KLESARSKA ŠKOLA

Education and culture

Erasmus+

EDUCATIONAL PROGRAMS AND ACTIVITIES

KLESARSKA ŠKOLA

STONEMASONRY SCHOOL

Ljubljana,
7th - 11th of March 2016.

General information

- School was founded on 5 January 1909.
- manual manufacturing of stone mainly performed by means of manual wrought tools.
- Practical work is done on the local stone types of medium hard limestone (Veselje)
- school is a member of European Association of Building Crafts and Design - the association of stonemasons, stonemason schools, craft chambers and other expert teams (22 European states, the seat of the association is in Bruxelles)






2 EDUCATIONAL PROGRAMS

Based on 3 curriculums

- **4 year educational school for the profesion stonemason technician**

1. Acording to old curriculum until 2013-this year 4th grade is the last generation that works after that curriculum

2. Acording to new curriculum since school year 2013/2014:
   A. General core
   B. Compulsory vocational module
   C. Optional vocational module

- **3 year craft school for the profession stonemason**

3. Acording to curriculum for stonemasons:
   A. General core
   B. Compulsory vocational module
   C. Optional vocational module

- **ACTUAL**

- **Stonemason technicians**

(4 year education)

NEW CURRICULUM based on learning outcomes

A. General core

B. Compulsory vocational module

C. Optional vocational module

- **GENERAL**

CORE

A. GENERAL CORE

A. GENERAL CORE	SUBJECTS	Number of classes (Annual and weekly - theory, exercises and workshops and points)																			
		1 GRADE					2 GRADE					3 GRADE					4 GRADE				
		ANNUAL	WEEKLY			POINTS	ANNUAL	WEEKLY			POINTS	ANNUAL	WEEKLY			POINTS	ANNUAL	WEEKLY			POINTS
			T	E	W			T	E	W			T	E	W			T	E	W	
MODULE	CROATIAN LANGUAGE	105	3			6	105	3			6	105	3			6	96	3			6
	FORIN LANGUAGE	70	2			4	70	2			4	70	2			4	64	2			4
	HISTORY	70	2			4	70	2			4										
	RELIGIOUS TEACHING	35	1			2,5	35	1			2,5	35	1			2,5	32	1			2,5
	GEOGRAFY	70	2			4,5	35	1			2,5										
	PHISICAL EDUCATION	70	2			2	70	2			2	70	2			2	64	2			2
	MATHEMATICS	140	4			5,5	140	4			5,5	140	4			5	128	4			5
	PHYSICS	70	2			4	70	2			4										
	COMPUTER EDUCATION	70	2			3,5	70	2			3,5										
	POLITICS AND ECONOMY																32	1			2
	BIOLOGY	70	2			3															
TOTAL NUMBER OF CLASSES/POINTS		770	22	0	0	39	665	19	0	0	34	420	12	0	0	19,5	416	13	0	0	21,5

B. COMPULSORY VOCATIONAL PART

- **COMPULSORY VOCATIONAL MODULES**

B. COMPULSORY VOCATIONAL PART

B1. COMPULSORY VOCATIONAL MODULES	SUBJECTS	Number of classes (Annual and weekly - theory, exercises and workshops and points)																			
		1 GRADE					2 GRADE					3 GRADE					4 GRADE				
		ANNUAL	WEEKLY			POINTS	ANNUAL	WEEKLY			POINTS	ANNUAL	WEEKLY			POINTS	ANNUAL	WEEKLY			POINTS
			T	E	W			T	E	W			T	E	W			T	P	W	
CIVIL ENGINEERING	TECHNICAL DRAWING WITH PLAN UNDERSTANDING	70	1	1		5															
	BUILDING MATERIAL	70	1	1		5															
	DESCRIPTIVE GEOMETRY						70	1	1		5										
	CONSTRUCTION MECHANICS																64	1	1		3,5
	BUILLDING CONSTRUCTIONS																64	1	1		3,5
	CONSTRUCTION MANAGEMENT																64	1	1		3,5
STONE	PETROGRAFY											70	1	1		6					
	STONEMASON CONSTRUCTION						70	1	1		6	105	2	1		6	96	2	1		6
	STONE PROCESSING MACHINES											70	1	1		6	64	1	1		5
APPLIED COMPUTERS	APPLICABLE COMPUTERS											70	1	1		5	64	1	1		5
DRAWING AND ART CREATIVITY	FREEHAND DRAWING						105	1	2		6										
WORKSHOP	WORKSHOP	210			6	11	210			6	9	210			6	5,5	128			4	3
TOTAL NUMBER OF CLASSES		350	2	2	6	21	455	3	4	6	26	525	5	4	6	28,5	544	7	6	4	29,5

