CONTENT

IN.	TRODUCTION	. 9
1	ENGINEERING - TRADITIONAL BRANCH	
	OF THE CZECH INDUSTRY	11
2	ENGINEERING IN INDUSTRY 4.0 AND EDUCATION	14
	2.1 Education for Industry 4.0	16
	2.2 Educational concepts of robotics and automation in Industry 4.0	17
3	SECONDARY ENGINEERING EDUCATION AS A SUBJECT	
	OF EVALUATION, MONITORING AND RESEARCH	
	AND STRATEGIC OBJECTIVES OF ITS CHANGE	
4	FRAMEWORK EDUCATIONAL PROGRAM FOR THE FIELD	
	OF EDUCATION 23-41-M / 01 MECHANICAL ENGINEERING	
	AS A SUBJECT OF ANALYSIS	
	4.1 Two-level curriculum in the education system	44
	4.2 Framework educational program for the field of education	
	23-41-M/01 Mechanical engineering	
	4.3 School educational program	
	4.4 Curriculum revision context	50
	4.5 Analysis of education areas from a questionnaire designed	
	for schools	
	4.6 Analysis of the number of lessons in educational areas	5/
	4.7 Comparison of the assessment of the difficulty and popularity	
	of the main school-leaving subjects from the point	
	of view of students of secondary school with a focus	50
	on mechanical engineering	39
	of students of secondary schools with a focus on engineering	61
	4.9 Feedback of head teachers/SEP coordinators on the content	O I
	and scope of curricular documents	62
	4.10 Conclusion	
5	MOTIVATION TO STUDY A SECONDARY TECHNICAL SCHOOL	00
	AND WORK IN ENGINEERING FIELD	66
	5.1 Motivation as a theoretical problem	
	5.2 Performance motivation and research	
	on factors motivating for studying	67
	5.3 Methodology and results of pilot research	
	on performance motivation	68
	5.3.1 Research questions and selected descriptive results	
	of pilot research	68
	5.3.2Relational results of the statistical analysis	
	of the pilot phase of the research	71

		5.4 Questionnaire survey methodology	73
		5.4.1 Descriptive research results	73
		5.4.2 Relational research results	92
		5.5 Research on the school performance motivation of students	
		at secondary technical schools	93
		5.5.1 Descriptive research results	94
		5.6 Discussion and conclusion	97
	6	EDUCATIONAL STRATEGIES	
		IN THE STUDY OF ENGINEERING FIELDS	. 100
		6.1 View of traditional and non-traditional educational strategies .	. 100
		6.2 Educational strategy not only in the future	. 102
		6.3 Innovation in the curriculum	. 104
		6.4 Changes in the learning process	. 105
		6.5 Research methodology	. 107
		6.5.1 Research aim	. 108
		6.5.2 Descriptive research data	. 109
*		6.5.3 Relational research results	
		6.6 Discussion and conclusion	. 116
	7	DIGITAL TECHNOLOGIES, DIGITAL AND READING LITERACY	
		IN LEARNING AND FUTURE PRACTICE	. 118
		7.1 Theoretical concepts of digitalisation in education	
		and digital literacy	. 118
		7.1.1 Digital learning environment	
		7.2 Theoretical concept of reading literacy	. 124
		7.3 Research investigation	. 125
		7.4 Methodology and results for the area of digitalisation	
		and digital competencies of students	. 126
		7.4.1 Research results	. 127
		7.4.2 Summary on the digitalisation of teaching and learning	
		and students' digital competencies	. 133
		7.5 Methodology and results of students' reading literacy	. 134
		7.5.1 Research results	. 134
		7.5.2 Results of hypotheses verification	. 137
		7.5.3 Summary for the area of student reading literacy	
		and reading strategies	. 141
	8	CONDITIONS AT SECONDARY SCHOOLS	
		FOR THE IMPLEMENTATION OF EDUCATION	
		IN MECHANICAL ENGINEERING DISCIPLINES	. 142
		8.1 Conditions for mechanical engineering education according	
		to the analysis of the Czech School Inspectorate	. 142

0	8.1.1 Spatial, material and safety conditions in secondary education	143143146
	WITH MECHANICAL ENGINEERING SPECIALISATION AS SEEN BY EMPLOYERS	148
	9.1 The importance of competencies from the perspective of employers	148 149
	of mechanical engineering graduates	149
	9.3 Definition of competency	155
	of competencies of graduates with an apprenticeship certificate	161
	of competencies of graduates with a secondary school diploma	165
	of mechanical engineering graduates	168
10	and available skills of the two cohorts of graduates 9.5 Conclusion	
10	COMPETENCIES FROM THE PERSPECTIVE OF EDUCATION PROVIDERS AND GRADUATES' EMPLOYERS	174
	of education providers	175
	of education providers	177
	of education providers	179
	competencies from the perspective of employers and educators. 10.4.1 Differences in the evaluation of the importance of graduate's professional competencies	181
	from the perspective of employers and educators	182

10.4.2 Consensus in the evaluation of the importance
of graduate's professional competencies
from the perspective of employers and educators 183
10.5 Comparison of the evaluation of graduate's general
competencies from the perspective of employers and educators 185
10.5.1 Differences in the evaluation of the importance
of graduate's general competencies from the perspective
of employers and educators
10.5.2 Consensus in the evaluation of the importance
of graduate's general competencies
from the perspective of employers and educators 187
10.6 Conclusion
11 CAREER COUNSELLING USING INNOVATIVE DIAGNOSTIC TOOLS 189
11.1 Selected methods used in career counselling
11.2 Possibilities of using Eye Tracking in career counselling 195
11.3 Results of the initial check of the diagnostic tool 202
12 OPTIMISATION OF EDUCATION IN ENGINEERING
DISCIPLINES FOR THE JOB MARKET
12.1 Outset for optimisation
12.2 Proposals for procedures and steps towards optimisation
of secondary education in engineering disciplines
12.2.1 For the curricular area
12.2.2 For the procedural area
12.2.3 For the personnel area
12.2.4 For the area of material equipment
12.2.5 For the financial area
12.2.6 For the area of employment chances for graduates 211
12.3 Supposed impact of chosen components of "the environment
of the SVE system (Secondary Technical education)"
on the optimisation activities
CONCLUSION
RESUMÉ
SUMMARY
RESÜMEE
REFERENCES
NAME INDEX
MATERIAL INDEX