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ABSTRACT

This study, one in a series on education in the Soviet Union, focuses on the status of higher education in the system and in the state. In an introductory section, basic legislation and decrees and the education ladder, or organizational structure, are outlined. The second section describes the organization, functions, and institutions of the U.S.S.R. Ministry of Higher and Secondary Specialized Institutions, and the Republic Ministries of Higher and Secondary Specialized Education. Basic requirements for admission to higher education and admission to specialties are outlined in section three. The fourth section focuses on higher education programs: types of institutions, undergraduate study, and graduate study. Teacher education and certification, including teacher-training institutions and curricula and certification procedures are considered in section five, and the growth of higher education in the 1970's is analyzed in the final section, where data on specialty group enrollments and enrollments of women and full- and part-time students are presented. Appended are lists of official Soviet specialties in higher education, the names of the higher education institutions especially recognized by the Soviet government for their achievements in training specialists and in research, and a list of references. (MSE)

Education in the U.S.S.R.

Current Status of Higher Education

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Office of Education

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Education in the U.S.S.R.

Current Status of Higher Education

by
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Foreword

This study is one of a series of U.S. Office of Education (USOE) publications on education in the Union of Soviet Socialist Republics. It is the first to focus specifically on higher education since the 1963 USOE publication by the same author entitled *Higher Education in the U.S.S.R.: Curriculums, Schools, and Statistics*. To some extent the present report represents an updating of the previous work.

Like its predecessors in the USOE series of studies on education in the Soviet Union, this report serves as a valuable guide to an important aspect of contemporary Soviet education. The related USOE publications during the decade of the 1970's are *Education in the U.S.S.R.: Research and Innovation* (1978), *Education in the U.S.S.R.: Recent Legislation and Statistics* (1975), and *Soviet Programs in International Education* (1971), all by Seymour M. Rosen, author of the present publication, and *Education in the U.S.S.R.: A Bibliography of English-Language Materials, 1965–1973* (1974), by Nellie Apanasewicz.

While this study as a whole should be of interest to a variety of groups from comparative education professors and students to researchers on the U.S.S.R., individual sections should be of particular value to certain categories of readers. The section on administration and the appendix on notable higher education institutions should be helpful to those involved with U.S.–U.S.S.R. academic exchange programs and to education administrators. The section on admissions and the appendix listing higher education specialties should prove useful to U.S. college registrars, admissions officers, and others concerned with placement of enrollees having previous postsecondary education or training in the Soviet Union. The sections on programs in higher education and teacher education should interest both groups as well as specialists in comparative education. Higher education statistics seem to be of continuing interest to a broad range of readers, governmental and nongovernmental.

Publication of this study will contribute in various ways toward helping the United States carry out its commitment under that provision in the Helsinki Agreement of 1975 of the Conference on Security and Cooperation in Europe in which all signatory nations agree to:

> "... encourage the study of foreign languages and civilizations as an important means of expanding communication among peoples for their better acquaintance with the culture of each country, as well as for the strengthening of international cooperation ..."

The study is being published at a propitious time. The general terest of American higher education in international cooperation is the verge of developing major momentum through the newly blished Consortium for International Cooperation in Higher cation (CICHE), which is a cooperative initiative of five major ciations representing more than 90 percent of all American col- s and universities:

- American Association of Colleges for Teacher Education
- American Association of Community and Junior Colleges
- American Association of State Colleges and Universities
- International Council on Education for Teaching
- National Association of State Universities and Land-Grant Colleges

This consortium provides a dynamic new framework for facilitating communication and activities linking the American higher education community with the world education community, for what can be learned as well as shared or cooperatively explored and developed.

Both in specific relation to the Helsinki Agreement and to the general national interest in fostering international understanding on a global basis, this report will make readily available to the American higher eduation community a concise summary of contemporary higher education in the U.S.S.R., a major nation of special significance to the United States.

The author, Seymour M. Rosen, has been USOE's specialist on Soviet education since 1960. He has made six study trips to the U.S.S.R. since 1961. As with previous works, he has relied to some extent on unpublished materials secured during the trips to supplement reporting based on analysis of recent Soviet published works.

Robert Leestma
Associate Commissioner
for Institutional Development
and International Education

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1. Introduction

Basic Legislation and Decrees

Education in the U.S.S.R., including higher education, has a legislative base beginning with the Constitution. As with the U.S.S.R. Constitution of 1936 (amended), the new Constitution of October 1977 has an article on the right to education:[1]

> Article 45. Citizens of the U.S.S.R. have the right to education.
>
> This right is ensured by free provision of all forms of education; by the institution of universal, compulsory secondary education, and broad development of vocational, specialised secondary, and higher education, in which instruction is oriented toward practical activity and production; by the development of extramural, correspondence and evening courses; by the provision of state scholarships and grants and privileges for students; by the free issue of school textbooks; by the opportunity to attend a school where teaching is in the native language; and by the provision of facilities for self-education.

Both constitutions have provided for education free of tuition fees at all levels and have linked all levels of education, including higher education, to the production needs of the economy. The main difference is that the Constitution of 1977 has raised the level of compulsory education to include not only grades 1 through 8 (as in the earlier Constitution) but also grades 9 and 10 — called complete secondary — in the general education system.

The chief piece of legislation specifically directed to education, and incorporating elements of earlier major legislation on education, is entitled the "Fundamentals of Legislation of the U.S.S.R. and Union Republics on Public Education." Issued in July 1973, it was discussed and excerpted in a previous publication of this series.[2]

Within the "Fundamentals," a section of five articles is devoted to higher education, defining higher educational institutions and their functions (or "main tasks"), rights of enrollment and practical training of students, and awarding of diplomas. The "main tasks" of higher education institutions include: [3]

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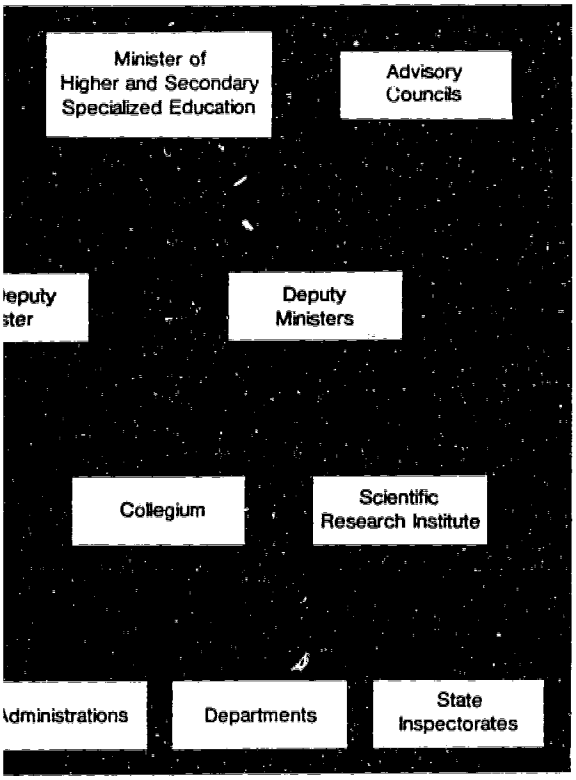
[1] *Soviet Life*. January 1978.

[2] *Education in the U.S.S.R.: Recent Legislation and Statistics*. U.S. Department of Health, Education, and Welfare, Office of Education. Washington: U.S. Government Printing Office, 1976.

[3] Ibid., p. 21.



alified specialists who have mastered Marxist-Leninist
knowledge, and practical skills in a specialty. . . .
high moral qualities, communist consciousness, culture,
oviet patriotism and readiness to defend the socialist

ations on higher education had been issued in
U.S.S.R. Council of Ministers, entitled "Regu-
Educational Institutions of the U.S.S.R.," [4] and
e of the CPSU (Communist Party of the Soviet
nittee and the U.S.S.R. Council of Ministers,
s for the Further Improvement of Higher Edu-
s

s set up legalistically, with a listing of general
d teacher obligations, instructional forms and
and rights of higher educational institutions in
. The latter decree is hortatory, calling for im-

ucation. Combined issue of July–August–September 1970,

–34.

plementation of directives of the Communist Party Congress and outlining the need for corrections of various deficiencies in the higher education system.

The growth of higher education is also regulated in the Soviet system of total national economic planning under the periodic Five-Year Plans. Thus, the decree on "Main Directions for the Development of the U.S.S.R. National Economy in 1976–1980," or the tenth Five-Year Plan, adopted at the 20th CPSU Congress in March 1976, called for training 9.6 million specialists and technicians through higher and secondary specialized education in that 5-year period. (Other officials have called for increasing the ratio of secondary-level technicians to higher education specialists.) This training goal, while large in absolute terms, represented a planned growth of only about 5.4 percent over the some 9.1 million trained during the previous ninth Five-Year Plan (1971–1975). Thus, the constitutional raising of the level of compulsory education to include grades 9 and 10 ("complete secondary" education) would not appear to have significantly increased the planned numbers of those receiving a higher education in the U.S.S.R.

The Education Ladder

Kindergarten, for children ages 3 to 7, is not compulsory in the U.S.S.R. Compulsory education begins in the first grade at age 7 and extends through completion of secondary education (grade 10). Primary education extends from grades 1 to 3, and "incomplete secondary" education from grades 4 to 8. Since 1959, a student progressing through "incomplete secondary" education has been a graduate of an 8-year school (grades 1-8). (Before 1959, he or she was a graduate of a 7-year school.) The upper or "complete secondary" grades are generally 9 and 10; thus, a student who has progressed through "complete secondary" education is a graduate of a 10-year school (grades 1-10). In the Baltic republics (Lithuania, Latvia, Estonia), there is an 11th year of schooling also.

Regular 10-year or 11-year elementary-secondary schools of general education, attended by most students, are also referred to as "secondary general and polytechnical schools with vocational training." "Polytechnical education," involving knowledge of the world of work, is built into the general education school curriculum from the earliest grades; it includes study of the relationship of the physical sciences to their practical application in industry and also some elementary practical training in specific fields.

Specific vocational training, as distinct from polytechnical education, is given after a student leaves the 8-year school, either in a vocational school or in a "specialized secondary technical school." Examples of the latter are the (lower) medical schools, which produce

"feldshers," or doctor's assistants, and the technicums, which train engineering support personnel. These 3- to 4-year vocational or specialized secondary schools also include general education in their curriculum and provide access to higher education, though to a more limited extent in practice than the schools of general education. General secondary schools grant a maturity certificate; vocational and technical schools grant a diploma.

Higher education ranges in duration from 4 to 6 years depending on the field of study, as detailed in the section on programs in higher education. Graduates of universities and institutes receive a higher education diploma of specialization. Graduate study beyond the diploma is called *aspirantura*, generally extends for 3 years, and culminates in the granting of the *kandidat nauk* (candidate of sciences) degree.

2. Administration of Higher Education

The system of administration of higher education in the U.S.S.R. forms a chain extending downward from the central Ministry of Higher and Secondary Specialized Education (*Minvuz*) in Moscow (which is one of the Government ministries under the U.S.S.R. Council of Ministers), through the 15 constituent-Republic counterpart ministries (directly responsible to the *Minvuz* in Moscow and to their Republic Councils of Ministers) and other Republic government ministries directly supervising the higher education institutions (*VUZy*), to the administrative apparatus within the *VUZy* themselves. Since higher education, like other fields, is part of the total political and economic concern of the Soviet Communist Party and Government, overall planning and control extend beyond the Party leadership and the Section of Science and Schools of the Communist Party Central Committee downward to Party departments within each school; and from the Government State Planning Commission (*Gosplan*) in Moscow to parallel bodies in the 15 Republics. This chapter focuses on administration within the Central Government agencies (as distinct from those at lower levels) primarily responsible for higher education.

U.S.S.R. Ministry of Higher and Secondary Specialized Institutions

Functions

The U.S.S.R. Ministry of Higher and Secondary Specialized Education, the Russian name for which is *Ministerstvo vysshego i srednego spetsialnego obrazovaniia SSSR*, often shortened to *Minvuz*, is the Central Government ministry responsible for directing the system of training specialists (in higher education) and technicians (in secondary specialized education). The major functions of the *Minvuz* are to: [1]

1. Develop the system of higher education and secondary

[1] "Regulations on the Ministry of Higher and Secondary Specialized Education of the U.S.S.R." *Soviet Education*. Vol. XII, no. 9–10–11. July–August–September 1970, pp. 138–45; *and* N. G. Salisheheva, et al. *O narodnom obrazovanii* (On Public Education). "Yuridicheskaia literatura" (Legal Literature Publishers). Moscow, 1974. Pp. 30–31.

specialized education to meet the demands of the country's economy for specialists and technicians.

2. Produce qualified specialists and technicians "raised in the spirit of Marxism-Leninism" by providing good scientific, technical, and practical training.
3. Provide leadership in scientific research at higher education institutions and in methods of teaching at higher and secondary specialized schools.
4. Organize and improve the system of training, staffing, and raising the qualifications of research and teaching personnel and assuring their effective utilization.

To carry out these functions, the *Minvuz* carries on a variety of activities, some in cooperation with other central agencies, including developing regulations for the school system under it; establishing basic indices for training specialists; developing statistical accounts for *VUZy*, schedules for teaching and research staff, and stipends for students; coordinating plans for publishing textbooks, teaching manuals, and audio-visual aids; issuing curriculums, syllabuses, textbooks, and research publications; establishing rules of admission, instruction, examinations, and research in *VUZy;* drafting the list of specialties in which undergraduate and graduate students are trained; overseeing training and the raising of qualifications of teaching personnel; assuring adequate living, working, and cultural conditions for students and staff; approving standard educational and laboratory equipment; administering certain education and research institutions directly subordinate to it; conducting international educational exchanges and conferences; and cooperating in the planning of work assignments of graduating students.

The responsibilities of the Minister of the *Minvuz*, assisted by a First Deputy Minister and four Deputy Ministers, include:

1. Directing the activities of the *Minvuz* and of the institutions and organizations subordinate to it.
2. Ensuring fulfillment of laws and decrees relating to the work of the *Minvuz*.
3. Issuing orders and instructions on educational methods and curriculums, scientific research, and ideological matters to ministries and agencies of the U.S.S.R. and union Republics that have higher and secondary specialized schools.
4. Regulating the administrative structure of the *Minvuz* and the charters of subordinate institutions, establishing and abolishing such institutions, and naming and dismissing their leading officals.

Components

The major components of the U.S.S.R. *Minvuz* include a collegium and various "administrations," departments, inspectorates, councils,

and a research institute, which will be briefly described in turn.

