



FINAL REPORT

**The Project on Balancing & Modernization of Workshop Facilities
at PITAC, Lahore**

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Lahore, Pakistan**

Mr. Javed Iqbal Shaikh
Acting General Manager/Project Director
Pakistan Industrial Technical Assistance Centre

Mr. SASAGO Minoru
Chief Advisor
Japan International Cooperation Agency

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1. Introduction

1.1 Background of the Project

The Government of Islamic Republic of Pakistan (hereinafter referred to as “GOP”) had managed to enhance the engineering sector in view of the importance of balanced development of industries including agriculture, the leading industry of the country. In line with this policy, the Government of Japan (GOJ) supported the implementation of a three-year Project for the modernization of the manufacturing process of moulds and dies in the Pakistan Industrial Technical Assistance Centre (PITAC) from September 1982 to October 1985. GOJ also provided After-care Cooperation to PITAC from 1994 to 1995. Utilizing the machineries and equipment as well as the transferred technology, PITAC has conducted a variety of technical services to the private sector.

After the above-mentioned cooperation Projects, PITAC came to receive strong demands from the private sector for higher-level technical services and renewal of machines. In addition, the Government of Pakistan intended to enhance the supporting industry by giving priority to the promotion of small and medium enterprises as well as to domestic parts and components industries. Under these circumstances, Japan and Pakistan agreed that Project-type cooperation aiming at upgrading plastic mould making industries through the strengthening of PITAC would be implemented through JICA.

1.2 Project Design Matrix (PDM)

The PDM is attached as Annex 12. The PDM has 4 major items called overall goal, Project purpose, outputs and activities of the Project.

(1) Overall Goal of the Project

Domestic plastic mould making industries are able to supply better quality moulds for plastic production in Pakistan.

(2) Project Purpose

Technical capability of PITAC is upgraded to extend technical services in the field of plastic mould technology.

(3) Project Outputs

Output 0: The Project operation unit is established for making advanced plastic moulds.

Output 1: The necessary machineries and equipment are provided, installed, operated and maintained properly.

- Output 2: Technical capability of the C/Ps is upgraded.
- Output 3: Technical training courses and seminars are implemented systematically.
- Output 4: Technical backup support services are implemented systematically.
- Output 5: Advisory services are implemented systematically.
- Output 6: Interactions of the Project with private companies are strengthened.

(4) Activities of the Project

The activities are being implemented by the long-term and short-term experts in cooperation with the C/Ps in the Project.

- Activity 0-1: Allocate necessary personnel as planned
- Activity 0-2: Formulate plans of activities
- Activity 0-3: Make budget plan and execute it properly
- Activity 0-4: Establish and operate Project management system

- Activity 1-1: Provide and install necessary machinery and equipment
- Activity 1-2: Operate and maintain machinery and equipment properly

- Activity 2-1: Make Technology Transfer Plan, Technical Cooperation Program (TCP), Annual Technical Cooperation Program (ATCP) etc.
- Activity 2-2: Implement technology transfer to C/Ps following to Technology Transfer Plan
- Activity 2-3: Monitor and evaluate the result of technology transfer to the C/Ps

- Activity 3-1: Identify needs through company visits
- Activity 3-2: Make plans of technical training courses and seminars
- Activity 3-3: Develop training curricula and technical materials
- Activity 3-4: Implement technical training courses and seminars
- Activity 3-5: Monitor and evaluate the result of technical training courses and seminars

- Activity 4-1: Identify needs through company visit
- Activity 4-2: Make plans of technical backup support services
- Activity 4-3: Implement technical backup support services
- Activity 4-4: Monitor and evaluate the result of technical backup support services

- Activity 5-1: Identify needs through company visit
- Activity 5-2: Make plans of advisory services
- Activity 5-3: Implement advisory services
- Activity 5-4: Monitor and evaluate the result of advisory services

- Activity 6-1: Make plans of promotion in the private sector to increase the Project's exposure and improve the quality of services
- Activity 6-2: Implement the promotional activities (company visits, seminars, pamphlets, homepages and database)
- Activity 6-3: Monitor and evaluate the results of the promotional activities

1.3 Technical Cooperation Program (TCP) of the Project

The outline of the Project is shown in the TCP (Annex 13). The technology transfer of the Project consists of five major parts. The cooperation period, targeted organization and terms of technical cooperation are as follows:

Cooperation period: 4 years

Targeted Organization: PITAC

Terms of Technical Cooperation

1. Mould Design

- 1-1. Basic Design
- 1-2. Mould Design for Injection Moulding
- 1-3. Training Courses
- 1-4. Backup Support Services
- 1-5. Advisory Services
- 1-6. Measuring Method

2. CAD/CAM Network Station

- 2-1. CAD/CAM (General)
- 2-2. 3D CAD (Basic)
- 2-3. 3D CAD (Advanced)
- 2-4. CAM (Basic)
- 2-5. CAM (Advanced)
- 2-6. CAD/CAM (Advanced)
- 2-7. Training Courses & Seminars
- 2-8. Backup Support Services
- 2-9. Advisory Services

3. Mould Processing

- 3-1. Basic of Machining
- 3-2. Operation of Mould Making Machine
- 3-3. Measuring Method
- 3-4. Maintenance, Trouble Shooting & Installation of Machinery
- 3-5. Mould Making (Advanced)
- 3-6. Training Courses
- 3-7. Backup Support Services

- 3-8. Advisory Services
- 4. Mould Assembly & Trial Shot
 - 4-1. Finish of Mould
 - 4-2. Mould Assembly
 - 4-3. Injection Moulding
 - 4-4. Maintenance, Trouble Shooting & Installation of Machinery
 - 4-5. Finish, Mould Assembly & Injection Moulding (Advanced)
 - 4-6. Training Courses
 - 4-7. Backup Support Services
 - 4-8. Advisory Services
- 5. SME Promotion
 - 5-1. Organizing Seminars
 - 5-2. Making Project Pamphlet
 - 5-3. Making Project Homepage
 - 5-4. Visiting Private Factories & Associations
 - 5-5. Establishing Data Base for SMEs

2. Achievement of the Project

2.1 Results of Inputs

The progress of each activity has been carried out in accordance with the schedule and the Plan of Operations (PO: Annex 07).

The original plan of implementation needed to change due to the deterioration of security (i.e., aftermath of the September 11, 2001) and constraint of budget.

In this regard, due to the delay in approval of revised PC-I, the inputs by the Pakistani side delayed seriously, including the building construction and C/Ps recruitment. In terms of inputs from Japanese side, the assignment of JICA expert for the mould processing was not extended and the vacancy was not filled with a long-term assignment. (Annex 10) As alternative measures for the long-term JICA experts, the short-term experts were assigned and the C/P training opportunities in Japan were created to substitute the absence of the experts required. (Annex 11)

2.2 Achievement of Outputs

The Project operation unit has been enhanced with necessary allocation of C/Ps and budget, especially since the Mid-Term Evaluation which was conducted in October 2004. The allocation of C/Ps was completed by January 2005. Some C/Ps still need the improvement of their technical and managerial capability. The revised PC-I was eventually approved and the budget has been executed as planned. The sufficient Project management has been ensured by maintaining the regular meetings among the staff concerned. The information of the Project is disseminated through the internet website.

The installation of machineries and equipment by both countries was completed without any serious effects caused by the delay of Pakistani side. However, the operation of machineries and equipment is interrupted by frequent power failures.

The technical capability of C/Ps is satisfactory at a basic level, which is able to solve the problems for the four target moulds. (Annex 17) The development of manuals, textbooks and teaching materials in all fields has been completed. (Annex 18)

Technical services to the private sector have been provided systematically. The 44 training courses in 16 subjects were carried out according to the annual program to accommodate 338 trainees from 79 organizations between January 2005 and August 2006. (Annex 19 & 20) The course assessment by the trainees was extremely high. The seminars in five subjects were also executed in Lahore, Karachi and Gujranwala and the total number of participants has reached to 1,454. (Annex 24) The seminar

assessment by participants was also very high. However, the content of the training courses and seminars need further improvement in order to meet ever-changing needs of private sector.

The technical backup support services have been conducted to respond 10 requests out of 35 inquiries. (Annex 25) As per the advisory services, 34 requests have been registered in advisory services until July 2006 (Annex 26). While more than half of the requests were completed, for others elaborated solutions were sent to the clients step by step. Concerning the advisory services, the C/Ps were transferred the responsibilities around June 2005, while they are supported by JICA experts with regard to the matters that exceed technical capabilities of the C/Ps.

2.3 Achievement of the Project purpose

The Project Purpose described in the PDM, “Technical Capability of PITAC is upgraded to extend technical services in the field of plastic mould technology.” has been achieved at the acceptable level. This is judged from the fact that those beneficiaries, especially participants in the training courses provided by the Project, are mostly satisfied with the technical services they have received.

The C/Ps have taken over the management of training courses after having completed the technical transfer concerning the four target moulds and their overseas training. JICA experts have provided only minimal assistance. Furthermore, the C/Ps have improved the advisory services since June 2005 step by step to meet the needs of companies more sufficiently. The C/Ps have been initiated the technical backup services since October 2005 and now its system is further strengthened to fulfil their duties.

2.4 Achievement of the Overall Goal

The Project and PITAC have stepped forward to contribute to the achievement of Overall Goal of the Project “Domestic plastic mould making industries are able to supply better quality moulds for plastic production in Pakistan”. The private sector anticipates that the outcomes of the Project and activities of PITAC can widely contribute to the quality improvement of a domestic plastic mould. In order to ensure capacity development and institution building of PITAC, all the efforts continue to concentrate on provision of relevant training courses, useful advisory services and practical backup support services toward strengthening the technological capacity of private industries.

3. Implementation Process of the Project

The progress of the Project activities was regularly monitored by the Joint Coordinating Committee (JCC: Annex 28). The data and information were recorded in the Joint monitoring reports. The original plan has been revised in accordance with necessities arisen. Since the Mid-Term Evaluation, October 2004, the weekly meetings have regularly conducted and attended by JICA experts and section heads of C/Ps to confirm progress of the Project and resolution of the problems.

In order to implement the project activities efficiently following methods have been elaborated and carried out in the Project.

1. Absence of Long Term Expert for Processing, Assembly and QA/QC

A long term expert for Processing, Assembly and Trial Shot has left the Project in February 2005. Although JICA Tokyo and the supporting committee made efforts to allocate his substitution, the substitution was not materialized. Expert team decided that the existing technical experts covered the missing areas basically, invited short term experts in place of long term ones, send more number of C/Ps to Japan. Eventually all the mold making areas were covered by the combination of all schemes.

2. Weekly Meeting

The Project had held Weekly Meetings at 16:00 on every Wednesday since October 2004. The members were Project Manager, C/P engineers, section heads and experts. Later in April 2006 acting Project Director joined as member to enhance the sustainability of the project operation. The progress of activities and any problems arisen in the week have been discussed and the minutes of discussion were distributed among the Japanese and Pakistani stakeholders. A representative from JICA Pakistan office was also expected to attend the first meetings of the month. The meeting was very effective to monitor the activities.

3. Action Plans for PITAC Management

Expert team has drafted Action Plans for Improving PITAC Management in the fields as below.

1. Personnel & Human Recourses Management
2. Machines and Equipment
3. Organizational Reforms
4. Service Activities to Private Sector

The first Action Plans had been submitted to the PITAC management and Ministry of Industries and Productions in April 2005. The Action Plan worked as milestone to improve the PITAC management. For the future of the Project, the PITAC management and experts had constituted the internal committee and discussed the future Actions in June - July 2006 and presented to the Ministry.

4. Multiple Operators

For the operation of important machines and software, ideas of multiple operators have been introduced. The important machines and software include CAM software, CNC Machining Center, EDM sinker, EDM Wire-cut and CMM. During the process of technology transfer, at least a main operator and an associate operator who can operate a machine so that the Project can run even if an operator is sick or left. This idea makes the Project more sustainable.

5. Setup of Model Factories

In order to start Technical Backup and Advisory services and learn know-how of extending the services, three Model Factories (Volta Dies & Mold, Elegant Industries and PECS Industries) were selected at JCC sub-committee and the Project carried out monthly visits to them. Rather than starting the services widely, it was more effective to concentrate the services on those factories.

6. Post Training Evaluations

Training courses were evaluated by the trainees who took part in the courses. In addition, their performances after taking the courses were evaluated by their supervisors. Post Training Evaluations were sent to the company of trainees three to six months after the courses. Taking the fruits of the evaluations and requests, evening course was started, the contents were adjusted to the demand and the textbooks were translated into Urdu.

7. Management by Objectives and Self Control (MBO)

MBO was conducted once in a quarter year to facilitate the self empowerment of C/Ps. Items of technical areas were described in the MBO sheets and the C/Ps were evaluated in each item by themselves, Project Manager and experts through interview. New targets for the next quarter were set. The MBO system is expected to continue by project director and manager to enhance the managerial and technical capabilities of C/Ps.

8. Maintenance Capacity Development

In order to strengthen the maintenance capacity, two C/Ps were trained at Nam Engineering, Karachi to learn the maintenance of injection machines. A lecturer from the same company was invited to PITAC twice and conducted welding training for C/Ps in Assembly section of the project. These trainings were very efficient and its cost-performance was very high.

4. Lessons Learnt

For smooth and successful implementation of future Projects, a lesson is learned concerning commencement of Project implementation with unmet preconditions from the evaluation of the Project.

It is very important for smooth implementation and successful achievement of Project purpose to prepare a deliberate contingency plan in advance to commencement of the Project implementation

when the crucial preconditions have not been satisfied.

During the preparation of this Project, a series of study missions were sent in order to fully prepare the PDM together with necessary vital preconditions that is provision of construction and refurbishment of building and facilities for the Project and recruitment of qualified new staff in PITAC. These preconditions were expected to be met by making use of funds approved by PC-I of ‘Balancing and Modernization of Workshop Facilities at PITAC, Lahore’. After approval of the PC-I, Japanese side decided to commence this cooperation which was followed by the 3rd country training in the Philippines, observation tour of management staff in Japan and assignment of JICA experts in Pakistan. By this time there is no building constructed and no refurbished. Furthermore, the second consultation team was notified that the PC-I was not sufficient enough to meet the preconditions. PITAC informed that a revised PC-I was submitted to the Ministry to get its approval immediately to ensure necessary facilities and new staff. However, the repetitive process was taking place to revise and submit the draft and the final version of PC-I was eventually approved in July, 2004. This lengthy process interrupted smooth Project implementation seriously and continued to affect the achievement of Project purpose negatively.

It is not unusual that the Project implementation is commenced before having confirmed all the preconditions specified in its PDM. Most Projects attempt to manage difficulties deriving from those unmet preconditions. It is also required for Japanese side to comprehend government mechanism to deal with the administration and finance. In this regard, it is highly recommended that both sides deliberate the contingency plan in advance to commencement of the Project implementation in order to cope with the crucial preconditions which will not be realized in time.

As various delays took place during the initial phases of the Project, another lesson has been learnt which is to consider adding a mobilization plan or development plan to help reduce the delay in starting such projects.

5. For further Sustainability

Taking into consideration the advantage of the complete manufacturing line of plastic molding already established at the project, the difficulty in creating a new entity and the opportunity to influence PITAC with the project’s “good practice”, the project will keep the same structure as it is now in PITAC as “Plastic Mold Department”. It is assured that continuous efforts will be made, after completion of the Department, to make the present Leadership, Systems, Procedures and Activities more effective and efficient.

The Department’s objective is solely to benefit the Nation. Priority should be given to the provision of training, since only a few organizations are providing the same type of services in spite of the large size of the demand. Through training courses, technology can be disseminated effectively and

efficiently. In order to maximize the number of beneficiaries of the Department, the training fees should be kept at the affordable level.

Taking into consideration that (1) the manufacturing capacity of the Department is negligible compared to the large size of the demand, and (2) priority in allocation of human resources and machines is given to training activities. The objective of mold making services is to maintain and up-grade the technical level of trainers while enhancing sustainability of the department by generating incomes through supply of high quality molds to the market.

Mold making services should be expanded to increase the revenues of the Department while keeping in view the limitations of the capacity of machines, equipment and human resources. Although prices of mold making services to the current PITAC customers are kept low, efforts will be made to increase the prices by increasing customers' satisfaction through shortened lead time.

The followings are for further development and sustainability of the Project:

(1) Self-Empowerment of Counterparts

C/Ps should practice and brush up the basic skills and technologies they thus far learned from experts. Some emphasis should be placed on further assisting SME sector to help in sustaining the Project through supply of moulds designed for the sector. An annual plan and budget should be prepared to make several moulds a year to keep updating mould making technology (know-how) in the project. The Project should arrange domestic/overseas trainings for its staff at Plastics Technology Centre (PTC) etc. Staff should be rotated in three years to make the staff multi-functional.

(2) 5S and Environment

Occupational Safety and Health Committee should take initiative to carry out 5S patrols, because 5S is the foundation of quality and productivity. Tool Box Meeting should be carried out every morning to make safety calls and check uniform, safety shoes and attendance. Project Manager should go on patrol every morning to attend Tool Box Meetings and supervise C/Ps.

(Note: 5S means Seiri, Seiton, Seiso, Seiketsu and Shitsuke in Japanese. In English those words mean Neatness, Orderliness, Cleaning, Cleanness and Discipline.)

(3) Improvement on Workshop

Air ventilation and Dust invasion should be taken care of in several aspects. Air ducts should be installed in CNC rooms to absorb smokes. All the electric power cables inside the Project should be checked out and re-cabled. The Project should plan to re-paint workshop floors once in two years. Anti-theft and sun-shade measures should be taken on transformers. Aged deterioration of transformer capacities should be checked regularly by the third party regardless of WAPDA specifications. Any repairs on electric power inside the Project should be conducted out of work hours as a general rule. Otherwise, the information and schedule should be conveyed in advance to each section as power failures deteriorate all the activities and services.

(4) Computer Maintenance

All the software used in the Project should be licensed versions. Annual budget should be prepared to renew anti-virus and CAD/CAM software and the maintenance contracts of soft and hardware of CAD/CAM computers. In the Annual Maintenance Contract of computers, the system specifications and operation/management rules should be clarified. Generator should be procured for CAD/CAM computers, lights and A/C.

(5) Betterment of Procurement System

Lengthy procurement procedures have seriously been disturbing the activities in the Project. Tender system should be probed into and rectified to realize fast and accurate procurement. When tender bids are examined, quality of goods and/or services should be assessed prior to the prices quoted.

(6) Production Standardization of the Project

The production standardization of the Project should be realized and completed by 2008. The Project standard manuals should be in conformance to international standards (ISO, DIN, JIS, BS, ASTM etc.) and renewed every five years. The Project has begun the standardization with mould parts, processing and tools by watching mould market, mould specifications come from production quantity and style, procurement route in and out of Pakistan, and total cost. The Project Standard in mould making should be disseminated to the mould making industries.

(7) Enhancement of Training Courses

As training courses have been conducted systematically, continuous improvement is of vital significance now. Textbooks and curriculum should be updated with latest information which will be obtained through domestic & overseas training, overseas technical documents, research on web and advice from machine makers. Experience and knowledge should be continuously accumulated to make the training courses more practical and the training certificate more reliable in the industry. The textbooks in Urdu should also be further prepared and updated.

(8) Publicity and Promotion

SME section has been established and the project counterparts have frequently been visiting private factories. For further interactions with private sector, the Project should allocate the budget and issue training course books and some periodicals at least once in a year to publicise the Project's activities. Seminars on specific topics targeted to the industry should be carried out regularly based on an annual plan.

(9) Budget

Recurrent expenditures are required to continue project activities provided to PITAC/Project. Overall income created by the Project should be utilized for the machine maintenance and domestic/overseas training etc.

(10) Import of Spare Parts and Tools

Imports of spare parts, tools, necessary items and consumables by the Project should be allowed to realize the speedy procurement by authorizing the Project to directly use foreign currencies.

(11) Counterpart Absorption

The contracted C/Ps for two years should be permanent staff for sustainability. Their training and development should be ensured.

(12) Issues of maintenance, trouble shooting and spare parts

In order to cope with issues of maintenance, trouble shooting and spare parts and ensure continued operation of the machineries and equipment provided by JICA, JICA chief advisor and experts will prepare the details of the list of machineries and equipment including specifications (model number, serial number etc.) before the end of the Project. JICA chief advisor issues letters addressed to the companies/makers/producers of the machineries and equipment to request their cooperation in the supply of required spare parts and materials. GOP will issue corresponding “End use certificate” to each of the companies/makers/producers of the machineries and equipment. JICA Pakistan office is requested to assist PITAC in post-Project coordination and follow up.