- **OPTIONAL**

VOCATIONAL

MODULE

B2. OPTIONAL VOCATIONAL MODULES	SUBJECTS	Number of classes (Annual and weekly - theory, exercises and workshops and points)																			
		1 GRADE					2 GRADE					3 GRADE					4 GRADE				
		ANNUAL	WEEKLY			POINTS	ANNUAL	WEEKLY			POINTS	ANNUAL	WEEKLY			POINTS	ANNUAL	WEEKLY			POINTS
			T	E	W			T	E	W			T	E	W			T	P	W	
APPLIED CHEMISTRY AND PHYSICS	APPLIED CHEMISTRY IN STONEMASONRY											70	1	1		5					
	APPLIED PHYSICS											105	2	1		7					
ENTERPRISE	SMALL ENTERPRISE MANAGEMENT																64	1	1		6
ART CREATIVIY	INTRODUCTION IN SCULPTURE MODELLING											105	1	2		7					
	STYLES IN ARCHITECTURE																64	1	1		6
	STONE WORK											70		2		5					
TOTAL NUMBER OF CLASSES		0	0	0	0	0	0	0	0	0	0	175	1	4	0	12	64	1	1	0	6
		350	2	2	6	21	455	3	4	6	26	700	6	8	6	40,5	608	8	7	4	35,5

- **FINAL EXAMINATION**

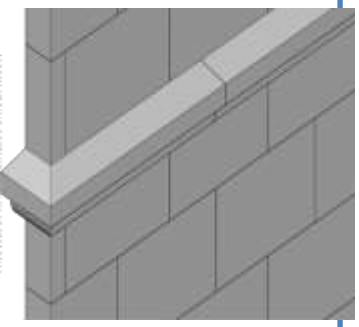
C. FINAL EXAMINATION																				
TOTAL NUMBER OF POINTS C.																				3

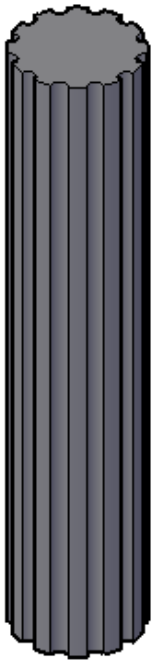
TOTAL NUMBER OF CLASSES/POINTS:	1120	24	2	6	60	1120	22	4	6	60	1120	18	8	6	60	1024	21	7	4	60