Collegium.—Consisting of the minister (as chairman), deputy ministers, and various administrations chiefs, the collegium (*kollegiia*) is a board that considers major problems of the Ministry in training, research, and ideology; hears reports by the Ministry's administrative personnel; and functions as a planning, reviewing, and decisionmaking body over the administrations, departments, and inspectorates. Regulations provide for possible and presumably rare disagreement between the Minister and the board, in which case the Minister's decision prevails, with board appeals possible to the parent U.S.S.R. Council of Ministers.

Administrations. — The major line organizations or subdivisions for performing the Ministry's business are the so-called administrations (*upravlenii*). Subject to reorganization from time to time, the following three administrations were identified in 1976 and 1977 Soviet sources: [2]

a. One Main Administration of Higher Educational Institutions (*glavnoe upravlenie vuzami*), with departments, such as that for universities and economic institutes (*Otdel universitetov i ekonomicheskikh vuzov*).

b. Two Instruction-Methods Administrations (*Uchebno-metodicheskii upravlanie*), one for higher education (*po vysshemu obrazovaniyu*) and one for secondary specialized education (*po srednemu spetsialńomu obrazovaniyu*). Both have scientific-methods centers with textbook and teaching materials departments. The center for higher education is called *Nauchno-metodicheskii kabinet po vysshemu obrazovaniyu i povysheniyu kvalepkatsii.*

c. Five other administrations, three of which are for planning and finance (*planovoe-finansovoe upravlenie*), for administrative, research, and teaching personnel (*upravlenie rukovodiashchikh i nauchno-pedagogicheskikh kadrov*), and for teaching social sciences (*prepodavniia obshchestvennykh nauk*). Unlike other subjects, the social sciences have this special central administration because of their conveyance of the Communist ideology to all students regardless of field of specialization. The remaining two of these five administrations are concerned respectively with foreign relations (*upravlenie vneshnikh snoshenii*) and foreign undergraduate and graduate students and on-the-job trainees (*upravlenie po obucheniiu studentov, aspirantov i stazherov zarubezhnzkh stran*).

Departments and State Inspectorates.—Separate departments (*otdely*) generally are staff units within the Ministry, such as legal

[2] Various issues of Soviet professional journals and *Moskva 1977*, a reference guide published by *Moskovskii rabochii* (Moscow Worker Publishers). 1977.

(*iuridicheskii otdel*), accounting (*khoziastvennyi otdel*), and exhibits (*otdel vystavok*) departments, as well as a chancellery (*kantseliariia*) and special construction bureau (*Spetsialńoe konstruktorskoe biuro*). There are also "State Inspectorates" (*Josudarstoennye inspektsii*) for higher educational institutions and secondary specialized educational institutions, which send out inspectors to verify that the orders of the Ministry are being implemented in the Republic ministries and the schools. Their respective Russian titles are *Gosudarstvernaia inspektsiia vuzov* and *Gosudarstvennaia inspektsiia spetsialńykh uchebnykh zavedenii*.

Scientific-Technical Council. — The responsibilities of the Scientific-Technical Council (*Nauchno-tekhicheskii sovet*) are to plan, direct, and coordinate scientific research work of the higher educational institutions. Unlike the Advisory Councils, (discussed later), the Scientific-Technical Council is a structural subdivision of the Ministry, composed of various sections. Originally, in the mid-1950's, three sections were organized: Technical sciences, divided into subsections by major branches of industry; natural sciences, with subsections for research in mathematics, physics, chemistry, biology, etc.; and social sciences, including philosophy, economics, history, law, and philology. It is not clear how much of this organization was retained in the 1970's when new sections were identified; i.e., a computer technology section and a machine building section (the latter formerly a subsection in the technical sciences section). Various commissions of scholars assist the council in research planning and development.[3]

Scientific-Research Institute on Problems of the Higher School. — The functions of the Scientific-Research Institute on Problems of the Higher School (*Nauchno-issledovatelśkii institut problem vysshei shkoly*) are to carry out and coordinate research in instruction and administration of higher education and secondary specialized education. The institute consists of 10 departments and a Division of Computer Technology. The departments are Theory and Methods of Instruction, Scientific Organization of the Teaching Process, Communist Upbringing of Students, Organization of Scientific Research, Problems of Economics of Higher Education, Forecasting Development of Higher Education, Administration, Problems of Secondary Specialized Education, International Experience of Preparation of Specialists, and Scientific Information.[4]

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[3] *The Higher School System of the U.S.S.R.: Main Decrees, Order and Instructions Part I.* U.S. Joint Publications Research Service, 1959. Pp. 50–57; and *Vestnik Vysshei shkoly* (Higher School Herald). No. 12 (December) 1976. Pp. 44–47.

[4] Seymour M. Rosen. *Education in the U.S.S.R.: Research and Innovation.* Office of Education, U.S. Department of Health, Education, and Welfare. Washington: U.S. Government Printing Office, 1977. Includes a detailed description of the Institute on Problems of the Higher School.

Advisory Councils. — The groups of outside experts and specialists who advise the Minister and the major components of the Ministry are called Advisory Councils (*Sovety*). These councils are described as "Attached to (*pri*)" rather than component parts of the Ministry. They include a Council for the Higher School, a Council for Secondary Specialized Education, and various "Scientific-Methods Councils," such as for Pedagogy of the Higher School, Foreign Languages, Theoretical Mechanics, Chemistry, and Physical Education.

Republic Ministries of Higher and Secondary Specialized Education

In addition to the central U.S.S.R. Ministry of Higher and Secondary Specialized Education, most of the 15 Republics of the U.S.S.R. have their own counterpart ministries. Some of the smallest or least developed, however, continue to have the higher education responsibility within their ministries of education, which are primarily concerned with general elementary and secondary education. (These are the Moldavian, Kirgiz, Tadzhik, and Turkmen Republics).

Functions

The functions of the Republic ministries for higher and secondary specialized education are described in a Soviet legal publication as follows: [5]

> The corresponding ministries of the Union Republics, according to the regulations on them, administer directly the educational institutions subordinate to them, exercise instructional-methodological supervision over higher and secondary specialized educational institutions not subordinate to them through ministries and agencies of the republic which have such educational institutions in their system, and exercise control functions. These organs in the area of their competence exercise many tasks and functions analogous to those which the U.S.S.R. Ministry of Higher and Secondary Specialized Education fulfills.

The quoted reference to higher education institutions not subordinate to these ministries indicates that a number of higher education institutions are directly administered by Central Government ministries in related fields of specialization rather than by Republic higher education ministries, including those in the agricultural, medical, pedagogical, cultural, transportation, and communications fields. The Republic ministries of higher and secondary specialized education, while not administering these higher schools, retain responsibility for their meeting higher education standards and requirements and using prescribed teaching methods and materials.

Components

The reference book *Moskva 1977* lists the following units — termed "administrations" — for the Russian Soviet Federated Socialist Re-

[5] N. G. Salishcheva. *O narodnom obrazovanii.* Op. cit.

public (R.S.F.S.R., largest of the 15 Soviet Republics) Ministry of Higher and Secondary Specialized Education:

Main Administrations

1. Higher Educational Institutions For Polytechnical Machine Building and Power
2. Supply of Materials and Equipment
3. Secondary Specialized Educational Institutions
4. Universities, and Economic and Legal Higher Educational Institutions
5. Chemical-Technological, Mining-Metallurgical, and Construction Higher Educational Institutions

Other Administrations

1. Instruction-Methods
2. Teaching of Social Sciences
3. Personnel
4. Capital Construction
5. Accounting

The ministry structure also includes a Department for Distribution of Young Specialists, apparently concerned with the work assignment of graduates upon completing their studies.

Higher Education Institutions

The administrative apparatus within each higher education institution (*VUZ*, pl. *VUZy*) is headed by a rector (*rektor*), the president of the university or institute. Depending on the size and complexity of the *VUZ*, the rector is assisted by two or more prorectors, or vice presidents. *VUZy* frequently have prorectors for the educational process, for scientific research, and for administration and finance, and they may also have one for evening and correspondence study.

The major subdivisions of *VUZy* are faculties (*fakultety*), each headed by a dean (*dekan*), who are responsible for an established major field of study. At Leningrad University, for example, the 15 faculties as listed in a 1976 *VUZ* handbook are history, economics, philosophy, psychology, philology, journalism, Eastern (Asian and Middle Eastern) studies, law, physics, mathematics and mechanics, applied mathematics, chemistry, biology, geology, and geography. The philosophy faculty includes Russian and foreign languages and literature as well as "scientific communism." Both rectors and deans are supported by academic councils, consisting of administrative and teaching staffs, and representatives of students, the Communist Party, the trade union, and the *Komsomol* (Communist youth organization).

The smallest administrative units of *VUZy* are "chairs" within each faculty, subdividing each field of study, containing the teaching staff of professors, docents, and assistants. In addition to the faculties, there are also evening and correspondence divisions in each *VUZ* (and some separate evening and correspondence *VUZy*).

The latest administrative entity in most *VUZy* is the preparatory division (*podgotovitelnie otdelenie*). This division accepts less-prepared students (frequently from rural areas) for a "zero" school year to prepare them for entrance to higher education without taking the regular competitive entrance examination.

3. Admission to Higher Education

Basic Requirements

In general, admission to higher education in the U.S.S.R. is based on:

1. Possession of a certificate (*attestat*) or diploma (*diplom*) indicating completion of secondary education.
2. Presentation of "positive" character references (*kkarakteristika*) from the secondary school, Communist Party, Communist Youth League (*Komsomol*), trade union, and place of work.
3. Selection from those passing the higher education entrance examinations, which may vary somewhat according to the specialty or field for which the student applies.

A comparison of the Rules of Admission in the early 1960's with those of the late 1970's indicates a trend toward easing some of the examination requirements and allowing larger numbers to be admitted.[1]

The chief difference is the elimination of the foreign language entrance examination as a general requirement for full-time students. It has never been a general requirement for part-time (evening and correspondence) students. Besides the retained required examination in Russian language and literature (or that of the language of instruction) for all applicants, the examinations required for some of the major groups of specialties for which students apply are as follows: [2]

Specialty Groups	*Entrance Exams*
Engineering, engineering-economics, physics, mechanics-mathematics	Mathematics (written and oral) & physics (written or oral).
Chemistry, chemical technology, metallurgy, forestry	Chemistry (oral), mathematics (written or oral), & physics (written or oral).

[1] The Rules of Admission for 1962 appear in the author's *Higher Education in the U.S.S.R.: Curriculums, Schools, and Statistics.* Office of Education, U.S. Department of Health, Education, and Welfare. Washington: U.S. Government Printing Office, 1963. pp. 109–17. They are compared with the Rules of Admission for 1978, published in *Biulleten* of the U.S.S.R. Ministry of Higher and Secondary Specialized Education, No. 3, March 1978, pp. 3–16.

[2] Rules of Admission for 1978. Ibid.

Biology, agriculture, health, veterinary fields	Biology and chemistry (oral) & Physics (written or oral).
Physical culture and sports, physical education	Biology (oral) and chemistry (oral).
Pedagogy and psychology (preschool), defectology (education of the handicapped)	Biology (oral) & history of U.S.S.R. (oral).
Psychology	Mathematics (written or oral).
Pedagogy and methods of primary education instruction	Mathematics (written or oral) & history of the U.S.S.R. (oral).
Philology, foreign languages, native language and literature, journalism, history, philosophy, scientific communism, library and archival work	History of U.S.S.R. (oral) and foreign language (oral).
Art and cultural	History of U.S.S.R. (oral)
Economics, geography, political economy, economic cybernetics	Mathematics (written or oral), history of U.S.S.R. (oral), and geography (oral).
Commercial fields	Mathematics (written or oral) & geography and chemistry (oral).
International relations, international economic relations	Foreign language (oral), geography (oral), & history of U.S.S.R. (oral).
Teaching of Russian and native language and literature (secondary education)	Russian language and literature (written), native language and literature (written & oral), and history of U.S.S.R. (oral).
Teaching of geography and biology (secondary education)	Russian or language of instruction and literature (written), geography (oral), biology (oral), & chemistry (oral).

Another major difference in the 1970's as compared with the 1960's, besides elimination of the foreign language entrance examination, is elimination of competitive entrance examinations for a large bloc of less prepared students, who are admitted to the system of the "preparatory division," referred to previously. Preparatory divisions of higher education institutions accept demobilized servicemen and agricultural and industrial workers who have a secondary education, have been recommended by their employers after a year or more of employment, and are considered good prospects on their records for achieving a higher education specialty. Academic preparation for a school year is geared to the specialty they will enter, following which they take the preparatory divisions' final examinations rather than the regular competitive examinations for admission to the first year of higher education studies.

Admission to Specialties

Admission to a higher education institution in the U.S.S.R. is not a general admission to undergraduate studies such as liberal arts studies with subsequent selection of a "major." It is admission to a specific specialty for which the student has applied and been admitted. The listing in appendix A, entitled "List of Official Soviet Specialties in Higher Education," includes all available specialties for full-time studies. Part-time studies (evening and correspondence-extension) offer a smaller number of these specialties.

Student admission quotas are made and students are enrolled, and after graduation are employed, according to this numerical specialty classification. Entrance examinations are geared to the "specialty group" in which the student applicant's proposed higher education specialty falls.

While the examinations for the engineering, engineering-economics, physics, and mechanics-mathematics specialty groups include a required written examination in mathematics, other specialty groups may have either written or oral examinations, or only oral examinations in all required fields of entrance examinations.

This would suggest some discretion and variation in grading applicants for admission among comparable faculties of various higher education institutions. Indeed, some higher education institutions are more notable than the majority in almost every field (see appendix B) and presumably have more stringent screening and examination processes for admissions, particularly to the specialties with highest status.

4. Programs in Higher Education

Types of Higher Education Institutions

The major types of higher education institutions in the U.S.S.R. are universities (sing., *universitet*) and specialized institutes (sing., *institut*), and the major types of programs are day or full-time (*dnevnoe* or *ochnoe*), correspondence-extension (*zaochnoe*), and evening study (*vechernee obuchenie*).

The great majority of students, estimated at almost 90 percent, study at the institutes as undergraduates in such applied fields as engineering, education, medicine, and law. Completion of secondary education is required for admission. The remaining students study in university programs, most in the more theoretical fields—the humanities and social and natural sciences.

About 55 percent of total enrollments are in full-time day programs, and most of the remainder (32 percent) are in correspondence-extension, also sometimes referred to as extramural programs. Evening and correspondence divisions are present in virtually all the *VUZy*, and in addition there are separate evening and correspondence institutes. Some of the correspondence institutes are very large, surpassing most of the regular full program *VUZy* in enrollments. Evening and correspondence programs are generally about a year longer than day programs and the curriculum is frequently somewhat abbreviated.