End of Documents

Annex00 List of Annexes

July 20, 2006

No.	Name of Documents
01	Project Design Matrix (PDM)
02	Technical Cooperation Program (TCP) Mold Design
03	Technical Cooperation Program (TCP) CAD/CAM Network Station
04	Technical Cooperation Program (TCP) Mold Processing
05	Technical Cooperation Program (TCP) Mold Assembly & Trial Shot
06	Technical Cooperation Program (TCP) SME Promotion
07	Plan of Operations (PO)
08	Tentative Schedule of Implementation (TSI)
09	Allocation of the C/P and Staff for the Project
10	List of Japanese Experts
11	List of C/P Trained Abroad
12	List of Machinery and Equipment Provided by Japan
13	List of Machinery and Equipment Provided by Pakistan
14	Budget Allocation (Local Cost) for the Project FY2000-FY2005
15	Expenses by the Japanese Side
16	Actual Schedule for the Target Mold
17	Analysis of Target Molds
18	List of Manuals, Textbooks, and Materials
19	Training Course Database
20	Training Course Details
21	Training Course Annual Plan 2004-05
22	Training Course Annual Plan 2005-06
23	Training Course Annual Plan 2006-07
24	Seminar Database
25	Back-up Service Database
26	Advisory Service Database
27	History of the Project
28	JCC Meeting
29	Contact for Repairs

Narrative Summary	Verifiable Indicators	Means of Verification	Important Assumption
<p>[Overall Goal]</p> <p>Domestic plastic mold making industries are able to supply better quality molds for plastic production in Pakistan.</p>	<p>1. Increase of orders of plastic molds at beneficiary plastic mold making companies</p> <p>2. Rejection rates, defective rates, and complaints on the moldings and molds produced by project beneficiaries (direct and indirect)</p>	<p>1-1. Industrial statistics</p> <p>1-2. Survey report of PITAC</p> <p>2. Survey report of PITAC</p> <p>3. Survey report of PITAC</p>	<p>a. There is no drastic change in the policy of Pakistan government regarding engineering sectors.</p> <p>b. Demand for plastic industry from assembly industry continues to be stable.</p> <p>c. Linkage between assembly industry and plastic mold industry is enhanced.</p> <p>d. A quality requirement for plastic products becomes higher in the industries.</p>
<p>[Project Purpose]</p> <p>Technical Capability of PITAC is upgraded to extend technical services in the field of plastic mold technology.</p>	<p>1. Level of satisfaction of recent and former service beneficiaries.</p> <p>2. Number of newly improved services and beneficiaries.</p>	<p>1,2 Records of questionnaires to participants of all training courses</p> <p>Questionnaires to and interviews with beneficiary companies and industrial associations</p>	<p>a. Pakistan plastic mold industries utilize the technology obtained from PITAC.</p> <p>b. Demand for quality mold form plastic industry is increasing in trend.</p> <p>c. Plastic materials and mold materials are supplied within Pakistan.</p>
<p>[Outputs of the Project]</p> <p>0. The project operation unit is established for making advanced plastic molds.</p> <p>1. The necessary machinery and equipment are provided, installed, operated and maintained properly.</p> <p>2. Technical capability of the counterpart personnel (hereinafter referred to as 'C/P') is upgraded.</p> <p>3. Technical training courses and seminars are implemented systematically.</p> <p>4. Technical backup support services are implemented systematically.</p> <p>5. Advisory services are implemented systematically.</p> <p>6. Interactions of the Project with private companies are strengthened.</p>	<p>0. Number and capacity of staff, budget and settlement accounts, number of committees and meetings, number of cases in publicity.</p> <p>1-1. Contents and condition of machinery and equipment.</p> <p>1-2. Route to get spare parts and situation to secure spare parts.</p> <p>2-1. Assessment by the Japanese experts.</p> <p>2-2. Number and technical level of achieved target products.</p> <p>2-3. Manuals, textbooks and developed.</p> <p>3-1. Number of training courses</p> <p>3-2. Number of training course participants.</p> <p>4-1. Number of mold designs and their clients.</p> <p>4-2. Number of implemented trial prototypes and their clients.</p> <p>5. Number of implemented technical advisory services and their clients.</p> <p>6-1 Number of customers</p> <p>6-2 Number of companies on data base</p>	<p>0. Organization chart, Administration record, Accounting record, Personnel record</p> <p>1-1. Property record</p> <p>Operation & Maintenance record</p> <p>1-2. Spare parts list</p> <p>Suppliers list</p> <p>2-1, 2-2, 2-3</p> <p>Record of PITAC</p> <p>3,4,5, 6</p> <p>Record of PITAC</p>	<p>a. Trained C/P's remain at PITAC.</p>

[Activities]	Inputs		a. C/P personnel remain at PITAC
	The Pakistan side	1. The Japanese side	
0-1. Allocate necessary personnel as planned. 0-2. Formulate plans of activities. 0-3. Make budget plan and execute it properly. 0-4. Establish and operate project management system. 1-1. Provide and install necessary machinery and equipment. 1-2. Operate and maintain machinery and equipment properly. 2-1. Make Technology Transfer Plan. (Technical Cooperation Program (TCP), Annual Technical Cooperation Program (ATCP) etc. 2-2. Implement technology transfer to C/P following to Technology Transfer Plan. 2-3. Monitor and evaluate the result of technology transfer to the C/P. 3-1. Identify needs through company visits. 3-2. Make plans of technical training courses and seminars. 3-3. Develop training curricula and teaching materials. 3-4. Implement technical training courses and seminars. 3-5. Monitor and evaluate the result of technical training courses and seminars. 4-1. Identify needs through company visits. 4-2. Make plans of technical backup support services. 4-3. Implement technical backup support services. 4-4. Monitor and evaluate the result of technical backup support services. 5-1. Identify needs through company visits. 5-2. Make plans of advisory services. 5-3. Implement advisory services 5-4. Monitor and evaluate the result of advisory services. 6-1 Make plans of promotion in the private sector to increase the Project's exposure and improve the quality of services. 6-2 Implement the promotional activities. (company visits, seminars, pamphlets, homepages, and data base) 6-3 Monitor and evaluate the results of the promotional activities.	1. Provision and Maintenance of Building and Facilities. 2. Allocation of C/P and Administrative Personnel (1) Administrative C/P (2) Technical C/P (3) Administrative Staff (4) Supporting Staff a. Secretary b. Driver c. Other necessary staff upon request by the Japanese experts 3. Provision of machinery & Equipment and their Maintenance 4. Local Cost Necessary budget for the implementation of the project	2. Dispatch of Japanese Experts (1) Long-term Experts (2) Short-term Experts Appropriate number of short-term experts will be dispatched as necessity arises. 3. C/P Training in Japan A certain number (0-3 persons) of the C/P yearly 4. Provision of Machinery and Equipment 4. Supporting Local Cost	[Preconditions] a. Construction and refurbishment of building and facilities for the project is complete. b. Qualified new staff is recruited for PITAC.

Annex 02 Technical Cooperation Program (TCP)

PITAC-JICA Phase II Project
July 20, 2006

PITAC-JICA Phase II Project

July 20, 2006

[illegible]

Annex 03 Technical Cooperation Program (TCP)

PITAC-JICA Phase II Project

July 20, 2006

[illegible]

Calendar Year	02	2003				2004				2005				2006		
Japanese Fiscal Year (FY)	2002		2003				2004				2005				2006	
	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II
3) CAD／CAM for Target Mold (Mouse)											 -----				
4) CAD／CAM for Target Mold (Deslot Telephone)											 -----				
7. Training Course & Seminar																
1) Exercise of CAD (POWER SHAPE & Mold Maker) for Training Course					 -----										
2) Exercise of CAM (POWER MILL) for Training Course						 -----									
3) Preparation of Manuals & Materials for CAD/CAM Training Course					 -----										
4) CAD/CAM (Basic Training Course)									 -----						
5) CAD/CAM (Advanced Training Course)										 -----					
6) Seminar for CAD/CAM												 -----			
8. Backup Support Service																
1) Survey of needs from Mold Making Company										 -----					
2) Provide 3D CAD/CAM DATA for Mold Making Companies. (it depends on nees by survey.)											 -----				
9. Advisory Service																
1) Visit for Mold making Company -----															
2) CAD/CAM Seminar for Mold making Company												 -----			
													 -----		

Annex 04 Technical Cooperation Program (TCP)

PITAC-JICA Phase II Project

July 20, 2006

[illegible]

Annex 05 Technical Cooperation Program (TCP)

PITAC-JICA Phase II Project

July 20, 2006

[illegible]

Annex 06 Technical Cooperation Program (TCP)

PITAC-JICA Phase II Project

July 20, 2006

[illegible]

Annex 07 Plan of Operations (PO)

PITAC-JICA Phase II Project

July 20, 2006

[illegible]

[illegible]

Annex 08 Tentative Schedule of Implementation (TSI)

PITAC-JICA Phase II Project
July 20, 2006

[illegible]

Calendar Year	02		2003				2004				2005				2006		
Japanese Fiscal Year (FY)	2002		2003				2004				2005				2006		
	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	
(18) SME Consultation											—						
(19) Management Capacity Development												—				—	
IV Dispatch of the C/P Training in Japan & Philippines																	
(1) FY 2002																	
-1 Project Management: Eng. Muhammad Akram Khan	—	(Aug 20-29, 2002)															
-2 Project Management: Eng. Sarfraz Ahmad	—	(Aug 20-29, 2002)															
(2) FY 2003																	
-1 Mold Design																
-2 Mold Processing & Assembly																
-3 Plastic Injection Molding																
(3) FY 2004																	
-1 Mold Design																
-2 CAD/CAM																
-3 Mold Processing & Assembly																
-4 Plastic Injection Molding																
(4) FY 2005-1																	
-1 Mold Design													(1)			
-2 CAD/CAM													(1)			
-3 Mold Processing, Assembly & Trial Shot													(2)			
-4 Mold Processing (EDM)												—	(1)				
-5 Mold Finishing & Assembly												—	(2)				
-6 QA/QC												—	(1)				
(5) FY2005-2																	
-1 Mold Design												(2)	—	(1)		
-2 CAD/CAM												(1)	—	(1)		
-3 Mold Processing, Assembly & Trial Shot														(1)		
-4 CMM														(1)		
-5 SME Promotion														(1)		
-6 CNC & Maintenance												(1)	—				
-7 Injection & Maintenance												(1)	—				
(6) FY2005-3																	
-1 CAD/CAM & Maintenance														—	(1)		
-2 CNC & Maintenance														—	(1)		
(7) Dispatch of the C/P Training in Philippines																	
-1 Mr. Muhammad Tariq Pervaiz	—	(Aug 5, 2002-Jan 20, 2003)															
-2 Eng. Hayder Ali	—	(Aug 5, 2002-Jan 20, 2003)															
-3 Mr. M. Shoaib Rashid	—	(Aug 5, 2002-Jan 20, 2003)															
V Provision of Machinery & Equipment																	
(1) FY 2002			▼	▼▼													
(2) FY 2003																	
(3) FY 2004									▼								
(4) FY 2005													▼				
(5) FY2006																	
VI Technical Exchange Program																	
(1) FY 2004									...								
									—								

[illegible]

Allocation of Counterparts

July 20, 2006

Ambreen Chand

		2002		2003				2004				2005				2006			
		3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Project Director	Mr.M.Akram.Khan						19-Aug												
	Mr.M.Aslam				20-Aug			6-Mar											
	Mr.Ejaz Rasul Ch						6-Mar					29-Apr							
	Mr.Syed Anwar Ali											30-Apr		23-Oct					
	Dr. Farid A Malik											24-Oct		11-Dec					
	Mr.Javaid Iqbal											12-Dec							
Project Manager	Mr.Sarfraz Ahmad																		
Admin	Mr.Hyder Ali				18-Jul														
	Mr.M.Tariq							14-Oct											
SME	Mr. M. Khalid							15-Dec				28-Feb							
	Mr.Arslan Anwar											20-May							
Mold Design	Mr.Tariq Baig				1-Jul														
	Mr.Mazhar Ali							11-Nov											
	Mr.Naveed Aslam							13-Dec											
	Mr.Anwar Baig				18-Jul														
CAD/CAM	Mr.Shoaib Rashid				1-Apr														
	Mr.Shehzad Ayub						10-Dec												
	Mr.M.Saeed				10-Feb			18-Mar											
	Mr.Asad Ahmad							1-Jan				2-May							
	Mr.Raees Ahmad				1-Apr														
Processing	Mr.Nadeem Shahid							1-Nov											
	Mr.Jamil Ahmad							4Nov-3Dec											
	Mr.Mudassar Khalil							20-29Oct											
	Mr.Qaisar Iqbal							20-Dec											
	Mr.Rashid Wasti				18-Jul														
	Mr.Asif Mansoor				18-Jul														
	Mr.Shahid Ahmad							25-Oct											
	Mr.Shahnawaz							10-Nov				6-Jun							
Assembly	Mr.Waseem Gul							1-29Dec											
	Mr.Latif Awan				18-Jul														
	Mr.Hafiz Samad							14-Oct											
	Mr.M.Ahmad Raza											3-May							
	Mr.Ali Akbar							14-Oct				4-May							
	Mr.Rana.M.Raza							18-Oct											
	M.Kazim							15Oct - 28Mar											
	Mr.Talib Hussain							18-Oct											
Injection Molding	Mr.Irfan Jarral						7-Nov												
	Mr.Akhlaque Ahmad											19-Jan							
	Mr.Iqbal Anwar											11-18Feb							
	Mr.Tajammal Fayaz							21Dec-26Jan											
	Mr.Safdar Yasin							18-Oct											
	Mr.Fakhr-e-Sayyam							21-Oct											
	Mr. Haseeb Ahmad		1-Oct																
CMM	Ms. Uzma Latif											20-25May							
	Mr.NadeemShehbaz							18-Oct											
	Mr.Asad Ahmad											2-May			25-Jan				

Annex10 Japanese Experts

April 18, 2006

Sadaf Rizwan

July 20, 2006

	year	2002					2003					2004					2005					2006														
	month	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2
Term of Cooperation																																				
Term of Technology Transfer																																				
		↓										↓										↓														
Long Term Experts																																				
Chief Advisor							Mr. SASAGO Minoru (May .27 ,2003 – Sep. 14, 2006)																													
SME Promoter/Project Coordinator												Mr. HIRAO Tetsuya (Mar.28,2004–Sep.14,2006)																								
Mold Design							Mr. YOSHIMATSU Hiroaki (Sep.17, 2002 – Sep.14,2006)																													
CAD/CAM & 3D Mold Design							Mr. SAWADA Koji (Sep.17, 2002 – Sep.14,2006)																													
Mold Processing, Assembly & Trial Shot							Mr. IDE Masaki (Feb.11, 2003 – Feb. 10, 2005)																													
Mold Assembling and Trial Shot												Mr. HASHIMOTO Sadakatsu (Dec. 11, 2004 – Sep.14, 2006)																								
Short Term Experts																																				
1 Project Coordinator							Mr. ISHIDA Kazuki (Feb. 11, 2003 – May 31, 2003)																													
2 Installation & Adjustment for Machining Center							Mr. KUSUNOKI Hideo (July 22, 2003 – July 30, 2003) Makino																													
3 Installation & Adjustment of EDM							Mr. EGUCHI Hioaki (July 22, 2003 – Aug. 5, 2003) Makino Milling Machine Co.																													
4 Installation & Adjustment for CAD/CAM							Mr. ITO Akio (Aug. 3, 2003 – Aug. 7, 2003) Makino Milling Machine Co.																													
5 Installation, Plastic Injaction Molding Machine							Mr. NOGUCHI Tsutomu (Apr. 11, 2004 – Apr. 20, 2004) Sumitomo Heavy Industries Ltd.																													
6 Installation, Coordinate Measuring Machine							Mr. ONISHI Takekazui (Apr. 20, 2004 – Apr. 29, 2004) Mitutoyo																													
8 Occupational Safety & Health Seminar (1)												Mr. MIURA Daizo (Aug.22, 2004 – Sep.3, 2004)																								
9 Occupational Safety & Health Seminar (2)																	Mr. MIURA Daizo (Aug. 21, 2005 – Sep. 3, 2005)																			
10 Latest Plastic Mold & Molding Technology												Mr. FUKUSHIMA Yuichi (Sep. 26, 2004 – Oct. 2, 2004)																								

Annex10 Japanese Experts

April 18, 2006

Sadaf Rizwan

July 20, 2006

	year	2002	2003	2004	2005	2006
	month	4 5 6 7 8 9 10 11 12 1 2 3	4 5 6 7 8 9 10 11 12 1 2 3	4 5 6 7 8 9 10 11 12 1 2 3	4 5 6 7 8 9 10 11 12 1 2 3	4 5 6 7 8 9 10 11 12 1 2 3
11	Mold Finishing			Dr. SASAKI Tetsuo (Mar. 20, 2005 – Apr. 2, 2005)		
12	Mold Polishing			Mr. KATAOKA (Mar. 20, 2005 – Apr. 2, 2005) Pecker Seiko		
13	Machinig Center Operation & Management (1)				Mr. SHIRAHIGE Masao (May. 10, 2005 – June. 8, 2005)	
14	Machinig Center Operation & Management (2)				Mr. SHIRAHIGE Masao (Aug. 28, 2005 – Sep. 24, 2005)	
15	Machinig Center Operation & Management (3)				Mr. SHIRAHIGE Masao (Jan. 29, 2006 – Feb. 25, 2006)	
16	Injection Machine Maintenance				Mr. NOGUCHI Tsutomu (July. 4, 2005 – July. 7, 2005)	
17	TQC Seminar				Mr. SATO Kazuchika (Sep. 11, 2005 – Oct. 1, 2005)	
18	SME Consultation				Mr. MORI Shinichi (May. 29, 2005 – June. 8, 2005)	
19	Management Capacity Development (1)				Mr. WADA Katsuyoshi (Sep. 4, 2005 – Oct. 1, 2005)	
20	Management Capacity Development (2) – Financial Analysis & Personnel Management				Mr. MORI Shinichi (July 2, 2006 – Jul. 29, 2006)	
21	Machining Center Operation & Management (4)				Mr.SHIRAHIGE Masao (Jun. 9, 2006 – Jul. 14, 2006)	

Annex11

List of Counterparts Trained Abroad

July 20, 2006

Sadaf Rizwan

year			2002	2003	2004	2005	2006
Name of Trainees	Place	Field	Duration				
Mr. M. Akram Khan Mr. Sarfraz Ahmad	Japan Japan	Project Management	Aug ~ Sep ↔ (1 Week)				
Mr. Tariq Baig Mr. Haider Ali Mr. Shoaib Rashid	Philippines Philippines Philippines	Assembling, Maintenance, Tryout	Aug ~ Jan ↔ (6 Month)				
Mr. Tariq Baig Mr. Latif Awan Mr. Haseeb Ahmad	Japan Japan Japan	Plastic Injaction Molding & Try - Shot			Jan ~ Mar ↔ (3 Month)		
Mr. Irfan Jarral Mr. Rashid Wasti Mr. Anwar Baig Mr. Raees Ahmad	Japan Japan Japan Japan	Plastic Injection Molding Mold Processing Mold Designing & Processing Technology			May ~ Aug ↔ (3 Month)		
Mr. Javaid Shaikh Mr. Tariq Baig Mr. Shoaib Rashid	Philippines & Thailand Philippines & Thailand Philippines & Thailand	Management Study			Oct ~ Nov ↔ (1 Week)		
Mr. Nadeem Shahbaz Mr. Talib Hussain Mr. Rana M. Raza Mr. Qaiser Iqbal	Japan Japan Japan Japan	QA, QC (CMM) Mold Finishing & Assembly Mold Processing (EDM)				Aug ~ Oct ↔ (3 Month)	
Mr. Safdar Yasin Mr. Naveed Aslam Mr. Mazhar Ali Mr. Nadeem Shahid Mr. Shahzad Ayub	Japan Japan Japan Japan Japan	Injaction & Maint. Design CNC & Maint. CAD/CAM				Oct ~ Dec ↔ (3 Month)	
Mr. Fakhr-e-Sayyam Mr. Shahid Ahmad	Japan Japan	CNC & Maint CAD/CAM & Maint.					Jan ~ Mar ↔ (3 Month)

Total: 73 Man/Months

Annex 12

List of Machinery and Equipment Provided by Japan

July 20, 2006

No	Equipment name	Manufacturer / Model	Qty.	Arrival Date	Use frequency, Maintenance condition												Remarks
					Dec. 2003		Jun. 2004		Dec. 2004		Jun. 2005		Dec. 2005		Jun. 2006		
1	CAD/CAM Software																
		Nihon Unisys / CADCEUS	3	Feb. 2003	A	A	A	A	A	A	A	A	A	A	A	A	
		Realfactory / Craft Mill	3	Feb. 2003	A	A	A	A	A	A	A	A	A	A	A	A	
		Computer Engineering/Neo Solid	3	Feb. 2003	C	A	C	A	B	A	B	A	B	A	B	A	
2	Multimedia Projector	Panasonic / PT-LC55E	1	Feb. 2003	B	A	B	A	B	A	B	A	B	A	A	A	
3	Projection Screen	TOPEX / 6" x 6"	1	Mar. 2003	B	A	B	A	B	A	A	A	A	A	A	A	
4	Projection Screen	TOPEX / 8" x 8"	1	Mar. 2003	B	A	B	A	B	A	A	A	A	A	A	A	
5	Video Camera	SONY / DCR-TRV340	1	Mar. 2003	C	A	C	A	D	A	D	A	D	A	D	A	
6	Memory Stick for Video Camera	SONY / MSA-128A	1	Mar. 2003	C	A	C	A	D	A	D	A	D	A	D	A	
7	TV	Panasonic / TX-29P	1	Mar. 2003	D	A	D	A	C	A	C	A	C	A	C	A	
8	Video Deck	Panasonic / NV-HD640AM	1	Mar. 2003	D	A	D	A	C	A	C	A	C	A	C	A	
9	Photocopier	Canon / NP-6241	1	Mar. 2003	A	A	A	A	A	A	A	A	A	A	A	A	
10	FAX machine	Canon / B-155	1	Mar. 2003	A	A	A	A	A	A	A	A	A	A	A	A	
11	Scanner	HP / Scanjet 5550C	1	Mar. 2003	B	A	B	A	A	A	A	A	A	A	A	A	
12	Personal Computer																
	For CAD/CAM	IBM / Intellistation M Pro	6	Apr. 2003	A	A	A	A	A	A	A	A	A	A	A	A	
	For CAD/CAM	IBM / Intellistation M Pro	6	Aug.2003	A	A	A	A	A	A	A	A	A	A	A	A	
	For CMM/CNC	IBM / Net Vista A30P	2	Apr. 2003	-	-	A/C	A	A	A	A	A	A	A	A	A	
	For Office Work	IBM / Net Vista A30P	2	Apr. 2003	A	A	A	A	A	A	A	A	A	A	A	A	
13	Laser Jet Printer	HP / 4200DTN, P/N Q2428A	1	May.2003	A	A	A	A	A	A	A	A	A	A	A	B	
14	Plotter	HP / 500PS P/N C7770C	1	May.2003	B	A	B	A	A	A	A	A	A	A	A	A	
		HP / P/N C7790B	1	May.2003	B	A	B	C	C	B	C	B	C	B	C	C	
15	CNC Vertical Machining Center	Makino / V33	1	May.2003	-	-	A	A	A	A	A	A	A	A	A	A	
16	Electric Discharge Machine (EDM)	Makino / EDGE 3	1	May.2003	-	-	B	A	B	A	B	A	B	A	B	C	

No	Equipment name	Manufacturer / Model	Qty.	Arrival Date	Use frequency, Maintenance condition												Remarks
					Dec. 2003		Jun. 2004		Dec. 2004		Jun. 2005		Dec. 2005		Jun. 2006		
17	Wire-cut EDM	Makino / EU64	1	May.2003	-	-	C	A	B	A	B	A	B	A	B	A	
18	Ultrasonic Polishing Machine	Japan Minitor / CM3021	1	May.2003	-	-	C	A	C	A	C	A	C	A	C	A	
19	Air Impact Wrench Set	Bessel / GT-P14J	3	May.2003	-	-	C	A	C	A	C	A	C	A	C	A	
20	Air Micro-grinder	Bessel / GT-MG 55SR	3	May.2003	-	-	C	A	C	A	C	A	C	A	C	A	
21	Surface Plate	NABEYA / CP04545	3	May.2003	-	-	-	-	C	A	C	A	C	A	C	A	
22	Thickness Gauge	NAGAI / No.100MZ	10	May.2003	-	-	C	A	C	A	C	A	C	A	C	A	
23	CAD/CAM Software																
		DelCAM / Power Shape	12	Aug.2003	A	A	A	A	A	A	A	A	A	A	A	A	
		DelCAM / Power Mill	12	Aug.2003	A	A	A	A	A	A	A	A	A	A	A	A	
		DelCAM / Art Cam	1	Aug.2003	A	A	A	A	C	A	C	A	C	A	C	A	
		DelCAM / Copy Cad	1	Aug.2004	A	A	A	A	B	A	B	A	B	A	B	A	
		Autodesk / Auto CAD 2004	2	Jul.2003	A	A	A	A	A	A	A	A	A	A	A	A	
24	Tool Pre-setter	MST / TVM3040-2-A63	1	Aug.2003	-	-	B	A	A	A	A	A	A	A	A	A	
25	Small Holed EDM Drilling	ASTEC / CDH-3AM	1	Aug.2003	-	-	-	-	C	A	C	A	C	A	C	A	
26	Surface Grinding Machine	Kuroda / GS-63PF	1	Aug.2003	-	-	-	-	B	A	A	A	A	A	A	A	
27	Drill Point Grinding Machine	Fujita / DG50B	1	Aug.2003	-	-	D	A	C	A	C	A	C	A	C	A	
28	Tool Grinding Machine	IIDA / GE-120S	1	Aug.2003	-	-	D	A	C	A	C	A	C	A	C	A	
29	Carbide Turning Tool Grinder	IIDA / BW-41	1	Aug.2003	-	-	D	A	C	A	C	A	C	A	C	A	
30	Welding Machine for Mold	JTE / YOZO-SYSTEM4	1	Aug.2003	-	-	-	-	E	A	E	A	E	A	C	A	
31	Coordinate Measuring Machine	Mitutoyo / Beyond-Crysta710	1	Aug.2003	-	-	C	A	B	A	B	A	A	A	A	A	
32	Injection Molding Machine 350t	SUMITOMO / SH350C	1	Aug.2003	-	-	B	A	C	A	B	A	B	A	B	A	
33	Injection Molding Machine 160t	SUMITOMO / SH160C	1	Aug.2003	-	-	B	A	C	A	C	C	B	A	B	A	
34	Cooler for Molding Machine	Kannetsu / WL-20	1	Aug.2003	-	-	B	A	C	A	C	A	B	A	B	A	
35	Mold Temperature for 350t	Matsui / MCJ-150HX	1	Aug.2003	-	-	B	A	C	A	C	A	B	A	B	A	
36	Mold Temperature for 160t	Matsui / GMCH-J-55J	1	Aug.2003	-	-	B	A	C	A	C	A	B	A	B	A	
37	Drier of resin	Matsui / MJ3-100J	1	Aug.2003	-	-	C	A	C	A	C	A	C	A	B	A	

