

International Education Guide

FOR THE ASSESSMENT
OF EDUCATION FROM THE ISLAMIC REPUBLIC OF PAKISTAN



I Q A S

INTERNATIONAL QUALIFICATIONS ASSESSMENT SERVICE

Government of Alberta ■
Canada 🇨🇦

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OF EDUCATION FROM THE ISLAMIC REPUBLIC OF PAKISTAN



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INTERNATIONAL QUALIFICATIONS ASSESSMENT SERVICE

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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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

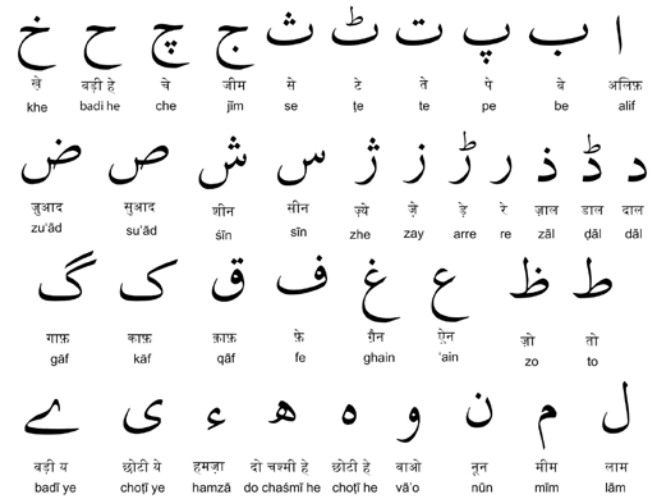


TABLE 1. URDU NUMBERS, 1 THROUGH 10

| 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 Ghazni 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

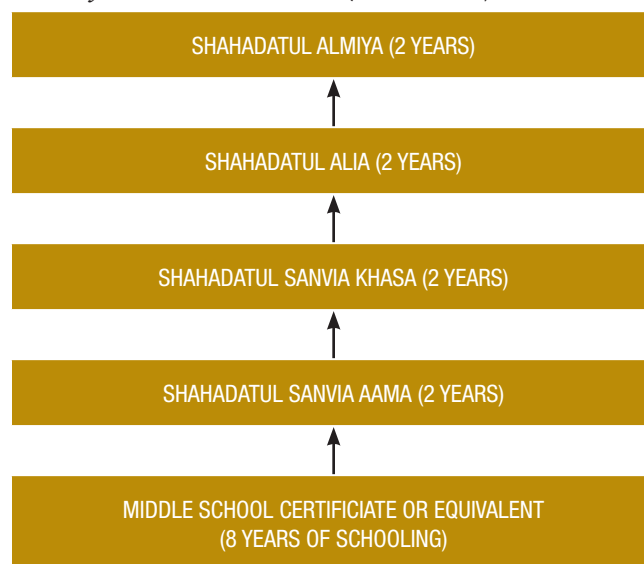
independence in 1947, there were only about a hundred madrassas in Pakistan. Since the late 1970s the system has expanded rapidly. The deteriorating infrastructure and falling standards at government-funded schools and their failure to provide an education that is considered relevant to the everyday 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 madrasa 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

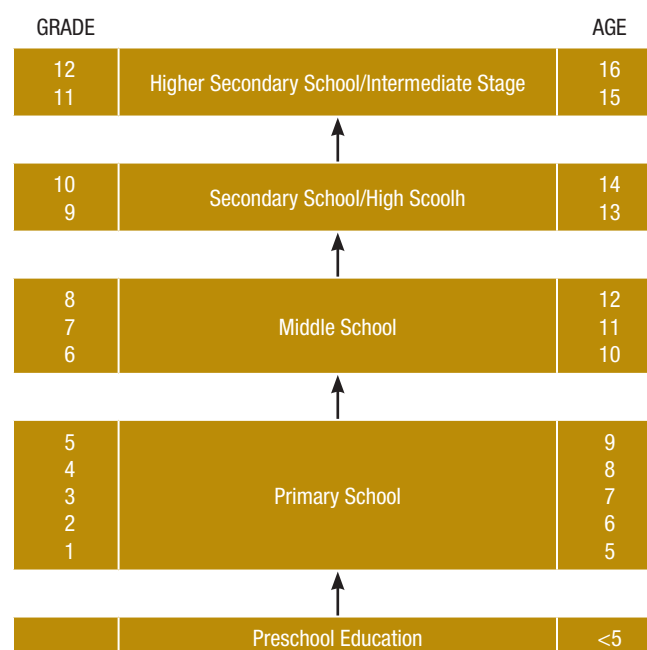
OVERVIEW

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.

