

# COMMONWEALTH UNIVERSITIES YEARBOOK 1988

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## Volume 3

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# THE UNIVERSITIES OF INDIA

[Contributed by Dr. Amrik Singh, formerly Vice-Chancellor, Punjabi University, Patiala]

## Origins

Universities as we know them today began in medieval Europe and were gradually exported to other parts of the world as a part of European expansion. In the Commonwealth context, Canada was the first country outside Britain to establish degree-granting institutions. By the time of the creation of the Dominion of Canada in 1867, 18 of them had been established. In Australia the universities of Sydney and Melbourne were founded in the 1850s. That was about the time that the first three universities in India, Calcutta, Bombay and Madras, were established, in 1857 to be precise.

Before these three universities were founded, there was a controversy spread over three to four decades about what their academic focus should be. The nature of this debate should be evident from two terms that became current about then: 'Orientalists' and the 'Anglicists'. The Orientalists were in favour of reviving the classical learning of India. Universities had been first established in India more than 2000 years ago. Two of them, Nalanda and Taxila, were known in many countries of Asia. Buddhism, which originated in India, travelled to countries like Tibet, China, Korea, Japan, Cambodia and Thailand. Many scholars from these countries made their way to India to learn more about Buddhism. India at that time had many seats of learning but these two were the best known.

Like monasteries in medieval Europe, these universities specialised in religious knowledge though they were also interested in other areas. The university at Nalanda is reputed to have had 10,000 students and teachers at one time. Subjects taught included philosophy and metaphysics, logic, grammar, astronomy and medicine. There was also an astronomical observatory and extensive residential accommodation in the form of hostels etc. According to records, this university which began around the 5th century B.C. flourished for about 800 years.

With the coming of Muslims into India around A.D. 1000, a new tradition of learning began. Instead of Sanskrit, the new languages of scholarship were Arabic and Persian. Though there is no formal account of the establishment of universities, a large number of seminaries known as *madrasahs* were set up. They taught subjects like theology, rhetoric, grammar, logic, mathematics and astronomy. Side by side, however, the Sanskrit tradition continued.

The Orientalists greatly appreciated these two traditions of Hindu and Muslim learning. They had a lively idea of what the range and depth of these traditions had been. They therefore advocated that the purpose of spreading education in India should not be to transplant western learning into India and displace the native learning but should, instead, be to encourage and promote learning in the classical languages, which were the accepted vehicle of learning in the country.

The Anglicists, however, held a different view. For one thing, they recognised that during the preceding half century or more a whole class of people had grown up which had taken to the study of English. For another, they realised that if modern knowledge based on scientific research was to be disseminated, it had to be through English. The upshot of this debate was a decision in favour of English as the medium of instruction and western learning as the focus of academic activity. By the time the first three universities were established a few years later, this

issue had been settled.

The model adopted for these three presidency universities was that of the University of London. A number of colleges had been established in India before the three universities came into being. These colleges were now affiliated to the university in the region in which they were located. The concept of the affiliating system had been borrowed from the University of London but it is an accident of history that within a few years the University of London abandoned it. But in India, as in Pakistan and Bangladesh, the affiliating system still continues.

The essence of it is simple. The actual teaching is done in colleges but the syllabus is laid down by the university and the examinations are conducted by the university. In a sense the colleges act as agents of the university. With the passage of time, universities have taken on another role, that of laying down conditions of affiliation. In a large number of academic matters, decisions are made centrally by the university. For instance, who should be admitted, what the range of academic attainment should be, what subject combinations should be allowed and related issues are all decided by the universities.

For the next quarter century no new universities were established. The needs of the entire country, including Burma, were served by these three universities. In 1882 however the University of the Punjab was founded at Lahore (now in Pakistan). Five years later another university was established at Allahabad to look after the needs of U.P. and central India. All these universities were affiliating in character following the model that had been established in 1857.

The first university to deviate from this model was Banaras Hindu University which was set up in 1916, the same year as the University of Mysore which was the first university to be established in a princely state. In 1917 the University of Patna was created; till then Patna had been under the jurisdiction of Calcutta. In 1918 Osmania University was founded by the Nizam of Hyderabad.

Some of these universities broke new ground. The university at Banaras, for instance, was not of the affiliating type; it was unitary and residential. Osmania University undertook the experiment of teaching through Urdu. This was a bold departure from what was happening in other universities. A very large number of books in different subjects were translated into Urdu. Though the experiment went on for about three decades it was abandoned after India became independent and Hyderabad merged with the Indian Union. The situation by then had changed to such an extent that the decision was regarded as both logical and inevitable.

An important development in which the lead was taken by the University of Calcutta deserves mention here. In 1902 a Universities Commission was appointed by Lord Curzon. As a result of its recommendations the universities were asked to undertake some teaching on their own and carry out research as well. Sir Asutosh Mukherji, an influential figure in the University of Calcutta at that time, led the movement for the establishment of postgraduate departments and research in the university. He collected talented people from all over the country and created the model of a teaching university in India for the first time. It was under his inspiration that, again for the first time, an Indian language, Bengali, came to be studied at postgraduate level. Colleges

which had been providing postgraduate education for some time were made to shed this responsibility and teaching at the master's level was concentrated in the university. Simultaneously universities began to exercise greater control over colleges.

Calcutta at that time led in a number of ways. For instance, in 1917 a Calcutta University Commission was established with Sir Michael Sadler as chairman. This commission, which was also asked to look into secondary education, took two years to report. Curiously its main recommendations were not implemented by Calcutta but several of the other universities did adopt and implement them. One of its major recommendations was that 'intermediate colleges' should be established to provide a two-year 'sandwich course' between high school and college. Many states in the country adopted this system and a fairly large number of intermediate colleges were set up.

Another of its major recommendations was to emphasise the need for residential universities. Of the universities established within the next decade or so—Aligarh Muslim (1920) (originally established as the Mohammedan Anglo-Oriental College in 1875); Lucknow (1921); Dacca (1921) (now Dhaka in Bangladesh); Delhi (1922); Nagpur (1923); Andhra (1926); Agra (1927); and Annamalai (1929)—only Nagpur, Andhra and Agra were affiliating. The rest are teaching and residential.

The slump of 1929 was a major watershed in the social and economic development of the country. For a whole decade after that, hardly anyone talked of founding new universities, though one was established in 1937. It was the University of Travancore. After Mysore and Osmania, this was the third university in a princely state. In 1956 when the states were re-organised, this university was re-named the University of Kerala and its territorial jurisdiction was somewhat adjusted in consequence.

Before the transfer of power in 1947, three more universities were set up. One was Utkal University (1943) to which colleges in Orissa came to be affiliated. Another was Saugar (Madhya Pradesh) in 1946. The unique thing about this university was that it was founded at the initiative of Sir Hari Singh Gour who gave a munificent donation to establish it. He had been the first vice-chancellor of the University of Delhi when it was founded in 1922, and went on to be the law member of the viceroy's executive council. An able lawyer and author, he used most of the fortune he made from the sales of his law books to found the University of Saugar. (In 1983 the university was re-named Doctor Harsingh Gour Vishwavidyalaya.) The University of Rajasthan (1947), located at Jaipur, was the third university to be set up in this chain.

The first two or three years after independence in 1947 were taken up with the problem of resettling several million refugees from Pakistan and setting up the new state. With the beginning of the fifties, attention turned to the establishment of new institutions. Within the first few years a large number of new colleges were created. By the middle of the fifties a boom started in the founding of universities. It lasted another two decades or so and today the number of universities is 178 including 25 agricultural universities.

## Three Other Types of Institution

As well as universities, three other types of institutions should be mentioned. Under the University

Grants Commission Act of 1956, university-level institutions to be described as 'deemed to be universities' could be established. The procedure for doing so was laid down in the act and an institution seeking the 'deemed' status had to apply for recognition by the U.G.C. The U.G.C. inspected the institution and if its report was favourable, the matter went for consideration to the Ministry of Education which notified the establishment of a 'deemed to be university'.

In this way a number of institutions came to be recognised, the more important of them being the Indian Agricultural Research Institute, New Delhi; Gujarat Vidyapith, Ahmedabad; Indian Institute of Science, Bangalore; Gurukula Kangri, Haridwar; Jamia Millia Islamia, New Delhi; Indian School of Mines, Dhanbad; Birla Institute of Technology and Science, Pilani; Central Institute of English and Foreign Languages, Hyderabad; Tata Institute of Social Sciences, Bombay. Each of them either specialised in some area of knowledge or was heir to a tradition. In 1986-87 their number was 22.

A second statutory mechanism for setting up university-level institutions was provided in terms of 'institutions of national importance'. The five Indian Institutes of Technology at Kharagpur, Bombay, Madras, Delhi and Kanpur were all established under this statutory provision. So also were the All-India Institute of Medical Sciences, New Delhi; the Postgraduate Institute of Medicine and Research, Chandigarh; and the Indian Statistical Institute, Calcutta. These university-level institutions are empowered to grant degrees which, according to the U.G.C. Act of 1956, can be granted only by a university. In 1986-87 their number was 10. The Indian Institutes of Management at Ahmedabad, Calcutta, Bangalore and Lucknow also belong to this category.

The third notable development was the establishment of a large number of research institutes outside the university orbit. For instance, there is the Indian Institute of Public Administration, New Delhi, and the National Institute of Design at Ahmedabad. The Centre for the Study of Developing Societies (Delhi), the Centre for Policy Research (New Delhi), the Indian Institute of Education (Poona), the Centre for Development (Trivandrum) and several others belong to this category. The Indian Council for Social Science Research funds about two dozen of them.

Above all, more than 40 research laboratories were established under the auspices of the Council of Scientific and Industrial Research (C.S.I.R.). These research institutes were not oriented towards the granting of degrees but instead took up problems of industrial and technological development. Most were however recognised as centres for doctoral work and quite a number of scientists working there were recognised as guides for PhD students of universities. In addition to C.S.I.R. research laboratories there were laboratories maintained by the Ministry of Agriculture, the Ministry of Health, the Ministry of Industries and various other ministries connected with economic development.

In terms of volume of work undertaken, these laboratories do an impressive job. The Atomic Energy Commission of India, for instance, has a large network of establishments all over the country. So has the Ministry of Electronics and the Ministry of Space. In all these institutions university-level work is done but it is geared to the application rather than the creation of knowledge.

The Tata Institute of Fundamental Research at Bombay is a different kind of institution. It does more fundamental than applied work. It has functioned outside the university system since it was created, though a large number of its professors are recog-

nised as guides for students who are working for a PhD of the University of Bombay. An Institute of Advanced Study was also established at Shimla. It was intended to reach in the humanities and social sciences the same level of excellence that the Tata Institute of Fundamental Research has achieved.

The significance of these various developments lies in the fact that there is now a substantial scholarly and scientific sector outside the universities. This has had an effect in terms of funding, coverage, output and academic organisation. To some extent the university sector has been enfeebled. At the same time the establishment of such a large and vigorous sector outside the universities has considerably strengthened research activity. Today if India is able to hold its own in scientific research and technology it is partly because of the work done in that sector. Curiously however, though the university sector, especially in the scientific field, does not get as much funding as the other sector, its performance in terms of output is nevertheless remarkable. Recent studies show that in the scientific sphere the universities have been performing much better than people were led to believe at one time.

Even in the new educational policy (N.E.P.) document put out in August 1986, there is strong reinforcement of the need to strengthen as well as diversify scientific research in the universities.

### Co-ordinating Bodies

With the expansion of the university sector it became necessary to have a number of co-ordinating bodies at various levels and in various fields.

The oldest of them is the Association of Indian Universities (A.I.U.) which was established in 1925 on the initiative of the then government of India. Originally it was known as the Inter-University Board of India and Ceylon but after the withdrawal of Sri Lanka in the early seventies, the organisation adopted its present name. Almost all universities, institutions 'deemed to be universities' and 'institutions of national importance' are members of the A.I.U. The universities are represented on it by their vice-chancellors and in their absence by members of the syndicate or the executive council. Among its objectives are to co-ordinate the work of the Indian universities, act as a bureau of information, facilitate the recognition of their degrees by other universities in India as well as abroad, and in general to speak on behalf of the universities in national as well as international forums.

