

School development concept 2023-2027

Secondary Technical School of Mechanical and Electrical Engineering, České Budějovice, Dukelská

13



Preamble

the development concept **of the Secondary Industrial School of Mechanical and Electrical Engineering, České Budějovice, Dukelská 13**, to be a basic document necessary for planning the meaningful development of the school.

Since education is constantly facing new challenges, the document is continuously revised and supplemented with new goals that lead to the fulfillment of the long-term vision. The concept builds on the school's strengths and sets sub-goals leading to the correction of weaknesses, it follows on from the ŠAP (School Action Plan 2018–2022) and the school's ongoing self-evaluation.

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Characteristics of the school

The Secondary Technical School of Mechanical and Electrical Engineering, České Budějovice, Dukelská 13 (**hereafter referred to as SPŠSE**) is a traditional technical school in the city of České Budějovice, whose history dates back to 1910, and the school building has stood on its current site since 1913. Currently, the school is established by the South Bohemian by region. In addition to the children from České Budějovice, pupils from the surrounding municipalities and the entire South Bohemian region also come to us. Commuters make up roughly a third of all pupils.

After socio-political changes after 1989, the school was gradually transformed into a modern, open school, whose focus reflects the needs of the present time in the technical secondary education process.

Currently, 2 core disciplines are taught in different variants, all of which end with a school-leaving exam: **engineering** (focusing on technical software and engineering economics) and **electrical engineering** (robotics and control machines, electrical power and electrical machines, electromobility and alternative drives).

The capacity of the school is 480 pupils, occupancy is 90%.

The number of teaching staff is 51 + 2 RD, the number of non-teaching staff is 10.

Teaching takes place in the school building Dukelská Street No. 13, České Budějovice and in the school workshops, which are part of the school complex at the same address. Pupils have the option of eating lunch in the school canteen U Tří lvů, approx. 100 m from the school building. Pupils from places outside České Budějovice have the option of accommodation and all-day meals in the U Hvízdala Youth Center in České Budějovice, or in the Holečkova Youth Center in České Budějovice.

The school building has:

- 41 classrooms, of which 21 are specialist classrooms for less than 20 pupils, 19 classrooms for 20 to 40 pupils and 1 classroom (listening room) for more than 40 pupils (capacity 108 places),
- 16 main classrooms,
- 1 language classroom with a capacity of 20 students,
- 1 gym,
- 4 laboratories for electrotechnical measurements,
- 2 laboratories for automation,
- 1 electric drive laboratory,
- 4 machine laboratories (laboratory for measuring lengths and shapes, laboratory for material tests and measurements on machines and laboratory of numerically controlled machine tools, electro-pneumatics teaching workplace),
- 4 computer technology laboratories, two of which focus on CAD/CAM systems and 3D printing and one on microprocessor technology,
- teaching in the school workshops takes place in the departments: lathe , milling, tool shop, locksmith workshop, tire workshop, CNC machining workshop, forge, welding workshop and in two electrical workshops (classic installation workshop and modern installation workshop - LOXONE smart homes).

The instrumentation of the laboratories is relatively good, some top-notch – e.g. in the field of length measurements, tests of the mechanical properties of materials (engineering), electrical measurements for analog and digital circuits, in the field of automation using programmable automata, etc.

All classrooms have data projectors as such or interactive whiteboards that also include a data projector. In all classrooms, computers are connected to the school computer network and the Internet, access is secured by authentication through a domain server.

Thanks to its position among companies and the general public, SPŠ SE is perceived as a high-quality school, enabling a wide range of employment opportunities for its graduates. This is confirmed by positive feedback from companies and universities and their interest in school graduates. The management of the school and its employees are aware that the good name of the school is binding, and they are still working to ensure that the school continues to be well perceived in society.

The quality of SPŠ SE is increased by means of:

- cooperation with companies,
- incorporation of companies' requirements for graduates' knowledge into teaching,
- selection of admitted pupils,
- support for students' technical orientation through the clubs offered,
- continuous creation and addition of school educational programs,
- equipping the school not only with modern technologies,
- work with the teaching staff.

The school adapts to the requirements of the South Bohemia region and accepts employment and labor market trends in the field of engineering and electrical engineering.