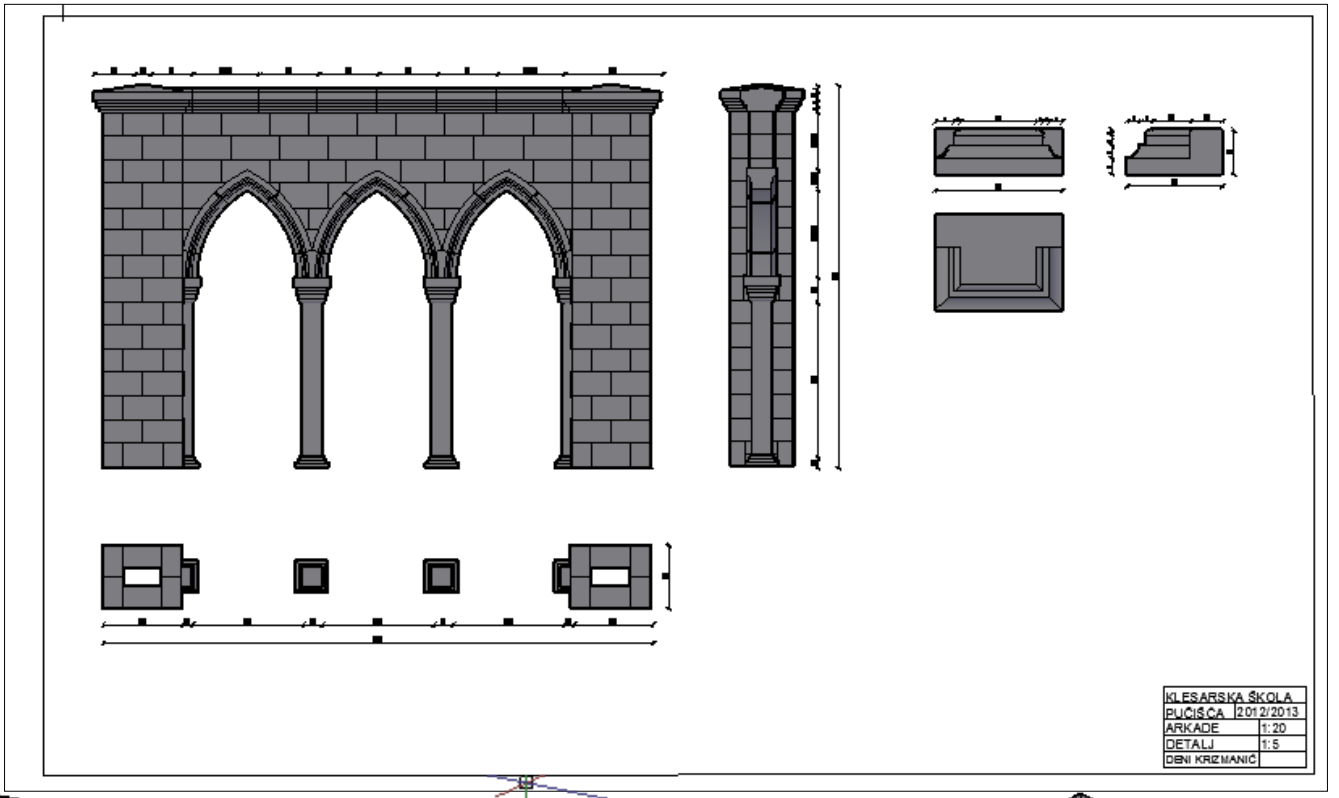
- FINAL EXAMINATION
- From excavation (visiting quarry) to manufacturing