It also maintains a subsidiary organisation to conduct inter-university tournaments in major games. In 1986-87 there were 23 tournaments for men and 16 for women. The sports wing of the A.I.U. also sponsors visits abroad by combined universities' teams and sometimes acts as a host to visiting teams from other countries. It is also a member of the International Universities Sports Federation.

One of the important tasks of the A.I.U. is to collect and disseminate information. Every two years it brings out a *Universities Handbook*, now in its 24th edition. In addition it publishes several other handbooks, dealing with medicine, engineering, management, agriculture and distance education. The new handbook on *Equivalence of Foreign Degrees* was released in 1987. Every week it issues a periodical called *University News*. In addition a *Bibliography of Doctoral Theses Accepted by Universities* is produced on a systematic basis. Information about scholars who have been awarded the doctoral degree or are currently enrolled for doctoral work is included in *University News* as well as being published separately.

The A.I.U. functions through a secretariat located at AIU House, 16 Kotla Marg, New Delhi 110002. Its secretary is Dr. S. K. Agrawala and the president for 1988 is Dr. P. V. Salvi, vice-chancellor of Marathwada Agricultural University.

It was on the recommendation of the A.I.U. that two important co-ordinating bodies in the university sector were established: the Indian Medical Council and the University Grants Commission (U.G.C.). The Medical Council, which was created in 1934, is vested with statutory powers and regulates admissions, courses of study, examinations and all other matters with a bearing on medical education throughout the country. Excluding nursing, dental, Ayurvedic etc. colleges, there are now 124 medical colleges. Each of them has to seek the approval of the Indian Medical Council with regard to its academic performance.

For the university system as a whole, the University Grants Commission\* was established in 1956. Its statutory responsibility is to determine and co-ordinate standards in higher and professional education. According to the Indian constitution which came into effect from 1950, higher and professional education is as much a responsibility of the central government as of the states. It was in terms of that entry in the constitution that the U.G.C. was established. Unlike the U.G.C. in most other Commonwealth countries including Britain, the U.G.C. in India is required to regulate academic standards. Grants given by the central government through the agency of the U.G.C. are meant to support the academic programmes undertaken by the universities. In other words, the U.G.C. in India is both a grant-giving and a co-ordinating body.

At the policy-making level the Central Advisory Board of Education (C.A.B.E.) has been in existence for almost half a century. Ministers of education in the various Indian states (and there are 25 of them now) and in Union Territories like Delhi, Pondicherry and Goa sit on this board. Meetings are presided over by the Union Minister for Human Resource Development. They are not held at fixed intervals but on average the board meets once in two or three years.

There are a number of other co-ordinating bodies, such as the All-India Council of Technical Education (A.I.C.T.E.) (which it is proposed to convert into a statutory body); the Bar Council of India, the Dental Council of India, the Pharmacy Council of India, and the Nursing Council of India, the last four already being statutory in character. All these co-ordinating bodies are vested with powers to regulate standards of academic performance.

The Indian Council of Agricultural Research (I.C.A.R.), which is almost half a century old, looks after agricultural education. It maintains a large number of research laboratories and field stations. It also finances research and development in the 25 agricultural universities which are spread over the various states. These universities which came into being during the last two decades have played a notable part in the growth of agricultural education. Currently work of the I.C.A.R. is being reviewed and evaluated by a high-powered body.

So far as professional education is concerned, the achievement of these various co-ordinating bodies has been positive. Both funds and ideas have flowed from them to a very large number of institutions throughout the country. The main difficulty lies in regulating the 5000-plus colleges which mainly impart education in arts, science and commerce and are affiliated to about 100 of the total of 178 universities. The remaining universities are either unitary and residential, or are of the technical or agricultural var-

\* The Chairman is Professor Yash Pal and the secretary is Professor S. R. Khanna; the address of the U.G.C. is Bahadurshah Zafar Marg, New Delhi 110002.

ity, and are not required to deal with undergraduate or postgraduate colleges. These are the province of the affiliating universities and it is to this sector of university education that further attention still has to be devoted.

### Types of Universities

Related to the manner in which they were established, universities can be categorised into several groups.

The largest number, as described above, belong to the affiliating and teaching type. They have some university departments which impart instruction at postgraduate level and undertake research. At the same time they have a large number of colleges affiliated to them and one of their main tasks is to look after these colleges.

The second type is the unitary university like Allahabad, Aligarh, Banaras, Lucknow, Patna, Baroda, Annamalai and Jadavpur. These universities have no colleges. In some of them undergraduate teaching is provided also but by the universities themselves.

The third group is that of the 25 agricultural universities. The first one to be established (in 1961) was the Govind Ballabh Pant University of Agriculture and Technology in Pantnagar. A year later the Punjab Agricultural University was founded at Ludhiana. Initially it was envisaged that each state would have one agricultural university and no more. Some exceptions have, however, been made partly because of differing agricultural and climatic conditions within the same state and partly because of other factors. Each agricultural university is managed by the state in which it is located. A substantial part of the funding, however, comes through the Indian Council of Agricultural Research.

The fourth category is that of technical universities. The oldest is Roorkee. As Thomason Engineering College it was established in 1847 and in 1949 was raised to the status of a university. In recent years more such universities have been founded, among the more notable being the Jawaharlal Nehru Technological University in Hyderabad and the Anna University in Madras. Several more may be set up in the next few years.

There are also proposals to found medical universities in some states. Andhra Pradesh has already set up one (the University of Health Sciences) at Vijayawada.

### Internal Management

The management of Indian universities follows the British pattern more or less. Usually there is a chancellor, a vice-chancellor and a registrar. In terms of university bodies, there is a senate or a court; a syndicate or an executive council; an academic council and faculties headed by deans. Some universities have pro-chancellors as well as pro-vice-chancellors. In central universities, there is also a visitor who is usually the president of India; the chancellor in that case is elected. In state universities however it is mostly the governor of the state who is the chancellor. There are some minor exceptions here and there but that is the broad pattern.

In the nine central universities the vice-chancellor is appointed for a period of five years and cannot be reappointed. In most state universities his term of appointment is three years and in only a few is it four years. In 10–15 per cent. of state universities the vice-chancellor can hold office for only two three-year terms. In other universities there is no such restriction. The vice-chancellor is the administrative and the academic head of the university. He usually functions through the syndicate or the executive council, a body often consisting of some academics and a number of outsiders. In central universities the aca-

demics and non-academics are usually 50:50 but in many state universities there are more outsiders than insiders. Its usual strength is 15–20. The vice-chancellor presides over its meetings and most of the controlling and supervisory functions are exercised by this body.

The senate or the court is a much larger body with a membership sometimes ranging between 100 and 200. The details of membership vary from one university to another but among those invariably represented are university professors, some junior faculty, principals of colleges (if it is an affiliating university) and one or two other categories. In certain cases students too are represented on senate or court. From among outsiders, the categories generally represented are former students, professionals, members of trade unions, and sometimes representatives of *panchayats* and *zila parishads* (local bodies) and others interested in education. There is much more diversity in the composition of the senate/court than in the case of the syndicate/executive council.

Almost every university has an academic council on which are represented most university professors and some junior teachers. If it is an affiliating university, there are invariably a large number of college principals on the academic council. Academics connected with other universities are sometimes co-opted. The academic policies of the university are framed in that body and by and large there are no members other than academics, whether they are from within the university or from outside.

Faculties are not very powerful bodies. Committees of courses or boards of studies have much more power. It is these boards or committees that draw up courses of study and recommend the appointment of examiners and experts to various selection committees. To be a member of one of these boards or committees is therefore an important assignment and may be sought after especially in affiliating type universities. Deans of faculties are not as influential as deans in American universities but they certainly do have an important role to play in the Indian university system.

### Relationship with Governments

Out of 178 universities, only nine are central universities, *i.e.* are funded by the government of India through the U.G.C. for both maintenance and development. All others are managed by the states which give them their constitution and their funding. At the centre the channels for funding are the U.G.C., the I.C.A.R. and the A.I.C.T.E. (see 'Co-ordinating Bodies', *above*). In the states there are, however, hardly any such mechanisms for funding and in each state it is usually the department of education that deals with universities. In several states the number of universities is quite large (sometimes as many as 15 to 20), and how the department of education functions is therefore a matter of some significance. Quite often it functions like any other state government department and universities may therefore have problems in getting their funds. In central universities where both maintenance and development income are provided by the U.G.C., there are fewer difficulties and these arise from the general scarcity of funds; otherwise there is a well-established channel for funding and not many points of friction. On several occasions it has been mooted that, at the state level also, there should be bodies corresponding to the U.G.C. but this has not yet happened and so the state universities continue to have problems. One significant recommendation made in the N.E.P. is that every state should be encouraged and persuaded to set up structures for co-ordination at the state and central levels. This

is likely to lead to the establishment of state-level bodies which would promote co-ordination and, in certain cases, also become the channel for disbursement of funds.

In most state universities a substantial number of state officials are nominated to the various university bodies. For instance, the education secretary is usually a member of the university syndicate. Sometimes directors of higher education, directors of technical education and directors of medical education are also members of university bodies. The state governments in this way contrive to have a considerable say in the running of the universities. Those universities which are financed from the centre are relatively freer. Some individuals may be nominated to various councils but that is not the same thing as the nomination of officials to university bodies.

### Colleges

Colleges are managed somewhat differently from universities and in a variety of ways. There are three types of college.

There are government colleges. They are 15–20 per cent. of the total and are to be found only in some Indian states, notably those which were at one time controlled by princes or where private enterprise was either weak or absent. That is why their proportion is small.

The largest number of colleges belong to the privately managed sector. In the nineteenth century when colleges began to be founded, some were set up by the government and some by private managements. In course of time this sector became much more vigorous, especially after 1947. Till 1947, the initiative came largely from local communities divided along caste and communal lines. After 1947 the initiative arose partly from such sources and partly from a large number of enterprising individuals, quite a number of whom entered political life. To be able to establish and run one or more colleges became a mark of local importance and a number of people who became active in politics simultaneously became active in the field of education. Their political activity included, among other things, the establishment of new colleges, quite a number of which were established in rural areas. More than one-third of colleges are now to be found in rural areas and except for a handful, they are under-enrolled, for unless there are schools in the neighbourhood from which students can pass out and join colleges, where can they get students from? Since education even at that level is not extensive enough the number of students who can enter colleges is not particularly large.

The third type of college is the professional college. Mostly these are medical and engineering but there are also colleges dealing with other specialities. More than half of them are sponsored and managed by the government. The others are managed by the private sector. Owing to the high rate of expenditure, not all perform satisfactorily. This has given rise to some problems which are now being attended to.

### Students

The number of students at the post-secondary level in 1947 was 229,611. According to the latest figures, there are now 3,570,900. The bulk of the expansion has been at undergraduate level. That is why the number of arts, science and commerce colleges has gone up to more than 5000 whereas the total number of colleges in 1947 (including professional colleges) was 491. Along with expansion at undergraduate level there has been considerable expansion at the postgraduate level where about half the students are enrolled in university departments and half in colleges.



The bulk of the expansion took place in the fifties and sixties. During those years the rate of expansion was sometimes as high as 13–14 per cent. a year. That was unprecedented. The highest annual rate of growth in other countries at that level has seldom been more than 5–6 per cent. What happened in India had hardly any parallel. Some of the problems that afflict universities today arise from this phenomenal expansion in that period. During the last decade or so the rate of expansion came down markedly. It was around 4 per cent. a year for 6–7 years, then again showed a tendency to rise. In 1982–83 it was 6.1 per cent. and in 1985–86 4.9 per cent.

This would be manageable from every point of view except for the fact that the expansion of the fifties and the sixties has not yet been fully assimilated into the university system. Facilities such as buildings, libraries, laboratories and hostels which became short in those decades are still short. Recently funds to universities have not been as plentiful as they used to be. Education has been expanding at every level and the total amount of money available for the purpose has been unable to keep pace with the growth in numbers. Consequently universities and colleges too suffer from scarcity of funds and the shortages of a couple of decades ago still continue.