SWOT analysis

ADVANTAGES , strengths of the school:

- good name of the school,
- prestigious school,
- application of graduates,
- attractive fields of study,
- quality teaching staff,
- above average students,
- selection of applicants,
- high level of digitization,
- ability to improvise,
- openness,
- continuity,
- good class teams,
- good relations between school staff,
- respect for pupils and staff by the school management,
- location of the school in the city center,
- all necessary classrooms for teaching are located in the building (workshops, gymnasium, auditorium, specialist classrooms), pupils do not have to move to other buildings,
- specialist classrooms (ICT, electrical and engineering, workshops),
- good technical and material background of classes,
- teachers' technical equipment,
- modern teaching aids,
- adaptation and sports stays for pupils,
- a very wide range of leisure activities every year,
- involvement in projects and grants,
- international cooperation – Erasmus+,
- support and financing of the school by the founder,
- cooperation with the founder, participation in regional events,
- cooperation with social partners, employers and key supporters of the school (Bosch, E.ON, ČEZ),
- friendliness towards parents and the public – open school,
- school parliament, involvement of pupils in the running of the school,
- project days and events (Day for companies, Day for practice, Day for universities, Student day, charity project Dukla helps, Proud school project, etc.),
- involvement of pupils in regional and national competitions,
- functioning operational section,
- cooperation with universities, we are a faculty school of six universities,
- activities of the school counseling office (educational counselors, prevention methods),
- keeping the school chronicle,
- excellent mastery of distance and online teaching,
- cooperation with SRPŠ and the school board,
- incentive scholarships for pupils,
- teaching programming in the framework of IT from the 1st year,
- office applications (text editor, presentation software) are integrated into ČJ teaching,
- native speaker in AJ specializing in technical English,
- cooperation with the British Centre,
- school promotion - website, Facebook, Instagram, media.

Disadvantages, weaknesses of the school :

- sub-optimal composition of the teaching staff in terms of age structure, especially in professional subjects,
- curriculum focus,
- emphasis on immediate knowledge rather than soft skills,
- weak reflection of changes in the vocational curriculum,
- spatial provision of teaching,
- great inertia,
- age of school equipment,
- a high number of graduates go on to university (little interest from companies),
- insufficient special pedagogical care – lack of school psychologist, school assistant, social pedagogue,
- insufficient spatial background for teaching physical education, lack of outdoor space,
- the unresolved issue of the school library, study room and rest room for pupils,
- lack of interest of some teachers in the further development of the school and self-development,
- the absence of more joint actions of teachers,
- the absence of German language teaching in the context of the proximity of Austria and Germany,
- lower interest of pupils in leisure activities offered by the school,
- a small number of pupils who want to be involved in the development of the school and its promotion,
- impossibility to insulate the school and thereby achieve energy savings,
- insufficient cooperation with primary schools,
- little emphasis on assessment and self-assessment of pupils in teaching,
- the school does not have its own accommodation facilities and school canteen,
- there is a lack of cooperation with school graduates.

Opportunities:

- work with talented students,
- the involvement of companies in teaching,
- responding to changes in professional subjects,
- inspiration from other schools,
- involvement in international projects,
- events for the public,
- deeper cooperation with primary schools,
- promotion of technical fields,
- partner company for each SVP,
- systematic education of the entire choir - current trends,
- self-reflection and development of individuals – continuing education of teaching staff (DVPP),
- modern methods and modern technology as a regular part of teaching,
- expanding cooperation with experts, companies, universities,
- expansion of international cooperation – partner school, cooperation with Austrian and German border schools,
- other sources of funding – use of projects, funds, grants,
- expanding cooperation with the founder,
- media coverage of the school, the successes of individuals and teams,
- websites related to school life,
- implementation of the planned extension in the school yard,

- completion of hackspace - a workshop for the public,
- cooperation with primary schools in the field of technology,
- technical Olympiad for primary school pupils organized by our school,
- growing demand for technical graduates,
- adult education and lifelong learning ,
- school anniversary 2023 - establish and deepen cooperation with graduates and social partners.

