

Primary, secondary and post-secondary education

Bavaria's system of education

Bavaria's system of primary and secondary education is held in high regard. The rate of unemployment in Bavaria of young people is the lowest of any state in Germany. The quality of the education they received in the state's schools is an important reason why. This system of education is continually being further developed and adapted to meet the business world's ever-changing needs, and to keep the pipeline of professionally-qualified persons flowing. This flow will ensure that Bavaria stays at the top of the economic growth tables.

To that end, we have launched a campaign preparing our elementary and secondary school students to master the challenges arising in this new century. We remain committed to maintaining our two-track system of education. One of these tracks provides students heading towards technical professions with the essentials of their future jobs. The other prepares the students to continue with their studies. This twin-track system provides for a fostering of any and all gifts which a young person might have. The degree to which courses of primary and secondary school studies can be individualized is to be enhanced in the years to come, as will be the ability to transfer between the various kinds of schools.

The **schools of general purpose** are divided into three main groups:

- Hauptschule
- Realschule
- Gymnasium.

These are complemented by a number of other kinds of schools. Their graduates earn a general school leaving certificate, or one permitting them to major at a polytechnic in the area of their secondary school studies.

Young adults completing these courses are eligible to attend a wide variety of programs of further **occupational education**. A number of vocational schools also offer full-time courses of study also leading to the earning of secondary school leaving, vocational and other certificates. These courses take two or more years. Also to be gained from the above-mentioned programs, students can qualify for certificates required for attending university. This is causing an ongoing increase in the number of students at these institutions of higher education who have completed a course of occupational education.

Bavaria's primary and secondary schools

Bavaria's pre-school programs and **elementary schools** form the foundation of the state's entire education system. Children between the ages of 6 and 10 attend elementary schools. After completing the fourth grade, students attend a Hauptschule, a general secondary school, or a school tracking them to higher education.

The **Hauptschule** provides its students with instruction designed to speak to them in their own language and to address their daily realities. This instruction disseminates a broad range of information. It will be of use in the occupational life to follow. The information gained serves as the basis for the graduate's participation in a course of vocational education. Graduates of such courses are then eligible to pursue post-secondary studies.

In Bavaria, young persons are legally required to attend the Hauptschule or another kind of secondary school. Students attending the Hauptschule can earn several different types of high school diplomas:

- a general school leaving certificate, earned by all those successfully completing the ninth grade;
- a certificate of education—nicknamed the “Quali” (short for “qualified certificate”) attesting to its holder’s having displayed an above-average level of scholastic performance, with this evaluation referring to the scale of judgement established by the state in question. The “Quali” thus indicates that the student is well prepared to commence his or her program of vocational education or to start working. The certificate is well regarded by the state’s business community.
- an **intermediate-level high school diploma**, awarded to those tenth-graders who have completed a special, four-year course of study staged in their Hauptschule.

After completing the fourth grade at the Hauptschule, many students transfer to the **Realschule**. With a four year-program (grades 7–10) now being wound up, its six years provide three distinct ranges of curricula:

- one oriented toward mathematics, the natural sciences and technical knowledge
- another centered around business, economics and other commercial content
- a third providing instruction in the arts, design, the maintenance of the household or societal studies. This course has French as its second foreign language in some cases.

At the Realschule, all students attend text processing classes. Optional are information studies. These subjects can be replaced by information technologies. The Realschule’s curricula are designed to prepare students for a wide range of professions. Upon their passing a series of final examinations, students receive an **intermediate-level high school diploma**.

Students attending **schools of economic studies** can also earn this diploma. Such students generally transfer to these schools from the Hauptschule after the sixth or seventh or ninth grade. In addition to subjects of general applicability, the schools’ curricula cover those of practical utility to specific professions in the areas of business and civil administration. A particular focus of the schools is the teaching of how to apply the business-related knowledge gained in the classroom (i.e. in school-run practice firms).

The third major component of the country’s system of secondary education, the **Gymnasium** (university-track secondary school) also has a curriculum building on the knowledge and skills imparted in the country’s elementary schools. The Gymnasium provides students with the breadth and depth of knowledge requisite for studying at a university or pursuing a course of vocational education. The ranges of curricula taught at Bavaria’s Gymnasias include:

- linguistics (the humanities)
- technologies
- the performing and visual arts
- economics and the social sciences.

Students take two foreign languages. They also have their choice of a wide range of electives. Students passing a final battery of examinations—held during the 13th grade (soon to be the 12th grade) in Bavaria—receive an **Abitur**, equivalent to the French baccalaureate.