The typical school year in the first 3 or 4 years of study involves 35 or 36 weeks of "theoretical courses" (lectures and laboratory classes) and a 6- or 7-week examination period. The last year or 2 involve a reduced number of theoretical courses to allow for "professional practice." or practical studies. One of the mechanical engineering curriculums, for example, provides in the fourth year of studies 28 weeks of theoretical studies, a 6-week examination period, and 12 weeks of professional practice. The fifth and final year includes only 10 weeks of theoretical studies, a 2-week exmination period, 15 weeks of professional practice, and an additional 16 weeks to prepare the diploma paper or project. Course work is usually about 30 hours a week, but frequently is considerably less in the final year, when the student is working on his diploma project and preparing for state examinations. Table 1 shows the total hours in the various subjects spent in lectures, laboratory work, and seminars and practical studies in the mechanical engineering specialty just discussed.

Table 1. — Curriculum for Specialty #0501: Technology of Machine Building, Metal Working Lathes and Tools (Qualification [1] — Mechanical Engineer; term of study — 5 years

Subject	Total	Lectures	Laboratory work	Seminars & practical studies
Total	**4,324**	**2,280**	**688**	**1,310**
1. Industrial economics	54	36	—	18
2. Organization & planning of industrial enterprises	[2]105	70	—	20
3. Computing techniques in engineering and economics	40	20	20	—
4. Foreign language	210	—	—	210
5. Physical training	140	—	—	140
6. Higher mathematics	456	250	18	188
7. Engineering drawing	159	—	—	159
8. Descriptive geometry	72	36	—	36
9. Workshop practice	70	—	70	—
10. Chemistry	140	70	70	—
11. Physics	278	140	102	36
12. Theoretical mechanics	191	104	—	87
13. Technology of metals & other structural materials	142	107	35	—
14. Materials	88	53	35	—
15. Strength of materials	174	105	17	52
16. Theory of machines and mechanisms	87	70	17	—
17. Machine parts, hoisting & transportation equipment	142	107	—	35
18. Principles of interchangeability & engineering measurements	72	54	—	18
19. General electrical engineering	140	87	35	18
20. Hydraulics and hydraulic machines	87	53	34	—
21. Elements of automation & automatics of production process	[2]95	50	30	—
22. Elements of safety & fire fighting technique	55	30	10	15
23. Principles of graphic design	36	18	—	18
24. Industrial electronics	51	34	17	—
25. Thermodynamics & heat transfer	51	34	17	—
26. Theory of metal cutting	68	51	17	—
27. Metal working lathes	193	158	35	

[1] Profession for which the training will qualify the student.
[2] Total includes 15 hours for preparing course projects and course papers.

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Table 1. — Curriculum for Specialty #0501: Technology of Machine Building, Metal Working Lathes and Tools (Qualification [1] — Mechanical Engineer; term of study — 5 years) — (Cont'd.)

Subject	Total	Lectures	Laboratory work	Seminars & practical studies
28. Design & manufacture of metal cutting tools	112	74	18	20
29. Electrical Equipment for lathes	36	26	10	—
30. Technology of machine building	[2]218	132	56	15
31. Elements of lathe devices design	50	40	10	—
32. Principles of design in Engineering works	50	50	—	—
33. Compulsory subject prescribed by the Academic Council of the institute	111	81	15	15
34. History of Soviet society	100	40	—	60
35. Marxist-Leninist philosophy	70	30	—	40
36. Political economy	110	40	—	70
37. Fundamentals of scientific communism	70	30	—	40

[1] Profession for which the training will qualify the student.
[2] Total includes 15 hours for preparing course projects and course papers.

Undergraduate Study

Major fields and the number of years of study in full-time day programs leading to the diploma (*diplom*) may be summarized as follows:

Engineering (technology) 5
Humanities 4-5
Law 4
Medicine 6
Social sciences 4-5
Natural sciences 5

The range of programs in the field of education is discussed separately in the next chapter. There are frequently variations of 6 months or so between the total time of study cited in the official national Ministry curriculum and the more detailed breakdown of semester hours in each course, and between the curriculum taken before and after the mid-1960's. A specific academic credential, therefore, may vary from the summary or the curriculums cited here.

Within the curriculum of most specialties, there are several alternative areas of narrower specialization. The number of hours of "specialization subjects" are cited in the curriculums given here for Russian Language and Literature, History, and Physics. Areas of specialization under the Russian Language and Literature specialty include linguistics, literary study, journalism, library and bibliographic science, and literary criticism. Under History are the specializations of general history, archival science, museum science, history of the U.S.S.R., archeology, history of religion and scientific atheism, and history of the Communist Party of the Soviet Union. The Physics specialty includes 22 narrower areas of specialization, some examples of which are molecular physics, low temperature physics, optics and spectroscopy, magnetism, radio physics, crystallography and structural analysis, and astrophysics.

Every curriculum contains a certain number of required Communist ideological courses, sometimes referred to as social science courses. These generally include history of the Communist Party of the Soviet Union, Marxist-Leninist philosophy, political economy, and fundamentals of scientific communism. More hours are devoted to ideology courses in the universities and pedagogical institutes than in engineering or medical institutes. They generally total about a semester's worth of the curriculum. Despite modernization of higher education programs in other respects, the requirements for communist ideology courses have remained relatively fixed for each generation of students.

In recent years, there has been increasing use of a common core curriculum for the first 2 years of various engineering specialties. This curriculum is given at the "General Technical Faculty" on the main campus of a technical institute or at a branch typically located in a small industrial town. One of the advantages of this approach is its ability to service students in branches in their home towns, which usually lack a full higher education facility. In the third year of studies, such students transfer to the main campus of the engineering institute for courses specifically related to their given specialty.

The focus on meeting the needs of technical, or engineering, students reflects the emphasis in higher education, where approximately 40 percent of total enrollment are in engineering fields.

Upon successfully completing the course of studies, diploma projects or papers, and state examinations, graduating students receive a higher education diploma (*diplom*) with the title of the "qualification," or profession for which the recipient has qualified.

Graduate Study

Graduate study in the U.S.S.R., called *aspirantura*, takes place either in a higher education institution or in a scientific research

Table 2. — Curriculum for Specialty #2001: Russian Language and Literature (Qualifications [1] — Philologist, Teacher of Russian & Literature; term of study — 5 years)

Subject	Total	Lectures	Laboratory work	Seminars & practical studies
Total	**4,340**	**2,000**	**10**	**2,330**
1. History of philosophy	40	40	—	—
2. Logic	40	30	—	10
3. Foreign language (occidental or oriental)	500	—	—	500
4. Latin	110	—	—	110
5. Psychology	50	40	10	—
6. Pedagogics	70	70	—	—
7. Methods of teaching Russian	60	30	—	30
8. Methods of teaching literature	60	30		30
9. Introduction to linguistics	70	40	—	30
10. General linguistics	50	40	—	10
11. The old Slavic language	70	30	—	40
12. Russian dialects	50	30	—	20
13. History of the Russian language	190	120	—	70
14. Modern Russian	450	140	—	310
15. Practical stylistics (the Russian language)	70	10	—	60
16. Introduction to literary studies	70	40	—	30
17. Theory of literature & principles of Marxist-Leninist aesthetics	70	60	—	10
18. Russian folk-lore	50	40	—	10
19. History of Russian literature	430	330	—	100
20. History of foreign literature	320	300	—	20
21. Soviet literature	130	130	—	—
22. Subjects related to particular Republics (Russian, native languages, literature, history, etc.)	280	100	—	180
23. Specialization subjects	490	160	—	330
24. Physical training	140	—	—	140
25. History of Soviet society	170	70	—	100
26. Marxist-Leninist philosophy	130	50	—	80
27. Political economy	110	40	—	70
28. Principles of scientific communism	70	30	—	40

[1] Professions for which the training will qualify the student.

Table 3. — Curriculum for Specialty #2008: History (Qualification [1] — Historian, Teacher of History & Social Sciences; term of study — 5 years)

Subject	Total	Lectures	Laboratory work	Seminars & practical studies
Total	**4,280**	**2,330**	**10**	**1,940**
1. History of philosophy	50	50	—	—
2. Logic	40	30	—	10
3. Psychology	50	40	10	—
4. Pedagogics	70	70	—	—
5. Methods of teaching history & social sciences	60	40	—	20
6. Latin	100	—	—	100
7. Foreign language	500	—	—	500
8. Fundamentals of archaeology	70	60	—	10
9. History of primitive society	40	40	—	—
10. Fundamentals of etnography	70	50	—	20
11. Ancient history	170	120	—	50
12. History of Middle Ages	170	120	—	50
13. History of the U.S.S.R.	520	340	—	180
14. Modern & recent history	400	260	—	140
15. History of Asian and African countries	280	200	—	80
16. History of the Southern and Western Slavs	100	100	—	—
17. Source authorities of the history of the U.S.S.R.	50	50	—	—
18. Historiography of the U.S.S.R. history	50	50	—	—
19. Auxiliary historical subjects (paleography, historical geography, numismatics, etc.)	100	50	—	50
20. Subjects related to particular Republics (history of Republics, ancient language, native language and literature, etc.)	230	110	—	120
21. Specialization subjects	470	270	—	200
22. Physical training	140	—	—	140
23. History of Soviet society	200	100	—	100
24. Marxist-Leninist philosophy	140	80	—	60
25. Political economy	140	70	—	70
26. Principles of scientific communism	70	30	—	40

[1] Profession for which the training will qualify the student.

Table 4. — Curriculum for Specialty #2016: Physics (Qualification [1] — Physicist; term of study — 5 years)

Subject	Total	Lectures	Laboratory work	Seminars & practical studies
Total	**4,666**	**1,846**	**1,270**	**1,550**
1. Foreign language	300	—	—	300
2. Chemistry (special course)	70	30	40	—
3. Elements of technical drawing	70	12	58	—
4. Elements of radio-electronics	106	34	72	—
5. Higher mathematics:				
a) mathematical analysis	510	240	—	270
b) analytical geometry & higher algebra	120	70	—	50
c) methods of mathematical physics	140	100	—	40
d) computers & programming	80	40	20	20
6. General physics:				
a) mechanics, molecular physics, electricity and optics	380	240	—	140
b) atomic physics	110	70	—	40
c) nuclear physics	70	70	—	—
d) practical work in physics	530	—	530	—
7. Theoretical physics:				
a) theoretical mechanics	120	70	—	50
b) electrodynamics	120	80	—	40
c) quantum mechanics	120	100	—	20
d) thermodynamics & statistical physics	120	90	—	30
8. Specialization subjects	530	410	—	120
9. Specialization laboratories	550	—	550	—
10. Physical training	140	—	—	140
11. History of Soviet society	170	70	—	100
12. Marxist-Leninist philosophy	130	50	—	80
13. Political economy	110	40	—	70
14. Fundamentals of scientific communism	70	30	—	40

[1] Profession for which the training will qualify the student.

institute (*nauchno-issledovatelśkii institut*) approved for the purpose.[1] The graduate student is called an *aspirant*.

Requirements for admission to graduate study include the higher school *diplom*, character references (*kharakteristika*), and competitive entrance examinations in their specialty, history of the CPSU, and one foreign language (English, French, German, Spanish, or Italian). There is no standardized curriculum; the *aspirant* works on an individual plan. Programs are developed within the university or institute department providing the specialty and confirmed by the institution or faculty council. The council approves the topic of the student's research no later than 3 months after his enrollment. The student reports periodically to his department on his progress, which certifies his work annually. The *aspirantura* generally extends for 3 years full-time or 4 years part-time, although it may be as brief as 1 year. The latter is primarily a program for higher education instructors and school teachers who wish to improve their credentials.

Students who are working full-time and undertaking graduate study part-time may if they choose take 1 day off work a week at half-pay for the full period of studies.[2] They are allowed 30 days leave without loss of pay to prepare for *kandidat* (candidate) examinations and complete their dissertation. After passing the examinations and defending his or her dissertation publicly, the graduating student receives the degree of candidate of sciences (*kandidat nauk*).

The degree of doctor of sciences (*doktor nauk*) requires no specific program or period of preparation (the *doktorantura* program was abolished in 1956). The degree is awarded to individuals outstanding in given scholarly fields who make original contributions to the area of specialization. It may be awarded to those having a *kandidat* degree or those holding the rank of professor. Once awarded to a fairly small number, the doctorates appear in recent years to have increased substantially in proportion to *kandidat* degree-holders.

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[1] A list of such scientific research institutes appears in *Aspirantura: spravochnik dlia postupaiushchiteh v aspiranturu i soiskatelei uchenoi stepeni kandidata nauka* (Graduate Study Handbook for those Entering Graduate Study and Seeking the Degree of Candidate of Sciences). Moscow: "Vysshaia shkola" (Higher School Publishers), 1971.

[2] Leave and pay provisions for working undergraduate students are described in the author's *Part-Time Education in the U.S.S.R.* Office of Education, U.S. Department of Health, Education, and Welfare. Washington: U.S. Government Printing Office, 1965. Pp. 69–71.

5. Teacher Education and Certification

Teacher-Training Institutions and Curriculums

Teacher education takes place at both the secondary and higher education level and in three major types of education institutions — the pedagogical school (*pedagogicheskoe uchilishche*), the pedagogical institute (*pedagogicheskiy institut*), and the university (*universitet*).

The pedagogical school is a specialized secondary school training kindergarten and primary grade teachers (formerly for grades 1–4, now for grades 1–3). It is sometimes mistranslated as pedagogical, or teacher-training, *college*, although it is not at the higher education level. Requirements for admission are a total of 8 years of elementary-secondary (incomplete) education. Ten-year school graduates may also be admitted to a reduced curriculum. The standard curriculum is 3 years in length and emphasizes teaching methods.

Graduates receive a diploma (*diplom*) entitling them to teach at the level for which they have been trained.

Over the years, the government has repeatedly noted that pedagogical schools would be abolished and that all teachers would be trained in higher educational institutions. In fact, there are twice as many secondary education level pedagogical schools (407 in 1976–77) as there are higher education level pedagogical institutes (200 in 1976–77), and recent indications are that these schools will remain in the system for a considerable period of time.