Threats:

- legislation,
- change of support of the founder (support of general education),
- decline in interest in technical fields,
- school funding,
- the lack of interest of experts in the teacher's work,
- loss of the school's good name,
- absence of technical university in České Budějovice,
- demographic development of the České Budějovice district and the entire South Bohemian region,
- insufficient school capacity,
- fullness of classes,
- lack of space for dividing pupils into study groups,
- dissatisfaction of those interested in education from the surrounding municipalities,
- missing spaces for sports activities,
- lack of quality teachers,
- reluctance and insufficient motivation of teachers to change,
- stagnation, inability to develop,
- insufficient number of professional teachers of electrical engineering and mechanical engineering on the labor market,
- the decreasing level of preparedness of primary school pupils:

A vision for the future

We want to be a modern, respected school that offers quality education. A school that is based on a pleasant climate and openness towards pupils and parents. A school that teachers and students look forward to and can be rightly proud of.

We want to be a modern school that tries to satisfy the educational and practical needs of students in accordance with the labor market and the requirements of the development of society.

We want to be the school of first choice for gifted, talented and high-quality pupils, to show application in technology and to compete with grammar schools, where technically oriented pupils with the vision of continuing to university go.

We want to increase the number of girls in our school and confirm that technology is a good field for girls as well.

We want to deepen and expand cooperation with primary schools and become a bridge between practice and primary education.

Internal stabilization:

- establishing a clear organizational structure of the school and defining the competences of individual employees,
- optimization of personnel composition,
- stabilization of the team, support of cooperation between teachers (subject committees, cooperation between teachers of general and specialized subjects, mutual supervision, examples of good practice),
- delegation of certain competences to the heads of subject committees,
- targeted further education of teaching staff,
- effective use of available funds (state budget, non-investment contribution from the founder, projects and grants, sponsorship donations),
- linking education with companies - employee internships.

Internal development:

- ongoing revision of the school education plan in accordance with the curriculum documents and the focus of individual fields,
- a meaningful offer of compulsory optional subjects in the 4th year, taking into account the pupils' further orientation (studying at a university, entry into practice, etc.),
- support for talented students, inclusive education,
- improving the quality and efficiency of information transfer,
- the use of modern technologies and aids in teaching,
- ongoing modernization of computer technology,
- ongoing modernization of school equipment.

External development:

- creation of clear, continuously updated school websites,
- media presentation of the achievements of individuals and the entire school,
- openness towards the parent community, improving the quality of cooperation with parents, their involvement in school life,
- development of cooperation with elementary schools in the region,
- development of cooperation with partner universities,
- development of cooperation with school partners and sponsors,
- start building cooperation with school graduates,
- all steps aimed at creating a deeper awareness of the school in the general public.

Priorities - strategic goals (areas of development aimed at fulfilling the vision)

Educational - educational area

The school has been working for a long time to ensure that the educational content reflects the current needs of the labor market and the requirements of universities as much as possible. It is obvious that it is not possible to fully cover all areas of engineering and electrical engineering, which are also developing dramatically. Therefore, it is necessary to identify the basic (universal) knowledge and skills that a school graduate should acquire during their studies and deepen these basics based on the principle of student specialization. It is necessary to create a clear concept of the educational content of individual specializations, meaningfully connected from the first to the fourth year. This effort is complicated by weak feedback from universities and from practice. Another complication is the absence of educational materials for professional subjects, those available are often over 50 years old, new materials are often their transcription/revision/updation. It will therefore be necessary to create your own teaching materials, allowing for easy updating.

It will be necessary to continue connecting the theoretical curriculum with practice - that is why professional subjects are often supplemented with exercises. Based on the feedback from the mentioned exercises (included in this and last school year), the content of the lessons will be adjusted and the material equipment will be solved. In this area too, it will be necessary to create own teaching materials - for example, a database of measuring tasks.

The connection of the curriculum with practice is also related to the continuation of year papers, which are part of the classification of pupils in the 2nd and 3rd years. The next step in the aforementioned activity will be a more significant involvement of companies both in the assignment and implementation of works, as well as in their evaluation.

In previous years, questionnaire surveys were carried out among pupils, the results of which were useful for planning the development of the school, solving problems in teaching or directing promotion. The next step will be the creation of a concept for these investigations - regularly repeating the same/similar questionnaires, ascertaining the attitudes of pupils and evaluating the quality of the school. If it is possible to find a tool to process such a large amount of data and formulate specific queries, the next step would be a deeper analysis of the answers.