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)

NEP

1972

1979

1992

1998

Curriculum Reform

1973-1976

1982-1985

1992-1995 (“1995 curriculum”)

1998-2002 (“2000 curriculum”)

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 Karakorum 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. |
| 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
- + Islamiyat (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 | | 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) | 100 50 | | 100 50 | 6 3 |
| Al-Fiqah (Islamic Jurisprudence) | 50 | | 50 | 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

| SUBJECT | PART I (GRADE 9) | PART II (GRADE 10) | |
|-----------------------|---------------------|-----------------------|-----------|
| | 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)

| SUBJECT | PART I (GRADE 9) | | PART II (GRADE 10) | |
|-----------------------|---------------------|-----------|-----------------------|-----------|
| | 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 | <ol style="list-style-type: none"> 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: <ol style="list-style-type: none"> 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 | <ol style="list-style-type: none"> 1. Principles of Accounting 2. Principles of Economics 3. Principles of Commerce 4. Business Mathematics | 100 75 75 50 |
| | Grade 12 | <ol style="list-style-type: none"> 1. Principles of Accounting 2. Commercial Geography 3. Computer Studies, Typing or Banking 4. Statistics | 100 75 75 50 |
| Medical Technology | <ol style="list-style-type: none"> 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 Islamiyat 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.

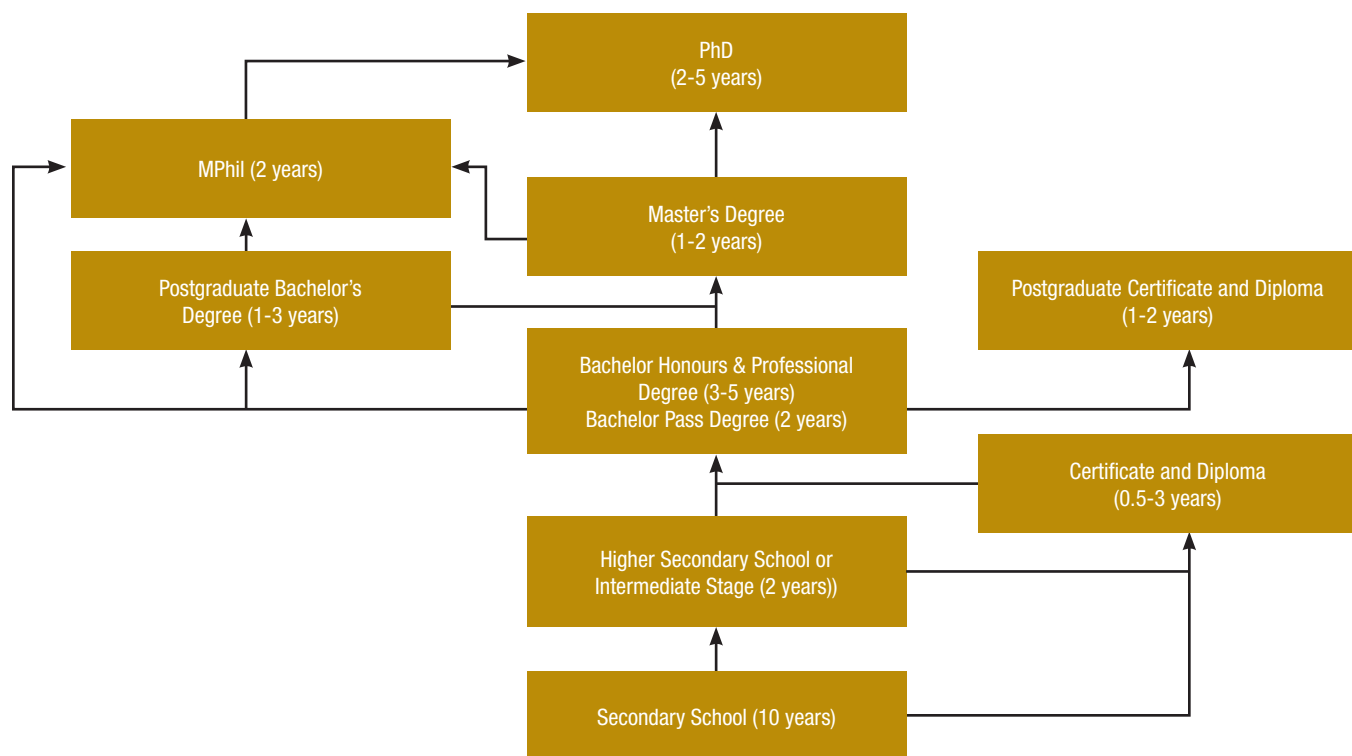


TABLE 20. ACADEMIC CALENDAR 2007–08, BAHAUDDIN ZAKARIYA UNIVERSITY, MULTAN (PUBLIC)

