighty only
4. Surveying	150	100	Hundred only
5. Soil Mechanics	150	86	Eighty six only
6. Town Planning & Architecture	100	53	Fifty three only
7. Plain & Reinforced Concrete	150	60	Sixty only
8. Project Planning & Management and Engineering Economics	100	45	Forty five only
9. Computer Programming	50	35	Thirty five only
Total	1100	592	Five hundred & ninety two.

The Examination was taken as a whole/~~in parts~~.

Controller of Examinations,
N-W.F.P. University of
Engineering & Technology

Dated 14-12-1994 ~~19~~

EXHIBIT 10. BACHELOR OF SCIENCE IN CIVIL ENGINEERING MARKS CERTIFICATE (4), NWFP UNIVERSITY OF ENGINEERING AND TECHNOLOGY, 1994

Serial No. 3033

N-W.F.P. University of Engineering & Technology
PESHAWAR (PAKISTAN)

DETAILED MARKS CERTIFICATE
Passed / ~~Reappear~~

FINAL YEAR CIVIL ENGINEERING EXAMINATION, 1993 (Annual/~~Supply~~)

..... [redacted] ..... Roll No. 1942 .....

has secured the following marks and has been placed in ....FIRST.... Division. ~~XXXX~~

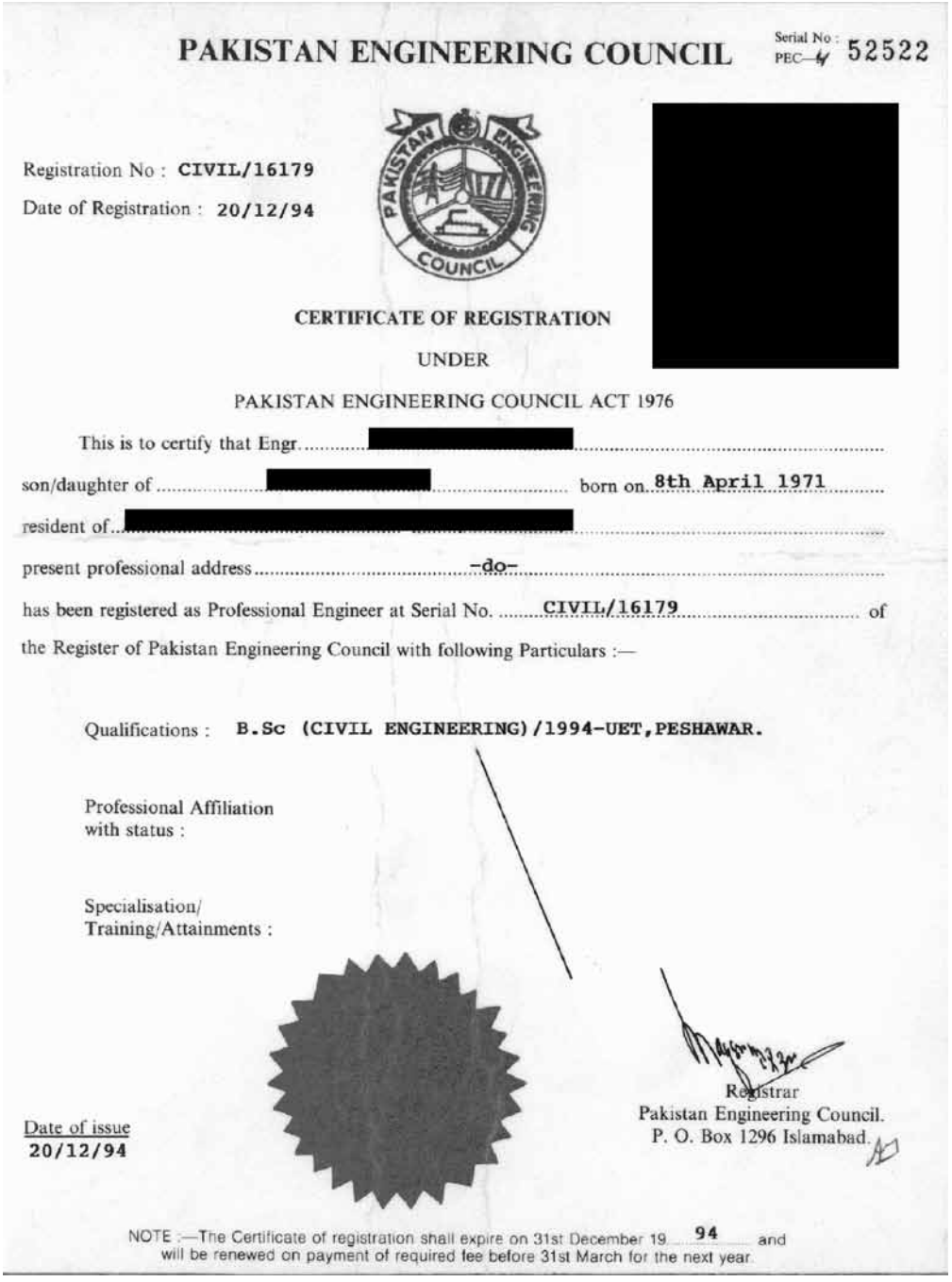
SUBJECTS	Total No. of Marks allotted	MARKS OBTAINED	
		In figure	In words
1. Irrigation Engineering ..	150	86	Eighty six only
2. Public Health Engineering ..	150 ~~100~~	96	Ninety six only
3. Soil Mechanics & Foundation Engineering ..	150	71	Seventy one only
4. Structural Engineering-III ..	150	101	One hundred & one only
5. Hydrology & Fluid Mechanics ..	150	75	Seventy five only
6. Introduction to Structures and Design of Selective Topics ..	150	69	Sixty nine only
7. Transportation Engineering: —			
A — Transport Engineering and Highways ..	125	66	Sixty six only
B — Air-Port Engineering and Railways ..	75	46	Forty six only
8. Project ..	150	140	One hundred & forty only
Total ..	~~1200~~ 1250	750	Seven hundred & fifty only.