Students holding an intermediate-level certificate are eligible to attend **schools of advanced technical education (SATE)**. Also necessary for admission is proof of suitability. This can take the form of the student's having satisfied the requirements of the Gymnasium's A-levels, or his or her recording grades of 3.5 or better in German, English and mathematics, or his or her having passed an entrance examination. Students taking design also have to pass a dedicated entrance examination. Their courses of education extend over the eleventh and twelfth grades. Their graduates are eligible to attend polytechnics. These courses cover subjects of general and professional interest. The latter is disseminated during a six-month program staged during the 11th grade on corporate premises, in a public-sector institution or in a school-run workshop. The SATE's range of curricula include those with emphases on technology, economics, societal studies, agrobusiness and design.

Being tested since 2004/2005 is the holding of a 13th grade at SATE's. During this school year, high-performing students (those graduating from the normal course of study with a grade point average of 2.5 or better) can obtain diplomas entitling them to study at universities of polytechnics.

Students holding an intermediate-level high school diploma and having completed a course of vocational education (or having secured occupational experience and having demonstrable suitability) are eligible to attend the **schools of advanced professional education (SAPE)**. Graduates of the schools' two-year courses of study can attend a university, where they are eligible to major in the focus of their secondary-school education. This restriction is lifted for those having proof of proficiency in two foreign languages. Students completing a one-year course of study can attend a polytechnic. The SAPE's range of curricula include those with emphases on technology, economics, societal studies and agrobusiness.

The level of education possessed by Bavaria's inhabitants has been rising continually

<i>High school diplomas earned by Bavaria's young persons: recent trends</i>					
share of age group in %	1985	1990	1995	2000	2003
SATE (between the ages of 18 and 20)	5	8	8	10	11
Abitur (between the ages of 18 and 20)	15	17	18	20	20

It is forecast that some 143,300 young persons will graduate from Bavaria's secondary schools in 2010. Of them, nearly 22% will have earned a high school diploma entitling them to study at an institution of higher education.

<i>Forecast for the period until the year 2010</i>				
	1990	2000	Forecast for 2005	Forecast for 2010
Abitur	25,893	26,140	26,000	30,700
Intermediate-level** high school diploma	37,202	44,665	55,600	55,900
General high school diploma	48,279	48,181	49,800	43,600
Total graduates* from schools providing general curricula of education	120,545	131,180	144,100	143,300

Initial programs of vocational education

Objectives and importance

Germany's system of vocational education is "dual," in that its students receive their vocational education on corporate premises and in schools of vocational education. For some two thirds of all young persons, their working lives begin with their attending such a program.

Germany's system of vocational education constitutes one of the key assets held by Bavaria and the rest of country, as it produces the steady stream of highly-qualified personnel needed by the business community.

The success of the system stems from the close working relationships existing between companies and vocational schools. The system's work is complemented by that of the many organizations providing courses of ongoing occupational education in Germany.

Vocational schools: their role in Germany's dual system; schools of technical specialization

Along with some 20% of the classes graduating from Gymnasiums, most graduates of a general or intermediate-level high school begin a three-year program of occupational education. Its staging accords to the precepts of Germany's dual system. The instruction takes place in the **vocational school** and in the **individual company**. The vocational education provided is thus a joint product of the partnership existing between the private sector (individual companies) and the public sector (vocational schools).

In companies, young persons get to know the realities of the world of work. They are assigned to a succession of positions, and learn how to handle the demands on skill and judgment inherent in each of them. In addition, the students attend a vocational school, in which they acquire a store of indispensable information. It reinforces and deepens the practical insights they have already acquired at the company. The school's curriculum also includes courses in subjects of general interest.

Students attend the **school of vocational specialization** (Berufsfachschule) on a full-time basis. Forming the final stage of a vocationally-based high school education, these schools provide instruction in a wide range of professions, including health and child care, social work, computer sciences and other technical occupations, and in occupations in which foreign languages play a major role.

Should a range of preconditions be met, the certificate of completion of a course of studies at the schools of vocational education and specialization entitles its holder to be awarded an **intermediate-level high school diploma**.

Bavaria's system of higher education

Universities and polytechnics in Bavaria

In 2004, some 249,000 students attended Bavaria's universities and polytechnics. These offer a highly variegated range of courses of study.

Located in Bavaria are nine public sector universities, 17 public sector polytechnics, four public sector academies of the arts, and an institute of television and film. Complementing this range are the institutions of higher education maintained by municipalities, religious and private bodies.