As the result of this proliferation of numbers, student indiscipline has been a marked feature of the university scene. In the late sixties it was to be encountered in a virulent form in a large number of colleges. In course of time it spread to professional colleges as well. In the early seventies, student activism assumed a political form. It was not able to sustain itself, however, after the imposition of the emergency from 1975 to 1977. Since then there have been some student agitations but none to compare with the sweep and magnitude of the earlier phase of student activism.

#### Staff

Parallel to the growth of student numbers has been a marked increase in the number of teaching staff. In 1985–86 the number of teaching staff in universities and colleges was: professors, 5792; readers (including principals and senior lecturers), 35,947; lecturers (including assistant professors and assistant lecturers), 175,476; tutors/demonstrators, 9774; making a total of 226,989 staff.

Till 1973 when the present scales of pay came into effect there were also one or two other categories but these are now being eliminated. By a policy decision, there are to be only three categories in the years to come. This applies to professional as well as non-professional colleges. The monthly scales of pay now laid down by the U.G.C. are:

Professor	Rs. 4500 × 150–5700 × 200–7300
Reader	Rs. 3700 × 125–4700 × 150–5300
	Rs. 4500 × 150–5700
Lecturer	Rs. 2200 × 75–2800 × 100–4000
	Rs. 3000 × 100–3500 × 125–5000
	Rs. 3700 × 125–4700 × 150–5300

In addition to this basic salary, teachers are entitled to dearness allowance, city compensatory allowance in the case of major cities, leave travel concession, medical aid (available to about one-third of teachers), subsidized housing (available to not even 10 per cent. of the total) or house rent allowance at the rate of 15 per cent. of basic salary (available to not more than half the teachers), and a few other facilities.

These scales were recommended by a committee appointed by the U.G.C. There was some dispute regarding their implementation. Most of the controversies have been settled but it will be a long while

before the scales are implemented all over the country. Each state is competent to take a decision in respect of the institutions financed and controlled by it. The matter has therefore to be sorted out between the centre and the states, though it must be added, by way of explanation, that the rate of central subsidy is uniform: 80 per cent. of the additional expenditure for a period of five years. Nonetheless, not all states adopt the same approach as the centre does. How many states, therefore, will eventually adopt the revised scales of pay remains to be seen. In the opinion of some of them, at any rate, the scales tend to be somewhat lavish.

A contributory provident fund is available to almost all teachers. Less than one-quarter of them have the option of getting a pension instead of the contributory provident fund. No other old-age insurance or help is available except that 5–10 per cent. of teachers also get a gratuity when they retire. This is a relatively recent development.

Until 1973 teachers in affiliated colleges usually had a lower scale of pay than those appointed to university departments. Now the same scale of pay applies in both universities and colleges, though in the case of those serving in government colleges pay scales are somewhat different but in no way inferior to those of their colleagues. Whether this situation remains unchanged or is modified in any way remains to be seen.

Many teachers go on study leave when they want to take a higher course of training. Since 1973, the system has been further liberalised with the introduction in some universities of sabbatical leave. The U.G.C. too has been giving fairly liberal fellowships to those who want to do a PhD or undertake other forms of advanced training. During the last decade or so in-service training has received considerable emphasis, financed largely from funds made available by the U.G.C.

Teaching staff are usually recruited through a procedure laid down by the university. For university staff, there is a high-powered selection committee consisting of the vice-chancellor and other academics. Their recommendations go to the syndicate/executive council which is the appointing authority. In the case of colleges, the procedure varies. In government colleges, appointments are usually made by the government through its own selection mechanism. In private colleges there are two or three different procedures that can be followed, depending on the particular situation. In several states now, notably West Bengal, Uttar Pradesh and Andhra Pradesh, public service commissions appointed by the government do the recruiting even for private colleges.

Security of tenure is a problem in about 20–25 per cent. of colleges, mostly in privately-managed colleges. While funding in them comes largely from the state, management is in private hands. Several extraneous considerations enter into the management of colleges including the fact that neither the state nor the universities have been able to have precisely defined roles laid down. The last quarter of a century has seen considerable advance on this front and it may be that the difficulties will be overcome in another decade or so. In government colleges, security of tenure is available to teachers in the same way as to other government employees. The age of superannuation is generally 60 years, but in certain cases extension up to 63 or 65 is possible. In government-run institutions however, it is 58 years.

Legally it is only an Indian national who can be appointed to a permanent job. In certain cases, however, non-Indians are appointed but to do that a special case has to be made out, usually on the grounds

that a particular kind of expertise is not available within the country.

#### Student Services

This is one of the neglected areas in Indian universities. As a result of unprecedented expansion, funds have become scarce. This in turn has led to reduced availability of funding for student services.

For instance, less than 20 per cent. of students live in a hall of residence. The percentage varies from university to university and state to state, but that is the general picture. Mess arrangements in these hostels are supervised either by students themselves or are provided by professional contractors. With the price of food rising steeply in recent years, the situation has become more and more difficult.

The cost of residence varies from town to town and state to state. In bigger cities like Delhi, Bombay and Calcutta a student living in a hostel spends more than Rs. 500 a month. In the south it is somewhat cheaper. Some of these metropolitan towns have separate hostels for foreign students. A certain number of Indian students, however, are invariably given accommodation in them more or less as a matter of policy.

Sports facilities are also limited, partly because of shortage of funds. Standards of performance, however, have been rising. More professional attention is being paid to coaching and participation in university-level and national and international events. But the participation of students in sports has in general not kept pace with the growing number of students.

The National Cadet Corps (N.C.C.) has been in existence since 1948. For five years in the early sixties the N.C.C. was compulsory for every male student. Since then it has been optional and about 400,000 students are enrolled in the N.C.C. at any given moment. Here also shortage of funds makes it difficult to provide a suitably high level of training.

Also important is the National Service Scheme (N.S.S.). About half a million students join it at one stage or other. They are involved in social service in various ways. In time of drought or other natural calamity, they play an active role and their services are generally appreciated by the community.

Almost every single college and university has a students' union. Usually its constitution is that approved by the head of the institution. From time to time, it has been argued that membership of the union should not be compulsory as it is today. But this has been a minority point of view and membership has continued to be compulsory. In addition to the president and the secretary, two other important officers in the union are the vice-president and the joint secretary. Four or five people plus these office-bearers constitute the executive committee. It is only in a few institutions that the students' union conducts itself with a due sense of responsibility. In most the students' union becomes the agency for confrontation with the head of the institution. There are happy exceptions however. So much depends upon the tradition of the institution and the area in which it is located. In northern and eastern India, students' unions have usually been a hotbed of politics. In western and southern India, the situation has been distinctly better.

Student counselling is virtually unknown and student health services are available to less than half the students. In some of the better established institutions, services like an information bureau and a placement officer are provided.

Tuition fees are remarkably low throughout the country. Except in one or two states, they have not been changed for three decades or more. An average arts or science student pays anything from Rs. 120

to Rs. 400 a year. For professional courses, fees vary from Rs. 240 to Rs. 400. There may be some additional charges but they are usually nominal. There has been for some time talk of increasing the fees but it has led to no concrete action so far.

At present, foreign students are charged the same fees as Indian students. The number of such students has, however, been increasing. There are now more than 13,000 students from abroad whereas only five years ago the total was less than three or four thousand. Whether these students should be charged a higher fee or not is a matter that is still under examination.

About 10 per cent. of students at Indian universities receive financial aid in one form or other. The usual sources of aid are the central government, the state governments and private benefactions. Sometimes tuition fees are remitted or other concessions given or a scholarship or fellowship is provided.

With the help of the U.G.C. about 40 per cent. of colleges are able to maintain 'book banks'. Through them students can borrow textbooks from the library for a whole year, returning them then so that someone else may use them the following year.

The employment situation in the country being what it is, it is not feasible for students to get part-time jobs during vacations as their counterparts in many other countries do. In any case, education is uncommonly cheap and if help can be obtained from one of the numerous sources, a young man or woman can continue to be a student regardless of whether he or she can earn something independently or not.

Arising out of the recommendations of the N.E.P., there may be some improvement in respect of student services. Quite a few positive recommendations have been made. To what extent these are implemented is partly a matter of attitudes and partly a matter of funding.

#### Pre-University Education (see also Appendix IV)

Not every child in India goes to school. There are states like Kerala where almost all children do but in others like Rajasthan and Orissa hardly more than 50 per cent. of the children enter school. The dropout rate is also very high, so much so that only five or six per cent. of those who join a primary school are able to finish high school. School generally lasts for 10 years. After that there is the +2 stage, a well-defined stage of education preparing students for entry into college.

In certain states the +2 stage is integrated with the school system. In some other states there are independent two-year colleges. And in yet others even colleges have the +2 classes. The pattern varies from state to state, because the changeover started taking place about a decade ago. In another decade or so, a single uniform pattern should have evolved. During recent years, the importance of the +2 stage as a preparation for college education has come to be recognised and this pattern is therefore likely to prevail over the whole country.

One of the important recommendations of the N.E.P. is the vocational stream of education at the school level should be strengthened. There has been a good deal of discussion and planning in this regard but little initiative. Constraint of funds appears to be a serious bottleneck.

#### Admission (see also Appendix IV)

Getting admission to a non-professional college is not unduly difficult except in the case of some select colleges where there is keen competition. Getting into a professional college of, for instance, medicine, engineering, architecture, pharmacy or dentistry, is much more difficult and is often based on a separate

admission test. For example, almost every state in India conducts a pre-medical admission test. Proposals for conducting an all-India test are currently under discussion. For engineering too, half the states conduct a similar test. Then there is the test for admission to the five Indian Institutes of Technology and the Institute of Technology at the Banaras Hindu University. More than 40,000 students sit this test and less than 2000 are selected.

In theory everyone is eligible for admission. In practice, the situation varies from institution to institution. So much depends on the standing of the institution and the eagerness with which admission is sought.

At postgraduate level admission is not too difficult. Owing to the phenomenal expansion in recent years the number of seats available for postgraduate study is fairly high. Certain institutions are more sought after than others and there may therefore be some problems about getting into them. There is, however, considerable competition for entry to one of the MPhil courses that were started in the last decade or so. This is a pre-PhD course and more than 25 per cent. of universities have already instituted it. For the MPhil there is a good deal of emphasis on course work though a dissertation is also required.

Admission to the PhD course is not regulated in the same way as for other courses. Intending research scholars have to convince their supervisors that they are genuinely interested and possess the requisite competence. Once accepted by a supervisor, the matter goes to the board of research studies where the scholar's topic of research has to be approved. During the last decade or so there has been a considerable spurt in admission to the PhD programme. The number of PhD degrees awarded in 1984-85 was 7171.

As between courses, fashions change from time to time. Till the sixties, engineering exercised the maximum pull. Though it still continues to attract some of the best students in the country, it is no longer the craze it used to be in the first two decades after independence. Medicine has been a perennial favourite and continues to be so. Recently courses in commerce and business management have become hot favourites. In certain parts of the country, notably western and southern India, students prefer to opt for commerce courses rather than arts.

An important aspect of admissions policy is that a substantial number of places are reserved for the 'scheduled castes', 'scheduled tribes' and other educationally backward classes. One-fifth of India's population consists of tribal and scheduled caste communities. The educationally backward category is a flexible one. In certain states quite a large number of people have been included in it. Each of these categories has been given a quota of seats. For the last few decades the practice of reserving places has even been extended to professional courses. While this has created some academic problems, it has without doubt helped these disadvantaged sections of the population in a substantial way.

#### Academic Year

The academic year usually begins in June or July and ends in March or April. Institutions located in mountainous areas where it snows during the winter follow a different schedule, beginning in March and going on till December; but the number following a March-December calendar is very small—hardly one or two per cent. of the total. In most universities the academic year is divided into three terms. A few follow a two-semester system. Unlike universities in many other countries, there is no organised system of imparting education during the summer session.