The main higher education institution for training teachers for the secondary grades (formerly grades 5–10, now grades 4–10) of Soviet schools is the pedagogical institute. The institute accepts only graduates of complete (10- or 11-year) elementary-secondary education and over a period of 4 or 5 years trains them to teach either language and literature, a branch of physical or social sciences, or some other specialty or specialties. The institutes also train preschool and primary grade teachers. Tables 5 and 6 give sample curriculums for training primary and secondary teachers, respectively.[1]

[1] These currently effective curriculums were approved by the U.S.S.R. Ministry of Higher and Secondary Specialized Education in June 1970 (Specialty #2121) and January 1977 (#2103). They were made available to the author by Dr. Duane Sackett of the College of Education, Temple University.

The institute curriculums may be divided into: (1) Required courses unrelated to the specialty, i.e., the first five subjects listed in each curriculum or the Communist ideology courses, a foreign language (for nonforeign language specialists), and physical education (for nonphysical education majors); (2) required courses in the subject matter of the specialty; and (3) required teaching methods courses.

In addition, each curriculum allows for 13 or 14 weeks of student teaching in the semesters prior to the final semester and 4 weeks of practice teaching in pioneer (youth) camps in the summer. A range of electives are also available in addition to required courses.

Final state examinations are held in "scientific communism," in the subject matter of the major field or fields of specialization, and in pedagogy and teaching methods related to that field. A recent innovation allows students the option of writing a graduation thesis instead of taking the examination in pedagogy and teaching methods. A diploma (*diplom*) is granted to those completing the course of studies and passing the State examinations specifying the field of their teaching specialization.

Universities not only train specialists for careers in the national economy and scientific research, but also for teaching at both the higher and the secondary education levels. As contrasted with the pedagogical institutes, the emphasis in the university curriculums is overwhelmingly on the subject matter of the specialized field, with only a very small portion devoted to pedagogy (see table 2: Curriculum for the University Specialty #2001 "Russian Language and Literature)." Courses of study in universities are generally for 5 years, and many of the specialties are designated as qualifying for both practice and teaching of the specialty.

Types of institutions other than those cited above are responsible for training teachers of vocational subjects in vocational technical schools (where teachers of general education subjects have been trained in pedagogical institutes).

These institutions at the higher education level are varous kinds of technical institutes (*instituty*), which primarily train engineers for industry and, to a minor degree, provide facilities for technical pedagogical training. At the secondary education level, certain technicums (*tekhnikumi*) are specifically concerned with training technicians to become vocational teachers. The technicums require 8 years of schooling for admission and are called *industrialńo-pedagogicheskie tekhnikumi* (industrial-pedagogical technicums). They train vocational teachers in such varied specialties as metal working, repair of industrial equipment, construction, bookkeeping, cosmetology, and food preparation.

According to a 1974 Soviet publication, there are 69 such *tekhnikumi* in the U.S.S.R., under the jurisdiction of the State Com-

Table 5. — Pedagogical Institute Curriculum for Specialty #2121: Pedagogy and Methods of Primary Instruction (Qualification [1] — Teacher of Primary Classes; term of study — 4 years)

Subject	Total	Lectures	Laboratory work	Seminars & practical studies
Total	**3,804**	**1,650**	**290**	**1,856**
1. History of Communist Party of Soviet Union	120	60	—	60
2. Marxist-Leninist philosophy	140	80	—	60
3. Political economy	100	50	—	50
4. Scientific communism	70	30	—	40
5. Fundamentals of scientific atheism	24	18	—	6
6. Foreign language	240	—	—	240
7. Physical education	140	—	—	140
8. Child anatomy and physiology and fundamentals of school hygiene	90	60	30	—
9. Psychology (general, child education)	160	120	20	20
10. Pedagogy with history of pedagogy	220	130	—	90
11. Geography and local lore	90	60	20	10
12. Fundamentals of natural science	180	120	40	20
13. Methods of teaching natural history	70	50	10	10
14. Introduction to linguistics	40	20	—	20
15. Modern native (Russian) language	370	170	—	200
16. Children's literature	120	100	—	20
17. Methods of teaching native (Russian) language & elocution	150	80	30	40
18. Mathematics	270	140	—	130
19. Methods of teaching mathematics	130	60	—	70
20. Drawing with methods of teaching	160	30	—	130
21. Methods of labor training with practicums in instructional workshops	170	30	140	—
22. Theory and methods of physical education	80	40	—	40
23. Music with methods of teaching	140	60	—	80
24. Special instrument (piano, violin, etc.)	110	—	—	110
25. Technical means of instruction	30	—	—	30
26. Elective courses and seminars	240	100	—	140
27. Subjects related to particular Republics (Russian, native language, literature, etc.)	150	50	—	100

[1] Profession for which the training will qualify the student.

Table 6. — Pedagogical Institute Curriculum for Specialty #2103: Foreign Language (2 languages) (Qualification [1] — Teacher of Foreign Languages; term of study — 5 years)

Subject	Total	Lectures	Laboratory work	Seminars & practical studies
Total	**4,684**	**1,120**	**104**	**3,460**
1. History of Communist Party of Soviet Union	170	84	—	86
2. Marxist-Leninist philosophy	140	80	—	60
3. Political economy	140	70	—	70
4. Scientific communism	80	40	—	40
5. Fundamentals of scientific atheism	24	24	—	—
6. Soviet law	40	40	—	—
7. Introduction to specialty	36	36	—	—
8. Developmental physiology and school hygiene	50	42	8	—
9. Psychology	100	74	26	—
10. Pedagogy	150	100	30	20
11. Methods of teaching foreign languages	100	60	40	—
12. Modern Russian language	140	60	—	80
13. Fundamentals of foreign language				
a) practice of oral & written speech	1,280	—	—	1,280
b) practice of phonetics	284	—	—	284
c) practice of grammar	356	—	—	356
14. History of language	70	40	—	30
15. Theoretical phonetics	30	20	—	10
16. Theoretical grammar	76	50	—	26
17. Lexicology	70	40	—	30
18. Stylistics	40	20	—	20
19. Theory and practice of translation	40	10	—	30
20. History of literature of country of studied language	90	70	—	20
21. Country research	70	50	—	20
22. Introduction to linguistics	70	50	—	20
23. Latin language	70	—	—	70
24. Comparative typology of native and studied languages	40	30	—	10
25. Second foreign language	710	—	—	710
26. Technical means of study	38	—	—	38
27. Elective disciplines	40	30	—	10
28. Physical education	140	—	—	140

[1] Profession for which the training will qualify the student.

mittee for Vocational-Technical Education of the U.S.S.R. Council of Ministers.[2]

To summarize the relationship of terms to levels of teacher education: An institute or a university provides higher education, while a school (*uchilishche*) or technicum provides a secondary specialized level of training. Those institutions that are concerned primarily with educating teachers have the prefix "pedagogical" in their title. Others may provide some pedagogical courses along with professional or vocational training in a specialty.

Certification of Teachers

Systematic inservice certification of teachers (*attestatsiia uchitelei*) has been instituted recently in the U.S.S.R.. The Soviet Government enacted a decree on "Certification of Teachers in General Education Schools" in April 1974, followed by an order and a statute of the U.S.S.R. Ministry of Education on appropriate procedures for public education agencies to carry out the nationwide certification program.[3]

Certification is only granted to teachers who have taught 3 years after graduating from pedagogical institutes, universities, and pedagogical schools. School directors and other employees of the education system are not eligible.

Teachers are subject to certification every 5 years, in a system of review by a group or "collective" at three administrative levels. The review begins at the school where the teacher is employed and is carried out by school administrators together with the Communist Party youth group and officials of the education workers, trade union. A "characterization" of the teacher is forwarded to the local district public education department, the second level in the certification process. The final reviewer is the Certification Commission of the city or *oblast'* (like a county) in which the school and district education department are located.

The Certification Commissions consist of city or *oblast'* school directors, selected teachers, staff of local pedagogical institutes, teaching methods and other specialists, and representatives of the Communist Party, the Communist youth group, and the education workers' trade union.

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[2] *Professionalno tekhnicheskoe obrazovanie, SSSR* (Vocational-Technical Education, U.S.S.R.), by I. G. Kovalenko. Publisher is the State Committee, cited above.

[3] The information in this section is primarily from an article by F. Panachin, U.S.S.R. First Deputy Minister of Education, "The All-Union Certification of Teachers" in *Uchitelskaia gazeta*, June 25, 1974. Confirmation of implementation of the program appears in the U.S.S.R. Ministry of Education's 1977 publication for the 36th Session of UNESCO's International Conference on Education, entitled *Public Education in the U.S.S.R. in 1975–1976 and its Development*.

The teacher's performance of the following duties is considered during the certification process.[4]

1. Equipping pupils with sound knowledge of the basics of science, creating a communist world outlook in them, and developing their cognitive interests and capabilities.
2. Training pupils in the spirit of communist morals.
3. Protecting pupils' health, studying their individual peculiarities and the conditions of their lives, maintaining ties with parents, or persons replacing them, and with the community; participating in propagandizing pedagogical knowledge.
4. Improving his own ideological-theoretical level and teaching qualifications.
5. Showing a personal example in labor, life, and behavior, and observing the rules of socialist communal living.

The Certification Committee gives each teacher one of the following four evaluations:

1. Fit for his/her position and deserving commendation.
2. Fit for his/her position.
3. Fit for his/her position on condition that he/she carry out the recommendations of the Commission.
4. Not fit for his/her position.

Under the first evaluation, the best teachers are awarded new honorary titles, "Senior Teacher" and "Teacher Methodologist." The overwhelming majority of teachers are certified under the second evaluation, "fit for position." The third evaluation, for teachers whose qualifications or work needs strengthening, requires the teacher to enroll in the correspondence-extension division of a pedagogical institute, take monthly courses at an institute for improving qualifications, or engage in some other specified activity to meet the teacher's specific problem.

Very few teachers receive the fourth evaluation, reserved for teachers with markedly insufficient qualifications, a bad state of health or work methods, and "unworthy behavior." Teachers found unfit are subject to dismissal; their appeals are reviewed by "higher ranking agencies."

[4] Ibid., Panachin article, *Translations on U.S.S.R. Political and Sociological Affairs.* No. 544, July 22, 1974. U.S. Joint Publications Research Service.

6. Growth of Higher Education in the 1970's

Higher education enrollments in the U.S.S.R. reached five million in the 1977–78 school year (see table 7). The 1970's was a period of very slow growth in enrollments, averaging less than 2 percent a year, compared with the previous decade, which averaged almost 10 percent a year.

A notable feature of Soviet higher education enrollments, correspondence course instruction, had a somewhat smaller enrollment in 1977 than in 1970, from 1.68 million to 1.60 million (rounded), a slight decline reflecting a policy to reduce the role of such courses while increasing day enrollments (which grew from 2.24 to 2.79 million in the same period). Correspondence-extension programs, nevertheless, remain a substantial part of higher education in the U.S.S.R., comprising about 32 percent of total enrollments in 1977.

As in previous decades, engineering specialties dominated higher education enrollments in the 1970's (see table 8). Enrollments in engineering in the 1977–78 school year were 1.685 million out of the 5.037 million total. If agriculture and forestry specialties, which also include training of engineers, are added, the higher education engineering and agriculture enrollments total 2.108 million, or about 42 percent of total enrollments in higher education.

Table 7. — Number of students and graduates from higher education institutions in daytime, evening, and correspondence classes: 1970 and 1977
(in thousands, rounded)

Type of class	1970		1977	
	Students	Graduates	Students	Graduates
Total	**4,581**	**631**	**5,037**	**752**
Daytime	2,241	335	2,789	462
Evening	658	82	652	85
Correspondence	1,682	214	1,596	205

Source: Adapted from *Narodnoe khoziastov SSSR v 1977 g.*

Table 8. — Higher education enrollments by specialty group: 1970–71 and 1977–78
(in thousands)

Specialty group	Enrollments	
	1970–71	1977–78
Total	**4,580.6**	**5,037.2**
Engineering & Agriculture		
Agriculture and forestry	371.9	423.3
Chemical technology	120.2	96.1
Construction	297.3	406.0
Electrotechnics, electro-instrument making & automation	309.4	341.6
Geodesy and cartography	8.7	12.1
Geology & prospecting for mineral resources	39.3	37.9
Hydrology and meteorology	8.4	8.0
Machine building & instrument making	557.9	591.0
Metallurgy	55.5	57.1
Mining of mineral resources	57.0	56.2
Power engineering	100.8	119.6
Radiotechnics and communication	154.1	155.2
Technology of consumer goods	54.2	61.1
Technology of food products	72.2	79.4
Timber engineering and technology of wood, cellulose, and paper	31.0	35.6
Transport	133.1	160.0
Other		
Art	39.1	41.5
Economics	538.6	622.2
Health and physical culture	329.8	361.0
Law	77.0	97.7
Specialties in pedagogical and cultural institutes	880.6	896.1
Specialties in universities	344.5	378.5

Source: Adapted from *Narodnoe khoziastvo SSSR v 1977 g.*

Following the Soviet system of grouping specialties, the five groups with the heaviest enrollments in 1977–78 (as in previous years) were, first, in specialties in pedagogical and cultural institutes (training teachers, librarians, and other cultural specialists), with enrollments of 896,000; second, in economics (training economists, "engineer-economists" — or industrial managers, and merchandizers), with enrollments of 622,000; third, in machine building and instrument making (training mechanical engineers), with enrollments of 591,000; fourth, in agriculture and forestry (training agronomists, agricultural and forestry engineers and engineers in related fields,

and veterinarians), with enrollments of 423,000; and fifth, in construction (training "engineer-builders" — or construction engineers and architects), with enrollments of 406,000.

In 1977–78, there were 861 higher education institutions in the U.S.S.R., an increase from 805 in 1970–71. About 63 (a 1975 figure) of the 861 are universities, so that almost 800 of the Soviet higher education institutions, or the overwhelming majority, are specialized institutes in the technical (engineering), pedagogical (teaching), and other applied fields. Using 1975 data, 566,000 or only 12 percent of a total enrollment of 4.85 million in higher education institutions were studying in universities.[1] Universities have consistently over the years had only a small percentage of student enrollments in higher education.

Women students comprise about half of undergraduate enrollments (51 percent in 1977–78), fairly close to the 1970–71 percentage (of 49). (See table 9.) As in the United States, they are heavily represented in the field of education and art and least represented in engineering and agriculture. Women in the U.S.S.R., however, are strongly represented at the professional level in the health, including medical, fields. They represent 57 percent of the 1977–78 enrollments in the higher education category "health, physical culture, and sport," about the same percentage as in 1970–71 or a decade earlier.

