



2013 Curriculum for the Certificate of Vocational Education in Industrial Trades

Automotive Program

Specializations:

Automotive

Industrial Machinery

Maritime Mechanics

Agricultural Machinery

Automotive Body and Painting

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

Structure

2013 Curriculum for the Certificate of Vocational Education in Industrial Trades

Automotive Program

The graduates of the Certificate of Vocational Education in Industrial Trades (Automotive) 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 Development	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
2100-1008	Basic Machine Tools	1 – 3 – 2
2100-1009	Basic Pneumatic and Hydraulic Work	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
2101-2001	Gasoline Engines	2 – 3 – 3
2101-2002	Diesel Engines	2 – 3 – 3
2101-2003	Automotive Power Transmissions	2 – 3 – 3
2101-2004	Automotive Suspensions	2 – 3 – 3
2101-2005	Automotive Electricity	2 – 3 – 3
2101-2006	Fuel and Lubricants	2 – 0 – 2
2101-2007	Mechanical Mechanics	3 – 0 – 3
2101-2008	Refrigerators and Air-Conditioners	1 – 3 – 2
2101-2009	Mechanical Drawing	1 – 3 – 2

2.3 Elective Vocational Skills Courses (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 the credit requirement.

2.3.1 Automotive

Code	Title	T – P – C
2101-2101	Small Engines	1 – 3 – 2
2101-2102	Motorcycles	1 – 6 – 3
2101-2103	Automotive Air Conditioning	1 – 6 – 3
2101-2104	Automotive Maintenance	1 – 3 – 2
2101-2105	Driving	1 – 3 – 2
2101-2106	Automotive Precision Measurement	1 – 3 – 2
2101-2107	Automotive Mathematics	2 – 0 – 2
2101-2108	Automotive Mechanics	2 – 0 – 2
2101-2109	Electronic Fuel Injection Systems	2 – 3 – 3
2101-2110	Automotive Electrical and Electronic Controls	1 – 3 – 2
2101-2111	Automotive Body and Painting	1 – 6 – 3
2101-2112	Automotive Service Center Management	2 – 0 – 2
2101-2113	Automotive Accessories	1 – 3 – 2
2101-2114	Engine Pumps and Nozzle Testing	1 – 6 – 3
2101-2115	Automotive Services 1	* - * - 4
2101-2116	Automotive Services 2	* - * - 4
2101-2117	Automotive Services 3	* - * - 4
2101-2511	Plastic and Fiberglass Work in the Automotive Industry	1 – 3 – 2
2101*2101 to 2101*2199	Elective courses in this range are additionally developed by individual colleges or institutes according to the needs of the workplace and or the regional strategies.	* - * - *

Dual Vocational Education (DVE)

Code	Title	T – P – C
2101-5101	Automotive Practice 1	* - * - 3
2101-5102	Automotive Practice 2	* - * - 3
2101-5103	Automotive Practice 3	* - * - 3
2101-5104	Automotive Practice 4	* - * - 4
2101-5105	Automotive Practice 5	* - * - 4
2101-5106	Automotive Practice 6	* - * - 4

2.3.2 Industrial Machinery

Code	Title	T – P – C
2101-2201	Industrial Prime Movers	1 – 6 – 3
2101-2202	Industrial Machinery Maintenance	1 – 6 – 3
2101-2203	Industrial Refrigerators and Air-Conditioners	2 – 3 – 3
2101-2204	Industrial Machine Tools	1 – 6 – 3
2101-2205	Industrial Instruments	2 – 3 – 3
2101-2206	Power Transmissions	2 – 3 – 3
2101-2207	Computer-Aided Drafting	2 – 3 – 3
2101-2208	Mechanical Mathematics	3 – 0 – 3
2101-2209	Steam Engines	2 – 0 – 2
2101-2210	Pumps and Air Compressors	2 – 0 – 2
2101-2211	Industrial Mechanical Services 1	* - * - 4
2101-2212	Industrial Mechanical Services 2	* - * - 4
2101-2213	Industrial Mechanical Services 3	* - * - 4
2101*2201 to 2101*2299	Elective courses in this range are additionally developed by individual colleges or institutes according to the needs of the workplace and or the regional strategies.	* - * - *