| 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

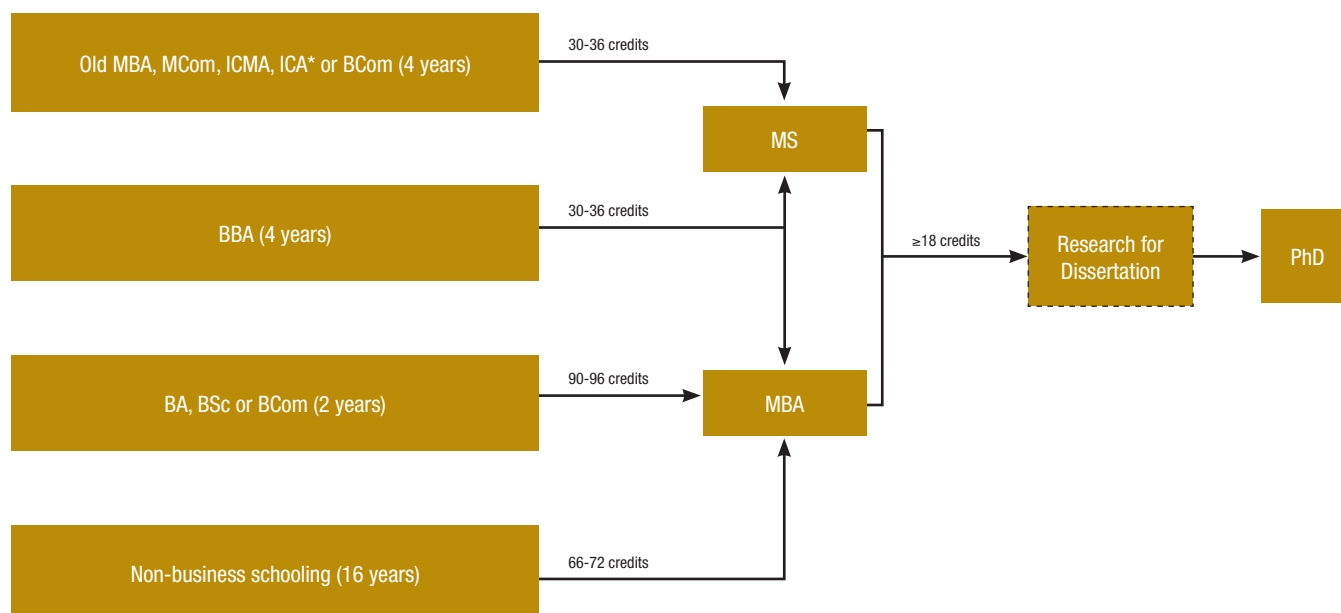
Business and management education is offered at various levels of higher education, including certificates and diplomas, bachelor's degree, master's degree, and PhD levels. The four-year **Bachelor of Business Administration (BBA)** program is replacing the traditional two-year BBA (pass) degree and 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 | Neonatal Pediatrics |
| Cardiology | Neurology |
| Cardiac Surgery | Nuclear Medicine |
| Chemical Pathology | Obstetrics and Gynecology |
| Clinical Pharmacology | Ophthalmology |
| Community Medicine | Orthopedic Surgery |
| Dentistry | Otorhinolaryngology (ENT) |
| Dermatology | Pediatric Cardiology |
| Diagnostic Radiology | Pediatrics |
| Family Medicine | Pediatric Surgery |
| Forensic Medicine | Physical Medicine and Rehabilitation |
| Gastroenterology | Physiology |
| Anatomy | Plastic Surgery |
| Biochemistry | Psychiatry |
| Hematology | Pulmonology |
| Histopathology | Radiotherapy |
| Immunology | Surgery |
| Intensive Care Medicine | Thoracic Surgery |
| Medical Oncology | Urology |
| Medicine Microbiology | Virology |
| Nephrology | |
| Neurosurgery | |

Examples of DCPS specialities

| | |
|---------------------------|----------------------------|
| Anesthesiology | Ophthalmology |
| Clinical Pathology | Oral Surgery |
| Community Medicine | Otorhinolaryngology (ENT) |
| Dermatology | Orthodontics |
| Diagnostic Radiology | Pediatrics |
| Family Dentistry | Periodontology |
| Family Medicine | Prosthodontics |
| Obstetrics and Gynecology | Psychiatry |
| Operative Dentistry | 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 enrolls 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 monotechs 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 monotechs 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 | <ol style="list-style-type: none"> 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 | <ol style="list-style-type: none"> 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 | <ol style="list-style-type: none"> 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.

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 |
|---|--|-----------------------|
| <ul style="list-style-type: none"> • Secondary School Certificate • Matriculation Certificate | Boards of Intermediate and Secondary Education | 2 years after Grade 8 |
| <ul style="list-style-type: none"> • Secondary School Certificate – Technical • Matriculation Certificate – Technical | Boards of Technical Education | |
| <ul style="list-style-type: none"> • 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.

REFERENCES

PRINT RESOURCES

- Government of Pakistan, Ministry of Education. (2008). *National education policy* (draft). Islamabad, Pakistan: Author.
- Government of Pakistan, Ministry of Education. (2004). *Education sector reforms action plan 2001–02 – 2005–06*. Islamabad, Pakistan: Author.
- International Educational Research Foundation. (2004). *New country index*. Berkeley, CA: Ten Speed Press.
- Isani, U. A. (2001). *Higher education in Pakistan: A historical-futuristic perspective*. Unpublished doctoral dissertation, National University of Modern Languages, Islamabad.
- Shah, I. H. (2004). *Problems and prospects of technical education in Pakistan*. Unpublished doctoral dissertation, University of Arid Agriculture, Rawalpindi.
- Sweeney, L. J. (1977). *Islamic Republic of Pakistan—A study of the educational system of Pakistan and a guide to the academic placement of students from Pakistan in educational institutions of the United States*. Washington, DC: American Association of Collegiate Registrars and Admissions Officers. (ERIC Document Reproduction Service No. ED156096)
- UNESCO. (1996). *Case studies on technical and vocational education in Asia and the Pacific: Islamic Republic of Pakistan*. Bangkok, Thailand: Author.
- UNESCO & USAID. (2006). *Situation analysis of teacher education in Pakistan: Towards a strategic framework for teacher education and professional development*. Washington, DC: United States Agency for International Development. (ERIC Document Reproduction Service No. ED497052)
- World Bank. (2006). *Higher education policy note—Pakistan: An assessment of the medium-term development framework* (Report No. 37247). Washington, DC: The World Bank.