Graduate education has seen no growth in the U.S.S.R. in the 1970's; in fact, enrollments have dropped from 99.4 thousand to 96.7 thousand (see table 10). Since the early 1960's, however, graduate enrollments have more than doubled. One of the special characteristics of Soviet graduate training is the continued high percentage (about 41 percent in 1977) of students receiving their training in scientific organizations, such as research institutes of the Academy of Sciences and of Government ministries, rather than in higher education institutions.

A little over half of the graduate students in higher education institutions in 1977 were studying part-time or were enrolled in correspondence-extension courses. This represents a considerable shift to part-time study from 1970, when only 36 percent of the graduate students in higher education institutions were part-time.

Part-time training, while prevalent throughout the 1970's for graduate students in scientific organizations, also has increased significantly from 56 percent of total enrollments in 1970 to 70 percent in 1977. A total of 57.4 thousand, or 60 percent of the 97.7 thousand graduate students in higher education and scientific institutions, are studying part-time.

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[1] *Narodnoe obrazovanie, nauka i kultura v SSSR* (Public Education, Science and Culture in the U.S.S.R.), published by the U.S.S.R. Central Statistical Administration. Moscow, 1977.

Table 9. — Women students as percent of total enrollment in undergraduate higher education, by major fields: 1970–71 and 1977–78

Major field	1970–71	1977–78
Women as percent of total enrollment ...	49	51
Women as percent of total students in:		
Industry, construction, transport, and communications	38	40
Agriculture	30	34
Economics and law	60	64
Health, physical culture, and sport	56	57
Education, art, and cinematography ...	66	68

Source: Adapted from *Narodnoe knoziastov SSSR v 1977 g.*

Table 10. — Enrollment in graduate education by type of institution, full-time and part-time: 1970 and 1977

Type of instruction	1970	1977
Total	**99,427**	**96,668**
Higher education institutions		
Total	**56,909**	**57,417**
Full-time	36,299	27,938
Part-time	20,610	29,479
Scientific organizations		
Total	**42,518**	**39,251**
Full-time	18,725	11,688
Part-time	23,793	27,563

Source: Adapted from *Narodnoe khoziastvo SSSR v 1977 g.*

In 1975, 27,000 graduate students, or about 28 percent of a total of 96,000 enrolled, were women, about the same percentage as in 1970.[2]

Of the total of 96,000 graduate students in 1975, 71,000 were from the two major nationality groups in the U.S.S.R., Russians (59,000), and Ukrainians (12,000). The Ukrainian students comprised about the same percentage of the total students as their group's percentage of the total U.S.S.R. population (17 percent in the 1970 census). Russian students, however, were 61 percent of the total graduate students, while their group's percentage of the total population in the national census was 53 percent, reflecting continued Russian dominance over other ethnic groups in the highest levels of training in the U.S.S.R.[3]

[2] Ibid., p. 313.
[3] Ibid.

Appendixes

APPENDIX A. Official Soviet Specialties in Higher Education [1]

The following official Soviet list contains all the fields of study provided in higher education institutions (presumably excluding those in military and higher Party schools), broken down by "specialty group" and specific "specialty." Each specialty has a 4-digit code number, the first two digits indicating its group and the second two identifying the specific specialty within that group. The list is not a fixed one, as over time some specialties are dropped or restructured and new ones are added in accordance with changing needs for various kinds of specialties as determined by Soviet leadership.

In the late 1970's, there were 22 specialty groups, the same number having virtually the same titles as in the early 1960's (two of the 22 had slight name changes). The number of specialties, however, increased from 313 in the 1960's to 378 in the 1970's.

Asterisks preceding "Classification Numbers of Specialties" identify the large number of new specialties in higher education since the early 1960's list (published in OE's 1963 Bulletin [No. 16] entitled *Higher Education in the U.S.S.R.: Curriculums, Schools and Statistics).*

The number of new specialties is particularly large in the fields of Machine Building and Instrument Making, Electronic Technology and Automation, Chemical Technology, Transportation, Economics, and specialties in universities, particularly in biology-related fields.

The "Qualification of Specialist" column indicates the profession for which the training will qualify the student. Since specialty groups at the secondary specialized level parallel specialty groups at the higher education level, and some of the specialties have similar titles, the "qualification" is important as a means of identifying higher education level study.

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[1] *Biulleteń, Ministerstva vysshego i srednego spetsialńogo obrazovantia SSR* (Bulletin, U.S.S.R. Ministry of Higher and Secondary Specialized Education). No. 12, Dec. 1975. The *Biulleteń* gives the complete listing of higher education specialties, and in addition lists the sub-specialties or "Specializations" under each specialty, which are not provided here. (*Biulleteń* No. 3, March 1978 gives the specialties provided by evening and correspondence study.)

For example, Specialty No. 0303 is entitled "Electrical Supply of Industrial Enterprises . . ." for both the higher education and the secondary technical education specialty. The difference in identification is in the "Qualification of Specialist" column, which at the higher education level is "Electrical Engineer" (*inzhener-elektrik*) and at the secondary levels is "Electrical Technician" (*tekhnik-elektrik*). Similar differentiation would be reflected in the designation of the respective graduation diplomas.

Classification no. of specialty	Title of specialty	Qualification of specialist
Specialty Group 1. Geology and Exploration for Mineral Resources		
0101	Geological surveying, prospecting and exploration for mineral resources.	In universities: engineer-geologist In technical *VUZy:* mining engineer-geologist
0103	Geology and exploration for petroleum and gas deposits.	In universities: engineer-geologist In technical *VUZy:* mining engineer-geologist
0105	Geophysical methods for prospecting and exploration for mineral resources.	In universities: engineer-geophysicist In technical *VUZy:* mining engineer-geophysicist
0106	Geochemistry (specialty offered in universities).	Engineer-geochemist
0107	Hydrogeology and engineering geology.	In universities: engineer-hydrogeologist In technical *VUZy:* mining engineer hydrogeologist
0108	Technology and technics for exploration of mineral deposits.	Mining engineer
Specialty Group 2. Exploitation of Mineral Resources		
0201	Mine surveying	Mining engineer-Mine surveyor
0202	Technology & complex mechanization of underground exploitation of mineral resources.	Mining engineer
0203	Technology & complex mechanization of exploitation of peat deposits.	Mining engineer
0204	Enrichment of mineral resources.	Mining engineer-enricher
0205	Technology & complex mechanization of exploitation of petroleum and gas deposits.	Mining engineer
0206	Construction of underground installations and mines.	Mining engineer

Specialty Group 2. Exploitation of Mineral Resources		
0207	Planning and exploitation of gas & petroleum pipelines, gas storage tanks, and petroleum bases.	Mechanical engineer
0208	Equipping of gas and petroleum pipelines, gas storage tanks, and petroleum bases.	Mechanical engineer
*0209	Technology and complex mechanization of open exploitation of mineral resources.	Mining engineer
*0210	Physical process of mining production.	Mining engineer-physicist
*0211	Boring of petroleum and gas wells.	Mining engineer
*0212	Mining affairs.	Engineer-teacher of mining disciplines

Specialty Group 3: Power		
0301	Electric power stations.	Electrical engineer
0302	Electric power systems.	Electrical engineer
0303	Electrical supply of industrial enterprises, cities, and agriculture.	Electrical engineer
0304	Cybernetics of electrical systems.	Electrical engineer
0305	Thermal electric power stations.	Thermal power engineer
0307	Hydropower installations.	Hydropower engineer
0308	Industrial thermal power.	Industrial thermal power engineer
0309	Thermal physics.	Engineer-thermal physicist
0310	Atomic electric power stations and installations.	Thermal power engineer
*0314	Technics of high tension.	Electrical engineer
*0315	Electric power.	Engineer-teacher of electric power disciplines

Specialty Group 4: Metallurgy		
0401	Metallurgy of ferrous metals.	Metallurgical engineer
0402	Metallurgy of nonferrous metals.	Metallurgical engineer
0403	Thermotechnics & automation of metallurgical furnaces.	Metallurgical engineer
0404	Casting of ferrous and nonferrous metals.	Metallurgical engineer
0405	Physico-chemical research of metallurgical processes.	Metallurgical engineer
0406	Physics of metals.	Metallurgical engineer
0407	Metallography, equipment and technology of thermal processing of metals.	Metallurgical engineer
0408	Pressure processing of metals.	Metallurgical engineer
*0411	Metallurgy & technology of welding production.	Metallurgical engineer

Specialty Group 5. Machine Building and Instrument Making

0501	Technology of machine building, metalworking lathes and tools.	Mechanical engineer
0502	Machinery and technology of foundry production.	Mechanical engineer
0503	Machinery and technology of pressure processing of metals.	Mechanical engineer
0504	Equipment and technology of welding processes.	Mechanical engineer
0506	Mining machinery and complexes.	Mining mechanical engineer
0507	Peat mining machinery and complexes.	Mechanical engineer
0508	Machinery and equipment of petroleum and gas fields.	Mechanical engineer
0509	Agricultural machinery.	Mechanical engineer
0510	Hoisting and transportation machinery and equipment.	Mechanical engineer
0511	Construction and road machinery and equipment.	Mechanical engineer
0512	Railroad car construction and economy.	Mechanical engineer
0513	Automobiles and tractors.	Mechanical engineer
0514	Shipbuilding and ship repair.	Mechanical engineer
0515	Polygraphic machinery repair.	Mechanical engineer
0516	Machinery and apparatus of chemical production.	Mechanical engineer
0517	Machinery and apparatus of food production.	Mechanical engineer
0519	Machinery and mechanisms of timber and wood processing industry.	Mechanical engineer
0520	Steam generator construction.	Mechanical engineer
0521	Turbine construction.	Mechanical engineer
0522	Machinery and equipment of communications enterprises.	Electromechanical engineer
0523	Internal combustion engines.	Mechanical engineer
0524	Ship machinery and mechanisms.	Mechanical engineer
0525	Ship power installations.	Mechanical engineer
0526	Locomotive construction.	Mechanical engineer
0527	Dynamics and durability of machinery.	Research mechanical engineer
0528	Hydraulic machinery and means of automation.	Mechanical engineer
0529	Refrigeration and compressor machinery and installations.	Mechanical engineer
0530	Optical instruments and spectroscopy.	Optics mechanical engineer
0531	Instruments of precision mechanics.	Mechanical engineer
0533	Cinematographic equipment.	Mechanical engineer
0535	Aircraft construction.	Mechanical engineer
0537	Aircraft propulsion.	Mechanical engineer
0553	Hydroaerodynamics.	Aerohydromechanical engineer
*0558	Machines and apparatus of pulp-paper industry.	Mechanical engineer
*0561	Chemical machine and apparatus construction.	Mechanical engineer
*0562	Mechanical equipment of building materials, production and construction enterprises.	Mechanical engineer

Specialty Group 5. Machine Building and Instrument Making

*0563	Machinery and technology for processing polymers in products.	Mechanical engineer
*0566	Hydropneumatic automation and hydrotransmission.	Mechanical engineer
*0567	Semiconductor and electrovacuum machine building.	Mechanical engineer
*0568	Machinery and apparatus of textile industry.	Mechanical engineer
*0569	Machinery and apparatus of light industry.	Mechanical engineer
*0570	Machinery and apparatus of chemical fiber production.	Mechanical engineer
*0571	Helicopter construction.	Mechanical engineer
*0572	Mechanical equipment of ferrous metallurgy plants.	Mechanical engineer
*0573	Mechanical equipment of nonferrous metallurgy plants.	Mechanical engineer
*0577	Machine building.	Engineer-teacher of machine-building disciplines
*0579	Cryogenic technics.	Mechanical engineer

Specialty Group 6. Electric Technology, Electrical Instrument Making and Automation

0601	Electrical machinery.	Electromechanical engineer
0602	Electrical current and automation of tractive devices.	Electromechanical engineer
0603	Electroinsulation and cable technics.	Electrical engineer
0604	Dielectrics and semiconductors.	In universities: Engineer-physicist In technical *VUZy:* Electromechanical engineer
0605	Electrical apparatuses.	Electromechanical engineer
0606	Automatics and telemechanics.	Electrical engineer
0608	Electronic computers.	Technical systems engineer
0609	Gyroscopic instruments and devices.	Electromechanical engineer
0610	Electroacoustics and ultrasonic technics.	Electrical engineer
0611	Electronic instruments.	Engineer of electronic technology
0612	Industrial electronics	Engineer of electronic technology
0613	Electrothermal installations.	Electromechanical engineer
0614	Lighting engineering and principles.	Electrical engineer
0615	Sound engineering.	Electrical engineer
0617	Aircraft instrument manufacturing.	Electromechanical engineer
0628	Aviation and motor and tractor electrical equipment.	Electromechanical engineer
0619	Electrical equipment of ships.	Electrical engineer
0621	Technical exploitation of aircraft instruments and electrical equipment.	Electrical engineer

Specialty Group 6. Electric Technology, Electrical Instrument Making and Automation

0627	Electronic medicine equipment.	Electrical engineer
*0628	Electric transmission and automation of industrial installations.	Electrical engineer
*0629	Semiconductors and microelectronic instruments.	Engineer of electronic technology
*0634	Mining electrification and automation.	Mining electrical engineer
*0635	Automation of metallurgical production.	Engineer for automation
*0636	Automation and complex mechanization of machine building.	Electromechanical engineer
*0638	Automation and complex mechanization of constructions.	Electromechanical engineer
*0639	Automation and complex mechanization of chemical-technological processes.	Engineer for automation
*0640	Automation and mechanization of information processing and distribution.	Electrical engineer
*0641	Physical electronics.	Engineer-physicist
*0642	Information measuring technics.	Electrical engineer
*0643	Technology of special materials of electronic engineering.	Engineer of electronic technology
*0645	Engineering electrophysics.	Engineer-electrophysicist
*0646	Automation of management systems.	Technical systems engineer
*0647	Applied mathematics.	In universities: mathematician In technical *VUZy*: Engineer-mathematician
*0648	Design and manufacture of electronic computers.	Technology design engineer
*0649	Automation of thermal power processes.	Thermal power engineer for automation
*0650	Automation of electric power production and distribution.	Electrical engineer for automation

Specialty Group 7. Radio Engineering and Communications

0701	Radio engineering.	Radio engineer
0702	Automatic electrocommunications.	Electrocommunications engineer
0703	Radio communications and broadcasting.	Radio communications and broadcasting engineer
0704	Radio physics and electronics.	In universities: Radiophysicist In technical *VUZy*: Engineer-radiophysicist
0705	Design and manufacture of radio equipment.	Radio equipment design engineer
0706	Technical exploitation of aircraft radio equipment.	Radio engineer

