



Vocational Training Corporation Specialized Training Institute for Metal Industries (STIMI)



Training Course in the field of CAD/CAM

Engineering Drawing of AutoCAD/
Programming and Operating NC Lathe
and Machining Center MC

During period 2 March 2002 – 11 April 2002



Invitation

Vocational Training Corporation (VTC) and Japan International Cooperation Agency (JICA) are both interested in technical training of manpower in Arab countries due to the importance of this training for developing and upgrading manpower to cope with technical and scientific progress.

Hence, VTC and JICA agreed to implement JICA's financed program "the Third Country Training Program (TCTP)" to provide training services to Arab countries. Training courses within this program will be held in "the Specialized Training Institute for Metal Industries (STIMI)", one of VTC institutes which was established in cooperation with JICA.

Engineering industries in general and metal industries in particular need continuous updating of its workers skills to follow rapid changes in technology in this sector. Therefore, we introduce this training course in the field of Computer-Aided Design and Computer-Aided Manufacturing (CAM/CAM) entitled "Engineering Drawing of AutoCAD/ Programming and Operating NC Lathe and Machining Center MC", for participants working or required to be prepared for working in this field.

The Jordanian experience that stands for the qualified technical and managerial staff provided by VTC, and the Japanese technology that stands for the modern equipment provided by JICA to STIMI will ensure achieving the objectives of this program.

We are full of hope and trust that this training course will be of interest to all Arab countries to participate.

Resident Representative
JICA Jordan Office
Mr. Mitsuo Inagaki

Director General
Vocational Training Corporation
Eng. Hani Abu El-Ghanam

↳ Introduction

VTC conducts this training course in collaboration with JICA in the Specialized Training Institute for Metal Industries within JICA's Third Country Training Program (TCTP).

↳ Specialized Training Institute for Metal Industries (STIMI):

STIMI was established in 1999. It was financed in collaboration between government of Jordan and Government of Japan represented by JICA (Japan International Cooperation Agency). It is situated in King Abdullah II Ben Al-Hussein Industrial Estate, which is about (15) Km to the south from the capital (Amman) center.

Main goal of establishing the institute is to provide vocational training and technical services for companies and employees working in metal industries sector. This main goal is to be achieved through:

- 1- Preparing technical manpower for metal industries occupations at craftsman level according to Jordanian national skilled levels standards.
- 2- Upgrading of already employed workers within metal industries companies and working sites.
- 3- Providing technical services (consultancies and production works) to metal industries companies to develop their techniques and products.
- 4- Contributing to the process of high technology transfer in the field of metal industries to labor markets.

STIMI was provided with very advanced training equipment mainly from Japan. It includes the following workshops, labs, and other training facilities:

- 1- Traditional Machining Workshop.
- 2- CNC Machining Workshop.
- 3- Metals Testing Lab.
- 4- Heat Treatment Workshop.
- 5- Sheet Metal Workshop.
- 6- Metal Painting Workshop.
- 7- Welding Workshop.
- 8- Welds Tests Lab.
- 9- Metal Casting/Foundry Workshop.
- 10- Metal Forging Workshop.
- 11- Lecturing & Technical Drawing Rooms.
- 12- Computer Lab.

Trainers working in STIMI are highly qualified with wide experience in their fields. All of them had received advanced training in Japan and/or in Jordan to upgrade their skills and knowledge.

Together with Jordanian trainers a team of (6) Japanese long term experts are working in STIMI.

Training Course Title

Engineering Drawing of AutoCAD/ Programming and Operating NC Lathe and Machining Center (MC).

Main Objective:

The main objective of this course is to provide participants with practical skills and technical knowledge required for Engineering Drawing of AutoCAD and Operating and Programming NC Lathe and Machining Center (MC).

↳ Sub Objectives:

By the end of the course, participants are expected to be able to:

In the field of AutoCAD drawing:

1. Perform Mechanical Engineering Drawing using AutoCAD.
2. Use layers, colors and line types.
3. Add texts to drawing.
4. Dimension and tolerances.
5. Develop hatching models.

• **In the field of programming and operating NC lathe:**

1. Edit programs for NC lathe.
2. Setup the co-ordinate system of NC lathe.
3. Program loading and operation.
4. Perform trial cuts.
5. Perform actual cutting.

• **In the field of programming and operation MC machine:**

1. Edit programs for MC machine.
2. Setup the co-ordinate system of MC machine.
3. Program loading and operation.
4. Perform trial cuts.
5. Perform actual cutting.

↳ Duration:

This course will be held for a period of (6) weeks from 2 March 2002 to 11 April 2002.