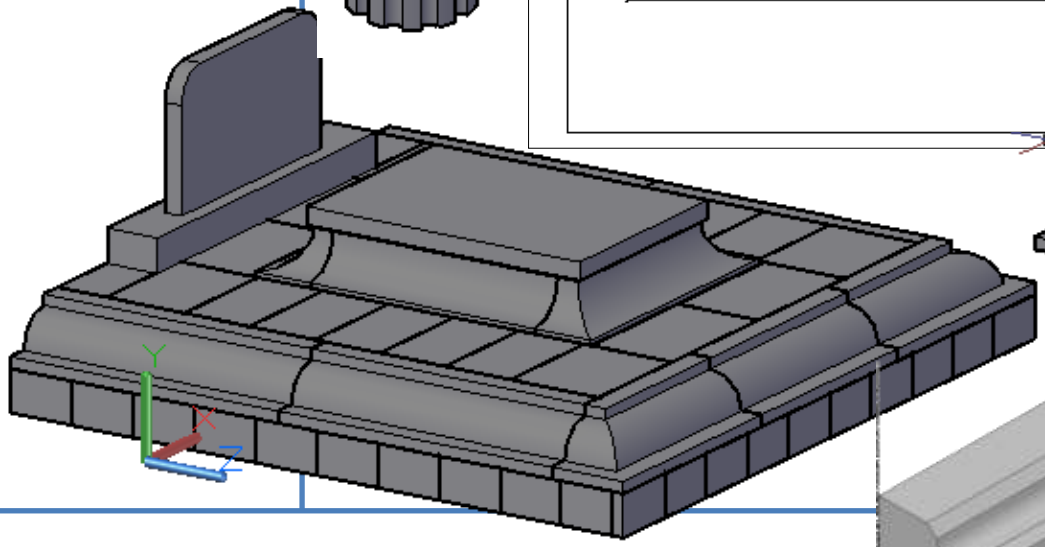
- FINAL

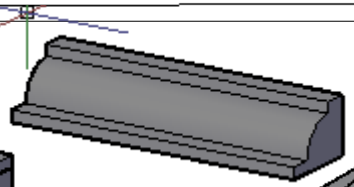
  EXAMINATION

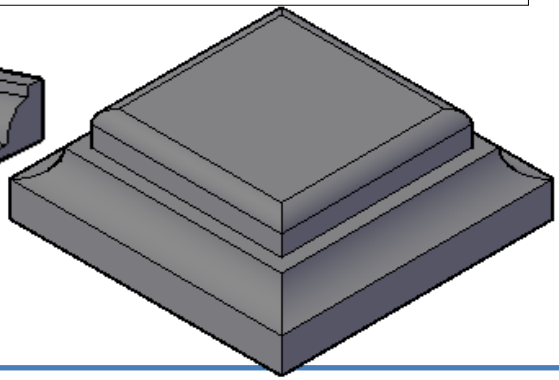


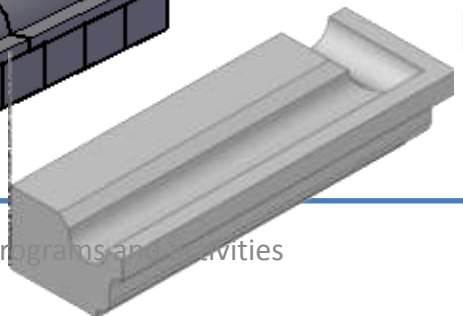












How we made our curriculum?

- 4 year educational school for the profesion stonemason technician

- 1. PHASE:

  OCCUPATIONAL

  STANDARDS

OCCUPATIONAL STANDARDS

- 4 year educational school for the profesion stonemason technician

Professional standards ...skills, needs and competences which are applicable to job roles within an occupation in terms of performance.

- 1. PHASE

OCCUPATIONAL STANDARDS

Working group

- 4 year educational school for the profesion stonemason technician

Occupational standards are defined by industry at a sector level. Occupational standards are developed through processes like functional analysis of each occupation.

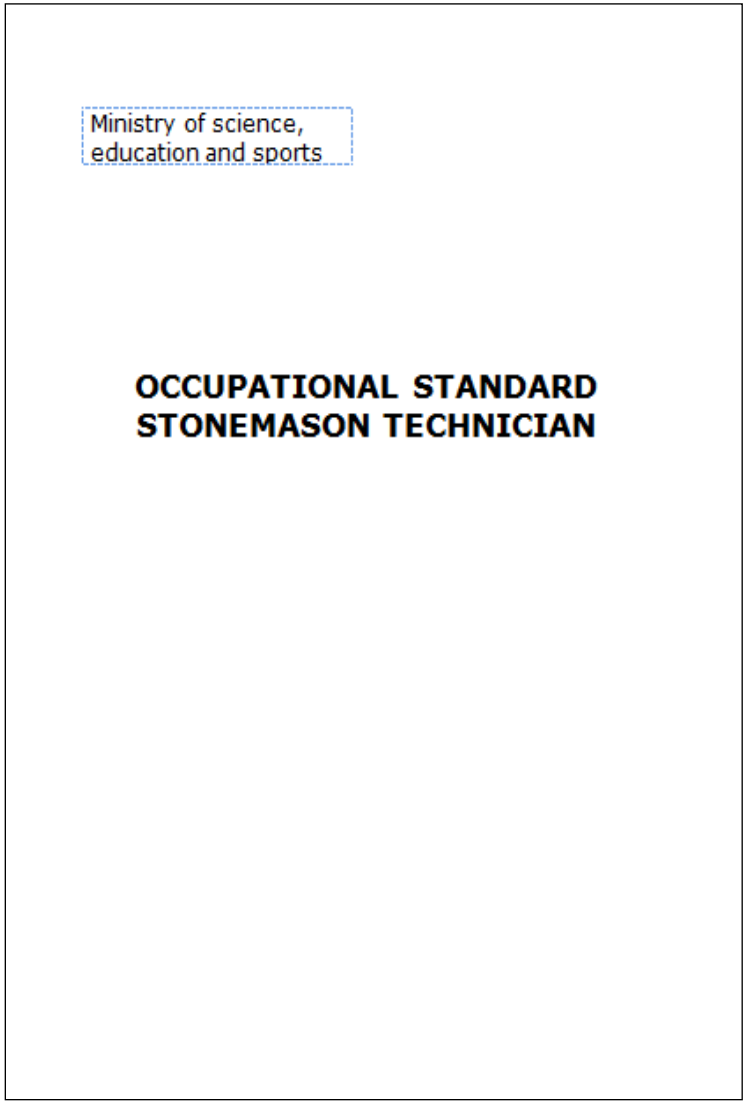
Working group:	Katica Andrijašević, ing., Jadrankamen d.o.o., Pučišća Branko Matić, dipl. ing., Klesarska škola, Pučišća Ivica Nižetić, klesarski tehničar, Kamen Pučišća d.o.o., Pučišća Gordana Paškvan Budiselić, dipl. ing., ASOO, Zagreb mr. sc. Tamara Plastić, Klesarska škola, Pučišća Tonči Štambuk, dipl. ing. arh. Petar Šuran, dipl. ing., Kamen d.d., Pazin Tonči Vlahović, dipl. ing., Klesarska škola, Pučišća Stipe Vrandečić, stonemason technician, Obrada kamena Stipe, Pučišća prof. dr. sc. Ivica Završki, Građevinski fakultet Sveučilišta u Zagrebu, Zagreb
Proposal of vocational standard:	Agency for vocational education i obrazovanje odraslih uz prethodnu suglasnost nadležnog sektorskog vijeća od 16. 5. 2012.