The Examination was taken as a whole/~~in parts~~.

Controller of Examinations,
N-W.F.P. University of
Engineering & Technology

Dated ..07-12-1994.... ~~198~~

EXHIBIT 11. CERTIFICATE OF REGISTRATION, PAKISTAN ENGINEERING COUNCIL, 1994



PAKISTAN ENGINEERING COUNCIL

Serial No : PEC— 52522

Registration No : CIVIL/16179

Date of Registration : 20/12/94

[redacted]

CERTIFICATE OF REGISTRATION

UNDER

PAKISTAN ENGINEERING COUNCIL ACT 1976

This is to certify that Engr. [redacted]

son/daughter of [redacted] born on 8th April 1971

resident of [redacted]

present professional address -do-

has been registered as Professional Engineer at Serial No. CIVIL/16179 of the Register of Pakistan Engineering Council with following Particulars :—

Qualifications : B.Sc (CIVIL ENGINEERING)/1994-UET,PESHAWAR.

Professional Affiliation with status :

Specialisation/ Training/Attainments :

Registrar
Pakistan Engineering Council.
P. O. Box 1296 Islamabad.

Date of issue
20/12/94

NOTE :—The Certificate of registration shall expire on 31st December 19 94 and will be renewed on payment of required fee before 31st March for the next year.

U.4 Master of Arts and Master of Science (Honours)

EXHIBIT 12. MASTER OF ARTS DEGREE, UNIVERSITY OF PESHAWAR, 2005

بسم الله الرحمن الرحيم

University of Peshawar

(Pakistan)

Session ANNUAL 1999

[redacted] Son of [redacted] and a student of DISTRICT PESHAWAR having passed the prescribed examination held in JANUARY 2000 is this day admitted by the University of Peshawar to the Degree of

Master of Arts

in SECOND Division

The Subject of Examination being ECONOMICS

The Examination was taken as a whole /~~in parts~~

Registrar

Serial No 047399

Countersigned

Vice-Chancellor

Registration No. 91-FP-629

Roll No. 20352

Result declared on 24TH FEB, 2005

EXHIBIT 13. MASTER OF ARTS MARKS CERTIFICATE, UNIVERSITY OF PESHAWAR, 2005

UNIVERSITY OF PESHAWAR
(Pakistan)

Detailed Marks Certificate
Master of Arts (FINAL)
in Economics, Annual Examination, 1999
Private Candidate from Pesh-Cantt
Required: Pass Percentage - 40, Aggregate Pass Percentage - 45

Name: [redacted] **Gender:** *Male* **Roll No.** 20352
Father's Name: [redacted] **Reg. No.** *91-FP-629*

Papers	Maximum Marks	Marks Obtained	
		In figures	In Words
Econometrics (VI)	100	40	Forty only
Developmental Economics (VII)	.....	.....	.....
Monetary Economics (VIII)	.....	.....	.....
Public Finance and Fiscal Policy (IX)	100	56	Fifty Six
International Economics (X)	.....	.....	.....
Agricultural Economics (XI)	.....	.....	.....
Industrial Economics (XII)	.....	.....	.....
Economy of Pakistan (XIV)	100	64	Sixty Four
Economic System of Islam (XV)	.....	.....	.....
History of Economic Analysis (XVI)	.....	.....	.....
Labour Economics (XVII)	.....	.....	.....
Research Methodology (XIX)	100	42	Forty Two
Comparative Economic System (XX)	.....	.....	.....
Computer Science (XXII)	.....	.....	.....
Economic Analysis of Project Planning (XXIV)	100	68	Sixty Eight
Viva Voce	100	41	Forty One
Marks in M.A. Previous	500	286	Two Hundred and Eighty Six
Errors and omissions are subject to subsequent rectification — **Total:**	**1100**	**597**	**Five Hundred and Ninety Seven**