Specialty Group 8: Chemical Technology

0801	Chemical technology of petroleum and gas processing.	Chemical technology engineer
0802	Chemical technology of solid fuel.	Chemical technology engineer
0803	Technology of inorganic compounds.	Chemical technology engineer
0804	Chemical technology of rare and diffused elements.	Chemical technology engineer
0805	Technology of electrochemical production.	Chemical technology engineer
0806	Chemical technology of binding materials.	Chemical technology engineer
0807	Technology of basic organic and petrochemical synthesis.	Chemical technology engineer
0808	Chemical technology of organic dyes and intermediate products.	Chemical technology engineer
0809	Chemical technology of biologically active compounds.	Chemical technology engineer
0810	Chemical technology of plastics.	Chemical technology engineer
0811	Chemical technology of varnishes, paints, and lacquer coatings.	Chemical technology engineer
0812	Technology of rubber.	Chemical technology engineer
0813	Chemical technology of cinematographic-photographic materials.	Chemical technology engineer
0819	Chemical technology of electrovacuum materials.	Chemical technology engineer
0823	Technology of isotopes and extra pure substances.	Chemical technology engineer
0825	Solar chemistry.	Chemical technology engineer
*0828	Technology of treatment of plastics.	Chemical technology engineer
*0830	Chemical technology of ceramics and refractory materials.	Chemical technology engineer
*0831	Chemical technology of glass.	Chemical technology engineer
*0832	Technology of electrothermal production.	Chemical technology engineer
*0833	Technology of chemical fibers.	Chemical technology engineer
*0834	Basic processes of chemical production and cybernetics.	Chemical technology engineer
*0835	Chemical technology of synthetic rubber.	Chemical technology engineer
*0836	Technology of recovery of secondary industrial materials.	Chemical technology engineer

Specialty Group 9: Timber Engineering and Technology of Wood Processing, Cellulose, and Paper

0901	Timber engineering.	Engineer-technologist
0902	Technology of wood processing.	Engineer-technologist
0903	Chemical technology of wood processing.	Chemical-technology engineer
0904	Chemical technology of cellulose-paper production.	Chemical-technology engineer
*0905	Technology of wood flakes and plastics.	Engineer-technologist

Specialty Group 10: Technology of Food Products

1001	Storage and technology of grain processing.	Engineer-technologist
1002	Technology of bread baking, macaroni, and products.	Engineer-technologist
1003	Technology of sugar products.	Engineer-technologist
1004	Technology of fermentation processes.	Engineer-technologist
1005	Technology of wine making.	Engineer-technologist
1006	Technology of fats.	Engineer-technologist
1007	Technology of canning.	Engineer-technologist
1008	Technology of subtropical cultivation.	Engineer-technologist
1009	Technology of meat and meat products.	Engineer-technologist
1010	Technology of fish products.	Engineer-technologist
1011	Technology and organization of public catering.	Engineer-technologist
1012	Industrial fisheries.	Mechanical engineer, navigation pilot
1013	Ichthyology and fish breeding.	Ichthyologist-fish breeder
1015	Technology of microbiological production.	Engineer-technologist
*1016	Veterinary sanitation.	Doctor of veterinary-sanitation
*1017	Technology of milk and dairy products.	Engineer-technologist

Specialty Group 11: Technology of Consumer Goods

1102	Spinning of natural and chemical fibers.	Engineer-technologist
1103	Chemical technology and equipment of finishing production.	Chemical technology engineer
1104	Knitted wear manufacturing.	Engineer-technologist
1105	Technology of garment manufacturing.	Engineer-technologist
1106	Technology of leather and fur.	Chemical technology engineer
1107	Technology of polymer film materials and synthetic leather.	Chemical technology engineer
1108	Technology of leather goods.	Engineer-technologist
1109	Technology of printing and publishing.	Engineer-technologist
*1111	Weaving.	Engineer-technologist
*1112	Design of clothing.	Engineer-technologist
*1113	Design of leather goods.	Engineer-technologist
*1114	Textile materials manufacturing.	Engineer-technologist

Specialty Group 12. Construction

1201	Architecture.	Architect
1202	Industrial and civil construction.	Engineer-builder
1203	Hydrotechnical construction of river installations and hydroelectric power stations.	Engineer-hydrotechnician
1204	Hydrotechnical construction of maritime waterways and ports.	Engineer-hydrotechnician
1206	Urban construction.	Engineer-builder

Specialty Group 12. Construction

1207	Production of construction units and structures.	Engineer-builder technologist
1208	Heat and gas supply and ventilation.	Engineer-builder
1209	Water supply and sewage systems.	Engineer-builder
1210	Construction of railroads, tracks and rail economy.	Railroad engineer-builder
1211	Automobile roads.	Engineer-builder
1212	Bridges and tunnels.	Engineer-builder
1213	Airport construction.	Engineer-builder
*1215	Agricultural construction.	Engineer-builder
*1217	Treatment of natural water and sewage.	Engineer-technologist
*1218	Technical maintenance of buildings, equipment, and automated systems.	Engineer-builder
*1219	Construction	Engineer-instructor of construction disciplines

Specialty Group 13: Geodesy and Cartography

1301	Applied geodesy.	Engineer-geodesist
1302	Astro-geodesy.	In universities: Astro-geodesist In technical *VUZy:* Engineer-astro-geodesist
1303	Aerial photography geodesy.	Engineer-aerial photography geodesist
1304	Cartography.	Engineer-cartographer

Specialty Group 14: Hydrology and Meteorology

1401	Hydrology of dry land.	Engineer-hydrologist
1402	Oceanography.	Engineer-oceanographer
1403	Hydrography.	Engineer-hydrographer
1404	Meteorology.	Engineer-meteorologist
1405	Agricultural meteorology.	Engineer-agrometeorologist

Specialty Group 15: Agriculture and Forestry

1501	Agro-chemistry and soil science.	In universities: Soil Scientist In technical *VUZy:* Scientific agronomist
1502	Agronomy.	Scientific agronomist
1503	Fruit and vegetable growing and viniculture.	Scientific agronomist
1504	Plant protection.	Scientific agronomist
1505	Sericulture.	Scientific agronomist
1506	Zootechnics.	Zooengineer
1507	Veterinary science.	Veterinarian
1508	Land conservation.	Conservation engineer

Specialty Group 15: Agriculture and Forestry

1509	Mechanization of agriculture.	Mechanical engineer
1510	Electrification of agriculture.	Electrical engineer
1511	Hydromelioration.	Engineer-hydrotechnician
1512	Forestry.	Forestry engineer
*1514	Mechanization of hydromelioration.	Mechanical engineer
*1515	Automation of agricultural production.	Electromechanical engineer
*1516	Agriculture.	Engineer-instructor of agricultural disciplines

Specialty Group 16: Transportation

1601	Locomotives and locomotive transport.	Transportation mechanical engineer
1602	Electrification of railroad transport.	Transportation electro-mechanical engineer
1603	Automatics, telemechanics, and communications in railroad transport.	Transportation electrical engineer
1604	Operation of railroads.	Transportation engineer for railroad operation
1605	Municipal electrical transport.	Electromechanical engineer
1606	Maritime navigation.	Navigation engineer
1607	Navigation on internal waterways.	Navigation engineer
1608	Operation of water transport.	Water transport engineer
1609	Automobiles and automotive economy.	Mechanical engineer
1610	Operation of airplanes and engines.	Mechanical engineer
*1611	Operation of air transportation.	Mechanical engineer
*1612	Operation of ships power plants.	Ship mechanical engineer
*1613	Operation of ship electrical equipment.	Electromechanical engineer
*1614	Mechanization of port transshipment.	Mechanical engineer
*1615	Industrial transport.	Industrial transport engineer
*1616	Traffic control.	Traffic control engineer
*1617	Operation of automobile transport.	Engineer for operation of automobile transport

Specialty Group 17: Economics

1701	Planning of national economy.	Economist
1702	Planning of industry.	Economist
1703	Economics and planning of material-technical supply.	Economist
1704	Economics of labor.	Economist
1705	Economics and organization of mining industry.	Mining engineer-economist
1706	Economics and organization of petroleum and gas industries.	Engineer-economist
1707	Economics and organization of power engineering.	Engineer-economist
1708	Economics and organization of metallurgical industry.	Engineer-economist
1709	Economics and organization of machine building industry.	Engineer-economist

Specialty Group 17: Economics

1711	Economics and organization of chemical industry.	Engineer-economist
1712	Economics and organization of polygraphic industry.	Engineer-economist
1713	Economics of cinematography.	Economist of cinematography and television
1714	Economics and organization of consumer goods industry.	Engineer-economist
1715	Economics and organization of agriculture.	Economist-organizer of agricultural production
1716	Planning of agriculture.	Economist
*1717	Economics and organization of agricultural products procurement.	Economist
1718	Economics and organization of food products industry.	Engineer-economist
1719	Economics and organization of forestry and timber industry	Engineer-economist
1720	Economics and organization of wood processing and cellulose-paper industry.	Engineer-economist
1721	Economics and organization of construction.	Engineer-economist
1722	Economics and organization of municipal services.	Engineer-economist
1723	Economics and organization of railroad transport.	Transportation engineer-economist
1724	Economics and organization of water transport.	Engineer-economist
1725	Economics and organization of automobile transport.	Engineer-economist
1726	Economics and organization of air transport.	Engineer-economist
1727	Library science and organization of book trade.	Librarian-book trade organizer
1728	Economics and organization of communications.	Communications engineer-economist
1729	Economics of trade.	Economist
1731	International economic relations.	Economist for international economic relations with knowledge of foreign language
1732	Merchandising and organization of trade of industral goods.	Merchandizer of higher qualification
1733	Merchandising and organization of trade of food products.	Merchandizer of higher qualification
1734	Finance and credit.	Economist
1736	Statistics.	Economist
1737	Accounting.	Economist
1738	Organization of mechanized treatment of economic information.	Engineer-economist
*1740	Accounting in agriculture.	Economist for accounting in agriculture
*1741	Economics and organization of consumer services.	Engineer-economist

Specialty Group 17: Economics

*1742	Economics and organization of radio electronic industry.	Engineer-economist
*1743	Economics and organization of building materials industry.	Engineer-economist
*1744	Economics and organization of water economy.	Engineer-economist
*1745	Organization of management of production in machine building industry.	Engineer-economist for organization of management
*1746	Organization of management of production in metallurgical industry.	Engineer-economist for organization of management
*1747	Organization of management of production in chemical industry.	Engineer-economist for organization of management
*1748	Organization of management in construction.	Engineer-economist for organization of management
*1749	Organization of management in municipal services.	Engineer-economist for organization of management
*1750	Organization of management in automotive transport.	Engineer-economist for organization of management
*1751	Organization of management in power.	Engineer-economist for organization of management

Specialty Group 18: Law

1801	Jurisprudence.	Lawyer
1802	International relations.	International relations specialist with knowledge of foreign language
*1803	International law.	International lawyer with knowledge of foreign language

Specialty Group 19. Public Health, and Physical Culture

1901	Medicine.	Physician
1902	Pediatrics	Physician-pediatrician
1903	Hygiene, sanitation, and epidemiology.	Physician-hygienist epidemiologist
1904	Stomatology.	Physician-stomatologist
1905	Pharmacy.	Pharmacist
1906	Physical culture and sports.	Physical education instructor-trainer in a particular sport

Specialty Group 20: Specialties in Universities

2001	Russian language and literature.	Philologist-instructor
2002	Native language and literature.	Philologist-instructor in given language
2003	Slavic languages and literature.	Philologist-instructor of Slavic languages and literature

Specialty Group 20: Specialties in Universities		
2004	Romano-Germanic languages and literature.	Philologist-instructor in given language
2005	Eastern languages and literature.	Philologist-instructor of Eastern and native language and literature
2006	Classical philology.	Philologist-instructor
2007	Area studies on foreign countries of the East.	Specialist on the East-historian (on given country)
2008	History.	Historian-instructor of history and social studies
2009	Historico-archival science.	Historian-archivist
2010	Political economy.	Economist-instructor of political economy
2011	Philosophy.	Philosopher-instructor of philosophy
2012	Psychology.	Psychologist-instructor
2013	Mathematics.	Mathematician-instructor
2014	Mechanics.	Mechanician
2015	Astronomy.	Astronomer
2016	Physics.	Physicist
2017	Geophysics.	Geophysicist
2018	Chemistry.	Chemist
2019	Biology.	Biologist
2020	Zoology and botany.	Biologist
2022	Physiology	Biologist
2024	Anthropology.	Biologist
*2026	International journalism.	International journalist with knowledge of a language
2027	Journalism.	Journalist
2028	Literary work.	Literature-cinematography-television literary worker
2029	History of the arts.	Art historian
2030	Geography	Geographer-instructor
*2033	Biophysics.	In universities: Biophysicist-instructor In medical *VUZy:* Physician-biophysicist, Physician-cybernetician
*2034	Biochemistry.	*In universities:* Biochemist-instructor In medical *VUZy:* Physician-biochemist
*2035	Economic cybernetics.	Economist-mathematician
*2036	Structural and applied linguistics.	Linguist
*2037	Document research and organization of management in state institutions.	Documentalist and organizer of management in state institutions
*2038	Scientific communism.	Instructor of scientific communism
*2039	Scientific-technical information.	Documentalist-organizer of scientific-technical information
*2040	Genetics.	Biologist-geneticist
*2041	Microbiology.	Biologist-microbiologist

Specialty Group 21: Specialties in Pedagogical Institutes and *VUZy* of Culture

2101	Russian language and literature.	Teacher of Russian language and literature
2102	Native language and literature.	Teacher of native language and literature
2103	Foreign languages.	Teacher of foreign language
2104	Mathematics.	Teacher of mathematics
2105	Physics.	Teacher of physics
2106	Biology.	Teacher of biology
2107	Geography.	Teacher of geography
2108	History.	Teacher of history and social studies
2109	Drafting and mechanical drawing.	Teacher of drafting and mechanical drawing
2110	Pedagogy and psychology (preschool)	Teacher of preschool pedagogy and psychology-methodist for preschool upbringing
2111	Defectology	Teacher of primary classes of special schools
2112	Cultural-educational work.	Cultural educational worker-instructor in given specialty
2113	Library science and bibliography.	Librarian-bibliographer
2114	Physical education.	Physical education teacher-instructor
2119	Music and singing.	Teacher of music and singing
2120	General technical disciplines and labor.	Teacher of general technical disciplines
2121	Pedagogy and methods of primary instruction.	Teacher of primary classes
*2122	Chemistry.	Teacher of chemistry

Specialty Group 22: The Arts

2201	Piano (organ).	Concert performer-soloist-instructor
2202	Orchestral instruments.	Concert performer-soloist-instructor
2203	Folk instruments.	Concert performer-instructor of folk instruments-orchestra director
2204	Singing.	Opera and concert singer-instructor
2205	Opera-symphonic conducting.	Director of symphonic and opera orchestra
2206	Choral conducting.	Choral director-instructor of choral disciplines
2207	Composition.	Composer-instructor of musical theory
2208	Musicology.	Musicologist
2209	Dramatic theater and cinema acting.	Actor of dramatic theat[illegible] and movies

Specialty Group 22: The Arts		
2210	Musical comedy acting.	Actor of musical comedy
2211	Drama production.	Producer
2212	Musical theater production.	Producer
2213	Ballet production.	Ballet master or teacher-ballet master
2214	Cinema production.	Producer
2215	Cinema operation.	Movie operator
2216	Theatrical techniques and stage-setting.	Artist-stage and television technologist
2217	Theater science.	Theater specialist
2218	Cinema science.	Cinema specialist
2219	Painting.	Artist-painter
2220	Graphics.	Graphic artist
2221	Sculpture.	Sculptor
2222	Decorative-applied arts.	Artist of applied arts
2227	Artistic fashioning and modeling of fabrics of textile and light industry.	Artist-technologist
2228	History and theory of graphic art.	Art historian
2229	Interior decoration and equipping.	Artist of decorative arts
*2230	Industrial art.	Industrial artist
*2231	Monumental-decorative art.	Artist of monumental-decorative arts

APPENDIX B. Notable Higher Education Institutions (*VUZy*)

The following list contains the names of the 122 higher education institutions in the U.S.S.R. that have been especially recognized over time by the Soviet Government for their achievements in training specialists and in research. This recognition has taken the form of national awards and bestowal of the titles "Order of Lenin" (*orden Lenina*) and "Order of the Red Banner of Labor" (*orden Trudovogo Krasnogo Znameni*), presented to each of the institutions listed.