INTERNET RESOURCES

Note: The URLs referenced in this document were accurate and functional at the time of writing, but since websites and Internet content are subject to change, their ongoing status cannot be guaranteed.

INTERNET PUBLICATIONS

- Government of Pakistan, Ministry of Education. (2005). *The state of education in Pakistan, 2003–04*. Islamabad, Pakistan: Author. Retrieved from www.moe.gov.pk/publications.htm
- Government of Pakistan, Higher Education Commission. (n.d.). *Minimum criteria for MPhil and PhD education*. Retrieved 14 October 2010, from www.hec.gov.pk/InsideHEC/Divisions/QALI/QualityAssurance/QADivision/Documents/MPHIL_PhD_Criteria.pdf

INTERNATIONAL WEBSITES

- Australian Government, Australian Education International. (2006). *Country education profile: Pakistan*. Available from National Office of Overseas Skills Recognition (NOOSR) website, <http://aei.dest.gov.au/AEI/QualificationsRecognition/default.htm>. (Membership required for access.)

International Bureau of Education, UNESCO. (August 2003). *World data on education: Pakistan*. Retrieved 12 December 2007, from http://nt5.scbbs.com/cgi-bin/om_isapi.dll?clientID=5137838&depth=3&infobase=iwde.nfo&record={7D958976}&softpage=PL_frame

Library of Congress, Federal Research Division. *Country profile: Pakistan*. (2005). Retrieved 3 October 2007, from <http://lcweb2.loc.gov/frd/cs/profiles/Pakistan.pdf>

Microsoft Encarta Online Encyclopedia. (2007). *Pakistan*. Retrieved 1 October 2007, from http://encarta.msn.com/encyclopedia_761560851/Pakistan.html#s1

Task Force on Higher Education and Society. (March 2002). *Task force on improvement of higher education in Pakistan*. Retrieved 13 February 2008, from www.tfhe.net/resources/pakistan.htm

UK NARIC. (n.d.). *International comparisons: Pakistan*. Available from National Recognition Information Centre for the United Kingdom (UK NARIC) website, www.naric.org.uk. (Membership required for access.)

United Nations Development Program. (2010). *Human development report 2009*. Retrieved 18 October 2010, from <http://hdr.undp.org/en/statistics/>

World Education Services – Canada. (2004). *World education profiles: Pakistan*. Retrieved 18 December 2007, from www.wes.org/ca/wedb/pakistan/pkfacts.htm

PAKISTANI WEBSITES

Academy of Educational Planning and Management, Ministry of Education. (www.aepam.gov.pk)

Federal Board of Intermediate and Secondary Education. (www.fbise.edu.pk)

Government of Pakistan. (www.pakistan.gov.pk)

Higher Education Commission. (www.hec.gov.pk)

Institute of Chartered Accountants of Pakistan. (www.icap.org.pk)

Institute of Cost and Management Accountants of Pakistan. (www.icmap.com.pk)

Inter Board Committee of Chairmen. (www.ibcc.edu.pk)

Ministry of Education. (www.moe.gov.pk)

Ministry of Information and Broadcasting. (www.infopak.gov.pk)

National Vocational & Technical Education Commission. (www.navtec.gov.pk)

Khyber Pakhtunkhwa (NWFP) Board of Technical Education. (www.kpbte.edu.pk)

Pakistan Engineering Council. (www.pec.org.pk)

Pakistan Medical & Dental Council. (www.pmdc.org.pk)

Punjab Board of Technical Education. (www.pbte.edu.pk)

Sindh Board of Technical Education. (www.sbte.edu.pk)

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 Grade 12. |
| 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 Grade 12 is acknowledged. |
| Bachelor's (Pass) degree (2-year) | Generally compares to the completion of two years of undergraduate study. |
| 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 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 one year of undergraduate study in education. |
| 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. |
| Bachelor of Law(s) (LLB) (2-year) [prior to 1992] | Generally compares to the completion of two years of undergraduate study in law (as practiced in the Islamic Republic of Pakistan). |