A great opportunity in the above-mentioned topics is the emerging cooperation with the BOSCH company, which could lead to the fulfillment of individual activities. As part of the cooperation, the teaching of some subjects could take place in the training center of this company, consultations on thematic plans would be carried out, and the pupils of the school would be able to use BOSCH machinery. This is one of the possibilities that the school perceives and wants to use.

Material - technical area

The biggest challenge will be to appropriately and efficiently use the potential that the new school extension will provide. This extension will be implemented from the IROP project and thanks to it, 4 new classrooms and 2 new cabinets will be created (at the same time, 2 existing classrooms and 1 cabinet will be renovated). Thanks to the elevator, the school will be barrier-free. The technical equipment for the teaching of professional subjects, which we would like to place in the newly created premises, will be very expensive, therefore the school is actively working on a partnership with another strong company from the region – ČEZ, specifically JE Temelín. Cooperation should be set up at the level of ČEZ – founder – school and should include both ČEZ's active participation in

updating the educational contents of all the school's fields, as well as financial participation in equipping the school.

Thanks to the newly created classrooms, the school has the opportunity to build a popularization center that would be accessible to elementary schools in the region. The school will also continue to cooperate with elementary schools in the form of project days and will also allow them to use the excellently equipped school workshops. As part of the subject "Man and the world of work", we will also offer a guided tour, in which primary school students will see the school's pupils at work and get to know the machines that are only theoretically discussed in their teaching at primary school.

Thanks to the support of the founder, we will continue the reconstruction of the electrical installation and also the purchase of teaching equipment.

Financial resources will be directed mainly to vocational classrooms according to current needs (arising from revisions of educational contents). As before, the initial impulse will be based on the needs of individual teachers, which will then be discussed by subject committees and handed over to the school management with an investment plan, including the identification of main priorities.

In the field of IT, the school is well saturated, there will be a renewal of existing computers as well as an expansion of available peripherals and software.

Involvement of other partner companies in equipping the school - building on successful projects with the companies ČEPS, Engel and Elektro SMS.

The school will also continue to expand the equipment of the publicly accessible workshop (hackspace) - based on experience from its operation.

Personnel area

Further improve relations between school employees at all levels. According to the results of the questionnaire survey, the current climate of the choir is at a good level, but it is important to continue to strengthen the ties both between the teaching staff and between the school's management and employees. The goal is to maintain and strengthen respectful and open communication. Thanks to the healthy climate in the choir, new teachers stay (if the school management is satisfied with them) and thus there are no unexpected departures or departures of quality teachers who are already of retirement age.

The essential task is to supplement the teaching staff with new teachers of professional subjects. This was successful in previous years, but with regard to the age composition of the choir, the attendance was not sufficient.

When recruiting new employees, the school can rely on the good name it has among employers and on its graduates.

The effort is to create smaller working groups that will deal with individual focus areas of the school. These teams will prepare documents for the meetings of subject committees.

Continue to take into account professional growth within the criteria for assigning personal evaluation, support for DVPP.

Increase the number of joint actions of the teaching staff.

Clearly define the individual sections for which individual economic workers are responsible, the janitor's involvement in the preparatory phases of projects.

Leading all employees to take personal initiative.

The field of prevention of socially pathological phenomena - activities of the school counseling center (ŠPP)

Especially after the return of students from distance learning, the need for a school psychologist became apparent. Therefore, the school is working to fill this position. That is also why she secured funds within the "Template" and is looking for a suitable person for this function. With this step too, we want to increase the availability and range of ŠPP services. Furthermore, it will be necessary to hand over the agenda to the new prevention methodology and ensure spatial, material and self-educational conditions for it. We expect continuous updating of the corresponding strategic documents. The development of career counseling is also related to the work of ŠPP, there is great scope for cooperation with partner companies and universities. We will continue to organize Days for practice, for companies and for universities.

As part of the work of the ŠPP, we expect a concept in the field of regular and meaningful involvement of organizations active in the field of prevention. As part of motivating students to study and career counseling, the concept of regular professional excursions, participation in competitions and foreign mobilities will be created.

Classroom teachers are an important link between pupils, parents and the ŠPP, so the situation in the classrooms will be monitored. Specifically, meetings of class teachers and ŠPP staff will be held, and class teachers will report the situation in the class on a monthly basis.