↳ Training Course Contents and Facilities:

Training course contents are shown in **ANNEX No.1**

Training equipment and facilities are shown in **ANNEX No.2**

↳ Training method:

Various teaching and training methods will be used in implementing the training course, this include:

- Lectures
- Discussion
- Practical training exercises in labs and workshops.
- Field visits to working sites
- Production Projects

Also advanced audio-visual aids will be used.

↳ Language:

The training course will be conducted in Arabic language, therefore participant should be fluent in reading, writing and speaking Arabic language. Participants are also required to have some general knowledge of English language.

↳ Place of training course:

Specialized Training Institute for Metal Industries.
Abdullah II Ben Al-Hussein Industrial Estate - Amman
Home page: <http://homepage.mac.com/shukran/sti/>

↳ Certificates:

Participants who achieve the training course requirement will be awarded a certificate accredited by Vocational Training Corporation (VTC) and Japan International Cooperation Agency (JICA).

↳ Conditions and Qualifications:

Participants are required to fulfil the following conditions and qualifications:

- Not to exceed 35 years old.
- B.Sc. degree in Mechanical Engineering - Production, or Community Collage Diploma degree in field of production and machinery with two (2) years experience in the field of Machinery.
- To have knowledge of computer skills.
- To be fit (both physically and mentally) for attending the course.
- To be not serving in military.
- The attached application form should be filled on two copies, the first copy should be sent to Jordan ministry of planing through the diplomatic channels, while the second copy should be sent directly to STIMI to the following address:

Vocational Training Corporation
Specialized Training Institute for Metal Industry
P.O. Box: (249) Amman (11512) Jordan
Email: sti@go.com.jo
Fax: 962 6 4027205
Tel.: 962 6 4028245

Closing date for applications is 24 January 2002

↪ Number of participants:

Maximum number of participants to join the course is sixteen (16).

↪ Important Instructions:

Participants of the training course should respect the following:

- Abide fully by the timetable of the training course prepared by STIMI.
- Abide by the laws and regulation applied in Jordan.
- Abide by the rules and regulation applied at STIMI.
- Not to bring any member of his family.
- Not to extend his stay in Jordan and has to leave to his country according to travel arrangement after the end of training course.
- Submit medical certificate officially approved from his country.
- Avoid leaving Jordan before the end of training course.

↳ Expenses & Allowances:

The Government of Japan through JICA will provide the following for each participant:

- Accommodation, breakfast and daily per diem equivalent to (25) US Dollars.
- Transportation to and from the Hashemite Kingdom of Jordan.
- Life and Medical insurance according to the insurance company regulation.
- Transportation from Amman to STIMI and vice versa
- Safety clothes and equipment according to STIMI regulation.

ANNEX NO. 1 Training Course Contents

First: Engineering Drawing using AutoCAD (45 Training Hours)

1- Introduction to AutoCAD

- Structure of AutoCAD
- Starting Drawing of AutoCAD
- Line Drawing

2- Circle and erase part of drawing

- Circles
- Erase Objects
- Pick Targets
- Select Objects

3- Draw Tool Bar

4- Modification

5- Layers, colors and type of lines

6- Other commands

7- Text

8- Dimensions

9- Hatching

Second: Operating & Programming NC Lathe (40 Training Hours)

1- Basic of Programming

2- Program Configuration

3- Rapid Traverse, Linear and Circular interpolation (G00,G01,G02,G03)

4- Functions and Commands (G Codes & M Codes)

- Feeds and Tools (F Function & T Function)
- Home Position and Coordinates

5- Cutter Compensation (G40, G41, G42)

6- Operating NC Lathe

7- Actual Programming

8- Inserting Program and perform trial & actual cutting

Training Course Contents

Third: Programming and Operating MC Machine (40 Training Hours)

1- Basic of Programming

2- Program Configuration

3- Rapid Traverse, Linear and Circular interpolation (G00,G01,G02,G03)

4- Functions and Commands (G Codes & M Codes)

- Feeds and Tools (F Function & T Function)
- Home Position and Coordinates

5- Cutter, Length and Position Compensation (G40, G41, G42, G43, G45, G46, G47, G48, G49)

6- Fixed Cycle

7- Operating MC Machine

8- Actual Programming

9- Inserting Program and perform trial & actual cutting

ANNEX NO. (2)

Training facilities

1. NC Lathe Machine

Mfr: MORI SEKI, Model: SL-200

2. Machining Center

Mfr: MORI SEKI, Model: MV 55

3. Personal Computers

Intel Pentium II 350 Mhz, 512 KB Cash Memory, 64 MB RAM

4. Data Communicator

Type: MODIA, Model: CF370

5. Laser Printers

8PPM A4 size True Type Fonts, 2MB Buffer RAM

16 PPM A3 Size True Type Fonts, 4MB Buffer RAM

6. AutoCAD Software

AutoCAD R14 Original Package

7. Data show and OHP Over Head Projector