| 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 (as practiced in the Islamic Republic of Pakistan). |
| Bachelor of Law(s) (LLB) (5-year) | Generally compares to the completion of a first professional university degree in law (as practiced in the Islamic Republic of Pakistan), preceded by two years of prerequisite university study. |
| Bachelor of Medicine and Bachelor of Surgery (MBBS) | Generally compares to the completion of a first professional university degree in medicine. Note: Medical degrees in Pakistan generally involve five years of continuous study in a faculty of medicine. In Canada, medical degrees generally require at least two years of pre-professional study in science followed by four years of professional medical studies. |
| Bachelor of Dentistry or Bachelor of Dental Surgery (BDS) | Generally compares to the completion of a first professional university degree in dentistry. Note: Dentistry degrees in Pakistan involve four years of continuous study in a faculty of dentistry. In Canada, dentistry degrees generally require at least two years of pre-professional study in science followed by four years of professional dentistry studies. |
| Doctor of Veterinary Medicine (DVM) | Generally compares to the completion of a first professional university degree in veterinary medicine. Note: Prior to 2002, veterinary medicine degrees in Pakistan generally involved four years of continuous study in a faculty of veterinary medicine. Since 2002, they have involved five years of continuous study in a faculty of veterinary medicine. In Canada, degrees in veterinary medicine generally require at least two years of pre-professional study in science followed by four years of professional studies in veterinary medicine. |
| Post-Graduate Certificate or Post-Graduate Diploma [from universities and degree-awarding institutions] | Programs requiring a two or three-year bachelor's degree for admission: Generally compares to the completion of __ years of undergraduate study. 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)) | Generally compares to the completion of one year (or two years) of senior undergraduate study. 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 one year of senior undergraduate study in education. |
| 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 one year (or two years) of senior undergraduate study in education. |
| 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. The scope and quality of the research can only be determined by an expert in the field. |

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 | <ol style="list-style-type: none"> 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 | <ol style="list-style-type: none"> 1. Foundation University, Islamabad 2. National University of Computer & Emerging Sciences, Islamabad 3. Riphah International University, Islamabad |
| AJK | <ol style="list-style-type: none"> 1. University of Azad Jammu & Kashmir, Muzaffarabad, Azad Kashmir | <ol style="list-style-type: none"> 1. Al-Khair University, AJK 2. Mohi-ud-Din Islamic University, AJK |
| Balochistan | <ol style="list-style-type: none"> 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 | <ol style="list-style-type: none"> 1. Iqra University, Quetta |
| Northern Area | <ol style="list-style-type: none"> 1. Karakorum International University, Gilgit | |
| NWFP | <ol style="list-style-type: none"> 1. Frontier Women University, Peshawar 2. Gomal University, D.I. Khan 3. Hazara University, Dодhial, 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 | <ol style="list-style-type: none"> 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 | <ol style="list-style-type: none"> 1. Bahauddin Zakariya University, Multan 2. Fatima Jinnah Women University, Rawalpindi 3. Government College University, Faisalabad 4. Government College University, Lahore 5. Islamia University, Bahawalpur 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 | <ol style="list-style-type: none"> 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 | <ol style="list-style-type: none"> 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 | <ol style="list-style-type: none"> 1. Aga Khan University, Karachi 2. Baqai Medical University, Karachi 3. Dadabhoj 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): | 100 | |
| • Auditing and Income Tax Law | | |
| • Introduction to Computer Application in Business | | |
| • Principles of Marketing | | |
| • Principles of Insurance | | |
| • Banking and Finance | | |
| 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) | | Credit Hours (Theory–Practical) |
|---|--|------------------------------------|
| ENTRY REQUIREMENT: BSc (HONS) AGRICULTURE IN THE RELEVANT SUBJECT, WITH MINIMUM GPA OF 2.2, PLUS ADMISSION TEST EQUIVALENT TO GRE | | |
| No. | Course | |
| 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 <ul style="list-style-type: none"> • Taxation Management • International Financial Management • Financial Statement Analysis • Islamic Financial Systems • Corporate Finance • Investment and Portfolio Management | | 3. Human Resource Management <ul style="list-style-type: none"> • Strategic Human Resource Management • Industrial Relations and Labour Laws • Performance Management • Organization Theory • International Human Resource Management • Human Resource Development • Organizational Development |
| 2. Marketing <ul style="list-style-type: none"> • Marketing Research • Sales Management • Export Marketing • Brand Management • Consumer Behaviour • Supply Chain Management | | 4. Management Information System (MIS) <ul style="list-style-type: none"> • 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. BS_c (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% | |
| Course No. | Course | Contact Hours | |
| | | 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 | | | | |
| No. | Course | Examination Marks | | | Hours | |
| | | Part I | Part II | | Credit | Contact |
| | | | Sessional | Viva Voce | | |
| 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 Statutes, 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: | | 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 |
| 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

| NO. | COURSES | | |
|-----|--------------------------------------|--|---|
| | 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

| NO. | COURSES | | |
|-----|---|---|---|
| | 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

| COMPONENT | 1ST YEAR | | 2ND YEAR | |
|----------------|-------------------------------------|------------|---|------------|
| | 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: | | 3 YEARS |
|--------------------|---|-------------------------------------|
| ENTRY REQUIREMENT: | | 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.I SECONDARY SCHOOL CERTIFICATE (SSC) AND HIGHER SECONDARY CERTIFICATE (HSC)