Dual Vocational Education (DVE)

Code	Title	T – P – C
2101-5201	Industrial Machinery Practice 1	* - * - 3
2101-5202	Industrial Machinery Practice 2	* - * - 3
2101-5203	Industrial Machinery Practice 3	* - * - 3
2101-5204	Industrial Machinery Practice 4	* - * - 4
2101-5205	Industrial Machinery Practice 5	* - * - 4
2101-5206	Industrial Machinery Practice 6	* - * - 4

2.3.3 Maritime Mechanics

Code	Title	T – P – C
2101-2301	Marine Engine Installation	1 – 6 – 3
2101-2302	Marine Engine Repairs	1 – 6 – 3
2101-2303	Marine Transmissions	1 – 6 – 3
2101-2304	Ship Electrical Work	1 – 6 – 3
2101-2305	Ship Blueprint Drawings	1 – 2 – 2
2101-2306	Ship Piping	1 – 3 – 2
2101-2307	Pumps	1 – 3 – 2
2101-2308	Ship Navigation	1 – 3 – 2
2101-2309	Ship Refrigeration and Air-Conditioning	1 – 6 – 3
2101-2310	Fishing Boast Machinery	1 – 6 – 3
2101-2311	Marine Mechanical Drawings	1 – 2 – 2
2101-2312	Ship Organization and Administration	2 – 0 – 2
2101-2313	Marine Mechanical Maintenance	0 – 6 – 2

Code	Title	T – P – C
2101-2314	Marine Mechanical Services 1	* - * - 4
2101-2315	Marine Mechanical Services 2	* - * - 4
2101-2316	Marine Mechanical Services 3	* - * - 4
2101*2301 to 2101*2399	Elective courses in this range are additionally developed by individual colleges or institutes according to the needs of the workplace and or the regional strategies.	* - * - *

Dual Vocational Education (DVE)

Code	Title	T – P – C
2101-5301	Marine Mechanics Practice 1	* - * - 3
2101-5302	Marine Mechanics Practice 2	* - * - 3
2101-5303	Marine Mechanics Practice 3	* - * - 3
2101-5304	Marine Mechanics Practice 4	* - * - 4
2101-5305	Marine Mechanics Practice 5	* - * - 4
2101-5306	Marine Mechanics Practice 6	* - * - 4

2.3.4 Agricultural Machinery

Code	Title	T – P – C
2101-2401	Small Engines for Agriculture	1 – 3 – 2
2101-2402	Farm Tractors	1 – 6 – 3
2101-2403	Tractor Operation	1 – 3 – 2
2101-2404	Plant Agricultural Machinery	1 – 6 – 3
2101-2405	Animal Agricultural Machinery	1 – 6 – 3
2101-2406	Pre-Harvest Agricultural Machinery	1 – 6 – 3
2101-2407	Agricultural Irrigation	1 – 6 – 3
2101-2408	Water Pumps and Distribution for Agriculture	1 – 3 – 2
2101-2409	Farm Buildings and Construction	1 – 6 – 3
2101-2410	Agricultural Machinery Prime Movers	1 – 6 – 3
2101-2411	Prime Mover and Transmission Installation	1 – 6 – 3
2101-2412	Farm Machinery	1 – 6 – 3
2101-2413	Mechanical Mechanics in Agriculture	2 – 0 – 2
2101-2414	Mechanical Mathematics in Agriculture	2 – 0 – 2
2101-2415	Agricultural Product Transportation	1 – 6 – 3
2101-2416	Agricultural Survey	1 – 6 – 3
2101-2417	Refrigeration of Agricultural Products	1 – 6 – 3
2101-2418	Agricultural Machinery Services 1	* - * - 4
2101-2419	Agricultural Machinery Services 2	* - * - 4
2101-2420	Agricultural Machinery Services 3	* - * - 4
2101*2401 to 2101*2499	Elective courses in this range are additionally developed by individual colleges or institutes according to the needs of the workplace and or the regional strategies.	* - * - *