Various forms of questionnaires will also be used within the ŠPP, and ŠPP staff will have full access to all results of questionnaire surveys among pupils and parents.

One of the fundamental tasks of ŠPP will be the creation and implementation of a strategy for identifying talented students and subsequent work with them. In this area, the school has so far failed to make use of the potential of our pupils.

Conclusions on the ŠPP:

- increasing the availability of ŠPP services for pupils and parents,
- handing over the agenda to the new prevention methodology,
- update of strategic documents,
- development of cooperation with the pedagogical-psychological consultancy,
- establishment of permanent cooperation with organizations operating in the field of prevention,
- setting up an effective system of preventive activities reflecting the current needs of the school,
- continuous evaluation of the success of preventive action,
- organizing regular meetings with class teachers,
- the inclusion of sociometric questionnaires when mapping the school,
- career counseling development.

Further education of teaching staff (DVPP)

Currently, most of the DVPP courses are focused mainly on the expertise of teachers in their teaching subjects, but methodical and didactic trainees are used little. The problem is the minimal offer of such courses for teachers of professional subjects. Nevertheless, teachers will be motivated to educate themselves not only in the field of knowledge, but also in pedagogical skills.

Non-school days will be partly used for sharing "examples of good practice" between teachers, training in modern technology, the use of the school information system and available technologies, as well as appropriate training for the entire choir. These trainings will focus on legislation, didactic methods, prevention of burnout syndrome, communication skills, working with talented students and others. We will be based on the current situation and course offer.

The motivation of teachers for self-education will take place both in enabling it and in engaging in examples of good practice, as well as in the form of a corresponding change in personal evaluation. Self-education is one of the criteria for his admission.

Conclusions on DVPP:

- teachers' motivation for further education and self-development,
- annual determination of the DVPP plan for the assembly hall and for individuals,
- the introduction of mentoring as a beneficial help to teachers and as a prevention against the burnout syndrome,
- regular training of the assembly hall in the field of ICT technologies – ICT coordinator, external staff,
- regular training of the choir room in the area of new teaching methods,
- learning soft skills (presentation, teamwork, creativity, critical thinking).

Area of organization and management

The school strives to be a democratic institution open to change, enabling the participation of all involved. That is why the structure of the school is broad, distributed among basic positions – director, representative for general subjects, representative for specialized subjects, head of subject committees, head of the operations section, head of workshops. All the mentioned positions have the possibility to influence the development and direction of the school and have a certain degree of autonomy. The school's top management meets weekly, other members of the wider management are also invited to the meeting if necessary. At the same time, however, the competences and duties of individual school employees are precisely defined.

Communication within the school is conducted electronically, all essential information is accessible to all employees in an online repository. Partial matters are negotiated by the subject committees and subsequently resolved by the school management. If necessary, pedagogic/operational meetings are convened, where all teachers/employees of the school are introduced to essential information. Questionnaire surveys carried out by the school are fully accessible to the chairmen of the subject committees, and all teachers are subsequently informed of the basic outputs.

The organization of the school is defined in internal guidelines, which will be regularly updated according to the needs of the school and changes in legislation. The control system is part of the school organization.

A major task in the field of management and organization is the involvement of pupils in the operation and promotion of the school. The current student council is not effective, there is a lack of suitable individuals who will improve the functioning of the student council and come up with specific proposals for the school management.

OTHER STRATEGIC GOALS

- strengthening the role of the introducing teacher (familiarity with the SEP and the organization of the school, continuous management, mutual supervision),
- delegation of some competences to the heads of subject committees (regular meetings within subject committees, monitoring of new teaching materials, assistance to newly arrived pedagogues, organization of school competitions, exhibitions, ideas for project days at school and outside school, organizing discussions),
- creation of clear, continuously updated school websites,
- media presentation of the achievements of individuals and the entire school in public,
- openness towards the parent community, improving the quality of cooperation with parents, their involvement in school life,
- cooperation with the school board,
- the development of cooperation between schools in the region, from elementary to universities,
- effective use of available funds,
- strengthening the good name of the school,
- creating a project team to manage grants, projects and international cooperation,
- rationalization of school costs,
- support school sponsorship in the form of donation contracts,
- to continue the implementation of the Technical Olympiad,
- involve the school in other subject competitions,
- to prepare a competition between similarly focused schools in the region.