The one institution that has received two Orders of Lenin, the Moscow P. I. Chaikovskii State Conservatory, is preceded on the list with three asterisks. Institutions that have received both an Order of Lenin and an Order of the Red Banner of Labor (10 *VUZy*) are listed here with two asterisks preceding their names; those with the Order of Lenin (19 *VUZy*) alone are preceded by one asterisk. Together they total 30 outstanding higher education institutions in the U.S.S.R.. All the others listed (92 *VUZy*) have received the Order of the Red Banner of Labor. The name of the institution in Russian, transliterated from the Cyrilic to the Latin alphabet, is followed on the second line by the English translation in parentheses, and on the third line by its city and street address.

The award-and-title holders number 122 *VUZy* out of a total of 856 officially listed higher education institutions in the U.S.S.R. They therefore constitute one out of seven, or about 14 percent, of the total number of *VUZy* in the U.S.S.R.. To identify the more prestigious higher education institutions by field, *VUZy* are listed here under the 22 categories of higher education specialty groups cited in the text. Polytechnical institutes are listed separately, because each of them covers too many technical specialites to be listed under any one specialty group. Other engineering schools that may provide training in more than one field, however, are cited only under their major specialty group, so that all *VUZy* in the listing appear only once.

In the official Soviet handbook listing of *VUZy*, the Orders are included in the full names of the institutions, as permanent honorary titles. For example, the full, formal name of the *VUZ* appearing in this listing as Moscow M. V. Lomonosov State University is "Moscow Order of Lenin and Order of the Red Banner of Labor M. V. Lomonosov State University" (*Moskovskii ordena Lenina i ordena Trudovago Krasnogo Znameni gosudarstvennyi universitet im. M.V. Lomonosova*). In popular usage and in English-language publications and transcripts, on the other hand, it is frequently referred to simply as "Moscow State University" or "Moscow University" (and infrequently as "Lomonosov University"). Similar abbreviated versions appear for the universities in Leningrad, Kiev, and other cities. The identity of a *VUZ* which appears in inadequate English translation of a Soviet document may be established, when the original Russian

transcript is available, either by fuller translation of the title, by transliteration when the translation is too loose or misleading, or by citation of the city and address in which the VUZ is located.

Although receipt of Orders of Lenin and Red Banner of Labor and some other available information such as the size of libraries are helpful as rough and partial indicators in gauging relative academic standing of *VUZy*, other indices that would provide more precision are not available. Among these are listings of numbers and percentages of advanced degree holders on the faculty, faculty members holding national or international research awards, numbers and percentages of enrolled students who were gold or silver medal winners in secondary school, ratios of numbers of first-year applicants to numbers of students admitted, and proportion of graduates who go on to advanced degrees. It is probable that additional *VUZy* would appear of high academic standing if such indices were used.

Sources used to identify *VUZy* receiving Orders of Lenin and Red Banner of Labor are *Spravochnik dlia postupaiushchikh v VUZy SSSR v 1976 godu* (Handbook for Entrants into Higher Educational Institutions in 1976) and monthly issues for 1976–77 of *Builleteń Ministerstva vysshego i srednego spetsialńogo obrazovaniia SSSR* (Bulletin of the U.S.S.R. Ministry of Higher and Secondary Specialized Education). The number of library volumes in *VUZy* is reported in the U.S.S.R. section of *The World of Learning 1976–77*, Volume II (London: Europa Pub. Ltd., 1976), which contains a relatively complete list of higher educational institutions in the U.S.S.R. (in English only), a breakdown of the faculties or departments, and the number of teaching staff and students.

Polytechnical Institutes [1]

Belorusskii politekhnicheskii institut
(Belorussian Polytechnical Institute)
Minsk, Leninskii prosp., 65.

Dal'nevostochnyi politekhnicheskii institut im. V.V. Kuibysheva
(Far Eastern V.V. Kuibyshev Polytechnical Institute)
Vladivostok, Tsentr, GSP, Pushkinskaia ul., 10.

Donetskii politekhnicheskii institut
(Donets Polytechnical Institute)
Donetsk, ul. Artema, 58.

**Gruzinskii politekhnicheskii institut im. V.I. Lenina
(Georgian V.I. Lenin Polytechnical Institute)
Tbilisi, 75, ul. Lenina, 77.

Karagandinskii politekhnicheskii institut
(Karaganda Polytechnical Institute)
Karaganda, bul'var Mira, 56.

*Kievskii politechnicheskii institut im. 50-letiia Velikoi Oktiabr'skoe sotsialisticheskoi revoliutsii
(Kiev 50th-Anniversary-of-the-Great-October-Socialist-Revolution Polytechnical Institute)
Kiev, Brest-Litovskii prosp., 39.

*Leningradskii politekhnicheskii institut im. M.I. Kalinina
(Leningrad M.I. Kalinin Politechnical Institute)
Leningrad, K-251, Politekhnicheskaia ul., 29.

*L'vovskii politekhnicheskii institut
(L'vov Polytechnical Institute)
L'vov, ul., Mira, 12.

Novocherkasskii politekhnicheskii institut im. Sergo Ordzhonikidze
(Novocherkassk Sergo Ordzhonikidze Polytechnical Institute)
Novocherkassk, GSP-1, ul. Prosveshcheniia, 132.

Odeskii politekhnicheskii institut
(Odessa Polytechnical Institute
Odessa, prosp. T.G. Shevchenko, 1.

Rizhskii politekhnicheskii institut
(Riga Polytechnical Institute)
Riga, ul. Lenina, 1.

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[1] Provide higher education in a wide range of engineering (technical) specialty grou

Tomskii politekhnicheskii institut im. S.M. Kirova
(Tomsk S.M. Kirov Polytechnical Institute)
Tomsk, 4, prosp. Lenina, 30.

Engineering Institutes, Listed by Specialty

Geology and Exploration for Mineral Resources [2]
and
Exploitation of Mineral Resources

Azerbaidzhanskii institut nefti i khimii im. M. Azizbekova
(Azerbaidzhan M. Azizbekov Petroleum and Chemistry Institute)
Baku, prosp. Lenina, 20.

Dnepropetrovskii gornyi institute in. Artema
(Dnepropetrovsk Artem Mining Institute)
Dnepropetrovsk, prosp. Larla Marksa, 19.

Groznenskii neftianoi institut im. akad. M.D. Millionshchikova
(Groznyi Academician M.D. Millionishchikov Petroleum Institute)
Groznyi, GSP-2, pl. Ordzhonikidze, 100.

**Leningradskii gornyi institut im. G.V. Plekhanova
(Leningrad G.V. Plekhanov Mining Institute)
Leningrad, B-26, Vasil'evskii ostrov, 21-ia liniia, 2.

Moskovskii geologorazvedochnyi institut im. Sergo Ordzhonikidze
(Moscow Sergo Ordzhonikidze Geological Surveying Institute)
Moska, k-9, prosp. K. Marksa, 18, lorpus Zh.

Moskovskii gornyi institut
(Moscow Mining Institute)
Moskva, B-49, Leninskii prosp., 6.

Moskovskii institut neftekhimicheskoi i gazovoi promyshlennosti im. akad. I.M. Gubkina
(Moscow Academician I.M. Gubkin Institute of Petrochemical and Gas Industry)
Moskva, B-296, Leninskii prosp., 65.

Sverdlovskii gornyi institut im. V.V. Vakhrusheva
(Sverdlovsk V.V. Vakhrushev Mining Institute)
Sverdlovsk, L-1, ul. Kuibysheva, 30.

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[2] For breakdown of specialties within each specialty group, see the listing "Official Soviet Classification of Higher Education Specialties" in appendix A.

Power

*Moskovskii energeticheskii institut
(Moscow Power Institute)
Moskva, E-250, Krasnokazarmennaia ul., 14.

Metallurgy

Krasnoiarskii institut tsvetnykh metallov im. M.I. Kalinina
(Krasnoiarsk M.I. Kalinin Institute of Ferrous Metals)

Moskovskii institut stali i splavov
(Moscow Institute of Steel and Alloys)
Moskva, B-49, Leninskii prosp., 4.

Machine Building and Instrument Making

Dneprodzerzhinskii industrial'nyi institut im. Arsenicheva
(Dneprodzerzhinsk Arsenichev Industrial Institute)
Dneprodzerzhinsk, Dneprostroitel' naia ul., z.

Kazanskii aviatsiinnyi institut im. A.N. Tupoleva
(Kazan A.N. Tupolev Aviation Institute)
Kazan', ul. Karla Marksa, 10.

Kuibyshevskii aviatsionnyi institut im. akad, S.P. Koroleva
(Kuibyshev Academician S.P. Korolev Aviation Institute)
Kuibyshev, 1, Molodogvardeiskaia ul., 151.

*Leningradskii korablestroitel'nyi institut
(Leningrad Ship Building Institute)
Leningrad, F-8, Lotsmanskaia ul., 3.

Leningradskii mekhanicheskii institut
(Leningrad Mechanical Institute)
Leningrad, L-5, 1-ia Krasnoarmeiskaia ul., 1/21.

**Moskovskoe vysshee tekhnicheskoe uchilishche im. N.E. Baumana
(Moscow N.E. Bauman Higher Technical School)
Moskva, B-5, 2-ia Baumanskaia ul., 5.

*Moskovskii aviatsionnyi institut im. Sergo Ordzhonikidze
(Moscow Sergo Ordzhonikidze Aviation Institute)
Moskva, A-80, GSP, Volokolamskoe shosse, 4.

Nikolaevskii korablestroitel'nyi institut im. admirala S.O. Makarova
(Nikolaev Admiral S.O. Makarov Shipbuilding Institute)
Nikolaev, ul. Skorokhodova, s.

Electronic Technology, Electrical Instrument Making, and Automation

*Leningradskii elektrotekhnicheskii institut im. V.I. Ul'ianova (Lenina)
(Leningrad V.i. UL'ianova/Lenin Electrotechnical Institute)
Leningrad, P-22, ul. prof. Popova, 5.

Moskovskii inzhenerno-fizicheskii institut
(Moscow Engineering-Physics Institute)
Moskva, M-409, Kashirskoe shosse, 1.

Moskovskii fiziko-tekhnicheskii institut
(Moscow Physico-Technical Institute)
Dolgoprudnyi Moskovskoe obl., Institutskii per., 9.

Radio Engineering and Communications

Moskovskii elektrotekhnicheskii institut sviazi
(Moscow Electrotechnical Institute of Communications)
Moskva, E-24, Aviamotornaia ul., 8.

Chemical Technology

Leningradskii tekhologicheskii institut im. Lensoveta
(Leningrad Lensovet Technological Institute)
Leningrad, Zagorodnyi prosp., 49.

Moskovskii institut tonkoi khimicheskoe tekhologii im. M.V. Lomonosova
(Moscow M.V. Lomonosov Institute of Fine Chemical Technology)
Moskva, G-417, M. Pierogovskaia ul., 1.

Moskovskii institut khimicheskogo mashinostroeniia
(Moscow Institute of Chemical Machine Building)
Moskva, B-66, ul. Karla Marksa, 21/4.

**Moskovskii khimiko-tekhnologicheskii institut im. D.I. Mendeleeva
(Moscow D.I. Mendeleev Chemical-Technological Institute)
Moskva, A-47, Miusskaia pl., 9.

Timber Engineering and Technology of Wood Processing, Cellulose, and Paper

Arkhangel'skii lesotekhnicheskii institut im. V.V. Kuibysheva
(Arkhangel'sk V.V. Kuibyshev Forestry-Technical Institute)
Arkhangel'sk, 7, nab. im. Lenina, 17.

*Leningradskaia lesotekhnicheskaia akademiia im. S.M. Kirova
(Leningrad S. M. Kirev Forestry-Technical Academy)
Leningrad, K-18, Institutskii per., 5.

Technology of Food Products

Moskovskii tekhologicheskii institut pishchevoi promyshlennosti
(Moscow Technological Institute of the Food Industry)
Moskva, A-80, Volokolamskoe shosse, 11.

Technology of Consumer Goods

Leningradskii institut tekstil'noe i legkoe promyshlennosti im. S.M. Kirova
(Leningrad S.M. Kirev Institute of Textile and Light Industry)
Leningrad, D-65, ul. Gertsena, 18.

Moskovskii tekstil'nyi institut
(Moscow Textile Institute)
Moskva, M. Kaluzhskaia ul., 1.

Construction

Kievskii inzhenerno-stroitel'nyi institut
(Kiev Engineering-Construction Institute)
Kiev, Vozdukhoflotskii prosp., 31.

Moskovskii inzhenerno-stroitel'nyi institut im. V.V. Kuibysheva
(Moscow V.V. Kuibyshev Engineering-Construction Institute)
Moskva Zh-114, Shluizovaia nab., 8.

