Mechanical Drafting Technology

2003 Curriculum for Diploma of Vocational Education
Area of Study : Industrial Trades
Program : Mechanical Drafting Technology
Objectives

The program aims at providing students with knowledge, skills, abilities, attitudes and experience which will enable them to perform as competent technicians in the field of Mechanical Drafting Technology. The objectives of the program are:

1. To provide basic knowledge and skills about languages, society, humanities, mathematics and science, and also to apply these to self-development by seeking out further knowledge within the field of Mechanical Drafting Technology.
2. To provide knowledge and skills about the basic principles and processes of technician tasks concerning industrial management and planning; and to provide the ability to follow new technological developments to improve their career.
3. To promote critical thinking, problem-solving skills and creative thinking; and to provide the ability to bring the technology into the development of Mechanical Drafting Work .
4. To promote good personality; responsibility to themselves, family and society; morals and ethics; and good manners in their career.
5. To provide the ability to work in industrial workplaces or in self-employment in the field of Mechanical Drafting Technology.

Vocational Education Standards of the Program

Students should be able to:

1. Conduct technical communication in the workplace
2. Organize and program data-based systems in the workplace
3. Solve problems using mathematics, science, technology and relevant procedures
4. Manage, control and develop their quality of work
5. Demonstrate the attributes of technicians
6. Design, draw, and develop machines
7. Design, draw, and develop machines tools
8. Design, draw, and develop products

Production Design and Drawing Specialization

9. Design and draw building and structural drawing
10. Design and draw plant electrical drawing
11. Design and draw industrial duct and piping drawing
12. Design, draw, and layout plant

Environmental Studies Specialization

9. Treat the water from natural resources by physical and chemical methods for consumption
10. Treat industrial waste water and maintain the waste water treatment system
11. Conduct air pollution control
12. Conduct noise pollution and vibration control
13. Manage hazardous material and waste
14. Conduct clean technology in organization

Program Structure
2003 Curriculum for the Diploma of Vocational Education
Area of Study: Industrial Trades
Program: Mechanical Drafting Technology

For the fulfillment of the courses, graduates should have completed at least 89 credits from the 5 groups of courses below.

1. General Courses (not less than)		**24**	**credits**
1.1 Basic General Courses	**13**	**credits**	
1.2 Vocational-based General Courses (not less than)	**11**	**credits**	
2. Vocational Courses (not less than)		**59**	**credits**
2.1 Basic Vocational Courses	**15**	**credits**	
2.2 Core Vocational Courses	**25**	**credits**	
2.3 Specialized Vocational Courses (not less than)	**15**	**credits**	
2.4 Project	**4**	**credits**	
3. Free Elective Courses (not less than)		**6**	**credits**
4. On-the-job Training (not less than 1 Semester)			
5. Extracurricular Activities 120 Hours			
Total (not less than)		**89**	**credits**

Entry into this program requires satisfactory completion of the Vocational Education Certificate in Mechanical Drawing Stream or Mechanical Drawing Program or equivalent.

Bridging Courses

Students who have completed a Vocational Education Certificate in other fields or completed secondary school (M6 or Grade 12) must complete bridging courses as follows:

Code	Course Title	Cr	(Hr)
3100-0001	Basic Bench Work	3	(5)
3100-0002	Technical Drawing	2	(4)
3100-0003	Electrical and Electronics Work	2	(4)
3100-0004	Technical Materials	2	(2)
3100-0005	Precision Measurements	2	(3)
3102-0002	Basic Machine Tools	3	(5)
3110-0001	Mechanical Drawing	2	(4)
3110-0002	Mechanical Drawing by CAD	2	(4)
	Total	**16**	**(28)**

1. General Courses (not less than) 24 credits

1.1 Basic General Courses 13 credits

Code	Course Title	Cr	(Hr)
3000-110X	Thai Language (Elective)	3	(3)
3000-1201	Developing Skills for English Communication 1	2	(3)
3000-1202	Developing Skills for English Communication 2	2	(3)
3000-1301	Thai Life and Culture	1	(1)
3000-130X	Social Studies (Elective)	2	(2)
3000-1601	Library and Information Studies	1	(1)
3000-160X	Humanities (Elective)	2	(2)

1.2 Vocational-based General Courses (not less than) 11 credits

Code	Course Title	Cr	(Hr)
3000-122X	English (Elective)	1	(2)
3000-122X	English (Elective)	1	(2)
3000-142X	Science (Elective)	3	(4)
3000-1521	Mathematics 2	3	(3)
3000-1525	Calculus 1	3	(3)

2. Vocational Courses (not less than) 59 credits

2.1 Basic Vocational Courses 15 credits

Students must take the compulsory courses (3100-0101, 3100-0103, 3100-0118) and select one course from 3000-100X and one from 3000-020X to fulfill the requirements.