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

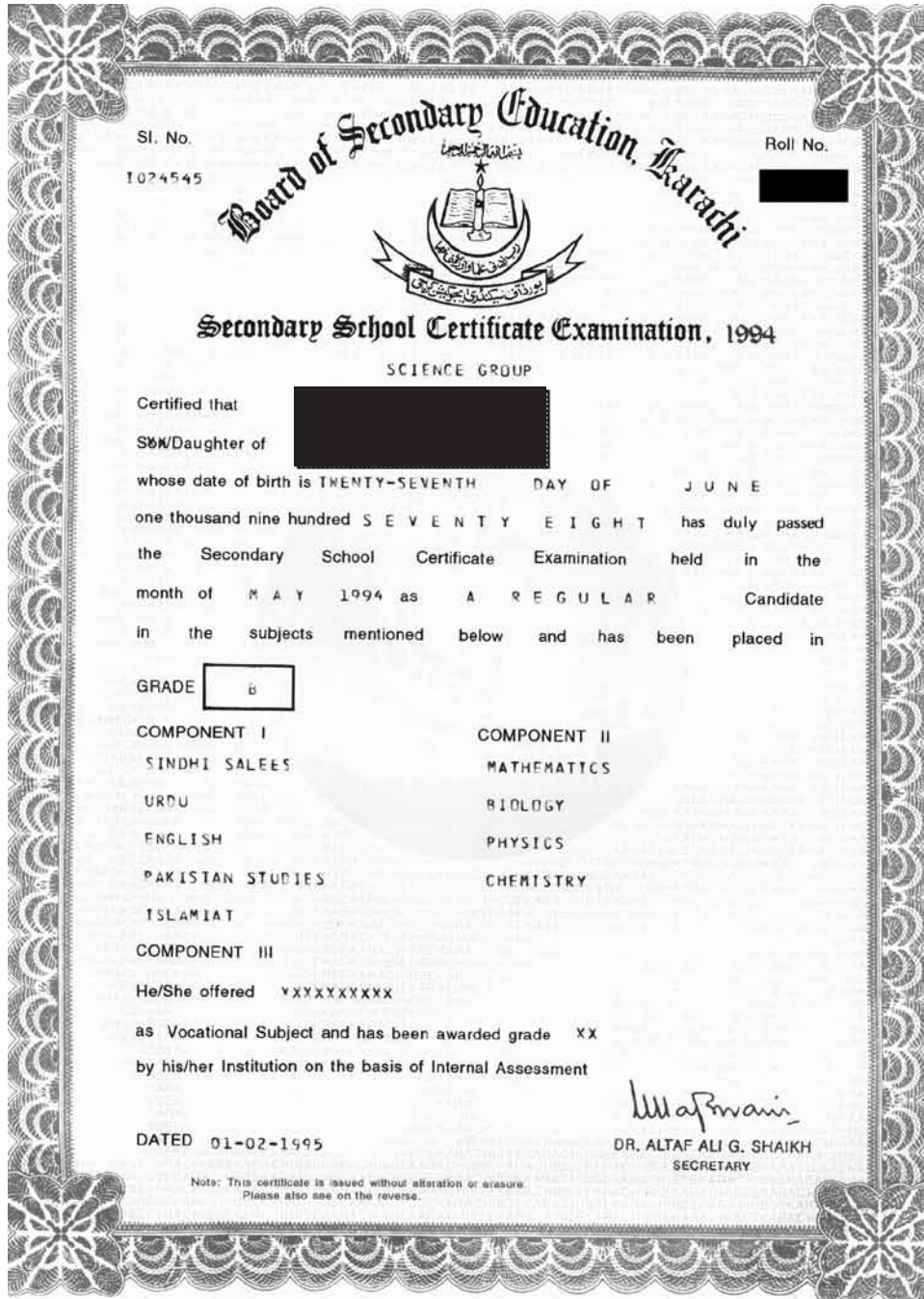


EXHIBIT 2. SECONDARY SCHOOL STATEMENT OF MARKS, BOARD OF SECONDARY EDUCATION, KARACHI, 1994

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 [REDACTED]
SCHOOL/PRIVATE PROGRESSIVE CHILDREN'S ACADEMY NAZIMABAD NO. 2

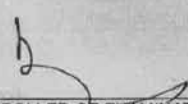
DUPLICATE

| S U B J E C T S | | | |
|------------------|-------|---------------------|------------|
| COMPONENT-I | MARKS | COMPONENT-II | MARKS |
| SINDHI SALEES | 47 | BIOLOGY THEORY | 38/75 |
| URDU NORMAL | 50 | BIOLOGY PRACTICAL | 20/25 |
| ENGLISH PAPER I | 51 | CHEMISTRY THEORY | 33/75 |
| ENGLISH PAPER II | 54 | CHEMISTRY PRACTICAL | 13/25 |
| PAKISTAN STUDIES | 61/75 | PHYSICS THEORY | 33/75 |
| ISLAM IAT | 60/75 | PHYSICS PRACTICAL | 20/25 |
| | | MATHEMATICS | 78/100 |
| GRAND TOTAL: | | 558 | OUT OF 850 |
| GRADE: | | B | |