No	Equipment name	Manufacturer / Model	Qty.	Arrival Date	Use frequency, Maintenance condition												Remarks
					Dec. 2003		Jun. 2004		Dec. 2004		Jun. 2005		Dec. 2005		Jun. 2006		
38	Model Mold																
		Tray of Kitchen Cabinet	1	Sep.2003	C	A	C	A	C	A	C	A	C	A	B	A	
		Front Light Body of Motorcycle	1	Sep.2003	C	A	D	C	C	A	C	A	C	A	C	A	
		Mouse Cover (Upper and Lower)	1	Sep.2003	C	A	C	A	C	A	C	A	C	A	B	A	
		Telephone Upper-case	1	Sep.2003	C	A	C	A	C	A	C	A	C	A	C	A	
39	Modeling machine	Roland MDX-20	1	Sep.2003	C	A	C	A	C	A	C	A	C	A	C	A	
40	Simulation Software																
		Broad Mine / TRYCUT2000	1	Sep.2003	B	A	A	A	A	A	A	A	A	A	A	A	
		System I / NC Viewer	1	Dec.2003	B	A	A	A	A	A	A	A	A	A	A	A	
41	Thermometer/Hygrometer	TESTO / 608-H1	3	Sep.2003	A	A	A	A	B	A	B	A	B	A	A	A	
42	Office Software																
	For Office Work	Microsoft / Office XP Pro.	2	Sep.2003	A	A	A	A	A	A	A	A	A	A	A	A	
	For CAD/CAM	Microsoft / Office XP Pro.	4	Nov.2003	A	A	A	A	A	A	A	A	A	A	A	A	

Use frequency : A-use daily B-use often (1-3 times/week) C-use only specific period D-use rarely(3-11times/year)

E-not useable with specific reason

Maintenance condition : A-maintained well B-maintained good C-need maintenance to use D-not useable condition

Annex 7-B List of Tool and Toolings

	Article	Manufacturer	Description	Qty.	Arrival Date	Remarks
I	For Machining Center					
1	Jigs					
	1) Machining Vise	Tsudakoma	VG-150	2	May. 2003	
	2) Edge Finder	Daishowa	ACCU-C10	1	May. 2003	
	3) Test Indicator	Mitsutoyo	513-415	1	May. 2003	
	4) Magnetic Stand	Mitsutoyo	7014	1	May. 2003	
	5) Tool-length Measuring	Daishowa	TM-100	1	May. 2003	
	6) Clamping Kit	SuperTool	S-1814	1	May. 2003	
	7) Parallel Block	ERON	01243, HP2	1	May. 2003	
			01245, HP4	1	May. 2003	
			01246, HP5	1	May. 2003	
			34596, HP34	1	May. 2003	
	8) Clamping Setup Kit	ERON	01056,CMM1814	2	May. 2003	
	9) T-Slot Nat & Standard Set	ERON	01142, TSM1814	1	May. 2003	
	10) Tooling Locker for NC5-63 & HSK63A		TLD106	1	May. 2003	
			Holder DC-C2	36	May. 2003	
2	Boring Tools					
	1) Boring Holder	MST	A63-MFA20-150	1	May. 2003	
			A63-MFA24-180	1	May. 2003	
			A63-MFA29-180	1	May. 2003	
			A63-MFA36-195	1	May. 2003	
			A63-MBH50-210	3	May. 2003	
			A63-MBH75-195	3	May. 2003	
			A63-MBH115-195	3	May. 2003	
			A63-MBH180-195	3	May. 2003	
	2) Insert	MST	TPA082-EA	5	May. 2003	
			TPA084-EA	5	May. 2003	
			TNB112-EA	3	May. 2003	
			TNB114-EA	3	May. 2003	
			TNB164-EA	6	May. 2003	
	3) Cartridge	MST	PTC10	3	May. 2003	
			PTC12	9	May. 2003	
3	Drilling, Reaming & Tapping Tools					
	1) Straight Shank Drill (SD)	KOBELCO	Φ 3.0	5	May. 2003	
			Φ 4.0	5	May. 2003	
			Φ 5.0	5	May. 2003	
			Φ 6.0	5	May. 2003	
			Φ 8.0	5	May. 2003	
			Φ 10.0	4	May. 2003	
			Φ 12.0	4	May. 2003	
	2) Straight Shank Drill (KSD)	KOBELCO	Φ 1.3	1	May. 2003	
			Φ 1.8	1	May. 2003	
			Φ 2.3	1	May. 2003	
			Φ 2.8	1	May. 2003	
			Φ 3.3	1	May. 2003	
			Φ 3.8	1	May. 2003	

	Article	Manufacturer	Description	Qty.	Arrival Date	Remarks
			Φ 4.3	1	May. 2003	
			Φ 4.8	1	May. 2003	
			Φ 5.3	1	May. 2003	
			Φ 5.8	1	May. 2003	
			Φ 6.3	1	May. 2003	
			Φ 6.8	1	May. 2003	
			Φ 7.3	1	May. 2003	
			Φ 7.8	1	May. 2003	
			Φ 8.3	1	May. 2003	
			Φ 8.8	1	May. 2003	
			Φ 9.3	1	May. 2003	
			Φ 9.8	1	May. 2003	
			Φ 10.3	1	May. 2003	
			Φ 10.8	1	May. 2003	
			Φ 11.3	1	May. 2003	
			Φ 11.8	1	May. 2003	
	3) Straight Shank Chucking Reama (SCR)	EIKO	Φ 1.5	2	May. 2003	
			Φ 2.0	2	May. 2003	
			Φ 2.5	2	May. 2003	
			Φ 3.0	2	May. 2003	
			Φ 3.5	2	May. 2003	
			Φ 4.0	2	May. 2003	
			Φ 4.5	2	May. 2003	
			Φ 5.0	2	May. 2003	
			Φ 5.5	2	May. 2003	
			Φ 6.0	2	May. 2003	
			Φ 6.5	2	May. 2003	
			Φ 7.0	2	May. 2003	
			Φ 7.5	2	May. 2003	
			Φ 8.0	2	May. 2003	
			Φ 8.5	2	May. 2003	
			Φ 9.0	2	May. 2003	
			Φ 9.5	2	May. 2003	
			Φ 10.0	2	May. 2003	
			Φ 10.5	2	May. 2003	
			Φ 11.0	2	May. 2003	
			Φ 11.5	2	May. 2003	
			Φ 12.0	2	May. 2003	
	4) Carbide Broach Reamer	NIKKEN	SX-2.0 Φ2.0mm	3	May. 2003	
			SX-3.0 Φ3.0mm	3	May. 2003	
			SX-4.0 Φ4.0mm	3	May. 2003	
			SX-5.0 Φ5.0mm	3	May. 2003	
			SX-6.0 Φ6.0mm	3	May. 2003	
	5) Tap Holder	Kato	A63-HA412	2	May. 2003	
	6) Tap Collet	Kato	TC412-4	3	May. 2003	
			TC412-5	3	May. 2003	
			TC412-6	2	May. 2003	
			TC412-8	2	May. 2003	

	Article	Manufacturer	Description	Qty.	Arrival Date	Remarks
			TC412-10	2	May. 2003	
			TC412-12	2	May. 2003	
	7) Spiral Fluted Taps (EX-SFT)	OSG	No,11544 M3x0.5	5	May. 2003	
			No,11556 M4x0.7	5	May. 2003	
			No,11571 M5x0.8	5	May. 2003	
			No,11583 M6x1.0	5	May. 2003	
			No,11601 M8x1.25	5	May. 2003	
			No,11621 M10x1.5	5	May. 2003	
			No,11650 M12x1.75	5	May. 2003	
4	Milling Tools (Face Milling)					
	1) Face Mill Arbor	MST	A63-FMA31.75-60	2	May. 2003	
	2) Face Mill	OSG	No,8004483 P5E43R-10007J	2	May. 2003	
	3) Insart	OSG	ODMT0605-ZZN-D57	5	May. 2003	
5	Milling Tools (Holder & Collets)					
	1) Holders	MST	A63-DTA7-105	8	May. 2003	
			A63-DTA12-120	8	May. 2003	
			A63-DTA12-180	5	May. 2003	
			A63-CTH10-90	8	May. 2003	
			A63-CTH10-150	5	May. 2003	
			A63-CTH20-90	8	May. 2003	
			A63-CTH20-150	5	May. 2003	
			A63-ART32-100	3	May. 2003	
	2) Collet for DTA7	MST	D7-1.5P	5	May. 2003	
			D7-2P	5	May. 2003	
			D7-2.5P	5	May. 2003	
			D7-3P	5	May. 2003	
			D7-4P	5	May. 2003	
			D7-5P	5	May. 2003	
			D7-6P	5	May. 2003	
			D7-7P	5	May. 2003	
	3) Collet for DTA12	MST	D12-4P	5	May. 2003	
			D12-6P	5	May. 2003	
			D12-8P	5	May. 2003	
			D12-10P	5	May. 2003	
			D12-12P	5	May. 2003	
			D12-13P	5	May. 2003	
	4) Collet for CTH10	MST	C10-3P	5	May. 2003	
			C10-4P	5	May. 2003	
			C10-5P	5	May. 2003	
			C10-6P	5	May. 2003	
			C10-8P	5	May. 2003	
			C10-10P	5	May. 2003	
	5) Collet for CTH20	MST	C20-6P	5	May. 2003	
			C20-8P	5	May. 2003	
			C20-10P	5	May. 2003	
			C20-12P	5	May. 2003	
			C20-16P	5	May. 2003	
			C20-20P	5	May. 2003	

	Article	Manufacturer	Description	Qty.	Arrival Date	Remarks
	6) Straight Collet	MST	S32-6	5	May. 2003	
			S32-8	5	May. 2003	
			S32-10	5	May. 2003	
			S32-12	5	May. 2003	
			S32-16	5	May. 2003	
			S32-20	5	May. 2003	
			S32-25	5	May. 2003	
	7) Open Ended Spanner	MST	F-38	2	May. 2003	
			F-45	2	May. 2003	
			FC-36	2	May. 2003	
			FC-50	3	May. 2003	
			FM-72	1	May. 2003	
6	Milling Tools (End-mill)					
	1) Roughing End Mill (MRD)	KOBELCO	MRD800 8mm	5	May. 2003	
			MRD1200 12mm	5	May. 2003	
			MRD1600 16mm	5	May. 2003	
			MRD2000 20mm	5	May. 2003	
	2) Roughing End Mill (ESM-C Coat)	HITACHI	ESMQS6 6mm	5	May. 2003	
			ESMQS8 8mm	5	May. 2003	
			ESMQS10 10mm	5	May. 2003	
			ESMQS12 12mm	5	May. 2003	
			ESMQS16 16mm	5	May. 2003	
			ESMQS20 20mm	2	May. 2003	
			ESMQS30 30mm	1	May. 2003	
	3) Hss End Mill (2MSD)	KOBELCO	2MSD0600 6mm	5	May. 2003	
			2MSD0800 8mm	5	May. 2003	
			2MSD1000 10mm	5	May. 2003	
			2MSD1200 12mm	5	May. 2003	
			2MSD1600 16mm	5	May. 2003	
			2MSD2000 20mm	3	May. 2003	
	4) Hss End Mill (4MSD)	KOBELCO	4MSD0600 6mm	5	May. 2003	
			4MSD0800 8mm	5	May. 2003	
			4MSD1000 10mm	5	May. 2003	
			4MSD1200 12mm	5	May. 2003	
			4MSD1600 16mm	5	May. 2003	
			4MSD2000 20mm	5	May. 2003	
	5) Hss End Mill (4LSD)	KOBELCO	4LSD0600 6mm	5	May. 2003	
			4LSD0800 8mm	5	May. 2003	
			4LSD1000 10mm	5	May. 2003	
			4LSD1200 12mm	5	May. 2003	
			4LSD1600 16mm	5	May. 2003	
			4LSD2000 20mm	5	May. 2003	
	6) Carbide End Mill (CEPR EPOCH)	HITACHI	CEPR4030 3mm	5	May. 2003	
			CEPR4040 4mm	5	May. 2003	
			CEPR4050 5mm	5	May. 2003	
			CEPR6060 6mm	5	May. 2003	
			CEPR6080 8mm	5	May. 2003	
			CEPR6100 10mm	5	May. 2003	

	Article	Manufacturer	Description	Qty.	Arrival Date	Remarks
			CEPR6120 12mm	4	May. 2003	
			CEPR6200 20mm	2	May. 2003	
	7) Carbide End Mill:2F with CR(FX-CR-MG-EDS)	OSG	8543831 3 x R0.2	5	May. 2003	
			8543845 4 x R1	5	May. 2003	
			8543855 5 x R1	5	May. 2003	
			8543865 6 x R1	5	May. 2003	
			8543885 8 x R1	5	May. 2003	
			8543907 10 x R1.5	5	May. 2003	
	8) Carbide End Mill:6F with CR (FX-CR-EMS)	OSG	8545509 6 x R0.2	5	May. 2003	
			8545516 8 x R0.5	5	May. 2003	
			8545521 10 x R0.5	5	May. 2003	
			8545527 12 x R1	5	May. 2003	
	9) Carbide End Mill:4F with CR (FXS-MFE)	OSG	8546103 10 x R0.5	5	May. 2003	
			8546105 10 x R1	5	May. 2003	
			8546123 12 x R0.5	5	May. 2003	
			8546145 14 x R1	5	May. 2003	
	10) Ball-end (FX-MG-EBD)	OSG	8521030 R1.5 x 3	5	May. 2003	
			8521040 R2 x 4	5	May. 2003	
			8521060 R3 x 6	5	May. 2003	
			8521080 R4 x 8	5	May. 2003	
			8521100 R5 x 10	5	May. 2003	
			8521120 R6 x 12	5	May. 2003	
	11) Ball-end (FXS-EBDS)	OSG	8518003 R1.5 x 3	5	May. 2003	
			8518004 R2 x 4	5	May. 2003	
			8518006 R3 x 6	5	May. 2003	
			8518008 R4 x 8	5	May. 2003	
			8518010 R5 x 10	5	May. 2003	
			8518012 R6 x 12	5	May. 2003	
	12) Ball-end :for Non-ferrous (CRN-EBD)	OSG	8503860 R3 x 6	5	May. 2003	
			8503880 R4 x 8	5	May. 2003	
			8503900 R5 x 10	5	May. 2003	
			8503920 R6 x 12	5	May. 2003	
	13) Rib Processing Ball-end (MRB-230)	NS TOOL	8-520-00501 R0.5 x 6mm	5	May. 2003	
			8-520-00502 R0.5 x 8mm	5	May. 2003	
			8-520-01001 R1 x 6mm	5	May. 2003	
			8-520-01004 R1 x 12mm	5	May. 2003	
			8-520-01006 R1 x 16mm	5	May. 2003	
			8-520-01503 R1.5 x 15mm	5	May. 2003	
			8-520-01506 R1.5 x 25mm	5	May. 2003	
			8-520-02003 R2 x 20mm	5	May. 2003	
			8-520-02004 R2 x 25mm	5	May. 2003	
	14) Rib Processing (MHR-230)	NS TOOL	8-200-05060 0.5 x 6mm	5	May. 2003	
			8-200-08080 0.8 x 8mm	5	May. 2003	
			8-200-08100 0.8 x 10mm	5	May. 2003	
	14) Rib Processing (MHR-430)	NS TOOL	8-210-01010 1 x 10mm	4	May. 2003	
			8-210-01210 1.2 x 10mm	4	May. 2003	
			8-210-01510 1.5 x 10mm	4	May. 2003	
			8-210-01816 1.8 x 16mm	4	May. 2003	

	Article	Manufacturer	Description	Qty.	Arrival Date	Remarks
			8-210-02016 2 x 16mm	4	May. 2003	
			8-210-02020 2 x 20mm	4	May. 2003	
			8-210-03025 3 x 25mm	4	May. 2003	
			8-210-04025 4 x 25mm	4	May. 2003	
	15) Taper for Rib Processing (NRF-4)	NS TOOL	1-425-01036 1 x 2°x 8mm	5	May. 2003	
			1-425-01212 1.2 x 30° x 4mm	5	May. 2003	
	16) Taper for Rib Processing (FXS-RB-TPE)	OSG	8507522 1 x 1° x 8mm	4	May. 2003	
			8507845 1 x 3° x 8mm	4	May. 2003	
			8507542 1.5 x 1° x 8mm	4	May. 2003	
			8507855 1.5 x 3° x 12mm	4	May. 2003	
			8507573 2 x 1° x 10mm	4	May. 2003	
			8507870 2 x 3° x 16mm	4	May. 2003	
			8507597 3 x 1° x 25mm	4	May. 2003	
			8507807 3 x 3° x 25mm	4	May. 2003	
II	For EDM Machine					
1	Jigs					
	1) Tooling Holders	EROWA	ITS SET (ER-023239)	1	May. 2003	
	2) Universal Holder	EROWA	EUV-25	1	May. 2003	
	3) Test Block	EROWA	ER-8617	1	May. 2003	
	4) Electrode Holder	EROWA	Centering Plate 50:ER-009214	1	May. 2003	
			Centering Plate 100:ER-011599	2	May. 2003	
			Uni-plate:ER-010627	4	May. 2003	
			V-block Holder:ER-008458	3	May. 2003	
			Φ20 Adapter:ER-009235	3	May. 2003	
2	Electrode					
	1) Cube Electrode		15mm	40	May. 2003	
	2) Cylinder Electrode		Φ15x70mm	40	May. 2003	
III	For Wire-cut EDM Machine					
1	Jigs					
	1) Quick Chuck for Electrode Processing	EROWA	ER-022584	4	May. 2003	
2	Wire Electrode	HITACHI	HBZ-20 5Kg/roll	19	May. 2003	
			HBZ-25 5Kg/roll	18	May. 2003	
IV	For Polishing (Ultrasonic Polishing Machine)					
1	Carbide Cutter Set	MINITOR	B3920	1	Mar. 2004	
			B3930	2	Mar. 2004	
			B3940	2	Mar. 2004	
2	Whetstone					
	1)Whetstone with Axis Set	MINITOR	Blue set D7510	3	Mar. 2004	
			4mm set D7530	3	Mar. 2004	
			6mm set D7540	3	Mar. 2004	
			10mm set D7550	3	Mar. 2004	
	2)Rubber Whetstone with Axis Set	MINITOR	D3362	20	Mar. 2004	
			D3461	20	Mar. 2004	
			D3471	20	Mar. 2004	
	3)Stick Whetstone	YAMATO	YHB B46D No.400 (20pcs)	3	May. 2003	
			YTM M46D No.600 (20pcs)	3	May. 2003	
			YTM M46D No.800 (20pcs)	3	May. 2003	
		MISUMI	EDSC-100-6-3-240 (20pcs)	1	Mar. 2004	

	Article	Manufacturer	Description	Qty.	Arrival Date	Remarks
			EDSC-100-6-3-400 (20pcs)	1	Mar. 2004	
			EDSC-100-13-3-240 (20pcs)	1	Mar. 2004	
			EDSC-100-13-3-400 (20pcs)	1	Mar. 2004	
	4) Square Prism Type	YAMATO	Alundam: 205x50x25mm	3	May. 2003	
	5) Hand Lapper	CRISTON	Y400F: 40x12mm (10pcs/box)	3	May. 2003	
	6)Ceramic Fiber Stick Whetstone	MISUMI	XBCHD-1-6-100	10	Mar. 2004	
			XBCHB-1-6-100	10	Mar. 2004	
			XBCHR-1-6-100	10	Mar. 2004	
3	Holder for Ultrasonic Polishing Machine					
	1)Stick Holder	MINITOR	F3401	10	Mar. 2004	
			F3402	10	Mar. 2004	
	2)Contract Tube	MINITOR	F3410	40	Mar. 2004	
			F3411	40	Mar. 2004	
4	File					
	1)Diamond File	GOEI	S type 8pcs Set	3	May. 2003	
			S type 12pcs Set	3	May. 2003	
	2)Diamond File for Ultrasonic	MINITOR	F4012	5	Mar. 2004	
			F3016	5	Mar. 2004	
5	Sandpaper	BELSTAR	DC-100 : No.100 (100pcs/box)	3	May. 2003	
			DC-120 : No.120 (100pcs/box)	3	May. 2003	
			DC-180 : No.180 (100pcs/box)	3	May. 2003	
			DC-240 : No.240 (100pcs/box)	3	May. 2003	
			DC-320 : No.320 (100pcs/box)	3	May. 2003	
			DC-400 : No.400 (100pcs/box)	3	May. 2003	
			DC-600 : No.600 (100pcs/box)	3	May. 2003	
			DC-800 : No.800 (100pcs/box)	3	May. 2003	
			DC-1000 : No.1000 (100pcs/box)	3	May. 2003	
			DC-1500 : No.1500 (100pcs/box)	3	May. 2003	
			DC-2000 : No.2000 (100pcs/box)	3	May. 2003	
6	Diamond Paste	CRISTON	CP060 No.2500 : 5g	3	May. 2003	
7	Felt Puff	JPTM	F3208 (5pcs/box)	3	May. 2003	
8	Tool Box	TOYO	F501	3	May. 2003	
V	For Aeembling					
1	Socket Set for Socket Wrench					
	1) Socket	TONE	6mm :3S-06	3	May. 2003	
			8mm: 4S-08	3	May. 2003	
			10mm : 4S-10	3	May. 2003	
			12mm : 4S-12	3	May. 2003	
			14mm : 4S-14	3	May. 2003	
			17mm : 4S-17	3	May. 2003	
	2) Socket Adaptor	TONE	68	3	May. 2003	
2	Hexagon Socket Screw Keys Set	NJS	AXS 0810	3	May. 2003	
3	Open Ended Spanners	ASAHI	SMS 0800	3	May. 2003	
4	Copper Hammer	OH	CO-15 : NO.1-1/2	3	May. 2003	
5	Shackles Hammer	OH	OS-40 : NO.2	3	May. 2003	
6	Tool Box	TOYO	LG-600	3	May. 2003	
VI	For Tool Presetter					
1	Dial Guage	mitsutoyo	DG-1Z(1/100)	2	Aug. 2003	