Code	Course Title	Cr	(Hr)
3100-0101	Engineering Mechanics	3	(3)
3100-0103	Fluid Mechanics	3	(3)
3100-0118	Machine Design	3	(3)
3000-100X	Quality Management (Elective)	3	(3)
3000-020X	Computer Technology (Elective)	3	(4)

Remarks : The code with X will be chosen from the appendi**x.**

2.2 Core Vocational Courses 22 credits

Students must take 6 compulsory courses and select courses from the remainder to fulfill the requirements.

Code	Course Title	Cr	(Hr)
3100-0106	Pneumatics and Hydraulics	3	(4)
3110-2001	Mechanical Design and Drawing by CAD	3	(4)
3110-2002	Material Handling System Design and Drawing by CAD	3	(4)
3110-2003	Plant Layout by Design and Drawing CAD	3	(4)
3110-2004	Mold Design and Drawing by CAD	3	(4)
3110-2005	Plumbing and Sanitary System Design and Drawing by CAD	3	(4)
3110-2006	Computer-aided Design and Drawing 1	3	(4)
3110-2007	Computer aided Design and Drawing 2	3	(4)
3110-2008	Computer aided Design and Drawing 3	3	(4)

3110-2009	Industrial Duct and Piping System Design and Drawing by CAD	3	(4)
3110-2010	Building and Construction Design and Drawing by CAD	3	(4)
3110-2011	Blueprint and Estimation	2	(2)
3110-2012	Principles of Design	2	(2)
3110-2013	Advanced Dimensioning	2	(2)

2.3 Specialized Vocational Courses (not less than) 15 credits

Students must take at least 15 credits from the Specialized Vocational Courses. These can be taken from one field of specialization.

1. Production Design and Drawing Specialization

Code	Course Title	Cr	(Hr)
3110-2101	CAD/CAM Technology	2	(4)
3110-2102	Power Transmission System Design and Drawing by CAD	3	(4)
3110-2103	Structural Design and Drawing by CAD	3	(4)
3110-2104	Product Design and Drawing by CAD	3	(4)
3110-2105	Electrical CAD	3	(4)
3110-2106	Punch and Die Design and Drawing by CAD	3	(4)
3110-2107	Jigs and Fixtures Design and Drawing by CAD	3	(4)
3110-4101	Machine Tools Design and Drawing Apprenticeship 1	4	(*)
3110-4102	Machine Tools Design and Drawing Apprenticeship 2	4	(*)
3110-4103	Machine Tools Design and Drawing Apprenticeship 3	4	(*)
3110-4104	Machine Tools Design and Drawing Apprenticeship 4	4	(*)

2. Environmental Studies Specialization

Code	Course Title	Cr	(Hr)
3100-0221	Fundamental of Environmental Chemistry	2	(3)
3100-0222	Fundamental of Environmental Microbiology	2	(3)
3100-0223	Basic Fluid Mechanics and Thermodynamics	3	(3)
3100-0224	Wastewater Treatment and Control Techniques	3	(5)
3100-0225	Air Pollution Control Techniques	2	(3)
3100-0226	Noise and Vibration Control Techniques	2	(3)
3100-0227	Hazardous Waste Management	2	(4)
3100-0228	Clean Technology for Technicians	2	(3)

For the Dual System (apprenticeships), the college and the employer together analyze the course objectives and course standards, to produce an appropriate work plan (40 hours is equivalent to 1 credit) and design a method of evaluation.

2.4 Project 4 credits

Code	Course Title	Cr	(Hr)
3110-6001	Project	4	(*)

3. Free Elective Courses (not less than) 6 credits

Students can choose courses from any area of study, according to their aptitude and interests, from the list provided in the 2003 Curriculum for the Diploma of Vocational Education.

4. On-the-job Training (not less than 1 Semester)

For On-the-job Training, the college selects Vocational Courses which are undertaken at the workplace, for at least 1 semester.

5. Extracurricular Activities (120 Hours)

The college arranges extracurricular activities for 40 hours/semester, totaling not less than 120 hours for the entire program.