Geodesy and Cartography
and
Hydrology and Meterology

(No *VUZ* in these specialty groups received an Order of Lenin or Red Banner of Labor.)

Agriculture and Forestry

Belorussiaia sel'skokhoziaistvennaia akademiia
(Belorussian Agricultural Academy)
Gorki, Mogilevskoi obl., BSSSR.

Gruzinskii sel'skokhoziaistvennyi institut
(Georgian Agriculture Institute)
Tbilisi, 59, 13-1 kilometr Voenno-Gruzinskoi dorogi.

Kazakhskii gosudarstvennyi sel'skokhoziaistvennyi institut
(Kazakh State Agricultural Institute)
Alma-Ata, prosp. Abaia, 8.

*Kazanskii veterinarnyi institut im. N.E. Baumana
(Kazan N.E. Bauman Veterinary Institute)
Kazan', 74, Vetgorodok.

Khar'kovskii sel'skokhoziaistvennyi institut im. V.V. Dokuchaeva
(Kar'kov V.V. Dokuchaev Agricultural Institute)
Khar'kov, 78, ul. Artema, 44.

Kubanskii sel'skokhoziaistvennyi institut
(Kuban Agricultural Institute)
Krasnodar, 44, ul. Kalinina, 13.

Latviiskaia sel'skokhoziaistvennaia akademiia
(Latvian Agricultural Academy)
Elgava, ul. Lenina, 2.

Leningradskii sel'skokhoziaistvennaia akademiia
(Leningrad Agricultural Institute)
Pushkin, Leningradskoi obl., Komsomol'skaia ul., 14.

**Moskovskaia sel'skokhoziaistvennaia akademiia im. K.A. Timiriazeva
(Moscow K.A. Timiriazev Agricultural Academy)
Moskva, A-8, Timiriazevskaia ul., 49.

Moskovskaia veterinarnaia akademiia im. K.I. Skriabina
(Moscow K.I. Skriabin Veterinary Academy)
Moska, Zh-472, ul. akad, Skriabina, 23.

Omskii sel'skokhoziaistvennyi institut im. S.M. Kirova
(Omsk S.M. Korov Agricultural Institute)
Omsk, 8, GSP-29, Zagorodnaia Roshcha.

Poltavskiis sel'skokhoziaistvennyi institut
(Poltava Agricultural Institute)
Poltava, 3, ul. Skovorody, 1/3.

Tashkentskii sel'skokhoziaistvennyi institut
(Tashkent Agricultural Institute)
Tashkentskaia obl., Ordzhonikidzevskii r-n,p/o "Institutskoe".

Tashkentskii institut inzhenerov irrigatsii i mekhanizatsii sel'skogo khoziaistva
(Tashkent Institute of Engineers of Irrigation and Agricultural Mechanization)
Tashkent, ul. Kary Niiazova, 39.

Ukrainskaia sel'skokhoziaistevennaia akademiia
(Ukrainian Agricultural Academy)
Kiev, 41, Goloseevo.

Umanskii sel'skokhoziaistvennyi institut im. A.M. Gor'kogo

(Uman' A.M. Gor'kii Agricultural Institute)
Uman', Cherkasskoi obl., p/o "Sovievka".

Transportation

*Akademiia grazhdanskoi aviatsii
(Academy of Civil Aviation)
Leningrad, M-210, Aviagorodok.

Kievskii institut inzhenerov grazhdanskoi aviatsii
(Kiev Institute of Civil Aviation Engineers)
Kiev, GSP-1, prosp. Losmonavta Komarova, 1.

*Leningradskii inzhenerov zhenerov zheleznodorozhnogo transporta im. akad. V.N. Obraztsova
(Leningrad Academician V.N. Obraztsov Institute of Railway Transport Engineers)
Leningrad, Moskovskii prosp., 9.

**Moskovskii institut inzhenerov zheleznodorozhnogo transporta
(Moscow Institute of Railway Transport Engineers)
Moskva, K-55, ul. Obraztsova, 15.

Tashkentskii institut inzhenerov zheleznodorozhnogo transporta
(Tashkent Institute of Railway Transport Engineers)
Tashkent, 45, Oboronnaia ul., 1.

Economics

Moskovskii institut upravleniia im. Sergo Ordzhonikidze
(Moscow Sergo Ordzhonikidze Institute of Management)

Law

(No *VUZ* in this specialty group received an Order of Lenin or Red Banner of Labor.)

Public Health and Physical Culture

Belorusskii gosudarstvennyi institut fizicheskoe kul'tury
(Belorussian State Institute of Physical Culture)
Minsk, Leninskii prosp., 51.

Dnepropetrovskii gosudarstvennyi meditsinskii institut
(Dnepropetrovsk State Medical Institute)
Dnepropetrovsk, 44, ul. Dzerzhinskogo, 9.

**Gosudarstvennyi institut fizicheskoe kul'tury im. P.F. Lesgafta
(P.F. Lesgaft State Institute of Physical Culture)
Leningrad, F-121, ul. Dekabristov, 35.

*Gosudarstvennyi tsentral-nyi institut fizicheskoi kul'tury
(State Central Institute of Physical Culture)
Moskva, Sirenevyi bul'var, 4.

Kazanskii gosudarstvennyi meditsinskii institut im. S.V. Kurashova
(Kazan' S.V. Kurashov State Medical Institute)
Kazan', 12, ul. Butlerova, 49.

l-l Leningradskii meditsinskii institut im. akad. I.P. Pavlova
(Academician I.P. Pavlov First Leningrad Medical Institute)
Leningrad, P-89, ul. L'va Tolstogo, 6/8.

Minskii gosudarstvennyi meditsinskii institut
(Minsk State Medical Institute)
Minsk, Leninskii prosp., 6.

**1-i Moskovskii meditsinskii institut im. I.M. Sechenova
(I.M. Sechenov First Moscow Medical Institute)
Moska, G-435, B. Pirogovskaia ul., 2/6.

*2-i Moskovskii gosudarstvennyi meditsinskii institut im. N.I. Pirogova
(N.I. Pirogov Second Moscow State Medical Institute)
Moskva, G-435, M. Pirogovskaia ul., 1.

Moskovskii stomatologicheskii meditsinskii institut im. N.A. Semashko
(Moscow N.A. Semashko Stomatological Medical Institute)
Moskva, Delegatskaia ul., 20.

Omskii gosudarstvennyi meditsinskii institut im. M.I. Kalinina
(Omsk, M.I. Kalinin State Medical Institute)
Omsk, ul. Lenina, 9.

Tashkentskii gosudarstvennyi meditsinskii institut
(Tashkent State Medical Institute)
Tashkent, 33, ul. Karla Marksa, 103.

Tbilisski gosudarstvennyi meditsinskii institut
(Tbilisi State Medical Institute)
Tbilisi, 9, ul. Melikashvili, 10.

Tomskii gosudarstvennyi meditsinskii institut
(Tomsk State Medical Institute)
Tomsk, Moskovskii trakt, 2.

Universities

Azerbaidzhanskii gosudarstvennyi universitet im. S.M. Kirova
(Azerbaidzhan S.M. Kirov State University)
Baku, ul. Patrisa Lumumby, 23.

Belorusskii gosudarsvennyi universitet im. V.I. Lenina
(Belorussian V.I. Lenin State University)
Minsk, Universitetskii gorodok.

Chernovitskii gosudarstvennyi universitet
(Chernovits State University)
Chernovtsy, ul. Korsiubinskii, 2.

Dnepropetrovskii gosudarstvennyi universitet im. 300-letiia vossoedineniia Ukrainy s Rossei
(Dnepropetrovsk 300th-Anniversary-of-Union-of-Ukraine-with-Russia State University)
Dnepropetrovsk, 10, GSP-211, prosp. Gagarina, 72.

Erevanskii gosudarstvennyi universitet
(Erevan State University)
Erevan, ul. Mraviana, 1.

Gor'kovskii gosudarstvennyi universitet im. N.I. Lobachevskogo
(Gor'kii N.I. Lobachevskii State University)
Gor'kii, prosp. Gagarina, 23.

Kazanskii gosudarstvennyi universitet im. V.I. Ul'ianova (Lenina)
(Kazan V.I. Ul'ianov/Lenin State University)
Kazan', 8, ul. Lenina, 18.

Khar'kovskii gosudarstvennyi universitet im. A.M. Gor'kogo
(Khar'kov A.M. Gorkii State University)
Khar'kov, pl. Dzerzhinskogo, 4.

*Kievskii gosudarstvennyi universitet im. T.G. Shevchenko
(Kiev T.G. Shevchenko State University)
Kiev, 17, Vladimirskaia ul., 64.

Kishinevskii gosudarstvennyi universitet im. V.I. Lenina
(Kishinev V.I. Lenin State University)
Kishinev, Sadovaia ul., 60.

**Leningradskii gosudarstvennyi universitet im. A.A. Zhdanova
(Leningrad A.A. Zhdanov State University)

*L'vovskii gosudarstvennyi universitet im. Ivana Franko
(L'vov Ivan Franko State University)
L'vov, Universitetskaia, ul., 1.

**Moskovskii gosudarstvennyi universitet im. M.V. Lomonosova
(Moscow M.V. Lomonosov State University)
Moska, B-234, Leminskie gory.

Odesskii gosudarstvennyi universitet im. I.I. Mechnikova
(Odessa I.I. Mechnikov State University)
Odessa, ul. Petra Velikogo, 2.

Permskii gosudarstvennyi universitet im. A.M. Gor'kogo
(Perm A.M. Gor'kii State University)
Perm', ul. Bukireva, 15.

Rostovskii gosudarstvennyi universitet
(Rostov State University)
Rostov-na-Dou, GSP, 11, ul. Fridrikha Engel'sa, 105.

Saratovskii gosudarstvennyi universitet im. N.G. Chernyshevskogo
(Saratov N.G. Chernyshevskii State University)
Saratov, Astrakhanskaia ul., 83.

Tartuskii gosudarstvennyi universitet
(Tartu State University)
Tartu, ul. Iulikooli, 18.

Tashkentskii gosudarstvennyi universitet im. V.I. Lenina
(Tashkent V.I. Lenin State University)
Tashkent, 95, Vuzgorodok, Universitetskaia ul.

Tbilisskii gosudarstvennyi universitet
(Tbilisi State University)
Tbilisi, prosp. I. Chavchavadze, 1.

Tomskii gosudarstvennyi universitet im. V.V. Kuibysheva
(Tomsk V.V. Kuibyshev State University)
Tomsk, 10, prosp. Lenina, 36.

Ural'skii gosudarstvennyi universitet im. A.M. Gor'kogo
(Ural A.M. Gor'kii State University)
Sverdlovsk, K-83, prosp. Lenina, 51.

Vil'niusskii gosudarstvennyi universitet im. V. Kapsukasa
(Vil'nius, V. Kapsukas State University)
Vil'njus, ul. Universiteto 3.

*Voronezhskii gosudarstvennyi universitet im. Leninskogo komsomola
(Vononezh Leninist-Communist-Union-of-Youth State University)
Voronezh, Universitetskaia pl. 1.

Pedagogical Institutes

Armianskii gosudarstvennyi pedagogicheskii institut im. Kh. Aboviana
(Armenian Kh. Abovian State Pedagogical Institute)
Erevan, ul. Khandzhiana, 5.

Azerbaidzhanskii gosudarstvennyi pedagogicheskii institut im. V.I. Lenina
(Azerbaidzhan V.I. Lenin State Pedagogical Institute)
Baku, ul. Uz. Gadzhibekova, 34.

Iaroslavskii gosudarstvennyi pedagogicheskii institut im. K.D. Ushinskogo
(Iaroslavl' K.D. Ushinskii State Pedagogical Institute)
Iaroslavl', Respublikanskaia ul., 108.

Leningradskii gosudarstvennyi pedagogicheskii institut im. A.I. Gertsena
(Leningrad A.I. Gertsen State Pedagogical Institute)
Leningrad, Naberezhnaia reki Moiki, 48.

Minskii gosudarstvennyi pedagogicheskii institut im. A.M. Gor'kogo
(Minsk A.M. Gor'kii State Pedagogical Institute)
Minsk, Sovetskaia ul., 18.

**Moskovskii gosudarstvennyi pedagogicheskii institut im. V.I. Lenina
(Moscow V.I. Lenin State Pedagogical Institute)
Moskva, M. Pirogovskaia ul., 1.

Nezhinskii gosudarstvennyi pedagogicheskii institut im. N.V. Gogolia
(Nezhin N.V. Gogol State Pedagogical Institute)
Nezhin, Chernigovskoi obl., ul. Krapivianskogo, 2.

Art Institutions

Azerbaidzhanskaia gosudarstvennaia konservatoriia im. Uz. Gadzhibekova
(Azerbaidzhan Uz. Gadzhibekov State Conservatory)
Baku, ul. G. Dimitrova, 98.

Erevanskaia gosudarstvennaia konservatoriia im. Komitasa
(Erevan Komitas State Conservatory)
Erevan 9, ul. Saiat-Novy, la.

Gosudarstvennyi institut teatral'nogo iskusstva im. A.V. Lunacharskogo
(State A. V. Lunacharskii Institute of the Theatrical Arts)
Moskva, K-9, Sobinovskii per., 6.

Institut zhivopisi, skul'ptury i arkhitektury im. I. E. Repina
(I.E. Repin Institute of Painting, Sculpture and Architecture)
Leningrad, B-34, Universitetskaia nab., 17.

Kievskaia konservatoriia im. P.I. Chaikovskogo
(Kiev P.I. Chaikovskii State Conservatory)
Kiev, ul. Karla Marksa, 1/3.

Leningradskaia gosudarstvennaia konservatoriia im. N.A. Rimskogo-Korsakova
(Leningrad N.A. Rimskii-Korsakov State Conservatory)
Leningrad, Tsentr, Teatral'naia pl., 3.

Moskovskii arkhitekturnyi institut
(Moscow Institute of Architecture)
Moskva, K-31, ul. Zhdanova, 11.

Moskovskii gosudarstvennyi khudozhestvennyi institut im. V.I. Surikova
(Moscow V.I. Surikov State Institute of Art)
Moskva, Zh-4, Tovarishcheskii per., 30.

**Moskovskaia gosudarstvennaia konservatoriia im. P.I. Chaikovskogo
(Moscow P.I. Chaikovskii State Conservatory)
Moskva, K-9, ul. Gertsena.

Tbilisskaia gosudarstvennaia akademiia khudozhestv
(Tbilisi State Academy of the Arts)
Tbilisi, ul. Griboedova, 22.

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