	Article	Manufacturer	Description	Qty.	Arrival Date	Remarks
			DG-2X(1/1000)	2	Aug. 2003	
VII	For Small Hole EDM					
1	BS Electrode	ASTEC	Φ 0.5	1	Aug. 2003	
			Φ 0.8	1	Aug. 2003	
			Φ 1.0	1	Aug. 2003	
			Φ 1.5	1	Aug. 2003	
			Φ 2.0	1	Aug. 2003	
VIII	Grinding Wheels					
1	Surface Grinder	Kure-Norton	WA46J	3	Aug. 2003	
2	Drill Point Grinder	FUJITA	DG50B/KE-46-I	6	Aug. 2003	
3	Tool Grinding Machine	KEIHIN	DW-4B/Diamond wheel	5	Aug. 2003	
			DW-4B/Borazon wheel	5	Aug. 2003	
4	Carbide Turning Tool Grinder	KEIHIN	DW-8	7	Aug. 2003	
			DW-9	7	Aug. 2003	

Annex 13
List of Machinery & Equipment Provided by Pakistani

April 24, 2006
Haider Ali

Sr.	Major Components	Achievements
I	<u>Mold Design & CAD/CAM</u>	
	i. UPS Unit 16 Set	100%
	ii. Working Table 24 + 30 No.	100%
	iii. Meeting Table 02 No.	100%
	iv. Computer Chair 42 No.	100%
	v. Desk for Multimedia 01 No.	100%
	vi. Desk for Printer 01 No.	100%
	vii. Metallic Almirah 03 No.	100%
II	<u>Mold Processing</u>	
	i. AVR Unit 15 Set	100%
	ii. Vertical Milling Machine 02 No.	100%
	iii. Lathe Machines 02 No.	100%
	iv. Tool Locker 02 No.	100%
	v. Drilling Machine 01 No.	100%
	vi. Working Table 10 No.	100%
	vii. Chairs 04 No.	100%
	viii. Stocker 01 No.	100%
	ix. Miscellaneous Cutting Tools ---	90%
	x. Fork-Lift 01 No.	100%
	xi. Trolley 05 No.	100%
	xii. Air Compressor 01 No.	100%
III	<u>Mold Assembly Injection Tryout</u>	
	i. Mold Assembly Bench 02 No.	100%
	ii. Mold Polishing Bench 02 No.	
	iii. Mold Rack 04 No.	100%
	iv. Overhead Crane (3 Tons) 01 No.	100%
	v. Portable Hoist (2 Tons) 01 No.	100%
IV	<u>Others:</u>	
	i. Computers (Desktop+Laptop) 2+2 No.	100%
	ii. Network Printer 01 No.	100%
	iii. Multi-media Projector 01 No.	100%
	iv. Air-Compressor 01 No.	100%
	v. Hanging of lights over machines ---	100%
	vi. Installation of lights in Assembly & Injection molding 04 No.	100%

Annex 14

Budget Allocation (Local Cost) for the Project, 2000-2006.

F.Y.	Amount Allocated	Amount Released	Amount Utilized
2000-2001	4.200	3.570	3.570
2001-2002	2.000	2.000	2.000
2002-2003	2.780	2.780	2.780
2003-2004	14.092	14.092	* 2.387
2004-2005 *	21.092	16.080	13.411
2005-2006 **	5.294	9.098	9.098
Total			33.246

* The remaing amount was surrendered for next F.Y. (i.e., 2004-2005)

*** As per Revised PC-I, the allocation for 2005-2006 was Rs. 5.294. However, Rs. 3.804 Million were requested to Planning Commission to be provided through Special Grant in order to meet the reminaing implementation requirements of the Project, which was agreed & provided.*

Annex 15

Expenses by the Japanese Side from JFY 1999 to JFY2006

May 30, 2006

(Unit: Thousand Yen)

Japanese Fiscal Year	1999	2000	2001	2002	2003	2004	2005	2006 (Planned)	Total (1999 – 2006)
Dispatch of Experts				31,896	83,235	120,282	105,278	42,357	383,048
Acceptance of C/P in Japan				704*	2,065*	2,158*	49,563	0	54,490
Provision of Machinery and Equipment			800	151,387	166,728	7,062	17,447	1,000	344,424
Dispatch of Study Team	3,756	14,208	2,602		2,488	7,931	2,385	7,500	40,870
Total	3,756	14,208	3,402	183,987	254,516	137,433	174,673	50,857	822,832

Note: *:Expenses for Acceptance of C/P excludes common expenses of training program.

Annex 16 Actual Schedule for the Model Mold

 PITAC-JICA Phase II Project
 July 20, 2006

Target Mold		2004			2005												2006								
		10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9
Multi Purpose Tray	Cavity																								
	Core																								
	Mold Base																								
	Assembly																								
	Trial shot																								
Front Light Body for Motorcycle	Drawing																								
	Cavity																								
	Electrode × 2																								
	Core																								
	Slide Core × 5																								
	Mold Base																								
	Assembly																								
	Trial shot																								
Mouse Cover	Drawing																								
	Cavity × 2																								
	Electrode																								
	Core × 2																								
	Mold Base																								
	Assembly																								
	Trial shot																								
Telephone Case	Drawing																								
	Cavity																								
	Electrode																								
	Core																								
	Mold Base																								
	Assembly																								
	Trial shot																								
Multi Purpose Stand	Drawing																								
	Cavity																								
	Core 1																								
	Core2																								
	Mold Base																								
	Assembly																								
	Trial shot																								

PD:Product Drawing AD:Assembly Drawing DD:Detail Drawing CC:CAD/CAM Operation TS:Trial Shot
 MC:Machining Center EDM:Electro Discharge Machine WC:Wire Cutt EDM AS:Assembly MM:Milling Machine

工程別C/P評価基準

	項目	判定内容	
製品設計	金型	金型を加工するための全ての情報がある	
	成形	製品を成形するための全ての情報がある	
	生産	コスト、総生産量、単位時間当たりの生産量、生産設備に関する全ての情報が	
	設計工数	標準設計工数との対比	
金型設計	製品	製品情報を満足する設計	
	コスト	低コスト加工が可能な設計	
	設備	保有設備で加工可能な設計	
	納期	短期間で加工できる設計	
	設計工数	標準設計工数との対比	
	加工誤り対策	加工誤りの対策と判断	
	設計誤り対策	設計誤りの対策と判断	
CAD/CAM	形状	図面形状との対比(工程設計値)	
	精度	図面精度との対比(工程設計値)	
	加工時間	標準加工工数との対比	
	表面粗さ	工程設計値との対比	
	データ作成工数	標準工数との対比	
マシニングセンター	精度	図面公差による判定	
	表面粗さ	工程設計値との対比	
	加工時間	標準工数との対比	
	段取り方法	標準段取りとの対比	
	5S	専門家による判定	
型彫り放電加工	精度	図面公差による判定	
	表面粗さ	工程設計値との対比	
	加工時間	標準工数との対比	
	段取り方法	標準段取りとの対比	
	5S	専門家による判定	
ワイヤカットEDM	精度	工程設計値との対比	
	表面粗さ	工程設計値との対比	
	加工時間	標準工数との対比	
	段取り方法	標準段取りとの対比	
	5S	専門家による判定	
平面研削盤	精度	図面公差による判定	
	表面粗さ	工程設計値との対比	
	加工時間	標準工数との対比	
	段取り方法	標準段取りとの対比	

Annex 17 Analysis of Target Molds

PITAC-JICA Phase II Project

July 20, 2006

Field	Target Molds Term of Evaluation	Tray for Kitchen Cabinet			Flont Light Body for Motor cycle			Mouse Cover			Telephone Case			Multi-purpose Stand		
		1st	2nd	Final	1st	2nd	Final	1st	2nd	Final	1st	2nd	Final	1st	2nd	Final
Mold Design	Tolerance of Dimension of Cavity and Core	B	A	AA	B	B	A	C	B	A	B	A	A	A	A	AA
	Draft Angle	A	AA	AA	A	A	AA	B	A	A	C	B	A	A	A	AA
	Weld Line Position	A	AA	AA	A	A	A	B	A	A	B	A	A	A	AA	AA
	Specification of Injection Molding Machine	A	AA	AA	A	A	AA	A	A	A	A	A	A	A	A	A
	Material of Steel and Heat Treatment	B	A	AA	B	B	A	B	A	A	A	A	A	A	A	A
	Determination of Shrinkage	A	AA	AA	B	A	A	A	A	A	A	A	A	A	A	AA
	Ejection Method and Location	B	A	AA	A	A	A	C	B	A	B	A	A	A	A	A
	Cooling Method and Location	C	A	AA	B	A	A	B	A	A	C	A	A	B	B	A
	Strength of Mold Construction	A	AA	AA	B	A	A	A	A	A	A	A	A	B	A	A
	Treatment of Under-cut	-	-	-	C	B	A	C	B	A	B	A	A	-	-	-
	Surface Roughness	A	A	AA	B	A	A	A	A	A	B	A	A	A	A	A
	Runner and Gate System	B	A	AA	A	A	A	C	B	B	B	A	A	A	A	AA
CAD/CAM	Dimensional Accuracy	B	A	AA	B	A	A	B	B	A	B	B	A	B	B	A
	Surface Smoothness	B	A	AA	B	B	A	B	B	A	B	B	A	B	B	A
	Time	B	B	A	B	B	A	B	B	A	B	B	A	B	B	A
	Process Consistance	B	B	A	B	B	A	B	B	A	B	B	A	B	B	A
Mold Processing	Machining Process	B	B	B	B	B	A	B	B	A	B	B	A	B	B	A
	Machining Time	B	B	B	B	B	B	B	B	A	B	B	A	B	B	A
	Dimensional Accuracy	B	B	A	B	A	A	B	B	A	B	B	A	B	B	A
	Surface Smoothness	B	B	B	A	A	A	B	B	A	B	B	A	B	B	A
Mold Assembly	Surface Roughness of Polished Surface	B	A	A	B	B	A	C	B	A	B	B	A	B	B	A
	Equable Contact of Parting Surfaces	C	B	A	B	B	A	C	B	A	B	A	A	A	A	A
	Movement of the Movable Construction	B	A	A	C	B	A	C	B	A	B	B	A	A	A	AA
	Accuracy of the Wall Thickness of Cavity	A	A	A	A	A	A	B	B	A	B	B	A	A	A	A
	Treatment of Mold Processing Error	B	B	A	B	B	A	C	B	A	B	A	A	B	A	A
	Treatment of Mold Designing Error	B	B	A	B	B	A	C	C	B	B	B	A	B	A	A
Trial Shot	Molding Condition	C	A	AA	B	AA	AA	C	A	A	C	A	A	A	AA	AA
	Inspection and Correction	AA	AA	AA	A	A	A	C	B	A	B	B	A	B	A	A

* Criterion for Evaluation

AA: 100% satisfied

A : 80% satisfied

B : 60% satisfied

C : 30% satisfied

D : 0% satisfied

Annex 18 List of Munnuals, Textbooks, and Materials

July 20, 2006

No,	Title	Form	Remarks
Mold Design			
1	Technology Transfer Manual for Plastics Injection Molding	Soft, MS Word	SOKEIZAI CENTER
2	Duty of Mold Designer	Hard /Soft, PDF	Expert
3	How to try mold	Hard /Soft, PDF	Expert
4	Type of mold steels	Hard /Soft, PDF	Expert
5	Countermeasure for Variety of Molding Defect	Hard /Soft, PDF	Expert
6	Mold, Injection Machine, Product Specification Form	Hard /Soft, PDF	Expert
7	The Flow of Mold Making	Soft, MS Power Point	Expert
8	E-Trainer Basics of Injection Molding	Soft, CD	HITACHI Zosen
9	Face 2001~2003	Book	MISUMI
10	The Technical Specifications and Dimension Diagrams on the Prastics Injection Molding Machine	Book	Kanagata-Tsushin-Sya Company
11	Standard Mold Base	Book	Futaba
12	Mold Desgin Beginners	Text Hand/Soft	Project
13	Mold Design Training Basic	Text Hand/Soft	Project
14	Mold Design Training Advance	Text Hand/Soft	Project
15	2D/3D Auto CAD	Text Hand/Soft	Project
16	Mold Flow Operation manual	Hand/Soft	Project
17	Standerdization for Mold Design	Book	Expert
18	Hot Runner Manual(1)	Book/Soft	SEIKI
19	Hot Runner Manual(2)	Book/Soft	FISA
20	Hot Runner Manual(3)	Book/Soft	HUSKY
CAD/CAM			
1	CADCEUS Operation Manual	PDF	NIHON UNISYS
2	CRAFTMILL Operation Manual	PDF	REALFACTORY
3	NEOSOLID Operation Manual	Book	COMPUTER ENGINEERING
4	POWERSHAPE Training Manual	MS WORD	DELCAM
5	POWERMILL Training Manual	MS WORD	DELCAM
6	MOLDMAKER Training Manual	MS WORD	DELCAM
7	PS-DRAFT Training Manual	MS WORD	DELCAM
8	PS-ASSEMBLY Training Manual	MS WORD	DELCAM
9	PS-ELECTRODE Training Manulal	MS WORD	DELCAM
10	CAD/CAM SYSTEM Introduction	POWERPOINT	Expert
11	Exercise for 3D Modeling	DATA-CD	Expert
12	Exercise for CAM	DATA-CD	Expert
13	Exercise for 3D Mold Design	DATA-CD	Expert
14	Products Drawing	Drawing	Expert
15	Tool Catalog	Book & CD	OSG HITACHI
16	3D CAD Training Course	Textbook/Soft	CAD/CAM Section, Project
17	3D CAM Training Course	Textbook/Soft	CAD/CAM Section, Project
18	3D CAD/CAM Advance Training Course	Textbook/Soft	CAD/CAM Section, Project
19	3D Mold Maker Training Course	Textbook/Soft	CAD/CAM Section, Project
20	3D Modeling Training Course	Textbook/Soft	CAD/CAM Section, Project
Mold Processing			
1	Theory of Cutting	Hard /Soft, PDF	Expert
2	Theory of Electric Discharge Machining	Hard /Soft, PDF	Expert
3	Theory of Grinding	Hard /Soft, PDF	Expert
4	Theory of Measuring	Hard /Soft, PDF	Expert

No,	Title	Form	Remarks
5	Machining Center	Hard /Soft, PDF	Expert
6	Mechanism of Mould	Hard /Soft, PDF	Expert
7	Role of Parts	Hard /Soft, PDF	Expert
8	CNC Milling	Soft, MS Power Point	MIRDC-JICA Project (Philippines)
9	Basic Machine Shop	Soft, MS Power Point	MIRDC-JICA Project (Philippines)
10	CNC EDM Wire Cut	Soft, MS Power Point	MIRDC-JICA Project (Philippines)
11	Machinery's Handbook 26	Book	Industrial Press
12	Technology of Machine Tools	Book	McGraw-Hill
13	Instruction Manual V33	Book	MAKINO
14	Instruction Manual EDGE 3	Book	MAKINO
15	Instruction Manual EU64	Book	MAKINO
16	Text Book for Machining Center	Text Book	Mold Processing Section
18	Text Book for EDM Training Course	Text Book	Mold Processing Section
19	Text Book for Wire Cut Training Course	Text Book	Mold Processing Section
20	Text Book for Conventional Machining Beginners	Text Book	Mold Processing Section
21	Text Book for Conventional Machining Basic	Text Book	Mold Processing Section
Assembly			
1	Fundamentals of Finishing	Hard /Soft, PDF	Expert
2	Mold Polishing & Assembly Training Course	Textbook/Soft	Project
3	Welding Operation manual	Hard	Japan Techno Eng.
4	Video CD of (Yozo) Manufacturing of Welding Machinery	Soft	Japan Techno Eng.
Trial shot			
1	Technology Transfer Manual for Plastics Injection Molding	Soft, MS Word	SOKEIZAI CENTER
2	Injection Molding	Hard /Soft, PDF	Expert
3	E-Trainer Basics of Injection Molding	Soft, CD	HITACHI Zosen
4	Injection Molding Basic (Textbook)	Soft, MS Word	Expert
5	Injection Molding Advance (Textbook)	Soft, MS Word	Expert
6	Injection Molding Materials	Soft, Power Point	Expert
7	Shrinkage	Soft, Power Point	Expert
8	Conventional Defect of Machining	Soft, Power Point	Expert
9	Thermal Properties of Solid and Melten Polymer	Soft, Power Point	Expert
10	Injection Molding Operation (Text)	Soft, MS Word	Expert
11	Injection Molding Beginners	Soft, MS Power Point	Injection Molding Section, Project
12	Injection Molding Basic	Soft, MS Power Point	Injection Molding Section, Project
13	Injection Molding Operation	Soft, MS Power Point	Injection Molding Section, Project
14	Injection Molding Safety	Soft, MS Power Point	Injection Molding Section, Project
15	Terms used in the textbook	Soft, MS Power Point	Injection Molding Section, Project
Measuring method			
1	GEOPAK-WIN(CNC) Software Training Appendix	Manuals	MITUTOYO
2	GEOPAK-WIN Software Training	Manuals	MITUTOYO
3	3D-Coordinate Measuring	Manuals	MITUTOYO/Sokeizai
4	Textbook for Workshop	Soft, MS Word	Project

SME Promotion			
1	Occupational Safety & Health Seminar Book 2004	Hard/Soft	Mr. MIURA Daizo
2	Occupational Safety & Health Seminar Book 2005	Hard/Soft	Mr. MIURA Daizo
3	Total Quality Control, Trainer's Training & Semir	Hard/Soft	Mr. SATO Kazuchika
4	Glossary for Plastic Mold & Molding	Hard/Soft	Philippine Project
5	Customer Database	Hard/Soft	
6	Customer Directory	Copy/Soft	SME section
7	Training Course Pamphlet	Hard/Soft	SME section

Training Course Database

Fiscal Year	Cors No.	Course Name	Start (D/M/Y)	Finish (D/M/Y)	Dratn Week	Timing	No. of Trainees	Fee (Rs)	Amount (Rs)
Fiscal Year 2004-2005	05-001	Mold Design, Basic	03/01/05	14/01/05	2W	08:30-13:50	11	2,000	22,000
	05-002	3D CAD	03/01/05	28/01/05	4W	09:00-13:50	8	2,500	20,000
	05-003	3D CAM	31/01/05	25/02/05	4W	09:00-13:50	8	2,500	20,000
	05-004	Mold Design, Advance	02/05/05	13/05/05	2W	09:00-12:30	12	2,000	24,000
	05-005	3D CAD	02/05/05	27/05/05	4W	09:00-12:30	8	2,500	20,000
	05-006	3D CAM	13/06/05	15/07/05	4W	09:00-12:30	8	2,500	20,000
	05-007	3D CAD (PEL)	20/06/05	30/06/05	4W	16:00-19:00	9	5,000	45,000
	05-008	3D CAM (PEL)	04/07/05	15/07/05	4W	16:00-19:00	9	5,000	45,000
	05-009	Mold Polishing & Finishing	27/06/05	01/07/05	1W	09:00-16:00	4	2,500	10,000
Fiscal Year 2005-2006	06-001	Mold Design, Basic	25/07/05	12/08/05	3W	16:00-19:00	10	3,000	30,000
	06-002	3D Mold Maker	15/08/05	02/09/05	3W	17:00-19:00	9	3,500	31,500
	06-003	Mold Polishing & Finishing (T.T.C.)	29/08/05	02/09/05	1W	09:00-16:00	4	2,500	10,000
	06-004	Injection Molding, Basic	29/08/05	16/09/05	3W	16:00-19:00	8	6,000	48,000
	06-005	Mold Design, Advance	12/09/05	30/09/05	3W	16:00-19:00	5	3,000	15,000
	06-006	CNC Machining Center	19/09/05	23/09/05	1W	08:30-16:00	8	3,000	24,000
	06-007	3D CAD (Students)	19/09/05	07/10/06	3W	08:30-11:30	8	3,000	24,000
	06-008	3D CAM (Students)	10/10/06	28/10/05	3W	08:30-11:30	8	3,000	24,000
	06-009	Injection Molding, Advance	28/11/05	16/12/05	3W	09:30-12:30	6	7,000	42,000
	06-010	3D CAD	12/12/05	30/12/05	3W	16:00-19:00	11	3,000	33,000
	06-011	Mold Design, Beginners	19/12/06	06/01/05	3W	16:00-19:00	6	3,000	18,000
	06-012	3D CAM	16/01/06	03/02/06	3W	16:00-19:00	11	3,000	33,000
	06-013	Mold Design, Basic	23/01/06	10/02/06	3W	16:00-19:00	8	4,500	36,000
	06-014	Injection Molding, Basic	23/01/05	10/02/06	3W	09:00-12:00	7	5,500	38,500
	06-015	2D/3D AUTOCAD	06/02/06	03/03/06	4W	09:00-12:00	8	6,000	48,000
	06-016	CNC Machining Center	13/02/06	10/03/06	4W	16:00-19:00	8	7,000	56,000
	06-017	Mold Design, Advance	13/03/06	31/03/06	3W	16:00-19:00	8	4,500	36,000
	06-018	CAD/CAM, Advance	20/03/06	07/04/06	3W	09:00-12:00	11	4,500	49,500
	06-019	Mold Polishing & Finishing	20/03/06	24/03/06	1W	09:00-16:00	4	4,000	16,000
	06-020	Conventional Machining, Basic	27/03/06	14/04/06	3W	16:00-19:00	5	2,000	10,000
	06-021	3D CAD	03/04/06	28/04/06	4W	16:00-19:00	11	6,000	66,000
	06-022	Injection Molding, Advance	03/04/06	21/04/06	3W	09:00-12:00	3	5,500	16,500
	06-023	2D/3D AUTOCAD	17/04/06	12/05/06	4W	09:00-12:00	10	6,000	60,000
	06-024	3D CAM	01/05/06	09/06/06	6W	16:00-19:00	11	4,500	49,500
	06-025	EDM Wire Cut	01/05/06	26/05/06	4W	16:00-19:00	7	7,000	49,000
	06-026	3D Modeling	20/02/06	10/03/06	3W	16:00-19:00	6	4,500	27,000
	06-027	Injection Molding, Basic	29/05/06	16/06/06	3W	09:00-12:00	7	5,500	38,500
Fiscal Year 2006-2007	06-028	Mold Design, Beginners	12/06/06	30/06/06	3W	16:00-19:00	2	4,500	9,000
	07-001	Mold Design, Basic (Intensive)	10/07/06	15/07/06	1W	08:00-16:00	10	4,500	45,000
	07-002	CNC Machining Center	10/07/06	11/08/06	4W	09:00-12:00	8	7,000	56,000
	07-003	Mold Design, Advanced (Intensive)	17/07/06	22/07/06	1W	08:00-16:00	10	4,500	45,000
	07-004	3D CAD (Intensive)	24/07/06	29/07/06	1W	08:00-16:00	7	4,500	31,500
	07-005	3D CAM (Intensive)	31/07/06	05/08/06	1W	08:00-16:00	4	4,500	18,000
	07-006	Mold Polishing & Finishing	31/07/06	05/08/06	1W	08:00-16:00	5	4,000	20,000
	07-007	Injection Molding Basic	24/07/06	11/08/06	3W	09:00-12:00	7	5,500	38,500
							338		1,418,000