Examination passed *as a Whole* **in** *Second* **division.**

Dated: 24/02/05 at 11:54:15

Controller of Examinations
University of Peshawar

No 012375

EXHIBIT 14. MASTER OF SCIENCE (HONOURS) DEGREE, UNIVERSITY OF AGRICULTURE, FAISALABAD, 1999

Serial No. 443

بسم الله الرحمن الرحيم

Registration No. 92-ag-1396

University of Agriculture Faisalabad

In recognition of the fulfilment of prescribed requirements

Awards

[redacted]

the degree of

Master of Science (Honours)

with all the privileges and obligations

In the year 1999

Subject
Food Technology

Faculty
Agricultural Engineering & Technology

Faisalabad, the 29th May, 2000

M Jaffar
Chancellor

Vice-Chancellor

Zafar Iqbal
Controller of Examinations

EXHIBIT 15. MASTER OF SCIENCE (HONOURS) PROVISIONAL CERTIFICATE, UNIVERSITY OF AGRICULTURE, FAISALABAD, 1999

DEGREE 1999
-443-

Book No. 90

Regd. No. 92-ag-1396

No. 76

UNIVERSITY OF AGRICULTURE, FAISALABAD

PROVISIONAL CERTIFICATE

No. C E. 376 Dated 4-3-2000

Certified that [redacted]

Son of [redacted]

Passed the M.Sc.(Hons)Food Technology-Faculty of Agrl Engineering & Technology. 1999 Examination of the University of Agriculture, Faisalabad held during February, 2000 xxxxxxxxxx Securing CGPA. 3.63

Result Notified Vide No.
C.E. 620/M.Sc.99 Dated 15-2-2000

Controller of Examinations,
University of Agriculture,
Faisalabad. 4-3-2000

EXHIBIT 16. MASTER OF SCIENCE (HONOURS) TRANSCRIPT, UNIVERSITY OF AGRICULTURE, FAISALABAD, 1999

No. CB/ 459 Dated: 5-4-2000

UNIVERSITY OF AGRICULTURE, FAISALABAD 1975

OFFICIAL TRANSCRIPT OF RECORD

Name [redacted] Father's Name [redacted]

Regd. No. 92-ag-1396 Date of Birth 23-7-1976 Date of joining the University 1992

Degree: **M.SC. (HONOURS) FOOD TECHNOLOGY – FACULTY OF AGRICULTURAL ENGINEERING AND TECHNOLOGY.**

Result notified vide No. C.E.. 620/M.Sc.99 Dated 15-2-2000

Course No.	TITLE OF COURSE		Credit Hours	Max. Marks	Marks Obtained	Grade	Quality Points	Remarks
	WINTER SEMESTER 1996-97							
FT-715	Commercial Manufacturing of Cereal Products	(Major)	4(3-2)	80	57	B	13.60	
AN-707	Analytical Techniques in Nutrition.	(Minor)	4(0-8)	80	68	A	16.00	
STAT-701	Experimental Statistics	(Minor)	3(3-0)	60	42	B	9.90	
HE-702	Practices of Human Nutrition.	(Minor)	4(4-0)	80	58	B	14.00	
	SPRING SEMESTER 1997							
FT-706	Food Additives, Enrichment and Fortification.	(Major)	3(3-0)	60	48	A	12.00	
FT-716	Starch Derivatives and Flour confectionery	(Major)	4(3-2)	80	58	B	14.00	
FT-718	Processing technology of Milk Products-I	(Major)	4(3-2)	80	52	B	12.00	
FT-719	Special Problem	(Major)	1(1-0)	20	20	A	4.00	
BIOCHEM- 701	Introduction to Biochemistry	(Deficiency)	3(3-0)	60	33	P	Pass.	
	WINTER SEMESTER 1997-98							
FT-731	Quality Control in Food Industries.	(Major)	4(3-2)	80	61	B	14.80	
FT-714	Modern Milling Technology of Cereal	(Major)	3(2-2)	60	40	B	9.30	
FT-720	Seminar	(Major)	1(1-0)	20	20	A	4.00	
CS-715	Software Applications I	(Audit)	3(2-2)		**AUDITED**			
	SPRING SEMESTER 1998							
	RESEARCH:		**10**	**200**	**175**	**A**	**40.00**	
	THESIS TITLE: **"PHYSIO-CHEMICAL CHARACTERISTICS AND SENSORY EVALUATION PIZZA MADE FROM WHEAT AND SOY FLOUR BLENDS."**							