- 2. PHASE:

  QUALIFICATION

  STANDARD

- 4 year educational school for the profesion stonemason technician



- 2. PHASE

QUALIFICATION STANDARD

- 4 year educational school for the profesion stonemason technician

QUALIFICATION STANDARD

...“being qualified” or “becoming qualified” or “becoming ready for qualification” or “entering the process to acquire qualification” or to “what is required” for performing a task or for practicing an occupation. Qualification refers to persons, but sometimes it is connected to institutions, agencies etc.
The existing European practice (as defined in the European Qualifications Framework) is based on 8 reference levels (some with 3 sublevels). Descriptors delineate each of the levels and the difference among them, while effort is made for each level to be roughly corresponded with educational / training levels and / or learning environments.

- QUALIFICATION STANDARD

- 4 year educational school for the profesion stonemason technician

QUALIFICATION STANDARDS vs. VOCATIONAL CURRICULA

- 4 year educational school for the profesion stonemason technician

- QUALIFICATION

STANDARD

- 4 year educational school for the profesion stonemason technician

STONEMASONRY TECHNICIANS – 2013.		
DOKUMENTS		
QUALIFICATION STANDARDS	**VOCATIONAL CURRICULA**	
LEARNING OUTCOMES UNITS compulsory	**5 COMPULSORY MODULES**	**COMPULSORY SUBJECTS**
Technical drawing and understanding technical plans	**CIVIL ENGINEERING** page 147.	**Technical drawing and understanding technical plans** (1. grade, 2 hours, 5 points)
Building materials		**Building materials** (1. grade, 2 hours, 5 points)
Descriptive geometry		**Descriptive geometry** (2. grade, 2 hours, 5 points)
Civil construction mechanics		**Construction mechanics** (4. grade, 2 hours, 3,5 boda)
Civil engineering structures		**Civil engineering structures** (4. grade, 2 hours, 3,5 boda)
Construction management		**Construction management** (4. grade, 2 hours, 3,5 boda)
Petrografy	**STONE** page 160.	**Petrografy** (3. grade, 2 hours, 6 points)
Stonemasonry constructions – walls, pilars, arches		**Stonemason construction** (2. grade, 2 hours, 6 points)
Stonemasonry constructions – poklopnice, stears, tombs		**Stonemason construction** (3. grade, 3 hours, 6 points)
Stonemasonry constructions – složena kamena plastika		**Stonemason construction** (4. grade, 3 hours, 6 points)
Stone exploitation mechanics		**Stone processing mechanics** (3. grade, 2 hours, 6 points)
Stone processing mechanics		**Stone processing mechanics** (4. grade, 2 hours, 5 points)