Gors No.	Course Name	Start (D/M/Y)	Finish (D/M/Y)	Dratn Week	Timing	Instructor	Section	Candidates Applied	Candidates Selected	No. Of Certificates Issued	Fee (Rs)	Amount (Rs)
165-01	Machine Shop Practice	04/07/05	09/09/05	10	08:00-16:15	Iftikhar/ Subtain /Hussaini	Machine Shop		8	8	*1	
165-02A 165-02B	Autocad 2002(Mech) *2	04/07/05 15/08/05	12/08/05 23/09/05	6	09:00-12:00	Naveed Ahmad/ Haidr Shah/	Design Office		18	18	5,000	90,000
165-03	Plastic Mold Dsign	04/07/05	09/09/05	10	08:00-16:15	Altaf	Design Office	NOT AVAILABLE #3	4	4	*1	
165-04	Airconditioning &	04/07/05	09/09/05	10	08:00-16:15	Zafar Iqbal	A.C.Shop		3	3		
165-05A 165-05B	Engineering Drafting	04/07/05 15/08/05	12/08/05 23/09/05	6	08:00-16:15	Altaf	Design Office		9	9		
165-06	Die & Mold Making	04/07/05	09/09/05	10	08:00-16:15	Iftikhar	Machine Shop		1	1		
165-07A 165-07B	Pneumatic Control	04/07/05 15/08/05	12/08/05 23/09/05	6	08:00-16:15	Javaid Maqbool	L.C.A		2	2		
165-08A 165-08B	Insptection	04/07/05 15/08/05	12/08/05 23/09/05	6	08:00-16:15	Masood/Liaqat	Inspection Shop		3	3		
165-09A 165-09B	Basic Welding	04/07/05 15/08/05	12/08/05 23/09/05	6	08:00-16:15	Khawaja Farid	Welding Shop		2	2		
165-10A 165-10B	Heat Treatment Technology	04/07/05 15/08/05	12/08/05 23/09/05	6	08:00-16:15	Khawaja Farid	Hat Treatment Shop		3	3		
A	Sub-Total								53	53		231,000
166-01	Machine Shop Practice	03/10/05	09/12/05	10	08:00-16:15	Iftikhar/ Subtain /Hussaini	Machine Shop		Nil	Nil	*1	
166-02A 166-02B	Autocad 2002(Mech) *2	03/10/05 14/11/05	11/11/05 23/12/05	6	09:00-12:00	Naveed Ahmad/ Haidr Shah/	Design Office		24	24	5,000	120,000
166-03	Plastic Mold Dsign	03/10/05	09/12/05	10	08:00-16:15	Altaf	Design Office	NOT AVAILABLE #3	Nil	Nil	*1	
166-04	Airconditioning &	03/10/05	09/12/05	10	08:00-16:15	Zafar Iqbal	A.C.Shop		4	4		
166-05	Engineering Drafting	03/10/05 14/11/05	11/11/05 23/12/05	6	08:00-16:15	Altaf	Design Office		8	8		
166-06	Die & Mold Making	03/10/05	09/12/05	10	08:00-16:15	Iftikhar	Machine Shop		4	4		
166-07A 166-07B	Pneumatic Control	03/10/05 14/11/05	11/11/05 23/12/05	6	08:00-16:15	Javaid Maqbool	L.C.A		4	4		
166-08A 166-08B	Insptection	03/10/05 14/11/05	11/11/05 23/12/05	6	08:00-16:15	Masood/Liaqat	Inspection Shop		7	7		
166-09A 166-09B	Basic Welding	03/10/05 14/11/05	11/11/05 23/12/05	6	08:00-16:15	Khawaja Farid	Welding Shop		1	1		
166-10A 166-10B	Heat Treatment Technology	03/10/05 14/11/05	11/11/05 23/12/05	6	08:00-16:15	Khawaja Farid	Hat Treatment Shop		4	4		
166-11	Jigs & Fixture Design	03/10/05	09/12/05	10	08:00-16:15	Altaf	Design Office		2	2		
166-12	Cutting Tool & Guage Design	03/10/05	09/12/05	10	08:00-16:15	Altaf	Design Office		1	1		
166-13	CNC (Special)	-	-	2	08:00-16:15	Iftikhar	Machine Shop		1	1		
B	Sub-Total								60	60		284,000
167-01	Machine Shop Practice	02/01/06	10/03/06	10	08:00-16:15	Iftikhar/ Subtain /Hussaini	Machine Shop		13	13	*1	
167-02A 167-02B	Autocad 2002(Mech) *2	02/01/06 13/02/06	10/02/06 24/03/06	6	09:00-12:00	Naveed Ahmad/ Haidr Shah/	Design Office		5 -	5 -	5,000	25,000
167-03	Plastic Mold Dsign	02/01/06	10/03/06	10	08:00-16:15	Altaf	Design Office	NOT AVAILABLE #3	Nil	Nil	*1	
167-04	Airconditioning & Refrigeration	02/01/06	10/03/06	10	08:00-16:15	Zafar Iqbal	A.C.Shop		Nil	Nil		
167-05A 167-05B	Engineering Drafting	02/01/06 13/02/06	10/02/06 24/03/06	6	08:00-16:15	Altaf	Design Office		6 -	6 -		
167-06	Die & Mold Making	02/01/06	10/03/06	10	08:00-16:15	Iftikhar	Machine Shop		5	5		
167-07A 167-07B	Pneumatic Control	02/01/06 13/02/06	10/02/06 24/03/06	6	08:00-16:15	Javaid Maqbool	L.C.A		Nil -	Nil -		
167-08A 167-08B	Insptection	02/01/06 13/02/06	10/02/06 24/03/06	6	08:00-16:15	Masood/Liaqat	Inspection Shop		3 -	3 -		
167-09A 167-09B	Basic Welding	02/01/06 13/02/06	10/02/06 24/03/06	6	08:00-16:15	Khawaja Farid	Welding Shop		Nil -	Nil -		
167-10A 167-10B	Heat Treatment Technology	02/01/06 13/02/06	10/02/06 24/03/06	6	08:00-16:15	Khawaja Farid	Hat Treatment Shop		1 -	1 -		
C	Sub-Total								33	33		196,000
	Grand Total (A+B)								146			711,000

*1 Rs. 500/week for Private Candidates
Rs. 750/week for Government Institutions Candidates

*2 Autocad 2002 (Mech) Fee is Fixed i.e. Rs.5000/course

*3 Data not available

Note: This data has been prepared based on the information provided by Manager Training (Mr. Khalid Mahmood) to Chief Advisor on January 20, 2006.

Training Course Details

April 29, 2006

- 1 2D 3D Auto CAD
- 2 Mold Design, Beginners
- 3 Mold Design, Basic
- 4 Mold Design, Advance

- 5 3D CAD
- 6 3D CAM
- 7 3D Mold Maker
- 8 3D CAD/CAM Advance
- 9 3D Modeling

- 10 CNC Machining Center
- 11 EDM Sinker/Wire-cut

- 12 Conventional Machining, Basic
- 13 Conventional Machining, Advance

- 14 Mold Polishing & Finishing

- 15 Injection Molding, Beginner's
- 16 Injection Molding, Basic

Experience vs Training Courses

Experience	Mold Design		3D CAD/CAM		Mold Making			Injection Molding
3 Years & More Experience or 1 Year Experience after Basic Training Course	Advance	-	3D CAD/CAM Advance	3D Modeling	-	-	-	(Advance)
1 – 3 Years Experience	Basic	-	3D CAD/CAM Basic	3D Mold Maker	CNC Machining Center	CNC EDM Sinker & Wire-cut	Conventional Machining Basic	Basic
Students Or Less Than 1 year Experience	Beginners	2D/3D Auto CAD	3D CAD/CAM Students	-	-	-	Conventional Machining Beginners	Beginners

Course Outline For 2D/3D AutoCAD Course

Objectives

- A comprehensive training on tools being used for 2D designing, drafting and 3D Modeling.
- To understand the concept of layers and how to enlarge and reduce the views with scale and stretch command.
- To understand the Blocks, Write Blocks and how to define Attributes for completion of stamp.
- To understand the commands which are being used for editing 3D models.
- To grasp how to create different Orthographic, Auxiliary, sectional and Iso-metric views from 3D Models.
- To performed the different calculations (Area, Volume)
- To understand that how to make detailed drawings on layouts.
- To understand the use of quick dimensions.

Course Contents

Areas of Course

Units (Metric, Inches)

File Format (DWG, DXF)

Menus (Status bar, Standard bar, Object properties bar, Side menu, Drawing area, limits, extent area, Command area, Standard Tool bars, Customize tool bar)

Coordinate Systems (Cartesian Coordinate System, Relative Coordinate System, Polar Coordinate system)

Draw (Line, Ray line, Construction line, Multi line, Poly line, Polygon, Rectangle)

Arc (3-points / Start, Center, End / Start, Center, Angle / Start, Center Length / Start, End, Angle / Start, End, Direction / Start, End, Radius / Center, Start, End / Center, Start, Angle / Center, Start, Length / Continue)

Circle (Center, Radius / Center, Diameter / 2-Point / 3-Point / Tan, Tan, Tan / Tan, Tan, Radius)

Donut / Spline / Ellipse - Center / Axis, End / Arc

Block Make / Base / Define Attributes

Point Single Point / Multiple Points / Divide / Measure

Hatch / Boundary / Region / Text - Multi Line Text / Single Line Text

Surfaces - 2D Solid / 3D Face / 3D Surfaces / Edge / 3D Mesh / Revolved Surface / Tabulated Surface / Ruled / Edge

Solid - Box / Sphere / Cylinder / Cone / Wedge / Taurus / Extrude / Revolve / Slice / Section / Interference / Setup

Drawing - View / Profile

Modify Properties, Match Properties, Object / External references

Erase / Copy / Mirror / Offset / Array / Move / Rotate / Scale /

	<p>Stretch</p> <p>Lengthen / Trim / Extend / Break / Chamfer / Break / Fillet</p> <p>3D operation 3D Array / 3D Mirror / 3D Rotate / Align</p> <p>Explode</p> <p>Dimension Quick Dimension / Linear / Aligned / Ordinate / Radius / Diameter Angular / Base line / Continue / Leader / Tolerance / Centre mark / Oblique / Align Text, Home, Angle, Left, Center, Right</p> <p>Dimension Style, Override, Update, Re-associate Dimensions</p> <p>Format Layer, Color, Line type, Line weight, Text Style, Dimension Style, Point Style, Multi line Style, Units, Thickness, Drawing Units</p> <p>Insert Block, External Reference, Raster Images, Layout, New Layout, Layout from Template</p> <p>View Zoom - Real time, Previous, Window, Dynamic, Scale, Center, In, Out, All, Extent / Pan - Real time, Point, Left, Right, Up, Down, Aerial View / View ports / 3D Views - View points presets, View point, Plan view / 3D Orbit / Hide / Shade / Render</p> <p>Tools CAD standards / Spellings / Inquiry / Distance / Area Region/Mass / properties / List / ID Points / Time / Status / Set variable /</p> <p>Properties / Design Center / Display Image / View / Save / Named UCS / Orthographic / UCS / Preset / Top / Bottom / Left / Right / Front / Back / Move UCS / New UCS / World / Object / Face / View / Origin / Z Axis Vector / 3 Point / X / Y / Z / Drafting Setting</p>
Methodology	<ul style="list-style-type: none"> ▪ White Board ▪ Multimedia ▪ AutoCAD 2006 software
Who Should Attend	<ul style="list-style-type: none"> ▪ Fresh students, from TTC / Vocational Training Institutes / Poly Technique Institutes and Engineering Graduates. ▪ Experienced persons, want excel in AutoCAD

Course Outline For Mold Design Beginner Course

Objectives	<ul style="list-style-type: none"> • To understand what is plastic, kind of plastics, properties of plastics, plastic products and application. (Basic level) • To understand that what is a Mold, kinds of molds, operation of mold. (Basic level) • To understand what is a plastic injection mold. • To understand the application of design parameters in mold designing. • To understand Mold Base Standards. • To understand assembly drawing, parts list and detail drawings. • To understand the fittings of different mating parts. (Fits, Classes of fits, Tolerances,
Course Contents	<p>Main Areas of Course</p> <ol style="list-style-type: none"> 1- Plastics 2- Kinds of Mold 3- Plastic Injection Mold 4- Mold Base Standard 5- Design the Mold with AutoCAD, <ul style="list-style-type: none"> ▪ Plastics, Kind of Plastics, Plastics products and applications. ▪ Kinds of dies and molds (Blow Molds, Extrusion Molds, Press Tools, Compression Molding) ▪ Plastic Injection Mold. ▪ Briefly Introduction of 2-Plate Mold, and parts used in 2-Plate Mold ▪ Mold Base Standards. ▪ Introduction about, <ul style="list-style-type: none"> ○ Mold Parts, Materials and its Heat treatment ○ Runners Gates and their applications ○ Different Ejection methods. ○ Parting Line ○ Draft angle ○ Mold Shrinkage ○ Mold Cooling ▪ 2-D Designing of Injection Mold with AutoCAD <ul style="list-style-type: none"> ○ Draw Assembly Drawing ○ Parts Number ○ Parts List ○ Detail Drawings ○ Assembly of mold parts ○ Tolerances and their application in mold design ○ Features of Detail Drawings ▪ Introduction of Injection Molding Machine <ul style="list-style-type: none"> ○ Injection Molding Machine features. ○ Molding cycle ○ How to select the Injection Molding Machine for a Mold
Methodology	<ul style="list-style-type: none"> • White Board • Multimedia • AutoCAD
Who Should Attend	<ul style="list-style-type: none"> ▪ T.T.C. / Vocational Certificate Holders / Diploma Holders / those working in Plastic Industry and have aptitude in Mold Design. ▪ Prefer to those students who already attended the Mold Design Beginner's Course.

Course Outline For Mold Design Basic Course

Objectives	<ul style="list-style-type: none"> ▪ To understand the Plastics, its classification, properties and applications. ▪ To understand the features and advantages of Mold Base Standards. ▪ To understand the features and function of simple 2-Plate Mold. ▪ To understand / perform basic calculations regarding thickness of Core Plate, width of Cavity Plate from Product, Clamping Force, Injection Capacity etc. ▪ After the completion of the course, the participants will be able to design simple 2- Plate Mold. ▪ To understand the selection of Injection Molding Machine.
Course Contents	<p>Main Areas of Course</p> <ol style="list-style-type: none"> 1- Plastics 2- 2-Plate Injection Mold 3- Injection Molding Machines <ul style="list-style-type: none"> ▪ Identifying Molding Processes ▪ Plastics, Classification of Plastics, Properties of Plastics and applications of different Plastics. ▪ Metals used in Plastic Injection Mold ▪ Mold Base Standards used in Injection Mold. ▪ Introduction of 2-Plate Mold, and parts used in 2-Plate Mold ▪ Engineering Specifications <ul style="list-style-type: none"> ○ Mold Parts, Materials and its Heat treatment ▪ Design Variables <ul style="list-style-type: none"> ○ Types of Runners and their applications ○ Types of Gates and their applications ○ Different methods of Ejection Mechanism. ○ Parting Line ○ Draft angle ○ Mold Shrinkage ○ Air Vent ▪ Mold Cooling ▪ Drafting Techniques <ul style="list-style-type: none"> ○ Orthographic Projections System ▪ 3rd Angle Projection <ul style="list-style-type: none"> ○ Orthographic Views ○ Auxiliary Views ○ Assembly Drawing ○ Detail Drawings ▪ Conceptual Designing of 2-Plate Mold <ul style="list-style-type: none"> ○ Assembly Drawing ○ Basic Calculations ○ Parts list ▪ Injection Molding Machine <ul style="list-style-type: none"> ○ Injection Molding Machine features ○ How to select the Injection Molding Machine for a Mold
Methodology	<ul style="list-style-type: none"> • White Board • Multimedia • AutoCAD
Who Should Attend	<ul style="list-style-type: none"> ▪ T.T.C. / Vocational Certificate Holders / Diploma Holders / those working in Plastic Industry and have aptitude in Mold Design. ▪ Prefer to those students who already attended the Mold Design Beginner's Course.

Course Outline For Mold Design Advance Course



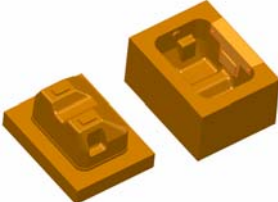
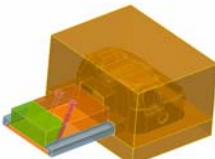
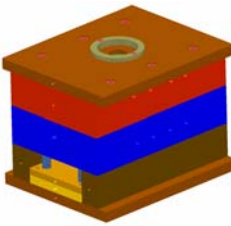
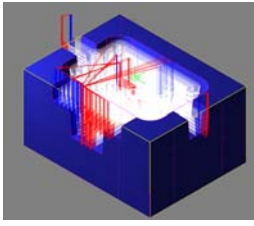
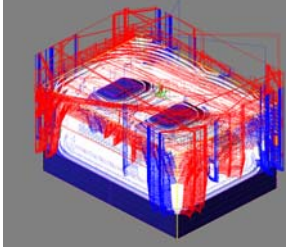
Objectives	<ul style="list-style-type: none"> ▪ To understand the Mold calculations (Strength of Support pin, Strength of Core pin, effective cooling in the mold. (Lecture and practical assignment). ▪ To understand the features and function of 3-Plate mold (Lecture and practical assignment). ▪ To understand the features and function of outside U/cut Mold. (Lecture and practical assignment). ▪ To understand the features and function of Inside U/cut Mold. (Lecture and practical assignment). ▪ To understand the typical molding problems and possible causes. (Lecture).
Course Contents	<p>Main Areas of Course</p> <ol style="list-style-type: none"> 1- Mold Calculations 2- Mold Materials and Heat treatment 3- 3-Plate Injection Mold 4- Outside and Inside U/cut molds. <p>Detail of Course</p> <ul style="list-style-type: none"> ▪ Calculations for effective cooling in the mold. ▪ Calculate the strength of core pin. ▪ Calculate the strength of support pin. ▪ Mold Materials and Heat treatment <ul style="list-style-type: none"> ○ Selection of mold metals according to the plastic resins and production. ○ Know how about heat treatment processes. ▪ Understand the features and function of 3-Plate mold (Theoretical and practical) ▪ Understand the features and function of outside U/cut mold (Theoretical and practical) ▪ Understand the features and function of inside U/cut mold (Theoretical and practical) ▪ Understand the typical molding problems and their possible causes. (Theoretical and practical)
Methodology	<ul style="list-style-type: none"> • White Board • Multimedia • AutoCAD
Who Should Attend	<ul style="list-style-type: none"> ▪ T.T.C. / Vocational Certificate Holders / Diploma Holders / those working in Plastic Industry have aptitude in Mold Design and the persons which have been completed mold design Basic Course.