#### Examination System

Examinations in most universities are held in March or April and the results are declared a couple of months later. During recent years, however, this pattern has been disturbed to some extent. Not all examinations can be held at the due time; nor can results be declared in due time. This has sometimes obliged universities to re-adjust their academic terms as well as the schedule of examinations.

Most examinations are conducted by the universities. The Indian Institutes of Technology, the technical universities, the agricultural universities, and faculties like medicine and engineering in some universities, operate an internal assessment system. For the rest, there is a public examination which is conducted in March or April and again in September or October.

Neither in respect of teaching nor examinations have any notable experiments been made in recent decades. The teaching method by and large continues to be lecturing. Only in certain institutions and in certain faculties are tutorials and seminars used to any significant extent and it is often in these places that internal assessment has been tried though not always to good advantage.

#### Structure of Degree and Diploma Courses

The Radhakrishnan Commission (1948-49) recommended a three-year integrated course at BA and BSc level. A similar recommendation was made by the Secondary Education Commission (1952-53). Except for universities in Uttar Pradesh (which incidentally has one-sixth of India's population) and Bombay, all adopted the three-year degree course. Bombay, however, soon switched over to the three-year degree system; and Aligarh and Banaras, being central universities, fell in with the all-India pattern. The recent shift to the +2 stage (see 'Pre-University Education', above) has prompted some reconsideration in certain quarters. With the addition of one year at the preparatory stage for admission to college, it is being argued that it might be advantageous to reduce the pass course by one year. However, not many universities have taken any concrete action so far and in general the three-year degree course continues everywhere.

Generally speaking, for the BA and BSc pass degrees, students are expected to study one Indian language, English wherever it is compulsory, and two or three other subjects. At the honours level the situation varies. In some universities—Delhi and Calcutta, for instance—there is a separate course and the focus is on specialization in the chosen subject. In certain other universities—for instance, Panjab and Bombay—a student takes additional papers and the focus on specialization is not all that clearly defined.

In engineering and architecture there is a four- or five-year degree course. In medicine, a four-and-a-half-year degree course is followed by a year of internship. In agriculture, the degree course lasts for three to four years depending upon the student's background in science. Until about a decade ago, the LLB course lasted for two years after a first university degree; now it has been extended to three years. In some universities the LLB course has been combined with the 3-year undergraduate course and the total duration extended to five years. In consequence both patterns operate side by side. In education, the BED or BT takes one year after graduation and MED an additional year after that.

In addition to degree courses, a large number of diploma courses are available in universities. Their range is very wide and covers anything from poetics to computers. A distinction is drawn between under-

graduate and postgraduate diploma courses. Once again there is enormous variety with the duration varying from one to three years.

In certain universities special examinations are held for classical languages and oriental learning.

### Medium of Instruction

The issue of the medium of instruction was settled in favour of English, as explained earlier, by the time the first three universities were established in 1857. With the growth of the national movement, however, a good deal of emphasis was put on the development of Indian languages. When the Indian constitution was adopted in 1950, it provided that Hindi should be the official language of the country. For the first 15 years, however, English also was to continue as an official language. When in the 'mid-sixties' those 15 years expired, there was a virulent anti-Hindi agitation in Tamil Nadu. Consequently, both Hindi and English continue to be official languages of the country today and there is little prospect of any major change occurring in the next few years.

In the university world, however, there has been some change. About three-quarters of the universities in the Hindi-speaking belt spread over five Indian states have switched to Hindi as the medium of instruction. This pattern has been followed with one or two other Indian languages too but the bulk of the universities continue to have English as the medium of instruction with an option given to students to use their own language also.

Most of what is said above relates to undergraduate courses. To a lesser extent it applies also to postgraduate courses, but in professional courses English continues to be the medium of instruction as in the past. Of books written in English and published in India, about 8000–10,000 titles a year are published. Three-quarters of them are textbooks while the remaining quarter or even less are either general books or scholarly books. On the whole, English is more popular in India today than it was in 1947.

### Part-Time, Own-Time Education

Correspondence education at the undergraduate level was started in Indian universities in the early sixties. More than 30 universities now provide it. In 1982 an Open University was established in Andhra Pradesh. It is the first university set up with the object of imparting learning through non-formal channels. In 1985 the Indira Gandhi National Open University was established at Delhi. A few other states are establishing similar universities. Though non-formal education is a recent concept, it is beginning to make an impression on Indian academics. With the help of students working in the National Service Scheme, some institutions have gone to extraordinary efforts to make adults literate. In other related areas, too, universities are now trying to expand and diversify their programmes. An Indian University Association for Continuing Education has also been active for some time with the aim of involving more and more universities and colleges in this work.

In almost all large towns and cities there are evening colleges. They mostly provide courses at undergraduate level but in certain cases, but not very many, postgraduate courses are taught.

### Finances

Funding for the state universities comes largely from the states. It is usually referred to as maintenance expenditure. In respect of development,

expenditure is shared between the states and the centre though, to be sure, in respect of state universities the bulk of it comes from the state governments. Development relates both to development of capital assets like buildings, laboratories etc. and to the creation of new teaching posts and other ancillary facilities. The U.G.C., on behalf of the central government, provides a certain percentage of the expenditure and the rest is expected to be provided by the state government. In about one-third to one-half of cases, the states do provide a matching share. For the rest, even the U.G.C. funding does not become available to state universities because the states have failed to provide the matching share. Altogether, therefore, the state universities have a difficult time.

For central universities, both maintenance and development grants come from the U.G.C. The central universities therefore can breathe much more freely and develop their facilities, academic and others, without someone tugging at their sleeves all the time. The state universities envy this happy position though it is only fair to add that central universities too sometimes grumble about certain requests refused and so on.

In the case of the agricultural universities, the state governments provide maintenance as well as development grants. But liberal grants for development purposes are also given by the I.C.A.R. In respect of engineering education, the states are usually helpful and so is the centre.

The funding of colleges has been discussed earlier. The only thing that needs to be repeated and perhaps emphasised is that the pattern is neither clear nor particularly rational. In any case there are many more colleges than there is a need for. If they do not receive all the funding they expect, it is largely because they are felt to be unwanted.

Private benefactions are more or less nominal. Income from fees has been declining steeply, because fees have remained more or less stationary while expenditure has been escalating. As a proportion of total expenditure, fees do not account for more than 11–12 per cent. The remaining funding comes from governmental sources, whether central or state. While figures for various states are not easily available, those for the U.G.C. for 1985–86 were as follows:

U.G.C. GRANTS TO UNIVERSITIES  
1985–1986

	Rupees in lakhs*
Central universities	2117.04
Institutions deemed to be universities	736.44
State universities	4156.15
Colleges	1628.86
Non-university institutions	4.70
	8643.19

### New Policy on Education

After about 18–20 months of discussion and consultations the Rajiv Gandhi government adopted a 'New Policy on Education'. Some references to it have already been made but more formal notice of it is also called for. In respect of higher education the following eight priorities were determined: (1) consolidation and expansion of institutions; (2) development of autonomous colleges and departments;

(3) redesigning courses; (4) training of teachers; (5) strengthening research; (6) improvements and efficiency; (7) creation of structures for co-ordination at the state and national levels; and (8) mobility.

In respect of most of these some action has been initiated. It is a little early however to be able to identify and describe what has been accomplished. For instance, it is proposed to make 500 colleges autonomous: 50–60 have already been made autonomous but more are likely to be given that status in the next two years. Similarly, 50 academic staff colleges have been sanctioned. About a dozen of them have already started and the rest are likely to get off the ground in the next year or two. Several other similar initiatives are now in the pipeline.

The U.G.C. has worked out a format for the establishment of state councils of higher education. A constitutional hurdle has, however, arisen, but it is likely to be taken care of within the next few months.

The proposed 'national apex body' would be a body covering higher education in general—agricultural, medical, technical, legal, and other professional fields—for greater co-ordination and consistency of policy, sharing of facilities and the development of interdisciplinary research. A high degree of priority is being given to the establishment of such a body and it is quite likely to be set up during 1988. Amongst its major functions would be to advise the government on matters of policy, to co-ordinate the activities of other bodies in different fields, to allocate resources, to establish and manage a common infrastructure and institutions, and so on.

**Further Information.** (See also Appendix VI, and the 'Publications' section in each university chapter, below)

Printed sources of information include:—

Association of Indian Universities. *Universities handbook*. New Delhi. Issued every 2 years.

Education Commission. *Education & national development: report*. New Delhi. Ministry of Education, 1966. Chairman: D. S. Kothari.

Ministry of Human Resource Development. Department of Education. *National policy on education 1986*. New Delhi, 1986.

—. *Programme of action: national policy on education 1986*. New Delhi, 1986.

University Education Commission. *Report*. Delhi, Government of India, 1949, 1951. 2 vols. Chairman: S. Radhakrishnan.

University Grants Commission. *Report for the year*. New Delhi. Annual.

Other publications of the Association of Indian Universities, the U.G.C. and the Ministry of Human Resource Development are issued from time to time.

Information on specific topics may be obtained by writing to:—

The Secretary, Association of Indian Universities, AIU House, 16 Kotla Marg, New Delhi, India 110002.

The Secretary, Ministry of Human Resource Development, Government of India, New Delhi, India 110001.

The Secretary, University Grants Commission, Bahadurshah Zafar Marg, New Delhi, India 110002.

Information may also be had from the education department of Indian high commissions in the various Commonwealth countries.

\* A lakh = 100,000.



# DIRECTORY TO SUBJECTS OF STUDY

The directory to subjects of study appears at the end of the Indian section, following the chapter for Visva-Bharati.

## CENTRES OF ADVANCED STUDY

[Source: University Grants Commission]

In order to strengthen postgraduate teaching and research activities in the universities, the University Grants Commission has undertaken different schemes to provide substantial support to selected university departments for development of training and research programmes in certain selected fields. The assistance is provided at three different levels depending upon the stage of development of the department. These three levels are: (i) 'centres of advanced study', (ii) 'departments of special assistance', and (iii) departmental research support.

Under the *Centres of Advanced Study* programme, initiated in 1963-64, the selected departments are provided with substantial assistance to encourage the pursuit of excellence and team work in studies and research activities so as to accelerate the realisation of international standards in specific fields. The centres are selected on the basis of quality and extent of work done by them, their reputation, their contribution to research and potentiality for further development. They work on an all-India basis and funds have been provided for them by the commission so that research students and teachers all over India can take advantage of the facilities created there. The centres have fairly large staffs of senior teachers and research fellows actively engaged in research work. In addition to these, the department can invite visiting teachers from other departments and also from abroad. The centres have to continue to earn their recognition. The performance of the centre is assessed after an initial period of 10 years and only those departments which have proved their capability can continue under this programme. In 1974 some centres were discontinued from the programme after the review of their performance.

On the basis of the report of the Review Committee on U.G.C. Programmes (1981), the commission has agreed that in the case of centres of advanced study which have been already assisted for a period of 15 years, the type of assistance to be given for future activities may be related to specific well-formulated projects which can be considered on merit and keeping in view the suggestions made by the evaluation committees for such centres. It has further been decided that adequate funding should continue in the form of basic grants for equipment and library. The question of providing non-plan assistance to these departments after the commission's plan assistance ceases will be explored.

The following departments are at present functioning as centres of advanced study. The subjects and major fields being developed in them are given below.

### Humanities and Social Sciences

**ANTHROPOLOGY.** *Advanced anthropological theory and methodology, macro-analysis, quantification methods and system analysis:* Department of Anthropology, Ranchi University.

**ECONOMICS.** *Agricultural economics:* Gokhale Institute of Politics and Economics, University of Poona; *economics of development and economic history:* Department of Economics, University of Delhi; *public finance and industrial economics:* Department of Economics, University of Bombay.

**EDUCATION.** *Educational research:* Department of Education, M.S. University of Baroda.

**HISTORY.** *Medieval Indian history:* Department of History, Aligarh Muslim University.

**LINGUISTICS.** *Dravidian linguistics:* Department of Linguistics, Annamalai University; *socio-linguistics, applied socio-linguistics, psycho-linguistics, phonetics and contact and convergence study:* Department of Linguistics, Osmania University.

