



2013 Curriculum for the Certificate of Vocational Education in Industrial Trades

Machine Shop Program

Specializations:

Machine Tools

Tools and Dies

Plastic Molds

Automotive Parts Production

**Office of
the Vocational Education Commission
Ministry of Education**

Structure

2013 Curriculum for the Certificate of Vocational Education in Industrial Trades

Machine Shop Program

The graduates of the Certificate of Vocational Education in Industrial Trades (Machine Shop) must complete minimum 103 credits from different courses and participate in extracurricular activities as shown in the following structure.

1. Life Skills Courses	minimum 22 credits
1.1 Thai Language Courses	(minimum 3 credits)
1.2 Foreign Language Courses	(minimum 6 credits)
1.3 Science Courses	(minimum 4 credits)
1.4 Mathematics Courses	(minimum 4 credits)
1.5 Social Studies Courses	(minimum 3 credits)
1.6 Health Education and Physical Education Courses	(minimum 2 credits)
2. Vocational Skills Courses	minimum 71 credits
2.1 Basic Vocational Skills Courses	(18 credits)
2.2 Specialized Vocational Skills Courses	(24 credits)
2.3 Elective Vocational Skills Courses	(minimum 21 credits)
2.4 Vocational Skills Practical Experience	(4 credits)
2.5 Vocational Skills Development Project	(4 credits)
3. Elective Courses	minimum 10 credits
4. Extracurricular Activities (2 hours per week)	
Total	minimum 103 credits

1. Life Skill Courses**minimum 22 credits**

In each group listed below, the first course is compulsory (except 1.6). The remaining credits can be selected from other courses within the group to meet the requirements. The chosen courses must be related to the program of study. The total credits should be at least 22.

1.1 Thai Language Courses (minimum 3 credits)

Code	Title	T – P – C
2000-1101	Basic Thai	2 – 0 – 2
2000-1102	Thai for Careers	1 – 0 – 1
2000-1103	Business Thai	1 – 0 – 1
2000-1104	Speaking for Careers	1 – 0 – 1
2000-1105	Writing for Careers	1 – 0 – 1
2000-1106	Creative Thai	1 – 0 – 1
2000*1101 to 2000*1199	Courses in this range are additionally developed by the individual colleges or institutes.	* - * - *

1.2 Foreign Language Courses (minimum 6 credits)

Code	Title	T – P – C
2000-1201	Real Life English 1	2 – 0 – 2
2000-1202	Real Life English 2	2 – 0 – 2
2000-1203	English Listening and Speaking 1	0 – 2 – 1
2000-1204	English Listening and Speaking 2	0 – 2 – 1
2000-1205	Reading Authentic Materials	0 – 2 – 1
2000-1206	Daily Writing	0 – 2 – 1
2000-1207	Technical English On-the-Job	0 – 2 – 1
2000*1201 to 2000*1299	Courses in this range are additionally developed by the individual colleges or institutes.	* - * - *

1.3 Science Courses (minimum 4 credits)

Code	Title	T – P – C
2000-1301	Science for Life Skills	1 – 2 – 2
2000-1302	Science for Industry	1 – 2 – 2
2000-1306	Science Project	0 – 2 – 1
2000*1301 to 2000*1399	Courses in this range are additionally developed by the individual colleges or institutes.	* - * - *

1.4 Mathematics courses (minimum 4 credits)

Code	Title	T – P – C
2000-1401	Basic Mathematics	2 – 0 – 2
2000-1402	Basic Mathematics for Careers	2 – 0 – 2
2000-1403	Basic Mathematics for Industry 1	2 – 0 – 2
2000-1404	Basic Mathematics for Industry 2	2 – 0 – 2
2000-1405	Introduction to Calculus and Analytic Geometry	2 – 0 – 2
2000*1401 to 2000*1499	Courses in this range are additionally developed by the individual colleges or institutes.	* - * - *

1.5 Social Studies Courses (minimum 3 credits)

Code	Title	T – P – C
2000-1501	Civil Duties and Morals	2 – 0 – 2
2000-1502	Life Skills and Society	2 – 0 – 2
2000-1503	Geography and Thai History	2 – 0 – 2
2000-1504	ASEAN Studies	1 – 0 – 1
2000-1505	Current Affairs	1 – 0 – 1
2000-1506	ASEAN Culture	1 – 0 – 1
2000*1501 to 2000*1599	Courses in this range are additionally developed by the individual colleges or institutes.	* - * - *

1.6 Health Education and Physical Education Courses (minimum 2 credits)

Select any course(s) within this group for a total of not less than 2 credits.