Course Outline For 3D CAD Course

Objectives	<p>To understand the utility of 3D CAD Operation To learn the practical 3D modeling from 2 D drawing To learn basic operation of Surface & Solid Modeling To have practical experience of 3D Modeling To understand / perform the core and cavity separation</p>
Course Contents	<ol style="list-style-type: none">1. The basic command of:<ul style="list-style-type: none">• System Operation• Viewing Operation• Levels Operation2. The Wire frame Modeling:<ul style="list-style-type: none">• Lines• Arcs• Circles• Trim the wire3. Work plane:<ul style="list-style-type: none">• Introduction• Modification• Master Work plane4. Surface Modeling:<ul style="list-style-type: none">• Creation of Surfaces• Trimming & Editing of Surfaces• Fillet of Surfaces• Primitive Surfaces5. Solid Modeling:<ul style="list-style-type: none">• Creation of Solids• Solid Feature• Fillet6. Volume7. 3D Modeling Exercises
Methodology	Demonstration and practice on Delcam (PowerShape)
Who Should Attend	English, Computer & Mechanical Drawing Literate T.T.C. / Vocational Certificate Holders / Diploma Holders / those working in Plastic Industry

Course Outline For 3D CAM Course	
Objectives	<p>To learn basic operation of 3D CAM</p> <p>To understand the utility of 3D CAM</p> <p>To have practical experience of 3D Model Tool path Generation.</p> <p>To learn feature machining from 2D drawing</p>
Course Contents	<p>The basic command of: System Operation, Viewing Operation</p> <p>Machining Set Up: Loading a Model into P Mill, View the Model, Orientate the Model, Minimum Radius, Measure the Model, Block Definition, Tool definition, Feed rate and Spindle, Tool start point</p> <p>Area Clearance: Tolerance, Raster area clearance, Offset Area Clearance, Type Model, General information</p> <p>Finish Machining: Introduction, Types of Finishing</p> <p>Down Projection: Raster Finishing, Radial Finishing, Spiral Finishing, Pattern Finishing</p> <p>3D Offset & Constant Z: 3D Offset, Constant Z, Optimize Constant Z</p> <p>Corner Machining: Introduction, Multi Pencil, Corner Along, Corner Stitch, Automatic</p> <p>Projection Machining: Introduction, Plane Projection, Line Projection</p> <p>Editing Tool path: Introduction, Boundary Editor Form, Blanking Surface and Using Boundaries</p> <p>Editing Tool path: Mirror, Move , Rotate, Limiting Move , Start Point</p> <p>Collision Checking: Collision Check, Checking Raster Strategy</p> <p>Leads and Links: Introduction, Lead in /Lead Out, Extended Move, Links</p> <p>Patterns: Introduction, PS Sketcher, Automatic Pattern generation, Trochoidal Pattern</p> <p>NC Programs: Introduction, Create the NC Program, Viewing the Codes</p> <p>2D Machining: Features, Holes, Pocket, Boss, Slot, Hole Capping</p>
Methodology	Lectures, Discussions and Practice on Delcam (PowerMill)
Who Should Attend	<p>English& Computer Literate, Mechanical Drawing Literate</p> <p>T.T.C. / Vocational Certificate / Diploma Holders</p> <p>& those who working in Plastic Mold manufacturing Industry</p>


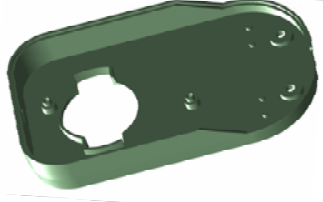
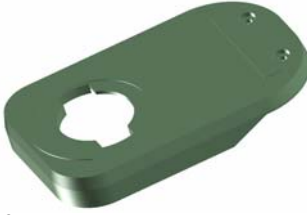


Course Outline For 3D CAD/CAM Advance Course

Objectives	To learn the Advance practical 3D CAD/CAM Operation to learn operation of Surface & Solid Modeling o have practical experience of 3D Modeling, Core and Cavity Separation and CAM Operation	
Course Contents	<p>1. 2D drawing of Motorcycle front light body</p>  <p>2. 3D component from 2D drawing</p>  <p>3. Separation of Core and cavity inserts</p>  <p>4. Slide core Generation</p>  <p>5. 3D Mold Base Generation</p>  <p>6. CAM Programming for Cavity insert</p>  <p>7. CAM Programming for Core Insert</p> 	
Methodology	Demonstration and practice on Delcam (PowerShape & PowerMILL)	
Who Should Attend	English, Computer & Mechanical Drawing Literate Knowledge of how to use PowerSHAPE and PowerMILL is necessary/T.T.C. / Vocational Certificate Holders / Diploma Holders / those working in Plastic Industry	

Course Outline For 3D Mold Maker Course

Objectives	<p>Learn basic operation of PS-Moldmaker Understand the utility of PS-Moldmaker Understand the features and function of simple 2-Plate Mold Base Components Have practical experience of designing the Mold Base Components</p>
Course Contents	<ul style="list-style-type: none"> ▪ Introduction of PS-Moldmaker ▪ Die Wizard ▪ Slide Core Mechanism ▪ Mold Base ▪ Inserts Addition ▪ Components ▪ Cooling Channel ▪ Multi Impression Tools ▪ Drawing the Components ▪ After completion the course, the participants will be able to use the PS-Moldmaker Module of Delcam software for design in the industry in effective manners.
Methodology	<p>Demonstration and practice on Delcam (PowerShape & PowerMILL)</p>
Who Should Attend	<p>English, Computer & Mechanical Drawing Literate Knowledge of how to use PowerSHAPE and Working Knowledge of how to use PowerSHAPE is necessary PowerMILL is necessary/T.T.C. / Vocational Certificate Holders / Diploma Holders / those working in Plastic Industry</p>

Course Outline For 3D Modeling Course

Objectives	<p>To learn the practical 3D modeling from 2 D drawing</p> <p>To understand the utility of 3D CAD</p> <p>To learn basic operation of Surface Modeling</p> <p>To understand the utility of Solid Modeling</p> <p>To have practical experience of 3D Modeling</p>
Course Contents	<ol style="list-style-type: none"> 1. Pen Tray To draw 3D Component from 2D Drawing  <ol style="list-style-type: none"> 2. Mouse Case Upper To draw 3D Component from 2D Drawing  <ol style="list-style-type: none"> 3. Mouse Case Lower To draw 3D Component from 2D Drawing  <ol style="list-style-type: none"> 4. Alarm Clock Case Upper To draw 3D Component from 2D Drawing <ol style="list-style-type: none"> 5. Alarm Clock Case Lower To draw 3D Component from 2D Drawing  <p>Front Light Cover To draw 3D Component from 2DDrawing</p> 
Methodology	Demonstration, Discussions and Practice on Power Shape
Who Should Attend	<p>English, Computer & Mechanical Drawing Literate</p> <p>Knowledge of how to use PowerSHAPE is necessary</p> <p>T.T.C. / Vocational Certificate Holders / Diploma Holders / those working in Plastic Industry</p>

Course Outline For Conventional Machining Basic Course

Objectives	<p>At the end of this course, the participants will be able</p> <ul style="list-style-type: none"> • To operate lathe, milling and grinding machines independently. • To do various types machining operations. • To select the appropriate tools and cutting parameters according to job.
Course Contents	<ol style="list-style-type: none"> 1- Introduction to lathe, milling & grinding machines. 2- Safety precautions. 3- Measuring techniques and usage of measuring tools. 4- Structure of lathe, milling & grinding Machine. <ul style="list-style-type: none"> • Types of machines. • Main parts. • Maintenance & safety control. • Types of accessories & attachments. • Types of chucks & Tables. • Indexing head. 5- Operation <ul style="list-style-type: none"> • Types of operations. • Demonstration on various operations. 6- Tools <ul style="list-style-type: none"> • Types of tools. • Rack angle & clearance on tools. • How to grind tools. • Selection of appropriate feed, speed and depth of cut. 7- Practical Exercises` <ul style="list-style-type: none"> • Job setting and alignment. • Simple machining • Tool grinding. • On job measurement. • Changing of chuck. • Machining of round and square jobs. • Multi sided machining. • Taper Machining. • Boring. • Knurling. • Threading. • Slotting. • Job lay out. • Drilling and counter boring. • Reaming. • Tapping. • Step milling. • Wheel balancing. • Wheel dressing. • Square and angular grinding.
Methodology	Lectures, Exercises, Demonstrations and on the Job Practices.
Who Should Attend	Diploma holders, T.T.C, Vocational Certificate holder, Matriculations, those who are working in industry and having aptitude in machines.

Course Outline For Conventional Machining Advance Course

Objectives	At the end of this course, the participants will be able to operate lathe, milling & grinding machines more efficiently.
Course Contents	<ul style="list-style-type: none">7- Introduction to lathe, milling & grinding machines8- Safety precautions9- Measuring tool & their usage10- Structure of lathe, milling & grindings11- Operation<ul style="list-style-type: none">• Types of operations• Demonstration on various operations & exercise• Various types of Threading.• Use of taper attachment, Grinding attachment, Slotter attachment.• Use of indexing head and rotary table.• Knurling, boring, grooving12- Tools<ul style="list-style-type: none">• Types of tools• Rack angle & clearance on tools• How to grind tools7- Practical Exercises<ul style="list-style-type: none">• Advance machining• Size controlling• Tool grinding observation• On job measurement & Rectification.
Methodology	Lectures and Practical Demonstrations
Who Should Attend	Those who completed Conventional Machining Basic Course Diploma holders, T.T.C, Vocational Certificate holder, Matriculations, those who are working in industry and having aptitude in machining

Course Outline For CNC Machining Center Course

Objectives	<ul style="list-style-type: none"> • Ability to create NC Programs using G-codes, M-codes & auxiliary functions. • Selection of appropriate Machining strategy. • Operate CNC machining center successfully.
Course Contents	<p>1- Introduction to CNC machine tools</p> <p>2- Familiarization of CNC Machining Center</p> <ul style="list-style-type: none"> • Parts of CNC Machining Center • Pre-operation check/Start-up and shut down of machine <p>3- Techniques of CNC Programming</p> <ul style="list-style-type: none"> • Types of Programming • Absolute & incremental dimensioning Exercises • Coordinate systems • Addresses used in Programming • Structure of a Program <p>4- Create CNC Programs using G-codes, M-codes & auxiliary functions.</p> <ul style="list-style-type: none"> • Exercises of programming <p>7- Encoding the created programs</p> <p>5- Tool compensation techniques.</p> <ul style="list-style-type: none"> • Exercises of programming <p>6- Canned cycles</p> <ul style="list-style-type: none"> • Exercises of programming <p>7- Effective use of Subprograms.</p> <ul style="list-style-type: none"> • Exercises of programming <p>8- Direct numerical control</p> <ul style="list-style-type: none"> • Flow chart of DNC system • Data management <p>9- Selecting cutting tools</p> <ul style="list-style-type: none"> • Kind of milling cutters • Cutting tool materials • Calculation of the cutting condition <p>10- Effective use of Simulation software</p> <p>11- Practical on machine</p> <ul style="list-style-type: none"> • Setting-up of Machine • Setting-up the work piece • Setting-up the cutting tools <p>12- Executing the Program</p> <p>13- Job inspection & Rectification</p> <p>14- Advance techniques of Machining</p>
Methodology	Lectures, Discussions and Practical Demonstrations & Exercises.
Who Should Attend	<p>Matriculates having Certificate from TTC / Vocational Training Institute with at least 01 year working Experience on CNC Machining Center.</p> <p>3 Years Diploma Holders, having at least 06 months working Experience on CNC Machining Center.</p> <p>Engineers (B.E / B. Sc), having at least 03 months working Experience on CNC Machining Center.</p>

Course Outline For CNC EDM Wire Cut & EDM Sinker	
Objectives	<ul style="list-style-type: none"> • To do manual Programming for EDM Sinker. • To Practice manual Programming of EDM Wire Cut. • To study and selection of Machining Conditions. • To learn about Time control, maintaining of Accuracy and Surface Quality of Job on EDM Machines. • Practical Operation of EDM Sinker and Wire Cut Machine.
Course Contents	<p>Introduction to Electric Discharge Machines Theory of EDM, Kinds of Electrical Discharge Principle of EDM, scharge Circuits</p> <p>I- CNC EDM WIRE CUT</p> <p>1- Familiarization with CNC Wire Cut Safety Precautions. Structure of Machine., Start up and shut down Procedure., Briefing on function and keys., Practice on Machine., NC programming , Absolute and Incremental Dimensioning, Coordinate System, Addresses used in Programming, Structure of Program, Programming Codes, Create NC programs using G-Codes & M-Codes , Exercise(s), Practical(s)</p> <p>2- Techniques of NC Programming Types of Programming, Exercise(s), Program for Taper Machining, Exercise(s), Practical(s)</p> <p>3- Selection of Machining Conditions Offsetting , Exercise(s)</p> <p>4- Editing and testing the program. Practical(s)</p> <p>5- Setting-up the machine and work piece. Method of positioning, Wire Vertical Alignment</p> <p>6- Executing the program.</p> <p>7- Measurement & Rectification of the Job</p> <p>II- CNC EDM SINKER</p> <p>1- Familiarization with EDM Sinker Safety Precautions, Structure of Machine, Start up and shut down Procedure, Briefing on function and keys, Practical(s)</p> <p>2- Selection of machining conditions Model data, Machining Rate, Surface Roughness, Machining Pattern, Machining processes, Jump, Electrode Reduction, Time control, 3- NC program for EDM Sinker, G-Codes , Model Plan, Exercise(s)</p> <p>4- Setting-up the Electrode Practical(s)</p> <p>5- Setting up the Job Method of Positioning, Setting of Work coordinate, Practical(s)</p> <p>6- Executing the Program. Practical(s)</p> <p>7- Measurement & rectification of job</p>
Methodology	Lectures, Exercises, Demonstrations and on the Job Practices.
Who Should Attend	<p>Matriculates having Certificate from TTC / Vocational Training Institute with at least 01 year working Experience on CNC EDM Machines.</p> <p>3 Years Diploma Holders, having at least 06 months working Experience on CNC EDM Machines.</p> <p>Engineers (B.E / B. Sc), having at least 03 months working Experience on CNC EDM Machines.</p>

Course Outline For Mold Polishing & Finishing Course

Objectives	<ul style="list-style-type: none">▪ To understand the basic procedure of polishing and finishing of molds.▪ To understand the polishing and finishing of Core and Cavity of the molds.▪ To understand the polishing of cavity wall with the corner and with radius R.▪ To understand the polishing and finishing of Ribs of molds.▪ To understand the finishing of Emboss surface.▪ To understand the finishing for Electrodes.▪ To understand the finishing of hole, sprue, runner.
Course Contents	<p>Kinds of Polishing Tools and their use</p> <p>Polishing Techniques of different features of mold</p> <p>Polishing Techniques of different machined surface</p>
Methodology	Lectures, Discussions and Practical
Who Should Attend	T.T.C. / Vocational Certificate Holders / Engineers / Beginners/ those working in Plastic Industry / have experience of Mold Assembly and want to learn theory of Mold Polishing

Course Outline For Injection Molding Beginner's Course

Objectives	<p>After attending the Course, the participant will be able;</p> <ul style="list-style-type: none"> ▪ To understand & identify the Plastics for their applications. ▪ Install the mold on Injection Molding Machine ▪ To learn the operation of Injection Molding Machines ▪ To practice Injection molding conditions ▪ To identify the molding defects appearing on Plastic Products ▪ To gain the knowledge of 2-Plate/3-Plate Mold structure and type of Gates
Course Contents	<ol style="list-style-type: none"> 1) What is Injection Molding? 2) Plastics <ul style="list-style-type: none"> ▪ Basic difference b/w Thermoplastic resin and Thermosetting Resin ▪ Injection molding process ▪ Thermoplastic resin and Thermosetting Resin ▪ Crystalline Resins and Amorphous Resins ▪ Crystalline Resins and Amorphous Resins ▪ Features and Applications of Resins 3) Types and Features of Injection Molding Machine <ul style="list-style-type: none"> ▪ Types and Features of Mold Clamping Units ▪ Types and Features of Injection Units 4) Principle of Generation of Injection pressure 5) Fundamental Operation of Injection Molding Machine 6) Estimation of Mold Weight 7) Different type of Mold (i.e. 2-Plate & 3-Plate Molds) <ul style="list-style-type: none"> ▪ Different types of Gates 8) Drying of Resin & Drying Systems <ul style="list-style-type: none"> ▪ Hot –air Circulation Type Hopper drier ▪ Dehumidifier type Hopper drier ▪ Drying system operating method 9) Mold Temperature Controller <ul style="list-style-type: none"> ▪ Purpose of Mold Temperature Controller ▪ Different types of Mold Temperature Controller ▪ Mold Temperature Controller Operating Method ▪ Mold Temperature Pipe Fittings and Seal Tape 10) Various Patterns (Defect Signs) Appearing on the Moldings 11) Characteristics of Thermoplastic Resin and General Molding Conditions 12) How to Calculate Mold Clamping Force B) Injection Molding (Machine Operation) <ul style="list-style-type: none"> ▪ Machines Types: (i) SH-160 SUMITOMO Japan, (ii) SH- 350 SUMITOMO Japan ▪ Identification of Molding Machine Components ▪ Setting of operational panel Identification ▪ Identification of screen setting keys ▪ Checking before operation starting ▪ Preparing the Mold Installation ▪ Installing the Mold ▪ Molding conditions setup ▪ Setting of Mold opening/closing and Ejection program ▪ Setting of Purging Program ▪ Setting of Plasticizing, Injection & Hold Pressure program
Methodology	<ul style="list-style-type: none"> ▪ Lectures, Discussions, Machine Operation
Who Should Attend	<ul style="list-style-type: none"> ▪ Matriculates having Certificate from TTC / Vocational Training Institute ▪ Fresh Diploma Holders or Students having aptitude in Injection Molding Industry ▪ Fresh Engineers or Students having aptitude in Injection Molding Industry ▪ Intermediate or Bachelor degree holders, who want to make their career in Injection Molding Industry

Course Outline For Injection Molding Basic

Objectives	<p>After attending the Course, the participant will be able;</p> <ul style="list-style-type: none"> ▪ To understand & identify the Plastics & their properties ▪ To understand & apply the most suitable molding conditions ▪ To comprehend the causes of defects and troubleshooting ▪ To take the appropriate countermeasures to eliminate the molding defects. ▪ To determine the drying system's capacity and recognize the importance of drying of resin. ▪ To get the knowledge of important points of mold design ▪ To increase the life of molds by proper Mold maintenance ▪ To acquire the knowledge and application molding machines and peripheral devices. ▪ To get in-depth knowledge of molding work theoretically, instead of knowing only from experience.
Course Contents	<ol style="list-style-type: none"> 1. Introduction to Plastics? <ul style="list-style-type: none"> ▪ Features of Plastics ▪ Classification of Resins ▪ Thermoplastic resin and thermosetting Resin ▪ Classification of Thermoplastic resin ▪ Crystalline Resins and Amorphous Resins ▪ Liquid Crystal Polymers ▪ Polymer Alloy ▪ Additives ▪ Shrinkage in thermoplastic Resins ▪ Mold Temperature & Molding Shrinkage ▪ Resin Temperature features & viscosity of melt ▪ Heat distortion temp., Glass transition & melting point ▪ Orientation of resin ▪ PvT Graph 2. Outline of Plasticizing Unit: <ul style="list-style-type: none"> ▪ Injection Plasticizing Unit ▪ Functions of Each Section of Screw ▪ Screw Head ▪ Heating Cylinder & Water Jacket ▪ Plasticizing Mechanism ▪ Screw Assemblies ▪ Flow of Injection Molding 3. Drying and Handling of Resin: <ul style="list-style-type: none"> ▪ Insufficient drying of Resin ▪ Selection of Drying System ▪ How to Determine Drying System's Capacity ▪ Special Matters Needing Careful Attention 4. Mold Temperature Control: <ul style="list-style-type: none"> ▪ Function of Mold Temperature Controller ▪ Cooling of Products ▪ Performance required for Mold Temperature Controller ▪ Selection of Mold Temperature Controller ▪ Heat Insulating Plate 5. Mold Clamping Force: 6. Purging: <ul style="list-style-type: none"> ▪ Make Change of Resin Color Efficiently ▪ Use the Viscosity Difference for Resin Purging 7. Plasticizing Program: <ul style="list-style-type: none"> ▪ Setting of Heating Cylinder Temperature ▪ A Standard of Setting of Plasticizing Program ▪ Main Points of Checking for Plasticizing Actual Values ▪ Results of improper Plasticizing program 8. Filling Program: <ul style="list-style-type: none"> ▪ Necessity of Velocity Control ▪ Maximum filling Pressure ▪ Minimum Cushion Position

	<ul style="list-style-type: none"> ▪ Concept of Injection Program ▪ Basic Pattern of Filling Program ▪ Short-shot Method ▪ Important Actual Values in Filling Process <p>9. Changeover to Hold Pressure:</p> <p>10. Hold-Pressure Program:</p> <p>11. Hint on Molding Test:</p> <p>12. Defects and Causes:</p> <ul style="list-style-type: none"> ▪ Defects Troubleshooting <p>13. Continuous Molding:</p> <p>14. Logging of Molding Conditions:</p> <p>15. Basic Structure of Mold:</p> <ul style="list-style-type: none"> ▪ Requirements for Mold ▪ Mold Components & Basic Structure ▪ Material & Heat Treatment of Mold Components <p>16. The Point of Mold Design:</p> <p>17. Hints on Mounting of Mold:</p> <ul style="list-style-type: none"> ▪ Matters Affecting the Accuracy of a Mold ▪ How to keep Accuracy <p>18. Weak Points of Mold:</p> <p>19. Maintenance of Mold:</p> <ul style="list-style-type: none"> ▪ Life of Mold ▪ Method of Maintenance ▪ Mold Disassembling Procedure ▪ Polishing the Mold ▪ Maintenance of Cooling System ▪ Attention to Gate Stop Position <p>20. Hints on Storage of Molds:</p> <p>21. Characteristics of Thermoplastic Resin & General Molding Conditions</p> <p>22. Characteristics of Special Engineering Plastics & General Molding Conditions:</p> <p>23. Characteristics of Thermosetting Resins & General Molding Conditions:</p> <p>24..How to Calculate Mold Clamping Force:</p> <p>25.Types & Features of Mold Clamping:</p> <p>26.Comparison between Toggle Type & Direct hydraulic Type:</p> <ul style="list-style-type: none"> ▪ Mold Opening / Closing Stroke Range ▪ Mold Space Adjustment ▪ Mold Opening / Closing Speed ▪ Mold Opening / Closing Stop Position <p>27. Selection of an Injection Molding Machine:</p> <p>28.Common Terms for Quality Control:</p> <p>29.Conversion Table of Units:</p> <p>30.Abbreviation for common polymer:</p> <p>31.Plastics Identification Attributes:</p>
Methodology	<ul style="list-style-type: none"> ▪ Lectures, Discussions, Machine Operation
Who Should Attend	<ul style="list-style-type: none"> ▪ Individuals having successfully completed the Injection Molding Beginner's Course ▪ Matriculates having Certificate from TTC / Vocational Training Institute with at least 01 year working Experience in Injection Molding Industry. ▪ 3 Years Diploma Holders, having at least 06 months working Experience in Injection Molding Industry. ▪ Engineers (B.E / B. Sc), having at least 03 months working Experience in Injection Molding Industry.