The quality of education provided and of research conducted at Bavaria's institutions of higher education have earned them a reputation for excellence the whole world over. The students graduating from these institutions often find employment with the state's companies.

Bavaria's business community requires a steady stream of graduates equipped with knowledge and skills of practical use. Both these items are provided by the state's polytechnics, which were founded to serve the business community, and are staffed by professors who have at least five years of professional business experience.

Courses of study available at Bavaria's universities (a selection)

All of Bavaria's universities provide instruction in the following subjects:

- geography (except for Passau and Regensburg)
- art history (except for Bayreuth)
- political science (except for Bayreuth)
- sociology (except for Bayreuth and Regensburg)
- economics (except for Bamberg and Passau)

The specialties of the individual universities include

University of Augsburg

Jurisprudence, Canadian studies, applied computer sciences, physics, materials and environmental engineering

Bamberg's Otto-Friedrich University

Catholic theology, Oriental studies, psychology, Romance studies, vocational education, computer-based cultural studies, computer-based econometrics, studies of Slavic cultures

University of Bayreuth

Jurisprudence, microbiology, biochemistry, chemistry, physics, materials engineering, earth and Africa studies, polymers and colloids-derived chemistry, sports and health industries

Catholic University of Eichstätt and Ingolstadt

Journalism, Catholic theology, teacher training

Friedrich-Alexander University, Erlangen-Nuremberg

Evangelic theology, jurisprudence, American studies, Sinology, Japanese studies, computer sciences, computer-based econometrics, biology, biochemistry, chemistry, physics, electronics engineering, industrial engineering, materials engineering, process technologies/chemical and biological engineering, information and communication technologies, medicine

Munich's Ludwig-Maximilians University

Jurisprudence; American, Romance, Japanese studies; Sinology, computer sciences, statistics, theology, biology, biochemistry, chemistry, physics, geophysics, medicine, veterinary medicine, archeology, psychology, communication sciences, comparative methodology, econometrics

Munich's University of Technology

Architecture, civil engineering, computer sciences, surveying, biology, chemistry, physics, electronic engineering, industrial engineering, brewing, aviation and space transport technologies, process technologies/chemical engineering, medicine, sports, land development

Munich's University of the German Army

Civil engineering, surveying, computer sciences, electronic engineering, aviation and space transport technologies

University of Passau

Jurisprudence, American studies, linguistic and cultural sciences, computer sciences, Southeast Asian studies

University of Regensburg

Jurisprudence, computer-based econometrics, microbiology, biochemistry, chemistry, physics, medicine, American studies, biology

Würzburg's Julius-Maximilians University

Jurisprudence, theology, Sinology, Indian and Japanese studies, technical and business-use computer sciences, general computer sciences, computer-based econometrics, biochemistry, chemistry, biology, botany, physics, nanostructural technologies, medicine, psychology, philosophy, classical studies, applied linguistics

Courses of study available at Bavaria's polytechnics (a selection)**Amberg-Weiden Polytechnic**

Business administration, electronic engineering, industrial engineering, financial engineering, computer sciences

Ansbach Polytechnic

Multimedia, communication technologies, business administration, financial engineering

Aschaffenburg Polytechnic

Business administration, electronics, information technologies, mechanical-use communications

Augsburg Polytechnic

Business administration, architecture, civil engineering, computer sciences, electronic engineering, industrial engineering, multimedia, mechanical-based communications

Coburg Polytechnic

Business administration, architecture, civil and electronic engineering, industrial engineering

Deggendorf Polytechnic

Business administration, civil and electronic engineering, media technologies, computer sciences

Hof Polytechnic

International-level management, computer-based econometrics, textile technologies (Münchberg)

Ingolstadt Polytechnic

Business administration, industrial and economic engineering

Kempten Polytechnic

Business administration, computer-based econometrics, electronic and industrial engineering

Landshut Polytechnic

Business administration (including a pan-European program of studies), computer sciences, electronic engineering, industrial engineering

Munich Polytechnic

Business administration, computer-based econometrics, architecture, civil engineering, industrial design, computer sciences, electronic engineering, physics-based technologies, microengineering, automotive and avionic technologies, industrial engineering

Neu-Ulm Polytechnic

Business administration, financial engineering

Nuremberg Polytechnic

Business administration, architecture, civil engineering, computer sciences, electronic engineering, industrial engineering, process and material technologies

Regensburg Polytechnic

Business administration at the national and pan-European levels, architecture, civil engineering, computer sciences, electronic engineering, industrial engineering, microengineering, mathematics

Rosenheim Polytechnic

Business administration, computer-based econometrics, computer sciences, electronic engineering, plastics processing technologies

Weihenstephan Polytechnic

Biotechnologies and dedicated information technologies, garden design and landscape conservation

Würzburg—Schweinfurt Polytechnic

Business administration, computer-based econometrics, architecture, civil engineering, computer sciences, electronic and industrial engineering, plastics processing technologies

International schools in Bavaria

The number and diversity of international schools in Bavaria give non-Germans working in the state and their families a wide, attractive range of ways to educate their children.