NOTE:- This Transcript is valid when signed and stamped by the Controller of Examinations, University of Agriculture, Faisalabad (Pakistan

Total Marks 699/900

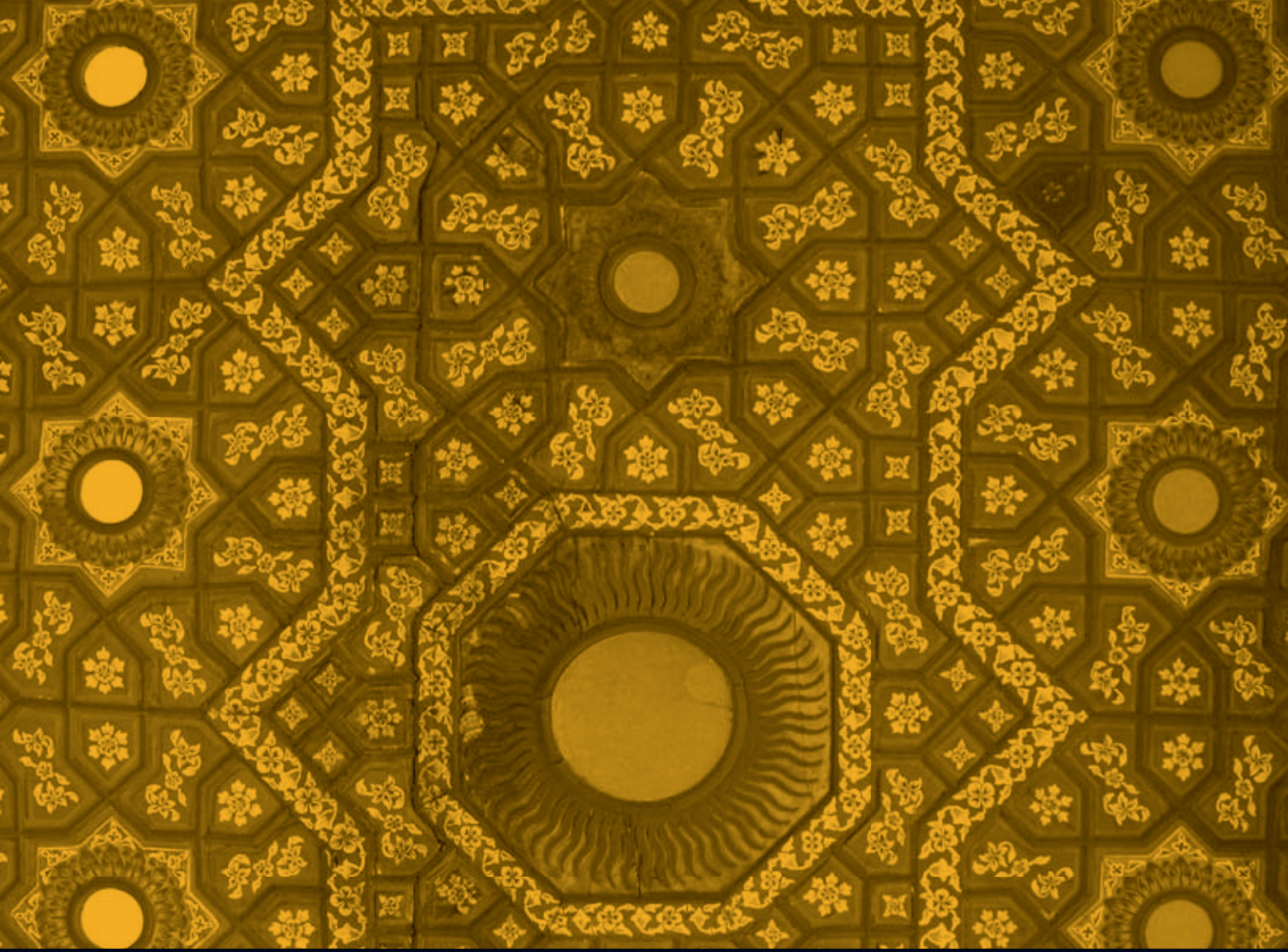
Aggregate marks% 77-66

Cumulative Grade Point Average 3-63

Prepared by [signature]

Checked by [signature] Date Issued 5/4/2000

Controller of Examinations,
University of Agriculture,
FAISALABAD.



Government of Alberta, International Qualifications Assessment Service (IQAS)
ISBN 978-0-7785-5895-8

PRINTED IN CANADA • FEBRUARY 2011
Revised - December 2016

Government of Alberta
Canada

ISBN 978-0-7785-5895-8
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