- QUALIFICATION

STANDARD

- 4 year educational school for the profesion stonemason technician

Applaying of AutoCAD in stone processing -2D drawing	**APPLAYING COMPUTER SCIENCE** page 173.	**Applaying computer science** (3. grade, 2 hours, 5 points)
Applaying of AutoCAD in stone processing - 3D modelling		**Applaying computer science** (4. grade, 2 hours, 5 points)
Freehand drawing	**DRAWING AND ART CREATIVITY** page 178.	**Freeform drawing** (2. grade, 3 hours, 6 points)
Introduction in stone hand processing	**PRACTICAL TEACHING (WORKSHOP)** page 181.	**Workshop** (1. grade, 6 sati, 11 points)
Stone hand processing with wrought tools		**Workshop** (2. grade, 6 sati, 9 points)
Stone hand processing with pneumatical and electrical tools		**Workshop** (3. grade, 6 sati, 5,5 points)
Stone hand processing acording to models		**Workshop** (4. grade, 4 hours, 3 boda)

- QUALIFICATION STANDARD
- 4 year educational school for the profesion stonemason technician

LEARNING OUTCOMES UNITS optional	3 OPTIONAL MODULES	OPTIONAL SUBJECTS
Applaying chemistry in stonemasonry	**APPLICABLE CHEMISTRY AND PHYSICS** page. 190.	**Applaying chemistry in stonemasonry** (3. grade, 2 hours, 5 points)
Applaying physics		**Applaying physics** (3. grade, 3 classes, 7 points)
Small enterprise management	**ENTREPRENEUR SHIP** page 196.	**Small enterprise management** (4. grade, 2 hours, 6 points)
Introduction in sculpture modelling	**ART CREATIVITY** page 199.	**Introduction in sculpture modelling** (3. grade, 3 hours, 7 points)
Styles in architecture		**Styles in architecture** (4. grade, 2 hours, 6 points)
Manual manufacturing of stone – advanced program		**Stone manufacturing** (3. grade, 2 hours, 5 points)

- FINAL PRODUCT

➢3 year craft school for the profession stonemason

Ministry of science, education and sports

VOCATIONAL CURRICULA

STONEMASON TECHNICIAN

QUALIFICATION

CURRICULUM FOR STONEMASONS

- 3 year craft school for the profession stonemason

- **GENERAL**

CORE

Naziv predmeta	Broj sati						Ukupni broj sati
	1. razred		2. razred		3. razred		
	tjedno	godišnje	tjedno	godišnje	tjedno	godišnje	
Hrvatski jezik	3	105	3	105	3	96	306
Strani jezik	2	70	2	70	2	64	204
Povijest	2	70	-	-	-	-	70
Vjeronauk/etika	1	35	1	35	1	32	102
Tjelesna i zdravstvena kultura	1	35	1	35	1	32	102
Politika i gospodarstvo	-	-	2	70	-	-	70
Ukupno	**9**	**315**	**9**	**315**	**7**	**224**	**854**

Naziv predmeta	Broj sati						Ukupni broj sati
	1. razred		2. razred		3. razred		
	tjedno	godišnje	tjedno	godišnje	tjedno	godišnje	
Osnove računalstva	2	70	-	-	-	-	70
Matematika u struci	2	70	1	35	1	32	137
Tehničko crtanje	2	70			-	-	70
Građevinski materijali	1(2)	35			-	-	35
Tehnologija obrade kamena	-	-	1(1)	35	1(1)	32	67
Klesarske konstrukcije	1(3)	35	1(3)	35	2	64	134
Petrografija	-	-	2	70	-	-	70
Matematika, izborna nastava			1	35	1	32	67
Poznavanje nacrta	-	-	-	-	2	64	64
Građevne konstrukcije			2	70	-	-	70
Organizacija i obračun radova	-	-	-	-	2	64	64
Ukupno	**8**	**280**	**8**	**280**	**9**	**288**	**848**