Annex 21 Annual Plan Training Courses

Annex35-1

Evening Courses
Daytime Courses
Ramazan
Eid

Jan. 28, 2006
Rev-01






T. Hirao

Fiscal Year 2004

Month		7		8				9		10				11		12		1				2				3				4				5				6				Total							
	Monday																3	10	17	24	31	7	14	21	28	7	14	21	28	7	14	21	28	4	11	18	25	2	9	16	23	30	6	13	20	27			
	Friday																7	14	21	28	4	11	18	25	4	11	18	25	1	8	15	22	29	6	13	20	27	3	10	17	24	31							
	Holiday																																				Eva												
01	2D3D Auto CAD																																														0		
02	Mold Design, Beginners																																														0		
03	Mold Design, Basic																001	11																													11		
04	Mold Design, Advance																																		003	12											12		
05	3D CAD																002	8																	004	8					005	9						25	
06	3D CAM																																														0		
07	3D Mold Maker																																														0		
08	3D Modeling																																														0		
09	3D CAD/CAM Advance																																														0		
10	CNC Machining Center																																														0		
11	EDM Sinker/ Wire-cut																																														0		
12	Conventional Machining, Basic																																														0		
13	Conventional Machining, Advance																																														0		
14	Mold Polishing & Finishing																																												006	4			4
15	Injection Molding, Basic																																																0
16	Injection Molding, Advance																																															0	
																																																	52

Timings	
Mon - Fri	1600 hrs - 1900 hrs
Mon - Thu	0900 hrs - 1200 hrs / 0900 hrs - 1600 hrs
Fri	0900 hrs - 1200 hrs
Mon - Thu	0800 hrs - 1600 hrs
Fri	0800 hrs - 1200 hrs

T. Hirao/M.Arslan

	Evening Courses
	Daytime Courses
	Ramazan
	Eid
	Intensive course

Mon - Fri 1600 hrs - 1900 hrs
Mon - Thu 0900 hrs - 1200 hrs / 0900 hrs - 1600 hrs
Fri 0900 hrs - 1200 hrs

Mon - Thu 0800 hrs - 1600 hrs
Fri 0800 hrs - 1200 hrs

Rev-22

T. Hirao / M.Arslan

Fiscal Year 2006 - 2007

[illegible]

Progress & Record of Seminars

April 24,06
Ayesha Raza

No	Title	Lecturer	Date	Executive Seminar	Venue	No. of Participants
1	OSH	Mr. MIURA Daizo	26-Aug-04	PITAC Staff	PITAC Conference Hall	106
2	OSH	Mr. MIURA Daizo	27-Aug-04	PITAC Management	PITAC Conference Hall	12
3	OSH	Mr. MIURA Daizo	30-Aug-04	Open Seminar	PITAC Conference Hall	49
4	OSH	Mr. MIURA Daizo	31-Aug-04	PITAC Staff	PITAC Conference Hall	57
5	OSH	Mr. MIURA Daizo	1-Sep-04	PITAC Management	PITAC Conference Hall	9
6	OSH	Mr. MIURA Daizo	1-Sep-04	Special Seminar	PEL Ltd, Lahore	28
7	OSH	Mr. MIURA Daizo	2-Sep-04	Open Seminar	PITAC Conference Hall	51
8	Latest Technology	Mr. FUKUSHIMA Yuichi	28-Sep-04	Open Seminar	PTC, Karachi	102
9	Latest Technology	Mr. FUKUSHIMA Yuichi	29-Sep-04	Open Seminar	PTC, Lahore	62
10	Latest Technology	Mr. FUKUSHIMA Yuichi	20-Sep-04	Open Seminar	PTC, Lahore	100
11	OSH	Mr. MIURA Daizo	24-Aug-05	Members PAAPAM	PAAPAM HQ, Lahore	14
12	OSH	Mr. MIURA Daizo	26-Aug-05	PITAC Staff	PITAC Conference Hall	74
13	OSH	Mr. MIURA Daizo	27-Aug-05	Members GCCI	GCCI, Gujranwala	51
14	OSH	Mr. MIURA Daizo	30-Aug-05	Open Seminar	PTC, Karachi	84
15	Total Quality Control	Mr. SATO Kazuchika	1-Sep-05	Open Seminar	Avani, Lahore	131
16	Total Quality Control	Mr. SATO Kazuchika	19-Sep-05 to 22-Sep-05	Trainers Training	PITAC Conference Hall	16
17	Total Quality Control	Mr. SATO Kazuchika	23-Sep-05	PITAC Staff	PITAC Conference Hall	62
18	Total Quality Control	Mr. SATO Kazuchika	26-Sep-05	Open Seminar	Holiday Inn, Lahore	317
19	Total Quality Control	Mr. SATO Kazuchika	28-Sep-05	Open Seminar	PTC, Karachi	82
20	Industrial Summit	Mr. Arslan Anwer	28-Feb-06	Open Seminar	PITAC Conference Hall	18
21	3D Modeling	Mr. Shoaib Rashid/ Mr. Raees Ahmed	27-Mar-06	Open Seminar	PITAC Conference Hall	29
Total No. of Participants=						1,454

Sr No.	Date	Description	Section	Company	Result	Tentative Target Date (Completion / Estimation)	Time Estimated (Hours)	Time Spent (Hours)	Status	Date Of Completion	Remakrs
0001	13-Oct-05	Cap for mineral water bottle.		Elegant Industries	Rough sketch of the mold is being prepared. Quotation shall be sent to the client in December.				Declined		
0002	11-Nov-05	Mold for Nozzle:for Aluminium Tube Job No. 29587 – Detail No. 11	Processing	PITAC M/C Shop	EDM Sinking [100 Hours]			100	Completed	31-Jan-06	
0003	11-Nov-05	Mold for Nozzle for Aluminium Cap: Job No. 29588 – Detail No. 14	Processing	PITAC M/C Shop	EDM Sinking [100 Hours]			100	Completed	30-Nov-05	
0004	24-Oct-05	Mold Insert for gear pinion Job No. 30689	Processing	PITAC M/C Shop	EDM Sinking [70 Hours]			70	Completed	15-Nov-05	
0005	12-Oct-05	Mold for Sharpner : Job No. 27974	Processing	PITAC M/C Shop	i- EDM Sinking [20 Hours] ii- Mold Try-out			i- 20	I- Completed ii- Rejected because of mismatching of mold specification with injection molding machine	15-Nov-05	
0006	16-Nov-05	Mold for Shampoo Bottle Container Job No. 30151	CAD/CAM / Processing	PITAC M/C Shop	i- 3D Modeling has been completed ii- Machining has been completed			i- 21 ii- 30	I- Completed ii- Completed	28-Jul-06	
0007	20-Oct-05	Runner plate for Mold for motorcycle battery body Job No. 30372	Processing	PITAC M/C Shop	EDM Sinking [30 Hours]			30	Completed	10-Nov-05	
BK0008	17-Feb-06	Design, & manufacturing of baby teether mold	All Sections	Shield International	Qoutation for designing & manufacturing have been sent to client on Friday, April 20, 2006				Rejected		
BK0009	10-Apr-06	8 Cavity Automatic Mold for Bottle Cap	All Sections	Bashir Ahmad	Man Hour estimation has been completed, quotation has been sent on June 12, 2006.						
BK0010	10-Apr-06	Hanger (Frame) 2 Cavity Automatic Machine Injeciton Mold	All Sections	Aman-ul-Haq, Lahore	Man Hour estimation has been completed, quotation has been sent on June 12, 2006.						
BK0011	10-Apr-06	Hanger (Clamp) 8 Cavity Automatic Machine Injection Mold	All Sections	Aman-ul-Haq, Lahore	Man Hour estimation has been completed, quotation has been sent on June 12, 2006.						
BK0012	10-Apr-06	Hanger (U shaped part) 8 Cavity Automatic Machine Injection Mold	All Sections	Aman-ul-Haq, Lahore	Man Hour estimation has been completed, quotation has been sent on June 12, 2006.						
BK0013	10-Apr-06	Injection Mold for Medical Injection Butterfly	All Sections	Muhamad Afzal	Man Hour estimation has been completed, quotation has been sent on June 12, 2006.						
BK0014	3-May-06	Injection Mold for school bag plastic clamp	All Sections	Dynamic Company	Man Hour estimation has been completed, quotation has been sent on June 27, 2006.						
BK0015	31-Mar-06	Wire cutting of punch	Processing	HNR	Job ompleted & handed over to client on Jun 14, 2006.			6	Completed	14-Jun-06	
BK0016	1-Jun-06	Wire cutting of die 372 mm	Processing	Majeed Sons	Job rceived on 01-06-2006 & completed & handed over to client on 21-06-06			8	Completed	21-Jun-06	
BK0017	13-Jun-06	Injection mold for food container box with lid: i. Small Size ii. Medium Size iii. Large Size	All Sections	Hamza Techno Molding Concern	Man Hour estimation has been completed, quotation has been sent on June 27, 2006.						
BK0018	16-Jun-06	Injection mold for zip slider: i- 8 cavity ii-16 cavity	All Sections	Mehmood Ilyas	Man Hour estimation has been completed, quotation has been sent on June 27, 2006.						
BK0019	16-Jun-06	Injection mold for motorcycle seat bracket	All Sections	Advance Tech	Man Hour estimation has been completed, quotation has been sent on June 27, 2006.						
BK0020	26-Jun-06	Machining of electrode for Harris Silicons for Nozzle of glue gun	Design / CAD/CAM / Processing	Harris Silicons	i- Modeling work has been completed. ii- Machining is in process.		i- 16 ii- 04		i- Completed ii- Completed	18-Aug-06	

Sr No.	Date	Description	Section	Company	Result	Tentative Target Date (Completion / Estimation)	Time Estimated (Hours)	Time Spent (Hours)	Status	Date Of Completion	Remakrs
BK0021	27-Jun-06	Injection mold for simple hanger mold: i-Single Cavity ii-Double Cavity	All Sections	M. Ghulam Qadir	Man Hour estimation has been completed, quotation has been sent on June 29, 2006.						
BK0022	29-Jun-06	Injection mold for plastic filter	All Sections	Seeteq	Rejected because of more taper angle or product than the existing fascilites can machine				Rejected		
BK0023	19-Jul-06	Plastic injection mold for medical device upper case	All Sections	I.T.S	Man hr estimation has been completed Quotation shall be finalized after meeting with the client.						
BK0024	19-Jul-06	Plastic injection mold for medical device lower case	All Sections	I.T.S	Man hr estimation has been completed Quotation shall be finalized after meeting with the client.						
BK0025	19-Jul-06	Plastic injection mold for medical device battery cover	All Sections	I.T.S	Man hr estimation has been completed Quotation shall be finalized after meeting with the client.						
BK0026	19-Jul-06	Machining of plate	Processing	Quality Dies & Molds	Job has been handed over to processing section. [7.5 hours]		6	7.5	Completed	20-Jul-06	
BK0027	27-Jul-06	Injection Mold For Wiper Main Body (Large)	All Sections	City Textiles (Pvt) Ltd	Man hr estimation has been completed Quotation has been sent to the client on Friday, August 10, 2006						
BK0028	27-Jul-06	Injection Mold For Wiper Rotating Arm (Large)	All Sections	City Textiles (Pvt) Ltd	Man hr estimation has been completed Quotation has been sent to the client on Friday, August 10, 2006						
BK0029	27-Jul-06	Injection Mold For Wiper Rotating Cap (Large)	All Sections	City Textiles (Pvt) Ltd	Man hr estimation has been completed Quotation has been sent to the client on Friday, August 10, 2006						
BK0030	27-Jul-06	Injection Mold For Wiper C Clamp, Latch & Sliding Clamp (Large)	All Sections	City Textiles (Pvt) Ltd	Man hr estimation has been completed Quotation has been sent to the client on Friday, August 10, 2006						
BK0031	27-Jul-06	Injection Mold For Wiper Main Body (Small)	All Sections	City Textiles (Pvt) Ltd	Man hr estimation has been completed Quotation has been sent to the client on Friday, August 10, 2006						
BK0032	27-Jul-06	Injection Mold For Wiper Rotating Arm (Small)	All Sections	City Textiles (Pvt) Ltd	Man hr estimation has been completed Quotation has been sent to the client on Friday, August 10, 2006						
BK0033	27-Jul-06	Injection Mold For Wiper Rotating Cap (Small)	All Sections	City Textiles (Pvt) Ltd	Man hr estimation has been completed Quotation has been sent to the client on Friday, August 10, 2006						
BK0034	27-Jul-06	Injection Mold For Mob Holder	All Sections	City Textiles (Pvt) Ltd	Man hr estimation has been completed Quotation has been sent to the client on Friday, August 10, 2006						
BK0035	31-Jul-06	Try out for Motorcycle Battery Cover Mold	Injection Molding	PITAC M/C Shop	The mold was mounted, not tried out because of machine shop rectification			3	under process		

Annex 26 Advisory Service Database

28-Jun-06

M.Arslan

Sr No.	Date	Description	Section	Company	Results	Remakrs
0001	16-Jun-05	Layer color problem.	CAD/CAM	Volta Dies & Molds	Step by Step elaborated Solution was sent to the client	
0002	16-Jun-05	Model & cutter path rotation.	CAD/CAM	Volta Dies & Molds	Step by Step elaborated Solution was sent to the client	
0003	16-Jun-05	Core & cavity separation.	CAD/CAM	Volta Dies & Molds	Step by Step elaborated Solution was sent to the client	
0004	16-Jun-05	Electrode generation	CAD/CAM	Volta Dies & Molds	Step by Step elaborated Solution was sent to the client	
0005	16-Jun-05	Inclined slide core formation.	CAD/CAM	Volta Dies & Molds	Step by Step elaborated Solution was sent to the client	
0006	16-Jun-05	Selection of pneumatic cylinder for slide core	DESIGN	Volta Dies & Molds	Elaborated Solution was sent to the client	
0007	16-Jun-05	Design for inside slide core for distance up to 20mm.	DESIGN	Volta Dies & Molds	Elaborated Solution was sent to the client	
0008	16-Jun-05	Timings of the training course should be in the evening	SME	Volta Dies & Molds	Training courses are offered in evening according ti the feasibility	
0009	16-Jun-05	It was also requested that project should offer basic elementary courses for the technicians. Especially practical courses like drilling, machining on lathe, milling, etc.	SME	Volta Dies & Molds	Project cannot provide basic elementary courses for the technicians, however our instructors tried to simplify the courses as much as possible.	
0010	16-Jun-05	Training courses should be offered bi-lingual, specially in the case of practical training like mold processing, etc.	SME	Volta Dies & Molds	Project is currently providing training courses in English only. However, we getting translated some of our courses in Urdu & shall be offered in April tentatively.	
0011	16-Jun-05	Digitizing facility requested by the client.	SME	Volta Dies & Molds	Project has CMM machine available but do not have the digitizing fascility. Till date JICA has not provided digitizing fascility to the PROJECT as to protect the copyrights of the original developer. We discourage the pirated copies of the products.	

Annex 26 Advisory Service Database

28-Jun-06

M.Arslan

Sr No.	Date	Description	Section	Company	Results	Remakrs
0012	11-Aug-05	Layer Color adjustment problem.	CAD/CAM	Volta Dies & Molds	Mr. Abbas Incharge Design/CAD-CAM Section from Volta Dies & Molds had a meeting with Project CAD/CAM & Design Section heads on 24-08-05 at 0900 hrs. Problems were solved in the meeting	
0013	11-Aug-05	Component and cutter path rotation needs more details.	CAD/CAM	Volta Dies & Molds	Mr. Abbas Incharge Design/CAD-CAM Section from Volta Dies & Molds had a meeting with Project CAD/CAM & Design Section heads on 24-08-05 at 0900 hrs. Problems were solved in the meeting	
0014	11-Aug-05	Core & cavity separation still more clarification is required.	CAD/CAM	Volta Dies & Molds	Mr. Abbas Incharge Design/CAD-CAM Section from Volta Dies & Molds had a meeting with Project CAD/CAM & Design Section heads on 24-08-05 at 0900 hrs. Problems were solved in the meeting	
0015	11-Aug-05	Proper selection of gear mechanism in internal and external threads on plastic products.	DESIGN	Volta Dies & Molds	Mr. Abbas Incharge Design/CAD-CAM Section from Volta Dies & Molds had a meeting with Project CAD/CAM & Design Section heads on 24-08-05 at 0900 hrs. Problems were solved in the meeting	
0016	11-Aug-05	Request for some book or printed material on gear mechanism of internal and external threads in molds.	DESIGN	Volta Dies & Molds	Some references were given to Mr. Abbas Incharge Design/CAD-CAM Section from Volta Dies & Molds had a meeting with Project CAD/CAM & Design Section heads on 24-08-05 at 0900 hrs. Problems were solved in the meeting	
0017	11-Aug-05	In Mold Design Advance course, no example of gear mechanism is included. Some examples should be included.	DESIGN	Volta Dies & Molds	The requested material has been included in revised Mold Design Training courses.	
0018	2-Sep-05	Our company is planning to install CNC mold manufacturing unit for pre-form molds (hot runner) caps and closures mold PET bottle molds. We require complete assistance in project development I.e. what machines and softwares are required.	Processing / SME	BTS Plastics	As the customer is involved in Blow molding, so project can only recommend for pre-form manufacturing according to the requirements/samples provided by the client if required.	

Annex 26 Advisory Service Database

28-Jun-06

M.Arslan

Sr No.	Date	Description	Section	Company	Results	Remakrs
0019	7-Oct-05	We require some technical auto extraction regarding aluminium wheel mold in DELCAM.	CAD/CAM	Pak Precise Engineering (Pvt.) Ltd	They required technical advice regarding the core/cavity seperation of Aluminium alloy car rim. Problem has been fixed and solution has been given to the client (by doing practical example on DELCAM).	
0020	1-Nov-05	The examples provided in the tutorial of the training course is of 2 cavities mold, but when we make one cavity mold, then it does not change sizes of cavity.	CAD/CAM	Trainee / Hond Atlas	Cavity size cannot be changed after cutting mold base. We have to make the cavity size in another file.	
0021	5-Dec-05	Pre-machine block generation in power mill	CAD/CAM	Volta Dies & Molds	Step by Step elaborated Solution was sent to the client	
0022	5-Dec-05	Exploded view of 3D-Mold in power shape	CAD/CAM	Volta Dies & Molds	Step by Step elaborated Solution was sent to the client	
0023	5-Dec-05	Secondary Sprue specifications are required for the double cavity mold.	DESIGN	Volta Dies & Molds	Step by Step elaborated Solution was sent to the client	
AD0024	4-Jan-06	Cheking of drawing for car door switch housing 4-cavity mold	DESIGN	PECS	Reply with further queries for details sent to client on January 26, 2006	
AD0025	13-Mar-06	2D-Drawing of the component	CAD/CAM	Infinity Engineering	Solution has been provided on the same day of the inquiry to Mr. Abid Saleem of infinity engineering	
AD0026	13-Apr-06	How to define parting line of a component using DELCAM software. Please provide the relevant data.	CAD/CAM	Climax Engineering	Elaborated Solution was sent to the client on April 18, 2006.	
AD0027	15-May-06	Shrinkage of the part is not controlled & part gets deformed after injection.	INJECTION MOLDING	Techno Station	In process	
AD0028	19-May-06	Revolve cutting	CAD/CAM	Pak Precise Engineering (Pvt.) Ltd	Pak Precise is using PRO-E software. These commands in DELCAM software have already been explained to Mr. Usman Tariq from Pak Precise, but for PRO-E software, we have no expertise.	
AD0029		Blend cut or lofted cut				
AD0030		After modeling draft				
AD0031		Mold extraction with core seperation				

Annex 26 Advisory Service Database

28-Jun-06

M.Arslan

Sr No.	Date	Description	Section	Company	Results	Remakrs
AD0032		Model Programming in specific thickness like *.STL file				
AD0033	1-Jun-06	A component of steel (radius aram) having a problem o radius drawn	CAD/CAM	Infinity Engineering	Problem has been resolved in a meeting with representative of client on 08 Jun, 2006.	
AD0034	8-Jun-06	Core cavity speration using powershape.	CAD/CAM	Hilbro Instruments	The seperation techniques were elaborated to the representative of the client.	

History of the Project

Annex 27

Month/Year 2002	Events	JICA	PITAC C/Ps	Machines/Equipment
March 2002		Consultation team No. 1 led by Mr. TAKAMA Hidetoshi arrived and the dispatch of Project Coordinator was cancelled. (24)		
April 2002				
May 2002				
June 2002				
July 2002				
August 2002			<ul style="list-style-type: none"> • Mr. Hayder Ali, Mr. Shoaib Rashid, Mr. Tariq Baig went to the Philippines for training for five months.(8) • Mr. Muhammad Akram Khan, G/M and Mr. Sarfraz Ahmed, P/M went to Japan for 11 days. (19) 	
September 2002	<ul style="list-style-type: none"> • Project started with Mr. Muhammad Akram Khan, G/M and Mr. Sarfraz Ahmed, P/M. (15) 	<ul style="list-style-type: none"> • Mr. YOSHIMATSU Hiroaki, Mold Design Expert and Mr. SAWADA Koji, CAD/CAM Network Expert arrived. (15) 		
October 2002		<ul style="list-style-type: none"> • The experts started to visit Mold/Molding factories to introduce the project activities and visit markets in Lahore to survey technical environment. 		
November 2002		<ul style="list-style-type: none"> • CAD/CAM computers, software and cutting/standard tools were prepared. • Experts surveyed PITAC organization and introduce the Project Activities to PITAC staff. 		
December 2002		Mr. YOSHIMATSU and Mr. SAWADA delivered lectures for Mold Design and CAD/CAM to PITAC staff. (20)		

Month/Year 2003	Events	JICA	PITAC C/Ps	Machines/Equipment
January 2003		<ul style="list-style-type: none"> Mr. ISHIDA Kazuki, Project Coordinator, arrived and stationed for four months. (31) 	<ul style="list-style-type: none"> Mr. Hayder Ali, Mr. Shoaib Rashid & Mr. Tariq Baig came back from the training in the Philippines. (19) 	
February 2003		<ul style="list-style-type: none"> Mr. IDE Masaki, Mold Processing, Assembly & Trial Shot Expert arrived and stayed for two years. (11) 		
March 2003		<ul style="list-style-type: none"> The experts visited Plastics Technology Centre, Pak Swiss Training Institute, Omar Jibran, Pak-Suzuki Motor in Karachi. (18) 		
April 2003		<ul style="list-style-type: none"> Interviews for project secretaries conducted. (8) 		<ul style="list-style-type: none"> Six CAD/CAM computers arrived. (9)
May 2003		<ul style="list-style-type: none"> Ms. Sadaf Chaudhry & Ms. Shazia Anjum, Project Secretaries, joined. (1) Experts office had been changed from the PITAC administration building to the Project building. (5) Mr. SASAGO Minoru, Chief Advisor, arrived. (27) 		<ul style="list-style-type: none"> CNC Machining Center and EDM arrived from Japan. (15)
June 2003				
July 2003				<ul style="list-style-type: none"> CNC Machining Center was installed by Mr. KUSUNOKI Hideo, Makino Milling Machine Co. in eight days. (30)
August 2003	<ul style="list-style-type: none"> JCC Meeting No. 1 was presided over by Mr. Abdul Hafeez Chaudhry, Joint Secretary, MOIP. 	<ul style="list-style-type: none"> Consultation Team No. 2 led by Mr. TAKIZAWA Koichi arrived and dispatch of Project Coordinator was agreed. (18-27) 		<ul style="list-style-type: none"> CAD/CAM network was installed by Mr. ITO Akio in four days. (3) EDM was installed by Mr. EGUCHI Hiroaki, Makino Milling Machine Co. in two weeks. (5) Injection Molding Machines and CMM arrived. (15) Six CAD/CAM Computers arrived. (27)
September 2003			<ul style="list-style-type: none"> General Manager was changed from Mr. M. Akram Khan to Mr. Muhammad Aslam. (18) 	<ul style="list-style-type: none"> Four Target Molds arrived. (27)
October 2003				