**PHILOSOPHY.** *Advaita and allied systems of philosophy:* Department of Philosophy, University of Madras; (i) *theory of knowledge and reality*, (ii) *logic and language*, (iii) *ethics, religion, social and political philosophy*, (iv) *philosophy of mind:* Department of Philosophy, Jadavpur University.

**PSYCHOLOGY.** *Applied and experimental social psychology and organisational psychology:* Department of Psychology, University of Allahabad; *educational and social psychology:* Department of Psychology, Utkal University.

**SANSKRIT.** *Sanskrit literature:* Department of Sanskrit, University of Poona.

**SOCIOLOGY.** *Social stratification and social change:* Department of Sociology, University of Delhi.

### Science

**ASTRONOMY.** *Experimental astronomy:* Department of Astronomy and Nizamiah Observatory, Osmania University.

**BIOCHEMISTRY.** *Proteins, lipids, ecology:* Department of Biochemistry, Indian Institute of Science, Bangalore.

**BOTANY.** *Algology and ecology:* Department of Botany, Banaras Hindu University; *cell and chromosome research:* Department of Botany, University of Calcutta; *plant morphology and embryology:* Department of Botany, University of Delhi; *plant pathology and mycology:* Department of Botany, University of Madras.

**CHEMISTRY.** *Chemistry of natural products:* Department of Chemistry, University of Delhi; *chemistry of textile fibres and dyes:* Department of

Chemical Technology, University of Bombay; *inorganic and physical chemistry:* Department of Inorganic and Physical Chemistry, Indian Institute of Science, Bangalore; *natural products:* Department of Chemistry, University of Calcutta.

**GEOLOGY.** *Economic geology:* Department of Geology, Jadavpur University; *Himalayan geology and palaeontology:* Department of Geology, Panjab University.

**MATHEMATICS.** *Pure mathematics:* Departments of Mathematics at each of University of Bombay (in collaboration with the Tata Institute of Fundamental Research, Bombay), Panjab University and University of Madras (with Ramanujan Institute of Mathematics, Madras).

**METALLURGICAL ENGINEERING.** *Physical and mechanical metallurgy:* Department of Metallurgical Engineering, Banaras Hindu University.

**MOLECULAR BIOPHYSICS.** *Structure and interaction of biomolecules:* Molecular Biophysics Unit, Indian Institute of Science, Bangalore.

**PHYSICS.** *Radiophysics and electronics:* Institute of Radiophysics and Electronics, University of Calcutta; *theoretical physics and astrophysics:* Department of Physics and Astrophysics, University of Delhi.

**ZOOLOGY.** *Cell biology and endocrinology:* Department of Zoology, University of Delhi; *marine biology:* Department of Marine Biology, Annamalai University.

**Departments of Special Assistance.** The Commission in 1972-73 initiated a programme of providing special assistance to certain selected departments. Departments not at the level of centres of advanced study, but which were capable of rising to this level with additional support were selected. The departments selected in 1972-73 were to be given support up to 1978-79 and their performance assessed with the help of assessment committees. On the basis of the reports of the assessment committees it would be decided whether the department could (a) continue under the programme of special assistance for some more time, or (b) be upgraded as a centre of advanced study, or (c) be removed from the programme. It has now been decided that no new department would be recognised directly as a centre of advanced study but would be initially supported under the special assistance programme for a period of 5 years, and then, depending upon the stage of development, the department could be considered for upgrading.

At present 97 departments are receiving special assistance. The subjects and institutions involved are:

#### *Humanities and Social Sciences*

ARCHAEOLOGY. Deccan College, Pune.

BENGALI. University of Burdwan.

ECONOMICS. Andhra University; M.S. University of Baroda; University of Calcutta; University of Madras; Osmania University; Presidency College, Calcutta; Punjabi University; Sri Venkateswara University.

GUJARATI. S.N.D.T. Women's University.

HINDI. Sardar Patel University.

HISTORY. University of Allahabad; M.S. University of Baroda; University of Calcutta; University of Mysore; Patna University.

KANNADA. University of Mysore.

PHILOSOPHY. Banaras Hindu University; University of Rajasthan; Visva-Bharati.

POLITICAL SCIENCE. M.S. University of Baroda; University of Rajasthan.

SOCIOLOGY. Panjab University; Ravishankar University.

#### *Science*

BIOCHEMISTRY. M.S. University of Baroda; University of Lucknow.

BIO-SCIENCES (interdisciplinary). Banaras Hindu University; M.S. University of Baroda; University of Kerala; Madurai-Kamaraj University; Saurashtra University.

BOTANY. Andhra University; University of Kalyani; University of Kerala; University of Lucknow; Patna University.

CHEMISTRY. University of Allahabad; University of Hyderabad; Indian Institute of Science, Bangalore; Jadavpur University; University of Madras; Osmania University; Panjab University; University of Poona; University of Rajasthan; Sardar Patel University.

ENGINEERING. Anna University (Chemical E.); Banaras Hindu University (Ceramic E.; Electronics E.; Mining E.); University of Bombay (Chemical E.); Indian Institute of Science, Bangalore (Civil E.; Electrical E.; Metallurgy); Indian School of Mines (Mining E.); Jadavpur University (Electrical E.; Production E.); University of Roorkee (Civil E.; Earthquake E.; Mechanical E.).

GEOGRAPHY. Aligarh Muslim University; Banaras Hindu University; Osmania University.

GEOLOGY. Andhra University; M.S. University of Baroda; University of Mysore; Presidency College, Calcutta; University of Roorkee.

MATHEMATICS. Aligarh Muslim University; Bangalore University; Indian Institute of Science, Banga-

lore; Jadavpur University; Madurai-Kamaraj University; University of Poona.

PHARMACY. Nagpur University; Panjab University.

PHYSICS. Aligarh Muslim University; Andhra University; Banaras Hindu University; Indian Institute of Science, Bangalore; University of Jammu; University of Madras; Panjab University; University of Poona; University of Roorkee.

STATISTICS. University of Poona.

ZOOLOGY. Andhra University; Banaras Hindu University; Bangalore University; University of Calcutta; Marathwada University; University of Mysore; Panjab University; University of Poona; University of Rajasthan.

**Departmental Research Support.** Under this scheme assistance is provided to selected departments to undertake specifically identified time-restricted research projects, initially for a three-year period, which could be extended to 5 years. No assistance is, however, available for creation of permanent posts or construction of buildings, etc., but equipment and research staff required to undertake the research project are provided. Depending upon the achievements in this period the department could be considered for upgrading to the next level. The number of departments receiving departmental research support is 46.

## STATISTICS

[Source: University Grants Commission, New Delhi]

**Total Student Enrolment\*.** In 1985-86, 3,570,897 students (2,512,285 men, 1,058,612 women) were enrolled in universities and their constituent and affiliated colleges. This excludes the number enrolled in pre-university and intermediate classes. The corresponding (estimated) total for 1984-85 was 3,538,930 (2,517,552 men, 1,021,378 women).

The total was made up as follows: undergraduate, 3,142,389; postgraduate, 339,235; research, 39,280; diploma/certificate, 49,993.

The distribution of the 3,570,897 students by categories of study was as follows: agriculture, 46,422; arts (including oriental learning), 1,439,071; commerce, 767,743; education, 82,131; engineering/technology, 164,261; law, 207,112; medicine, 128,552; science, 703,467; veterinary science, 10,713; others, 21,425.

The 378,515 postgraduate and research students were distributed by categories of study as follows (the figure in brackets is the number of research students included in the preceding figure): agriculture, 11,027 (3055); arts, 191,046 (17,930); commerce, 56,396 (1402); education, 5342 (762); engineering/technology, 8514 (1017); law, 3750 (189); medicine, 14,006 (471); science, 81,764 (13,473); veterinary science, 1692 (549); others, 4978 (432).

**Students from Other Countries.** See Appendix V.

**Degrees Awarded** (1984) (annual and supplementary examinations). *Agriculture:* BSc (agriculture 6531, dairy technology 103, fisheries science 51, horticulture 147); MSc (agriculture 2230, dairy technology/dairy science 130, fisheries science 24, horticulture 58). *Arts/oriental learning:* BA, 288,594; BA hons., 32,209; BA spec., 3076; BA (household arts 53, languages 21, rural science/rural service 47, social science 17; theology 14, vocational studies 268); BLitt, 722; BOL, 192; Palyacharya, 12; Shastri, 6970; MA, 111,862; MA (household arts 45, statistics 6, theology 2); MLitt, 21; Acharya, 1665; MOL, 57. *Commerce:* BCom, 151,138; BCom hons., 15,121; MCom, 22,036. *Education:* BEd/BT, 75,709; BA BEd/BSc BEd, 211; Shikshashastri, 297; MEd, 4314; MA/MSc (education), 46. *Engineering and technology:* bachelor's, 20,707; master's, 1554. *Law:* LLB/LLB spec./BL/BGL, 37,336; LLM/ML, 587. *Management:* BBA, 96; BBM, 241; MBA, 1974; MBM, 133; MBS, 6; MLS, 48. *Medicine* (including Ayurveda, dentistry, homeopathy, nursing, pharmacy and Unani): MB BS, 10,392; BSc (audiology & speech therapy 27; medicine 75; occupational ther-

apy 46, physiotherapy 52); MD, 2522; MS, 1373; MSc (medicine 96, occupational therapy 9, physical therapy 6, speech & hearing 10); MCh, 76; DM, 20; BSc (nursing), 515; MSc (nursing), 38; BDS, 691; MDS, 135; BPharm, 714; MPharm, 161; BAMS/BSAM/GAMS, 2728; Pranacharya, 98; BIM, 13; MD (Ayurveda), 96; Ayurveda Brahaspati, 5; Ayurvedacharya, 117; MAMS, 54; BUMS, 414; MD (Unani), 2; BHMS, 151. *Music/fine arts:* BMusic, 360; MMusic/MA (music), 372; BA (fine arts)/BFineArts, 258; MA (fine arts), 80. *Science:* BSc, 98, 244; BSc hons., 13,621; BSc(HomeSc), 3152; BSc hons. economics, 6; BSc (speech & hearing), 13; BASc, 19; MSc, 19,642; MSc (home science), 697; MSc hons. economics, 15; MSc (forensic science), 6; MSc (applied science), 20. *Veterinary science:* BVSc/BVSc&AH, 1284; MVSc, 330; MSc (animal science), 13. *Others:* BJourn, 282; BLib/BLibSc, 1555; BPed, 1789; BSW, 120; BRS, 337; MJourn, 91; MLib/MLibSc, 195; MPed, 368; MSW, 842; MLW, 19; MPA, 18; MLS, 49; MRS, 36.

*Doctorate degrees awarded* (1984-85) (including PhD). *Agriculture:* 576. *Arts:* 2798. *Commerce:* 196. *Education:* 239. *Engineering and technology:* 210. *Law:* 25. *Medicine:* 70. *Science:* 2977. *Veterinary science:* 102. *Others:* 56. Total: 7249.

\* Estimated.

# AGRA UNIVERSITY

Founded 1927

Postal Address: Paliwal Park, Agra, Uttar Pradesh, India 282004

Cables and Telegrams: Agra University, Agra, Uttar Pradesh

Telephone: Agra 64164-8

VISITOR—THE STATE GOVERNMENT OF UTTAR PRADESH

CHANCELLOR—THE GOVERNOR OF UTTAR PRADESH (*ex officio*)

VICE-CHANCELLOR—.....

REGISTRAR—S. B. B. SINGH, MA LLB

FINANCE OFFICER—.....

HONORARY LIBRARIAN—R. PRASAD, PhD

WARDEN—D. P. S. BHATI, MSc PhD

## UNIVERSITY TEACHING STAFF

(Teachers appointed by the univ.)

### Chemistry

Mehrotra, K. N., MSc PhD *L'now.*, DrPhil *Fran.*

### History

Asthana, Mrs. Pratima, MA PhD

### Mathematics

Sharma, G. C., MA PhD

### Physics

Goel, S. P., MSc PhD *L'now.*

### Zoology

Bhati, D. P. S., MSc PhD

3 Readers, 1 Lectr.

## UNIVERSITY INSTITUTES

### INSTITUTE OF HOME SCIENCE

..... Prof., Dir.  
2 Readers, 11 Lectrs.