GRADE IN COMPONENT III AWARDED BY THE SCHOOL IN
XXXXXXXXXXXXXXXXXXXX

GRADE XXXXXXXXXXXXXXXXXXXX


DATED. 14/2/2007


 CONTROLLER OF EXAMINATIONS
BIZAAAT 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

B98 A 101015 ROLL NO. 31285




Higher Secondary Certificate 1991

This is to certify that _____
 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 <small>Normal I & II Easy I & II \| Sindhi \| Gujarati Non-Mother-Tongue Pakistan Studies (For Foreigners)</small> 2. English <small>Normal \| Advance</small> 3. Islamic Education/ Civics (c) 4. Pakistan Studies (c) | 5. Civics 6. Logic 7. Mathematics |

Karachi, Pakistan
 Dated, the 29th August 1991



 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]

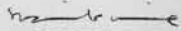
Registered No.: 99-B/LCW-848

**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 : XXXXXXXXXX

Father's Name: XXXXXXXXXX


Candidate mentioned above is hereby informed that she has passed the B.A. / B.Sc. Final Examination, 2001 held in June / July in 1st Division obtaining 587 /900 marks. She has secured the marks as detailed below.

| Paper | External Exam. | Internal Exam. | Final Assessment | Remarks |
|--------------------------------|----------------|----------------|------------------|---------|
| | Marks Obtained | Marks Obtained | Marks Obtained | |
| Isl. Edu. & Pak. Studies (100) | 70 | 73 | 72 | Pass |
| English (200) | 130 | 121 | 125 | |
| 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 اللَّهِ الرَّحْمَنِ الرَّحِيمِ

Roll No. 1942 Registered No. 90-CIV=12

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



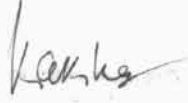
Session 1992-93

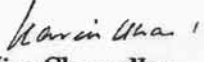
This is to certify that


[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


Registrar

Peshawar, the 7TH DECEMBER, 1994.

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/~~Supple~~
Roll No 150
has secured the following marks:—

| S U B J E C T S | Total No. of Marks allotted | M A R K S O B T A I N E D | |
|--|-----------------------------|---------------------------|---------------------------|
| | | 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. Strength of Materials Computer Programming | 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.

Mamman
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 / ~~Recaptured~~

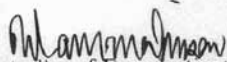
SECOND YEAR CIVIL ENGINEERING EXAMINATION, 1993 (Annual/Supply)

..... [REDACTED] Roll No. **678**

has secured the following marks :—

| S U B J E C T S | Total No. of Marks allotted | M A R K S O B T A I N E D | |
|---------------------------------------|-----------------------------|---------------------------|------------------------------|
| | | 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. 1994

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)

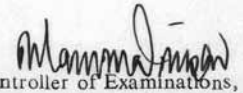
DETAILED MARKS CERTIFICATE
Passed / ~~Re-appear~~

THIRD YEAR CIVIL ENGINEERING EXAMINATION, 1982 (Annual/~~Supply~~)
..... Roll No. **1373**.....

has secured the following marks :-

| S U B J E C T S | Total No. of Marks allotted | M A R K S O B T A I N E D | |
|--|-----------------------------|---------------------------|----------------------------|
| | | 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 198x

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 / Recommended~~

FINAL YEAR CIVIL ENGINEERING EXAMINATION, 1993 (Annual/~~Supply~~)
..... Roll No. 1942

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

| S U B J E C T S | Total No. of Marks allotted | M A R K S O B T A I N E D | |
|---|-----------------------------|---------------------------|-----------------------------|
| | | 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 : 52522
PEC-4

Registration No : **CIVIL/16179**
Date of Registration : **20/12/94**



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-

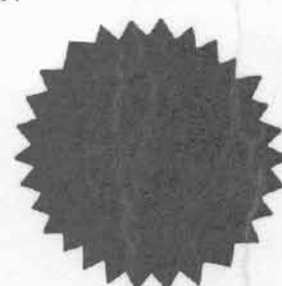
has been registered as Professional Engineer at Serial No. **CIVIL/16179** of
the Register of Pakistan Engineering Council with following Particulars :—


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

Professional Affiliation
with status :

Specialisation/
Training/Attainments :

Date of issue
20/12/94





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

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



University of Peshawar
 (Pakistan)


Session ANNUAL 1999

_____ SON of _____ 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~~

Serial No. 047399

Registration No. 91-PP-629
 Roll No. 20352
 Result declared on 24TH FEB, 2005




 Registrar



Countersigned

 Vice-Chancellor

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

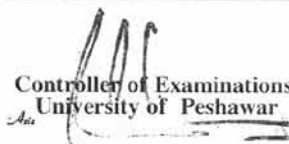
Father's Name: [REDACTED]

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 |
| Total: | 1100 | 597 | Five Hundred and Ninety Seven |

Errors and omissions are subject to subsequent rectification

Examination passed as a Whole in Second division.