1.6.1 Physical Education Courses

Code	Title	T – P – C
2000-1601	Physical Education for Health Development	0 – 2 – 1
2000-1602	Life Skills for Health Development	0 – 2 – 1
2000-1603	Physical Fitness for Work	0 – 2 – 1
2000-1604	Self-Defense	0 – 2 – 1
2000-1605	Physical Education for Disabled	0 – 2 – 1

1.6.2 Health Education Courses

Code	Title	T – P – C
2000-1606	Life Management for Happiness	1 – 0 – 1
2000-1607	Sexuality Education	1 – 0 – 1
2000-1608	Narcotic Education	1 – 0 – 1

1.6.3 Integrated courses

Code	Title	T – P – C
2000-1609	Skills for Healthy Behavior	1 – 2 – 2
2000-1610	Quality of Life Development	1 – 2 – 2

Code	Title	T – P – C
2000*1601 to 2000*1699	Courses in this range are additionally developed by the individual colleges or institutes.	* - * - *

2. Vocational Skills Courses minimum 71 credits

2.1 Basic Vocational Skills Courses (18 credits) All courses are compulsory.

Code	Title	T – P – C
2001-1001	Work Orientation	2 – 0 – 2
2001-2001	Computer and Information for Work	1 – 2 – 2
2100-1001	Basic Technical Drawing	1 – 3 – 2
2100-1002	Industrial Materials	2 – 0 – 2
2100-1003	Bench Works 1	0 – 6 – 2
2100-1005	Basic Welding and Sheet Metal Work	1 – 3 – 2
2100-1006	Basic Electrical and Electronic Work	1 – 3 – 2
2100-1007	Basic Machine Assembly	1 – 3 – 2
2100-1008	Basic Machine Tools	1 – 3 – 2

- **Additional Basic Vocational Skills Courses**

Colleges and institutes can also provide the following courses under the Elective Vocational Skills Courses or Elective Courses.

Code	Title	T – P – C
2001-1002	Entrepreneurship	2 – 0 – 2
2001-1003	Energy and the Environment	1 – 2 – 2
2001-1004	Vocational Hygiene and Safety	1 – 2 – 2
2001-1005	Resource and Environment Conservation at Work	1 – 0 – 1
2001-1006	Labor Law	1 – 0 – 1
2001-1007	Work Safety	1 – 0 – 1

2.2 Specialized Vocational Skills Courses (24 credits) All courses are compulsory.

Code	Title	T – P – C
2102-2001	Machine Tools Drawing 1	1 – 3 – 2
2102-2002	Computer–Aided Drafting	1 – 2 – 2
2102-2003	Theory of Machine Tools	2 – 0 – 2
2102-2004	Precision Measurement	1 – 2 – 2
2102-2005	Machine Tool Mathematics	2 – 0 – 2
2102-2006	Machine Tool Mechanics	2 – 0 – 2
2102-2007	Manufacturing Process	2 – 0 – 2
2102-2008	Parts Making with Machine Tools 1	2 – 6 – 4
2102-2009	Basic NC Program	1 – 3 – 2
2102-2010	Jigs and Fixtures	1 – 3 – 2
2102-2011	Metal Heat Treatment	1 – 3 – 2

2.3 Elective Vocational Skills Course (minimum 21 credits)

Select courses (minimum 15 credits) from within one of the following specializations. The Remaining courses can be from any other specializations within this section (2.3) to meet credit requirements.