### INSTITUTE OF SOCIAL SCIENCES

Joshi, D. D., DSc Prof.-in-Charge  
Sethi, V. K., MSc PhD (Stats.) Prof.  
Prasad Rajeshwar, MA PhD (Soc. Work) Prof.  
Prasad Chandi, MA PhD (Sociol.) Prof.  
Pande, S. V., PhD (Sociol.) Prof.  
8 Readers, 2 Lectrs.

### K.M. INSTITUTE OF HINDI STUDIES AND LINGUISTICS

Gupta, G. C., PhD (Hindi) Prof., Offg. Dir.  
Gupta, B. P., PhD (Linguistics) Prof.  
6 Readers, 4 Lectrs.

## AFFILIATED COLLEGES

[BA, BSc, etc., after the name of a coll. means that courses are provided there for BA, BSc, etc.]

AGRA, *Agra College*. BA, BSc, MA, MSc, LLB, LLM. Principal—S. N. Srivastava, DSc

AGRA, *Baikunthi Devi Girls' Degree College*. BA, BSc, MA, BEd, MEd. Principal—Mrs. Veena Goel, MA.

Prof. AGRA, *Raja Balwant Singh College*. BA, BSc, BCom, BSc(Ag), BEd, MA, MSc, MCom, MSc(Ag), MEd. Offg. Principal—Madhusudan Singh, MA PhD.

Prof. AGRA, *St. John's College*. BA, BSc, BCom, MA, MSc, MCom. Principal—G. M. Ram, MSc.

Prof. AGRA, *Shrimati Bhagwati Devi Jain Girls' College*. BA, BEd, MA. Principal—Mrs. K. M. Gautam, MA PhD.

Prof. AGRA, *S. N. Medical College*. MB BS, MD, MS, DCH, DMRE, DOMS, DTCD, DVD, DGO, DCP, dipls. in anæsthesiol., orthop. Principal—V. B. Sahai.

ALIGARH, *Dharam Samaj College*. BA, BSc, BEd, MA, MSc, MEd, LLB. Offg. Principal—B. B. L. Gupta, MSc PhD.

ALIGARH, *Tika Ram Kanya Mahavidyalaya*. BA, BSc, BEd, MA. Principal—Mrs. Usha Bhargava, MA PhD.

ALIGARH, *Varshneya College*. BA, BSc, BCom, MA, MSc, MCom, LLB, BEd. Offg. Principal—P. P. Arya, ME.

ALLAHABAD, *L.B.S. Homœopathic Medical College*. BHMS. Principal—R. P. Dubey, MA.

BAH, *Bhadawar Vidya Mandir Degree College*. BA. Principal—M. S. Bhadauria, PhD.

BHOGAON (MAINPURI), *National Degree College*. BA, MA. Principal—R. S. Saxena, MA.

BICH PURI (AGRA), *B. V. Rural Institute*. BA, MA. Principal—Y. P. Singh, PhD.

CHANDESHWAR (AJMGARH), *S.D.J. Homœopathic Medical College*. BHMS. Principal—M. L. Shukla.

DEOKALI (FAIZABAD), *Dr. B.K. Homœopathic Medical College*. BHMS. Principal—G. S. Srivastav.

DIGRI, *Homœopathic Medical College*. BHMS. Principal—J. N. Chaubey, MA.

ETAH, *Jawahar Lal Nehru Degree College*. BA, MA. Principal—R. N. Misra, PhD.

FIROZABAD, *C.L. Jain Degree College*. BSc, MSc. Principal—I. P. Agarwal, MSc.

FIROZABAD, *D.D. Degree College*. BA. Principal—Mrs. Sudha Awasthy, MA PhD.

FIROZABAD, *M. G. Balika Vidyalaya*. BA, BSc, MA. Principal—Mrs. Santosh K. Sharma, MA PhD.

FIROZABAD, *S.R.K. Degree College*. BA, BCom, MA, MCom. Principal—G. K. Agarwal, MA PhD.

GANJDUNDWARA (ETAH), *Ganjdundwara Postgraduate College*. BA, BSc, BEd, MA, MSc. Principal—S. L. Rathore, MA.

GAZIPUR, *Gazipur Homœopathic Medical College*. BHMS. Principal—R. A. Singh.

HATHRAS, *R.D. Kanya Mahavidyalaya*. BA. Principal—Miss Rashmi Rekha Pandey, MA PhD.

HATHRAS, *Saraswati Degree College*. BSc. Principal—R. Mohan, MA PhD.

HATHRAS, *Seth Phool Chand Bagla Degree College*. BA, BCom, MA, MCom. Principal—S. N. Bansal, MA PhD.

JALESAR (ETAH), *Govt. Degree College*. BA, BCom. Principal—Jaganath Arya, MA PhD.

JAUNPUR, *T.D. Homœopathic Medical College*. BHMS. Principal—A. N. Singh.

KANPUR, *Kanpur Homœopathic Medical College*. BHMS. Principal—G. B. Singh, GHMS Kanpur.

KASGANJ, *Kothiwal Artiya Postgraduate College*. BA, BCom, MA. Principal—S. S. Sharma, MA PhD.

KASGANJ, *Nagar Polika Kanya Degree College*. BA. Principal—Mrs. Sharda Johri, MA PhD.

KOSHI-KALAN (MATHURA), *B.B. Degree College*. BA. Principal—K. C. Khemka, MA.

LUCKNOW, *Mohan Homœopathic Medical College*. BHMS. Principal—N. B. Singh, GHMS Kanpur.

LUCKNOW, *National Homœopathic Medical College*. BHMS, GHMS. Principal—A. P. Singh, MB BS.



MAINPURI, *Chitra Gupta Postgraduate College*. BA, MA. Principal—Yogendra Singh, MA PhD.

MAINPURI, *R. C. Mahavidyalaya*. BA. Principal—Miss Sushila Tyagi, MA PhD.

MATHURA, *Babu Shivnath Agarwal Postgraduate College*. BA, BSc, MA, MSc, LLB. Principal—S. P. Gupta, MSc PhD.

MATHURA, *Kishori Raman Girls' Degree College*. BA, BEd. Principal—Madhu Seth, MA PhD.

MATHURA, *Kishori Raman Postgraduate College*. BA, BSc, BCom, MA, MSc, MCom. Principal—P. L. Bhargava, MA PhD.

MATHURA, *R. C. A. Girls' College*. BA. Principal—Mrs. P. Paliwal, MA PhD.

MATHURA (BISAWAR), *S. B. J. Degree College*. BA. Principal—S. Attri, MA.

MORADABAD, *K. G. K. Homœopathic Medical College*. BHMS. Principal—A. D. Kunwar, MA.

SHIKOHABAD, *Ahir Kshatriya Postgraduate College*. BA, BCom, MA, MCom. Principal—C. N. Dwivedi, MA PhD.

SHIKOHABAD, *B. D. Municipal Girls Postgraduate College*. BA, MA. Principal—Miss Nagina Jain, MA PhD.

SHIKOHABAD, *Narain Postgraduate College*. BA, BSc, BSc(Ag), MA, MSc. Offg. Principal—S. K. S. Chauhan.

SHIKOHABAD, *Paliwal Degree College*. BSc. Principal—T. C. Gupta, MSc PhD.

VRINDABAN (MATHURA), *Institute of Oriental Philosophy*. BA, MA. Principal—S. B. Goswami, MA PhD.

## GENERAL INFORMATION

Act VIII of 1926 of the United Provinces legislature, which came into force in 1927, provided for the establ. of a univ. 'for the purpose of affiliating the colls. associated with the Univ. of Allahabad' so as to set the latter free to function as a unitary teaching and residential univ. It empowered Agra Univ. to affiliate colls. in Uttar Pradesh, Madhya Bharat, Vindhya Pradesh, Ajmer and Bhopal, except within the limits of the univs. of Allahabad and Lucknow, but has since been amended to take account of the areas of jurisdiction of other univs. in the state. The univ. is now governed by the Uttar Pradesh State Univs. Act 1973 (Act no. 10 of 1973). To supplement the work in affiliated colls. the univ. may institute teaching posts and co-ordinate with teaching arrangements at selected centres. By an amendment of the act, the univ. has been empowered since 1981–82 to affiliate colls. of homœopathy throughout the state.

**Income** (1985–86). Total (estimated) income, Rs. 17,105,420 (incl. exam. fees, govt. grant and other fees).

**Faculties and Deans.** *Agric.*, J. P. Agrawal; *arts*, Prof. (Mrs.) Pratima Asthana (hist.); *comm.*, G. S. Varshney; *educn.*, R. M. Saraswat; *fine arts*, G. K. Agrawal; *home sci.*, .....; *homœopathic med.*, Principal G. B. Singh; *law*, S. C. S. Yadav; *med.*, Principal V. B. Sahai; *sci.*, Prof. S. P. Goel (phys.).

**Libraries.** 144,960 vols. in univ. res. libr.; 92 periodical subs. In addn., each affiliated coll. must maintain a libr. of its own.

**Laboratories** in various affiliated colls.

**Institute of Social Sciences** (for staff, see 'Univ. Insts.', above) offers instructn. (semester courses) for MA in sociol., MStat, MSW and MPhil in sociol. and stats.

**Institute of Home Science** (for staff, see 'Univ. Insts.', above) offers instructn. (semester courses) for BSc(HomeScience), and MSc in home sci.

**K.M. Institute of Hindi Studies and Linguistics** (for staff, see 'Univ. Insts.', above) offers instructn. for MPhil; MA in compar. lit., Hindi (spec. alternative course with Indian linguistics and lit. crafts) and linguistics; dipls. in historical linguistics, linguistics, linguistics survey techniques, mass media and translation; and certs. of proficiency in foreign langs. (German, French, Russian), in Hindi (for those whose mother tongue is not Hindi) and in mod. Indian langs. other than Hindi (for those whose mother tongue is Hindi).

No **Pre-University Courses** offered.

**Admission** to first degree courses. See also Appendix IV.

**Minimum age.** None, except for entry to MB BS: 17 yrs. on or before 1 Dec. of yr. of admission.

**Seat reservation.** 18 per cent. of seats are reserved for scheduled caste and 2 per cent. for scheduled tribe candidates (provided that eligible candidates are available).

**General requirement for entry to 1st yr. of a degree course** is the inter. exam. of the Uttar Pradesh Bd. of High Sch. & Inter. Educn. or 1st-yr. exam. of 3-yr. degree course of an Indian univ., or any other exam. (in the 10 + 2 system) recog. as equiv. by this univ.

**Additional course requirements.** Qualifying (inter.) exam. must have been passed with subjs. indicated. BSc: sci. subjs. (except that candidates who have passed inter. exam. with agric. may be admitted to not more than 25 per cent. of available BSc seats). BSc(Ag): agric. BCom: at least 2 comm. subjs. (or inter. exam. and comm. dipl. exam. of either U.P. Bd. or Univ. of All'd.). MB BS: biol. group; admission on basis of state govt. test.

**Students from abroad** are considered on their merits. Subj. to certain conditions, the following certs. are among those accepted as satisfying the gen. requirement. Internat. Baccalaureate. *Other Commonwealth. Britain, E. and W. Africa, Sri Lanka.* Gen. Cert. of Educn., Higher Sch. Cert. *Foreign. Germany. Abitur. Thailand.* Final exam. (2 yr. pre-univ. standard).

**Language.** Good command of Hindi or Engl. required.

**Application** is made direct to the univ. or affiliated colls. **Enquiries** to univ. registrar or coll. principal.

**First Degrees.** **Length of course** after inter. 2 yrs.—BA (regular and private course), BSc (regular course), BCom. 3 yrs.—BSc(Ag), BSc(HomeScience). 4½ yrs.—MB BS, BHMS. **Note.**—From 1988–89 session (starting with pt. I), all 2-yr. first degree courses will become 3-yr. courses.