- **GENERAL**

CORE

Naziv predmeta	Broj sati			Ukupni broj sati
	1. razred	2. razred	3. razred	
	godišnje	godišnje	godišnje	
Praktična nastava u školi s vježbama	**360**	**270**	**160**	**790**
Nastava u školi – tehnološke vježbe[1]	290	235	128	
- Tehnologija obrade kamena		35	32	
- Građevinski materijali	35			
- Klesarske konstrukcije	35			
- Praktična nastava u radnom procesu – najmanje sati	**540**	**630**	**640**	**1810**
Ukupno	**900**	**900**	**800**	**2600**

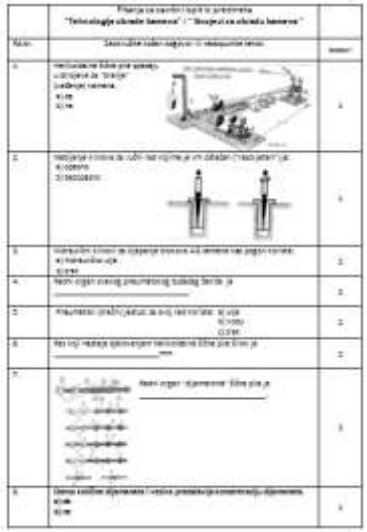
U okviru praktične nastave u školi realiziraju se sadržaji zaštite na radu s najviše 35 sati.

	Broj sati			Ukupni broj sati
	1. razred	2. razred	3. razred	
	godišnje	godišnje	godišnje	
Općeobrazovni dio	315	280	256	851
Stručno-teorijski dio s izbornom nastavom	280	280	288	848
Praktični dio s tehnološkim vježbama	900	900	800	2600
Ukupno A)+B)+C)	**1495**	**1460**	**1344**	**4299**

About 60% goes to practical work in school workshop and in enterprices

- **EVALUATION METHODS**
- **At the same time it is assistant exam**

- **it can be taken 2 times in school, after that only in Croatian Craft Chamber**



7.1. Nastavni predmet: **Hrvatski jezik**
Ispitni cilj: Ispit pismenog izražavanja
Način provjere znanja i umijeća: Tematska zadaća - pismeno

7.2. Nastavni predmet: Petrografija
Ispitni cilj: Znati i moći primijeniti znanja stečena iz predmeta Petrografija u zanimanju k
Način provjere znanja i umijeća: Pismeni i usmeni ispit

7.3. Nastavni predmet: Tehnologija obrade kamena
Ispitni cilj: Znati i moći primijeniti znanja stečena iz predmeta Trhnologija obrade kamena u zanimanju klesar.
Način provjere znanja i umijeća: Pismeni i usmeni ispit, 40 sati rada na strojevima te rezanje klesanca za završni ispit

7.4. Nastavni predmet: Klesarske konstrukcije
Ispitni cilj: Znati i moći primijeniti znanja stečena iz predmeta Klesarske konstrukcije u zanimanju klesar.
Način provjere znanja i umijeća: Crtanje programa po odabranom ispitnom pitanju s dokaznicom mjera, usmena obrana

7.5. Nastavni predmet: Praktična nastava
Ispitni cilj: Znati i moći primijeniti znanja stečena iz predmeta Praktična nastava u zanimanju klesar.
Način provjere znanja i umijeća: Izrada klesanca u školskoj radionici kao detalja iz zadanog ispitnog programa, a u ograničenom vremenu od najviše 40 sati

Stone processing/excavation machines

Petrografy

Stonemasonry constructions

Final exam/asistant exam

Textbooks/ Learning materials/...