2.3.1 Machine Tools

Code	Title	T – P – C
2102-2101	Machine Tools Drawing 2	1 – 3 – 2
2102-2102	Parts Making with Machine Tools 2	2 – 6 – 4
2102-2103	Parts Making with Machine Tools 3	2 – 6 – 4
2102-2104	Machine Tools Maintenance	0 – 6 – 2
2102-2105	Cutting Tools Grinding	1 – 3 – 2
2102-2106	Machine Tools Fitting	0 – 6 – 2
2102-2107	Metal Foundry	2 – 3 – 3
2102-2108	Metal Plating	1 – 3 – 2
2102-2109	Parts Making with CNC Machine Tools	0 – 6 – 2
2102-2110	Machine Tools Power Transmission	2 – 0 – 2
2102-2201	Introduction to Dies	2 – 0 – 2
2102-2301	Introduction to Plastic Molds	2 – 0 – 2
2102*2101 to 2102*2199	Elective Courses in this range are additionally developed by the individual colleges or institutes according to the needs of the workplace or the regional strategies.	* - * - *

Dual Vocational Education (DVE)

Code	Title	T – P – C
2102-5101	Machine Tools Practice 1	* - * - 3
2102-5102	Machine Tools Practice 2	* - * - 3
2102-5103	Machine Tools Practice 3	* - * - 3
2102-5104	Machine Tools Practice 4	* - * - 4
2102-5105	Machine Tools Practice 5	* - * - 4
2102-5106	Machine Tools Practice 6	* - * - 4

2.3.2 Tools and Dies

Code	Title	T – P – C
2102-2201	Introduction to Dies	2 – 0 – 2
2102-2202	Die Drawing	1 – 3 – 2
2102-2203	Die Parts Making	2 – 6 – 4
2102-2204	Blanking and Piercing Die Making	2 – 6 – 4
2102-2205	Forming Die Making	2 – 6 – 4
2102-2206	Progressive Die Making	2 – 6 – 4
2102-2207	Basic Pressing	1 – 3 – 2
2102-2208	Die Maintenance	1 – 3 – 2
2102-2107	Metal Foundry	1 – 6 – 3

Code	Title	T – P – C
2102-2108	Metal Plating	1 – 3 – 2
2102-2109	Parts Making with CNC Machine Tools	0 – 6 – 2
2102-2110	Machine Tools Power Transmission	2 – 0 – 2
2102*2201 to 2102*2299	Elective Courses in this range are additionally developed by the individual colleges or institutes according to the needs of the workplace or the regional strategies.	* - * - *

Dual Vocational Education (DVE)

Code	Title	T – P – C
2102-5201	Tools and Dies Practice 1	* - * - 3
2102-5202	Tools and Dies Practice 2	* - * - 3
2102-5203	Tools and Dies Practice 3	* - * - 3
2102-5204	Tools and Dies Practice 4	* - * - 4
2102-5205	Tools and Dies Practice 5	* - * - 4
2102-5206	Tools and Dies Practice 6	* - * - 4

2.3.3 Plastic Molds

Code	Title	T – P – C
2102-2301	Introduction to Plastic Molds	2 – 0 – 2
2102-2302	Basic Plastic Injection	1 – 3 – 2
2102-2303	Mold Drawing	1 – 3 – 2
2102-2304	Mold Parts Making	2 – 6 – 4
2102-2305	Injection Mold Making	2 – 6 – 4
2102-2306	Blow Mold Making	2 – 6 – 4
2102-2307	Compression Mold Making	2 – 6 – 4
2102-2107	Metal Foundry	2 – 3 – 3
2102-2108	Metal Plating	1 – 3 – 2
2102-2109	Parts Making with CNC Machine Tools	0 – 6 – 2
2102-2110	Machine Tools Power Transmission	2 – 0 – 2
2102*2301 to 2102*2399	Elective Courses in this range are additionally developed by the individual colleges or institutes according to the needs of the workplace or the regional strategies.	* - * - *

Dual Vocational Education (DVE)