All courses full-time, but BA and BCom may also be taken privately (see below). Min. attendance required at this univ. (or at an affiliated coll. of this univ.): as above, except for private candidates.

**Classification.** No separate hons. courses (except BSc(Ag) hons.), but MB BS and BHMS may be awarded with distinction. BA, BSc and BCom not awarded with hons. but classified div. I or II; BSc(Ag) classified div. I, II or III.

**Structure of arts and science degrees.** BA—3 elective subjs. and gen. Engl. or Hindi for 2 yrs. BSc (regular course)—3 elective subjs. for 2 yrs.

**Higher Degrees.** Applicants for admission must normally hold an appropriate first degree of an approved univ. The periods of advanced study and res. indicated below must be spent in *this univ.*, or in a coll. affiliated to it, except for private candidates (see below).

BEd—1 yr. full-time from graduation; by course of instructn. and exam.

LLB—3 yrs. full-time from graduation; by course of instructn. and exam. Awarded in div. I or II.

MEd—1 yr. full-time or 2 yrs. pt.-time from BT, LT or BEd; by course of instructn., dissertation, and written and oral exams.

MA—2 yrs. full-time (*but see also* 'Private Study', below); by course of instructn. and exam. in one of: agric. econ. & co-op., anc. Indian hist. & culture, Arabic, compar. lit., diplomacy & internat. affairs, drawing & painting, econ., Engl., French, geog., German, Greek, Hebrew, Hindi, hist., Italian, lang. & lit., Latin, linguistics, Marathi, maths., mental & moral sci., Persian, pol. sci., Sanskrit, sociol. (alternative course in sociol. taught in inst. of soc. scis. only), Urdu.

MStat—4 semesters full-time; by course of instructn. and exam.

MSc—2 yrs. full-time; by course of instructn. and exam. in one of: bot., chem., home sci., maths., phys., stats., zool.

MSc(Ag)—2 yrs. full-time; by course of instructn. and exam. in one of: agric. bot., agric. chem., agric. econ., agric. extension, agric. zool. & entomol., agron., animal husb. & dairying, hort., plant pathol., soil conservation.

MCom—2 yrs. full-time (*but see also* 'Private Study', below); by course of instructn. and oral and written exams.

MSW—4 semesters full-time; by course of instructn., field work and written and oral exams.

LLM—2 yrs. full-time after LLB; by course of instructn. and exam.

MD, MS—open *only* to holders of MB BS of this univ. after 3 yrs.' practice; by thesis and written, clin., oral and practical exams. MD may be taken in one of: anaesthesiol., med., paed., pathol., pharmacol., physiol., psychol. med., radiol., soc. & prev. med. MS may be taken in one of: anat., obstet. & gynecol., ophthalmol., orthop. surg., oto-rhino-laryngol., surg.

MPhil—1 yr. after bachelor's degree; by course of instructn., exam. and dissertation in one of: chem., Hindi, Indian hist. & culture, linguistics, maths., phys., sociol., stats., zool.

PhD (in agric., arts, comm., educn., law, med., sci.)—min. 2 yrs.' res. work after master's degree; by thesis in approved topic and oral exam.

DLitt, DSc—min. 2 yrs. after PhD or 5 yrs. after master's degree (where exemption is granted from PhD consequent on published work); by approved res. and thesis.

**Honorary Degrees.** DLitt, DSc, LLD.

**Private Study.** BA and MA (in subjs. not involving practicals), BCom and MCom may be taken privately by those residing within territorial jurisdiction of the univ.

**Diplomas.** Postgrad.: DCH, DCP, DGO, DMRE, DOMS, DTCD, DVD, anaesthesiol., embryol., orthop., oto-rhino-laryngol., psychol. med., each 1 yr.'s course in addition to 1 yr.'s internship in a recog. hosp.; linguistics, theory of translation, 1 yr. after MA; res. methodol., Indian music,

music, 1 yr.; higher proficiency in Hindi phonetics, 3 mos. Tourism & hotel management, 1 yr.

**Certificates.** Proficiency in French, German or Russian, 2 yrs. after inter.; in Indian & foreign langs. (Gujarati, Marathi, Kannada, Telugu, Malayalam,

French and German), 6 mos. after inter.; Hindi phonetics, 3 mos. after inter.

**Research** facilities in univ. depts. and the 3 univ. insts. and in affiliated colls. providing postgrad. courses.

[Information compiled as at 8/1/87]

# UNIVERSITY OF AGRICULTURAL SCIENCES BANGALORE

Founded 1964

Postal Address: Hebbal, Bangalore, Karnataka, India 560024

Cables and Telegrams: Univagris, Bangalore

Telephone: (Registrar) 360984 (G.K.V.K. exchange) 366753

Telex: 8458393 UASK IN

CHANCELLOR—H. E. THE GOVERNOR OF KARNATAKA (*ex officio*)

PRO-CHANCELLOR—THE MINISTER FOR AGRICULTURE, GOVERNMENT OF KARNATAKA (*ex officio*)

VICE-CHANCELLOR—S. V. PATIL, MSc(Agri) PhD

DEAN—R. RAMANNA, MS *Tennessee*, PhD *I.A.R.I.*

DIRECTORS—EXTENSION—M. K. SETHU RAO, MS *Missouri*, PhD *I.A.R.I.*; RESEARCH—K. KRISHNA

MURTHY, PhD *R'dg.*

REGISTRAR—S. BISALIAH, MA PhD *Minn.*

## CONSTITUENT COLLEGES

(Teachers appointed by the univ.)

COLLEGE OF AGRICULTURE,  
GANDHI KRISHI VIGNANA KENDRA

Director of Instruction-in-Charge—G. V. Havanagi,  
PhD *I.A.R.I.*

### Agricultural Botany

Veerappa, K. B., PhD *I.A.R.I.*, MSc(Agri) Prof. i.c.  
1 Assoc. Prof., 5 Asst. Profs.

### Agricultural Economics

Venkataram, J. V., MSc(Agri) PhD *Ill.* Prof.  
Nanja Reddy, C., MSc(Agri) PhD Prof.  
4 Assoc. Profs., 7 Asst. Profs.

### Agricultural Engineering

Ramaiah, R., BSc(Agri) BE MTech Prof.  
1 Assoc. Prof., 4 Asst. Profs.

### Agricultural Extension

Jayaramaiah, K. M., PhD *I.A.R.I.* Prof.  
3 Assoc. Profs., 5 Asst. Profs.

### Agricultural Marketing and Co-operation

Chengappa, P. G., PhD Prof.  
3 Assoc. Profs., 5 Asst. Profs.

### Agricultural Microbiology

Vittal Rai, P., MS PhD *Montana*,  
MSc(Agri) Prof.  
2 Assoc. Profs., 2 Asst. Profs.

### Agronomy

Havanagi, G. V., PhD *I.A.R.I.* Prof.  
Shivashankar, K., MS PhD *Louvain* Prof.  
4 Assoc. Profs., 7 Asst. Profs.

### Chemistry and Soils

Siddaramappa, R., MSc(Agri) PhD *Orissa* Prof.  
2 Assoc. Profs., 4 Asst. Profs.

### Crop Physiology

Udaya Kumar, M., PhD Prof.  
3 Assoc. Profs., 1 Asst. Prof.

### Entomology

Veeresh, G. K., MSc *I.A.R.I.*, PhD Prof.  
Devaraj Urs, K. C., PhD *Kansas* Prof.  
4 Assoc. Profs., 4 Asst. Profs.

### Home Economics

1 Assoc. Prof., 4 Asst. Profs.

### Horticulture

Bhojappa, K. M., MSc PhD *I.A.R.I.* Prof.  
Mudappa Gowda, P., PhD *Tennessee* Prof.  
Thimmaraju, K. R., PhD Prof.  
3 Assoc. Profs., 7 Asst. Profs.

### Plant Pathology

Ramachandra Reddy, H., PhD *I.A.R.I.*,  
MSc(Agri) Prof.  
5 Assoc. Profs., 5 Asst. Profs.

### Seed Technology

Mahadevappa, M., MSc(Ag) PhD *Madr.* Prof.  
2 Assoc. Profs., 2 Asst. Profs.

### Sericulture

Devaiah, M. C., PhD Prof.  
5 Assoc. Profs., 1 Asst. Prof.

## COLLEGE OF BASIC SCIENCES AND HUMANITIES

[(G) = Teachers located at Gandhi Krishi Vignana  
Kendra campus, Bangalore; (M) = at Mangalore]

Director of Instruction-in-Charge—N. Sunder Raj,  
MSc PhD *Minn.*

### Biochemistry

Virupaksha, T. K., MSc PhD *Calif.* Prof.  
1 Assoc. Prof., 3 Asst. Profs.

### Botany

1 Assoc. Prof., 3 Asst. Profs. (incl. 1 Curator)

<b>Chemistry</b>	
2 Assoc. Profs., 1 Asst. Prof. (G), 1 Asst. Prof. (M)	
<b>Economics</b>	
Bisaliah, S., MA PhD <i>Minn.</i>	Prof.
2 Assoc. Profs., 7 Asst. Profs.	
<b>English</b>	
2 Assoc. Profs., 2 Asst. Profs., 1 Asst. Prof. (M)	
<b>Kannada Studies</b>	
Narasimhe Gowda, H. K., MA	Prof.
1 Assoc. Prof., 1 Asst. Prof.	
<b>Mathematics</b>	
4 Assoc. Profs., 1 Asst. Prof.	
<b>Microbiology</b>	
2 Assoc. Profs. (G), 1 Asst. Prof. (G)	
<b>Physical Education</b>	
1 Assoc. Prof., 1 Asst. Prof., 1 Asst. Prof. (M)	
<b>Physics</b>	
2 Assoc. Profs., 1 Asst. Prof., 1 Asst. Prof. (M)	
<b>Psychology</b>	
1 Assoc. Prof.	
<b>Sociology</b>	
2 Assoc. Profs., 3 Asst. Profs.	
<b>Statistics</b>	
Sunder Raj, N., MSc PhD <i>Minn.</i>	Prof.
4 Assoc. Profs., 4 Asst. Profs. (G)	
<b>Zoology</b>	
1 Assoc. Prof., 1 Asst. Prof.	
 COLLEGE OF POSTGRADUATE STUDIES, GANDHI KRISHI VIGNANA KENDRA Director of Instruction (Postgraduate Studies)—G. Shivashankar, PhD <i>Tennessee</i> , MSc(Ag) Staff recog. as postgrad. teachers of the coll. are attached to other depts. and colls.	
 FISHERIES COLLEGE, MANGALORE Director of Instruction—H. P. C. Shetty, MSc	
<b>Aquaculture</b>	
Varghis, T. J., PhD <i>Agra</i>	Prof.
1 Assoc. Prof., 3 Asst. Profs.	
<b>Biochemistry</b>	
1 Assoc. Prof., 1 Asst. Prof.	
<b>Canning</b>	
1 Assoc. Prof., 1 Asst. Prof.	
<b>Fishery Biology</b>	
Shanbhague, S. L., PhD <i>Bom. &amp; Wash. State</i>	Prof.
1 Assoc. Prof., 8 Asst. Profs.	
<b>Fishery By-Products</b>	
1 Assoc. Prof.	
<b>Fishery Engineering</b>	
Salian, P. K., BE	Prof.
1 Assoc. Prof., 2 Asst. Profs.	
<b>Fishery Processing Technology</b>	
Rudrasetty, T. M., PhD <i>I.I.Sc.</i>	Prof.
1 Asst. Prof.	

<b>Fish Oceanography and Limnology</b>	
Reddy, M. P. M., PhD <i>And.</i>	
2 Assoc. Profs., 1 Asst. Prof.	
<b>Fish Resources and Economics</b>	
1 Asst. Prof.	
<b>Freezing</b>	
1 Assoc. Prof.	
<b>Ham and Sausage</b>	
1 Assoc. Prof., 1 Asst. Prof.	
<b>Marine Biology</b>	
1 Assoc. Prof., 1 Asst. Prof.	
<b>Microbiology</b>	
1 Assoc. Prof., 2 Asst. Profs.	
<b>Statistics</b>	
1 Assoc. Prof., 1 Asst. Prof.	
<b>Weed Control</b>	
1 Asst. Prof.	