Controller of Examinations
University of Peshawar

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

N^o 012375

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

Serial No. 443



Registration No. 92-ag-1396

University of Agriculture Faisalabad

In recognition of the fulfilment of prescribed requirements

Awards



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. Jafar
Chancellor

Rizwan
Vice-Chancellor

Zafar Iqbal
Controller of Examinations

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

DEGREE 1999

-443-

Regd. No. 92-ag-1396



Book No. 90

No. _____

76

UNIVERSITY OF AGRICULTURE, FAISALABAD
PROVISIONAL CERTIFICATE

No. C E. 376

Dated 4-3-2000

Certified that _____

Son of _____

Passed the M.Sc.(Hons)Food Technology-Faculty of Agrl

Engineering & Technology. 1999 Examination of the University

of Agriculture, Faisalabad held during February, 2000

_____ Securing CGPA. 3.63

Result Notified Vide No. _____

C.E. 620/M.Sc.99 Dated 15-2-2000

Zafar Jan
Controller of Examinations,
University of Agriculture,
Faisalabad. *M Khan*
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 _____ Father's Name _____

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

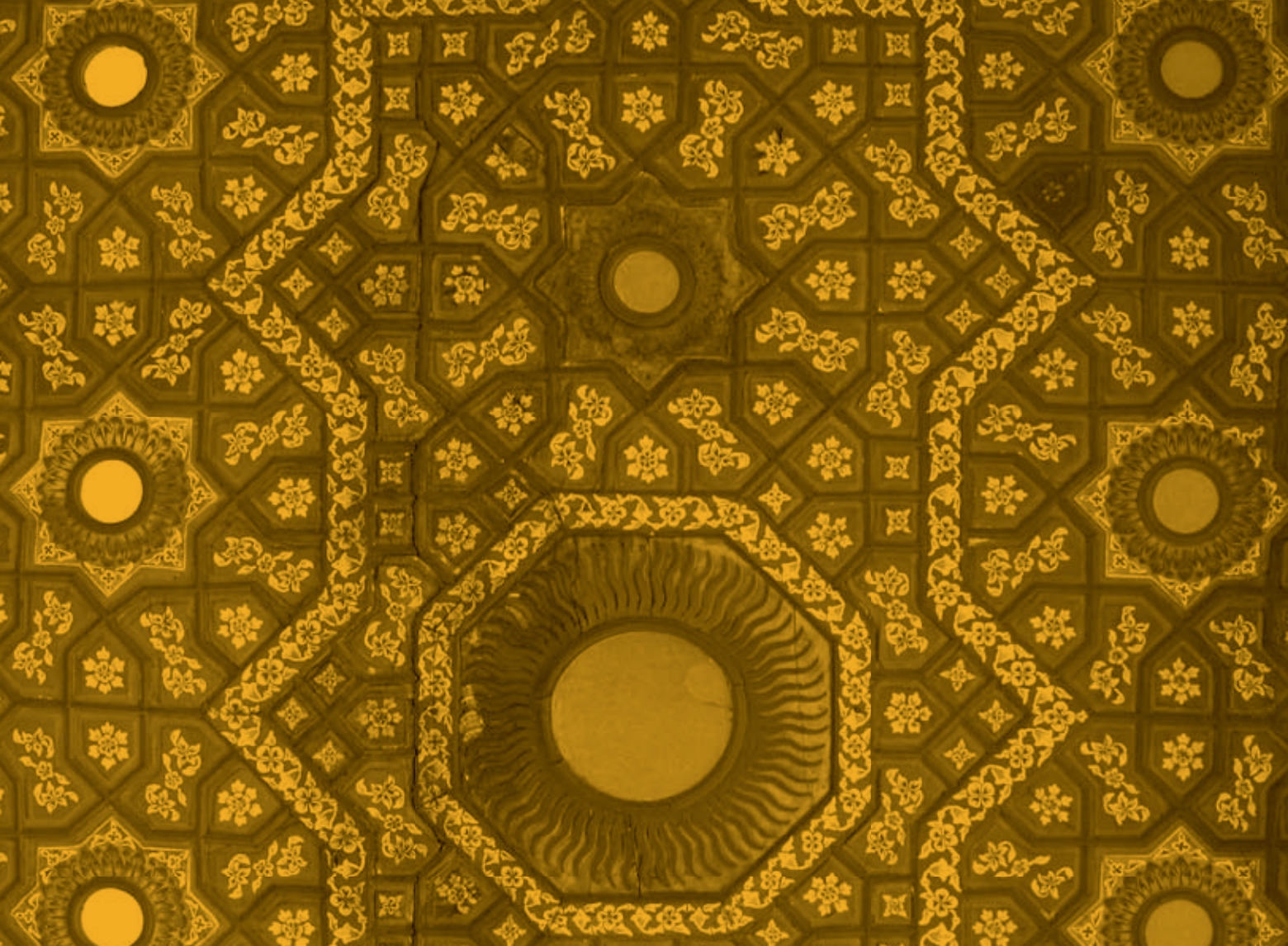
Aggregate marks% 77.66

Cumulative Grade Point Average 3.63

Prepared by M. Adnan


Checked by _____ Date Issued 5/4/2000

Zafar Iqbal
Controller of Examinations,
University of Agriculture,
Faisalabad,
FAISALABAD.



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Government of Alberta, International Qualifications Assessment Service (IQAS)
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