- Munich International School (MIS), Starnberg (instruction in English)
- Bavarian International School (BIS), Haimhausen (instruction in English)
- Franconian International School (FIS), Herzogenaurach (instruction in English)
- Private German-French School, Munich (instruction in French)
- European School, Munich (departments teaching in seven European languages; school's graduates earn a degree recognized throughout the EU)
- Japan International School, Munich
- Greek Lyceum, Munich
- Greek Lyceum, Augsburg
- Greek Lyceum, Nuremberg
- Greek Lyceum, Schweinfurt
- European-Hungarian Gymnasium, Kastl (German/Hungarian)

Ongoing occupational education and retraining**Objectives and importance**

Two of the Bavarian government's primary objectives are to improve the conditions under which the state's programs of ongoing occupational education operate, and to promote an awareness by the general public of the key role played by these programs in helping Bavaria's rank-and-file and executives learn on a lifetime basis. Much of this learning now centers around the procurement and management of information and other forms of knowledge. This learning is imparted in programs run by the company itself or by outside institutes and agencies. The structure of this highly flexible system of education ensures that Bavaria's companies have a pool of young persons with the qualifications required to turn them into high-performance technical and executive-level staff members.

In-company ongoing education systems

Bavaria's companies allocate a great deal of resources to funding a wide range of training programs. These provide their staff members with the skills and knowhow needed to operate on and adapt to markets continually adopting new technologies and procedures.

Inter-corporate and general-access programs of occupational education

Bavaria's chambers of commerce and industry, chambers of skilled trades, facilities maintained by officially certified, state-level organizations, entities providing adult-level education, and private-sector bodies offer a wide range of training programs and courses for individual skill groups and for entire professions. These courses are not held on company premises. Some courses are designed to acquaint participants with the basics of a particular area, others are centered around inculcating practical information and skills. ICT (information and communication technologies) constitute a special focus of today's programs. All over Bavaria they provide information on

- information and communication technologies
- basic technical knowledge
- product development and planning
- manufacturing, technological and environmental processes
- corporate leadership, business administration.

Programs of ongoing occupational education provided by Bavaria's schools

More than 350 schools offer students an opportunity to **continue with their secondary-level studies**. Offering technical, business, design, social concern, agricultural and other degree-track curricula, these **schools of technical education** or **academies of professional instruction** are run by the state government or municipal authorities, or are privately owned.

The **schools of technical education** serve as the next step for students wanting to extend or augment their vocational proficiencies, generally acquired during an initial program of vocational education. These schools provide their students with the vocational experience required to pursue careers as entrepreneurs or to hold middle-management positions. Students attending these schools on a full-time basis require between six months and two years to complete the courses of instruction, with this depending on the individual's education-related objectives. Students attending these schools on a part-time basis require a correspondingly longer period of time to complete their instruction. After completing a course of instruction of at least one year in length and having passed a state-supervised final examination held at the school, the students are awarded an **intermediate-level high school diploma**.

These schools are comprised of several individual subsets. Graduates of the **schools of technical instruction** can earn a certificate of technical proficiency. The **schools of technical mastery** prepare their graduates to take the corresponding examinations, which are held by the skilled trades chambers, or by the chambers of industry and trade.

The attaining of the intermediate-level high school diploma and, in most cases, the completion of a course of vocational instruction helping the student realize his or her education-related objectives—or previous, occupational activities—are the preconditions for being admitted to an **academy of professional instruction**. This kind of school is to be found only in Bavaria. The course of instruction at the academies is a minimum of two years long.

Students and graduates of a course of education of at least two years in length and offered by a school of technical education are entitled to take a subsequent examination. Those passing it receive a secondary school leaving certificate allowing its holder to attend a university or a polytechnic. This possibility is also open to holders of diplomas testifying to mastery of a trade or of an equivalent vocational degree. Should they have a high grade point average or display a high level of performance in another way, students at and graduates of academies of professional instruction can be granted a diploma enabling its bearer to study his or her major at an institution of higher education.