# VETERINARY COLLEGE, HEBBAL Director of Instruction—A. Viswanatha Rai, BVSc PhD *Tennessee*

<b>Anatomy</b>	
1 Assoc. Prof., 3 Asst. Profs.	
<b>Animal Genetics and Breeding</b>	
Viswanatha Rai, A., BVSc PhD <i>Tennessee</i>	Prof.
1 Assoc. Prof., 3 Asst. Profs.	
<b>Animal Nutrition</b>	
Das, T. K., PhD <i>Lond.</i>	Prof.
2 Assoc. Profs., 2 Asst. Profs.	
<b>Dairy Chemistry</b>	
Gajanan, S. B., MSc PhD <i>Punj.</i>	Prof.
1 Assoc. Prof., 2 Asst. Profs.	
<b>Dairy Engineering</b>	
Basavakumar, T. M.	Prof.
1 Assoc. Prof., 2 Asst. Profs.	
<b>Dairy Microbiology</b>	
Shankar, P. A., MSc PhD	Prof.
1 Assoc. Prof., 2 Asst. Profs.	
<b>Dairy Production</b>	
Prabhakar Hegde, B.	Prof.
1 Assoc. Prof.	
<b>Dairy Technology</b>	
Atma Ram, K., PhD <i>Tennessee</i>	Prof.
1 Assoc. Prof., 2 Asst. Profs.	
<b>Gynaecology and Obstetrics</b>	
2 Assoc. Profs.	
<b>Hospital</b>	
1 Asst. Prof.	
<b>Meat Science</b>	
1 Assoc. Prof.	
<b>Medicine</b>	
2 Assoc. Profs., 9 Asst. Profs.	
<b>Parasitology</b>	
Abdul Rehman, S., PhD <i>Q'ld.</i> , MVSc	Prof.
1 Assoc. Prof., 1 Asst. Prof.	
<b>Pharmacology</b>	
Honne Gonda, MVSc PhD <i>Haryana Ag.</i>	Prof.
1 Assoc. Prof., 1 Asst. Prof.	
‡ Gandhi Krishi Vignana Kendra campus, Bangalore.	

<b>Physiology</b>	
Thimmaiah, K., BSc(Vet) MS <i>Kansas</i>	(Hosp.) Prof.
1 Assoc. Prof., 1 Asst. Prof.	
<b>Poultry</b>	
Ramappa, B. S., PhD <i>B.C.K.V.</i> , MS <i>Conn.</i>	Geneticist
2 Assoc. Profs., 2 Asst. Profs.	
<b>Surgery</b>	
Jayadevappa, S. M., MVSc <i>Agra</i>	Prof.
1 Assoc. Prof., 2 Asst. Profs.	
<b>Veterinary Microbiology and Hygiene</b>	
2 Assoc. Profs., 4 Asst. Profs.	
<b>Veterinary Pathology</b>	
Seshadri, S. J., MVSc	Prof.
1 Assoc. Prof., 4 Asst. Profs.	

## GENERAL INFORMATION

The univ., establd. under the Mysore Univ. of Agric. Scis. Act, 1963 of the Mysore legislature, began to function in Aug. 1964. The 2 colls. of agric. at Hebbal (now G.K.V.K.‡) (Bangalore) and Dharwad and the vet. coll. at Hebbal (Bangalore) together with 35 res. stns. were transferred to it on 1 Oct., 1965. With effect from 1 Oct. 1986, the colls. of agric. at Dharwad and Raichur; Agric. Engin. Inst., Raichur; Vet. Coll., Bidar; and Coll. of Postgrad. Studies and Coll. of Rural Home Sci. at Dharwad were transferred to the newly establd. Univ. of Agric. Scis., Dharwad.

The univ., modelled on the pattern of the land grant instns. of the U.S.A. is residential and aims to integrate teaching, res. and extension educn. in agric. scis. (covering all aspects of agric. prodn., livestock, home econ. and upliftment of the rural community). The dean and the dirs. of instrcn. of the colls. are in overall charge of resident instrcn., the dir. of res. in charge of res. conducted in res. stns. and colls., and the dir. of extension in charge of extension educn. The term 'teacher' in this univ. includes persons engaged in teaching, res. or extension educn.; every teacher is concerned mainly with one of these three, but is required to devote pt. of his time to the other two.

**Constituent Colleges.** G.K.V.K.‡: Coll. of Agric. (tel.: 366753, 4 lines), Coll. of Basic Scis. & Humanities (tel.: 360422) and Coll. of Postgrad. Studies (tel.: 366753). *Hebbal*: Vet. Coll. (tel.: 367509). *Mangalore*: Fisheries Coll. (tel.: 24636).

G.K.V.K.‡ Agric. Coll. for BSc(Agri), BSc (agric. marketing & co-op.), BSc(Hort), BSc(Sericulture), BSc(Forestry), MSc(Hort), MSc(Agri) and PhD; Hebbal Vet. Coll. for BVSc, BSc(DT), MSc(DSc), MVSc and PhD; Fisheries Coll. for BFSc, MFSc and PhD.

**Income** (1986-87). Total, Rs. 132,298,000 (state grants, 60.2 per cent.; Indian Council of Agric. Res., 30 per cent.; govt. of India, 1.8 per cent.; other sources, 8.8 per cent.).

**Faculties.** Agric.; animal & vet. scis.; basic scis. & humanities. (There are no deans of facs.).

**Libraries.** Univ. libr. at Hebbal and G.K.V.K.‡: (a) 127,600 vols.; (b) 1139 journals subscribed to. **Campus libr.** at Fisheries Coll., Mangalore: (a) 19,900, (b) 252. Also smaller libr. at regional res. stns. at Mandya and Mudigere and agric. res. stns.

**Electron Microscope.**



**Research Stations.** 4 regional res. stns. (at Bangalore, Mandya, Mudigere and Bramhavar) are controlled by the univ. as are also certain smaller stns. in other places in the jurisdiction of the univ., numbering in all 18.

**Post-Harvest Technology Centre.** A scheme to devel. technol., implements and machinery aimed at econ. improvement in storage, processing and marketing, elimination of drudgery and generation of new employment. Leader: K. C. Krishnamurthy, BE MSc. 4 Asst. Profs.

No **Pre-University Courses** offered.

**Admission** to first degree courses. See also Appendix IV.

**Minimum age.** None.

**Seat reservation.** See 'Students from abroad', below.

**General requirement** for entry to 1st yr. of a degree course is a pass in the 2 yr. pre-univ. exam. of Karnataka Pre-Univ. Bd. or its equiv. with chem., maths. and phys. plus 1 of agric., biol., bot., zool.; or biol., chem. and phys., plus agric. or maths. Candidates should have obtained at least 55 per cent. marks in 2nd yr. of 2-yr. pre-univ. exam.

For scheduled caste, scheduled tribe and backward tribe students a pass is sufficient.

**Students from abroad.** Candidates satisfying the above requirements may approach Indian Council of Agric. Res. for nomination to seats reserved for the Council.

**Language.** Good command of Engl. essential.

**Application** is made direct to the univ. **Closing date.** Notification is given in June. **Enquiries** to univ. registrar.

**First Degrees.** Length of course after pre-univ. 4 yrs.—BSc(Agri), BSc(Hort), BSc(Sericulture), BFSc, BSc (agric. marketing & co-op.), BSc(For-estry). 5 yrs.—BVSc, BSc(DT).

All courses full-time. Min. attendance required at this univ.: as above.

**Classification.** Performance of each student in each course graded as A, B, C, D or F and an overall grade point average awarded up to a max. of 4.

**Subjects of specialization.** In final yr. BSc(Agri) students may specialize in one of: agric. bot., agric. econ. & rural sociol., agric. engin., agric. extension educn., agron. & farm management, chem. & soils, entomol., hort., plant pathol.

**Higher Degrees.** Applicants for admission to master's degree courses must hold a bachelor's degree in the relevant subj. with not less than 50 per cent. of marks in the subj. concerned, and pass the qualifying test and viva-voce. The periods of advanced study and res. indicated below must be spent in this univ. Grades awarded in individual courses as for first degrees (see above).

MSc(Agri), MSc, MSc(Seri), MVSc, MFSc, MSc(DSc), MSc(Hort)—normally 2 yrs. full-time; ptly. by course work and ptly. by thesis after res. in the relevant field of specialization in one of: (MSc(Agri)) agric. entomol., agron., crop physiol., hort., plant breeding & genetics, plant pathol., seed technol., soil & water conservation engin., soil sci.; (MSc) agric. biochem., agric. econ., agric. extension, agric. microbiol., agric. stats., foods & nutr., poultry sci.; (MSc(Seri)) sericulture; (MVSc) animal genetics & breeding, animal nutr., pharmacol., vet. anat., vet. gynaecol. & obstet., vet. med., vet. microbiol., vet. parasitol., vet. pathol., vet. physiol.; (MFSc) fish prodn. & management, indust. fishery technol.; (MSc(DSc)) dairy chem., dairy microbiol., dairy technol.; (MSc(Hort)) floriculture & plantation crops, olericulture, pomol.

PhD (in many of the subj. areas taught at agric., fisheries, and vet. colls. (see 'Constituent Colls.', above))—normally 3 yrs. full-time; ptly. by course work and ptly. by thesis; pt-time assts. take longer to complete programme.

**Honorary Degrees** may be conferred.

The univ. does not award **External Degrees**.

**Diplomas.** Sericulture, postgrad., after BSc(Agri), BSc(Hort), etc. (2 yrs. field experience required for grads. in certain sci. subjs.); intensive crop. prodn., 1 yr. after BSc(Agri) or BSc(Hort) of this univ.

**Research** facilities in principal depts. on each campus; exper. stns. in different pts. of the state (e.g. sugarcane res., cardamom res., oilseeds res. (sunflower) at regional res. stns. in G.K.V.K., Mandya and Mudigere respectively). See also 'Res. Stns.', above. Project approach adopted to res. in agric. scis.

## Statistics

STUDENT NUMBERS, 1986–87  
(as at the beginning of the academic year)

	Full-Time	Part-Time
Men	2381	14
Women	287	—
Total	2668	14

Distribution by Faculties. Agric., 1412; animal & vet. scis., 790; basic scis. & humanities, 480. Total: 2682.

Included in the figures above are:—

Pre-University or Intermediate students, nil.

Affiliated college students, nil.

Postgraduate students, 748.

New admissions, 883.

Students from other countries, 15. (Country from which largest number came: Afghanistan, 5).

DEGREES AWARDED (1987). PhD, 33; MSc(Agri), 141; MHSc, 2; MVSc, 21; MSc(DSc), 10; MSc(PS), 3; MFSc, 17; MSc(Hort), 19; BSc(Agri), 265; BSc(Hort), 43; BSc (agric. marketing & co-op.), 30; BHSc, 4; BVSc, 97; BFSc, 18; BSc(DT), 12; BSc(Sericulture), 11.

DIPLOMAS AWARDED (1986–87). Postgrad. dipl. in crop prodn., 3.

[Information compiled as at 23/11/87]

# ALAGAPPA UNIVERSITY\*

Founded 1985

Postal Address: Alagappa Nagar, Karaikudi, Tamil Nadu, India 623004

Telephone: Karaikudi 2584 (Vice-Chancellor); 2539 (Registrar)

CHANCELLOR—THE GOVERNOR OF TAMIL NADU

PRO-CHANCELLOR—THE MINISTER FOR EDUCATION, TAMIL NADU (*ex officio*)

VICE-CHANCELLOR—MRS. RADHA THIAGARAJAN, MA PhD

REGISTRAR—N. THIRUNAVUKKARASU, MA MSc MPhil

CONTROLLER OF EXAMINATIONS—N. THIRUNAVUKKARASU, MA MSc MPhil

FINANCE OFFICER—S. A. PUGALESWARAN, BA

\* Member of the Association of Commonwealth Universities