- **Texbooks**

- For general subjects we use proposed books

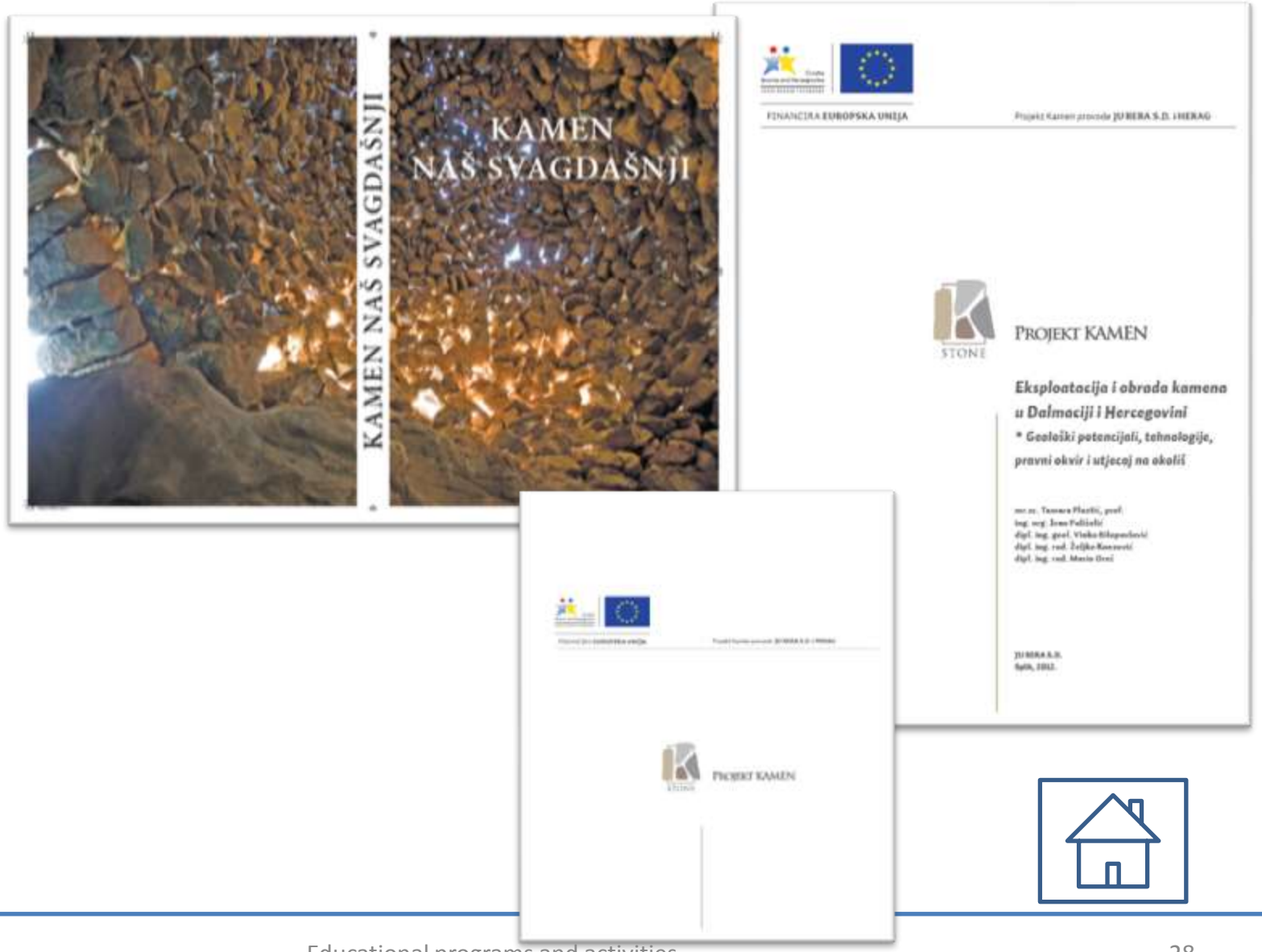
-For vocational subjects each of the teachers use their own scripts
- some rear teachers printed scripts for students

- **“e-school”**

-This year we are going to start new project leads by the Ministry of education called **e-škole =** “e-school”
- we have applied to this call for project; on of the term was to write plan and program; in that paper we proposed to make e-books for vocational subject in Klesarska škola;
- all teacher have papers and it is need to be adapted for new medium

- **LEARNING**

  MATERIALS



- **LEARNING MATERIALS**
- **Work safety**

Thank you for your attention

Tamara Plastić, Klesarska škola