Code	Title	T – P – C
2102-5301	Plastic Molds Practice 1	* - * - 3
2102-5302	Plastic Molds Practice 2	* - * - 3
2102-5303	Plastic Molds Practice 3	* - * - 3
2102-5304	Plastic Molds Practice 4	* - * - 4
2102-5305	Plastic Molds Practice 5	* - * - 4
2102-5306	Plastic Molds Practice 6	* - * - 4

2.3.4 Automotive Parts Production

Code	Title	T – P – C
2102-2401	Automotive Parts Drawing	1 – 3 – 2
2102-2402	Automotive Part Manufacturing Process	2 – 0 – 2
2102-2403	Automotive Parts Making 1	2 – 6 – 4
2102-2404	Automotive Parts Making 2	2 – 6 – 4
2102-2405	Automotive Paints	2 – 0 – 2
2102-2406	Automotive Parts Fitting	0 – 6 – 2
2102-2201	Introduction to Dies	2 – 0 – 2
2102-2301	Introduction to Plastic Molds	2 – 0 – 2
2102-2107	Metal Foundry	2 – 3 – 3
2102-2108	Metal Plating	1 – 3 – 2
2102-2109	Parts Making with CNC Machine Tools	0 – 6 – 2
2102-2110	Machine Tools Power Transmission	2 – 0 – 2
2102*2301 to 2102*2399	Elective Courses in this range are additionally developed by the individual colleges or institutes according to the needs of the workplace or the regional strategies.	* - * - *

Dual Vocational Education

Code	Title	T – P – C
2102-5401	Automotive Parts Production Practice 1	* - * - 3
2102-5402	Automotive Parts Production Practice 2	* - * - 3
2102-5403	Automotive Parts Production Practice 3	* - * - 3
2102-5404	Automotive Parts Production Practice 4	* - * - 4
2102-5405	Automotive Parts Production Practice 5	* - * - 4
2102-5406	Automotive Parts Production Practice 6	* - * - 4

For the Dual Vocational Education (apprenticeship) of minimum 21 credits, the college and the workplace together analyze the nature of the business of the workplace in order to determine the number of credits, appropriate courses in details, the occupational training plans, and the assessment and evaluation methods for the courses. The minimum total training time at the workplace is 54 hours, which is equivalent to 1 credit.

2.4 Vocational Skills Practical Experience (4 credits)

Select only 2102-8001 Work Practice or, alternatively, select 2102-8002 Work Practice 1 together with 2102-8003 Work Practice 2.

Code	Title	T – P – C
2102-8001	Work Practice	* - * - 4
2102-8002	Work Practice 1	* - * - 2
2102-8003	Work Practice 2	* - * - 2

2.5 Vocational Skills Development Project (4 credits)

Select only 2102-8501 Project or, alternatively, select 2102-8502 Project 1 together with 2102-8503 Project 2.

Code	Title	T – P – C
2102-8501	Project	* - * - 4
2102-8502	Project 1	* - * - 2
2102-8503	Project 2	* - * - 2

3. Elective Courses

minimum 10 credits

Courses can be chosen from the list below or from any area and program of study provided in the 2013 Curriculum for the Certificate of Vocational Education, according to students' aptitudes and interests. However, individual colleges and institutes can develop additional elective courses in relation to the local community needs and contexts.

Code	Title	T – P – C
2XXX*9X01 to 2XXX*9X99	Course in this range are additionally developed by the individual colleges or institutes according to the needs of the workplace or the regional strategies or further study.	* - * - *

4. Extracurricular Activities

(2 hours per week)

Code	Title	T – P – C
2000-2001	Rover Scout Activity 1	0 – 2 – 0
2000-2002	Rover Scout Activity 2	0 – 2 – 0
2000-2003	Vocational Organization Activity 1	0 – 2 – 0
2000-2004	Vocational Organization Activity 2	0 – 2 – 0
2000-2005	Vocational Organization Activity 3	0 – 2 – 0
2000-2006	Vocational Organization Activity 4	0 – 2 – 0
2000*2001 to 2000*20XX	Courses in this range are additionally developed or arranged by individual colleges, institutes or the workplace. This can be a military activity.	0 – 2 – 0