Dual Vocational Education (DVE)

Code	Title	T – P – C
2101-5401	Agricultural Machinery Practice 1	* - * - 3
2101-5402	Agricultural Machinery Practice 2	* - * - 3
2101-5403	Agricultural Machinery Practice 3	* - * - 3
2101-5404	Agricultural Machinery Practice 4	* - * - 4
2101-5405	Agricultural Machinery Practice 5	* - * - 4
2101-5406	Agricultural Machinery Practice 6	* - * - 4

2.3.5 Automotive Body and Painting

Code	Title	T – P – C
2101-2501	Automotive Body Assembly	1 – 6 – 3
2101-2502	Automotive Body Dent Repairs	1 – 6 – 3
2101-2503	Basic Car Body Painting	1 – 6 – 3
2101-2504	Automotive Body Pre-Painting	1 – 6 – 3
2101-2505	Automotive Body Welding	1 – 6 – 3
2101-2506	Automotive Body Repairs	1 – 6 – 3
2101-2507	Automotive Body Part Repairs	1 – 6 – 3
2101-2508	Solid Color Automotive Body Painting	1 – 6 – 3
2101-2509	Metallic Color Automotive Body Painting	1 – 6 – 3
2101-2510	Special Color Automotive Body Painting	1 – 3 – 2
2101-2511	Plastic and Fiberglass Work in Automotive	1 – 3 – 2
2101-2512	Automotive Body and Painting Maintenance	1 – 3 – 2
2101-2513	Automotive Body and Painting Business	2 – 0 – 2
2101-2514	Automotive Body and Painting Services 1	* - * - 4
2101-2515	Automotive Body and Painting Services 2	* - * - 4
2101-2516	Automotive Body and Painting Services 3	* - * - 4
2101-2113	Automotive Accessories	1 – 3 – 2
2101*2501 to 2101*2599	Elective courses in this range are additionally developed by individual colleges or institutes according to the needs of the workplace or the regional strategies.	* - * - *

Dual Vocational Education (DVE)

Code	Title	T – P – C
2101-5501	Automotive Body and Painting Practice 1	* - * - 3
2101-5502	Automotive Body and Painting Practice 2	* - * - 3
2101-5503	Automotive Body and Painting Practice 3	* - * - 3
2101-5504	Automotive Body and Painting Practice 4	* - * - 4
2101-5505	Automotive Body and Painting Practice 5	* - * - 4
2101-5506	Automotive Body and Painting 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 2101-8001 Work Practice or, alternatively, select 2101-8002 Work Practice 1 together with 2101-8003 Work Practice 2.

Code	Title	T – P – C
2101-8001	Work Practice	* - * - 4
2101-8002	Work Practice 1	* - * - 2
2101-8003	Work Practice 2	* - * - 2

2.5 Vocational Skills Development Project (4 credits)

Select only 2101-8501 Project or, alternatively, select 2101-8502 Project 1 together with 2101-8503 Project 2.

Code	Title	T – P – C
2101-8501	Project	* - * - 4
2101-8502	Project 1	* - * - 2
2101-8503	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
2101-9001	Automotive Machine Tools	1 – 3 – 2
2101-9002	Automotive Gas Fuel	1 – 3 – 2
2101-9003	Motorcycle Riding	1 – 3 – 2
2101-9004	Basic Engine Repairs	1 – 3 – 2
2101-9005	Basic Engine Tune-up	1 – 3 – 2
2101-9006	Automotive Parts Production	2 – 0 – 2
2101-9007	Renewable Energy	2 – 0 – 2
2XXX*9X01 to 2XXX*9X99	Elective courses in this range are additionally developed by 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