November 2003				
December 2003			<ul style="list-style-type: none"> Project Manager was added to the member of JCC by the amendments to the Record of Discussions. (2) 	
Month/Year 2004	Events	JICA	PITAC C/Ps	Machines/Equipment
January 2004			<ul style="list-style-type: none"> Mr. Tariq Baig, Mr. M. Latif & Mr. Haseeb Malik left for Japan for training for 2.5 months. (18) 	
February 2004				
March 2004		Mr. HIRAO Tetsuya, Project Coordinator/SME Promoter arrived. (28)	<ul style="list-style-type: none"> Mr. Ejaz Rasul Chaudhry, G/M inaugurated. (6) 	
April 2004				<ul style="list-style-type: none"> Injection Machine was installed by Mr. NOGUCHI Tsutomu, Sumitomo Heavy Industry. (20) CMM was installed by Mr. ONISHI Takekazu, Mitutoyo in nine days.
May 2004	<ul style="list-style-type: none"> Task Force was organized to start the training courses in January 2005 and continued bi-weekly meeting. (29) 		<ul style="list-style-type: none"> Mr. Irfan Jarral, Mr. Anwar Baig, Mr. Raees Ahmed & Mr. Rashid Wasti left for Japan for training for 2.5 months. (31) 	
June 2004				
July 2004	<ul style="list-style-type: none"> Kick-off meeting for the first target mold, Multi Purpose Tray, was held. (1) 			
August 2004		<ul style="list-style-type: none"> Mr. MIURA Daizo, Occupational Safety & Health expert arrived and held seven seminars in Lahore, inviting 312 people. (22) 		
September 2004		<ul style="list-style-type: none"> Mr. FUKUSHIMA Yuichi, Expert for Latest Technology Seminar, arrived and held seminars in Lahore and Karachi, inviting 264 people from the plastic industry. (27) 		
October 2004	<ul style="list-style-type: none"> Mid-term evaluation team led by Mr. JURO Masayoshi, arrived. A new project component "Interactions of the Project with private companies are 			

	strengthened” was added. Joint project staff meetings (Weekly Meeting) were decided to be held. (4-15) • JCC No. 2 was presided over by Mr. Syed Zaheer Ali Shah, Additional Secretary, MOIP. (13)			
November 2004	• Task Force team visited Karachi for Training Needs Survey for 3 days.			
December 2004	• JCC sub-committee meeting No. 1 was held invited representative from PPMA and PAAPAM. (7) • Occupational Safety & Health committee was constituted and the first meeting was held. (9)	• Mr. HASHIMOTO Sadakatsu, Assembly & Trial Shot expert arrived at the Project.		• Two desktop & two laptop computers were purchased by PITAC.
Month/Year 2005	Events	JICA	PITAC C/Ps	Machines/Equipment
January 2005	• The first training courses for Mold Design Basic and CAD/CAM were held. (3) • Project Inaugural Ceremony was held with attendance of Mr. Jehangir Khan Tareen, Minister, MOIP and Mr. TANAKA Nobuaki, Ambassador, Embassy of Japan. (19)	• Mr. IDE Masaki, Mold Processing, Assembly & Trial Shot expert left the project. (10)		
February 2005				• Injection molding machine SH160C stopped due to electric surge. (23) • Two units of Lathe Machines were installed by PITAC. (28)
March 2005	• TUSDEC, Technical Up-gradation & Skill Development Company) was incepted. (2) • Kick-off meeting for the second target mold, Front Light Body, was held.	• Dr. SASAKI Tetsuo, Chairman, Supporting Committee & Mr. KATAOKA Tsuyoshi, Peker Seiko, arrived and stayed for two weeks for mold finishing and polishing. (20)		• Overhead crane was installed by PITAC. (17) • Rain leakage problems continued at the workshop building.
April 2005			• Mr. Ejaz Rasul Chaudhry, G/M resigned. (4) • Mr. Syed Anwar Ali Pervaiz, G/M inaugurated. (18)	• Two Milling Machines were installed by PITAC. (5) • CAD/CAM section moved to the first floor. (20)
May 2005		• Mr. SHIRAHIGE Masao, Machining Center Expert, arrived for the first time and stayed for four weeks for the	• PITAC labor union went strike against extension of work hours and police arrived. (5)	• 15 units of Automatic Voltage Regulators (AVR) were installed by PITAC. (30)

		<p>the second target mold, front light. (10)</p> <ul style="list-style-type: none"> • Mr. MORI Shinichi, SME consultation, arrived & worked six weeks to improve the management of the project and PITAC. (29) 	<ul style="list-style-type: none"> • 13 C/P visited Plastic Expo in Karachi. (12) • SME section started. (20) 	
June 2005	<ul style="list-style-type: none"> • The first training course was held in the evening according to the demand from private sector. (20) • The first visit to Model Factories was initiated for back-up and advisory services. (30) 	<ul style="list-style-type: none"> • Consultation team No. 3 led by Mr. SUGIHARA Takao, arrived. 		<ul style="list-style-type: none"> • Gantry crane (2 tons) was procured by PITAC. (13) • Shelf type dryer was installed by PITAC. (20)
July 2005	<ul style="list-style-type: none"> • JCC meeting No. 3 was presided over by Mr. Muhammad Suleman Ghani, Secretary, MOIP. "Installation of proper maintenance system", "Multiple operators on CNC machines" were discussed. (23) 			<ul style="list-style-type: none"> • PITAC site was flooded due to the heavy rain. (1) • Injection Molding Machine bitten by rats was repaired by the Sumitomo Engineer. (7) • The roof of the workshop was treated for leakage.
August 2005	<ul style="list-style-type: none"> • The Project website was made and uploaded. (24) • Needs survey for Plastic Mold Industry by Sidat Hayder was completed. (30) 	<ul style="list-style-type: none"> • Mr. MIURA Daizo, Occupational Safety & Health expert arrived hand held seminars in Lahore, Gujranwala and Karach, inviting 354 people in the industry. (22) • Mr. SHIRAHIGE Masao came to Lahore for the second time to make the target mold no. 3, mouse case. (28) 	<ul style="list-style-type: none"> • Mr. Nadeem Shahbaz, Mr. Qaisar Iqbal, Mr. Talib Hussain & Mr. M. Raza left for Japan for training for 2.1 months. (22) 	
September 2005		<ul style="list-style-type: none"> • Mr. WADA Katsuyoshi, Management Capacity Development Expert, arrived to improve the management of PITAC in four weeks. (4) • Mr. SATO Kazuchika, TQC expert, arrived and stayed for three weeks and held seminars in Lahore and Karachi, inviting 317 people in Lahore, 82 in Karachi. (12) • JICA Vice President Mr. UEDA Yoshihisa visited the Project. (22) 	<ul style="list-style-type: none"> • Mr. Shahzad Ayub, Mr. Naveed Aslam, Mr. Mazhar Ali, Mr. Nadeem Shahid & Mr. Safdar Yasin left for training in Japan for 2.5 months. (26) 	
October 2005	<ul style="list-style-type: none"> • TQC committee was constituted and the first meeting was held. (20) 		<ul style="list-style-type: none"> • Dr. Farid Ahmed Malik, G/M & P/D inaugurated. (24) 	

November 2005				<ul style="list-style-type: none"> Four CAD/CAM computers arrived and the seating capacity of CAD/CAM course was increased from 8 to 11. (23)
December 2005	<ul style="list-style-type: none"> SME section started to visit 70 factories in Lahore to collect the customers data and compile a customer directory. (1) The project produced 2,500 pieces of Trays for five days for the victims of earthquake occurred on October 8, 2005. (14) The fourth target mold, telephone case was kicked off. (22) 		<ul style="list-style-type: none"> Mr. Javaid Iqbal Shaikh became acting G/M & P/D taking over Dr. Farid Ahmed Malik. (20) 	<ul style="list-style-type: none"> A transformer was stolen from PITAC and suffered from power failure for 1.5 days. (26)
Month/Year 2006	Events	JICA	PITAC C/Ps	Machines/Equipment
January 2006	<ul style="list-style-type: none"> JCC meeting No. 4 was presided over by Mr. Syed Zaheer Ali Shah, Additional Secretary, MOIP. Mr. Almas Hayder, Chairman, TUSDEC attended. 	<ul style="list-style-type: none"> Mr. SHIRAHIGE Masao, Machining Center Operation and Management Expert, arrived third time for the target mold No. 3, Telephone case. (30) 	<ul style="list-style-type: none"> Mr. Safdar Yasin left for Karachi for mechanical maintenance training of injection molding machines for six weeks. (16) Mr. Shahid Ahmed and Mr. Fakhar-e-Sayyam left for Japan for training for two months. (18) 	
February 2006	<ul style="list-style-type: none"> Industrial summit was held to promote the project services to 20 executives. (28) 		<ul style="list-style-type: none"> Mr. Qaisar Iqbal left for Karachi for electrical maintenance training of the injection machines. (20) 	<ul style="list-style-type: none"> Mold Flow software was installed. (17) Machine Operations were suspended for political demonstration. (14-16)
March 2006	<ul style="list-style-type: none"> 3D Modeling seminar was held. (27) Kick-off meeting of the fifth target mold, multi-purpose stand was held. (30) 		<ul style="list-style-type: none"> Visit to 72 companies by SME C/P was completed (30). 	
April 2006	<ul style="list-style-type: none"> Mr. Ahsan Siddiqui, G/M, Plastics Technology Centre, visited the project to search for collaboration with PITAC. (13) 			<ul style="list-style-type: none"> Caster of Gantry crane was replaced and became usable. (19)
May 2006	<ul style="list-style-type: none"> The final evaluation team came. (22) JCC meeting No. 5 was held. (30) 			
June 2006		<ul style="list-style-type: none"> Mr. SHIRAHIGE Masao, Machining Center Operation and Management Expert, arrived fourth time for the target mold No. 5 and summary. (18) 		

July 2006		Mr. MORI Shinichi, Management Capacity Development Expert, arrived for the Project sustainability. (2)		
August 2006	<ul style="list-style-type: none"> The closing ceremony of the project was held. (9) 		<ul style="list-style-type: none"> Training course booklet was completed. Customer Directory was completed. 	
September 2006	<ul style="list-style-type: none"> The project is planned to be completed. (14) 	<ul style="list-style-type: none"> The experts planned to leave. (13) 		

JCC Meeting Record

No. 1 August 26, 2003	Participants
<ol style="list-style-type: none"> 1. Deployment of required Engineers, Diploma Holders, and Technicians. 2. Provision of funds for completing the remaining tasks of the Project. 3. Approval of the revised PC-I. 4. Expert's suggestions on Environment Control and Dust Protection. 5. Need of pre-plan power supply from the safety of sudden break downs. 6. Recommendation of JCC sub-committee. 	<p><MOIP> Mr. Abdul Hafeez Cahudhry, Joint Secretary, MOIP</p> <p><Private Sector> Mr. Nabeel Hashmi, Executive Director, Thermosole Mr. Azhar Ali, Vice Chairman, PAPAAM</p> <p><PITAC> Engr. Brig. (Retd.) Muhammad Akram Khan, Project Director Mr. Nauman Siddiqui, Sr. Manager Trg. & Mktg. Mr. Javaid Iqbal Shaikh, Sr. Manager O&W Mr. Muhammad Shakeel Chaudhry, Manager Mait. & Fdry. Mr. Sarfraz Ahmad, Project Manager</p> <p>Counterparts <JICA> Mr. TAKIZAWA Koichi, Deputy Director, Project Design Team Mr. Haroon-ur-Rashid, Program Officer, JICA Office Isl. Mr. SASAGO Minoru, Chief Advisor Mr. YOSHIMATSU Hiroaki, Expert of Mold Design Mr. IDE Masaki, Expert of Mold Processing Mr. SAWADA Koji, Expert of CAD/CAM</p>
No. 2 October 13, 2004	
<ol style="list-style-type: none"> 1. Inclusion of SME promotion in Project Design Matrix 2. Report of Mid-Term Evaluation 3. The current status of implementation and technology transfer process. 4. Commencement of Training courses in the areas of Mold Design and CAD/CAM in January 2005. 5. Recruitment of twenty additional staff (Engineers, Assistant Forman, and Technicians). 6. Activities of Task Force. 7. Request for the long-term expert in the field of Mold Processing. 	<p><MOIP> Mr. Syed Zaheer Ali Shah, Add. Secretary, MOIP Mr. Fazal-i-Qadar, Joint Secretary, MOIP</p> <p><EAD> Mr. M. Ashraf Khan, Joint Secretary, EAD Mr. Shamim Wazir, Asst. Chief, EAD</p> <p><Private Sector> Mr. Iftikhar Ali Malik, Vice Chairman, PAPAAM Mr. Syed Nabeel Hashmi, President PPMA Mr. Mehmood Ghaznavi, Member PPMA Mr. Khalid Masood, Member PPMA</p> <p><PITAC> Mr. Ejaz Rasul Chaudhry, Project Director Mr. Sarfraz Ahmad, Project Manager</p> <p>Counterparts <JICA> Mr. JURO Masayoshi, Team Leader, Mid-Term Evaluation Team Mr. Haroon-ur-Rashid, JICA Pakistan Office Mr. SASAGO Minoru, Chief Advisor Mr. YOSHIMATSU Hiroaki, Expert of Mold Design Mr. IDE Masaki, Expert of Mold Processing Mr. SAWADA Koji, Expert of CAD/CAM Mr. HIRAO Tetsuya, Project Coordinator / SME Promoter</p>
No. 3 July 23, 2005	
<ol style="list-style-type: none"> 1. Current Status of the Project. 2. Maintenance of machines and equipment provided by JICA. 	<p><MOIP & TUSDEC> Mr. M. Suleman Ghani, Secretary, MOIP Mr. Fazal-i-Qadar, Joint Secretary, MOIP</p>

3. Parameters, circuit diagrams, catalogue and spare parts. 4. Strategy for the sustainability of the Project. 5. Request for a long term General Manager in PITAC. 6. Recommendation of some incentives and overtime for the BPS 17 counterparts. 7. Commencement of training courses in the areas of Mold Processing and Molding. 8. Request for machines manuals. 9. Acceptance of jobs from the private sectors in addition to the model molds.	Mr. Almas Hyder, Chairman TUSDEC Mr. Mueen-U-Dar, Chief P&D <Private Sector> Mr. Mehmood Ghaznavi, Member PPMA Mr. Khalid Masood, Member PPMA <PITAC> Mr. Syed Anwar Ali Pervez, Project Director Mr. Sarfraz Ahmad, Project Manager Counterparts <JICA> Ms. MISMUMI Sachiko, Sr. Deputy Resident Rep. JICA Pak Office Mr. ISHIGAME Keiji, Asst. Resident Rep. JICA Office Isl. Mr. Haroon-ur-Rashid, Program Officer JICA Office Isl. Mr. Haroon-ur-Rashid, Program Officer, JICA Office Isl. Mr. SASAGO Minoru, Chief Advisor Mr. YOSHIMATSU Hiroaki, Expert of Mold Design Mr. HASHIMOTO Sadakatsu, Expert of Mold Assmbling&Trial Shot Mr. SAWADA Koji, Expert of CAD/CAM
No. 4 January 28, 2006	
1. To coordinate necessary actions to be taken by both sides. 2. To review the overall progress of the TCP, PO, ATCP, and APO. 3. Project presentation has been presented. 4. Recommendations for machines maintenance and troubleshooting. 5. Recommendation for the procurement of cutting tools to sustain PITAC activities in the future. 6. Establishment of skill testing and certification system. Define the PITAC's role & services activities for private sector. 7. Process of the handing over items. 8. Budgetary allocation, construction work, super structure, service delivery and management skills are very important for the project sustainability. 9. A follow-up program should be submitted by JICA. 10. JICA should provide its guidance in PITAC procurement section.	<MOIP & TUSDEC> Mr. Syed Zaheer Ali Shah, Add. Secretary, MOIP Mr. Tahir Shahbaz, Joint Secretary, P&I Mr. Almas Hyder, Chairman TUSDEC <Private Sector> Mr. Mehmood Ghaznavi, Member PPMA Mr. Khalid Masood, Member PPMA <PITAC> Mr. Javaid Iqbal Shaikh, Acting Project Director Mr. Sarfraz Ahmad, Project Manager Counterparts <JICA> Mr. YAMAURA Nobuyuki, Resident Rep. JICA Pak Office Mr. ISHIGAME Keiji, Asst. Resident Rep. JICA Pak Office Mr. Haroon-ur-Rashid, Program Officer, JICA Office Isl. Mr. SASAGO Minoru, Chief Advisor Mr. YOSHIMATSU Hiroaki, Expert of Mold Design Mr. SAWADA Koji, Expert of CAD/CAM Mr. HASHIMOTO Sadakatsu, Expert of Mold Assembling & Trial Shot Mr. HIRAO Tetsuya, Project Coordinator / SME Promoter
No. 5 May 30, 2006	
1. Review of agenda items of 4th JCC meeting. 2. Current status of the Project and achievements in training courses, Seminars, and advisory services. 3. Emphasized to use the licensed software on sophisticated machines available in project. 4. Contribution towards Human Resource Management and in the growth of Small & Medium Enterprises. 5. Enhancement of the PITAC capabilities in the areas of sheet metal work, heat treatment and forging.	<MOIP & TUSDEC> Mr. Syed Zaheer Ali Shah, Add. Secretary, MOIP Mr. Almas Hyder, Chairman TUSDEC Mr. Suhael Ahmad, Acting MD, TUSDEC Mr. Syed Anwar Ali Pervez, General Manager, TUSDEC Mr. M. Ajmal, Deputy Chief, P&D <Private Sector> Mr. Mehmood Ghaznavi, Member PPMA Mr. Khalid Masood, Member PPMA Mr. Razak Ahmad, Chief Executive, Metaline <PITAC> Mr. Javed Iqbal Shaikh, Acting Project Director Mr. Sarfraz Ahmad, Project Manager

<p>6. During the final evaluation project achieved its purpose and overall goal.</p> <p>7. Formulate a Working Committee in order to finalize the organizational structure of the Project after September 14, 2006.</p> <p>8. Under the JICA after care / follow up program PITAC emphasized on digitizing and texturing facility, and rapid proto-typing equipment.</p> <p>9. Submission of the PC-I for the overall up-gradation of PITAC.</p>	<p>Counterparts</p> <p><JICA></p> <p>Mr. NAKANO Takeshi, Team Leader, Final Evaluation Team</p> <p>Mr. KAIBARA Takao, Resident Rep. JICA Office Isl.</p> <p>Mr. ISHIGAME Keiji, Asst. Resident Rep. JICA Office Isl.</p> <p>Mr. Haroon-ur-Rashid, Program Officer, JICA Office Isl.</p> <p>Mr. SASAGO Minoru, Chief Advisor</p> <p>Mr. YOSHIMATSU Hiroaki, Expert of Mold Design</p> <p>Mr. SAWADA Koji, Expert of CAD/CAM</p> <p>Mr. HASHIMOTO Sadakatsu, Expert of Mold Assmbling&Trial Shot</p> <p>Mr. HIRAO Tetsuya, SME Promoter/Project Coordinator</p>
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Contacts for Repairs – JICA Phase-II

--- For Permanent File ---

August 29, 2006
Tetsuya Hirao, JICA

Makino V33, EDM EU64 & Edge 3

Makino Milling Machine Co., Ltd, Service Department
4023 Nakatsu Aikawa-machi Aiko-gun Kanagawa 243-0303 JAPAN
Fax: 81-46-285-7244 (Inquiry should be in writing.)
Person in charge: Mr. IGARASHI Osamu, igarashio@makino.co.jp
Mr. YAGIUCHI Kenji, yagiuchi@makino.co.jp
http://www.makino.co.jp/index_e.html

For Urgent Technical Inquiries of Machining Center V33

Mr. Oma Kenji, oma@makino.co.jp
Mr. Nishihara Jun, nishihara@makino.co.jp
Mr. Fujita Kouichi, fujitako@makino.co.jp
Tel: 81-3-3724-7717, Fax: 81-3-3724-9877
Address: 3-19, Nakane, 2-Chome, Meguro-Ku, Tokyo, 152-8578 JAPAN

For Urgent Technical Inquiries of EDM

Mr. Watanabe Yasuo, watanabe.yasuo@makino.co.jp
Tel: 81-3-3724-6714, Fax: 81-3-3718-5305
Address: 3-19, Nakane, 2-Chome, Meguro-Ku, Tokyo, 152-8578 Japan

Mr. Kawakado Tomoya, kawakado@makino.co.jp
Tel: 81-46-281-6884, Fax: 81-46-281-5074
Address: 359-3 Mimasu, Aikawa-Machi, Aiko-Gun, Kanagawa-Pref., 243-0303 JAPAN

For Urgent Technical Inquiries of Control Unit of V33/EDM

Mr. Ono Yasuhiro, ono@makino.co.jp Mobile (Over Sea): 090-5318-1615
Mr. Suzuki Hideo, suzukihi@makino.co.jp
Tel: 81-46-286-6974, Fax: 81-46-286-7062
Address: 4023 Nakatsu, Aikawa-Machi, Aiko-Gun, Kanagawa-Pref., 243-0303 JAPAN

Sumitomo SH-160C, SH-350C, Injection Molding Machines

Sumitomo Heavy Industries, Ltd, Plastics Machinery Division
731-1, Naganumahara-cho, Inage-ku, Chiba City 263-0001, Japan
Tel: 81-43-420-1474 Fax: 81-43-420-1478
Mr. Yasushi Nemoto, Manager, Service Department yss_nemoto@shi.co.jp
<http://www.shi.co.jp/english/index.html>

Mitutoyo Beyond Crysta710

Mitutoyo Techno Service, Customer Service Dept.

1-20-1, Sakado, Takatsu-ku, Kawasaki-shi, Kanagawa, 213-0012 Japan

Tel: 81-44-813-8247 Fax: 81-44-813-8231

Mr. Akio Motegi akio_motegi@mitutoyo.co.jp

<http://www.mitutoyo.co.jp/global.html>

Kuroda GS-63-PF, Surface Grinding Machine

Kuroda Precision Industries Ltd

239, Shimohirama, Saiwai-ku, Kawasaki, Kanagawa 212-8560, Japan

Tel: 81-44-555-3860 Fax: 81-44-555-3524

Mr. Abe shigeo_abe@kuroda-precision.co.jp

<http://www.kuroda-precision.co.jp/e-top/>

Astec CDH-3AM, Small Hall Drilling EDM

Astec Co., Ltd

350 Shimoongata-machi, Hachioji-shi, Tokyo 192-0154 Japan

Tel: 81-426-51-9411 Fax: 81-426-51-7423

<http://www.astec-edm.co.jp/hyoushi.htm>

Kannetsu Cooling Unit for IMM-WL-20

Kannetsu Thermal Eng. Co., Ltd

4-13-12, Tokiwa, Urawa-ku, Saitama-shi, Saitama-ken, 336-0001, Japan

Tel: 81-48-822-1031 Fax: 81-48-822-1032

Mr. Yasuno yasuno@kannetsu.co.jp

<http://www.kannetsu.co.jp>

Mold Temperature Controller MCJ-150HX, GMCH-J-55J, Plastic Driver MJ3-100J

Matsui Mfg. Co., Ltd

Sakuma Building 7F, 2-51-13, Ikebukuro, Toshima-ku, Tokyo, 171-0014, Japan

Tel: 81-3-5592-3221 Fax: 81-3-5992-2910

Mr. Kitamura kkitamura@pc.matsui-mfg.co.jp

<http://www.matsui-mfg.co.jp>

Tool Grinding Grinder, GE-1205, Carbide Turning Tool Grinder BW-41

Iida Machinery Works, Ltd

21 Aza Toriboushi, Araiya, Jimokudera-cho, Kaifu-gun, Aichi 490-1105 Japan

Mr. ICHINO Yukio, President

Tel: 81-52-441-6611 Fax: 81-52-442-0951

<http://www9.ocn.ne.jp/~iida/index.html>

Drill Point Grinder DG50B

Fujita Works, Ltd

WBG Marib East 19F, 2-6 Nakase, Mihama-ku, Chiba-shi, Chiba 261-7119

TEL:043-299-2231 FAX:043-299-2240

E-mail:info-m@fujitass.co.jp

<http://www.fujitass.co.jp/index.htm>

Mold Welding Machine Yozo System4

Japan Techno Engineering Co., Ltd.

6-28-10 Higashi Katsushika, Edogawa-ku, Tokyo

Tel : 81-3-3804-6760 Fax: 81-3-3804-6761

Mr. NIINUMA Sho info@jptechno.com

HP: <http://www.jptechno.com/>

General Inquiries

JICA PAKISTAN OFFICE

Comsats Building, 3rd. Floor, Shahrah-e-Jamhuriat, G-5/2, Islamabad, PAKISTAN

P.O.Box 1772, Islamabad, Pakistan

Tel: 92-51-2829473 Fax: 92-51-2829471 jicapt@jica.go.jp

<http://www.jica.go.jp/english/index.html>